THE WATER FARMING PILOT ROJECTS:

AN EVALUATION OF WATER FARMING AS A MEANS FOR PROVIDING WATER STORAGE/ RETENTION AND IMPROVING WATER QUALITY IN THE INDIAN RIVER LAGOON/ SAINT LUCIE RIVER WATERSHED

FINAL REPORT

August 17, 2018

The South Florida Water Management District

This project and the preparation of this report was funded in part by a Section 319 Nonpoint Source Management Program Implementation grant from the U.S. Environmental Protection Agency through an agreement (No. G0391) with the Nonpoint Source Management Section of the Florida Department of Environmental Protection. The final total cost of the project was $3,422,989, of which $1,506,401 was provided by the U.S. Environmental Protection Agency.

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The South Florida Water Management District

with the University of Florida

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Acronyms and Abbreviations

Ac-ft	Acre-feet or acre-foot (The amount of water needed to cover one acre one foot deep.)
BMAP	Basin Management Action Plan
CA	Cooperative Agreement (Partners for Fish & Wildlife Cooperative Agreement)
CERP	Comprehensive Everglades Restoration Plan
CFS	Cubic feet per second (1 cfs = 1.9835 acre-feet per day)
CREP	Conservation Reserve Enhancement Program (also Florida CREP)
DWM	Dispersed Water Management (Program or projects)
EPA	(U.S.) Environmental Protection Agency
ESA	Environmental Site Assessment
FDACS	Florida Department of Agriculture and Consumer Services
FDEP	Florida Department of Environmental Protection
FSA	Farm Service Agency (of the U.S. Department of Agriculture)
IRCL	Indian River Citrus League
IRL-S	Indian River Lagoon—South study or plan (also IRL-S/CERP)
NEEPP	Northern Everglades and Estuaries Protection Program
NE-PES	Northern Everglades Payment for Environmental Services Program
O & M	Operations and Maintenance
PES	Payment for Environmental Services
RFP	Request for Proposals
SAS	Surficial Aquifer System
SFWMD	South Florida Water Management District
SHA	Safe Harbor Agreement (through the U.F. Fish and Wildlife Service)
SLE	St. Lucie River and Estuary (also SLE BMAP)
SJRWMD	St. Johns River Water Management District
STA	Stormwater Treatment Area
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorous
USDA	U.S. Department of Agriculture
USFWS	U.F. Fish and Wildlife Service, or the Service
WF	Water Farm
WFPP	Water Farming Pilot Project
WQT	Water Quality Credit Trading

Executive Summary

This is the final report on the results of a multi-year Water Farming Pilot Program jointly funded by the South Florida Water Management District (SFWMD) and the Florida Department of Environmental Protection (FDEP) through a Section 319 Nonpoint Source Management Program Implementation Grant from the U.S. Environmental Protection Agency (EPA). The total initial budget for the Pilot Program was $3,087,401, inclusive of $1,506,401 in Section 319 grant funding from FDEP (for cost reimbursement to the SFWMD) and $1,581,000 in matching funds from the SFWMD. The final costs totaled $3,422,989.[1]

In the pilot program, three *water farms*, totaling 1,373 acres, were each field-tested for 24 consecutive months of operation after an initial period for project design, permitting and construction. Each of the three pilot program participants were allowed up to one year to construct the water farm. This final report provides an overview of the pilot projects (the three water farms) and a summary of the field test findings. Additional details about the pilot projects are available in the technical reports attached (see Appendix B).

Water Farming is a term coined by the Indian River Citrus League (IRCL) and adopted by the SFWMD for the previously untested practice of retaining surface water, collected from rainfall and inflows from regional drainage canals and stored on fallow citrus groves. Water farming was conceptualized as a way to reduce freshwater discharges and associated nutrients from the major drainage canals that would otherwise flow into the St. Lucie Estuary. As a water farm is designed to *not* release any water collected and stored on its site, the *nutrients* in the stored water are also retained on site.

Water farming can be done on public or private lands. All three of the water farms in the pilot program are privately owned. The participating private landowners were paid a fee for providing water farming services in a public-private partnership with the SFWMD.

Water Farming was proposed as a way to quickly regain some of the lost surface storage in the St Lucie Watershed to reduce the damaging discharges from the major drainage canals into that coastal estuary. When the Section 319 grant for the pilot program was awarded to the SFWMD by FDEP in August 2013,

water farming on fallow citrus groves was the most recent innovation to be tested within the SFWMD's established Dispersed Water Management (DWM) Program. It is important to remember that Water Farming is considered an interim measure to help provide nutrient reductions and reduce damaging discharges until the Indian River Lagoon South Comprehensive Everglades Restoration Plan can be fully implemented. The DWM Program was launched in 2005 with the implementation of water detention projects on cattle ranches in the Northern Everglades region, some of which were and continue to be funded through the SFWMD's Florida Ranchlands Environmental Services Program and the Northern Everglades Payment for Environmental Services (NE-PES) Program.

The St. Lucie Estuary (SLE) Watershed, on the east coast, is a part of the Northern Everglades region and is adjacent to the inland/central Lake Okeechobee Watershed, as shown in **Figure 5** (in the Introduction). The SLE Watershed is included in the Northern Everglades and Estuaries Protection Program (NEEPP), a program intended to improve the water quality in the Northern Everglades region. In 2007 the Florida Legislature authorized NEEPP and listed "loss of surface water storage" among the "adverse changes" to the hydrology in the watersheds addressed by the NEEPP which have resulted in water quality problems.[2]

The general goals of the Water Farming Pilot Program were to:

- Reduce the volume of runoff from direct rainfall;
- Reduce regional canal system water volume discharged to the SLE;
- Reduce the load of total nitrogen and total phosphorous to the SLE;
- Monitor and document the costs and benefits; and
- Make an informed decision regarding the future role of water farming.

No two water farms in the pilot program were alike, which provided the opportunity to test the new practice at different scales and in different field conditions. The three water farming pilot projects ranged in size from 60 to 900 acres, each located in a different sub-basin within the SLE Watershed, and all were constructed to retain water of differing maximum depths: either up to two feet or four feet deep. The projects were not launched simultaneously. Instead they became operational, one by one, over a 15-month period, from February 2014 to May 2015. The amount of rain that fell on the project site during each project's 24-month field test was measured and recorded, as part of the standardized water quality monitoring protocol for the pilot program.

The specific goals of the pilot program were to:

- Store an average annual volume of 11,285 acre-feet (combined total water storage for the three water farms);

- Reduce the average annual load of total nitrogen by 27,822 pounds (combined total for the three water farms);
- Reduce the average annual load of total phosphorous by 6,641 pounds (combined total for the three water farms); and
- Retain 100 percent of the onsite rainfall and pumped-in surface waters (from the regional canals) with no offsite discharge of surface water from the water farms back to the regional canals.

Results. The water storage and nutrient reduction goals of the pilot program were met and even exceeded. A chief attribute of water farming, the potential for its **rapid implementation**, was confirmed. The site preparation and construction of each of the pilot projects was completed within five months following contract execution. There was no offsite *surface* discharge from the water farms during their 24-month testing period. (The three projects had varying rates of soil infiltration or vertical seepage, which is discussed in Chapter 1, section 1.5.)

The total amount of water stored by the three water farms during their two-year field tests was 46,491.84 acre-feet, which was more than twice the 24-month storage goal for the pilot program of 22,570 acre-feet. (Chapter 1, **Tables 2 and 3**, provides details about performance measures and comparative costs.)

Nutrient Load Reductions. The amount of total nitrogen (TN) and total phosphorous (TP) the three pilot projects retained from drainage canal inflows, during their 24-month test period, totaled 140,562 pounds of TN and 22,928 pounds of TP. On an average annual basis, the projects' performance exceeded the goal for TP reduction by 4,823 lbs (or by 72.62 percent) and exceeded the goal for TN reduction by 42,459 lbs (or by 152.61 percent), as is shown in **Table 5** in Chapter 2. The individual contributions of each water farm toward the total load reductions are listed in **Table 6**, as are the unit costs of the nutrient reductions.

The average unit cost of the nutrient reductions on the water farms was found to be only *one percent* of the average unit cost of nutrient reductions provided by 50 non-agricultural projects implemented in the developed areas of the same (SLE) watershed by the city and county stakeholders in the FDEP's St. Lucie River and Estuary Basin Management Action Plan. This finding is reported in Chapter 2, section 2.5.

Funding for a regional expansion of water farming was appropriated by the Florida Legislature in 2016. It was specified in the Appropriations Act[3] that no less than $47,838,034 of the $56,838,034 appropriated shall be used to implement the NEEPP through public-private partnerships for DWM projects on private agricultural lands, including water farming projects.[4] Additional guidance that accompanied the funding included: "Public-private partnerships for water storage and water quality improvements that can be implemented expeditiously shall receive priority consideration for funding."[5] The SFWMD, FDEP and the Florida Department of Agriculture and Consumer Services have been working collaboratively to

implement six new DWM projects on 70,087 acres within the Northern Everglades region, including water farming projects totaling 17,520 acres in the SLE and Indian River Lagoon Watersheds. The projects coming on line are listed in **Table 8** in Chapter 3. The new projects list includes a 2,787-acre expansion in the SLE Watershed of one of the water farming participants in the Section 319-funded pilot program: the Caulkins Citrus Company in Martin County. The Caulkins pilot project, a 413-acre water farm, was successfully operated for two years when the funding for expansion was appropriated in 2016.

In addition to implementing the Caulkins 3,200-acre (total) expansion project, which became operational in December 2017, the SFWMD extended the contracts of the other two pilot program participants so that those water farms could also continue to operate beyond the close of their 24-month field testing period.

The Three Water Farming Pilot Projects: Aerial Photographs

The Spur Land & Cattle/Bull Hammock Water Farm (a 60-acre impoundment).

The Caulkins Citrus Company's Water Farm (the initial 413-acre pilot project).

Evans Ideal 1000 Water Farm (the 900-acre project prior to filling, above, then filled, below).

Introduction

This is the final report on the results of a multi-year Water Farming Pilot Program jointly funded by the South Florida Water Management District (SFWMD) and the Florida Department of Environmental Protection (FDEP) through a Section 319 Nonpoint Source Management Program Implementation Grant from the U.S. Environmental Protection Agency (EPA). In the Pilot Program, three *water farms*, totaling 1,373 acres, were each field-tested for 24 consecutive months of operation after an initial period for project design, permitting and construction. Each of the three pilot program participants were allowed up to one year to construct the water farm. This final report provides an overview of the pilot projects and a summary of the findings. Additional details are available in the technical reports included in Appendix B.

To clarify the terminology used in this report, *pilot program* is used to refer to the entire Section 319 grant-funded Water Farming Pilot Program, which has otherwise been called the Section 319 Water Farming Demonstration Project. The three water farms that were tested in the Section 319 Pilot Program are referred to, interchangeably, as the water farms (WFs) and the pilot projects, or simply the *projects.*

What is Water Farming?

Water Farming is a term coined by the Indian River Citrus League (IRCL) and adopted by the SFWMD for the previously untested practice of retaining surface water, collected from rainfall and inflows from regional drainage canals, on fallow citrus groves. Water farming was conceptualized as a way to reduce freshwater discharges from the major drainage canals into the St. Lucie Estuary, which disrupt the salinity balance in the estuary, and to reduce nutrient pollution in the estuary. As a water farm is designed to *not* release any water collected and stored on its site, the *nutrients* in the stored water are also retained on site.

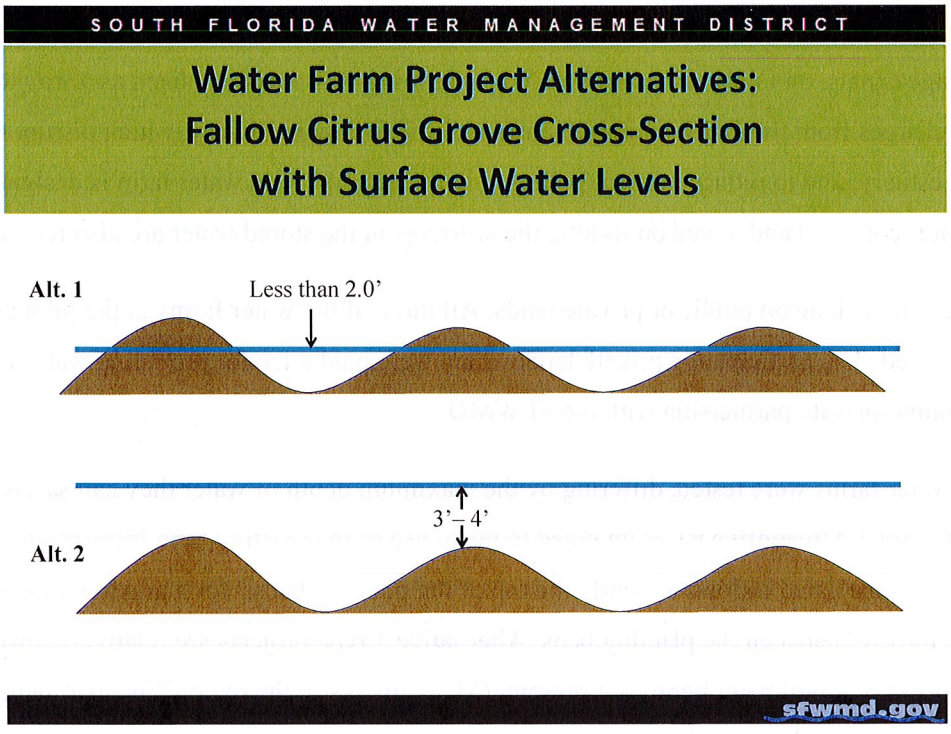
Water farming can be done on public or private lands. All three of the water farms in the pilot program are privately owned. The participating private landowners were paid a fee for providing water farming services in a public-private partnership with the SFWMD.

Two types of water farms were tested, differing by the maximum depth of water they can safely hold. The shallower type, called **Alternative #1**, is intended to make use of the existing farm infrastructure and can store rainfall and some canal inflows to nearly the top of the planting beds,[6] for a maximum depth of up to two feet in the furrows between the planting beds. Alternative 1 type projects are relatively lower-cost to implement, especially if perimeter berms are present. (Many groves in the region have perimeter berms.)

The **Alternative #2** type of water farm requires more capital, for construction, to implement but it can store greater volumes per acre than an Alternative 1 project. Instead of using existing berms, substantial perimeter levees up to seven feet high are constructed to store up to four feet of water above the top of the

beds, with six feet of water in the furrows. These standards are in accordance with the SFWMD's criteria for a minor impoundment as defined in the Environmental Resource Permit Applicant's Handbook. **Figure 1**, a cross-sectional drawing of the planting beds and furrows in a citrus grove, depicts the different water levels in the two types of projects (Alt.1 and Alt. 2).

Figure 1. Water Farm Alternative Scenarios (Surface Water Levels) #1 and #2



Two of the three water farms were the deeper storage, Alternative 2 type of project: the Caulkins Citrus Company's 413-acre water farm and the Spur Land & Cattle 60-acre water farm. The third pilot project was an Alternative 1: the 900-acre Evans Ideal 1000 water farm. **Figure 2** is an aerial view of Ideal 1000 at its maximum storage depth, which shows that the tops of the planting beds are still visible at full stage. **Figure 3** is an aerial view of the Spur Land & Cattle project at its full stage. In this case the water depth exceeds the top of the planting beds.

Figure 2. The Alternative 1 Water Farm at Full Stage (Evans Ideal 1000)

Figure 3. An Alternative 2 Water Farm at Full Stage (Spur Land & Cattle)

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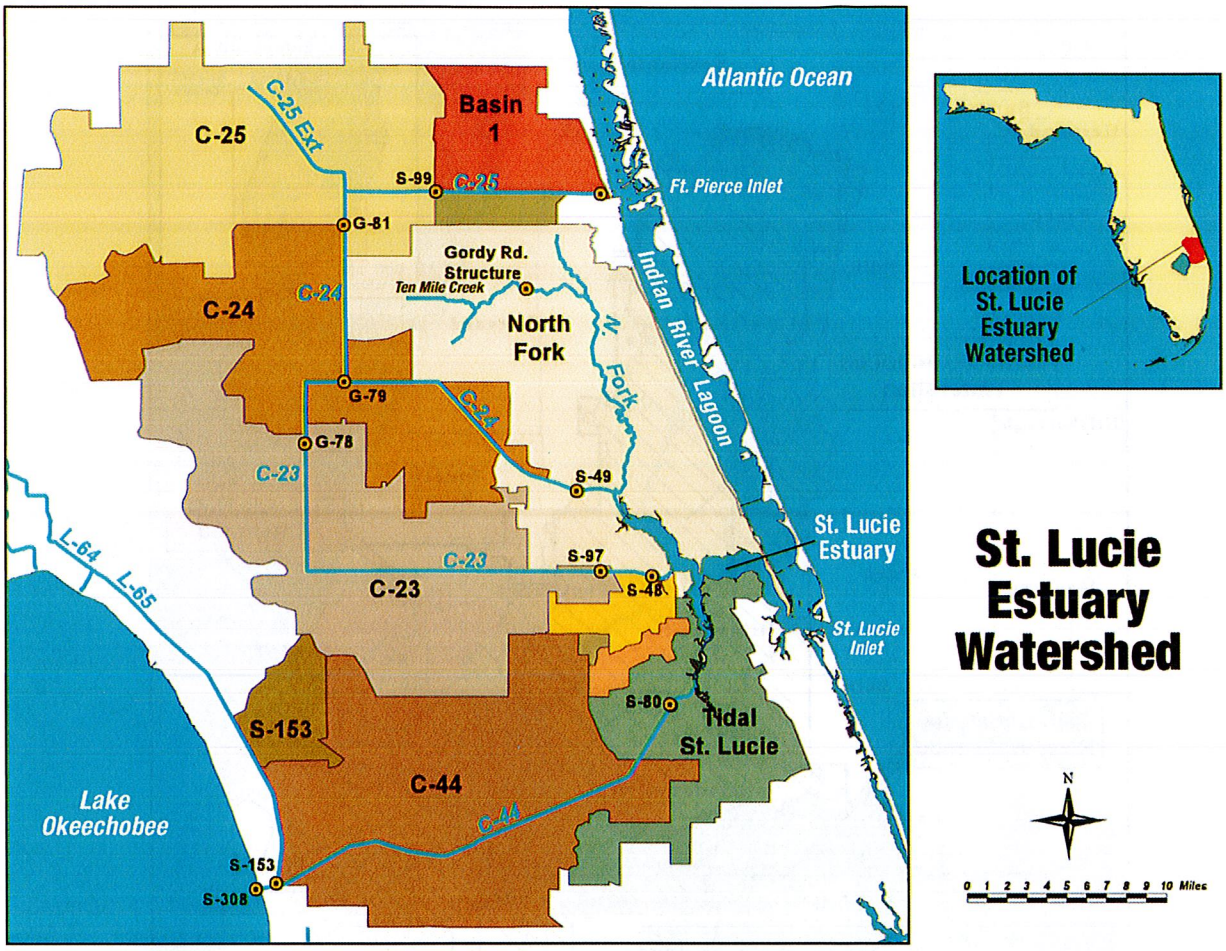
Project Area Location and Description

The St. Lucie River and Estuary (SLE) Watershed, in which the Section 319 Pilot Program was conducted, is located on the east coast of Florida in a region known as the Treasure Coast and is composed of nearly all of Martin and St. Lucie Counties plus a portion of eastern Okeechobee County.

The SLE is a major tributary to the Indian River Lagoon (IRL)—an estuary of national significance. The IRL is one of 28 designated Estuaries of National Significance in the U.S. and Puerto Rico which are part of the EPA's National Estuary Program.[7]

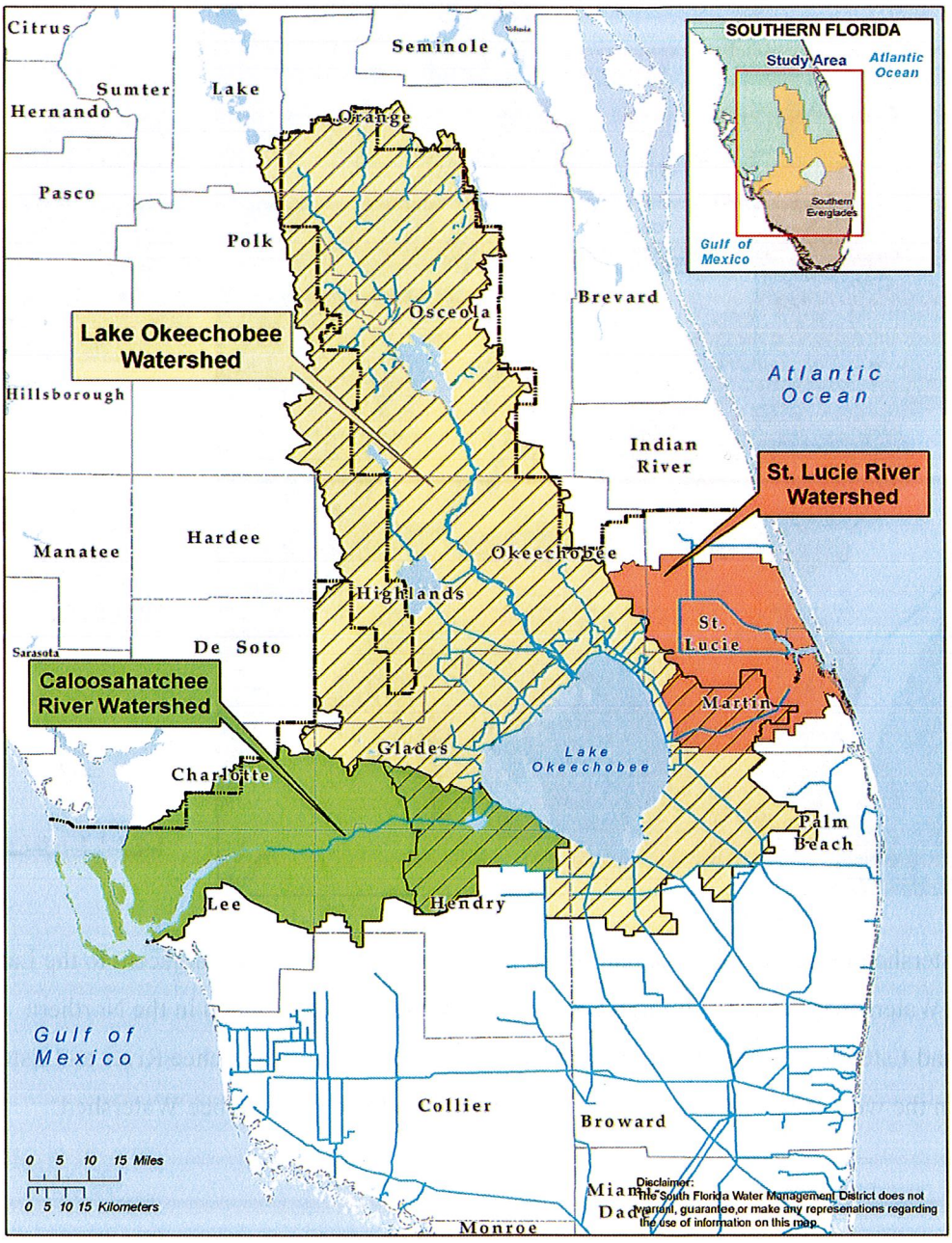
The SLE Watershed covers over half a million acres (537,805 acres)[8] of predominantly agricultural lands. Agricultural land use accounts for 54 percent of the watershed (289,635 acres), urbanized areas cover 19 percent (102,717 acres),[9] and natural areas (wetlands and forests) account for the balance of 27 percent. The SLE Watershed comprises several substantial sub-watersheds, or basins, shown in **Figure 4**.

Figure 4. The St. Lucie Estuary Watershed: Its State Location and Drainage Basins



The SLE Watershed is considered to be part of the Northern Everglades and is adjacent to the Lake Okeechobee Watershed, as shown in **Figure 5**. The SLE Watershed is included in the Northern Everglades and Estuaries Protection Program (NEEPP), as are the Caloosahatchee River and Estuary Watershed on the west coast and the centrally located (inland) Lake Okeechobee Watershed.

Figure 5. Northern Everglades and Estuaries Protection Program (NEEPP) Watersheds



The NEEPP is intended to improve the water quality in the Northern Everglades. In authorizing the NEEPP, the Florida Legislature listed "loss of surface water storage" among the "adverse changes" to the hydrology in these watersheds which have resulted in water quality problems.[10]

Water Farming was proposed as a way to quickly regain some of the lost surface storage in the SLE Watershed to reduce the damaging discharges from the major drainage canals into the coastal estuaries. Water Farming on privately owned fallow citrus groves was the most recent innovation within the SFWMD's established Dispersed Water Management (DWM) Program, which was launched in 2005.

Unlike most DWM projects, which have been implemented on ranchlands, water farming was proposed to potentially make use of a vast inventory of fallow citrus groves in the SLE Watershed. The citrus industry has been very hard hit by hurricanes and diseases, especially Citrus Greening, or Huanglongbing (HLB). As a result, the Treasure Coast has lost 38 percent of its productive citrus acreage since 2008,[11] the year when citrus greening became widespread in Florida. **Figure 7** is a map of the Treasure Coast, inclusive of the SLE Watershed, which depicts in blue the groves which have become fallow since 2006. The acreage that was still in citrus production as of November 2014 is shown in yellow.

Engineering Assessments of Water Farms Preceded the 319 Grant for the Pilot Program

Preliminary engineering assessment studies of the water farming concept were completed by AECOM in 2012[12] as a first step. In general, the purpose of the assessment was to gather site information, develop conceptual plans, and evaluate the costs and benefits of enhanced water management activities on fallow citrus groves. The concept of water farming on fallow citrus was developed to investigate the viability of providing (1) varying degrees of modification to existing grove infrastructure for retention of runoff, (2) enhanced water management capabilities to provide storage for flood control and alternative sources of irrigation water supply, and/or (3) nutrient load reductions within the Indian River Lagoon and St. Lucie Estuary Watersheds. Because these options appeared to be cost effective and could be implemented quickly, they were supported by the local water management districts, agricultural agencies and local governments as an interim measure for reducing discharges to the coastal estuary and lagoon. Water Farming may offer a bridge between the current water resource restoration goals and the implementation of large-scale regional projects within the State of Florida, helping to prevent further degradation of Florida's coastal waters.

The SFWMD's award of a Section 319 matching grant in 2013 made it financially feasible to conduct the next step of pilot testing the practice in the field on multiple sites in the SLE Watershed. Three pilot projects were selected by the SFWMD from five respondents to a request for proposals to participate in a water farming pilot program the SFWMD issued in April 2013. The total initial budget for the pilot program was $3,087,401, inclusive of $1,505,401 in Section 319 grant funding from EPA through FDEP and $1,581,000 in matching funds from the SFWMD. The final costs of the projects totaled $3,422,989.[13]

There are four major drainage canal sub-basins (basins) in the SLE Watershed. The C-23, C-24 and C-44 Canals discharge into the SLE. The C-25 Canal discharges directly into the IRL on the northern end of the SLE Watershed. (**Figure 4** shows these basins.) The three water farms in the pilot program are located in each of the three basins with major canals that discharge into the SLE. As shown in **Figure 6**, each water farm is adjacent to a major canal (which are also called *regional* or "C-Canals"). Specifically, from north to south in **Figure 6**:

- Evans (Properties) Ideal 1000 water farm is located along the C-24 Canal in St. Lucie County;
- The Spur Land & Cattle/Bull Hammock water farm is located on the C-23 Canal in Martin County (the label for the C-23 is eclipsed by the asterisk marking the site in Figure 3); and
- The Caulkins Citrus Company's water farm is located on the C-44 Canal, also in Martin County.

Figure 6. Siting of the Three Water Farms in the St. Lucie Estuary Watershed

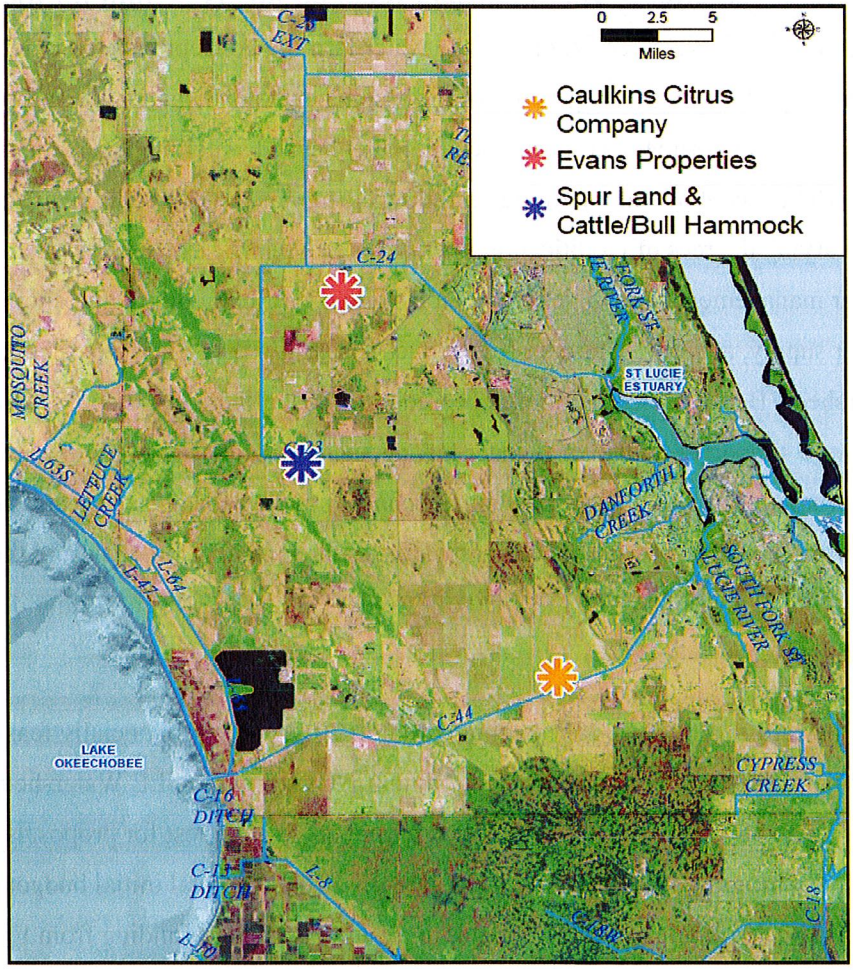
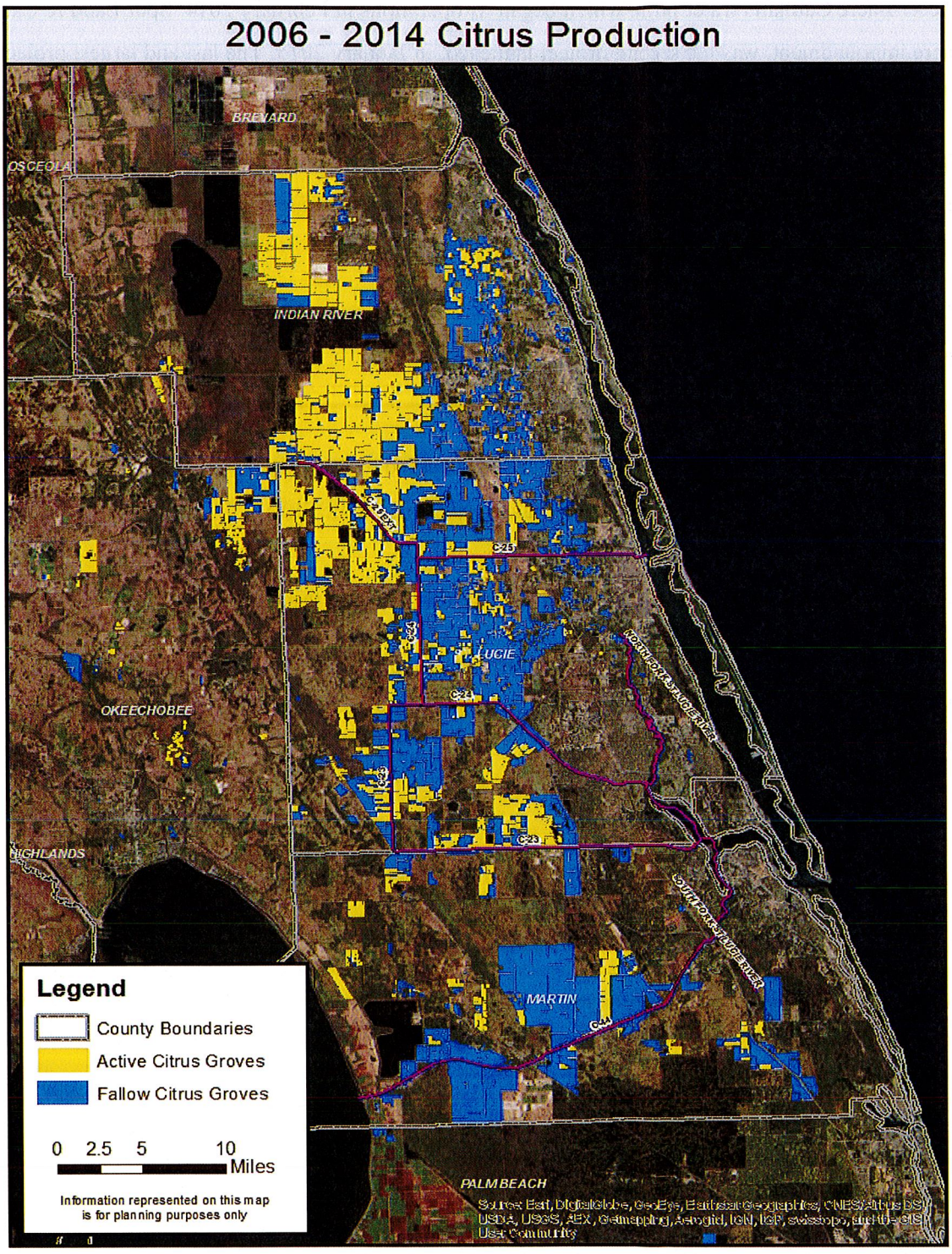


Figure 7. Loss of Citrus Production in the Treasure Coast of Florida: 2006-2014



The three projects were placed under contract by the SFWMD one by one, over a 15-month period, and consecutively launched. The first project to begin its 24-month monitored field test, post construction, was the 413-acre Caulkins water farm, which began its operations in February 2014. Spur Land & Cattle, a 60-acre impoundment, was the second project launched, in January 2015. The last and largest project launched, in May 2015, was the 900-acre Ideal 1000 water farm owned by Evans Properties.

Though all three water farms were similar in concept, they all differed in how they function, operate and retain surface waters. These variations provided valuable information to test the water farming concept at different scales and field conditions.

The General Goals of the Pilot Program

The general goals of the Water Farming Pilot Program were to:[14]

- Reduce volume discharged from direct rainfall;
- Reduce regional canal system water volume discharged to the SLE;
- Reduce the load of total nitrogen and total phosphorous to the SLE;
- Monitor and document the costs and benefits; and
- Make an informed decision regarding the future role of water farming.

There were also measurable performance targets for the three pilot projects, which were included in the SFWMD's application for Section 319 grant funding. Those targets are addressed in Chapters 1 and 2.

Chapter 1: Water Storage Results

1.1 Water Storage Goal for the St. Lucie River and Estuary Watershed

The surface water storage goal developed for the SLE and IRL after years of study by the SFWMD and the U.S. Army Corps of Engineers addressed the need to reduce damaging discharges to the SLE from the St. Lucie River Watershed, known as *local basin runoff*, which is transported to the SLE largely via the C-Canals (C-23, C-24 and C-44). The water storage goal for the SLE does not address the contribution of discharges from Lake Okeechobee, which has been unnaturally connected to the SLE since the 1920s, when the 25-mile long St. Lucie Canal—also known as the C-44—began its operations as the newly constructed main drainage and navigation outlet from the 730-square mile lake to the east coast. Discharges from Lake Okeechobee are separately addressed in the Comprehensive Everglades Restoration Plan (CERP). The component of CERP which pertains to the SLE is an extensive focal study of the SLE Watershed called the *Indian River Lagoon—South Study*, which offers diagnoses and treatment recommendations for the watershed in the form of prescribed storage and restoration projects.

A goal of 200,000 acre-feet of added surface water storage to the SLE Watershed was recommended in the Indian River Lagoon—South (IRL-S) study[15] to reduce the local basin runoff, and that target was incorporated into the SFWMD's St. Lucie River Watershed Protection Program. That storage goal was predicated on the assumption that other CERP projects would be constructed to control Lake Okeechobee discharges.

Water farming has not been proposed as a remedy for the destructive discharges from Lake Okeechobee. The volume and velocity of the lake discharges, when a regulatory release is in effect, are often too great to be pumped into an impoundment fast enough to make an appreciable difference. Yet water farms can help reduce the local basin runoff by increasing surface storage, and there is a large quantified need for that in the SLE Watershed.

1.2 Storage Goal for the Water Farming Pilot Program

The SFWMD initially calculated, as part of the application for the Section 319 grant funding, that the combined water storage volume of the three water farming projects would be a total of **11,000 acre-feet per year**. The total was based on the volume estimates for each pilot project which were included in the proposals submitted by the prospective water farmers in response to the SFWMD's Water Farming RFP.

After the first year of operation, the three pilot projects stored a combined total of 24,430 acre-feet: more than twice the 11,000 acre-feet annual estimate. (For individual pilot project storage volumes per year, refer to **Table 2**.)

1.3 Storage Goals for Each of the Water Farms

In addition to the aggregate storage goal, there were separate storage goals for each of the pilot projects. The goal for each water farm was calculated using a combination of an objective measure—the *static fill volume* of the particular project—and an estimated multiplier: the number of static volume *refills* each project would likely have, on an average annual basis, based largely on an assessment of the types of soil underlying the project site. The equation for the static fill variable is the impoundment size multiplied by the maximum depth of water the impoundment can hold. For example, a 100-acre impoundment that can store water four feet deep has a static fill volume of 400 acre-feet. Water is lost over time, though, due to evaporation and vertical seepage through the soils. In the field test, each project had opportunities to add more water to the impoundment, through rain and inflows from the canals, to replace water losses. Each time the amount of replacement water added up to the static fill volume, one volume refill was counted.

Table 1 shows the initial storage goals for each of the pilot projects and the aggregate storage goal for the pilot program overall. The total of the three projects' individual goals exceeded 11,000 (by 285 acre-feet) due to refinements in the storage estimates which were made during the contracting process between the SFWMD and the landowners after the Section 319 grant application was submitted to FDEP.

Table 1. Water Storage Goals for the Water Farming Pilot Projects

Project Name, and Impoundment Size	Type of Water Farm, and its Maximum Storage Depth	Static Fill, in Acre-Feet	Estimated Number of Volume Refills	Estimated Annual Storage, in Ac-Ft	Storage Goal for the Two-Year Field Test, in Acre-Feet
Caulkins Citrus Company, 413 acres	Alternative 2, Four feet deep	1,652	4.1	6,780	13,560
Spur Land & Cattle/Bull Hammock, 60 acres	Alternative 2, Four feet deep	240	3.625	870	1,740
Evans Ideal 1000, 960 acres	Alternative 1, Two feet deep	1,920	1.893	3,635	7,270
Totals		**3,812**		**11,285**	**22,570**

The Caulkins Water Farm (WF) was expected to store the most water, among the three pilot projects, even at less than half the acreage of the Evans WF (413 versus 960 acres). The differences in the type of water farm and the expected amount of soil infiltration explain why the storage goal for the Caulkins WF was nearly twice the goal for the Evans WF (6,780 and 3,635 acre-feet, respectively). The Caulkins WF

Alternative 2 project could accept more inflows and impound water higher than the Evans WF Alternative 1 project. The Caulkins WF was sited on deep sandy soils with a higher infiltration rate than the Evans WF, where relatively little and much slower water losses through vertical seepage occurs. The Spur Land & Cattle WF, like the Evans WF, had very limited vertical seepage. What increased the estimated number of volume refills for the Spur Land WF was the plan to allow for wet season overflows from the primary 60-acre impoundment into an adjacent 130-acre slough, contained in a larger impoundment on the property. (The berms surrounding the 60-acre water farm were constructed for the pilot project. The lower berms surrounding the 130-acre slough were previously built on the property at the landowner's expense.) The plan anticipated the benefit of partial hydrological restoration of the dehydrated slough.

1.4 Goals vs. Measured Performance: An Overview

Table 2 provides an overview of the measured performance of the WFs, in comparison with the water storage goals. (**Table 3** offers details on the performance measures and comparative project costs.) **The aggregate two-year storage goal for the Section 319 Pilot Program was met.** In fact, the total amount of storage contributed by the three WFs collectively from their two-year field tests measured *more than double the performance goal*: 46,491.84 acre-feet, shown in **Table 2**, compared to the initial aggregate goal of 22,570 acre-feet, shown in **Table 1**. The volume amount by which each WF's performance went over (or under) the storage goal is listed in the last column of **Table 2**. The Caulkins WF's individual goal exceedance of 21,593.81 acre-feet accounted for 90.26 percent of the goal exceedance of 23,923.84 acre-feet for the Section 319 Pilot Program as a whole.

Table 2. Water Storage Results of the Water Farms: Goals vs. Measured Performance

Project Name	Measured Total Storage (Rain and Inflows): Year 1, in Acre-Feet	Measured Total Storage (Rain and Inflows): Year 2, in Acre-Feet	Measured Total Storage in Two-Year Test, in Acre-Feet	Over or (Under) the Storage Goal, in Acre-Feet
Caulkins Citrus Company	17,688.33	17,465.46	35,153.79	21,593.79
Spur Land & Cattle/Bull Hammock	824.65	758.90	1,583.55	(156.45)
Evans Ideal 1000	5,917.60	3,838.88	9,756.48	2,486.48
Totals	**24,430.58**	**22,063.24**	**46,493.82**	**23,923.82**

The rest of the aggregate goal exceedance is attributable to the performance of the Evans WF. The Evans project stored 2,486.48 acre-feet more than its initial two-year storage goal of 7,270 acre-feet. The Spur Land & Cattle WF fell just short of its two-year goal, by 156.45 acre-feet (as shown in **Table 2**), because overflows into the adjacent dehydrated slough did not occur during the 24-month field test. This is further discussed in Chapter 2, section 2.4.

1.5 Infiltration on the Caulkins Water Farm

Though the word *storage* is used to refer to the water retention capacity of the pilot projects, the storage goal for the Caulkins WF was exceeded mainly because of the high rate of vertical seepage on its site. Most of the water pumped into the Caulkins impoundment from the adjacent C-44 Canal percolates into a layer of unconfined sand, estimated to be at least 40-feet deep. A high rate of sustained soil infiltration was expected and was factored into the initial storage goal for the project, which was based on achieving 4.1 volume refills per year on average. The actual average number of volume refills the Caulkins WF had during its 24-month field test was 10.64 per year—two and a half times more than predicted. This was due to relatively rapid vertical infiltration into the surficial aquifer system. The high rate of infiltration was immediately apparent. Soon after the field test of the Caulkins WF began, the SFWMD decided to install multiple monitoring wells on the project site to determine where and how fast the infiltrated water was flowing. The question (and concern) was whether or not the water pumped into the water farm from the C-44 Canal was quickly returning to the canal, via subsurface flow.

The SFWMD issued its first annual report on the Caulkins water farm seepage study in September 2015.[16] The District had installed a total of 14 groundwater monitoring wells for the investigation (in October and November 2014 and in February 2015) at depths ranging from nine to 130 feet below land surface. The findings from the first year of the study included an estimate that it would likely take nearly three years for water to return to the C-44 Canal by flowing through the surficial aquifer system (SAS). Specifically:

> Average groundwater flow velocities from the surface reservoir to the C-44 Canal were calculated based on the assumption that most of the flow toward the C-44 Canal occurred through the lower deep portion of the SAS. Based on Kh values of 50 ft/d (the upper end of the Kh range) and using a distance of 900 feet from the southern edge of the WFPP to the C-44 Canal, the resultant velocity and travel time estimate are 0.9 ft/d and 2.7 years, respectively. This travel time may help nutrient reduction by absorbing nutrient pulses within the C-44 Canal and normalizing discharge back to the C-44 Canal over a period of years, and by providing residence time within the SAS to facilitate nutrient adsorption.[17]

The SFWMD continued the seepage study through a second year. The researchers specified that the vast majority of the seepage was vertical (over 90 percent) and estimated that most of the seepage descended into the lower *deep* portion of the SAS then *took an average of eleven years to return to the C-44 Canal.*

> Approximately 47 ac-ft/day (92 percent) of seepage from the impoundment was vertical, and approximately 4 ac-ft/day (8 percent) was lateral into the shallow SAS to the north, west, east, and south perimeter canals. Approximately 99 percent of vertical flow from the impoundment was into the lower deep aquifer…Travel time from the impoundment to the C-44 Canal was calculated assuming most flow toward the C-44 Canal occurred through the lower deep portion of the SAS…[A] travel time of approximately 11 years was estimated as an average for the entire impoundment [to the C-44 Canal]. The southern edge of the impoundment is approximately 900 feet from the C-44 Canal. The estimate for the nearest water in the impoundment [from the southern edge] to reach the C-44 Canal is approximately 3.5 years.[18]

1.51 Comparative Recession Rates Among the Three Pilot Projects

An analysis was conducted to compare how quickly the water levels receded within the three water farms. Four time periods were examined during each of the pilot project's 24-month monitoring period[19] (for a total of 12 periods among the three pilot projects). The date ranges of the time periods differed across the three water farms. During all time periods in the analysis, each of which ranged from 10 to 30 days, there was no rainfall and no pumping into the water farm.

It was found that the average daily rate of recession on the Caulkins WF was nearly three times faster than the rate on the Evans WF and nearly four times faster than the rate on the Spur Land & Cattle WF. Specifically, the average daily rate of recession for the Caulkins WF was **0.088** feet per day (based on four time periods totaling 51 days, from August 21, 2014 to March 13, 2016); the average daily rate of recession for the Evans WF was **0.030** (based on four time periods totaling 69 days, from February 25, 2016 to November 4, 2016); and the average rate of recession for the Spur WF was **0.022** feet per day (based on four time periods totaling 85 days, from February 25, 2016 to December 29, 2016). The recession rates analyzed on the Caulkins WF ranged from an average of 0.078' per day, during March 2016, to 0.095' per day (i.e., close to one-tenth of a foot per day) in August 2014. The highest periodic rate on the Evans WF was an average of 0.038' per day in April 2016. For the Spur WF, the highest average rate was 0.027' per day in April/May 2016.

1.6 Comparison of Costs and Performance for Water Storage

Table 3 provides a comparison among the three water farms of the component costs of each project and the unit costs for water storage. The performance values, also shown in **Table 3,** were derived from the water quality monitoring records maintained by the SFWMD for each of the pilot projects. Those values are based on a 24-month period of record, which differs in date range across the three WFs. The starting date of each project's monitoring period, shown in **Table 3**, followed a period of variable length among the projects when the pumps were tested and the monitoring equipment was calibrated. That period was the post-construction *commissioning* phase, during which monitoring data were recorded but not counted in the performance values shown in the tables in this report, including **Table 3**. Similarly, monitoring data

recorded after the end of each WF's 24-month monitoring period for the Section 319 Pilot Program were not included in the performance values presented in this report. (The SFWMD elected to extend the contract beyond the two-year field test for all three of the pilot projects, which is discussed in Chapter 3.)

The cost figures shown in **Table 3** are based on a reconciliation of the financial accounting records for the pilot projects, maintained by the SFWMD, and the contracts between the SFWMD and each of the water farmers. The final cost accounting reflected the fact that not all expenses incurred could be reimbursed under the rules for cost-reimbursement in the Section 319 Pilot Program. In some cases, project expenses could not be sufficiently substantiated by a water farmer if, for example, receipts for minor purchases or records for workers' time were not produced. Only the SFWMD's payments to the water farmers, per the allowable and substantiated costs invoiced by the water farmers, were considered in the component and total costs shown for the projects in **Table 3**.

The financial accounting for the Caulkins WF was the most complex of the three for two reasons: 1) It was the only project for which variable expenses for operations and maintenance (O&M) were permitted, whereas the cost of O&M was covered for the other two projects in one fixed-fee annual service payment; and, 2) the contract for the Caulkins WF was amended four times during the pilot program for the purpose of increasing the amount of the allowable payments, and the total contract price, by mutual agreement between the SFWMD and the Caulkins Citrus Company. The main reason for the multiple cost increases was the fact that the project continued to pump in more C-44 Canal water than expected and, as a result, incurred greater operating expenses than anticipated. (The Caulkins WF's 24-month monitoring period coincided with prolonged regulatory releases from Lake Okeechobee into the C-44 Canal.) The allotted amount for construction was also increased to raise the design-height of the perimeter berms from six to seven feet in order to meet the Florida Environmental Resource Permit Volume IV criteria for a minor impoundment. The contracted price increases for the Caulkins WF brought the total cost of that project (**Table 3** variable 3a) to $1,785,432, which is $521,796 more than the initial not-to-exceed contract price of $1,263,363 (**Table 3** variable 3b).

The total cost of the two other water farms—the initial capital for construction and the two annual fixed payments inclusive of O&M and a landowner's participation, or service, payment—matched their initial not-to-exceed contracted totals, which were $1,392,117 for Evans and $245,440 for Spur Land & Cattle, as shown in **Table 3**. One cost-neutral transfer between two expense categories was made in the single contract modification for Evans: After the site preparation (capital) costs came in $11,334.91 under the budget, the operations budget was increased by that exact amount to allow for additional pumping of offsite inflows to increase storage.

Table 3. Pilot Project Comparisons: Component Costs and Unit Costs for Water Storage

Project Costs and Performance	Caulkins Citrus Company	Spur Land & Cattle	Evans Ideal 1000
Size of Primary Impoundment	413 acres	60 acres	960 acres
1. Capital: Start-Up Costs/Construction			
1a. Planning, Design and Permitting	$3,303[1]	$25,209	$47,299
1b. Site Development and Certification	$361,606	$110,791	$259,146
1c. Total Capital Costs (Non-recurring)	**$364,909**	**$136,000**	**$306,445**
2. Recurring: Annual Operating Costs			
2a. Operations & Maintenance and Annual Participation Payment, per Year	$710,261	$54,720	$542,836
2b. Total Operating Costs for Two Years	**$1,420,523**	**$109,440**	**$1,085,672**
3a. Total Pilot Project Costs (1c + 2b)	**$1,785,432**[2]	**$245,440**	**$1,392,117**
3b. Initial Contracted Total Cost	$1,263,636	$245,440	$1,392,117
Monitoring Record: 24-Month Period	**7/05/14-7/04/16**	**1/01/15-12/31/16**	**5/15/15-5/14/17**
4. Measured Water Storage	**Acre-Feet**	**Acre-Feet**	**Acre-Feet**
4a. Year 1 Inflow Volume Retained	16,418.01	617.95	1,900.00
4b. Year 2 Inflow Volume Retained	15,395.30	495.30	554.08
4c. **Total Canal Inflows** (24-Months)	**31,813.31**	**1,113.25**	**2,454.08**
	Acre-Ft (Inches)	**Acre-Ft (Inches)**	**Acre-Ft (Inches)**
4d. Year 1 Rainfall Retained	1,270.32 (36.91")	206.70 (41.34")	4,017.60 (50.22")
4e. Year 2 Rainfall Retained	2,070.16 (60.15")	263.60 (52.72")	3,284.80 (41.06")
4f. **Total Rainfall Retained** (24-Months)	**3,340.48** (97.06")	**470.30** (94.06")	**7,302.40** (91.28")
4g. **24-Month Total: Inflows & Rainfall**	**35,153.79**	**1,583.55**	**9,756.48**
4h. 24-Month Storage Goal	13,560	1,740	7,270
5. Unit Costs for Water Storage			
5a. Cost per Acre-Foot[3] (2-Year Actual)	$50.79/ac-ft	$154.99/ac-ft	$142.69/ac-ft
5b. Longer-term [4] (10-Year Estimate)	$42.48/ac-ft	$86.29/ac-ft	$117.56/ac-ft

[1] In addition to this reimbursement, the Caulkins Citrus Company reported it had paid $50,000 for a preliminary engineering design (for which the company was not reimbursed as the expense was insufficiently substantiated).

[2] This total includes public (SFWMD) payments only. It does not include the start-up expenses the Caulkins Citrus Company paid privately. The company initially reported a total contribution of $177,391 ($50,000 for design plus $127,391 for site development). About $68,000 of the company's total, unreimbursed contribution was sufficiently substantiated by the SFWMD.

[3] Based on the total public cost of the pilot project (variable 3a) divided by total rainfall and canal inflows retained over the 24-month monitoring period (variable 4g).

[4] Ten-year unit cost projection/estimate equation: Total initial capital costs + total annual operating costs (no inflation factors) x 10 (years), divided by the average annual total water retention (per the 2-year record) x 10.

The increased costs of the Caulkins WF, via the contract amendments, made it the most expensive of the three WFs to construct and operate, in terms of total dollar outlay. (The Evans WF had the highest total contract price at the start of the pilot program. It exceeded the *initial* contract price for the Caulkins WF by $128,481.) On the basis of the *unit* cost for water storage, however, the Caulkins WF was the most cost-effective of the three projects because of its exceptional performance.

For instance, the final total cost of the Caulkins WF exceeded the total cost of the Evans WF by 22.03 percent, but the Caulkins WF stored 360.31 percent more water (inflows and rain) than the Evans WF. The cost per acre-foot of water stored in the two-year test (the unit cost, variable 5a in **Table 3**) for the Caulkins WF was about one-third of the unit cost of the other two projects. Specifically, the unit cost for storage was $50.79 per acre-foot for the Caulkins WF, $154.99 per acre-foot for the Spur Land WF and $142.69 per acre-foot for the Evans WF, as shown in **Table 3**.

The "total benefit" provided by each of the three Water Farming Pilot Projects was estimated by adding the total volume of water pumped into the project and the rainfall retained on-site. The "total benefit" does not account for the pre-project (baseline) condition to estimate the "net benefit" of each project. However, future DWM projects, including, water farm projects, will be evaluated using the net benefit which is the difference between the estimated average annual volume stored within the project versus the average annual volume stored in the existing pre-project (baseline) condition."

1.61 Long-Term Unit Costs (Ten-Year Estimates)

The unit cost for water storage would decrease in the longer term for all three projects, based on a ten-year projection shown in **Table 3**. The Spur Land WF would have the largest reduction in unit cost: a 44.32 percent drop, from $154.99 in the two-year test to $86.29 per acre-foot in the 10-year estimate. The decrease in longer-term unit costs for the Caulkins and Evans projects would be less than half the drop projected for the Spur Land WF: a 16.36 percent reduction (to $42.48) for the Caulkins WF and a 17.61 percent reduction (to $117.56) for the Evans WF. The annual costs and average annual performance of the projects, based on the two-year field test results for each, were held constant in the projection estimates.

1.62 Comparison of Rainfall

The SFWMD intended to field test two different types of water farms, the Alternative 1 and 2 projects, in a variety of site conditions. Each project was located in a different sub-basin within the St. Lucie River Watershed, the soils underlying the projects differed, and the projects were launched one at a time over a period of more than a year, exposing each to variable weather conditions during their two-year field tests.

There were substantial differences in the amount of rainfall recorded in year one and year two for each of the projects (the Caulkins WF, for example, had 23 more inches of rain in its second year than in its first year), and there were large differences across the projects in annual rainfall amounts, such as 19.09 fewer inches in the second year for the Evans WF than in the second year for the Caulkins WF, as shown in **Table 3**. However, the variance in the total amount of rainfall at the end of two years was no more than six percent, across the three WFs. All three had over 90 total inches of rain, differing by 5.78 inches from the project that experienced the most (the Caulkins WF, with 97.06 inches) and the least (the Evans WF, with 91.28 inches).

1.7 Ancillary Costs: Environmental Site Assessments and Water Quality Monitoring

Limited Phase I and Phase II Environmental Site Assessments (ESAs) were conducted on all three water farm sites prior to construction, which resulted in remediation on two of the project sites: the Evans WF and the Spur WF. Copper was detected in the soil on approximately five percent of the Evans Ideal 1000 WF and on approximately 33 percent of the Spur Land & Cattle WF. It was later confirmed on the Ideal 1000 WF that the project site preparations, such as grading which mixed and inverted the affected soil, resolved the problem. On the Spur WF, however, copper was still detected upon retesting after initial remediation. Inverting the affected soil *again* resolved the problem. The costs for environmental assessment, including the necessary retesting, and remediation totaled $29,647.52 for the Spur WF, $10,490.19 for the Evans WF and $0 for the Caulkins WF, as no remediation was necessary there.

For water quality monitoring, the capital cost to build a walkway and platform for the auto-sampler and gauges was between $15,000 and $15,672 on each of the three project sites. The cost of the outsourced service to collect the water quality samples on all three project sites for the 24 months totaled $31,789.[20]

Chapter 2: Nutrient Reduction Results

2.1 Nutrient Reduction Goal for the Water Farming Pilot Program

The nutrient reductions for the water farming pilot projects were estimated by the SFWMD staff as one value for the three pilot projects combined, as shown in **Table 4**, which is a copy of a table completed by the SFWMD staff for the Section 319 grant application. *Because the intent was to have zero discharge from the water farms* except, possibly, in an extreme weather event (each project site would have an emergency overflow release structure in case of a severe hurricane, for instance), the nutrient load reduction/retention efficiency rate of the projects was estimated to be 97 percent during the 24-month operational period of the projects. If no allowance was made for the possibility of some discharge during extreme weather occurrences over the course of two years, a 100 percent efficiency rate would have been proposed for the projects. The premise was that if none of the water stored in the water farms would be released through surface discharge, then none of the nutrients in the stored water would be released. (*Zero water discharge meant zero nutrient discharge*, thus a 100 percent nutrient reduction potential under normal operating conditions.)

Most of the water stored in the water farms was stormwater runoff pumped in from the regional drainage canals, which discharge to the St. Lucie Estuary. One of the primary benefits of the water farming concept, in the context of the Section 319 grant-funded pilot program, was the potential to retain nutrients on the water farms that would otherwise contribute to the pollutant load in the FDEP verified-impaired SLE. An added benefit, in the broader context of regional Everglades restoration, was the potential for the water farms to also reduce the volume of salinity-balance-disrupting *freshwater* discharged to the estuary.

The three water farms retained 100 percent of the rainfall and the pumped surface waters (from canals) during their 24-month test period with no offsite discharges. To estimate the pre-project pollutant loads and the post-project load reductions listed in **Table 4**, the SFWMD staff used the locally documented Event Mean Concentrations (EMC) for citrus land uses for the C-23, C-24 and C-44 basins (per each pilot project location) for total nitrogen (TN) and total phosphorous (TP). The EMCs referenced were from Appendix A of the St. Lucie River Watershed Protection Plan, 2012 Update. **The SFWMD estimated, as a goal, that the demonstration project would achieve a nutrient reduction of 6,641 pounds of TP and 27,822 pounds of TN per year, on average, as shown in Table 4**, based on a 97 percent efficiency rate of the projects. This meant that the Section 319 Pilot Program could result in a

total reduction of 13,282 pounds of TP and 55,644 pounds of TN by the end of the two-year field test of the three water farming pilot projects.

Table 4. Initially Estimated Load Reductions for the Water Farming Pilot Program

BMPs Installed BMP #1		TSS lbs/yr	TP lbs/yr	TN lbs/yr
Pollutant Loads	Pre-Project	252,358	6,839	28,655
	Post-Project	7,334	198	833
	Load Reduction	245,024	6,641	27,822
	% Reduction	97	97	97

The SFWMD's estimate of pre-project Total Suspended Solids (TSS) was based on a general EMC for TSS for citrus land use in Florida.[21] **The total annual reduction in TSS was estimated to be 245,024 pounds.** This meant that the pilot program could result in a total load reduction of close to half a million pounds of TSS (490,048 pounds) by the end of the two-year test of the three water farming pilot projects.

2.2 Water Quality Monitoring Equipment and Sampling Protocols

Each of the pilot projects had an automatic sampler installed to collect surface water quality data from the pump inflows for the 24-month operational timeframe. Rain gauges were installed to measure direct rainfall retained on the WF sites. The volume of water pumped into the water farms from a canal was measured via calibrated inflow pumps. Each landowner kept a daily log of how long the inflow pumps ran, on the days when the pumps were turned on, so that the volume of inflows could be calculated based on the run time. The nutrient (TN and TP) concentrations measured at the pump intake areas[22] were multiplied by the volume of the pump inflows (in cubic feet per second) for the measurement of the nutrients retained on each WF (daily material load). If any water releases occurred, the discharge(s) from the WF would be monitored and recorded.

Measurements of TSS on the water farms were collected manually by *once-weekly grab samples*, unlike the more frequent sampling for nutrient concentrations based on timed collections at three-hour intervals by the auto-samplers every day the inflow pumps were running. The weekly grab samples of TSS were to be taken only if the inflow pumps were on or had been running during the past seven days. The grab samples for TSS were taken from the same source of water that the auto-sampler received.

2.3 The Pilot Program Goals vs. Measured Performance: An Overview

The measured nutrient load reductions, for TP and TN, exceeded the estimated initial reductions target. The values given for "Actual Annual Load Reduction," shown in **Table 5**, are an average annual value, per the sum of the measured reductions for all three of the water farms during their 24-month test periods divided by two, for a 12-month total. At the end of the two-year test period, the three pilot projects combined had retained from canal inflows a total of 22,928 pounds of TP and 140,562 pounds of TN. On an average annual basis, the projects' performance exceeded the goal for TP reduction by 4,823 lbs (or by 72.62 percent) and exceeded the goal for TN reduction by 42,459 lbs (or by 152.61 percent), as shown in **Table 5**. The individual contributions of each WF toward the total load reduction of the Section 319 Pilot Program are listed in **Table 6**.

Table 5. Aggregate Nutrient Load Reductions: Target vs. Measured Performance

	TP Pounds per Year	TN Pounds per Year
Target Annual Load Reduction[5]	6,641	27,822
Measured Annual Load Reduction[6]	11,464	70,281
Difference Between Target and Measured Performance	4,823 lbs/year over the target **(Goal exceedance: +72.62%)**	42,459 lbs/year over the target **(Goal exceedance: +152.61%)**

2.4 Comparison of Nutrient Reduction Performance

The nutrient reductions on the water farms were a product of the nutrient concentrations measured in the inflows from the canals and the volume of the inflows. The pilot projects with greater inflows were more likely to have greater nutrient reductions, although average nutrient concentrations vary among C-Canals (as shown in **Table 7**). *Retained rainfall did not factor into the nutrient reductions, only pumped inflows.*

The Caulkins WF stored the most water and retained the most nutrients by far, of the three pilot projects. As shown in **Table 6**, the 24-month total nutrient reductions for the Caulkins WF were 8.023 metric tons

[5] From the initial Load Reduction estimates shown in Table 4.

[6] Average annual reductions shown in Table 5 are the measured 24-month total reductions, for the three water farms combined, divided by two. The 24-month aggregate reduction was 140,562 pounds TN and 22,928 lbs TP.

of TP and 53.988 metric tons of TN. The Evans WF came in second in nutrient reduction performance with 1.644 metric tons of TP and 6.978 metric tons of TN retained in 24 months.

Despite the larger size of the Evans WF, it was at a relative disadvantage for nutrient reductions because it was designed to mainly retain rainfall that fell on the project site. Only when extra storage capacity was available would surface water from the adjacent St. Lucie County ditch be pumped into the water farm. The Evans WF's performance was also affected by the exceptionally *dry* wet season in which operations began. Although the Evans WF was ready to accept initial inflows in May 2015, the pump was not turned on until August 20, 2015 because there was no surplus water in the regional system to pump into the WF before then. Not unexpectedly, the Evans WF had even less canal inflow volume in its second year (554 acre-feet in year two vs. 1,900 acre-feet in year one, as shown in **Table 3**) because pumping was supposed to apply mainly toward the first-time fill-up, right after the WF's launch, and to merely supplement rainfall retention, if necessary and appropriate.

The performance of the Spur Land & Cattle WF was less than it most likely would have been had overflows occurred from the 60-acre primary impoundment into the adjacent 130-acre slough (contained in a separate impoundment). The slough's headwaters were severed long ago when the regional C-23 Canal was constructed. Occasional overflows during the wet season would have helped rehydrate the slough, providing the environmental benefits of hydrological restoration and wildlife habitat enhancement. Occasional overflows would have also created capacity for more inflows directly from the C-23 Canal, to refill the primary impoundment.

The original design for the Spur Land WF was to be able to pull water from either the West Dike Canal (a drainage canal that discharges directly into the C-23 Canal) or from the C-23 Canal. It was soon realized that the canal stages for the C-23 Canal were not high enough to prevent over drainage of the West Dike Canal. As a result, water could only be removed from the West Dike Canal. To solve this problem, the landowner of the Spur WF worked with the Florida Department of Agriculture and Consumer Services on a cost sharing agreement to install a set of riser culverts in the West Dike Canal (just upstream of the C-23 Canal outfall), which allows for water to be withdrawn from the West Dike Canal or the C-23 Canal independently of each other. These culverts were installed at the end of Spur Land's two-year operational agreement for the pilot program. The Spur WF monitoring data for 2017 (partial year) indicate that more water had been pumped into the water farm already in 2017 than in the previous two years as a result of the on-site improvements for operational flexibility.

Table 6. Pilot Project Comparisons: Nutrient Load Reductions and Unit Costs

Project Costs and Performance	Caulkins Citrus Company	Spur Land & Cattle	Evans Ideal 1000
Size of Water Farm Impoundment	413 acres	60 acres	960 acres
Monitoring Record: 24-Month Period	7/05/14-7/04/16	1/01/15-12/31/16	5/15/15-5/14/17
Total Pilot Project Costs[7]	$1,785,432	$245,440	$1,392,117
Total Canal Inflows (24-Months) in Acre-Feet	31,813.31	1,113.25	2,454.08
1. Nutrients Retained from Canal Inflows, in Metric Tons (and Pounds)	**MT (LB)**	**MT (LB)**	**MT (LB)**
1a. Year 1 Total Phosphorous (TP)	3.339 MT TP (7,361 lbs)	0.317 MT TP (698 lbs)	1.204 MT TP (2,654 lbs)
1b. Year 2 Total Phosphorous (TP)	4.684 MT TP (10,326 lbs)	0.417 MT TP (919 lbs)	0.440 MT TP (970 lbs)
1c. Total Phosphorous Retained in 24-Months	**8.023 MT TP (17,687 lbs)**	**0.734 MT TP (1,617 lbs)**	**1.644 MT TP (3,624 lbs)**
1d. Year 1 Total Nitrogen (TN)	26.761 MT TN (58,998 lbs)	1.472 MT TN (3,245 lbs)	5.547 MT TN (12,229 lbs)
1e. Year 2 Total Nitrogen (TN)	27.227 MT TN (60,025 lbs)	1.320 MT TN (2,910 lbs)	1.431 MT TN (3,155 lbs)
1f. Total Nitrogen Retained in 24-Months	**53.988 MT TN (119,023 lbs)**	**2.792 MT TN (6,155 lbs)**	**6.978 MT TN (15,384 lbs)**
2. Unit Costs for Nutrient Reductions	**Caulkins**	**Spur Land**	**Evans[8]**
2a. Cost per Pound of TP Reduced (Two-Year Actual)	$100.95/lb. TP	$151.79/lb. TP	$384.14/lb.TP
2b. Longer-Term[9] Unit Costs for TP Reductions (10-Year Estimate)	$84.44/lb. TP	$84.50/lb. TP	$316.49/lb. TP
2c. Cost per Pound of TN Reduced (Two-Year Actual)	$15.00/lb. TN	$39.88/lb. TN	$90.49/lb. TN
2d. Longer-Term Unit Costs for TN Reductions (10-Year Estimate)	$12.55/lb. TN	$22.20/lb. TN	$74.55/lb. TN

[7] Per variable 3 in Table 3 (includes total initial verified capital costs and two years of payments for operations).

[8] Because nutrient concentrations were measured only in the water pumped into the water farms from canals, not in the rainfall or runoff retained, the Evans project is at a disadvantage in a comparison of unit costs for nutrient reductions with the "Alternative 2" projects, which were designed to accept more canal inflows.

[9] Ten-year unit cost projection/estimate equation: Total initial capital costs + total annual operating costs (no inflation factors) x 10 (years), divided by the average annual pounds of nutrients retained (TP, TN) x 10 (years).

As the smallest water farm and the one with the slowest rate of vertical seepage, or soil infiltration, the nutrient reduction totals of the Spur WF ranked third among the three projects. During its 24-month test period, the Spur WF retained a total of 0.734 metric tons of TP (1,617 pounds) and 2.792 metric tons of TN (6,155 pounds), as shown in **Table 6**.

The mean and range of nutrient concentrations measured in the canals from where the projects withdrew their inflows, during each of the project's 24-month monitoring period of record, are listed in **Table 7**. The Caulkins WF drew its inflows from the C-44 Canal, which had the *lowest* average, minimum and maximum concentrations of TN and TP compared to canal inflows for the two other pilot projects.

Table 7. Nutrient Concentrations in Canals During the Testing Period

Concentrations in Each Water Farm's 2-Year Monitoring Record	Caulkins Citrus Company: **C-44 Canal**	Spur Land & Cattle: **C-23 Canal**	Evans Ideal 1000: **St. Lucie County Canal**[10]
Measurement of Concentrations	Milligrams per Liter	Milligrams per Liter	Milligrams per Liter
Average TN Concentration	**1.319**	**1.946**	**2.129**
Minimum TN Concentration	0.966	1.380	1.590
Maximum TN Concentration	2.630	3.280	3.900
Average TP Concentration	**0.179**	**0.459**	**0.489**
Minimum TP Concentration	0.085	0.129	0.280
Maximum TP Concentration	0.651	1.194	1.000

2.5 Comparison of Unit Costs for Nutrient Reductions

The costs per pound of nutrients retained, or reduced, during the two-year test and estimated in a ten-year projection are listed for each pilot project at the bottom of **Table 6**. The unit costs are based on the *total* project costs: the initial verified capital costs and two years of participation payments for operations). As cost-effectiveness has tracked with performance, the project with the largest nutrient reductions also had the lowest unit costs for reductions: the Caulkins WF. The cost per pound of TP reduced during the two-

[10] The St. Lucie County drainage canal, which bisects the Evans Ideal 1000 grove, flows into the C-24 Canal.

year test, in comparison with the Caulkins WF's unit cost of $100.95 per pound, was 1.5 times higher for the Spur WF (at $151.79/pound) and 3.8 times higher for the Evans WF (at $384.14/pound).

The relative cost-effectiveness of the Caulkins project is even more pronounced for TN reductions. The cost per pound of TN during the two-year test, in comparison with Caulkins' unit cost of $15 per pound, was 2.6 times higher for Spur ($39.88/pound) and *six* times higher for Evans ($90.49/pound). Nutrient concentration levels factor into the unit cost comparisons. Though the average concentration was lowest for Caulkins for both TP and TN, there was a greater difference for TP than for TN, as shown in **Table 7**. The average concentration for TP was at least 2.5 times higher for the other two projects, whereas the average TN concentration was between 1.47 and 1.61 times higher than Caulkins for the Spur and Evans projects, respectively. *The unit cost advantage of the Caulkins WF for nutrient reductions would have been even greater if the C-44 Canal had higher average concentrations instead of the lowest in* ***Table*** *7.*

In the ten-year projections for unit costs, the Caulkins WF loses its advantage over the Spur WF for TP reductions: both projects have a comparable cost of just over $84 dollars per pound of TP. Although the longer-term unit costs are lower than the two-year costs for all projects, the relatively low annual cost of the Spur project makes it increasingly more economical over time, on a unit cost basis, for performance.

The longer-term unit costs for nutrient reductions shown in **Table 6** range from $12.55 per pound of TN, for Caulkins, to $316.49 per pound of TP, for Evans. The average ten-year unit cost for all three projects for nutrient reductions was approximately only ***one percent*** of the adjusted average unit cost for nutrient reductions for 50 non-agricultural projects implemented by the city and county stakeholders participating in FDEP's St. Lucie River and Estuary Basin Management Action Plan (BMAP), in the same watershed as the water farming pilot projects. A summary of the costs of those 50 non-agricultural projects can be found in **Appendix A.**

The cost data available for the 50 nutrient-reduction projects did not include operations and maintenance, only capital costs, whereas O&M expenses were included in the long-term unit costs for the water farms. The addition of O&M would substantially increase the average unit costs of nutrient reductions reported for the non-agricultural projects, which were (per initial capital investment alone): $3,979 per pound of TN and $12,523 per pound of TP. In comparison, the average ten-year unit cost for the three water farms was $36.43 per pound of TN (0.91 percent of the average for TN for 50 non-agricultural projects) and $161.81 per pound of TP (1.29 percent of the average for TP for 50 non-agricultural projects).

Chapter 3: Funding Opportunities and Outcomes

One of the objectives of the Watershed Coordinator's outreach role in this Section 319 Pilot Program was to explore funding opportunities for a potential regional expansion of water farming and related practices. This chapter offers a summary of the funding outcomes and of other funding opportunities considered.

3.1 The 2016 FL Legislature Funded a Regional Expansion of Water Farming

Given the substantial cost of water farming, it was reasonable to assume that funding for a regional expansion of the practice would need to come, in large part, from Florida State legislative appropriations. The 2016 General Appropriations Act, passed by the Florida Legislature and approved by the Governor in March 2016, included approximately $50 million to be used to implement the Northern Everglades and Estuaries Protection Program (NEEPP) through public-private partnerships to expeditiously launch water storage projects such as water farming and related practices.

The 2016 Specific Appropriation 1590A, which totaled $56,838,034, was intended to address the state of emergency Florida's Governor Rick Scott had declared[23] in the counties directly impacted by sustained and heavy releases from Lake Okeechobee, which began on January 30, 2016.[24] The appropriation specified that:

> [F]irst consideration shall be given to projects that will efficiently and effectively provide relief from discharges to the St. Lucie and Caloosahatchee Rivers and estuaries. Public-private partnerships for water storage and water quality improvements that can be implemented expeditiously shall receive priority consideration for funding.[25]

It was also specified in the Appropriations Act that, "No less than $47,838,034 [84 percent] of the funds provided in Specific Appropriation 1590A shall be used to implement the NEEPP, as set forth in section 373.4595, Florida Statutes, through **public-private partnerships** as provided in section 373.4591, F.S." That section of the Florida statutes was amended earlier in the 2016 Legislative Session[26] in a way that supported water farming: The 2016 legislative amendment to section 373.4591, underlined in the section language to follow, indicated strengthened legislative support for, and prioritization of, water storage projects on private lands. The practice of water farming was recognizable in the expanded section, in which groundwater recharge was also explicitly acknowledged in what appeared to be a recognition of a distinguishing characteristic of the Caulkins WF, whose success in the pilot program was well known by several prominent Florida Legislators by that time. (The Caulkins project began its field test in 2014.)

> In January 2016, Section 373.4591 of the Florida Statutes was amended to read:
>
> 373.4591 **Improvements on private agricultural lands.**

(1) The Legislature encourages public-private partnerships to accomplish water storage, groundwater recharge, and water quality improvements on private agricultural lands. Priority consideration shall be given to public-private partnerships that:

(a) Store or treat water on private lands for purposes of enhancing hydrologic improvement, improving water quality, or assisting in water supply;
(b) Provide critical groundwater recharge; or
(c) Provide for changes in land use to activities that minimize nutrient loads and maximize water conservation. (From Senate Bill 552, signed into law January 21, 2016.)

The $56.8 million for the NEEPP was appropriated to FDEP to administer. FDEP, the SFWMD and the Florida Department of Agriculture and Consumer Services (FDACS) are the three Coordinating Agencies for the NEEPP. With FDEP in the lead on the prioritization of water storage projects for funding, the agencies began working together to implement six large-scale projects on private lands. Proposals for the public-private projects were solicited by FDEP to support the TMDL/BMAP process for the Northern Everglades area. The six projects that were selected by FDEP for implementation are listed in **Table 8**. (The two Scott Grove projects [6000 and 2000, of Evans Properties] are being implemented as one project under one contract. That is why the new project count is six but there are seven projects sites in Table 8.)

Table 8. New Storage Projects Coming on Line from the 2016 Legislative Appropriation

Water Storage Project Name and/or Ownership	Impoundment Size in Acres	Estimated Average Annual Storage Volume in Acre-Feet
Caulkins Citrus Company's Water Farm Expansion	3,200	60,000
Bluefield Grove, Evans Properties	6,602	39,000
Scott 6000 Grove, Evans Properties	5,686	23,400
Scott 2000 Gove, Evans Properties	2,032	6,000
Brighton Valley, Lykes Brothers	8,200	34,000
El Maximo, Latt Maxcy Ranch	9,175	27,000
Alico	35,192	**TBD**
Totals	**70,087 Acres**	Well Over **189,400 Acre-Feet**

The new storage projects range in size from just over 2,000 acres (Scott 2000) to more than 35,000 acres (Alico), as listed in **Table 8**. The six projects will collectively cover 70,087 acres and are expected to store well over 189,400 acre-feet of water, on an average annual basis. The storage is expected to exceed the average annual estimated volume because the storage volume of the project with the largest footprint, Alico, is yet to be determined at the time of this writing and is not included in the estimated total for storage volume shown in **Table 8**. All estimated storage values and overall project construction costs for each project were determined by the landowner and then provided to the Legislature for funding.

Additionally, and before the 2016 appropriation, the SFWMD created a 320-acre water farm on public land (owned by the SFWMD) on the C-23 Canal, next to the C-23 Canal Extension. That public project, called Section C, has an average annual storage capacity of 3,856 acre-feet. It began its operations in December 2016.

Four of the six public-private partnership water storage projects selected by FDEP for funding through the 2016 appropriation are owned by two of the three participant-landowners in the Section 319 Water Farming Pilot Program: The Caulkins Citrus Company and Evans Properties, which proposed three project sites. The new Caulkins WF is a 2,787-acre expansion at the site of their 413-acre water farming pilot project. New cells, similar to the pilot impoundment, were added to cover the entire former citrus grove in western Martin County with a 3,200-acre (total) impoundment. The expanded project began operations in December 2017 after taking only ten months to construct. The three new project sites of Evans Properties will provide a total of 14,320 acres of deeper storage (Alternative 2) water farms. Bluefield Grove on the C-23 Canal in western St. Lucie County is a 6,602-acre stand-alone project, whereas the Scott Groves, which straddle the C-25 Extension Canal in the northwestern reaches of the St. Lucie River Watershed, could work independently or together. The Scott Groves water farm project is expected to be operational in 2018, under a ten-year contract with the SFWMD.

3.2 $96 Million in USDA Funding for Florida Was Found Then Lost: Florida CREP Update

One of the most exciting funding discoveries in 2015, as part of the funding inquiry for this pilot program, was a federal budget of $96 million that could be spent for various water quality improvement projects on privately-owned agricultural lands in the Section 319 Pilot Program region of Florida—i.e., within the SFWMD and in the St. Johns River Water Management District (SJRWMD) areas for projects benefitting the Northern Everglades and east coast estuaries, including the SLE and the Indian River Lagoon. The $96 million federal budget dedicated to this specific region of Florida only (not statewide) was attached to the USDA Conservation Reserve Enhancement Program (CREP):

> The Conservation Reserve Enhancement Program (CREP) is a part of the Conservation Reserve Program (CRP), the country's largest private-land conservation program. Administered by the Farm Service Agency (FSA), CREP targets high-priority conservation concerns identified by a State, and federal funds are supplemented with non-federal funds to address those concerns. In exchange for removing environmentally sensitive land from production and establishing permanent resource conserving plant species, farmers and ranchers are paid an annual rental rate along with other federal and state incentives as applicable per each CREP agreement. Participation is voluntary, and the contract period is typically 10–15 years.[27]

An agreement between the State of Florida and the USDA/Farm Service Agency had been executed in 2002, to enroll up to 30,000 acres in Florida CREP, with a combined state and federal budget of $153 million. Although the federal budget dedicated to Florida CREP had not been used—no acreage had been enrolled in the program since its inception in 2002—it was verified in the fall of 2015 that the $96 million was still on reserve for Florida CREP and that money could still be spent. The agreement, which went through several modifications since 2002, needed to be administratively updated but it was still in force.

FDACS, the state agency that had developed the CREP agreement in 2002 with FSA, worked with FSA again in 2016 to update the agreement. It was determined that CREP could not be applied toward the implementation of large water farms on fallow citrus groves, but FDACS intended to use the program to help implement other types of DWM projects and to protect and restore wetland acreage in the region.

Unfortunately, in April 2017, Florida's Commissioner of Agriculture (Adam Putnam) received written notification from the USDA that the Florida CREP agreement had been terminated and the $96 million budget was withdrawn.

3.3 A Continuation of Funding for the Water Farming Pilot Projects from the State

The SFWMD offered the water farming pilot program participants an opportunity to extend their water farming contracts, after the conclusion of their two-year test period, subject to funding from the Florida legislature. (Note: The extensions are outside of the Section 319 grant-funded program.) All three agreed, resulting in a two-year continuation of the Spur Land & Cattle project and a one-year continuation of the Evans Ideal project, for the same annual compensation each received during the pilot program, and a nine-month contract extension for the Caulkins project. In the case of Caulkins, their shorter extension allowed for continued operations until the construction on their water farming expansion project could begin. Water quality monitoring has continued on the three water farms under the extended contracts.

Because unit costs for water storage and nutrient reductions on water farms are lower in the longer term, based on estimated projections (shown in **Tables 3 and 6**), the SFWMD may decide later to offer contract

extensions again, budget permitting and if the water farmers remain interested in providing the service and do so cost effectively.

3.4 The St. Johns River Water Management District Also Funded a WF Pilot Project

In January 2016, the Governing Board of the SJRWMD announced the launch of a new water farming pilot project in that district to benefit water quality in the Indian River Lagoon. Two water farms, selected through an RFP issued by SJRWM in the fall of 2015, are expected to become operational in Indian River County in 2018.

Chapter 4: Summary of Findings and Lessons Learned

4.1 Summary of the Findings

The Section 319 Water Farming Pilot Program enabled the SFWMD to verify that water farms on fallow citrus groves could come on line very quickly and operate effectively and in accordance with the initial engineering assessment of the practice (AECOM, *Assessment of Water Farming on Agricultural Lands*).[28]

As interim projects designed to reduce coastal discharges, a chief attribute of water farming, now confirmed, is **rapid implementation**. The site preparation and construction of each of the pilot projects was completed within five months following contract execution. Even the large water farms coming on line next, listed in **Table 8**, are likely to become operational within one year of contract execution with the SFWMD, as evidenced by the completion of the construction of the Caulkins new 3,200-acre expansion project within ten months.

The performance of the pilot projects met or exceeded expectations; and, specifically, in the case of the Caulkins project, greatly exceeded expectations. Mainly because of the outstanding performance of the Caulkins project, the water storage and nutrient reduction goals initially set for the Section 319 Pilot Program (the aggregate goals) were exceeded. For instance, the aggregate goal for water storage was exceeded by 23,923.84 acre-feet, as was shown in **Table 2** in Chapter 1. The Caulkins water farm's goal exceedance of 21,593.81 acre-feet accounted for 90.26 percent of the aggregate goal exceedance. *The three water farms collectively stored a total of 46,493.82 acre-feet during the two-year field test.*

Similarly, for nutrient reductions, the Caulkins water farm's performance accounted for 84.67 percent of the total average annual TN reductions of the three projects collectively, shown in **Table 5** in Chapter 2, and 77.13 percent of the collective average annual TP reductions. The three water farms exceeded the initial aggregate goal for TN reductions by 42,459 lbs per year (or by 152.61 percent) and exceeded the aggregate goal for TP reductions by 4,823 lbs per year (or by 72.62 percent), as was shown in **Table 5**. *The three water farms collectively retained 140,562 pounds of TN and 22,928 pounds of TP in two years.*

Water farming offers a comparatively cost-effective means to achieve nutrient reductions, and the cost-effectiveness is even enhanced over time. It was found, for example, that the average ten-year unit cost for nutrient reductions on the three water farming pilot projects was only ***one percent*** of the average unit cost for nutrient reductions estimated for 50 non-agricultural projects implemented by the city and county

stakeholders participating in FDEP's St. Lucie River and Estuary Basin Management Action Plan, as was discussed in section 2.5.

4.2 Lessons Learned

The Section 319 Pilot Program resulted in *proof of concept* for the practice of water farming, as well as it expanded the thinking about the characteristics of an effective water farm. Additionally, the pilot program offered lessons and new considerations regarding the design, operations and maintenance of water farms.

4.21 Utilizing Deep Sandy Soils for Water Farming Sites

The soil conditions on the Caulkins WF (unconfined sand with a high rate of infiltration) changed, or at least broadened, the concept of water farm as a potential groundwater recharge component. The Indian River Citrus League, for example, imagined that water farms would be retention areas, like reservoirs or farm ponds, that would gradually lose volume to evapotranspiration and minor soil seepage when not collecting water during the wet season. The SFWMD, however, had listed "high percolation sites" as one of the three acceptable "approaches" for water farming pilot projects in their April 1, 2013 RFP submittal guidelines.[29] Prior to that, aquifer or groundwater recharge had been regarded as one of the important *secondary*, or co-benefits of the water farming concept. Based on the field test of the Caulkins water farm, it is now evident that a high percolation site can lead to exceptionally high water "storage" performance.

4.22 When Contracting for Water Farming Services, Fixed Fee is Preferred

The terms of the SFWMD's contracts with the water farming pilot projects were not all alike. There was one fixed-price annual payment for the Evans and Spur Land projects that was inclusive of O&M and a landowner's participation payment. For the Caulkins project, however, there were separate categories for the annual participation payment and for O&M. Both cost categories were intended to be a fixed fee, but the O&M expenses increased considerably when the pumping of inflows continued to exceed estimates, as discussed in Chapter 1, section 1.6. The lesson learned is that future contracts should have a fixed fee for O&M to cover an anticipated amount of annual pumping (average annual) based on an analysis of historical records and a good understanding of the soils on the project site.

4.23 Construction and Management Considerations for Water Farms:

4.231 Sodding the Berms Can Be More Advantageous Than Seeding

The construction of an Alternative 2 type of water farm includes building substantial earthen berms, or levees, up to seven feet high around the perimeter of the impoundment. The berms must receive a

vegetative groundcover to protect their integrity. The low-cost way to gain groundcover is to hydro-seed at least the berms' slopes. The top of the berms may be covered with mulch, if not seeded.

It was found, however, that the greater initial expense of applying grass stripping or sod to the berms, instead of seeding, should be considered a safety measure when the water farm is being implemented on an accelerated schedule, as the integrity of the berm is protected more quickly. And sodding can result in lower ongoing maintenance costs, which can be considered as an offset against the higher initial cost.

4.232 Planting Beds Dissipate Wave Energy During Storms

It was realized during the field testing of the water farms that the raised planting beds, which are a fixture in most citrus groves in the SLE Watershed, are a fortuitous and safety-enhancing design feature of the projects. The planting beds serve the purpose of reducing wave energy in the WF during a storm—they prevent large waves from forming which could erode or overtop the perimeter berms. Wave breaks are an especially important design consideration for the larger-scale projects coming on line in the watershed.

4.233 Aquatic Vegetation Must Be Managed

The field test revealed that water farms will be affected to varying degrees by the growth of invasive or exotic aquatic vegetation because they accept water from the regional canal system. The vegetation must be managed periodically and it was controlled by different methods on each of the pilot project sites. For example, it was necessary to spray herbicides at the Spur Land & Cattle WF, whereas roller chopping was used instead of spraying at the Evans WF. And because the Caulkins WF could dry out so completely, when not pumping canal inflows, it was sufficient at that site to passively allow the vegetation to dry out.

4.3 Funding Needs

As an interim measure, water farming is productive and cost efficient by providing benefits to the regional water management system and decreasing damaging discharges to tide.

Annual funds are necessary from the Legislature to keep these projects operational. That said, it is important to maintain funding levels necessary to achieve the ultimate longterm results provided by Comprehensive Everglades Restoration Project. The two program can work in concert, but requires dedicated funding.

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Notes

[1] This project and the preparation of this report was funded in part by a Section 319 Nonpoint Source Management Program Implementation grant from the U.S. Environmental Protection Agency through an agreement (No. G0391) with the Nonpoint Source Management Section of the Florida Department of Environmental Protection. The original total cost of the project was $3,087,401, of which $1,506,401 was provided by the U.S. Environmental Protection Agency. The final total cost of the three pilot projects, not including indirect or ancillary costs, was $3,422,989, due to service contract amendments between the SFWMD and the pilot program participants. The matching funds from the SFWMD increased from $1,581,000 initially (51% of the original total cost) to $1,916,588 (56% of the final total cost). The Section 319 grant contribution from EPA/FDEP remained unchanged ($1,506,401).

[2] Florida Statutes, Title XXVIII, Chapter 373-Water Resources, Northern Everglades and Estuaries Protection Program (NEEPP), 373.4595(1)(b) Findings and Intent.
The NEEPP pertains to three waterbodies and their watersheds: The St. Lucier River and Estuary on the east coast, the Caloosahatchee River and Estuary on the west coast and Lake Okeechobee, the central (inland) watershed.

[3] Specific Appropriation 1590A, passed by the Florida Legislature in March 2016.

[4] Section 373.4591 of the Florida Statutes, Improvements on Private Agricultural Lands, was referenced in the Appropriation (1590A of 2016).

[5] Conference Report on Florida House Bill 5001, General Appropriations Act, Amendment 212343, page 237.

Introduction

[6] A bed is an elevated, mounded row of soil that is flattened at the top, on which the citrus trees are planted. Beds can range in height among groves from approximately two to five feet. Beds are separated by drainage ditches, or furrows that run in between the beds and convey water to larger drainage canals.

[7] The National Estuary Program (NEP) is place-based, non-regulatory program to protect and restore water quality and ecological integrity of estuaries of national significance (https://www.epa.gov/nep/overview-national-estuary-program). The Indian River Lagoon NEP is managed by the IRL Council, which is a special district of Florida that was

established in 2015 (http://itsyourlagoon.com/). Prior to the establishment of the IRL Council, the IRLNEP was administratively housed within the St. Johns River Water Management District.

[8] South Florida Water Management District, *2015 South Florida Environmental Report*, Chapter 10: St. Lucie and Caloosahatchee River Watershed Protection Plan Annual and Three-Year Updates, page 10-2.

[9] Ibidem, page 10-16; based on 2009 Florida Land Use Cover Classification System (FLUCCS) data.

[10] Florida Statutes, Title XXVIII, Chapter 373-Water Resources, Northern Everglades and Estuaries Protection Program, 373.4595(1)(b) Findings and Intent.

[11] Ivice, Paul, "Disease Drags Grapefruit Crop to Near-Record Lows," *Indian River Press Journal,* April 15, 2015.

[12] AECOM, *Assessment of Water Farming on Agricultural Lands*, Prepared for the Indian River Citrus League, May 1, 2012. A similar assessment was also completed for the Gulf Coast Citrus League. Both studies were conducted in cooperation with the South Florida Water Management District.

[13] The total cost of the pilot projects subsequently increased through contract amendments, as discussed in Chapter 1, section 1.6 and shown in Table 3. The initial contracted cost of the three pilot projects was $2,901,193. After consecutive amendments to the Caulkins Citrus Company's water farming contract, the final total cost of the 3 projects was $3,422,985. The cost increases were paid by the SFWMD. The EPA's contribution did not increase.

[14] From a presentation on the South Florida Water Management District's Dispersed Water Management (DWM) Program (Update), including an overview of the Water Farming Pilot Project, delivered by Boyd Gunsalus, Senior Environmental Scientist, DWM Unit of the SFWMD, and Project Manager of the Water Farming Pilot Program, June 25, 2015, at the SFWMD's Upper East Coast Water Supply Plan Update Kick-Off Workshop, Stuart City Hall.

Chapter 1

[15] U.S. Army Corps of Engineers, Jacksonville District and South Florida Water Management District, *Central and Southern Florida Project Indian River Lagoon – South, Final Integrated Project Implementation Report and Environmental Impact Statement* (Final IRL-South PIR and EIS), March 2004.

[16] South Florida Water Management District, Janzen, J., Geddes, E., Gunsalus, B. and Rodberg, K., *Seepage Investigation of the Caulkins Water Farm Pilot Project: First Annual Report, Technical Publication* WS-37, September 2015.

[17] South Florida Water Management District, *Seepage Investigation of the Caulkins Water Farm Pilot Project: First Annual Report,* Technical Publication WS-37, September 2015, page 48.

[18] South Florida Water Management District, Janzen, J., Geddes, E., Gunsalus, B. and Rodberg, K., *Seepage Investigation of the Caulkins Water Farm Pilot Project: Final Report,* Technical Publication WS-43, August 2017, pages 31-32.

[19] The analysis was conducted by the project manager for the Section 319 Water Farming Pilot Program, Boyd Gunsalus of the South Florida Water Management District.

[20] The service provider, Archbold Biological Station, charged the same price to service each site, which amounted to $10,596.35 per project site for the duration of the two-year field test.

Chapter 2

[21] Harper, Harvey and Baker, D., *Evaluation of Current Stormwater Design Criteria within the State of Florida*, Final report prepared by Environmental Research & Design for the Florida Department of Environmental Protection, June 2007.

[22] The auto-samplers collected a water sample every three hours from the water source for the inflow pumps (i.e., in the adjacent canal near the intake point for the pump). The timed auto-sampling was collected in one bottle each day, which resulted in a daily composite sample. The bottles filled daily by the auto-samplers were collected at each water farming site once a week on a set day (e.g., every Monday), for lab analysis. One value for nutrient concentrations measured in the composite sample(s), in milligrams per liter (mg/L), was entered in the dataset for each day the pump was on. If/when the pump ran for multiple consecutive days, then the concentration readings were based on an analysis of the composite samples collected over that time period, which would be in multiple bottles. The values recorded for the nutrient concentrations on each day the pumps ran was the average of the nutrient concentrations in the multiple bottles of composite samples for up to seven days. In those cases, the dataset shows a repeated value for seven days of the concentration given for each nutrient (though a different value for TN and for TP concentrations). A new sampling period and a new concentration measurement would begin on day eight, if/when the inflow pump ran for more than seven consecutive days.

Chapter 3

[23] Executive Order Number 16-59 issued on February 26, 2016 by Governor Rick Scott, pertaining to Lee, Martin, and St. Lucie Counties.

[24] Treadway, Tyler, Our Indian River Lagoon: "State of Emergency Declared," *Indian River Press Journal,* February 27, 2016, page 10A.
Governor Scott declared a state of emergency for Martin and St. Lucie Counties again in June 2016 (Executive Order 16-155), following an algal bloom present in the counties' local waterways, especially the St. Lucie River, that was attributed to heavy regulatory releases from Lake Okeechobee which had continued since January 2016. Among the Governor's directives issued with the June Executive Order, the SFWMD was to take several actions including, "Store additional water through dispersed water management projects" (in *News Releases* from the Governor's staff on June 29, 2016: "Gov. Scott Declares State of Emergency in St. Lucie and Martin Counties Following Algal Blooms").

[25] Conference Report on Florida House Bill 5001, General Appropriations Act, Amendment 212343, page 237.

[26] The amendment was part of the 134-page *Water Bill*, passed early in the 2016 Leg. Session as Senate Bill 552.

[27] From https://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-enhancement/index, accessed September 1, 2017. The Fact Sheet for Florida CREP had been accessible from this federal program webpage. (Florida was listed among the states with a CREP agreement) until the summer of 2017.) Florida's CREP agreement was terminated in April 2017 by the USDA.

Chapter 4

[28] AECOM, *Assessment of Water Farming on Agricultural Lands*, Prepared for the Indian River Citrus League, May 1, 2012, Palm City, Florida.

[29] South Florida Water Management District, Dispersed Water Management Northern Everglades Invitation for Water Farming Pilot Project, Submittal Guidelines, Solicitation Number 6000000576, April 1, 2013, page 7. Excerpt: "Designs of individual pilot project sites will be developed and cost effectively implemented based on the following [three] approaches:

- Above ground flooding of former grove production areas...

- Retaining additional stormwater in existing water management facilities...
- High percolation sites: Consider and evaluate surface water retention on deep sand ridges where water is diverted away from the regional system thereby reducing the volume of surface water reaching the estuaries and then infiltrated in sandy soils recharging the aquifer system."

Appendix A

Table 9. Average Unit Cost of Nutrient Reductions via 50 Projects in the St. Lucie BMAP

St. Lucie River and Estuary BMAP Stakeholders	Number of Projects (for which costs are available)	Total Cost of the Projects	Cost of TN Removal per pound	Cost of TP Removal per pound	Remaining Required TN Reductions per BMAP in pounds/year	Remaining Required TP Reductions per BMAP in pounds/year
1a. City of Port St. Lucie MS4	14	$43,576,100	$6,233	$13,098	(-10,566)	14,112
1b. PSL Septic Tank Phase-out	Ongoing Program	$91,075,666	$2,662	Not Quantified by DEP		
2a. Martin County MS4	19	$34,344,161	$1,816	$5,404	(-9,353)	6,670
2b. Martin County Septic to Sewer Conversions	Ongoing Program	$7,089,742	$461	Not Quantified by DEP		
3. St. Lucie County Non-MS4	1	$1,862,859	$26,164	$72,485	5,584	3,019
4. St. Lucie County MS4	4	$8,334,072	$3,171	$8,066	1,454	821
5. City of Fort Pierce MS4	3	$7,075,160	$12,264	$29,916	1,917	18
6a. City of Stuart MS4	6	$7,301,006	$2,836	$6,131	(-2,090)	(-48)
6b. Stuart Septic Tank Removals	Ongoing Program	$3,200,000	$2,387	Not Quantified by DEP		
Totals & Ave. Unit Costs	**50**	**$203,858,766** (Total for all 50 projects)	Average= **$6,444**	Average= **$22,517**	**8,955**	**24,640**
Adjusted Ave. Unit Cost	49		**$3,979**	**$12,523**		

Data source: FDEP's 2015 Progress Report for the St. Lucie River and Estuary Basin Management Action Plan. Prepared by the Division of Environmental Assessment and Restoration Water Quality Restoration Program Florida Department of Environmental Protection Tallahassee, FL 32399, in cooperation with the St. Lucie River and Estuary Technical Stakeholders, December 2015

"Total Cost" of the projects does NOT include the cost of operations and maintenance, for non-agricultural stakeholders 1a through 6b

Adjusted Average is the average cost excluding the cost outlier project in row #3 (for St. Lucie County Non-MS4).

Appendix B

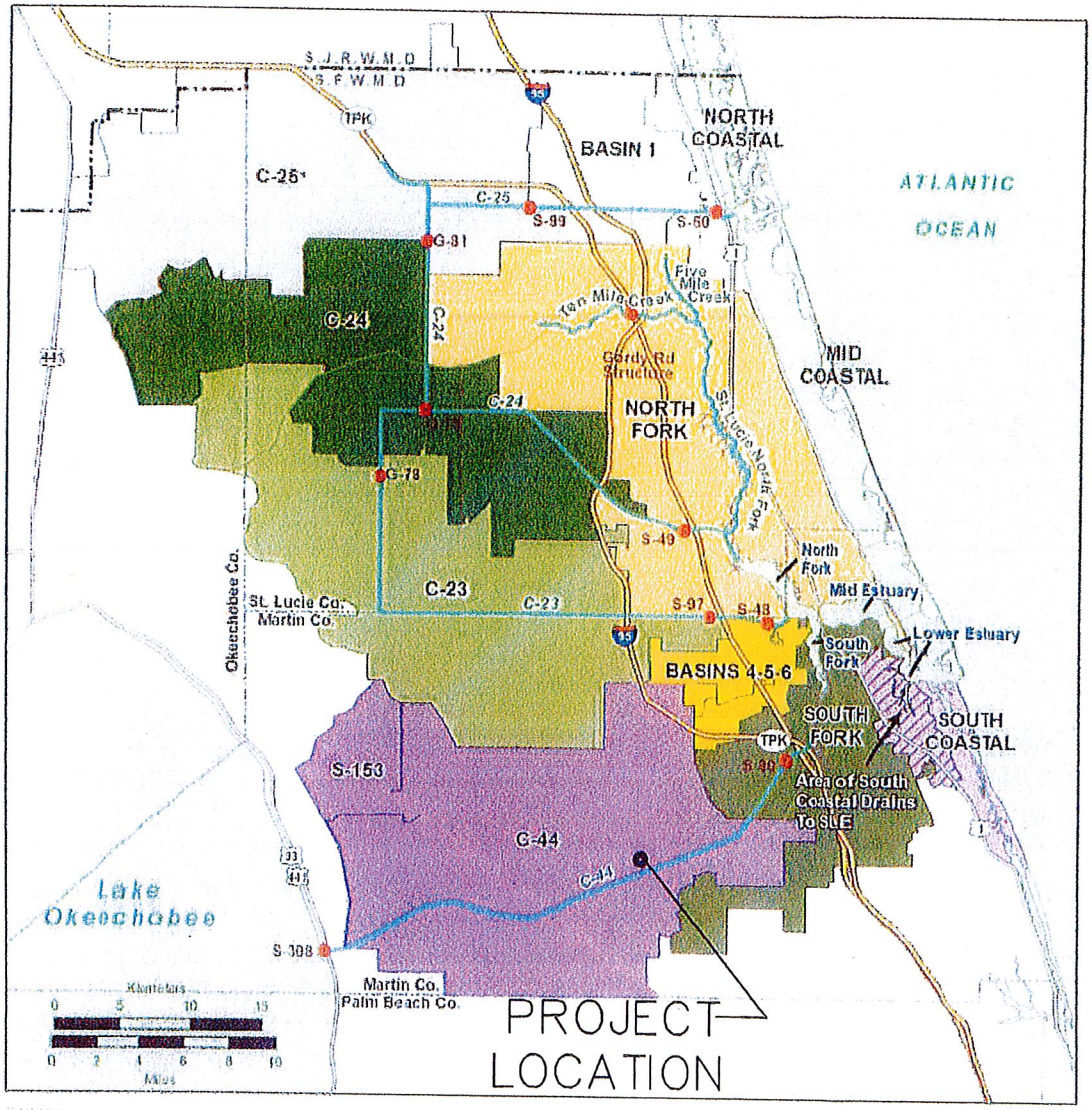
See Separate Attachments

Appendix B1:
Caulkins Water Farm Pilot Project

Project Design

GENERAL LOCATION MAP
SHOWING C-44 CANAL BASIN

SECTIONS 16-21 and 28-30
TOWNSHIP 39 SOUTH
RANGE 40 EAST



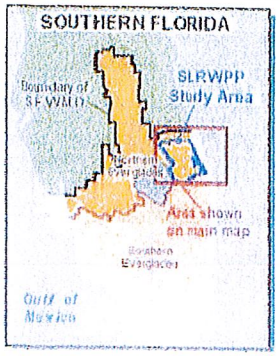
St. Lucie River Watershed Protection Plan Sub-Watersheds

- Basins 4-5-6
- C-23
- C-24
- C-44&S-153
- North Fork
- South Coastal
- South Fork
- C-25 *

Indian River Lagoon Sub-Watersheds

- Basin 1
- Mid Coastal
- North Coastal

* Considered part of the St. Lucie watershed when discharging to the St. Lucie Estuary



Designed:	M.G.C.	4-3-13	
Drawn:	A.T.	4-3-13	
Checked:	M.G.C.	4-3-13	
Approved:	M.G.C.	4-3-13	
Date: 4-3-13			
Project: 50103			
File: 50103 base.dwg			

No.	Date:	Revision:	By

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GENERAL LOCATION MAP SHOWING C-44 CANAL BASIN

CAULKINS WATER FARM PILOT PROJECT

MARTIN COUNTY, FLORIDA

FIGURE

1.1

PG 5

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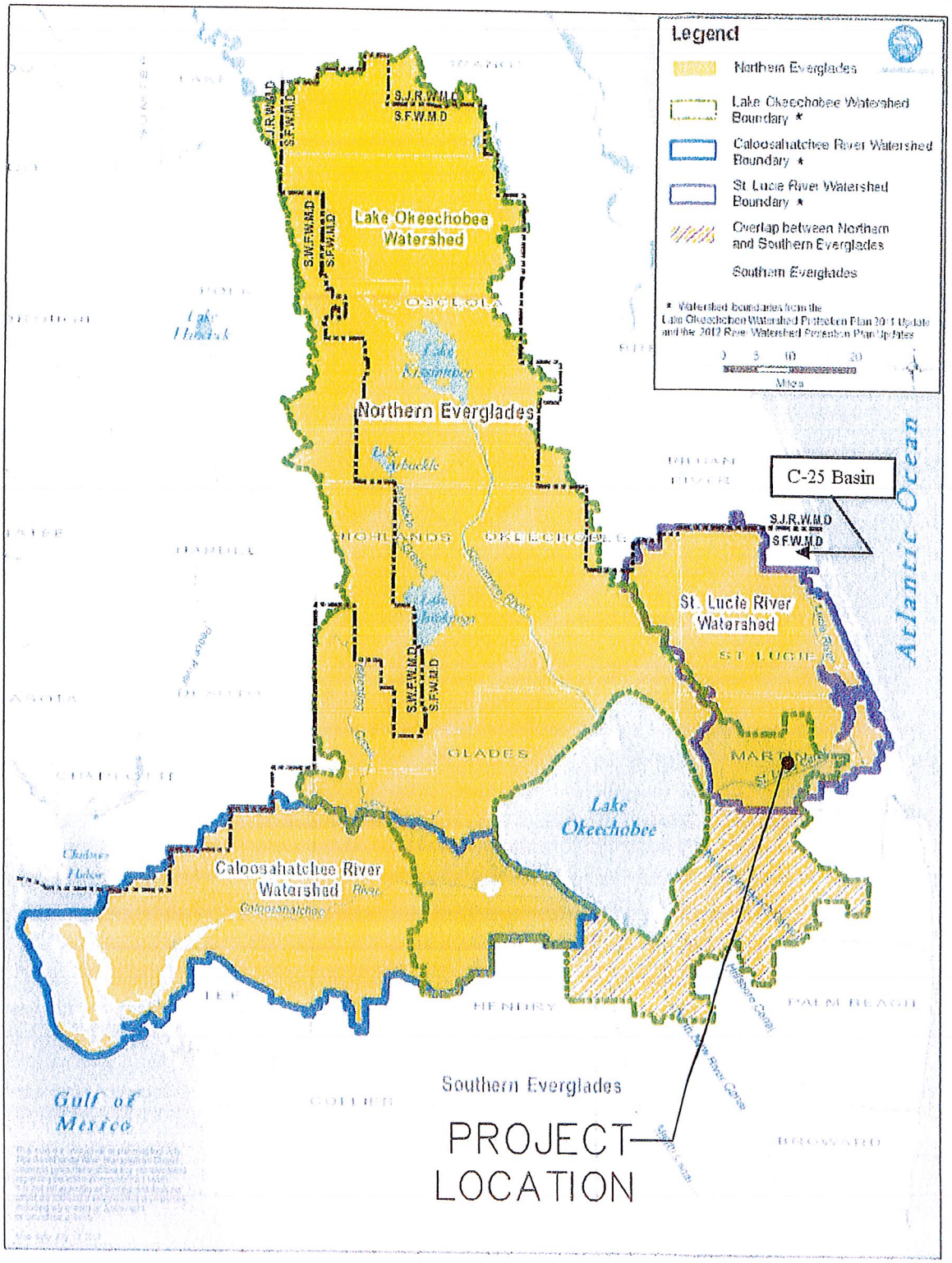
LOCATION IN ST LUCIE RIVER AND LAKE OKEECHOBEE WATERSHEDS

SECTIONS 16-21 and 28-30 TOWNSHIP 39 SOUTH RANGE 40 EAST



Designed:	M.G.C.	4-3-13
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LOCATION IN ST LUCIE RIVER AND LAKE OKEECHOBEE WATERSHEDS

CAULKINS WATER FARM PILOT PROJECT

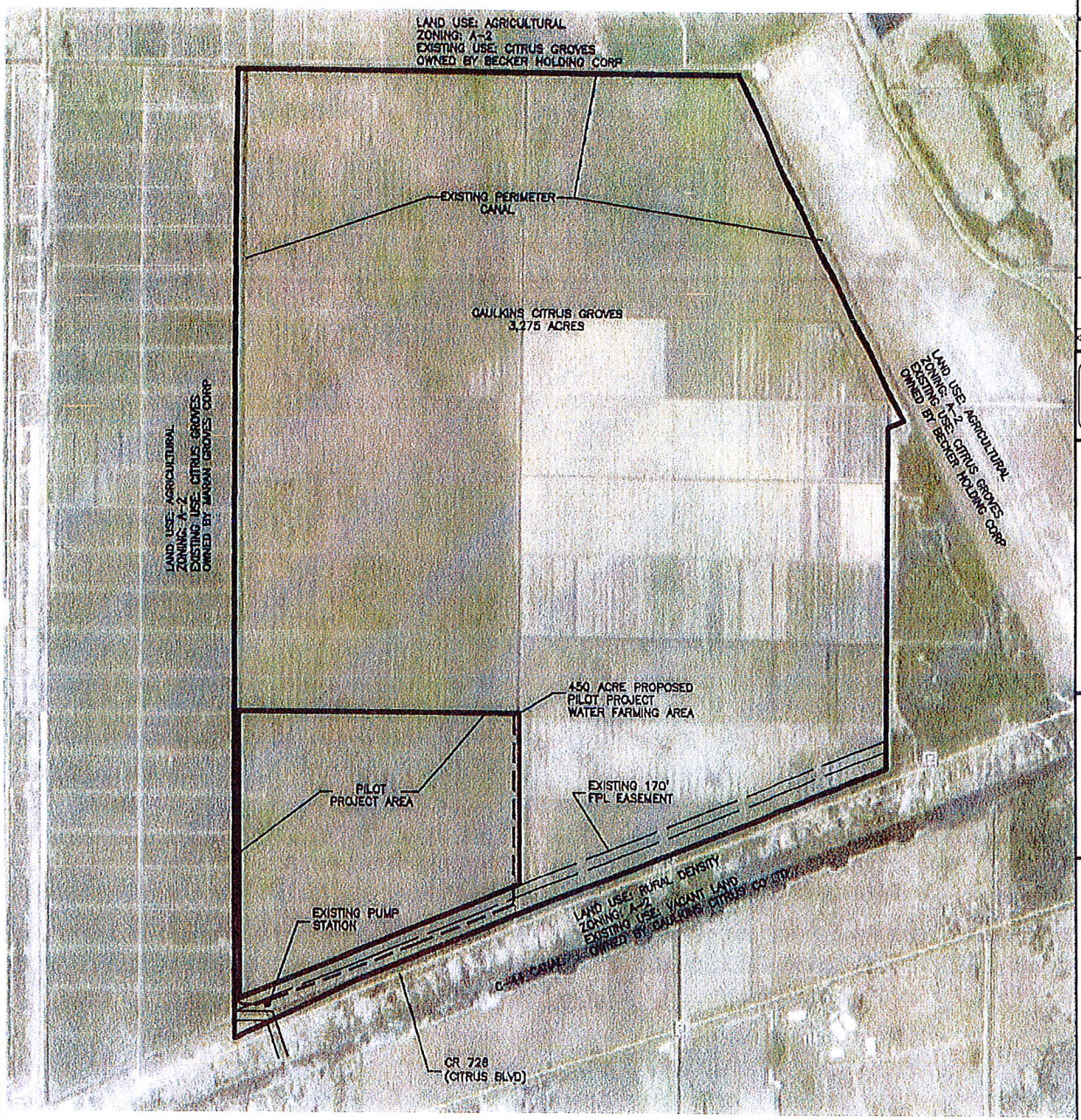
MARTIN COUNTY, FLORIDA

FIGURE

1.1.1

SITE MAP
OVERALL PROPERTY
& PILOT PROJECT

SECTIONS 16-21 and 28-30
TOWNSHIP 39 SOUTH
RANGE 40 EAST



	Designed:	M.G.C.	4-3-13
	Drawn:	A.T.	4-3-13
	Checked:	M.G.C.	4-3-13
	Approved:	M.G.C.	4-3-13
	Date: 4-3-13		
	Project: S0103		
	File: S0103 base.dwg		

No.	Date:	Revision:	By
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SCALE: 1" = 2,500'

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SITE MAP
OVERALL PROPERTY &
PILOT PROJECT

CAULKINS WATER FARM
PILOT PROJECT
MARTIN COUNTY, FLORIDA

FIGURE
1.2
PG 7

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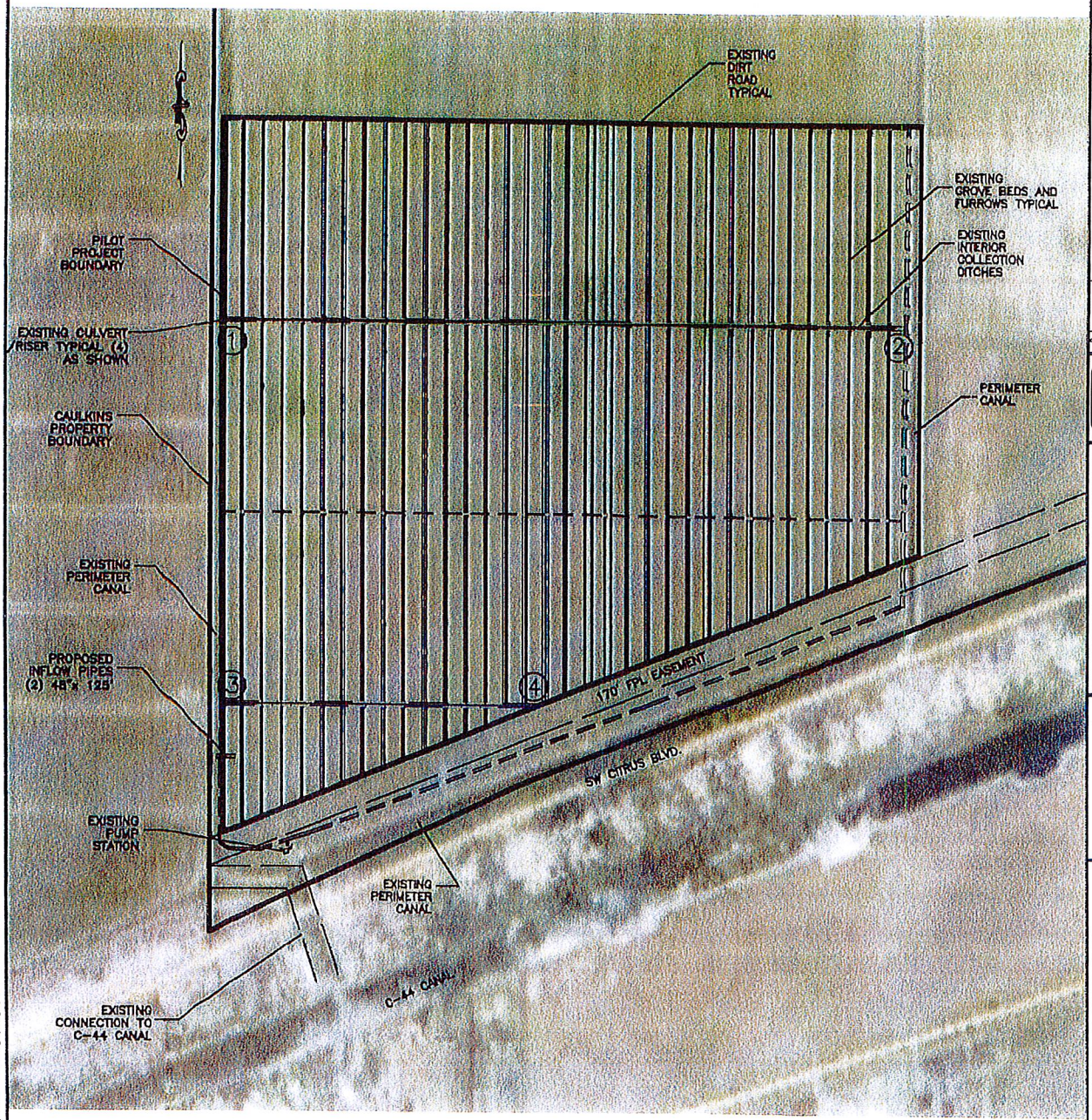
SITE MAP
WATER FARM PILOT PROJECT AREA

SECTIONS 29 & 30
TOWNSHIP 39 SOUTH
RANGE 40 EAST



No.	Date	Revision:	By
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Designed: M.G.C. 4-3-13
Drawn: A.T. 4-3-13
Checked: M.G.C. 4-3-13
Approved: M.G.C. 4-3-13
Date: 4-3-13
Project: S0103
File: S0103 base.dwg

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SITE MAP
WATER FARM PILOT
PROJECT AREA

CAULKINS WATER FARM
PILOT PROJECT
MARTIN COUNTY, FLORIDA

FIGURE
1.2.1
PG 8

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Attachment 2.1
Detailed Project Description

I. Site Reconnaissance and Data Collection

a. Survey Data

Topographical survey information was gathered by GCY, Inc. for the site including data on existing water control structures, perimeter cross sections and bedded grove areas. This is relevant in determining the volumes of water which can be retained or stored within the site and also constraints which the existing infrastructure will impose upon the stages to which water could be managed on the site. The survey deliverable was in electronic format and incorporated into the conceptual plans for design.

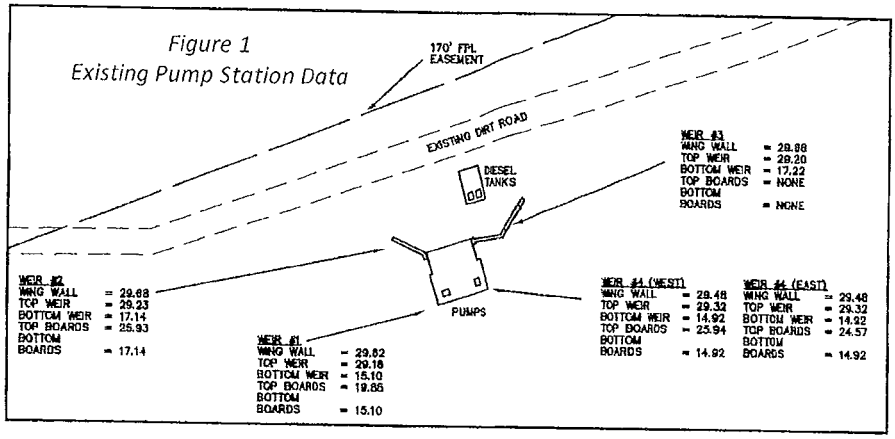


Figure 1
Existing Pump Station Data

Based on topography, the average site grade in the Pilot Project area beds is approximately elevation 24.0 feet NVGD, with the furrows roughly two feet lower than the adjacent beds. The elevations of the existing perimeter roads and berms vary between elevations 25 to 30 feet NVGD.

Water is pumped into to property via the large SFWMD permitted pump station. Water could be held to an elevation of 28.0 feet NGVD, still allowing over one foot of freeboard without any modifications to the existing pump station.

b. Geotechnical Report

A limited subsurface exploration was performed by Andersen Andre Consulting Engineers (AACE) in September 2006. Based on the 1981 Soil Survey of Martin County, Florida, as prepared by the U.S. Department of Agriculture Soil Conservation Service, the site is located in an area with Lawnwood fine sand, Waveland sand, Oldsmar fine sand, Wabasso sand, Riviera fine sand, Pineda sand, Arents (organic stratum, 0 to 2 percent slopes), Floridana fine sand (depressional), and Riviera fine sand (depressional).

In general the Caulkins site was found to be underlain mostly with sandy soils or soils containing varying amounts of shell fragments. Such soils are typically

Approximate Depth Below Existing Grade (feet)	General Soil Description
0 to 2-4	Loose to moderately dense fine sands (SP) and slightly clayey fine sands (SP-SC)
2-4 to 13-18	Loose to medium dense slightly clayey fine sands (SP-SC) and clayey fine sands (SC)
13-18 to 40	Loose to moderately dense fine sands (SP) with shell fragments and medium dense to dense sandy shell fragments (GW)
TB-2, TB-3 and TB-5 only	
28-33 to 38	Medium dense to dense sandy, cemented sand and shell fragments (poorly cemented coquina)
38-40	Medium dense fine sands (SP) with shell and cemented fragments

Table 2.1
Sample Soil Profile from Geotechnical Report

considered very porous and permeable. A poorly cemented coquina stratum was only encountered in three of the eight borings performed and, as such, does not constitute a consistent layer. Further, poorly cemented coquina is typically considered both porous and permeable.

Based on their findings, it is AACE's opinion that neither an aquiclude (being defined as a geologic formation through which groundwater cannot flow), nor an aquitard (being defined as a geologic formation that may contain groundwater but is incapable of transferring that water to the surface) are present within the explored depths of 40 feet below grade. ***As such, the groundwater condition on this site can be considered an unconfined aquifer to a depth of at least 40 below the existing grades.***

The groundwater table was encountered using borings at depths from 3 to 5 feet below the existing ground surface within the beds. The investigation was completed in September during the rainy season.

The full AACE evaluation is provided in Appendix 2.

c. **Wetland Assessment**
In accordance with SFWMD ERP Permit Number 43-00360-S, including in Appendix 3, there are no wetlands located on the entire 3,275 acre site.

d. **Environmental Site Assessment**
Based upon the results of the Phase I/II Environmental Assessment of the Pilot Project area, performed by PSI Engineering on November 29, 2012 and included as Appendix 1, there are no recognized environmental conditions identified which would preclude the subject property for the proposed use as a dispersed water storage reservoir. Additional assessment or corrective actions are not required.

e. **External surface Waters**
The C-44 canal is located due south and is directly connected to the site via the permitted pump station and existing canal connection. There are existing permits to draw irrigation water from and discharge stormwater through this existing infrastructure.

f. **Consideration of Adjacent Owners**
There is only one adjacent owner Maran Groves Corp, to the west with no impacts to be expected from the 450 acre pilot project as it is separated from the property by the west perimeter canal. The potential for seepage is important to evaluate and avoid; the proposed plan will preserve the existing ditches along the outside perimeter of the site, such that they will be available to collect seepage.

The plan also takes into account existing legal users of surface waters, and no withdraw of surface water when the water is below the designated level. A review of existing consumptive use permits in the site vicinity was conducted.

II. Development of Water Management Storage System for Fallow Grove

a. Configuration

The Pilot Project is proposed utilizing 450 acres identified within the 3,275 acre overall Caulkins Property limits due to the existing infrastructure. The 450 acre area was then reduced to remove the FPL easement and perimeter canals, resulting in 413 acres of pervious fallow grove area.

Modifications to the existing infrastructure are very minimal to implement the Water Farming Project. Timeframes for the landowner, Caulkins Citrus Company, LTD., to complete each task are included below.

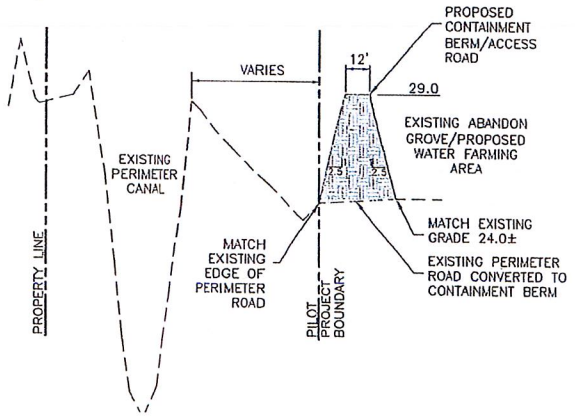
1. Modifications to the pilot project area

i. Construct a perimeter berm / access road

There are existing, well stabilized roadways adjacent to perimeter canals that can be utilized as locations for the berms for water farming. These berms surrounding the proposed reservoirs shall be built approximately 5 feet above the average ground elevation of 24.0 feet NGVD with slopes of 2.5 feet horizontal to 1.0 foot vertical, with a crest no less than 12 feet wide for vehicular access. It is anticipated to take 3 weeks to construct the berm at a rate of 1/4 mile per day.

West property line road to be utilized as levee base

Figure 2



TYPICAL SECTION
WEST PROPERTY / PROJECT BOUNDARY LINE

ii. Construct gravity feed into pilot project

A small portion of the perimeter ditch along the western property line shall be blocked and two (2) 48" pipes shall be installed to gravity feed the farmed water into the pilot project area. These pipes shall be fitted with risers such that they are only open when water is being pumped into the perimeter canal for water farming. It is anticipated to take one week to install the gravity feed.

2. Maintenance work

i. Outside the project area

The Pilot Project Area is bordered on the ***south*** by the 170-ft FPL easement, a dirt road, and a perimeter canal that is approximately 40 feet wide and 10 foot in depth. CR 726 (Citrus Boulevard) is south of the canal, then an additional upland parcel owned by Caulkins, then the C-44 Canal.

The *east* ditch is 40 feet wide and 10 foot in depth; this is a central ditch for the entire property and is pumped for irrigation during the dry season for an existing cabbage operation location on another part of the 3,275 acre property. The water can be directed by gravity to different areas of the grove.

Both of these canals are in good shape and will need no work for the pilot project as reflected in the photographs below.

South Property Line Perimeter Ditch

East Project Area Line Perimeter Ditch

The *west* ditch is 40 feet wide and 10 foot in depth, and runs along the western property line separating the Caulkins property from the property owner to the west.

This ditch is overgrown and will require cleaning prior to commencement of the Pilot Project, as shown in the photograph to the right. It is anticipated to take the landowner one week to clean this ditch.

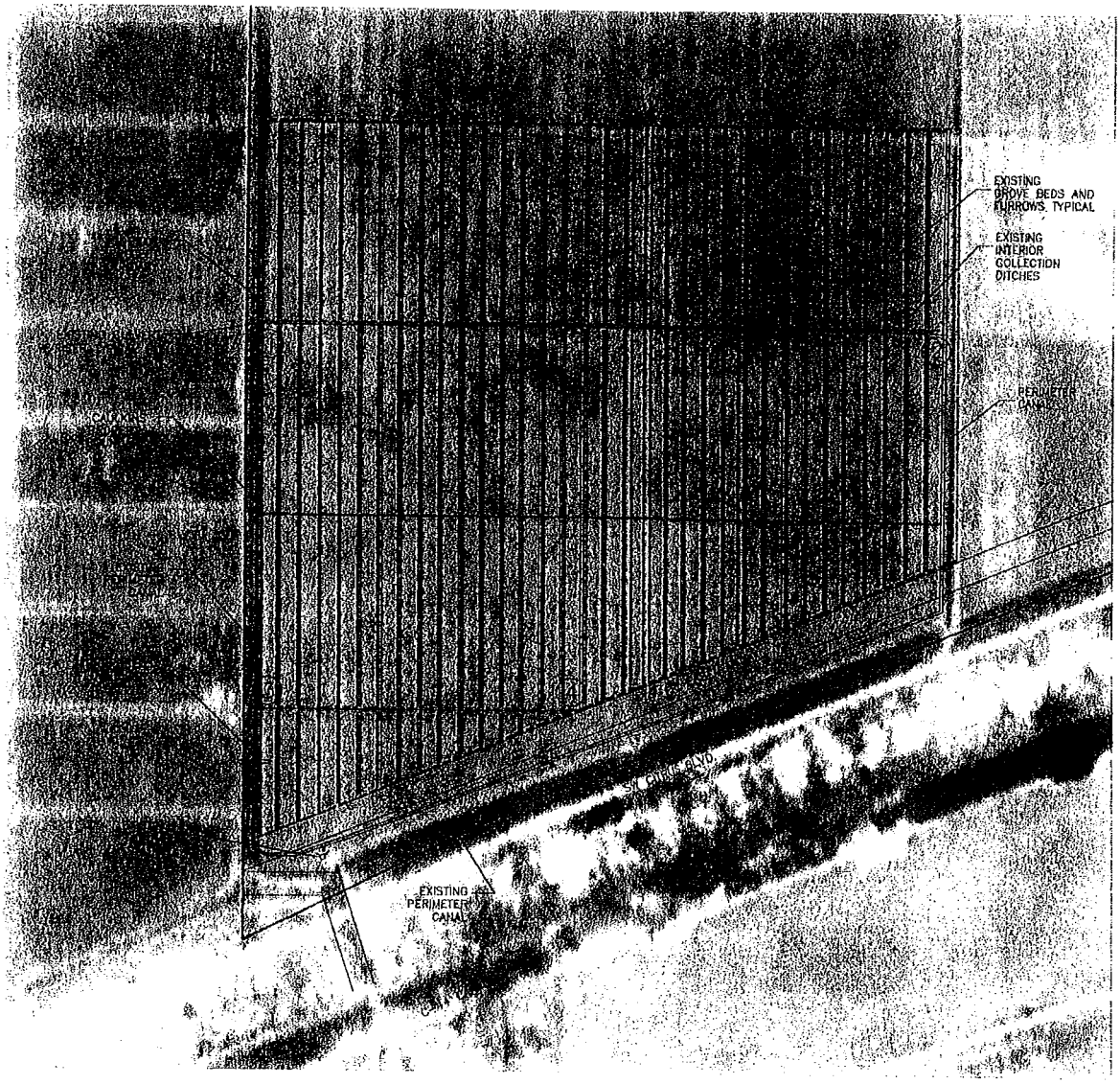
These existing perimeter canals will remain in place and as such minimize the potential for

West Property Line Perimeter Ditch

seepage, as the water level within these canals is generally maintained at or near the existing groundwater level. As everything is overgrown it is difficult to depict the actual topography of the surrounding ditches and roads.

The perimeter canals are all interconnected, and tie into the pump station that is directly connected to the C-44 canal. This allows Caulkins Citrus to hold a great deal of stormwater runoff in the perimeter canals, without any need to discharge.

Figure 3
Pilot Project Area
Proposed Configuration



ii. Within the pilot project limits

East-West Grove Ditch with Culvert and Riser

Typical East-West Grove Ditch Culvert and Riser

There are two east-west ditches within the project area that connect to the east and west perimeter canals via culverts and risers. Each interior ditch has a dirt road adjacent to it. The interior ditches are roughly 20 feet wide and 10 foot in depth. The landowner has already had each of the culverts and risers inspected for integrity to ensure they are in good working order for emergency overflow and / or recovery.

There is one additional dirt road running east to west within the project area. This road is mostly cleared areas with an overgrown grass surface.

The beds and furrows for the groves run north and south for the length of the project area, breaking at the east-west ditches and dirt roads. These areas are all overgrown and somewhat losing definition.

Nothing needs to be done to the existing roads or beds and furrows prior to water farming.

b. Water Budget and Design Criteria

A water budget is a means of accounting for the volumes of water utilized for various purposes within a project over a specified timeframe. Essentially, it is a review of the volume of water that enters a system (inputs) and volume of water that leaves the system (outputs) the summation of which results in an "ending" volume of water in the system (either surplus or deficit) at the end of the period of study. In the most basic of terms, only two possibilities exist for inputs into the system in this analysis: direct rainfall and supplemental inflow. Supplemental inflows are generated by excess stormwater runoff pumped into the site from the C-44 Canal.

The major outputs evaluated in this analysis are evapotranspiration (ET), soil infiltration (soil storage) and discharge.

The Pilot Project is anticipated to begin August 2013. The water budgets have been developed with the assumption that the system is empty at the beginning of the analysis.

1. Land Use

The first step in determining a water budget is specifying the system being analyzed, and identifying the various configuration and components which make up the system. Determination of the configuration of a system is facilitated by an accurate and detailed survey and aerial photography. It can be determined from the survey and

aerial photography the amount of a particular type of land use that exists in the system and at what elevations these land types are present. The various land uses are then assigned to individual categories describing the specifics of the land use (i.e. grove, open water, roadway, wetland, etc.) and each of these is further categorized as either pervious or impervious – this categorization being important for soil storage and stormwater runoff calculations which are described later. For this particular analysis, the southwestern 450 acres of Caulkins Citrus overall parcel has been analyzed as the Pilot Project Area. The 450 acre area was then reduced to remove the FPL easement and perimeter canals, resulting in 413 acres of pervious fallow grove area.

2. **Rainfall**
Historically, the 30-year average, annual rainfall in this region is approximately 53 inches, and is representative of the rainfall depth used in the water budget analyses discussed in detail in later portions of this report. Although the average annual yearly rainfall is the benchmark to which all other components of the water budget analyses are compared, it is acknowledged that the frequency and distribution of rainfall patterns in southeast Florida have varied greatly in the last decade. Whereby, it seems the average rainfall across the St. Lucie River Watershed may be the average of extreme seasons of flooding and drought versus moderate seasonal fluctuations.

3. **Supplemental Water from Inflow Pump Station**
This pilot project will act as both a rainfall retention system and a storage system for excess stormwater during the wet season. The goal is to maximize the amount of water stored within the site at the end of the wet season without causing a discharge.

4. **Design Storm and Discharge Rates**
The SFWMD designates design storms as the storms for which projects must be designed to prevent flooding and attenuate stormwater runoff to meet an "allowable" discharge rate for the site. The allowable discharges rate from the site generally mirrors the safe conveyance capacity of the regional drainage system. The design storm event for the C-44 basin is a 11.0 inch rainfall for the 25-year 3-day storm event. The allowable discharge rate set by SFWMD for the C-44 basin at the Cane Slough connection (the area where the Caulkins property is located) is 149.03 cubic feet per second per square mile (CSM) for the 18.05 square mile drainage area. The allowable discharge rate is important for the design of the water control structures regulating discharge from the site described later. Information regarding the design storm and allowable discharge rates was provided by the SFWMD and is contained in "*Environmental Resource Permit Information Manual Volume IV, Basis of Review for Environmental Resource Permit Applications Within the South Florida Water Management District, Appendix 2 Allowable Discharge Formulas for South Florida Water Management District Canals*" (Basis of Review).

Additionally, facilities designed to incorporate aboveground impoundments must evaluate the 100-year 3-day design storm event to regulate and limit water levels within the impoundment to ensure the integrity of the levees is maintained during major storm events. The 100-year storm event is also used to design an emergency overflow weir structure – the sole purpose of which is to limit the maximum water

level within the impoundment and maintain minimum freeboard requirements for the exterior levees. The 100-year 3-day storm event for the C-44 Basin in the proximity of Pilot Project corresponds to a rainfall depth of 14.0 inches. Detail on the emergency overflow structure will be described in more detail later; however, it should be noted that even during a 100-year, 3-day storm event, no discharge into the C-44 Canal is anticipated.

5. Design Elevations

The water management operations were evaluated and a site water control elevation was developed.

The average depth to the groundwater table during the rainy season was measured 3 to 5 feet below grade, for an average depth of 4 feet below natural ground. Based on the average site grade of 24.0, the control elevation has been set at 20.0 NGVD. This elevation is used as the initial or starting water elevation in the system, below which there is no available storage volume.

There are two design elevations of equal importance for the analysis of the the project: design water level and peak storm stage. The design water level is the water elevation at which the proposed facility is intended to normally operate. This corresponds to an elevation of 28.0 feet NGVD. This is the highest elevation that water will be stored within the containment berms in the project area. It allows for 1.0 feet of freeboard on the berms prior to water overflowing the berms and outfalling to the perimeter canals. The peak storm stage is the water elevation within the facility resulting from design storm event for the project.

The significance of these two design elevations is that they are the controls for setting the elevations for infrastructure improvements within the project site. The design water level sets the height of the outfall weirs. Since the design water level is the maximum stage height at which water is normally maintained, the elevation of the outfall weir is set at this height to control the operating system. The peak storm stage coupled with freeboard requirements for the perimeter levees set the grade elevation for the perimeter of the site and the top elevation of the emergency overflow structure weir.

6. Site Stage versus Storage

The stage versus storage relationship for a given site is a calculation of the volume available on, or within the physical features of a site for the storage of "surface" water at varying water elevations, or stages. It does not calculate the volume of storage available on a site attributable to soil infiltration. This representation is typically presented in tabular or graphic form. Zero storage is available at, or below the site water control elevation (also referred to as the initial or starting water surface elevation). The basic concept is that with increasing stage increments there is a corresponding increase in available storage. However, the increase occurs at a nonlinear rate. The storage volume available on a given site at a given stage is dependent upon the topography, configuration and extent of the physical features inherent to, or designed for that site. Once the stage versus storage relationship for a given site is developed, the volume of water retained or stored within the site can be

readily determined based on the elevation or stage of the water within the site. Correspondingly, for a given volume of water added to, or subtracted from a site, the resulting water elevation can be calculated utilizing the stage vs. storage relationship.

In evaluating only the 413 acre fallow grove area, a conservative storage volume of approximately 1,652 acre-feet of static storage (as if stored in a concrete bowl) is available based on the control elevation of 20.0 feet NGVD as the initial, starting stage, and 28.0 feet as the top elevation:

Table 2.2
Caulkins Pilot Project Area Stage-Storage

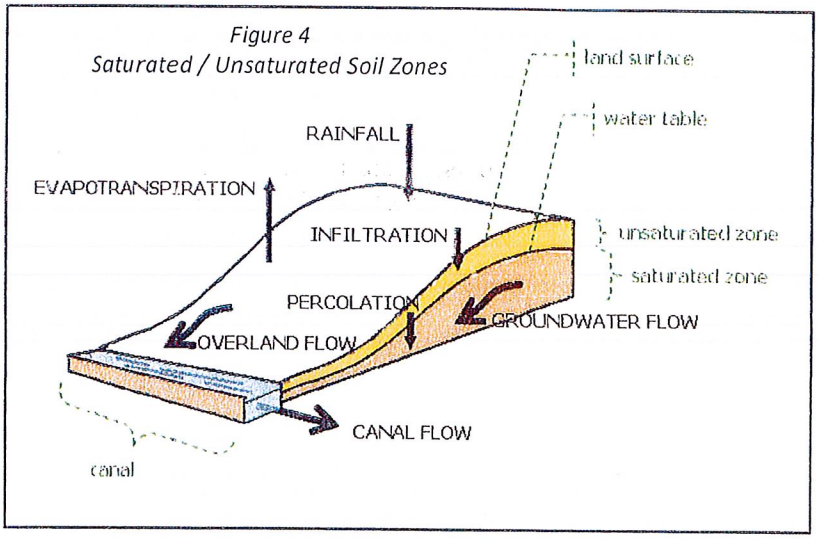
Elements	***Avg Ground***	***Total***
storage type	*Linear*	
area	*413.00*	***413.00***
start stage	20.00	
end stage	28.00	
stage	storage	**storage**
20.00	0.00	**0.00**
20.50	6.45	**6.45**
21.00	25.81	**25.81**
21.50	58.08	**58.08**
22.00	103.25	**103.25**
22.50	161.33	**161.33**
23.00	232.31	**232.31**
23.50	316.20	**316.20**
24.00	413.00	**413.00**
24.50	522.70	**522.70**
25.00	645.31	**645.31**
25.50	780.83	**780.83**
26.00	929.25	**929.25**
26.50	1090.58	**1090.58**
27.00	1264.81	**1264.81**
27.50	1451.95	**1451.95**
28.00	1652.00	**1652.00**

7. **Soil Storage and Runoff**

Since the site is not a concrete bowl, when rain falls on pervious areas of an unsaturated site, a portion of the rainfall infiltrates into the land surface. The remainder becomes overland flow or "runoff". The portion of the rainfall which infiltrates into the soil column is referred to as infiltration, or herein as "soil" storage.

The percentage of rainfall that infiltrates into the soil column is affected by soil type, vegetation, the degree of drainage available to the soil column (improved or unimproved site), how compacted the surface is, and the depth to the water table.

Figure 4
Saturated / Unsaturated Soil Zones



The depth to water table is the largest variable in volume of soil storage. During the dry season, the water table is typically lower, providing a greater unsaturated soil zone. As the system moves to the wet season, the soil column becomes more saturated, reducing the amount of soil storage available.

For the purposes of the analysis for this site, the method used to calculate soil storage was the method provided in the Basis of Review. The SFWMD method presents soil storage values in "inches" based on generic soil types and the depth to the water table. This value can be further modified based on the level of compaction of the soils at the land surface.

Based on the USDA Natural Resources Conservation Service (NRCS) Soil Survey for Martin County, the Lawnwood fine sand, Waveland sand, Oldsmar fine sand, Wabasso sand, Riviera fine sand, Pineda sand, Arents (organic stratum, 0 to 2 percent slopes), Floridana fine sand (depressional), and Riviera fine sand (depressional), classified under the "Flatwoods" soil category. The depth of soil storage is converted from inches to feet and multiplied by the applicable site area to generate a volume in acre-feet for use in the water budget.

The Pilot Project is anticipated to begin in August 2013. It is assumed that the site will have the full soil storage potential available.

Table 2.3
Soil Moisture Storage during Unsaturated Conditions

Average Site Grade	24.00	feet
Average Wet Season Water Table	20.00	feet
Average Depth to Water Table	4.00	feet
Soil Moisture Storage (flatwoods), S	6.75	inches

The runoff equation within this method utilizes a variable called the Soil Moisture Storage (S) to find the runoff depth in inches for a site (Q). The runoff depth (Q), expressed in inches, for a given rainfall amount and the available soil storage is determined using the following formula:

$$Q = (P-0.2S)^2 / (P+0.8S)$$

Where:
Q = runoff depth in inches

P = design storm total precipitation in inches
S = potential maximum retention after runoff begins in inches (SFWMD method)

The total precipitation, (P), utilized in the water budget analysis is 11.0 inch rainfall for the 25-year 3-day design storm and 14.0 inches for the 100-year 3-day peak stage. When the runoff depth is converted to feet and subsequently multiplied over the contributing drainage area of the site, a volume of runoff in acre-feet is obtained for use in the water budget.

Table 2.4
25-Year, 3-Day Design Storm Anticipated Runoff - unsaturated condition

P =	11.00	inches
S =	6.75	inches
Q =	5.68	inches
V =	390.85	acre-feet

Table 2.5
100-Year, 3-Day Storm Anticipated Runoff - unsaturated condition

P =	14.00	inches
S =	6.75	inches
Q =	8.25	inches
V =	567.78	acre-feet

As the season moves from dry to wet, the soil conditions start to become saturated, resulting in a diminishing Soil Moisture Storage (S), until it ultimately drops to zero as there is no ability for the soil to hold any more water. At this point, the resulting runoff is equal to the rainfall volume.

Table 2.6
25-Year, 3-Day Design Storm Anticipated Runoff - saturated condition

P =	11.00	inches
S =	0	inches
Q =	11.0	inches
V =	757.17	acre-feet

Table 2.7
100-Year, 3-Day Storm Anticipated Runoff - saturated condition

P =	14.00	inches
S =	0	inches
Q =	14.0	inches
V =	963.67	acre-feet

If the Pilot Project is full to elevation 28.0 feet NGVD, and a 100-Year, 3-Day Storm event occurs during the saturated condition times, the pump station weirs will not be breached; please refer to the stage storage tables shown in Appendix D. In this event, the additional water could flow into an additional 1,200 acres of fallow groves on the Caulkins Property. This scenario is discussed in further detail later in the report, under Emergency Overflow.

8. **Evapotranspiration**

Two major components associated decreasing the volume contained within any sort of body of water and, in particular, a stationary body of water such as the proposed water farming, are evaporation and transpiration. Evaporation is the transfer of water from liquid form to solid form through vaporization. Transpiration is the loss of water through uptake from plants. For hydrologic purposes, these two components are combined into one element known as evapotranspiration (ET). Determining the actual ET from a system is very difficult due to myriad variables involved such as solar radiation, vapor pressure, wind, temperature, etc. However, a memorandum titled "*Selected Methodology for Long-Term (1965-2000) Solar Radiation and Potential Evapotranspiration Estimation for the SFWMM2000 Update*" provides a method accepted by SFWMD for analysis of work inside the district.

SFWMD publication "*Documentation of the South Florida Water Management Model (SFWMM) Version 5.5*", dated November, 2005 provides a means to calculate certain water management related items for consistency in calculations across all projects. The SFWMM gives the formula for ET as:

$$ET = (K_{FACT})(ETR)$$

Where:
ET = the actual evapotranspiration for the system in question, in inches
K_{FACT} = the adjustment factor that takes into account vegetation / crop type and location of the water table relative to land surface (varies from 0 to 1.0)
ETR = wet marsh potential ET

The KFACT value is a factor that adjusts the potential ET by modifying ETR for the type of vegetation located in the system and the depth of the water table. Values of KFACT for varying depths of the water table is provided in the above referenced SFWMM document in Table 2.3.4.2 for varying land use types, including:

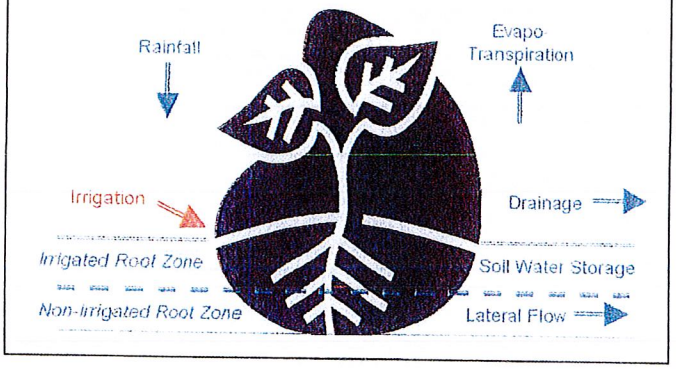
OWPOND = the minimum inundation depth above which ET for open-water is assumed, e.g., plants are fully submerged such that there is contribution from transpiration to ET.

DSRZ = the depth from the land surface to the bottom of the shallow root zone

DDRZ = the depth from the land surface to the bottom of the deep root zone

The KFACT value is equal to 1.0 (referred as KMAX in the SFWMM document) when the water table reaches the level of OWPOND - meaning ETR is fully reached. The KFACT decreases from this point linearly as water level decreases until the water table reaches the land surface at which point the KFACT is listed as KVEG and is adjusted for a particular land use.

Figure 5
KFACT varies with Soil Water Storage



KVEG suggests the only contributing factor to ET is the transpiration component – at the land surface and down no evaporation occurs. The value of KVEG varies monthly. Table 2.3.4.3 of the above referenced SFWMM document gives the values of KVEG as determined by SFWMD for each land use type listed. KVEG stays constant while the water table decreases below the land surface until it reaches the level for DSRZ, at which point it decreases linearly to a value of 0 once the water table reaches DDRZ.

Below the DDRZ, transpiration can no longer take place and the rate of ET becomes zero. Figure 6 illustrates the levels and variance in the KFACT value as the water table varies.

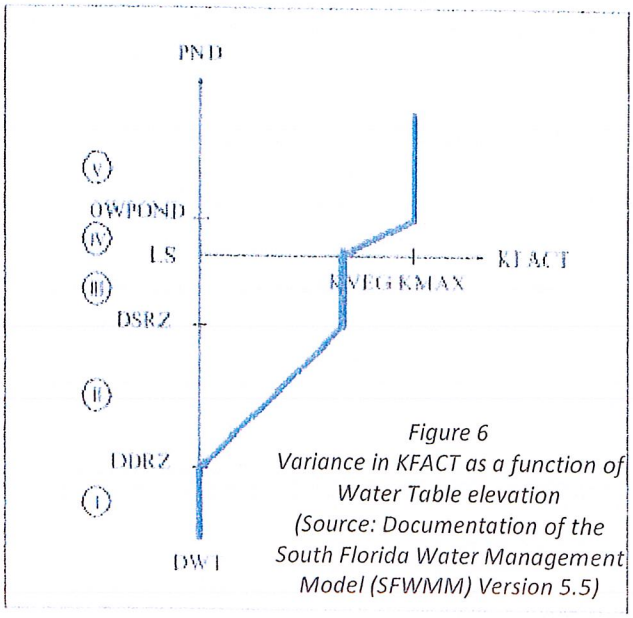


Figure 6
Variance in KFACT as a function of Water Table elevation
(Source: Documentation of the South Florida Water Management Model (SFWMM) Version 5.5)

ETR is determined from the amount of solar radiation that reaches the land surface at the location in question using an adjustment coefficient and the amount of energy needed to convert water from a liquid form to a gaseous form (i.e. the latent heat of evaporation).

From the aforementioned memo, ETR is defined as:

$$ETR = \frac{K_1 * R_s}{\lambda}$$

Where:
K_1 = coefficient (0.53 for mixed marsh, open water, and shallow lakes)

R_s = solar radiation received at the land surface (units: [MJ m^{-2} d^{-1}])
λ = latent heat of evaporation – defined as the amount of energy needed to convert liquid water into vapor (equal to 2.27 MJ/kg^{-1})

The Rs component of the above equation is further determined from extraterrestrial solar radiation (i.e. the amount of solar radiation that reaches the top of the atmosphere) and the transmissivity of the atmosphere. Extraterrestrial solar radiation is calculated from the relative distance from the sun to the earth, the sunset hour angle, the latitude of the location of interest, and the declination of the sun. Transmissivity is the percentage of solar radiation that makes it through the atmosphere (i.e. how much of the extraterrestrial solar radiation reaches the land surface). Transmissivity is a function of both the mean daily maximum and minimum temperatures at the location of interest. The equation for the solar radiation received at the land surface (Rs) is as follows:

$$R_s = \tau R_a = K_r(T_{max} - T_{min})^{0.5} R_a$$

Where:
τ = atmospheric transmissivity = $K_r(T_{max} - T_{min})^{0.5}$ = 0.4965
K_r = empirical coefficient (equal to 0.172 for this location – interpolated from points given in SFWMM document
T_{max} = mean daily maximum temperature over the period of interest [°C] = 29.444
T_{min} = mean daily minimum temperature over the period of interest [°C] = 21.111
R_a = extraterrestrial solar radiation (units: [MJ m^{-2} d^{-1}])

R_a is further defined as:

$$R_a = (24 * 60 / \pi) G_{SC} d_r(\omega_s \sin\varphi \sin\delta + \cos\varphi \cos\delta \sin\omega_s)$$

Where:
G_{sc} = solar constant, equals 0.8202 (Duffie & Beckman, 1991) (units: [MJ m^{-2} d^{-1}])
d_r = relative distance from the sun to the Earth = 1 + 0.033 cos(2πJ / 365), for May 1st = 0.983859
J = Julian day of the year (January 1 is J = 1, December 31 is J = 365, etc.), for May 1st = 121
ϕ = station latitude [radians] = 27.046 degrees = 0.4720 radians
δ = declination of the sun [rad] = 0.409 sin [(2πJ / 365) - 1.39], for May 1st = 0.260931
ω_s = sunset hour angle [rad] = arccos(tan φ tan δ) = 1.43

Resulting in R_a = 377.728 MJ m^{-2} d^{-1}

A mean high temperature of 85 degrees and mean low of 70 degrees was obtained from weather.com, and then converted to Celsius to solve for the atmospheric transmissivity, τ.

Utilizing the calculated R_a and τ, the solar radiation, R_s= 187.5462 MJ m^{-2} d^{-1}

ETR = 43.788 inches

The Pilot Project is anticipated to begin in August 2013 with the system empty, the KFACT value is KMAX, or 1, wherein the site has the maximum available storage.

Therefore, ET = 43.788 inches, or 3,014 acre-feet

Understanding ET is vitally important to a reservoir project as it is a major component of the water budget. Given enough time and without enough rainfall or other input to replenish the system, ET will eventually dry out an entire system. For this reason, an analysis such as the one described above needs to be performed – allowing for a thorough understanding of the amount of water removed from a reservoir due to ET. The volume of water lost to evapotranspiration is taken into account as one of the outputs for the water budgets. The calculation performed is simply a snapshot of one moment in time; however, given the results and the known soils conditions, it is anticipated that the reservoir will be able to be filled three times during the course of a given year, for a total pumped volume of 6,780 acre-feet.

9. **Control Structures**

   i. **Emergency Overflow / Recovery Culverts**

   The existing grove ditches within the pilot project connect to the perimeter canals in four locations. The design intent is for the two western connections to include risers and adjustable weirs that allow the water to stage up to elevation 28.0 NGVD, at which time, any additional water would overflow the weir into the perimeter canals.

   Should there be an issue in which the water farming area needed to be drained, the adjustable weir plate would be lowered allowing the stored water to flow by gravity to the perimeter canals. Note that the perimeter canals surround the entire 3,275 acre site and offer approximately 252 acre-feet of storage by themselves.

   In the case of an emergency during the Pilot Project, whereby additional storage is needed, an additional 1,200 acres of fallow groves on the Caulkins Property is available for storage.

   ii. **Inflow Pump Station**

   The inflow pump station exists. It currently houses two pumps - one 20,000 gallon per minute pump and one 25,000 gallon per minute pump. With both pumps running, it will take approximately 16-1/2 days to fill the Pilot Project area for the first time.

10. Water Budget at Beginning of Pilot Project

This water use budget is based on retaining all rainfall, and filling the reservoir three times.

Table 2.8
Water Budget per Year

Average Rainfall Year	Site Discharge	Volume Retained (Rainfall)	Volume Stored (Pumped)	Total Volume
53"	(ac-ft)	(ac-ft)	(ac-ft)	(ac-ft)
Fallow Grove	0	1824	4956	6,780

Project Permitting

FORM #0157
Rev. 07/05

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE
PERMIT MODIFICATION NO. 43-00360-S
DATE ISSUED: SEPTEMBER 16, 2013

PERMITTEE: CAULKINS CITRUS COMPANY LIMITED
(CAULKINS WATER FARM)
PO BOX 188,
INDIANTOWN, FL 34956

ORIGINAL PERMIT ISSUED: JUNE 12, 1986

ORIGINAL PROJECT DESCRIPTION: OPERATION OF A WATER MANAGEMENT SYSTEM SERVING 3234 ACRES OF AGRICULTURAL LANDS DISCHARGING INTO C-44 VIA CANE SLOUGH SPILLWAY.

APPROVED MODIFICATION: ENVIRONMENTAL RESOURCE PERMIT MODIFICATION OF A SURFACE WATER MANAGEMENT PERMIT TO AUTHORIZE CONSTRUCTION AND OPERATION OF A STORMWATER MANAGEMENT SYSTEM TO SERVE A 450 ACRE WATER FARMING PROJECT.

PROJECT LOCATION: MARTIN COUNTY , SECTION 29,30 TWP 39S RGE 40E

PERMIT DURATION: See Special Condition No:1. Pursuant to Rule 40E-4.321, Florida Administrative Code.

This is to notify you of the District's agency action concerning Permit Application No. 130805-9, dated August 5, 2013. This action is taken pursuant to the provisions of Chapter 373, Part IV, Florida Statutes (F.S.), and the Operation Agreement Concerning Regulation Under Part IV, Chapter 373 F.S., between South Florida Water Management District and the Department of Environmental Protection.

Based on the information provided, District rules have been adhered to and an Environmental Resource Permit Modification is in effect for this project subject to:

1. Not receiving a filed request for an administrative hearing pursuant to Section 120.57 and Section 120.569, or request a judicial review pursuant Section 120.68, Florida Statutes.
2. The attached 19 General Conditions.
3. The attached 15 Special Conditions.
4. The attached 2 Exhibits.

Should you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Should you wish to object to the proposed agency action or file a petition, please provide written objections, petitions and/or waivers to:

Juanita Addie, Deputy Clerk, MSC9610
South Florida Water Management District
Post Office Box 24680
West Palm Beach, FL 33416-4680

Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights", we will assume that you concur with the District's action.

CERTIFICATION OF SERVICE

I HEREBY CERTIFY that the Staff Report, Conditions and Notice of Rights have been mailed to the Permittee (and the persons listed on the attached staff report distribution list) no later than 5:00 p.m. on this 17th day of September, 2013, in accordance with Section 120.60(3), Florida Statutes, and a copy has been filed and acknowledged with the Deputy District Clerk.

By _____
DEPUTY CLERK
SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Attachments

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on September 16, 2018.

2. Operation of the stormwater management system shall be the responsibility of the permittee.

3. Discharge Facilities: No discharge facilities - onsite retention is proposed.

4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the stormwater management system.

5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.

6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.

7. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.

8. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

9. The permittee shall provide routine maintenance of all of the components of the stormwater management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.

10. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed stormwater management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the stormwater management system, if necessary, to eliminate the cause of the adverse impacts.

11. The permittee acknowledges that, pursuant to Rule 40E-4.101(2), F.A.C., a notice of Environmental Resource or Surface Water Management Permit may be recorded in the county public records. Pursuant to the specific language of the rule, this notice shall not be considered an encumbrance upon the property.

12. If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, should contact the Florida Department of State, Division of Historical Resources, Review and Compliance Section at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Project activities should not resume without verbal and/or written authorization from the Division of Historical Resources. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, Florida Statutes.

13. Land use within the permitted facilities is agricultural. Any proposed change in land use may require modification of this permit and must be reported to the District for a determination of permit requirements. Prior to construction of future water farming phases, a permit modification will be required.

14. Upon completion of construction, and on an annual basis (in March of each year), the permittee shall have an inspection performed to assess the structural adequacy of all above ground dikes, control structures, levees and berms behind which water is to be contained and where failure could impact off-site areas. A state of Florida licensed professional engineer shall perform each inspection and prepare each report. These reports shall be signed and sealed by the

professional engineer performing the inspection, kept on file by the permittee and made available to South Florida Water Management District (SFWMD) personnel upon request. If deficiencies are found that will affect the performance of the impoundment, a report which is signed and sealed by the engineer performing the inspection shall be submitted to the SFWMD within which includes, but is not limited to, the proposed technique and schedule for repairs of any deficiencies noted.

15. The exhibits and special conditions in this permit apply only to this application. They do not supersede or delete any requirements for other applications covered in Permit No. 43-00360-S unless otherwise specified herein.

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373. F.S.

2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.

5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.

6. Within 30 days after completion of construction of the permitted activity, the permitee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.

7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to be in compliance with the permitted plans and specifications; and the entity approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved

responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..

12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No Notice" Rule.

14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.

19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a District decision which does or may determine their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, or electronic mail, or posting that the District has or intends to take final agency action, or publication of notice that the District has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

Filing Instructions

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery or facsimile. **Filings by e-mail will not be accepted.** Any person wishing to receive a clerked copy with the date and time stamped must provide an additional copy. A petition for administrative hearing is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the SFWMD Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the SFWMD Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the SFWMD Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office.** An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by facsimile must be transmitted to the SFWMD Clerk's Office at (561) 682-6010. Pursuant to Subsections 28-106.104(7), (8) and (9), Fla. Admin. Code, a party who files a document by facsimile represents that the original physically signed document will be retained by that party for the duration of that proceeding and of any subsequent appeal or subsequent proceeding in that cause. Any party who elects to file any document by facsimile shall be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed with the clerk as a result. The filing date for a document filed by facsimile shall be the date the SFWMD Clerk receives the complete document.

Initiation of an Administrative Hearing

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, District file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency determination.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the District takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

Mediation

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the SFWMD Clerk within 30 days of rendering of the final SFWMD action.

FINAL APPROVED BY
EXECUTIVE DIRECTOR
SEPTEMBER 16, 2013

Last Date For Agency Action: October 4, 2013

INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Caulkins Water Farm

Permit No.: 43-00360-S

Application No.: 130805-9

Application Type: Environmental Resource (Construction/Operation Modification)

Location: Martin County, S29,30/T39S/R40E

Permittee : Caulkins Citrus Company Limited

Operating Entity : Permittee

Project Area: 450.00 acres

Project Land Use: Agricultural

Drainage Basin: C-44

Receiving Body: On site retention **Class:** N/A

Special Drainage District: NA

Conservation Easement To District : No

Sovereign Submerged Lands: No

PROJECT PURPOSE

This application is a request for an Environmental Resource Permit modification of a Surface Water Management Permit to authorize construction and operation of a stormwater management system to serve a 450 acre water farming project.

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The project site is located approximately six miles east of Indiantown on the north side of the St. Lucie Canal (C-44) in central Martin County. The site is bordered on the south by Citrus Boulevard and on the north, east, and west by agricultural (citrus) lands. The overall property is approximately 3300 acres of former citrus grove.

There are permitted surface water management facilities within the overall site area. The site contains a network of internal and perimeter canals. Drainage and irrigation for the project leaves and enters the project at the southwest property corner and along the southeastern boundary, with outfall to the St. Lucie Canal. Pumps are located at the southwest property corner. In addition, there are control gates at the southwest project boundary that discharge to the C-44 and structures that discharge to the C-44 via the Cane Slough spillway.

There are no wetlands located within or affected by the proposed project.

PROJECT BACKGROUND:

Permit No. 43-00079-S was issued to Caulkins Citrus Ltd. in October 1977 for 3548 acres. Permit No. 43-00360-S was issued to Indian River Citrus Grove in June 1986 for 3235 acres. Concurrently, Permit No. 43-00079-S was modified to remove 3235 acres. The remaining 314 acres of undeveloped land was retained by Caulkins. In December 1997, Permit No. 43-00360-S was transferred to Caulkins Citrus Company Ltd.

PROPOSED PROJECT:

The water farm is proposed on 450 acres of the existing citrus grove property. The existing canals, pumps, and structures will be modified and an above ground impoundment constructed to create an approximately 413 acre water storage area. Water will be pumped from the C-44 using two pumps, one electric and the other diesel with a combined capacity of 45,000 gpm, into the proposed above ground impoundment (AGI).

To direct discharge to the proposed AGI, one or two 48 inch diameter culverts will be installed from the existing pump station to the proposed AGI. Water will be held in the AGI up to an elevation of 28.0 ft. NGVD. At water elevations above 28.0 ft. NGVD, water will discharge into the remainder of the 3300 acres site via the two 36 inch diameter overflow risers and the inflow culvert. For storm events up to the 100 year three day storm, there will be no discharge from the overall site.

The two 36 inch diameter overflow structures will include operable weirs that can be raised to allow the AGI to be drained into the overall site for maintenance of the AGI or in anticipation of a major storm event.

The cross sections of the AGI shown on the plans meet the major impoundment criteria in the District's Basis of Review for the entire AGI perimeter.

The proposed project is part of the Dispersed Water Management, Water Farming Pilot Project (WFPP) to help meet the intent of the Northern Everglades and Estuaries Protection Program (F.S. 373.4595). The goal of the Dispersed Water Management, WFPP is to establish relationships via contracts with private landowners in the St. Lucie River Watershed to obtain the water management service of water retention to reduce flows and nutrient loads to the St. Lucie Estuary while enhancing economic stability of working agricultural lands. At the District's August 15, 2013, Governing Board meeting, a resolution was approved "...to authorize entering into a three year contract with Caulkins Citrus Company, LTD for a Dispersed Water Management Program Water Farming Pilot Project for the purpose of providing water retention

services and pilot project implementation information on fallow citrus lands in the St. Lucie River Watershed...".

WATER QUANTITY:

Discharge Rate :

The project has been designed to contain on site the design storm (25 year 3 day) and 100 year 3 day storm events. The applicant has indicated that discharge from the water farming storage area (AGI) will be contained within the remainder of the 3,300 acre site area; there will be no offsite discharge.

WATER QUALITY:

No adverse water quality impacts are anticipated as a result of the proposed project. There will be no discharge from the site up to and including the 100 year 3 day storm event.

WETLANDS:

There are no wetlands within or affected by the proposed project.

Wildlife Issues:

The project site does not contain preferred habitat for wetland-dependent endangered or threatened wildlife species or species of special concern. No wetland-dependent endangered/threatened species or species of special concern were observed onsite, and submitted information indicates that potential use of the site by such species is minimal. This permit does not relieve the applicant from complying with all applicable rules and any other agencies' requirements if, in the future, endangered/threatened species or species of special concern are discovered on the site.

CERTIFICATION AND MAINTENANCE OF THE WATER MANAGEMENT SYSTEM:

It is suggested that the permittee retain the services of an appropriate registered professional registered in the State of Florida for periodic observation of construction of the surface water management (SWM) system. This will facilitate the completion of construction completion certification Form #0881 which is required pursuant to Section 10 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, and Rule 40E-4.361(2), Florida Administrative Code (F.A.C.).

Pursuant to Chapter 40E-4 F.A.C., this permit may not be converted from the construction phase to the operation phase until certification of the SWM system is submitted to and accepted by this District. Rule 40E-4.321(7) F.A.C. states that failure to complete construction of the SWM system and obtain operation phase approval from the District within the permit duration shall require a new permit authorization unless a permit extension is granted.

For SWM systems permitted with an operating entity who is different from the permittee, it should be noted that until the permit is transferred to the operating entity pursuant to Rule 40E-1.6107, F.A.C., the permittee is liable for compliance with the terms of this permit.

The permittee is advised that the efficiency of a SWM system will normally decrease over time unless the system is periodically maintained. A significant reduction in flow capacity can usually be attributed to partial blockages of the conveyance system. Once flow capacity is compromised, flooding of the project

may result. Maintenance of the SWM system is required to protect the public health, safety and the natural resources of the state. Therefore, the permittee must have periodic inspections of the SWM system performed to ensure performance for flood protection and water quality purposes. If deficiencies are found, it is the responsibility of the permittee to correct these deficiencies in a timely manner.

RELATED CONCERNS:

Water Use Permit Status:

The applicant has indicated that neither irrigation water nor dewatering is required for this project

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

CERP:

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

Potable Water Supplier:

Potable water is not required.

Waste Water System/Supplier:

Waste water service is not required.

Right-Of-Way Permit Status:

A District Right-of-Way Permit is not required for this project.

DRI Status:

This project is not a DRI.

Historical/Archeological Resources:

No information has been received that indicates the presence of archaeological or historical resources in the project area or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places

DEO/CZM Consistency Review:

The issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.

Third Party Interest:

No third party has contacted the District with concerns about this application.

Enforcement:

There has been no enforcement activity associated with this application.

STAFF RECOMMENDATION TO EXECUTIVE DIRECTOR:

The Staff recommends that the following be issued :

Environmental Resource Permit modification of a Surface Water Management Permit to authorize construction and operation of a stormwater management system to serve a 450 acre water farming project.

Based on the information provided, District rules have been adhered to.

Staff recommendation is for approval subject to the attached General and Special Conditions.

STAFF REVIEW:

NATURAL RESOURCE MANAGEMENT APPROVAL

ENVIRONMENTAL EVALUATION

David Melton

SUPERVISOR

for Barbara J. Conroy

SURFACE WATER MANAGEMENT APPROVAL

ENGINEERING EVALUATION

Hugo A. Carter, P.E.

SUPERVISOR

Hugo A. Carter, P.E.

ENVIRONMENTAL RESOURCE PERMITTING BUREAU CHIEF :

Anita R. Bain

DATE: 9/13/13

REGULATION DIVISION ASSISTANT DIRECTOR :

Anthony M. Waterhouse, P.E.

DATE: 9/13/13

GENERAL CONDITIONS

1. All activities authorized by this permit shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit and Part IV, Chapter 373. F.S.

2. This permit or a copy thereof, complete with all conditions, attachments, exhibits, and modifications shall be kept at the work site of the permitted activity. The complete permit shall be available for review at the work site upon request by District staff. The permittee shall require the contractor to review the complete permit prior to commencement of the activity authorized by this permit.

3. Activities approved by this permit shall be conducted in a manner which does not cause violations of State water quality standards. The permittee shall implement best management practices for erosion and pollution control to prevent violation of State water quality standards. Temporary erosion control shall be implemented prior to and during construction, and permanent control measures shall be completed within 7 days of any construction activity. Turbidity barriers shall be installed and maintained at all locations where the possibility of transferring suspended solids into the receiving waterbody exists due to the permitted work. Turbidity barriers shall remain in place at all locations until construction is completed and soils are stabilized and vegetation has been established. All practices shall be in accordance with the guidelines and specifications described in Chapter 6 of the Florida Land Development Manual; A Guide to Sound Land and Water Management (Department of Environmental Regulation, 1988), incorporated by reference in Rule 40E-4.091, F.A.C. unless a project-specific erosion and sediment control plan is approved as part of the permit. Thereafter the permittee shall be responsible for the removal of the barriers. The permittee shall correct any erosion or shoaling that causes adverse impacts to the water resources.

4. The permittee shall notify the District of the anticipated construction start date within 30 days of the date that this permit is issued. At least 48 hours prior to commencement of activity authorized by this permit, the permittee shall submit to the District an Environmental Resource Permit Construction Commencement Notice Form Number 0960 indicating the actual start date and the expected construction completion date.

5. When the duration of construction will exceed one year, the permittee shall submit construction status reports to the District on an annual basis utilizing an annual status report form. Status report forms shall be submitted the following June of each year.

6. Within 30 days after completion of construction of the permitted activity, the permitee shall submit a written statement of completion and certification by a professional engineer or other individual authorized by law, utilizing the supplied Environmental Resource/Surface Water Management Permit Construction Completion/Certification Form Number 0881A, or Environmental Resource/Surface Water Management Permit Construction Completion Certification - For Projects Permitted prior to October 3, 1995 Form No. 0881B, incorporated by reference in Rule 40E-1.659, F.A.C. The statement of completion and certification shall be based on onsite observation of construction or review of as-built drawings for the purpose of determining if the work was completed in compliance with permitted plans and specifications. This submittal shall serve to notify the District that the system is ready for inspection. Additionally, if deviation from the approved drawings are discovered during the certification process, the certification must be accompanied by a copy of the approved permit drawings with deviations noted. Both the original and revised specifications must be clearly shown. The plans must be clearly labeled as "as-built" or "record" drawings. All surveyed dimensions and elevations shall be certified by a registered surveyor.

7. The operation phase of this permit shall not become effective: until the permittee has complied with the requirements of condition (6) above, and submitted a request for conversion of Environmental

GENERAL CONDITIONS

Resource Permit from Construction Phase to Operation Phase, Form No. 0920; the District determines the system to be in compliance with the permitted plans and specifications; and the entity approved by the District in accordance with Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, accepts responsibility for operation and maintenance of the system. The permit shall not be transferred to such approved operation and maintenance entity until the operation phase of the permit becomes effective. Following inspection and approval of the permitted system by the District, the permittee shall initiate transfer of the permit to the approved responsible operating entity if different from the permittee. Until the permit is transferred pursuant to Section 40E-1.6107, F.A.C., the permittee shall be liable for compliance with the terms of the permit.

8. Each phase or independent portion of the permitted system must be completed in accordance with the permitted plans and permit conditions prior to the initiation of the permitted use of site infrastructure located within the area served by that portion or phase of the system. Each phase or independent portion of the system must be completed in accordance with the permitted plans and permit conditions prior to transfer of responsibility for operation and maintenance of the phase or portion of the system to a local government or other responsible entity.

9. For those systems that will be operated or maintained by an entity that will require an easement or deed restriction in order to enable that entity to operate or maintain the system in conformance with this permit, such easement or deed restriction must be recorded in the public records and submitted to the District along with any other final operation and maintenance documents required by Sections 9.0 and 10.0 of the Basis of Review for Environmental Resource Permit applications within the South Florida Water Management District, prior to lot or units sales or prior to the completion of the system, whichever comes first. Other documents concerning the establishment and authority of the operating entity must be filed with the Secretary of State, county or municipal entities. Final operation and maintenance documents must be received by the District when maintenance and operation of the system is accepted by the local government entity. Failure to submit the appropriate final documents will result in the permittee remaining liable for carrying out maintenance and operation of the permitted system and any other permit conditions.

10. Should any other regulatory agency require changes to the permitted system, the permittee shall notify the District in writing of the changes prior to implementation so that a determination can be made whether a permit modification is required.

11. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and Chapter 40E-4 or Chapter 40E-40, F.A.C..

12. The permittee is hereby advised that Section 253.77, F.S. states that a person may not commence any excavation, construction, or other activity involving the use of sovereign or other lands of the State, the title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund without obtaining the required lease, license, easement, or other form of consent authorizing the proposed use. Therefore, the permittee is responsible for obtaining any necessary authorizations from the Board of Trustees prior to commencing activity on sovereignty lands or other state-owned lands.

13. The permittee must obtain a Water Use permit prior to construction dewatering, unless the work qualifies for a general permit pursuant to Subsection 40E-20.302(3), F.A.C., also known as the "No

GENERAL CONDITIONS

Notice" Rule.

14. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any system authorized by the permit.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding, unless a specific condition of this permit or a formal determination under Section 373.421(2), F.S., provides otherwise.

16. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of a permitted system or the real property on which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of Rules 40E-1.6105 and 40E-1.6107, F.A.C.. The permittee transferring the permit shall remain liable for corrective actions that may be required as a result of any violations prior to the sale, conveyance or other transfer of the system.

17. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

18. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the appropriate District service center.

19. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on September 16, 2018.
2. Operation of the stormwater management system shall be the responsibility of the permittee.
3. Discharge Facilities: No discharge facilities - onsite retention is proposed.
4. The permittee shall be responsible for the correction of any erosion, shoaling or water quality problems that result from the construction or operation of the stormwater management system.
5. Measures shall be taken during construction to insure that sedimentation and/or turbidity violations do not occur in the receiving water.
6. The District reserves the right to require that additional water quality treatment methods be incorporated into the drainage system if such measures are shown to be necessary.
7. Facilities other than those stated herein shall not be constructed without an approved modification of this permit.
8. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.
9. The permittee shall provide routine maintenance of all of the components of the stormwater management system in order to remove all trapped sediments/debris. All materials shall be properly disposed of as required by law. Failure to properly maintain the system may result in adverse flooding conditions.
10. This permit is issued based on the applicant's submitted information which reasonably demonstrates that adverse water resource related impacts will not be caused by the completed permit activity. Should any adverse impacts caused by the completed stormwater management system occur, the District will require the permittee to provide appropriate mitigation to the District or other impacted party. The District will require the permittee to modify the stormwater management system, if necessary, to eliminate the cause of the adverse impacts.
11. The permittee acknowledges that, pursuant to Rule 40E-4.101(2), F.A.C., a notice of Environmental Resource or Surface Water Management Permit may be recorded in the county public records. Pursuant to the specific language of the rule, this notice shall not be considered an encumbrance upon the property.
12. If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, should contact the Florida Department of State, Division of Historical Resources, Review and Compliance Section at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Project activities should not resume without verbal and/or written authorization from the Division of Historical Resources. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, Florida Statutes.
13. Land use within the permitted facilities is agricultural. Any proposed change in land use may require modification of this permit and must be reported to the District for a determination of permit requirements. Prior to construction of future water farming phases, a permit modification will be required.
14. Upon completion of construction, and on an annual basis (in March of each year), the permittee shall

SPECIAL CONDITIONS

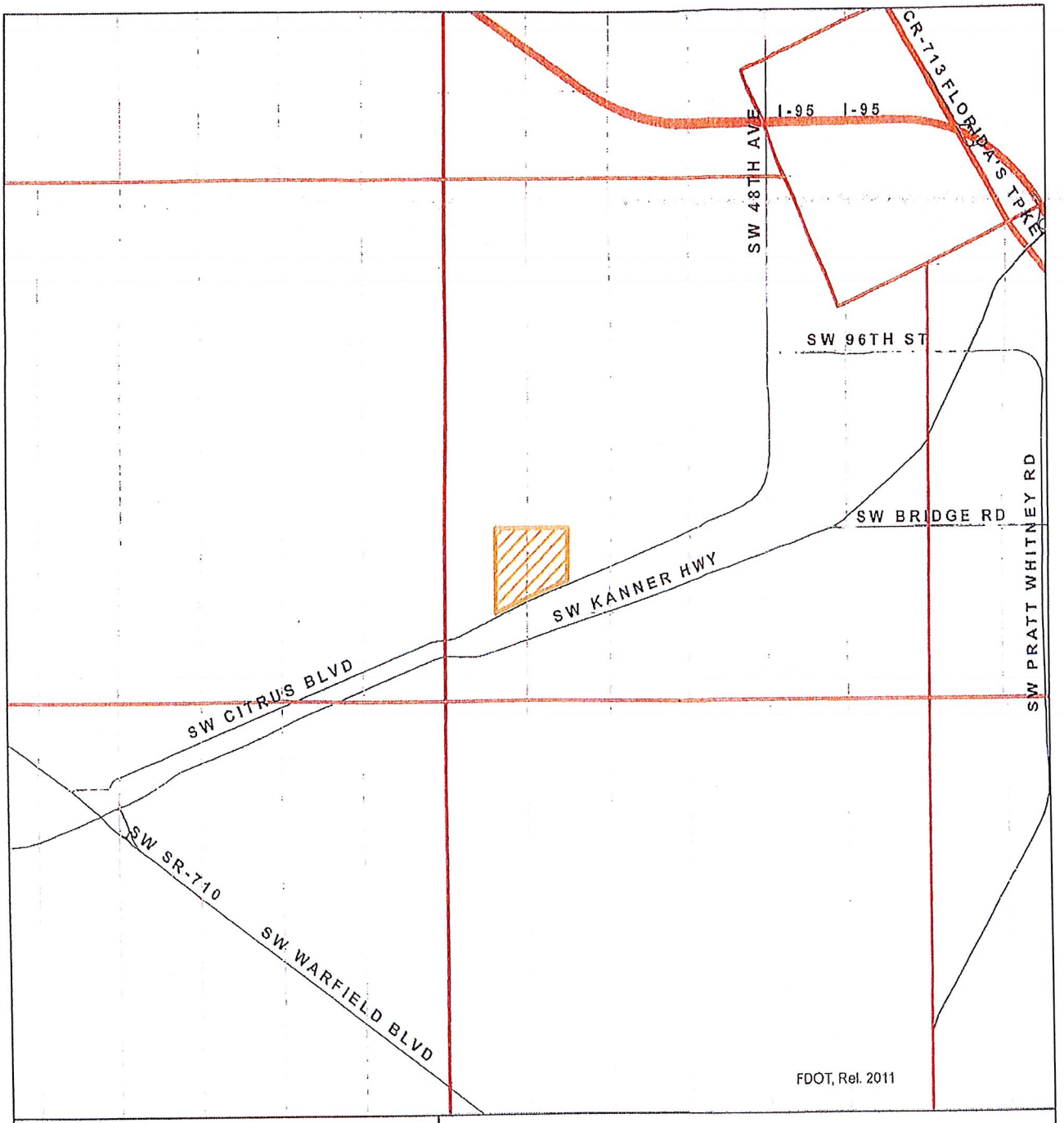
have an inspection performed to assess the structural adequacy of all above ground dikes, control structures, levees and berms behind which water is to be contained and where failure could impact off-site areas. A state of Florida licensed professional engineer shall perform each inspection and prepare each report. These reports shall be signed and sealed by the professional engineer performing the inspection, kept on file by the permittee and made available to South Florida Water Management District (SFWMD) personnel upon request. If deficiencies are found that will affect the performance of the impoundment, a report which is signed and sealed by the engineer performing the inspection shall be submitted to the SFWMD within which includes, but is not limited to, the proposed technique and schedule for repairs of any deficiencies noted.

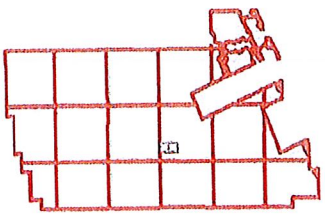
15. The exhibits and special conditions in this permit apply only to this application. They do not supersede or delete any requirements for other applications covered in Permit No. 43-00360-S unless otherwise specified herein.

Table of Contents for Staff Report Exhibits

App. No. 130805-9

Caulkins Water Farm





MARTIN COUNTY, FLORIDA

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Legend

Application

Map Date: 2013-09-11

Application No: 130805-9

Permit No: 43-00360-S

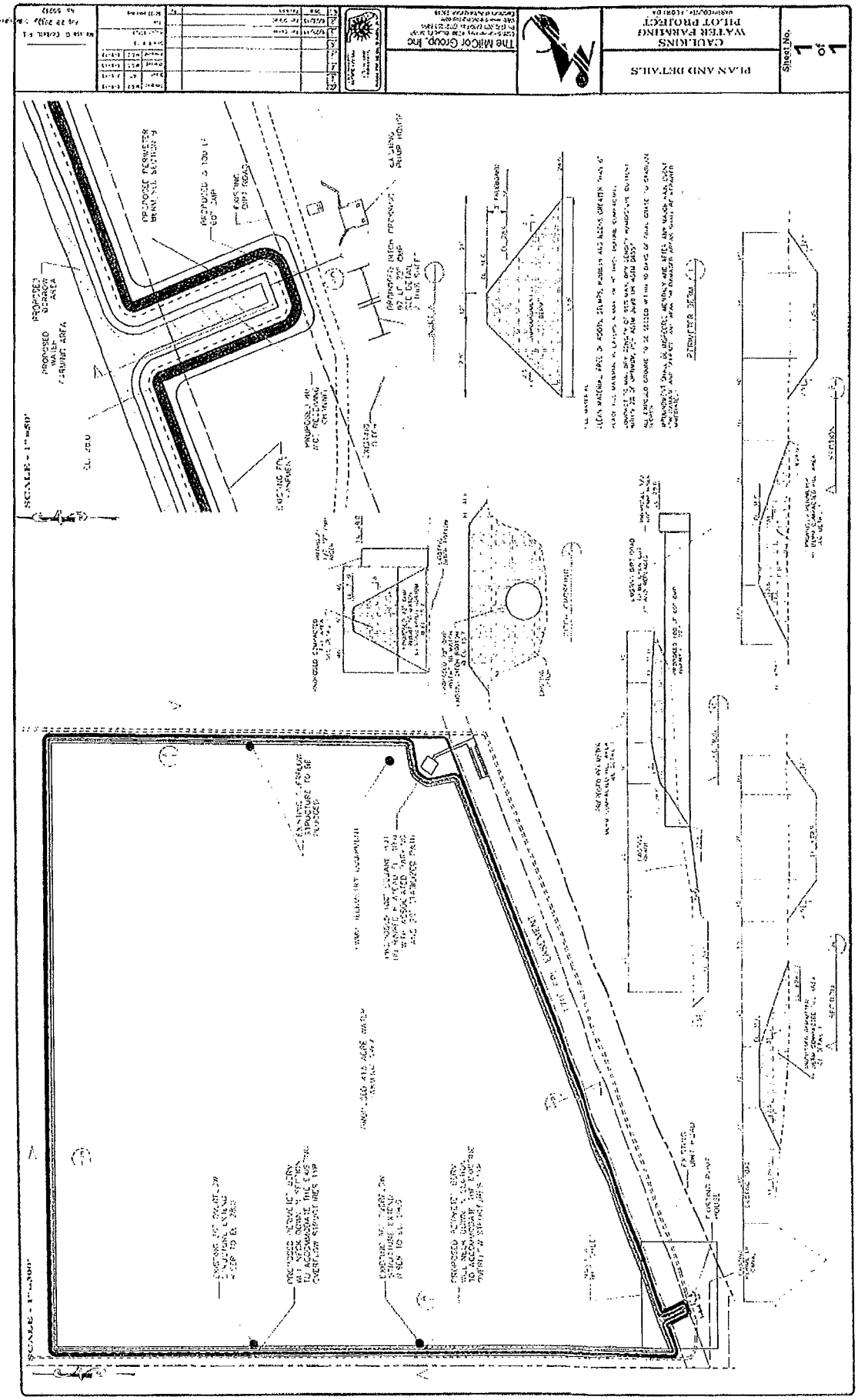
Sec 29,30 / Twp 39 / Rge 40

Project Name: CAULKINS WATER FARM

0 50 100

Miles

Exhibit Number: 1


PLANS AND DETAILS
CADLKINS
WATER FARMING
PILOT PROJECT
Sheet No.
1 of 1
The Milcor Group, Inc.
SCALE - 1"=50'
SCALE - 1"=200'

STAFF REPORT DISTRIBUTION LIST

CAULKINS WATER FARM

Application No: 130805-9

Permit No: 43-00360-S

INTERNAL DISTRIBUTION

X David Melton
X Hugo A. Carter, P.E.
X Barbara J. Conmy
X A. Bain
X A. Waterhouse
X Boyd Gunsalus
X ERC Martin/St. Lucie
X Matthew Morrison

EXTERNAL DISTRIBUTION

X Permittee - Caulkins Citrus Company Limited
X Applicant - Citrus Managers L L C
X Engr Consultant - The Mil Cor Group Inc

GOVERNMENT AGENCIES

X Div of Recreation and Park - District 5 - FDEP
X Martin County - County Administrator
X Martin County Board of County Commissioners
X Martin County Engineering Dept. - Don G. Donaldson, P.E.

Project Operations and Maintenance Plan

OPERATIONS AND MAINTENANCE PLAN
CAULKINS CITRUS WATER FARMING PILOT PROJECT

The purpose of "water farming" is to capture and divert surface water from the South Florida Water Management District system before the "system" becomes staged so high that it requires discharge of fresh water to tide causing environmental damage to the St Lucie Estuary and Indian River Lagoon and wasting the resource. The relevant portion of "system" for this pilot project is defined as the series of canals and outfalls entering the C-44 Canal including Lake Okeechobee. Harvesting water from the C-44 Canal into the Caulkins Citrus Water Farming facility considers the USACE 2008 LORS as the guiding document to manage stages in LOK and will occur when:

1) Regulatory releases are being conducted by USACE at S-308 and/or S-80; or

2) When the C-44 Canal is not discharging to Lake Okeechobee and the stage in the C-44 Canal measured at S-80 headwater is above 14.0' NGVD and stable or rising; or

3) When the C-44 Canal is discharging into Lake Okeechobee and the stage in the C-44 Canal measured at the S-80 headwater is above 14.2' NGVD and rising; or

4) As determined by local hydrologic conditions and determined on a case by case basis by the SFWMD water managers with concurrence from the USACE.

If the stages in the C-44 Canal at either S-80 or S-308 falls below elevation 14.0' NGVD with no flow at S-80 or if the District directs the Service Provider to cease pumping, pumping will cease immediately.

The purpose of implementing a Pilot Project is to gather data on the performance of a water farm on a smaller scale with a smaller investment of time, money, and land from the District and the landowner. By limiting the size of the water farm to 413 acres, data can be gathered on the performance of the system without causing large disruptions to other parts of the District's water management system. Raising the water level in the pilot project by one foot requires only 413 acre feet of water to be withdrawn from the C-44 Canal.

The Caulkins Water Farm was chosen by the South Florida Water Management District's Governing Board as a "pilot" project to test and demonstrate the operational feasibility and capacities of the concept of "water farming". An Agreement, No. 4600002925, was executed in August of 2013 to construct and operate the pilot program for a period of two years following construction of the required infrastructure. The following is an operational plan for the Caulkins Water Farming Pilot Project.

Phase I Start-Up and Operational Testing. The start up of the water farming process will begin with the initial filling of the 413 acre basin to a "full" elevation of 28 ft. NAVD (29.43' NGVD), or an average depth of four feet across the entire impoundment. It is estimated that it will take approximately fifteen days to fill the reservoir. This will serve a number of important tasks and provide baseline data needed to operate the water farm.

1. Determine the actual capacity of the basin. This is accomplished by keeping detailed records of the initial pumping required to fill the basin. The pump will be calibrated by a contractor approved by the District and operated at a controlled rate in order to verify the

amount of water entering the water farm from the C-44 Canal. The weather station will record the amount of water entering the water farm by rainfall.
2. Test the berm construction and allow inspection of the completed impoundment while at the "full" elevation.
3. Test the monitoring devices.
4. Estimate seepage and evaporation.

This phase could be repeated to allow for additional testing and data collection.

Phase II Water Farm Operations. The reservoir will provide full design storage capacity at the beginning of the wet season. When water is available as defined above the reservoir will be filled. From the beginning of the wet season to the last month of water availability, the reservoir will be filled up to 3.5' in depth (27.5' NAVD). On the last month of water availability, the reservoir stage should be maintained full near the design stage of the reservoir to the extent practicable. These operations will allow for the maximum potential to divert excess water from Lake Okeechobee and the C-44 Basin.

Record Keeping. Water level conditions will be monitored weekly in the canal connecting the C-44 Canal to the irrigation canal located on the Caulkins property, inside the irrigation canal, and inside the water farm reservoir. The conditions will be recorded using staff gauges installed for these purposes. A monitoring station that records data on a daily basis will be located within the reservoir. This data will include water elevation and rainfall. Pumping dates, durations and volumes of water pumped from the C-44 Canal into the Caulkins facility and being pumped internal to the project will also be recorded, calculated and documented. This data will be recorded by the Service Provider and reported to the District quarterly, unless otherwise requested by the SFWMD on a case by case basis or more frequent interval. The water level data within the reservoir, rainfall data and pumping volumes will be reported to the District using daily values.

In addition to the data collected and reported by the landowner, District staff or contractors will install water quality auto samplers at the pump station and collect water quality data on a weekly basis. If water is to be discharged from the reservoir the District Project Manager must be contacted so that District staff or contractors can collect water quality grab samples daily at the discharge location for the first five days and weekly if the discharges continue longer than five days.

Conditional Changes. Once the SFWMD declares water restrictions that affect the C-44 Basin, no pumping will be allowed. If in the District's opinion water levels in Lake Okeechobee are forecast to become below normal operational levels, no pumping will be allowed. Weather alerts, including severe storms, predicted high rainfall, tropical storm or hurricane watch conditions will trigger cessation of pumping and possible evacuation of water from the water farm basin in order to assure its ability to accept storm events. Records will be kept of all pumping, non-pumping, and emergency evacuation activities.

Surface water will be imported into the water farm from the C-44 Canal. Irrigation demands will also be met by pumping water from the C-44 Canal. Accurate external and internal pumping records (pumping dates, durations and volumes) as identified above will be used to differentiate ecological and water supply volumes. The amount of water pumped into the water farm for ecological purposes will not count against the consumptive use permit in place for Caulkins Citrus needed to maintain agricultural activities on site.

Project Construction Certification

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
District Headquarters: 3301 Gun Club Road, West Palm Beach, Florida 33406 (561) 686-8800 www.sfwmd.gov

January 17, 2014

GEORGE CAULKINS
CITRUS MANAGERS L L C
518 17TH STREET NO 2400
DENVER, CO 80202

Dear Mr. Caulkins :

Subject : Acceptance of Certification & Conversion to Operation
CAULKINS WATER FARM
Permit No. 43-00360-S, Application No. 130805-9
Additional Application No(s). 131028-11
Martin County, S29,30/T39S/R40E

This letter is to acknowledge receipt of your consulting professional's construction completion certification pertaining to the subject parcel's surface water management system. The submitted information has been accepted and incorporated into the permit file.

By accepting the professional's certification, District staff considers the surface water management system permitted under the above listed application number(s) to be constructed in substantial conformance with the plans and specifications approved by the District. This satisfies your permit conditions regarding submittal of a professional's certification for construction completion of the permitted stormwater management facilities and the above referenced permit is hereby converted from the construction phase to the operation phase.

You may now submit future compliance and related forms electronically at www.sfwmd.gov/ePermitting. Log in or create a new account, and select the eCompliance - Environmental Resource module. Help documents and links to required compliance forms are available for download within the eCompliance module or by visiting the District's homepage at www.sfwmd.gov and searching for the required form number using the "Library and Multimedia" link.

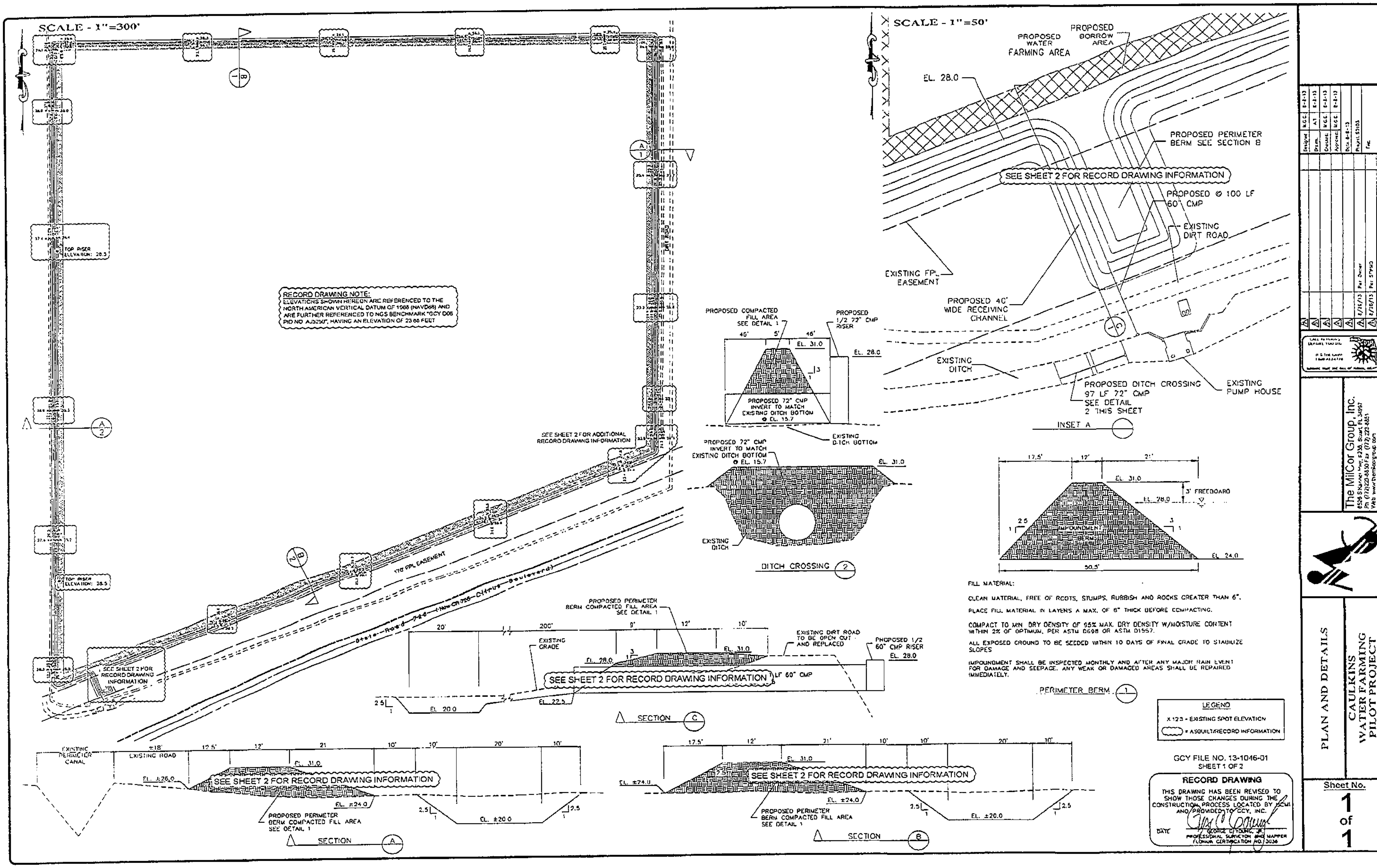
Should you have any questions, please contact me at (863) 462-5260 ext. 3613.

Sincerely,

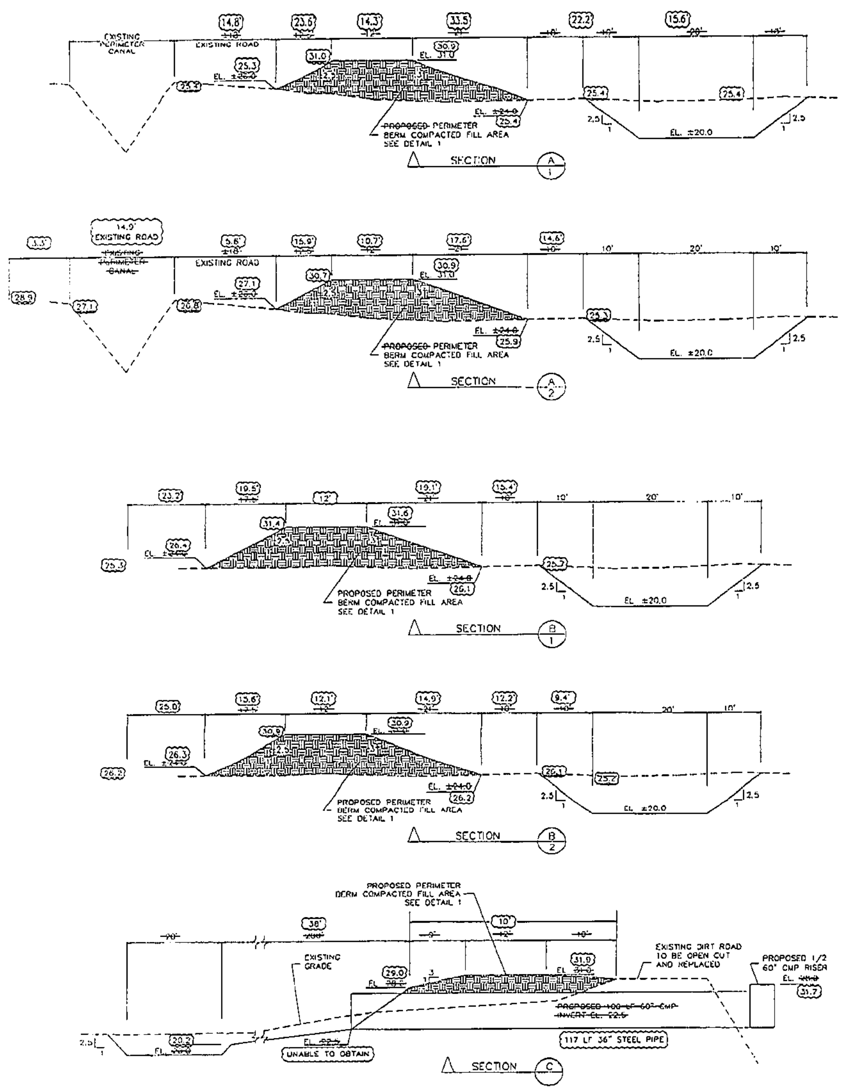
Guy Boisclair

Guy Boisclair, Regulatory Professional 4
Environmental Resource Compliance
Okeechobee Service Center
South Florida Water Management District

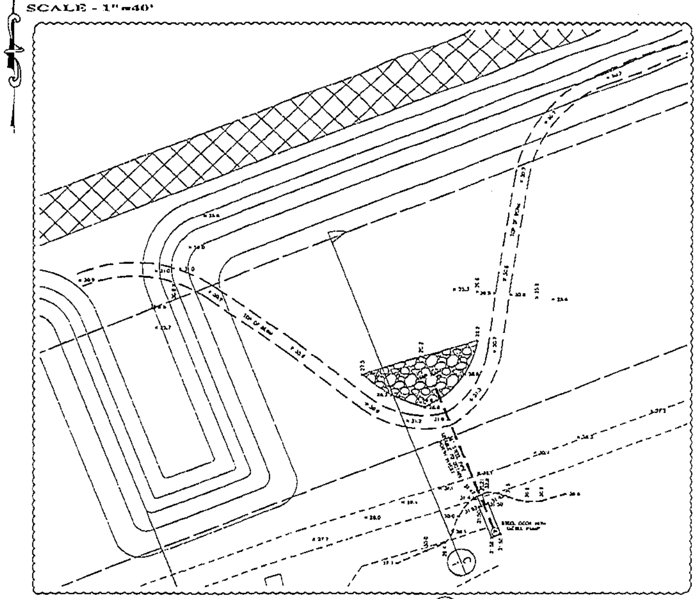
c: Melissa Corbett, P.E., The Mil Cor Group Inc
Boyd Gunsalus, SFWMD
Tom Kenny



SCALE - 1"=300'
TOP RISER ELEVATION: 28.5
RECORD DRAWING NOTE:
ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND ARE FURTHER REFERENCED TO NGS BENCHMARK "GCY D05 PID NO AJ5250", HAVING AN ELEVATION OF 23.66 FEET
SEE SHEET 2 FOR ADDITIONAL RECORD DRAWING INFORMATION
170' FPL EASEMENT
SEE SHEET 2 FOR RECORD DRAWING INFORMATION
SCALE - 1"=50'
PROPOSED WATER FARMING AREA
PROPOSED BORROW AREA
EL. 28.0
PROPOSED PERIMETER BERM SEE SECTION B
SEE SHEET 2 FOR RECORD DRAWING INFORMATION
PROPOSED @ 100 LF 60" CMP
EXISTING DIRT ROAD
EXISTING FPL EASEMENT
PROPOSED 40' WIDE RECEIVING CHANNEL
EXISTING DITCH
PROPOSED DITCH CROSSING 97 LF 72" CMP SEE DETAIL 2 THIS SHEET
EXISTING PUMP HOUSE
INSET A
PROPOSED COMPACTED FILL AREA SEE DETAIL 1
PROPOSED 1/2 72" CMP RISER
EL. 31.0
EL. 28.0
PROPOSED 72" CMP INVERT TO MATCH EXISTING DITCH BOTTOM @ EL. 15.7
EXISTING DITCH BOTTOM
EXISTING DITCH
DITCH CROSSING 2
17.5'
12'
21'
EL. 31.0
EL. 28.0
3' FREEBOARD
IMPOUNDMENT BERM
EL. 24.0
50.5'
PERIMETER BERM 1
FILL MATERIAL:
CLEAN MATERIAL, FREE OF ROOTS, STUMPS, RUBBISH AND ROCKS GREATER THAN 6".
PLACE FILL MATERIAL IN LAYERS A MAX. OF 8" THICK BEFORE COMPACTING.
COMPACT TO MIN. DRY DENSITY OF 95% MAX. DRY DENSITY W/MOISTURE CONTENT WITHIN 2% OF OPTIMUM, PER ASTM D698 OR ASTM D1557.
ALL EXPOSED GROUND TO BE SEEDED WITHIN 10 DAYS OF FINAL GRADE TO STABILIZE SLOPES
IMPOUNDMENT SHALL BE INSPECTED MONTHLY AND AFTER ANY MAJOR RAIN EVENT FOR DAMAGE AND SEEPAGE. ANY WEAK OR DAMAGED AREAS SHALL BE REPAIRED IMMEDIATELY.
PROPOSED PERIMETER BERM COMPACTED FILL AREA SEE DETAIL 1
EXISTING GRADE
EXISTING DIRT ROAD TO BE OPEN CUT AND REPLACED
PROPOSED 1/2 60" CMP RISER
SEE SHEET 2 FOR RECORD DRAWING INFORMATION
SECTION C
EXISTING PERIMETER CANAL
EXISTING ROAD
SEE SHEET 2 FOR RECORD DRAWING INFORMATION
SECTION A
SEE SHEET 2 FOR RECORD DRAWING INFORMATION
SECTION B
LEGEND
X 123 - EXISTING SPOT ELEVATION
= ASBUILT/RECORD INFORMATION
GCY FILE NO. 13-1046-01
SHEET 1 OF 2
RECORD DRAWING
THIS DRAWING HAS BEEN REVISED TO SHOW THOSE CHANGES DURING THE CONSTRUCTION PROCESS LOCATED BY SCMI AND PROVIDED TO GCY, INC.
DATE
GEORGE C. YOUNG, JR. PROFESSIONAL SURVEYOR AND MAPPER FLORIDA CERTIFICATION NO. 3036
The MilCor Group, Inc.
PLAN AND DETAILS
CAULKINS WATER FARMING PILOT PROJECT
MARTIN COUNTY, FLORIDA
Sheet No.
1 of 1

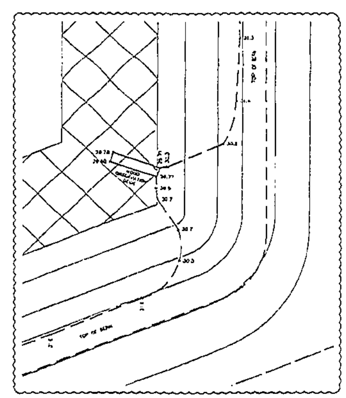


SCALE - 1"=40'



INSET A

SCALE - 1"=20'



RECORD DRAWING NOTE:
ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND ARE FURTHER REFERENCED TO NGS BENCHMARK "GCY 008 PID NO. AJ5750", HAVING AN ELEVATION OF 23.86 FEET

LEGEND

X 12.3 = EXISTING SPOT ELEVATION
(oval) = ASBUILT/RECORD INFORMATION

GCY FILE NO. 13-1046-C1
SHEET 2 OF 2

RECORD DRAWING

THIS DRAWING HAS BEEN REVISED TO SHOW THOSE CHANGES DURING THE CONSTRUCTION PROCESS LOCATED BY UCMI AND PROVIDED TO GCY, INC.

DATE ______ GEORGE C. YOUNG, JR. PROFESSIONAL SURVEYOR AND MAPPER FLORIDA CERTIFICATION NO. 3036

The MilCor Group, Inc.

PLAN AND DETAILS

CAULKINS WATER FARMING PILOT PROJECT
MARTIN COUNTY, FLORIDA

Sheet No. 2 of 2

Project Operations

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
2/5/2014				No						23.57	11.90		
2/6/2014				No						32.41	16.37		
2/7/2014				No						35.36	17.86		
2/8/2014				No						70.71	35.71		
2/9/2014				No						23.57	11.90		
2/10/2014	24.07	25.50	0.10	No						57.45	29.02		
2/11/2014	24.12	25.55	0.00	No						64.08	32.36		
2/12/2014	24.07	25.50	1.23	No						42.72	21.58		
2/13/2014	24.30	25.73	0.00	No						42.72	21.58		
2/14/2014	24.45	25.88	0.00	No	0.123	0.91	0.094	1.004		72.09	36.41	0.011	0.089
2/15/2014	24.40	25.83	0.00	No	0.123	0.91	0.094	1.004		61.41	31.02	0.009	0.076
2/16/2014	24.19	25.62	0.00	No	0.123	0.91	0.094	1.004		32.04	16.18	0.005	0.040
2/17/2014	23.97	25.40	0.00	No	0.123	0.91	0.094	1.004		0.00	0.00	0.000	0.000
2/18/2014	23.86	25.29	0.00	No	0.123	0.91	0.094	1.004		0.00	0.00	0.000	0.000
2/19/2014	24.08	25.51	0.00	No	0.123	0.91	0.094	1.004		42.72	21.58	0.006	0.053
2/20/2014	24.28	25.71	0.00	No	0.123	0.91	0.094	1.004	7.0	53.40	26.97	0.008	0.066
2/21/2014	24.45	25.88	0.43	No	0.111	0.87	0.095	0.965		69.42	35.06	0.010	0.083
2/22/2014	24.56	25.99	0.58	No	0.111	0.87	0.095	0.965		69.42	35.06	0.010	0.083
2/23/2014	24.62	26.05	0.01	No	0.111	0.87	0.095	0.965		74.76	37.76	0.010	0.089
2/24/2014	24.47	25.90	0.00	No	0.111	0.87	0.095	0.965		42.72	21.58	0.006	0.051
2/25/2014	24.28	25.71	0.00	No	0.111	0.87	0.095	0.965	4.0	0.00	0.00	0.000	0.000
2/26/2014	24.40	25.83	0.00	No	0.103	0.85	0.089	0.939		0.00	0.00	0.000	0.000
2/27/2014	24.49	25.92	0.07	No	0.103	0.85	0.089	0.939		58.74	29.67	0.007	0.068
2/28/2014	24.49	25.92	0.11	No	0.103	0.85	0.089	0.939		66.75	33.71	0.008	0.077
3/1/2014	24.32	25.75	0.00	No	0.103	0.85	0.089	0.939		0.00	0.00	0.000	0.000
3/2/2014	24.13	25.56	0.00	No	0.103	0.85	0.089	0.939		0.00	0.00	0.000	0.000
3/3/2014	24.05	25.48	0.00	No	0.103	0.85	0.089	0.939	5.0	0.00	0.00	0.000	0.000
3/4/2014	24.09	25.52	0.00	No	0.088	0.83	0.072	0.902		0.00	0.00	0.000	0.000
3/5/2014	24.15	25.58	0.16	No	0.088	0.83	0.072	0.902		8.84	4.46	0.001	0.010
3/6/2014	24.39	25.82	0.13	No	0.088	0.83	0.072	0.902		32.41	16.37	0.004	0.036
3/7/2014	24.48	25.91	0.08	No	0.088	0.83	0.072	0.902		23.57	11.90	0.003	0.026
3/8/2014	24.34	25.77	0.00	No	0.088	0.83	0.072	0.902		0.00	0.00	0.000	0.000
3/9/2014	24.26	25.69	0.00	No	0.088	0.83	0.072	0.902		0.00	0.00	0.000	0.000
3/10/2014	24.09	25.52	0.00	No	0.088	0.83	0.072	0.902	7.6	20.62	10.42	0.002	0.023
3/11/2014	24.05	25.48	0.00	No	0.098	0.91	0.075	0.985		0.00	0.00	0.000	0.000
3/12/2014	24.27	25.7	0.00	No	0.098	0.91	0.075	0.985		20.62	10.42	0.002	0.025
3/13/2014	24.42	25.85	0.00	No	0.098	0.91	0.075	0.985		41.25	20.83	0.005	0.050
3/14/2014	24.51	25.94	0.00	No	0.098	0.91	0.075	0.985		35.36	17.86	0.004	0.043
3/15/2014	24.64	26.07	0.00	No	0.098	0.91	0.075	0.985		35.36	17.86	0.004	0.043
3/16/2014	24.71	26.14	0.00	No	0.098	0.91	0.075	0.985		32.41	16.37	0.004	0.039
3/17/2014	24.76	26.19	0.00	No	0.098	0.91	0.075	0.985	6.0	38.30	19.34	0.005	0.047
3/18/2014	24.76	26.19	0.16	No	0.108	0.79	0.086	0.876		35.36	17.86	0.005	0.038
3/19/2014	24.77	26.2	0.00	No	0.108	0.79	0.086	0.876		26.52	13.39	0.004	0.029
3/20/2014	24.80	26.23	0.00	No	0.108	0.79	0.086	0.876		35.36	17.86	0.005	0.038
3/21/2014	24.79	26.22	0.00	No	0.108	0.79	0.086	0.876		35.36	17.86	0.005	0.038
3/22/2014	24.83	26.26	0.01	No	0.108	0.79	0.086	0.876		35.36	17.86	0.005	0.038
3/23/2014	24.87	26.3	0.00	No	0.108	0.79	0.086	0.876		44.19	22.32	0.006	0.048
3/24/2014	24.88	26.31	0.69	No	0.108	0.79	0.086	0.876		23.57	11.90	0.003	0.026
3/25/2014	24.96	26.39	0.29	No	0.108	0.79	0.086	0.876	5.0	32.41	16.37	0.004	0.035
3/26/2014	24.95	26.38	0.00	No	0.123	0.91	0.104	1.014		38.30	19.34	0.006	0.048
3/27/2014	24.92	26.35	0.03	No	0.123	0.91	0.104	1.014		20.62	10.42	0.003	0.026
3/28/2014	24.97	26.4	0.00	No	0.123	0.91	0.104	1.014		29.46	14.88	0.004	0.037
3/29/2014	24.99	26.42	0.00	No	0.123	0.91	0.104	1.014		38.30	19.34	0.006	0.048
3/30/2014	25.05	26.48	0.00	No	0.123	0.91	0.104	1.014		35.36	17.86	0.005	0.044
3/31/2014	25.10	26.53	0.00	No	0.123	0.91	0.104	1.014	14.0	29.46	14.88	0.004	0.037
4/1/2014	25.13	26.56	0.00	No	0.105	0.80	0.057	0.857		35.36	17.86	0.005	0.037
4/2/2014	25.15	26.58	0.00	No	0.105	0.80	0.057	0.857		36.83	18.60	0.005	0.039
4/3/2014	25.15	26.58	0.00	No	0.105	0.80	0.057	0.857		36.83	18.60	0.005	0.039
4/4/2014	25.15	26.58	0.00	No	0.105	0.80	0.057	0.857		35.36	17.86	0.005	0.037
4/5/2014	25.16	26.59	0.00	No	0.105	0.80	0.057	0.857		35.36	17.86	0.005	0.037
4/6/2014	25.17	26.6	0.00	No	0.105	0.80	0.057	0.857		20.62	10.42	0.003	0.022
4/7/2014	25.13	26.56	0.00	No	0.105	0.80	0.057	0.857	7.0	35.36	17.86	0.005	0.037
4/8/2014	25.17	26.6	0.07	No	0.096	0.78	0.032	0.812		44.19	22.32	0.005	0.044
4/9/2014	25.23	26.66	0.00	No	0.096	0.78	0.032	0.812		36.83	18.60	0.004	0.037
4/10/2014	25.24	26.67	0.00	No	0.096	0.78	0.032	0.812		35.36	17.86	0.004	0.035
4/11/2014	25.25	26.68	0.06	No	0.096	0.78	0.032	0.812		36.83	18.60	0.004	0.037
4/12/2014	25.26	26.69	0.00	No	0.096	0.78	0.032	0.812		41.25	20.83	0.005	0.041
4/13/2014	25.20	26.63	0.00	No	0.096	0.78	0.032	0.812		32.41	16.37	0.004	0.033

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
4/14/2014	25.09	26.52	0.00	No	0.096	0.78	0.032	0.812	8.0	26.52	13.39	0.003	0.027
4/15/2014	24.98	26.41	0.07	No	0.089	0.78	0.043	0.823		0.00	0.00	0.000	0.000
4/16/2014	25.02	26.45	0.00	No	0.089	0.78	0.043	0.823		23.57	11.90	0.003	0.024
4/17/2014	25.04	26.47	0.09	No	0.089	0.78	0.043	0.823		32.41	16.37	0.004	0.033
4/18/2014	25.08	26.51	0.57	No	0.089	0.78	0.043	0.823		20.62	10.42	0.002	0.021
4/19/2014	25.13	26.56	0.15	No	0.089	0.78	0.043	0.823		35.36	17.86	0.004	0.036
4/20/2014	25.16	26.59	0.00	No	0.089	0.78	0.043	0.823		38.30	19.34	0.004	0.039
4/21/2014	25.09	26.52	0.00	No	0.089	0.78	0.043	0.823	6.0	0.00	0.00	0.000	0.000
4/22/2014	24.97	26.4	0.00	No	0.096	0.89	0.03	0.89		0.00	0.00	0.000	0.000
4/23/2014	24.83	26.26	0.00	No	0.096	0.89	0.03	0.89		5.89	2.98	0.001	0.006
4/24/2014	24.69	26.12	0.00	No	0.096	0.89	0.03	0.89		0.00	0.00	0.000	0.000
4/25/2014	24.54	25.97	0.00	No	0.096	0.89	0.03	0.89		0.00	0.00	0.000	0.000
4/26/2014	24.38	25.81	0.00	No	0.096	0.89	0.03	0.89		0.00	0.00	0.000	0.000
4/27/2014	24.22	25.65	0.00	No	0.096	0.89	0.03	0.89		0.00	0.00	0.000	0.000
4/28/2014	24.15	25.58	0.00	No	0.096	0.89	0.03	0.89	16.0	0.00	0.00	0.000	0.000
4/29/2014	24.13	25.56	0.00	No	0.106	1.11	0.024	1.134		11.79	5.95	0.002	0.017
4/30/2014	24.09	25.52	0.00	No	0.106	1.11	0.024	1.134		22.10	11.16	0.003	0.031
5/1/2014	24.05	25.48	1.28	No	0.106	1.11	0.024	1.134		14.7	7.44	0.002	0.021
5/2/2014	24.18	25.61	0.08	No	0.106	1.11	0.024	1.134		14.7	7.44	0.002	0.021
5/3/2014	24.45	25.88	0.98	No	0.106	1.11	0.024	1.134		35.4	17.86	0.005	0.050
5/4/2014	24.57	26.00	0.02	No	0.106	1.11	0.024	1.134		32.4	16.37	0.004	0.045
5/5/2014	24.60	26.03	0.00	No	0.106	1.11	0.024	1.134	11	38.3	19.34	0.005	0.054
5/6/2014	24.65	26.08	0.00	No	0.117	0.98	0.035	1.015		38.3	19.34	0.006	0.048
5/7/2014	24.67	26.1	0.00	No	0.117	0.98	0.035	1.015		29.5	14.88	0.004	0.037
5/8/2014	24.72	26.15	0.00	No	0.117	0.98	0.035	1.015		38.3	19.34	0.006	0.048
5/9/2014	24.77	26.2	0.00	No	0.117	0.98	0.035	1.015		38.3	19.34	0.006	0.048
5/10/2014	24.77	26.2	0.00	No	0.117	0.98	0.035	1.015		38.3	19.34	0.006	0.048
5/11/2014	24.79	26.22	0.00	No	0.117	0.98	0.035	1.015		35.4	17.86	0.005	0.044
5/12/2014	24.78	26.21	0.00	No	0.117	0.98	0.035	1.015		32.4	16.37	0.005	0.041
5/13/2014	24.66	26.09	0.12	No	0.117	0.98	0.035	1.015	7	33.9	17.11	0.005	0.042
5/14/2014	24.58	26.01	0.55	No						16.2	8.18	0.000	0.000
5/15/2014	24.48	25.91	0.54	No						0.0	0.00	0.000	0.000
5/16/2014	24.42	25.85	0.01	No						0.0	0.00	0.000	0.000
5/17/2014	24.30	25.73	0.00	No						0.0	0.00	0.000	0.000
5/18/2014	24.14	25.57	0.00	No						0.0	0.00	0.000	0.000
5/19/2014	23.97	25.4	0.00	No						0.0	0.00	0.000	0.000
5/20/2014	23.81	25.24	0.04	No						0.0	0.00	0.000	0.000
5/21/2014	23.64	25.07	0.00	No						0.0	0.00	0.000	0.000
5/22/2014	23.45	24.88	0.00	No						0.0	0.00	0.000	0.000
5/23/2014	23.22	24.65	0.00	No						0.0	0.00	0.000	0.000
5/24/2014	23.01	24.44	0.00	No						0.0	0.00	0.000	0.000
5/25/2014	22.80	24.23	0.00	No						0.0	0.00	0.000	0.000
5/26/2014	22.57	24	0.00	No						0.0	0.00	0.000	0.000
5/27/2014	22.35	23.78	0.00	No						0.0	0.00	0.000	0.000
5/28/2014	22.13	23.56	0.21	No						0.0	0.00	0.000	0.000
5/29/2014	22.12	23.55	0.22	No						0.0	0.00	0.000	0.000
5/30/2014	22.10	23.53	0.00	No						0.0	0.00	0.000	0.000
5/31/2014	22.10	23.53	0.04	No						0.0	0.00	0.000	0.000
6/1/2014	22.10	23.53	0.01	No						0.0	0.00	0.000	0.000
6/2/2014	22.10	23.53	0.31	No						0.0	0.00	0.000	0.000
6/3/2014	22.10	23.53	0	No						0.0	0.00	0.000	0.000
6/4/2014	22.10	23.53	0	No						0.0	0.00	0.000	0.000
6/5/2014	22.10	23.53	0	No						0.0	0.00	0.000	0.000
6/6/2014	22.10	23.53	0	No						0.0	0.00	0.000	0.000
6/7/2014	22.10	23.53	0.66	No						0.0	0.00	0.000	0.000
6/8/2014	22.10	23.53	0.98	No						0.0	0.00	0.000	0.000
6/9/2014	22.10	23.53	0.01	No						0.0	0.00	0.000	0.000
6/10/2014	22.10	23.53	0.02	No						0.0	0.00	0.000	0.000
6/11/2014	22.10	23.53	0.58	No						0.0	0.00	0.000	0.000
6/12/2014	22.10	23.53	3.01	No						0.0	0.00	0.000	0.000
6/13/2014	22.10	23.53	0.73	No						0.0	0.00	0.000	0.000
6/14/2014	22.10	23.53	1.8	No						0.0	0.00	0.000	0.000
6/15/2014	22.73	24.16	0.09	No						0.0	0.00	0.000	0.000
6/16/2014	22.76	24.19	0	No						0.0	0.00	0.000	0.000
6/17/2014	22.71	24.14	0.35	No						0.0	0.00	0.000	0.000
6/18/2014	22.74	24.17	1.05	No						0.0	0.00	0.000	0.000
6/19/2014	22.98	24.41	0.01	No						0.0	0.00	0.000	0.000
6/20/2014	22.88	24.31	0	No						0.0	0.00	0.000	0.000

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
6/21/2014	22.72	24.15	0	No						0.0	0.00	0.000	0.000
6/22/2014	22.59	24.02	0	No						0.0	0.00	0.000	0.000
6/23/2014	22.44	23.87	0	No						0.0	0.00	0.000	0.000
6/24/2014	22.63	24.06	0	No						0.0	0.00	0.000	0.000
6/25/2014	22.61	24.04	0	No						0.0	0.00	0.000	0.000
6/26/2014	22.43	23.86	0	No						0.0	0.00	0.000	0.000
6/27/2014	22.27	23.7	0	No						0.0	0.00	0.000	0.000
6/28/2014	22.10	23.53	0	No						0.0	0.00	0.000	0.000
6/29/2014	22.30	23.73	1.74	No						0.0	0.00	0.000	0.000
6/30/2014	22.46	23.89	0.41	No						0.0	0.00	0.000	0.000
7/1/2014	22.50	23.93	0.22	No						0.0	0.00	0.000	0.000
7/2/2014	22.43	23.86	0.00	No						0.0	0.00	0.000	0.000
7/3/2014	22.30	23.73	0.00	No						0.0	0.00	0.000	0.000
7/4/2014	22.92	24.35	0.22	No						0.0	0.00	0.000	0.000
7/5/2014	23.57	25	1.28	No	0.332			2.63	22	32.41	16.37	0.013	0.105
7/6/2014	23.74	25.17	0.14	No	0.332			2.63	22	26.52	13.39	0.011	0.086
7/7/2014	24.00	25.43	0.37	No	0.332			2.63	22	53.44	26.99	0.022	0.174
7/8/2014	24.03	25.46	0.92	No	0.332			2.63	22	37.41	18.89	0.015	0.122
7/9/2014	24.30	25.73	0.01	No	0.332			2.63	22	37.41	18.89	0.015	0.122
7/10/2014	24.52	25.95	1.21	No	0.332			2.63	22	64.12	32.38	0.026	0.208
7/11/2014	24.73	26.16	0.00	No	0.332			2.63	22	64.12	32.38	0.026	0.208
7/12/2014	24.75	26.18	0.00	No	0.332			2.63	22	64.12	32.38	0.026	0.208
7/13/2014	24.67	26.1	0.01	No	0.332			2.63	22	26.72	13.49	0.011	0.087
7/14/2014	24.62	26.05	0.00	No	0.332			2.63	22	0.0	0.00	0.000	0.000
7/15/2014	24.76	26.19	0.36	No	0.332			2.63	22	42.75	21.59	0.018	0.139
7/16/2014	24.89	26.32	0.19	No	0.332			2.63	22	74.81	37.78	0.031	0.243
7/17/2014	24.97	26.4	0.01	No	0.332			2.63	22	48.09	24.29	0.020	0.156
7/18/2014	25.07	26.5	0.00	No	0.332			2.63	22	85.5	43.18	0.035	0.278
7/19/2014	25.15	26.58	0.00	No	0.332			2.63	22	80.16	40.48	0.033	0.261
7/20/2014	25.22	26.65	0.00	No	0.332			2.63	22	69.47	35.09	0.029	0.226
7/21/2014	25.28	26.71	0.01	No	0.332			2.63	22	74.81	37.78	0.031	0.243
7/22/2014	25.38	26.81	0.13	No	0.182			1.7	3	125.58	63.42	0.028	0.264
7/23/2014	25.62	27.05	0.01	No	0.182			1.7	3	125.58	63.42	0.028	0.264
7/24/2014	25.67	27.1	0.00	No	0.182			1.7	3	125.58	63.42	0.028	0.264
7/25/2014	25.73	27.16	0.42	No	0.182			1.7	3	125.58	63.42	0.028	0.264
7/26/2014	25.80	27.23	0.01	No	0.182			1.7	3	125.58	63.42	0.028	0.264
7/27/2014	25.83	27.26	0.00	No	0.182			1.7	3	125.58	63.42	0.028	0.264
7/28/2014	25.87	27.3	0.00	No	0.182			1.7	3	125.58	63.42	0.028	0.264
7/29/2014	25.91	27.34	0.00	No	0.182			1.7	3	125.58	63.42	0.028	0.264
7/30/2014	25.96	27.39	0.00	No	0.182			1.7	3	125.58	63.42	0.028	0.264
7/31/2014	26.01	27.44	0.05	No	0.182			1.7	3	64.12	32.38	0.014	0.135
8/1/2014	25.98	27.41	0.01	No	0.182			1.7	3	35.36	17.86	0.008	0.074
8/2/2014	25.92	27.35	0.03	No	0.182			1.7	3	69.24	34.97	0.016	0.145
8/3/2014	26.05	27.48	0.01	No	0.182			1.7	3	69.24	34.97	0.016	0.145
8/4/2014	26.26	27.69	1.22	No	0.182			1.7	3	69.24	34.97	0.016	0.145
8/5/2014	26.54	27.97	0.00	No	0.186			1.32	6	67.77	34.23	0.016	0.111
8/6/2014	26.79	28.22	0.00	No	0.186			1.32	6	69.24	34.97	0.016	0.113
8/7/2014	26.83	28.26	0.00	No	0.186			1.32	6	125.58	63.42	0.029	0.205
8/8/2014	26.99	28.42	1.02	No	0.186			1.32	6	64.12	32.39	0.015	0.105
8/9/2014	27.09	28.52	0.01	No	0.186			1.32	6	96.19	48.58	0.022	0.157
8/10/2014	27.04	28.47	0.00	No	0.186			1.32	6	74.81	37.78	0.017	0.122
8/11/2014	27.01	28.44	0.00	No	0.179			1.32	3	64.12	32.39	0.014	0.105
8/12/2014	26.91	28.34	0.00	No	0.179			1.32	3	21.37	10.80	0.005	0.035
8/13/2014	26.9	28.33	0.00	No	0.179			1.32	3	114.89	58.03	0.025	0.187
8/14/2014	26.91	28.34	0.00	No	0.179			1.32	3	117.56	59.37	0.026	0.192
8/15/2014	27.02	28.45	0.16	No	0.179			1.32	3	125.58	63.42	0.028	0.205
8/16/2014	27.02	28.45	0.08	No	0.179			1.32	3	125.58	63.42	0.028	0.205
8/17/2014	27.01	28.44	0.00	No	0.179			1.32	3	125.58	63.42	0.028	0.205
8/18/2014	27.17	28.6	0.01	No	0.155			1.15	3	125.58	63.42	0.024	0.178
8/19/2014	27.29	28.72	0.00	No	0.155			1.15	3	125.58	63.42	0.024	0.178
8/20/2014	27.43	28.86	1.08	No	0.155			1.15	3	117.56	59.37	0.023	0.167
8/21/2014	27.52	28.95	0.00	No	0.155			1.15	3	0.00	0.00	0.000	0.000
8/22/2014	27.4	28.83	0.00	No	0.155			1.15	3	0.00	0.00	0.000	0.000
8/23/2014	27.29	28.72	0.00	No	0.155			1.15	3	0.00	0.00	0.000	0.000
8/24/2014	27.17	28.6	0.00	No	0.155			1.15	3	0.00	0.00	0.000	0.000
8/25/2014	27.06	28.49	0.01	No	0.197			1.32	7	0.00	0.00	0.000	0.000
8/26/2014	26.95	28.38	0.00	No	0.197			1.32	7	0.00	0.00	0.000	0.000
8/27/2014	26.86	28.29	0.00	No	0.197			1.32	7	0.00	0.00	0.000	0.000

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
8/28/2014	26.76	28.19	0.00	No	0.197			1.32	7	0.00	0.00	0.000	0.000
8/29/2014	26.67	28.1	0.00	No	0.197			1.32	7	0.00	0.00	0.000	0.000
8/30/2014	26.58	28.01	0.00	No	0.197			1.32	7	0.00	0.00	0.000	0.000
8/31/2014	26.48	27.91	0.00	No	0.197			1.32	7	0.00	0.00	0.000	0.000
9/1/2014	26.45	27.88	0.00	No	0.197			1.32	7	44.19	22.32	0.011	0.072
9/2/2014	26.48	27.91	0.01	No	0.205			1.39	3	36.83	18.60	0.009	0.063
9/3/2014	26.52	27.95	0.34	No	0.205			1.39	3	35.36	17.86	0.009	0.061
9/4/2014	26.57	28.00	0.02	No	0.205			1.39	3	69.24	34.97	0.018	0.119
9/5/2014	26.73	28.16	0.85	No	0.205			1.39	3	69.24	34.97	0.018	0.119
9/6/2014	26.83	28.26	0.01	No	0.205			1.39	3	69.24	34.97	0.018	0.119
9/7/2014	26.86	28.29	0.24	No	0.205			1.39	3	114.89	58.03	0.029	0.197
9/8/2014	26.87	28.30	0.27	No	0.127			0.975	5	82.83	41.83	0.013	0.100
9/9/2014	26.92	28.35	0.01	No	0.127			0.975	5	80.16	40.48	0.013	0.097
9/10/2014	26.91	28.34	0.00	No	0.127			0.975	5	64.12	32.39	0.010	0.077
9/11/2014	26.92	28.35	0.83	No	0.127			0.975	5	64.12	32.39	0.010	0.077
9/12/2014	27.03	28.46	0.04	No	0.127			0.975	5	48.09	24.29	0.008	0.058
9/13/2014	26.97	28.40	0.64	No	0.127			0.975	5	0.00	0.00	0.000	0.000
9/14/2014	26.91	28.34	0.40	No	0.127			0.975	5	0.00	0.00	0.000	0.000
9/15/2014	26.84	28.27	0.01	No	0.155			1.2		0.00	0.00	0.000	0.000
9/16/2014	26.73	28.16	0.54	No	0.155			1.2		0.00	0.00	0.000	0.000
9/17/2014	26.69	28.12	0.05	No	0.155			1.2		0.00	0.00	0.000	0.000
9/18/2014	26.70	28.13	0.00	No	0.155			1.2		64.12	32.39	0.012	0.095
9/19/2014	26.70	28.13	1.29	No	0.155			1.2		64.12	32.39	0.012	0.095
9/20/2014	26.82	28.25	0.31	No	0.155			1.2		64.12	32.39	0.012	0.095
9/21/2014	26.86	28.29	0.01	No	0.155			1.2		64.12	32.39	0.012	0.095
9/22/2014	26.82	28.25	0.26	No	0.240			1.4		42.75	21.59	0.013	0.074
9/23/2014	26.84	28.27	0.05	No	0.240			1.4		64.12	32.39	0.019	0.111
9/24/2014	26.83	28.26	0.12	No	0.240			1.4		53.44	26.99	0.016	0.092
9/25/2014	26.82	28.25	0.95	No	0.240			1.4		61.45	31.04	0.018	0.106
9/26/2014	26.90	28.33	0.01	No	0.240			1.4		64.12	32.39	0.019	0.111
9/27/2014	26.90	28.33	0.22	No	0.240			1.4		56.11	28.34	0.017	0.097
9/28/2014	26.87	28.30	0.00	No	0.240			1.4		21.37	10.80	0.006	0.037
9/29/2014	26.76	28.19	1.04	No	0.256			1.39		0.00	0.00	0.000	0.000
9/30/2014	26.78	28.21	0.00	No	0.256			1.39		0.00	0.00	0.000	0.000
10/1/2014	26.64	28.07	0.02	No	0.256			1.39		47.14	23.81	0.015	0.081
10/2/2014	26.64	28.07	0.03	No	0.256			1.39		41.25	20.83	0.013	0.071
10/3/2014	26.63	28.06	0.18	No	0.256			1.39		67.77	34.23	0.021	0.116
10/4/2014	26.62	28.05	0.00	No	0.256			1.39		69.24	34.97	0.022	0.119
10/5/2014	26.76	28.19	0.00	No	0.256			1.39		69.24	34.97	0.022	0.119
10/6/2014	26.75	28.18	0.00	No	0.235			1.34		69.24	34.97	0.020	0.115
10/7/2014	26.83	28.26	0.00	No	0.235			1.34		125.58	63.42	0.036	0.208
10/8/2014	26.92	28.35	0.00	No	0.235			1.34		125.58	63.42	0.036	0.208
10/9/2014	26.98	28.41	0.00	No	0.235			1.34		125.58	63.42	0.036	0.208
10/10/2014	26.98	28.41	0.00	No	0.235			1.34		125.58	63.42	0.036	0.208
10/11/2014	27.00	28.43	0.00	No	0.235			1.34		125.58	63.42	0.036	0.208
10/12/2014	27.00	28.43	0.00	No	0.235			1.34		53.44	26.99	0.016	0.088
10/13/2014	26.91	28.34	0.00	No	0.151			1.15		69.47	35.09	0.013	0.099
10/14/2014	27.05	28.48	0.03	No	0.151			1.15		109.55	55.33	0.020	0.156
10/15/2014	27.06	28.49	0.00	No	0.151			1.15		64.12	32.39	0.012	0.091
10/16/2014	27.07	28.50	0.00	No	0.151			1.15		125.58	63.42	0.023	0.178
10/17/2014	27.15	28.58	0.00	No	0.151			1.15		125.58	63.42	0.023	0.178
10/18/2014	27.16	28.59	0.00	No	0.151			1.15		125.58	63.42	0.023	0.178
10/19/2014	27.20	28.63	0.00	No	0.151			1.15		64.12	32.39	0.012	0.091
10/20/2014	27.22	28.65	0.00	No	0.138			1.1		125.58	63.42	0.021	0.171
10/21/2014	27.40	28.83	2.68	No	0.138			1.1		125.58	63.42	0.021	0.171
10/22/2014	27.68	29.11	0.01	No	0.138			1.1		0.00	0.00	0.000	0.000
10/23/2014	27.57	29.00	0.00	No	0.138			1.1		0.00	0.00	0.000	0.000
10/24/2014	27.46	28.89	0.00	No	0.138			1.1		0.00	0.00	0.000	0.000
10/25/2014	27.36	28.79	0.00	No	0.138			1.1		0.00	0.00	0.000	0.000
10/26/2014	27.26	28.69	0.00	No	0.138			1.1		0.00	0.00	0.000	0.000
10/27/2014	27.14	28.57	0.00	No	0.155			1.22		0.00	0.00	0.000	0.000
10/28/2014	27.03	28.46	0.00	No	0.155			1.22		0.00	0.00	0.000	0.000
10/29/2014	26.93	28.36	0.00	No	0.155			1.22		0.00	0.00	0.000	0.000
10/30/2014	26.89	28.32	0.00	No	0.155			1.22		0.00	0.00	0.000	0.000
10/31/2014	26.80	28.23	0.00	No	0.155			1.22		0.00	0.00	0.000	0.000
11/1/2014	26.73	28.16	0.00	No	0.155			1.22		0.00	0.00	0.000	0.000
11/2/2014	26.64	28.07	0.00	No	0.155			1.22		0.00	0.00	0.000	0.000
11/3/2014	26.60	28.03	0.00	No	0.129			1.09		69.24	34.97	0.011	0.093

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
11/4/2014	26.80	28.23	0.00	No	0.129			1.09		69.24	34.97	0.011	0.093
11/5/2014	26.97	28.4	0.15	No	0.129			1.09		69.24	34.97	0.011	0.093
11/6/2014	27.04	28.47	0.00	No	0.129			1.09		69.24	34.97	0.011	0.093
11/7/2014	27.21	28.64	0.00	No	0.129			1.09		125.58	63.42	0.020	0.169
11/8/2014	27.38	28.81	1.12	No	0.129			1.09		125.58	63.42	0.020	0.169
11/9/2014	27.57	29.00	0.74	No	0.129			1.09		0.00	0.00	0.000	0.000
11/10/2014	27.56	28.99	0.29	No	0.160			1.04		0.00	0.00	0.000	0.000
11/11/2014	27.46	28.89	0.00	No	0.160			1.04		0.00	0.00	0.000	0.000
11/12/2014	27.35	28.78	0.00	No	0.160			1.04		0.00	0.00	0.000	0.000
11/13/2014	27.24	28.67	0.00	No	0.160			1.04		0.00	0.00	0.000	0.000
11/14/2014	27.15	28.58	0.00	No	0.160			1.04		0.00	0.00	0.000	0.000
11/15/2014	27.05	28.48	0.00	No	0.160			1.04		0.00	0.00	0.000	0.000
11/16/2014	26.95	28.38	0.01	No	0.160			1.04		0.00	0.00	0.000	0.000
11/17/2014	26.85	28.28	0.00	No	0.145			1.10		0.00	0.00	0.000	0.000
11/18/2014	26.77	28.20	0.15	No	0.145			1.10		0.00	0.00	0.000	0.000
11/19/2014	26.71	28.14	0.00	No	0.145			1.10		0.00	0.00	0.000	0.000
11/20/2014	26.68	28.11	0.00	No	0.145			1.10		64.12	32.38	0.011	0.087
11/21/2014	26.63	28.06	0.02	No	0.145			1.10		42.75	21.59	0.008	0.058
11/22/2014	26.68	28.11	0.00	No	0.145			1.10		42.75	21.59	0.008	0.058
11/23/2014	26.75	28.18	0.08	No	0.145			1.10		125.58	63.42	0.023	0.171
11/24/2014	26.84	28.27	0.01	No	0.108			0.97		117.56	59.37	0.016	0.140
11/25/2014	26.88	28.31	0.00	No	0.108			0.97		125.58	63.42	0.017	0.150
11/26/2014	26.96	28.39	0.14	No	0.108			0.97		125.58	63.42	0.017	0.150
11/27/2014	27.14	28.57	0.00	No	0.108			0.97		125.58	63.42	0.017	0.150
11/28/2014	27.29	28.72	0.00	No	0.108			0.97		125.58	63.42	0.017	0.150
11/29/2014	27.36	28.79	0.00	No	0.108			0.97		125.58	63.42	0.017	0.150
11/30/2014	27.35	28.78	0.00	No	0.108			0.97		125.58	63.42	0.017	0.150
12/1/2014	27.34	28.77	0.01	No	0.094			1.02		8.84	4.46	0.001	0.011
12/2/2014	27.26	28.69	0.16	No	0.094			1.02		0.00	0.00	0.000	0.000
12/3/2014	27.16	28.58	0.00	No	0.094			1.02		0.00	0.00	0.000	0.000
12/4/2014	27.07	28.5	0.27	No	0.094			1.02		0.00	0.00	0.000	0.000
12/5/2014	27.00	28.43	0.09	No	0.094			1.02		0.00	0.00	0.000	0.000
12/6/2014	26.91	28.34	0.00	No	0.094			1.02		0.00	0.00	0.000	0.000
12/7/2014	26.81	28.24	0.00	No	0.094			1.02		0.00	0.00	0.000	0.000
12/8/2014	26.73	28.16	0.01	No						0.00	0.00	0.000	0.000
12/9/2014	26.65	28.08	0.00	No						0.00	0.00	0.000	0.000
12/10/2014	26.55	27.98	0.00	No						0.00	0.00	0.000	0.000
12/11/2014	26.46	27.89	0.00	No						0.00	0.00	0.000	0.000
12/12/2014	26.37	27.8	0.00	No						0.00	0.00	0.000	0.000
12/13/2014	26.28	27.71	0.00	No						0.00	0.00	0.000	0.000
12/14/2014	26.18	27.61	0.00	No						0.00	0.00	0.000	0.000
12/15/2014	26.09	27.52	0.00	No						0.00	0.00	0.000	0.000
12/16/2014	26.00	27.43	0.00	No						0.00	0.00	0.000	0.000
12/17/2014	25.91	27.34	0.00	No						0.00	0.00	0.000	0.000
12/18/2014	25.82	27.25	0.00	No						0.00	0.00	0.000	0.000
12/19/2014	25.73	27.16	0.00	No						0.00	0.00	0.000	0.000
12/20/2014	25.64	27.07	0.00	No						0.00	0.00	0.000	0.000
12/21/2014	25.54	26.97	0.00	No						0.00	0.00	0.000	0.000
12/22/2014	25.46	26.89	0.00	No						0.00	0.00	0.000	0.000
12/23/2014	25.34	26.77	0.00	No						0.00	0.00	0.000	0.000
12/24/2014	25.24	26.67	0.05	No						0.00	0.00	0.000	0.000
12/25/2014	25.21	26.64	0.45	No						0.00	0.00	0.000	0.000
12/26/2014	25.12	26.55	0.03	No						0.00	0.00	0.000	0.000
12/27/2014	25.03	26.46	0.02	No						0.00	0.00	0.000	0.000
12/28/2014	24.94	26.37	0.00	No						0.00	0.00	0.000	0.000
12/29/2014	24.83	26.26	0.00	No						0.00	0.00	0.000	0.000
12/30/2014	24.73	26.16	0.00	No						0.00	0.00	0.000	0.000
12/31/2014	24.63	26.06	0.25	No						0.00	0.00	0.000	0.000
1/1/2015	24.52	25.95	0.12	No						0.00	0.00	0.000	0.000
1/2/2015	24.47	25.90	0.08	No						0.00	0.00	0.000	0.000
1/3/2015	24.37	25.80	0.00	No						0.00	0.00	0.000	0.000
1/4/2015	24.26	25.69	0.22	No						0.00	0.00	0.000	0.000
1/5/2015	24.18	25.61	0.00	No						0.00	0.00	0.000	0.000
1/6/2015	24.08	25.51	0.00	No						0.00	0.00	0.000	0.000
1/7/2015	23.97	25.40	0.00	No						0.00	0.00	0.000	0.000
1/8/2015	23.87	25.30	0.00	No						0.00	0.00	0.000	0.000
1/9/2015	23.77	25.20	0.00	No						0.00	0.00	0.000	0.000
1/10/2015	23.65	25.08	0.00	No						0.00	0.00	0.000	0.000

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
1/11/2015	23.54	24.97	0.00	No						0.00	0.00	0.000	0.000
1/12/2015	23.43	24.86	0.15	No						0.00	0.00	0.000	0.000
1/13/2015	23.36	24.79	0.05	No						0.00	0.00	0.000	0.000
1/14/2015	23.24	24.67	0.00	No						0.00	0.00	0.000	0.000
1/15/2015	23.10	24.53	0.00	No						0.00	0.00	0.000	0.000
1/16/2015	22.98	24.41	0.04	No						0.00	0.00	0.000	0.000
1/17/2015	22.82	24.25	0.00	No						0.00	0.00	0.000	0.000
1/18/2015	22.70	24.13	0.00	No						0.00	0.00	0.000	0.000
1/19/2015	22.52	23.95	0.00	No						0.00	0.00	0.000	0.000
1/20/2015	22.38	23.81	0.00	No						0.00	0.00	0.000	0.000
1/21/2015	22.50	23.93	0.00	No						0.00	0.00	0.000	0.000
1/22/2015	22.32	23.75	0.00	No						0.00	0.00	0.000	0.000
1/23/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
1/24/2015	22.28	23.71	0.02	No						0.00	0.00	0.000	0.000
1/25/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
1/26/2015	22.28	23.71	0.01	No						0.00	0.00	0.000	0.000
1/27/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
1/28/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
1/29/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
1/30/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
1/31/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
2/1/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
2/2/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
2/3/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
2/4/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
2/5/2015	22.28	23.71	0.94	No						0.00	0.00	0.000	0.000
2/6/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
2/7/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
2/8/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
2/9/2015	22.28	23.71	1.09	No						0.00	0.00	0.000	0.000
2/10/2015	22.28	23.71	0.01	No						0.00	0.00	0.000	0.000
2/11/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
1/12/2015	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
2/13/2015	22.28	23.71	0.00	No	0.148			1.34		77.48	39.13	0.014	0.128
2/14/2015	23.54	24.97	0.00	No	0.148			1.34		125.58	63.42	0.023	0.208
2/15/2015	24.36	25.79	0.00	No	0.148			1.34		125.58	63.42	0.023	0.208
2/16/2015	24.68	26.11	0.00	No	0.148			1.34		125.58	63.42	0.023	0.208
2/17/2015	24.68	26.11	0.00	No	0.148			1.34		125.58	63.42	0.023	0.208
2/18/2015	24.71	26.14	0.13	No	0.148			1.34		125.58	63.42	0.023	0.208
2/19/2015	25.01	26.44	0.00	No	0.148			1.34		125.58	63.42	0.023	0.208
2/20/2015	25.15	26.58	0.00	No	0.148			1.34		125.58	63.42	0.023	0.208
2/21/2015	25.25	26.68	0.06	No	0.148			1.34		96.19	48.58	0.018	0.159
2/22/2015	25.23	26.66	0.00	No	0.148			1.34		125.58	63.42	0.023	0.208
2/23/2015	25.49	26.92	0.00	No	0.113			1.06		125.58	63.42	0.018	0.164
2/24/2015	25.61	27.04	0.00	No	0.113			1.06		125.58	63.42	0.018	0.164
2/25/2015	25.72	27.15	0.00	No	0.113			1.06		0.00	0.00	0.000	0.000
2/26/2015	25.87	27.30	0.02	No	0.113			1.06		0.00	0.00	0.000	0.000
2/27/2015	25.93	27.36	0.13	No	0.113			1.06		0.00	0.00	0.000	0.000
2/28/2015	26.23	27.66	5.05	No	0.113			1.06		0.00	0.00	0.000	0.000
3/1/2015	26.50	27.93	0.01	No	0.113			1.06		125.58	63.42	0.018	0.164
3/2/2015	26.51	27.94	0.00	No	0.163			1.62		125.58	63.42	0.025	0.251
3/3/2015	26.54	27.97	0.00	No	0.163			1.62		125.58	63.42	0.025	0.251
3/4/2015	26.55	27.98	0.00	No	0.163			1.62		125.58	63.42	0.025	0.251
3/5/2015	26.58	28.01	0.00	No	0.163			1.62		125.58	63.42	0.025	0.251
3/6/2015	26.59	28.02	0.00	No	0.163			1.62		125.58	63.42	0.025	0.251
3/7/2015	26.66	28.09	0.13	No	0.163			1.62		125.58	63.42	0.025	0.251
3/8/2015	26.74	28.17	0.00	No	0.163			1.62		125.58	63.42	0.025	0.251
3/9/2015	26.81	28.24	0.00	No	0.187			1.24		125.58	63.42	0.029	0.192
3/10/2015	26.90	28.33	0.00	No	0.187			1.24		125.58	63.42	0.029	0.192
3/11/2015	26.98	28.41	0.00	No	0.187			1.24		125.58	63.42	0.029	0.192
3/12/2015	27.03	28.46	0.00	No	0.187			1.24		125.58	63.42	0.029	0.192
3/13/2015	27.06	28.49	0.01	No	0.187			1.24		125.58	63.42	0.029	0.192
3/14/2015	27.08	28.51	0.00	No	0.187			1.24		125.58	63.42	0.029	0.192
3/15/2015	27.15	28.58	0.02	No	0.187			1.24		125.58	63.42	0.029	0.192
3/16/2015	27.19	28.62	0.00	No	0.126			1.05		106.87	53.98	0.017	0.139
3/17/2015	27.21	28.64	0.00	No	0.126			1.05		106.87	53.98	0.017	0.139
3/18/2015	27.19	28.62	0.00	No	0.126			1.05		106.87	53.98	0.017	0.139
3/19/2015	27.21	28.64	0.03	No	0.126			1.05		125.58	63.42	0.020	0.163

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
3/20/2015	27.26	28.69	0.00	No	0.126			1.05		101.53	51.28	0.016	0.132
3/21/2015	27.30	28.73	0.00	No	0.126			1.05		26.72	13.49	0.004	0.035
3/22/2015	27.19	28.62	0.00	No	0.126			1.05		0.00	0.00	0.000	0.000
3/23/2015	27.08	28.51	0.00	No	0.130			1.09		0.00	0.00	0.000	0.000
3/24/2015	26.98	28.41	0.00	No	0.130			1.09		0.00	0.00	0.000	0.000
3/25/2015	26.92	28.35	0.00	No	0.130			1.09		21.37	10.80	0.003	0.029
3/26/2015	26.84	28.27	0.23	No	0.130			1.09		101.53	51.28	0.016	0.137
3/27/2015	26.96	28.39	1.03	No	0.130			1.09		125.6	63.42	0.020	0.169
3/28/2015	27.09	28.52	0.00	No	0.130			1.09		125.6	63.42	0.020	0.169
3/29/2015	27.15	28.58	0.00	No	0.130			1.09		125.6	63.42	0.020	0.169
3/30/2015	27.22	28.65	0.00	No	0.135			1.19		0.0	0.00	0.000	0.000
3/31/2015	27.17	28.60	0.00	No	0.135			1.19		0.0	0.00	0.000	0.000
4/1/2015	27.16	28.59	0.00	No	0.135			1.19		125.6	63.42	0.021	0.185
4/2/2015	27.23	28.66	0.00	No	0.135			1.19		125.6	63.42	0.021	0.185
4/3/2015	27.30	28.73	0.00	No	0.135			1.19		112.2	56.68	0.019	0.165
4/4/2015	27.35	28.78	0.00	No	0.135			1.19		112.2	56.68	0.019	0.165
4/5/2015	27.40	28.83	0.00	No	0.135			1.19		117.6	59.37	0.020	0.173
4/6/2015	27.43	28.86	0.00	No	0.111			1.15		117.6	59.37	0.016	0.167
4/7/2015	27.50	28.93	0.00	No	0.111			1.15		32.1	16.19	0.004	0.046
4/8/2015	27.41	28.84	0.00	No	0.111			1.15		0.0	0.00	0.000	0.000
4/9/2015	27.32	28.75	0.00	No	0.111			1.15		0.0	0.00	0.000	0.000
4/10/2015	27.22	28.65	0.00	No	0.111			1.15		0.0	0.00	0.000	0.000
4/11/2015	27.13	28.56	0.00	No	0.111			1.15		0.0	0.00	0.000	0.000
4/12/2015	27.04	28.47	0.00	No	0.111			1.15		0.0	0.00	0.000	0.000
4/13/2015	26.95	28.38	0.00	No	0.096			0.995		0.0	0.00	0.000	0.000
4/14/2015	26.87	28.30	0.00	No	0.096			0.995		0.0	0.00	0.000	0.000
4/15/2015	26.78	28.21	1.50	No	0.096			0.995		0.0	0.00	0.000	0.000
4/16/2015	26.84	28.27	0.17	No	0.096			0.995		0.0	0.00	0.000	0.000
4/17/2015	26.77	28.20	0.07	No	0.096			0.995		0.0	0.00	0.000	0.000
4/18/2015	26.68	28.11	0.02	No	0.096			0.995		0.0	0.00	0.000	0.000
4/19/2015	26.63	28.06	0.04	No	0.096			0.995		0.0	0.00	0.000	0.000
4/20/2015	26.54	27.97	0.02	No	0.096			0.995		0.0	0.00	0.000	0.000
4/21/2015	26.61	28.04	0.04	No	0.096			0.995		64.1	32.38	0.008	0.079
4/22/2015	26.61	28.04	0.02	No	0.096			0.995		122.9	62.08	0.015	0.151
4/23/2015	26.66	28.09	0.07	No	0.096			0.995		125.6	63.42	0.015	0.154
4/24/2015	26.72	28.15	0.16	No	0.096			0.995		125.6	63.42	0.015	0.154
4/25/2015	26.76	28.19	0.08	No	0.096			0.995		96.2	48.58	0.011	0.118
4/26/2015	26.82	28.25	0.02	No	0.096			0.995		125.6	63.42	0.015	0.154
4/27/2015	26.86	28.29	0.30	No	0.118			0.997		117.6	59.37	0.017	0.145
4/28/2015	27.06	28.49	0.18	No	0.118			0.997		125.6	63.42	0.018	0.155
4/29/2015	27.19	28.62	0.01	No	0.118			0.997		125.6	63.42	0.018	0.155
4/30/2015	27.26	28.69	0.01	No	0.118			0.997		125.6	63.42	0.018	0.155
5/1/2015	27.33	28.76	0.00	No	0.118			0.997		42.8	21.59	0.006	0.053
5/2/2015	27.28	28.71	0.01	No	0.118			0.997		112.2	56.68	0.016	0.138
5/3/2015	27.36	28.79	0.00	No	0.118			0.997		125.6	63.42	0.018	0.155
5/4/2015	27.39	28.82	0.00	No	0.085			0.997		85.5	43.18	0.009	0.105
5/5/2015	27.46	28.89	0.00	No	0.085			0.997		0.0	0.00	0.000	0.000
5/6/2015	27.45	28.88	0.01	No	0.085			0.997		0.0	0.00	0.000	0.000
5/7/2015	27.35	28.78	0.00	No	0.085			0.997		0.0	0.00	0.000	0.000
5/8/2015	27.25	28.68	0.00	No	0.085			0.997		0.0	0.00	0.000	0.000
5/9/2015	27.14	28.57	0.00	No	0.085			0.997		0.0	0.00	0.000	0.000
5/10/2015	27.06	28.49	0.00	No	0.085			0.997		0.0	0.00	0.000	0.000
5/11/2015	26.97	28.40	0.00	No	0.095			0.988		0.0	0.00	0.000	0.000
5/12/2015	26.88	28.31	0.00	No	0.095			0.988		0.0	0.00	0.000	0.000
5/13/2015	26.78	28.21	0.00	No	0.095			0.988		0.0	0.00	0.000	0.000
5/14/2015	26.69	28.12	0.00	No	0.095			0.988		0.0	0.00	0.000	0.000
5/15/2015	26.60	28.03	0.12	No	0.095			0.988		0.0	0.00	0.000	0.000
5/16/2015	26.53	27.96	0.02	No	0.095			0.988		0.0	0.00	0.000	0.000
5/17/2015	26.47	27.90	0.00	No	0.095			0.988		125.6	63.42	0.015	0.153
5/18/2015	26.57	28.00	0.00	No	0.127			1.11		106.9	53.97	0.017	0.147
5/19/2015	26.62	28.05	0.00	No	0.127			1.11		80.2	40.48	0.013	0.110
5/20/2015	26.67	28.10	0.00	No	0.127			1.11		85.5	43.18	0.013	0.117
5/21/2015	26.71	28.14	0.00	No	0.127			1.11		90.8	45.88	0.014	0.125
5/22/2015	26.76	28.19	0.09	No	0.127			1.11		85.5	43.18	0.013	0.117
5/23/2015	27.00	28.43	0.04	No	0.127			1.11		125.6	63.42	0.020	0.172
5/24/2015	27.19	28.62	0.00	No	0.127			1.11		125.6	63.42	0.020	0.172
5/25/2015	27.25	28.68	0.01	No	0.127			1.11		0.0	0.00	0.000	0.000
5/26/2015	27.31	28.74	0.00	No	0.117			1.05		0.0	0.00	0.000	0.000

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
5/27/2015	27.36	28.79	0.00	No	0.117			1.05		0.0	0.00	0.000	0.000
5/28/2015	27.40	28.83	0.00	No	0.117			1.05		0.0	0.00	0.000	0.000
5/29/2015	27.32	28.75	0.00	No	0.117			1.05		0.0	0.00	0.000	0.000
5/30/2015	27.24	28.67	0.00	No	0.117			1.05		0.0	0.00	0.000	0.000
5/31/2015	27.15	28.58	0.00	No	0.117			1.05		0.0	0.00	0.000	0.000
6/1/2015	27.07	28.50	0.00	No	0.098			0.967		0.0	0.00	0.000	0.000
6/2/2015	26.98	28.41	0.00	No	0.098			0.967		0.0	0.00	0.000	0.000
6/3/2015	26.90	28.33	0.00	No	0.098			0.967		0.0	0.00	0.000	0.000
6/4/2015	26.82	28.25	0.00	No	0.098			0.967		0.0	0.00	0.000	0.000
6/5/2015	26.74	28.17	0.00	No	0.098			0.967		0.0	0.00	0.000	0.000
6/6/2015	26.68	28.11	0.00	No	0.098			0.967		0.0	0.00	0.000	0.000
6/7/2015	26.69	28.12	0.00	No	0.098			0.967		0.0	0.00	0.000	0.000
6/8/2015	26.61	28.04	0.00	No						0.0	0.00	0.000	0.000
6/9/2015	26.53	27.96	0.00	No						0.0	0.00	0.000	0.000
6/10/2015	26.44	27.87	0.00	No						0.0	0.00	0.000	0.000
6/11/2015	26.61	28.04	0.00	No						0.0	0.00	0.000	0.000
6/12/2015	26.52	27.95	0.00	No						0.0	0.00	0.000	0.000
6/13/2015	26.43	27.86	0.00	No						0.0	0.00	0.000	0.000
6/14/2015	26.34	27.77	0.00	No						0.0	0.00	0.000	0.000
6/15/2015	26.24	27.67	0.00	No						0.0	0.00	0.000	0.000
6/16/2015	26.15	27.58	0.00	No						0.0	0.00	0.000	0.000
6/17/2015	26.08	27.51	0.00	No						0.0	0.00	0.000	0.000
6/18/2015	25.99	27.42	0.00	No						0.0	0.00	0.000	0.000
6/19/2015	25.89	27.32	0.00	No						0.0	0.00	0.000	0.000
6/20/2015	25.79	27.22	0.00	No						0.0	0.00	0.000	0.000
6/21/2015	25.71	27.14	0.00	No						0.0	0.00	0.000	0.000
6/22/2015	25.63	27.06	0.00	No						0.0	0.00	0.000	0.000
6/23/2015	25.53	26.96	0.03	No						0.0	0.00	0.000	0.000
6/24/2015	25.45	26.88	0.00	No						0.0	0.00	0.000	0.000
6/25/2015	25.36	26.79	0.00	No						0.0	0.00	0.000	0.000
6/26/2015	25.28	26.71	0.00	No						0.0	0.00	0.000	0.000
6/27/2015	25.17	26.60	0.00	No						0.0	0.00	0.000	0.000
6/28/2015	25.06	26.49	0.00	No						0.0	0.00	0.000	0.000
6/29/2015	24.94	26.37	0.00	No						0.0	0.00	0.000	0.000
6/30/2015	24.85	26.28	0.00	No						0.0	0.00	0.000	0.000
7/1/2015	24.81	26.24	0.00	No						0.0	0.00	0.000	0.000
7/2/2015	24.72	26.15	0.00	No						0.0	0.00	0.000	0.000
7/3/2015	24.60	26.03	0.00	No						0.0	0.00	0.000	0.000
7/4/2015	24.51	25.94	0.00	No						0.0	0.00	0.000	0.000
7/5/2015	24.38	25.81	0.00	No						0.0	0.00	0.000	0.000
7/6/2015	24.37	25.80	0.00	No						0.0	0.00	0.000	0.000
7/7/2015	24.63	26.06	0.00	No						0.0	0.00	0.000	0.000
7/8/2015	24.25	25.68	0.00	No						0.0	0.00	0.000	0.000
7/9/2015	24.11	25.54	0.00	No						0.0	0.00	0.000	0.000
7/10/2015	23.95	25.38	0.00	No						0.0	0.00	0.000	0.000
7/11/2015	23.81	25.24	0.00	No						0.0	0.00	0.000	0.000
7/12/2015	23.60	25.03	0.00	No						0.0	0.00	0.000	0.000
7/13/2015	23.45	24.88	0.00	No						0.0	0.00	0.000	0.000
7/14/2015	23.30	24.73	0.00	No						0.0	0.00	0.000	0.000
7/15/2015	23.14	24.57	0.01	No						0.0	0.00	0.000	0.000
7/16/2015	23.00	24.43	0.01	No						0.0	0.00	0.000	0.000
7/17/2015	23.12	24.55	0.00	No						0.0	0.00	0.000	0.000
7/18/2015	22.96	24.39	0.02	No						0.0	0.00	0.000	0.000
7/19/2015	22.78	24.21	0.01	No						0.0	0.00	0.000	0.000
7/20/2015	22.60	24.03	0.00	No						0.0	0.00	0.000	0.000
7/21/2015	22.40	23.83	0.00	No						0.0	0.00	0.000	0.000
7/22/2015	22.21	23.64	0.00	No						0.0	0.00	0.000	0.000
7/23/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
7/24/2015	22.02*	23.45*	0.91	No						0.0	0.00	0.000	0.000
7/25/2015	22.02*	23.45*	0.02	No						0.0	0.00	0.000	0.000
7/26/2015	22.02*	23.45*	0.06	No						0.0	0.00	0.000	0.000
7/27/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
7/28/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
7/29/2015	22.02*	23.45*	0.06	No						0.0	0.00	0.000	0.000
7/30/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
7/31/2015	22.02*	23.45*	0.78	No						0.0	0.00	0.000	0.000
8/1/2015	22.02*	23.45*	0.54	No						0.0	0.00	0.000	0.000
8/2/2015	22.02*	23.45*	0.11	No						0.0	0.00	0.000	0.000

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
8/3/2015	22.02*	23.45*	0.01	No						0.0	0.00	0.000	0.000
8/4/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
8/5/2015	22.02*	23.45*	0.24	No						0.0	0.00	0.000	0.000
8/6/2015	22.02*	23.45*	0.01	No						0.0	0.00	0.000	0.000
8/7/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
8/8/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
8/9/2015	22.02*	23.45*	0.05	No						0.0	0.00	0.000	0.000
8/10/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
8/11/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
8/12/2015	22.02*	23.45*	0.30	No						0.0	0.00	0.000	0.000
8/13/2015	22.02*	23.45*	0.19	No						0.0	0.00	0.000	0.000
8/14/2015	22.02*	23.45*	0.01	No						0.0	0.00	0.000	0.000
8/15/2015	22.02*	23.45*	0.65	No						0.0	0.00	0.000	0.000
8/16/2015	22.02*	23.45*	0.01	No						0.0	0.00	0.000	0.000
8/17/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
8/18/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
8/19/2015	22.02*	23.45*	0.26	No						0.0	0.00	0.000	0.000
8/20/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
8/21/2015	22.02*	23.45*	0.29	No						0.0	0.00	0.000	0.000
8/22/2015	22.02*	23.45*	0.02	No						0.0	0.00	0.000	0.000
8/23/2015	22.02*	23.45*	0.01	No						0.0	0.00	0.000	0.000
8/24/2015	22.02*	23.45*	0.14	No						0.0	0.00	0.000	0.000
8/25/2015	22.02*	23.45*	0.02	No						0.0	0.00	0.000	0.000
8/26/2015	22.02*	23.45*	0.87	No						0.0	0.00	0.000	0.000
8/27/2015	22.02*	23.45*	0.17	No						0.0	0.00	0.000	0.000
8/28/2015	22.02*	23.45*	0.06	No						0.0	0.00	0.000	0.000
8/29/2015	22.02*	23.45*	0.35	No						0.0	0.00	0.000	0.000
8/30/2015	22.02*	23.45*	0.63	No						0.0	0.00	0.000	0.000
8/31/2015	22.02*	23.45*	0.01	No						0.0	0.00	0.000	0.000
9/1/2015	22.02*	23.45*	0.11	No						0.0	0.00	0.000	0.000
9/2/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
9/3/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
9/4/2015	22.02*	23.45*	0.03	No						0.0	0.00	0.000	0.000
9/5/2015	22.02*	23.45*	0.02	No						0.0	0.00	0.000	0.000
9/6/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
9/7/2015	22.02*	23.45*	0.39	No						0.0	0.00	0.000	0.000
9/8/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
9/9/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
9/10/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
9/11/2015	22.02*	23.45*	0.89	No						0.0	0.00	0.000	0.000
9/12/2015	22.02*	23.45*	0.07	No						0.0	0.00	0.000	0.000
9/13/2015	22.02*	23.45*	0.15	No						0.0	0.00	0.000	0.000
9/14/2015	22.02*	23.45*	0.00	No						0.0	0.00	0.000	0.000
9/15/2015	22.02*	23.45*	0.47	No						0.0	0.00	0.000	0.000
9/16/2015	22.02*	23.45*	1.34	No						0.0	0.00	0.000	0.000
9/17/2015	22.02*	23.45*	2.71	No						0.0	0.00	0.000	0.000
9/18/2015	22.87	24.30	1.67	No	0.578			2.27		125.60	63.43	0.090	0.352
9/19/2015	24.12	25.55	0.03	No	0.578			2.27		125.60	63.43	0.090	0.352
9/20/2015	24.32	25.75	0.32	No	0.578			2.27		125.60	63.43	0.090	0.352
9/21/2015	24.30	25.73	0.00	No	0.578			2.27		125.58	63.42	0.090	0.352
9/22/2015	24.44	25.87	0.03	No	0.578			2.27		125.58	63.42	0.090	0.352
9/23/2015	24.53	25.96	0.00	No	0.578			2.27		125.58	63.42	0.090	0.352
9/24/2015	24.58	26.01	0.04	No	0.578			2.27		125.58	63.42	0.090	0.352
9/25/2015	24.64	26.07	0.16	No	0.578			2.27		125.58	63.42	0.090	0.352
9/26/2015	24.73	26.16	0.01	No	0.578			2.27		125.58	63.42	0.090	0.352
9/27/2015	24.81	26.24	2.55	No	0.578			2.27		125.58	63.42	0.090	0.352
9/28/2015	25.11	26.54	0.00	No	0.474			1.55		125.58	63.42	0.074	0.241
9/29/2015	25.18	26.61	0.04	No	0.474			1.55		125.58	63.42	0.074	0.241
9/30/2015	25.21	26.64	0.00	No	0.474			1.55		96.19	48.58	0.056	0.184
10/1/2015	25.15	26.58	0.00	No	0.474			1.55		96.19	48.58	0.056	0.184
10/2/2015	25.27	26.70	0.33	No	0.474			1.55		125.58	63.42	0.074	0.241
10/3/2015	25.37	26.80	0.01	No	0.474			1.55		125.58	63.42	0.074	0.241
10/4/2015	25.46	26.89	0.24	No	0.474			1.55		125.58	63.42	0.074	0.241
10/5/2015	25.58	27.01	0.11	No	0.474			1.55		125.58	63.42	0.074	0.241
10/6/2015	25.63	27.06	0.00	No	0.332			1.42		125.58	63.42	0.052	0.220
10/7/2015	25.68	27.11	1.65	No	0.332			1.42		125.58	63.42	0.052	0.220
10/8/2015	25.85	27.28	0.01	No	0.332			1.42		125.58	63.42	0.052	0.220
10/9/2015	25.89	27.32	0.00	No	0.332			1.42		125.58	63.42	0.052	0.220

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
10/10/2015	25.92	27.35	0.00	No	0.332			1.42		125.58	63.42	0.052	0.220
10/11/2015	25.99	27.42	0.01	No	0.332			1.42		125.58	63.42	0.052	0.220
10/12/2015	26.07	27.50	0.00	No	0.236			1.32		125.58	63.42	0.037	0.205
10/13/2015	26.12	27.55	0.10	No	0.236			1.32		125.58	63.42	0.037	0.205
10/14/2015	26.17	27.60	0.01	No	0.236			1.32		125.58	63.42	0.037	0.205
10/15/2015	26.26	27.69	0.00	No	0.236			1.32		125.58	63.42	0.037	0.205
10/16/2015	26.34	27.77	0.13	No	0.236			1.32		125.58	63.42	0.037	0.205
10/17/2015	26.45	27.88	0.00	No	0.236			1.32		125.58	63.42	0.037	0.205
10/18/2015	26.57	28.00	0.03	No	0.236			1.32		125.58	63.42	0.037	0.205
10/19/2015	26.71	28.14	0.00	No	0.182			1.24		125.58	63.42	0.028	0.192
10/20/2015	26.81	28.24	0.00	No	0.182			1.24		125.58	63.42	0.028	0.192
10/21/2015	26.89	28.32	0.34	No	0.182			1.24		125.58	63.42	0.028	0.192
10/22/2015	26.98	28.41	0.15	No	0.182			1.24		125.58	63.42	0.028	0.192
10/23/2015	27.14	28.57	0.00	No	0.182			1.24		125.58	63.42	0.028	0.192
10/24/2015	27.23	28.66	0.00	No	0.182			1.24		125.58	63.42	0.028	0.192
10/25/2015	27.29	28.72	0.00	No	0.182			1.24		125.58	63.42	0.028	0.192
10/26/2015	27.38	28.81	0.00	No	0.136			1.18		125.58	63.42	0.021	0.183
10/27/2015	27.46	28.89	0.00	No	0.136			1.18		37.41	18.89	0.006	0.055
10/28/2015	27.38	28.81	0.00	No	0.136			1.18		0.00	0.00	0.000	0.000
10/29/2015	27.30	28.73	0.00	No	0.136			1.18		0.00	0.00	0.000	0.000
10/30/2015	27.22	28.65	0.00	No	0.136			1.18		0.00	0.00	0.000	0.000
10/31/2015	27.13	28.56	0.00	No	0.136			1.18		0.00	0.00	0.000	0.000
11/1/2015	27.05	28.48	0.00	No	0.136			1.18		0.00	0.00	0.000	0.000
11/2/2015	26.97	28.40	0.00	No	0.161			1.18		0.00	0.00	0.000	0.000
11/3/2015	26.90	28.33	0.00	No						0.00	0.00	0.000	0.000
11/4/2015	26.81	28.24	0.00	No						0.00	0.00	0.000	0.000
11/5/2015	26.73	28.16	0.06	No						0.00	0.00	0.000	0.000
11/6/2015	26.66	28.09	0.01	No						0.00	0.00	0.000	0.000
11/7/2015	26.59	28.02	0.00	No						0.00	0.00	0.000	0.000
11/8/2015	26.51	27.94	0.00	No						0.00	0.00	0.000	0.000
11/9/2015	26.43	27.86	0.00	No						0.00	0.00	0.000	0.000
11/10/2015	26.35	27.78	0.00	No						0.00	0.00	0.000	0.000
11/11/2015	26.29	27.72	0.01	No						0.00	0.00	0.000	0.000
11/12/2015	26.21	27.64	0.00	No						0.00	0.00	0.000	0.000
11/13/2015	26.14	27.57	0.00	No						0.00	0.00	0.000	0.000
11/14/2015	26.06	27.49	0.00	No						0.00	0.00	0.000	0.000
11/15/2015	26.00	27.43	0.00	No						0.00	0.00	0.000	0.000
11/16/2015	25.93	27.36	0.06	No						0.00	0.00	0.000	0.000
11/17/2015	25.85	27.28	0.12	No						0.00	0.00	0.000	0.000
11/18/2015	25.79	27.22	0.14	No						0.00	0.00	0.000	0.000
11/19/2015	25.72	27.15	0.01	No						0.00	0.00	0.000	0.000
11/20/2015	25.68	27.11	0.02	No						0.00	0.00	0.000	0.000
11/21/2015	25.59	27.02	1.83	No						0.00	0.00	0.000	0.000
11/22/2015	25.88	27.31	0.26	No						0.00	0.00	0.000	0.000
11/23/2015	25.85	27.28	0.00	No						0.00	0.00	0.000	0.000
11/24/2015	25.76	27.19	0.00	No						0.00	0.00	0.000	0.000
11/25/2015	25.66	27.09	0.19	No						0.00	0.00	0.000	0.000
11/26/2015	25.57	27.00	0.12	No						0.00	0.00	0.000	0.000
11/27/2015	25.51	26.94	0.14	No						0.00	0.00	0.000	0.000
11/28/2015	25.43	26.86	0.01	No						0.00	0.00	0.000	0.000
11/29/2015	25.33	26.76	0.02	No						0.00	0.00	0.000	0.000
11/30/2015	25.23	26.66	0.00	No						0.00	0.00	0.000	0.000
12/1/2015	25.13	26.56	0.00	No						0.00	0.00	0.000	0.000
12/2/2015	25.02	26.45	0.04	No						0.00	0.00	0.000	0.000
12/3/2015	24.92	26.35	0.25	No						0.00	0.00	0.000	0.000
12/4/2015	24.90	26.33	0.97	No						0.00	0.00	0.000	0.000
12/5/2015	25.00	26.43	2.39	No						0.00	0.00	0.000	0.000
12/6/2015	25.11	26.54	0.01	No						0.00	0.00	0.000	0.000
12/7/2015	25.03	26.46	0.00	No						0.00	0.00	0.000	0.000
12/8/2015	24.95	26.38	0.11	No						0.00	0.00	0.000	0.000
12/9/2015	24.86	26.29	0.00	No						0.00	0.00	0.000	0.000
12/10/2015	24.75	26.18	0.00	No						0.00	0.00	0.000	0.000
12/11/2015	24.64	26.07	0.00	No						0.00	0.00	0.000	0.000
12/12/2015	24.52	25.95	0.00	No						0.00	0.00	0.000	0.000
12/13/2015	24.39	25.82	0.16	No						0.00	0.00	0.000	0.000
12/14/2015	24.37	25.80	0.01	No						0.00	0.00	0.000	0.000
12/15/2015	24.21	25.64	0.01	No						0.00	0.00	0.000	0.000
12/16/2015	24.08	25.51	0.01	No	0.143			1.19	6	80.16	40.48	0.014	0.118

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
12/17/2015	24.52	25.95	0.00	No	0.143			1.19	6	125.58	63.42	0.022	0.185
12/18/2015	24.74	26.17	0.00	No	0.143			1.19	6	125.58	63.42	0.022	0.185
12/19/2015	24.84	26.27	0.00	No	0.143			1.19	6	125.58	63.42	0.022	0.185
12/20/2015	25.09	26.52	0.00	No	0.143			1.19	6	125.58	63.42	0.022	0.185
12/21/2015	25.20	26.63	0.01	No	0.143			1.19	6	125.58	63.42	0.022	0.185
12/22/2015	25.38	26.81	0.49	No	0.143			1.19	6	125.58	63.42	0.022	0.185
12/23/2015	25.52	26.95	0.01	No	0.143			1.19	6	64.12	32.38	0.011	0.094
12/24/2015	25.54	26.97	0.00	No	0.143			1.19	6	64.12	32.38	0.011	0.094
12/25/2015	25.50	26.93	0.01	No	0.143			1.19	6	64.12	32.38	0.011	0.094
12/26/2015	25.56	26.99	0.39	No	0.143			1.19	6	64.12	32.38	0.011	0.094
12/27/2015	25.53	26.96	0.07	No	0.124			1.20	5	64.12	32.38	0.010	0.095
12/28/2015	25.56	26.99	0.00	No	0.124			1.20	5	64.12	32.38	0.010	0.095
12/29/2015	25.50	26.93	0.00	No	0.124			1.20	5	64.12	32.38	0.010	0.095
12/30/2015	25.57	27.00	0.00	No	0.124			1.20	5	64.12	32.38	0.010	0.095
12/31/2015	25.52	26.95	0.00	No	0.124			1.20	5	64.12	32.38	0.010	0.095
1/1/2016	25.43	26.86	0.00	No	0.124			1.20		64.1	32.4	0.010	0.095
1/2/2016	25.39	26.82	0.00	No	0.124			1.20		64.1	32.4	0.010	0.095
1/3/2016	25.45	26.88	0.51	No	0.124			1.20		64.1	32.4	0.010	0.095
1/4/2016	25.47	26.90	0.07	No	0.105			1.11	3	0.0	0.0	0.000	0.000
1/5/2016	25.61	27.04	0.00	No	0.105			1.11		0.0	0.0	0.000	0.000
1/6/2016	25.71	27.14	0.12	No	0.105			1.11		0.0	0.0	0.000	0.000
1/7/2016	25.62	27.05	0.00	No	0.105			1.11		0.0	0.0	0.000	0.000
1/8/2016	25.63	27.06	0.14	No	0.105			1.11		0.0	0.0	0.000	0.000
1/9/2016	25.65	27.08	0.73	No	0.105			1.11		0.0	0.0	0.000	0.000
1/10/2016	25.75	27.18	0.00	No	0.105			1.11		0.0	0.0	0.000	0.000
1/11/2016	25.75	27.18	0.00	No	0.127			1.12	4	0.0	0.0	0.000	0.000
1/12/2016	25.71	27.14	0.01	No	0.127			1.12		0.0	0.0	0.000	0.000
1/13/2016	25.61	27.04	0.01	No	0.127			1.12		0.0	0.0	0.000	0.000
1/14/2016	25.56	26.99	0.06	No	0.127			1.12		0.0	0.0	0.000	0.000
1/15/2016	25.75	27.18	0.96	No	0.127			1.12		0.0	0.0	0.000	0.000
1/16/2016	25.77	27.20	0.02	No	0.127			1.12		0.0	0.0	0.000	0.000
1/17/2016	25.93	27.36	0.64	No	0.127			1.12		0.0	0.0	0.000	0.000
1/18/2016	25.96	27.39	0.00	No	0.114			1.10	10	0.0	0.0	0.000	0.000
1/19/2016	26.03	27.46	0.00	No	0.114			1.10		0.0	0.0	0.000	0.000
1/20/2016	26.11	27.54	0.00	No	0.114			1.10		0.0	0.0	0.000	0.000
1/21/2016	26.25	27.68	0.00	No	0.114			1.10		0.0	0.0	0.000	0.000
1/22/2016	26.37	27.80	0.95	No	0.114			1.10		0.0	0.0	0.000	0.000
1/23/2016	26.53	27.96	0.00	No	0.114			1.10		0.0	0.0	0.000	0.000
1/24/2016	26.40	27.83	0.00	No	0.114			1.10		0.0	0.0	0.000	0.000
1/25/2016	26.32	27.75	0.00	No	0.113			1.09	10	0.0	0.0	0.000	0.000
1/26/2016	26.25	27.68	0.01	No	0.113			1.09		0.0	0.0	0.000	0.000
1/27/2016	26.34	27.77	3.46	No	0.113			1.09		0.0	0.0	0.000	0.000
1/28/2016	26.66	28.09	1.58	No	0.113			1.09		0.0	0.0	0.000	0.000
1/29/2016	26.80	28.23	0.00	No	0.113			1.09		0.0	0.0	0.000	0.000
1/30/2016	26.78	28.21	0.00	No	0.113			1.09		0.0	0.0	0.000	0.000
1/31/2016	26.73	28.16	0.00	No	0.113			1.09		0.0	0.0	0.000	0.000
2/1/2016	26.77	28.2	0.00	No	0.651			2.15	7	53.4	27.0	0.043	0.142
2/2/2016	26.75	28.18	0.00	No	0.651			2.15		125.6	63.4	0.101	0.334
2/3/2016	26.88	28.31	0.00	No	0.651			2.15		125.6	63.4	0.101	0.334
2/4/2016	26.98	28.41	0.00	No	0.651			2.15		125.6	63.4	0.101	0.334
2/5/2016	27.17	28.6	0.41	No	0.651			2.15		96.2	48.6	0.077	0.256
2/6/2016	27.13	28.56	0.69	No	0.651			2.15		106.9	54.0	0.086	0.284
2/7/2016	27.31	28.74	0.01	No	0.651			2.15		125.6	63.4	0.101	0.334
2/8/2016	27.39	28.82	0.00	No	0.651			2.15		125.6	63.4	0.101	0.334
2/9/2016	27.46	28.89	0.00	No	0.214			1.42	23	125.6	63.4	0.033	0.220
2/10/2016	27.53	28.96	0.00	No	0.214			1.42		0.0	0.0	0.000	0.000
2/11/2016	27.44	28.87	0.00	No	0.214			1.42		0.0	0.0	0.000	0.000
2/12/2016	27.39	28.82	0.00	No	0.214			1.42		0.0	0.0	0.000	0.000
2/13/2016	27.24	28.67	0.00	No	0.214			1.42		0.0	0.0	0.000	0.000
2/14/2016	27.13	28.56	0.00	No	0.214			1.42		0.0	0.0	0.000	0.000
2/15/2016	27.02	28.45	0.38	No	0.192			1.43	34	0.0	0.0	0.000	0.000
2/16/2016	27.03	28.46	0.66	No	0.192			1.43		0.0	0.0	0.000	0.000
2/17/2016	26.93	28.36	0.00	No	0.192			1.43		0.0	0.0	0.000	0.000
2/18/2016	26.83	28.26	0.00	No	0.192			1.43		0.0	0.0	0.000	0.000
2/19/2016	26.72	28.15	0.00	No	0.192			1.43		0.0	0.0	0.000	0.000
2/20/2016	26.63	28.06	0.00	No	0.192			1.43		0.0	0.0	0.000	0.000
2/21/2016	26.58	28.01	0.00	No	0.192			1.43		122.9	62.1	0.029	0.217
2/22/2016	26.67	28.10	0.00	No	0.15			1.31	26	125.6	63.4	0.023	0.203

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
2/23/2016	26.72	28.15	0.24	No	0.15			1.31		125.6	63.4	0.023	0.203
2/24/2016	26.8	28.23	0.53	No	0.15			1.31		125.6	63.4	0.023	0.203
2/25/2016	26.96	28.39	0.00	No	0.15			1.31		125.6	63.4	0.023	0.203
2/26/2016	27.03	28.46	0.00	No	0.15			1.31		125.6	63.4	0.023	0.203
2/27/2016	27.1	28.53	0.00	No	0.15			1.31		125.6	63.4	0.023	0.203
2/28/2016	27.21	28.64	0.00	No	0.15			1.31		125.6	63.4	0.023	0.203
2/29/2016	27.32	28.75	0.00	No	0.197			1.57	35	125.6	63.4	0.031	0.244
3/1/2016	27.41	28.84	0.00	No	0.197			1.57		125.6	63.4	0.031	0.244
3/2/2016	27.51	28.94	0.00	No	0.197			1.57		125.6	63.4	0.031	0.244
3/3/2016	27.52	28.95	0.00	No	0.197			1.57		0.0	0.0	0.000	0.000
3/4/2016	27.41	28.84	0.00	No	0.197			1.57		0.0	0.0	0.000	0.000
3/5/2016	27.33	28.76	0.00	No	0.197			1.57		0.0	0.0	0.000	0.000
3/6/2016	27.25	28.68	0.00	No	0.197			1.57		0.0	0.0	0.000	0.000
3/7/2016	27.15	28.58	0.00	No	0.17			1.5	12	0.0	0.0	0.000	0.000
3/8/2016	27.06	28.49	0.00	No	0.17			1.5		0.0	0.0	0.000	0.000
3/9/2016	26.97	28.4	0.00	No	0.17			1.5		0.0	0.0	0.000	0.000
3/10/2016	26.89	28.32	0.00	No	0.17			1.5		0.0	0.0	0.000	0.000
3/11/2016	26.80	28.23	0.00	No	0.17			1.5		0.0	0.0	0.000	0.000
3/12/2016	26.72	28.15	0.00	No	0.17			1.5		0.0	0.0	0.000	0.000
3/13/2016	26.63	28.06	0.00	No	0.17			1.5		0.0	0.0	0.000	0.000
3/14/2016	26.57	28	0.00	No	0.17			1.5		122.9	62.1	0.026	0.228
3/15/2016	26.68	28.11	0.00	No	0.17			1.5		125.6	63.4	0.026	0.233
3/16/2016	26.79	28.22	0.00	No	0.17			1.5		125.6	63.4	0.026	0.233
3/17/2016	26.91	28.34	0.00	No	0.17			1.5		125.6	63.4	0.026	0.233
3/18/2016	26.92	28.35	0.00	No	0.148			1.31		125.6	63.4	0.023	0.203
3/19/2016	27.00	28.43	0.69	No	0.148			1.31		125.6	63.4	0.023	0.203
3/20/2016	27.15	28.58	0.33	No	0.148			1.31		125.6	63.4	0.023	0.203
3/21/2016	27.24	28.67	0.00	No	0.148			1.31	47	125.6	63.4	0.023	0.203
3/22/2016	27.33	28.76	0.00	No	0.148			1.31		125.6	63.4	0.023	0.203
3/23/2016	27.40	28.83	0.00	No	0.148			1.31		125.6	63.4	0.023	0.203
3/24/2016	27.46	28.89	0.02	No	0.148			1.31		125.6	63.4	0.023	0.203
3/25/2016	27.53	28.96	0.16	No	0.148			1.31		0.0	0.0	0.000	0.000
3/26/2016	27.46	28.89	0.00	No	0.148			1.31		0.0	0.0	0.000	0.000
3/27/2016	27.37	28.8	0.02	No	0.148			1.31		0.0	0.0	0.000	0.000
3/28/2016	27.26	28.69	0.01	No	0.158			1.41	10	0.0	0.0	0.000	0.000
3/29/2016	27.18	28.61	1.13	No	0.158			1.41		0.0	0.0	0.000	0.000
3/30/2016	27.22	28.65	0.32	No	0.158			1.41		0.0	0.0	0.000	0.000
3/31/2016	27.16	28.59	0.4	No	0.158			1.41		0.0	0.0	0.000	0.000
4/1/2016	27.07	28.5	0.0	No						0.0	0.0	0.000	0.000
4/2/2016	26.98	28.41	0.0	No						0.0	0.0	0.000	0.000
4/3/2016	26.89	28.32	0.0	No						0.0	0.0	0.000	0.000
4/4/2016	26.80	28.23	0.0	No						0.0	0.0	0.000	0.000
4/5/2016	26.72	28.15	0.0	No						0.0	0.0	0.000	0.000
4/6/2016	26.63	28.06	0.0	No						0.0	0.0	0.000	0.000
4/7/2016	26.55	27.98	0.0	No						0.0	0.0	0.000	0.000
4/8/2016	26.52	27.95	0.0	No	0.115			1.11		125.6	63.4	0.018	0.172
4/9/2016	26.63	28.06	0.0	No	0.115			1.11		125.6	63.4	0.018	0.172
4/10/2016	26.71	28.14	0.0	No	0.115			1.11		125.6	63.4	0.018	0.172
4/11/2016	26.82	28.25	0.0	No	0.115			1.11		125.6	63.4	0.018	0.172
4/12/2016	26.92	28.35	0.0	No	0.115			1.11		125.6	63.4	0.018	0.172
4/13/2016	26.98	28.41	0.0	No	0.115			1.11		125.6	63.4	0.018	0.172
4/14/2016	27.11	28.54	0.7	No	0.115			1.11		125.6	63.4	0.018	0.172
4/15/2016	27.24	28.67	0.0	No	0.115			1.11		125.6	63.4	0.018	0.172
4/16/2016	27.35	28.78	0.1	No	0.115			1.11		125.6	63.4	0.018	0.172
4/17/2016	27.44	28.87	0.0	No	0.115			1.11		125.6	63.4	0.018	0.172
4/18/2016	27.47	28.90	0.0	No	0.141			1.28		0.0	0.0	0.000	0.000
4/19/2016	27.38	28.81	0.0	No	0.141			1.28		0.0	0.0	0.000	0.000
4/20/2016	27.29	28.72	0.0	No	0.141			1.28		0.0	0.0	0.000	0.000
4/21/2016	27.20	28.63	0.0	No	0.141			1.28		0.0	0.0	0.000	0.000
4/22/2016	27.12	28.55	0.0	No	0.141			1.28		0.0	0.0	0.000	0.000
4/23/2016	27.03	28.46	0.0	No	0.141			1.28		0.0	0.0	0.000	0.000
4/24/2016	26.95	28.38	0.0	No	0.141			1.28		0.0	0.0	0.000	0.000
4/25/2016	26.86	28.29	0.0	No						0.0	0.0	0.000	0.000
4/26/2016	26.78	28.21	0.0	No						0.0	0.0	0.000	0.000
4/27/2016	26.70	28.13	0.0	No						0.0	0.0	0.000	0.000
4/28/2016	26.62	28.05	0.0	No						0.0	0.0	0.000	0.000
4/29/2016	26.54	27.97	0.0	No						0.0	0.0	0.000	0.000
4/30/2016	26.51	27.94	0.0	No	0.119			1.16		125.6	63.4	0.018	0.180

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
5/1/2016	26.63	28.06	0.0	No	0.119			1.16		125.6	63.4	0.018	0.180
5/2/2016	26.69	28.12	0.0	No	0.119			1.16		125.6	63.4	0.018	0.180
5/3/2016	26.77	28.20	0.02	No	0.119			1.16		125.6	63.4	0.018	0.180
5/4/2016	26.93	28.36	0.25	No	0.119			1.16		125.6	63.4	0.018	0.180
5/5/2016	27.11	28.54	0.0	No	0.119			1.16		125.6	63.4	0.018	0.180
5/6/2016	27.13	28.56	0.0	No	0.119			1.16		125.6	63.4	0.018	0.180
5/7/2016	27.22	28.65	0.0	No	0.119			1.16		125.6	63.4	0.018	0.180
5/8/2016	27.3	28.73	0.0	No	0.119			1.16		125.6	63.4	0.018	0.180
5/9/2016	27.39	28.82	0.0	No	0.126			1.94		125.6	63.4	0.020	0.301
5/10/2016	27.42	28.85	0.0	No	0.126			1.94		0.0	0.0	0.000	0.000
5/11/2016	27.32	28.75	0.0	No	0.126			1.94		0.0	0.0	0.000	0.000
5/12/2016	27.24	28.67	0.0	No	0.126			1.94		0.0	0.0	0.000	0.000
5/13/2016	27.14	28.57	0.0	No	0.126			1.94		0.0	0.0	0.000	0.000
5/14/2016	27.04	28.47	0.08	No	0.126			1.94		0.0	0.0	0.000	0.000
5/15/2016	26.96	28.39	0.00	No	0.126			1.94		0.0	0.0	0.000	0.000
5/16/2016	26.87	28.30	0.00	No	0.121			1.17		0.0	0.0	0.000	0.000
5/17/2016	26.78	28.21	1.14	No	0.121			1.17		0.0	0.0	0.000	0.000
5/18/2016	26.9	28.33	1.49	No	0.121			1.17		0.0	0.0	0.000	0.000
5/19/2016	26.85	28.28	1.36	No	0.121			1.17		0.0	0.0	0.000	0.000
5/20/2016	26.83	28.26	0.56	No	0.121			1.17		0.0	0.0	0.000	0.000
5/21/2016	26.76	28.19	0.01	No	0.121			1.17		0.0	0.0	0.000	0.000
5/22/2016	26.67	28.1	0.01	No	0.121			1.17		0.0	0.0	0.000	0.000
5/23/2016	26.58	28.01	0.00	No	0.121			1.17		0.0	0.0	0.000	0.000
5/24/2016	26.5	27.93	0.05	No	0.121			1.17		0.0	0.0	0.000	0.000
5/25/2016	26.46	27.89	0.00	No	0.121			1.17		125.6	63.4	0.019	0.182
5/26/2016	26.6	28.03	0.00	No	0.121			1.17		125.6	63.4	0.019	0.182
5/27/2016	26.75	28.18	0.06	No	0.121			1.17		125.6	63.4	0.019	0.182
5/28/2016	26.85	28.28	0.07	No	0.121			1.17		125.6	63.4	0.019	0.182
5/29/2016	26.84	28.27	0.05	No	0.121			1.17		125.6	63.4	0.019	0.182
5/30/2016	26.93	28.36	0.00	No	0.133			1.01		125.6	63.4	0.021	0.157
5/31/2016	27.01	28.44	0.00	No	0.133			1.01		125.6	63.4	0.021	0.157
6/1/2016	27.09	28.52	0.00	No	0.133			1.01		125.6	63.4	0.021	0.157
6/2/2016	27.16	28.59	0.00	No	0.133			1.01		125.6	63.4	0.021	0.157
6/3/2016	27.26	28.69	0.00	No	0.133			1.01		125.6	63.4	0.021	0.157
6/4/2016	27.37	28.80	0.00	No	0.133			1.01		125.6	63.4	0.021	0.157
6/5/2016	27.36	28.79	2.93	No	0.133			1.01		0.0	0.0	0.000	0.000
6/6/2016	27.53	28.96	0.16	No	0.133			1.01		0.0	0.0	0.000	0.000
6/7/2016	27.47	28.90	0.01	No	0.133			1.01		0.0	0.0	0.000	0.000
6/8/2016	27.38	28.81	1.13	No	0.133			1.01		0.0	0.0	0.000	0.000
6/9/2016	27.39	28.82	1.44	No	0.133			1.01		0.0	0.0	0.000	0.000
6/10/2016	27.42	28.85	0.97	No	0.133			1.01		0.0	0.0	0.000	0.000
6/11/2016	27.42	28.85	0.00	No	0.133			1.01		0.0	0.0	0.000	0.000
6/12/2016	27.33	28.76	0.00	No	0.133			1.01		0.0	0.0	0.000	0.000
6/13/2016	27.25	28.68	0.00	No						0.0	0.0	0.000	0.000
6/14/2016	27.15	28.58	0.00	No						0.0	0.0	0.000	0.000
6/15/2016	27.06	28.49	0.00	No						0.0	0.0	0.000	0.000
6/16/2016	26.96	28.39	0.38	No						0.0	0.0	0.000	0.000
6/17/2016	26.9	28.33	0.10	No						0.0	0.0	0.000	0.000
6/18/2016	26.84	28.27	0.13	No						0.0	0.0	0.000	0.000
6/19/2016	26.78	28.21	0.18	No						0.0	0.0	0.000	0.000
6/20/2016	26.7	28.13	0.10	No						0.0	0.0	0.000	0.000
6/21/2016	26.63	28.06	0.06	No						0.0	0.0	0.000	0.000
6/22/2016	26.58	28.01	0.36	No						0.0	0.0	0.000	0.000
6/23/2016	26.51	27.94	0.06	No	0.19			1.55		125.6	63.4	0.029	0.241
6/24/2016	26.51	27.94	0.22	No	0.19			1.55		125.6	63.4	0.029	0.241
6/25/2016	26.61	28.04	0.00	No	0.19			1.55		125.6	63.4	0.029	0.241
6/26/2016	26.68	28.11	0.00	No	0.19			1.55		125.6	63.4	0.029	0.241
6/27/2016	26.77	28.20	0.04	No	0.19			1.55		125.6	63.4	0.029	0.241
6/28/2016	26.92	28.35	0.00	No	0.19			1.55		125.6	63.4	0.029	0.241
6/29/2016	27.02	28.45	0.36	No	0.19			1.55		125.6	63.4	0.029	0.241
6/30/2016	27.15	28.58	0.01	No	0.19			1.55		125.6	63.4	0.029	0.241
7/1/2016	27.24	28.67	0.00	No	0.19			1.55		125.6	63.4	0.029	0.241
7/2/2016	27.35	28.78	1.32	No	0.19			1.55		125.6	63.4	0.029	0.241
7/3/2016	27.55	28.98	0.00	No	0.19			1.55		0.0	0.0	0.000	0.000
7/4/2016	27.46	28.89	0.00	No	0.19			1.55		0.0	0.0	0.000	0.000
7/5/2016	27.37	28.8	0.00	No	0.152			1.42		0.0	0.0	0.000	0.000
7/6/2016	27.27	28.7	0.00	No						0.0	0.0	0.000	0.000
7/7/2016	27.18	28.61	0.00	No						0.0	0.0	0.000	0.000

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
7/8/2016	27.09	28.52	0.00	No						0.0	0.0	0.000	0.000
7/9/2016	27	28.43	0.00	No						0.0	0.0	0.000	0.000
7/10/2016	26.9	28.33	0.00	No						0.0	0.0	0.000	0.000
7/11/2016	26.8	28.23	0.00	No						0.0	0.0	0.000	0.000
7/12/2016	26.72	28.15	0.01	No						0.0	0.0	0.000	0.000
7/13/2016	26.64	28.07	0.36	No						0.0	0.0	0.000	0.000
7/14/2016	26.63	28.06	0.00	No						0.0	0.0	0.000	0.000
7/15/2016	26.54	27.97	0.00	No						0.0	0.0	0.000	0.000
7/16/2016	26.46	27.89	0.01	No						0.0	0.0	0.000	0.000
7/17/2016	26.44	27.87	0.04	No	0.143			1.44		125.6	63.4	0.022	0.223
7/18/2016	26.55	27.98	0.04	No	0.143			1.44		125.6	63.4	0.022	0.223
7/19/2016	26.68	28.11	0.18	No	0.143			1.44		125.6	63.4	0.022	0.223
7/20/2016	26.8	28.23	0.00	No	0.143			1.44		125.6	63.4	0.022	0.223
7/21/2016	26.95	28.38	0.46	No	0.143			1.44		125.6	63.4	0.022	0.223
7/22/2016	27.01	28.44	0.00	No	0.143			1.44		125.6	63.4	0.022	0.223
7/23/2016	27.13	28.56	0.03	No	0.143			1.44		125.6	63.4	0.022	0.223
7/24/2016	27.26	28.69	1.07	No	0.143			1.44		125.6	63.4	0.022	0.223
7/25/2016	27.37	28.8	0.13	No	0.143			1.44		0.0	0.0	0.000	0.000
7/26/2016	27.29	28.72	0.00	No						0.0	0.0	0.000	0.000
7/27/2016	27.19	28.62	0.00	No						0.0	0.0	0.000	0.000
7/28/2016	27.1	28.53	0.00	No						0.0	0.0	0.000	0.000
7/29/2016	27	28.43	0.60	No						0.0	0.0	0.000	0.000
7/30/2016	26.94	28.37	0.00	No						0.0	0.0	0.000	0.000
7/31/2016	26.84	28.27	0.00	No						0.0	0.0	0.000	0.000
8/1/2016	26.76	28.19	0.01	No						0.0	0.0	0.000	0.000
8/2/2016	26.68	28.11	2.20	No						0.0	0.0	0.000	0.000
8/3/2016	26.81	28.24	0.00	No						0.0	0.0	0.000	0.000
8/4/2016	26.73	28.16	0.03	No						0.0	0.0	0.000	0.000
8/5/2016	26.65	28.08	0.00	No						0.0	0.0	0.000	0.000
8/6/2016	26.56	27.99	0.22	No						0.0	0.0	0.000	0.000
8/7/2016	26.5	27.93	0.01	No						0.0	0.0	0.000	0.000
8/8/2016	26.47	27.9	1.30	No	0.19			1.55		125.6	63.4	0.029	0.241
8/9/2016	26.7	28.13	0.18	No	0.19			1.55		125.6	63.4	0.029	0.241
8/10/2016	26.78	28.21	2.03	No	0.19			1.55		125.6	63.4	0.029	0.241
8/11/2016	26.99	28.42	0.00	No	0.19			1.55		125.6	63.4	0.029	0.241
8/12/2016	27.14	28.57	0.00	No	0.19			1.55		125.6	63.4	0.029	0.241
8/13/2016	27.25	28.68	0.00	No	0.19			1.55		125.6	63.4	0.029	0.241
8/14/2016	27.35	28.78	0.02	No	0.19			1.55		125.6	63.4	0.029	0.241
8/15/2016	27.4	28.83	0.00	No	0.19			1.55		0.0	0.0	0.000	0.000
8/16/2016	27.32	28.75	0.22	No						0.0	0.0	0.000	0.000
8/17/2016	27.23	28.66	0.01	No						0.0	0.0	0.000	0.000
8/18/2016	27.14	28.57	0.00	No						0.0	0.0	0.000	0.000
8/19/2016	27.05	28.48	0.00	No						0.0	0.0	0.000	0.000
8/20/2016	26.96	28.39	0.00	No						0.0	0.0	0.000	0.000
8/21/2016	26.87	28.3	0.08	No						0.0	0.0	0.000	0.000
8/22/2016	26.78	28.21	0.00	No						0.0	0.0	0.000	0.000
8/23/2016	26.71	28.14	0.00	No						0.0	0	0.000	0.000
8/24/2016	26.62	28.05	0.73	No						0.0	0.0	0.000	0.000
8/25/2016	26.62	28.05	0.27	No						0.0	0.0	0.000	0.000
8/26/2016	26.56	27.99	0.08	No						0.0	0.0	0.000	0.000
8/27/2016	26.49	27.92	0.21	No						0.0	0.0	0.000	0.000
8/28/2016	26.47	27.9	0.00	No						125.6	63.4	0.000	0.000
8/29/2016	26.58	28.01	0.29	No						125.6	63.4	0.000	0.000
8/30/2016	26.73	28.16	0.90	No						125.6	63.4	0.000	0.000
8/31/2016	26.91	28.34	0.89	No						125.6	63.4	0.000	0.000
9/1/2016	27.07	28.50	0.01	No	0.134			1.29		125.6	63.4	0.021	0.200
9/2/2016	27.13	28.56	0.00	No	0.134			1.29		125.6	63.4	0.021	0.200
9/3/2016	27.28	28.71	0.00	No	0.134			1.29		125.6	63.4	0.021	0.200
9/4/2016	27.34	28.77	0.00	No	0.134			1.29		0.0	0.0	0.000	0.000
9/5/2016	27.28	28.71	0.52	No	0.134			1.29		0.0	0.0	0.000	0.000
9/6/2016	27.24	28.67	0.20	No						0.0	0.0	0.000	0.000
9/7/2016	27.17	28.60	0.14	No						0.0	0.0	0.000	0.000
9/8/2016	27.11	28.54	0.01	No						0.0	0.0	0.000	0.000
9/9/2016	27.02	28.45	0.00	No						0.0	0.0	0.000	0.000
9/10/2016	26.93	28.36	0.00	No						0.0	0.0	0.000	0.000
9/11/2016	26.85	28.28	0.10	No						0.0	0.0	0.000	0.000
9/12/2016	26.77	28.20	0.07	No						0.0	0.0	0.000	0.000
9/13/2016	26.71	28.14	1.00	No						0.0	0.0	0.000	0.000

SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
9/14/2016	26.70	28.13	0.00	No						0.0	0.0	0.000	0.000
9/15/2016	26.61	28.04	0.00	No						0.0	0.0	0.000	0.000
9/16/2016	26.53	27.96	1.44	No						0.0	0.0	0.000	0.000
9/17/2016	26.57	28.00	0.01	No						0.0	0.0	0.000	0.000
9/18/2016	26.49	27.92	0.00	No	0.131			1.27		0.0	0.0	0.000	0.000
9/19/2016	26.49	27.92	0.50	No	0.131			1.27		117.6	59.4	0.019	0.185
9/20/2016	26.62	28.05	0.06	No	0.131			1.27		125.6	63.4	0.020	0.197
9/21/2016	26.73	28.16	0.00	No	0.131			1.27		125.6	63.4	0.020	0.197
9/22/2016	26.85	28.28	0.60	No	0.131			1.27		125.6	63.4	0.020	0.197
9/23/2016	26.98	28.41	0.02	No	0.131			1.27		125.6	63.4	0.020	0.197
9/24/2016	27.10	28.53	0.12	No	0.131			1.27		125.6	63.4	0.020	0.197
9/25/2016	27.21	28.64	0.09	No	0.131			1.27		125.6	63.4	0.020	0.197
9/26/2016	27.31	28.74	0.00	No	0.131			1.27		0.0	0.0	0.000	0.000
9/27/2016	27.37	28.80	0.00	No						0.0	0.0	0.000	0.000
9/28/2016	27.29	28.72	0.01	No						0.0	0.0	0.000	0.000
9/29/2016	27.20	28.63	0.09	No						0.0	0.0	0.000	0.000
9/30/2016	27.13	28.56	0.06	No						0.0	0.0	0.000	0.000
10/1/2016	27.05	28.48	0.01	No						0.0	0.0	0.000	0.000
10/2/2016	27.04	28.47	0.98	No						0.0	0.0	0.000	0.000
10/3/2016	26.97	28.4	1.52	No						0.0	0.0	0.000	0.000
1/10/1900	27.11	28.54	0.05	No						0.0	0.0	0.000	0.000
10/5/2016	27.03	28.46	0.23	No						0.0	0.0	0.000	0.000
10/6/2016	27.00	28.43	1.51	No						0.0	0.0	0.000	0.000
10/7/2016	27.08	28.51	0.27	No						0.0	0.0	0.000	0.000
10/8/2016	27.00	28.43	0.00	No						0.0	0.0	0.000	0.000
10/9/2016	26.91	28.34	0.00	No						0.0	0.0	0.000	0.000
10/10/2016	26.83	28.26	0.00	No						0.0	0.0	0.000	0.000
10/11/2016	26.76	28.19	0.00	No						0.0	0.0	0.000	0.000
10/8/1900	26.69	28.12	0.02	No						0.0	0.0	0.000	0.000
10/13/2016	26.61	28.04	0.00	No						0.0	0.0	0.000	0.000
10/14/2016	26.53	27.96	0.01	No						0.0	0.0	0.000	0.000
10/15/2016	26.52	27.95	0.73	No	0.562			1.22		125.6	63.4	0.087	0.189
10/16/2016	26.68	28.11	0.41	No	0.562			1.22		125.6	63.4	0.087	0.189
10/17/2016	26.80	28.23	0.02	No	0.562			1.22		125.6	63.4	0.087	0.189
10/18/2016	26.89	28.32	0.00	No	0.148			1.27		125.6	63.4	0.023	0.197
10/19/2016	26.99	28.42	0.00	No	0.148			1.27		125.6	63.4	0.023	0.197
10/20/2016	27.08	28.51	0.10	No	0.148			1.27		125.6	63.4	0.023	0.197
10/21/2016	27.12	28.55	0.00	No	0.148			1.27		125.6	63.4	0.023	0.197
10/22/2016	27.20	28.63	0.00	No	0.148			1.27		125.6	63.4	0.023	0.197
10/23/2016	27.28	28.71	0.00	No	0.148			1.27		125.6	63.4	0.023	0.197
10/24/2016	27.33	28.76	0.00	No	0.148			1.27		125.6	63.4	0.023	0.197
10/25/2016	27.38	28.82	0.00	No	0.161			1.29		125.6	63.4	0.025	0.200
10/26/2016	27.41	28.84	0.15	No						0.0	0.0	0.000	0.000
10/27/2016	27.33	28.76	0.00	No						0.0	0.0	0.000	0.000
10/28/2016	27.24	28.67	0.00	No						0.0	0.0	0.000	0.000
10/29/2016	27.15	28.58	0.00	No						0.0	0.0	0.000	0.000
10/30/2016	27.05	28.48	0.00	No						0.0	0.0	0.000	0.000
10/31/2016	26.97	28.4	0.00	No						0.0	0.0	0.000	0.000
		Totals	**142.11**							**39728.1**	**20064.7**	**9.4**	**64.5**

Project Water Quality Monitoring

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
2/5/2014						
2/6/2014						
2/7/2014						
2/8/2014						
2/9/2014						
2/10/2014						
2/11/2014						
2/12/2014						
2/13/2014						
2/14/2014	0.123	1.004				
2/15/2014	0.123	1.004				
2/16/2014	0.123	1.004				
2/17/2014	0.123	1.004				
2/18/2014	0.123	1.004				
2/19/2014	0.123	1.004				
2/20/2014	0.123	1.004	0.130	0.164	1.134	7.0
2/21/2014	0.111	0.965				
2/22/2014	0.111	0.965				
2/23/2014	0.111	0.965				
2/24/2014	0.111	0.965				
2/25/2014	0.111	0.965	0.106	0.140	0.960	4.0
2/26/2014	0.103	0.939				
2/27/2014	0.103	0.939				
2/28/2014	0.103	0.939				
3/1/2014	0.103	0.939				
3/2/2014	0.103	0.939				
3/3/2014	0.103	0.939	0.119	0.111	0.921	5.0
3/4/2014	0.088	0.902				
3/5/2014	0.088	0.902				
3/6/2014	0.088	0.902				
3/7/2014	0.088	0.902				
3/8/2014	0.088	0.902				
3/9/2014	0.088	0.902				
3/10/2014	0.088	0.902	0.117	0.138	0.988	7.6
3/11/2014	0.098	0.985				
3/12/2014	0.098	0.985				
3/13/2014	0.098	0.985				
3/14/2014	0.098	0.985				
3/15/2014	0.098	0.985				
3/16/2014	0.098	0.985				
3/17/2014	0.098	0.985	0.121	0.113	0.973	6.0
3/18/2014	0.108	0.876				
3/19/2014	0.108	0.876				
3/20/2014	0.108	0.876				
3/21/2014	0.108	0.876				
3/22/2014	0.108	0.876				
3/23/2014	0.108	0.876				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
3/24/2014	0.108	0.876				
3/25/2014	0.108	0.876	0.122	0.094	0.934	5.0
3/26/2014	0.123	1.014				
3/27/2014	0.123	1.014				
3/28/2014	0.123	1.014				
3/29/2014	0.123	1.014				
3/30/2014	0.123	1.014				
3/31/2014	0.123	1.014	0.189	0.229	1.049	3
4/1/2014	0.105	0.857				
4/2/2014	0.105	0.857				
4/3/2014	0.105	0.857				
4/4/2014	0.105	0.857				
4/5/2014	0.105	0.857				
4/6/2014	0.105	0.857				
4/7/2014	0.105	0.857	0.139	0.073	0.923	7
4/8/2014	0.096	0.812				
4/9/2014	0.096	0.812				
4/10/2014	0.096	0.812				
4/11/2014	0.096	0.812				
4/12/2014	0.096	0.812				
4/13/2014	0.096	0.812				
4/14/2014	0.096	0.812	0.17	0.114	0.944	8
4/15/2014	0.089	0.823				
4/16/2014	0.089	0.823				
4/17/2014	0.089	0.823				
4/18/2014	0.089	0.823				
4/19/2014	0.089	0.823				
4/20/2014	0.089	0.823				
4/21/2014	0.089	0.823	0.139	0.123	0.893	6
4/22/2014	0.096	0.89				
4/23/2014	0.096	0.89				
4/24/2014	0.096	0.89				
4/25/2014	0.096	0.89				
4/26/2014	0.096	0.89				
4/27/2014	0.096	0.89				
4/28/2014	0.096	0.89	0.146	0.071	0.891	16
4/29/2014	0.106	1.134				
4/30/2014	0.106	1.134				
5/1/2014	0.106	1.134				
5/2/2014	0.106	1.134				
5/3/2014	0.106	1.134				
5/4/2014	0.106	1.134				
5/5/2014	0.106	1.134	0.168	0.098	0.988	11
5/6/2014	0.117	1.015				
5/7/2014	0.117	1.015				
5/8/2014	0.117	1.015				
5/9/2014	0.117	1.015				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
5/10/2014	0.117	1.015				
5/11/2014	0.117	1.015				
5/12/2014	0.117	1.015				
5/13/2014	0.117	1.015	0.189	0.093	1.043	7
5/14/2014						
5/15/2014						
5/16/2014						
5/17/2014						
5/18/2014						
5/19/2014						
5/20/2014						
5/21/2014						
5/22/2014						
5/23/2014						
5/24/2014						
5/25/2014						
5/26/2014						
5/27/2014						
5/28/2014						
5/29/2014						
5/30/2014						
5/31/2014						
6/1/2014						
6/2/2014						
6/3/2014						
6/4/2014						
6/5/2014						
6/6/2014						
6/7/2014						
6/8/2014						
6/9/2014						
6/10/2014						
6/11/2014						
6/12/2014						
6/13/2014						
6/14/2014						
6/15/2014						
6/16/2014						
6/17/2014						
6/18/2014						
6/19/2014						
6/20/2014						
6/21/2014						
6/22/2014						
6/23/2014						
6/24/2014						
6/25/2014						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
6/26/2014						
6/27/2014						
6/28/2014						
6/29/2014						
6/30/2014						
7/1/2014						
7/2/2014	0.332	2.63	0.584	0.005	2.41	22
7/3/2014	0.332	2.63				
7/4/2014	0.332	2.63				
7/5/2014	0.332	2.63				
7/6/2014	0.332	2.63				
7/7/2014	0.332	2.63				
7/8/2014	0.332	2.63				
7/9/2014	0.332	2.63				
7/10/2014	0.332E	2.63E				
7/11/2014	0.332E	2.63E				
7/12/2014	0.332E	2.63E				
7/13/2014	0.332E	2.63E				
7/14/2014	0.332E	2.63E				
7/15/2014	0.332E	2.63E				
7/16/2014	0.332E	2.63E				
7/17/2014	0.332E	2.63E				
7/18/2014	0.332E	2.63E				
7/19/2014	0.332E	2.63E				
7/20/2014	0.332E	2.63E				
7/21/2014	0.332E	2.63E				
7/22/2014	0.182E	1.7E				
7/23/2014	0.182E	1.7E				
7/24/2014	0.182E	1.7E				
7/25/2014	0.182E	1.7E				
7/26/2014	0.182E	1.7E				
7/27/2014	0.182E	1.7E				
7/28/2014	0.182E	1.7E				
7/29/2014	0.182	1.7	0.238	0.133	1.2	3
7/30/2014	0.182	1.7				
7/31/2014	0.182	1.7				
8/1/2014	0.182	1.7				
8/2/2014	0.182	1.7				
8/3/2014	0.182	1.7				
8/4/2014	0.186	1.32	0.285	0.197	1.32	6
8/5/2014	0.186	1.32				
8/6/2014	0.186	1.32				
8/7/2014	0.186	1.32				
8/8/2014	0.186	1.32				
8/9/2014	0.186	1.32				
8/10/2014	0.186	1.32				
8/11/2014	0.179	1.32	0.199	0.175	1.21	3

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
8/12/2014	0.179	1.32				
8/13/2014	0.179	1.32				
8/14/2014	0.179	1.32				
8/15/2014	0.179	1.32				
8/16/2014	0.179	1.32				
8/17/2014	0.179	1.32				
8/18/2014	0.155	1.15	0.193	0.155	1.13	3
8/19/2014	0.155	1.15				
8/20/2014	0.155	1.15				
8/21/2014	0.155	1.15				
8/22/2014	0.155	1.15				
8/23/2014	0.155	1.15				
8/24/2014	0.155	1.15				
8/25/2014	0.197	1.32	0.29	0.02	1.38	7
8/26/2014	0.197	1.32				
8/27/2014	0.197	1.32				
8/28/2014	0.197	1.32				
8/29/2014	0.197	1.32				
8/30/2014	0.197	1.32				
8/31/2014	0.197	1.32				
9/1/2014	0.197	1.32				
9/2/2014	0.205	1.39	0.139	0.151	0.97	3
9/3/2014	0.205	1.39				
9/4/2014	0.205	1.39				
9/5/2014	0.205	1.39				
9/6/2014	0.205	1.39				
9/7/2014	0.205	1.39				
9/8/2014	0.127	0.975	0.161	0.214	1.11	5
9/9/2014	0.127	0.975				
9/10/2014	0.127	0.975				
9/11/2014	0.127	0.975				
9/12/2014	0.127	0.975				
9/13/2014	0.127	0.975				
9/14/2014	0.127	0.975				
9/15/2014	0.155	1.2	0.184	0.006	1.2	5
9/16/2014	0.155	1.2				
9/17/2014	0.155	1.2				
9/18/2014	0.155	1.2				
9/19/2014	0.155	1.2				
9/20/2014	0.155	1.2				
9/21/2014	0.155	1.2				
9/22/2014	0.24	1.4	0.31	0.175	1.48	5
9/23/2014	0.24	1.4				
9/24/2014	0.24	1.4				
9/25/2014	0.24	1.4				
9/26/2014	0.24	1.4				
9/27/2014	0.24	1.4				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
9/28/2014	0.24	1.4				
9/29/2014	0.256	1.39	0.284	0.163	1.54	10
9/30/2014	0.256	1.39				
10/1/2014	0.256	1.39				
10/2/2014	0.256	1.39				
10/3/2014	0.256	1.39				
10/4/2014	0.256	1.39				
10/5/2014	0.256	1.39				
10/6/2014	0.235	1.34	0.194	0.221	1.35	3
10/7/2014	0.235	1.34				
10/8/2014	0.235	1.34				
10/9/2014	0.235	1.34				
10/10/2014	0.235	1.34				
10/11/2014	0.235	1.34				
10/12/2014	0.235	1.34				
10/13/2014	0.151	1.15				
10/14/2014	0.151	1.15				
10/15/2014	0.151	1.15				
10/16/2014	0.151	1.15				
10/17/2014	0.151	1.15				
10/18/2014	0.151	1.15				
10/19/2014	0.151	1.15				
10/20/2014	0.138	1.1	0.161	0.32	1.22	3
10/21/2014	0.138	1.1				
10/22/2014	0.138	1.1				
10/23/2014	0.138	1.1				
10/24/2014	0.138	1.1				
10/25/2014	0.138	1.1				
10/26/2014	0.138	1.1				
10/27/2014	0.155	1.22	0.152	0.146	1.26	3
10/28/2014	0.155	1.22				
10/29/2014	0.155	1.22				
10/30/2014	0.155	1.22				
10/31/2014	0.155	1.22				
11/1/2014	0.155	1.22				
11/2/2014	0.155	1.22				
11/3/2014	0.129	1.09	0.161	0.274	1.23	3
11/4/2014	0.129	1.09				
11/5/2014	0.129	1.09				
11/6/2014	0.129	1.09				
11/7/2014	0.129	1.09				
11/8/2014	0.129	1.09				
11/9/2014	0.129	1.09				
11/10/2014	0.160	1.040	0.292	0.122	1.44	15
11/11/2014	0.160	1.040				
11/12/2014	0.160	1.040				
11/13/2014	0.160	1.040				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
11/14/2014	0.160	1.040				
11/15/2014	0.160	1.040				
11/16/2014	0.160	1.040				
11/17/2014	0.145	1.1	0.145	0.218	1.18	3
11/18/2014	0.145	1.1				
11/19/2014	0.145	1.1				
11/20/2014	0.145	1.1				
11/21/2014	0.145	1.1				
11/22/2014	0.145	1.1				
11/23/2014	0.145	1.1				
11/24/2014	0.108	0.966	0.125	0.239	1.11	3
11/25/2014	0.108	0.966				
11/26/2014	0.108	0.966				
11/27/2014	0.108	0.966				
11/28/2014	0.108	0.966				
11/29/2014	0.108	0.966				
11/30/2014	0.108	0.966				
12/1/2014	0.094	1.02	0.111	0.193	1.08	3
12/2/2014	0.094	1.02				
12/3/2014	0.094	1.02				
12/4/2014	0.094	1.02				
12/5/2014	0.094	1.02				
12/6/2014	0.094	1.02				
12/7/2014	0.094	1.02				
12/8/2014						
12/9/2014						
12/10/2014						
12/11/2014						
12/12/2014						
12/13/2014						
12/14/2014						
12/15/2014						
12/16/2014						
12/17/2014						
12/18/2014						
12/19/2014						
12/20/2014						
12/21/2014						
12/22/2014						
12/23/2014						
12/24/2014						
12/25/2014						
12/26/2014						
12/27/2014						
12/28/2014						
12/29/2014						
12/30/2014						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
12/31/2014						
1/1/2015						
1/2/2015						
1/3/2015						
1/4/2015						
1/5/2015						
1/6/2015						
1/7/2015						
1/8/2015						
1/9/2015						
1/10/2015						
1/11/2015						
1/12/2015						
1/13/2015						
1/14/2015						
1/15/2015						
1/16/2015						
1/17/2015						
1/18/2015						
1/19/2015						
1/20/2015						
1/21/2015						
1/22/2015						
1/23/2015						
1/24/2015						
1/25/2015						
1/26/2015						
1/27/2015						
1/28/2015						
1/29/2015						
1/30/2015						
1/31/2015						
2/1/2015						
2/2/2015						
2/3/2015						
2/4/2015						
2/5/2015						
2/6/2015						
2/7/2015						
2/8/2015						
2/9/2015						
2/10/2015						
2/11/2015						
1/12/2015						
2/13/2015						
2/14/2015						
2/15/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
2/16/2015			0.148	0.389	1.34	8
2/17/2015						
2/18/2015						
2/19/2015						
2/20/2015						
2/21/2015						
2/22/2015						
2/23/2015	0.113	1.06	0.105	0.329	1.12	5
2/24/2015	0.113	1.06				
2/25/2015	0.113	1.06				
2/26/2015	0.113	1.06				
2/27/2015	0.113	1.06				
2/28/2015	0.113	1.06				
3/1/2015	0.113	1.06				
3/2/2015	0.163	1.62	0.302	0.907	2.36	56
3/3/2015	0.163	1.62				
3/4/2015	0.163	1.62				
3/5/2015	0.163	1.62				
3/6/2015	0.163	1.62				
3/7/2015	0.163	1.62				
3/8/2015	0.163	1.62				
3/9/2015	0.187	1.24	0.173	0.263	1.29	22
3/10/2015	0.187	1.24				
3/11/2015	0.187	1.24				
3/12/2015	0.187	1.24				
3/13/2015	0.187	1.24				
3/14/2015	0.187	1.24				
3/15/2015	0.187	1.24				
3/16/2015	0.126	1.05	0.15	0.241	1.17	22
3/17/2015	0.126	1.05				
3/18/2015	0.126	1.05				
3/19/2015	0.126	1.05				
3/20/2015	0.126	1.05				
3/21/2015	0.126	1.05				
3/22/2015	0.126	1.05				
3/23/2015	0.130	1.09	0.127	0.195	1.05	9
3/24/2015	0.130	1.09				
3/25/2015	0.130	1.09				
3/26/2015	0.130	1.09				
3/27/2015	0.130	1.09				
3/28/2015	0.130	1.09				
3/29/2015	0.130	1.09				
3/30/2015	0.135	1.19	0.154	0.323	1.23	15
3/31/2015	0.135	1.19				
4/1/2015	0.135	1.19				
4/2/2015	0.135	1.19				
4/3/2015	0.135	1.19				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
4/4/2015	0.135	1.19				
4/5/2015	0.135	1.19				
4/6/2015	0.111	1.15	0.119	0.282	1.11	7
4/7/2015	0.111	1.15				
4/8/2015	0.111	1.15				
4/9/2015	0.111	1.15				
4/10/2015	0.111	1.15				
4/11/2015	0.111	1.15				
4/12/2015	0.111	1.15				
4/13/2015	0.096	0.995	0.101	0.221	1.03	4
4/14/2015	0.096	0.995				
4/15/2015	0.096	0.995				
4/16/2015	0.096	0.995				
4/17/2015	0.096	0.995				
4/18/2015	0.096	0.995				
4/19/2015	0.096	0.995				
4/20/2015	0.096	0.995				
4/21/2015	0.096	0.995				
4/22/2015	0.096	0.995				
4/23/2015	0.096	0.995				
4/24/2015	0.096	0.995				
4/25/2015	0.096	0.995				
4/26/2015	0.096	0.995				
4/27/2015	0.118	0.997	0.115	0.187	1.03	5
4/28/2015	0.118	0.997				
4/29/2015	0.118	0.997				
4/30/2015	0.118	0.997				
5/1/2015	0.118	0.997				
5/2/2015	0.118	0.997				
5/3/2015	0.118	0.997				
5/4/2015	0.085	0.997	0.084	0.197	0.907	5
5/5/2015	0.085	0.997				
5/6/2015	0.085	0.997				
5/7/2015	0.085	0.997				
5/8/2015	0.085	0.997				
5/9/2015	0.085	0.997				
5/10/2015	0.085	0.997				
5/11/2015	0.095	0.988	0.144	0.261	1.01	16
5/12/2015	0.095	0.988				
5/13/2015	0.095	0.988				
5/14/2015	0.095	0.988				
5/15/2015	0.095	0.988				
5/16/2015	0.095	0.988				
5/17/2015	0.095	0.988				
5/18/2015	0.127	1.11	0.17	0.304	1.32	22
5/19/2015	0.127	1.11				
5/20/2015	0.127	1.11				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
5/21/2015	0.127	1.11				
5/22/2015	0.127	1.11				
5/23/2015	0.127	1.11				
5/24/2015	0.127	1.11				
5/25/2015	0.127	1.11				
5/26/2015	0.117	1.05	0.109	0.189	0.974	6
5/27/2015	0.117	1.05				
5/28/2015	0.117	1.05				
5/29/2015	0.117	1.05				
5/30/2015	0.117	1.05				
5/31/2015	0.117	1.05				
6/1/2015	0.098	0.967	0.128	0.115	1.12	12
6/2/2015	0.098	0.967				
6/3/2015	0.098	0.967				
6/4/2015	0.098	0.967				
6/5/2015	0.098	0.967				
6/6/2015	0.098	0.967				
6/7/2015	0.098	0.967				
6/8/2015						
6/9/2015						
6/10/2015						
6/11/2015						
6/12/2015						
6/13/2015						
6/14/2015						
6/15/2015						
6/16/2015						
6/17/2015						
6/18/2015						
6/19/2015						
6/20/2015						
6/21/2015						
6/22/2015						
6/23/2015						
6/24/2015						
6/25/2015						
6/26/2015						
6/27/2015						
6/28/2015						
6/29/2015						
6/30/2015						
7/1/2015						
7/2/2015						
7/3/2015						
7/4/2015						
7/5/2015						
7/6/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
7/7/2015						
7/8/2015						
7/9/2015						
7/10/2015						
7/11/2015						
7/12/2015						
7/13/2015						
7/14/2015						
7/15/2015						
7/16/2015						
7/17/2015						
7/18/2015						
7/19/2015						
7/20/2015						
7/21/2015						
7/22/2015						
7/23/2015						
7/24/2015						
7/25/2015						
7/26/2015						
7/27/2015						
7/28/2015						
7/29/2015						
7/30/2015						
7/31/2015						
8/1/2015						
8/2/2015						
8/3/2015						
8/4/2015						
8/5/2015						
8/6/2015						
8/7/2015						
8/8/2015						
8/9/2015						
8/10/2015						
8/11/2015						
8/12/2015						
8/13/2015						
8/14/2015						
8/15/2015						
8/16/2015						
8/17/2015						
8/18/2015						
8/19/2015						
8/20/2015						
8/21/2015						
8/22/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
8/23/2015						
8/24/2015						
8/25/2015						
8/26/2015						
8/27/2015						
8/28/2015						
8/29/2015						
8/30/2015						
8/31/2015						
9/1/2015						
9/2/2015						
9/3/2015						
9/4/2015						
9/5/2015						
9/6/2015						
9/7/2015						
9/8/2015						
9/9/2015						
9/10/2015						
9/11/2015						
9/12/2015						
9/13/2015						
9/14/2015						
9/15/2015						
9/16/2015						
9/17/2015						
9/18/2015						
9/19/2015						
9/20/2015						
9/21/2015	0.578	2.27	0.682	0.052	2.03	6
9/22/2015	0.578	2.27				
9/23/2015	0.578	2.27				
9/24/2015	0.578	2.27				
9/25/2015	0.578	2.27				
9/26/2015	0.578	2.27				
9/27/2015	0.578	2.27				
9/28/2015	0.474	1.55	0.304	0.07	1.5	8
9/29/2015	0.474	1.55				
9/30/2015	0.474	1.55				
10/1/2015	0.474	1.55				
10/2/2015	0.474	1.55				
10/3/2015	0.474	1.55				
10/4/2015	0.474	1.55				
10/5/2015	0.474	1.55				
10/6/2015	0.332	1.42	0.252	0.189	1.46	4
10/7/2015	0.332	1.42				
10/8/2015	0.332	1.42				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
10/9/2015	0.332	1.42				
10/10/2015	0.332	1.42				
10/11/2015	0.332	1.42				
10/12/2015	0.236	1.32	0.25	0.423	1.46	4
10/13/2015	0.236	1.32				
10/14/2015	0.236	1.32				
10/15/2015	0.236	1.32				
10/16/2015	0.236	1.32				
10/17/2015	0.236	1.32				
10/18/2015	0.236	1.32				
10/19/2015	0.182	1.24	0.171	0.431	1.31	4
10/20/2015	0.182	1.24				
10/21/2015	0.182	1.24				
10/22/2015	0.182	1.24				
10/23/2015	0.182	1.24				
10/24/2015	0.182	1.24				
10/25/2015	0.182	1.24				
10/26/2015	0.136	1.18	0.165	0.479	1.39	5
10/27/2015	0.136	1.18				
10/28/2015	0.136	1.18				
10/29/2015	0.136	1.18				
10/30/2015	0.136	1.18				
10/31/2015	0.136	1.18				
11/1/2015	0.136	1.18				
11/2/2015	0.161	1.18	0.152	0.429	1.36	5
11/3/2015						
11/4/2015						
11/5/2015						
11/6/2015						
11/7/2015						
11/8/2015						
11/9/2015						
11/10/2015						
11/11/2015						
11/12/2015						
11/13/2015						
11/14/2015						
11/15/2015						
11/16/2015						
11/17/2015						
11/18/2015						
11/19/2015						
11/20/2015						
11/21/2015						
11/22/2015						
11/23/2015						
11/24/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
11/25/2015						
11/26/2015						
11/27/2015						
11/28/2015						
11/29/2015						
11/30/2015						
12/1/2015						
12/2/2015						
12/3/2015						
12/4/2015						
12/5/2015						
12/6/2015						
12/7/2015						
12/8/2015						
12/9/2015						
12/10/2015						
12/11/2015						
12/12/2015						
12/13/2015						
12/14/2015						
12/15/2015						
12/16/2015						
12/17/2015						
12/18/2015						
12/19/2015						
12/20/2015						
12/21/2015			0.143	0.309	1.19	6
12/22/2015						
12/23/2015						
12/24/2015						
12/25/2015						
12/26/2015						
12/27/2015						
12/28/2015						
12/29/2015						
12/30/2015						
12/31/2015						
1/1/2016	0.124	1.20				
1/2/2016	0.124	1.20				
1/3/2016	0.124	1.20				
1/4/2016	0.105	1.11	0.111	0.324	1.16	3
1/5/2016	0.105	1.11				
1/6/2016	0.105	1.11				
1/7/2016	0.105	1.11				
1/8/2016	0.105	1.11				
1/9/2016	0.105	1.11				
1/10/2016	0.105	1.11				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
1/11/2016	0.127	1.12	0.135	0.366	1.24	4
1/12/2016	0.127	1.12				
1/13/2016	0.127	1.12				
1/14/2016	0.127	1.12				
1/15/2016	0.127	1.12				
1/16/2016	0.127	1.12				
1/17/2016	0.127	1.12				
1/18/2016	0.114	1.10	0.16	0.236	1.28	10
1/19/2016	0.114	1.10				
1/20/2016	0.114	1.10				
1/21/2016	0.114	1.10				
1/22/2016	0.114	1.10				
1/23/2016	0.114	1.10				
1/24/2016	0.114	1.10				
1/25/2016	0.113	1.09	0.171	0.200	1.30	10
1/26/2016	0.113	1.09				
1/27/2016	0.113	1.09				
1/28/2016	0.113	1.09				
1/29/2016	0.113	1.09				
1/30/2016	0.113	1.09				
1/31/2016	0.113	1.09				
2/1/2016	0.651	2.15	0.296	0.412	1.59	7
2/2/2016	0.651	2.15				
2/3/2016	0.651	2.15				
2/4/2016	0.651	2.15				
2/5/2016	0.651	2.15				
2/6/2016	0.651	2.15				
2/7/2016	0.651	2.15				
2/8/2016	0.651	2.15				
2/9/2016	0.214	1.42	0.151	0.335	1.49	23
2/10/2016	0.214	1.42				
2/11/2016	0.214	1.42				
2/12/2016	0.214	1.42				
2/13/2016	0.214	1.42				
2/14/2016	0.214	1.42				
2/15/2016	0.192	1.43	0.177	0.163	1.38	34
2/16/2016	0.192	1.43				
2/17/2016	0.192	1.43				
2/18/2016	0.192	1.43				
2/19/2016	0.192	1.43				
2/20/2016	0.192	1.43				
2/21/2016	0.192	1.43				
2/22/2016	0.15	1.31	0.162	0.262	1.4	26
2/23/2016	0.15	1.31				
2/24/2016	0.15	1.31				
2/25/2016	0.15	1.31				
2/26/2016	0.15	1.31				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
2/27/2016	0.15	1.31				
2/28/2016	0.15	1.31				
2/29/2016	0.197	1.57	0.168	0.277	1.28	35
3/1/2016	0.197	1.57				
3/2/2016	0.197	1.57				
3/3/2016	0.197	1.57				
3/4/2016	0.197	1.57				
3/5/2016	0.197	1.57				
3/6/2016	0.197	1.57				
3/7/2016	0.17	1.5	0.129	0.238	1.19	12
3/8/2016	0.17	1.5				
3/9/2016	0.17	1.5				
3/10/2016	0.17	1.5				
3/11/2016	0.17	1.5				
3/12/2016	0.17	1.5				
3/13/2016	0.17	1.5				
3/14/2016	0.17	1.5				
3/15/2016	0.17	1.5				
3/16/2016	0.17	1.5				
3/17/2016	0.17	1.5				
3/18/2016	0.148	1.31				
3/19/2016	0.148	1.31				
3/20/2016	0.148	1.31				
3/21/2016	0.148	1.31	0.206	0.283	1.54	47
3/22/2016	0.148	1.31				
3/23/2016	0.148	1.31				
3/24/2016	0.148	1.31				
3/25/2016	0.148	1.31				
3/26/2016	0.148	1.31				
3/27/2016	0.148	1.31				
3/28/2016	0.158	1.41	0.132		1.14	10
3/29/2016	0.158	1.41				
3/30/2016	0.158	1.41				
3/31/2016	0.158	1.41				
4/1/2016						
4/2/2016						
4/3/2016						
4/4/2016	*	*				
4/5/2016						
4/6/2016						
4/7/2016						
4/8/2016						
4/9/2016						
4/10/2016						
4/11/2016	0.115	1.11	0.164	0.411	1.39	19
4/12/2016	0.115	1.11				
4/13/2016	0.115	1.11				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
4/14/2016	0.115	1.11				
4/15/2016	0.115	1.11				
4/16/2016	0.115	1.11				
4/17/2016	0.115	1.11				
4/18/2016	0.141	1.28	0.135	0.28	1.19	11
4/19/2016	0.141	1.28				
4/20/2016	0.141	1.28				
4/21/2016	0.141	1.28				
4/22/2016	0.141	1.28				
4/23/2016	0.141	1.28				
4/24/2016	0.141	1.28				
4/25/2016	*	*				
4/26/2016						
4/27/2016						
4/28/2016						
4/29/2016						
4/30/2016						
5/1/2016						
5/2/2016	0.119	1.16	0.128	0.15	1.2	12
5/3/2016	0.119	1.16				
5/4/2016	0.119	1.16				
5/5/2016	0.119	1.16				
5/6/2016	0.119	1.16				
5/7/2016	0.119	1.16				
5/8/2016	0.119	1.16				
5/9/2016	0.126	1.94	0.14	0.152	1.35	18
5/10/2016	0.126	1.94				
5/11/2016	0.126	1.94				
5/12/2016	0.126	1.94				
5/13/2016	0.126	1.94				
5/14/2016	0.126	1.94				
5/15/2016	0.126	1.94				
5/16/2016	0.121	1.17	0.129	0.199	1.14	11
5/17/2016	0.121	1.17				
5/18/2016	0.121	1.17				
5/19/2016	0.121	1.17				
5/20/2016	0.121	1.17				
5/21/2016	0.121	1.17				
5/22/2016	0.121	1.17				
5/23/2016	0.121	1.17				
5/24/2016	*	*				
5/25/2016						
5/26/2016						
5/27/2016						
5/28/2016						
5/29/2016						
5/30/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
5/31/2016						
6/1/2016						
6/2/2016						
6/3/2016						
6/4/2016						
6/5/2016						
6/6/2016	0.133	1.01	0.107	0.091	1.19	10
6/7/2016	0.133	1.01				
6/8/2016	0.133	1.01				
6/9/2016	0.133	1.01				
6/10/2016	0.133	1.01				
6/11/2016	0.133	1.01				
6/12/2016	0.133	1.01				
6/13/2016	*	*				
6/14/2016						
6/15/2016						
6/16/2016						
6/17/2016						
6/18/2016						
6/19/2016						
6/20/2016	*	*				
6/21/2016						
6/22/2016						
6/23/2016						
6/24/2016						
6/25/2016						
6/26/2016						
6/27/2016						
6/28/2016	0.19	1.55	0.146	0.056	1.3	17
6/29/2016	0.19	1.55				
6/30/2016	0.19	1.55				
7/1/2016						
7/2/2016						
7/3/2016						
7/4/2016						
7/5/2016	0.152	1.42	0.385	0.005	1.77	9
7/6/2016						
7/7/2016						
7/8/2016						
7/9/2016						
7/10/2016						
7/11/2016						
7/12/2016						
7/13/2016						
7/14/2016						
7/15/2016						
7/16/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
7/17/2016	0.143	1.44				
7/18/2016	0.143	1.44				
7/19/2016	0.143	1.44				
7/20/2016	0.143	1.44				
7/21/2016	0.143	1.44				
7/22/2016	0.143	1.44				
7/23/2016	0.143	1.44				
7/24/2016	0.143	1.44				
7/25/2016	0.143	1.44	0.142	0.017	1.5	14
7/26/2016						
7/27/2016						
7/28/2016						
7/29/2016						
7/30/2016						
7/31/2016						
8/1/2016						
8/2/2016						
8/3/2016						
8/4/2016						
8/5/2016						
8/6/2016						
8/7/2016						
8/8/2016	0.139	1.37				
8/9/2016	0.139	1.37				
8/10/2016	0.139	1.37				
8/11/2016	0.139	1.37				
8/12/2016	0.139	1.37				
8/13/2016	0.139	1.37				
8/14/2016	0.139	1.37				
8/15/2016	0.139	1.37	0.139	0.069	1.34	14
8/16/2016						
8/17/2016						
8/18/2016						
8/19/2016						
8/20/2016						
8/21/2016						
8/22/2016	0.129	1.35				
8/23/2016	0.129	1.35				
8/24/2016	0.129	1.35				
8/25/2016	0.129	1.35				
8/26/2016	0.129	1.35				
8/27/2016	0.129	1.35				
8/28/2016	0.129	1.35				
8/29/2016	0.129	1.35	0.143	0.143	1.34	13
8/30/2016	0.134	1.29				
8/31/2016	0.134	1.29				
9/1/2016	0.134	1.29				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
9/2/2016	0.134	1.29				
9/3/2016	0.134	1.29				
9/4/2016	0.134	1.29				
9/5/2016	0.134	1.29	0.125	0.08	1.19	14
9/6/2016						
9/7/2016						
9/8/2016						
9/9/2016						
9/10/2016						
9/11/2016						
9/8/1900						
9/13/2016						
9/14/2016						
9/15/2016						
9/16/2016						
9/17/2016						
9/18/2016	0.131	1.27				
9/19/2016	0.131	1.27				
9/20/2016	0.131	1.27				
9/21/2016	0.131	1.27				
9/22/2016	0.131	1.27				
9/23/2016	0.131	1.27				
9/24/2016	0.131	1.27				
9/25/2016	0.131	1.27				
9/26/2016	0.131	1.27	0.091	0.064	1.06	7
9/27/2016						
9/28/2016						
9/29/2016						
9/30/2016						
10/1/2016						
10/2/2016						
10/3/2016	0.118	1.13	0.106	1.07	0.067	13
10/4/2016						
10/5/2016						
10/6/2016						
10/7/2016						
10/8/2016						
10/9/2016						
10/10/2016	0.562	1.22				
10/11/2016	0.562	1.22				
10/12/1900	0.562	1.22				
10/13/2016	0.562	1.22				
10/14/2016	0.562	1.22				
10/15/2016	0.562	1.22				
10/16/2016	0.562	1.22				
10/17/2016	0.562	1.22	0.188	1.53	0.359	41
10/18/2016	0.148	1.27				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
10/19/2016	0.148	1.27				
10/20/2016	0.148	1.27				
10/21/2016	0.148	1.27				
10/22/2016	0.148	1.27				
10/23/2016	0.148	1.27				
10/24/2016	0.148	1.27	0.113	1.24	0.36	14
10/25/2016	0.161	1.29				
10/26/2016	0.161	1.29				
10/27/2016	0.161	1.29				
10/28/2016	0.161	1.29				
10/29/2016	0.161	1.29				
10/30/2016	0.161	1.29				
10/31/2016	0.161	1.29	0.628	2.19	0.0022	8

Appendix B2:
Evans Ideal 1000 Water Farm Pilot Project

Project Design & Permitting

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE PERMIT NO. 56-00025-S
DATE ISSUED:August 15, 2014

PERMITTEE: EVANS PROPERTIES INC
660 BEACHLAND BLVD
SUITE 301
VERO BEACH, FL 32963

PROJECT DESCRIPTION: Environmental Resource Permit modification of a Surface Water Management permit for construction and operation of a 9 acre project known as Water Farming Pilot Project - Evans Ideal 1000 Grove that is part of a stormwater management system serving approximately 960 acres for a water farming pilot project.

PROJECT LOCATION: ST LUCIE COUNTY, SEC 22,27 TWP 36S RGE 38E

PERMIT DURATION: See Special Condition No:1.

This is to notify you of the District's agency action for Permit Application No. 140626-16, dated June 26, 2014. This action is taken pursuant to the provisions of Chapter 373, Part IV, Florida Statues (F.S).

Based on the information provided, District rules have been adhered to and an Environmental Resource Permit is in effect for this project subject to:

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 18 General Conditions (See Pages : 2 - 4 of 5),
3. the attached 8 Special Conditions (See Pages : 5 - 5 of 5) and
4. the attached 2 Exhibit(s)

Should you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights," we will assume that you concur with the District's action.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT this written notice has been mailed or electronically transmitted to the Permittee (and the persons listed in the attached distribution list) this 15th day of August, 2014, in accordance with Section 120.60(3), F.S. Notice was also electronically posted on this date through a link on the home page of the District's website (my.sfwmd.gov/ePermitting).

BY: Anita R. Bain
Anita Bain
Bureau Chief - Environmental Resource Permitting
Martin / St Lucie Regulatory Office

GENERAL CONDITIONS

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized shall subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S. (2012).

2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the "State of Florida Erosion and Sediment Control Designer and Reviewer Manual" (Florida Department of Environmental Protection and Florida Department of Transportation June 2007), and the "Florida Stormwater Erosion and Sedimentation Control Inspector's Manual" (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice" indicating the expected start and completion dates. If available, an Agency website that fulfills this notification requirement may be used in lieu of the form.

5. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.

6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
   a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex- "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit"[Form 62-330.310(3)]; or
   b. For all other activities- "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].
   c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:
   a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as- built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Applicant's Handbook Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
   b. Within 30 days of submittal of the as- built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that

GENERAL CONDITIONS

require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:
a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
b. Convey to the permittee or create in the permittee any interest in real property;
c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the Agency in writing:
a. Immediately if any previously submitted information is discovered to be inaccurate; and
b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

14. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification shall be provided in accordance with Section 872.05, F.S.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other

GENERAL CONDITIONS

uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on August 15, 2019.
2. Operation of the stormwater management system shall be the responsibility of the permittee.
3. Discharge Facilities: Through existing facilities
4. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.
5. Land use within the permitted facilities is agricultural. Any proposed change in land use or crop type may require modification of this permit and must be reported to the District for a determination of permit requirements.
6. On an annual basis (in March of each year), the permittee shall have an inspection performed to assess the structural adequacy of all above ground dikes, control structures, levees and berms behind which water is to be contained and where failure could impact off-site areas. A state of Florida licensed professional engineer shall perform each inspection and prepare each report. These reports shall be signed and sealed by the professional engineer performing the inspection, kept on file by the permittee and made available to South Florida Water Management District (SFWMD) personnel upon request. If deficiencies are found that will affect the performance of the impoundment, a report which is signed and sealed by the engineer performing the inspection shall be submitted to the SFWMD within which includes, but is not limited to, the proposed technique and schedule for repairs of any deficiencies noted.
7. The exhibits and special conditions in this permit apply only to this application. They do not supersede or delete any requirements for other applications covered in Permit No. 56-00025-S unless otherwise specified herein.
8. Prior to the commencement of construction, the permittee shall conduct a pre-construction meeting with field representatives, contractors and District staff. The purpose of the meeting will be to discuss construction methods and sequencing, including type and location of turbidity and erosion controls to be implemented during construction, mobilization and staging of contractor equipment, phasing of construction, methods of vegetation clearing, construction dewatering if required, coordination with other entities on adjacent construction projects, wetland/buffer protection methods, and/or endangered species protection with the permittee and contractors. The permittee shall contact District Environmental Resource Compliance staff from the Martin/St. Lucie Regulatory Office at (863) 462-5260 ext 3613 to schedule the pre-construction meeting.

NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., the following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a SFWMD decision which does or may affect their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, electronic mail, or posting that the SFWMD has or intends to take final agency action, or publication of notice that the SFWMD has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

FILING INSTRUCTIONS

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery, or e-mail. **Filings by facsimile will not be accepted after October 1, 2014.** A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the District Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the District Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office.** An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by e-mail must be transmitted to the District Clerk's Office at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the District Clerk receives the complete document. A party who files a document by e-mail shall (1) represent that the original physically signed document will be retained by that party for the duration of the proceeding and of any subsequent appeal or subsequent proceeding in that cause and that the party shall produce it upon the request of other parties; and (2) be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed.

INITIATION OF AN ADMINISTRATIVE HEARING

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, SFWMD file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency decision.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the SFWMD takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the District Clerk within 30 days of rendering of the final SFWMD action.

Last Date For Agency Action: August 25, 2014

INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Water Farming Pilot Project - Evans Ideal 1000 Grove

Permit No.: 56-00025-S

Application No.: 140626-16

Application Type: Environmental Resource (Construction/Operation Modification)

Location: St Lucie County, S22,27/T36S/R38E

Permittee : Evans Properties Inc

Operating Entity : Permittee

Project Area: 9.00 acres

Permit Area: 960.00 acres

Project Land Use: Agricultural

Drainage Basin: C-24

Receiving Body: C-24 canal

Class: CLASS III

Special Drainage District: NA

Conservation Easement To District : No

Sovereign Submerged Lands: No

PROJECT PURPOSE:

This application is a request for an Environmental Resource Permit modification of a Surface Water Management permit to authorize construction and operation of a 9 acre project that is part of a stormwater management system serving approximately 960 acres for a water farming pilot project.

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The site is located approximately one mile east of Carlton Road and is bordered to the north by the C-24 Canal in central St. Lucie County (see Exhibit 1). While currently fallow, the site has been used for citrus production. The southern approximately 880 acres were cultivated in citrus while the northern 65.5 acres adjacent to the C-24 is an above ground impoundment (AGI) for stormwater treatment and attenuation. A St. Lucie County drainage ditch runs along the southwest border for approximately one mile, turns due east to bisect the property and continues eastward with a final outfall to the C-24. The St. Lucie County ditch and an internal collector ditch divide the grove into three rectangular areas. Perimeter canals with adjacent roads or berms are located along the remaining portions of the project. Stormwater from the grove site is pumped into the AGI by a 30,000 gallons per minute (gpm) drainage pump station. Discharge from the AGI to the C-24 is through a control structure with a V notch bleeder with an invert elevation of 23.5 ft. NGVD and an overflow weir at 27.5 ft. NGVD. Emergency overflow structures along the southeastern side of the AGI discharge back to the grove. There are two "underdrain" structures located within the two main internal north-south ditches which convey surface water within the property and separate these ditches from the St. Lucie County ditch.

There are no wetlands within the project site.

BACKGROUND:

On December 19, 1975, Permit No. 56-00025-S/W/R (App. No. X000005055) was issued for the operation of a stormwater management system serving 960 acres of agricultural lands discharging to the C-24 Canal. On August 13, 1987, the permit was modified to serve a 960 acre citrus development with approximately 883 acres of citrus grove. Stormwater is pumped from the grove into a 65.5 acre above ground impoundment (AGI) discharging to the C-24 Canal via a control structure. The permit was also transferred to Evans Properties, Inc.

PROPOSED PROJECT:

The proposed modification is to operate a temporary pump during the three-year pilot project that can fill the project site with excess surface water from the St. Lucie County Ditch watershed. The St. Lucie County Ditch abuts the site along the southwestern mile and bisects the site into the south and north sections.

The southwest and southeast sections, generally located south of the St. Lucie County Ditch, will be combined into a single southern water farming site which includes the interior collector ditch. Modifications necessary to implement the water farming plan in the southern section include:
1) minor improvement and grading of the existing perimeter road,
2) deep discing for soil remediation,
3) removal of all boards within the lateral ditch water control structures to the central collector ditch,
4) retrofit of existing flashboard risers along southeastern perimeter, and
5) installation of internal grove water control structures, one each within the central and southeast lateral ditches.

Modifications necessary to implement the water farming plan in the northern section include:
1) minor improvement and grading of the existing perimeter road,
2) deep discing for soil remediation and
3) retrofit of existing flashboard risers along northeastern and northwestern perimeters that connect the lateral ditches to the collector ditches.

The existing conditions and proposed modifications are shown on the plans (Exhibit 2)

Stormwater runoff from the water farming site will be conveyed through the existing backbone water management system and pumped to the existing above ground impoundment (AGI) prior to discharge offsite to the C-24 Canal through the existing control structure. The emergency overflow structures from the AGI back into the site will be kept.

There is the potential for seepage to surrounding areas due to the elevated water level in the site. The proposed plan will keep the existing ditches along the outside perimeter of the site to continue to collect seepage.

The proposed modification does not propose to withdraw water from the County ditch during the dry season or if a minimum water level is established as part of the water farming project. None of the adjacent properties have permitted withdrawal points from the St. Lucie County ditch for the purposes of supplemental irrigation.

At the end of the three year pilot project or a later date if the water farming project is extended, the water farming can be terminated and the project reverted back to the condition prior to the water farming. Sheets 3 and 4 of the plans (Exhibit 2) include the plan for reverting back to the pre water farming conditions.

All excavation and fill work being proposed is in upland areas within the grove property boundaries. There are no anticipated impacts to wetlands by the proposed project.

WATER QUANTITY:

Discharge Rate :

Discharge from the project will continue to be via the control structure from the above ground impoundment to the C-24 Canal. The design storm peak discharge rate is not expected to change from the previously permitted rate.

WATER QUALITY:

No adverse water quality impacts are anticipated as a result of the proposed project.

WETLANDS:

There are no wetlands within the project site or affected by the proposed project.

CERTIFICATION, OPERATION, AND MAINTENANCE:

Pursuant to Chapter 62-330.310 Florida Administrative Code (F.A.C.), Individual Permits will not be converted from the construction phase to the operation phase until construction completion certification of the project is submitted to and accepted by the District. This includes compliance with all permit conditions, except for any long term maintenance and monitoring requirements. It is suggested that the permittee retain the services of an appropriate professional registered in the State of Florida for periodic observation of construction of the project.

For projects permitted with an operating entity that is different from the permittee, it should be noted that until the construction completion certification is accepted by the District and the permit is transferred to an acceptable operating entity pursuant to Sections 12.1-12.3 of the Applicant's Handbook Volume I and Section 62-330.310, F.A.C., the permittee is liable for operation and maintenance in compliance with the

terms and conditions of this permit.

In accordance with Section 373.416(2), F.S., unless revoked or abandoned, all stormwater management systems and works permitted under Part IV of Chapter 373, F.S., must be operated and maintained in perpetuity.

The efficiency of stormwater management systems, dams, impoundments, and most other project components will decrease over time without periodic maintenance. The operation and maintenance entity must perform periodic inspections to identify if there are any deficiencies in structural integrity, degradation due to insufficient maintenance, or improper operation of projects that may endanger public health, safety, or welfare, or the water resources. If deficiencies are found, the operation and maintenance entity will be responsible for correcting the deficiencies in a timely manner to prevent compromises to flood protection and water quality. See Section 12.4 of Applicant's Handbook Volume I for Minimum Operation and Maintenance Standards.

RELATED CONCERNS:

Water Use Permit Status:

Irrigation water for the citrus grove is included in Water Use permit number 56-02011-W. A modification of the water use permit is not required for the water farming.

The applicant has indicated that dewatering is not required for construction of this project

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

CERP:

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

Potable Water Supplier:

Potable water service is not required for this project.

Waste Water System/Supplier:

Waste water service is not required for this project.

Right-Of-Way Permit Status:

A District Right-of-Way Permit is not required for this project.

DRI Status:

This project is not a DRI.

Historical/Archeological Resources:

No information has been received that indicates the presence of archaeological or historical resources in the project area or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places.

DEO/CZM Consistency Review:

The issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.

Third Party Interest:

No third party has contacted the District with concerns about this application.

Enforcement:

There has been no enforcement activity associated with this application.

STAFF REVIEW:

DIVISION APPROVAL:

NATURAL RESOURCE MANAGEMENT:

Barbara J. Conmy

DATE: 8/6/14

Barbara J. Conmy

SURFACE WATER MANAGEMENT:

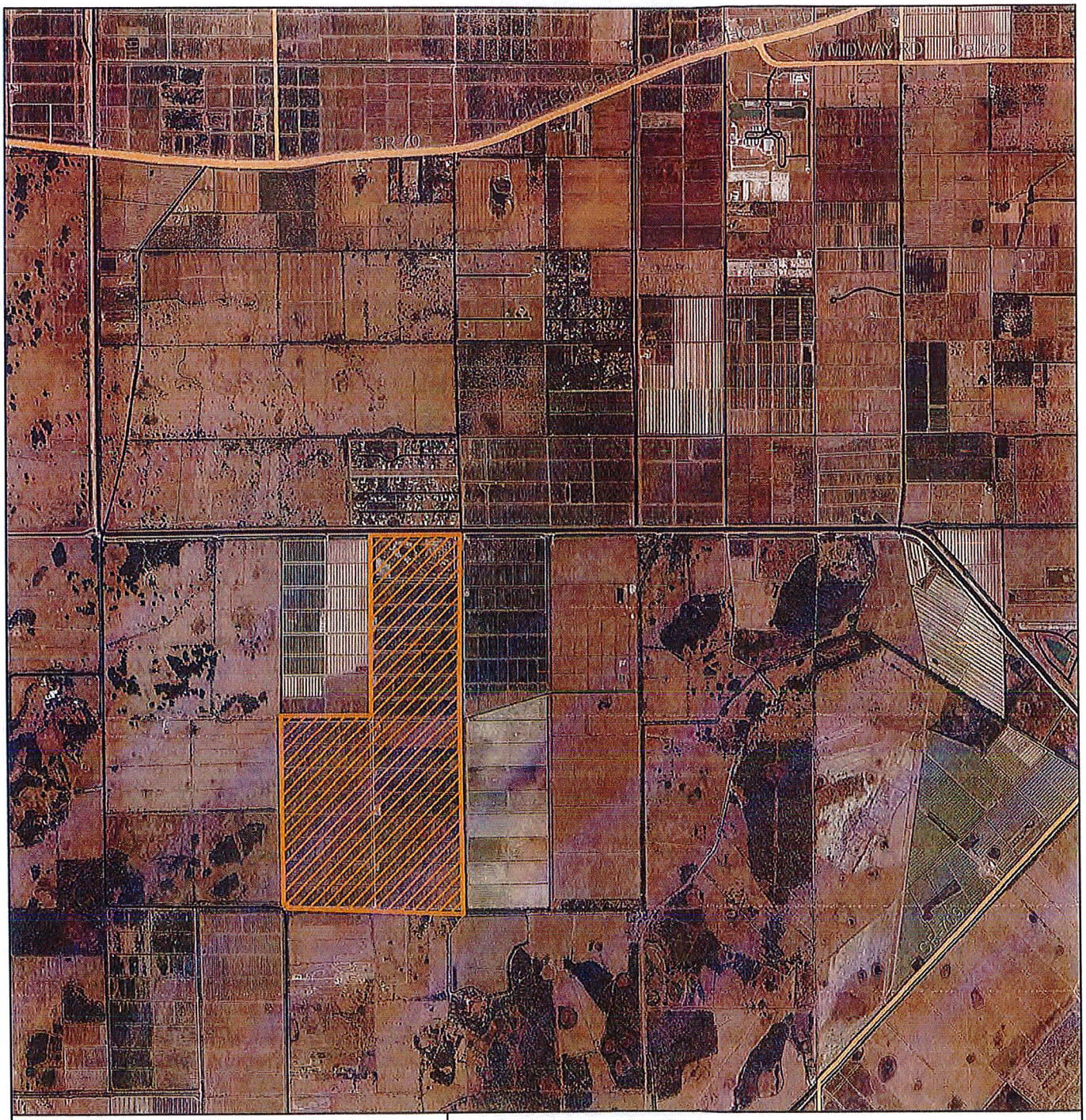
DATE: 5 Aug 2014

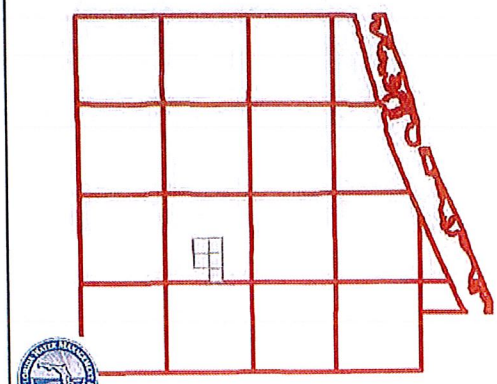
Hugo A. Carter, P.E.

Table of Contents for Staff Report Exhibits

App. No. 140626-16

Water Farming Pilot Project - Evans Ideal 1000 Grove





ST. LUCIE COUNTY, FLORIDA

N

Legend

Application

Map Date: 2014-07-29

Application No: 140626-16

Permit No: 56-00025-S

Sec 22,27 / Twp 36 / Rge 38

Project Name: WATER FARMING PILOT PROJECT - EVANS IDEAL 1000 GROVE

0 4,350 8,700

Feet

Exhibit Number: 1

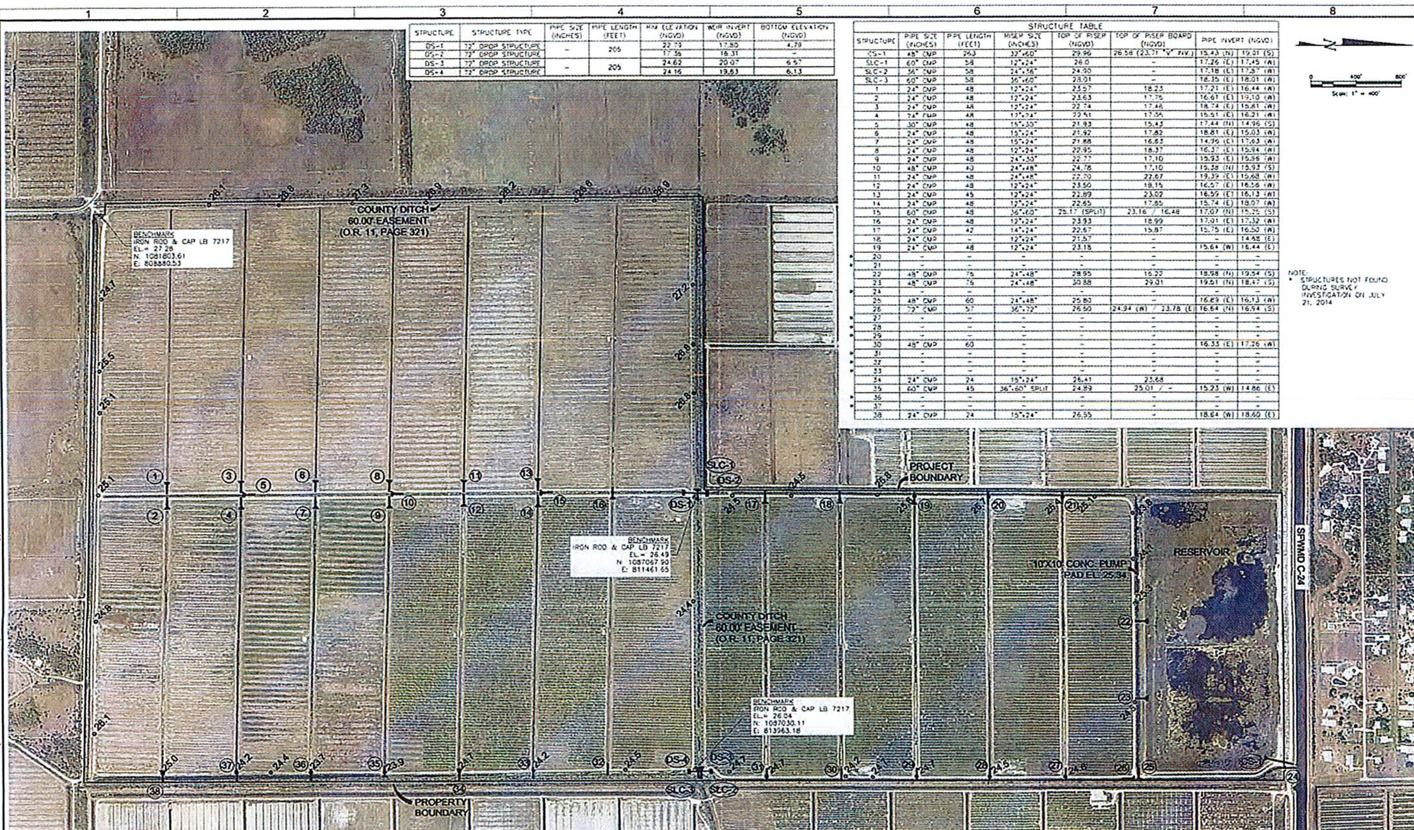
STRUCTURE	STRUCTURE TYPE	PIPE SIZE (INCHES)	PIPE LENGTH (FEET)	RIM ELEVATION (NGVD)	WEIR INVERT (NGVD)	BOTTOM ELEVATION (NGVD)
DS-1	72" DROP STRUCTURE	-	205	22.79	17.80	4.79
DS-2	72" DROP STRUCTURE			17.36	16.31	-
DS-3	72" DROP STRUCTURE	-	205	24.62	20.07	6.57
DS-4	72" DROP STRUCTURE			24.16	19.63	6.13

STRUCTURE TABLE

STRUCTURE	PIPE SIZE (INCHES)	PIPE LENGTH (FEET)	RISER SIZE (INCHES)	TOP OF RISER (NGVD)	TOP OF RISER BOARD (NGVD)	PIPE INVERT (NGVD)	
CS-1	48" CMP	263	32"x60"	29.96	26.58 (23.71 "V" INV.)	15.43 (N)	19.01 (S)
SLC-1	60" CMP	58	12"x24"	26.0	-	17.26 (E)	17.45 (W)
SLC-2	36" CMP	58	24"x36"	24.90	-	17.18 (E)	17.87 (W)
SLC-3	60" CMP	58	36"x60"	28.01	-	18.35 (E)	18.01 (W)
1	24" CMP	48	12"x24"	23.57	18.23	17.21 (E)	16.44 (W)
2	24" CMP	48	12"x24"	23.63	17.75	16.61 (E)	19.10 (W)
3	24" CMP	48	12"x24"	22.74	17.46	18.74 (E)	15.81 (W)
4	24" CMP	48	12"x24"	22.51	17.05	15.51 (E)	16.21 (W)
5	30" CMP	48	15"x30"	21.93	15.43	17.44 (N)	14.96 (S)
6	24" CMP	48	15"x24"	21.92	17.82	18.81 (E)	15.03 (W)
7	24" CMP	48	15"x24"	21.88	16.63	14.96 (E)	17.63 (W)
8	24" CMP	48	12"x24"	22.95	18.37	16.37 (E)	15.94 (W)
9	24" CMP	48	24"x30"	22.77	17.10	15.93 (E)	15.96 (W)
10	48" CMP	40	24"x48"	24.78	17.10	15.38 (N)	15.93 (S)
11	24" CMP	48	24"x48"	22.70	22.67	19.39 (E)	15.68 (W)
12	24" CMP	48	12"x24"	23.50	18.15	16.57 (E)	16.56 (W)
13	24" CMP	45	12"x24"	22.89	23.02	16.59 (E)	16.13 (W)
14	24" CMP	48	12"x24"	22.65	17.85	15.74 (E)	18.07 (W)
15	60" CMP	48	36"x60"	25.17 (SPLIT)	23.16 / 16.48	17.07 (N)	15.25 (S)
16	24" CMP	48	12"x24"	23.93	18.99	17.01 (E)	17.32 (W)
17	24" CMP	42	14"x24"	22.57	15.87	15.75 (E)	16.50 (W)
18	24" CMP	-	12"x24"	21.57	-	-	14.88 (E)
19	24" CMP	48	12"x24"	23.18	-	15.64 (W)	16.44 (E)
• 20	-	-	-	-	-	-	-
• 21	-	-	-	-	-	-	-
22	48" CMP	76	24"x48"	28.95	16.22	18.98 (N)	19.54 (S)
23	48" CMP	76	24"x48"	30.88	29.01	19.51 (N)	18.47 (S)
• 24	-	-	-	-	-	-	-
25	48" CMP	60	24"x48"	25.80	-	16.89 (E)	16.13 (W)
26	72" CMP	57	36"x72"	26.50	24.94 (W) / 23.78 (E)	16.64 (N)	16.94 (S)
• 27	-	-	-	-	-	-	-
• 28	-	-	-	-	-	-	-
• 29	-	-	-	-	-	-	-
30	48" CMP	60	-	-	-	16.33 (E)	17.26 (W)
• 31	-	-	-	-	-	-	-
• 32	-	-	-	-	-	-	-
• 33	-	-	-	-	-	-	-
34	24" CMP	24	15"x24"	26.41	23.68	-	-
35	60" CMP	45	36"x60" SPLIT	24.89	25.01 / -	15.23 (W)	14.86 (E)
• 36	-	-	-	-	-	-	-
• 37	-	-	-	-	-	-	-
38	24" CMP	24	15"x24"	26.55	-	18.64 (W)	18.60 (E)

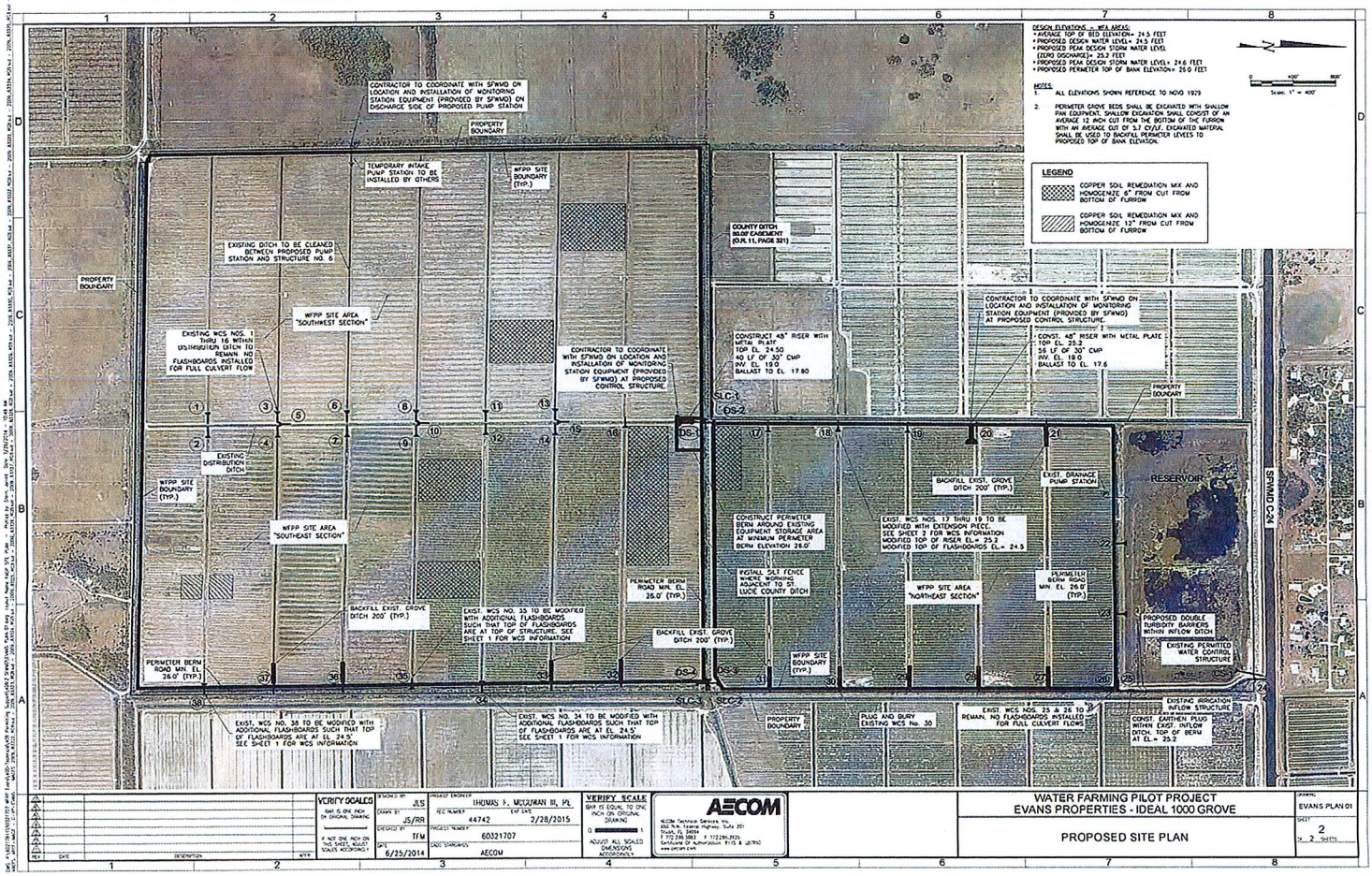
NOTE:
• STRUCTURES NOT FOUND DURING SURVEY INVESTIGATION ON JULY 21, 2014

Scale: 1" = 400'



VERIFY SCALES	DESIGNED BY: JLS	PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE	VERIFY SCALE	AECOM	WATER FARMING PILOT PROJECT EVANS PROPERTIES - IDEAL 1000 GROVE	DRAWING: EVANS EXIST PLAN
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWN BY: JS/RR	REG NUMBER: 44742 EXP DATE: 2/28/2015	BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING	AECOM Technical Services, Inc.	EXISTING SITE PLAN	SHEET 1 OF 2 SHEETS
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	CHECKED BY: TFM	PROJECT NUMBER: 60321707	ADJUST ALL SCALED DIMENSIONS ACCORDINGLY			
	DATE: 6/25/2014	CADD STANDARDS: AECOM				

App. No. 140626-16 Exhibit 2 Page 2 of 4



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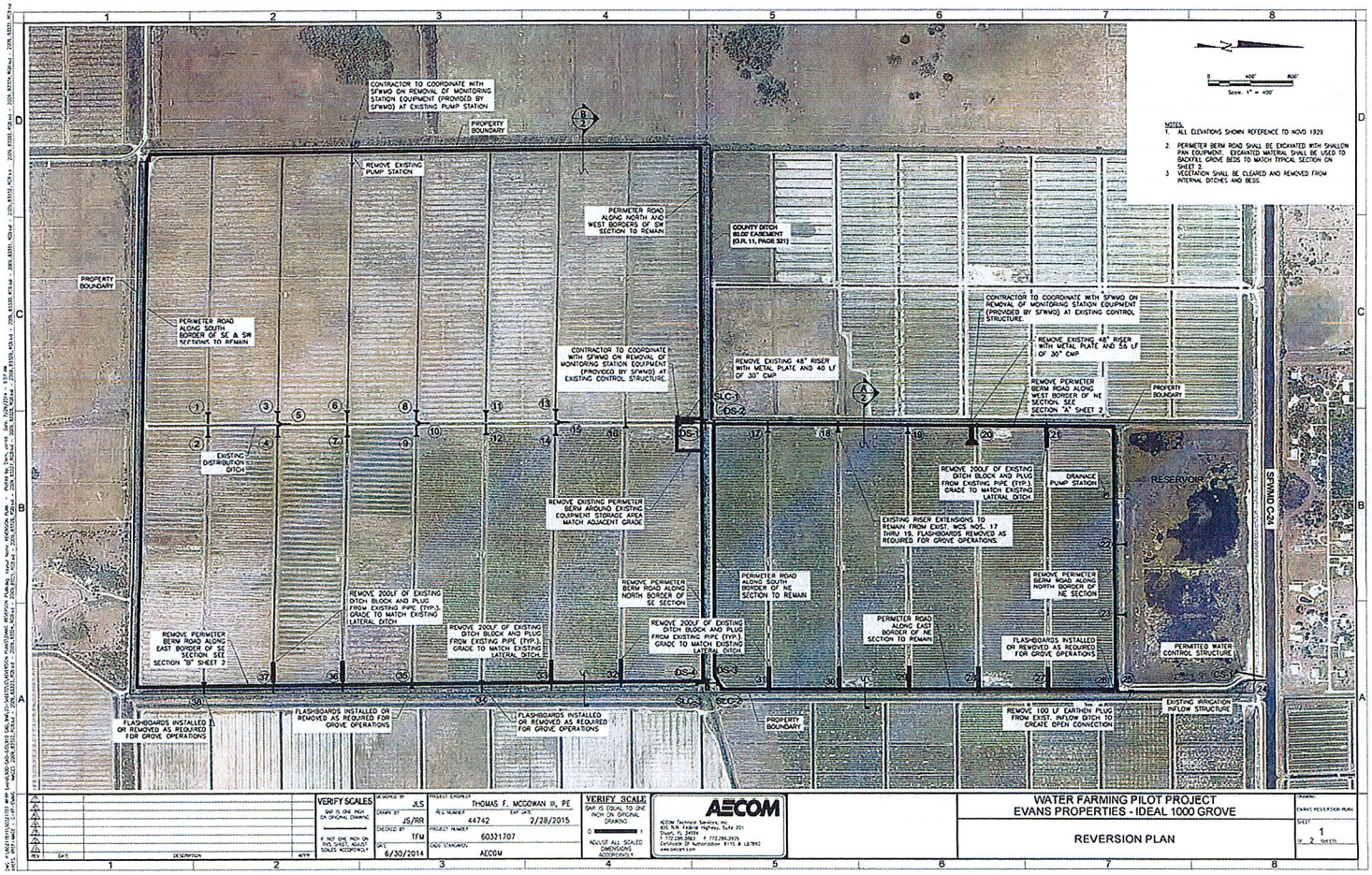
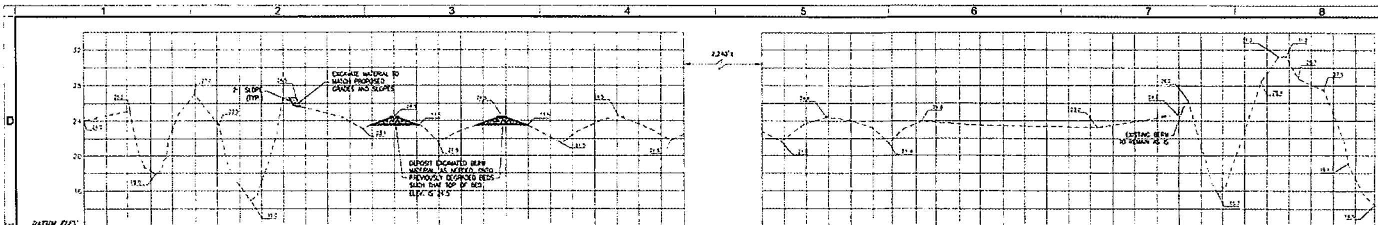
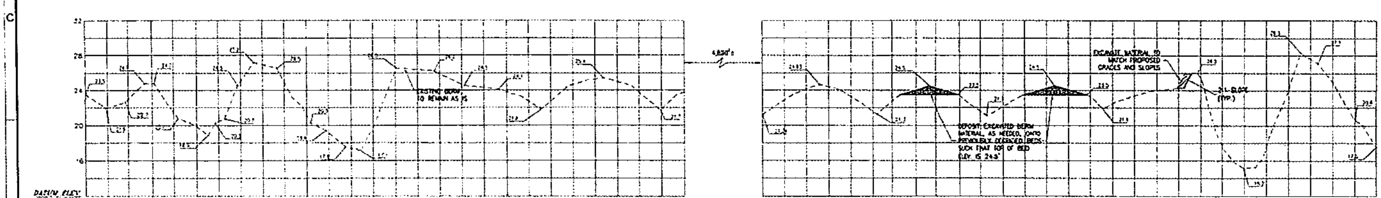




SECTION A - TYPICAL NORTH CELL REVERSION SECTION

H. SCALE: 1"=20'
V. SCALE: 1"=5'



SECTION B - TYPICAL SOUTH CELL REVERSION SECTION

H. SCALE: 1"=20'
V. SCALE: 1"=5'

STRUCTURE TABLE

STRUCTURE	PIPE SIZE (INCHES)	PIPE LENGTH (FEET)	RISER SIZE (INCHES)	TOP OF RISER (NGVD)	TOP OF RISER BOARD (NGVD)	PIPE INVERT (NGVD)	
CS-1	48" CMP	263	32"x60"	29.96	26.58 (23.7? "V" ...)	15.43 (N)	19.01 (S)
SLC-1	60" CMP	58	12"x24"	26.0	-	17.26 (E)	17.45 (W)
SLC-2	36" CMP	58	24"x36"	24.32	-	17.18 (E)	17.57 (W)
SLC-3	60" CMP	58	36"x60"	26.01	-	18.35 (E)	18.01 (W)
1	24" CMP	49	12"x24"	23.57	18.73	17.21 (E)	16.44 (W)
2	24" CMP	48	12"x24"	23.63	17.75	16.61 (E)	19.10 (W)
3	24" CMP	49	12"x24"	22.74	17.48	18.74 (E)	15.81 (W)
4	24" CMP	49	12"x24"	22.51	17.05	15.51 (E)	16.21 (W)
5	30" CMP	49	15"x30"	21.93	15.43	17.44 (N)	14.95 (S)
6	24" CMP	45	15"x24"	21.92	17.87	18.81 (E)	15.03 (W)
7	24" CMP	43	15"x24"	21.88	15.63	14.96 (E)	17.63 (W)
8	24" CMP	45	12"x24"	22.95	18.37	18.37 (E)	15.94 (W)
9	24" CMP	45	24"x30"	22.77	17.10	15.93 (E)	15.96 (W)
10	48" CMP	40	24"x48"	24.78	17.10	15.38 (N)	15.93 (S)
11	24" CMP	45	24"x48"	22.70	20.67	19.39 (E)	15.66 (W)
12	24" CMP	45	12"x24"	23.50	18.15	16.57 (E)	16.56 (W)
13	24" CMP	45	12"x24"	22.89	23.07	16.59 (E)	16.13 (W)
14	24" CMP	45	12"x24"	22.65	17.85	15.74 (E)	18.07 (W)
15	60" CMP	49	36"x60"	25.17 (SPLIT)	23.16 / 16.48	17.07 (N)	15.25 (S)
16	24" CMP	45	12"x24"	23.93	18.99	17.01 (E)	17.32 (W)
17	24" CMP	42	14"x24"	22.67	15.87	15.75 (E)	16.50 (W)
18	24" CMP	-	12"x24"	21.57	-	-	14.65 (E)
19	24" CMP	45	12"x24"	23.18	-	15.64 (W)	16.44 (E)
* 20	-	-	-	-	-	-	-
* 21	-	-	-	-	-	-	-
22	48" CMP	75	24"x48"	28.55	15.22	18.58 (N)	19.54 (S)

STRUCTURE TABLE CONTINUED

STRUCTURE	PIPE SIZE (INCHES)	PIPE LENGTH (FEET)	RISER SIZE (INCHES)	TOP OF RISER (NGVD)	TOP OF RISER BOARD (NGVD)	PIPE INVERT (NGVD)	
23	48" CMP	75	24"x48"	26.80	25.01	19.51 (N)	16.47 (S)
* 24	-	-	-	-	-	-	-
25	48" CMP	60	24"x48"	25.80	-	16.99 (E)	16.13 (W)
26	72" CMP	57	36"x72"	26.50	24.94 (W) / 23.78 (E)	16.84 (N)	16.94 (S)
* 27	-	-	-	-	-	-	-
* 28	-	-	-	-	-	-	-
* 29	-	-	-	-	-	-	-
30	48" CMP	60	-	-	-	16.33 (E)	17.25 (W)
* 31	-	-	-	-	-	-	-
* 32	-	-	-	-	-	-	-
* 33	-	-	-	-	-	-	-
34	24" CMP	24	15"x24"	25.41	23.68	-	-
35	60" CMP	45	36"x60" SPLIT	24.89	25.01 / -	15.23 (W)	14.85 (E)
* 36	-	-	-	-	-	-	-
* 37	-	-	-	-	-	-	-
38	24" CMP	24	15"x24"	25.55	-	18.64 (W)	18.62 (E)

STRUCTURE	STRUCTURE TYPE	PIPE SIZE (INCHES)	PIPE LENGTH (FEET)	RIM ELEVATION (NGVD)	WEIR INVERT (NGVD)	BOTTOM ELEVATION (NGVD)
DS-1	72" DROP STRUCTURE	-	235	22.75	17.83	4.79
DS-2	72" DROP STRUCTURE			17.36	16.31	-
DS-3	72" DROP STRUCTURE	-	235	24.62	20.07	6.57
DS-4	72" DROP STRUCTURE			24.16	19.63	6.13

* STRUCTURES NOT FOUND DURING SURVEY INVESTIGATION ON JULY 21, 2014

NOTES:
1. STRUCTURE TABLE REFERENCES EXISTING STRUCTURE CONDITIONS AS SURVEYED PRIOR TO WATER FARMING PILOT PROJECT AND IS INTENDED FOR INFORMATIONAL PURPOSES ONLY
2. ANY RISER EXTENSION SHALL REMAIN
3. FLASHBOARDS INSTALLED OR REMOVED AS REQUIRED FOR GROVE OPERATIONS

REV	DATE	DESCRIPTION	APP

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PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE
REG NUMBER: 44742 — DATE: 2/28/2015
PROJECT NUMBER: 60321707
AECOM

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WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

TYPICAL CROSS-SECTIONS & EXISTING STRUCTURE TABLE

SHEET 2 of 2 SHEETS

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WATER FARMING PILOT PROJECT - EVANS IDEAL 1000 GROVE

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CONSTRUCTION PLANS AND SPECIFICATIONS

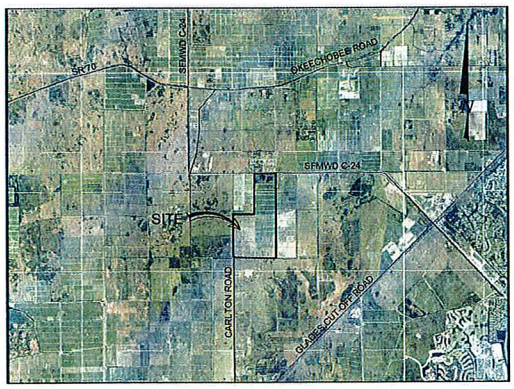
FOR

WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

SECTION 22 & 27, TOWNSHIP 36S, RANGE 38E

ST. LUCIE COUNTY, FLORIDA

LOCATION MAP
NOT TO SCALE



VICINITY MAP
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SHEET INDEX

WATER FARMING PILOT PROJECT
PROJECT NO.: 60321707

9/3/2014

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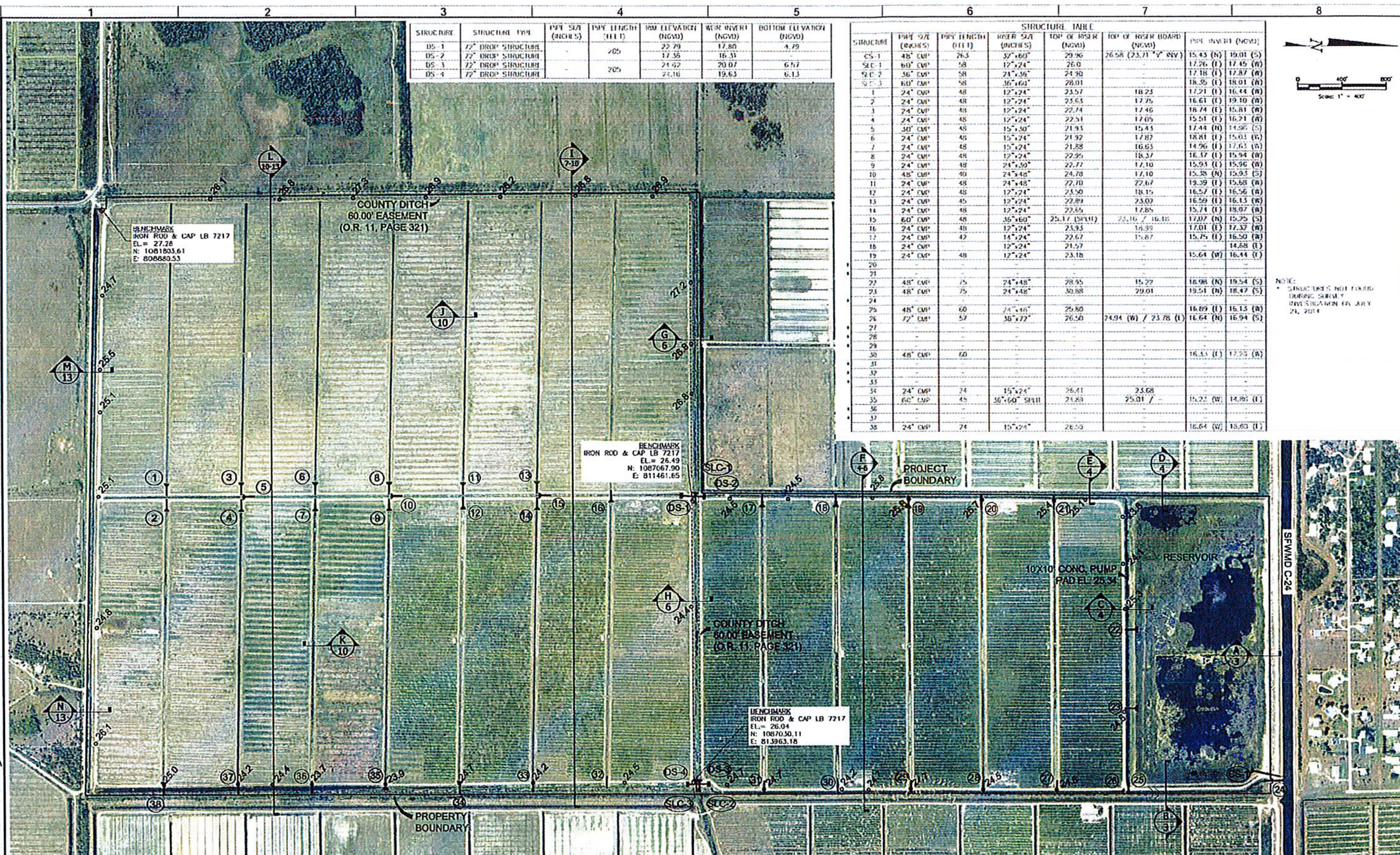
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY	DESIGNED BY: JLS	PROJECT CONTACT: THOMAS F. MCGOWAN III, PE			
	DRAWN BY: JS/RR	REG NUMBER: 44742	EXP DATE: 2/28/2015		
	CHECKED BY: TFM	PROJECT NUMBER: 60321707			
	DATE: 5/28/2014	CAD STANDARDS: AECOM		REV	DATE / DESCRIPTION / APPR

STRUCTURE	STRUCTURE TYPE	PIPE SIZE (INCHES)	PIPE LENGTH (FEET)	RIM ELEVATION (NGVD)	WEIR INVERT (NGVD)	BOTTOM ELEVATION (NGVD)
DS-1	72" DROP STRUCTURE	-	205	22.79	17.80	4.79
DS-2	72" DROP STRUCTURE			17.36	16.31	-
DS-3	72" DROP STRUCTURE	-	205	21.62	20.07	6.57
DS-4	72" DROP STRUCTURE			24.16	19.63	6.13

STRUCTURE TABLE

STRUCTURE	PIPE SIZE (INCHES)	PIPE LENGTH (FEET)	RISER SIZE (INCHES)	TOP OF RISER (NGVD)	TOP OF RISER BOARD (NGVD)	PIPE INVERT (NGVD)	
CS-1	48" CMP	263	37"x60"	29.96	26.58 (23.71 "V" INV.)	15.43 (N)	19.01 (S)
SLC-1	60" CMP	58	12"x24"	26.0	-	17.26 (E)	17.45 (W)
SLC-2	36" CMP	58	24"x36"	24.90	-	17.18 (E)	17.87 (W)
SLC-3	60" CMP	58	36"x60"	28.01	-	18.35 (E)	18.01 (W)
1	24" CMP	48	12"x24"	23.57	18.23	17.21 (E)	16.44 (W)
2	24" CMP	48	12"x24"	23.63	17.75	16.61 (E)	19.10 (W)
3	24" CMP	48	12"x24"	22.74	17.46	18.74 (E)	15.81 (W)
4	24" CMP	48	12"x24"	22.51	17.05	15.51 (E)	16.21 (W)
5	30" CMP	48	15"x30"	21.93	15.43	17.44 (N)	14.96 (S)
6	24" CMP	48	15"x24"	21.92	17.87	18.81 (E)	15.03 (W)
7	24" CMP	48	15"x24"	21.88	16.63	14.96 (E)	17.63 (W)
8	24" CMP	48	12"x24"	22.95	18.37	16.37 (E)	15.94 (W)
9	24" CMP	48	24"x30"	22.77	17.10	15.93 (E)	15.96 (W)
10	48" CMP	40	24"x48"	24.78	17.10	15.38 (N)	15.93 (S)
11	24" CMP	48	24"x48"	22.70	22.67	19.39 (E)	15.68 (W)
12	24" CMP	48	12"x24"	23.50	18.15	16.57 (E)	16.56 (W)
13	24" CMP	45	12"x24"	22.89	23.02	16.59 (E)	16.13 (W)
14	24" CMP	48	12"x24"	22.65	17.85	15.74 (E)	18.67 (W)
15	60" CMP	48	36"x60"	25.17 (SPLIT)	23.16 / 16.48	17.07 (N)	15.25 (S)
16	24" CMP	48	12"x24"	23.93	18.99	17.01 (E)	17.32 (W)
17	24" CMP	42	14"x24"	22.67	15.87	15.75 (E)	16.50 (W)
18	24" CMP	-	12"x24"	21.57	-	-	14.68 (E)
19	24" CMP	48	12"x24"	23.18	-	15.64 (W)	16.44 (E)
• 20	-	-	-	-	-	-	-
• 21	-	-	-	-	-	-	-
22	48" CMP	75	24"x48"	28.95	15.22	18.98 (N)	19.54 (S)
23	48" CMP	75	24"x48"	30.88	29.01	19.51 (N)	18.47 (S)
• 24	-	-	-	-	-	-	-
25	48" CMP	60	24"x48"	29.80	-	16.89 (E)	16.13 (W)
26	72" CMP	57	36"x72"	26.50	24.94 (W) / 23.78 (E)	16.64 (N)	16.94 (S)
• 27	-	-	-	-	-	-	-
• 28	-	-	-	-	-	-	-
• 29	-	-	-	-	-	-	-
30	48" CMP	60	-	-	-	16.33 (E)	17.26 (W)
• 31	-	-	-	-	-	-	-
• 32	-	-	-	-	-	-	-
• 33	-	-	-	-	-	-	-
34	24" CMP	24	15"x24"	26.41	23.68	-	-
35	60" CMP	45	36"x60" SPLIT	24.89	25.01 / -	15.22 (W)	14.86 (E)
• 36	-	-	-	-	-	-	-
• 37	-	-	-	-	-	-	-
38	24" CMP	74	15"x24"	26.55	-	18.64 (W)	15.60 (E)

NOTE:
• STRUCTURES NOT FOUND DURING SURVEY INVESTIGATION ON JULY 21, 2014



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PROJECT NUMBER: 60321707
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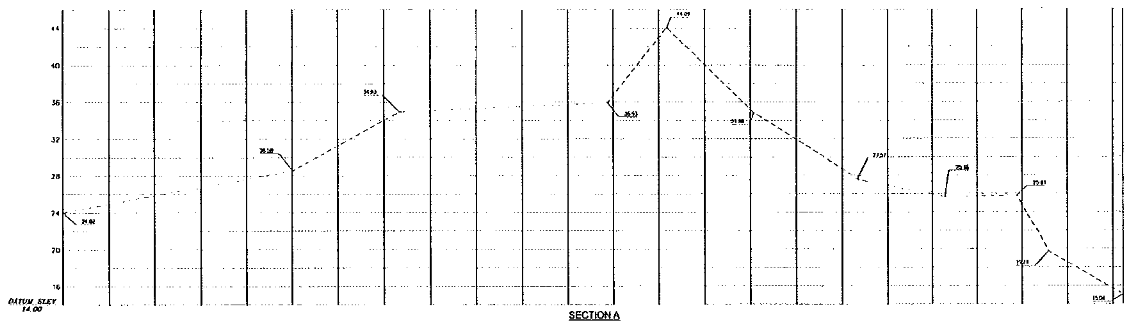
9/3/2014

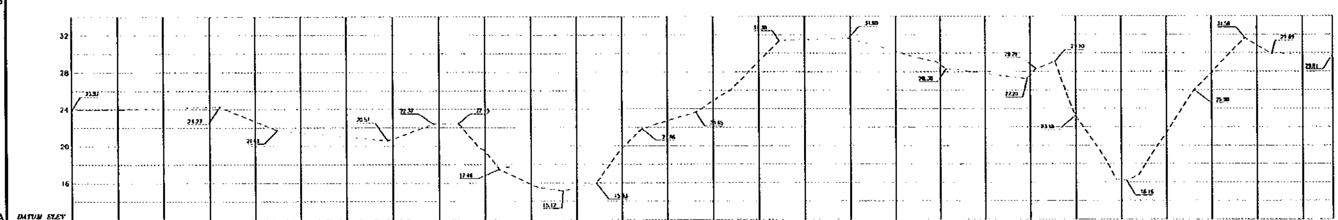
WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

EXISTING SITE PLAN

DRAWING: EVANS EXIST PLAN
SHEET 2 of 19 SHEETS



SECTION A
H. SCALE: 1"=10'
V. SCALE: 1"=5'



SECTION B
H. SCALE: 1"=10'
V. SCALE: 1"=5'

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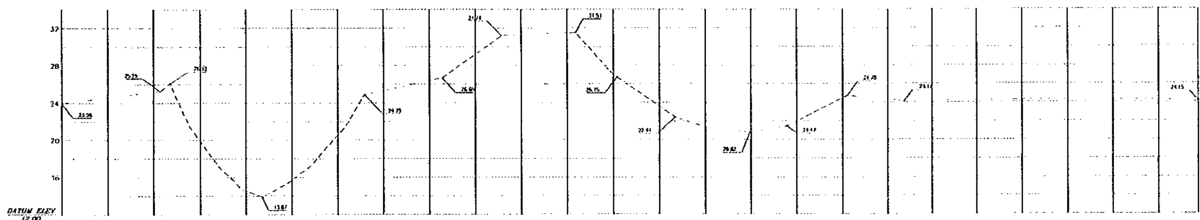
WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

EXISTING CROSS-SECTIONS

DRAWING EVANS EXIST X-SEC
SHEET 3 of 19 Sheets



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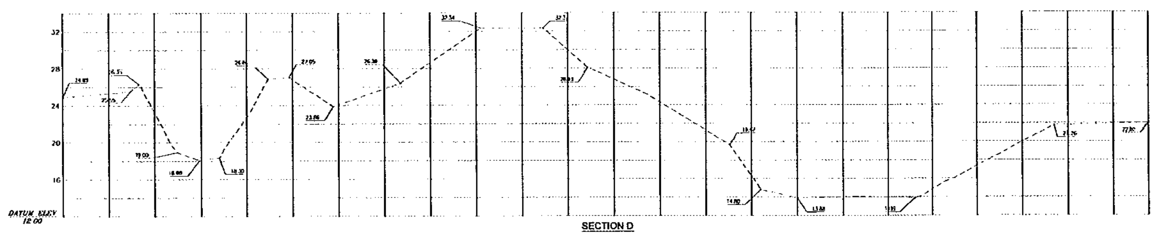
V. SCALE: 1"=5'



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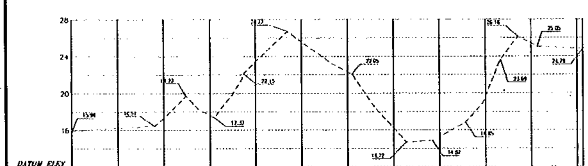

SECTION E
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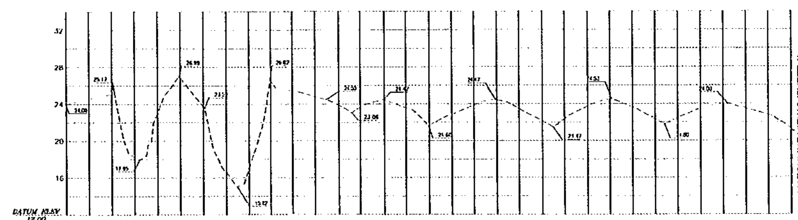

SECTION F - VIEW 1
H. SCALE: 1"=20'
V. SCALE: 1"=5'

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SHEET 4 OF 19 SHEETS

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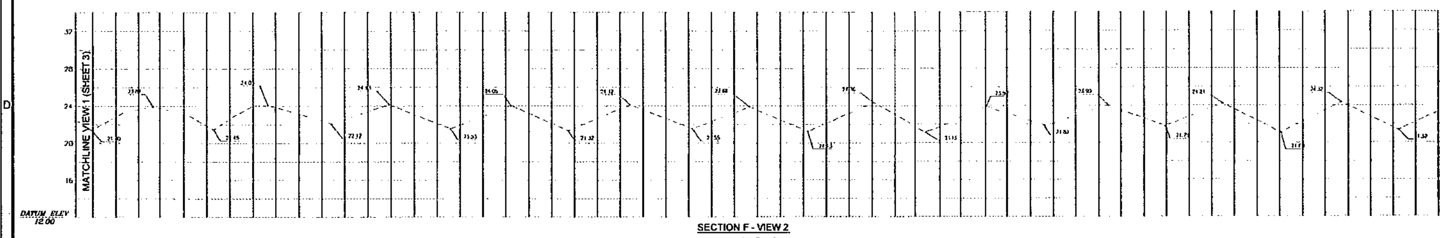

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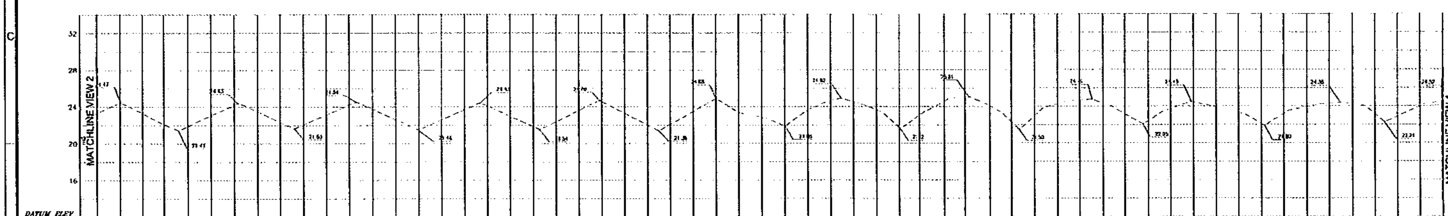

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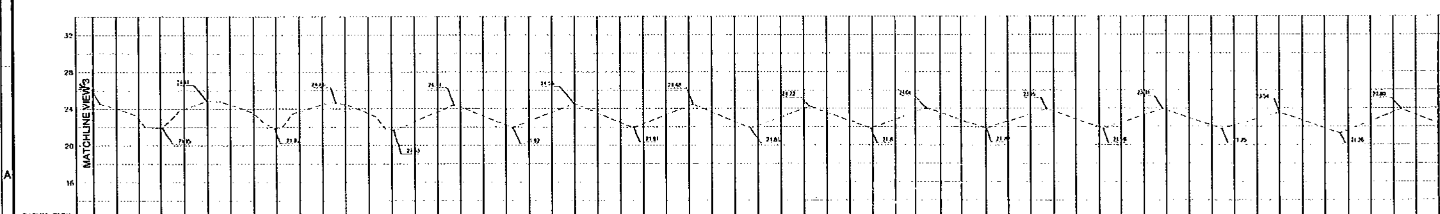

SECTION F - VIEW 4
H. SCALE: 1"=20'
V. SCALE: 1"=5'

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PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE
REG NUMBER: 44742 EXP DATE: 2/28/2015
PROJECT NUMBER: 60321707
CADD STANDARDS: AECOM

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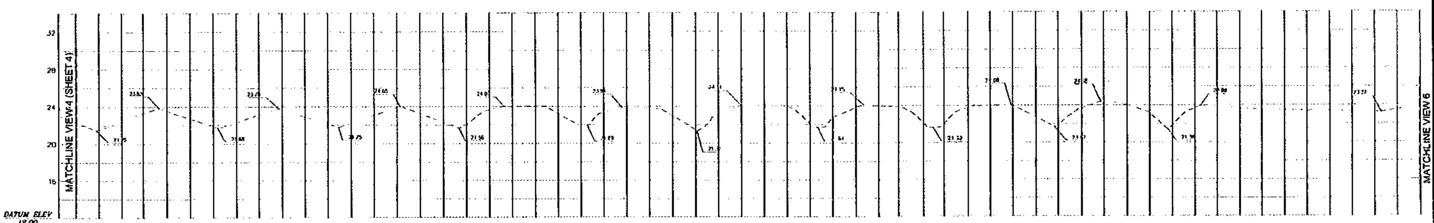
WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

EXISTING CROSS-SECTIONS

DRAWING: EVANS EXIST X-SEC
SHEET 5 OF 19 SHEETS



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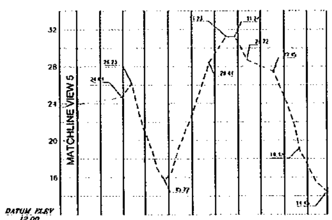

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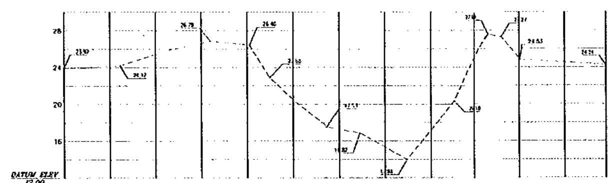

SECTION G

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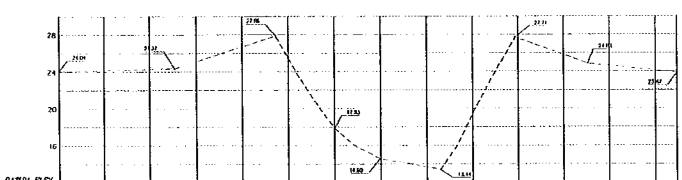

SECTION H

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V. SCALE: 1"=5'

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DATE: 5/28/2014

PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE
REG NUMBER: 44742
EXP DATE: 2/28/2015
PROJECT NUMBER: 60321707
CADD STANDARDS: AECOM

VERIFY SCALE
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ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

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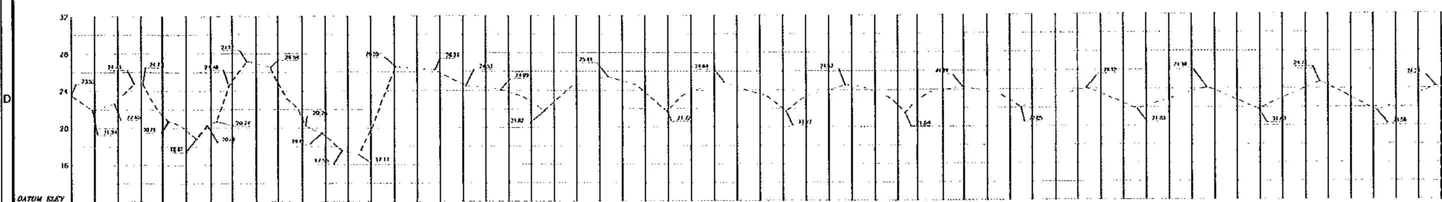
9/3/2014

WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

EXISTING CROSS-SECTIONS

DRAWING: EVANS EXIST X-SEC
SHEET 6 OF 19 SHEETS



SECTION I - VIEW 1
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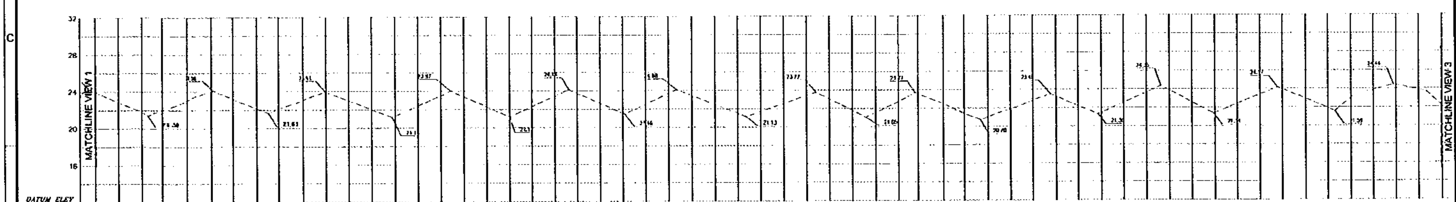
V. SCALE: 1"=5'



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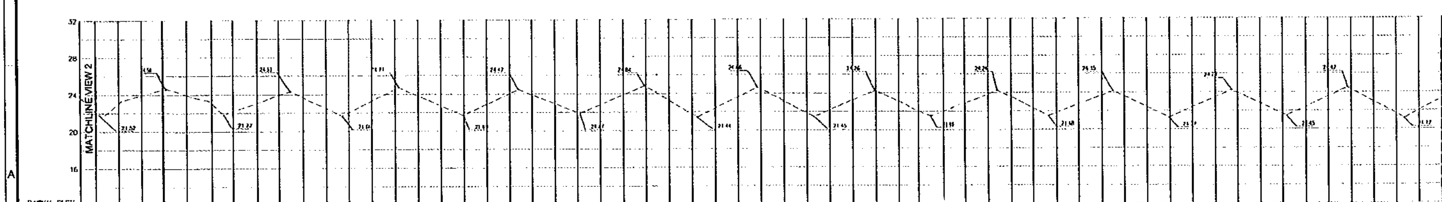

SECTION I - VIEW 3
H. SCALE: 1"=20'
V. SCALE: 1"=5'

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JS/RR
TFM
5/28/2014

THOMAS F. MCGOWAN III, PE
44742 2/28/2015
60321707
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ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

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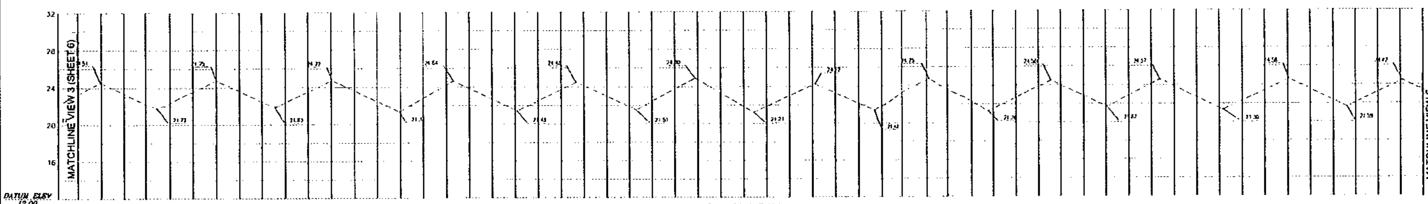
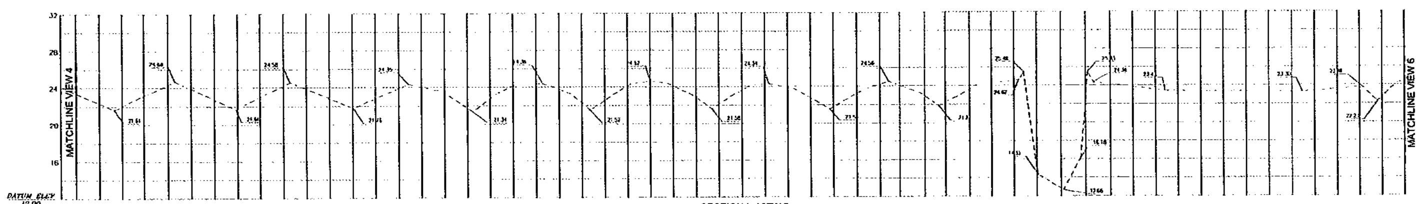
WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

EXISTING CROSS-SECTIONS

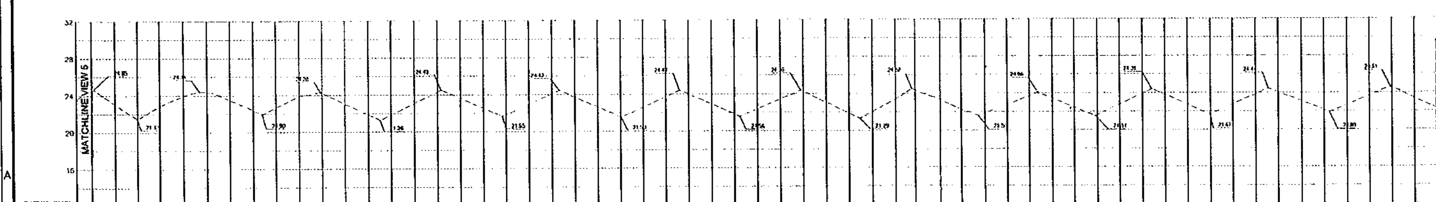
EVANS EXIST X-SEC
7
of 19



SECTION I - VIEW 4
H. SCALE: 1"=20'
V. SCALE: 1"=5'



SECTION I - VIEW 5
H. SCALE: 1"=20'
V. SCALE: 1"=5'



SECTION I - VIEW 6
H. SCALE: 1"=20'
V. SCALE: 1"=5'

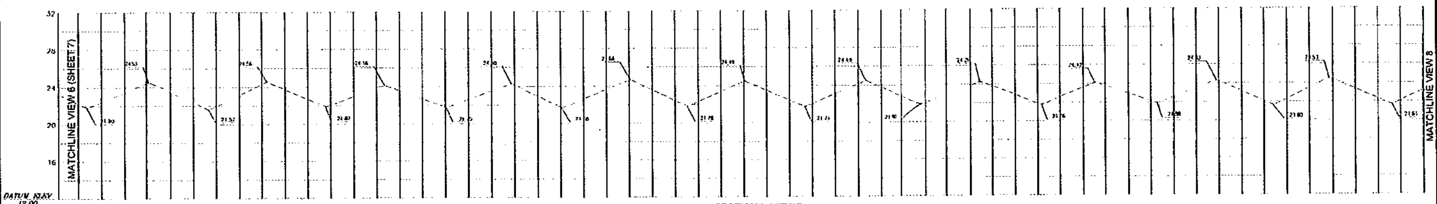
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DESIGNED BY: JLS DRAWN BY: JS/RR CHECKED BY: TFM DATE: 5/28/2014	PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE REG NUMBER: 44742 EXP DATE: 2/28/2015 PROJECT NUMBER: 60321707 CADD STANDARDS: AECOM	VERIFY SCALE BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING ADJUST ALL SCALED DIMENSIONS ACCORDINGLY	AECOM

9/3/2014

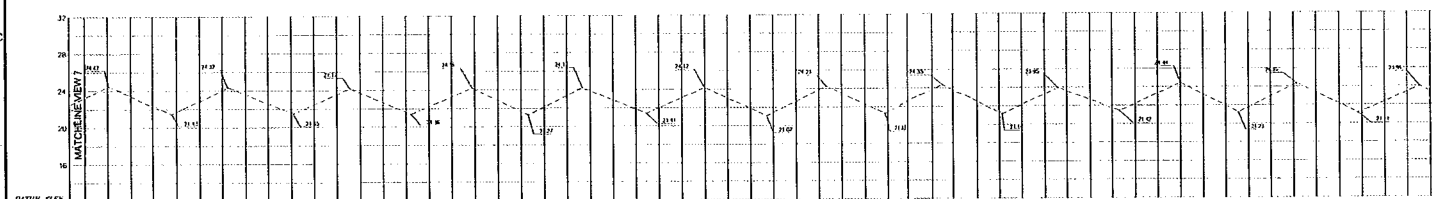
WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

EXISTING CROSS-SECTIONS

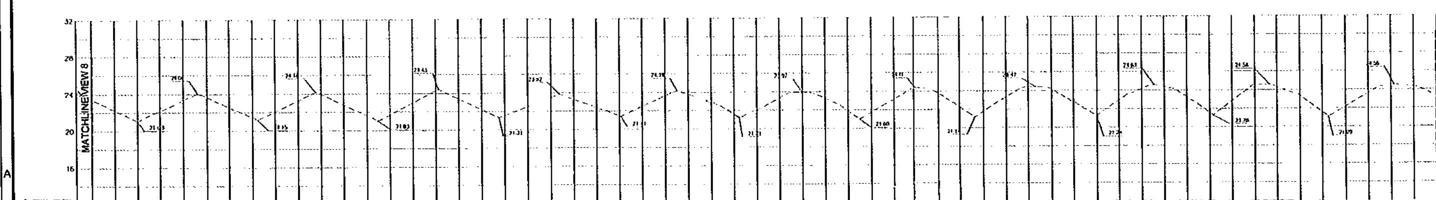
EVANS EXIST X-SEC
SHEET 8 OF 19 SHEETS



SECTION I - VIEW 7
H. SCALE: 1"=20'
V. SCALE: 1"=5'



SECTION I - VIEW 8
H. SCALE: 1"=20'
V. SCALE: 1"=5'



SECTION I - VIEW 9
H. SCALE: 1"=20'
V. SCALE: 1"=5'

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DESIGNED BY JLS
DRAWN BY JS/RR
CHECKED BY TFM
DATE 5/28/2014

PROJECT ENGINEER THOMAS F. MCGOWAN III, PE
REG NUMBER 44742 EXP DATE 2/28/2015
PROJECT NUMBER 60321707
CADD STANDARDS AECOM

VERIFY SCALE
BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING
0 1
ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

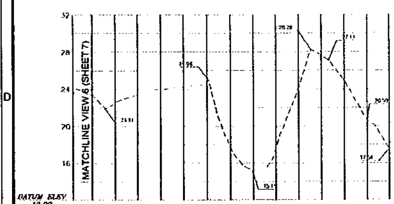
AECOM
AECOM Technical Services, Inc
850 N.W. Federal Highway, Suite 291
Stuart, FL 34994
Certificate Of Authorization 8115 & LB7660

9/3/2014

WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

EXISTING CROSS-SECTIONS

DRAWING EVANS EXIST X-SEC
SHEET 9
OF 19 SHEETS



SECTION I - VIEW 10
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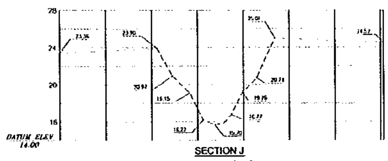
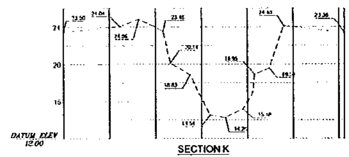
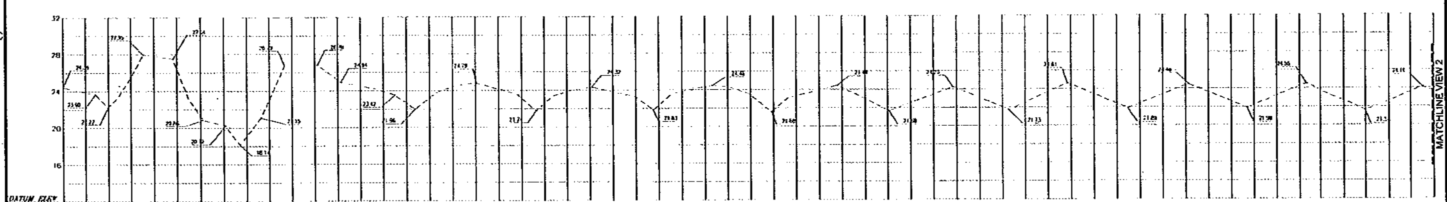
V. SCALE: 1"=5'



SECTION J
H. SCALE: 1"=10'
V. SCALE: 1"=5'



SECTION K
H. SCALE: 1"=10'
V. SCALE: 1"=5'



SECTION L - VIEW 1
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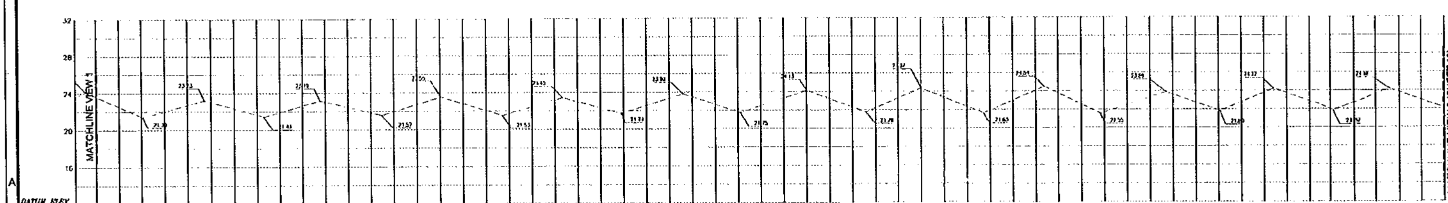
V. SCALE: 1"=5'



SECTION L - VIEW 2
H. SCALE: 1"=20'
V. SCALE: 1"=5'

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DESIGNED BY JLS
DRAWN BY JS/RR
CHECKED BY TFM
DATE 5/28/2014

PROJECT ENGINEER THOMAS F. MCGOWAN III, PE
REG NUMBER 44742 EXP DATE 2/28/2015
PROJECT NUMBER 60321707
CIVIL STANDARDS AECOM

VERIFY SCALE
BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING
ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

AECOM

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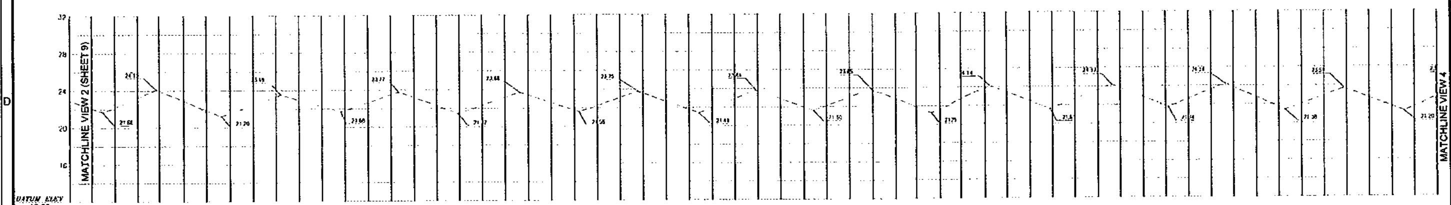
WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

EXISTING CROSS-SECTIONS

DRAWING EVANS EXIST X-SEC
SHEET 10
OF 19 SHEETS

REV	DATE	DESCRIPTION	APPR



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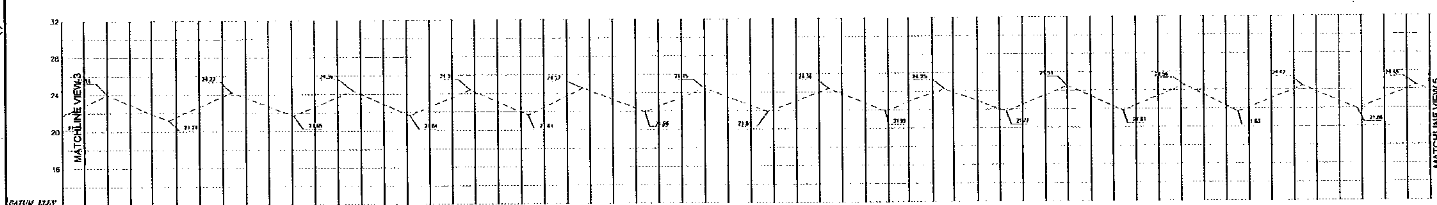
V. SCALE: 1"=5'



SECTION L - VIEW 4
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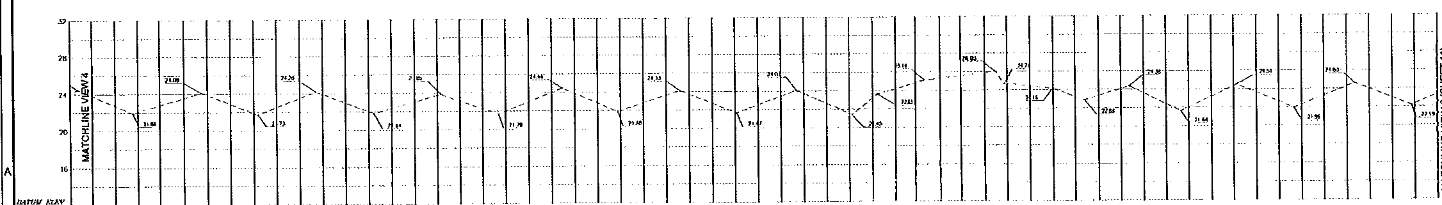
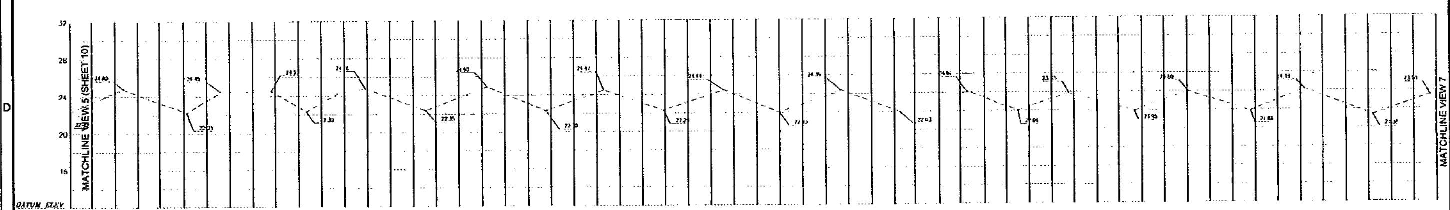
V. SCALE: 1"=5'

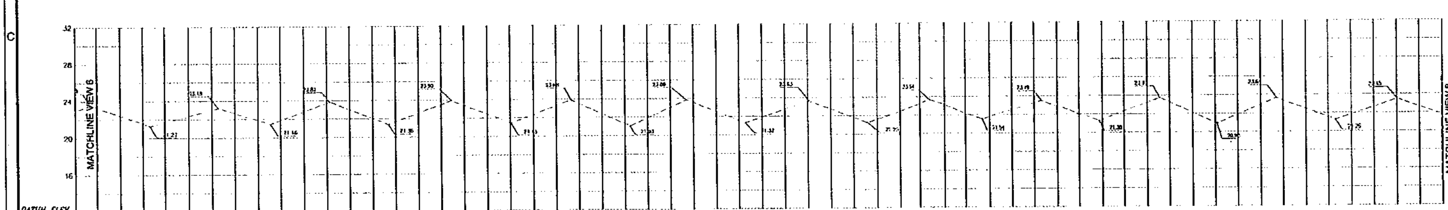


SECTION L - VIEW 5
H. SCALE: 1"=20'
V. SCALE: 1"=5'

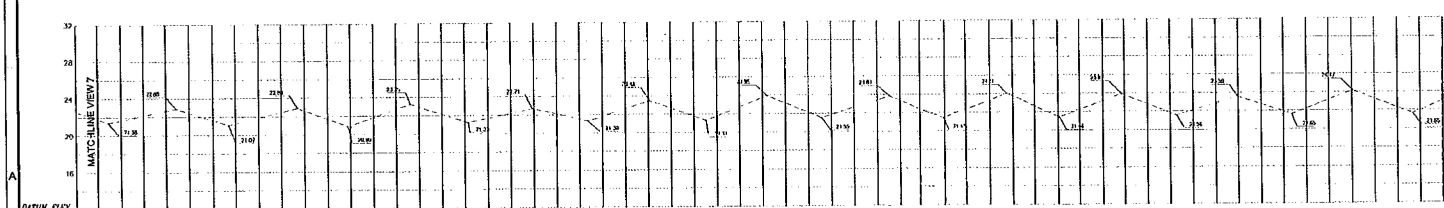
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DESIGNED BY JLS DRAWN BY JS/RR CHECKED BY TFM DATE 5/28/2014	PROJECT ENGINEER THOMAS F. MCGOWAN III, PE REG NUMBER 44742 EXP DATE 2/28/2015 PROJECT NUMBER 60321707 CADD STANDARDS AECOM	VERIFY SCALE BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING 0 — 1 ADJUST ALL SCALED DIMENSIONS ACCORDINGLY	AECOM AECOM Technical Services, Inc 850 N.W. Federal Highway, Suite 211 Stuart, FL 34994	9/3/2014	WATER FARMING PILOT PROJECT EVANS PROPERTIES - IDEAL 1000 GROVE EXISTING CROSS-SECTIONS	DRAWING EVANS EXIST X-SEC SHEET 11 OF 19 SHEETS



SECTION L - VIEW 6
H. SCALE: 1"=20'
V. SCALE: 1"=5'



SECTION L - VIEW 7
H. SCALE: 1"=20'
V. SCALE: 1"=5'



SECTION L - VIEW 8
H. SCALE: 1"=20'
V. SCALE: 1"=5'

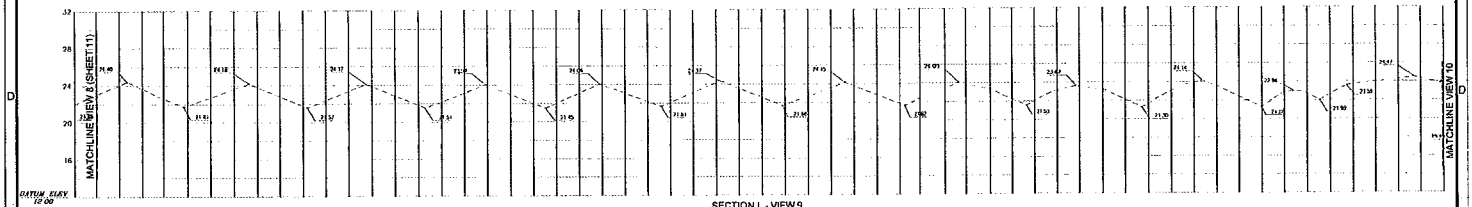
VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	DESIGNED BY: JLS DRAWN BY: JS/RR CHECKED BY: TFM DATE: 5/28/2014	PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE P.E. NUMBER: 44742 2/28/2015 PROJECT NUMBER: 60321707 CADD STANDARDS: AECOM	VERIFY SCALE BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING 0 — 1 ADJUST ALL SCALED DIMENSIONS ACCORDINGLY	AECOM

9/3/2014

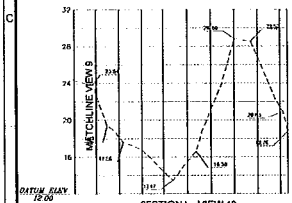
WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

EXISTING CROSS-SECTIONS

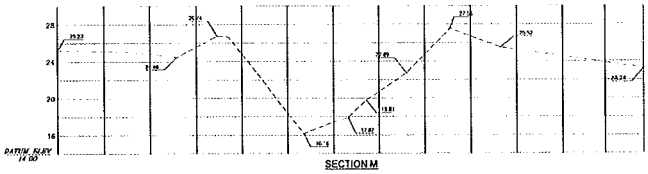
EVANS EXIST X-SEC
SHEET 12 of 19 SHEETS



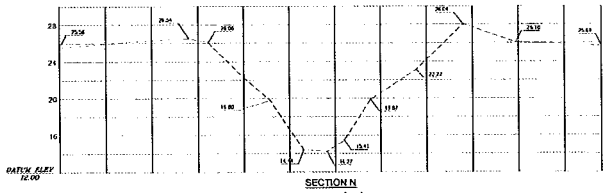
SECTION L - VIEW 9
H. SCALE: 1"=20'
V. SCALE: 1"=5'



SECTION L - VIEW 10
H. SCALE: 1"=20'
V. SCALE: 1"=5'

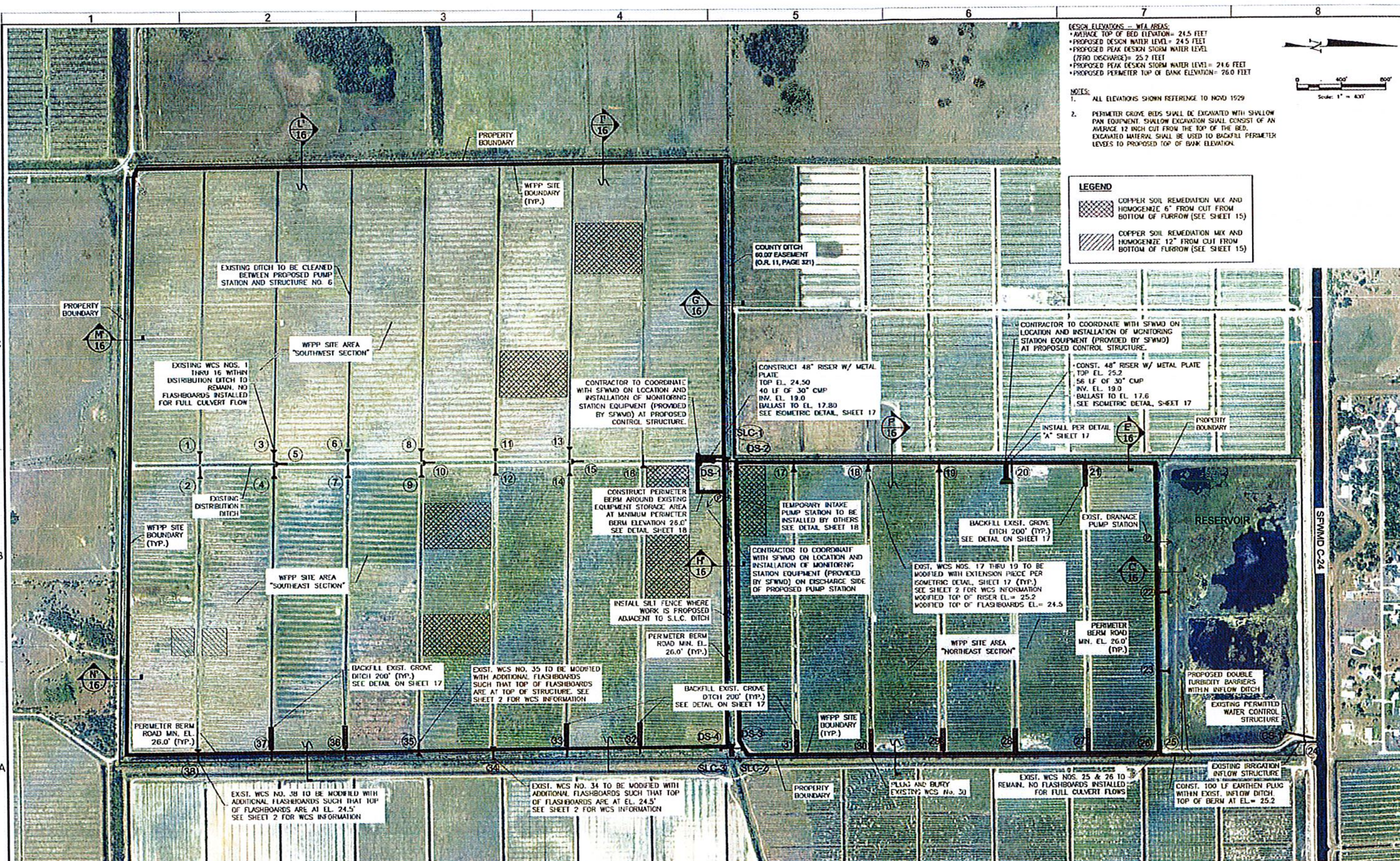


SECTION M
H. SCALE: 1"=10'
V. SCALE: 1"=5'



SECTION N
H. SCALE: 1"=10'
V. SCALE: 1"=5'

REV	DATE	DESCRIPTION	MTR	VERIFY SCALES: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	DESIGNED BY: JLS; DRAWN BY: JS/RR; CHECKED BY: TFM; DATE: 5/28/2014	PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE; REG. NUMBER: 44742; EXP. DATE: 2/28/2015; PROJECT NUMBER: 60321707; CAD WINDOWS: AECOM	VERIFY SCALE: BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING. IF NOT, ADJUST ALL SCALED DIMENSIONS ACCORDINGLY.	AECOM	9/3/2014	WATER FARMING PILOT PROJECT EVANS PROPERTIES - IDEAL 1000 GROVE EXISTING CROSS-SECTIONS	DRAWING: EVANS EXIST X-SEC; SHEET: 13 of 19 sheets



REV	DATE	DESCRIPTION	APPR

VERIFY SCALES — BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DESIGNED BY: JLS
DRAWN BY: JS/RR
CHECKED BY: TFM
DATE: 7/24/2014

PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE
REG NUMBER: 44742 EXP DATE: 2/28/2015
PROJECT NUMBER: 60321707
CADD STANDARDS: AECOM

VERIFY SCALE — BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING. ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

AECOM

9/3/2014

WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

PROPOSED SITE PLAN

DRAWING: EVANS PLAN 01
SHEET: 14 of 19 SHEETS

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DESIGNED BY: JLS
DRAWN BY: JS/RR
CHECKED BY: TFM
DATE: 7/24/2014

PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE
REG NUMBER: 44742 EXP DATE: 2/28/2015
PROJECT NUMBER: 60321707
CADD STANDARDS: AECOM

VERIFY SCALE
BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING
0 1
ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

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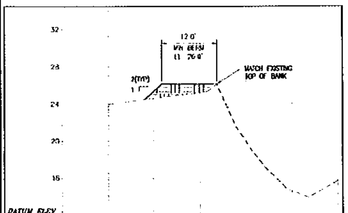
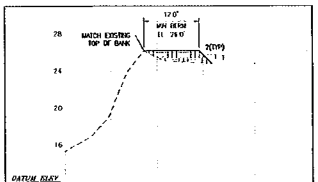
WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

COPPER REMEDIATION PLAN

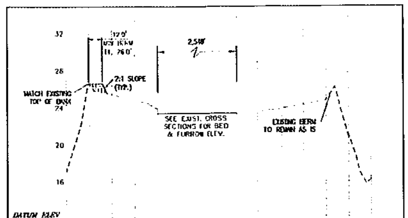
DRAWING: EVANS COPPER REM
SHEET 15 of 19 SHEETS



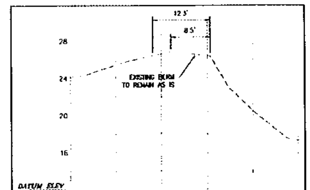
SECTION C'
H. SCALE: 1"=10'
V. SCALE: 1"=5'
ALL ELEVATIONS ARE IN FT-NGVD



SECTION E'
H. SCALE: 1"=10'
V. SCALE: 1"=5'
ALL ELEVATIONS ARE IN FT-NGVD



SECTION F'
H. SCALE: 1"=20'
V. SCALE: 1"=5'
ALL ELEVATIONS ARE IN FT-NGVD



SECTION G'
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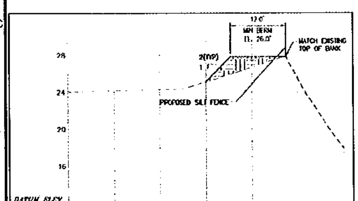
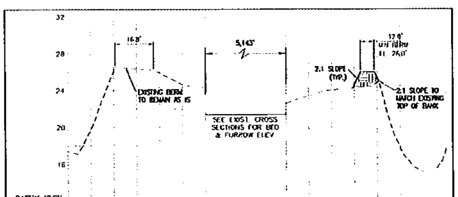
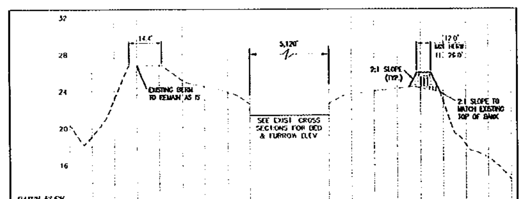
V. SCALE: 1"=5'
ALL ELEVATIONS ARE IN FT-NGVD



SECTION H'
H. SCALE: 1"=10'
V. SCALE: 1"=5'
ALL ELEVATIONS ARE IN FT-NGVD



SECTION I'
H. SCALE: 1"=20'
V. SCALE: 1"=5'
ALL ELEVATIONS ARE IN FT-NGVD



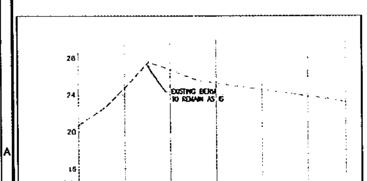
SECTION L'
H. SCALE: 1"=20'
V. SCALE: 1"=5'
ALL ELEVATIONS ARE IN FT-NGVD

LEGEND

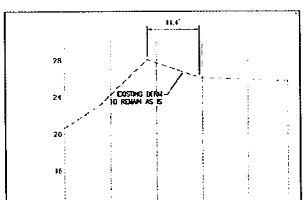
EMBANKMENT - PROPOSED PERIMETER BERM FILL

NOTES:

1. PERIMETER GROVE BEDS SHALL BE EXCAVATED WITH SHALLOW PAN EQUIPMENT. SHALLOW EXCAVATION SHALL CONSIST OF AN AVERAGE 12 INCH CUT FROM TOP OF THE BED. EXCAVATED MATERIAL SHALL BE USED TO BACKFILL PERIMETER LEVEES TO PROPOSED TOP OF BANK ELEVATION.



SECTION M'
H. SCALE: 1"=10'
V. SCALE: 1"=5'
ALL ELEVATIONS ARE IN FT-NGVD



SECTION N'
H. SCALE: 1"=10'
V. SCALE: 1"=5'
ALL ELEVATIONS ARE IN FT-NGVD

VERIFY SCALES	BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY
DESIGNED BY	JLS
DRAWN BY	JS/RR
CHECKED BY	TFM
DATE	6/24/2014
PROJECT ENGINEER	THOMAS F. MCGOWAN III, PE
REG NUMBER	44742
EXP DATE	2/28/2015
PROJECT NUMBER	60321707
CADD STANDARDS	AECOM
VERIFY SCALE	BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING. ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

AECOM

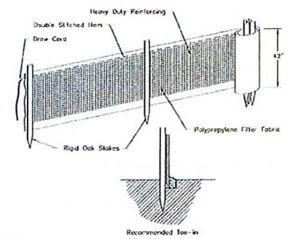
9/3/2014

WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

PROPOSED SECTIONS

EVANS PROPOSED X-SEC

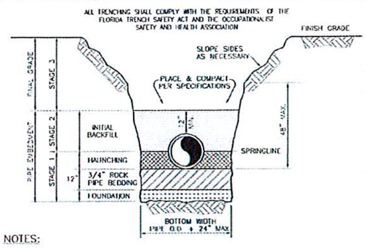
SHEET 16 of 19 SHEETS



NOTES:

1. Silt Fence shall be installed per manufactures specifications prior to the start of construction and shall not be removed until construction is complete
2. The Contractor shall inspect and repair the silt fence after each rain event and remove sediment when necessary
3. Removed sediment shall be deposited in an area that will not contribute sediment offsite and can be permanently stabilized.
4. The silt fence shall be placed on slope contour to maximize its ponding efficiency.
5. If ditch level is deeper than 30", then a Floating Silt Screen shall be used

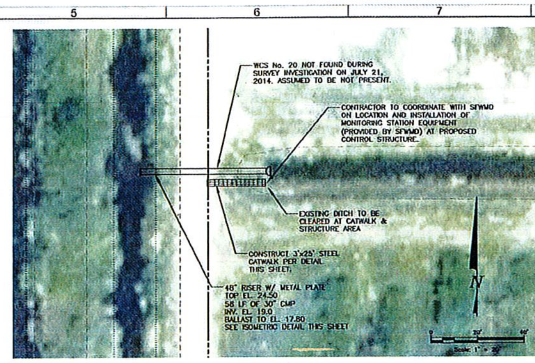
SILT FENCE DETAIL
NOT TO SCALE



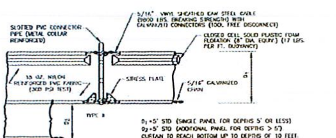
NOTES:

1. ALL TRENCHING SHALL COMPLY WITH THE REQUIREMENTS OF THE FLORIDA TRENCH SAFETY ACT
2. A FOUNDATION MAY BE REQUIRED IN POOR SOIL CONDITIONS
3. BEDDING IS REQUIRED PRIMARILY TO BRING THE TRENCH BOTTOM UP TO GRADE AND ADJUST FOR PIPE BELLS. BEDDING MATERIALS SHALL PROVIDE A UNIFORM AND ADEQUATE LONGITUDINAL SUPPORT UNDER THE PIPE. MATERIAL SHALL BE PLACED IN 4" TO 6" LIFTS, LIGHTLY COMPACTED, UNIFORM AND NOT FINER THAN THE FOUNDATION MATERIAL
4. HAUNCHING MATERIAL SHALL BE HAND PLACED TO THE SPRINGLINE OF THE PIPE MATERIAL SHALL BE CONSOLIDATED UNDER THE PIPE AND HAND TAMPED TO PROVIDE ADEQUATE SIDE SUPPORT
5. INITIAL BACKFILL SHALL BE HAND PLACED TO 12" ABOVE THE TOP OF THE PIPE. THE SOIL SHALL BE CONSOLIDATED BY HAND TAMPING
6. FINAL BACKFILL MATERIAL MAY BE MACHINE PLACED. MATERIAL UNDER ROADWAYS MAY REQUIRE SPECIAL COMPACTION AND DENSITY TESTS.
7. TWO (2) DENSITY TESTS SHALL BE TAKEN FOR EACH 12" OF TRENCH BACKFILL AND EACH 6" LIFT OF BASE ROCK OR AS DIRECTED BY THE ENGINEER. THE BACKFILL FOR THE FIRST AND SECOND STAGES SHALL BE PLACED IN 6" LAYERS (COMPACTED THICKNESS) AND SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY AS DETERMINED BY A.A.S.H.T.O. T-180

TYPICAL TRENCHING & BACKFILLING
NOT TO SCALE



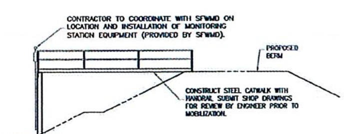
DETAIL "A"



D_1=5' STD (SINGLE PANEL FOR DEPTHS 5' OR LESS)
D_2=5' STD (ADDITIONAL PANEL FOR DEPTHS > 5')
CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FEET. TWO(2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FEET UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER.

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

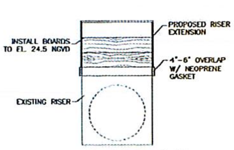
TYPE II FLOATING TURBIDITY BARRIER
NOT TO SCALE



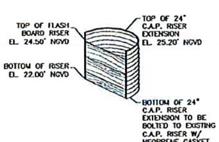
NOTE: CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR CATWALK PRIOR TO FABRICATION FOR REVIEW BY ENGINEER

CATWALK DETAIL
NOT TO SCALE

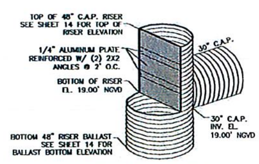
EXISTING GROVE DITCH BACKFILL DETAIL
NOT TO SCALE
ALL ELEVATIONS ARE IN FT-NGVD



TYPICAL PROPOSED RISER EXTENSION FOR EXISTING WATER CONTROL STRUCTURES # 17,18,19
NOT TO SCALE



ISOMETRIC VIEW
RISER EXTENSION PIECE FOR EXISTING WATER CONTROL STRUCTURES # 17, 18, 19
NOT TO SCALE



ISOMETRIC VIEW NE & S BASINS
PROPOSED WATER CONTROL STRUCTURES
NOT TO SCALE

EVAN'S PROPERTIES – PROPOSED WATER CONTROL STRUCTURES

REV	DATE	DESCRIPTION	APPR

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DESIGNED BY: JLS
DRAWN BY: JS/RR
CHECKED BY: TFM
DATE: 6/4/2014

PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE
REG NUMBER: 44742
EXP DATE: 2/28/2015
PROJECT NUMBER: 60321707
CADD STANDARDS: AECOM

VERIFY SCALE
BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING
0 — 1
ADJUST ALL SCALED DIMENSIONS ACCORDINGLY

AECOM
AECOM Technical Services, Inc
850 N.W. Federal Highway, Suite 201
Stuart, FL 34994
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Certificate Of Authorization 8115 & LB7960
www.aecom.com

[signature]
9/3/2014

WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

DETAILS

DRAWING: EVANS DETAILS
SHEET: 17
OF 19 SHEETS

VERIFY SCALES	DESIGNED BY: JLS	PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE	VERIFY SCALE	AECOM		WATER FARMING PILOT PROJECT EVANS PROPERTIES - IDEAL 1000 GROVE	DRAWING: EVANS DETAILS
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWN BY: JS/RR	REG NUMBER: 44742 EXP DATE: 2/28/2015	BAR IS EQUAL TO ONE INCH ON ORIGINAL DRAWING	AECOM Technical Services, Inc.	[signature] 9/3/2014	EQUIPMENT STORAGE AREA DETAIL	SHEET 18 of 19 SHEETS
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	CHECKED BY: TFM	PROJECT NUMBER: 60321707	ADJUST ALL SCALED DIMENSIONS ACCORDINGLY				
	DATE: 6/4/2014	CADD STANDARDS: AECOM					

SCOPE OF WORK:
THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, EQUIPMENT, TOOLS, SUPERVISION, TRANSPORTATION AND INCIDENTALS NECESSARY TO CONSTRUCT DRAINAGE AND SITE IMPROVEMENTS IN ACCORDANCE WITH THE PROVISIONS OF THESE SUPPLEMENTARY CONDITIONS, SPECIFICATIONS AND THE DRAWINGS, ENTITLED, WATER FARMING PILOT PROJECT EVANS PROPERTIES IDEAL 1000 GROVE, ISSUED JULY, 2014, AND PREPARED BY AECOM TECHNICAL SERVICES, INC.

LOCATION:
IT IS THE OBJECTIVE OF THESE DOCUMENTS TO ASSURE THE TOTAL COMPLETION OF THE WORK REQUIRED TO PROVIDE FUNCTIONAL, OPERABLE AND EFFICIENT IMPROVEMENTS AS LAID OUT IN THESE DRAWINGS AND SPECIFICATIONS IN SECTIONS 22 AND 27, TOWNSHIP 36S, RANGE 38E WITHIN ST. LUCIE COUNTY. THE PROPERTY IS APPROXIMATELY 1,000 ACRES AND IS LOCATED EAST OF CARLTON ROAD AND IS BORDERED TO THE NORTH BY THE SFWMD C-24 CANAL.

PERMITS AND LICENSES:
CONSTRUCTION REQUIREMENTS OF THE PROJECT REFLECT CONSTRAINTS AND CONDITIONS IMPOSED BY THOSE PERMITS. THE CONTRACTOR SHALL PERFORM ALL WORK AND SHALL CONSTRUCT THE PROJECT IN ACCORDANCE WITH THOSE PERMIT REQUIREMENTS. ADDITIONALLY, THE CONTRACTOR SHALL SECURE ALL OTHER WORK PERMITS, APPROVALS OR LICENSES REQUIRED TO PERFORM THE WORK, AND HE SHALL PERFORM THE WORK IN STRICT ACCORDANCE WITH THOSE PERMITS, APPROVALS, OR LICENSES.

ENVIRONMENTAL PROTECTION:
THIS SECTION INCLUDES THE CONTRACTOR'S REQUIREMENTS FOR PREVENTION OF ENVIRONMENTAL POLLUTION AND DAMAGE AS THE RESULT OF CONSTRUCTION OPERATIONS UNDER THIS CONTRACT. ENVIRONMENTAL POLLUTION AND DAMAGE ARE DEFINED AS THE PRESENCE OF CHEMICAL, PHYSICAL, OR BIOLOGICAL ELEMENTS OR AGENTS WHICH ADVERSELY AFFECT HUMAN HEALTH OR WELFARE; UNFAVORABLY ALTER ECOLOGICAL BALANCES OF IMPORTANCE TO HUMAN LIFE; AFFECT OTHER SPECIES OF IMPORTANCE TO MAN; OR DEGRADE THE UTILITY OF THE ENVIRONMENT FOR AESTHETIC, CULTURAL, AND/OR HISTORICAL PURPOSES.

THE CONTROL OF ENVIRONMENTAL POLLUTION AND DAMAGE REQUIRES CONSIDERATION OF AIR, WATER, AND LAND, AND INCLUDES MANAGEMENT OF VISUAL AESTHETICS, NOISE, SOLID WASTE, RADIANT ENERGY AND RADIOACTIVE MATERIALS, AS WELL AS OTHER POLLUTANTS.

NPDES: THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR COVERAGE UNDER THE GENERIC PERMIT FOR THE STATE OF FLORIDA OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES). THE CONTRACTOR SHALL PREPARE A STORMWATER POLLUTION PREVENTION PLAN AND SUBMIT TO THE OWNER AND ENGINEER WHICH DEMONSTRATES THE MECHANISMS AND PRACTICES THAT WILL BE EMPLOYED TO PROTECT THE CONSTRUCTION SITE AND SURROUNDING AREA DURING CONSTRUCTION INCLUDING DUST CONTROL. AT A MINIMUM, THE CONTRACTOR SHALL CONSTRUCT THE COMPONENTS FOR ENVIRONMENTAL PROTECTION SHOWN ON THE PLANS AND SPECIFIED IN THIS SECTION. THE CONTRACTOR SHALL ALSO INCLUDE ANY ADDITIONAL MEASURES NECESSARY TO PROTECT THE PROJECT'S RECEIVING WATERS. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE INSPECTIONS AND SUBMITTED WEEKLY REPORTS.

REFERENCE TO OTHER DOCUMENTS:
FOR BREVITY, REFERENCE MAY BE MADE TO OTHER SPECIFICATIONS OR DOCUMENTS WHICH WILL BE USED TO SPECIFY OR CONTROL THE MATERIALS PLACED IN THE WORK, THE CONSTRUCTION METHODS TO BE USED, THE TOLERANCES THAT WILL BE ACCEPTABLE, AND CONTRACTUAL OR LEGAL OBLIGATIONS. THE SPECIFICATIONS OR DOCUMENTS SHALL INCLUDE:

1. "STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT," CURRENT EDITION, PREPARED BY THE ENGINEERS' JOINT CONTRACT DOCUMENTS COMMITTEE AND PUBLISHED BY THE NATIONAL SOCIETY OF ENGINEERS' JOINT CONTRACT DOCUMENTS COMMITTEE AND PUBLISHED BY THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS. REFERENCE SHALL BE MADE: "GENERAL CONDITIONS."
2. "FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION," LATEST EDITION, PUBLISHED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION. REFERENCE SHALL BE MADE: "FDOT SPECIFICATIONS."
3. "FLORIDA DEPARTMENT OF TRANSPORTATION ROADWAY AND TRAFFIC DESIGN STANDARDS," LATEST EDITION, PUBLISHED BY THE FLORIDA DEPARTMENT OF TRANSPORTATION. REFERENCE SHALL BE MADE: "FDOT INDEX."
4. "AMERICAN SOCIETY FOR TESTING AND MATERIALS SPECIFICATIONS," LATEST EDITION. REFERENCE SHALL BE MADE: "ASTM."

BY REFERENCE, THE DOCUMENTS CITED ABOVE ARE MADE PART OF THESE SUPPLEMENTARY CONDITIONS AND SPECIFICATIONS. THE CONTRACTOR SHALL HAVE COPIES OF EACH IN HIS POSSESSION FOR USE THROUGHOUT THIS PROJECT WORK.

ADDITIONALLY, THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL OTHER APPLICABLE LOCAL, REGIONAL, STATE AND FEDERAL LAWS, REGULATIONS AND CODES INCLUDING, BUT NOT LIMITED TO, THE FEDERAL OCCUPATIONAL SAFETY AND HEALTH ACT.

TECHNICAL SPECIFICATIONS:

1. CLEARING AND GRUBBING:
CLEARING AND GRUBBING SHALL BE PERFORMED WITHIN THE LIMITS OF THE PROJECT WORK IN ACCORDANCE WITH SECTION 110, DOT SPECIFICATIONS FOR STANDARD CLEARING AND GRUBBING, AND SHALL CONSIST OF THE COMPLETE REMOVAL AND DISPOSAL OF ALL TREES, BRUSH STUMPS ROOTS GRASS WEEDS RUBBISH AND ALL OTHER OBSTRUCTIONS WITHIN THE LIMITS OF THE PROJECT WORK TO A DEPTH OF AT LEAST EIGHTEEN (18) INCHES BELOW FINISHED GRADE. CLEARING AND GRUBBING SHALL BE LIMITED TO THE EVANS IDEAL 1000 GROVE PROPERTY - AND ONLY AS NECESSARY FOR CONSTRUCTION OF THE WATER FARMING PILOT PROJECT. IN GENERAL CLEARING SHALL BE LIMITED TO THE PROPOSED PERIMETER BERM ROAD AND AN APPROXIMATELY 2,500 LF OF DITCH CLEANING AS PRESENTED IN THE PLANS. IN ADDITION TO CLEARING FOR THE PROJECT WORK, SELECTIVE CLEARING TO AREAS ADJACENT TO THE SITE SHALL BE AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. TREES REMAINING ON THE SITE SHALL BE LEFT STANDING AND PROTECTED, BUT TRIMMED AS NECESSARY TO GIVE A MINIMUM CLEAR HEIGHT SUFFICIENT TO ACCOMPLISH THE PROJECT WORK. DEBRIS MAY BE BURNED AT THE PROJECT SITE, WITH ANY REQUIRED STATE OF LOCAL BURNING PERMITS. DEBRIS NOT BURNED SHALL BE REMOVED FROM THE PROJECT SITE, AND SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS, REGULATIONS OR ORDINANCES.

2. STARTUP WATER MONITORING:
THIS ITEM INCLUDES ALL LABOR, MATERIALS, AND EQUIPMENT FOR CONSTRUCTING A COMPLETE METAL CATWALK, TO THE DIMENSIONS SPECIFIED IN THE PLAN SHEETS AND AS DIRECTED BY SFWMD. THIS ITEM ALSO INCLUDES THE INSTALLATION OF THE MONITORING EQUIPMENT AS PROVIDED AND DIRECTED BY SFWMD.

3. MOBILIZATION/DEMOBILIZATION:
MOBILIZATION/DEMOBILIZATION SHALL MEET THE REQUIREMENTS OF FDOT SECTION 101. THIS WORK SHALL INCLUDE, BUT IS NOT LIMITED TO, OPERATIONS NECESSARY FOR THE MOVEMENT OF PERSONNEL, EQUIPMENT, SUPPLIES AND INCIDENTALS TO THE PROJECT SITE, AND FOR THE ESTABLISHMENT OF TEMPORARY OFFICES, BUILDINGS, SAFETY EQUIPMENT AND FIRST AID SUPPLIES, SANITARY AND OTHER FACILITIES, AS REQUIRED BY STATE AND LOCAL LAWS AND REGULATIONS. THE COSTS OF ANY REQUIRED INSURANCE AND ANY OTHER PRE CONSTRUCTION EXPENSE NECESSARY FOR THE START OF WORK, EXCLUDING THE COST OF CONSTRUCTION MATERIALS, SHALL ALSO BE INCLUDED IN THIS SECTION. THIS SECTION ALSO INCLUDES ANY AND ALL WORK RELATED TO THE FINAL CLEANUP.

ANY MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE WORK SHALL BE STOCKPILED BY THE CONTRACTOR WITHIN THE AREAS APPROVED BY THE OWNER.

PRECONSTRUCTION CONFERENCE: AFTER THE CONTRACT HAS BEEN AWARDED, THE OWNER SHALL CALL A PRECONSTRUCTION CONFERENCE TO BE HELD AFTER THE AWARD AND PRIOR TO INITIATION OF THE WORK, AT A PLACE DESIGNATED BY THE OWNER, TO REVIEW THE CONSTRUCTION ASPECTS OF THE PROJECT. THE MEETING WILL BE BETWEEN THE OWNER, ENGINEER, CONTRACTOR, AND AS NEEDED REPRESENTATIVES OF LOCAL GOVERNMENT AGENCIES HAVING JURISDICTION OVER THE WORK TO BE PERFORMED.

SCHEDULE: THE CONTRACTOR SHALL PRESENT A TENTATIVE BUT DETAILED WORKING SCHEDULE FOR THE PROJECT AT THE PRECONSTRUCTION CONFERENCE SO THAT IT MAY BE REVIEWED BY THE OWNER. ADDITIONALLY, IT WILL AFFORD THE CONTRACTOR AN OPPORTUNITY TO HAVE ANY QUESTIONS THEY MAY HAVE ON THE WORK CLARIFIED BY THE ENGINEER. NO WORK SHALL COMMENCE UNTIL AFTER A NOTICE TO PROCEED HAS BEEN ISSUED BY THE OWNER.

4. CONSTRUCTION & AS-BUILT SURVEYING:
THE CONTRACTOR SHALL CONSTRUCT THE REQUIRED IMPROVEMENTS IN THE LOCATION SHOWN ON THE DRAWINGS AND SHALL USE AS HORIZONTAL CONTROL POINTS THE RIGHT-OF-WAY LINES, PARCEL CORNERS AND BENCHMARKS AT THE SITE FOR USE IN ESTABLISHING THE NECESSARY CONSTRUCTION BASELINES, ELEVATIONS AND GRADES. THE TOPOGRAPHIC SURVEY AND CONTROL POINTS FOR THIS PROJECT ARE IDENTIFIED ON THE CONSTRUCTION PLANS HOWEVER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH BENCHMARKS AND/ OR CONTROL POINTS FOR THIS PROJECT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT THE BENCHMARKS DURING CONSTRUCTION. IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE RIGHT-OF-WAY LINES AND PERFORM ANY CONSTRUCTION STAKEOUT. ELEVATIONS SHALL BE ACCORDING TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD 29).

INFORMATION PRESENTED IN THE AS-BUILTS SHALL INCLUDE, BUT IS NOT LIMITED TO THE FOLLOWING:

A. PROVIDE CROSS-SECTIONS WITHIN EARTHWORK LIMITS AS CLOSE AS POSSIBLE TO CROSS-SECTION AS SHOWN ON THE CONSTRUCTION PLANS;
B. PROVIDE TWO (2) AS-BUILT SHOT ELEVATIONS AT EACH COPPER SOIL REMEDIATION LOCATION;
C. PROVIDE AS-BUILT INFORMATION FOR RETROFITTED WATER CONTROL STRUCTURES WITH RISER SIZE, TOP OF RISER, AND TOP OF FLASHBOARDS; AND
D. PROVIDE AS-BUILT INFORMATION ON NEWLY CONSTRUCTED WATER CONTROL STRUCTURES WITH PIPE AND RISER SIZE, PIPE LENGTH, TOP OF RISER, TOP OF FLASHBOARDS, AND PIPE INVERTS.

5. COPPER REMEDIATION:
COPPER REMEDIATION SHALL BE PERFORMED SUCH THAT DEPTHS AND UNIFORMITY SPECIFIED IN THE PLANS ARE MET AND TO THE SATISFACTION OF THE ENGINEER.

6. WATER QUALITY & SILTATION CONTROL:
ACTIVITIES SHALL BE CONDUCTED IN A MANNER THAT DOES NOT CAUSE VIOLATIONS OF STATE WATER QUALITY STANDARDS AS SPECIFIED IN CHAPTER 62-302, FLORIDA ADMINISTRATIVE CODE (FAC). THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES FOR EROSION AND POLLUTION CONTROL TO PREVENT VIOLATION OF STATE WATER QUALITY STANDARDS. TEMPORARY EROSION CONTROL SHALL BE IMPLEMENTED PRIOR TO AND DURING CONSTRUCTION AND PERMANENT CONTROL MEASURES SHALL BE COMPLETED WITHIN 7 DAYS OF ANY CONSTRUCTION ACTIVITY. TURBIDITY BARRIERS AND SILT FENCE SHALL BE INSTALLED AND MAINTAINED AT ALL LOCATIONS STATED ON THE PLANS. TURBIDITY BARRIERS AND SILT FENCE SHALL REMAIN IN PLACE AT ALL LOCATIONS UNTIL CONSTRUCTION IS COMPLETED AND SOILS ARE STABILIZED AND VEGETATION HAS BEEN ESTABLISHED. THEREAFTER THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF THE BARRIERS. SHOULD THE OWNER OR ENGINEER DETERMINE THAT REMOVAL OF THE TURBIDITY BARRIERS IS NECESSARY TO MAINTAIN THE SAFE OPERATION OF ANY CANALS, THE CONTRACTOR SHALL REMOVE THEM. THE CONTRACTOR SHALL CORRECT ANY EROSION OR SHOALING THAT CAUSES ADVERSE IMPACTS TO THE WATER RESOURCES. DIRECT DISCHARGE OF CONSTRUCTION RELATED WATER TO OFF-SITE AREAS, OR TO WETLANDS ADJACENT TO THE PROJECT WORK, SHALL NOT BE ALLOWED.

7. RETROFIT OF EXISTING STRUCTURES:
EXTENSION PIECES SHALL CONFORM TO THE DIMENSIONS SPECIFIED IN THE PLANS AND SHALL BE BOLTED AND SECURED TO THE EXISTING STRUCTURES IDENTIFIED IN THE PLANS. MATERIAL SHALL CONFORM TO THE CONTROL STRUCTURE SPECIFICATIONS WITHIN THESE SPECIFICATIONS. INSTALLATION SHALL INCLUDE A NEOPRENE GASKET OR OTHER MATERIAL TO PROVIDE WATER TIGHT SEAL.

8. CONTROL STRUCTURES:
DRAINAGE IMPROVEMENTS SHALL BE CONSTRUCTED AT THE LOCATION, LINES, GRADES AND ELEVATIONS FOR THE SIZE AND TYPE OF DRAINAGE STRUCTURES AND WATER MANAGEMENT FACILITIES AS SHOWN ON THE PLANS AND DETAILS. THE CONTRACTOR SHALL BE HELD STRICTLY RESPONSIBLE FOR ALL PARTS OF THE WORK THAT BEAR THE LOAD OF THE BACKFILL. IF STRUCTURAL FAILURES IN THE STORM DRAINAGE PIPING OR APPURTENANCES DEVELOP WITHIN ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK, THE CONTRACTOR SHALL BE REQUIRED TO REPLACE ALL FAULTY MATERIAL AT HIS FULL EXPENSE. TO THIS END, THE CONTRACTOR IS ADVISED TO PURCHASE MATERIAL UNDER A GUARANTEE FROM THE MANUFACTURER, GUARANTEEING PROPER SERVICE UNDER CONDITIONS WHICH ARE ESTABLISHED BY THE DRAWINGS, SPECIFICATIONS AND LOCAL CONDITIONS.

CORRUGATED METAL PIPE: MATERIALS AND CONSTRUCTION METHODS FOR PIPE CULVERTS SHALL BE IN ACCORDANCE WITH SECTIONS 425 & 430, FDOT STANDARD SPECIFICATIONS AND AS FOLLOWS:

A. 48" CORRUGATED METAL PIPE (CMP) RISER WITH 30" CMP DISCHARGE PIPE, AS SHOWN ON THE PLANS, SHALL CONSIST OF 12 GAUGE WITH 2-2/3" X 1/2" CORRUGATION. RISER SHALL INCLUDE A 1/4" REINFORCED ALUMINUM PLATE BOLTED TO THE RISER AND SEALED WATER TIGHT AS SHOWN ON PLANS.
B. ALL PIPE, FITTINGS, JOINTING, MATERIALS, AND OTHER APPURTENANCES SHALL BE NEW MATERIAL; AND IF NOT SPECIFICALLY DESCRIBED IN THESE SPECIFICATIONS, SHALL BE OF THE BEST QUALITY AND ENTIRELY SUITABLE FOR THE SERVICE INTENDED. THE OWNER'S REPRESENTATIVE, PRIOR TO INSTALLATION, SHALL APPROVE ALL SUCH MATERIAL.
C. PIPE COVER SHALL BE DETERMINED IN ACCORDANCE WITH FDOT INDEX NO. 205 FOR UNPAVED COMMERCIAL ROADWAYS.
D. CMP SHALL BE FABRICATED WITH HELICAL CORRUGATIONS WITH A MINIMUM OF TWO ANNUAL CORRUGATIONS FORMED INTO EACH END OF PIPE TO ACCOMMODATE A COUPLING BAND. PROVIDE CERTIFICATION OF THE ACTUAL MEAN DIAMETER OF PIPE SHIPPED TO THE PROJECT. INCLUDE IN THE CERTIFICATION THE MINIMUM AND MAXIMUM DIAMETER USED TO CERTIFY THE ACTUAL MEAN DIAMETER.
E. MAKE A FIELD JOINT WITH LOCKING BANDS, AS SPECIFIED IN ARTICLE 9 OF AASHTO M 196M. FABRICATE BANDS FROM THE SAME MATERIAL AS THE CULVERT SHEETING.
F. USE A NEOPRENE GASKET OF A DESIGN SHOWN TO PROVIDE A JOINT SPECIFIED IN LATEST EDITION OF FDOT STANDARD SPECIFICATIONS, SECTION 430-4 AND SECTION 430-8. PIPE JOINTS SHALL BE WATER-TIGHT.
G. WRAP ALL JOINTS WITH FILTER FABRIC, IRRESPECTIVE OF PIPE MATERIAL. THE FABRIC SHALL EXTEND A MINIMUM OF 12 INCHES BEYOND EACH SIDE OF THE JOINT OR BOTH EDGES OF THE COUPLING BAND, IF A COUPLING BAND IS USED. THE FABRIC SHALL HAVE A MINIMUM WIDTH OF 24 INCHES, AND A LENGTH SUFFICIENT TO PROVIDE A MINIMUM OVERLAP OF 24 INCHES.
H. LAY PIPE TO SLOPE GRADIENTS NOTED ON THE DRAWINGS WITH A MAXIMUM VARIATION FROM TRUE SLOPE OF 1/8 INCH IN 10 FEET, WITH A TOTAL OF NOT MORE THAN 1 INCH DEPARTURE FROM THEORETICAL LINE AND GRADE. TAKE UP AND RELAY ANY PIPE THAT IS NOT IN TRUE ALIGNMENT OR WHICH SHOWS ANY SETTLEMENT AFTER LAYING AT NO ADDITIONAL EXPENSE TO THE OWNER.
I. ANY PIPE THAT IS NOT IN TRUE ALIGNMENT OR WHICH SHOWS ANY SETTLEMENT AFTER INSTALLMENT SHALL BE TAKEN UP AND RE-INSTALLED WITHOUT ADDITIONAL COMPENSATION.
J. PLACE PLUGS IN ENDS OF UNCOMPLETED CONDUIT AT END OF DAY OR WHENEVER WORK STOPS.

9. EARTHWORK AND GRADING:
ALL EARTHWORK AND GRADING SHALL BE PERFORMED AS REQUIRED TO ATTAIN THE FINAL GRADES. TYPICAL SECTIONS AND ELEVATIONS SHOWN ON THE CONSTRUCTION PLANS AND SPECIFICATIONS FOR THE PROPOSED PROJECT WORK. IN ALL OTHER RESPECTS, MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF SECTIONS 120 AND 125 OF THE FDOT SPECIFICATIONS. THE GRADING AND DRAINAGE INFORMATION SHOWN ON THE CONSTRUCTION PLANS, ARE THE RESULT OF A DETAILED ENGINEERING DESIGN AND REFLECT A PLANNED INTENT WHICH MEETS THE REQUIREMENTS OF THE OWNER. SHOULD THE CONTRACTOR HAVE ANY QUESTION AS TO THIS INTENT, OR ANY PROBLEMS WITH THE CONTINUITY OF GRADES, THE ENGINEER SHALL BE CONTACTED FOR CLARIFICATION AND DIRECTION, PRIOR TO COMPLETING THAT PORTION OF THE WORK.

EXCAVATION: EXCAVATION SHALL CONSIST OF THE CUTTING OF EXISTING FEATURES TO THE APPROXIMATE LINES AND GRADES SHOWN ON THE CONSTRUCTION PLANS, THE EXCAVATION AND DISPOSAL OF MUCK, CLAY, ROCK OR ANY OTHER MATERIAL THAT IS UNSUITABLE IN ITS ORIGINAL POSITION. TO THE EXTENT IT IS NEEDED, SUITABLE MATERIAL FROM ONSITE EXCAVATION SHALL BE USED IN THE CONSTRUCTION OF REQUIRED FILL SECTIONS IN ACCORDANCE WITH THIS SECTION AND THE CONSTRUCTION PLANS. THE CONTRACTOR SHALL CONSIDER THE LIMITS OF SUBSOIL EXCAVATION INDICATED ON THE PLANS AS BEING PARTICULARLY VARIABLE, IN ACCORDANCE WITH FIELD CONDITIONS ACTUALLY ENCOUNTERED AND AMOUNT OF FILL REQUIRED.

EXCAVATION ACTIVITIES ON-SITE SHALL CONFORM TO SECTION 120 OF THE FDOT SPECIFICATIONS. MORE SPECIFICALLY, ACTIVITIES SHALL ADHERE TO SECTIONS 120-1.2, UNIDENTIFIED AREAS OF CONTAMINATION AND 120-8, EMBANKMENT CONSTRUCTION. AT ALL AREAS, THE CONTRACTOR SHALL REMOVE ALL MAN-MADE DEBRIS AND DISPOSE AT A SUITABLE OFFSITE LOCATION IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

EMBANKMENT AND BACKFILL CONSTRUCTION: MATERIALS FOR EMBANKMENT SHALL BE OBTAINED FROM ON-SITE SOURCES AS SHOWN ON THE PLANS OR AS SPECIFIED IN THE CONTRACT DOCUMENTS. EMBANKMENT MATERIAL SHALL BE CLEAN, AND FREE FROM ORGANIC OR DELETERIOUS MATERIAL. THE EMBANKMENT SHALL BE PERFORMED CONCURRENTLY WITH THE STRUCTURE BACKFILL OPERATIONS AND SHALL BE CONSTRUCTED IN SUCCESSIVE LIFTS EXTENDING UNIFORMLY ACROSS THE ENTIRE AREA. THE FILL, WHEN ABUTTING AN EXISTING SIDE SLOPE, SHALL BE KEYED INTO THAT SIDE SLOPE IN ORDER TO PROVIDE A VERTICAL FACE TO BE AGAINST EQUAL TO THE DEPTH OF THE LIFT. ALL COMPACTION SHALL MEET THE REQUIREMENT OF 95 PERCENT OF THE MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR VALUE (AASHTO T-99).

DENSITY TESTS SHALL BE REQUIRED IN ALL AREAS OF EMBANKMENT. THERE SHALL BE A MINIMUM OF ONE TESTING LOCATION FOR EACH 250 LINEAL FEET OF EMBANKMENT CONSTRUCTED, OR MAJOR PORTION THEREOF. ADDITIONAL TESTS MAY BE REQUIRED AT MORE FREQUENT INTERVALS IF DEEMED NECESSARY BY THE ENGINEER. A TESTING LOCATION SHALL CONSIST OF INDIVIDUAL DENSITY TESTS TAKEN AT EACH ONE (1) FOOT VERTICAL INCREMENT OF EMBANKMENT PLACED. TESTS WITHIN EACH SERIES SHALL BE TAKEN AT VARYING LOCATIONS FOR EACH COMPACTED LIFT. IF AN INDIVIDUAL TEST WITHIN A SERIES DOES NOT MEET THE 95 PERCENT DENSITY REQUIREMENT, THEN THE CONTRACTOR SHALL RE-WORK THE ENTIRE LIFT REPRESENTED BY THAT TEST, UNTIL THE DENSITY REQUIREMENTS ARE MET. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CO-ORDINATE WITH THE TESTING LABORATORY DESIGNATED BY THE OWNER, FOR THE TESTING AND RE-TESTING NECESSARY TO ASSURE THAT THE WORK HAS BEEN PERFORMED IN COMPLIANCE WITH THESE SPECIFICATIONS.

10. FINAL CLEANUP:
UPON COMPLETION OF THE WORK BUT BEFORE FINAL PAYMENT WILL BE MADE, THE CONTRACTOR SHALL CLEAR AND REMOVE FROM THE PROJECT AREA, ALL FALSE WORK, EQUIPMENT, SURPLUS AND DISCARDED MATERIALS, RUBBISH AND TEMPORARY STRUCTURES WHICH RESULT FROM THE WORK UNDER THIS AGREEMENT, AND SHALL RESTORE IN AN ACCEPTABLE MANNER ALL PROPERTY WHICH HAS BEEN DAMAGED DURING THE PROSECUTION OF THE WORK.

11. DRAWINGS:
ERRORS OR OMISSIONS IN THE DRAWINGS OR SPECIFICATIONS: PRIOR TO INITIATION OF THE WORK, THE CONTRACTOR SHALL CHECK DIMENSIONS, GRADES, AND ELEVATIONS SHOWN ON THE DRAWINGS TO ASSURE HIMSELF THAT THEY ARE CORRECT AND THAT THE WORK CAN BE ACCOMPLISHED AS INTENDED. THE CONTRACTOR SHALL TAKE NO ADVANTAGE OF ANY APPARENT ERROR OR OMISSION WHICH HE MIGHT DISCOVER, WHO WILL THEN MAKE SUCH CORRECTIONS AND INTERPRETATIONS AS HE DEEMS NECESSARY FOR REFLECTING THE ACTUAL SPIRIT AND INTENT OF THE DRAWINGS AND SPECIFICATIONS.

SOIL AND SUB-SOIL CONDITIONS: IT IS THE SOLE AND EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR TO: PLACE HIS OWN INTERPRETATION ON ANY AND ALL SOIL AND SUB-SOIL DATA PORTRAYED ON THE DRAWINGS; PERFORM HIS OWN SOIL AND SUB-SOIL INVESTIGATION TO DETERMINE THE NATURE, CHARACTER, LOCATION AND EXTENT OF ALL SOIL AND SUB-SOIL CONDITIONS THAT MAY AFFECT HIS WORK; AND INCLUDE IN HIS CONTRACT PRICE CONSIDERATIONS FOR ALL WORK NECESSARY TO ASSURE THAT THE SOIL AND SUB-SOIL CONDITIONS WILL MEET THE REQUIREMENTS OF THE SPECIFICATIONS AND THE APPLICABLE REGULATIONS OF ST. LUCIE COUNTY.

AS-BUILTS: COMPLETE "AS-BUILTS" INFORMATION SHALL BE ACCURATELY RECORDED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE WORK. ALL LOCATIONS AND ELEVATIONS SHALL BE TAKEN BY AN INDEPENDENT FLORIDA REGISTERED LAND SURVEYOR AND INCLUDED IN THE "AS-BUILTS" INFORMATION FURNISHED BY THE CONTRACTOR AT HIS EXPENSE. THE SURVEYOR MUST CERTIFY THE "AS-BUILTS" INFORMATION HE HAS FURNISHED.

12. WORK:
HORIZONTAL AND VERTICAL CONTROL: THE CONTRACTOR SHALL CONSTRUCT THE REQUIRED IMPROVEMENTS IN THE LOCATION SHOWN ON THE DRAWINGS AND FIELD VERIFIED BY THE OWNERS REPRESENTATIVE. BENCHMARKS AS SHOWN ON THE CONSTRUCTION PLANS ARE PROVIDED FOR THE CONTRACTOR TO USE IN ESTABLISHING THE NECESSARY ELEVATIONS AND GRADES. THE TOPOGRAPHIC SURVEY AND CONTROL POINTS FOR THIS PROJECT WERE PROVIDED BY NORTHSTAR GEOMATICS, INC.

COORDINATION OF WORK WITH OTHERS: THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OR IMPROVEMENTS OF OTHERS WITH REGARD TO NEW CONSTRUCTION, OR FOR THE NEED OF REMOVAL, RELOCATION OR ALTERATION OF EXISTING FACILITIES.

STANDARDS FOR QUALITY AND WORKMANSHIP: ALL MATERIALS, EQUIPMENT AND SUPPLIES FURNISHED BY THE CONTRACTOR FOR PERMANENT INCORPORATION IN THE WORK SHALL BE NEW AND OF QUALITY STANDARDS SPECIFIED. WORKMANSHIP SHALL BE FIRST-CLASS AND THE FINISHED PRODUCT EQUAL TO THE BEST ACCEPTED STANDARDS OF THE TRADE FOR THE CATEGORY OF WORK PERFORMED.

POWER AND WATER: ALL ARRANGEMENTS AND COSTS FOR TEMPORARY POWER AND WATER DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

EXISTING UTILITIES AND STRUCTURES: ALL KNOWN UTILITIES HAVE BEEN SHOWN ON THE DRAWINGS ACCORDING TO THE BEST INFORMATION AVAILABLE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL OWNERS OF STRUCTURES OR UTILITIES ABOVE GROUND, ON THE SURFACE, OR BELOW THE GROUND, WITHIN THE PROJECT AREA SO THAT SAID OWNERS MAY STAKE OR OTHERWISE MARK OR PROTECT THEIR FACILITIES. THE CONTRACTOR MUST PROVIDE FACILITIES AND BE RESPONSIBLE FOR THE PROTECTION OF ALL STRUCTURES AND UTILITIES, UNDERGROUND, ON THE SURFACE, OR ABOVE GROUND AGAINST TRENCHING, DEWATERING, OR ANY OTHER ACTIVITY CONNECTED WITH THE WORK THROUGHOUT THE ENTIRE CONTRACT TIME.

WHEN STRUCTURES AND UTILITIES ARE DISTURBED OR DAMAGED IN THE EXECUTION OF THE WORK, THEY MUST BE REPAIRED IMMEDIATELY IN CONFORMANCE WITH BEST STANDARD PRACTICE AND THE APPROVAL OF THE OWNER OF THE DAMAGED UTILITY OR STRUCTURE. THE OWNER AND ENGINEER WILL ASSUME NO LIABILITY FOR DAMAGES SUSTAINED OR COSTS INCURRED BECAUSE OF THE CONTRACTOR'S OPERATION IN THE VICINITY OF EXISTING UTILITIES OR STRUCTURES, OR TO THE TEMPORARY BRACING AND SHORING OF SAME.

OBSERVING THE WORK: AT THE ELECTION OF THE OWNER, THE PROGRESS AND QUALITY OF THE WORK MAY BE OBSERVED BY THE OWNER'S ENGINEER OR ENGINEER'S APPOINTED EMPLOYEE. NO OBSERVER IS AUTHORIZED TO CHANGE ANY PROVISIONS OF THE SPECIFICATIONS WITHOUT WRITTEN AUTHORIZATION OF THE OWNER'S ENGINEER, NOR SHALL THE PRESENCE OR THE ABSENCE OF AN OBSERVER RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS.

THE CONTRACTOR SHALL GIVE THE ENGINEER A MINIMUM OF 48 HOURS NOTICE PRIOR TO REQUIRED INSPECTIONS, AND SHALL SUPPLY ALL EQUIPMENT NECESSARY TO PROPERLY TEST AND INSPECT THE COMPLETED WORK.

13. GUARANTEE:
ALL MATERIALS AND THE INSTALLATION THEREOF WHICH ARE FURNISHED AND INSTALLED BY THE CONTRACTOR, UNDER THE TERMS OF THE AGREEMENT, SHALL BE GUARANTEED BY THE CONTRACTOR AGAINST DEFECTIVE WORKMANSHIP, MECHANICAL AND PHYSICAL DEFECTS, LEAKAGE, BREAKAGE, AND OF THE DAMAGES AND FAILURE UNDER NORMAL OPERATION FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL PAYMENT, SAID DATE TO CONSTITUTE THE COMMENCEMENT OF THE ONE (1) YEAR WARRANTY PERIOD. ALL MATERIALS AND INSTALLATIONS PROVING TO BE DEFECTIVE WITHIN THE SPECIFIED PERIOD OF THE GUARANTEE SHALL BE REPLACED, WITHOUT COST TO THE OWNER, BY THE MANUFACTURER OR THE CONTRACTOR. THE PERIOD OF GUARANTEE OF EACH SUCH REPLACEMENT SHALL BE FROM AND AFTER THE DATE OF INSTALLATION THEREOF.

SURVEY NOTES:

1. FIELD SURVEY LAST CONDUCTED ON JULY 21, 2014.
2. SYMBOLS SHOWN ARE NOT TO SCALE.
3. THIS SURVEY IS BASED ON THE FLORIDA STATE PLANE COORDINATE SYSTEM, TRANSVERSE MERCATOR PROJECTION, EAST ZONE, NORTH AMERICAN DATUM OF 1983/2007 ADJUSTMENT AND WAS BASED ON NATIONAL GEODETIC SURVEY STATION "BUSH".
4. ELEVATIONS SHOWN HEREON ARE RELATIVE TO THE NORTH GEODETIC VERTICAL DATUM OF 1929 (NGVD 29).

DEWATERING
CONSTRUCTION DEWATERING MAY REQUIRE A SHORT OR LONG - TERM DEWATERING PERMIT FROM THE SFWMD. IF DEWATERING IS TO TAKE PLACE THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A DEWATERING PERMIT FOR HIS WORK.

REV	DATE	DESCRIPTION	APPR

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DESIGNED BY: JLS
DRAWN BY: JS/RR
CHECKED BY: TFM
DATE: 6/4/2014

PROJECT ENGINEER: THOMAS F. MCGOWAN III, PE
REG. NUMBER: 44742
EXP. DATE: 2/28/2015
PROJECT NUMBER: 60321707
CADD STANDARD: AECOM

AECOM
AECOM Technical Services, Inc.
850 NW Federal Highway, Suite 206
Stuart, FL 34994
T 772.286.3883 F 772.286.3925
Certificate Of Authorization 8115
www.aecom.com

Thomas F. McGowan
9/3/2014

WATER FARMING PILOT PROJECT
EVANS PROPERTIES - IDEAL 1000 GROVE

SPECIFICATIONS

DRAWING: EVANS SPECS
SHEET 19 OF 19 SHEETS

Project Operations and Maintenance Plan

Operations & Maintenance Plan
Water Farming Pilot Project
Evans Properties – Ideal 1000 Grove
August 2014

The design of the Water Farming Pilot Project for Evans Properties Ideal 1000 Grove envisions operating the sites largely as permitted except that they will be utilized to farm water instead of a crop. Any surface water discharge from the sites will continue to be conveyed to existing water management facilities allowing for stormwater attenuation and water quality treatment.

Operations

Operation includes running a temporary inflow pump during the initial months of the pilot project that can fill up the southeast and southwest sections of the project site with excess surface water from the St. Lucie County Ditch watershed. The temporary inflow pump will be used to bring the site to the proposed capacity at the top of the existing grove beds. The temporary inflow pump will be located at the northwest corner of the Southeast Section of the WFPP Site Area, more specifically just east of the equipment storage area.

It is anticipated that the northeast section of the project site will be filled via rainfall onto the site to reach the desired equilibrium elevation.

Any water in excess of the proposed control elevation of the site (24.50 FT-NGVD) will be conveyed through the existing modified and proposed water control structures to the existing backbone water management system and pumped to the existing onsite aboveground impoundment via the existing 30,000 gpm pump. It is anticipated that the existing 30,000 gpm pump will operate as permitted. The existing discharge structure to the C-24 and two (2) emergency overflow structures back to the grove within the reservoir will remain as is and under existing, permitted operating conditions.

Maintenance

Maintenance consists of weekly inspections to ensure that all features of the WFPP including monitoring equipment are in place and operating correctly as designed, as well as the control of vegetation within the project site including aquatic and upland vegetation. Vegetation control includes mowing and the removal of heavy vegetation from all upland areas, and is estimated to occur twice per year. Particular focus will be made on maintaining a relatively clean canal conveying the inflow pump discharge.

Further, the Monitoring Plan includes monthly data gathering from the SFWMD provided and installed surface water and rainfall monitoring equipment. It is anticipated that inspection of the improvements and any minor maintenance such as removing debris or animal droppings will be accomplished during the monthly data gathering visits.

Project Construction Certification

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

April 27, 2015

Mr. Ronald Edwards
Evans Properties, Inc.
660 Beachland Blvd, Suite 301
Vero Beach, FL 32963

Subject: **Construction Completion Certification Acceptance**
Water Farming Pilot Project - Evans Ideal 1000 Grove
Permit No. 56-00025-S, Application No. 140626-16
St Lucie County, S22,27/T36S/R38E

Dear Mr. Edwards:

This letter is to acknowledge receipt of your Florida registered professional's construction completion certification (CCC) pertaining to the stormwater management system referenced above. The submitted information has been accepted and incorporated into the permit file.

This acceptance is based on the South Florida Water Management District's (District) review of the "As-built Certification and Request for Conversion to Operation Phase", Form 62-330.310(1), and a determination that construction is in substantial conformance with the plans and specifications approved by the District, in accordance with Section 62-330.310, Florida Administrative Code (FAC). The permit file has been updated to reflect this determination.

By accepting the Florida registered professional's certification, District staff considers the stormwater management system permitted under the above-referenced application number(s) to be in compliance with permit conditions pertaining to the CCC and the above-referenced permit is hereby converted from the construction phase to the operation and maintenance phase.

Please be aware that all perpetual operation and maintenance requirements of this permit are the responsibility of the permittee and that the District reserves the right to inspect the project in the future to ensure continued compliance with the permit. If at any time it is determined that the constructed system is not operating as intended, you may be required to correct any construction deficiencies in the system necessary to meet District rule criteria.

The District now has the capability of receiving certifications, as-built plans and AGI inspection reports, conversion/transfer forms and other documents electronically via the District's ePermitting website at www.sfwmd.gov/ePermitting. For first-time users, an account will need to be created. Reports can be submitted through eCompliance/Environmental Resource.

Should you have any questions or require additional assistance, please contact me at (863) 462-5260 ext. 3613, or via e-mail at gboiscl@sfwmd.gov, in the Martin St. Lucie Regulatory Office.

Sincerely,

Guy Boisclair

Guy Boisclair, Regulatory Professional 4
Environmental Resource Compliance Bureau
Martin St. Lucie Regulatory Office
South Florida Water Management District

Enclosure(s): Location Map
Notice of Rights

c: Tom McGowan, P.E., AECOM Technical Services, Inc. (via Email)
Boyd Gunsalus, SFWMD (via Email)

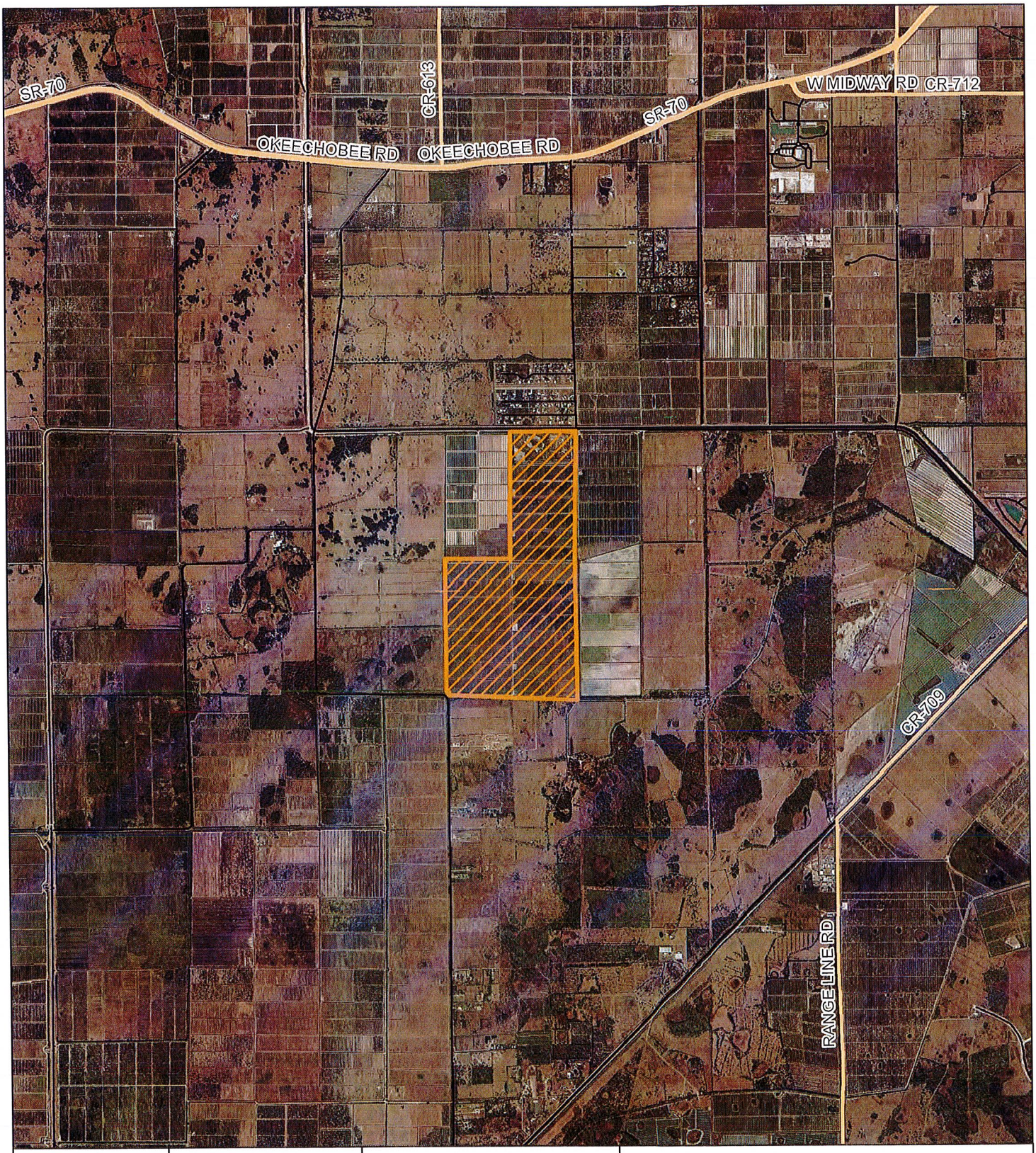

Exhibit No: 1	Exhibit Created On: 2015-04-27	COUNTY, FL

REGULATION DIVISION

Project Name: WATER FARMING PILOT PROJECT - EVANS IDEAL 1000 GROVE

0 0.75 1.5 Miles

N

Application

Permit No: 56-00025-S

Application Number: 140626-16

sfwmd.gov

South Florida Water Management District

NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., the following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a SFWMD decision which does or may affect their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, electronic mail, or posting that the SFWMD has or intends to take final agency action, or publication of notice that the SFWMD has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

FILING INSTRUCTIONS

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery, or e-mail. **Filings by facsimile will not be accepted after October 1, 2014.** A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the District Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the District Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office.** An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by e-mail must be transmitted to the District Clerk's Office at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the District Clerk receives the complete document. A party who files a document by e-mail shall (1) represent that the original physically signed document will be retained by that party for the duration of the proceeding and of any subsequent appeal or subsequent proceeding in that cause and that the party shall produce it upon the request of other parties; and (2) be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed.

INITIATION OF AN ADMINISTRATIVE HEARING

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, SFWMD file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency decision.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the SFWMD takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the District Clerk within 30 days of rendering of the final SFWMD action.

AS-BUILT CERTIFICATION AND REQUEST FOR CONVERSION TO OPERATION PHASE

Instructions: Complete and submit this page within 30 days of completion of the permitted activities, as required by the permit conditions. **Any components of the permitted activities that are not in substantial conformance with the permit must be corrected or a modification of the permit will be required in accordance with Rule 62-330.315, Florida Administrative Code (F.A.C.).** The operation phase of the permit is effective when the construction certification for the entire permit/application is approved by the Agency. If the final operation and maintenance entity is not the permittee, the permittee shall operate the system, works or other activities temporarily until such time as the transfer to the operation entity is finalized (use Form 62-330.310(2)).

Permit No.: 56-00025[illegible]	Application No(s). 140626-16	Permittee: Evans Properties Inc.
Project Name: Water Farming Pilot Project - Evans Ideal 1000 Grove		Phase (if applicable):

I HEREBY CERTIFY THAT (please choose accurately and check only one box):

☑ I hereby notify the Agency of the completion of construction of all the components of the system, works or other activities for the above referenced project and certify that it has been constructed in substantial conformance with the plans specifications and conditions permitted by the Agency. Any minor deviations will not prevent the system from functioning in compliance with the requirements of Chapter 62-330, F.A.C. Attached is documentary evidence of satisfaction of any outstanding permit conditions, other than long term monitoring and inspection requirements.

☐ At the time of final inspection, the works or activities were NOT completed in substantial conformance with the plans and specifications permitted by the Agency. (The registered professional shall describe the substantial deviation(s) in writing, and provide confirming depiction on the as-built drawings and information.)

If there were substantial deviations, plans must be submitted clearly labeled as "as-built" or "record" drawings reflecting the substantial deviations. If there are no substantial deviations, do not submit "as built" drawings.

For activities that require certification by a registered professional:

By: [signature] (Signature)

THOMAS F. McGOWAN (Print Name) — 44742 (Fla. Lic. or Reg. No)

AFFIX SEAL!

AECOM # 8115 (Company Name)

8500 NW FEDERAL HWY STE 201 STUART, FL 34994 (Company Address)

3/30/2015 (Date)

For activities that do not require certification by a registered professional:

By: _____ (Signature)

_____ (Print Name)

_____ (Company Name)

_____ (Company Address)

_____ (Date)

DRAWINGS AND INFORMATION CHECKLIST

Following is a list of information that is to be verified and/or submitted by the Registered Professional or Permittee:

1. All surveyed dimensions and elevations shall be certified by a registered Surveyor or Mapper under Chapter 472, F.S.

2. The registered professional's certification shall be based upon on-site observation of construction (scheduled and conducted by the registered professional of record or by a project representative under direct supervision) and review of as-built drawings, with field measurements and verification as needed, for the purpose of determining if the work was completed in accordance with original permitted construction plans, specifications and conditions.

3. If submitted, the as-built drawings are to be based on the permitted construction drawings revised to reflect any substantial deviations made during construction. Both the original design and constructed condition must be clearly shown. The plans need to be clearly labeled as "as-built" or "record" drawings that clearly highlight (such as through "red lines" or "clouds") any substantial deviations made during construction. As required by law, all surveyed dimensions and elevations required shall be verified and signed, dated and sealed by an appropriate registered professional. The following information, at a minimum, shall be verified on the as-built drawings, and supplemental documents if needed:

    a. Discharge structures - Locations, dimensions and elevations of all, including weirs, orifices, gates, pumps, pipes, and oil and grease skimmers;
    b. Detention/Retention Area(s) – Identification number, size in acres, side slopes (h:v), dimensions, elevations, contours or cross-sections of all, sufficient to determine stage-storage relationships of the storage area and the permanent pool depth and volume below the control elevation for normally wet systems,
    c. Side bank and underdrain filters, or exfiltration trenches - locations, dimensions and elevations of all, including clean-outs, pipes, connections to control structures and points of discharge to receiving waters;
    d. System grading - dimensions, elevations, contours, final grades or cross-sections to determine contributing drainage areas, flow directions and conveyance of runoff to the system discharge point(s);
    e. Conveyance - dimensions, elevations, contours, final grades or cross-sections of systems utilized to divert off-site runoff around or through the new system;
    f. Benchmark(s) - location and description (minimum of one per major water control structure);
    g. Datum- All elevations should be referenced to a vertical datum clearly identified on the plans, preferably the same datum used in the permit plans.

4. Wetland mitigation or restoration areas - Show the plan view of all areas, depicting a spatial distribution of plantings conducted by zone (if plantings are required by permit), with a list showing all species planted in each zone, numbers of each species, sizes, date(s) planted and identification of source of material; also provide the dimensions, elevations, contours and representative cross-sections depicting the construction.

5. Any additional information or outstanding submittals required by permit conditions or to document permit compliance, other than long-term monitoring or inspection requirements.

Project Operations

Evans Ideal 1000 Water Farm

ID	Structure	SampleDate	South Cell 1 (Control 24.5' NAVD) StageFt_NAVD	StageFt_NGVD	North Cell 2 (Control 25.2' NAVD) StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
		5/7/2015	21.89	23.32			0.00	No						0.00	0.00	0.000	0.000
		5/8/2015	21.84	23.27			0.00	No						0.00	0.00	0.000	0.000
		5/9/2015	21.79	23.22			0.00	No						0.00	0.00	0.000	0.000
		5/10/2015	21.74	23.17			0.16	No						0.00	0.00	0.000	0.000
		5/11/2015	21.72	23.15			0.00	No						0.00	0.00	0.000	0.000
		5/12/2015	21.67	23.10			0.00	No						0.00	0.00	0.000	0.000
		5/13/2015	21.62	23.05			0.00	No						0.00	0.00	0.000	0.000
		5/14/2015	21.57	23.00			0.00	No						0.00	0.00	0.000	0.000
		5/15/2015	21.52	22.95			0.00	No						0.00	0.00	0.000	0.000
		5/16/2015	21.47	22.90			0.00	No						0.00	0.00	0.000	0.000
		5/17/2015	21.43	22.86			0.00	No						0.00	0.00	0.000	0.000
		5/18/2015	21.38	22.81			0.00	No						0.00	0.00	0.000	0.000
		5/19/2015	21.34	22.77			0.00	No						0.00	0.00	0.000	0.000
		5/20/2015	21.28	22.71			0.00	No						0.00	0.00	0.000	0.000
		5/21/2015	21.24	22.67			0.00	No						0.00	0.00	0.000	0.000
		5/22/2015	21.19	22.62			0.00	No						0.00	0.00	0.000	0.000
		5/23/2015	21.14	22.57			0.14	No						0.00	0.00	0.000	0.000
		5/24/2015	21.11	22.54			0.06	No						0.00	0.00	0.000	0.000
		5/25/2015	21.07	22.50			0.17	No						0.00	0.00	0.000	0.000
		5/26/2015	21.03	22.46			0.00	No						0.00	0.00	0.000	0.000
		5/27/2015	20.99	22.42	20.74	22.17	0.00	No						0.00	0.00	0.000	0.000
		5/28/2015	20.94	22.37	20.71	22.14	0.00	No						0.00	0.00	0.000	0.000
		5/29/2015	20.89	22.32	20.66	22.09	0.00	No						0.00	0.00	0.000	0.000
		5/30/2015	20.85	22.28	20.62	22.05	0.00	No						0.00	0.00	0.000	0.000
		5/31/2015	20.80	22.23	20.59	22.02	0.00	No						0.00	0.00	0.000	0.000
		6/1/2015	20.76	22.19	20.54	21.97	0.00	No						0.00	0.00	0.000	0.000
		6/2/2015	20.72	22.15	20.49	21.92	0.08	No						0.00	0.00	0.000	0.000
		6/3/2015	20.70	22.13	20.48	21.91	0.06	No						0.00	0.00	0.000	0.000
		6/4/2015	20.68	22.11	20.44	21.87	0.00	No						0.00	0.00	0.000	0.000
		6/5/2015	20.63	22.06	20.39	21.82	0.00	No						0.00	0.00	0.000	0.000
		6/6/2015	20.58	22.01	20.35	21.78	0.00	No						0.00	0.00	0.000	0.000
		6/7/2015	20.54	21.97	20.30	21.73	0.13	No						0.00	0.00	0.000	0.000
		6/8/2015	20.51	21.94	20.25	21.68	0.01	No						0.00	0.00	0.000	0.000
		6/9/2015	20.47	21.90	20.19	21.62	0.10	No						0.00	0.00	0.000	0.000
		6/10/2015	20.44	21.87	20.16	21.59	2.01	No						0.00	0.00	0.000	0.000
		6/11/2015	20.85	22.28	20.37	21.80	0.00	No						0.00	0.00	0.000	0.000
		6/12/2015	20.87	22.30	20.37	21.80	0.00	No						0.00	0.00	0.000	0.000
		6/13/2015	20.84	22.27	20.34	21.77	0.00	No						0.00	0.00	0.000	0.000
		6/14/2015	20.81	22.24	20.30	21.73	0.00	No						0.00	0.00	0.000	0.000
		6/15/2015	20.77	22.20	20.28	21.71	0.00	No						0.00	0.00	0.000	0.000
		6/16/2015	20.73	22.16	20.26	21.69	0.00	No						0.00	0.00	0.000	0.000
		6/17/2015	20.70	22.13	20.25	21.68	0.00	No						0.00	0.00	0.000	0.000
		6/18/2015	20.66	22.09	20.20	21.63	0.00	No						0.00	0.00	0.000	0.000
		6/19/2015	20.63	22.06	20.17	21.60	0.03	No						0.00	0.00	0.000	0.000
		6/20/2015	20.60	22.03	20.16	21.59	0.07	No						0.00	0.00	0.000	0.000
		6/21/2015	20.58	22.01	20.12	21.55	0.00	No						0.00	0.00	0.000	0.000
		6/22/2015	20.55	21.98	20.09	21.52	0.00	No						0.00	0.00	0.000	0.000
		6/23/2015	20.51	21.94	20.05	21.48	0.00	No						0.00	0.00	0.000	0.000
		6/24/2015	20.48	21.91	20.03	21.46	0.00	No						0.00	0.00	0.000	0.000
		6/25/2015	20.45	21.88	19.99	21.42	0.00	No						0.00	0.00	0.000	0.000
		6/26/2015	20.42	21.85	20.02	21.45	0.04	No						0.00	0.00	0.000	0.000
		6/27/2015	20.38	21.81	19.96	21.39	0.00	No						0.00	0.00	0.000	0.000
		6/28/2015	20.34	21.77	19.94	21.37	0.00	No						0.00	0.00	0.000	0.000
		6/29/2015	20.31	21.74	19.91	21.34	0.39	No						0.00	0.00	0.000	0.000
		6/30/2015	20.30	21.73	19.94	21.37	0.34	No						0.00	0.00	0.000	0.000
		7/1/2015	20.31	21.74	19.95	21.38	0.02	No						0.00	0.00	0.000	0.000
		7/2/2015	20.29	21.72	19.93	21.36	0.00	No						0.00	0.00	0.000	0.000
		7/3/2015	20.26	21.69	19.92	21.35	0.00	No						0.00	0.00	0.000	0.000
		7/4/2015	20.24	21.67	19.90	21.33	0.00	No						0.00	0.00	0.000	0.000
		7/5/2015	20.21	21.64	19.89	21.32	0.90	No						0.00	0.00	0.000	0.000
		7/6/2015	20.28	21.71	20.01	21.47	0.00	No						0.00	0.00	0.000	0.000
		7/7/2015	20.40	21.83	20.23	21.66	1.40	No						0.00	0.00	0.000	0.000
		7/8/2015	20.41	21.84	20.27	21.70	0.00	No						0.00	0.00	0.000	0.000
		7/9/2015	20.38	21.81	20.30	21.73	0.00	No						0.00	0.00	0.000	0.000
		7/10/2015	20.36	21.79	20.31	21.74	0.00	No						0.00	0.00	0.000	0.000
		7/11/2015	20.34	21.77	20.31	21.74	0.00	No						0.00	0.00	0.000	0.000
		7/12/2015	20.31	21.74	20.32	21.75	0.00	No						0.00	0.00	0.000	0.000
		7/13/2015	20.29	21.72	20.31	21.74	0.00	No						0.00	0.00	0.000	0.000
		7/14/2015	20.26	21.69	20.30	21.73	0.09	No						0.00	0.00	0.000	0.000
		7/15/2015	20.25	21.68	20.30	21.73	0.11	No						0.00	0.00	0.000	0.000
		7/16/2015	20.23	21.66	20.32	21.75	0.20	No						0.00	0.00	0.000	0.000
		7/17/2015	20.22	21.65	20.32	21.75	0.00	No						0.00	0.00	0.000	0.000
		7/18/2015	20.19	21.62	20.32	21.75	0.00	No						0.00	0.00	0.000	0.000
		7/19/2015	20.16	21.59	20.30	21.73	0.00	No						0.00	0.00	0.000	0.000
		7/20/2015	20.13	21.56	20.28	21.71	0.00	No						0.00	0.00	0.000	0.000
		7/21/2015	20.09	21.52	20.25	21.68	0.00	No						0.00	0.00	0.000	0.000
		7/22/2015	20.05	21.48	20.23	21.66	0.78	No						0.00	0.00	0.000	0.000
		7/23/2015	20.09	21.52	20.28	21.71	0.72	No						0.00	0.00	0.000	0.000
		7/24/2015	20.29	21.72	20.45	21.88	1.58	No						0.00	0.00	0.000	0.000
		7/25/2015	20.79	22.22	20.57	22.00	1.05	No						0.00	0.00	0.000	0.000
		7/26/2015	21.37	22.8	20.79	22.22	0.04	No						0.00	0.00	0.000	0.000

ID	Structure	SampleDate	South Cell 1 (Control 24.5' NAVD) StageFt_NAVD	StageFt_NGVD	North Cell 1 (Control 23.5' NAVD) Stage_ft_NAVD	Stage_ft_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
		7/27/2015	21.35	22.78	20.85	22.28	0.20	No						0.00	0.00	0.000	0.000
		7/28/2015	21.43	22.86	20.91	22.34	0.00	No						0.00	0.00	0.000	0.000
		7/29/2015	21.42	22.85	20.91	22.37	0.68	No						0.00	0.00	0.000	0.000
		7/30/2015	21.51	22.94	20.97	22.40	0.48	No						0.00	0.00	0.000	0.000
		7/31/2015	21.64	23.07	21.03	22.46	0.00	No						0.00	0.00	0.000	0.000
		8/1/2015	21.84	23.27	21.10	22.53	0.67	No						0.00	0.00	0.000	0.000
		8/2/2015	21.86	23.29	21.14	22.57	0.23	No						0.00	0.00	0.000	0.000
		8/3/2015	21.89	23.32	21.21	22.64	0.00	No						0.00	0.00	0.000	0.000
		8/4/2015	21.85	23.28	21.23	22.66	0.00	No						0.00	0.00	0.000	0.000
		8/5/2015	21.79	23.22	21.24	22.67	0.63	No						0.00	0.00	0.000	0.000
		8/6/2015	21.86	23.29	21.29	22.72	0.01	No						0.00	0.00	0.000	0.000
		8/7/2015	21.81	23.24	21.29	22.72	0.00	No						0.00	0.00	0.000	0.000
		8/8/2015	21.75	23.18	21.28	22.71	0.13	No						0.00	0.00	0.000	0.000
		8/9/2015	21.73	23.16	21.29	22.72	0.00	No						0.00	0.00	0.000	0.000
		8/10/2015	21.68	23.11	21.27	22.70	0.00	No						0.00	0.00	0.000	0.000
		8/11/2015	21.62	23.05	21.25	22.68	0.00	No						0.00	0.00	0.000	0.000
		8/12/2015	21.56	22.99	21.22	22.65	0.00	No						0.00	0.00	0.000	0.000
		8/13/2015	21.52	22.95	21.20	22.63	0.41	No						0.00	0.00	0.000	0.000
		8/14/2015	21.51	22.94	21.24	22.67	0.01	No						0.00	0.00	0.000	0.000
		8/15/2015	21.48	22.91	21.22	22.65	0.60	No						0.00	0.00	0.000	0.000
		8/16/2015	21.55	22.98	21.28	22.71	0.00	No						0.00	0.00	0.000	0.000
		8/17/2015	21.56	22.99	21.28	22.71	0.00	No						0.00	0.00	0.000	0.000
		8/18/2015	21.50	22.93	21.26	22.69	2.25	No						0.00	0.00	0.000	0.000
		8/19/2015	22.34	23.77	21.11	22.54	0.34	No						0.00	0.00	0.000	0.000
		8/20/2015	22.46	23.89	21.84	23.27	0.03	No						5.50	2.78	0.000	0.000
		8/21/2015	22.45	23.88	21.87	23.30	0.00	No						5.30	2.68	0.000	0.000
		8/22/2015	22.40	23.83	21.88	23.31	0.01	No						0.00	0.00	0.000	0.000
		8/23/2015	22.34	23.77	21.87	23.30	0.00	No						0.00	0.00	0.000	0.000
		8/24/2015	22.31	23.74	21.86	23.29	0.00	No	0.452			2.32	20	5.90	2.98	0.003	0.017
		8/25/2015	22.22	23.67	21.84	23.27	0.00	No	0.452			2.32	20	0.00	0.00	0.000	0.000
		8/26/2015	22.20	23.63	21.81	23.24	0.01	No	0.452			2.32	20	0.00	0.00	0.000	0.000
		8/27/2015	22.41	23.84	21.84	23.27	0.01	No	0.452			2.32	20	0.00	0.00	0.000	0.000
		8/28/2015	22.34	23.77	21.81	23.24	0.14	No	0.452			2.32	20	0.00	0.00	0.000	0.000
		8/29/2015	22.44	23.87	21.83	23.26	0.21	No	0.452			2.32	20	20.30	10.25	0.011	0.058
		8/30/2015	22.50	23.93	21.86	23.29	0.21	No	0.452			2.32	20	11.60	5.86	0.006	0.033
		8/31/2015	22.96	24.39	22.13	23.56	0.18	No	0.546			2.2	115	19.50	9.85	0.013	0.053
		9/1/2015	23.10	24.53	22.34	23.77	0.01	No	0.546			2.2	115	23.90	12.07	0.016	0.065
		9/2/2015	23.09	24.52	22.36	23.79	0.01	No	0.546			2.2	115	10.10	5.10	0.007	0.027
		9/3/2015	23.07	24.5	22.35	23.78	0.65	No	0.546			2.2	115	13.10	6.62	0.009	0.036
		9/4/2015	23.04	24.47	22.32	23.75	0.00	No	0.546			2.2	115	0.00	0.00	0.000	0.000
		9/5/2015	22.99	24.42	22.29	23.72	0.01	No	0.546			2.2	115	0.00	0.00	0.000	0.000
		9/6/2015	22.96	24.39	22.28	23.71	0.07	No	0.546			2.2	115	0.00	0.00	0.000	0.000
		9/7/2015	22.92	24.35	22.26	23.69	0.64	No	0.546			2.2	115	0.00	0.00	0.000	0.000
		9/8/2015	23.03	24.46	22.32	23.75	0.01	No	0.374			2.03	101	13.10	6.62	0.006	0.033
		9/9/2015	23.04	24.47	22.3	23.73	0.00	No	0.374			2.03	101	14.50	7.32	0.007	0.036
		9/10/2015	23.04	24.47	22.27	23.7	0.08	No	0.374			2.03	101	19.70	9.95	0.009	0.049
		9/11/2015	23.03	24.46	22.24	23.67	0.04	No	0.374			2.03	101	12.90	6.52	0.006	0.032
		9/12/2015	23.03	24.43	22.21	23.64	0.01	No	0.374			2.03	101	0.00	0.00	0.000	0.000
		9/13/2015	22.95	24.38	22.17	23.6	0.17	No	0.374			2.03	101	0.00	0.00	0.000	0.000
		9/14/2015	22.94	24.37	22.14	23.57	0.00	No	0.517			2.29	74	28.90	14.60	0.018	0.082
		9/15/2015	22.99	24.42	22.11	23.54	0.20	No	0.517			2.29	74	31.30	15.81	0.020	0.089
		9/16/2015	23.08	24.51	22.13	23.56	0.63	No	0.517			2.29	74	31.30	15.81	0.020	0.089
		9/17/2015	23.26	24.69	22.25	23.68	3.82	No	0.517			2.29	74	21.20	10.71	0.014	0.060
		9/18/2015	23.74	25.17	23	24.43	0.00	No	0.517			2.29	74	43.30	21.87	0.028	0.123
		9/19/2015	23.74	25.17	23.03	24.46	0.00	No	0.517			2.29	74	35.00	17.68	0.022	0.099
		9/20/2015	23.71	25.14	23.02	24.45	0.00	No	0.677			2.34	26	0.00	0.00	0.000	0.000
		9/21/2015	23.68	25.11	22.99	24.42	0.01	No	0.677			2.34	26	27.60	13.94	0.023	0.080
		9/22/2015	23.68	25.11	22.96	24.39	0.00	No	0.677			2.34	26	44.20	22.32	0.037	0.128
		9/23/2015	23.68	25.11	22.92	24.35	0.00	No	0.677			2.34	26	44.20	22.32	0.037	0.128
		9/24/2015	23.76	25.19	22.91	24.34	0.01	No	0.677			2.34	26	20.30	10.25	0.017	0.059
		9/25/2015	23.73	25.16	22.89	24.32	0.16	No	0.677			2.34	26	27.60	13.94	0.023	0.080
		9/26/2015	23.72	25.15	22.88	24.31	0.32	No	0.677			2.34	26	0.00	22.32	0.037	0.128
		9/27/2015	23.72	25.15	22.9	24.33	0.08	No	0.454			2.16	11	0.00	0.00	0.000	0.000
		9/28/2015	23.73	25.16	22.9	24.33	0.01	No	0.454			2.16	11	0.00	0.00	0.000	0.000
		9/29/2015	23.71	25.14	22.88	24.31	0.11	No	0.454			2.16	11	44.20	22.32	0.025	0.118
		9/30/2015	23.74	25.17	22.86	24.29	0.00	No	0.454			2.16	11	44.20	22.32	0.025	0.118
		10/1/2015	23.76	25.19	22.84	24.27	0.00	No	0.454			2.16	11	44.20	22.32	0.025	0.118
		10/2/2015	23.78	25.21	23.16	24.59	0.00	No	0.454			2.16	11	44.20	22.32	0.025	0.118
		10/3/2015	23.78	25.21	23.42	24.85	0.00	No	0.454			2.16	11	44.20	22.32	0.025	0.118
		10/4/2015	23.77	25.2	23.43	24.86	0.45	No	0.454			2.16	11	44.20	22.32	0.025	0.118
		10/5/2015	23.85	25.28	23.44	24.87	0.00	No	0.454			2.16	11	20.30	10.25	0.011	0.054
		10/6/2015	23.84	25.27	23.71	25.14	0.00	No	1.000			3.90		14.20	7.42	0.018	0.071
		10/7/2015	23.83	25.26	23.92	25.35	0.00	No	1.000			3.90		42.40	21.41	0.052	0.204
		10/8/2015	23.83	25.26	23.99	25.42	0.01	No	1.000			3.90		42.40	21.41	0.052	0.204
		10/9/2015	23.84	25.27	23.89	25.32	0.36	No	1.000			3.90		42.40	21.41	0.052	0.204
		10/10/2015	23.90	25.33	23.79	25.22	0.19	No	1.000			3.90		42.40	21.41	0.052	0.204
		10/11/2015	23.92	25.35	23.72	25.17	0.01	No	1.000			3.90		42.40	21.41	0.052	0.204
		10/12/2015	23.91	25.34	23.64	25.07	0.00	No	0.393			2.14	14	42.40	21.41	0.021	0.112
		10/13/2015	23.90	25.33	23.56	24.99	0.00	No	0.393			2.14	14	42.40	21.41	0.021	0.112
		10/14/2015	23.91	25.34	23.81	25.24	0.00	No	0.393			2.14	14	42.40	21.41	0.021	0.112
		10/15/2015	23.91	25.34	23.74	25.17	0.00	No	0.393			2.14	14	42.40	21.41	0.021	0.112
		10/16/2015	23.92	25.35	23.81	25.24	0.00	No	0.393			2.14	14	42.40	21.41	0.021	0.112
		10/17/2015	23.94	25.37	23.72	25.15	0.00	No	0.393			2.14	14	42.40	21.41	0.021	0.112

ID	Structure	SampleDate	South Cell 1 (Control 24.5' NAVD) StageFt_NAVD	StageFt_NGVD	North Cell 2 (Control 25.2' NAVD) StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_load_TP_MT	Daily_Material_load_TN_MT
		10/18/2015	23.95	25.38	23.63	25.05	0.13	No	0.393			2.14	14	42.40	21.41	0.021	0.112
		10/19/2015	23.98	25.41	23.58	25.01	0.00	No	0.361			2.02	15	42.40	21.41	0.019	0.106
		10/20/2015	23.98	25.41	23.5	24.93	0.01	No	0.361			2.02	15	40.50	20.45	0.018	0.101
		10/21/2015	23.95	25.38	23.42	24.85	0.02	No	0.361			2.02	15	42.40	21.41	0.019	0.106
		10/22/2015	23.99	25.42	23.63	25.06	0.42	No	0.361			2.02	15	42.40	21.41	0.019	0.106
		10/23/2015	24.06	25.49	23.41	24.84	0.16	No	0.361			2.02	15	14.70	7.42	0.007	0.037
		10/24/2015	24.02	25.45	23.35	24.78	0.00	No	0.361			2.02	15	0.00	0.00	0.000	0.000
		10/25/2015	23.99	25.42	23.29	24.72	0.00	No	0.361			2.02	15	0.00	0.00	0.000	0.000
		10/26/2015	23.97	25.4	23.24	24.67	0.00	No	0.355			1.95	14	14.70	7.42	0.006	0.035
		10/27/2015	24.00	25.43	23.2	24.63	0.00	No	0.355			1.95	14	44.20	22.32	0.019	0.107
		10/28/2015	24.03	25.46	23.17	24.6	0.00	No	0.355			1.95	14	44.20	22.32	0.019	0.107
		10/29/2015	24.05	25.48	23.14	24.57	0.00	No	0.355			1.95	14	44.20	22.32	0.019	0.107
		10/30/2015	24.07	25.5	23.1	24.53	0.00	No	0.355			1.95	14	43.30	21.87	0.019	0.104
		10/31/2015	24.04	25.47	23.06	24.49	0.00	No	0.355			1.95	14	0.00	0.00	0.000	0.000
		11/1/2015	24.00	25.43	23.01	24.44	0.00	No	0.355			1.95	14	0.00	0.00	0.000	0.000
		11/2/2015	23.98	25.41	22.96	24.39	0.17	No	0.324			1.88	13	0.00	0.00	0.000	0.000
		11/3/2015	23.98	25.41	22.96	24.39	0.00	No	0.324			1.88	13	0.00	0.00	0.000	0.000
		11/4/2015	23.96	25.39	22.92	24.35	0.01	No	0.324			1.88	13	0.00	0.00	0.000	0.000
		11/5/2015	23.94	25.37	22.88	24.31	0.00	No	0.324			1.88	13	0.00	0.00	0.000	0.000
		11/6/2015	23.92	25.35	22.83	24.26	0.00	No	0.324			1.88	13	0.00	0.00	0.000	0.000
		11/7/2015	23.90	25.33	22.8	24.23	0.00	No	0.324			1.88	13	0.00	0.00	0.000	0.000
		11/8/2015	23.88	25.31	22.76	24.19	0.00	No	0.324			1.88	13	0.00	0.00	0.000	0.000
		11/9/2015	23.86	25.29	22.72	24.15	0.88	No						0.00	0.00	0.000	0.000
		11/10/2015	23.93	25.36	23.02	24.45	0.16	No						0.00	0.00	0.000	0.000
		11/11/2015	23.92	25.35	23.11	24.54	0.00	No						0.00	0.00	0.000	0.000
		11/12/2015	23.90	25.33	23.13	24.56	0.00	No						0.00	0.00	0.000	0.000
		11/13/2015	23.89	25.32	23.11	24.54	0.00	No						0.00	0.00	0.000	0.000
		11/14/2015	23.87	25.3	23.08	24.51	0.00	No						0.00	0.00	0.000	0.000
		11/15/2015	23.93	25.36	23.03	24.46	0.00	No						0.00	0.00	0.000	0.000
		11/16/2015	23.82	25.25	22.99	24.42	1.03	No						0.00	0.00	0.000	0.000
		11/17/2015	23.91	25.34	23.22	24.65	0.00	No						0.00	0.00	0.000	0.000
		11/18/2015	23.91	25.34	23.22	24.65	0.23	No						0.00	0.00	0.000	0.000
		11/19/2015	23.90	25.33	23.19	24.62	0.08	No						0.00	0.00	0.000	0.000
		11/20/2015	23.89	25.32	23.17	24.6	0.28	No						0.00	0.00	0.000	0.000
		11/21/2015	23.90	25.33	23.19	24.62	0.52	No						0.00	0.00	0.000	0.000
		11/22/2015	24.10	25.53	23.48	24.91	1.06	No						0.00	0.00	0.000	0.000
		11/23/2015	24.07	25.5	23.5	24.93	0.00	No						0.00	0.00	0.000	0.000
		11/24/2015	24.04	25.47	23.47	24.9	0.00	No						0.00	0.00	0.000	0.000
		11/25/2015	24.04	25.47	23.44	24.87	0.13	No						0.00	0.00	0.000	0.000
		11/26/2015	24.01	25.44	23.41	24.84	0.02	No						0.00	0.00	0.000	0.000
		11/27/2015	24.00	25.43	23.37	24.8	0.19	No						0.00	0.00	0.000	0.000
		11/28/2015	24.01	25.44	23.38	24.81	0.02	No						0.00	0.00	0.000	0.000
		11/29/2015	24.00	25.43	23.34	24.77	0.00	No						0.00	0.00	0.000	0.000
		11/30/2015	23.98	25.41	23.33	24.76	0.08	No						0.00	0.00	0.000	0.000
		12/1/2015	23.97	25.4	23.31	24.74	0.02	No						0.00	0.00	0.000	0.000
		12/2/2015	23.95	25.38	23.28	24.71	0.02	No						0.00	0.00	0.000	0.000
		12/3/2015	23.95	25.38	23.26	24.69	0.59	No						0.00	0.00	0.000	0.000
		12/4/2015	24.03	25.51	23.48	24.91	0.44	No						0.00	0.00	0.000	0.000
		12/5/2015	24.03	25.51	23.49	24.92	1.12	No						0.00	0.00	0.000	0.000
		12/6/2015	24.19	25.62	23.73	25.16	0.04	No						0.00	0.00	0.000	0.000
		12/7/2015	24.18	25.61	23.70	25.13	0.01	No						0.00	0.00	0.000	0.000
		12/8/2015	24.16	25.59	23.66	25.09	0.01	No						0.00	0.00	0.000	0.000
		12/9/2015	24.16	25.59	23.65	25.08	0.00	No						0.00	0.00	0.000	0.000
		12/10/2015	24.14	25.57	23.62	25.05	0.01	No						0.00	0.00	0.000	0.000
		12/11/2015	24.13	25.56	23.59	25.02	0.00	No						0.00	0.00	0.000	0.000
		12/12/2015	24.11	25.54	23.55	24.98	0.00	No						0.00	0.00	0.000	0.000
		12/13/2015	24.09	25.52	23.52	24.95	0.21	No						0.00	0.00	0.000	0.000
		12/14/2015	24.10	25.53	23.52	24.95	0.01	No						0.00	0.00	0.000	0.000
		12/15/2015	24.09	25.52	23.50	24.93	0.01	No						0.00	0.00	0.000	0.000
		12/16/2015	24.07	25.5	23.46	24.89	0.00	No	0.28			1.77	22	44.20	22.32	0.015	0.097
		12/17/2015	24.07	25.5	23.43	24.86	0.00	No	0.28			1.77	22	44.40	22.42	0.015	0.097
		12/18/2015	24.11	25.54	23.39	24.82	0.24	No	0.28			1.77	22	44.20	22.32	0.015	0.097
		12/19/2015	24.15	25.58	23.43	24.86	0.00	No	0.28			1.77	22	44.60	22.53	0.015	0.098
		12/20/2015	24.17	25.6	23.38	24.81	0.00	No	0.28			1.77	22	10.39	5.20	0.004	0.023
		12/21/2015	24.19	25.62	23.35	24.78	0.00	No	0.28			1.77	22	0.00	0.00	0.000	0.000
		12/22/2015	24.17	25.6	23.32	24.75	0.20	No	0.28			1.77	22	0.00	0.00	0.000	0.000
		12/23/2015	24.17	25.6	23.33	24.76	0.01	No	0.28			1.77	22	0.00	0.00	0.000	0.000
		12/24/2015	24.15	25.58	23.31	24.74	0.00	No	0.28			1.77	22	0.00	0.00	0.000	0.000
		12/25/2015	24.13	25.56	23.28	24.71	0.00	No	0.28			1.77	22	0.00	0.00	0.000	0.000
		12/26/2015	24.12	25.55	23.25	24.68	0.08	No	0.28			1.77	22	0.00	0.00	0.000	0.000
		12/27/2015	24.14	25.57	23.29	24.72	0.23	No	0.28			1.77	22	0.00	0.00	0.000	0.000
		12/28/2015	24.12	25.55	23.27	24.7	0.00	No						0.00	0.00	0.000	0.000
		12/29/2015	24.10	25.53	23.24	24.67	0.00	No						0.00	0.00	0.000	0.000
		12/30/2015	24.09	25.52	23.2	24.63	0.00	No						0.00	0.00	0.000	0.000
		12/31/2015	24.08	25.51	23.16	24.59	0.00	No						0.00	0.00	0.000	0.000
		1/1/2016	24.06	25.49	23.12	24.55	0.02	No						0.00	0.00	0.000	0.000
		1/2/2016	24.04	25.47	23.08	24.51	0.00	No						0.00	0.00	0.000	0.000
		1/3/2016	24.02	25.45	23.03	24.46	0.49	No						0.00	0.00	0.000	0.000
		1/4/2016	24.06	25.49	23.09	24.52	0.01	No						0.00	0.00	0.000	0.000
		1/5/2016	24.03	25.46	23.06	24.49	0.00	No						0.00	0.00	0.000	0.000
		1/6/2016	24.01	25.44	23.01	24.44	0.63	No						0.00	0.00	0.000	0.000
		1/7/2016	24.07	25.50	23.20	24.63	0.09	No						0.00	0.00	0.000	0.000
		1/8/2016	24.09	25.52	23.30	24.73	0.39	No						0.00	0.00	0.000	0.000

ID	Structure	SampleDate	South Cell 1 (Control 24.5' NAVD) StageFt_NAVD	StageFt_NGVD	North Cell 2 (Control 25.2' NAVD) StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
		1/9/2016	24.08	25.51	23.30	24.73	0.26	No						0.00	0.00	0.000	0.000
		1/10/2016	24.12	25.55	23.38	24.81	0.17	No						0.00	0.00	0.000	0.000
		1/11/2016	24.11	25.54	23.41	24.84	0.00	No						0.00	0.00	0.000	0.000
		1/12/2016	24.08	25.51	23.36	24.79	0.01	No						0.00	0.00	0.000	0.000
		1/13/2016	24.06	25.49	23.33	24.76	0.00	No						0.00	0.00	0.000	0.000
		1/14/2016	24.04	25.47	23.29	24.72	0.01	No						0.00	0.00	0.000	0.000
		1/15/2016	24.16	25.59	23.43	24.86	1.35	No						0.00	0.00	0.000	0.000
		1/16/2016	24.22	25.65	23.62	25.05	0.01	No						0.00	0.00	0.000	0.000
		1/17/2016	24.28	25.71	23.72	25.15	0.51	No						0.00	0.00	0.000	0.000
		1/18/2016	24.26	25.69	23.69	25.12	0.01	No						0.00	0.00	0.000	0.000
		1/19/2016	24.23	25.66	23.63	25.06	0.00	No						0.00	0.00	0.000	0.000
		1/20/2016	24.21	25.64	23.60	25.03	0.00	No						0.00	0.00	0.000	0.000
		1/21/2016	24.20	25.63	23.57	25.00	0.00	No						0.00	0.00	0.000	0.000
		1/22/2016	24.26	25.69	23.60	25.03	0.58	No						0.00	0.00	0.000	0.000
		1/23/2016	24.26	25.69	23.65	25.08	0.02	No						0.00	0.00	0.000	0.000
		1/24/2016	24.23	25.66	23.60	25.03	0.00	No						0.00	0.00	0.000	0.000
		1/25/2016	24.21	25.64	23.56	24.99	0.00	No						0.00	0.00	0.000	0.000
		1/26/2016	24.20	25.63	23.54	24.97	0.00	No						0.00	0.00	0.000	0.000
		1/27/2016	24.32	25.75	23.73	25.16	1.89	No						0.00	0.00	0.000	0.000
		1/28/2016	24.50	25.93	24.05	25.48	1.02	No						0.00	0.00	0.000	0.000
		1/29/2016	24.54	25.97	24.10	25.53	0.00	No						0.00	0.00	0.000	0.000
		1/30/2016	24.52	25.95	24.06	25.49	0.01	No						0.00	0.00	0.000	0.000
		1/31/2016	24.51	25.94	24.03	25.46	0.00	No						0.00	0.00	0.000	0.000
		2/1/2016	24.51	25.93	24.01	25.44	0.00	No						0.00	0.00	0.000	0.000
		2/2/2016	24.49	25.92	23.98	25.41	0.00	No						0.00	0.00	0.000	0.000
		2/3/2016	24.48	25.91	23.95	25.38	0.00	No						0.00	0.00	0.000	0.000
		2/4/2016	24.47	25.90	23.92	25.35	0.00	No						0.00	0.00	0.000	0.000
		2/5/2016	24.47	25.90	23.92	25.35	0.23	No						0.00	0.00	0.000	0.000
		2/6/2016	24.45	25.88	23.89	25.32	0.94	No						0.00	0.00	0.000	0.000
		2/7/2016	24.54	25.97	24.01	25.44	0.02	No						0.00	0.00	0.000	0.000
		2/8/2016	24.51	25.94	23.99	25.42	0.00	No						0.00	0.00	0.000	0.000
		2/9/2016	25.50	26.93	23.95	25.38	0.00	No						0.00	0.00	0.000	0.000
		2/10/2016	24.47	25.90	23.92	25.35	0.00	No						0.00	0.00	0.000	0.000
		2/11/2016	24.45	25.88	23.88	25.31	0.00	No						0.00	0.00	0.000	0.000
		2/12/2016	24.43	25.86	23.84	25.27	0.00	No						0.00	0.00	0.000	0.000
		2/13/2016	24.42	25.85	23.82	25.25	0.00	No						0.00	0.00	0.000	0.000
		2/14/2016	24.40	25.83	23.79	25.22	0.00	No						0.00	0.00	0.000	0.000
		2/15/2016	24.39	25.82	23.76	25.19	0.31	No						0.00	0.00	0.000	0.000
		2/16/2016	24.48	25.91	23.91	25.34	0.55	No						0.00	0.00	0.000	0.000
		2/17/2016	24.46	25.89	23.87	25.30	0.00	No						0.00	0.00	0.000	0.000
		2/18/2016	24.45	25.88	23.85	25.28	0.00	No						0.00	0.00	0.000	0.000
		2/19/2016	24.43	25.86	23.82	25.25	0.00	No						0.00	0.00	0.000	0.000
		2/20/2016	24.41	25.84	23.78	25.21	0.00	No						0.00	0.00	0.000	0.000
		2/21/2016	24.40	25.83	23.74	25.17	0.00	No						0.00	0.00	0.000	0.000
		2/22/2016	24.38	25.81	23.70	25.13	0.00	No						0.00	0.00	0.000	0.000
		2/23/2016	24.37	25.80	23.67	25.10	0.08	No						0.00	0.00	0.000	0.000
		2/24/2016	24.37	25.80	23.66	25.09	0.67	No						0.00	0.00	0.000	0.000
		2/25/2016	24.43	25.86	23.79	25.22	0.00	No						0.00	0.00	0.000	0.000
		2/26/2016	24.41	25.84	23.78	25.21	0.00	No						0.00	0.00	0.000	0.000
		2/27/2016	24.38	25.81	23.74	25.17	0.00	No						0.00	0.00	0.000	0.000
		2/28/2016	24.36	25.79	23.69	25.12	0.00	No						0.00	0.00	0.000	0.000
		2/29/2016	24.34	25.77	23.65	25.08	0.00	No						0.00	0.00	0.000	0.000
		3/1/2016	24.33	25.76	23.61	25.04	0.00	No						0.00	0.00	0.000	0.000
		3/2/2016	24.31	25.74	23.58	25.01	0.00	No						0.00	0.00	0.000	0.000
		3/3/2016	24.29	25.72	23.53	24.96	0.00	No						0.00	0.00	0.000	0.000
		3/4/2016	24.27	25.70	23.49	24.92	0.00	No						0.00	0.00	0.000	0.000
		3/5/2016	24.25	25.68	23.45	24.88	0.00	No						0.00	0.00	0.000	0.000
		3/6/2016	24.23	25.66	23.42	24.85	0.00	No						0.00	0.00	0.000	0.000
		3/7/2016	24.20	25.63	23.39	24.82	0.00	No						0.00	0.00	0.000	0.000
		3/8/2016	24.18	25.61	23.34	24.77	0.00	No						0.00	0.00	0.000	0.000
		3/9/2016	24.15	25.58	23.29	24.72	0.00	No						0.00	0.00	0.000	0.000
		3/10/2016	24.13	25.56	23.25	24.68	0.00	No						0.00	0.00	0.000	0.000
		3/11/2016	24.10	25.53	23.20	24.63	0.00	No						0.00	0.00	0.000	0.000
		3/12/2016	24.08	25.51	23.15	24.58	0.00	No						0.00	0.00	0.000	0.000
		3/13/2016	24.06	25.49	23.11	24.54	0.00	No						0.00	0.00	0.000	0.000
		3/14/2016	24.03	25.46	23.06	24.49	0.00	No						0.00	0.00	0.000	0.000
		3/15/2016	24.01	25.44	23.00	24.43	0.00	No						0.00	0.00	0.000	0.000
		3/16/2016	23.98	25.41	22.94	24.37	0.00	No						0.00	0.00	0.000	0.000
		3/17/2016	23.95	25.38	22.88	24.31	0.00	No						0.00	0.00	0.000	0.000
		3/18/2016	23.92	25.35	22.84	24.27	0.00	No						0.00	0.00	0.000	0.000
		3/19/2016	23.91	25.34	22.79	24.22	0.34	No						0.00	0.00	0.000	0.000
		3/20/2016	23.93	25.36	22.80	24.23	0.00	No						0.00	0.00	0.000	0.000
		3/21/2016	23.90	25.33	22.75	24.18	0.00	No						0.00	0.00	0.000	0.000
		3/22/2016	23.86	25.29	22.70	24.13	0.00	No						0.00	0.00	0.000	0.000
		3/23/2016	23.83	25.26	22.65	24.08	0.00	No						0.00	0.00	0.000	0.000
		3/24/2016	23.81	25.24	22.60	24.03	0.07	No						0.00	0.00	0.000	0.000
		3/25/2016	23.82	25.25	22.59	24.02	1.16	No						0.00	0.00	0.000	0.000
		3/26/2016	23.84	25.27	22.83	24.26	0.00	No						0.00	0.00	0.000	0.000
		3/27/2016	23.91	25.34	22.81	24.24	0.27	No						0.00	0.00	0.000	0.000
		3/28/2016	23.93	25.36	22.87	24.30	0.21	No						0.00	0.00	0.000	0.000
		3/29/2016	23.92	25.35	22.95	24.38	0.39	No						0.00	0.00	0.000	0.000
		3/30/2016	23.99	25.42	23.28	24.71	0.23	No						0.00	0.00	0.000	0.000
		3/31/2016	23.98	25.41	23.32	24.75	0.14	No						0.00	0.00	0.000	0.000

ID	Structure	SampleDate	South Cell 1 (Control 24.5' NAVD) StageFt_NAVD	StageFt_NGVD	North Cell 1 (Control 25.2' NAVD) StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
		3/31/2016	23.98	25.41	23.32	24.75	0.14	No						0.00	0.00	0.000	0.000
		4/1/2016	23.91	25.37	23.28	24.71	0.00	No						0.00	0.00	0.000	0.000
		4/2/2016	23.92	25.35	23.23	24.66	0.01	No						0.00	0.00	0.000	0.000
		4/3/2016	23.89	25.32	23.18	24.61	0.00	No						0.00	0.00	0.000	0.000
		4/4/2016	23.86	25.29	23.11	24.54	0.00	No						0.00	0.00	0.000	0.000
		4/5/2016	23.82	25.25	23.05	24.48	0.00	No						0.00	0.00	0.000	0.000
		4/6/2016	23.78	25.21	22.97	24.40	0.00	No						0.00	0.00	0.000	0.000
		4/7/2016	23.75	25.18	22.90	24.33	0.00	No						0.00	0.00	0.000	0.000
		4/8/2016	23.70	25.13	22.83	24.26	0.00	No						0.00	0.00	0.000	0.000
		4/9/2016	23.66	25.09	22.76	24.19	0.00	No						0.00	0.00	0.000	0.000
		4/10/2016	23.62	25.05	22.69	24.12	0.00	No						0.00	0.00	0.000	0.000
		4/11/2016	23.58	25.01	22.63	24.06	0.00	No						0.00	0.00	0.000	0.000
		4/12/2016	23.55	24.98	22.57	24.00	0.00	No						0.00	0.00	0.000	0.000
		4/13/2016	23.51	24.94	22.51	23.94	0.00	No						0.00	0.00	0.000	0.000
		4/14/2016	23.48	24.91	22.46	23.89	1.07	No						0.00	0.00	0.000	0.000
		4/15/2016	23.67	25.10	22.72	24.15	1.08	No						0.00	0.00	0.000	0.000
		4/16/2016	23.87	25.30	23.00	24.43	0.13	No						0.00	0.00	0.000	0.000
		4/17/2016	23.86	25.29	23.09	24.52	0.01	No						0.00	0.00	0.000	0.000
		4/18/2016	23.82	25.25	23.07	24.50	0.00	No						0.00	0.00	0.000	0.000
		4/19/2016	23.78	25.21	23.02	24.45	0.00	No						0.00	0.00	0.000	0.000
		4/20/2016	23.75	25.18	22.96	24.39	0.00	No						0.00	0.00	0.000	0.000
		4/21/2016	23.71	25.14	22.89	24.32	0.00	No						0.00	0.00	0.000	0.000
		4/22/2016	23.67	25.10	22.83	24.26	0.00	No						0.00	0.00	0.000	0.000
		4/23/2016	23.64	25.07	22.77	24.20	0.00	No						0.00	0.00	0.000	0.000
		4/24/2016	23.60	25.03	22.72	24.15	0.00	No						0.00	0.00	0.000	0.000
		4/25/2016	23.55	24.98	22.65	24.08	0.00	No						0.00	0.00	0.000	0.000
		4/26/2016	23.52	24.95	22.60	24.03	0.00	No						0.00	0.00	0.000	0.000
		4/27/2016	23.48	24.91	22.55	23.98	0.00	No						0.00	0.00	0.000	0.000
		4/28/2016	23.43	24.86	22.49	23.92	0.00	No						0.00	0.00	0.000	0.000
		4/29/2016	23.39	24.82	22.44	23.87	0.00	No						0.00	0.00	0.000	0.000
		4/30/2016	23.35	24.78	22.39	23.82	0.00	No						0.00	0.00	0.000	0.000
		5/1/2016	23.30	24.73	22.34	23.77	0.00	No						0.00	0.00	0.000	0.000
		5/2/2016	23.25	24.68	22.28	23.71	0.00	No						0.00	0.00	0.000	0.000
		5/3/2016	23.21	24.64	22.24	23.67	0.00	No						0.00	0.00	0.000	0.000
		5/4/2016	23.20	24.63	22.21	23.64	0.49	No						0.00	0.00	0.000	0.000
		5/5/2016	23.22	24.65	22.22	23.65	0.00	No						0.00	0.00	0.000	0.000
		5/6/2016	23.16	24.59	22.17	23.60	0.00	No						0.00	0.00	0.000	0.000
							50.37	4029.6						1900.00			
		5/7/2016	23.10	24.53	22.12	23.55	0.00	No						0.00	0.00	0.000	0.000
		5/8/2016	23.05	24.48	22.08	23.51	0.00	No						0.00	0.00	0.000	0.000
		5/9/2016	23.00	24.43	22.04	23.47	0.00	No						0.00	0.00	0.000	0.000
		5/10/2016	22.94	24.37	22.00	23.43	0.00	No						0.00	0.00	0.000	0.000
		5/11/2016	22.89	24.32	21.96	23.39	0.00	No						0.00	0.00	0.000	0.000
		5/12/2016	22.85	24.28	21.92	23.35	0.00	No						0.00	0.00	0.000	0.000
		5/13/2016	22.80	24.23	21.89	23.32	0.01	No						0.00	0.00	0.000	0.000
		5/14/2016	22.75	24.18	21.85	23.29	0.00	No						0.00	0.00	0.000	0.000
		5/15/2016	22.70	24.13	21.82	23.25	0.00	No						0.00	0.00	0.000	0.000
		5/16/2016	22.64	24.07	21.78	23.21	0.00	No						0.00	0.00	0.000	0.000
		5/17/2016	22.59	24.02	21.74	23.17	4.24	No						0.00	0.00	0.000	0.000
		5/18/2016	23.73	25.16	22.92	24.35	0.69	No	0.897			1.59		47.78	23.14	0.053	0.094
		5/19/2016	23.85	25.28	23.13	24.86	0.40	No	0.897			1.59		44.12	22.28	0.049	0.087
		5/20/2016	23.92	25.35	23.56	24.99	0.19	No						0.00	0.00	0.000	0.000
		5/21/2016	23.92	25.35	23.51	24.94	0.01	No	0.897			1.59		34.01	17.18	0.038	0.067
		5/22/2016	23.88	25.31	23.47	24.90	0.00	No						0.00	0.00	0.000	0.000
		5/23/2016	23.82	25.25	23.42	24.85	0.43	No						0.00	0.00	0.000	0.000
		5/24/2016	23.89	25.32	23.47	24.90	0.10	No	0.897			1.59		0.00	0.00	0.000	0.000
		5/25/2016	23.85	25.28	23.42	24.85	0.00	No						0.00	0.00	0.000	0.000
		5/26/2016	23.82	25.25	23.35	24.78	0.00	No	0.897			1.59		41.36	20.89	0.046	0.081
		5/27/2016	23.83	25.26	23.28	24.71	0.14	No	0.897			1.59		42.28	21.35	0.047	0.083
		5/28/2016	23.95	25.38	23.43	24.86	0.46	No	0.344			1.69		42.28	21.35	0.018	0.088
		5/29/2016	23.93	25.37	23.41	24.84	0.00	No	0.344			1.69		40.44	20.42	0.017	0.084
		5/30/2016	23.94	25.37	23.38	24.81	0.03	No						0.00	0.00	0.000	0.000
		5/31/2016	23.92	25.35	23.33	24.76	0.11	No	0.344			1.69		0.00	0.00	0.000	0.000
		6/1/2016	23.91	25.34	23.28	24.71	0.00	No						0.00	0.00	0.000	0.000
		6/2/2016	23.86	25.29	23.21	24.64	0.00	No						0.00	0.00	0.000	0.000
		6/3/2016	23.84	25.27	23.15	24.58	0.00	No						0.00	0.00	0.000	0.000
		6/4/2016	23.80	25.23	23.09	24.52	0.00	No						0.00	0.00	0.000	0.000
		6/5/2016	23.76	25.19	23.01	24.44	0.47	No						0.00	0.00	0.000	0.000
		6/6/2016	23.87	25.30	23.14	24.57	0.12	No						0.00	0.00	0.000	0.000
		6/7/2016	23.85	25.28	23.13	24.56	0.26	No						0.00	0.00	0.000	0.000
		6/8/2016	23.93	25.36	23.22	24.65	1.56	No						0.00	0.00	0.000	0.000
		6/9/2016	24.21	25.64	23.86	25.29	0.98	No	0.48			1.77		43.20	21.82	0.026	0.093
		6/10/2016	24.35	25.78	23.95	25.38	0.01	No	0.48			1.77		43.20	21.82	0.026	0.094
		6/11/2016	24.33	25.81	23.91	25.34	0.00	No	0.48			1.77		43.20	21.82	0.026	0.094
		6/12/2016	24.09	25.83	23.87	25.30	0.00	No	0.48			1.77		26.65	13.46	0.016	0.058
		6/13/2016	24.38	25.83	23.82	25.25	0.01	No	0.48			1.77		0.00	0.00	0.000	0.000
		6/14/2016	24.40	25.83	23.78	25.21	0.54	No	0.48			1.77		43.75	22.10	0.026	0.096
		6/15/2016	24.41	25.84	23.85	25.28	0.01	No						0.00	0.00	0.000	0.000
		6/16/2016	24.39	25.82	23.81	25.24	0.18	No						0.00	0.00	0.000	0.000
		6/17/2016	24.38	25.81	23.78	25.21	0.15	No						0.00	0.00	0.000	0.000
		6/18/2016	24.37	25.80	23.77	25.20	0.22	No						0.00	0.00	0.000	0.000

			South Cell 1 (Control 23.5' NAVD)		North Cell 2 (Control 25.2' NAVD)														
ID	Structure	SampleDate	StageFt_NAVD	StageFt_NGVD	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
		6/19/2016	23.41	23.83	23.80	25.23	0.33	No						0.00	0.00	0.000	0.000
		6/20/2016	24.39	25.82	23.79	25.22	0.05	No						0.00	0.00	0.000	0.000
		6/21/2016	24.36	25.79	23.73	25.16	0.00	No						0.00	0.00	0.000	0.000
		6/22/2016	24.33	25.76	23.66	25.09	0.00	No						0.00	0.00	0.000	0.000
		6/23/2016	24.31	25.74	23.60	25.03	0.00	No						0.00	0.00	0.000	0.000
		6/24/2016	24.28	25.71	23.53	24.95	0.00	No						0.00	0.00	0.000	0.000
		6/25/2016	24.25	25.68	23.46	24.89	0.00	No						0.00	0.00	0.000	0.000
		6/26/2016	24.23	25.66	23.38	24.81	0.00	No						0.00	0.00	0.000	0.000
		6/27/2016	24.20	25.63	23.32	24.75	0.05	No						0.00	0.00	0.000	0.000
		6/28/2016	24.20	25.63	23.26	24.69	0.00	No						0.00	0.00	0.000	0.000
		6/29/2016	24.17	25.60	23.19	24.62	0.00	No						0.00	0.00	0.000	0.000
		6/30/2016	24.14	25.57	23.11	24.54	0.00	No						0.00	0.00	0.000	0.000
		7/1/2016	24.12	25.55	23.06	24.49	0.00	No						0.00	0.00	0.000	0.000
		7/2/2016	24.09	25.52	22.99	24.42	0.00	No						0.00	0.00	0.000	0.000
		7/3/2016	24.06	25.49	22.93	24.36	0.00	No						0.00	0.00	0.000	0.000
		7/4/2016	24.03	25.46	22.86	24.29	0.00	No						0.00	0.00	0.000	0.000
		7/5/2016	24.00	25.43	22.79	24.22	0.00	No						0.00	0.00	0.000	0.000
		7/6/2016	23.96	25.39	22.73	24.16	0.00	No						0.00	0.00	0.000	0.000
		7/7/2016	23.92	25.35	22.65	24.08	0.00	No						0.00	0.00	0.000	0.000
		7/8/2016	23.88	25.31	22.58	24.01	0.00	No						0.00	0.00	0.000	0.000
		7/9/2016	23.84	25.27	22.52	23.95	0.00	No						0.00	0.00	0.000	0.000
		7/10/2016	23.79	25.22	22.46	23.89	0.00	No						0.00	0.00	0.000	0.000
		7/11/2016	23.74	25.17	22.39	23.82	0.00	No						0.00	0.00	0.000	0.000
		7/12/2016	23.71	25.14	22.31	23.77	0.00	No						0.00	0.00	0.000	0.000
		7/13/2016	23.68	25.11	22.29	23.72	0.11	No						0.00	0.00	0.000	0.000
		7/14/2016	23.65	25.08	22.25	23.68	0.00	No						0.00	0.00	0.000	0.000
		7/15/2016	23.61	25.04	22.20	23.63	0.00	No						0.00	0.00	0.000	0.000
		7/16/2016	23.57	25.00	22.15	23.58	0.15	No						0.00	0.00	0.000	0.000
		7/17/2016	23.53	24.97	22.10	23.53	0.20	No						0.00	0.00	0.000	0.000
		7/18/2016	23.53	24.96	22.09	23.52	0.01	No						0.00	0.00	0.000	0.000
		7/19/2016	23.48	24.91	22.05	23.48	0.00	No						0.00	0.00	0.000	0.000
		7/20/2016	23.44	24.87	21.96	23.39	0.16	No						0.00	0.00	0.000	0.000
		7/21/2016	23.40	24.83	21.92	23.35	0.17	No						0.00	0.00	0.000	0.000
		7/22/2016	23.38	24.81	21.88	23.31	0.00	No						0.00	0.00	0.000	0.000
		7/23/2016	23.34	24.77	21.83	23.26	0.00	No						0.00	0.00	0.000	0.000
		7/24/2016	23.29	24.72	21.79	23.22	0.34	No						0.00	0.00	0.000	0.000
		7/25/2016	23.30	24.73	21.84	23.27	0.59	No						0.00	0.00	0.000	0.000
		7/26/2016	23.38	24.81	21.89	23.32	0.00	No						0.00	0.00	0.000	0.000
		7/27/2016	23.34	24.77	21.87	23.30	0.00	No						0.00	0.00	0.000	0.000
		7/28/2016	23.29	24.72	21.85	23.28	0.00	No						0.00	0.00	0.000	0.000
		7/29/2016	23.23	24.66	21.82	23.25	0.49	No						0.00	0.00	0.000	0.000
		7/30/2016	23.22	24.65	21.88	23.31	0.01	No						0.00	0.00	0.000	0.000
		7/31/2016	23.17	24.60	21.86	23.29	0.23	No						0.00	0.00	0.000	0.000
		8/1/2016	23.17	24.60	21.87	23.30	0.00	No						0.00	0.00	0.000	0.000
		8/2/2016	23.12	24.55	21.85	23.28	0.03	No						0.00	0.00	0.000	0.000
		8/3/2016	23.09	24.52	21.83	23.26	0.01	No						0.00	0.00	0.000	0.000
		8/4/2016	23.13	24.56	21.84	23.27	1.46	No						0.00	0.00	0.000	0.000
		8/5/2016	23.32	24.75	21.95	23.38	0.00	No						0.00	0.00	0.000	0.000
		8/6/2016	23.28	24.71	21.95	23.39	0.00	No						0.00	0.00	0.000	0.000
		8/7/2016	23.23	24.66	21.92	23.35	0.01	No						0.00	0.00	0.000	0.000
		8/8/2016	23.19	24.62	21.90	23.33	3.86	No						0.00	0.00	0.000	0.000
		8/9/2016	23.84	25.27	22.78	24.21	1.33	No	0.702			5.36		44.10	22.27	0.038	0.292
		8/10/2016	24.00	25.43	23.27	24.70	0.00	No	0.702			5.36		17.70	8.94	0.015	0.117
		8/11/2016	23.98	25.41	23.46	24.89	0.00	No						0.00	0.00	0.000	0.000
		8/12/2016	23.95	25.38	23.50	24.93	0.02	No						0.00	0.00	0.000	0.000
		8/13/2016	23.91	25.34	23.44	24.87	0.01	No						0.00	0.00	0.000	0.000
		8/14/2016	23.89	25.32	23.38	24.81	0.07	No						0.00	0.00	0.000	0.000
		8/15/2016	23.86	25.31	23.33	24.76	0.13	No						0.00	0.00	0.000	0.000
		8/16/2016	23.84	25.27	23.26	24.69	0.00	No						0.00	0.00	0.000	0.000
		8/17/2016	23.81	25.24	23.20	24.63	0.00	No						0.00	0.00	0.000	0.000
		8/18/2016	23.81	25.24	23.13	24.56	0.48	No						0.00	0.00	0.000	0.000
		8/19/2016	23.77	25.20	23.06	24.49	0.00	No						0.00	0.00	0.000	0.000
		8/20/2016	23.73	25.16	22.99	24.42	0.00	No						0.00	0.00	0.000	0.000
		8/21/2016	23.69	25.12	22.93	24.36	1.60	No						0.00	0.00	0.000	0.000
		8/22/2016	23.90	25.33	23.03	24.46	0.00	No						0.00	0.00	0.000	0.000
		8/23/2016	23.85	25.28	23.00	24.43	0.00	No						0.00	0.00	0.000	0.000
		8/24/2016	23.83	25.26	22.95	24.38	0.09	No						0.00	0.00	0.000	0.000
		8/25/2016	23.82	25.25	22.92	24.35	0.06	No						0.00	0.00	0.000	0.000
		8/26/2016	23.79	25.22	22.87	24.30	0.02	No						0.00	0.00	0.000	0.000
		8/27/2016	23.83	25.26	22.86	24.29	0.60	No						0.00	0.00	0.000	0.000
		8/28/2016	23.84	25.27	22.85	24.28	0.08	No						0.00	0.00	0.000	0.000
		8/29/2016	23.85	25.28	22.82	24.25	0.18	No						0.00	0.00	0.000	0.000
		8/30/2016	23.84	25.27	22.84	24.27	0.12	No						0.00	0.00	0.000	0.000
		8/31/2016	23.82	25.25	22.81	24.24	0.40	No						0.00	0.00	0.000	0.000
		9/1/2016	23.86	25.29	22.85	24.28	0.25	No						0.00	0.00	0.000	0.000
		9/2/2016	23.86	25.29	22.85	24.29	0.00	No						0.00	0.00	0.000	0.000
		9/3/2016	23.83	25.26	22.82	24.25	0.00	No						0.00	0.00	0.000	0.000
		9/4/2016	23.79	25.22	22.77	24.20	0.00	No						0.00	0.00	0.000	0.000
		9/5/2016	23.77	25.20	22.72	24.15	2.37	No						0.00	0.00	0.000	0.000
		9/6/2016	24.06	25.51	23.30	24.73	0.14	No						0.00	0.00	0.000	0.000
		9/7/2016	24.05	25.48	23.43	24.86	0.00	No						0.00	0.00	0.000	0.000
		9/8/2016	24.02	25.45	23.45	24.88	0.00	No						0.00	0.00	0.000	0.000
		9/9/2016	23.99	25.42	23.41	24.84	0.00	No						0.00	0.00	0.000	0.000

ID	Structure	SampleDate	South Cell 1 (Control 24.5' NAVD) StageFt_NAVD	StageFt_NGVD	North Cell 1 (Control 25.2' NAVD) StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
		9/10/2016	23.96	25.39	23.34	24.77	0.00	No						0.00	0.00	0.000	0.000
		9/11/2016	23.93	25.36	23.28	24.71	0.00	No						0.00	0.00	0.000	0.000
		9/12/2016	23.90	25.33	23.22	24.65	0.08	No						0.00	0.00	0.000	0.000
		9/13/2016	23.90	25.33	23.16	24.59	0.32	No						0.00	0.00	0.000	0.000
		9/14/2016	23.80	25.23	23.15	24.58	0.00	No						0.00	0.00	0.000	0.000
		9/15/2016	23.88	25.31	23.10	24.53	0.00	No						0.00	0.00	0.000	0.000
		9/16/2016	23.84	25.27	23.05	24.48	0.76	No						0.00	0.00	0.000	0.000
		9/17/2016	23.91	25.34	23.28	24.71	0.00	No						0.00	0.00	0.000	0.000
		9/18/2016	23.88	25.31	23.29	24.72	0.00	No						0.00	0.00	0.000	0.000
		9/19/2016	23.85	25.28	23.26	24.69	0.48	No						0.00	0.00	0.000	0.000
		9/20/2016	23.89	25.32	23.31	24.74	0.00	No						0.00	0.00	0.000	0.000
		9/21/2016	23.86	25.29	23.28	24.71	0.01	No						0.00	0.00	0.000	0.000
		9/22/2016	23.84	25.27	23.25	24.68	0.98	No						0.00	0.00	0.000	0.000
		9/23/2016	23.93	25.36	23.43	24.86	0.02	No						0.00	0.00	0.000	0.000
		9/24/2016	23.90	25.33	23.43	24.86	0.12	No						0.00	0.00	0.000	0.000
		9/25/2016	23.90	25.33	23.41	24.84	0.01	No						0.00	0.00	0.000	0.000
		9/26/2016	23.87	25.30	23.36	24.79	0.00	No						0.00	0.00	0.000	0.000
		9/27/2016	23.84	25.27	23.29	24.72	0.01	No						0.00	0.00	0.000	0.000
		9/28/2016	23.82	25.25	23.24	24.67	0.90	No						0.00	0.00	0.000	0.000
		9/29/2016	23.89	25.32	23.34	24.77	0.01	No						0.00	0.00	0.000	0.000
		9/30/2016	23.86	25.29	23.35	24.78	0.01	No						0.00	0.00	0.000	0.000
		10/1/2016	23.83	25.26	23.30	24.73	0.00	No						0.00	0.00	0.000	0.000
		10/2/2016	23.80	25.23	23.28	24.71	0.03	No						0.00	0.00	0.000	0.000
		10/3/2016	23.81	25.24	23.26	24.69	0.72	No						0.00	0.00	0.000	0.000
		10/4/2016	23.87	25.30	23.31	24.74	0.01	No						0.00	0.00	0.000	0.000
		10/5/2016	23.85	25.28	23.26	24.69	0.06	No						0.00	0.00	0.000	0.000
		10/6/2016	23.84	25.27	23.22	24.65	1.37	No						0.00	0.00	0.000	0.000
		10/7/2016	24.15	25.58	23.69	25.12	1.03	No						0.00	0.00	0.000	0.000
		10/8/2016	24.11	25.54	23.77	25.20	0.01	No						0.00	0.00	0.000	0.000
		10/9/2016	24.08	25.51	23.72	25.15	0.00	No						0.00	0.00	0.000	0.000
		10/10/2016	24.05	25.48	23.66	25.09	0.00	No						0.00	0.00	0.000	0.000
		10/11/2016	24.03	25.46	23.59	25.02	0.01	No						0.00	0.00	0.000	0.000
		10/12/2016	24.02	25.45	23.56	24.99	0.15	No						0.00	0.00	0.000	0.000
		10/13/2016	24.00	25.43	23.52	24.95	0.00	No						0.00	0.00	0.000	0.000
		10/14/2016	23.97	25.40	23.47	24.90	0.00	No						0.00	0.00	0.000	0.000
		10/15/2016	23.96	25.39	23.42	24.85	0.10	No						0.00	0.00	0.000	0.000
		10/16/2016	23.94	25.37	23.38	24.81	0.06	No						0.00	0.00	0.000	0.000
		10/17/2016	23.92	25.35	23.32	24.75	0.00	No						0.00	0.00	0.000	0.000
		10/18/2016	23.90	25.33	23.27	24.70	0.02	No						0.00	0.00	0.000	0.000
		10/19/2016	23.87	25.30	23.21	24.64	0.00	No						0.00	0.00	0.000	0.000
		10/20/2016	23.85	25.28	23.16	24.59	0.02	No						0.00	0.00	0.000	0.000
		10/21/2016	23.83	25.26	23.12	24.55	0.00	No						0.00	0.00	0.000	0.000
		10/22/2016	23.79	25.22	23.06	24.49	0.00	No						0.00	0.00	0.000	0.000
		10/23/2016	23.76	25.19	23.00	24.43	0.00	No						0.00	0.00	0.000	0.000
		10/24/2016	23.73	25.16	22.94	24.37	0.00	No						0.00	0.00	0.000	0.000
		10/25/2016	23.70	25.13	22.90	24.33	0.00	No						0.00	0.00	0.000	0.000
		10/26/2016	23.67	25.10	22.86	24.29	0.00	No						0.00	0.00	0.000	0.000
		10/27/2016	23.64	25.07	22.81	24.24	0.00	No						0.00	0.00	0.000	0.000
		10/28/2016	23.62	25.05	22.76	24.19	0.00	No						0.00	0.00	0.000	0.000
		10/29/2016	23.59	25.02	22.72	24.15	0.00	No						0.00	0.00	0.000	0.000
		10/30/2016	23.56	24.99	22.68	24.11	0.00	No						0.00	0.00	0.000	0.000
		10/31/2016	23.53	24.96	22.63	24.06	0.00	No						0.00	0.00	0.000	0.000
		11/1/2016	23.50	24.93	22.59	24.02	0.00	No						0.00	0.00	0.000	0.000
		11/2/2016	23.47	24.90	22.56	23.99	0.00	No						0.00	0.00	0.000	0.000
		11/3/2016	23.45	24.88	22.52	23.95	0.00	No						0.00	0.00	0.000	0.000
		11/4/2016	23.43	24.86	22.49	23.92	0.00	No						0.00	0.00	0.000	0.000
		11/5/2016	23.41	24.84	22.46	23.89	0.08	No						0.00	0.00	0.000	0.000
		11/6/2016	23.38	24.81	22.44	23.87	0.00	No						0.00	0.00	0.000	0.000
		11/7/2016	23.34	24.77	22.40	23.83	0.00	No						0.00	0.00	0.000	0.000
		11/8/2016	23.31	24.74	22.36	23.79	0.00	No						0.00	0.00	0.000	0.000
		11/9/2016	23.28	24.71	22.32	23.75	0.00	No						0.00	0.00	0.000	0.000
		11/10/2016	23.25	24.68	22.29	23.72	0.00	No						0.00	0.00	0.000	0.000
		11/11/2016	23.21	24.64	22.25	23.68	0.00	No						0.00	0.00	0.000	0.000
		11/12/2016	23.18	24.61	22.22	23.65	0.00	No						0.00	0.00	0.000	0.000
		11/13/2016	23.15	24.58	22.18	23.61	0.00	No						0.00	0.00	0.000	0.000
		11/14/2016	23.11	24.54	22.15	23.58	0.01	No						0.00	0.00	0.000	0.000
		11/15/2016	23.10	24.53	22.12	23.55	0.00	No						0.00	0.00	0.000	0.000
		11/16/2016	23.06	24.49	22.08	23.51	0.00	No						0.00	0.00	0.000	0.000
		11/17/2016	23.02	24.45	22.05	23.48	0.00	No						0.00	0.00	0.000	0.000
		11/18/2016	23.00	24.43	22.01	23.44	0.00	No						0.00	0.00	0.000	0.000
		11/19/2016	22.96	24.39	21.98	23.41	0.00	No						0.00	0.00	0.000	0.000
		11/20/2016	22.92	24.35	21.95	23.38	0.00	No						0.00	0.00	0.000	0.000
		11/21/2016	22.88	24.31	21.90	23.33	0.00	No						0.00	0.00	0.000	0.000
		11/22/2016	22.84	24.27	21.87	23.30	0.00	No						0.00	0.00	0.000	0.000
		11/23/2016	22.81	24.24	21.84	23.27	0.00	No						0.00	0.00	0.000	0.000
		11/24/2016	22.78	24.21	21.81	23.24	0.00	No						0.00	0.00	0.000	0.000
		11/25/2016	22.75	24.18	21.78	23.21	0.00	No						0.00	0.00	0.000	0.000
		11/26/2016	22.72	24.15	21.75	23.18	0.00	No						0.00	0.00	0.000	0.000
		11/27/2016	22.69	24.12	21.71	23.14	0.00	No						0.00	0.00	0.000	0.000
		11/28/2016	22.65	24.08	21.69	23.12	0.01	No						0.00	0.00	0.000	0.000
		11/29/2016	22.63	24.06	21.66	23.09	0.01	No						0.00	0.00	0.000	0.000
		11/30/2016	22.60	24.03	21.64	23.07	0.01	No						0.00	0.00	0.000	0.000
		12/1/2016	22.57	24.00	21.60	23.03	0.00	No						0.00	0.00	0.000	0.000

ID	Structure	SampleDate	South Cell 1 (Control 24.5' NAVD) StageFt_NAVD	StageFt_NGVD	North Cell 2 (Control 25.2' NAVD) StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
		12/2/2016	22.54	23.97	21.57	23.00	0.00	No						0.00	0.00	0.000	0.000
		12/3/2016	22.50	23.93	21.54	22.97	0.00	No						0.00	0.00	0.000	0.000
		12/4/2016	22.46	23.89	21.51	22.94	0.00	No						0.00	0.00	0.000	0.000
		12/5/2016	22.43	23.86	21.49	22.92	0.00	No						0.00	0.00	0.000	0.000
		12/6/2016	22.41	23.84	21.46	22.89	0.18	No						0.00	0.00	0.000	0.000
		12/7/2016	22.40	23.83	21.44	22.87	0.01	No						0.00	0.00	0.000	0.000
		12/8/2016	22.36	23.79	21.42	22.85	0.00	No						0.00	0.00	0.000	0.000
		12/9/2016	22.34	23.77	21.40	22.83	0.09	No						0.00	0.00	0.000	0.000
		12/10/2016	22.31	23.74	21.37	22.80	0.00	No						0.00	0.00	0.000	0.000
		12/11/2016	22.28	23.71	21.34	22.77	0.03	No						0.00	0.00	0.000	0.000
		12/12/2016	22.26	23.69	21.33	22.76	0.00	No						0.00	0.00	0.000	0.000
		12/13/2016	22.23	23.66	21.30	22.73	0.00	No						0.00	0.00	0.000	0.000
		12/14/2016	22.20	23.63	21.29	22.72	0.00	No						0.00	0.00	0.000	0.000
		12/15/2016	22.16	23.59	21.25	22.68	0.00	No						0.00	0.00	0.000	0.000
		12/16/2016	22.12	23.55	21.23	22.65	0.00	No						0.00	0.00	0.000	0.000
		12/17/2016	22.10	23.53	21.21	22.64	0.00	No						0.00	0.00	0.000	0.000
		12/18/2016	22.06	23.49	21.18	22.61	0.00	No						0.00	0.00	0.000	0.000
		12/19/2016	22.03	23.46	21.16	22.59	0.00	No						0.00	0.00	0.000	0.000
		12/20/2016	22.00	23.43	21.12	22.55	0.00	No						0.00	0.00	0.000	0.000
		12/21/2016	21.97	23.40	21.09	22.52	0.00	No						0.00	0.00	0.000	0.000
		12/22/2016	21.93	23.36	21.07	22.50	0.00	No						0.00	0.00	0.000	0.000
		12/23/2016	21.90	23.33	21.05	22.48	0.00	No						0.00	0.00	0.000	0.000
		12/24/2016	21.86	23.29	21.04	22.47	0.00	No						0.00	0.00	0.000	0.000
		12/25/2016	21.83	23.26	21.00	22.43	0.02	No						0.00	0.00	0.000	0.000
		12/26/2016	21.80	23.23	20.98	22.41	0.01	No						0.00	0.00	0.000	0.000
		12/27/2016	21.77	23.20	20.96	22.39	0.19	No						0.00	0.00	0.000	0.000
		12/28/2016	21.77	23.20	20.93	22.36	0.00	No						0.00	0.00	0.000	0.000
		12/29/2016	21.75	23.18	20.94	22.37	0.01	No						0.00	0.00	0.000	0.000
		12/30/2016	21.70	23.13	20.90	22.33	0.01	No						0.00	0.00	0.000	0.000
		12/31/2016	21.65	23.08	20.87	22.30	0.00	No						0.00	0.00	0.000	0.000
		1/1/2017	21.62	23.05	20.86	22.29	0.00	No						0.00	0.00	0.00	0.0
		1/2/2017	21.59	23.02	20.84	22.27	0.00	No						0.00	0.00	0.00	0.0
		1/3/2017	21.57	23.00	20.82	22.25	0.00	No						0.00	0.00	0.00	0.0
		1/4/2017	21.54	22.97	20.81	22.24	0.09	No						0.00	0.00	0.00	0.0
		1/5/2017	21.51	22.94	20.79	22.22	0.00	No						0.00	0.00	0.00	0.0
		1/6/2017	21.47	22.90	20.76	22.19	0.00	No						0.00	0.00	0.00	0.0
		1/7/2017	21.45	22.88	20.74	22.17	0.05	No						0.00	0.00	0.00	0.0
		1/8/2017	21.39	22.82	20.69	22.12	0.00	No						0.00	0.00	0.00	0.0
		1/9/2017	21.34	22.77	20.67	22.10	0.00	No						0.00	0.00	0.00	0.0
		1/10/2017	21.33	22.76	20.66	22.09	0.10	No						0.00	0.00	0.00	0.0
		1/11/2017	21.31	22.74	20.65	22.08	0.01	No						0.00	0.00	0.00	0.0
		1/12/2017	21.28	22.71	20.64	22.07	0.00	No						0.00	0.00	0.00	0.0
		1/13/2017	21.26	22.69	20.63	22.06	0.00	No						0.00	0.00	0.00	0.0
		1/14/2017	21.23	22.66	20.61	22.04	0.03	No						0.00	0.00	0.00	0.0
		1/15/2017	21.20	22.63	20.60	22.03	0.00	No						0.00	0.00	0.00	0.0
		1/16/2017	21.17	22.60	20.58	22.01	0.00	No						0.00	0.00	0.00	0.0
		1/17/2017	21.14	22.57	20.56	21.99	0.00	No						0.00	0.00	0.00	0.0
		1/18/2017	21.11	22.54	20.54	21.97	0.00	No						0.00	0.00	0.00	0.0
		1/19/2017	21.07	22.50	20.54	21.97	0.00	No						0.00	0.00	0.00	0.0
		1/20/2017	21.05	22.48	20.51	21.94	0.00	No						0.00	0.00	0.00	0.0
		1/21/2017	21.02	22.45	20.50	21.93	0.05	No						0.00	0.00	0.00	0.0
		1/22/2017	21.00	22.43	20.48	21.91	0.55	No						0.00	0.00	0.00	0.0
		1/23/2017	21.03	22.46	20.56	21.99	0.00	No						0.00	0.00	0.00	0.0
		1/24/2017	20.98	22.41	20.52	21.95	0.00	No						0.00	0.00	0.00	0.0
		1/25/2017	20.95	22.38	20.51	21.95	0.00	No						0.00	0.00	0.00	0.0
		1/26/2017	20.93	22.36	20.48	21.91	0.00	No						0.00	0.00	0.00	0.0
		1/27/2017	20.91	22.34	20.46	21.89	0.00	No						0.00	0.00	0.00	0.0
		1/28/2017	20.87	22.30	20.43	21.86	0.00	No						0.00	0.00	0.00	0.0
		1/29/2017	20.86	22.29	20.43	21.86	0.36	No						0.00	0.00	0.00	0.0
		1/30/2017	20.85	22.28	20.43	21.86	0.02	No						0.00	0.00	0.00	0.0
		1/31/2017	20.82	22.25	20.41	21.84	0.00	No						0.00	0.00	0.00	0.0
		2/1/2017	20.79	22.22	20.39	21.82	0.00	No						0.00	0.00	0.00	0.0
		2/2/2017	20.78	22.21	20.37	21.80	0.00	No						0.00	0.00	0.00	0.0
		2/3/2017	20.76	22.19	20.36	21.79	0.00	No						0.00	0.00	0.00	0.0
		2/4/2017	20.75	22.18	20.34	21.77	0.00	No						0.00	0.00	0.00	0.0
		2/5/2017	20.73	22.16	20.32	21.75	0.00	No						0.00	0.00	0.00	0.0
		2/6/2017	20.70	22.13	20.31	21.74	0.00	No						0.00	0.00	0.00	0.0
		2/7/2017	20.68	22.11	20.31	21.74	0.01	No						0.00	0.00	0.00	0.0
		2/8/2017	20.67	22.10	20.30	21.73	0.00	No						0.00	0.00	0.00	0.0
		2/9/2017	20.65	22.08	20.27	21.70	0.00	No						0.00	0.00	0.00	0.0
		2/10/2017	20.60	22.03	20.24	21.67	0.00	No						0.00	0.00	0.00	0.0
		2/11/2017	20.57	22.00	20.21	21.64	0.00	No						0.00	0.00	0.00	0.0
		2/12/2017	20.55	21.98	20.20	21.63	0.00	No						0.00	0.00	0.00	0.0
		2/13/2017	20.53	21.96	20.18	21.61	0.00	No						0.00	0.00	0.00	0.0
		2/14/2017	20.51	21.94	20.17	21.60	0.00	No						0.00	0.00	0.00	0.0
		2/15/2017	20.50	21.93	20.15	21.58	0.12	No						0.00	0.00	0.00	0.0
		2/16/2017	20.49	21.92	20.13	21.56	0.00	No						0.00	0.00	0.00	0.0
		2/17/2017	20.44	21.87	20.10	21.53	0.00	No						0.00	0.00	0.00	0.0
		2/18/2017	20.42	21.85	20.10	21.53	0.00	No						0.00	0.00	0.00	0.0
		2/19/2017	20.42	21.85	20.07	21.50	0.00	No						0.00	0.00	0.00	0.0
		2/20/2017	20.39	21.82	20.03	21.46	0.00	No						0.00	0.00	0.00	0.0
		2/21/2017	20.36	21.79	20.01	21.44	0.00	No						0.00	0.00	0.00	0.0
		2/22/2017	20.36	21.79	20.02	21.45	0.65	No						0.00	0.00	0.00	0.0

ID	Structure	SampleDate	South Cell 1 (Control 24.5' NAVD) Stage Ft_NAVD	Stage Ft_NGVD	North Cell 2 (Control 25' NAVD) Stage Ft_NAVD	Stage Ft_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
		2/23/2017	20.40	21.83	20.05	21.48	0.00	No						0.00	0.00	0.00	0.0
		2/24/2017	20.39	21.82	20.03	21.46	0.00	No						0.00	0.00	0.00	0.0
		2/25/2017	20.38	21.81	20.00	21.43	0.00	No						0.00	0.00	0.00	0.0
		2/26/2017	20.35	21.78	19.95	21.38	0.00	No						0.00	0.00	0.00	0.0
		2/27/2017	20.33	21.76	19.94	21.37	0.00	No						0.00	0.00	0.00	0.0
		2/28/2017	20.31	21.74	19.91	21.34	0.00	No						0.00	0.00	0.00	0.0
		3/1/2017	20.29	21.72	19.88	21.31	0.00	No						0.00	0.00	0.00	0.0
		3/2/2017	20.28	21.71	19.84	21.27	0.00	No						0.00	0.00	0.00	0.0
		3/3/2017	20.23	21.66	19.82	21.25	0.00	No						0.00	0.00	0.00	0.0
		3/4/2017	20.19	21.62	19.77	21.20	0.00	No						0.00	0.00	0.00	0.0
		3/5/2017	20.17	21.60	19.76	21.19	0.00	No						0.00	0.00	0.00	0.0
		3/6/2017	20.14	21.57	19.72	21.15	0.00	No						0.00	0.00	0.00	0.0
		3/7/2017	20.12	21.55	19.69	21.12	0.00	No						0.00	0.00	0.00	0.0
		3/8/2017	20.11	21.54	19.66	21.09	0.02	No						0.00	0.00	0.00	0.0
		3/9/2017	20.08	21.51	19.63	21.06	0.00	No						0.00	0.00	0.00	0.0
		3/10/2017	20.05	21.49	19.61	21.04	0.00	No						0.00	0.00	0.00	0.0
		3/11/2017	20.03	21.46	19.57	21.00	0.00	No						0.00	0.00	0.00	0.0
		3/12/2017	20.00	21.43	19.53	20.96	0.00	No						0.00	0.00	0.00	0.0
		3/13/2017	19.97	21.40	19.51	20.94	0.20	No						0.00	0.00	0.00	0.0
		3/14/2017	19.97	21.40	19.52	20.95	0.01	No						0.00	0.00	0.00	0.0
		3/15/2017	19.89	21.32	19.45	20.88	0.00	No						0.00	0.00	0.00	0.0
		3/16/2017	19.80	21.23	19.41	20.84	0.00	No						0.00	0.00	0.00	0.0
		3/17/2017	19.74	21.17	19.37	20.80	0.00	No						0.00	0.00	0.00	0.0
		3/18/2017	19.70	21.13	19.33	20.76	0.00	No						0.00	0.00	0.00	0.0
		3/19/2017	19.66	21.09	19.29	20.72	0.00	No						0.00	0.00	0.00	0.0
		3/20/2017	19.59	21.02	19.24	20.67	0.00	No						0.00	0.00	0.00	0.0
		3/21/2017	19.65	21.08	19.22	20.65	0.00	No						0.00	0.00	0.00	0.0
		3/22/2017	19.65	21.08	10.16	11.59	0.00	No						0.00	0.00	0.00	0.0
		3/23/2017	19.64	21.07	19.18	20.61	0.66	No						0.00	0.00	0.00	0.0
		3/24/2017	19.66	21.09	19.40	20.83	0.00	No						0.00	0.00	0.00	0.0
		3/25/2017	19.59	21.02	19.37	20.80	0.00	No						0.00	0.00	0.00	0.0
		3/26/2017	19.64	21.07	19.33	20.76	0.00	No						0.00	0.00	0.00	0.0
		3/27/2017	19.63	21.06	19.29	20.72	0.00	No						0.00	0.00	0.00	0.0
		3/28/2017	19.63	21.06	19.25	20.68	0.00	No						0.00	0.00	0.00	0.0
		3/29/2017	19.63	21.06	19.21	20.64	0.00	No						0.00	0.00	0.00	0.0
		3/30/2017	19.63	21.06	19.17	20.60	0.00	No						0.00	0.00	0.00	0.0
		3/31/2017	19.62	21.05	19.11	20.54	0.00	No						0.00	0.00	0.00	0.0
		3/31/2017	19.62	21.05	19.11	20.54	0.00	No						0.0	0.0	0.0	0.0
		4/1/2017	19.62	21.05	19.07	20.50	0.00	No						0.0	0.0	0.0	0.0
		4/2/2017	19.62	21.05	19.02	20.45	0.00	No						0.0	0.0	0.0	0.0
		4/3/2017	19.62	21.05	19.00	20.43	0.00	No						0.0	0.0	0.0	0.0
		4/4/2017	19.62	21.05	18.95	20.38	0.19	No						0.0	0.0	0.0	0.0
		4/5/2017	19.62	21.05	19.03	20.46	0.02	No						0.0	0.0	0.0	0.0
		4/6/2017	19.62	21.05	19.04	20.47	0.00	No						0.0	0.0	0.0	0.0
		4/7/2017	19.62	21.05	18.79	20.22	0.00	No						0.0	0.0	0.0	0.0
		4/8/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/9/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/10/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/11/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/12/2017	19.62	21.05	18.91	20.34	0.37	No						0.0	0.0	0.0	0.0
		4/13/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/14/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/15/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/16/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/17/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/18/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/19/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/20/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/21/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/22/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/23/2017	19.62	21.05	18.91	20.34	0.67	No						0.0	0.0	0.0	0.0
		4/24/2017	19.62	21.05	18.91	20.34	0.01	No						0.0	0.0	0.0	0.0
		4/25/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/26/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/27/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/28/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/29/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		4/30/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/1/2017	19.62	21.05	18.91	20.34	0.12	No						0.0	0.0	0.0	0.0
		5/2/2017	19.62	21.05	18.91	20.34	0.41	No						0.0	0.0	0.0	0.0
		5/3/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/4/2017	19.62	21.05	18.91	20.34	0.16	No						0.0	0.0	0.0	0.0
		5/5/2017	19.62	21.05	18.91	20.34	0.65	No						0.0	0.0	0.0	0.0
		5/6/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/7/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/8/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/9/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/10/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/11/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/12/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/13/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/14/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/15/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0

ID	Structure	SampleDate	South Cell 1 (Control 24.5' NAVD) StageFt_NAVD	StageFt_NGVD	North Cell 2 (Control 25.2' NAVD) StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
		5/16/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
		5/17/2017	19.62	21.05	18.91	20.34	0.07	No						0.0	0.0	0.0	0.0
		5/18/2017	19.62	21.05	18.91	20.34	0.02	No						0.0	0.0	0.0	0.0
		5/19/2017	19.62	21.05	18.91	20.34	0.00	No						0.0	0.0	0.0	0.0
						Totals	141.90							4354.08	1261.76	1.6	7.0
						Rain Ac.ft	7,322										

Project Water Quality Monitoring

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
5/1/2015						
5/2/2015						
5/3/2015						
5/4/2015						
5/5/2015						
5/6/2015						
5/7/2015						
5/8/2015						
5/9/2015						
5/10/2015						
5/11/2015						
5/12/2015						
5/13/2015						
5/14/2015						
5/15/2015						
5/16/2015						
5/17/2015						
5/18/2015						
5/19/2015						
5/20/2015						
5/21/2015						
5/22/2015						
5/23/2015						
5/24/2015						
5/25/2015						
5/26/2015						
5/27/2015						
5/28/2015						
5/29/2015						
5/30/2015						
5/31/2015						
6/1/2015						
6/2/2015						
6/3/2015						
6/4/2015						
6/5/2015						
6/6/2015						
6/7/2015						
6/8/2015						
6/9/2015						
6/10/2015						
6/11/2015						
6/12/2015						
6/13/2015						
6/14/2015						
6/15/2015						
6/16/2015						
6/17/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
6/18/2015						
6/19/2015						
6/20/2015						
6/21/2015						
6/22/2015						
6/23/2015						
6/24/2015						
6/25/2015						
6/26/2015						
6/27/2015						
6/28/2015						
6/29/2015						
6/30/2015						
7/1/2015						
7/2/2015						
7/3/2015						
7/4/2015						
7/5/2015						
7/6/2015						
7/7/2015						
7/8/2015						
7/9/2015						
7/10/2015						
7/11/2015						
7/12/2015						
7/13/2015						
7/14/2015						
7/15/2015						
7/16/2015						
7/17/2015						
7/18/2015						
7/19/2015						
7/20/2015						
7/21/2015						
7/22/2015						
7/23/2015						
7/24/2015						
7/25/2015						
7/26/2015						
7/27/2015						
7/28/2015						
7/29/2015						
7/30/2015						
7/31/2015						
8/1/2015						
8/2/2015						
8/3/2015						
8/4/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
8/5/2015						
8/6/2015						
8/7/2015						
8/8/2015						
8/9/2015						
8/10/2015						
8/11/2015						
8/12/2015						
8/13/2015						
8/14/2015						
8/15/2015						
8/16/2015						
8/17/2015						
8/18/2015						
8/19/2015						
8/20/2015						
8/21/2015						
8/22/2015						
8/23/2015						
8/24/2015	0.452	2.32	0.452		2.32	20
8/25/2015	0.452	2.32				
8/26/2015	0.452	2.32				
8/27/2015	0.452	2.32				
8/28/2015	0.452	2.32				
8/29/2015	0.452	2.32				
8/30/2015	0.452	2.32				
8/31/2015	0.546	2.2	0.884		3.08	115
9/1/2015	0.546	2.2				
9/2/2015	0.546	2.2				
9/3/2015	0.546	2.2				
9/4/2015	0.546	2.2				
9/5/2015	0.546	2.2				
9/6/2015	0.546	2.2				
9/7/2015	0.546	2.2				
9/8/2015	0.374	2.03	0.433		1.99	101
9/9/2015	0.374	2.03				
9/10/2015	0.374	2.03				
9/11/2015	0.374	2.03				
9/12/2015	0.374	2.03				
9/13/2015	0.374	2.03				
9/14/2015	0.517	2.29	0.723		2.77	74
9/15/2015	0.517	2.29				
9/16/2015	0.517	2.29				
9/17/2015	0.517	2.29				
9/18/2015	0.517	2.29				
9/19/2015	0.517	2.29				
9/20/2015	0.517	2.29				
9/21/2015	0.677	2.34	0.513	0.005	2.08	26

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
9/22/2015	0.677	2.34				
9/23/2015	0.677	2.34				
9/24/2015	0.677	2.34				
9/25/2015	0.677	2.34				
9/26/2015	0.677	2.34				
9/27/2015	0.677	2.34				
9/28/2015	0.454	2.16	0.595	0.061	2.2	11
9/29/2015	0.454	2.16				
9/30/2015	0.454	2.16				
10/1/2015	0.454	2.16				
10/2/2015	0.454	2.16				
10/3/2015	0.454	2.16				
10/4/2015	0.454	2.16				
10/5/2015	0.454	2.16				
10/6/2015	1.000	3.90	0.338		2.22	
10/7/2015	1.000	3.90				
10/8/2015	1.000	3.90				
10/9/2015	1.000	3.90				
10/10/2015	1.000	3.90				
10/11/2015	1.000	3.90				
10/12/2015	0.393	2.14	0.234	0.046	2.11	14
10/13/2015	0.393	2.14				
10/14/2015	0.393	2.14				
10/15/2015	0.393	2.14				
10/16/2015	0.393	2.14				
10/17/2015	0.393	2.14				
10/18/2015	0.393	2.14				
10/19/2015	0.361	2.02	0.308	0.193	1.92	15
10/20/2015	0.361	2.02				
10/21/2015	0.361	2.02				
10/22/2015	0.361	2.02				
10/23/2015	0.361	2.02				
10/24/2015	0.361	2.02				
10/25/2015	0.361	2.02				
10/26/2015	0.355	1.95	0.317	0.238	2.01	14
10/27/2015	0.355	1.95				
10/28/2015	0.355	1.95				
10/29/2015	0.355	1.95				
10/30/2015	0.355	1.95				
10/31/2015	0.355	1.95				
11/1/2015	0.355	1.95				
11/2/2015	0.324	1.88	0.326	0.166	1.86	13
11/3/2015	0.324	1.88				
11/4/2015	0.324	1.88				
11/5/2015	0.324	1.88				
11/6/2015	0.324	1.88				
11/7/2015	0.324	1.88				
11/8/2015	0.324	1.88				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
11/9/2015						
11/10/2015						
11/11/2015						
11/12/2015						
11/13/2015						
11/14/2015						
11/15/2015						
11/16/2015						
11/17/2015						
11/18/2015						
11/19/2015						
11/20/2015						
11/21/2015						
11/22/2015						
11/23/2015						
11/24/2015						
11/25/2015						
11/26/2015						
11/27/2015						
11/28/2015						
11/29/2015						
11/30/2015						
12/1/2015						
12/2/2015						
12/3/2015						
12/4/2015						
12/5/2015						
12/6/2015						
12/7/2015						
12/8/2015						
12/9/2015						
12/10/2015						
12/11/2015						
12/12/2015						
12/13/2015						
12/14/2015						
12/15/2015						
12/16/2015						
12/17/2015						
12/18/2015						
12/19/2015						
12/20/2015						
12/21/2015						
12/22/2015						
12/23/2015						
12/24/2015						
12/25/2015						
12/26/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
12/27/2015			0.28	0.212	1.77	22
12/28/2015						
12/29/2015						
12/30/2015						
12/31/2015						
1/1/2016						
1/2/2016						
1/3/2016						
1/4/2016						
1/5/2016						
1/6/2016						
1/7/2016						
1/8/2016						
1/9/2016						
1/10/2016						
1/11/2016						
1/12/2016						
1/13/2016						
1/14/2016						
1/15/2016						
1/16/2016						
1/17/2016						
1/18/2016						
1/19/2016						
1/20/2016						
1/21/2016						
1/22/2016						
1/23/2016						
1/24/2016						
1/25/2016						
1/26/2016						
1/27/2016						
1/28/2016						
1/29/2016						
1/30/2016						
1/31/2016						
2/1/2016			0.449	0.244	1.51	22
2/2/2016						
2/3/2016						
2/4/2016						
2/5/2016						
2/6/2016						
2/7/2016						
2/8/2016						
2/9/2016	0.684	2.54	0.158	0.042	1.44	5
2/10/2016	0.684	2.54				
2/11/2016	0.684	2.54				
2/12/2016	0.684	2.54				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
2/13/2016	0.684	2.54				
2/14/2016	0.684	2.54				
2/15/2016	0.499	2.01	0.291	0.172	1.55	15
2/16/2016	0.499	2.01				
2/17/2016	0.499	2.01				
2/18/2016	0.499	2.01				
2/19/2016	0.499	2.01				
2/20/2016	0.499	2.01				
2/21/2016	0.499	2.01				
2/22/2016	0.609	2.52	0.243	0.101	1.64	20
2/23/2016	0.609	2.52				
2/24/2016	0.609	2.52				
2/25/2016	0.609	2.52				
2/26/2016	0.609	2.52				
2/27/2016	0.609	2.52				
2/28/2016	0.609	2.52				
2/29/2016	0.581	2.51	0.135	0.066	1.4	8
3/1/2016	0.581	2.51				
3/2/2016	0.581	2.51				
3/3/2016	0.581	2.51				
3/4/2016	0.581	2.51				
3/5/2016	0.581	2.51				
3/6/2016	0.581	2.51				
3/7/2016	0.581	2.51				
3/8/2016						
3/9/2016						
3/10/2016						
3/11/2016						
3/12/2016						
3/13/2016						
3/14/2016						
3/15/2016						
3/16/2016						
3/17/2016						
3/18/2016						
3/19/2016						
3/20/2016						
3/21/2016						
3/22/2016						
3/23/2016						
3/24/2016						
3/25/2016						
3/26/2016						
3/27/2016						
3/28/2016						
3/29/2016						
3/30/2016						
3/31/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
4/1/2016						
4/2/2016						
4/3/2016						
4/4/2016						
4/5/2016						
4/6/2016						
4/7/2016						
4/8/2016						
4/9/2016						
4/10/2016						
4/11/2016						
4/12/2016						
4/13/2016						
4/14/2016						
4/15/2016						
4/16/2016						
4/17/2016						
4/18/2016						
4/19/2016						
4/20/2016						
4/21/2016						
4/22/2016						
4/23/2016						
4/24/2016						
4/25/2016						
4/26/2016						
4/27/2016						
4/28/2016						
4/29/2016						
4/30/2016						
5/1/2016						
5/2/2016						
5/3/2016						
5/4/2016						
5/5/2016						
5/6/2016						
5/7/2016						
5/8/2016						
5/9/2016						
5/10/2016						
5/11/2016						
5/12/2016						
5/13/2016						
5/14/2016						
5/15/2016						
5/16/2016						
5/17/2016						
5/18/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
5/19/2016						
5/20/2016						
5/21/2016						
5/22/2016						
5/23/2016						
5/24/2016	0.897	1.59	0.28	0.005	1.58	3
5/25/2016	0.897	1.59				
5/26/2016	0.897	1.59				
5/27/2016	0.897	1.59				
5/28/2016	0.897	1.59				
5/29/2016	0.897	1.59				
5/30/2016	0.897	1.59				
5/31/2016	0.344	1.69	0.182	0.016	1.52	5
6/1/2016	0.344	1.69				
6/2/2016	0.344	1.69				
6/3/2016	0.344	1.69				
6/4/2016	0.344	1.69				
6/5/2016	0.344	1.69				
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6/13/2016	0.480	1.77	0.359	0.012	1.61	7
6/14/2016	0.480	1.77				
6/15/2016	0.480	1.77				
6/16/2016	0.480	1.77				
6/17/2016	0.480	1.77				
6/18/2016	0.480	1.77				
6/19/2016	0.480	1.77				
6/20/2016	1.573	1.88	0.132	0.005	1.29	3
6/21/2016	1.573	1.88				
6/22/2016	1.573	1.88				
6/23/2016	1.573	1.88				
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6/25/2016	1.573	1.88				
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8/13/2016	0.702	5.36				
8/14/2016	0.702	5.36				
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Appendix B3:
Spur Land & Cattle Water Farm Pilot Project

Project Design

Attachment 1.7 Project Overview

Proposed Modifications

Bull Hammock Ranch (Bull Hammock) is operated by Bull Hammock Ranch, LTD. and is a 7,500 acre cow/calf operation located in Martin County between the C-23 Canal and SW Martin Highway. The project is in Section 05 of Township 38S, Range 38E which is in the St. Lucie River Watershed (Figure 1.1).

The proposed project would involve creating a dike around an abandoned 60 acre citrus grove located adjacent to the main north/south canal located on the Ranch property and the C-23 Canal. The dike would allow water to be pumped via existing pumps into the former citrus grove area from the on-Ranch canal, which receives water from the 8,200 acre Allapattah Ranch "C" unit and from onsite runoff, or the C-23 Canal. The plan is to stack on average approximately 3 feet of water across the 60 acres to yield an approximate annual storage of 240 acre feet of water.

The primary purpose of the water storage project is to provide additional on site storage to attenuate stormwater runoff and provide water quality treatment. This ultimately reduces the annual discharge volume and associated nutrient loading to the St. Lucie River.

Private/Public Benefits

The creation of this water storage area has the potential to positively impact the quality of water flowing offsite from the 8,200 acre Allapattah area, from the surrounding pasture areas, and from the C-23 Canal. As a result, a net benefit of increased water retention, improved water quality, and reduction in offsite nutrient transport could be achieved. Water will be stored in the impoundment area to a maximum level of four feet above the ground surface. Discharge elevations will be set accordingly.

The Bull Hammock Project offers unique opportunities because of the way the water can be managed on the ranch. Under typical storm event conditions, should releases from the storage area become necessary, the water could be released to the southwest into the slough system which drains into a southern east/west ditch that then ties back into the main north/south canal. Additionally, water could be released to the northwest into the northern east/west ditch that ties into a swale ditch to take the water south to the southern east/west ditch that then ties back into the north/south canal. Both of these scenarios allow the water to be further treated before discharge.

Flexibility in Operation and Management

The landowner has many years of experience in operating and maintaining above ground impoundment areas to store and treat surface water. The familiarity with these types of systems will enhance the flexibility and adaptability of the operation of the proposed water storage area.

Estimate of Service

The estimated annual storage volume within the 60 acre former citrus grove will be 240 acre feet. This estimate was prepared using the GLEAMS model to prepare a water budget.

Impacts on Adjacent Property Owners

Impacts to onsite water retention on adjacent landowners will be negligible.

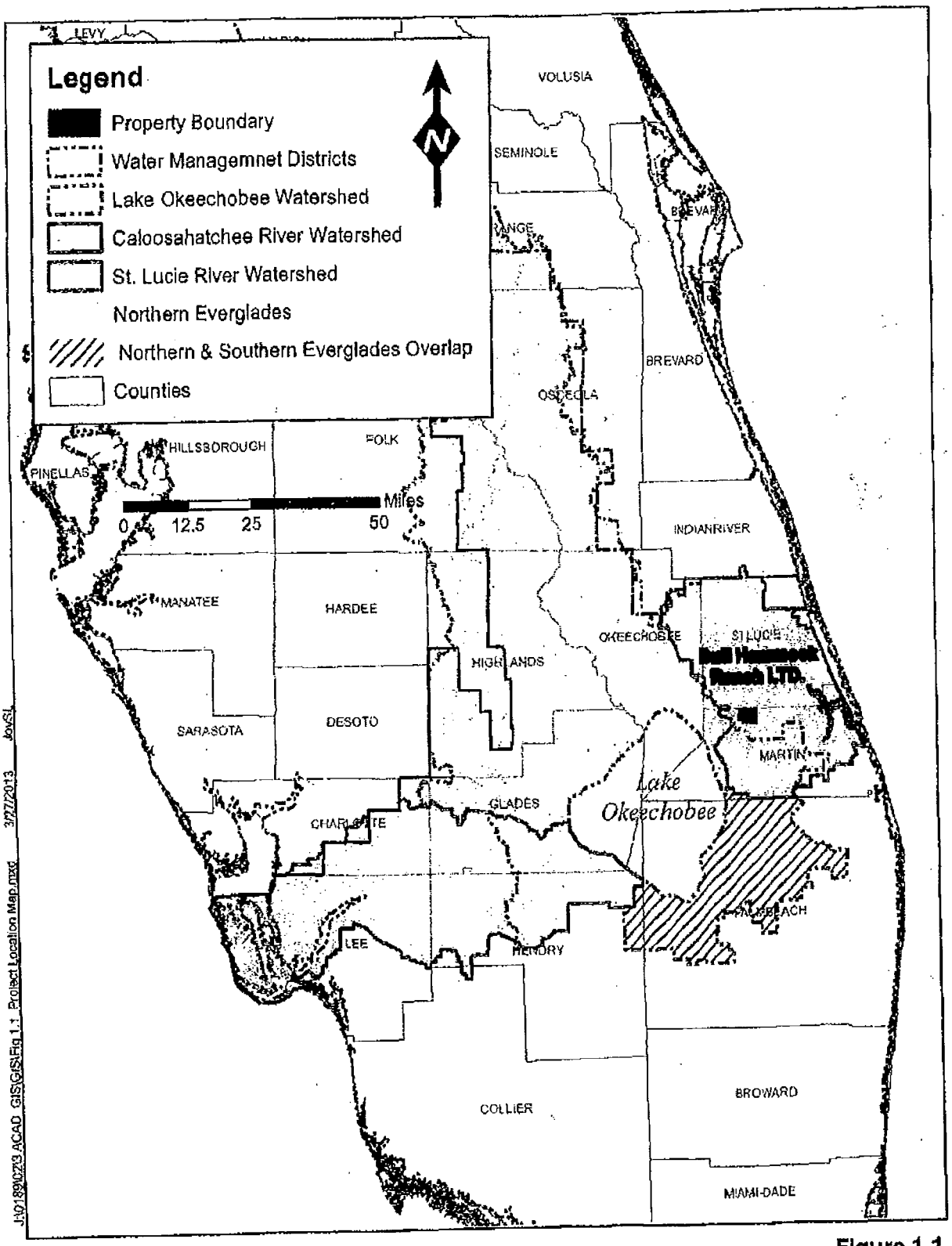


Figure 1.1
Project Location Map

Attachment 2.1 Project Description and Purpose

Bull Hammock Ranch, LTD. – Martin County

Location:	Unincorporated Martin County Multiple Sections, Township 38S, Range 38E
Drainage Basin:	St. Lucie River Watershed

Project Description and Purpose

Bull Hammock Ranch (Bull Hammock) is operated by Bull Hammock Ranch, LTD. and is a 7,500 acre cow/calf operation located in Martin County between the C-23 Canal and SW Martin Highway (Figure 1.1).

The proposed project would involve creating a dike around an abandoned 60 acre citrus grove located adjacent to the main north/south canal located on the Ranch property and the C-23 Canal. The dike would allow water to be pumped via existing pumps into the former citrus grove area from the on-Ranch canal, which receives water from the XXXX acre Allapattah Ranch "C" unit and from onsite runoff, or the C-23 Canal. The plan is to stack on average approximately 4 feet of water across the 60 acres to yield an approximate annual storage of 240 acre feet of water.

The primary purpose of the proposed water storage area is to provide additional on-site storage of regional and onsite discharge to facilitate stormwater runoff attenuation and water quality treatment, ultimately helping to reduce the annual discharge volume and associated nutrient loading to the St. Lucie River.

The proposed project will involve the creation of a dike around the 60 acre former citrus grove (Project location) (See Figure 2.1) and the operation of 2 existing pumps to move water into the water storage area. The water storage area will be operated year round and in accordance with District guidance. At no time will the amount of water exceed 4 feet. There are no wetlands located within the proposed project area. The existing topography takes water through the ranch to the north to the C-23 Canal.


BULL HAMMOCK RANCH - GROVE PROJECT
SOILS
Martin County
S/T/R: 5/38S/38E
31
32
33
04
05
06
08
09
CHOBEE
GATOR
FLORIDANA
MARTIN
SOIL DESCRIPTION AC
BOCA BOCA FINE SAND 4.71
CHOBEE CHOBEE LOAMY SAND, DEPRESSIONAL 286.07
FLORIDANA FLORIDANA FINE SAND, DEPRESSIONAL 39.82
GATOR GATOR AND TEQUESTA MUCKS 7.64
HALLANDALE HALLANDALE SAND 29.24
JUPITER JUPITER SAND 7.83
PINEDA PINEDA AND RIVIERA FINE SANDS 262.68
PINELLAS PINELLAS FINE SAND 7.75
UDORTHENTS UDORTHENTS, 0 TO 35 % SLOPES 21.23
WATER WATER 3.51
Miles
0 0.1 0.2 0.4
LEGEND:
Carlton_S5T38R38_Soils
Carlton - Grove Project: Perimeter
County Boundary
Township/Range Lines
Section Lines

FIGURE 2.1

Attachment 2.3 – Water Budget Method, Calculation Data, and Supporting Documents

A simple water budget was prepared using the GLEAMS model. In general, an eight year period of record, measured rainfall, calculated evapotranspiration (ET) and calculated seepage were used to estimate the annual storage amount of 240 ac/feet.

Calculation stat and supporting documents are attached.

Project Permitting

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
ENVIRONMENTAL RESOURCE PERMIT NO. 43-00062-S
DATE ISSUED:July 21, 2014

PERMITTEE: SPUR LAND AND CATTLE L L C
13051 OKEECHOBEE ROAD
FORT PIERCE, FL 34945

PROJECT DESCRIPTION: Modification of a Surface Water Management operation permit for construction and operation of a project that includes a stormwater management system serving a 60 acre above ground impoundment for the purpose of water farming.

PROJECT LOCATION: MARTIN COUNTY, SEC 5 TWP 38S RGE 38E

PERMIT DURATION: See Special Condition No:1.

This is to notify you of the District's agency action for Permit Application No. 140527-16, dated May 27, 2014. This action is taken pursuant to the provisions of Chapter 373, Part IV, Florida Statues (F.S).

Based on the information provided, District rules have been adhered to and an Environmental Resource Permit is in effect for this project subject to:

1. Not receiving a filed request for a Chapter 120, Florida Statutes, administrative hearing.
2. the attached 18 General Conditions (See Pages : 2 - 4 of 6),
3. the attached 9 Special Conditions (See Pages : 5 - 6 of 6) and
4. the attached 2 Exhibit(s)

Should you object to these conditions, please refer to the attached "Notice of Rights" which addresses the procedures to be followed if you desire a public hearing or other review of the proposed agency action. Please contact this office if you have any questions concerning this matter. If we do not hear from you in accordance with the "Notice of Rights," we will assume that you concur with the District's action.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY THAT this written notice has been mailed or electronically transmitted to the Permittee (and the persons listed in the attached distribution list) this 21st day of July, 2014, in accordance with Section 120.60(3), F.S. Notice was also electronically posted on this date through a link on the home page of the District's website (my.sfwmd.gov/ePermitting).

BY: Anita R. Bain

Anita Bain
Bureau Chief - Environmental Resource Permitting
Martin / St Lucie Regulatory Office

GENERAL CONDITIONS

1. All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized shall subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S. (2012).

2. A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

3. Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the "State of Florida Erosion and Sediment Control Designer and Reviewer Manual" (Florida Department of Environmental Protection and Florida Department of Transportation June 2007), and the "Florida Stormwater Erosion and Sedimentation Control Inspector's Manual" (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008), unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

4. At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice" indicating the expected start and completion dates. If available, an Agency website that fulfills this notification requirement may be used in lieu of the form.

5. Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.

6. Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:
   a. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex- "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit"[Form 62-330.310(3)]; or
   b. For all other activities- "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].
   c. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

7. If the final operation and maintenance entity is a third party:
   a. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as- built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Applicant's Handbook Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.
   b. Within 30 days of submittal of the as- built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

8. The permittee shall notify the Agency in writing of changes required by any other regulatory agency that

GENERAL CONDITIONS

require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

9. This permit does not:
a. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;
b. Convey to the permittee or create in the permittee any interest in real property;
c. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or
d. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

10. Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

11. The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

12. The permittee shall notify the Agency in writing:
a. Immediately if any previously submitted information is discovered to be inaccurate; and
b. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

13. Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

14. If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification shall be provided in accordance with Section 872.05, F.S.

15. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

16. The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other

GENERAL CONDITIONS

uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

17. This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

18. A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with Rule 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

SPECIAL CONDITIONS

1. The construction phase of this permit shall expire on July 21, 2019.

2. Operation of the stormwater management system shall be the responsibility of the permittee.

3. Discharge Facilities:

   Structure: EOS

   2-4' WIDE FLASH BOARD RISER weirs with crest at elev. 27.5' NAVD 88.
   Receiving body : Site and C-23
   Control elev : 22.7 feet NAVD 88.

   Structure: Marsh

   1-50" WIDE FLASH BOARD RISER weir with crest at elev. 22.7' NAVD 88.
   Receiving body : C-23
   Control elev : 22.7 feet NAVD 88.

   Structure: RCS

   1-3' WIDE FLASH BOARD RISER weir with crest at elev. 27' NAVD 88.
   Receiving body : Site
   Control elev : 22.7 feet NAVD 88.

4. A stable, permanent and accessible elevation reference shall be established on or within one hundred (100) feet of all permitted discharge structures no later than the submission of the certification report. The location of the elevation reference must be noted on or with the certification report.

5. Land use within the permitted facilities is agricultural. Any proposed change in land use or crop type may require modification of this permit and must be reported to the District for a determination of permit requirements.

6. Upon completion of construction, and on an annual basis (in March of each year), the permittee shall have an inspection performed to assess the structural adequacy of all above ground dikes, control structures, levees and berms behind which water is to be contained and where failure could impact off-site areas. A state of Florida licensed professional engineer shall perform each inspection and prepare each report. These reports shall be signed and sealed by the professional engineer performing the inspection, kept on file by the permittee and made available to South Florida Water Management District (SFWMD) personnel upon request. If deficiencies are found that will affect the performance of the impoundment, a report which is signed and sealed by the engineer performing the inspection shall be submitted to the SFWMD within which includes, but is not limited to, the proposed technique and schedule for repairs of any deficiencies noted.

7. Prior to the commencement of construction, the permittee shall conduct a pre-construction meeting with field representatives, contractors and District staff. The purpose of the meeting will be to discuss construction methods and sequencing, including type and location of turbidity and erosion controls to be implemented during construction, mobilization and staging of contractor equipment, phasing of construction, methods of vegetation clearing, construction dewatering if required, ownership documentation for eminent domain authority, coordination with other entities on adjacent construction projects, wetland/buffer protection methods, and endangered species protection with the permittee and contractors. The permittee shall contact District Environmental Resource Compliance staff from the

SPECIAL CONDITIONS

Okeechobee Service Center at 863-462-5260 to schedule the pre-construction meeting.

8. The exhibits and special conditions in this permit apply only to this application. They do not supersede or delete any requirements for other applications covered in Permit No. 43-00062-S unless otherwise specified herein.

9. Silt screens, turbidity screens/barriers or other such sediment control measures shall be utilized during construction. The selected sediment control measure shall be installed landward of the upland buffer zones around all protected wetlands and shall be properly "trenched" etc, in accordance with Exhibit No.2.0. All areas shall be stabilized and vegetated immediately after construction to prevent erosion into the wetlands and upland buffer zones.

NOTICE OF RIGHTS

As required by Sections 120.569(1), and 120.60(3), Fla. Stat., the following is notice of the opportunities which may be available for administrative hearing or judicial review when the substantial interests of a party are determined by an agency. Please note that this Notice of Rights is not intended to provide legal advice. Not all the legal proceedings detailed below may be an applicable or appropriate remedy. You may wish to consult an attorney regarding your legal rights.

RIGHT TO REQUEST ADMINISTRATIVE HEARING

A person whose substantial interests are or may be affected by the South Florida Water Management District's (SFWMD or District) action has the right to request an administrative hearing on that action pursuant to Sections 120.569 and 120.57, Fla. Stat. Persons seeking a hearing on a SFWMD decision which does or may affect their substantial interests shall file a petition for hearing with the District Clerk within 21 days of receipt of written notice of the decision, unless one of the following shorter time periods apply: 1) within 14 days of the notice of consolidated intent to grant or deny concurrently reviewed applications for environmental resource permits and use of sovereign submerged lands pursuant to Section 373.427, Fla. Stat.; or 2) within 14 days of service of an Administrative Order pursuant to Subsection 373.119(1), Fla. Stat. "Receipt of written notice of agency decision" means receipt of either written notice through mail, electronic mail, or posting that the SFWMD has or intends to take final agency action, or publication of notice that the SFWMD has or intends to take final agency action. Any person who receives written notice of a SFWMD decision and fails to file a written request for hearing within the timeframe described above waives the right to request a hearing on that decision.

FILING INSTRUCTIONS

The Petition must be filed with the Office of the District Clerk of the SFWMD. Filings with the District Clerk may be made by mail, hand-delivery, or e-mail. **Filings by facsimile will not be accepted after October 1, 2014.** A petition for administrative hearing or other document is deemed filed upon receipt during normal business hours by the District Clerk at SFWMD headquarters in West Palm Beach, Florida. Any document received by the office of the District Clerk after 5:00 p.m. shall be filed as of 8:00 a.m. on the next regular business day. Additional filing instructions are as follows:

- Filings by mail must be addressed to the Office of the District Clerk, P.O. Box 24680, West Palm Beach, Florida 33416.
- Filings by hand-delivery must be delivered to the Office of the District Clerk. **Delivery of a petition to the SFWMD's security desk does not constitute filing. To ensure proper filing, it will be necessary to request the SFWMD's security officer to contact the Clerk's office.** An employee of the SFWMD's Clerk's office will receive and file the petition.
- Filings by e-mail must be transmitted to the District Clerk's Office at clerk@sfwmd.gov. The filing date for a document transmitted by electronic mail shall be the date the District Clerk receives the complete document. A party who files a document by e-mail shall (1) represent that the original physically signed document will be retained by that party for the duration of the proceeding and of any subsequent appeal or subsequent proceeding in that cause and that the party shall produce it upon the request of other parties; and (2) be responsible for any delay, disruption, or interruption of the electronic signals and accepts the full risk that the document may not be properly filed.

INITIATION OF AN ADMINISTRATIVE HEARING

Pursuant to Rules 28-106.201 and 28-106.301, Fla. Admin. Code, initiation of an administrative hearing shall be made by written petition to the SFWMD in legible form and on 8 and 1/2 by 11 inch white paper. All petitions shall contain:

1. Identification of the action being contested, including the permit number, application number, SFWMD file number or any other SFWMD identification number, if known.
2. The name, address and telephone number of the petitioner and petitioner's representative, if any.
3. An explanation of how the petitioner's substantial interests will be affected by the agency decision.
4. A statement of when and how the petitioner received notice of the SFWMD's decision.
5. A statement of all disputed issues of material fact. If there are none, the petition must so indicate.
6. A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the SFWMD's proposed action.
7. A statement of the specific rules or statutes the petitioner contends require reversal or modification of the SFWMD's proposed action.
8. If disputed issues of material fact exist, the statement must also include an explanation of how the alleged facts relate to the specific rules or statutes.
9. A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the SFWMD to take with respect to the SFWMD's proposed action.

A person may file a request for an extension of time for filing a petition. The SFWMD may, for good cause, grant the request. Requests for extension of time must be filed with the SFWMD prior to the deadline for filing a petition for hearing. Such requests for extension shall contain a certificate that the moving party has consulted with all other parties concerning the extension and that the SFWMD and any other parties agree to or oppose the extension. A timely request for extension of time shall toll the running of the time period for filing a petition until the request is acted upon.

If the SFWMD takes action with substantially different impacts on water resources from the notice of intended agency decision, the persons who may be substantially affected shall have an additional point of entry pursuant to Rule 28-106.111, Fla. Admin. Code, unless otherwise provided by law.

MEDIATION

The procedures for pursuing mediation are set forth in Section 120.573, Fla. Stat., and Rules 28-106.111 and 28-106.401-.405, Fla. Admin. Code. The SFWMD is not proposing mediation for this agency action under Section 120.573, Fla. Stat., at this time.

RIGHT TO SEEK JUDICIAL REVIEW

Pursuant to Sections 120.60(3) and 120.68, Fla. Stat., a party who is adversely affected by final SFWMD action may seek judicial review of the SFWMD's final decision by filing a notice of appeal pursuant to Florida Rule of Appellate Procedure 9.110 in the Fourth District Court of Appeal or in the appellate district where a party resides and filing a second copy of the notice with the District Clerk within 30 days of rendering of the final SFWMD action.

Last Date For Agency Action: July 26, 2014

INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT STAFF REPORT

Project Name: Bull Hammock Ranch Water Farming Pilot Project

Permit No.: 43-00062-S

Application No.: 140527-16

Application Type: Environmental Resource (Construction/Operation Modification)

Location: Martin County, S5/T38S/R38E

Permittee : Spur Land And Cattle L L C

Operating Entity : Permittee

Project Area: 60.00 acres

Permit Area: 310.00 acres

Project Land Use: Agricultural

Drainage Basin: C-23

Receiving Body: C-23 Canal

Class: CLASS III

Special Drainage District: NA

Conservation Easement To District : No

Sovereign Submerged Lands: No

PROJECT PURPOSE:

This application is a request for an Environmental Resource Permit modification of a Surface Water Management operation permit to authorize construction and operation of a project that includes a stormwater management system serving a 60 acre above ground impoundment for the purpose of water farming.

PROJECT EVALUATION:

PROJECT SITE DESCRIPTION:

The site is located in western Martin County (Section 5, Township 38S and Range 38E) approximately 3.10 miles north of Martin Highway and 4 miles west of CR 609 and is bordered by the C-23 Canal to the north (Please refer to Exhibit 1 for location map).

The site is a 60 acre citrus grove that is no longer in production that is surrounded by pasture. An operation permit (App. No. X000002137) was issued March 10, 1977, for 7,440 acres of agricultural lands that included the site.

There are wetlands and other surface waters located within the site.

PROPOSED PROJECT:

The proposed project is for the construction of a 60 acre minor above-ground impoundment and associated structures. This project provides on-ranch storage and treatment (water farming) of off-site water prior to discharge into the C-23 Canal via an onsite marsh (slough system). (Refer to Exhibit 2.0 for construction details). The construction and operation of the water farming is being funded through a contract with the District. When the contract ends, the land can revert to the condition prior to the water farming

Water will be pumped into the 60 acre minor above ground impoundment (AGI) from a ditch on the east side of Section 5 by a 14,000 gpm pump. The reservoir control structure will be an operable structure (flashboard riser) with the top of riser and flashboards set at elev. 27.0 ft. NAVD which is four feet above the average surrounding ground elevation. At reservoir stages above 27.0 ft. NAVD, discharge is to the marsh system south and west of the AGI to rehydrate the marsh. The boards in the reservoir control structure can be lowered to allow discharge to the marsh. The marsh is controlled by an existing structure (flashboard riser) with an overflow elevation of 22.7 ft. NAVD which has been established as the control elevation of the marsh. The existing structure discharges to the east and ultimately to the C-23 Canal.

The 14,000 gpm pump will be operated manually to fill the reservoir and to send water to the marsh. To promote establ shment and maintenance of the marsh, the boards in the reservoir control structure can be lowered to allow water to discharge into the marsh.

Two emergency overflow structures will protect the AGI, one on the east and the other on the west side of the AGI. The top of riser and normal elevation of the boards in the riser will be at elevation 27.5 ft. NAVD which is 4.5 feet above surrounding ground elevation. The east structure discharge to a ditch connected to the C-23 Canal and the west structure discharges to a ditch in the surrounding pasture. Although it is anticipated that the pumps will not be operated during large storm events, the analysis by the permittee's engineer assumed the AGI was full (water elevation 27.0 ft. NGVD) at the beginning of the 100 year storm and that the pumps were operated during the storm. The peak stage under this analysis is 28.12 ft. NAVD.

WATER QUANTITY:

Discharge Rate :

The proposed project will retain the design storm on site for water quality treatment and to restablish the marsh (slough system)

Discharge Storm Frequency : 100 YEAR-3 DAY Design Rainfall : 13 inches

Basin	Allow Disch (cfs)	Method Of Determination	Peak Disch (cfs)	Peak Stage (ft, NAVD 88)
Res	n/a	n/a	n/a	28.12

Control Elevation :

Basin	Area (Acres)	Ctrl Elev (ft, NAVD 88)	WSWT Ctrl Elev (ft, NAVD 88)	Method Of Determination
Res	60.00	22.7	22.70	Wetland Indicator Elevation

Receiving Body :

Basin	Str.#	Receiving Body
Res	EOS	Site and C-23
Res	Marsh	C-23
Res	RCS	Site

Discharge Structures: Note: The units for all the elevation values of structures are (ft, NAVD 88)

Weirs: Basin	Str#	Count	Type	Width Height Length	Dia.	Elev.
Res	RCS	1	Flash Board Riser	3'		27 (crest)

Emergency Structures: Note: The units for all the elevation values of structures are (ft, NAVD 88)

Weirs: Basin	Str#	Count	Type	Width Height Length	Dia.	Elev.
Res	EOS	2	Flash Board Riser	4'		27.5 (crest)

Water Quality Structures: Note: The units for all the elevation values of structures are (ft, NAVD 88)

Weirs: Basin	Str#	Count	Type	Width Height Length	Dia.	Elev.
Res	Marsh	1	Flash Board Riser	50"		22.7 (crest)

WATER QUALITY :

As a part of the water farming project, the volume retained and the quality of discharged water will be monitored. This project does not provided required water quality treatment for the agricultural operation of the overall land under the operation permit. No adverse water quality impacts are anticipated as a result of the proposed project.

WETLANDS:

There is one freshwater marsh located south of the south reservoir leg (Refer to Exhibit 2 for location of the wetland). Wetland No. 1 is approximately 1.13 acres in size and consists primarily of pickerelweed and sagittaria. Wetland No. 1 is part of a larger marsh system of approximately 150 acres. The storage of water over the 150 acres of marsh area located south and west of the proposed reservoir will provide hydration to this marsh system that appears to have been adversely impacted by previous agricultural ditches, berms and the construction of the C-23 Canal. The marshlands within the property boundaries were physically isolated from a much larger contributing drainage area with the installation of the C-23 Canal. A proposed swale within upland areas will be constructed to connect Wetland No. 1 to the larger

marsh. There are no wetland impacts associated with the proposed project.

Since this is a Water Farming (payment for environmental services) project and the contract term is until the end of 2016, there is no wetland monitoring requirements for this permit. However, data will be collected by SFWMD staff and shall be available upon request to the Dispersed Water Management Unit. Additionally, if at the end of 2016 the applicant decides to end the pilot project the applicant may elect to return the property back to baseline conditions (pre-project conditions).

CERTIFICATION, OPERATION, AND MAINTENANCE:

Pursuant to Chapter 62-330.310 Florida Administrative Code (F.A.C.), Individual Permits will not be converted from the construction phase to the operation phase until construction completion certification of the project is submitted to and accepted by the District. This includes compliance with all permit conditions, except for any long term maintenance and monitoring requirements. It is suggested that the permittee retain the services of an appropriate professional registered in the State of Florida for periodic observation of construction of the project.

For projects permitted with an operating entity that is different from the permittee, it should be noted that until the construction completion certification is accepted by the District and the permit is transferred to an acceptable operating entity pursuant to Sections 12.1-12.3 of the Applicant's Handbook Volume I and Section 62-330.310, F.A.C., the permittee is liable for operation and maintenance in compliance with the terms and conditions of this permit.

In accordance with Section 373.416(2), F.S., unless revoked or abandoned, all stormwater management systems and works permitted under Part IV of Chapter 373, F.S., must be operated and maintained in perpetuity.

The efficiency of stormwater management systems, dams, impoundments, and most other project components will decrease over time without periodic maintenance. The operation and maintenance entity must perform periodic inspections to identify if there are any deficiencies in structural integrity, degradation due to insufficient maintenance, or improper operation of projects that may endanger public health, safety, or welfare, or the water resources. If deficiencies are found, the operation and maintenance entity will be responsible for correcting the deficiencies in a timely manner to prevent compromises to flood protection and water quality. See Section 12.4 of Applicant's Handbook Volume I for Minimum Operation and Maintenance Standards.

RELATED CONCERNS:

Water Use Permit Status:

The applicant has indicated that neither irrigation water nor dewatering is required for construction of this project.

This permit does not release the permittee from obtaining all necessary Water Use authorization(s) prior to the commencement of activities which will require such authorization, including construction dewatering and irrigation.

CERP:

The proposed project is not located within or adjacent to a Comprehensive Everglades Restoration Project component.

Potable Water Supplier:

Potable water is not required.

Waste Water System/Supplier:

Waste water service is not required.

Right-Of-Way Permit Status:

A District Right-of-Way Permit is not required for this project.

DRI Status:

This project is not a DRI.

Historical/Archeological Resources:

No information has been received that indicates the presence of archaeological or historical resources in the project area or indicating that the project will have any effect upon significant historic properties listed, or eligible for listing in the National Register of Historic Places.

DEO/CZM Consistency Review:

The issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.

Third Party Interest:

No third party has contacted the District with concerns about this application.

Enforcement:

There has been no enforcement activity associated with this application.

STAFF REVIEW:

DIVISION APPROVAL:

NATURAL RESOURCE MANAGEMENT:

Barbara J. Conmy

DATE: 7/11/14

SURFACE WATER MANAGEMENT:

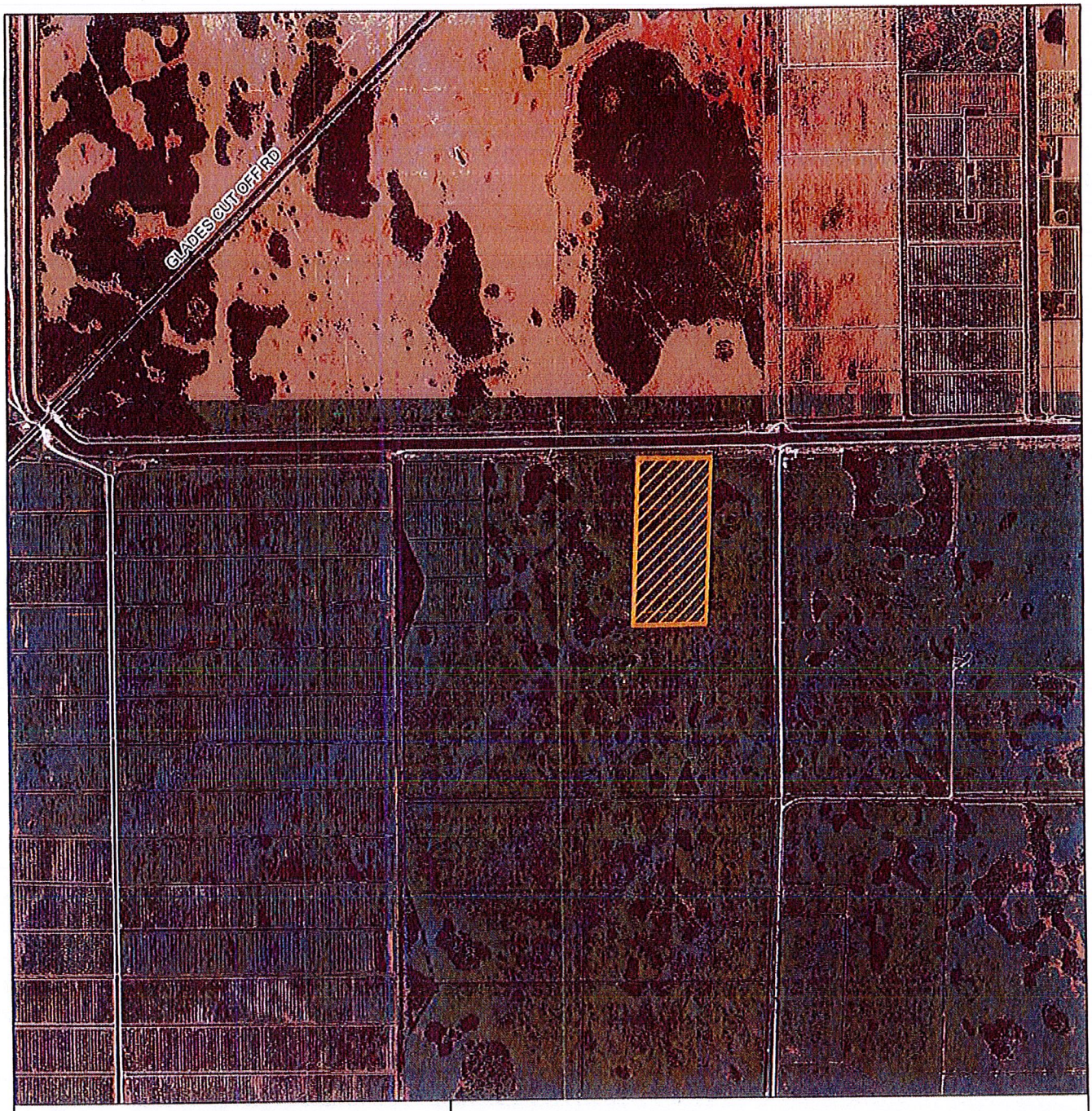
Hugo A. Carter, P.E.

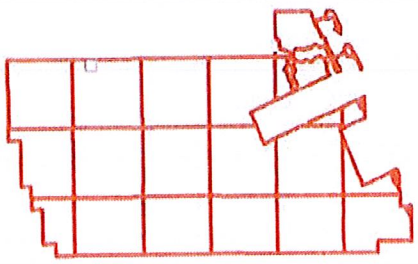
DATE: 10 July 2014

Table of Contents for Staff Report Exhibits

Bull Hammock Ranch Water Farming Pilot Project

Application 140527-16





MARTIN COUNTY, FLORIDA

N

Legend

Application

Map Date: 2014-06-16

Application No: 140527-16

Permit No: 43-00062-S

Sec 5 / Twp 38 / Rge 38

Project Name: BULL HAMMOCK RANCH WATER FARMING PILOT PROJECT

0 0.4 0.8

Miles

Exhibit Number: 1

App. No. 140527-16 Exhibit 2 Page 1 of 5

BULL HAMMOCK RANCH

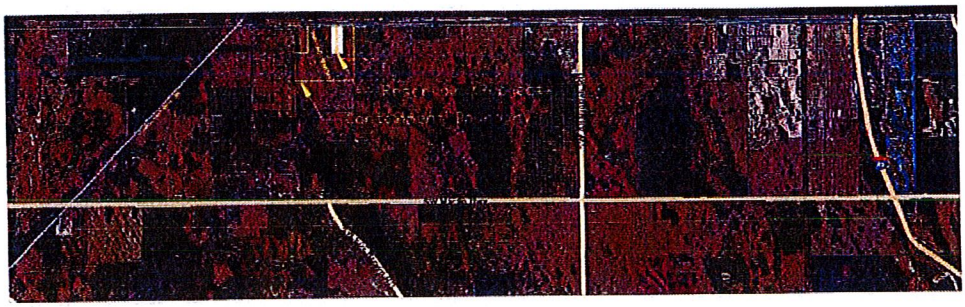
WATER FARMING PILOT PROJECT - WATER/NUTRIENT RETENTION & WETLAND ENHANCEMENT

SOUTH FLORIDA WMD CONTRACT NO. 4600002446

SFWMD PERMIT NO 43-00052-S

SECTION 5/TOWNSHIP 38S/RANGE 38E

MARTIN COUNTY, FLORIDA



PREPARED FOR:

[illegible]

PREPARED BY:

ASMUSSEN ENGINEERING, LLC
ENGINEERING AND ENVIRONMENTAL SERVICES
P.O. BOX 1938, OKEECHOBEE FLORIDA 34973 (863) 763-8546

ENGINEERING (CONSTRUCTION) PLANS

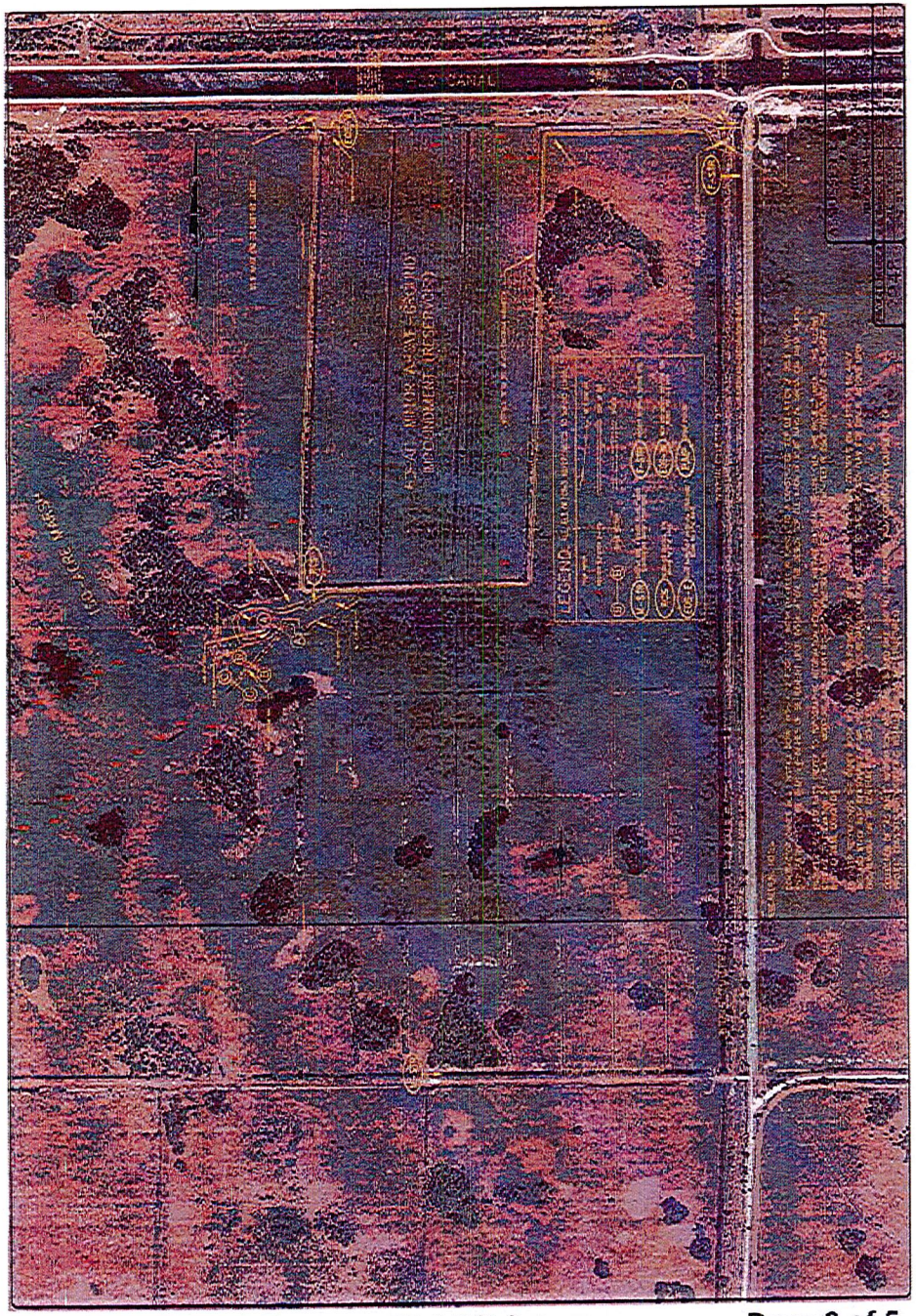
SHEET	1 OF 5	COVER (THIS SHEET)
SHEET	2 OF 5	WATER FARMING PROJECT - PLAN VIEW
SHEET	3 OF 5	CONSTRUCTION DETAILS AND NOTES
SHEET	4 OF 5	TOPOGRAPHIC INFORMATION
SHEET	5 OF 5	TECHNICAL SPECS / EROSION & SEDIMENT CONTROL

CALL 48 HOURS
BEFORE DIGGING IN FLORIDA
SIMPLY CALL 811
or
1-800-432-4770
WWW.CALLSUNSHINE.COM

ALL ELEVATIONS SHOWN REFERENCED TO NAVD (1988)

[illegible]
P.O. Box 1938
OKEECHOBEE, FLORIDA 34973-1938
TEL: (863) 763-8546 FAX: (863) 467-8595

PROJECT NUMBER: 2918



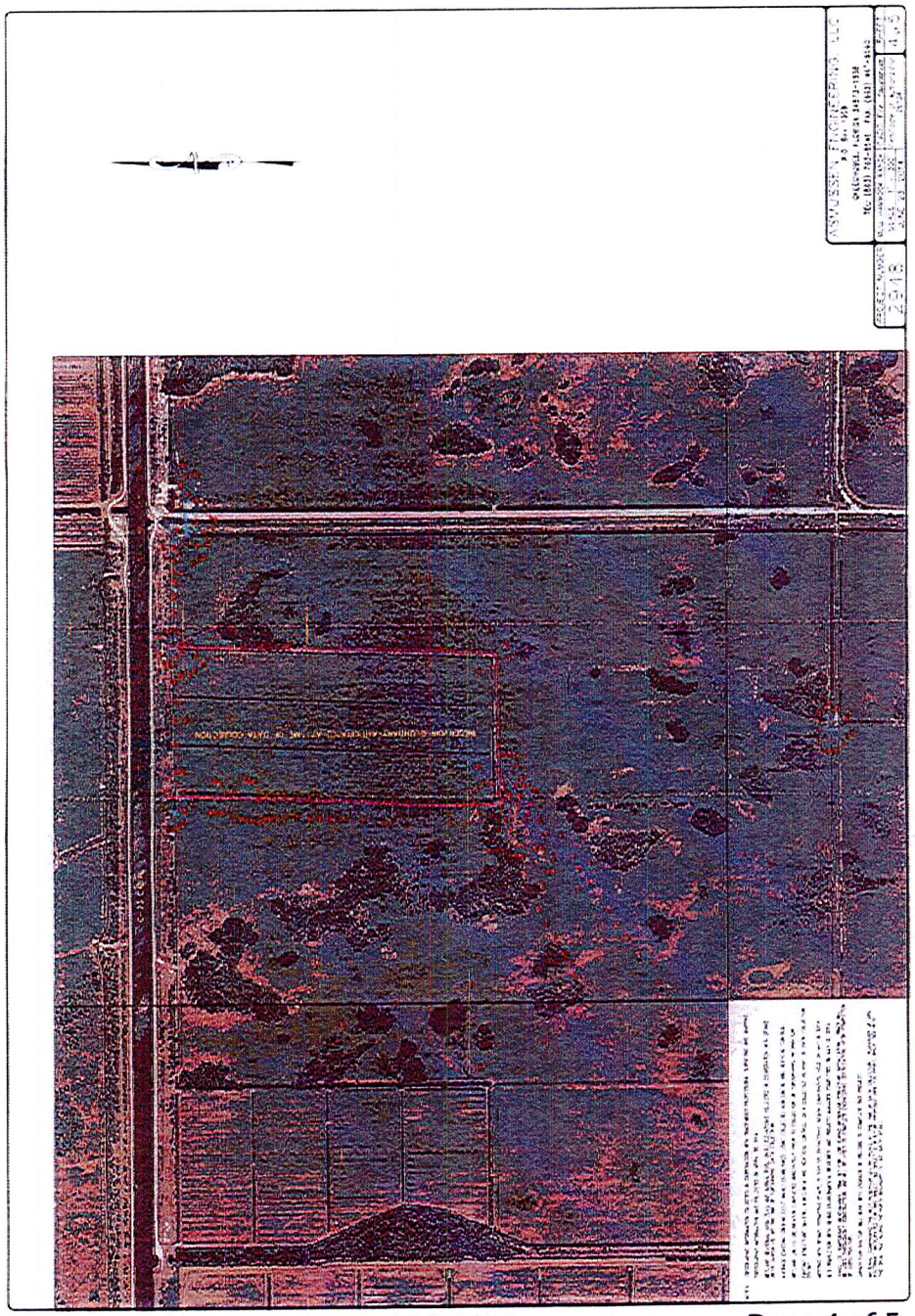
App. No. 140527-16

Exhibit 2

Page 3 of 5

STRUCTURE TABLE - NAVD(1988)

ASSUSSEN ENGINEERING, LLC



TECHNICAL SPECIFICATIONS

EROSION AND SEDIMENT CONTROL NOTES

RASMUSSEN ENGINEERING, LLC
P.O. Box 1915
[illegible], FLORIDA [illegible]
TEL (863) [illegible]-8545 FAX (863) 467-[illegible]

PROJECT NUMBER			SHEET
2948	[illegible] JULY 7, 2016	[illegible]	5 of 5

STAFF REPORT DISTRIBUTION LIST

BULL HAMMOCK RANCH WATER FARMING PILOT PROJECT

Application No: 140527-16

Permit No: 43-00062-S

INTERNAL DISTRIBUTION

X Hugo A. Carter, P.E.
X Jose Vega
X Barbara J. Conmy
X A. Bain
X A. Waterhouse
X Boyd Gunsalus
X ERC Martin/St. Lucie

EXTERNAL DISTRIBUTION

X Permittee - Spur Land And Cattle L L C
X Agent - Asmussen Engineering L L C
X Applicant - Bull Hammock Ltd

GOVERNMENT AGENCIES

X Div of Recreation and Park - District 5 - Miranda Cunningham, FDEP
X Martin County - County Administrator
X Martin County Board of County Commissioners
X Martin County Engineering Dept. - Don G. Donaldson, P.E.

STAFF REPORT DISTRIBUTION LIST

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tkryzd@martin.fl.us

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Stuart FL 34995-9000
nvanvonno@martin.fl.us

Martin County Engineering Dept. - Don G. Donaldson, P.E.
2401 Se Monterey Road
Ddonalds@Martin.Fl.Us
Stuart FL 34996
ddonalds@martin.fl.us

Project Operations and Maintenance Plan

BULL HAMMOCK RANCH
OPERATION AND MAINTENANCE PLAN
BMP TYPE: PUMP-RESERVOIR SYSTEM

Cooperator: Bull Hammock Ranch LTD
Spur Land & Cattle, LLC

Date: June 2014

Address: 13051 Okeechobee Road, Ft. Pierce, Florida 34945

Project Location: Section: 5 Township: 38S Range: 38E

Project Name: Bull Hammock Ranch - Water Farming Pilot Project

BMP Type: PUMP/RESERVOIR: Pump; Control Structure; Emergency Overflow Structures (2); Final Outfall Structure

GENERAL

A property operated and maintained BMP/WMA for water quantity and quality (and in this case wetland enhancement) is an asset to Bull Hammock Ranch (refer to Sheet 1 of 5 of the Construction Plans for Location Map). This proposed water storage project, on land previously utilized in citrus production, is also an asset to the basin (and hence the public) by reducing the annual volume of freshwater lost to tide (primarily during wet periods). Bull Hammock Ranch, to their credit, has decided to participate as a Water Farming Pilot Project. This ranch's participation will assist in quantifying (through program monitoring) water quantity and quality benefits due to implementation and use of projects of this type. Many believe the cumulative effect of water storage on ranches (or other land uses) will enable water quantity and quality goals to be reached.

This BMP/WMA was designed and will be installed to safety promote additional onsite water storage (retention) within a 60-acre minor above-ground impoundment (reservoir), as well as, roughly 150-acres of the 250-acre marsh located south and west of the reservoir. Pumping, from the C-23 Canal (or more accurately runoff from Allapattah Ranch "C"), will serve as the water source for this proposed project. The 150-acres of marsh, proposed for water storage (hydration) as part of this project, were isolated from the rest of the marsh (within this ownership) by ditches and berms. Marshlands within this ownership were physically (and hydrologically) isolated from a much larger contributing drainage areas through installation of the C-23 Canal. As a result, there appears to be a less dynamic hydroperiod as compared to prior to installation of the C-23 Canal. It appears (from site work/data collection) this lack of contributing drainage (and improved localized drainage) has adversely impacted site marshlands through hydroperiod suppression.

Minor above-ground impoundment (reservoir) construction is proposed to provide storage between average existing ground (23.0' NAVD) and the reservoir design stage (27.0' NAVD). A 14,000 GPM pump will direct water into the project (reservoir and marsh) from the main canal leading to the C-23. The main canal conveys runoff from Allapattah Ranch "C", as well as, this ranch to the C-23 Canal. The marsh stage will be controlled by an existing culvert-riser structure (M-STR) located downstream of the marsh. Initially proposed is boarding to an elevation of 22.7' NAVD. This will move the wetland hydroperiod in the direction of what existed prior to the installation of the C-23 Canal (hydrologic restoration or enhancement).

The pump and Reservoir Control Structure (RCS) are used to provide pumped flows to the marsh. Three (3) structures, within the impoundment dike, will be used to provide reservoir storage and protect the dike during extremes. The reservoir stage is targeted at 27.0' NAVD, which is four (4) feet above average existing ground. This "target" marsh stage (initially 22.7' NAVD) can be evaluated each year and adjusted as determined by the owner and SFWMD. A balance between agricultural use of these lands, pumping costs and ability to physically maintain stages in the marsh will be required. Once marsh hydration has been achieved, the Reservoir Control Structure (boarded to elevation 27.0' NAVD) will facilitate the four (4) foot of storage over the 60-acre reservoir. Once marsh and reservoir stages are reached, pump use will only occur to replace storage as it becomes available. Storage losses are anticipated to consist of evapotranspiration and to a much lesser extent infiltration (and sub-surface flow). For reservoir extremes, two (2) Emergency Overflow Structures (East and West) serve to protect the integrity of the reservoir dike by directing excess water either to the marsh or back to the C-23 Canal. The engineering design assures a minimum freeboard of two (2) feet above the design stage is provided under all conditions. The proposed constructed top of dike elevation is between 30.0 to 30.5' NAVD, which allows settling of the constructed dike to occur. A target top of dike of 30.0' NAVD is proposed. Emergency Overflow Structures will be boarded to 27.5' NAVD or six (6) inches above the Reservoir Control Structure board elevation (27.0' NAVD). This allows marsh storage to be replenished (as needed) between elevation 27.0' and 27.5' NAVD. No board configuration results in overtopping of the dike (by design). Dike protection is assured through use of three (3) culvert-riser structures, when two (2) are generally sufficient.

Pump use will replenish reservoir and marsh storage when required. Upon reaching equilibrium, pump use will cease and the Reservoir Control Structure (27.0' NAVD) and M-STR (22.7' NAVD) will be used to retain water stored. To recharge either system, pump operation is required unless rainfall provides this service. The owner and SFWMD will determine how to best operate the system, to meet established goals, through experience in system use.

The Reservoir Control Structure discharges pumped flows, above the boarded elevation (generally 27.0' NAVD), from the reservoir into an isolated freshwater marsh located directly south. An existing 1.13-acre isolated freshwater marsh (WL-1) will accept flows from the reservoir (via the RCS). Further south and west, separated by a high ridge, is the marsh (150-acres). To promote smooth flow from the reservoir to the marsh, a swale

is required (refer to swale sections shown on the engineering plans – Sheet 3 of 5). The swale, proposed in uplands, will serve to connect WL-1 to the marsh. Swale invert elevations are above WL-1 and the marsh and only serve to traverse the ridge presently separating these wetlands. Excessive marsh stages (above 22.7' NAVD) will enter the west-east ditch, which will be controlled by the Final Outfall Structure (F-STR) located south of the pump. The Final Outfall Structure (F-STR), the only positive discharge from this project, will be boarded to retain pumped water. Excessive stages will be directed back to the C-23 Canal (Main Ditch), which will be monitored as part of this program.

This Water Farming Pilot Project will reduce freshwater discharges to tide by the annual volumes retained in this system. This project will also provide water quality treatment for water pumped into the project. Project monitoring, required as a component of participation in the Water Farming Program, will be used to evaluate both retention volume and water quality improvement realized through system use. Grab samples, when discharges from the project occur (via F-STR), will be collected to determine the "service". Monitoring will allow system performance (storage and treatment) to be estimated. This project is a "closed system" as one inflow point and one outflow point exist. The only outside contribution, rainfall, will also be measured.

The entire length of the reservoir dike, except the north leg, will be constructed by excavation of a borrow canal on the interior of the reservoir. The north dike already exists as the spoil berm of the C-23 Canal. The reservoir will include a "neck" leading from the northwest corner of the remnant grove, down the south side of the northern east-west ditch and tie into the existing berm along the main north-south canal. The design allows the new pump to be placed close to where the old pump was located (moved slightly to direct flows down the centerline of this north ditch). The Eastern Emergency Overflow Structure will be located at the eastern terminus of this "neck" to direct excessive reservoir stages back to the C-23 Canal. The design top of dike is 30.0' NAVD, which provides three (3) foot of freeboard above the design stage of 27.0' NAVD. The constructed top of dike (30.0' to 30.5' NAVD) will allow for settlement following installation. Two (2) feet of freeboard is maintained under the most extreme conditions. Dike slopes will not exceed a 2:1 (horizontal to vertical) and a constructed slope of 2.5:1 (or flatter) will be provided where sufficient material and room exists to provide. Exceeding a 2.5:1 dike slope will indicate limited material was available (above the design top of dike elevation) to provide this flatter slope. Fill material for dike construction is limited in some areas due to an underlying shell layer, which must not be penetrated during borrow excavation. A monitoring platform will be installed at the northern end of the eastern leg of the reservoir dike for monitoring equipment installation and use. Monitoring data will be collected and included in reporting (provided by the owner to the Project Manager).

Excess water, not retained by the reservoir and marsh, will be directed to the Final Outfall Control Structure (F-STR - culvert-riser structure) after overtopping the existing culvert-riser directly downstream of the marsh (M-STR). No other positive discharges, from the project, can occur. Grab samples, when the Final Outfall Structure is discharging, will be collected. This Final Outfall Structure (F-STR) conveys excess

water from the internal ranch ditch to the main canal (located east of the ranch ditch and access road). This main canal flows north, tying into the C-23 Canal. This main canal not only conveys Bull Hammock Ranch runoff, but approximately 8,200-acres of Allapattah Ranch "C" to the C-23 Canal.

The reservoir dike is to be constructed around a 60-acre grove no longer in production. The owner wishes to continue to graze these lands. As such, routine dike (and structure) maintenance will be required. Repairs will be implemented immediately upon the discovery of maintenance needs. This BMP requires **ongoing** operation and **periodic** maintenance to assure satisfactory performance. Routine inspections will be required to assure proper function and determine maintenance needs.

General Recommendations:

- Maintain vigorous growth of desirable vegetation on the completed dike. This includes re-seeding, fertilization and noxious vegetative control as necessary. Periodic mowing may be required to control vegetation height.

- Remove any obstructions restricting water flow into or from each structure. Ditches should be allowed to re-vegetate as much as practicable.

- Sediment may accumulate upstream of structures and restrict water flow and should be removed, establishing the original channel depths. Excavated material, not used in dike construction, should be spread in uplands only. Sediment should not be spread within 50' of major drainage structures, site wetlands or drainageways.

- Determine and eliminate causes of settlement and/or cracks in earthen embankments and repair all damage (including erosion to access roads over structures).

- Repair cracks and weathered areas in concrete surfaces.

- Repair or replace rusted or damaged metal and paint.

- Replace weathered or displaced rock riprap, if employed, to constructed grades.

- Immediately repair vehicular or livestock damage to embankments.

- Routine cleaning of the sump may be required, especially following extreme events. This will ensure sufficient sump capacity is provided to prevent pump cycling (on and off).

Specific Maintenance Recommendations: Bull Hammock Ranch

During periods of high rainfall, following each growing season or after extreme rainfall events (such as hurricanes or tropical storms), implement an inspection of the earthen embankment and structures to insure structural stability and adequate condition. Identified maintenance needs are to be addressed immediately.

Annual dike inspections (and reporting to SFWMD Post-Permit Compliance Staff) will be completed by the Engineer of Record. This is anticipated to be implemented in June each year or the anniversary of the completion of construction. Annual reports will identify any maintenance needs for the dike system or structures. Periodic mowing of reservoir dikes is required to assure safe passage for structure/dike inspections allowing maintenance needs to be fulfilled. Routine control of exotic-nuisance species on reservoir dikes will preclude their spread or expansion.

Cattle access to the reservoir system will not be restricted. This increases the possibility of dike degradation (due to cattle foot-traffic) and increases the need to routinely inspect the system. Immediate repair of any cattle rutting, cattle trails or bull holes will occur whenever observed.

Regular pump station inspections will occur to keep the pump station in working order. Owner or ranch manager shall do routine maintenance to assure the pump station remains in good working condition throughout the contract term. All fuels and greases shall be contained as required by existing code/rules.

Specific Operation Recommendations for Project: Bull Hammock Ranch

Owner (or ranch manager) will operate the pump to provide the targeted storage within the 60-acre minor above-ground impoundment (reservoir) and 150-acres of marsh. Pump use and system stages will be monitoring throughout project as part of project monitoring.

Emergency Overflow Structures (East and West) will be maintained (boarded) at 27.5' NAVD, which is six (6) inches above the elevation flows can be contributed to the marsh (using the Reservoir Control Structure – RCS). These structures will be un-board to recover storage prior to extreme events or to facilitate maintenance or to implement structure repair/replacement.

The Reservoir Control Structure (RCS) will be boarded to elevation 27.0' NAVD to facilitate reservoir retention of pumped water. Pumping, when the reservoir is at elevation 27.0' NAVD, will "feed" the marsh. The initial "target" marsh stage is elevation 22.7' NAVD (see next paragraph).

The structure in the west-east ditch (M-STR), controlling the marsh stage, will be boarded to 22.7' NAVD initially. The owner will work with the Engineer of Record and the SFWMD Project Manager to "fine tune" the marsh stage to best meet project objectives. A balance between pump use (cost), adequate marsh hydration (to meet project objectives) and continued agricultural use of the marsh will be required.

All discharges from the project are made via the Final Outfall Control Structure (F-STR). We anticipate this structure will discharge when the marsh exceeds the target stage and the ditch system downstream of M-STR cannot retain these flows. This likely will only occur during the wet season, when significant rainfall events occur. Grab samples will be collected at F-STR whenever discharges occur in accordance with the Water Farming Contract.

Owner is responsible for operation of all facilities as designed by Engineer of Record and permitted by South Florida Water Management District (SFWMD). This Water Farming Pilot Project includes numerous facilities requiring operation, especially critical prior to (or during) extreme events such as hurricanes or Tropical storms. Facilities include: pump station; Reservoir Control Structure (RCS); two (2) Emergency Overflow Structures (EOS-East and EOS-West); marsh control structure (Structure M-STR) and; the final outfall structure (F-STR), which conveys project discharges back to the inflow point. All structures, including the pump, should be adequately serviced to assure proper function. During periods of high rainfall, typically June through September, more frequent inspections should be completed to assure the system functions as designed.

The Emergency Overflow Structures (flashboard riser structures) were designed to allow manipulation prior to or during extreme events as a dike protection measure. Three (3) structures are available to assure dike protection. Owner (or ranch manager) will follow all protocols outlined in this Operation and Maintenance Plan, as well as, the executed contract.

Pump operation will occur during times when excess water is available within the basin and there is sufficient storage (reservoir or marsh) to warrant pump startup and use. Modeling, submitted with the permit application package, utilizes a 14,000 GPM pump. The system was modeled to demonstrate dike protection under any and all scenarios. All reservoir structures are operable (using flashboards). Manipulation of any structure should be recorded with type of manipulation (and reason) including date and time of implementation. In addition, the date/time of return (to previous levels) should also be recorded.

All minor above-ground impoundment criteria will be adhered to with the submitted (and permitted) engineering design. No condition can occur resulting in less than two (2) feet of dike freeboard. All other ranch structures will continue to be operated to provide optimum water levels for agricultural production.

INSPECTIONS

- Monthly inspections (minimum) of BMPs to check for signs of embankment settling, excessive erosion, proper vegetative cover, conditions of culvert-risers, obstructions to culvert-risers and general overall working condition of all structures should be undertaken by the owner or the owner's representative.

- A visual inspection of the WMA should be done after each major rainfall event for signs of embankment erosion and/or blockage of culverts-risers.

- Immediately repair any deficiency discovered during inspections.

- Fill rills on dike slopes with suitable material. Compact, seed/mulch and fertilize as needed.

- Check for evidence of seepage through or under the dike. If seepage occurs, implement proper corrective measures immediately. In addition, contact the Engineer of Record to schedule an inspection. An inspection of the material to be used in dike construction was completed by the Engineer of Record. The material was found to be excellent for dike construction and water containment.

- Maintain sufficient vegetative cover on the dike to retain the design dike section (refer to Sheet 3 of 5 of the construction drawings). Discharge from the reservoir is via the Reservoir Outfall Control Structure (refer to Sheet 2 of 5 of the engineering plans), which is to be located at the southwest corner of the reservoir footprint. Stages in excess of the design stage (27.0' NAVD) will be directed downstream (by the Reservoir Control Structure) to WL-1, which will be hydraulically connected to the 150-acre marsh through swale installation. A swale is required to overcome the existing ridge presently located between WL-1 and the marsh. This swale will promote smooth flow conditions between WL-1 and the marsh. This Water Farming Pilot Project is located internal to the boundaries of the larger contiguous ownership. This eliminates the possibility of adversely impacting surrounding landowners.

- Annual dike inspections will be conducted by the Engineer of Record. Inspections and reporting (to SFWMD) will occur in June (anniversary of the construction completion date).

- If the water level internal to the reservoir ever reaches elevation 28.0' NAVD, the owner will contact the Engineer of Record, inspect all structures for blockage and discontinue pumping. Structures were designed and should be operated to maintain a minimum of two (2) feet of freeboard under all conditions.

Project Construction Certification

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
District Headquarters: 3301 Gun Club Road, West Palm Beach, Florida 33406 (561) 686-8800 www.sfwmd.gov

September 26, 2014

WESLEY CARLTON
BULL HAMMOCK LTD
13051 OKEECHOBEE ROAD
FORT PIERCE, FL 34945

Dear Mr. Carlton :

Subject : Acceptance of Certification & Conversion to Operation
BULL HAMMOCK RANCH WATER FARMING PILOT PROJECT
Permit No. 43-00062-S, Application No. 140527-16
Martin County, S5/T38S/R38E

This letter is to acknowledge receipt of your consulting professional's construction completion certification pertaining to the subject parcel's surface water management system. The submitted information has been accepted and incorporated into the permit file.

By accepting the professional's certification, District staff considers the surface water management system permitted under the above listed application number(s) to be constructed in substantial conformance with the plans and specifications approved by the District. This satisfies your permit conditions regarding submittal of a professional's certification for construction completion of the permitted stormwater management facilities and the above referenced permit is hereby converted from the construction phase to the operation phase.

You may now submit future compliance and related forms electronically at www.sfwmd.gov/ePermitting. Log in or create a new account, and select the eCompliance - Environmental Resource module. Help documents and links to required compliance forms are available for download within the eCompliance module or by visiting the District's homepage at www.sfwmd.gov and searching for the required form number using the "Library and Multimedia" link.

Should you have any questions, please contact the undersigned at the Martin St. Lucie Regulatory Office at (863) 462-5260 ext. 3613.

Sincerely,

Guy Boisclair

Guy Boisclair
Environmental Resource Compliance
Martin St. Lucie Regulatory Office
South Florida Water Management District

c: Loris Asmussen, P.E., Asmussen Engineering, LLC
Boyd Gunsalus, SFWMD

Exhibit No: 1	Exhibit Created On: 2014-09-26	COUNTY, FL

REGULATION DIVISION

Project Name: BULL HAMMOCK RANCH WATER FARMING PILOT PROJECT

0 1,300 2,600 Feet

N

Application

Permit No: 43-00062-S

Application Number: 140527-16

sfwmd.gov

South Florida Water Management District

Project Operations

Spurland & Cattle Water Farm

ID	Structure	SampleDate	Reservoir StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
	48	1/1/2015	24.33	25.76	0.05	No						0.00	0.00	0.000	0.000
	48	1/2/2015	24.32	25.75	0.02	No						0.00	0.00	0.000	0.000
	48	1/3/2015	24.31	25.74	0.00	No						0.00	0.00	0.000	0.000
	48	1/4/2015	24.29	25.72	0.22	No						0.00	0.00	0.000	0.000
	48	1/5/2015	24.29	25.72	0.00	No						0.00	0.00	0.000	0.000
	48	1/6/2015	24.28	25.71	0.00	No						0.00	0.00	0.000	0.000
	48	1/7/2015	24.26	25.69	0.00	No						0.00	0.00	0.000	0.000
	48	1/8/2015	24.22	25.65	0.00	No						0.00	0.00	0.000	0.000
	48	1/9/2015	24.21	25.64	0.00	No						0.00	0.00	0.000	0.000
	48	1/10/2015	24.18	25.61	0.00	No						0.00	0.00	0.000	0.000
	48	1/11/2015	24.17	25.60	0.00	No						0.00	0.00	0.000	0.000
	48	1/12/2015	24.16	25.59	1.30	No						0.00	0.00	0.000	0.000
	48	1/13/2015	24.27	25.70	0.00	No						0.00	0.00	0.000	0.000
	48	1/14/2015	24.25	25.68	0.00	No						0.00	0.00	0.000	0.000
	48	1/15/2015	24.29	25.72	0.01	No						18.00	9.09	0.000	0.000
	48	1/16/2015	24.44	25.87	0.08	No						15.50	7.83	0.000	0.000
	48	1/17/2015	24.57	26.00	0.00	No						0.00	0.00	0.000	0.000
	48	1/18/2015	24.55	25.98	0.00	No						0.00	0.00	0.000	0.000
	48	1/19/2015	24.52	25.95	0.00	No						0.00	0.00	0.000	0.000
	48	1/20/2015	24.51	25.94	0.00	No						14.00	7.07	0.000	0.000
	48	1/21/2015	24.71	26.14	0.00	No						15.50	7.83	0.000	0.000
	48	1/22/2015	24.78	26.21	0.00	No						0.00	0.00	0.000	0.000
	48	1/23/2015	24.76	26.19	0.00	No						0.00	0.00	0.000	0.000
	48	1/24/2015	24.74	26.17	0.00	No						0.00	0.00	0.000	0.000
	48	1/25/2015	24.71	26.14	0.00	No						0.00	0.00	0.000	0.000
	48	1/26/2015	24.76	26.19	0.07	No						18.00	9.09	0.000	0.000
	48	1/27/2015	24.83	26.26	0.00	No						0.00	0.00	0.000	0.000
	48	1/28/2015	24.81	26.24	0.00	No						0.00	0.00	0.000	0.000
	48	1/29/2015	24.78	26.21	0.00	No						0.00	0.00	0.000	0.000
	48	1/30/2015	24.76	26.19	0.00	No						0.00	0.00	0.000	0.000
	48	1/31/2015	24.74	26.17	0.00	No						0.00	0.00	0.000	0.000
	48	2/1/2015	24.72	26.15	0.00	No						0.00	0.00	0.000	0.000
	48	2/2/2015	24.71	26.14	0.00	No						0.00	0.00	0.000	0.000
	48	2/3/2015	24.68	26.11	0.00	No						0.00	0.00	0.000	0.000
	48	2/4/2015	24.66	26.09	0.00	No						0.00	0.00	0.000	0.000
	48	2/5/2015	24.70	26.13	0.82	No						0.00	0.00	0.000	0.000
	48	2/6/2015	24.69	26.12	0.00	No						0.00	0.00	0.000	0.000
	48	2/7/2015	24.67	26.10	0.00	No						0.00	0.00	0.000	0.000
	48	2/8/2015	24.65	26.08	0.00	No						0.00	0.00	0.000	0.000
	48	2/9/2015	24.64	26.07	0.85	No						0.00	0.00	0.000	0.000
	48	2/10/2015	24.70	26.13	0.00	No						0.00	0.00	0.000	0.000
	48	2/11/2015	24.68	26.11	0.00	No						0.00	0.00	0.000	0.000
	48	1/12/2015	24.66	26.09	0.00	No						0.00	0.00	0.000	0.000
	48	2/13/2015	24.63	26.06	0.00	No						0.00	0.00	0.000	0.000
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	48	2/15/2015	24.59	26.02	0.00	No						0.00	0.00	0.000	0.000
	48	2/16/2015	24.58	26.01	0.00	No	0.343			1.38		0.00	0.00	0.000	0.000
	48	2/17/2015	24.57	26.00	0.00	No	0.343			1.38		0.00	0.00	0.000	0.000
	48	2/18/2015	24.54	25.97	0.05	No	0.343			1.38		0.00	0.00	0.000	0.000
	48	2/19/2015	24.53	25.94	0.00	No	0.343			1.38		0.00	0.00	0.000	0.000
	48	2/20/2015	24.48	25.91	0.00	No	0.343			1.38		0.00	0.00	0.000	0.000
	48	2/21/2015	24.46	25.89	0.00	No	0.343			1.38		0.00	0.00	0.000	0.000
	48	2/22/2015	24.45	25.88	0.00	No	0.343			1.38		0.00	0.00	0.000	0.000
	48	2/23/2015	24.43	25.86	0.00	No	0.351			1.39		0.00	0.00	0.000	0.000
	48	2/24/2015	24.41	25.84	0.00	No	0.351			1.39		0.00	0.00	0.000	0.000
	48	2/25/2015	24.40	25.83	0.00	No	0.351			1.39		0.00	0.00	0.000	0.000
	48	2/26/2015	24.39	25.82	0.01	No	0.351			1.39		0.00	0.00	0.000	0.000
	48	2/27/2015	24.36	25.79	0.05	No	0.351			1.39		0.00	0.00	0.000	0.000
	48	2/28/2015	24.37	25.80	0.34	No	0.351			1.39		0.00	0.00	0.000	0.000
	48	3/1/2015	24.38	25.81	0.12	No	0.351			1.39		0.00	0.00	0.000	0.000
	48	3/2/2015	24.36	25.79	0.01	No	0.395			1.49		0.00	0.00	0.000	0.000
	48	3/3/2015	24.35	25.78	0.00	No	0.395			1.49		0.00	0.00	0.000	0.000
	48	3/4/2015	24.33	25.76	0.00	No	0.395			1.49		0.00	0.00	0.000	0.000
	48	3/5/2015	24.31	25.74	0.01	No	0.395			1.49		0.00	0.00	0.000	0.000
	48	3/6/2015	24.28	25.71	0.00	No	0.395			1.49		0.00	0.00	0.000	0.000
	48	3/7/2015	24.26	25.69	0.03	No	0.396			1.49		0.00	0.00	0.000	0.000
	48	3/8/2015	24.24	25.67	0.00	No	0.395			1.49		0.00	0.00	0.000	0.000
	48	3/9/2015	24.21	25.64	0.00	No	0.413			1.72		0.00	0.00	0.000	0.000
	48	3/10/2015	24.19	25.62	0.00	No	0.413			1.72		0.00	0.00	0.000	0.000
	48	3/11/2015	24.17	25.60	0.00	No	0.413			1.72		0.00	0.00	0.000	0.000
	48	3/12/2015	24.15	25.58	0.00	No	0.413			1.72		0.00	0.00	0.000	0.000
	48	3/13/2015	24.13	25.56	0.00	No	0.413			1.72		0.00	0.00	0.000	0.000
	48	3/14/2015	24.10	25.53	0.00	No	0.413			1.72		0.00	0.00	0.000	0.000
	48	3/15/2015	24.07	25.50	0.00	No	0.413			1.72		0.00	0.00	0.000	0.000
	48	3/16/2015	24.05	25.48	0.00	No	0.329			1.72		0.00	0.00	0.000	0.000

			Reservoir												
ID	Structure	SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
	48	3/17/2015	24.03	25.46	0.00	No	0.329			1.72		0.00	0.00	0.000	0.000
	48	3/18/2015	24.00	25.43	0.00	No	0.329			1.72		0.00	0.00	0.000	0.000
	48	3/19/2015	23.97	25.40	0.03	No	0.329			1.72		0.00	0.00	0.000	0.000
	48	3/20/2015	23.95	25.38	0.00	No	0.329			1.72		0.00	0.00	0.000	0.000
	48	3/21/2015	23.92	25.35	0.00	No	0.329			1.72		0.00	0.00	0.000	0.000
	48	3/22/2015	23.90	25.33	0.01	No	0.329			1.72		0.00	0.00	0.000	0.000
	48	3/23/2015	23.87	25.30	0.39	No	0.275			1.63		0.00	0.00	0.000	0.000
	48	3/24/2015	23.89	25.32	0.01	No	0.275			1.63		0.00	0.00	0.000	0.000
	48	3/25/2015	23.86	25.29	0.00	No	0.275			1.63		0.00	0.00	0.000	0.000
	48	3/26/2015	23.84	25.27	0.20	No	0.275			1.63		0.00	0.00	0.000	0.000
	48	3/27/2015	23.84	25.27	0.29	No	0.275			1.63		0.00	0.00	0.000	0.000
	48	3/28/2015	23.83	25.26	0.00	No	0.275			1.63		0.00	0.00	0.000	0.000
	48	3/29/2015	23.87	25.30	0.00	No	0.275			1.63		33.50	16.92	0.011	0.057
	48	3/30/2015	24.13	25.56	0.00	No	0.275			1.63		18.00	9.09	0.006	0.036
	48	3/31/2015	24.22	25.65	0.00	No	0.275			1.63		22.00	11.11	0.007	0.044
	48	4/1/2015	24.27	25.70	0.00	No						0.00	0.00	0.000	0.000
	48	4/2/2015	24.25	25.68	0.04	No						0.00	0.00	0.000	0.000
	48	4/3/2015	24.23	25.66	0.00	No						0.00	0.00	0.000	0.000
	48	4/4/2015	24.21	25.64	0.00	No						0.00	0.00	0.000	0.000
	48	4/5/2015	24.18	25.61	0.00	No						0.00	0.00	0.000	0.000
	48	4/6/2015	24.16	25.59	0.00	No						0.00	0.00	0.000	0.000
	48	4/7/2015	24.13	25.56	0.00	No						0.00	0.00	0.000	0.000
	48	4/8/2015	24.10	25.53	0.00	No						0.00	0.00	0.000	0.000
	48	4/9/2015	24.07	25.50	0.00	No						0.00	0.00	0.000	0.000
	48	4/10/2015	24.04	25.47	1.26	No						0.00	0.00	0.000	0.000
	48	4/11/2015	24.11	25.54	0.01	No						0.00	0.00	0.000	0.000
	48	4/12/2015	24.09	25.52	0.02	No						0.00	0.00	0.000	0.000
	48	4/13/2015	24.08	25.51	0.54	No						0.00	0.00	0.000	0.000
	48	4/14/2015	24.07	25.50	0.10	No						0.00	0.00	0.000	0.000
	48	4/15/2015	24.06	25.49	0.00	No						0.00	0.00	0.000	0.000
	48	4/16/2015	24.04	25.47	0.26	No						0.00	0.00	0.000	0.000
	48	4/17/2015	24.04	25.47	0.02	No						0.00	0.00	0.000	0.000
	48	4/18/2015	24.01	25.44	0.00	No						0.00	0.00	0.000	0.000
	48	4/19/2015	23.98	25.41	0.00	No						0.00	0.00	0.000	0.000
	48	4/20/2015	23.95	25.38	0.41	No						0.00	0.00	0.000	0.000
	48	4/21/2015	23.96	25.39	0.01	No						0.00	0.00	0.000	0.000
	48	4/22/2015	23.94	25.37	0.03	No						0.00	0.00	0.000	0.000
	48	4/23/2015	23.92	25.35	0.22	No						0.00	0.00	0.000	0.000
	48	4/24/2015	23.91	25.34	0.00	No						0.00	0.00	0.000	0.000
	48	4/25/2015	23.89	25.32	0.05	No						0.00	0.00	0.000	0.000
	48	4/26/2015	23.86	25.29	0.00	No						0.00	0.00	0.000	0.000
	48	4/27/2015	23.82	25.25	0.75	No						0.00	0.00	0.000	0.000
	48	4/28/2015	23.97	25.40	0.70	No						0.00	0.00	0.000	0.000
	48	4/29/2015	24.01	25.44	0.24	No	0.346			1.64		19.50	9.85	0.008	0.040
	48	4/30/2015	24.35	25.78	0.06	No	0.346			1.64		24.70	12.47	0.011	0.050
	48	5/1/2015	24.43	25.86	0.00	No	0.346			1.64		0.00	0.00	0.000	0.000
	48	5/2/2015	24.40	25.83	0.00	No	0.346			1.64		0.00	0.00	0.000	0.000
	48	5/3/2015	24.37	25.80	0.00	No	0.346			1.64		0.00	0.00	0.000	0.000
	48	5/4/2015	24.33	25.76	0.00	No	0.346			1.64		0.00	0.00	0.000	0.000
	48	5/5/2015	24.31	25.74	0.15	No	0.346			1.64		0.00	0.00	0.000	0.000
	48	5/6/2015	24.30	25.73	0.01	No	0.346			1.64		0.00	0.00	0.000	0.000
	48	5/7/2015	24.29	25.72	0.00	No	0.346			1.64		0.00	0.00	0.000	0.000
	48	5/8/2015	24.26	25.69	0.00	No	0.346			1.64		0.00	0.00	0.000	0.000
	48	5/9/2015	24.22	25.65	0.00	No	0.346			1.64		0.00	0.00	0.000	0.000
	48	5/10/2015	24.18	25.61	0.54	No	0.346			1.64		0.00	0.00	0.000	0.000
	48	5/11/2015	24.20	25.63	0.00	No						0.00	0.00	0.000	0.000
	48	5/12/2015	24.18	25.61	0.07	No						0.00	0.00	0.000	0.000
	48	5/13/2015	24.15	25.58	0.00	No						0.00	0.00	0.000	0.000
	48	5/14/2015	24.12	25.55	0.00	No						0.00	0.00	0.000	0.000
	48	5/15/2015	24.09	25.52	0.00	No						0.00	0.00	0.000	0.000
	48	5/16/2015	24.06	25.49	0.09	No						0.00	0.00	0.000	0.000
	48	5/17/2015	24.02	25.45	0.00	No						0.00	0.00	0.000	0.000
	48	5/18/2015	24.00	25.43	0.00	No						0.00	0.00	0.000	0.000
	48	5/19/2015	23.97	25.40	0.00	No						0.00	0.00	0.000	0.000
	48	5/20/2015	23.93	25.36	0.00	No						0.00	0.00	0.000	0.000
	48	5/21/2015	23.89	25.32	0.00	No						0.00	0.00	0.000	0.000
	48	5/22/2015	23.86	25.29	0.23	No						0.00	0.00	0.000	0.000
	48	5/23/2015	23.84	25.27	0.00	No						0.00	0.00	0.000	0.000
	48	5/24/2015	23.81	25.24	0.00	No						0.00	0.00	0.000	0.000
	48	5/25/2015	23.78	25.21	0.00	No						0.00	0.00	0.000	0.000
	48	5/26/2015	23.75	25.18	0.00	No						0.00	0.00	0.000	0.000
	48	5/27/2015	23.72	25.15	0.00	No						0.00	0.00	0.000	0.000
	48	5/28/2015	23.80	25.23	0.00	No						0.00	0.00	0.000	0.000
	48	5/29/2015	23.87	25.30	0.05	No						0.00	0.00	0.000	0.000
	48	5/30/2015	23.93	25.36	0.00	No						0.00	0.00	0.000	0.000
	48	5/31/2015	23.95	25.39	0.00	No						0.00	0.00	0.000	0.000
	48	6/1/2015	23.99	25.42	0.23	No						0.00	0.00	0.000	0.000

Reservoir

ID	Structure	SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
	48	6/2/2015	24.66	25.49	1.61	No						0.00	0.00	0.000	0.000
	48	6/3/2015	24.34	25.77	0.25	No						0.00	0.00	0.000	0.000
	48	6/4/2015	24.35	25.78	0.00	No						0.00	0.00	0.000	0.000
	48	6/5/2015	24.34	25.77	0.00	No						0.00	0.00	0.000	0.000
	48	6/6/2015	24.33	25.76	0.00	No						0.00	0.00	0.000	0.000
	48	6/7/2015	24.28	25.71	0.60	No						0.00	0.00	0.000	0.000
	48	6/8/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/9/2015	N/A	N/A	0.31	No						0.00	0.00	0.000	0.000
	48	6/10/2015	N/A	N/A	0.92	No						0.00	0.00	0.000	0.000
	48	6/11/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/12/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/13/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/14/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/15/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/16/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/17/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/18/2015	N/A	N/A	0.23	No						0.00	0.00	0.000	0.000
	48	6/19/2015	N/A	N/A	1.12	No						0.00	0.00	0.000	0.000
	48	6/20/2015	N/A	N/A	0.14	No						0.00	0.00	0.000	0.000
	48	6/21/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/22/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/23/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/24/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/25/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/26/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/27/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/28/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	6/29/2015	N/A	N/A	0.48	No						0.00	0.00	0.000	0.000
	48	6/30/2015	N/A	N/A	0.13	No						0.00	0.00	0.000	0.000
	48	7/1/2015	N/A	N/A	0.25	No						0.00	0.00	0.000	0.000
	48	7/2/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/3/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/4/2015	N/A	N/A	0.32	No						0.00	0.00	0.000	0.000
	48	7/5/2015	N/A	N/A	0.01	No						0.00	0.00	0.000	0.000
	48	7/6/2015	N/A	N/A	0.03	No						0.00	0.00	0.000	0.000
	48	7/7/2015	N/A	N/A	0.05	No						0.00	0.00	0.000	0.000
	48	7/8/2015	N/A	N/A	0.04	No						0.00	0.00	0.000	0.000
	48	7/9/2015	N/A	N/A	0.01	No						0.00	0.00	0.000	0.000
	48	7/10/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/11/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/12/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/13/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/14/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/15/2015	N/A	N/A	0.12	No						0.00	0.00	0.000	0.000
	48	7/16/2015	N/A	N/A	0.07	No						0.00	0.00	0.000	0.000
	48	7/17/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/18/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/19/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/20/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/21/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/22/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	7/23/2015	N/A	N/A	0.03	No						0.00	0.00	0.000	0.000
	48	7/24/2015	N/A	N/A	0.24	No						0.00	0.00	0.000	0.000
	48	7/25/2015	N/A	N/A	0.05	No						0.00	0.00	0.000	0.000
	48	7/26/2015	N/A	N/A	0.02	No						0.00	0.00	0.000	0.000
	48	7/27/2015	N/A	N/A	0.03	No						0.00	0.00	0.000	0.000
	48	7/28/2015	N/A	N/A	0.07	No						0.00	0.00	0.000	0.000
	48	7/29/2015	N/A	N/A	0.11	No						0.00	0.00	0.000	0.000
	48	7/30/2015	N/A	N/A	0.12	No						0.00	0.00	0.000	0.000
	48	7/31/2015	N/A	N/A	0.11	No						0.00	0.00	0.000	0.000
	48	8/1/2015	N/A	N/A	0.24	No						0.00	0.00	0.000	0.000
	48	8/2/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	8/3/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	8/4/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	8/5/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	8/6/2015	N/A	N/A	0.00	No						0.00	0.00	0.000	0.000
	48	8/7/2015	23.69	25.12	0.00	No						0.00	0.00	0.000	0.000
	48	8/8/2015	23.66	25.09	0.11	No						0.00	0.00	0.000	0.000
	48	8/9/2015	23.64	25.07	0.30	No						0.00	0.00	0.000	0.000
	48	8/10/2015	23.64	25.07	0.00	No						0.00	0.00	0.000	0.000
	48	8/11/2015	23.61	25.04	0.00	No						0.00	0.00	0.000	0.000
	48	8/12/2015	23.58	25.01	0.00	No						0.00	0.00	0.000	0.000
	48	8/13/2015	23.54	24.97	0.08	No						0.00	0.00	0.000	0.000
	48	8/14/2015	23.52	24.95	0.00	No						0.00	0.00	0.000	0.000
	48	8/15/2015	23.49	24.92	0.06	No						0.00	0.00	0.000	0.000
	48	8/16/2015	23.47	24.90	0.02	No						0.00	0.00	0.000	0.000
	48	8/17/2015	23.45	24.88	0.00	No						0.00	0.00	0.000	0.000

Reservoir

ID	Structure	SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
	48	8/18/2015	23.42	24.85	0.42	No						0.00	0.00	0.000	0.000
	48	8/19/2015	23.45	24.88	0.03	No						0.00	0.00	0.000	0.000
	48	8/20/2015	23.42	24.85	0.00	No						0.00	0.00	0.000	0.000
	48	8/21/2015	23.39	24.82	0.59	No						0.00	0.00	0.000	0.000
	48	8/22/2015	23.47	24.90	0.00	No						0.00	0.00	0.000	0.000
	48	8/23/2015	23.43	24.86	1.13	No						0.00	0.00	0.000	0.000
	48	8/24/2015	23.57	25.00	0.41	No						0.00	0.00	0.000	0.000
	48	8/25/2015	23.59	25.02	0.05	No						0.00	0.00	0.000	0.000
	48	8/26/2015	23.57	25.00	0.01	No						0.00	0.00	0.000	0.000
	48	8/27/2015	23.56	24.99	0.08	No						0.00	0.00	0.000	0.000
	48	8/28/2015	23.54	24.97	2.73	No						0.00	0.00	0.000	0.000
	48	8/29/2015	23.81	25.24	0.02	No						0.00	0.00	0.000	0.000
	48	8/30/2015	23.82	25.25	0.77	No						0.00	0.00	0.000	0.000
	48	8/31/2015	23.84	25.27	0.07	No						0.00	0.00	0.000	0.000
	48	9/1/2015	23.83	25.26	0.01	No						0.00	0.00	0.000	0.000
	48	9/2/2015	23.81	25.24	0.04	No						0.00	0.00	0.000	0.000
	48	9/3/2015	23.79	25.22	0.43	No						0.00	0.00	0.000	0.000
	48	9/4/2015	23.80	25.23	0.00	No						0.00	0.00	0.000	0.000
	48	9/5/2015	23.78	25.21	1.68	No						0.00	0.00	0.000	0.000
	48	9/6/2015	23.94	25.37	0.01	No						0.00	0.00	0.000	0.000
	48	9/7/2015	23.91	25.34	0.25	No						0.00	0.00	0.000	0.000
	48	9/8/2015	24.07	25.50	0.02	No	0.53			2.00		22.75	11.49	0.015	0.056
	48	9/9/2015	24.28	25.71	0.98	No	0.53			2.00		23.40	11.82	0.015	0.058
	48	9/10/2015	24.61	26.04	0.00	No	0.53			2.00		22.10	11.16	0.014	0.055
	48	9/11/2015	24.65	26.08	0.10	No	0.53			2.00		0.00	0.00	0.000	0.000
	48	9/12/2015	24.64	26.07	0.05	No	0.53			2.00		0.00	0.00	0.000	0.000
	48	9/13/2015	24.62	26.05	0.31	No	0.53			2.00		0.00	0.00	0.000	0.000
	48	9/14/2015	24.63	26.06	0.02	No	0.686			2.29		0.00	0.00	0.000	0.000
	48	9/15/2015	24.66	26.09	0.58	No	0.686			2.29		0.00	0.00	0.000	0.000
	48	9/16/2015	24.68	26.11	0.38	No	0.686			2.29		0.00	0.00	0.000	0.000
	48	9/17/2015	24.72	26.15	4.01	No	0.686			2.29		26.00	13.13	0.022	0.074
	48	9/18/2015	25.05	26.48	0.01	No	0.686			2.29		26.00	13.13	0.022	0.074
	48	9/19/2015	25.12	26.55	0.00	No	0.686			2.29		0.00	0.00	0.000	0.000
	48	9/20/2015	25.09	26.52	0.00	No	0.686			2.29		0.00	0.00	0.000	0.000
	48	9/21/2015	25.07	26.50	0.00	No	0.723			3.05		0.00	0.00	0.000	0.000
	48	9/22/2015	25.09	26.52	0.00	No	0.723			3.05		13.00	6.57	0.012	0.049
	48	9/23/2015	25.11	26.54	0.03	No	0.723			3.05		7.80	3.94	0.007	0.029
	48	9/24/2015	25.18	26.61	0.00	No	0.723			3.05		13.00	6.57	0.012	0.049
	48	9/25/2015	25.24	26.67	0.05	No	0.723			3.05		20.80	10.51	0.019	0.078
	48	9/26/2015	25.41	26.84	0.01	No	0.723			3.05		26.00	13.13	0.023	0.098
	48	9/27/2015	25.51	26.94	0.28	No	0.723			3.05		0.00	0.00	0.000	0.000
	48	9/28/2015	25.52	26.95	0.00	No	0.761			3.28		18.20	9.19	0.017	0.074
	48	9/29/2015	25.75	27.18	0.13	No	0.761			3.28		35.10	17.73	0.033	0.142
	48	9/30/2015	25.98	27.41	0.01	No	0.761			3.28		31.20	15.76	0.029	0.126
	48	10/1/2015	26.06	27.49	0.00	No	0.761			3.28		0.00	0.00	0.000	0.000
	48	10/2/2015	26.04	27.47	0.02	No	0.761			3.28		0.00	0.00	0.000	0.000
	48	10/3/2015	26.02	27.45	0.00	No	0.761			3.28		0.00	0.00	0.000	0.000
	48	10/4/2015	25.98	27.41	0.13	No	0.761			3.28		0.00	0.00	0.000	0.000
	48	10/5/2015	25.96	27.39	0.00	No	0.761			3.28		0.00	0.00	0.000	0.000
	48	10/6/2015	25.94	27.37	0.00	No	0.622			1.91		0.00	0.00	0.000	0.000
	48	10/7/2015	25.91	27.34	0.00							0.00	0.00	0.000	0.000
	48	10/8/2015	25.89	27.32	0.01							0.00	0.00	0.000	0.000
	48	10/9/2015	25.88	27.31	0.00							0.00	0.00	0.000	0.000
	48	10/10/2015	25.85	27.28	0.10							0.00	0.00	0.000	0.000
	48	10/11/2015	25.84	27.27	0.01							0.00	0.00	0.000	0.000
	48	10/12/2015	25.81	27.24	0.00							0.00	0.00	0.000	0.000
	48	10/13/2015	25.70	27.13	0.00							0.00	0.00	0.000	0.000
	48	10/14/2015	25.76	27.19	0.00							0.00	0.00	0.000	0.000
	48	10/15/2015	25.74	27.17	0.00							0.00	0.00	0.000	0.000
	48	10/16/2015	25.71	27.14	0.00							0.00	0.00	0.000	0.000
	48	10/17/2015	25.68	27.11	0.00							0.00	0.00	0.000	0.000
	48	10/18/2015	25.65	27.09	0.00							0.00	0.00	0.000	0.000
	48	10/19/2015	25.64	27.07	0.00							0.00	0.00	0.000	0.000
	48	10/20/2015	25.62	27.05	0.00							0.00	0.00	0.000	0.000
	48	10/21/2015	25.60	27.03	0.04							0.00	0.00	0.000	0.000
	48	10/22/2015	25.57	27.00	0.23							0.00	0.00	0.000	0.000
	48	10/23/2015	25.58	27.01	0.30							0.00	0.00	0.000	0.000
	48	10/24/2015	25.56	26.99	0.00							0.00	0.00	0.000	0.000
	48	10/25/2015	25.53	26.96	0.00							0.00	0.00	0.000	0.000
	48	10/26/2015	25.51	26.94	0.00							0.00	0.00	0.000	0.000
	48	10/27/2015	25.50	26.93	0.00							0.00	0.00	0.000	0.000
	48	10/28/2015	25.45	26.89	0.00							0.00	0.00	0.000	0.000
	48	10/29/2015	25.45	26.88	0.06							0.00	0.00	0.000	0.000
	48	10/30/2015	25.43	26.86	0.00							0.00	0.00	0.000	0.000
	48	10/31/2015	25.41	26.84	0.00							0.00	0.00	0.000	0.000
	48	11/1/2015	25.39	26.82	0.00							0.00	0.00	0.000	0.000
	48	11/2/2015	25.36	26.79	0.00							0.00	0.00	0.000	0.000

Reservoir

ID	Structure	SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
	48	11/3/2015	25.35	26.78	0.00							0.00	0.00	0.000	0.000
	48	11/4/2015	25.32	26.75	0.00							0.00	0.00	0.000	0.000
	48	11/5/2015	25.30	26.73	0.00							0.00	0.00	0.000	0.000
	48	11/6/2015	25.27	26.70	0.00							0.00	0.00	0.000	0.000
	48	11/7/2015	25.25	26.68	0.00							0.00	0.00	0.000	0.000
	48	11/8/2015	25.23	26.66	0.00							0.00	0.00	0.000	0.000
	48	11/9/2015	25.21	26.64	0.23							0.00	0.00	0.000	0.000
	48	11/10/2015	25.21	26.64	0.01							0.00	0.00	0.000	0.000
	48	11/11/2015	25.19	26.62	0.01							0.00	0.00	0.000	0.000
	48	11/12/2015	25.18	26.61	0.00							0.00	0.00	0.000	0.000
	48	11/13/2015	25.16	26.59	0.02							0.00	0.00	0.000	0.000
	48	11/14/2015	25.14	26.57	0.00							0.00	0.00	0.000	0.000
	48	11/15/2015	25.11	26.54	0.00							0.00	0.00	0.000	0.000
	48	11/16/2015	25.10	26.53	0.03							0.00	0.00	0.000	0.000
	48	11/17/2015	25.08	26.51	0.01							0.00	0.00	0.000	0.000
	48	11/18/2015	25.08	26.51	0.21							0.00	0.00	0.000	0.000
	48	11/19/2015	25.06	26.49	0.03							0.00	0.00	0.000	0.000
	48	11/20/2015	25.05	26.48	0.01							0.00	0.00	0.000	0.000
	48	11/21/2015	25.06	26.49	0.02							0.00	0.00	0.000	0.000
	48	11/22/2015	25.11	26.54	0.59							0.00	0.00	0.000	0.000
	48	11/23/2015	25.08	26.51	0.00							0.00	0.00	0.000	0.000
	48	11/24/2015	25.06	26.49	0.00							0.00	0.00	0.000	0.000
	48	11/25/2015	25.04	26.47	0.02							0.00	0.00	0.000	0.000
	48	11/26/2015	25.01	26.44	0.05							0.00	0.00	0.000	0.000
	48	11/27/2015	25.01	26.44	0.03							0.00	0.00	0.000	0.000
	48	11/28/2015	24.98	26.41	0.00							0.00	0.00	0.000	0.000
	48	11/29/2015	24.97	26.40	0.00							0.00	0.00	0.000	0.000
	48	11/30/2015	24.95	26.38	0.00							0.00	0.00	0.000	0.000
	48	12/1/2015	24.93	26.36	0.01							0.00	0.00	0.000	0.000
	48	12/2/2015	24.92	26.35	0.02							0.00	0.00	0.000	0.000
	48	12/3/2015	25.01	26.44	0.77		0.171			1.61		23.40	11.82	0.005	0.047
	48	12/4/2015	25.17	26.60	0.65		0.171			1.61		0.00	0.00	0.000	0.000
	48	12/5/2015	25.19	26.62	0.58		0.171			1.61		0.00	0.00	0.000	0.000
	48	12/6/2015	25.27	26.70	0.00		0.171			1.61		62.40	31.52	0.013	0.124
	48	12/7/2015	25.81	27.24	0.01		0.171			1.61		22.10	11.16	0.005	0.044
	48	12/8/2015	25.88	27.31	0.19		0.171			1.61		0.00	0.00	0.000	0.000
	48	12/9/2015	25.87	27.30	0.00		0.171			1.61		0.00	0.00	0.000	0.000
	48	12/10/2015	25.85	27.28	0.00		0.171			1.61		0.00	0.00	0.000	0.000
	48	12/11/2015	25.83	27.26	0.01		0.171			1.61		0.00	0.00	0.000	0.000
	48	12/12/2015	25.81	27.24	0.00		0.171			1.61		0.00	0.00	0.000	0.000
	48	12/13/2015	25.79	27.22	0.10		0.171			1.61		0.00	0.00	0.000	0.000
	48	12/14/2015	25.80	27.23	0.01		0.33			1.79		0.00	0.00	0.000	0.000
	48	12/15/2015	25.78	27.21	0.00		0.33			1.79		0.00	0.00	0.000	0.000
	48	12/16/2015	25.77	27.20	0.00		0.33			1.79		0.00	0.00	0.000	0.000
	48	12/17/2015	25.78	27.21	0.00		0.33			1.79		0.00	0.00	0.000	0.000
	48	12/18/2015	25.75	27.18	0.25		0.33			1.79		0.00	0.00	0.000	0.000
	48	12/19/2015	25.73	27.16	0.00		0.33			1.79		0.00	0.00	0.000	0.000
	48	12/20/2015	25.71	27.14	0.00		0.33			1.79		0.00	0.00	0.000	0.000
	48	12/21/2015	25.70	27.13	0.13		0.33			1.79		0.00	0.00	0.000	0.000
	48	12/22/2015	25.72	27.15	0.54		0.33			1.79		0.00	0.00	0.000	0.000
	48	12/23/2015	25.75	27.18	0.01		0.33			1.79		0.00	0.00	0.000	0.000
	48	12/24/2015	26.03	27.46	0.00		0.33			1.79		26.00	13.13	0.011	0.058
	48	12/25/2015	26.05	27.48	0.00							0.00	0.00	0.000	0.000
	48	12/26/2015	26.06	27.49	0.16							0.00	0.00	0.000	0.000
	48	12/27/2015	26.08	27.51	0.06							0.00	0.00	0.000	0.000
	48	12/28/2015	26.05	27.48	0.00							0.00	0.00	0.000	0.000
	48	12/29/2015	26.02	27.45	0.00							0.00	0.00	0.000	0.000
	48	12/30/2015	26.06	27.49	0.01							0.00	0.00	0.000	0.000
	48	12/31/2015	25.97	27.40	0.00							0.00	0.00	0.000	0.000
	48														
	48														
	48	1/1/2016	25.95	27.39	0.00	No						0.0	0.0	0.000	0.000
	48	1/2/2016	25.93	27.36	0.00	No						0.0	0.0	0.000	0.000
	48	1/3/2016	25.92	27.35	0.59	No						0.0	0.0	0.000	0.000
	48	1/4/2016	25.92	27.35	0.01	No	0.288			1.66		22.1	11.2	0.008	0.045
	48	1/5/2016	25.97	27.40	0.00	No						0.0	0.0	0.000	0.000
	48	1/6/2016	25.96	27.39	0.13	No						0.0	0.0	0.000	0.000
	48	1/7/2016	25.96	27.39	0.00	No						0.0	0.0	0.000	0.000
	48	1/8/2016	25.97	27.40	0.19	No						0.0	0.0	0.000	0.000
	48	1/9/2016	25.97	27.40	0.05	No						0.0	0.0	0.000	0.000
	48	1/10/2016	25.99	27.42	0.11	No						0.0	0.0	0.000	0.000
	48	1/11/2016	25.91	27.34	0.00	No						0.0	0.0	0.000	0.000
	48	1/12/2016	25.87	27.30	0.00	No						0.0	0.0	0.000	0.000
	48	1/13/2016	25.84	27.27	0.00	No						0.0	0.0	0.000	0.000
	48	1/14/2016	25.82	27.25	0.01	No						0.0	0.0	0.000	0.000
	48	1/15/2016	25.95	27.38	2.14	No						0.0	0.0	0.000	0.000
	48	1/16/2016	25.99	27.42	0.01	No						0.0	0.0	0.000	0.000

Reservoir

ID	Structure	SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
	48	1/17/2016	26.07	27.50	0.48	No						0.0	0.0	0.000	0.000
	48	1/18/2016	26.01	27.44	0.05	No						0.0	0.0	0.000	0.000
	48	1/19/2016	25.96	27.39	0.00	No						0.0	0.0	0.000	0.000
	48	1/20/2016	25.92	27.35	0.00	No						0.0	0.0	0.000	0.000
	48	1/21/2016	25.91	27.34	0.00	No						0.0	0.0	0.000	0.000
	48	1/22/2016	26.02	27.45	1.28	No						0.0	0.0	0.000	0.000
	48	1/23/2016	26.02	27.45	0.01	No						0.0	0.0	0.000	0.000
	48	1/24/2016	25.97	27.40	0.00	No						0.0	0.0	0.000	0.000
	48	1/25/2016	25.95	27.38	0.00	No						0.0	0.0	0.000	0.000
	48	1/26/2016	25.93	27.36	0.00	No						0.0	0.0	0.000	0.000
	48	1/27/2016	26.04	27.47	2.53	No						0.0	0.0	0.000	0.000
	48	1/28/2016	26.20	27.63	1.11	No						0.0	0.0	0.000	0.000
	48	1/29/2016	26.22	27.65	0.01	No						0.0	0.0	0.000	0.000
	48	1/30/2016	26.21	27.64	0.00	No						0.0	0.0	0.000	0.000
	48	1/31/2016	26.19	27.62	0.00	No						0.0	0.0	0.000	0.000
	48	2/1/2016	26.17	27.60	0.00	No						0.0	0.0	0.000	0.000
	48	2/2/2016	26.15	27.58	0.00	No						0.0	0.0	0.000	0.000
	48	2/3/2016	26.15	27.58	0.00	No						0.0	0.0	0.000	0.000
	48	2/4/2016	26.16	27.59	0.00	No						0.0	0.0	0.000	0.000
	48	2/5/2016	26.11	27.54	0.41	No						0.0	0.0	0.000	0.000
	48	2/6/2016	26.09	27.52	0.77	No						0.0	0.0	0.000	0.000
	48	2/7/2016	26.14	27.57	0.00	No						0.0	0.0	0.000	0.000
	48	2/8/2016	26.10	27.53	0.00	No						0.0	0.0	0.000	0.000
	48	2/9/2016	26.07	27.50	0.00	No						0.0	0.0	0.000	0.000
	48	2/10/2016	26.05	27.48	0.00	No						0.0	0.0	0.000	0.000
	48	2/11/2016	26.02	27.45	0.00	No						0.0	0.0	0.000	0.000
	48	2/12/2016	26.00	27.43	0.00	No						0.0	0.0	0.000	0.000
	48	2/13/2016	25.98	27.41	0.00	No						0.0	0.0	0.000	0.000
	48	2/14/2016	25.95	27.38	0.00	No						0.0	0.0	0.000	0.000
	48	2/15/2016	25.93	27.36	0.22	No						0.0	0.0	0.000	0.000
	48	2/16/2016	25.98	27.41	0.55	No						0.0	0.0	0.000	0.000
	48	2/17/2016	25.96	27.39	0.00	No						0.0	0.0	0.000	0.000
	48	2/18/2016	25.93	27.36	0.00	No						0.0	0.0	0.000	0.000
	48	2/19/2016	25.90	27.33	0.00	No						0.0	0.0	0.000	0.000
	48	2/20/2016	25.89	27.32	0.00	No						0.0	0.0	0.000	0.000
	48	2/21/2016	25.87	27.30	0.00	No						0.0	0.0	0.000	0.000
	48	2/22/2016	25.85	27.28	0.00	No						0.0	0.0	0.000	0.000
	48	2/23/2016	25.84	27.27	0.08	No						0.0	0.0	0.000	0.000
	48	2/24/2016	25.83	27.26	0.86	No						0.0	0.0	0.000	0.000
	48	2/25/2016	25.88	27.31	0.00	No						0.0	0.0	0.000	0.000
	48	2/26/2016	25.85	27.28	0.00	No						0.0	0.0	0.000	0.000
	48	2/27/2016	25.82	27.25	0.00	No						0.0	0.0	0.000	0.000
	48	2/28/2016	25.79	27.22	0.00	No						0.0	0.0	0.000	0.000
	48	2/29/2016	25.77	27.20	0.00	No						0.0	0.0	0.000	0.000
	48	3/1/2016	25.75	27.18	0.00	No						0.0	0.0	0.000	0.000
	48	3/2/2016	25.74	27.17	0.00	No						0.0	0.0	0.000	0.000
	48	3/3/2016	25.71	27.14	0.00	No						0.0	0.0	0.000	0.000
	48	3/4/2016	25.68	27.11	0.00	No						0.0	0.0	0.000	0.000
	48	3/5/2016	25.65	27.09	0.00	No						0.0	0.0	0.000	0.000
	48	3/6/2016	25.63	27.06	0.00	No						0.0	0.0	0.000	0.000
	48	3/7/2016	25.61	27.04	0.00	No						0.0	0.0	0.000	0.000
	48	3/8/2016	25.58	27.01	0.00	No						0.0	0.0	0.000	0.000
	48	3/9/2016	25.55	26.98	0.00	No						0.0	0.0	0.000	0.000
	48	3/10/2016	25.51	26.94	0.00	No						0.0	0.0	0.000	0.000
	48	3/11/2016	25.49	26.92	0.00	No						0.0	0.0	0.000	0.000
	48	3/12/2016	25.47	26.90	0.03	No						0.0	0.0	0.000	0.000
	48	3/13/2016	25.46	26.89	0.00	No						0.0	0.0	0.000	0.000
	48	3/14/2016	25.44	26.87	0.00	No						0.0	0.0	0.000	0.000
	48	3/15/2016	25.41	26.84	0.00	No						0.0	0.0	0.000	0.000
	48	3/16/2016	25.38	26.81	0.00	No						0.0	0.0	0.000	0.000
	48	3/17/2016	25.36	26.79	0.00	No						0.0	0.0	0.000	0.000
	48	3/18/2016	25.35	26.78	0.00	No						0.0	0.0	0.000	0.000
	48	3/19/2016	25.31	26.74	0.25	No						0.0	0.0	0.000	0.000
	48	3/20/2016	25.31	26.74	0.01	No						0.0	0.0	0.000	0.000
	48	3/21/2016	25.27	26.70	0.00	No						0.0	0.0	0.000	0.000
	48	3/22/2016	25.24	26.67	0.00	No						0.0	0.0	0.000	0.000
	48	3/23/2016	25.23	26.66	0.00	No						0.0	0.0	0.000	0.000
	48	3/24/2016	25.20	26.63	0.01	No						0.0	0.0	0.000	0.000
	48	3/25/2016	25.19	26.62	0.22	No						0.0	0.0	0.000	0.000
	48	3/26/2016	25.18	26.61	0.00	No						0.0	0.0	0.000	0.000
	48	3/27/2016	25.19	26.62	0.19	No						0.0	0.0	0.000	0.000
	48	3/28/2016	25.19	26.62	0.00	No						0.0	0.0	0.000	0.000
	48	3/29/2016	25.15	26.58	0.13	No						0.0	0.0	0.000	0.000
	48	3/30/2016	25.15	26.58	0.22	No						0.0	0.0	0.000	0.000
	48	3/31/2016	25.18	26.61	0.29	No						0.0	0.0	0.000	0.000
	48	4/1/2016	25.16	26.59	0.00	No						0.0	0.0	0.000	0.000
	48	4/2/2016	25.13	26.56	0.00	No						0.0	0.0	0.000	0.000

Reservoir

ID	Structure	SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
	48	4/3/2016	25.07	26.59	0.00	No						0.0	0.0	0.000	0.000
	48	4/4/2016	25.04	26.47	0.00	No						0.0	0.0	0.000	0.000
	48	4/5/2016	25.02	26.45	0.00	No						0.0	0.0	0.000	0.000
	48	4/6/2016	25.00	26.43	0.00	No						0.0	0.0	0.000	0.000
	48	4/7/2016	25.00	26.43	0.00	No						0.0	0.0	0.000	0.000
	48	4/8/2016	24.95	26.39	0.00	No						0.0	0.0	0.000	0.000
	48	4/9/2016	24.91	26.34	0.00	No						0.0	0.0	0.000	0.000
	48	4/10/2016	24.89	26.32	0.00	No						0.0	0.0	0.000	0.000
	48	4/11/2016	24.88	26.31	0.00	No						0.0	0.0	0.000	0.000
	48	4/12/2016	24.85	26.28	0.00	No						0.0	0.0	0.000	0.000
	48	4/13/2016	24.77	26.20	0.00	No						0.0	0.0	0.000	0.000
	48	4/14/2016	24.78	26.21	0.06	No						0.0	0.0	0.000	0.000
	48	4/15/2016	24.75	26.18	0.75	No						0.0	0.0	0.000	0.000
	48	4/16/2016	24.81	26.24	0.12	No						0.0	0.0	0.000	0.000
	48	4/17/2016	24.77	26.20	0.00	No						0.0	0.0	0.000	0.000
	48	4/18/2016	24.75	26.18	0.00	No						0.0	0.0	0.000	0.000
	48	4/19/2016	24.72	26.15	0.00	No						0.0	0.0	0.000	0.000
	48	4/20/2016	24.71	26.14	0.00	No						0.0	0.0	0.000	0.000
	48	4/21/2016	24.65	26.08	0.00	No						0.0	0.0	0.000	0.000
	48	4/22/2016	24.61	26.04	0.00	No						0.0	0.0	0.000	0.000
	48	4/23/2016	24.59	26.02	0.00	No						0.0	0.0	0.000	0.000
	48	4/24/2016	24.55	25.98	0.00	No						0.0	0.0	0.000	0.000
	48	4/25/2016	24.55	25.98	0.00	No						0.0	0.0	0.000	0.000
	48	4/26/2016	24.51	25.94	0.00	No						0.0	0.0	0.000	0.000
	48	4/27/2016	24.47	25.90	0.00	No						0.0	0.0	0.000	0.000
	48	4/28/2016	24.42	25.85	0.00	No						0.0	0.0	0.000	0.000
	48	4/29/2016	24.40	25.83	0.00	No						0.0	0.0	0.000	0.000
	48	4/30/2016	24.38	25.81	0.00	No						0.0	0.0	0.000	0.000
	48	5/1/2016	24.35	25.78	0.00	No						0.0	0.0	0.000	0.000
	48	5/2/2016	24.36	25.79	0.00	No						0.0	0.0	0.000	0.000
	48	5/3/2016	24.32	25.75	0.00	No						0.0	0.0	0.000	0.000
	48	5/4/2016	24.27	25.70	0.90	No						0.0	0.0	0.000	0.000
	48	5/5/2016	24.27	25.7	0.00	No						0.0	0.0	0.000	0.000
	48	5/6/2016	24.23	25.66	0.00	No						0.0	0.0	0.000	0.000
	48	5/7/2016	24.21	25.64	0.00	No						0.0	0.0	0.000	0.000
	48	5/8/2016	24.17	25.6	0.00	No						0.0	0.0	0.000	0.000
	48	5/9/2016	24.14	25.57	0.00	No						0.0	0.0	0.000	0.000
	48	5/10/2016	24.11	25.54	0.00	No						0.0	0.0	0.000	0.000
	48	5/11/2016	24.09	25.52	0.00	No						0.0	0.0	0.000	0.000
	48	5/12/2016	24.09	25.52	0.00	No						0.0	0.0	0.000	0.000
	48	5/13/2016	24.04	25.47	0.01	No						0.0	0.0	0.000	0.000
	48	5/14/2016	24.03	25.46	0.00	No						0.0	0.0	0.000	0.000
	48	5/15/2016	23.99	25.42	0.01	No						0.0	0.0	0.000	0.000
	48	5/16/2016	23.96	25.39	0.00	No						0.0	0.0	0.000	0.000
	48	5/17/2016	23.92	25.35	3.31	No						0.0	0.0	0.000	0.000
	48	5/18/2016	24.28	25.71	0.44	No						0.0	0.0	0.000	0.000
	48	5/19/2016	24.31	25.74	0.41	No						0.0	0.0	0.000	0.000
	48	5/20/2016	24.32	25.75	0.05	No						0.0	0.0	0.000	0.000
	48	5/21/2016	24.4	25.83	0.05	No	0.129			2.24		15.6	7.9	0.002	0.043
	48	5/22/2016	24.46	25.89	0.00	No						0.0	0.0	0.000	0.000
	48	5/23/2016	24.41	25.84	0.90	No						0.0	0.0	0.000	0.000
	48	5/24/2016	24.49	25.92	0.74	No						0.0	0.0	0.000	0.000
	48	5/25/2016	24.68	26.11	0.00	No	0.129			2.24		28.6	14.4	0.005	0.079
	48	5/26/2016	24.85	26.28	0.00	No	0.129			2.24		23.4	11.8	0.004	0.065
	48	5/27/2016	24.92	26.35	0.56	No						0.0	0.0	0.000	0.000
	48	5/28/2016	24.95	26.38	0.00	No						0.0	0.0	0.000	0.000
	48	5/29/2016	24.92	26.35	0.11	No						0.0	0.0	0.000	0.000
	48	5/30/2016	24.91	26.34	0.00	No						0.0	0.0	0.000	0.000
	48	5/31/2016	24.90	26.33	0.00	No						0.0	0.0	0.000	0.000
	48	6/1/2016	24.85	26.28	0.02	No						0.0	0.0	0.000	0.000
	48	6/2/2016	24.82	26.25	0.38	No						0.0	0.0	0.000	0.000
	48	6/3/2016	24.85	26.28	0.00	No						0.0	0.0	0.000	0.000
	48	6/4/2016	24.82	26.25	0.00	No						0.0	0.0	0.000	0.000
	48	6/5/2016	24.79	26.22	0.40	No						0.0	0.0	0.000	0.000
	48	6/6/2016	24.81	26.24	0.09	No						0.0	0.0	0.000	0.000
	48	6/7/2016	24.76	26.19	0.00	No						0.0	0.0	0.000	0.000
	48	6/8/2016	24.79	26.22	1.88	No						0.0	0.0	0.000	0.000
	48	6/9/2016	24.86	26.29	0.50	No						0.0	0.0	0.000	0.000
	48	6/10/2016	25.06	26.49	0.35	No	0.701			2.28		24.7	12.5	0.021	0.070
	48	6/11/2016	25.13	26.56	0.17	No						0.0	0.0	0.000	0.000
	48	6/12/2016	25.13	26.56	0.00	No						0.0	0.0	0.000	0.000
	48	6/13/2016	25.07	26.5	0.00	No						0.0	0.0	0.000	0.000
	48	6/14/2016	25.05	26.48	0.00	No						0.0	0.0	0.000	0.000
	48	6/15/2016	25.01	26.44	0.00	No						0.0	0.0	0.000	0.000
	48	6/16/2016	25.02	26.45	1.17	No						0.0	0.0	0.000	0.000
	48	6/17/2016	25.12	26.55	0.06	No	0.701			2.28		20.8	10.5	0.018	0.059
	48	6/18/2016	25.12	26.55	0.06	No						0.0	0.0	0.000	0.000

			Reservoir												
ID	Structure	SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
	48	6/19/2015	25.1	26.53	0.09	No						0.0	0.0	0.000	0.000
	48	6/20/2015	25.18	26.61	0.00	No	0.416			1.85		23.4	11.8	0.012	0.054
	48	6/21/2015	25.24	26.67	0.00	No						0.0	0.0	0.000	0.000
	48	6/22/2015	25.19	26.62	0.09	No						0.0	0.0	0.000	0.000
	48	6/23/2015	25.21	26.64	0.00	No						0.0	0.0	0.000	0.000
	48	6/24/2015	25.14	26.57	0.02	No						0.0	0.0	0.000	0.000
	48	6/25/2015	25.18	26.61	0.00	No						0.0	0.0	0.000	0.000
	48	6/26/2015	25.08	26.51	0.07	No						0.0	0.0	0.000	0.000
	48	6/27/2015	25.08	26.51	1.52	No						0.0	0.0	0.000	0.000
	48	6/28/2015	25.19	26.62	0.00	No	0.499			3.12		0.0	0.0	0.000	0.000
	48	6/29/2015	25.17	26.6	0.00	No						0.0	0.0	0.000	0.000
	48	6/30/2015	25.11	26.54	0.00	No						0.0	0.0	0.000	0.000
	48	7/1/2015	25.05	26.49	0.94	No						0.0	0.0	0.000	0.000
	48	7/2/2015	25.12	26.55	0.00	No						0.0	0.0	0.000	0.000
	48	7/3/2015	25.11	26.54	0.00	No						0.0	0.0	0.000	0.000
	48	7/4/2015	25.05	26.48	0.02	No						0.0	0.0	0.000	0.000
	48	7/5/2015	25.1	26.53	0.00	No						0.0	0.0	0.000	0.000
	48	7/6/2015	25	26.43	0.00	No						0.0	0.0	0.000	0.000
	48	7/7/2015	24.98	26.41	0.00	No						0.0	0.0	0.000	0.000
	48	7/8/2015	24.94	26.37	0.00	No						0.0	0.0	0.000	0.000
	48	7/9/2015	24.9	26.33	0.00	No						0.0	0.0	0.000	0.000
	48	7/10/2015	24.87	26.3	0.00	No						0.0	0.0	0.000	0.000
	48	7/11/2015	24.82	26.25	0.00	No						0.0	0.0	0.000	0.000
	48	7/12/2015	24.78	26.21	1.04	No						0.0	0.0	0.000	0.000
	48	7/13/2015	24.83	26.26	0.00	No						0.0	0.0	0.000	0.000
	48	7/14/2015	24.8	26.23	0.00	No						0.0	0.0	0.000	0.000
	48	7/15/2015	24.78	26.21	0.00	No						0.0	0.0	0.000	0.000
	48	7/16/2015	24.76	26.19	0.20	No						0.0	0.0	0.000	0.000
	48	7/17/2015	24.75	26.18	0.17	No						0.0	0.0	0.000	0.000
	48	7/18/2015	24.72	26.15	0.00	No						0.0	0.0	0.000	0.000
	48	7/19/2015	24.71	26.14	0.02	No						0.0	0.0	0.000	0.000
	48	7/20/2015	24.65	26.08	0.03	No	0.722			2.16		26.0	13.1	0.023	0.069
	48	7/21/2015	24.61	26.04	0.46	No						0.0	0.0	0.000	0.000
	48	7/22/2015	24.64	26.07	0.21	No						0.0	0.0	0.000	0.000
	48	7/23/2015	24.63	26.06	2.05	No						0.0	0.0	0.000	0.000
	48	7/24/2015	24.77	26.2	0.33	No						0.0	0.0	0.000	0.000
	48	7/25/2015	24.78	26.21	0.82	No						0.0	0.0	0.000	0.000
	48	7/26/2015	24.92	26.35	0.05	No						0.0	0.0	0.000	0.000
	48	7/27/2015	24.88	26.31	0.00	No						0.0	0.0	0.000	0.000
	48	7/28/2015	25	26.43	0.00	No						0.0	0.0	0.000	0.000
	48	7/29/2015	24.98	26.41	0.00	No						0.0	0.0	0.000	0.000
	48	7/30/2015	24.96	26.39	0.21	No						0.0	0.0	0.000	0.000
	48	7/31/2015	24.97	26.4	0.41	No	0.722			2.16		24.7	12.5	0.022	0.066
	48	8/1/2015	25.22	26.65	0.00	No	0.722			2.16		27.3	13.8	0.024	0.073
	48	8/2/2015	25.32	26.75	0.28	No	0.722			2.16		19.5	9.8	0.017	0.052
	48	8/3/2015	25.56	26.99	0.00	No	0.722			2.16		36.4	18.4	0.032	0.097
	48	8/4/2015	25.68	27.11	0.07	No						0.0	0.0	0.000	0.000
	48	8/5/2015	25.65	27.09	0.00	No						0.0	0.0	0.000	0.000
	48	8/6/2015	25.61	27.04	0.00	No						0.0	0.0	0.000	0.000
	48	8/7/2015	25.59	27.02	0.01	No						0.0	0.0	0.000	0.000
	48	8/8/2015	25.56	26.99	2.26	No	0.662			2.04		0.0	0.0	0.000	0.000
	48	8/9/2015	25.81	27.24	0.45	No	0.662			2.04		39.0	19.7	0.032	0.098
	48	8/10/2015	25.83	27.26	0.01	No						0.0	0.0	0.000	0.000
	48	8/11/2015	25.82	27.25	0.00	No						0.0	0.0	0.000	0.000
	48	8/12/2015	25.85	27.28	0.02	No	0.662			2.04		26.0	13.1	0.021	0.065
	48	8/13/2015	25.88	27.31	0.00	No						0.0	0.0	0.000	0.000
	48	8/14/2015	25.85	27.28	0.03	No						0.0	0.0	0.000	0.000
	48	8/15/2015	25.82	27.25	0.00	No	0.583			1.89		0.0	0.0	0.000	0.000
	48	8/16/2015	25.79	27.22	0.01	No						0.0	0.0	0.000	0.000
	48	8/17/2015	25.76	27.19	0.03	No						0.0	0.0	0.000	0.000
	48	8/18/2015	25.73	27.16	0.00	No						0.0	0.0	0.000	0.000
	48	8/19/2015	25.7	27.13	0.00	No						0.0	0.0	0.000	0.000
	48	8/20/2015	25.68	27.11	0.00	No						0.0	0.0	0.000	0.000
	48	8/21/2015	25.64	27.07	0.00	No						0.0	0.0	0.000	0.000
	48	8/22/2015	25.61	27.04	1.96	No						0.0	0.0	0.000	0.000
	48	8/23/2015	25.82	27.25	0.00	No	0.583			1.89		13.0	6.6	0.009	0.030
	48	8/24/2015	25.87	27.3	0.13	No						0.0	0.0	0.000	0.000
	48	8/25/2015	25.95	27.38	1.00	No						0.0	0.0	0.000	0.000
	48	8/26/2015	25.94	27.37	0.07	No						0.0	0.0	0.000	0.000
	48	8/27/2015	25.95	27.39	0.30	No						0.0	0.0	0.000	0.000
	48	8/28/2015	25.93	27.35	0.01	No						0.0	0.0	0.000	0.000
	48	8/29/2015	25.92	27.35	0.02	No						0.0	0.0	0.000	0.000
	48	8/30/2015	25.91	27.34	0.05	No						0.0	0.0	0.000	0.000
	48	8/31/2015	25.88	27.31	0.42	No						0.0	0.0	0.000	0.000
	48	9/1/2015	25.93	27.36	0.55	No						0.0	0.0	0.000	0.000
	48	9/2/2015	25.91	27.37	0.02	No						0.0	0.0	0.000	0.000
	48	9/3/2015	25.91	27.34	0.00	No						0.0	0.0	0.000	0.000

ID	Structure	SampleDate	Reservoir StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
	48	9/4/2016	25.88	27.31	0.01	No						0.0	0.0	0.000	0.000
	48	9/5/2016	25.86	27.29	0.08	No						0.0	0.0	0.000	0.000
	48	9/6/2016	25.84	27.27	0.07	No						0.0	0.0	0.000	0.000
	48	9/7/2016	25.82	27.25	0.02	No						0.0	0.0	0.000	0.000
	48	9/8/2016	25.79	27.22	0.00	No						0.0	0.0	0.000	0.000
	48	9/9/2016	25.76	27.19	0.00	No						0.0	0.0	0.000	0.000
	48	9/10/2016	25.73	27.16	0.00	No						0.0	0.0	0.000	0.000
	48	9/11/2016	25.73	27.16	0.41	No						0.0	0.0	0.000	0.000
	48	9/12/2016	25.71	27.14	0.04	No						0.0	0.0	0.000	0.000
	48	9/13/2016	25.69	27.12	0.48	No						0.0	0.0	0.000	0.000
	48	9/14/2016	25.75	27.18	0.00	No	0.927			2.09		18.2	9.2	0.021	0.047
	48	9/15/2016	25.80	27.23	0.00	No						0.0	0.0	0.000	0.000
	48	9/16/2016	25.77	27.20	1.12	No						0.0	0.0	0.000	0.000
	48	9/17/2016	25.83	27.26	0.01	No						0.0	0.0	0.000	0.000
	48	9/18/2016	25.81	27.24	0.00	No						0.0	0.0	0.000	0.000
	48	9/19/2016	25.78	27.21	0.09	No						0.0	0.0	0.000	0.000
	48	9/20/2016	25.76	27.19	0.00	No						0.0	0.0	0.000	0.000
	48	9/21/2016	25.74	27.17	0.00	No						0.0	0.0	0.000	0.000
	48	9/22/2016	25.72	27.15	0.10	No						0.0	0.0	0.000	0.000
	48	9/23/2016	25.70	27.13	0.17	No						0.0	0.0	0.000	0.000
	48	9/24/2016	25.69	27.12	0.27	No						0.0	0.0	0.000	0.000
	48	9/25/2016	25.70	27.13	0.01	No						0.0	0.0	0.000	0.000
	48	9/26/2016	25.68	27.11	0.01	No						0.0	0.0	0.000	0.000
	48	9/27/2016	25.65	27.09	0.04	No						0.0	0.0	0.000	0.000
	48	9/28/2016	25.64	27.07	0.56	No						0.0	0.0	0.000	0.000
	48	9/29/2016	25.65	27.08	0.02	No						0.0	0.0	0.000	0.000
	48	9/30/2016	25.63	27.06	0.00	No						0.0	0.0	0.000	0.000
	48	10/1/2016	25.59	27.02	0.00	No						0.0	0.0	0.000	0.000
	48	10/2/2016	25.57	27.00	0.34	No						0.0	0.0	0.000	0.000
	48	10/3/2016	25.69	27.12	1.74	No						0.0	0.0	0.000	0.000
	48	10/4/2016	25.70	27.13	0.00	No						0.0	0.0	0.000	0.000
	48	10/5/2016	25.69	27.12	0.00	No						0.0	0.0	0.000	0.000
	48	10/6/2016	25.68	27.11	1.59	No						0.0	0.0	0.000	0.000
	48	10/7/2016	25.92	27.35	1.33	No						0.0	0.0	0.000	0.000
	48	10/8/2016	25.86	27.29	0.00	No						0.0	0.0	0.000	0.000
	48	10/9/2016	25.84	27.27	0.00	No						0.0	0.0	0.000	0.000
	48	10/10/2016	25.81	27.24	0.00	No						0.0	0.0	0.000	0.000
	48	10/11/2016	25.77	27.20	0.03	No						0.0	0.0	0.000	0.000
	48	10/12/2016	25.75	27.18	0.01	No						0.0	0.0	0.00	0.00
	48	10/13/2016	25.73	27.16	0.00	No						0.0	0.0	0.00	0.00
	48	10/14/2016	25.69	27.12	0.01	No						0.0	0.0	0.00	0.00
	48	10/15/2016	25.68	27.11	0.01	No						0.0	0.0	0.00	0.00
	48	10/16/2016	25.65	27.08	0.01	No						0.0	0.0	0.00	0.00
	48	10/17/2016	25.63	27.06	0.00	No	0.927			2.09		11.7	5.9	0.01	0.03
	48	10/18/2016	25.77	27.20	0.00	No	0.927			2.09		28.6	14.4	0.03	0.07
	48	10/19/2016	25.82	27.25	0.00	No						0.0	0.0	0.00	0.00
	48	10/20/2016	25.82	27.25	0.25	No						0.0	0.0	0.00	0.00
	48	10/21/2016	25.78	27.21	0.00	No						0.0	0.0	0.00	0.00
	48	10/22/2016	25.76	27.19	0.00	No						0.0	0.0	0.00	0.00
	48	10/23/2016	25.72	27.15	0.00	No						0.0	0.0	0.00	0.00
	48	10/24/2016	25.70	27.13	0.00	No						0.0	0.0	0.00	0.00
	48	10/25/2016	25.66	27.09	0.00	No						0.0	0.0	0.00	0.00
	48	10/26/2016	25.64	27.07	0.12	No						0.0	0.0	0.00	0.00
	48	10/27/2016	25.62	27.05	0.00	No						0.0	0.0	0.00	0.00
	48	10/28/2016	25.60	27.03	0.00	No						0.0	0.0	0.00	0.00
	48	10/29/2016	25.58	27.01	0.00	No						0.0	0.0	0.00	0.00
	48	10/30/2016	25.55	26.98	0.00	No						0.0	0.0	0.00	0.00
	48	10/31/2016	25.54	26.97	0.00	No						0.0	0.0	0.00	0.00
	48	11/1/2016	25.52	26.95	0.00	No						0.0	0.0	0.00	0.00
	48	11/2/2016	25.49	26.92	0.06	No						0.0	0.0	0.00	0.00
	48	11/3/2016	25.48	26.91	0.03	No						0.0	0.0	0.00	0.00
	48	11/4/2016	25.46	26.89	0.00	No						0.0	0.0	0.00	0.00
	48	11/5/2016	25.43	26.86	0.00	No						0.0	0.0	0.00	0.00
	48	11/6/2016	25.40	26.83	0.00	No						0.0	0.0	0.00	0.00
	48	11/7/2016	25.38	26.81	0.00	No						0.0	0.0	0.00	0.00
	48	11/8/2016	25.35	26.78	0.00	No						0.0	0.0	0.00	0.00
	48	11/9/2016	25.34	26.77	0.00	No						0.0	0.0	0.00	0.00
	48	11/10/2016	25.32	26.75	0.00	No						0.0	0.0	0.00	0.00
	48	11/11/2016	25.31	26.74	0.00	No						0.0	0.0	0.00	0.00
	48	11/12/2016	25.26	26.69	0.00	No						0.0	0.0	0.00	0.00
	48	11/13/2016	25.26	26.69	0.00	No						0.0	0.0	0.00	0.00
	48	11/14/2016	25.25	26.68	0.01	No						0.0	0.0	0.00	0.00
	48	11/15/2016	25.21	26.64	0.00	No						0.0	0.0	0.00	0.00
	48	11/16/2016	25.19	26.62	0.00	No						0.0	0.0	0.00	0.00
	48	11/17/2016	25.54	26.97	0.00	No	1.194			2.43		26	13.1	0.04	0.06
	48	11/18/2016	25.58	27.01	0.00	No	1.194			2.43		40.3	20.4	0.05	0.12
	48	11/19/2016	25.56	26.99	0.00	No						0.0	0.0	0.00	0.00

Reservoir

ID	Structure	SampleDate	StageFt_NAVD	StageFt_NGVD	Rainfall_in	Flowing	TP_mg/l	TKN_mg/l	NOX_mg/l	TN_mg/l	TSS_mg/l	Daily_Pump_Volume_acft	Daily_Pump_Volume_cfsd	Daily_Material_Load_TP_MT	Daily_Material_Load_TN_MT
	48	11/20/2016	25.57	27.00	0.00	No						0.0	0.0	0.000	0.00
	48	11/21/2016	25.52	26.95	0.00	No						0.0	0.0	0.000	0.00
	48	11/22/2016	25.47	26.90	0.00	No						0.0	0.0	0.000	0.00
	48	11/23/2016	25.49	26.92	0.00	No						0.0	0.0	0.000	0.00
	48	11/24/2016	25.43	26.86	0.00	No						0.0	0.0	0.000	0.00
	48	11/25/2016	25.39	26.82	0.00	No						0.0	0.0	0.000	0.00
	48	11/26/2016	25.38	26.81	0.00	No						0.0	0.0	0.000	0.00
	48	11/27/2016	25.35	26.78	0.00	No						0.0	0.0	0.000	0.00
	48	11/28/2016	25.33	26.76	0.14	No						0.0	0.0	0.000	0.00
	48	11/29/2016	25.34	26.77	0.00	No						0.0	0.0	0.000	0.00
	48	11/30/2016	25.32	26.75	0.00	No						0.0	0.0	0.000	0.00
	48	12/1/2016	25.30	26.73	0.00	No						0.0	0.0	0.000	0.00
	48	12/2/2016	25.28	26.71	0.00	No						0.0	0.0	0.000	0.00
	48	12/3/2016	25.24	26.67	0.00	No						0.0	0.0	0.000	0.00
	48	12/4/2016	25.24	26.67	0.00	No						0.0	0.0	0.000	0.00
	48	12/5/2016	25.17	26.60	0.00	No						0.0	0.0	0.000	0.00
	48	12/6/2016	25.25	26.68	0.41	No						0.0	0.0	0.000	0.00
	48	12/7/2016	25.25	26.68	0.01	No						0.0	0.0	0.000	0.00
	48	12/8/2016	25.23	26.66	0.00	No						0.0	0.0	0.000	0.00
	48	12/9/2016	25.21	26.64	0.09	No						0.0	0.0	0.000	0.00
	48	12/10/2016	25.18	26.61	0.02	No						0.0	0.0	0.000	0.00
	48	12/11/2016	25.17	26.60	0.00	No						0.0	0.0	0.000	0.00
	48	12/12/2016	25.18	26.61	0.00	No						0.0	0.0	0.000	0.00
	48	12/13/2016	25.15	26.58	0.00	No						0.0	0.0	0.000	0.00
	48	12/14/2016	25.12	26.55	0.00	No						0.0	0.0	0.000	0.00
	48	12/15/2016	25.09	26.52	0.00	No						0.0	0.0	0.000	0.00
	48	12/16/2016	25.06	26.49	0.00	No						0.0	0.0	0.000	0.00
	48	12/17/2016	25.05	26.48	0.00	No						0.0	0.0	0.000	0.00
	48	12/18/2016	25.04	26.47	0.00	No						0.0	0.0	0.000	0.00
	48	12/19/2016	25.00	26.43	0.00	No						0.0	0.0	0.000	0.00
	48	12/20/2016	24.98	26.41	0.01	No						0.0	0.0	0.000	0.00
	48	12/21/2016	24.97	26.40	0.00	No						0.0	0.0	0.000	0.00
	48	12/22/2016	24.95	26.38	0.00	No						0.0	0.0	0.000	0.00
	48	12/23/2016	24.93	26.36	0.00	No						0.0	0.0	0.000	0.00
	48	12/24/2016	24.89	26.32	0.00	No						0.0	0.0	0.000	0.00
	48	12/25/2016	24.89	26.32	0.00	No						0.0	0.0	0.000	0.00
	48	12/26/2016	24.86	26.29	0.00	No						0.0	0.0	0.000	0.00
	48	12/27/2016	24.84	26.27	0.00	No						0.0	0.0	0.000	0.00
	48	12/28/2016	24.83	26.26	0.00	No						0.0	0.0	0.000	0.00
	48	12/29/2016	24.81	26.24	0.00	No						0.0	0.0	0.000	0.00
	48	12/30/2016	24.77	26.20	0.08	No						0.0	0.0	0.000	0.00
	48	12/31/2016	24.76	26.19	0.00	No						0.0	0.0	0.000	0.00
				Totals	94.06		0.459			1.95		1113.3	562.2	0.7	2.8
				ac-ft Rain	470.3										

Project Water Quality Monitoring

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
1/1/2015						
1/2/2015						
1/3/2015						
1/4/2015						
1/5/2015						
1/6/2015						
1/7/2015						
1/8/2015						
1/9/2015						
1/10/2015						
1/11/2015						
1/12/2015						
1/13/2015						
1/14/2015						
1/15/2015						
1/16/2015						
1/17/2015						
1/18/2015						
1/19/2015						
1/20/2015						
1/21/2015						
1/22/2015						
1/23/2015						
1/24/2015						
1/25/2015						
1/26/2015						
1/27/2015						
1/28/2015						
1/29/2015						
1/30/2015						
1/31/2015						
2/1/2015						
2/2/2015						
2/3/2015						
2/4/2015						
2/5/2015						
2/6/2015						
2/7/2015						
2/8/2015						
2/9/2015			0.394		1.48	
2/10/2015						
2/11/2015						
1/12/2015						
2/13/2015						
2/14/2015						
2/15/2015						
2/16/2015	0.343	1.38	0.37	0.005	1.4	3
2/17/2015	0.343	1.38				

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
2/18/2015	0.343	1.38				
2/19/2015	0.343	1.38				
2/20/2015	0.343	1.38				
2/21/2015	0.343	1.38				
2/22/2015	0.343	1.38				
2/23/2015	0.351	1.39	0.372	0.005	1.48	3
2/24/2015	0.351	1.39				
2/25/2015	0.351	1.39				
2/26/2015	0.351	1.39				
2/27/2015	0.351	1.39				
2/28/2015	0.351	1.39				
3/1/2015	0.351	1.39				
3/2/2015	0.396	1.49	0.355	0.005	1.47	3
3/3/2015	0.396	1.49				
3/4/2015	0.396	1.49				
3/5/2015	0.396	1.49				
3/6/2015	0.396	1.49				
3/7/2015	0.396	1.49				
3/8/2015	0.396	1.49				
3/9/2015	0.413	1.72	0.317		1.56	4
3/10/2015	0.413	1.72				
3/11/2015	0.413	1.72				
3/12/2015	0.413	1.72				
3/13/2015	0.413	1.72				
3/14/2015	0.413	1.72				
3/15/2015	0.413	1.72				
3/16/2015	0.329	1.72	0.27	0.005	1.64	4
3/17/2015	0.329	1.72				
3/18/2015	0.329	1.72				
3/19/2015	0.329	1.72				
3/20/2015	0.329	1.72				
3/21/2015	0.329	1.72				
3/22/2015	0.329	1.72				
3/23/2015	0.275	1.63	0.205	0.005	1.55	3
3/24/2015	0.275	1.63				
3/25/2015	0.275	1.63				
3/26/2015	0.275	1.63				
3/27/2015	0.275	1.63				
3/28/2015	0.275	1.63				
3/29/2015	0.275	1.63				
3/30/2015						
3/31/2015						
4/1/2015						
4/2/2015						
4/3/2015						
4/4/2015						
4/5/2015						
4/6/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
4/7/2015						
4/8/2015						
4/9/2015						
4/10/2015						
4/11/2015						
4/12/2015						
4/13/2015						
4/14/2015						
4/15/2015						
4/16/2015						
4/17/2015						
4/18/2015						
4/19/2015						
4/20/2015						
4/21/2015						
4/22/2015						
4/23/2015						
4/24/2015						
4/25/2015						
4/26/2015						
4/27/2015						
4/28/2015						
4/29/2015						
4/30/2015						
5/1/2015						
5/2/2015						
5/3/2015						
5/4/2015	0.346	1.64	0.174	0.006	1.43	
5/5/2015	0.346	1.64				
5/6/2015	0.346	1.64				
5/7/2015	0.346	1.64				
5/8/2015	0.346	1.64				
5/9/2015	0.346	1.64				
5/10/2015	0.346	1.64				
5/11/2015						
5/12/2015						
5/13/2015						
5/14/2015						
5/15/2015						
5/16/2015						
5/17/2015						
5/18/2015						
5/19/2015						
5/20/2015						
5/21/2015						
5/22/2015						
5/23/2015						
5/24/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
5/25/2015						
5/26/2015						
5/27/2015						
5/28/2015						
5/29/2015						
5/30/2015						
5/31/2015						
6/1/2015						
6/2/2015						
6/3/2015						
6/4/2015						
6/5/2015						
6/6/2015						
6/7/2015						
6/8/2015	0.224	1.55	0.452	0.005	1.71	7
6/9/2015	0.224	1.55				
6/10/2015	0.224	1.55				
6/11/2015	0.224	1.55				
6/12/2015	0.224	1.55				
6/13/2015	0.224	1.55				
6/14/2015	0.224	1.55				
6/15/2015	0.53	1.92	0.719	0.005	2.33	5
6/16/2015	0.53	1.92				
6/17/2015	0.53	1.92				
6/18/2015	0.53	1.92				
6/19/2015	0.53	1.92				
6/20/2015	0.53	1.92				
6/21/2015	0.53	1.92				
6/22/2015	0.53	1.92				
6/23/2015	0.53	1.92				
6/24/2015	0.53	1.92				
6/25/2015	0.53	1.92				
6/26/2015	0.53	1.92				
6/27/2015	0.53	1.92				
6/28/2015	0.53	1.92				
6/29/2015	0.53	1.92				
6/30/2015			0.581	0.005	2.37	10
7/1/2015						
7/2/2015						
7/3/2015						
7/4/2015						
7/5/2015						
7/6/2015						
7/7/2015						
7/8/2015						
7/9/2015						
7/10/2015						
7/11/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
7/12/2015						
7/13/2015						
7/14/2015						
7/15/2015						
7/16/2015						
7/17/2015						
7/18/2015						
7/19/2015						
7/20/2015						
7/21/2015						
7/22/2015						
7/23/2015						
7/24/2015						
7/25/2015						
7/26/2015						
7/27/2015						
7/28/2015						
7/29/2015						
7/30/2015						
7/31/2015						
8/1/2015						
8/2/2015						
8/3/2015						
8/4/2015						
8/5/2015						
8/6/2015						
8/7/2015						
8/8/2015						
8/9/2015						
8/10/2015						
8/11/2015						
8/12/2015						
8/13/2015						
8/14/2015						
8/15/2015						
8/16/2015						
8/17/2015						
8/18/2015						
8/19/2015						
8/20/2015						
8/21/2015						
8/22/2015						
8/23/2015						
8/24/2015						
8/25/2015						
8/26/2015						
8/27/2015						
8/28/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
8/29/2015						
8/30/2015						
8/31/2015						
9/1/2015						
9/2/2015						
9/3/2015						
9/4/2015						
9/5/2015						
9/6/2015						
9/7/2015						
9/8/2015	0.53	2	0.604		2.02	6
9/9/2015	0.53	2				
9/10/2015	0.53	2				
9/11/2015	0.53	2				
9/12/2015	0.53	2				
9/13/2015	0.53	2				
9/14/2015	0.686	2.29	0.845		2.24	6
9/15/2015	0.686	2.29				
9/16/2015	0.686	2.29				
9/17/2015	0.686	2.29				
9/18/2015	0.686	2.29				
9/19/2015	0.686	2.29				
9/20/2015	0.686	2.29				
9/21/2015	0.723	3.05	0.543	0.005	1.96	8
9/22/2015	0.723	3.05				
9/23/2015	0.723	3.05				
9/24/2015	0.723	3.05				
9/25/2015	0.723	3.05				
9/26/2015	0.723	3.05				
9/27/2015	0.723	3.05				
9/28/2015	0.761	3.28	0.607	0.005	2.03	
9/29/2015	0.761	3.28				
9/30/2015	0.761	3.28				
10/1/2015	0.761	3.28				
10/2/2015	0.761	3.28				
10/3/2015	0.761	3.28				
10/4/2015	0.761	3.28				
10/5/2015	0.761	3.28				
10/6/2015	0.622	1.91	0.614		2.26	
10/7/2015						
10/8/2015						
10/9/2015						
10/10/2015						
10/11/2015						
10/12/2015						
10/13/2015						
10/14/2015						
10/15/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
10/16/2015						
10/17/2015						
10/18/2015						
10/19/2015						
10/20/2015						
10/21/2015						
10/22/2015						
10/23/2015						
10/24/2015						
10/25/2015						
10/26/2015						
10/27/2015						
10/28/2015						
10/29/2015						
10/30/2015						
10/31/2015						
11/1/2015						
11/2/2015						
11/3/2015						
11/4/2015						
11/5/2015						
11/6/2015						
11/7/2015						
11/8/2015						
11/9/2015						
11/10/2015						
11/11/2015						
11/12/2015						
11/13/2015						
11/14/2015						
11/15/2015						
11/16/2015						
11/17/2015						
11/18/2015						
11/19/2015						
11/20/2015						
11/21/2015						
11/22/2015						
11/23/2015						
11/24/2015						
11/25/2015						
11/26/2015						
11/27/2015						
11/28/2015						
11/29/2015						
11/30/2015						
12/1/2015						
12/2/2015						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
12/3/2015						
12/4/2015						
12/5/2015						
12/6/2015						
12/7/2015	0.171	1.61	0.299	0.015	1.66	14
12/8/2015	0.171	1.61				
12/9/2015	0.171	1.61				
12/10/2015	0.171	1.61				
12/11/2015	0.171	1.61				
12/12/2015	0.171	1.61				
12/13/2015	0.171	1.61				
12/14/2015	0.33	1.79	0.245		1.79	3
12/15/2015	0.33	1.79				
12/16/2015	0.33	1.79				
12/17/2015	0.33	1.79				
12/18/2015	0.33	1.79				
12/19/2015	0.33	1.79				
12/20/2015	0.33	1.79				
12/21/2015						
12/22/2015						
12/23/2015						
12/24/2015						
12/25/2015						
12/26/2015						
12/27/2015						
12/28/2015						
12/29/2015						
12/30/2015						
12/31/2015						
1/1/2016						
1/2/2016						
1/3/2016						
1/4/2016						
1/5/2016						
1/6/2016						
1/7/2016						
1/8/2016						
1/9/2016						
1/10/2016						
1/11/2016	0.288	1.66	0.182	0.005	1.52	4
1/12/2016						
1/13/2016						
1/14/2016						
1/15/2016						
1/16/2016						
1/17/2016						
1/18/2016						
1/19/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
1/20/2016						
1/21/2016						
1/22/2016						
1/23/2016						
1/24/2016						
1/25/2016						
1/26/2016						
1/27/2016						
1/28/2016						
1/29/2016						
1/30/2016						
1/31/2016						
2/1/2016						
2/2/2016						
2/3/2016						
2/4/2016						
2/5/2016						
2/6/2016						
2/7/2016						
2/8/2016						
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3/6/2016						
3/7/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
3/8/2016						
3/9/2016						
3/10/2016						
3/11/2016						
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4/20/2016						
4/21/2016						
4/22/2016						
4/23/2016						
4/24/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
4/25/2016						
4/26/2016						
4/27/2016						
4/28/2016						
4/29/2016						
4/30/2016						
5/1/2016						
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5/14/2016						
5/15/2016						
5/16/2016						
5/17/2016						
5/18/2016						
5/19/2016						
5/20/2016						
5/21/2016						
5/22/2016						
5/23/2016						
5/24/2016	0.129	2.24	0.078	0.016	1.74	12
5/25/2016	0.129	2.24				
5/26/2016	0.129	2.24				
5/27/2016	0.129	2.24				
5/28/2016	0.129	2.24				
5/29/2016	0.129	2.24				
5/30/2016	0.129	2.24				
5/31/2016	0.154	1.84	0.35	0.005	1.81	10
6/1/2016	0.154	1.84				
6/2/2016	0.154	1.84				
6/3/2016	0.154	1.84				
6/4/2016	0.154	1.84				
6/5/2016	0.154	1.84				
6/6/2016						
6/7/2016						
6/8/2016						
6/9/2016						
6/10/2016						
6/11/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
6/12/2016						
6/13/2016	0.701	2.28	0.92	0.008	2.14	3
6/14/2016	0.701	2.28				
6/15/2016	0.701	2.28				
6/16/2016	0.701	2.28				
6/17/2016	0.701	2.28				
6/18/2016	0.701	2.28				
6/19/2016	0.701	2.28				
6/20/2016	0.416	1.86	0.474	0.007	1.71	3
6/21/2016	0.416	1.86				
6/22/2016	0.416	1.86				
6/23/2016	0.416	1.86				
6/24/2016	0.416	1.86				
6/25/2016	0.416	1.86				
6/26/2016	0.416	1.86				
6/27/2016	0.416	1.86				
6/28/2016	0.499	3.12	0.291	0.012	1.71	8
6/29/2016	0.499	3.12				
6/30/2016	0.499	3.12				
7/1/2016	0.499	3.12				
7/2/2016	0.499	3.12				
7/3/2016	0.499	3.12				
7/4/2016	0.499	3.12				
7/5/2016						
7/6/2016						
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7/26/2016						
7/27/2016						
7/28/2016						
7/29/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
7/30/2016						
7/31/2016						
8/1/2016	0.722	2.16	0.745	0.01	2.14	7
8/2/2016						
8/3/2016						
8/4/2016						
8/5/2016						
8/6/2016						
8/7/2016						
8/8/2016	0.662	2.04	0.797	0.007	2.5	5
8/9/2016						
8/10/2016						
8/11/2016						
8/12/2016						
8/13/2016						
8/14/2016						
8/15/2016	0.583	1.88	0.618	0.006	1.89	3
8/16/2016						
8/17/2016						
8/18/2016						
8/19/2016						
8/20/2016						
8/21/2016						
8/22/2016						
8/23/2016						
8/24/2016						
8/25/2016						
8/26/2016						
8/27/2016						
8/28/2016						
8/29/2016						
8/30/2016						
8/31/2016						
9/1/2016						
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9/12/2016						
9/13/2016						
9/14/2016						
9/15/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
9/16/2016						
9/17/2016						
9/18/2016	0.927	2.09	0.326		1.77	5
9/19/2016						
9/20/2016						
9/21/2016						
9/22/2016						
9/23/2016						
9/24/2016						
9/25/2016						
9/26/2016						
9/27/2016						
9/28/2016						
9/29/2016						
9/30/2016						
10/1/2016						
10/2/2016						
10/3/2016						
10/4/2016						
10/5/2016						
10/6/2016						
10/7/2016						
10/8/2016						
10/9/2016						
10/10/2016						
10/11/2016						
10/12/1900						
10/13/2016						
10/14/2016						
10/15/2016						
10/16/2016						
10/17/2016						
10/18/2016	0.927	2.09	0.326	0.01	1.77	4
10/19/2016						
10/20/2016						
10/21/2016						
10/22/2016						
10/23/2016						
10/24/2016	1.194	2.43	0.534	0.007	2.4	0
10/25/2016						
10/26/2016						
10/27/2016						
10/28/2016						
10/29/2016						
10/30/2016						
10/31/2016						
11/1/2016						
11/2/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
11/3/2016						
11/4/2016						
11/5/2016						
11/6/2016						
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12/16/2016						
12/17/2016						
12/18/2016						
12/19/2016						
12/20/2016						

	mg/l (autosampler ACT)		mg/l (grab sample)			
SampleDate	T-P	T-N	T-P	NOx	T-N	TSS
12/21/2016						
12/22/2016						
12/23/2016						
12/24/2016						
12/25/2016						
12/26/2016						
12/27/2016						
12/28/2016						
12/29/2016						
12/30/2016						
12/31/2016						

Spur-Out

Sample Date	T-P	T-N	NOx	TSS	Comment
9/19/2015	0.077	1.99	0.005	3	No discharge from reservoir, pasture runoff only
12/7/2016	0.065	2.02	0.009	15	No discharge from reservoir, pasture runoff only
1/18/2016	0.043	1.44	0.006	6	No discharge from reservoir, pasture runoff only
2/26/2016	0.075	1.74	0.005	21	No discharge from reservoir, pasture runoff only