

# **JEA St. Johns River Power Park Decommissioning and Restoration**

## **Drainage Analysis**

**Portions of Sections 12, 13, and 43 Township 1S Range 27E  
Flood Panel ID. 12031C-0216H**

**FOR**

## **Aptim Environmental & Infrastructure, Inc.**

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**BY**



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**SUBMITTAL DATE: 2017-11-02  
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**PROFESSIONAL ENGINEER CERTIFICATE**

I, Timothy L. Adkinson, P.E. #53964, certify that I currently hold an active license in the state of Florida and am competent through education or experience to provide engineering services in the civil discipline contained in this plan, print, specification, or report.

PROJECT: JEA SJRPP  
Drainage Analysis

LOCATION: Jacksonville, FL

CLIENT: Aptim Environmental & Infrastructure, Inc.

I further certify that this plan, print, specification, or report was prepared by me or under my responsible charge as defined in Chapter 61G15-18.001 F.A.C. Moreover, if offered by a corporation, partnership, or through a fictitious name, I certify that the company offering the engineering services, Adkinson Engineering, 4639 Trevor Creek Dr. S., Jacksonville, FL 32257 holds an active certificate of authorization to provide the engineering service.

Signature:

Name:

P.E. No.:

Date:

\_\_\_\_\_  
Timothy L. Adkinson, P.E.

53964

11/27/2017

## **NARRATIVE**

### **1.0 INTRODUCTION**

The intent of this report is to obtain the Site Certification Amendment approval for the JEA St. Johns River Power Park (SJRPP) Post Demolition Stormwater Design and Grading. The site is located in portions of Sections 12, 13, and 43 Township 1S, and Range 27E. Specifically, the project is located north of the St. Johns River and southeast of the New Berlin Road / Island Drive intersection. The proposed decommissioning project is comprised of approximately 500 Acres with a similar study area.

The project will consist of decommissioning and demolishing the existing power generation facility. The plant and associated infrastructure will be demolished and removed with the exception of the rail loop, 230 KV switch yard, the Northeast Jacksonville area communications tower and foundations of the main stack, boiler and power block. As a result, the Post Decommission conditions will produce less runoff than existing conditions. **A comparison of the Pre and Post Runoff curve Numbers are provided in Table 1.4.1.**

The major existing drainage infrastructure of the site will remain intact including the perimeter drainage ditch, the stormwater pond, primary drainage trenches, and some of the underground drainage piping.

### **1.1 PRE-DEMOLITION**

The existing conditions of this site consist of a highly impervious, developed area. The site currently operates as a power generation facility, including a large lined coal stockpile, and lined ponds. The pre-demolition areas are shown on Sheet C-002, Pre-Demolition Drainage Map. For the purposes of this study, the "St. Johns River Power Park Area II Landfill Closure Stormwater Management System" report dated June 2010 and prepared by CDM has been utilized to develop the existing ("pre-demolition") conditions (see Section 4.1). In order to create models that can be easily compared between the existing conditions and the post-demolition conditions. Almost identical basin naming has been utilized. Basins in the pre-demolition model have been labeled with an "EX" prefix. See Sheet C-002, Pre-Demolition Drainage Map (see Section 2.2). The 2010 report did not include Areas EX-5 or EX-6 in the existing stormwater system since all of the rainfall and runoff from these areas were captured and processed through the plant's wastewater treatment system.

#### **1.1.1 Topography**

LIDAR data supplied obtained from the City of Jacksonville was utilized for this study. The proposed conditions simulated in the SJRPP stormwater report referenced above were assumed to be current existing conditions. This information has been used as a base to compute the attached drainage calculations and to delineate the existing drainage basins. A small amount of additional survey performed by R.E. Holland and Associates, Inc. was also utilized. The SJRPP is surrounded by an existing perimeter ditch. This ditch will be maintained during and after the decommissioning project.



**1.1.2 Soil Survey**

The soil survey provided in this report has been obtained from the National Resources Conservation Service (NRCS). This survey was used to determine the type of soils available within the limits of the study area. According to this survey the primary Hydrologic Soil Groups (HSG) for Curve Number (CN) calculations are specified as A, D and A/D. Please refer to Section 2.4

**1.1.3 Federal Emergency Management Agency (FEMA) Data**

The proposed project is primarily located in Flood Zone X. A small portion of the site on the southern end is located in Zones A6 and A7. These areas of the site will not be impacted during this project. Please see FIRM 12031C-0216H.

**1.1.4 Tailwater Condition**

The tailwater condition used in the Interconnected Channel and Pond Routing Model (ICPR) analysis has been determined using the existing permit conditions and engineering judgment. Please refer to Section 4.1.

**1.2 POST-DEMOLITION****1.2.1 Stormwater Management System**

The proposed stormwater management system has been divided into multiple drainage basins almost identical to the existing conditions. Basins in the Pre-demolition model have been labeled with a "PR" prefix. The power park decommissioning and demolition includes removal of the existing power facility and associated infrastructure. Along with this effort, the lined coal pile and lined ponds will be removed and the area re-graded. These areas (PR-5 and PR-6) were not part of the existing pre-demolition stormwater system, but will be added into the overall post-demolition stormwater system. See Sheet C-003, Post-Demolition Drainage Map (see Section 2.3). Runoff from the former coal pile area and lined ponds (PR-6) will be routed into the existing large stormwater pond.

The post-decommissioned site will also include a 50-acre parcel reserved for future development. This parcel is shown on Sheet C-003 and is included in portions of Basins PR-2, PR-4, and PR-6.

A new collection and treatment system has been added in Basins PR-3East and PR-5 for the eastern portion of the site.

The proposed wet detention ponds have been designed to meet the water quality and attenuation requirements required by the Florida Department of Environmental Protection and Rule 62-330 of the Florida Statutes.

**1.2.2 Tailwater Condition**

The tailwater condition used in the Interconnected Channel and Pond Routing Model (ICPR) analysis has been specified as in the pre-demolition analysis.

### 1.3 DESIGN STORMS RAINFALL INTENSITIES

The Interconnected Channel and Pond Routing Model (ICPR) provided has used the following rainfall intensities for pre-demolition and post demolition. The rainfall distribution used for this simulation is the SCS method. The rainfall amounts were obtained from the previous permit conditions.

### 1.4 DESIGN CRITERIA AND CONSTRAINTS

Based on the regulatory criteria, the discharge from the post-demolition site cannot exceed the pre-demolition existing conditions.

Browns Creek is designated as an Outstanding Florida Water, as a result an additional 50% treatment volume has been provided in both the existing pond and the proposed northeast treatment pond. **Table 1.4.1** below summarizes a comparison of the pre- and post-demolition runoff curve numbers for the site

**Table 1.4.1**

<b>CURVE NUMBER COMPARISON</b>					
<b>PRE-DEMOLITION</b>			<b>POST-DEMOLITION</b>		
<b>AREA NAME</b>	<b>CN</b>	<b>ACRES</b>	<b>AREA NAME</b>	<b>CN</b>	<b>ACRES</b>
EX-1	88	113.3	PR-1	81	113.3
EX-2	83	110.4	PR-2	77	110.4
EX-3	90	60.1	PR-3	70	45
			PR-3 East	61	15.1
EX-4	88	70.3	PR-4	77	70.3
EX-5	95	6.2	PR-5	88	6.2
EX-6	96	90.2	PR-6	67	90.2
EX-7	82	13.7	PR-7	82	13.7
POND	97	22.6	POND	97	22.6
LF2		37.7	LF2		37.7

**Table 1.4.2** below summarizes the comparison of pre- and post-demolition treatment volumes. Specific water quality calculations are provided in Section 3.2 of this design package.

**Table 1.4.2**

<b>TREATMENT VOLUME COMPARISON</b>		
	<b>PRE-DEMOLITION</b>	<b>POST-DEMOLITION</b>
EXISTING POND	50.3 Ac-Ft	61.1 Ac-Ft
NORTHEAST POND	N/A	4.4 Ac-Ft
TOTAL	50.3 Ac-Ft	65.5 Ac-Ft

The project was modeled using SCS methodologies and ICPR software. It has been designed to meet or exceed Pre/Post discharge requirements for 25-year/24-hour Design Frequency. All necessary calculations have been attached with this report.

Although the overall drainage area has increased, the coinciding Curve Number reductions and Outfall Structure changes have resulted in a much lower post-demolition peak discharge rate. **Table 1.4.3** below summarizes the pre- and post-demolition peak discharge rates.

**Table 1.4.3**

25-YR/24-HR STORM EVENT PEAK DISCHARGE RATE COMPARISON		
BOUNDARY	PRE DEMOLITION	POST DEMOLITION
BROWNS CREEK	98.5 cfs	76.9 cfs

## 2.0 EXHIBITS

2.1 Aerial Photograph





**ADKINSON**  
ENGINEERING

**JEA**  
**ST. JOHNS RIVER POWER PARK**  
**DECOMMISSIONING & DEMOLITION**  
**GRADING, DRAINAGE,**  
**AND EROSION CONTROL PLANS**  
**ST. JOHNS RIVER POWER PARK**  
**DUVAL COUNTY, FLORIDA**

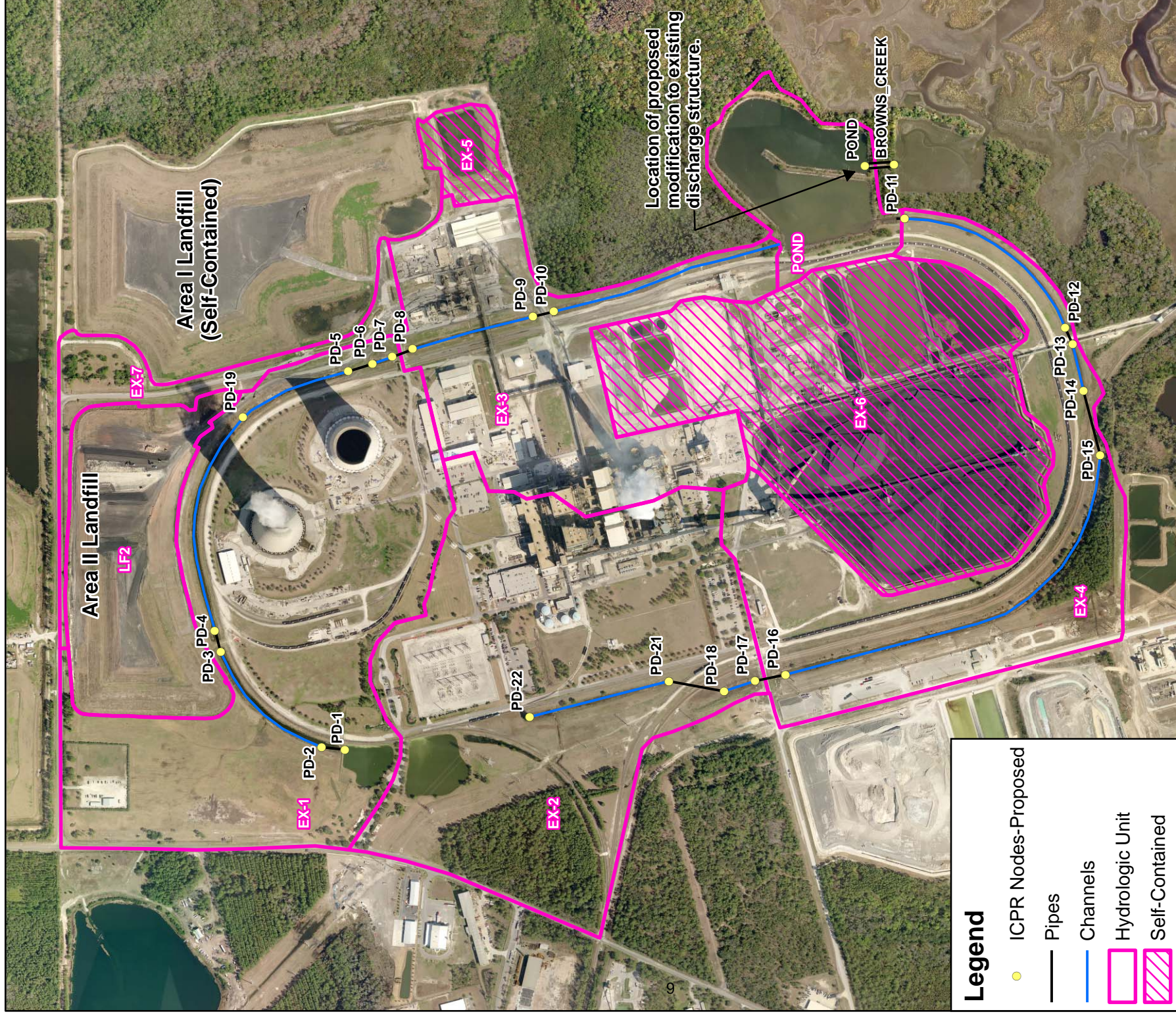
[illegible]

JOB NO.	JOB
DATE	October 9, 2017
SCALE	AS SHOWN
SHEET	



2.2 Pre-demolition Drainage Map





**Figure 4**  
**JEA SIRPP**  
**Landfill II Closure**  
**Proposed Hydrologic Conditions**  
**Existing Conditions as of 2017**



## 2.3 Post-demolition Drainage Map



## 2.4 Soils Report



United States  
Department of  
Agriculture

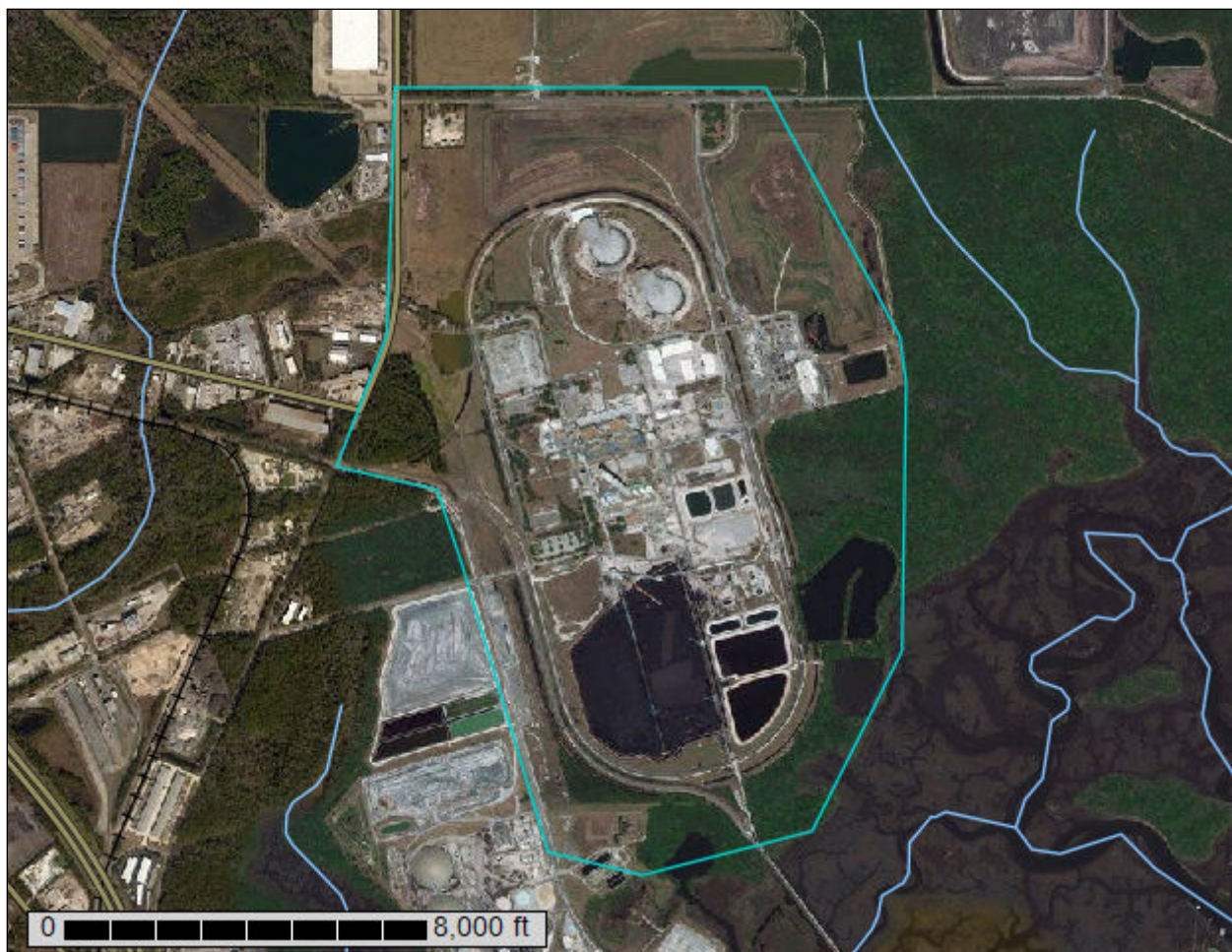
**NRCS**

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for **Duval County, Florida**

**SJRPP**



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil



scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

## Custom Soil Resource Report

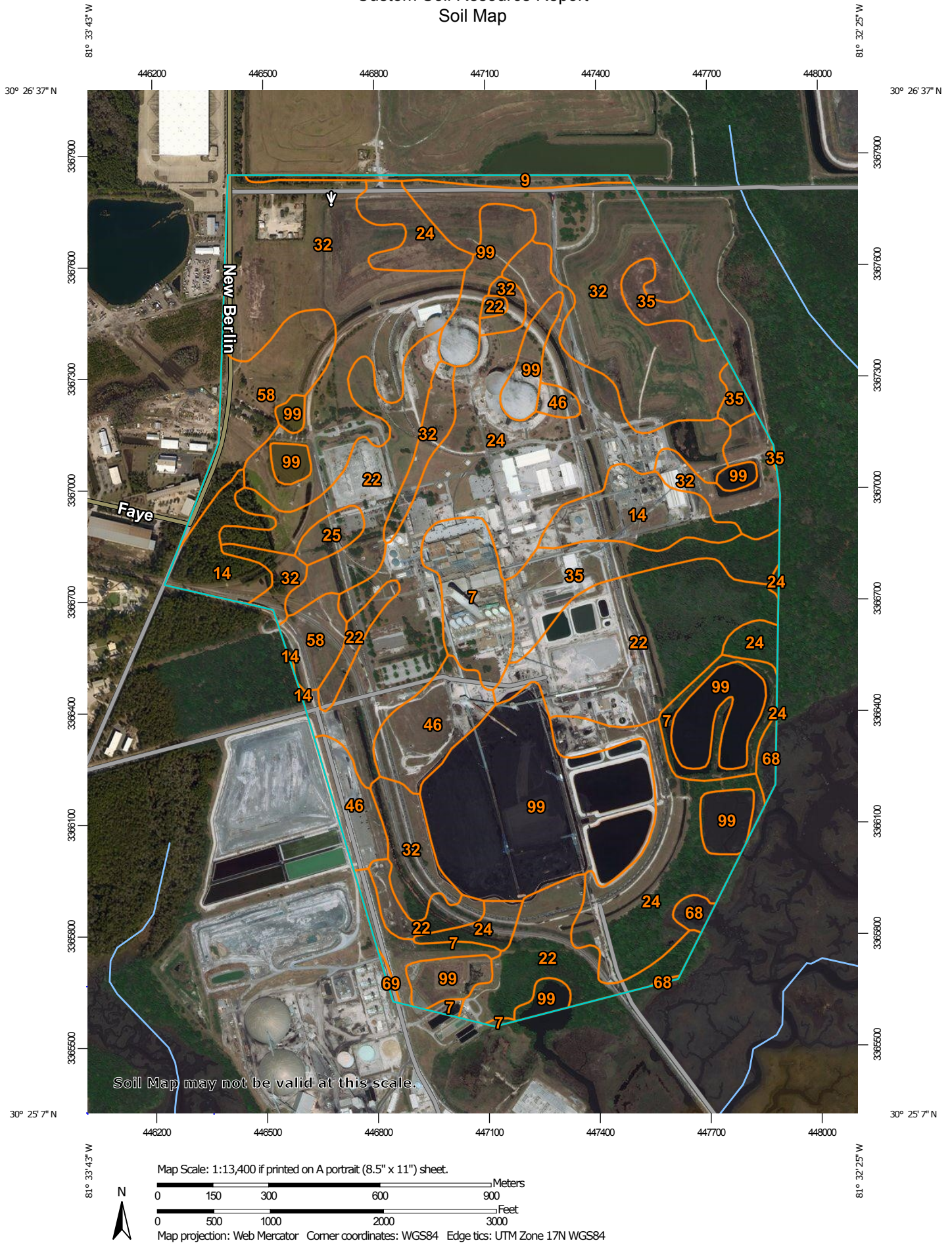
identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report Soil Map




## MAP LEGEND


### Area of Interest (AOI)

 Area of Interest (AOI)


### Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

### Special Point Features

 Blowout

 Borrow Pit


 Clay Spot


 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole


 Slide or Slip

 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

### Water Features

 Streams and Canals


### Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Duval County, Florida  
Survey Area Data: Version 11, Sep 23, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Apr 5, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

Duval County, Florida (FL031)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7	Arents, nearly level	34.5	4.9%
9	Arents, sanitary landfill	5.3	0.8%
14	Boulogne fine sand, 0 to 2 percent slopes	30.1	4.3%
22	Evergreen-Wesconnett complex, depressional, 0 to 2 percent slopes	113.5	16.2%
24	Hurricane and Ridgewood soils, 0 to 5 percent slopes	148.7	21.2%
25	Kershaw fine sand, 2 to 8 percent slopes	4.2	0.6%
32	Leon fine sand, 0 to 2 percent slopes	166.9	23.8%
35	Lynn Haven fine sand, 0 to 2 percent slopes	28.9	4.1%
46	Ortega fine sand, 0 to 5 percent slopes	26.2	3.7%
58	Pottsburg fine sand, high, 0 to 3 percent slopes	28.2	4.0%
68	Tisonia mucky peat, 0 to 1 percent slopes, very frequently flooded	4.2	0.6%
69	Urban land	0.5	0.1%
99	Water	109.4	15.6%
<b>Totals for Area of Interest</b>		<b>700.6</b>	<b>100.0%</b>

## Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made



up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

## Custom Soil Resource Report

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.



## Duval County, Florida

### 7—Arents, nearly level

#### Map Unit Setting

*National map unit symbol:* sssw  
*Elevation:* 0 to 120 feet  
*Mean annual precipitation:* 48 to 60 inches  
*Mean annual air temperature:* 64 to 72 degrees F  
*Frost-free period:* 240 to 293 days  
*Farmland classification:* Not prime farmland

#### Map Unit Composition

*Arents and similar soils:* 94 percent  
*Minor components:* 6 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Arents

##### Setting

*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Altered marine deposits

##### Typical profile

*AC - 0 to 80 inches:* sand

##### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat poorly drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* Very high (19.98 to 50.02 in/hr)  
*Depth to water table:* About 18 to 36 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 4.0  
*Available water storage in profile:* Very low (about 2.4 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* A  
*Other vegetative classification:* Forage suitability group not assigned (G153AA999FL)  
*Hydric soil rating:* No

#### Minor Components

##### Corolla

*Percent of map unit:* 6 percent

*Landform:* Rises on dunes on marine terraces  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G153AA131FL)  
*Hydric soil rating:* No

## 9—Arents, sanitary landfill

### Map Unit Setting

*National map unit symbol:* sssy  
*Elevation:* 0 to 120 feet  
*Mean annual precipitation:* 48 to 56 inches  
*Mean annual air temperature:* 64 to 72 degrees F  
*Frost-free period:* 263 to 293 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Arents and similar soils:* 94 percent  
*Minor components:* 6 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Arents

#### Setting

*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Altered marine deposits

#### Typical profile

*AC - 0 to 24 inches:* fine sand  
*C - 24 to 80 inches:* variable

#### Properties and qualities

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat poorly drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (2.00 to 20.00 in/hr)  
*Depth to water table:* About 24 to 48 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 4.0  
*Available water storage in profile:* Very low (about 1.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6s  
*Hydrologic Soil Group:* A  
*Other vegetative classification:* Forage suitability group not assigned  
(G153AA999FL)  
*Hydric soil rating:* No

**Minor Components**

**Corolla**

*Percent of map unit:* 6 percent  
*Landform:* Rises on dunes on marine terraces  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands  
(G153AA131FL)  
*Hydric soil rating:* No

**14—Boulogne fine sand, 0 to 2 percent slopes**

**Map Unit Setting**

*National map unit symbol:* sst3  
*Elevation:* 0 to 150 feet  
*Mean annual precipitation:* 48 to 56 inches  
*Mean annual air temperature:* 64 to 72 degrees F  
*Frost-free period:* 263 to 293 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Boulogne and similar soils:* 95 percent  
*Minor components:* 5 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Boulogne**

**Setting**

*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Sandy marine deposits

**Typical profile**

*A - 0 to 6 inches:* fine sand  
*Bh - 6 to 16 inches:* fine sand  
*E - 16 to 31 inches:* fine sand  
*B'h1 - 31 to 39 inches:* fine sand  
*B'h2 - 39 to 80 inches:* fine sand

**Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Poorly drained  
*Runoff class:* Very high  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 4.0  
*Available water storage in profile:* Moderate (about 7.8 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* C/D  
*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands (G153AA141FL)  
*Hydric soil rating:* No

**Minor Components**

**Pottsburg, high**

*Percent of map unit:* 2 percent  
*Landform:* Knolls on marine terraces, rises on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G153AA131FL)  
*Hydric soil rating:* No

**Lynn haven**

*Percent of map unit:* 2 percent  
*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands (G153AA141FL)  
*Hydric soil rating:* Yes

**Wesconnett**

*Percent of map unit:* 1 percent  
*Landform:* Depressions on marine terraces  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Other vegetative classification:* Sandy soils on stream terraces, flood plains, or in depressions (G153AA145FL)  
*Hydric soil rating:* Yes

## **22—Evergreen-Wesconnett complex, depressional, 0 to 2 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* sstc  
*Elevation:* 0 to 150 feet  
*Mean annual precipitation:* 48 to 56 inches  
*Mean annual air temperature:* 64 to 72 degrees F  
*Frost-free period:* 263 to 293 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Evergreen and similar soils:* 63 percent  
*Wesconnett and similar soils:* 33 percent  
*Minor components:* 4 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Evergreen**

#### **Setting**

*Landform:* Depressions on marine terraces  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Parent material:* Organic material over sandy marine deposits

#### **Typical profile**

*Oa - 0 to 11 inches:* muck  
*A - 11 to 17 inches:* fine sand  
*E - 17 to 26 inches:* fine sand  
*Bh - 26 to 80 inches:* fine sand

#### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Very poorly drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (0.20 to 20.00 in/hr)  
*Depth to water table:* About 0 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* Frequent  
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 4.0  
*Available water storage in profile:* High (about 12.0 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 7w

## Custom Soil Resource Report

*Hydrologic Soil Group:* A/D

*Other vegetative classification:* Organic soils in depressions and on flood plains  
(G153AA645FL)

*Hydric soil rating:* Yes

### Description of Wesconnett

#### Setting

*Landform:* Depressions on marine terraces

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Sandy marine deposits

#### Typical profile

*A - 0 to 2 inches:* fine sand

*Bh - 2 to 32 inches:* fine sand

*E/Bh - 32 to 44 inches:* fine sand

*B'h - 44 to 80 inches:* fine sand

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Very poorly drained

*Runoff class:* Negligible

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.20 to 6.00 in/hr)

*Depth to water table:* About 0 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 4.0

*Available water storage in profile:* Moderate (about 7.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7w

*Hydrologic Soil Group:* A/D

*Other vegetative classification:* Sandy soils on stream terraces, flood plains, or in depressions (G153AA145FL)

*Hydric soil rating:* Yes

### Minor Components

#### Leon

*Percent of map unit:* 1 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands  
(G153AA141FL)

*Hydric soil rating:* No

#### Pottsburg

*Percent of map unit:* 1 percent

## Custom Soil Resource Report

*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands (G153AA141FL)  
*Hydric soil rating:* No

### **Pamlico**

*Percent of map unit:* 1 percent  
*Landform:* Depressions on marine terraces  
*Landform position (three-dimensional):* Dip  
*Down-slope shape:* Concave  
*Across-slope shape:* Concave  
*Other vegetative classification:* Organic soils in depressions and on flood plains (G153AA645FL)  
*Hydric soil rating:* Yes

### **Lynn haven**

*Percent of map unit:* 1 percent  
*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands (G153AA141FL)  
*Hydric soil rating:* Yes

## **24—Hurricane and Ridgewood soils, 0 to 5 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* sstf  
*Elevation:* 0 to 190 feet  
*Mean annual precipitation:* 48 to 56 inches  
*Mean annual air temperature:* 64 to 72 degrees F  
*Frost-free period:* 263 to 293 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Hurricane and similar soils:* 53 percent  
*Ridgewood and similar soils:* 35 percent  
*Minor components:* 12 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Hurricane**

#### **Setting**

*Landform:* Flats on marine terraces, rises on marine terraces  
*Landform position (three-dimensional):* Interfluve

## Custom Soil Resource Report

*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Sandy marine deposits

### Typical profile

*A - 0 to 5 inches:* fine sand  
*E - 5 to 68 inches:* fine sand  
*Bh - 68 to 80 inches:* fine sand

### Properties and qualities

*Slope:* 0 to 5 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat poorly drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (2.00 to 20.00 in/hr)  
*Depth to water table:* About 24 to 42 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 4.0  
*Available water storage in profile:* Very low (about 3.0 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3w  
*Hydrologic Soil Group:* A  
*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G153AA131FL)  
*Hydric soil rating:* No

## Description of Ridgewood

### Setting

*Landform:* Knolls on marine terraces, ridges on marine terraces  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Sandy marine deposits

### Typical profile

*A - 0 to 7 inches:* fine sand  
*C - 7 to 80 inches:* fine sand

### Properties and qualities

*Slope:* 0 to 5 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat poorly drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (6.00 to 20.00 in/hr)  
*Depth to water table:* About 18 to 42 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)



## Custom Soil Resource Report

*Sodium adsorption ratio, maximum in profile:* 4.0

*Available water storage in profile:* Low (about 3.7 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4s

*Hydrologic Soil Group:* A

*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands  
(G153AA131FL)

*Hydric soil rating:* No

### Minor Components

#### Mandarin

*Percent of map unit:* 2 percent

*Landform:* Flats on marine terraces, rises on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands  
(G153AA131FL)

*Hydric soil rating:* No

#### Leon

*Percent of map unit:* 2 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands  
(G153AA141FL)

*Hydric soil rating:* No

#### Pottsburg

*Percent of map unit:* 2 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands  
(G153AA141FL)

*Hydric soil rating:* No

#### Boulogne

*Percent of map unit:* 2 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands  
(G153AA141FL)

*Hydric soil rating:* No

#### Ortega

*Percent of map unit:* 2 percent

*Landform:* Knolls on marine terraces, rises on marine terraces

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on rises, knolls, and ridges of mesic uplands (G153AA121FL)  
*Hydric soil rating:* No

**Lynn haven**

*Percent of map unit:* 2 percent  
*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands (G153AA141FL)  
*Hydric soil rating:* Yes

**25—Kershaw fine sand, 2 to 8 percent slopes**

**Map Unit Setting**

*National map unit symbol:* sstg  
*Elevation:* 0 to 190 feet  
*Mean annual precipitation:* 48 to 56 inches  
*Mean annual air temperature:* 64 to 72 degrees F  
*Frost-free period:* 263 to 293 days  
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Kershaw and similar soils:* 94 percent  
*Minor components:* 6 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Kershaw**

**Setting**

*Landform:* Knolls on marine terraces, rises on marine terraces  
*Landform position (three-dimensional):* Side slope, interfluvium  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Sandy marine deposits

**Typical profile**

*A - 0 to 3 inches:* fine sand  
*C - 3 to 80 inches:* fine sand

**Properties and qualities**

*Slope:* 2 to 8 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Excessively drained  
*Runoff class:* Very low

## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Very high (20.00 to 99.90 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 4.0

*Available water storage in profile:* Very low (about 2.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 7s

*Hydrologic Soil Group:* A

*Other vegetative classification:* Sandy soils on ridges and dunes of xeric uplands (G153AA111FL)

*Hydric soil rating:* No

### Minor Components

#### Ortega

*Percent of map unit:* 3 percent

*Landform:* Knolls on marine terraces, rises on marine terraces

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on rises, knolls, and ridges of mesic uplands (G153AA121FL)

*Hydric soil rating:* No

#### Blanton

*Percent of map unit:* 3 percent

*Landform:* Knolls on marine terraces, ridges on marine terraces

*Landform position (three-dimensional):* Side slope, interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on rises, knolls, and ridges of mesic uplands (G153AA121FL)

*Hydric soil rating:* No

## 32—Leon fine sand, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* 2sxqv

*Elevation:* 0 to 250 feet

*Mean annual precipitation:* 47 to 61 inches

*Mean annual air temperature:* 55 to 81 degrees F

*Frost-free period:* 267 to 347 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Leon, non-hydric, and similar soils:* 89 percent

*Minor components:* 11 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Leon, Non-hydric**

**Setting**

*Landform:* Flatwoods

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Sandy marine deposits

**Typical profile**

*A - 0 to 8 inches:* fine sand

*E - 8 to 18 inches:* fine sand

*Bh - 18 to 37 inches:* fine sand

*E' - 37 to 45 inches:* fine sand

*B'h - 45 to 80 inches:* fine sand

**Properties and qualities**

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.06 to 2.00 in/hr)

*Depth to water table:* About 6 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0  
mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 4.0

*Available water storage in profile:* Low (about 4.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4w

*Hydrologic Soil Group:* A/D

*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands  
(G153AA141FL)

*Hydric soil rating:* No

**Minor Components**

**Leon, hydric**

*Percent of map unit:* 5 percent

*Landform:* Flatwoods

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Hydric soil rating:* Yes

**Mandarin**

*Percent of map unit:* 3 percent

*Landform:* Rises

## Custom Soil Resource Report

*Landform position (three-dimensional):* Talf, rise  
*Down-slope shape:* Convex, linear  
*Across-slope shape:* Convex, linear  
*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands  
(G153AA131FL)  
*Hydric soil rating:* No

### **Mascotte**

*Percent of map unit:* 3 percent  
*Landform:* Flatwoods  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Hydric soil rating:* Yes

## **35—Lynn Haven fine sand, 0 to 2 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* ssts  
*Elevation:* 0 to 150 feet  
*Mean annual precipitation:* 48 to 56 inches  
*Mean annual air temperature:* 64 to 72 degrees F  
*Frost-free period:* 263 to 293 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Lynn haven and similar soils:* 92 percent  
*Minor components:* 8 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Lynn Haven**

#### **Setting**

*Landform:* Flats on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Linear  
*Across-slope shape:* Linear  
*Parent material:* Sandy marine deposits

#### **Typical profile**

*A - 0 to 13 inches:* fine sand  
*E - 13 to 21 inches:* fine sand  
*Bh - 21 to 62 inches:* fine sand  
*B/C - 62 to 80 inches:* fine sand

#### **Properties and qualities**

*Slope:* 0 to 2 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Poorly drained  
*Runoff class:* Very low

## Custom Soil Resource Report

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 6.00 in/hr)

*Depth to water table:* About 0 to 6 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 4.0

*Available water storage in profile:* High (about 10.9 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4w

*Hydrologic Soil Group:* A/D

*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands (G153AA141FL)

*Hydric soil rating:* Yes

### Minor Components

#### Leon

*Percent of map unit:* 2 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands (G153AA141FL)

*Hydric soil rating:* No

#### Wesconnett

*Percent of map unit:* 2 percent

*Landform:* Depressions on marine terraces

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Other vegetative classification:* Sandy soils on stream terraces, flood plains, or in depressions (G153AA145FL)

*Hydric soil rating:* Yes

#### Evergreen

*Percent of map unit:* 2 percent

*Landform:* Depressions on marine terraces

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Other vegetative classification:* Organic soils in depressions and on flood plains (G153AA645FL)

*Hydric soil rating:* Yes

#### Boulogne

*Percent of map unit:* 2 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands  
(G153AA141FL)  
*Hydric soil rating:* No

## **46—Ortega fine sand, 0 to 5 percent slopes**

### **Map Unit Setting**

*National map unit symbol:* ssv4  
*Elevation:* 0 to 190 feet  
*Mean annual precipitation:* 48 to 56 inches  
*Mean annual air temperature:* 64 to 72 degrees F  
*Frost-free period:* 263 to 293 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Ortega and similar soils:* 93 percent  
*Minor components:* 7 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Ortega**

#### **Setting**

*Landform:* Knolls on marine terraces, rises on marine terraces  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Eolian or sandy marine deposits

#### **Typical profile**

*A - 0 to 5 inches:* fine sand  
*C - 5 to 82 inches:* fine sand

#### **Properties and qualities**

*Slope:* 0 to 5 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Moderately well drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (6.00 to 20.00 in/hr)  
*Depth to water table:* About 42 to 72 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 4.0  
*Available water storage in profile:* Low (about 3.1 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 3s  
*Hydrologic Soil Group:* A

## Custom Soil Resource Report

*Other vegetative classification:* Sandy soils on rises, knolls, and ridges of mesic uplands (G153AA121FL)  
*Hydric soil rating:* No

### Minor Components

#### Ridgewood

*Percent of map unit:* 2 percent  
*Landform:* Knolls on marine terraces, ridges on marine terraces  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G153AA131FL)  
*Hydric soil rating:* No

#### Kershaw

*Percent of map unit:* 2 percent  
*Landform:* Knolls on marine terraces, rises on marine terraces  
*Landform position (three-dimensional):* Side slope, interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on ridges and dunes of xeric uplands (G153AA111FL)  
*Hydric soil rating:* No

#### Hurricane

*Percent of map unit:* 2 percent  
*Landform:* Flats on marine terraces, rises on marine terraces  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G153AA131FL)  
*Hydric soil rating:* No

#### Albany

*Percent of map unit:* 1 percent  
*Landform:* Knolls on marine terraces, ridges on marine terraces  
*Landform position (three-dimensional):* Interfluve, talus  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G153AA131FL)  
*Hydric soil rating:* No

## 58—Pottsburg fine sand, high, 0 to 3 percent slopes

### Map Unit Setting

*National map unit symbol:* ssvj  
*Elevation:* 10 to 190 feet



## Custom Soil Resource Report

*Mean annual precipitation:* 48 to 56 inches  
*Mean annual air temperature:* 64 to 72 degrees F  
*Frost-free period:* 263 to 293 days  
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Pottsburg, high, and similar soils:* 93 percent  
*Minor components:* 7 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Pottsburg, High

#### Setting

*Landform:* Knolls on marine terraces, rises on marine terraces  
*Landform position (three-dimensional):* Talf  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Parent material:* Sandy marine deposits

#### Typical profile

*A - 0 to 3 inches:* fine sand  
*E - 3 to 57 inches:* fine sand  
*Bh - 57 to 80 inches:* fine sand

#### Properties and qualities

*Slope:* 0 to 3 percent  
*Depth to restrictive feature:* More than 80 inches  
*Natural drainage class:* Somewhat poorly drained  
*Runoff class:* Negligible  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)  
*Depth to water table:* About 12 to 24 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Salinity, maximum in profile:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Sodium adsorption ratio, maximum in profile:* 4.0  
*Available water storage in profile:* Low (about 4.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 4w  
*Hydrologic Soil Group:* A/D  
*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands (G153AA141FL)  
*Hydric soil rating:* No

### Minor Components

#### Hurricane

*Percent of map unit:* 2 percent  
*Landform:* Flats on marine terraces, rises on marine terraces  
*Landform position (three-dimensional):* Interfluve  
*Down-slope shape:* Convex  
*Across-slope shape:* Linear  
*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands (G153AA131FL)

## Custom Soil Resource Report

*Hydric soil rating:* No

### **Boulogne**

*Percent of map unit:* 2 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands  
(G153AA141FL)

*Hydric soil rating:* No

### **Leon**

*Percent of map unit:* 1 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands  
(G153AA141FL)

*Hydric soil rating:* No

### **Pottsburg**

*Percent of map unit:* 1 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands  
(G153AA131FL)

*Hydric soil rating:* No

### **Ridgewood**

*Percent of map unit:* 1 percent

*Landform:* Knolls on marine terraces, ridges on marine terraces

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on rises and knolls of mesic uplands  
(G153AA131FL)

*Hydric soil rating:* No

## **68—Tisonia mucky peat, 0 to 1 percent slopes, very frequently flooded**

### **Map Unit Setting**

*National map unit symbol:* ssvv

*Elevation:* 0 to 150 feet

*Mean annual precipitation:* 48 to 56 inches

*Mean annual air temperature:* 64 to 72 degrees F

*Frost-free period:* 263 to 293 days

*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Tisonia and similar soils:* 96 percent

*Minor components:* 4 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Tisonia**

**Setting**

*Landform:* Tidal marshes on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* Organic material over clayey alluvium

**Typical profile**

*Oe - 0 to 18 inches:* mucky peat

*Cg - 18 to 65 inches:* clay

**Properties and qualities**

*Slope:* 0 to 1 percent

*Depth to restrictive feature:* More than 80 inches

*Natural drainage class:* Very poorly drained

*Runoff class:* Very high

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.06 in/hr)

*Depth to water table:* About 0 to 6 inches

*Frequency of flooding:* Very frequent

*Frequency of ponding:* None

*Salinity, maximum in profile:* Strongly saline (16.0 to 32.0 mmhos/cm)

*Sodium adsorption ratio, maximum in profile:* 35.0

*Available water storage in profile:* Very high (about 12.9 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 8

*Hydrologic Soil Group:* D

*Other vegetative classification:* Forage suitability group not assigned (G153AA999FL)

*Hydric soil rating:* Yes

**Minor Components**

**Boulogne**

*Percent of map unit:* 2 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Sandy soils on flats of mesic or hydric lowlands (G153AA141FL)

*Hydric soil rating:* No

**Maurepas**

*Percent of map unit:* 1 percent

*Landform:* Flood plains on marine terraces

*Landform position (three-dimensional):* Talf

## Custom Soil Resource Report

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Other vegetative classification:* Organic soils in depressions and on flood plains  
(G153AA645FL)

*Hydric soil rating:* Yes

### **Leon, tidal**

*Percent of map unit:* 1 percent

*Landform:* Tidal marshes on marine terraces

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Other vegetative classification:* Forage suitability group not assigned  
(G153AA999FL)

*Hydric soil rating:* Yes

## **69—Urban land**

### **Map Unit Setting**

*National map unit symbol:* ssvw

*Elevation:* 0 to 190 feet

*Mean annual precipitation:* 48 to 56 inches

*Mean annual air temperature:* 64 to 72 degrees F

*Frost-free period:* 263 to 293 days

*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Urban land:* 95 percent

*Minor components:* 5 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Urban Land**

#### **Setting**

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Linear

*Across-slope shape:* Linear

*Parent material:* No parent material

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Other vegetative classification:* Forage suitability group not assigned  
(G153AA999FL)

*Hydric soil rating:* Unranked

### **Minor Components**

#### **Hurricane**

*Percent of map unit:* 1 percent

*Landform:* Flats on marine terraces, rises on marine terraces

## Custom Soil Resource Report

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Forage suitability group not assigned  
(G153AA999FL)

*Hydric soil rating:* No

### **Leon**

*Percent of map unit:* 1 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Forage suitability group not assigned  
(G153AA999FL)

*Hydric soil rating:* No

### **Pelham, hydric**

*Percent of map unit:* 1 percent

*Landform:* Flats on marine terraces

*Landform position (three-dimensional):* Talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Forage suitability group not assigned  
(G153AA999FL)

*Hydric soil rating:* Yes

### **Ortega**

*Percent of map unit:* 1 percent

*Landform:* Knolls on marine terraces, rises on marine terraces

*Landform position (three-dimensional):* Interfluve

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Forage suitability group not assigned  
(G153AA999FL)

*Hydric soil rating:* No

### **Albany**

*Percent of map unit:* 1 percent

*Landform:* Knolls on marine terraces, ridges on marine terraces

*Landform position (three-dimensional):* Interfluve, talf

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Other vegetative classification:* Forage suitability group not assigned  
(G153AA999FL)

*Hydric soil rating:* No

## **99—Water**

### **Map Unit Composition**

*Water:* 100 percent

## Custom Soil Resource Report

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Water**

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified

*Other vegetative classification:* Forage suitability group not assigned  
(G153AA999FL)

*Hydric soil rating:* Unranked

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## Custom Soil Resource Report

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### 3.0 CALCULATIONS

3.1 Post-development Curve Number



4639 Trevor Creek Dr. S  
 Jacksonville, FL 32257  
 Tel: (904)881-4206

COMP. BY:	T.A.
CHK'D BY:	T.S.
DATE:	25-Sep-17
SECTION	
JOB No.	1707

PROJECT NAME SJRPP  
 COUNTY Duval  
 SEC/TWN/RNG  
 AREA 113.30 Ac.

## POST-Development

## PR-1

HYDROLOGIC SOIL GROUP	LAND USE DESCRIPTION (Includes practice and condition)	CN	Areas	%	Product
D	GREEN-Good conditions grass cover on 75% or more of the area	80	108.77	96.0%	8,701.60
D	Industrial Districts	93	4.53	4.0%	421.29
			<u>113.30</u>	100.00%	<u>9,122.89</u>

$$\text{CN WEIGHT} \frac{9,122.89}{113.30} = 81$$

**Notes:** Assume 90% of the Impervious surface to be converted to green space.



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DATE:	<b>25-Sep-17</b>
SECTION	
JOB No.	<b>1707</b>

**PROJECT NAME**            **SJRPP**  
**COUNTY**                    **Duval**  
**SEC/TWN/RNG**  
**AREA**                        **110.40 Ac.**

## POST-Development

## PR-2

HYDROLOGIC SOIL GROUP	LAND USE DESCRIPTION (Includes practice and condition)	CN	Areas	%	Product
<b>A</b>	GREEN-Good conditions grass cover on 75% or more of the area	39	15.36	13.9%	599.04
<b>A</b>	Industrial Districts	81	4.84	4.4%	392.04
<b>D</b>	GREEN-Good conditions grass cover on 75% or more of the area	80	68.56	62.1%	5,484.80
<b>D</b>	Industrial Districts	93	21.64	19.6%	2,012.52
			<b>110.40</b>	<b>100.0%</b>	<b>8,488.40</b>

$$\text{WEIGHTED CN} = \frac{8,488.40}{110.40} = 77$$

**Notes:** Assume 60% of the Impervious surface to be converted to green space.



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DATE:	25-Sep-17
SECTION	
JOB No.	1707

**PROJECT NAME** SJRPP  
**COUNTY** Duval  
**SEC/TWN/RNG**  
**AREA** 45.00 Ac.

## POST-Development

## PR-3

HYDROLOGIC SOIL GROUP	LAND USE DESCRIPTION (Includes practice and condition)	CN	Areas	%	Product
A	GREEN-Good conditions grass cover on 75% or more of the area	39	12.800	28.4%	499.20
A	Industrial Districts	81	1.200	2.7%	97.20
D	GREEN-Good conditions grass cover on 75% or more of the area	80	26.790	59.5%	2,143.20
D	Industrial Districts	93	4.210	9.4%	391.53
			<b>45.00</b>	100.00%	<b>3,131.13</b>

$$\text{CN WEIGHT} = \frac{3,131.13}{45.00} = 70$$

**Notes:** Assume 90% of the Impervious surface to be converted to green space.



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DATE:	25-Sep-17
SECTION	
JOB No.	1707

PROJECT NAME SJRPP  
COUNTY Duval  
SEC/TWN/RNG  
AREA 15.10 Ac.

## POST-Development

## PR-3 East

HYDROLOGIC SOIL GROUP	LAND USE DESCRIPTION (Includes practice and condition)	CN	Areas	%	Product
A	GREEN-Good conditions grass cover on 75% or more of the area	39	7.000	46.4%	273.00
D	GREEN-Good conditions grass cover on 75% or more of the area	80	8.100	53.6%	648.00
			<u>15.10</u>	100.00%	<u>921.00</u>

$$\text{CN WEIGHTED} = \frac{921.00}{15.10} = 61$$

**Notes:** Assume 100% of the Impervious surface to be converted to green space.



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DATE:	25-Sep-17
SECTION	
JOB No.	1707

PROJECT NAME SJRPP  
 COUNTY Duval  
 SEC/TWN/RNG  
 AREA 70.30 Ac.

## POST-Development

## PR-4

HYDROLOGIC SOIL GROUP	LAND USE DESCRIPTION (Includes practice and condition)	CN	Areas	%	Product
A	GREEN-Good conditions grass cover on 75% or more of the area	39	7.50	10.7%	292.50
A	Industrial Districts	81	10.50	14.9%	850.50
D	GREEN-Good conditions grass cover on 75% or more of the area	80	44.87	63.8%	3,589.60
D	Industrial Districts	93	7.43	10.6%	690.99
			<u>70.30</u>	100.00%	<u>5,423.59</u>

$$\text{CN WEIGHTE} \frac{5,423.59}{70.30} = 77$$

**Notes:** 12 Acres proposed for Industrial parcel plus approximately 10% of previous impervious.



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SECTION	
JOB No.	1707

PROJECT NAME SJRPP  
 COUNTY Duval  
 SEC/TWN/RNG  
 AREA 6.20 Ac.

## POST-Development

## PR-5

HYDROLOGIC SOIL GROUP	LAND USE DESCRIPTION (Includes practice and condition)	CN	Areas	%	Product
D	GREEN-Good conditions grass cover on 75% or more of the area	80	3.80	61.3%	304.00
D	Pond	100	2.40	38.7%	240.00
			<u>6.20</u>	100.00%	<u>544.00</u>

$$\text{CN WEIGHTED} = \frac{544.00}{6.20} = 88$$

**Notes:** Assume 50% of the Impervious surface to be converted to green space.





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DATE:	25-Sep-17
SECTION	
JOB No.	1707

PROJECT NAME SJRPP  
 COUNTY Duval  
 SEC/TWN/RNG  
 AREA 90.20 Ac.

## POST-Development

## PR-6

HYDROLOGIC SOIL GROUP	LAND USE DESCRIPTION (Includes practice and condition)	CN	Areas	%	Product
A	GREEN-Good conditions grass cover on 75% or more of the area	39	35.10	38.9%	1,368.90
D	GREEN-Good conditions grass cover on 75% or more of the area	80	35.10	38.9%	2,808.00
D	Industrial Districts	93	20.00	22.2%	1,860.00
			<u>90.20</u>	100.00%	<u>6,036.90</u>

$$\text{WEIGHTE CN} \frac{6,036.90}{90.20} = 67$$

**Notes:** Assume 20 Acres of Industrial Parcel to be constructed in this basin. Also assume 50% A & D soils



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DATE:	<b>25-Sep-17</b>
SECTION	
JOB No.	<b>1707</b>

**PROJECT NAME**      **SJRPP**  
**COUNTY**              **Duval**  
**SEC/TWN/RNG**  
**AREA**                  **13.70 Ac.**

**POST-Development****PR-7**

<b>HYDROLOGIC SOIL GROUP</b>	<b>LAND USE DESCRIPTION (Includes practice and condition)</b>	<b>CN</b>	<b>Areas</b>	<b>%</b>	<b>Product</b>
<b>A</b>	GREEN-Fair Condition; grass cover on 50% to 75% of the area	49	1.50	10.9%	73.50
<b>A</b>	ROAD - Paved with open ditches	83	1.00	7.3%	83.00
<b>D</b>	GREEN-Fair Condition; grass cover on 50% to 75% of the area	84	7.70	56.2%	646.80
<b>D</b>	ROAD - Paved with open ditches	93	3.50	25.5%	325.50
			<b>13.70</b>	<b>100.00%</b>	<b>1,128.80</b>

$$\text{CN WEIGHT} \frac{1,128.80}{13.70} = 82$$

**Notes:**



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COMP. BY:	<b>T.A.</b>
CHK'D BY:	<b>T.S.</b>
DATE:	<b>25-Sep-17</b>
SECTION	
JOB No.	<b>1707</b>

**PROJECT NAME**     SJRPP  
**COUNTY**             Duval  
**SEC/TWN/RNG**  
**AREA**                464.20 Ac.

## Post-Development

TOTAL					
BASIN		CN	Areas	%	Product
PR-1		81	113.30	24.4%	9,122.89
PR-2		77	110.40	23.8%	8,488.40
PR-3		70	45.00	9.7%	3,131.13
PR-3 East		61	15.10	3.3%	921.00
PR-4		77	70.30	15.1%	5,423.59
PR-5		88	6.20	1.3%	544.00
PR-6		67	90.20	19.4%	6,036.90
PR-7		82	13.70	3.0%	1,128.80
			<u>464.20</u>	100.00%	<u>34,796.71</u>

$$\text{WEIGHTED CN} = \frac{34,796.71}{464.20} = 75$$

## 3.2 Water Quality Calculations

SJRPP STAGE -AREA CALCULATIONS

Channel Name	Area @ Elev	Area SF	Area Ac	Area @ 2.0	Area @ 3.0	Area @ 7.0	Area @ 7.9	Notes
P CHANNEL SE 1	2.0	33810	0.78	0.78				THIS CHANNEL OVER TOPS SOUTH BANK INTO ADJACENT WETLANDS AT ELEV 8.0 SAME AREA WILL BE USED FOR 7.9 AS 7.0
P CHANNEL SE 1	3.0	35301	0.81		0.81			
P CHANNEL SE 1	7.0	85101	1.95			1.95		
P CHANNEL SE 1	7.9	85101	1.95				1.95	
P CHANNEL SE 2 & 3	2.0	32950	0.76	0.76				
P CHANNEL SE 2 & 3	3.0	35035	0.80		0.80			
P CHANNEL SE 2 & 3	7.0	74278	1.71			1.71		
P CHANNEL SE 2 & 3	7.9	86538	1.99				1.99	
P CHANNEL E 1	7.0	33213	0.76			0.76		
P CHANNEL E 1	7.9	39387	0.90				0.90	
P CHANNEL E 2	7.0	5165	0.12			0.12		
P CHANNEL E 2	7.9	5936	0.14				0.14	
P CHANNEL NE 1	7.0	54269	1.25			1.25		
P CHANNEL NE 1	7.9	64350	1.48				1.48	
P CHANNEL NW 1	7.0	22204	0.51			0.51		
P CHANNEL NW 1	7.9	27310	0.63				0.63	
P CHANNEL W 1	7.0	41271	0.95			0.95		
P CHANNEL W 1	7.9	49461	1.14				1.14	
P CHANNEL W 2	7.0	6522	0.15			0.15		
P CHANNEL W 2	7.9	8670	0.20				0.20	
P CHANNEL SW 1	2.0	88998	2.04	2.04				Former Coal Yard Area (currently identified as PR-6) will be regraded to create a low area on the south end of PR-6. This area is connected to the perimeter ditch at elevation 3.0
P CHANNEL SW 1	3.0	91423	2.10		2.10			
P CHANNEL SW 1	7.0	141631	3.25			3.25		
P CHANNEL SW 1	7.9	161542	3.71				3.71	
Former Coal Yard Area	2.0	0	0.00	0.00				THIS CHANNEL OVER TOPS SOUTH BANK INTO ADJACENT WETLANDS AT ELEV 8.0
Former Coal Yard Area	3.0	190	0.00		0.00			
Former Coal Yard Area	7.0	94700	2.17			2.17		
Former Coal Yard Area	7.9	150000	3.44				3.44	
POND	2.0	619891	14.23	14.23				
POND	3.0	639225	14.67		14.67			
POND	7.0	731800	16.80			16.80		
POND	7.9	738747	16.96				16.96	
STAGE TOTALS				17.81	18.39	29.62	32.53	

**SJRPP EXISTING CONDITIONS - RUNOFF "C"**

Type	Runoff "C"	Area (Acres)	%	Product
Forest, Open, & Park	0.15	132.9	31.04%	19.94
Light Industrial	0.67	260	60.72%	174.20
Watercourses & Waterbodies	0.95	27.7	6.47%	26.32
Wetlands	0.95	6.6	1.54%	6.27
Heavy Industrial	0.9	1	0.23%	0.90
<b>Total</b>		<b>428.2</b>	<b>100%</b>	<b>227.62</b>

$$\text{WEIGHTED AVERAGE} = \frac{227.62}{428.2} \quad \mathbf{0.53}$$

**SJRPP PROPOSED CONDITIONS - RUNOFF "C"**

Type	Runoff "C"	Area (Acres)	%	Product
Forest, Open, & Park	0.2	290.3	55.34%	58.06
Light Industrial	0.7	170	32.41%	119.00
Watercourses & Waterbodies	0.95	27.7	5.28%	26.32
Wetlands	0.95	6.6	1.26%	6.27
Pavement	0.92	30	5.72%	27.60
<b>Total</b>		<b>524.6</b>	<b>100%</b>	<b>237.245</b>

$$\text{WEIGHTED AVERAGE} = \frac{237.245}{524.6} = 0.45$$

**Notes:**

This is a composite "C" for the "POND" and "NORTHEAST POND" basins.

Runoff "C" used for Permananet Pool Volume calculations only.

Light Industrial: 50 Acre Industrial site, switch yard, power block & perimeter rail system





4639 Trevor Creek Dr. S  
Jacksonville, FL 32257  
Tel: (904)881-4206

COMP. BY:	T.A.
CHK'D BY:	T.A.
DATE:	21-Nov-17
SECTION	Large Pond
JOB No.	

PROJECT NAME: SJRPP  
COUNTY: DUVAL  
SEC/TWN/RNG:  
DRAINAGE AREA: 473.40 Ac  
POND AREA: 14.60 Ac  
IMPERVIOUS AREA: 100.00 Ac

**NOTE:** Elevations in this calculation are based on NAVD  
88 Datum

NOTE:

### Post-Development

## Large Pond

POND	Stage (ft)	Area (Ac.)	Storage (ac-ft)
BOT	-5.70	10.76	0.00
	-3.78	12.52	22.41
	-1.85	14.28	48.20
	0.07	16.04	77.39
NWL	2.00	17.80	109.67
	3.00	18.39	134.82
	5.00	24.01	197.48
	7.00	29.62	248.82
TOB	7.90	32.50	258.06

**Note:** Stage Area includes Pond, Swale and Restored Coal Pile Area (See Stage Area table)

### REQUIRED TREATMENT VOLUME

$$\text{Treatment volume required (one inch of runoff)} = \frac{(473.40 \text{ ac}) (1 \text{ inch})}{12 \text{ in/ft}} = 39.45 \text{ ac-ft}$$

$$\text{(2.5" times \% imp.) (excludes pond area)} = \frac{2.5 \text{ in} \times (100.00 \text{ Ac})}{12 \text{ in}} = 20.83 \text{ ac-ft}$$

$$\begin{array}{lll} \text{Treatment volume} & = & 39.45 \text{ ac-ft} \\ \text{OFW Treatment volume} & = & 59.18 \text{ ac-ft} \end{array} \quad \begin{array}{l} \text{Note: Treatment value must be which ever is greater} \\ \text{Plus 50\% for OFW} \end{array}$$

The pond volume capacity above NWL is 148.39 ac-ft **OK**

### CONTROL STRUCTURE ELEVATION

$$\text{Weir elevation} = (7.9 \text{ ft} - 2.0 \text{ ft}) \times \frac{(168.85 \text{ ac-ft}) - (109.67 \text{ ac-ft})}{(258.06 \text{ ac-ft}) - (109.67 \text{ ac-ft})} + 2.0 \text{ ft}$$

Weir elevation = **4.35 ft**

Weir will remain at 4.71 to maintain Pre/Post conditions.

### MINIMUM PERMANENT POOL REQUIRED

**NOTE:** If non-littoral zone option is being utilized, the permanent pool must be sized to provide a residence time of at least 21 days (i.e. 14 days plus an additional 50%) during the wet season (June-October).

Select type of zone option being utilized:

Length of the wet season:

Wet season rainfall depth:

Minimum residence time:

Design period:

\* Runoff coefficient (C) for the drainage area to the

wet detention pond:

\* Refer to "SJRPD PROPOSED CONDITIONS - RUNOFF "C" calculations

**non-littoral**

**153 days**

**30 inches**

**21 days**

**25 YEAR**

**0.45**

$$\text{Permanent pool volume} = \frac{(473.40 \text{ Ac}) (0.45) (30 \text{ in}) (21 \text{ days})}{(153 \text{ days}) (12 \text{ in/ft})} \text{ times 150\% for OFW}$$

$$\text{Permanent pool volume} = \mathbf{109.46 \text{ ac-ft} \quad \text{OK}}$$

The pond volume below elevation 2.0 ft is 109.67 ac-ft.

Therefore, adequate storage is provided to satisfy the permanent pool criteria.

### ORIFICE SIZE TO RECOVER ONE-HALF THE TREATMENT VOLUME IN 30 HOURS

#### TREATMENT VOLUME DEPTH

Recovery time

**30**

Additional Flows

**0.00 Ac-ft**

**NOTE:** The outfall structures should be designed to drawdown one half the required treatment volume between **24 and 30 hours**.

$$\text{Treatment volume depth (h}_1\text{)} = (4.35 \text{ ft}) - (2.00 \text{ ft}) = 2.35 \text{ ft}$$

$$\text{Stage at half the treatment volume} = \frac{(39.45 \text{ ac-ft}) \times 0.50}{(258.06 \text{ ac-ft}) - (109.67 \text{ ac-ft})} (7.90 \text{ ft} - 2.00 \text{ ft}) + 2.00 \text{ ft}$$

$$\text{Stage at half the treatment volume} = \mathbf{2.78 \text{ ft}}$$

$$h_2 = \frac{(2.78 \text{ ft} - 2.00 \text{ ft})}{(2.35 \text{ ft} + 0.78 \text{ ft})} = 0.78 \text{ ft}$$

$$h = \frac{(2.35 \text{ ft} + 0.78 \text{ ft})}{2} = 1.57 \text{ ft}$$

Average flow rate (Q) required to drawdown one-half the treatment volume

$$Q = \frac{(39.45 \text{ ac-ft})}{2} \times \frac{43560 \text{ ft}^2/\text{ac}}{30 \text{ hrs}} \times \frac{1}{3600 \text{ sec}}$$

$$Q = 7.9558 \text{ cfs}$$

#### AREA OF ORIFICE

C = 0.6

G = 32.2 ft/sec<sup>2</sup>

$$A = \frac{7.9558 \text{ cfs}}{0.6 \sqrt{2 \times 32.2 \text{ ft/sec}^2 \times 1.57 \text{ ft}}}$$

$$A = 1.319 \text{ ft}^2$$

**HT OF ORIFICES (given existing width of 11")**

$$\begin{aligned}
 \text{HT OF ORIFICES} &= \frac{(1.319 \text{ ft}^2)}{1.8333} && 22" / 12" && \text{two orifices 11" wide} \\
 &= 0.720 \text{ ft} && = && 8.6 \text{ inches}
 \end{aligned}$$

Adjust h1, h2, and the orifice width to the mid-point of the orifice.

$$Q = 2.00 \text{ ft} + \frac{0.720 \text{ ft}}{2} = 2.36 \text{ ft}$$

$$h1 = (4.35 \text{ ft}) - (2.36 \text{ ft}) = 1.99 \text{ ft}$$

$$h2 = (2.78 \text{ ft}) - (2.36 \text{ ft}) = 0.42 \text{ ft}$$

$$h = \frac{(1.99 \text{ ft} + 0.42 \text{ ft})}{2} = 1.21 \text{ ft}$$

$$A = \frac{7.9558 \text{ cfs}}{0.6 \sqrt{(2 \times 32.2 \text{ ft/sec}^2 \times 1.21 \text{ ft})}}$$

$$A = 1.503 \text{ ft}^2$$

$$\text{HT OF ORIFICES} = \frac{(1.503 \text{ ft}^2)}{1.8333} \quad \text{Note: Existing orifices will be utilized. Two Orifices at 11" Wide X 10" Tall}$$

$$\text{HT OF ORIFICES} = 0.820 \text{ ft} = \boxed{9.8 \text{ inches} \quad \text{close enough to 10"}}$$

$$\text{Flow line elevation} = (2.00 \text{ ft}) + \frac{0.820 \text{ ft}}{2} = 2.41 \text{ ft}$$

$$2.410 \text{ ft Vs } 2.360 \text{ ft} = \underline{0.05 \text{ ft}} \quad \text{OK. There is not significant difference}$$

**CHECK MINIMUM DEPTH OF POND****MEAN DEPTH**

NOTE: The mean depth of the permanent pool must be between 2 and 8 feet.

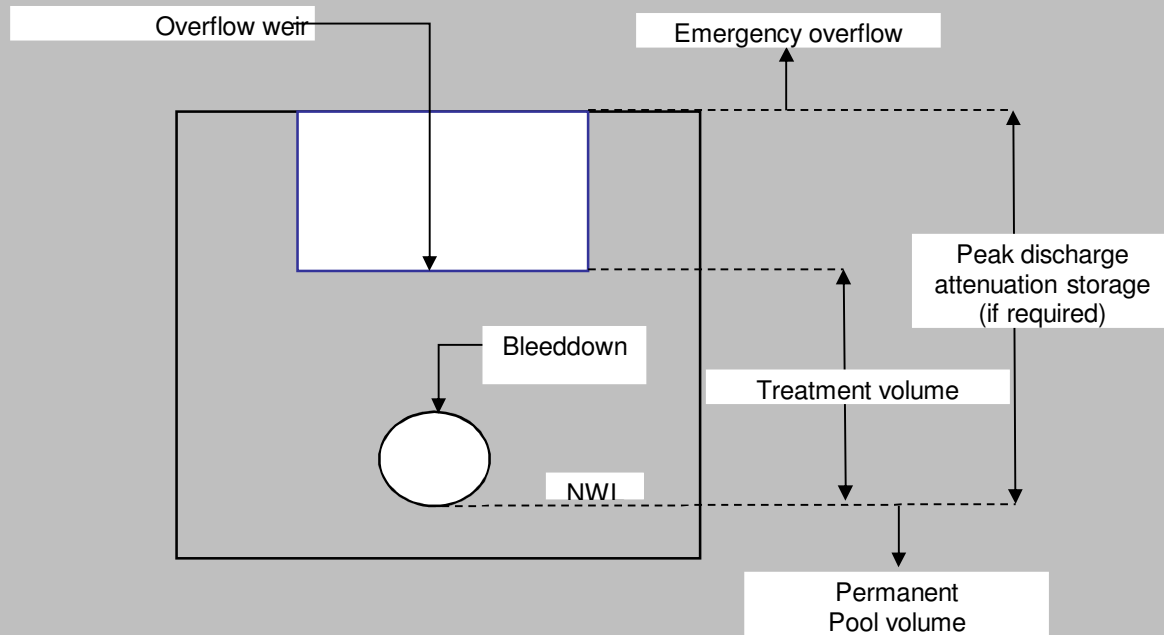
$$\text{Mean depth} = \frac{109.7 \text{ ac-ft.}}{17.80 \text{ Ac}} = 6.16 \text{ ft} \quad \text{OK}$$

**SUMMARY**

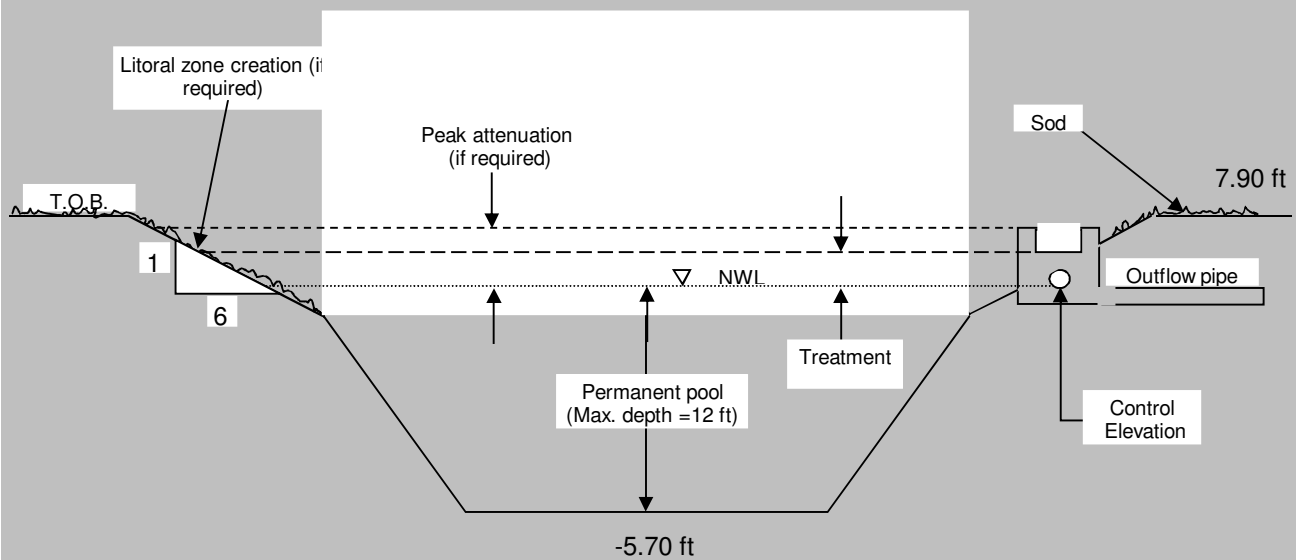
TOB	7.90 ft
NWL	2.00 ft
BOT	-5.70 ft
WEIR ELEVATION	4.35 ft
ORIFICE ELEVATION	2.00 ft
MEAN DEPTH	6.16 ft
PROVIDED TREATMENT VOLUME	59.18 ac-ft
REQUIRED TREATMENT VOLUME	59.18 ac-ft
PERMANENT POOL PROVIDED	109.67 ac-ft
PERMANENT POOL REQUIRED	109.46 ac-ft

**REFERENCES**

Rao, D.V., S.A. Jenab, and D.A. Clapp. 1990. *Rainfall Analysis for Northeast Florida, Part V: Frequency Analysis of Wet Season and Dry Season Rainfall*. St. Johns River Water Management District, Technical Publication No. 90-3, Palatka, Florida



Typical wet detention outfall structure (N.T.S.)



Wet detention pond (N.T.S.)



4639 Trevor Creek Dr. S  
Jacksonville, FL 32257  
Tel: (904)881-4206

COMP. BY:	T.A.
CHK'D BY:	T.A.
DATE:	6-Aug-17
SECTION	NORTHEAST Pond
JOB No.	

PROJECT NAME: SJRPP  
COUNTY: DUVAL  
SEC/TWN/RNG:  
DRAINAGE AREA: 50.00 Ac  
POND AREA: 2.40 Ac  
IMPERVIOUS AREA: 4.50 Ac

**NOTE:** Elevations in this calculation are based on NAVD  
88 Datum

NOTE:

#### Post-Development

### NORTHEAST Pond

POND	Stage (ft)	Area (Ac.)	Storage (ac-ft)
BOT	2.00	2.80	0.00
	4.00	2.93	5.73
	6.00	3.05	11.70
	8.00	3.18	17.93
NWL	10.00	3.30	24.40
	10.75	3.35	26.89
	11.50	3.40	29.43
	12.25	3.45	31.99
TOB	13.00	3.50	34.60

### REQUIRED TREATMENT VOLUME

$$\text{Treatment volume required (one inch of runoff)} = \frac{(50.00 \text{ ac}) (1 \text{ inch})}{12 \text{ in/ft}} = 4.17 \text{ ac-ft}$$

$$\text{(2.5" times \% imp.) (excludes pond area)} = \frac{2.5 \text{ in} \times (4.50 \text{ Ac})}{12 \text{ in}} = 0.94 \text{ ac-ft}$$

$$\begin{aligned} \text{Treatment volume} &= 4.17 \text{ ac-ft} \\ \text{OFW Treatment volume} &= 6.25 \text{ ac-ft} \end{aligned} \quad \text{Note: Treatment value must be which ever is greater Plus 50\% for OFW}$$

The pond volume capacity above NWL is 10.20 ac-ft **OK**

### CONTROL STRUCTURE ELEVATION

$$\text{Weir elevation} = (13.0 \text{ ft} - 10.0 \text{ ft}) \times \frac{(30.65 \text{ ac-ft}) - (24.40 \text{ ac-ft})}{(34.60 \text{ ac-ft}) - (24.40 \text{ ac-ft})} + 10.0 \text{ ft}$$

$$\text{Weir elevation} = 11.84 \text{ ft}$$

### MINIMUM PERMANENT POOL REQUIRED

**NOTE:** If non-littoral zone option is being utilized, the permanent pool must be sized to provide a residence time of at least 21 days (i.e. 14 days plus an additional 50%) during the wet season (June-October).

Select type of zone option being utilized:

Length of the wet season:

Wet season rainfall depth:

Minimum residence time:

Design period:

\* Runoff coefficient ( C ) for the drainage area to the wet detention pond:

\* Refer to "SJRPP PROPOSED CONDITIONS - RUNOFF "C" calculations

**non-littoral**

**153 days**

**30 inches**

**21 days**

**25 YEAR**

**0.45**

$$\text{Permanent pool volume} = \frac{(50.00 \text{ Ac}) (0.45) (30 \text{ in}) (21 \text{ days})}{(153 \text{ days}) (12 \text{ in/ft})} \quad \text{times 150\% for OFW}$$

$$\text{Permanent pool volume} = 11.56 \text{ ac-ft} \quad \text{OK}$$

The pond volume below elevation 10.0 ft is 24.40 ac-ft.

Therefore, adequate storage is provided to satisfy the permanent pool criteria.

# ORIFICE SIZE TO RECOVER ONE-HALF THE TREATMENT VOLUME IN 24 HOURS

## TREATMENT VOLUME DEPTH

Recovery time **24**  
Additional Flows **0.00 Ac-ft**

NOTE: The outfall structures should be designed to drawdown one half the required treatment volume between **24 and 30 hours**.

$$\text{Treatment volume depth } (h_1) = (11.84 \text{ ft}) - (10.00 \text{ ft}) = 1.84 \text{ ft}$$

$$\text{Stage at half the treatment volume} = \frac{(4.17 \text{ ac-ft}) \times 0.50}{(34.60 \text{ ac-ft}) - (24.40 \text{ ac-ft})} (13.00 \text{ ft} - 10.00 \text{ ft}) + 10.00 \text{ ft}$$

$$\text{Stage at half the treatment volume} = \mathbf{10.61 \text{ ft}}$$

$$h_2 = \frac{(10.61 \text{ ft} - 10.00 \text{ ft})}{(1.84 \text{ ft} + 0.61 \text{ ft})} = 0.61 \text{ ft}$$

$$h = \frac{(1.84 \text{ ft} + 0.61 \text{ ft})}{2} = 1.23 \text{ ft}$$

Average flow rate (Q) required to drawdown one-half the treatment volume

$$Q = \frac{(4.17 \text{ ac-ft}) \times 43560 \text{ ft}^2/\text{ac}}{2} \times \frac{1}{24 \text{ hrs}} \times \frac{1}{3600 \text{ sec}}$$

$$Q = 1.0503 \text{ cfs}$$

## AREA OF ORIFICE

$$C = 0.6$$

$$G = 32.2 \text{ ft/sec}^2$$

$$A = \frac{1.0503 \text{ cfs}}{0.6 \sqrt{(2 \times 32.2 \text{ ft/sec}^2 \times 1.23 \text{ ft})}}$$

$$A = 0.197 \text{ ft}^2$$

## DIAMETER OF ORIFICE

$$D = \sqrt{\frac{4 (0.197 \text{ ft}^2)}{3.1416}}$$

$$D = 0.501 \text{ ft} = 6.0 \text{ inches}$$

Adjust  $h_1$ ,  $h_2$ , and the orifice diameter (D) to the flow line of the orifice.

$$Q = 10.00 \text{ ft} + \frac{0.501 \text{ ft}}{2} = 10.25 \text{ ft}$$

$$h_1 = (11.84 \text{ ft}) - (10.25 \text{ ft}) = 1.59 \text{ ft}$$

$$h_2 = (10.61 \text{ ft}) - (10.25 \text{ ft}) = 0.36 \text{ ft}$$

$$h = \frac{(1.59 \text{ ft} + 0.36 \text{ ft})}{2} = 0.98 \text{ ft}$$

$$A = \frac{1.0503 \text{ cfs}}{0.6 \sqrt{(2 \times 32.2 \text{ ft/sec}^2 \times 0.98 \text{ ft})}}$$

$$A = 0.221 \text{ ft}^2$$

$$D = \sqrt{\frac{4 (0.221 \text{ ft}^2)}{3.1416}}$$

$$D = 0.530 \text{ ft} = \mathbf{6.4 \text{ inches}}$$

$$\text{Flow line elevation} = (10.00 \text{ ft}) + \frac{0.530 \text{ ft}}{2} = 10.27 \text{ ft}$$

$$10.265 \text{ ft Vs } 10.250 \text{ ft} = \mathbf{0.01 \text{ ft}} \quad \text{OK. There is not significant difference}$$



### CHECK MINIMUM DEPTH OF POND

#### MEAN DEPTH

NOTE: The mean depth of the permanent pool must be between 2 and 8 feet.

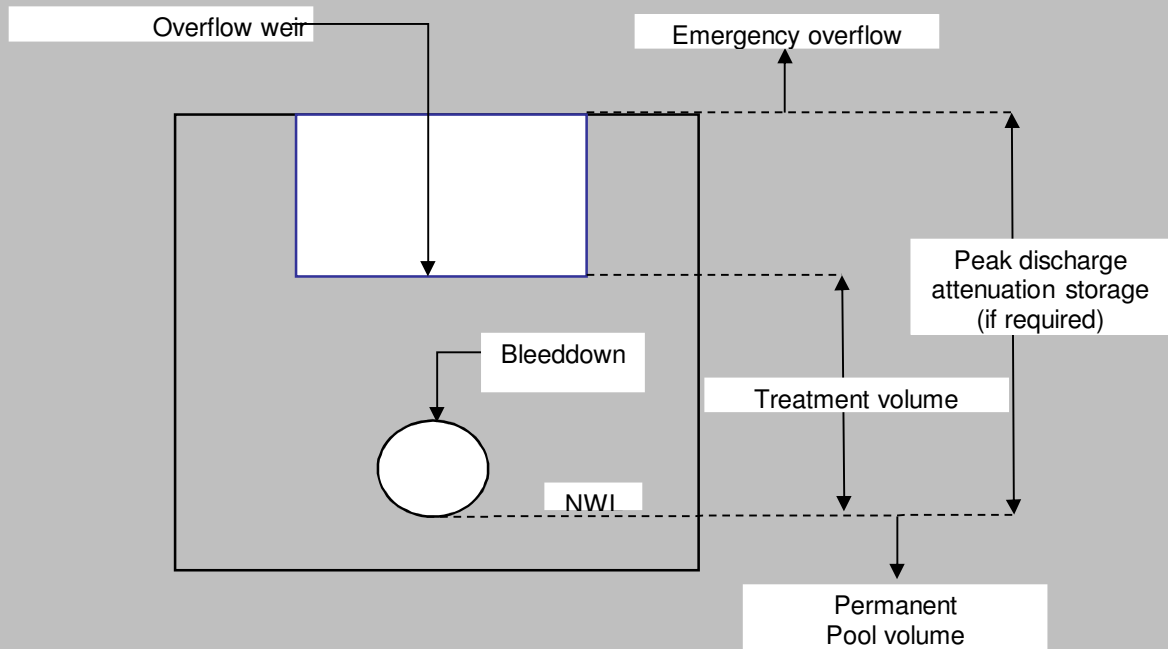
$$\text{Mean depth} = \frac{24.4 \text{ ac-ft.}}{3.30 \text{ Ac}} = 7.39 \text{ ft} \quad \text{OK}$$

### SUMMARY

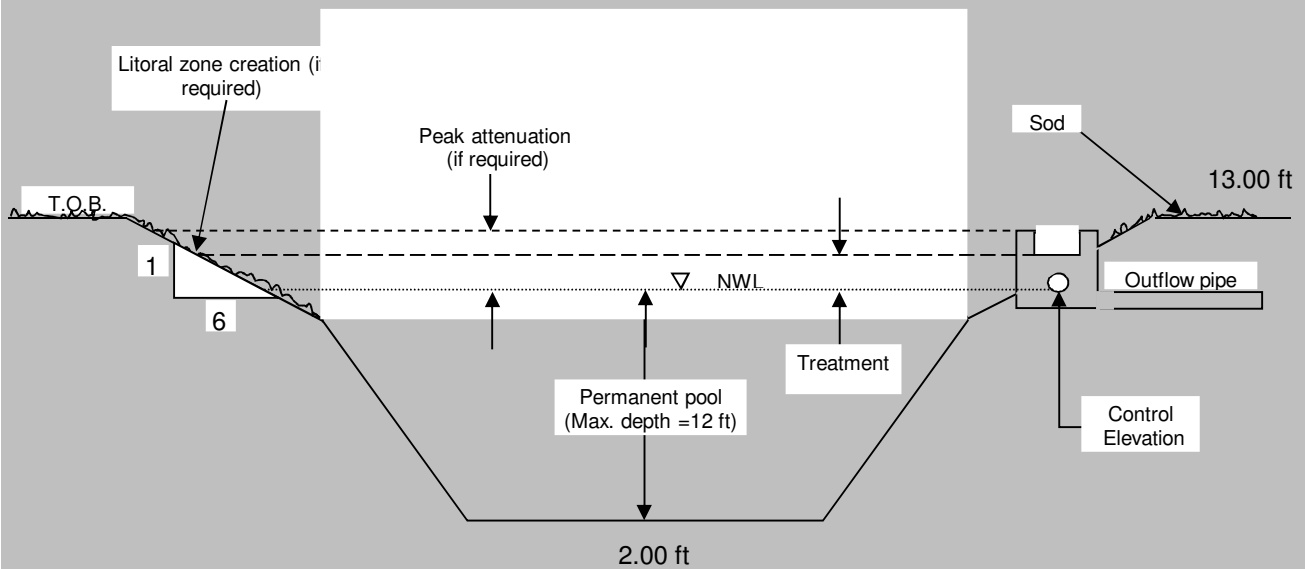
TOB	13.00 ft
NWL	10.00 ft
BOT	2.00 ft
WEIR ELEVATION	11.84 ft
ORIFICE ELEVATION	10.00 ft
MEAN DEPTH	7.39 ft
PROVIDED TREATMENT VOLUME	6.25 ac-ft
REQUIRED TREATMENT VOLUME	6.25 ac-ft
PERMANENT POOL PROVIDED	24.40 ac-ft
PERMANENT POOL REQUIRED	11.56 ac-ft

### REFERENCES

Rao, D.V., S.A. Jenab, and D.A. Clapp. 1990. *Rainfall Analysis for Northeast Florida, Part V: Frequency Analysis of Wet Season and Dry Season Rainfall*. St. Johns River Water Management District, Technical Publication No. 90-3, Palatka, Florida



Typical wet detention outfall structure (N.T.S.)



Wet detention pond (N.T.S.)

## **4.0 ICPR MODEL**

Note: ICPR Calculations have been completed using NGVD29 Datum

#### 4.1 Existing Conditions

(taken from St. Johns River Power Park Area II Landfill Closure Stormwater Management System)



**St. Johns River Power Park  
Area II Landfill Closure Stormwater  
Management System  
Jacksonville, Florida**

June 2010



*Design Report- RAI 2 Revision*

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## Professional Certification

*In accordance with Chapter 471, Florida Statutes, this JEA St Johns River Power Park (SJRPP) Appendix B-5 Area II Landfill Closure Stormwater Management System report (modified based on the FDEP first and second request for additional information) was prepared under the direct supervision of a Professional Engineer registered in the State of Florida.*

---

Seth Nehrke, P.E.  
Florida Registered Professional  
Engineer No. 64044

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# Surface Water Management System Design Report of JEA St. Johns River Power Park Area II Landfill Closure

## 1.0 Introduction

This document presents the hydrologic and hydraulic analysis for the closure of the Area II Landfill. Runoff from the landfill is currently routed to the on-site wastewater treatment plant, and with the improvements currently proposed the Area II landfill will be closed and added to the JEA St. Johns River Power Park's (SJRP) stormwater management system. This evaluation demonstrates that the proposed surface water management system meets the applicable regulatory requirements of the Florida Department of Environmental Protection (FDEP) and the Florida Administrative Code (FAC).

The stormwater system improvements proposed herein will provide water quality and quantity treatment for not only the Area II Landfill, but for the entire SJRP site. The existing stormwater management facility located at the southeastern corner of the campus is to be retrofitted with two weir structures that will provide treatment and attenuation for runoff from the entire site.

The SJRP is approximately 525 acres in size and is located in Duval County, east of State Road 9A and north of Heckscher Drive (**Figure 1**). Browns Creek, a tributary of the St. Johns River, runs immediately to the east and south of the site.

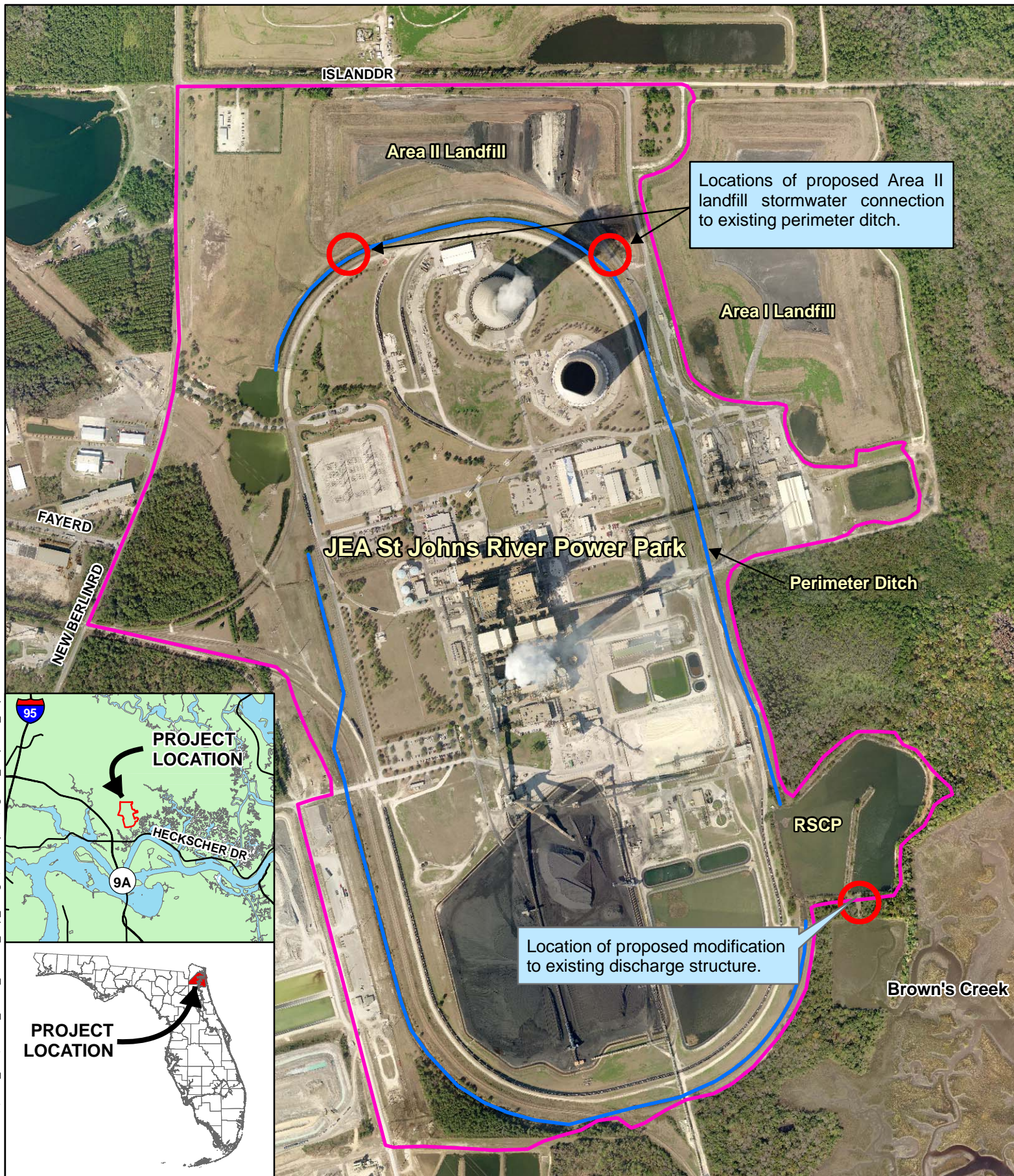
## 1.1 Existing Surface Water Management System

The existing stormwater system for the SJRP currently receives and treats stormwater from an area of 465 acres, which is primarily located within the perimeter ditch and directly west of the perimeter ditch. The perimeter ditch, an oval-shaped series of channels and pipes, completely surrounds the electrical generating facilities; maintenance, support, and administration buildings; coal pile and coal pile runoff sedimentation ponds; and is the primary conveyance structure for routing stormwater to the wet detention pond located at the southeast corner of the site, known as the runoff sedimentation control pond (RSCP). Stormwater generated on the Area I landfill (see Figure 1) is wholly contained and treated within its own stormwater treatment system, consisting of two wet detention ponds and one dry retention pond prior to being discharged offsite to the east.

Currently, runoff generated on the Area II landfill is routed to a leachate holding pond located at the southeast corner of the landfill. From there it is pumped to the leachate treatment system and eventually to the Central Wastewater Treatment Facility (CWTF) for treatment before being discharged to the St. Johns River.

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## Legend

Study Area



1,000 500 0 86 1,000 Feet

Figure 1  
JEA SJRPP  
Landfill II Closure  
Location of Proposed SWM Improvements



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An area approximately 90.2 acres in size within the perimeter ditch, consisting of the coal pile and associated coal pile runoff sedimentation ponds, is self-contained and does not discharge to the RSCP. The site NPDES permit allows for overflow discharges from the coal pile runoff sedimentation pond for storm events greater than the 10-year, 24-hour rainfall (7.44 inches).

The existing RSCP is approximately 14.5 acres in size with an earthen baffle constructed in the center to increase residence time and improve water quality treatment. Stormwater conveyed through the perimeter ditch is allowed to free discharge into the RSCP from two locations, one to the north and one to the south. Discharges from the RSCP are routed to Brown's Creek, a tidally-influenced estuarial tributary of the St. Johns River, through an outfall structure consisting of a broad-crested weir discharging via 30-inch and 42-inch pipes.

## **1.2 Proposed Surface Water Management System**

Closure of the Area II landfill will generate increased flows to the existing stormwater management system, as runoff from the closed landfill will no longer be considered leachate. The current leachate holding pond and lift station will be decommissioned, cleaned, and will become a stormwater catch basin for landfill runoff attenuation before it is routed to the perimeter ditch. Based on the hydrologic and hydraulic analysis in the following sections, the proposed modifications to the existing surface water management system for the site consists of establishing hydraulic connections for runoff from the Area II landfill to the perimeter ditch and alterations to the outlet control structure for the RSCP. Modifications to the existing surface water management system are shown on the site certification drawings provided with this submittal. The locations of the proposed improvements are shown on Figure 1.

## **2.0 Surface Water Management System Design Considerations**

### **2.1 Design Storm and Rainfall Distribution**

The surface water management system was designed to manage the 25-year 24-hour design storm on site. This design was based on all applicable FDEP regulatory requirements presented in "Applicant's Handbook: Management and Storage of Surface Waters" (SJRWMD, 2008) and "Applicant's Handbook: Regulation of Stormwater Management Systems, Chapter 40C-42, F.A.C." (SJRWMD, 2006). The rainfall depth for the 25-year, 24-hour storm event is determined from "Technical Publication SJ 91-3, 24-Hour Rainfall Distributions For Surface Water Basins within the St. Johns River Water Management District, Northeast Florida" (Rao, 1991). Based on this publication, the 25-year, 24-hour rainfall depth is 9.5 inches.

### **2.2 Boundary Condition**

The existing normal water level in the RSCP is set at elevation 2.5 feet NGVD and is controlled by the existing weir structure. In proposed conditions the normal water level in the RSCP will be raised to elevation 3.1 feet NGVD and will be controlled by

the proposed control structure. The RSCP outfalls to Brown's Creek, a tidally influenced estuary. As such, the mean annual high tide near Brown's Creek was utilized as the design storm boundary condition, per section 9.7.1(b) of "Applicant's Handbook: Regulation of Stormwater Management Systems, Chapter 40C-42, F.A.C." (SJRWMD, 2006). The mean annual high tide, also known as the mean high water (MHW) elevation, was determined to be 2.3 feet-NGVD at the outfall of the RSCP from the Florida Department of Environmental Protection's Land Boundary Information System tide station number 872-0203 tidal benchmark and datum elevation information (FDEP, 2005). This FDEP document is provided in **Appendix A**.

## 2.3 Groundwater Level

The normal and seasonal high (wet season) groundwater elevations vary across the site from the elevated inland areas down to the adjacent saltwater tidal marsh. The proposed site improvements, including the landfill closure and the control structure modifications, will not result in any significant modification of the existing groundwater levels. The proposed control structure will raise the normal water level in the RSCP from elevation 2.5 to elevation 3.1 feet NGVD. This minor design modification was necessary to provide the required 50% additional treatment as the facility is adjacent to the Timucuan Ecological and Historic Preserve which is designated as an Outstanding Florida Water (OFW).

## 2.4 Floodplain Encroachment

The majority of the SJRPP site is located in Flood Zones X and X500, areas determined to be outside the 100-year floodplain. However, portions of the site located on the southern end and including the perimeter ditch, coal pile runoff sedimentation pond, and the RSCP are located in Flood Zone AE, areas determined to be within the 100-year floodplain and with a base flood elevation of 7 feet (NGVD). Further, an eastern portion of the site is located in Flood Zone AO, a river or stream flood hazard area with 1 percent or greater chance of shallow flooding each year in the form of sheet flow at a depth of 2 feet. Please see the flood plain map for the project vicinity shown on **Figure 2**.

All landfill closure construction is proposed to occur outside the regulated floodplain. The retrofit weir structure designed to provide water quality treatment for the entire power park site is proposed to occur within the AE Zone shown on Figure 2. By raising the normal water level 0.60 feet, the weir structure will result in a minor loss of available floodplain storage which is offset by and will actually act to detain runoff in the regional pond. This improvement will taking advantage of available storage in the pond and on the site thereby reducing overall offsite discharges from the site. The cumulative effect of the additional onsite storage utilized by modifying the existing control structure will more than offset for any loss of storage.

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## 2.5 Topographic Data

Topographic data were used to define hydrologic boundaries, overland flow paths, channel slopes, critical flood elevations, and stage-area-storage relationships. The following sources of topographic data were available for the project area:

- Site specific survey of the St. Johns River Power Park; and
- Topographic LiDAR utilized to create 1 foot (+/- 0.6 feet) contours for the City of Jacksonville, Florida.

Topography for the Power Park area varies significantly as there are two coal ash landfills located on site. Within the overall project boundary, elevations vary from 0 ft-NGVD near Brown's Creek to 97 ft-NGVD at the top of the Area I Landfill.

## 2.6 Hydrologic Units

Natural physical features or constructed drainage channels and pipes that control and direct surface water runoff from rainfall and irrigation generally define hydrologic units. For modeling purposes, the site was subdivided into two types of hydrologic units representing both unobstructed runoff into the RSCP and closed basins where the runoff is collected in independent stormwater or leachate ponds. Basins EX-5 (the settling pond south of the Area I landfill) and EX-6 (the coal pile storage area) are essentially self contained basins, permitted by the existing site NPDES permit to overflow only during events greater than the 10-yr 24-hr storm. Area overflows were added to the model based on site topography to allow for overflow from these areas during extreme storm events. It should be noted that neither basin overflows during the 25-yr 24-hr storm event for existing or proposed conditions as sufficient storage is present in the existing pond located in EX-5 and in the settling ponds for the coal pile storage area (basin EX-6). **Figures 3 and 4** show the hydrologic units and associated areas for existing and proposed conditions, respectively. Hydrologic units were digitized as polygons using the Geographic Information System (GIS) software ArcMap.

## 2.7 Soil Types and Land Cover

Each of the soil types assigned have been categorized by one of the four Hydrologic Soil Groups (A, B, C, or D) established by the Soil Conservation Service (SCS). Hydrologic Soil Group A is comprised of soils with a very high infiltration potential and a low runoff potential. Hydrologic soil Group D is comprised of soils with very low infiltration potential and a high runoff potential. The other two categories fall between A and D soil groups. Dual class soils (e.g., A/D) mean that a hard pan or impermeable layer limits vertical infiltration, but the surficial soils are highly permeable and could infiltrate as a Class A soil when the confining layer is cut with a ditch or swale.

The soils in the study area are predominantly located in Hydrologic Soil Groups B/D and C, as shown on **Figure 5**. For modeling purposes all of the dual type soils were

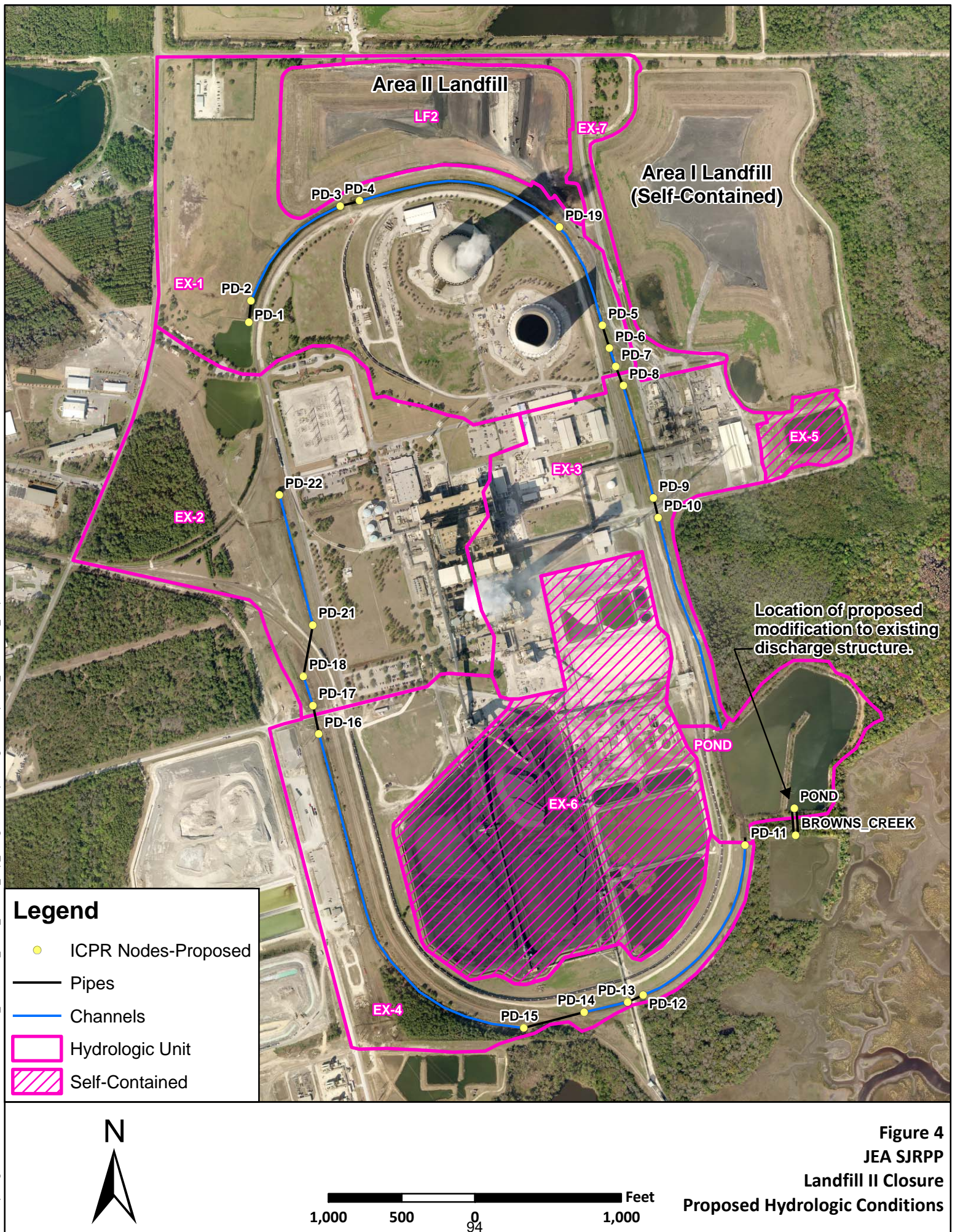
conservatively treated as type D. Additionally, a large portion are located in Hydrologic Soil Group W, a category signifying water which has no infiltration and very high runoff.

Based on the highly developed condition of the Power Park, the study area's land cover is predominantly classified as Light Industrial, Commercial, and Institutional in SJRWMD's FLUCCS coverage, as shown on **Figure 6a**. The industrial lands category consists of much impervious area allowing for little infiltration and high runoff potential. However, review of high-resolution aerial imagery provided the ability to modify the land use classifications in order to create more accurate site specific land use for the SJRPP, as shown on **Figure 6b**. The site land use remains consistent from existing to proposed conditions, with the only difference being the addition of the Area II landfill to the stormwater management system.

The hydrologic module of ICPR uses a runoff curve number based on both Hydrologic Soil Groups and land cover categories to generate the volume of surface water runoff. Curve numbers were developed for typical land use relationships based on percentages of impervious area.

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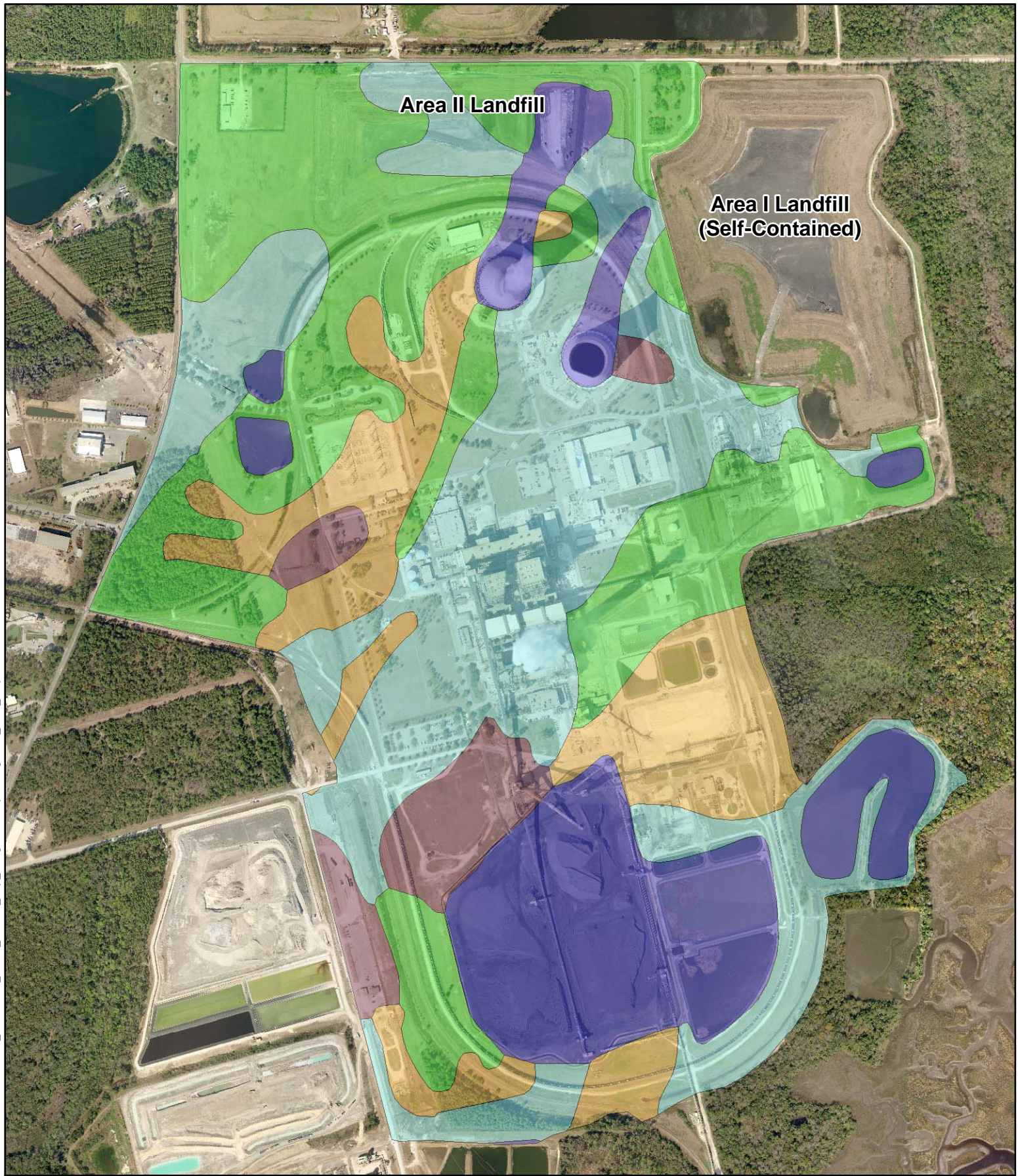









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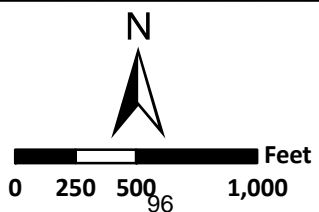


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**Hydrologic Soil Group**

	A		C		W
	B/D		D		



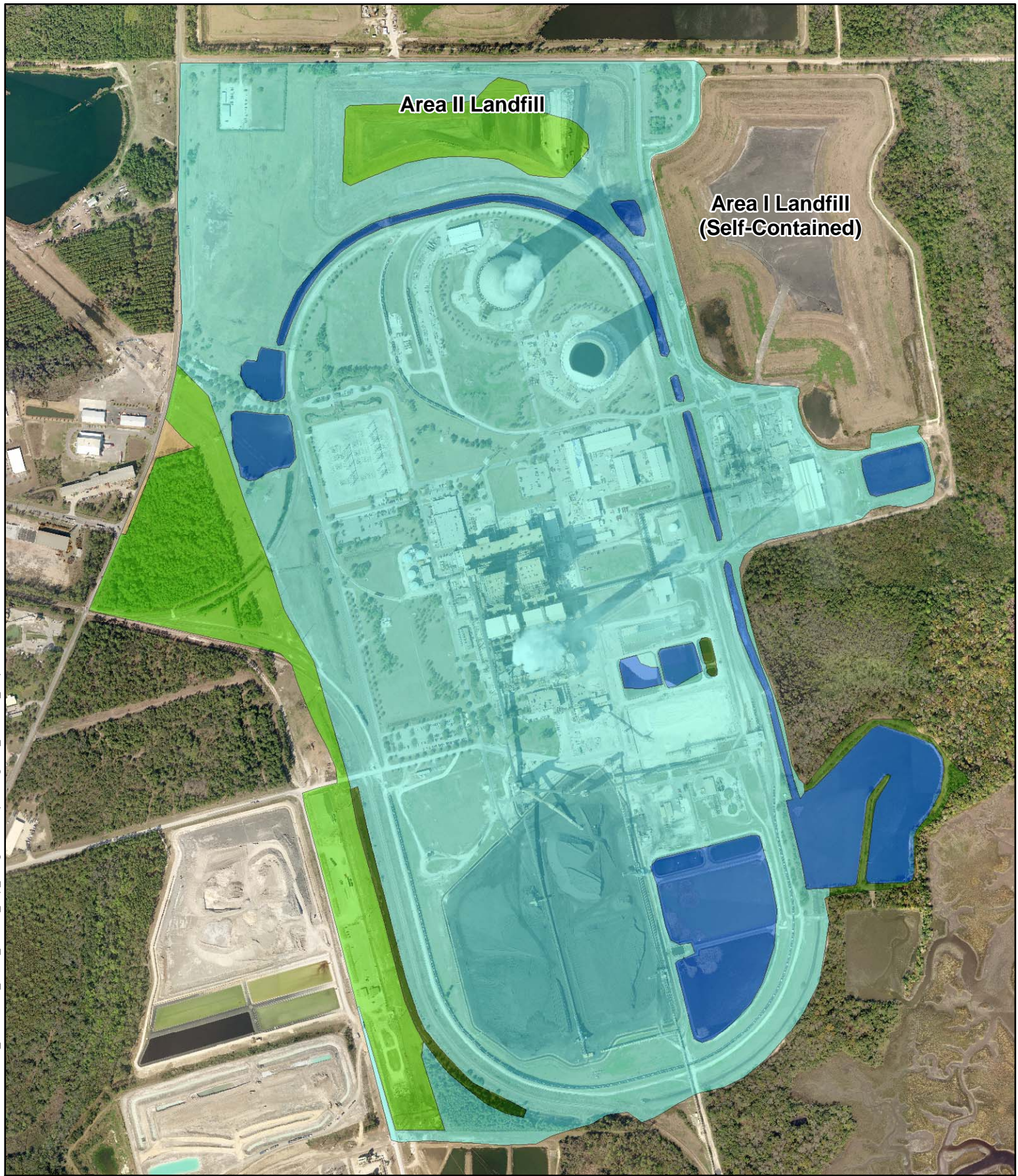
**Figure 5**  
**JEA SJRPP**  
**Landfill II Closure**  
**Hydrologic Soil Groups**








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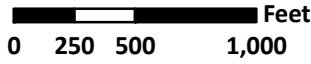


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**Landuse**

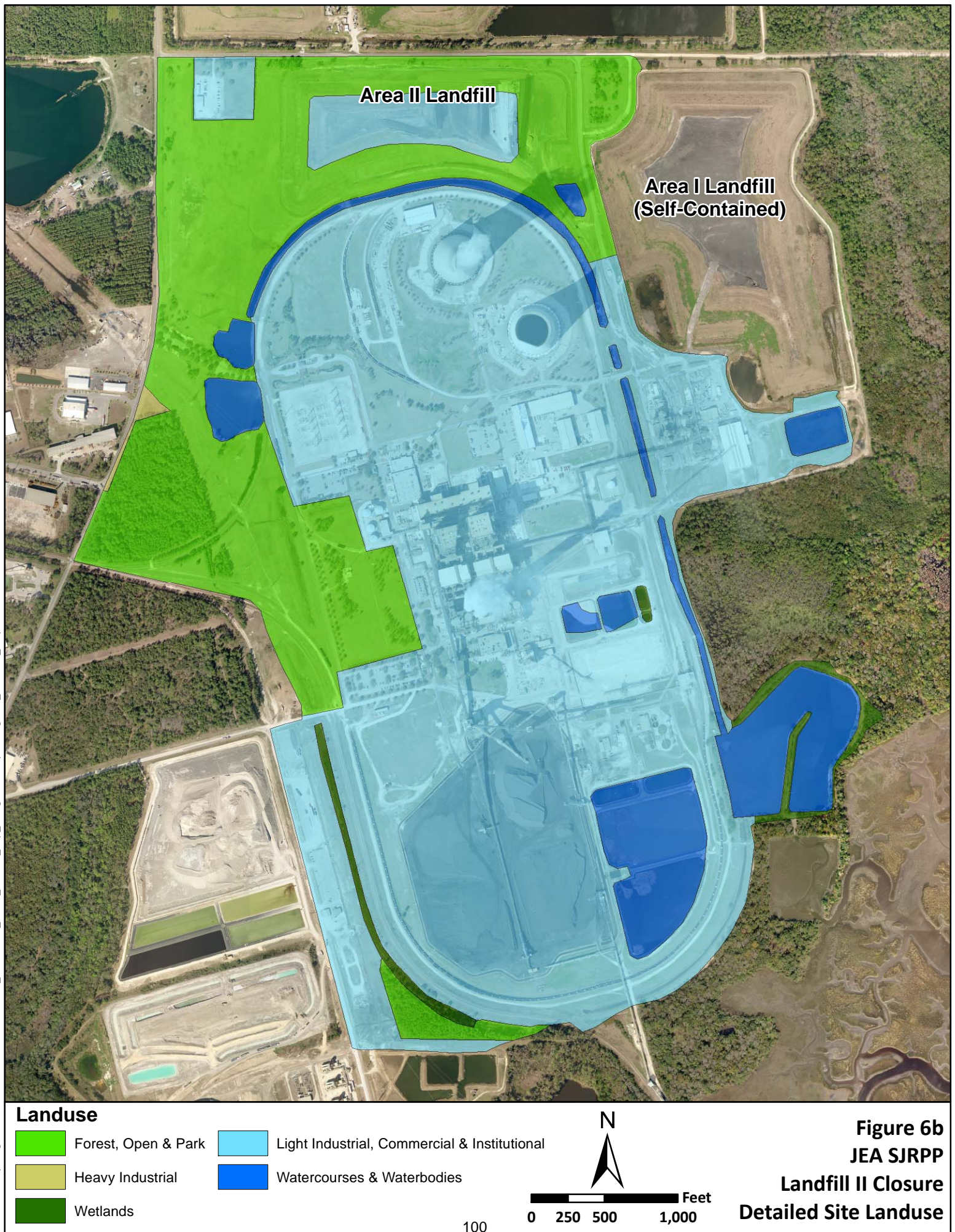
- |  |  |
|--|--|
|  Forest, Open & Park |  Light Industrial, Commercial & Institutional |
|  Heavy Industrial    |  Watercourses & Waterbodies                   |
|  Wetlands            |  |



**Figure 6a**  
**JEA SJRPP**  
**Landfill II Closure**  
**SJRWMD Level III FLUCCS**



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### 3.0 Hydrologic Analysis for the Surface Water Management System

The purpose of the hydrologic analysis was to estimate the runoff rates and volumes generated from the site for the 25-year, 24-hour design storm event (9.5 inches).

#### 3.1 Curve Numbers and Time of Concentration

The runoff curve numbers (CN) and times of concentration (T<sub>c</sub>) for the hydrologic analysis were calculated using the methodology presented in Chapters 2 and 3 of the United States Department of Agriculture (USDA) Urban Hydrology for Small Watersheds Technical Release 55 (TR-55). **Table 1** below summarizes the hydrologic parameters for the existing and proposed basins. Curve number and time of concentration calculations are provided in **Appendix B**. Basin maps showing the existing and proposed basins are shown on Figures 3 and 4.

**Table 1 Basin Characteristics**

Basin Name	EXISTING					PROPOSED				
	Area (ac)	CN	T <sub>c</sub> (min)	25-Year 24-Hour		Area (ac)	CN	T <sub>c</sub> (min)	25-Year 24-Hour	
				Peak Runoff (cfs)	Total Runoff Volume (in)				Peak Runoff (cfs)	Total Runoff Volume (in)
EX-1	113.3	88	45.1	292	8.0	113.3	88	45.1	292	8.0
EX-2	110.4	83	52.5	243	7.4	110.4	83	52.5	243	7.4
EX-3	60.1	90	54.5	162	8.3	60.1	90	54.5	162	8.3
EX-4	70.3	88	66.9	141	8.0	70.3	88	66.9	141	8.0
EX-5	6.2	95	17.1	2	2.0	6.2	95	17.1	2	2.0
EX-6	90.2	96	70.2	20	2.0	90.2	96	70.2	20	2.0
EX-7	13.7	82	27	44	7.3	13.7	82	27	44	7.3
POND	22.6	97	10	128	9.1	22.6	97	10	128	9.1
LF2*	--	--	--	--	--	37.7	--	--	--	--
Sum Area	486.8					524.6				

\* Area II Landfill basin characteristics developed in closure design report and not utilized in stormwater management system design model. See Appendix B-4 of the submittal package for Area II Landfill basin details. Runoff hydrograph from closure design report used to simulate flow from the Area II Landfill (see Appendix A).

#### 3.2 Runoff Hydrographs

The surface water management system for the site was designed for the 25-year 24-hour storm event. The SCS Type II Florida Modified rainfall distribution was used for hydrograph generation. A hydrograph peaking factor of 256 was used for both the existing conditions and proposed conditions. All on-site stormwater modeling was performed using the Interconnected Channel and Pond Routing (ICPR) model version 3.10 developed by Streamline Technologies of Winter Springs, Florida.



## 4.0 Water Quality Calculations

### 4.1 Calculation of Treatment Volume

The required water quality treatment volume was determined utilizing methodology presented in Chapter 14.2 of the SJRWMD "Applicant's Handbook: Regulation of Stormwater Management Systems" (2006). The detention volume provided shall be equal to the greater of the following:

- 1) 2.5 inches over the impervious area (115.3 acres)
- 2) 1 inch over the entire site (402.1 acres)

For treatment volume calculations on this site, 1 inch over the developed project area is greater than 2.5 inches over the impervious area. The required treatment volume for the entire tributary area to the RSCP was calculated as follows:

$$1 \text{ inch (402.1 acres)} = 33.5 \text{ acre-feet}$$

In accordance with Rule 40C-42.026(4)(k), FAC, wet detention systems which have a direct discharge to an Outstanding Florida Water shall provide an additional 50% of the applicable treatment and permanent pool volumes required or provide pre-treatment prior to discharging into a wet detention pond designed pursuant to rule 40C-42.026(4)(a) through (j). Based on this regulation the total treatment volume required is:

$$1 \text{ inch (402.1 acres)} = 33.5 \text{ acre-feet} * 150\% = 50.3 \text{ Ac-ft}$$

The treatment volume is provided in the RSCP from the normal water level of the pond, 3.1 feet-NGVD, to the top of weir elevation, 6.2 feet-NGVD. The RSCP provides a total of 60.8 acre-feet of treatment volume, which satisfies the water quality treatment requirements. The stage/area relationships for the RSCP are provided in **Table 2**. It should be noted that the tributary area considered for treatment volume, 402.1 acres, differs from the tributary area considered for flood routing, 524.6 acres. The total tributary area considered for flood routing, as shown on Figure 4, is larger due to runoff generated off-site flowing onto the SJRPP and the SJRPP closed basins not being included in the water quality considerations. Areas considered in the calculation of treatment volume are shown on **Figure 7**.

It should be noted that the Area I landfill has been excluded from both water quality and quantity calculations. This area is serviced by three interconnected stormwater management facilities that provide the required treatment and attenuation for this area prior to discharging offsite to the east. The coal pile storage and associated settling ponds were not included in the water quality calculations. Runoff from these areas is routed to the onsite wastewater treatment facility. A summary of the water quality calculations are provided in **Table 3**.

**Table 2 Stage-Area Relationships**

<b>Runoff Sedimentation Control Pond</b>		
<b>Stage (ft-NGVD)</b>	<b>Area (ac)</b>	<b>Cumulative Volume (ac-ft)</b>
-4.6 (Bottom)	10.8	0.0
3.1 (NWL)	17.8	109.9
5.8 (Top of Required Treatment Volume)	21.0	162.2
6.2 (Top of Weir Invert)	21.4	170.7
9.0 (Top of Bank Varies: 9 feet NGVD – 10 feet NGVD )	25.3	235.6

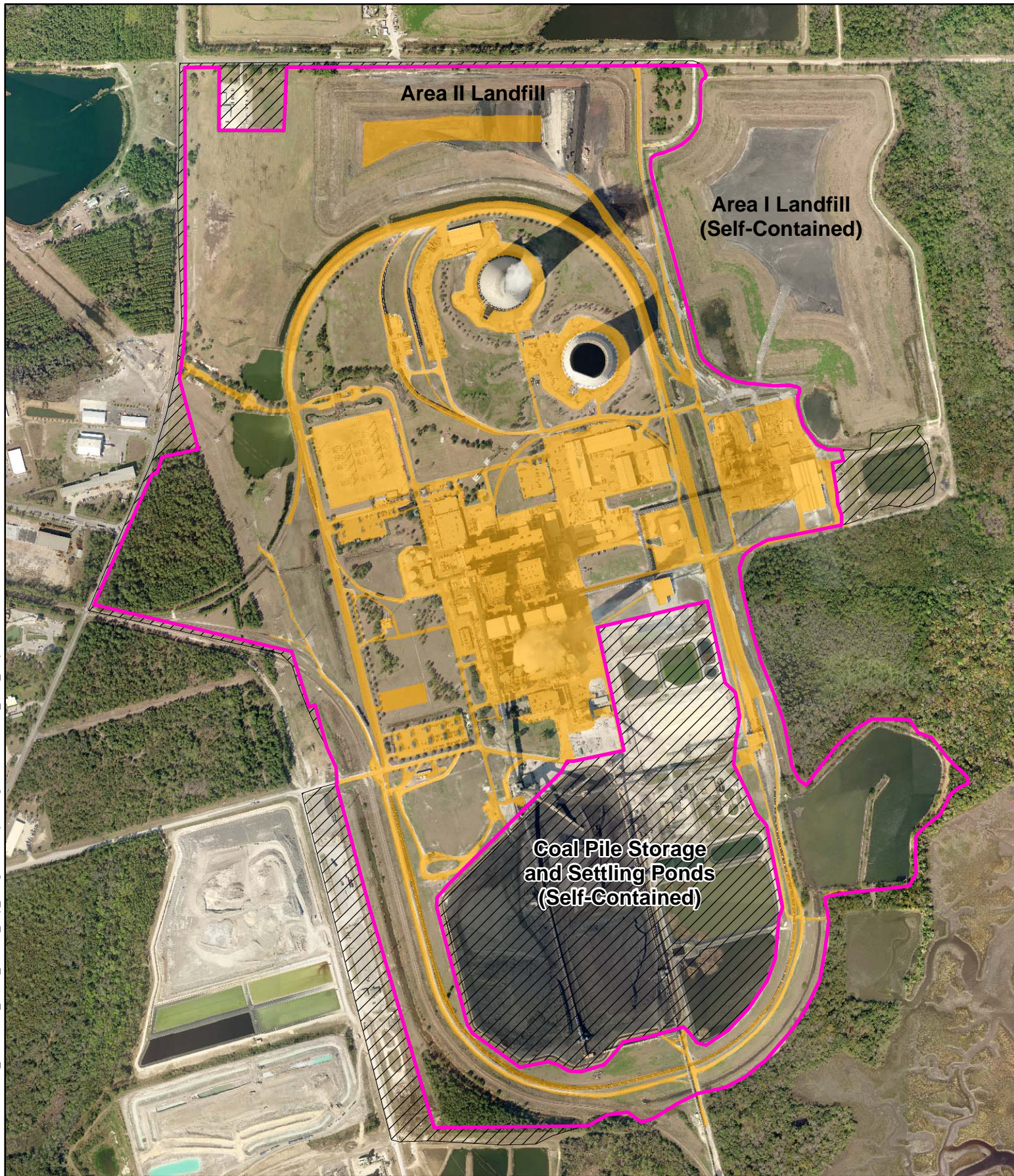
**Table 3 Summary of Water Quality Calculations**

<b>Parameter</b>	<b>Value</b>	<b>Unit</b>
Tributary Area	402.1	acres
Impervious Area	115.3	acres
Composite Runoff Coefficient <sup>1</sup>	0.53	--
<b>Treatment and Permanent Pool Volume Required</b>		
1" Over the Area x 150% (Treatment Volume)	50.3	ac-ft
21-Day Permanent Pool Volume x 150%	109.6	ac-ft
<b>Treatment and Permanent Pool Volume Provided</b>		
Treatment Volume Provided in Pond	60.8	ac-ft
Permanent Pool Volume Provided in Pond	109.9	ac-ft
Residence Time	32	days

1. Runoff coefficient calculated assuming the following land use runoff coefficients:
  - a) Forest, Open, & Park = 0.15 (132.9 acres)
  - b) Light Industrial = 0.67 (260.0 acres)
  - c) Watercourses & Waterbodies = 0.95 (27.7 acres)
  - d) Wetlands = 0.95 (6.6 acres)
  - e) Heavy Industrial = 0.9 (1.0 acres)

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WQ Treatment Volume Area



Excluded from WQ Treatment Area



Impervious Area



0 250 500 1,000 Feet  
106

**Figure 7**  
**JEA SJRPP**  
**Landfill II Closure**  
**Area Considered for WQ Treatment Volume**



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Additionally, a water quality loading analysis for the entire SJRPP site was performed to demonstrate that the addition of the Area II landfill to the stormwater system will not result in an increase in offsite discharge of nutrients. A pre-development vs post-development loading analysis was performed, with the difference in post conditions being the addition of 37.7 acres of closed landfill being added to the system. The increase in loading from this additional area is more than offset by the additional removal efficiency achieved via the increased residence time in the pond (26 days in existing and 32 days in proposed). Table 4 summarizes the net decrease in overall nutrient loading from the site for both Nitrogen and Phosphorus.

It should be noted that standard of practice Event Mean Concentrations (EMCs) were utilized in the water quality calculations, along with removal efficiencies computed based on the "Evaluation of Current Stormwater Design Criteria within the State of Florida", FDEP 2007. Please see Appendix E for EMC values and removal efficiency documentation.

**Table 4. Pre/Post Nutrient Loading and Removal Analysis**

Total Nitrogen Loading and Removal - Harper Removal Efficiency								
	Area	Runoff	Runoff	TN concentration	Basin TN Inflow	Basin TN Inflow	TN	TN Reduction
	(Acres)	C	(ac-ft/yr)	(based on EMCs) (mg/L)	(lb/yr)	(MTons/yr)	% reduction provided	provided (lb/yr)
Pre-Development Loading								
JEA SJRPP (Industrial)	364.4	0.67	1056	1.87	5367	2.4	37.4%	2007
	Pre-Total				5367	2.4	Pre-Total	2007
	Minus Removal via Facility				2007			
	Pre-Development Discharge				3360			
Post-Development Loading								
JEA SJRPP (Industrial)	364.4	0.67	1056	1.87	5367	2.4	38.5%	2066
Area II Landfill (Rural Open)	37.7	0.15	24	1.16	77	0.0	38.5%	30
	Post-Development Sum				5444			
	Minus Removal via Facility				2096			
	Post-Development Discharge				3348	< 3360	Pre-Development Discharge	

Total Phosphorus Loading and Removal - Harper Removal Efficiency								
	Area	Runoff	Runoff	TP concentration	Basin TP Inflow	Basin TP Inflow	TP	TP Reduction
	(Acres)	C	(ac-ft/yr)	(based on EMCs) (mg/L)	(lb/yr)	(MTons/yr)	% reduction provided	provided (lb/yr)
Pre-Development Loading								
JEA SJRPP (Industrial)	364.4	0.67	1056	0.28	804	0.4	63.2%	508
	Pre-Total				804	0.4	Pre-Total	508
	Minus Removal via Facility				508			
	Pre-Development Discharge				296			
Post-Development Loading								
JEA SJRPP (Industrial)	364.4	0.67	1056	0.28	804	0.4	64.8%	521
Area II Landfill (Rural Open)	37.7	0.15	24	0.05	3	0.0	64.8%	2
	Post-Development Sum				807			
	Minus Removal via Facility				523			
	Post-Development Discharge				284	< 296	Pre-Development Discharge	

## 4.2 Permanent Pool Volume

The stormwater management system has been designed based on the 25-year, 24-hour design storm event. The permanent pool was designed to provide an extended attenuation, thereby enhancing treatment potential. Based on a wet weather season

lasting 153 days with a total rainfall over that period of 30 inches, the required permanent pool volume in the RSCP would typically be 73.1 ac-ft for a minimum residence time of 21 days. In accordance with Rule 40C-42.026(4)(k), FAC, wet detention systems which have a direct discharge to an Outstanding Florida Water shall provide an additional 50% of the applicable treatment and permanent pool volumes required or provide pre-treatment prior to discharging into a wet detention pond designed pursuant to rule 40C-42.026(4)(a) through (j). This regulation results in a minimum residence time of 31.5 days. Based on the stage-area relationship provided in Table 2 and calculations provided in Table 3, the RSCP has a 32 day residence time, greater than the 31.5 day minimum prescribed in the SJRWMD Applicant's Handbook: Regulation of Stormwater Management Systems Chapter 40C-42, F.A.C. for wet detention ponds lacking littoral zones and discharging to an Outstanding Florida Water.

## 5.0 Hydraulic Routing for the Proposed Surface Water Management System

ICPR was utilized to model the existing and proposed site conditions and route the generated hydrographs through the stormwater management system. The hydrologic and hydraulic input data are provided in **Appendix A**.

### 5.1 Existing Conditions Model

For existing conditions, a hydrologic analysis was performed to generate a peak discharge from the site. Currently, the discharge structure consists of two parallel weirs draining to a 42-inch and a 30-inch pipe, respectively (see Design Drawings). The weir oriented on the east side of the discharge structure is approximately 63 inches wide and passes water to the 42-inch pipe, while the weir located on the west side of the discharge structure is approximately 51 inches wide and passes water to the 30-inch pipe. The peak existing discharge rate from the RSCP was determined to be 107 cfs. It should be noted that in existing conditions neither the Area I landfill (self-contained) nor the Area II landfill (drains to wastewater treatment plant) were accounted for. Basins EX-5 (the settling pond south of the Area I landfill) and EX-6 (the coal pile storage area) are essentially self contained basins, permitted by the existing site NPDES permit only to overflow during events greater than the 10-yr 24-hr storm. Area overflows were added to the model based on site topography to allow for overflow from these areas during extreme storm events. It should be noted that neither basin overflows during the 25-yr 24-hr storm event for existing or proposed conditions as sufficient storage is present in the existing pond located in EX-5 and in the settling ponds for the coal pile storage area (basin EX-6). Personal accounts from SJRPP staff reveal that the area has not overflowed in recent history. The output files from the ICPR model are provided in **Appendix C**.

### 5.2 Proposed Conditions Model

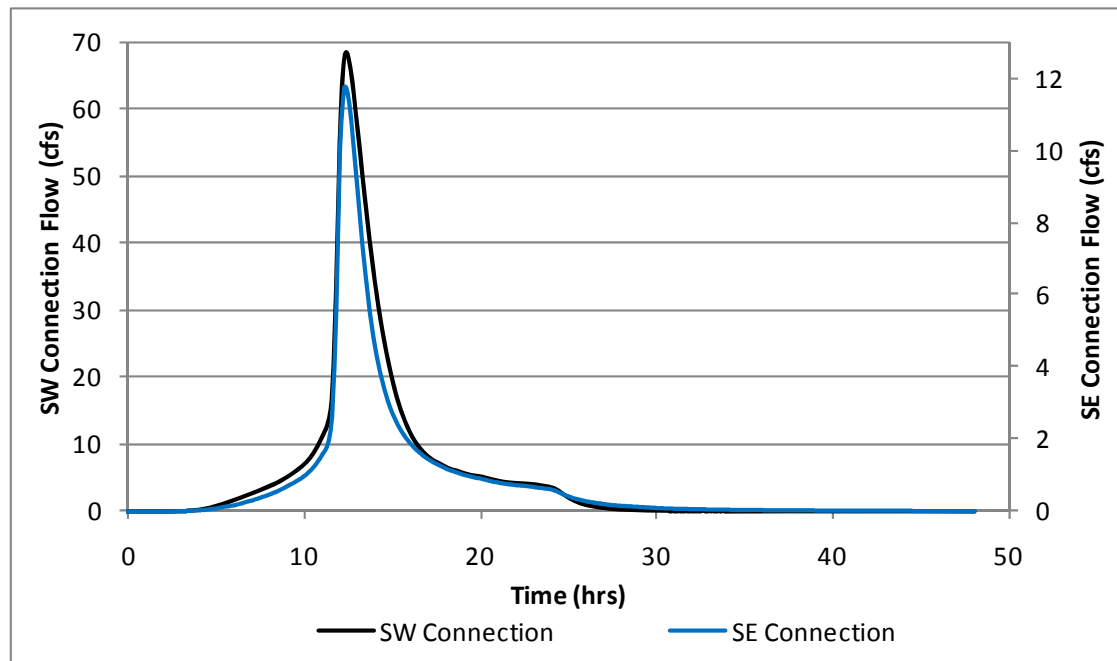
The discharge location for runoff from the existing site and the Area II landfill is the overflow control structure in the RSCP, which outfalls to Brown's Creek.

Modifications to the existing discharge operation include the placement of weir plates in the overflow control structure, raising the overflow weir invert from 2.5 feet-NGVD to 6.2 feet-NGVD. **Eleven-inch wide by Ten-inch high** rectangular bleeder orifices in each weir will raise the existing normal water level to elevation 3.1 feet NGVD and allow for recovery of the treatment volume. **Two 18 inch wide rectangular slots with an invert elevation of 5.1 feet NGVD assist with both flood attenuation and water quality recovery.** Sheet CD-1 of the site certification drawings provided with this submittal show detailed design of the proposed modifications to the discharge structure.

The addition of flows due to the construction of a hydraulic connection from the Area II landfill to the perimeter ditch is performed by integrating runoff hydrographs generated for the Area II landfill by ICPR into the existing site stormwater model. The Area II Landfill runoff hydrograph was created in a separate ICPR model developed as part of the landfill closure design. Two hydraulic connections, one located near the existing leachate holding pond at the southeast corner of the landfill and another located at the southwest corner of the landfill, are proposed in the landfill closure design (see design drawings). The time-series input is shown on **Figure 8** and is detailed in Appendix A. It should be noted that the Area I landfill and the coal storage area were represented in the same manner as in the existing conditions model.

As required, the peak discharge rate of **99 103** cfs at the RSCP discharge control structure for the proposed condition does not exceed the existing conditions peak discharge for the 25-year, 24-hour storm event, as shown in **Table 5**. The proposed peak stage of **7.7 7.8** feet-NGVD is fully contained within the topography of the existing RSCP. Peak stages were checked throughout the SJRPP campus to provide that no critical infrastructure was affected and that sufficient conveyance capacity exists within the system to handle the addition of the Area II landfill (see Appendix C).





**Figure 8 Area II Landfill Runoff Hydrographs at Connections to Existing Stormwater Management System**

**Table 5 Pre/Post Comparison of Hydraulic Conditions in the RSCP**

	Existing Conditions		Proposed Conditions	
Storm	Peak Discharge Rate (cfs)	RSCP Peak Stage (ft-NGVD)	Peak Discharge Rate (cfs)	RSCP Peak Stage (ft-NGVD)
25-yr 24- hr	107	7.2	<u>99</u> 403	<u>7.7</u> 7-8

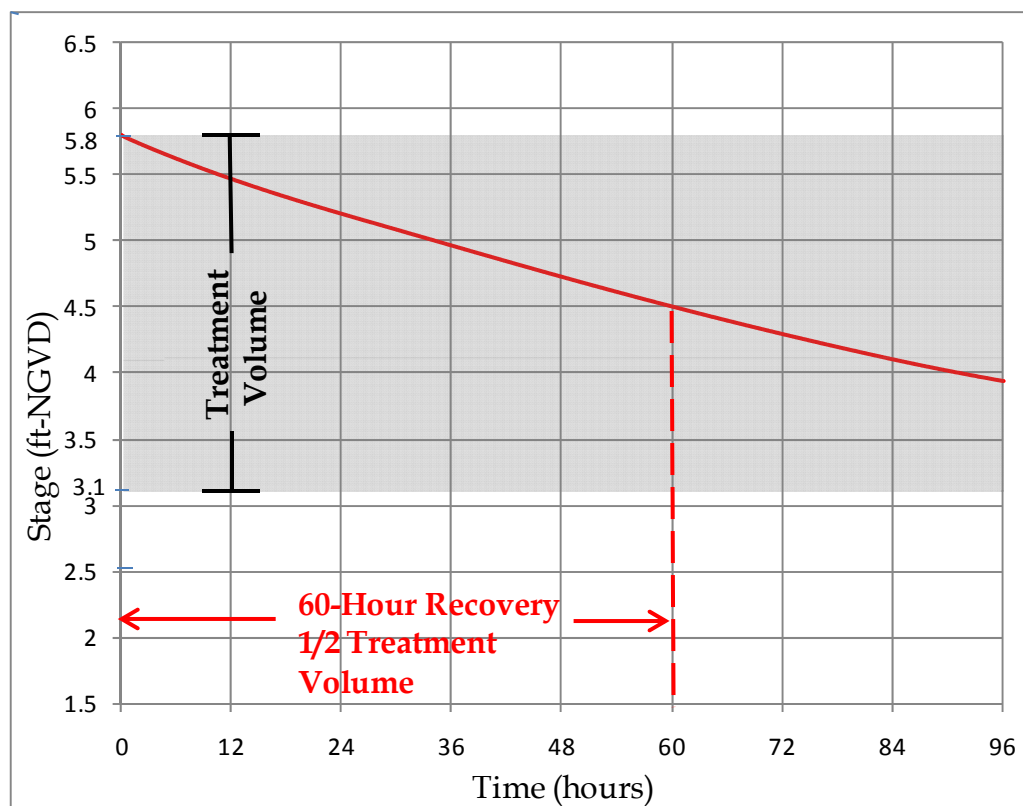
## 6.0 Recovery Analysis

A drawdown analysis was performed in ICPR to demonstrate that the system discharges no more than half the required treatment volume within ~~24 to 30~~ **48 to 60** hours following a storm event. Drawdown is performed via two ~~11-inch by~~ 10-inch rectangular orifices and two 18-inch rectangular slots, as shown in the site certification plans. The inverts of the bleeders are set at the normal water level (NWL) of the RSCP, 3.1 feet (NGVD). The tailwater elevation for the drawdown analysis was set at the mean tide level (MTL) of 0.56 feet-NGVD. The mean tide level was determined from the FDEP's Land Boundary Information System tide station number 872-0203 tidal benchmark and datum elevations information sheet, as shown in Appendix A. It can be seen on **Figure 9** that the stormwater management facility discharges no more than

half the required treatment volume within ~~24 to 30~~ **48 to 60** hours. The drawdown analysis ICPR input and output files are provided in **Appendix D**.

**In order to demonstrate that the system operates within the water quality range of 3.1' to 5.8' the mean annual design storm was simulated. A chart showing time versus stage is included in Appendix C, hereby demonstrating that the facility operates between elevations 3.1' and 6.0 feet NGVD.**

A CD with the existing conditions, proposed conditions, and drawdown analysis models is provided in with this submittal.



**Figure 9. Recovery of 1/2 Treatment Volume**

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## Appendix A

### ICPR Stormwater Model Input Reports

1. Existing Conditions Input Report
2. Proposed Conditions Input Report
3. FDEP LABINS Benchmark and Datum Elevations for Tide Station Number 872-0203

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=====  
Basins  
=====

Name: EX-1                      Node: PD-2                      Status: Onsite  
Group: BASE                      Type: SCS Unit Hydrograph CN

Unit Hydrograph: UH256                      Peaking Factor: 256.0  
Rainfall File: FLMOD                      Storm Duration(hrs): 24.00  
Rainfall Amount(in): 0.000                      Time of Conc(min): 45.10  
Area(ac): 113.300                      Time Shift(hrs): 0.00  
Curve Number: 88.00                      Max Allowable Q(cfs): 999999.000  
DCIA(%): 0.00

-----  
Name: EX-2                      Node: PD-22                      Status: Onsite  
Group: BASE                      Type: SCS Unit Hydrograph CN

Unit Hydrograph: UH256                      Peaking Factor: 256.0  
Rainfall File: FLMOD                      Storm Duration(hrs): 24.00  
Rainfall Amount(in): 0.000                      Time of Conc(min): 52.50  
Area(ac): 110.400                      Time Shift(hrs): 0.00  
Curve Number: 83.00                      Max Allowable Q(cfs): 999999.000  
DCIA(%): 0.00

-----  
Name: EX-3                      Node: PD-9                      Status: Onsite  
Group: BASE                      Type: SCS Unit Hydrograph CN

Unit Hydrograph: UH256                      Peaking Factor: 256.0  
Rainfall File: FLMOD                      Storm Duration(hrs): 24.00  
Rainfall Amount(in): 0.000                      Time of Conc(min): 43.30  
Area(ac): 60.100                      Time Shift(hrs): 0.00  
Curve Number: 90.00                      Max Allowable Q(cfs): 999999.000  
DCIA(%): 0.00

-----  
Name: EX-4                      Node: PD-15                      Status: Onsite  
Group: BASE                      Type: SCS Unit Hydrograph CN

Unit Hydrograph: UH256                      Peaking Factor: 256.0  
Rainfall File: FLMOD                      Storm Duration(hrs): 24.00  
Rainfall Amount(in): 0.000                      Time of Conc(min): 66.90  
Area(ac): 70.300                      Time Shift(hrs): 0.00  
Curve Number: 88.00                      Max Allowable Q(cfs): 999999.000  
DCIA(%): 0.00

-----  
Name: EX-5                      Node: LFR-1                      Status: Onsite  
Group: BASE                      Type: SCS Unit Hydrograph CN

Unit Hydrograph: UH256                      Peaking Factor: 256.0  
Rainfall File: Flmod                      Storm Duration(hrs): 24.00  
Rainfall Amount(in): 0.000                      Time of Conc(min): 17.10  
Area(ac): 6.200                      Time Shift(hrs): 0.00  
Curve Number: 95.00                      Max Allowable Q(cfs): 999999.000  
DCIA(%): 0.00

-----  
Name: EX-6                      Node: CPR-1                      Status: Onsite  
Group: BASE                      Type: SCS Unit Hydrograph CN

Unit Hydrograph: UH256                      Peaking Factor: 256.0  
Rainfall File: Flmod                      Storm Duration(hrs): 24.00  
Rainfall Amount(in): 0.000                      Time of Conc(min): 70.20  
Area(ac): 90.200                      Time Shift(hrs): 0.00  
Curve Number: 96.00                      Max Allowable Q(cfs): 999999.000  
DCIA(%): 0.00

-----  
Name: EX-7                      Node: PD-5                      Status: Onsite  
Group: BASE                      Type: SCS Unit Hydrograph CN

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Unit Hydrograph: UH256	Peaking Factor: 256.0
Rainfall File: FLMOD	Storm Duration(hrs): 24.00
Rainfall Amount(in): 0.000	Time of Conc(min): 27.00
Area(ac): 13.700	Time Shift(hrs): 0.00
Curve Number: 82.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

Name: POND	Node: POND	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	

Unit Hydrograph: UH256	Peaking Factor: 256.0
Rainfall File: FLMOD	Storm Duration(hrs): 24.00
Rainfall Amount(in): 0.000	Time of Conc(min): 10.00
Area(ac): 22.600	Time Shift(hrs): 0.00
Curve Number: 97.00	Max Allowable Q(cfs): 999999.000
DCIA(%): 0.00	

=====  
Nodes  
=====

Name: BROWNS_CREEK	Base Flow(cfs): 0.000	Init Stage(ft): 2.300
Group: BASE		Warn Stage(ft): 3.000
Type: Time/Stage		

Time(hrs)	Stage(ft)
0.00	0.560
100.00	0.560

Name: CPR-1	Base Flow(cfs): 0.000	Init Stage(ft): 11.000
Group: BASE		Warn Stage(ft): 17.000
Type: Stage/Area		

Node for coal pile runoff (CPR) basin. Coal pile runoff is normally pumped to Central Wastewater Treatment Facility. Designed to

Stage(ft)	Area(ac)
11.000	10.1100
12.000	11.7600
14.000	14.2800
15.000	17.2600
16.000	20.0300

Name: LFR-1	Base Flow(cfs): 0.000	Init Stage(ft): 11.000
Group: BASE		Warn Stage(ft): 15.000
Type: Stage/Area		

Node for runoff basin used to temporarily store leachate from active landfills. Designed to overflow above the 10-year, 24-hour

Stage(ft)	Area(ac)
11.000	2.4000
14.000	2.6800

Name: NPDESa	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 12.000
Type: Stage/Area		

Overflow location and inlet for 42" pipe at RSCP discharge structure.

Stage(ft)	Area(ac)
1.800	0.0010
6.500	0.0010
8.500	0.1000

Name: NPDESb	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 12.000
Type: Stage/Area		

Overflow location and inlet for 30" pipe at RSCP discharge structure.

Stage(ft)	Area(ac)
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1.800	0.0010
6.500	0.0010
8.500	0.1000

Name: PD-1	Base Flow(cfs): 0.000	Init Stage(ft): 13.300
Group: BASE		Warn Stage(ft): 14.300
Type: Stage/Area		

Node for overflow of northern aesthetic pond located at plant entrance.

Stage(ft)	Area(ac)
1.500	0.0500
10.000	0.1000
12.000	1.3000
13.000	1.3600
14.000	1.4300
15.000	1.5000

Name: PD-10	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 11.000
Type: Stage/Area		

Upstream end of two 60" RCPs running and flowing from north to south.

Stage(ft)	Area(ac)
0.000	0.3000
2.000	0.4000
3.000	0.6000

Name: PD-11	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 9.000
Type: Stage/Area		

Immediately upstream of two 36" RCPs that flow into southern portion of pond.

Stage(ft)	Area(ac)
0.000	0.1000
0.500	0.1500
1.000	0.2000
1.500	0.2500
2.000	0.3000
2.500	0.3500

Name: PD-12	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 9.000
Type: Stage/Area		

Downstream end of two 60" RCPs along the southernmost portion of the perimeter ditch. Flow west to east.

Stage(ft)	Area(ac)
0.000	0.1000
0.500	0.1500
1.000	0.2000
1.500	0.2500
2.000	0.3000
2.500	0.3500

Name: PD-13	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 9.000
Type: Stage/Area		

Upstream end of two 60" RCPs along the southernmost portion of the perimeter ditch.

Stage(ft)	Area(ac)
0.000	0.1000
0.500	0.1500
1.000	0.2000
1.500	0.2500
2.000	0.3000
2.500	0.3500

Name: PD-14	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 9.000



---

Type: Stage/Area

Upstream end of short channel section located at southernmost portion of the perimeter ditch.

Stage(ft)	Area(ac)
0.000	0.1000
0.500	0.1500
1.000	0.2000
1.500	0.2500
2.000	0.3000
2.500	0.3500

---

Name: PD-15	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 9.000
Type: Stage/Area		

Upstream end of two 60" RCPs along the southwestern portion of the perimeter ditch. Flow direction is west to east.

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

---

Name: PD-16	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 10.000
Type: Stage/Area		

Upstream end of channel along the southwestern portion of the perimeter ditch. Flow direction is north to south.

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

---

Name: PD-17	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 10.000
Type: Stage/Area		

Upstream end of two 60" pipes along the western portion of the perimeter ditch. Flow direction is north to south.

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

---

Name: PD-18	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 10.000
Type: Stage/Area		

Downstream end of 2 set of two 60" pipes along the western portion of the perimeter ditch. Flow direction is north to south.

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

---

Name: PD-19	Base Flow(cfs): 0.000	Init Stage(ft): 4.400
Group: BASE		Warn Stage(ft): 13.000
Type: Stage/Area		

End of pipe from Area II Landfill stilling basin. Outfalls to perimeter ditch

Stage(ft)	Area(ac)
2.000	0.2000
3.000	0.4000

---

Name: PD-2	Base Flow(cfs): 0.000	Init Stage(ft): 6.100
Group: BASE		Warn Stage(ft): 13.000
Type: Stage/Area		

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-21                      Base Flow(cfs): 0.000                      Init Stage(ft): 3.100  
Group: BASE                      Warn Stage(ft): 12.000  
Type: Stage/Area

Upstream end of two 60" pipes along the western portion of the perimeter ditch. Flow direction is north to south.

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

Name: PD-22                      Base Flow(cfs): 0.000                      Init Stage(ft): 3.100  
Group: BASE                      Warn Stage(ft): 12.000  
Type: Stage/Area

Upstream end of channel along the western portion of the perimeter ditch. Flow direction is north to south.

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

Name: PD-3                      Base Flow(cfs): 0.000                      Init Stage(ft): 6.100  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-4                      Base Flow(cfs): 0.000                      Init Stage(ft): 4.400  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-5                      Base Flow(cfs): 0.000                      Init Stage(ft): 4.400  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Upstream end of two 60" RCPs running and flowing from north to south. Located east of southernmost cooling tower.  
Directly upstream of structure designated as S-4 in 6-23-09 survey.

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-6                      Base Flow(cfs): 0.000                      Init Stage(ft): 4.400  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Downstream end of two 60" RCPs running and flowing from north to south. Located east of southernmost cooling tower.  
Directly downstream of structure designated as S-4 in 6-23-09 survey.

Stage(ft)	Area(ac)
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1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-7	Base Flow(cfs): 0.000	Init Stage(ft): 4.400
Group: BASE		Warn Stage(ft): 13.000
Type: Stage/Area		

Upstream end of two 60" RCPs running and flowing from north to south.

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-8	Base Flow(cfs): 0.000	Init Stage(ft): 4.100
Group: BASE		Warn Stage(ft): 13.000
Type: Stage/Area		

Downstream end of two 60" RCPs running and flowing from north to south.

Stage(ft)	Area(ac)
3.000	0.1000
4.000	0.2000
5.000	0.4000

Name: PD-9	Base Flow(cfs): 0.000	Init Stage(ft): 4.100
Group: BASE		Warn Stage(ft): 13.000
Type: Stage/Area		

Upstream end of two 60" RCPs running and flowing from north to south.

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: POND	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 8.700
Type: Stage/Area		

Primary stormwater pond located at Southeast corner of site. Outfalls to Browns Creek.

Stage(ft)	Area(ac)
-4.600	10.7600
3.000	14.5500
8.000	16.4600
9.000	16.8900

=====  
Cross Sections  
=====

Name: LF2	Group: BASE
Encroachment: No	

Estimated from Aerial Survey of Area II Landfill on 6/10/09.

Station(ft)	Elevation(ft)	Manning's N
0.000	3.000	0.030000
9.000	0.000	0.030000
31.000	0.000	0.030000
40.000	3.000	0.030000
50.000	3.500	0.030000

Name: NPDESa	Group: BASE
Encroachment: No	

Represents flow path over top of wingwall and endwall (flow over "nose" neglected)

Station(ft)	Elevation(ft)	Manning's N
0.000	7.000	0.015000
3.200	7.200	0.015000

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7.900 7.100 0.015000

Name: NPDESb Group: BASE  
Encroachment: No

Represents flow path over top of wingwall and endwall (flow over "nose" neglected)

Station(ft)	Elevation(ft)	Manning's N
0.000	7.100	0.015000
3.200	7.200	0.015000
7.100	7.000	0.015000

Name: XS-1 Group: BASE  
Encroachment: No

From survey on 6-23-09

Station(ft)	Elevation(ft)	Manning's N
0.000	15.100	0.030000
9.700	14.100	0.030000
23.300	12.700	0.030000
41.700	6.200	0.030000
57.900	4.500	0.030000
74.600	6.100	0.030000
119.800	18.400	0.030000
150.000	19.500	0.030000

Name: XS-2 Group: BASE  
Encroachment: No

From survey on 6-23-09

Station(ft)	Elevation(ft)	Manning's N
0.000	15.100	0.030000
20.400	15.700	0.030000
48.100	13.200	0.030000
67.400	9.800	0.030000
73.700	5.300	0.030000
88.700	4.000	0.030000
100.600	4.800	0.030000
103.400	7.700	0.030000
121.300	11.300	0.030000
140.600	14.000	0.030000

Name: XS-3 Group: BASE  
Encroachment: No

From survey on 6-23-09

Station(ft)	Elevation(ft)	Manning's N
0.000	13.100	0.030000
19.400	12.600	0.030000
57.000	2.100	0.030000
64.900	0.900	0.030000
72.800	1.800	0.030000
100.200	10.900	0.030000
116.600	10.700	0.030000

Name: XS-4 Group: BASE  
Encroachment: No

Cross-section developed from LIDAR data.

Station(ft)	Elevation(ft)	Manning's N
0.000	15.000	0.030000
10.000	13.000	0.030000
17.000	11.000	0.030000
23.000	9.000	0.030000
42.000	7.000	0.030000
48.000	6.500	0.030000
53.000	7.000	0.030000
62.000	9.000	0.030000
71.000	11.000	0.030000
82.000	13.000	0.030000

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Name: XS-5                      Group: BASE  
Encroachment: No

Cross-section developed from LIDAR data.

Station(ft)	Elevation(ft)	Manning's N
0.000	13.000	0.030000
25.000	11.000	0.030000
43.000	9.000	0.030000
55.000	7.000	0.030000
64.000	5.000	0.030000
67.000	3.000	0.030000
69.000	1.000	0.030000
80.000	0.000	0.030000
115.000	0.000	0.030000
120.000	1.000	0.030000
127.000	3.000	0.030000
134.000	5.000	0.030000
143.000	7.000	0.030000
153.000	9.000	0.030000
168.000	11.000	0.030000
185.000	13.000	0.030000

=====  
=== Operating Tables ===  
=====

Name:                      Group: BASE  
Type: Rating Curve  
Function: Head vs. Discharge

Head(ft)    Discharge(cfs)  
-----

=====  
=== Pipes ===  
=====

Name: P-NPDESa	From Node: NPDESa	Length(ft): 140.00
Group: BASE	To Node: BROWNS_CREEK	Count: 1
	Friction Equation: Automatic	
	Solution Algorithm: Most Restrictive	
UPSTREAM	DOWNSTREAM	Flow: Both
Geometry: Circular	Circular	Entrance Loss Coef: 0.20
Span(in): 42.00	42.00	Exit Loss Coef: 1.00
Rise(in): 42.00	42.00	Bend Loss Coef: 0.00
Invert(ft): 1.800	1.820	Outlet Ctrl Spec: Use dc or tw
Manning's N: 0.012000	0.012000	Inlet Ctrl Spec: Use dc
Top Clip(in): 0.000	0.000	Stabilizer Option: None
Bot Clip(in): 0.000	0.000	

Upstream FHWA Inlet Edge Description:  
Circular: Beveled ring, 33.7° bevels

Downstream FHWA Inlet Edge Description:  
Circular: Beveled ring, 33.7° bevels

42" outfall pipe from RSCP discharge structure.

Name: P-NPDESb	From Node: NPDESb	Length(ft): 140.00
Group: BASE	To Node: BROWNS_CREEK	Count: 1
	Friction Equation: Automatic	
	Solution Algorithm: Most Restrictive	
UPSTREAM	DOWNSTREAM	Flow: Both
Geometry: Circular	Circular	Entrance Loss Coef: 0.20
Span(in): 30.00	30.00	Exit Loss Coef: 1.00
Rise(in): 30.00	30.00	Bend Loss Coef: 0.00
Invert(ft): 1.770	1.790	Outlet Ctrl Spec: Use dc or tw
Manning's N: 0.012000	0.012000	Inlet Ctrl Spec: Use dc
Top Clip(in): 0.000	0.000	Stabilizer Option: None
Bot Clip(in): 0.000	0.000	

Upstream FHWA Inlet Edge Description:  
Circular: Beveled ring, 33.7° bevels

Downstream FHWA Inlet Edge Description:  
Circular: Beveled ring, 33.7° bevels

30" outfall pipe from RSCP discharge structure.

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```

-----
Name: P-PD1 Orific      From Node: PD-1      Length(ft): 80.00
Group: BASE             To Node: PD-2      Count: 1
                        Friction Equation: Automatic
                        Solution Algorithm: Most Restrictive
                        Flow: Both
                        Entrance Loss Coef: 0.50
                        Exit Loss Coef: 0.50
                        Bend Loss Coef: 0.00
                        Outlet Ctrl Spec: Use dc or tw
                        Inlet Ctrl Spec: Use dc
                        Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 6.00      6.00
Rise(in): 6.00      6.00
Invert(ft): 13.300    7.300
Manning's N: 0.011000  0.011000
Top Clip(in): 0.000    0.000
Bot Clip(in): 0.000    0.000

```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

6" orifice set at NWL of 13.3'.

```

-----
Name: P-PD11           From Node: PD-11      Length(ft): 36.00
Group: BASE             To Node: POND      Count: 2
                        Friction Equation: Average Conveyance
                        Solution Algorithm: Automatic
                        Flow: Both
                        Entrance Loss Coef: 0.50
                        Exit Loss Coef: 1.00
                        Bend Loss Coef: 0.00
                        Outlet Ctrl Spec: Use dc or tw
                        Inlet Ctrl Spec: Use dc
                        Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 36.00      36.00
Rise(in): 36.00      36.00
Invert(ft): 0.100     0.000
Manning's N: 0.025000  0.025000
Top Clip(in): 0.000    0.000
Bot Clip(in): 0.000    0.000

```

Upstream FHWA Inlet Edge Description:  
Circular CMP: Projecting

Downstream FHWA Inlet Edge Description:  
Circular CMP: Projecting

Two 36" CMP's in the western section of the perimeter ditch immediately upstream of the southern entrance to the pond.

```

-----
Name: P-PD13           From Node: PD-13      Length(ft): 70.00
Group: BASE             To Node: PD-12      Count: 2
                        Friction Equation: Average Conveyance
                        Solution Algorithm: Automatic
                        Flow: Both
                        Entrance Loss Coef: 0.50
                        Exit Loss Coef: 0.50
                        Bend Loss Coef: 0.00
                        Outlet Ctrl Spec: Use dc or tw
                        Inlet Ctrl Spec: Use dc
                        Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 60.00      60.00
Rise(in): 60.00      60.00
Invert(ft): 0.200     0.100
Manning's N: 0.012000  0.012000
Top Clip(in): 0.000    0.000
Bot Clip(in): 0.000    0.000

```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Two 60" RCP's in the southernmost section of the perimeter ditch.

```

-----
Name: P-PD15           From Node: PD-15      Length(ft): 425.00
Group: BASE             To Node: PD-14      Count: 2
                        Friction Equation: Average Conveyance
                        Solution Algorithm: Automatic
                        Flow: Both
                        Entrance Loss Coef: 0.50
                        Exit Loss Coef: 0.50
                        Bend Loss Coef: 0.00
                        Outlet Ctrl Spec: Use dc or tw
                        Inlet Ctrl Spec: Use dc
                        Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 60.00      60.00
Rise(in): 60.00      60.00
Invert(ft): 0.300     0.200
Manning's N: 0.012000  0.012000
Top Clip(in): 0.000    0.000
Bot Clip(in): 0.000    0.000

```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Two 60" RCP's in the southwestern section of the perimeter ditch.

Name: P-PD17	From Node: PD-17	Length(ft): 130.00
Group: BASE	To Node: PD-16	Count: 2
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 60.00	60.00	Flow: Both
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50
Invert(ft): 0.400	0.300	Exit Loss Coef: 0.50
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Two 60" RCP's on the western side of the perimeter ditch.

Name: P-PD21	From Node: PD-21	Length(ft): 350.00
Group: BASE	To Node: PD-18	Count: 2
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 60.00	60.00	Flow: Both
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50
Invert(ft): 0.500	0.400	Exit Loss Coef: 0.50
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Two 60" RCP's on western side of the perimeter ditch.

Name: P-PD3a	From Node: PD-3	Length(ft): 70.00
Group: BASE	To Node: PD-4	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 60.00	60.00	Flow: Both
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50
Invert(ft): 6.100	6.000	Exit Loss Coef: 0.50
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

One of two 60" RCP's connecting the northwest section of the perimeter ditch to the northern section of the perimeter ditch. PD  
Designated structure S-2 in survey dated 6-23-09.

Name: P-PD3b	From Node: PD-3	Length(ft): 70.00
Group: BASE	To Node: PD-4	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
		Solution Algorithm: Automatic

JEA SJRPP Area II Landfill Closure  
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Geometry: Circular	Circular	Flow: Both
Span(in): 60.00	60.00	Entrance Loss Coef: 0.50
Rise(in): 60.00	60.00	Exit Loss Coef: 0.50
Invert(ft): 6.200	6.000	Bend Loss Coef: 0.00
Manning's N: 0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

One of two 60" RCP's connecting the northwest section of the perimeter ditch to the northern section of the perimeter ditch. PD  
Designated structure S-2 in survey dated 6-23-09.

Name: P-PD5a		From Node: PD-5	Length(ft): 165.00
Group: BASE		To Node: PD-6	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance	
Geometry: Circular	Circular	Solution Algorithm: Automatic	
Span(in): 60.00	60.00	Flow: Both	
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50	
Invert(ft): 4.100	4.200	Exit Loss Coef: 0.50	
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00	
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw	
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc	
		Stabilizer Option: None	

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

One of two 60" RCP's connecting the northeast section of the perimeter ditch to a short western section of the perimeter ditch.  
Designated structure S-4 in survey dated 6-23-09.

Name: P-PD5b		From Node: PD-5	Length(ft): 165.00
Group: BASE		To Node: PD-6	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance	
Geometry: Circular	Circular	Solution Algorithm: Automatic	
Span(in): 60.00	60.00	Flow: Both	
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50	
Invert(ft): 4.300	4.100	Exit Loss Coef: 0.50	
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00	
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw	
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc	
		Stabilizer Option: None	

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

One of two 60" RCP's connecting the northeast section of the perimeter ditch to a short western section of the perimeter ditch.  
Designated structure S-4 in survey dated 6-23-09.

Name: P-PD7a		From Node: PD-7	Length(ft): 88.00
Group: BASE		To Node: PD-8	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance	
Geometry: Circular	Circular	Solution Algorithm: Automatic	
Span(in): 60.00	60.00	Flow: Both	
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50	
Invert(ft): 4.500	4.900	Exit Loss Coef: 0.50	
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00	
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw	
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc	
		Stabilizer Option: None	

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:



Circular Concrete: Square edge w/ headwall

One of two 60" RCP's in the western section of the perimeter ditch. PD-7a is differentiated in the survey as the "East" pipe. F  
Designated structure S-8 in survey dated 6-23-09.

```
-----
Name: P-PD7b      From Node: PD-7      Length(ft): 88.00
Group: BASE       To Node: PD-8        Count: 1
                                     Friction Equation: Average Conveyance
                                     Solution Algorithm: Automatic
                                     Flow: Both
      UPSTREAM      DOWNSTREAM
Geometry: Circular  Circular
Span(in): 60.00     60.00
Rise(in): 60.00     60.00
Invert(ft): 4.400   4.900
Manning's N: 0.012000 0.012000
Top Clip(in): 0.000  0.000
Bot Clip(in): 0.000  0.000
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.50
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None
-----
```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

One of two 60" RCP's in the western section of the perimeter ditch. PD-7b is differentiated in the survey as the "West" pipe.  
Designated structure S-8 in survey dated 6-23-09.

```
-----
Name: P-PD9a      From Node: PD-9      Length(ft): 135.00
Group: BASE       To Node: PD-10       Count: 1
                                     Friction Equation: Average Conveyance
                                     Solution Algorithm: Automatic
                                     Flow: Both
      UPSTREAM      DOWNSTREAM
Geometry: Circular  Circular
Span(in): 60.00     60.00
Rise(in): 60.00     60.00
Invert(ft): 4.500   3.900
Manning's N: 0.012000 0.012000
Top Clip(in): 0.000  0.000
Bot Clip(in): 0.000  0.000
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.50
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None
-----
```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

One of two 60" RCP's in the western section of the perimeter ditch. PD-9a is differentiated in the survey as the "East" pipe.  
Drainage structure S-5 in Survey dated 6-23-09.

```
-----
Name: P-PD9b      From Node: PD-9      Length(ft): 135.00
Group: BASE       To Node: PD-10       Count: 1
                                     Friction Equation: Average Conveyance
                                     Solution Algorithm: Automatic
                                     Flow: Both
      UPSTREAM      DOWNSTREAM
Geometry: Circular  Circular
Span(in): 60.00     60.00
Rise(in): 60.00     60.00
Invert(ft): 4.100   4.000
Manning's N: 0.012000 0.012000
Top Clip(in): 0.000  0.000
Bot Clip(in): 0.000  0.000
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.50
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None
-----
```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

One of two 60" RCP's in the western section of the perimeter ditch. PD-9b is differentiated in the survey as the "West" pipe.  
Drainage structure S-5 in Survey dated 6-23-09.

=====  
==== Channels =====  
=====

```
Name: CH-LFR1      From Node: LFR-1      Length(ft): 765.00
Group: BASE       To Node: PD-10       Count: 1
                                     Friction Equation: Automatic
                                     Solution Algorithm: Automatic
      UPSTREAM      DOWNSTREAM
Geometry: Trapezoidal Trapezoidal
```

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Invert(ft):	15.000	14.500	Flow:	Both
TClpInitZ(ft):	9999.000	9999.000	Contraction Coef:	0.000
Manning's N:	0.035000	0.035000	Expansion Coef:	0.000
Top Clip(ft):	0.000	0.000	Entrance Loss Coef:	0.000
Bot Clip(ft):	0.000	0.000	Exit Loss Coef:	0.100
Main XSec:			Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):			Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):				
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):	0.000	0.000		
LtSdSlp(h/v):	4.00	4.00		
RtSdSlp(h/v):	4.00	4.00		

Channel connection basin EX-5 to perimeter ditch at node PD-10.

Name: CH-PD10		From Node: PD-10	Length(ft): 1525.00
Group: BASE		To Node: POND	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation:	Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft): 0.000	0.000	Flow:	Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef:	0.300
Manning's N:		Expansion Coef:	0.100
Top Clip(ft):		Entrance Loss Coef:	0.000
Bot Clip(ft):		Exit Loss Coef:	1.000
Main XSec: XS-3	XS-3	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:		Stabilizer Option:	None
AuxElev2(ft): 0.000	0.000		
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):			
LtSdSlp(h/v):			
RtSdSlp(h/v):			

Portion of perimeter ditch flowing from the north entering stormwater pond.

Name: CH-PD12		From Node: PD-12	Length(ft): 1360.00
Group: BASE		To Node: PD-11	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation:	Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft): 0.000	0.000	Flow:	Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef:	0.300
Manning's N:		Expansion Coef:	0.100
Top Clip(ft):		Entrance Loss Coef:	0.000
Bot Clip(ft):		Exit Loss Coef:	0.100
Main XSec: XS-3	XS-3	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:		Stabilizer Option:	None
AuxElev2(ft): 0.000	0.000		
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):			
LtSdSlp(h/v):			
RtSdSlp(h/v):			

Portion of perimeter ditch flowing from the southernmost point towards the stormwater pond.

Name: CH-PD14		From Node: PD-14	Length(ft): 305.00
Group: BASE		To Node: PD-13	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation:	Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm:	Automatic
Invert(ft): 0.000	0.000	Flow:	Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef:	0.300
Manning's N:		Expansion Coef:	0.100
Top Clip(ft):		Entrance Loss Coef:	0.000
Bot Clip(ft):		Exit Loss Coef:	0.100
Main XSec: XS-3	XS-3	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:		Stabilizer Option:	None
AuxElev2(ft): 0.000	0.000		
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):			
LtSdSlp(h/v):			

RtSdSlp(h/v):

Portion of perimeter ditch at the southernmost point.

---

Name: CH-PD16	From Node: PD-16	Length(ft): 2745.00
Group: BASE	To Node: PD-15	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 0.000	0.000	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.300
Manning's N:		Expansion Coef: 0.100
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.100
Main XSec: XS-5	XS-5	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Portion of perimeter ditch along the southwestern corner.

---

Name: CH-PD18	From Node: PD-18	Length(ft): 205.00
Group: BASE	To Node: PD-17	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 0.400	0.400	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.300
Manning's N:		Expansion Coef: 0.100
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.100
Main XSec: XS-4	XS-4	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Short portion of perimeter ditch directly west of parking lot on west side of plant.

---

Name: CH-PD19	From Node: PD-19	Length(ft): 740.00
Group: BASE	To Node: PD-5	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 3.000	3.000	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.300
Manning's N:		Expansion Coef: 0.100
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.100
Main XSec: XS-1	XS-1	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Portion of perimeter ditch that flows from the northern section around the northeast side between the plant and Landfill Area I.

---

Name: CH-PD2	From Node: PD-2	Length(ft): 1015.00
Group: BASE	To Node: PD-3	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 4.000	4.000	Flow: Both

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TClpInitZ(ft):	9999.000	9999.000	Contraction Coef:	0.300
Manning's N:			Expansion Coef:	0.100
Top Clip(ft):			Entrance Loss Coef:	0.000
Bot Clip(ft):			Exit Loss Coef:	0.100
Main XSec:	XS-1	XS-1	Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec:	Use dn
Aux XSec1:			Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000		
Aux XSec2:				
Top Width(ft):				
Depth(ft):				
Bot Width(ft):				
LtSdSlp(h/v):				
RtSdSlp(h/v):				

Northwest section of perimeter ditch.

Name:	CH-PD22	From Node:	PD-22	Length(ft):	910.00
Group:	BASE	To Node:	PD-21	Count:	1
	UPSTREAM	DOWNSTREAM		Friction Equation:	Average Conveyance
Geometry:	Irregular	Irregular		Solution Algorithm:	Automatic
Invert(ft):	0.500	0.500		Flow:	Both
TClpInitZ(ft):	9999.000	9999.000		Contraction Coef:	0.300
Manning's N:				Expansion Coef:	0.100
Top Clip(ft):				Entrance Loss Coef:	0.000
Bot Clip(ft):				Exit Loss Coef:	0.100
Main XSec:	XS-4	XS-4		Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000		Inlet Ctrl Spec:	Use dn
Aux XSec1:				Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000			
Aux XSec2:					
Top Width(ft):					
Depth(ft):					
Bot Width(ft):					
LtSdSlp(h/v):					
RtSdSlp(h/v):					

Portion of perimeter ditch on west side of plant.

Name:	CH-PD4	From Node:	PD-4	Length(ft):	1520.00
Group:	BASE	To Node:	PD-19	Count:	1
	UPSTREAM	DOWNSTREAM		Friction Equation:	Average Conveyance
Geometry:	Irregular	Irregular		Solution Algorithm:	Automatic
Invert(ft):	3.500	3.000		Flow:	Both
TClpInitZ(ft):	9999.000	9999.000		Contraction Coef:	0.300
Manning's N:				Expansion Coef:	0.100
Top Clip(ft):				Entrance Loss Coef:	0.000
Bot Clip(ft):				Exit Loss Coef:	0.100
Main XSec:	XS-1	XS-1		Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000		Inlet Ctrl Spec:	Use dn
Aux XSec1:				Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000			
Aux XSec2:					
Top Width(ft):					
Depth(ft):					
Bot Width(ft):					
LtSdSlp(h/v):					
RtSdSlp(h/v):					

Portion of perimeter ditch that flows from the northern section around the northeast side between the plant and Landfill Area I.

Name:	CH-PD6	From Node:	PD-6	Length(ft):	130.00
Group:	BASE	To Node:	PD-7	Count:	1
	UPSTREAM	DOWNSTREAM		Friction Equation:	Average Conveyance
Geometry:	Irregular	Irregular		Solution Algorithm:	Automatic
Invert(ft):	3.000	3.000		Flow:	Both
TClpInitZ(ft):	9999.000	9999.000		Contraction Coef:	0.300
Manning's N:				Expansion Coef:	0.100
Top Clip(ft):				Entrance Loss Coef:	0.000
Bot Clip(ft):				Exit Loss Coef:	0.100
Main XSec:	XS-2	XS-2		Outlet Ctrl Spec:	Use dc or tw
AuxElev1(ft):	0.000	0.000		Inlet Ctrl Spec:	Use dn
Aux XSec1:				Stabilizer Option:	None
AuxElev2(ft):	0.000	0.000			
Aux XSec2:					
Top Width(ft):					
Depth(ft):					
Bot Width(ft):					
LtSdSlp(h/v):					

RtSdSlp(h/v):

Small portion of perimeter ditch that flows from the northern section around the northeast side between the plant and Landfill A

```

-----
Name: CH-PD8          From Node: PD-8          Length(ft): 850.00
Group: BASE          To Node: PD-9          Count: 1

      UPSTREAM      DOWNSTREAM      Friction Equation: Average Conveyance
Geometry: Irregular Irregular      Solution Algorithm: Automatic
Invert(ft): 2.000    2.000          Flow: Both
TClpInitZ(ft): 9999.000 9999.000      Contraction Coef: 0.300
Manning's N:                               Expansion Coef: 0.100
Top Clip(ft):                               Entrance Loss Coef: 0.000
Bot Clip(ft):                               Exit Loss Coef: 0.100
Main XSec: XS-2          XS-2          Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000      0.000      Inlet Ctrl Spec: Use dn
Aux XSec1:                               Stabilizer Option: None
AuxElev2(ft): 0.000      0.000
Aux XSec2:
Top Width(ft):
Depth(ft):
Bot Width(ft):
LtSdSlp(h/v):
RtSdSlp(h/v):

```

Small portion of perimeter ditch that flows from the northern section around the northeast side between the plant and Landfill A

==== Drop Structures =====

```

Name: DS-PD1          From Node: PD-1          Length(ft): 80.00
Group: BASE          To Node: PD-2          Count: 1

      UPSTREAM      DOWNSTREAM      Friction Equation: Average Conveyance
Geometry: Circular   Circular      Solution Algorithm: Automatic
Span(in): 30.00      30.00          Flow: Both
Rise(in): 30.00      30.00          Entrance Loss Coef: 0.500
Invert(ft): 7.900    7.300          Exit Loss Coef: 0.500
Manning's N: 0.024000 0.024000      Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000  0.000      Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000  0.000      Solution Incs: 10

```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

48" wide half-barrel riser. Weir set at 14" NGVD. Bottom of structure is 7.9' NGVD.  
Downstream end is 30" CMP with invert at 7.3' NGVD.  
Designated structure S-1 in survey dated 6-23-09.

\*\*\* Weir 1 of 1 for Drop Structure DS-PD1 \*\*\*

TABLE

```

Count: 1          Bottom Clip(in): 0.000
Type: Horizontal   Top Clip(in): 0.000
Flow: Both         Weir Disc Coef: 3.200
Geometry: Arch     Orifice Disc Coef: 0.600

Span(in): 48.00    Invert(ft): 14.000
Rise(in): 24.00    Control Elev(ft): 14.000

```

==== Weirs =====

```

Name: CPR_Overflow    From Node: CPR-1
Group: BASE          To Node: POND
Flow: Both          Count: 1
Type: Vertical: Fread Geometry: Trapezoidal

```

```

Bottom Width(ft): 0.00
Left Side Slope(h/v): 400.00
Right Side Slope(h/v): 400.00
Invert(ft): 16.500
Control Elevation(ft): 16.500
Struct Opening Dim(ft): 9999.00

```

TABLE

```

Bottom Clip(ft): 0.000
Top Clip(ft): 0.000
Weir Discharge Coef: 3.200
Orifice Discharge Coef: 0.600

```

Overflow weir for coal pile runoff (CPR) pond into stormwater runoff sedimentation pond. CPR pond is designed to overflow above Dimensions. 400 feet wide, invert at center 16.5', invert at edge of pond is 17'  
Slope: 200 feet Horizontal / 0.5 feet vertical = 400

-----  
Name: NPDESa\_Orifice      From Node: POND  
Group: BASE              To Node: NPDESa  
Flow: Both              Count: 1  
Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 11.00  
Rise(in): 10.00  
Invert(ft): 3.100  
Control Elevation(ft): 3.100

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

Bleed-down orifice in overflow structure in front of 42" pipe.

-----  
Name: NPDESa\_OverWeir      From Node: POND  
Group: BASE              To Node: NPDESa  
Flow: Both              Count: 1  
Type: Vertical: Mavis      Geometry: Irregular

XSec: NPDESa  
Invert(ft): 7.000  
Control Elevation(ft): 7.000  
Struct Opening Dim(ft): 9999.00

TABLE

Bottom Clip(ft): 0.000  
Top Clip(ft): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

Existing weir located in front of 42" pipe at RSCP discharge structure.

-----  
Name: NPDESa\_Weir      From Node: POND  
Group: BASE              To Node: NPDESa  
Flow: Both              Count: 1  
Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 18.00  
Rise(in): 13.80  
Invert(ft): 5.100  
Control Elevation(ft): 5.100

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

Overflow weir in front of 42" pipe at discharge structure.

-----  
Name: NPDESa\_Weir2      From Node: POND  
Group: BASE              To Node: NPDESa  
Flow: Both              Count: 1  
Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 63.00  
Rise(in): 9999.00  
Invert(ft): 6.250  
Control Elevation(ft): 6.250

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

Overflow weir in front of 42" pipe at discharge structure.

-----  
Name: NPDESb\_Orifice      From Node: POND  
Group: BASE              To Node: NPDESb  
Flow: Both              Count: 1  
Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 11.00  
Rise(in): 10.00  
Invert(ft): 3.100  
Control Elevation(ft): 3.100

---

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

Bleed-down orifice in overflow strucuture in front of 30" pipe.

---

Name: NPDESb_OverWeir	From Node: POND
Group: BASE	To Node: NPDESb
Flow: Both	Count: 1
Type: Vertical: Mavis	Geometry: Irregular

XSec: NPDESb  
Invert(ft): 7.000  
Control Elevation(ft): 7.000  
Struct Opening Dim(ft): 9999.00

TABLE

Bottom Clip(ft): 0.000  
Top Clip(ft): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

Existing weir located in front of 30" pipe at RSCP discharge structure.

---

Name: NPDESb_Weir	From Node: POND
Group: BASE	To Node: NPDESb
Flow: Both	Count: 1
Type: Vertical: Mavis	Geometry: Rectangular

Span(in): 18.00  
Rise(in): 13.80  
Invert(ft): 5.100  
Control Elevation(ft): 5.100

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

Overflow weir in front of 30" pipe at discharge structure.

---

Name: NPDESb_Weir2	From Node: POND
Group: BASE	To Node: NPDESb
Flow: Both	Count: 1
Type: Vertical: Mavis	Geometry: Rectangular

Span(in): 51.00  
Rise(in): 9999.00  
Invert(ft): 6.250  
Control Elevation(ft): 6.250

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

Overflow weir in front of 30" pipe at discharge structure.

---

Name: Pond_Overspill	From Node: POND
Group: BASE	To Node: BROWNS_CREEK
Flow: Both	Count: 1
Type: Vertical: Fread	Geometry: Rectangular

Span(in): 280.00  
Rise(in): 99999.00  
Invert(ft): 8.700  
Control Elevation(ft): 8.700

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

Emergency flow over pond berm at discharge structure.

---

==== Hydrology Simulations =====

Name: Proposed\_100yr  
Filename: Z:\6103\_JEA\74654\_SJRPP\_AreaII\_Landfill\_Construction\Model\Proposed\_RAI2\SJRPP\_Proposed\_100.R32



Override Defaults: Yes  
Storm Duration(hrs): 24.00  
Rainfall File: Flmod  
Rainfall Amount(in): 12.50

Time(hrs)	Print	Inc(min)
36.000		5.00

Name: Proposed\_25yr  
Filename: Z:\6103\_JEA\74654\_SJRPP\_AreaII\_Landfill\_Construction\Model\Proposed\_RAI2\Proposed\_25yr\_RFI2.R32

Override Defaults: Yes  
Storm Duration(hrs): 24.00  
Rainfall File: Flmod  
Rainfall Amount(in): 9.50

Time(hrs)	Print	Inc(min)
36.000		5.00

Name: Proposed\_Drawdo  
Filename: Z:\6103\_JEA\74654\_SJRPP\_AreaII\_Landfill\_Construction\Model\Proposed\_RAI2\SJRPP\_Proposed\_Drawdown.R32

Override Defaults: Yes  
Storm Duration(hrs): 24.00  
Rainfall File: Flmod  
Rainfall Amount(in): 0.00

Time(hrs)	Print	Inc(min)
36.000		5.00

Name: Proposed\_MA  
Filename: Z:\6103\_JEA\74654\_SJRPP\_AreaII\_Landfill\_Construction\Model\Proposed\_RAI2\SJRPP\_Proposed\_MA.R32

Override Defaults: Yes  
Storm Duration(hrs): 24.00  
Rainfall File: Flmod  
Rainfall Amount(in): 5.00

Time(hrs)	Print	Inc(min)
36.000		5.00

=====  
==== Routing Simulations =====  
=====

Name: Proposed\_100yr      Hydrology Sim: Proposed\_100yr  
Filename: Z:\6103\_JEA\74654\_SJRPP\_AreaII\_Landfill\_Construction\Model\Proposed\_RAI2\SJRPP\_Proposed\_100.I32

Execute: Yes	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.50	Delta Z Factor: 0.00500	
Time Step Optimizer: 0.000		
Start Time(hrs): 0.000	End Time(hrs): 96.00	
Min Calc Time(sec): 0.1000	Max Calc Time(sec): 2.0000	
Boundary Stages: Browns_Creek	Boundary Flows: Landfill II	

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
100-Year 24-Hour Storm

Time(hrs)	Print	Inc(min)
96.000		5.000

Group	Run
BASE	Yes

Name: Proposed\_25yr      Hydrology Sim: Proposed\_25yr  
Filename: Z:\6103\_JEA\74654\_SJRPP\_AreaII\_Landfill\_Construction\Model\Proposed\_RAI2\SJRPP\_Proposed\_25.I32

Execute: Yes	Restart: No	Patch: No
Alternative: No		
Max Delta Z(ft): 0.50	Delta Z Factor: 0.00500	

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Input Report

---

Time Step Optimizer: 0.000	
Start Time(hrs): 0.000	End Time(hrs): 96.00
Min Calc Time(sec): 0.1000	Max Calc Time(sec): 2.0000
Boundary Stages: Browns_Creek	Boundary Flows: Landfill II

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
25-Year 24-Hour Storm

Time(hrs)	Print Inc(min)
-----	-----
96.000	5.000
Group	Run
-----	-----
BASE	Yes

---

Name: Proposed_Drawdo	Hydrology Sim: Proposed_Drawdo
Filename: Z:\6103_JEA\74654_SJRPP_AreaII_Landfill_Construction\Model\Proposed_RAI2\SJRPP_Proposed_Drawdown.I32	
Execute: No	Restart: No
Alternative: No	Patch: No
Max Delta Z(ft): 0.50	Delta Z Factor: 0.00500
Time Step Optimizer: 0.000	
Start Time(hrs): 0.000	End Time(hrs): 96.00
Min Calc Time(sec): 0.1000	Max Calc Time(sec): 2.0000
Boundary Stages: Browns_Creek	Boundary Flows:

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Drawdown Analysis

Time(hrs)	Print Inc(min)
-----	-----
96.000	5.000
Group	Run
-----	-----
BASE	Yes

---

Name: Proposed_MA	Hydrology Sim: Proposed_MA
Filename: Z:\6103_JEA\74654_SJRPP_AreaII_Landfill_Construction\Model\Proposed_RAI2\SJRPP_Proposed_MA.I32	
Execute: Yes	Restart: No
Alternative: No	Patch: No
Max Delta Z(ft): 0.50	Delta Z Factor: 0.00500
Time Step Optimizer: 0.000	
Start Time(hrs): 0.000	End Time(hrs): 96.00
Min Calc Time(sec): 0.1000	Max Calc Time(sec): 2.0000
Boundary Stages: Browns_Creek	Boundary Flows: Landfill II

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Mean Annual 24-Hour Storm

Time(hrs)	Print Inc(min)
-----	-----
96.000	5.000
Group	Run
-----	-----
BASE	Yes

=====  
=== Boundary Conditions ===  
=====

Name: Browns_Creek	Node: BROWNS_CREEK	Type: Stage
--------------------	--------------------	-------------

Time(hrs)	Stage(ft)
-----	-----
0.000	0.560
100.000	0.560

---

Name: Landfill II	Node: PD-19	Type: Flow
-------------------	-------------	------------

Time(hrs)	Flow(cfs)
-----	-----

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Input Report

---

0.000	0.000
0.080	0.000
0.180	0.000
0.260	0.000
0.340	0.000
0.420	0.000
0.500	0.000
0.600	0.000
0.680	0.000
0.770	0.000
0.850	0.000
0.920	0.000
1.000	0.000
1.080	0.000
1.170	0.000
1.250	0.000
1.330	0.000
1.420	0.000
1.500	0.000
1.580	0.000
1.670	0.000
1.750	0.000
1.830	0.000
1.920	0.000
2.000	0.000
2.080	0.000
2.170	0.000
2.250	0.000
2.330	0.000
2.420	0.000
2.500	0.000
2.580	0.000
2.670	0.000
2.750	0.010
2.830	0.010
2.920	0.010
3.000	0.010
3.080	0.010
3.170	0.010
3.250	0.010
3.330	0.010
3.420	0.010
3.500	0.020
3.580	0.020
3.670	0.020
3.750	0.020
3.830	0.020
3.920	0.030
4.000	0.030
4.080	0.030
4.170	0.030
4.250	0.040
4.330	0.040
4.420	0.040
4.500	0.050
4.580	0.050
4.670	0.060
4.750	0.060
4.830	0.070
4.920	0.070
5.000	0.080
5.080	0.080
5.170	0.090
5.250	0.100
5.330	0.110
5.420	0.120
5.500	0.130
5.580	0.130
5.670	0.140
5.750	0.140
5.830	0.150
5.920	0.160
6.000	0.160
6.080	0.170
6.170	0.180
6.250	0.190
6.330	0.200
6.420	0.210
6.500	0.220
6.580	0.230
6.670	0.250
6.750	0.260
6.830	0.270
6.920	0.280
7.000	0.290
7.080	0.300

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Input Report

---

7.170	0.310
7.250	0.330
7.330	0.340
7.420	0.350
7.500	0.370
7.580	0.380
7.670	0.400
7.750	0.410
7.830	0.420
7.920	0.440
8.000	0.450
8.080	0.470
8.170	0.480
8.250	0.500
8.330	0.520
8.420	0.530
8.500	0.550
8.580	0.570
8.670	0.590
8.750	0.610
8.830	0.630
8.920	0.650
9.000	0.670
9.090	0.700
9.170	0.720
9.250	0.740
9.340	0.760
9.420	0.780
9.500	0.800
9.590	0.830
9.670	0.850
9.750	0.880
9.840	0.900
9.920	0.930
10.000	0.960
10.080	0.990
10.170	1.020
10.250	1.060
10.340	1.100
10.420	1.140
10.500	1.180
10.580	1.220
10.670	1.280
10.750	1.330
10.830	1.390
10.920	1.450
11.000	1.510
11.080	1.580
11.170	1.640
11.250	1.700
11.330	1.790
11.420	1.930
11.500	2.090
11.580	2.400
11.670	3.060
11.750	3.910
11.830	5.050
11.920	6.710
12.000	8.580
12.080	10.120
12.170	10.900
12.250	11.420
12.330	11.720
12.420	11.700
12.500	11.550
12.580	11.320
12.670	10.970
12.750	10.570
12.830	10.140
12.920	9.690
13.000	9.230
13.080	8.760
13.170	8.290
13.250	7.830
13.330	7.400
13.420	6.980
13.500	6.600
13.580	6.230
13.670	5.880
13.750	5.550
13.830	5.250
13.920	4.970
14.000	4.710
14.080	4.470
14.170	4.250
14.250	4.050

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Input Report

---

14.330	3.860
14.420	3.680
14.500	3.520
14.580	3.370
14.670	3.230
14.750	3.100
14.830	2.980
14.920	2.860
15.000	2.760
15.080	2.660
15.170	2.570
15.250	2.480
15.330	2.400
15.420	2.330
15.500	2.260
15.580	2.190
15.670	2.130
15.750	2.070
15.830	2.010
15.920	1.960
16.000	1.910
16.080	1.860
16.170	1.820
16.250	1.770
16.330	1.730
16.420	1.690
16.500	1.660
16.580	1.620
16.670	1.590
16.750	1.550
16.830	1.520
16.920	1.490
17.000	1.460
17.080	1.440
17.170	1.410
17.250	1.390
17.330	1.360
17.420	1.340
17.500	1.320
17.580	1.300
17.670	1.280
17.750	1.260
17.830	1.240
17.920	1.220
18.000	1.200
18.080	1.180
18.170	1.160
18.250	1.150
18.330	1.130
18.420	1.120
18.500	1.110
18.580	1.090
18.670	1.080
18.750	1.070
18.830	1.050
18.920	1.040
19.000	1.020
19.080	1.010
19.170	1.000
19.250	0.990
19.330	0.980
19.420	0.970
19.500	0.960
19.580	0.950
19.670	0.940
19.750	0.930
19.830	0.920
19.920	0.920
20.000	0.910
20.080	0.900
20.170	0.890
20.250	0.880
20.330	0.870
20.420	0.860
20.500	0.850
20.580	0.840
20.670	0.830
20.750	0.820
20.830	0.810
20.920	0.810
21.000	0.800
21.080	0.790
21.170	0.780
21.250	0.780
21.330	0.770
21.420	0.760

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Input Report

---

21.500	0.760
21.580	0.750
21.670	0.750
21.750	0.740
21.830	0.740
21.920	0.730
22.000	0.730
22.080	0.720
22.170	0.720
22.250	0.720
22.330	0.710
22.420	0.710
22.500	0.710
22.580	0.700
22.670	0.700
22.750	0.690
22.830	0.690
22.920	0.680
23.000	0.680
23.080	0.670
23.170	0.660
23.250	0.660
23.330	0.650
23.420	0.650
23.500	0.650
23.580	0.640
23.670	0.630
23.750	0.630
23.830	0.620
23.920	0.620
24.000	0.610
24.080	0.600
24.170	0.590
24.250	0.570
24.330	0.560
24.420	0.540
24.500	0.520
24.580	0.500
24.670	0.480
24.750	0.460
24.830	0.450
24.920	0.430
25.000	0.420
25.080	0.400
25.170	0.390
25.250	0.370
25.330	0.360
25.420	0.350
25.500	0.340
25.580	0.330
25.670	0.320
25.750	0.310
25.830	0.300
25.920	0.290
26.000	0.280
26.080	0.270
26.170	0.270
26.250	0.260
26.330	0.250
26.420	0.250
26.500	0.240
26.580	0.230
26.670	0.230
26.750	0.220
26.830	0.220
26.920	0.210
27.000	0.200
27.080	0.200
27.170	0.190
27.250	0.190
27.330	0.180
27.420	0.180
27.500	0.170
27.580	0.170
27.670	0.170
27.750	0.160
27.830	0.160
27.920	0.160
28.000	0.150
28.080	0.150
28.170	0.150
28.250	0.150
28.340	0.140
28.420	0.140
28.500	0.140
28.580	0.140

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Input Report

---

28.680	0.130
28.760	0.130
28.840	0.130
28.920	0.130
29.000	0.120
29.090	0.120
29.170	0.120
29.250	0.120
29.340	0.110
29.420	0.110
29.500	0.110
29.590	0.110
29.670	0.100
29.750	0.100
29.840	0.100
29.920	0.100
30.000	0.090
30.090	0.090
30.170	0.090
30.250	0.090
30.340	0.090
30.420	0.080
30.500	0.080
30.590	0.080
30.670	0.080
30.750	0.080
30.840	0.080
30.920	0.080
31.000	0.070
31.090	0.070
31.170	0.070
31.250	0.070
31.340	0.070
31.420	0.070
31.500	0.070
31.590	0.070
31.670	0.070
31.750	0.070
31.840	0.060
31.920	0.060
32.000	0.060
32.090	0.060
32.170	0.060
32.250	0.060
32.340	0.060
32.420	0.060
32.500	0.060
32.590	0.060
32.670	0.060
32.750	0.060
32.840	0.050
32.920	0.050
33.000	0.050
33.090	0.050
33.170	0.050
33.250	0.050
33.340	0.050
33.420	0.050
33.500	0.050
33.590	0.050
33.670	0.050
33.750	0.050
33.840	0.050
33.920	0.050
34.000	0.050
34.090	0.050
34.170	0.040
34.250	0.040
34.340	0.040
34.420	0.040
34.500	0.040
34.590	0.040
34.670	0.040
34.750	0.040
34.840	0.040
34.920	0.040
35.000	0.040
35.090	0.040
35.170	0.040
35.250	0.040
35.340	0.040
35.420	0.040
35.500	0.040
35.590	0.040
35.670	0.040
35.750	0.040

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Input Report

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35.840	0.040
35.920	0.040
36.000	0.040
36.090	0.030
36.170	0.030
36.250	0.030
36.340	0.030
36.420	0.030
36.500	0.030
36.590	0.030
36.670	0.030
36.750	0.030
36.840	0.030
36.920	0.030
37.000	0.030
37.090	0.030
37.170	0.030
37.250	0.030
37.340	0.030
37.420	0.030
37.500	0.030
37.590	0.030
37.670	0.030
37.750	0.030
37.840	0.030
37.920	0.030
38.000	0.030
38.090	0.030
38.170	0.030
38.250	0.030
38.340	0.030
38.420	0.030
38.500	0.030
38.590	0.030
38.670	0.030
38.750	0.030
38.840	0.030
38.920	0.030
39.000	0.020
39.090	0.020
39.170	0.020
39.250	0.020
39.340	0.020
39.420	0.020
39.500	0.020
39.590	0.020
39.670	0.020
39.750	0.020
39.840	0.020
39.920	0.020
40.000	0.020
40.090	0.020
40.170	0.020
40.250	0.020
40.340	0.020
40.420	0.020
40.500	0.020
40.590	0.020
40.670	0.020
40.750	0.020
40.840	0.020
40.920	0.020
41.000	0.020
41.090	0.020
41.170	0.020
41.250	0.020
41.340	0.020
41.420	0.020
41.500	0.020
41.590	0.020
41.670	0.020
41.750	0.020
41.840	0.020
41.920	0.020
42.000	0.020
42.090	0.020
42.170	0.020
42.250	0.020
42.340	0.020
42.420	0.020
42.500	0.020
42.590	0.020
42.670	0.020
42.750	0.020
42.840	0.020
42.920	0.020



JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Input Report

---

43.000	0.020
43.090	0.020
43.170	0.020
43.250	0.020
43.340	0.020
43.420	0.020
43.500	0.020
43.590	0.020
43.670	0.020
43.750	0.020
43.840	0.020
43.920	0.020
44.000	0.020
44.090	0.020
44.170	0.020
44.250	0.020
44.340	0.020
44.420	0.020
44.500	0.010
44.590	0.010
44.670	0.010
44.750	0.010
44.840	0.010
44.920	0.010
45.000	0.010
45.090	0.010
45.170	0.010
45.250	0.010
45.340	0.010
45.420	0.010
45.500	0.010
45.590	0.010
45.670	0.010
45.750	0.010
45.840	0.010
45.920	0.010
46.000	0.010
46.090	0.010
46.170	0.010
46.250	0.010
46.340	0.010
46.420	0.010
46.500	0.010
46.590	0.010
46.670	0.010
46.750	0.010
46.840	0.010
46.920	0.010
47.000	0.010
47.090	0.010
47.170	0.010
47.250	0.010
47.340	0.010
47.420	0.010
47.500	0.010
47.590	0.010
47.670	0.010
47.750	0.010
47.840	0.010
47.920	0.010
48.000	0.010
96.000	0.000

BENCHMARK & DATUM ELEVATIONS  
TIDE STATION NUMBER: 872-0203  
DATE: 08-22-2005

STA. NAME	BENCH MARK ELEVATIONS			
	NGVD 29 FEET	NGVD 29 METERS	NAVD 88 FEET	NAVD 88 METERS
T 611 2004	+7.22	+2.200	+6.15	+1.874
P 325 1970	+11.39	+3.471	+10.32	+3.145
0203 A 1982	+5.32	+1.622	+4.25	+1.296
0203 B 2004	+13.96	+4.255	+12.89	+3.929
0203 C 2004	+18.93	+5.771	+17.86	+5.445
0203 D 2004	+7.77	+2.368	+6.70	+2.042

DATE:08-22-2005  
TIDE STATION NUMBER: 872-0203  
TIDE STATION NAME: BLOUNT ISLAND BRIDGE  
TIDAL EPOCH: 1983-2001

ELEV OF TIDAL DATUMS BASED ON 1929 & 1988 DATUMS				
TIDAL DATUM	NGVD 29 FEET	NGVD 29 METERS	NAVD 88 FEET	NAVD 88 METERS
MHHW	+2.49	+0.758	+1.42	+0.432
MHW	+2.29	+0.699	+1.22	+0.373
MSL	+0.68	+0.206	-0.39	-0.120
MTL	+0.56	+0.170	-0.51	-0.156
MLW	-1.18	-0.359	-2.25	-0.685
MLLW	-1.27	-0.387	-2.34	-0.713

MR =        3.47 29/ft        1.058 29/m        3.47 88/ft        1.058 88/m

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<b>STATION ID:</b>	<b>8720203</b>	<b>PUBLICATION DATE:</b>	<b>02/05/2004</b>
<b>NAME:</b>	<b>BLOUNT ISLAND BRIDGE</b>	<b>REVISION:</b>	<b>05/2005</b>
	<b>FLORIDA</b>	<b>SENT TO NOS:</b>	<b>05/2005</b>
<b>NOAA CHART:</b>	<b>11491</b>	<b>LATITUDE:</b>	<b>30° 24.8' N</b>
<b>USGS QUAD:</b>	<b>EASTPORT</b>	<b>LONGITUDE:</b>	<b>081° 32.7' W</b>

To reach the tidal bench marks from the intersection of New Berlin Road and State Road 105 in Jacksonville, proceed 2.3 km (1.4 mi) east on State Road 105 to the residence at 4822 Heckscher Drive, 0.2 km (0.2 mi) east of the highway bridge over San Carlos River, on the south side of the road.

The bench marks are located along Heckscher Drive.

The tide gage and staff were located on a privately owned pier behind the residence.

**T I D A L   B E N C H   M A R K S**

**PRIMARY BENCH MARK STAMPING: T 611**  
DESIGNATION: T 611 2004

<b>MONUMENTATION:</b>	Bench Mark Disk	<b>VM#:</b>
<b>AGENCY/DISK TYPE:</b>	FL Dept of Environ Protection (FLDEP)	<b>PID#:</b>
<b>SETTING CLASSIFICATION:</b>	Concrete Base for Building	
<b>HORIZONTAL DATUM:</b>	NAVD 83	
<b>LATTITUDE/LONGITUDE:</b>	N302443/W0813403	
<b>MAGNETISM:</b>	NO	
<b>FIELD VISIT DATE:</b>	03/19/2003	

The bench mark is 6.4 m (21.0 ft) NW of the SE end of the curb of New Berlin Road, 5.4 m (17.7 ft) south of the south rail of the railroad track and 2.4 m (8.0 ft) east of the east edge of the curb of State Highway 105.

The bench mark is set flush in the top of the concrete base for a railroad traffic signal on the west side about level with the ground.

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STATION ID:	8720203	PUBLICATION DATE:	02/05/2004
NAME:	BLOUNT ISLAND BRIDGE	REVISION:	05/2005
	FLORIDA	SENT TO NOS:	05/2005
NOAA CHART:	11491	LATITUDE:	30° 24.8' N
USGS QUAD:	EASTPORT	LONGITUDE:	081° 32.7' W

T I D A L   B E N C H   M A R K S

BENCH MARK STAMPING:            P 325 1970  
DESIGNATION:                    P 325

MONUMENTATION:	Bench Mark disk	VM#:	5084
AGENCY/DISK TYPE:	U.S. Coast and Geodetic Survey (USC&GS)	<u>PID#</u>	<u>BC 0285</u>
SETTING CLASSIFICATION:	Concrete base of Towers		
HORIZONTAL DATUM:	NAD 27 CONUS		
LATTITUDE/LONGITUDE:	N302450/W0813239		
MAGNETISM:	NO		
FIELD VISIT DATE:	03/19/2003		

The primary bench mark is on the top of the SW corner of the SE concrete base of the middle one of three transmission electrical transmission towers; 1.3 km (0.8 mi) west of the bridge over Browns Creek on the north side of Heckscher Drive; 38.1 m (125.0 ft) NW of the approximate centerline of the westbound lane of State Highway 105, 83.9 m (275.0 ft) east of the centerline of the entrance road to Blunt Island as measured along the north edge of the west bound pavement of Heckscher Drive, 0.5 m (1.5 ft) NW of a carsonite witness post and 0.2 m (0.7 ft) north of the south corner of the footing.

The bench mark is a disk set in concrete, 1.1 m (3.5 ft) above ground near the south corner of the concrete footing for the east leg of the center 1 of 3 high line towers about 1.2 m (4.0 ft) above the level of the ground and 0.6 m (2.0 ft) below the level of state highway 105 westbound lane.

NOTE: The mark has been deformed.

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STATION ID:	8720203	PUBLICATION DATE:	02/05/2004
NAME:	BLOUNT ISLAND BRIDGE	REVISION:	05/2005
	FLORIDA	SENT TO NOS:	05/2005
NOAA CHART:	11491	LATITUDE:	30° 24.8' N
USGS QUAD:	EASTPORT	LONGITUDE:	081° 32.7' W

T I D A L   B E N C H   M A R K S

BENCH MARK STAMPING:                    0203 A 1982  
DESIGNATION:                                872 0203 A TIDAL

MONUMENTATION:	Tidal Station disk	VM#: 5085
AGENCY/DISK TYPE:	FL Dept of National Resources (FLDNR)	<u>PID# BC 2482</u>
SETTING CLASSIFICATION:	Concrete monument	
HORIZONTAL DATUM:	NAD 27 CONUS	
LATTITUDE/LONGITUDE:	N302444/W0813244	
MAGNETISM:	YES	
FIELD VISIT DATE:	03/19/2003	

The bench mark is 0.2 km (0.1 mi) east of San Carlos Creek; 29.3 m (96.0 ft) south of the old roadway pavement for Heckscher Drive measured from the point where the centerline of the old roadway is crossed by an 2.4 m (8.0 ft) high chain link fence on the east side of the Jacksonville Electric Authority property, 3.5 m (11.4 ft) SW from a wooden powerline anchor pole that is 8.1 m (26.5 ft) south of a wooden power pole No. 4770; 6.9 m (22.6 ft) WSW of the NW corner of a 3 story metal building and 0.8 m (2.5 ft) NNW of a carsonite witness post.

The bench mark is a disk set in the top of a concrete monument, flush with the ground.

NOTE: A magnet was buried at the south side of the mark.

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STATION ID:	8720203	PUBLICATION DATE:	02/05/2004
NAME:	BLOUNT ISLAND BRIDGE	REVISION:	05/2005
	FLORIDA	SENT TO NOS:	05/2005
NOAA CHART:	11491	LATITUDE:	30° 24.8' N
USGS QUAD:	EASTPORT	LONGITUDE:	081° 32.7' W

T I D A L   B E N C H   M A R K S

BENCH MARK STAMPING:	0203 B 2004
DESIGNATION:	872 0203 B TIDAL

MONUMENTATION:	Bench Mark Disk	VM#:
AGENCY/DISK TYPE:	FL Dept of Environ Protection (FLDEP)	PID#:
SETTING CLASSIFICATION:	Concrete Monument	
HORIZONTAL DATUM:	NAVD 83	
LATTITUDE/LONGITUDE:	N302450/W0813242	
MAGNETISM:	YES	
FIELD VISIT DATE:	03/19/2003	

The bench mark is 149.0 m (489.0 ft) ENE of the centerline of safe harbor way, 12.3 m (40.5 ft) WSW of a wooden power pole number 4667, 8.4 m (27.5 ft) north of the center of the westbound lanes of Heckscher Drive, 1.5 m (5.0 ft) NNE of the west end of a steel guardrail, 1.4 m (4.5 ft) north of the steel guardrail and 0.7 m (2.2 ft) north of a carsonite witness post.

The bench mark is set in the top of a round concrete monument flush with the ground and about 0.2 m (0.5 ft) below the level of Heckscher Drive.

NOTE: A magnet was buried at the south side of the mark.

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STATION ID:	8720203	PUBLICATION DATE:	02/05/2004
NAME:	BLOUNT ISLAND BRIDGE	REVISION:	05/2005
	FLORIDA	SENT TO NOS:	05/2005
NOAA CHART:	11491	LATITUDE:	30° 24.8' N
USGS QUAD:	EASTPORT	LONGITUDE:	081° 32.7' W

T I D A L   B E N C H   M A R K S

BENCH MARK STAMPING:                    0203 C 2004  
DESIGNATION:                                872 0203 C TIDAL

MONUMENTATION:	Bench Mark disk	VM#:
AGENCY/DISK TYPE:	FL Dept of Environ Protection (FLDEP)	PID#:
SETTING CLASSIFICATION:	Concrete Monument	
HORIZONTAL DATUM:	NAVD 83	
LATTITUDE/LONGITUDE:	N302448/W0813248	
MAGNETISM:	YES	
FIELD VISIT DATE:	03/19/2003	

The bench mark is 23.6 m (77.3 ft) SW of the NW projection of the centerline of Safe Harbor Way, 5.7 m (18.7 ft) NE of the center of a 1.1 m by 1.4 m (3.5 ft by 4.5 ft) steel catch basin grate, 1.5 m (4.8 ft) NNW of the north edge of a 1.1 m (3.5 ft) wide concrete gutter at the north side of the westbound lanes of Heckscher Drive, 1.4 m (4.7 ft) NE of the east end of a steel guardrail and 1.8 m (5.9 ft) NE of a carsonite witness post.

The bench mark is set in the top of a round concrete monument flush with the ground and about 0.2 m (0.5 ft) below the level of Heckscher Drive.

NOTE: A magnet was buried at the south side of the mark.

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STATION ID:	8720203	PUBLICATION DATE:	02/05/2004
NAME:	BLOUNT ISLAND BRIDGE	REVISION:	05/2005
	FLORIDA	SENT TO NOS:	05/2005
NOAA CHART:	11491	LATITUDE:	30° 24.8' N
USGS QUAD:	EASTPORT	LONGITUDE:	081° 32.7' W

T I D A L   B E N C H   M A R K S

BENCH MARK STAMPING:                    0203 D 2004  
DESIGNATION:                                872 0203 D TIDAL

MONUMENTATION:	Flange-encased Rod	VM#:
AGENCY/DISK TYPE:	FL Dept of Environ Protection (FLDEP)	PID#:
SETTING CLASSIFICATION:	Stainless Steel Rod	
HORIZONTAL DATUM:	NAVD 83	
LATTITUDE/LONGITUDE:	N302445/W0813242	
MAGNETISM:	YES	
FIELD VISIT DATE:	03/19/2003	

The bench mark is located 39.8 m (130.5 ft) NE of the centerline of the north-south portion of safe harbor way, 13.6 m (44.7 ft) NW of the center of the NE end of a 15-inch concrete drainage culvert, 5.0 m (16.5 ft) NE of the east edge of the pavement of Safe Harbor Way, 3.3 m (10.7 ft) ESE of the east corner of a 3.0 m by 3.7 m (10.0 ft by 12.0 ft) concrete pad for a trash container and 0.6 m (2.0 ft) SW of a carsonite witness post.

The bench mark is a stainless steel rod driven to refusal at a depth of 16.0 m (52.5 ft) with a 5-inch NGS logo cap set flush with the ground and about 0.2 m (0.5 ft) below the level of the old road, the datum point is recessed 0.1 m (0.2 ft) below the level of the NGS logo cap.

NOTE: Access to the datum point is had through the NGS logo cap.

NOTE: A magnet was buried at the south side of the mark.



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STATION ID: 8720203	PUBLICATION DATE: 02/05/2004
NAME: BLOUNT ISLAND BRIDGE	REVISION: 05/2005
FLORIDA	SENT TO NOS: 05/2005
NOAA CHART: 11491	LATITUDE: 30° 24.8' N
USGS QUAD: EASTPORT	LONGITUDE: 081° 32.7' W

T I D A L   D A T U M S

Tidal datums at BLOUNT ISLAND BRIDGE based on:

LENGTH OF SERIES:	3 MONTHS
TIME PERIOD:	September 1977 - November 1977
TIDAL EPOCH:	1983-2001
CONTROL TIDE STATION:	8720220 MAYPORT

Elevations of tidal datums referred to Mean Lower Low Water (MLLW), in METERS:

MEAN HIGHER HIGH WATER (MHHW)	=	1.145
MEAN HIGH WATER (MHW)	=	1.086
NORTH AMERICAN VERTICAL DATUM-1988 (NAVD)	=	0.713
MEAN SEA LEVEL (MSL)	=	0.593
MEAN TIDE LEVEL (MTL)	=	0.557
MEAN LOW WATER (MLW)	=	0.028
MEAN LOWER LOW WATER (MLLW)	=	0.000

Bench Mark Elevation Information                      In METERS above:

Stamping or Designation	MLLW	MHW
T 611 2004	2.587	1.501
P 325 1970	3.858	2.772
0203 A 1982	2.009	0.923
0203 B 2004	4.642	3.556
0203 C 2004	6.158	5.072
0203 D 2004	2.755	1.669

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<b>STATION ID:</b>	<b>8720203</b>	<b>PUBLICATION DATE:</b>	<b>02/05/2004</b>
<b>NAME:</b>	<b>BLOUNT ISLAND BRIDGE</b>	<b>REVISION:</b>	<b>05/2005</b>
	<b>FLORIDA</b>	<b>SENT TO NOS:</b>	<b>05/2005</b>
<b>NOAA CHART:</b>	<b>11491</b>	<b>LATITUDE:</b>	<b>30° 24.8' N</b>
<b>USGS QUAD:</b>	<b>EASTPORT</b>	<b>LONGITUDE:</b>	<b>081° 32.7' W</b>

**D E F I N I T I O N S**

Mean Sea Level (MSL) is a tidal datum determined over a 19-year National Tidal Datum Epoch. It pertains to local mean sea level and should not be confused with the fixed datums of North American Vertical Datum of 1988 (NAVD 88).

NGVD 29 is a fixed datum adopted as a national standard geodetic reference for heights but is now considered superseded. NGVD 29 is sometimes referred to as Sea Level Datum of 1929 or as Mean Sea Level on some early issues of Geological Survey Topographic Quads. NGVD 29 was originally derived from a general adjustment of the first-order leveling networks of the U.S. and Canada after holding mean sea level observed at 26 long term tide stations as fixed. Numerous local and wide-spread adjustments have been made since establishment in 1929. Bench mark elevations relative to NGVD 29 are available from the National Geodetic Survey (NGS) data base via the World Wide Web at [National Geodetic Survey](#).

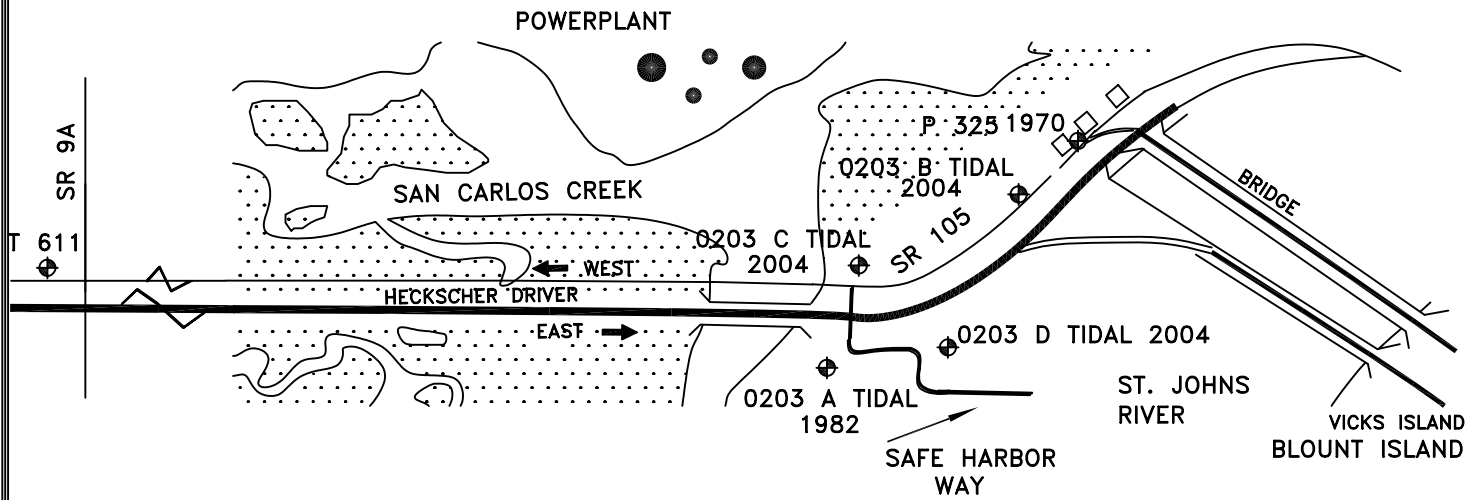
NAVD 88 is a fixed datum derived from a simultaneous, least squares, minimum constraint adjustment of Canadian/Mexican/United States leveling observations. Local mean sea level observed at Father Point/Rimouski, Canada was held fixed as the single initial constraint. NAVD 88 replaces NGVD 29 as the national standard geodetic reference for heights. Bench mark elevations relative to NAVD 88 are available from NGS through the World Wide Web at [National Geodetic Survey](#).

NGVD 29 and NAVD 88 are fixed geodetic datums whose elevation relationships to local MSL and other tidal datums may not be consistent from one location to another.

The Vertical Mark Number (VM#) and PID# shown on the bench mark sheet are unique identifiers for bench marks in the tidal and geodetic databases, respectively. Each bench mark in either database has a single, unique VM# and/or PID# assigned. Where both VM# and PID# are indicated, both tidal and geodetic elevations are available for the bench mark listed.

The NAVD 88 elevation is shown on the Elevations of Tidal Datums Table Referred to MLLW only when two or more of the bench marks listed have NAVD 88 elevations. The NAVD 88 elevation relationship shown in the table is derived from an average of several bench mark elevations relative to tide station datum. As a result of this averaging, NAVD 88 bench mark elevations computed indirectly from the tidal datums elevation table may differ slightly from NAVD 88 elevations listed for each bench mark in the NGS database.

# SKETCH OF TIDAL STATION 872-0203



BLOUNT ISLAND BRIDGE,  
ST. JOHNS RIVER, FLA.  
872-0203

LATITUDE 30°24.8'N  
LONGITUDE 081°32.7'W  
USGS QUAD: EASTPORT

	DEPT. of ENVIRONMENTAL PROTECTION			
	BUREAU of SURVEY and MAPPING			
	3900 COMMONWEALTH BLVD. TALLAHASSEE, FL 32399			
	(904) 488-2427			
	15	DWG. NAME 872-0203	DATE 02-17-2005	SHEET 1 OF 1
	REVISION	DATE	SCALE : NOT TO SCALE	COUNTY DUVAL
			DRAWN BY CS	SEC TWP 1S RGE 28E
			CHECKED BY	OFF. NO.

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## Appendix B

### Basin Hydrologic Characteristics

1. Runoff Curve Number
2. Time of Concentration

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## Appendix C

## ICPR Stormwater Model Output Reports

1. Existing Conditions Basin  
Summary
2. Existing Conditions Node  
Min/Max
3. Existing Conditions Pond  
Hydrograph Chart
4. Proposed Conditions Basin  
Summary
5. Area II Landfill Basin Summary
6. Proposed Conditions Node  
Min/Max
7. Proposed Conditions Pond  
Hydrograph Chart
8. Proposed Conditions Pond  
Mean Annual Stage-Time Chart

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JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Basin Summary Report

---

Basin Name: EX-1  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: PD-2  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: UH256  
Peaking Fator: 256.0  
Spec Time Inc (min): 6.01  
Comp Time Inc (min): 5.00  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 45.10  
Time Shift (hrs): 0.00  
Area (ac): 113.300  
Vol of Unit Hyd (in): 1.000  
Curve Number: 88.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.42  
Flow Max (cfs): 292  
Runoff Volume (in): 8.036  
Runoff Volume (ft3): 3305211.063

---

Basin Name: EX-2  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: PD-22  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: UH256  
Peaking Fator: 256.0  
Spec Time Inc (min): 7.00  
Comp Time Inc (min): 5.00  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 52.50  
Time Shift (hrs): 0.00  
Area (ac): 110.400  
Vol of Unit Hyd (in): 1.000  
Curve Number: 83.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.50  
Flow Max (cfs): 243  
Runoff Volume (in): 7.411  
Runoff Volume (ft3): 2969948.579

---

Basin Name: EX-3  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: PD-9  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: UH256  
Peaking Fator: 256.0  
Spec Time Inc (min): 5.77  
Comp Time Inc (min): 5.00  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 43.30  
Time Shift (hrs): 0.00  
Area (ac): 60.100  
Vol of Unit Hyd (in): 1.000  
Curve Number: 90.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.42  
Flow Max (cfs): 162  
Runoff Volume (in): 8.275  
Runoff Volume (ft3): 1805388.884

---

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Basin Summary Report

---

Basin Name: EX-4  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: PD-15  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: UH256  
Peaking Fator: 256.0  
Spec Time Inc (min): 8.92  
Comp Time Inc (min): 5.00  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 66.90  
Time Shift (hrs): 0.00  
Area (ac): 70.300  
Vol of Unit Hyd (in): 1.000  
Curve Number: 88.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.67  
Flow Max (cfs): 141  
Runoff Volume (in): 8.037  
Runoff Volume (ft3): 2051045.549

---

Basin Name: EX-5  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: LFR-1  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: UH256  
Peaking Fator: 256.0  
Spec Time Inc (min): 2.28  
Comp Time Inc (min): 2.28  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 17.10  
Time Shift (hrs): 0.00  
Area (ac): 6.200  
Vol of Unit Hyd (in): 1.000  
Curve Number: 95.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.12  
Flow Max (cfs): 28  
Runoff Volume (in): 8.891  
Runoff Volume (ft3): 200106.716

---

Basin Name: EX-6  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: CPR-1  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: UH256  
Peaking Fator: 256.0  
Spec Time Inc (min): 9.36  
Comp Time Inc (min): 5.00  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 70.20  
Time Shift (hrs): 0.00  
Area (ac): 90.200  
Vol of Unit Hyd (in): 1.000  
Curve Number: 96.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.75  
Flow Max (cfs): 188  
Runoff Volume (in): 9.010  
Runoff Volume (ft3): 2950141.493

-----  
Basin Name: EX-7  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: PD-5  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: UH256  
Peaking Fator: 256.0  
Spec Time Inc (min): 3.60  
Comp Time Inc (min): 3.60  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 27.00  
Time Shift (hrs): 0.00  
Area (ac): 13.700  
Vol of Unit Hyd (in): 1.000  
Curve Number: 82.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.24  
Flow Max (cfs): 44  
Runoff Volume (in): 7.291  
Runoff Volume (ft3): 362612.197

-----  
Basin Name: POND  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: POND  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: UH256  
Peaking Fator: 256.0  
Spec Time Inc (min): 1.33  
Comp Time Inc (min): 1.33  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 10.00  
Time Shift (hrs): 0.00  
Area (ac): 22.600  
Vol of Unit Hyd (in): 1.000  
Curve Number: 97.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.04  
Flow Max (cfs): 128  
Runoff Volume (in): 9.136  
Runoff Volume (ft3): 749466.448

JEA SJRPP Area II Landfill Closure  
Proposed Conditions  
Maximum Conditions Report

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
BROWNS_CREEK	BASE	Proposed_25yr	0.00	0.560	3.000	-1.7400	371	18.44	98.5	0.00	0.0
CPR-1	BASE	Proposed_25yr	31.00	15.815	17.000	0.0007	850151	12.75	188.0	0.00	0.0
LFR-1	BASE	Proposed_25yr	25.75	12.848	15.000	0.0005	112057	12.08	28.0	0.00	0.0
NPDESa	BASE	Proposed_25yr	18.44	6.292	12.000	-0.0024	180	18.42	56.3	18.44	56.3
NPDESb	BASE	Proposed_25yr	18.43	6.945	12.000	-0.0024	1039	18.39	42.2	18.43	42.2
PD-1	BASE	Proposed_25yr	0.00	13.300	14.300	0.0000	60157	0.00	0.0	0.00	0.0
PD-10	BASE	Proposed_25yr	18.36	7.737	11.000	0.0005	113575	14.76	172.2	15.16	150.5
PD-11	BASE	Proposed_25yr	19.61	7.890	9.000	0.0008	80077	13.58	74.5	13.77	56.8
PD-12	BASE	Proposed_25yr	19.62	7.891	9.000	0.0008	80096	13.48	92.4	13.58	74.5
PD-13	BASE	Proposed_25yr	19.71	7.909	9.000	0.0009	48116	13.42	103.6	13.48	92.4
PD-14	BASE	Proposed_25yr	19.72	7.909	9.000	0.0009	48204	12.85	116.3	13.42	103.6
PD-15	BASE	Proposed_25yr	19.84	7.938	9.000	0.0011	189087	12.75	182.5	12.85	116.3
PD-16	BASE	Proposed_25yr	19.84	7.938	10.000	0.0011	189016	12.68	111.7	13.67	55.1
PD-17	BASE	Proposed_25yr	19.85	7.946	10.000	0.0012	62047	12.64	135.4	12.68	111.7
PD-18	BASE	Proposed_25yr	19.86	7.945	10.000	0.0012	62091	12.64	159.4	12.64	135.4
PD-19	BASE	Proposed_25yr	14.65	9.027	13.000	0.0012	138740	13.37	166.9	13.98	137.7
PD-2	BASE	Proposed_25yr	13.15	10.450	13.000	0.0018	114865	12.42	292.3	12.63	220.6
PD-21	BASE	Proposed_25yr	19.84	7.955	12.000	0.0016	89175	12.59	201.5	12.64	159.4
PD-22	BASE	Proposed_25yr	19.84	7.955	12.000	0.0015	89088	12.50	243.0	12.59	201.5
PD-3	BASE	Proposed_25yr	13.16	10.412	13.000	0.0018	114744	12.63	220.6	13.16	194.5
PD-4	BASE	Proposed_25yr	14.61	9.061	13.000	0.0013	115512	13.16	194.5	13.43	159.9
PD-5	BASE	Proposed_25yr	14.67	9.011	13.000	0.0012	92824	13.83	148.3	14.22	135.5
PD-6	BASE	Proposed_25yr	14.81	8.747	13.000	0.0012	70897	14.22	135.5	14.48	129.9
PD-7	BASE	Proposed_25yr	14.81	8.740	13.000	0.0012	70762	14.48	129.9	14.89	128.5
PD-8	BASE	Proposed_25yr	14.77	8.316	13.000	0.0011	68742	14.89	128.5	15.29	132.3
PD-9	BASE	Proposed_25yr	14.76	8.291	13.000	0.0011	86077	14.43	174.2	14.76	172.2
POND	BASE	Proposed_25yr	18.42	7.730	8.700	0.0005	758073	14.40	208.8	18.41	98.5

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## 4.2 Post- Restoration Conditions

Name: POND	Node: POND	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	
Unit Hydrograph: Uh256	Peaking Factor: 256.0	
Rainfall File: Flmod	Storm Duration(hrs): 24.00	
Rainfall Amount(in): 0.000	Time of Conc(min): 10.00	
Area(ac): 22.600	Time Shift(hrs): 0.00	
Curve Number: 97.00	Max Allowable Q(cfs): 999999.000	
DCIA(%): 0.00		

Name: PR-1	Node: PD-2	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	
Unit Hydrograph: Uh256	Peaking Factor: 256.0	
Rainfall File: Flmod	Storm Duration(hrs): 24.00	
Rainfall Amount(in): 0.000	Time of Conc(min): 45.10	
Area(ac): 113.300	Time Shift(hrs): 0.00	
Curve Number: 81.00	Max Allowable Q(cfs): 999999.000	
DCIA(%): 0.00		

Name: PR-2	Node: PD-22	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	
Unit Hydrograph: Uh256	Peaking Factor: 256.0	
Rainfall File: Flmod	Storm Duration(hrs): 24.00	
Rainfall Amount(in): 0.000	Time of Conc(min): 52.50	
Area(ac): 110.400	Time Shift(hrs): 0.00	
Curve Number: 77.00	Max Allowable Q(cfs): 999999.000	
DCIA(%): 0.00		

Name: PR-3	Node: PD-9	Status: Onsite
Group: BASE	Type: SCS Unit Hydrograph CN	
Unit Hydrograph: Uh256	Peaking Factor: 256.0	
Rainfall File: Flmod	Storm Duration(hrs): 24.00	
Rainfall Amount(in): 0.000	Time of Conc(min): 54.50	
Area(ac): 45.000	Time Shift(hrs): 0.00	
Curve Number: 70.00	Max Allowable Q(cfs): 999999.000	
DCIA(%): 0.00		

from 43.3

Name: PR-3 EAST		Node: NORTHEAST POND		Status: Onsite	
Group: BASE		Type: SCS Unit Hydrograph CN			
Unit Hydrograph: Uh256		Peaking Factor: 256.0			
Rainfall File: Flmod		Storm Duration(hrs): 24.00			
Rainfall Amount(in): 0.000		Time of Conc(min): 15.00			
Area(ac): 15.100		Time Shift(hrs): 0.00			
Curve Number: 61.00		Max Allowable Q(cfs): 999999.000			
DCIA(%): 0.00					

Interconnected Channel and Pond Routing Model (ICPR) ©2002 Streamline Technologies, Inc.



Curve Number: 77.00  
DCIA(%): 0.00

Max Allowable Q(cfs): 999999.000

Name: PR-5  
Group: BASE

Node: NORTHEAST POND  
Type: SCS Unit Hydrograph CN

Status: Onsite

Unit Hydrograph: Uh256  
Rainfall File: Flmod  
Rainfall Amount(in): 0.000  
Area(ac): 6.200  
Curve Number: 88.00  
DCIA(%): 0.00

Peaking Factor: 256.0  
Storm Duration(hrs): 24.00  
Time of Conc(min): 17.10  
Time Shift(hrs): 0.00  
Max Allowable Q(cfs): 999999.000

Name: PR-6  
Group: BASE

Node: PR-6 Collection  
Type: SCS Unit Hydrograph CN

Status: Onsite

Unit Hydrograph: Uh256  
Rainfall File: Flmod  
Rainfall Amount(in): 0.000  
Area(ac): 90.200  
Curve Number: 67.00  
DCIA(%): 0.00

Peaking Factor: 256.0  
Storm Duration(hrs): 24.00  
Time of Conc(min): 70.20  
Time Shift(hrs): 0.00  
Max Allowable Q(cfs): 999999.000

Name: PR-7  
Group: BASE

Node: NORTHEAST POND  
Type: SCS Unit Hydrograph CN

Status: Onsite

Unit Hydrograph: Uh256  
Rainfall File: Flmod  
Rainfall Amount(in): 0.000  
Area(ac): 13.700  
Curve Number: 82.00  
DCIA(%): 0.00

Peaking Factor: 256.0  
Storm Duration(hrs): 24.00  
Time of Conc(min): 27.00  
Time Shift(hrs): 0.00  
Max Allowable Q(cfs): 999999.000

==== Nodes =====

Name: BROWNS\_CREEK  
Group: BASE  
Type: Time/Stage

Base Flow(cfs): 0.000

Init Stage(ft): 2.300  
Warn Stage(ft): 3.000

Time(hrs)	Stage(ft)
0.00	0.560
100.00	0.560

Name: NORTHEAST POND  
Group: BASE  
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 11.000  
Warn Stage(ft): 15.000

Stage(ft)	Area(ac)
11.000	2.4000
14.000	2.6800

Name: NPDESa  
Group: BASE  
Type: Stage/Area

Base Flow(cfs): 0.000

Init Stage(ft): 3.100  
Warn Stage(ft): 12.000

---

Stage(ft)	Area(ac)
1.800	0.0010
6.500	0.0010
8.500	0.1000

---

Name: NPDESb	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 12.000
Type: Stage/Area		

Stage(ft)	Area(ac)
1.800	0.0010
6.500	0.0010
8.500	0.1000

---

Name: PD-1	Base Flow(cfs): 0.000	Init Stage(ft): 13.300
Group: BASE		Warn Stage(ft): 14.300
Type: Stage/Area		

Stage(ft)	Area(ac)
1.500	0.0500
10.000	0.1000
12.000	1.3000
13.000	1.3600
14.000	1.4300
15.000	1.5000

---

Name: PD-10	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 11.000
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.3000
2.000	0.4000
3.000	0.6000

---

Name: PD-11	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 9.000
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.1000
0.500	0.1500
1.000	0.2000
1.500	0.2500
2.000	0.3000
2.500	0.3500

---

Name: PD-12	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 9.000
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.1000
0.500	0.1500
1.000	0.2000

---

1.500	0.2500
2.000	0.3000
2.500	0.3500

---

Name: PD-13	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 9.000
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.1000
0.500	0.1500
1.000	0.2000
1.500	0.2500
2.000	0.3000
2.500	0.3500

---

Name: PD-14	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 9.000
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.1000
0.500	0.1500
1.000	0.2000
1.500	0.2500
2.000	0.3000
2.500	0.3500

---

Name: PD-15	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 9.000
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

---

Name: PD-16	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 10.000
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

---

Name: PD-17	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 10.000
Type: Stage/Area		

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

---

Name: PD-18	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
-------------	-----------------------	-----------------------

Group: BASE  
Type: Stage/Area

Warn Stage(ft): 10.000

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

Name: PD-19                      Base Flow(cfs): 0.000                      Init Stage(ft): 4.400  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Stage(ft)	Area(ac)
2.000	0.2000
3.000	0.4000

Name: PD-2                      Base Flow(cfs): 0.000                      Init Stage(ft): 6.100  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-21                      Base Flow(cfs): 0.000                      Init Stage(ft): 3.100  
Group: BASE                      Warn Stage(ft): 12.000  
Type: Stage/Area

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

Name: PD-22                      Base Flow(cfs): 0.000                      Init Stage(ft): 3.100  
Group: BASE                      Warn Stage(ft): 12.000  
Type: Stage/Area

Stage(ft)	Area(ac)
0.000	0.1000
1.000	0.2000
3.000	0.5000

Name: PD-3                      Base Flow(cfs): 0.000                      Init Stage(ft): 6.100  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-4                      Base Flow(cfs): 0.000                      Init Stage(ft): 4.400

Group: BASE  
Type: Stage/Area

Warn Stage(ft): 13.000

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-5                      Base Flow(cfs): 0.000                      Init Stage(ft): 4.400  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-6                      Base Flow(cfs): 0.000                      Init Stage(ft): 4.400  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-7                      Base Flow(cfs): 0.000                      Init Stage(ft): 4.400  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: PD-8                      Base Flow(cfs): 0.000                      Init Stage(ft): 4.100  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Stage(ft)	Area(ac)
3.000	0.1000
4.000	0.2000
5.000	0.4000

Name: PD-9                      Base Flow(cfs): 0.000                      Init Stage(ft): 4.100  
Group: BASE                      Warn Stage(ft): 13.000  
Type: Stage/Area

Stage(ft)	Area(ac)
1.000	0.1000
2.000	0.2000
3.000	0.4000

Name: POND	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 8.700
Type: Stage/Area		

Stage(ft)	Area(ac)
-4.600	10.7600
3.000	14.5500
8.000	16.4600
9.000	16.8900

Name: PR-6 Collection	Base Flow(cfs): 0.000	Init Stage(ft): 3.100
Group: BASE		Warn Stage(ft): 17.000
Type: Stage/Area		

Changed from CFR-1

Stage(ft)	Area(ac)
3.000	0.0100
4.000	0.1000
8.000	3.9000
11.000	10.1100
12.000	11.7600
14.000	14.2800
15.000	17.2600
16.000	20.0300

==== Cross Sections =====

Name: LF2	Group: BASE
Encroachment: No	

Station(ft)	Elevation(ft)	Manning's N
0.000	3.000	0.030000
9.000	0.000	0.030000
31.000	0.000	0.030000
40.000	3.000	0.030000
50.000	3.500	0.030000

Name: NPDESa	Group: BASE
Encroachment: No	

Station(ft)	Elevation(ft)	Manning's N
0.000	7.000	0.015000
3.200	7.200	0.015000
7.900	7.100	0.015000

Name: NPDESB	Group: BASE
Encroachment: No	

Station(ft)	Elevation(ft)	Manning's N
0.000	7.100	0.150000
3.200	7.200	0.150000
7.100	7.000	0.150000

Name: XS-1	Group: BASE
Encroachment: No	

Station(ft)	Elevation(ft)	Manning's N
0.000	15.100	0.300000
9.700	14.100	0.300000
23.300	12.700	0.300000
41.700	6.200	0.300000
57.900	4.500	0.300000
74.600	6.100	0.300000
119.800	18.400	0.300000
150.000	19.500	0.300000

Station(ft)	Elevation(ft)	Manning's N
0.000	15.100	0.300000
20.400	15.700	0.300000
48.100	13.200	0.300000
67.400	9.800	0.300000
73.700	5.300	0.300000
88.700	4.000	0.300000
100.600	4.800	0.300000
103.400	7.700	0.300000
121.300	11.300	0.300000
140.600	14.000	0.300000

Station(ft)	Elevation(ft)	Manning's N
0.000	13.100	0.300000
19.400	12.600	0.300000
57.000	2.100	0.300000
64.900	0.900	0.300000
72.800	1.800	0.300000
100.200	10.900	0.300000
116.600	10.700	0.300000

Station(ft)	Elevation(ft)	Manning's N
0.000	15.000	0.300000
10.000	13.000	0.300000
17.000	11.000	0.300000
23.000	9.000	0.300000
42.000	7.000	0.300000
48.000	6.000	0.300000
53.000	7.000	0.300000
62.000	9.000	0.300000
71.000	11.000	0.300000
82.000	13.000	0.300000

Station(ft)	Elevation(ft)	Manning's N
0.000	13.000	0.300000
25.000	11.000	0.300000
43.000	9.000	0.300000

55.000	7.000	0.300000
64.000	5.000	0.300000
67.000	3.000	0.300000
69.000	1.000	0.300000
80.000	0.000	0.300000
115.000	0.000	0.300000
120.000	1.000	0.300000
127.000	3.000	0.300000
134.000	5.000	0.300000
143.000	7.000	0.300000
153.000	9.000	0.300000
168.000	11.000	0.300000
185.000	13.000	0.300000

==== Pipes =====

Name: P-NPDESa	From Node: NPDESa	Length(ft): 140.00
Group: BASE	To Node: BROWNS_CREEK	Count: 1
	Friction Equation: Automatic	
	Solution Algorithm: Most Restrictive	
	Flow: Both	
UPSTREAM	DOWNSTREAM	
Geometry: Circular	Circular	
Span(in): 42.00	42.00	Entrance Loss Coef: 0.20
Rise(in): 42.00	42.00	Exit Loss Coef: 1.00
Invert(ft): 1.800	1.820	Bend Loss Coef: 0.00
Manning's N: 0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular: Beveled ring, 33.7° bevels

Downstream FHWA Inlet Edge Description:  
Circular: Beveled ring, 33.7° bevels

Name: P-NPDESb	From Node: NPDESb	Length(ft): 140.00
Group: BASE	To Node: BROWNS_CREEK	Count: 1
	Friction Equation: Automatic	
	Solution Algorithm: Most Restrictive	
	Flow: Both	
UPSTREAM	DOWNSTREAM	
Geometry: Circular	Circular	
Span(in): 30.00	30.00	Entrance Loss Coef: 0.20
Rise(in): 30.00	30.00	Exit Loss Coef: 1.00
Invert(ft): 1.770	1.790	Bend Loss Coef: 0.00
Manning's N: 0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular: Beveled ring, 33.7° bevels

Downstream FHWA Inlet Edge Description:  
Circular: Beveled ring, 33.7° bevels

Name: P-PD1 Orific	From Node: PD-1	Length(ft): 80.00
Group: BASE	To Node: PD-2	Count: 1
	Friction Equation: Automatic	
	Solution Algorithm: Most Restrictive	
	Flow: Both	
UPSTREAM	DOWNSTREAM	
Geometry: Circular	Circular	
Span(in): 6.00	6.00	Entrance Loss Coef: 0.50
Rise(in): 6.00	6.00	Exit Loss Coef: 0.50
Invert(ft): 13.300	7.300	Bend Loss Coef: 0.00
Manning's N: 0.011000	0.011000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000	0.000	Stabilizer Option: None



Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

```
-----
Name: P-PD11          From Node: PD-11          Length(ft): 36.00
Group: BASE           To Node: POND              Count: 2
                                     Friction Equation: Average Conveyance
                                     Solution Algorithm: Automatic
                                     Flow: Both
UPSTREAM              DOWNSTREAM
Geometry: Circular    Circular
Span(in): 36.00       36.00
Rise(in): 36.00       36.00
Invert(ft): 0.100     0.000
Manning's N: 0.025000 0.025000
Top Clip(in): 0.000   0.000
Bot Clip(in): 0.000   0.000
Entrance Loss Coef: 0.50
Exit Loss Coef: 1.00
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None
-----
```

Upstream FHWA Inlet Edge Description:  
Circular CMP: Projecting

Downstream FHWA Inlet Edge Description:  
Circular CMP: Projecting

```
-----
Name: P-PD13          From Node: PD-13          Length(ft): 70.00
Group: BASE           To Node: PD-12            Count: 2
                                     Friction Equation: Average Conveyance
                                     Solution Algorithm: Automatic
                                     Flow: Both
UPSTREAM              DOWNSTREAM
Geometry: Circular    Circular
Span(in): 60.00       60.00
Rise(in): 60.00       60.00
Invert(ft): 0.200     0.100
Manning's N: 0.012000 0.012000
Top Clip(in): 0.000   0.000
Bot Clip(in): 0.000   0.000
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.50
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None
-----
```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

```
-----
Name: P-PD15          From Node: PD-15          Length(ft): 425.00
Group: BASE           To Node: PD-14            Count: 2
                                     Friction Equation: Average Conveyance
                                     Solution Algorithm: Automatic
                                     Flow: Both
UPSTREAM              DOWNSTREAM
Geometry: Circular    Circular
Span(in): 60.00       60.00
Rise(in): 60.00       60.00
Invert(ft): 0.300     0.200
Manning's N: 0.012000 0.012000
Top Clip(in): 0.000   0.000
Bot Clip(in): 0.000   0.000
Entrance Loss Coef: 0.50
Exit Loss Coef: 0.50
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None
-----
```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

```

-----
Name: P-PD17          From Node: PD-17          Length(ft): 130.00
Group: BASE           To Node: PD-16          Count: 2
                                Friction Equation: Average Conveyance
                                Solution Algorithm: Automatic
                                Flow: Both
                                Entrance Loss Coef: 0.50
                                Exit Loss Coef: 0.50
                                Bend Loss Coef: 0.00
                                Outlet Ctrl Spec: Use dc or tw
                                Inlet Ctrl Spec: Use dc
                                Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 60.00      60.00
Rise(in): 60.00      60.00
Invert(ft): 0.400      0.300
Manning's N: 0.012000      0.012000
Top Clip(in): 0.000      0.000
Bot Clip(in): 0.000      0.000

```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

```

-----
Name: P-PD21          From Node: PD-21          Length(ft): 350.00
Group: BASE           To Node: PD-18          Count: 2
                                Friction Equation: Average Conveyance
                                Solution Algorithm: Automatic
                                Flow: Both
                                Entrance Loss Coef: 0.50
                                Exit Loss Coef: 0.50
                                Bend Loss Coef: 0.00
                                Outlet Ctrl Spec: Use dc or tw
                                Inlet Ctrl Spec: Use dc
                                Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 60.00      60.00
Rise(in): 60.00      60.00
Invert(ft): 0.500      0.400
Manning's N: 0.012000      0.012000
Top Clip(in): 0.000      0.000
Bot Clip(in): 0.000      0.000

```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

```

-----
Name: P-PD3A          From Node: PD-3          Length(ft): 70.00
Group: BASE           To Node: PD-4          Count: 1
                                Friction Equation: Average Conveyance
                                Solution Algorithm: Automatic
                                Flow: Both
                                Entrance Loss Coef: 0.50
                                Exit Loss Coef: 0.50
                                Bend Loss Coef: 0.00
                                Outlet Ctrl Spec: Use dc or tw
                                Inlet Ctrl Spec: Use dc
                                Stabilizer Option: None

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 60.00      60.00
Rise(in): 60.00      60.00
Invert(ft): 6.100      6.000
Manning's N: 0.012000      0.012000
Top Clip(in): 0.000      0.000
Bot Clip(in): 0.000      0.000

```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

```

-----
Name: P-PD3b          From Node: PD-3          Length(ft): 70.00
Group: BASE           To Node: PD-4          Count: 1
                                Friction Equation: Average Conveyance
                                Solution Algorithm: Automatic
                                Flow: Both
                                Entrance Loss Coef: 0.50

UPSTREAM      DOWNSTREAM
Geometry: Circular      Circular
Span(in): 60.00      60.00

```

---

Rise(in): 60.00	60.00	Exit Loss Coef: 0.50
Invert(ft): 6.200	6.000	Bend Loss Coef: 0.00
Manning's N: 0.012000	0.012000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
Bot Clip(in): 0.000	0.000	Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

---

Name: P-PD5a	From Node: PD-5	Length(ft): 165.00
Group: BASE	To Node: PD-6	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 60.00	60.00	Flow: Both
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50
Invert(ft): 4.100	4.200	Exit Loss Coef: 0.50
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

---

Name: P-PD5b	From Node: PD-5	Length(ft): 165.00
Group: BASE	To Node: PD-6	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 60.00	60.00	Flow: Both
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50
Invert(ft): 4.300	4.100	Exit Loss Coef: 0.50
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

---

Name: P-PD7a	From Node: PD-7	Length(ft): 88.00
Group: BASE	To Node: PD-8	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 60.00	60.00	Flow: Both
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50
Invert(ft): 4.500	4.900	Exit Loss Coef: 0.50
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

---

Name: P-PD7b	From Node: PD-7	Length(ft): 88.00
Group: BASE	To Node: PD-8	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 60.00	60.00	Flow: Both
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50
Invert(ft): 4.400	4.900	Exit Loss Coef: 0.50
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

---

Name: P-PD9a	From Node: PD-9	Length(ft): 135.00
Group: BASE	To Node: PD-10	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 60.00	60.00	Flow: Both
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50
Invert(ft): 4.500	3.900	Exit Loss Coef: 0.50
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

---

Name: P-PD9b	From Node: PD-9	Length(ft): 135.00
Group: BASE	To Node: PD-10	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 60.00	60.00	Flow: Both
Rise(in): 60.00	60.00	Entrance Loss Coef: 0.50
Invert(ft): 4.100	4.000	Exit Loss Coef: 0.50
Manning's N: 0.012000	0.012000	Bend Loss Coef: 0.00
Top Clip(in): 0.000	0.000	Outlet Ctrl Spec: Use dc or tw
Bot Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dc
		Stabilizer Option: None

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

```

-----
Name: PR-6-PD12          From Node: PR-6 Collection   Length(ft): 80.00
Group: BASE              To Node: PD-12              Count: 1

UPSTREAM                DOWNSTREAM
Geometry: Circular      Circular
Span(in): 30.00         30.00
Rise(in): 30.00         30.00
Invert(ft): 3.100       2.980
Manning's N: 0.012000   0.012000
Top Clip(in): 0.000     0.000
Bot Clip(in): 0.000     0.000

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Entrance Loss Coef: 0.50
Exit Loss Coef: 1.00
Bend Loss Coef: 0.00
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dc
Stabilizer Option: None

```

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

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=====
==== Channels =====
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```

Name: CH-PD10          From Node: PD-10          Length(ft): 1525.00
Group: BASE            To Node: POND             Count: 1

UPSTREAM                DOWNSTREAM
Geometry: Irregular     Irregular
Invert(ft): 0.000       0.000
TClpInitZ(ft): 9999.000 9999.000
Manning's N:
Top Clip(ft):
Bot Clip(ft):
Main XSec: XS-3         XS-3
AuxElev1(ft): 0.000     0.000
Aux XSec1:
AuxElev2(ft): 0.000     0.000
Aux XSec2:
Top Width(ft):
Depth(ft):
Bot Width(ft):
LtSdSlp(h/v):
RtSdSlp(h/v):

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Contraction Coef: 0.300
Expansion Coef: 0.100
Entrance Loss Coef: 0.000
Exit Loss Coef: 1.000
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

```

```

Name: CH-PD12          From Node: PD-12          Length(ft): 1360.00
Group: BASE            To Node: PD-11             Count: 1

UPSTREAM                DOWNSTREAM
Geometry: Irregular     Irregular
Invert(ft): 0.000       0.000
TClpInitZ(ft): 9999.000 9999.000
Manning's N:
Top Clip(ft):
Bot Clip(ft):
Main XSec: XS-3         XS-3
AuxElev1(ft): 0.000     0.000
Aux XSec1:
AuxElev2(ft): 0.000     0.000
Aux XSec2:
Top Width(ft):
Depth(ft):
Bot Width(ft):
LtSdSlp(h/v):
RtSdSlp(h/v):

Friction Equation: Average Conveyance
Solution Algorithm: Automatic
Flow: Both
Contraction Coef: 0.300
Expansion Coef: 0.100
Entrance Loss Coef: 0.000
Exit Loss Coef: 0.100
Outlet Ctrl Spec: Use dc or tw
Inlet Ctrl Spec: Use dn
Stabilizer Option: None

```

```

Name: CH-PD14          From Node: PD-14          Length(ft): 305.00
Group: BASE            To Node: PD-13             Count: 1

```

	UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry:	Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft):	0.000	0.000	Flow: Both
TClpInitZ(ft):	9999.000	9999.000	Contraction Coef: 0.300
Manning's N:			Expansion Coef: 0.100
Top Clip(ft):			Entrance Loss Coef: 0.000
Bot Clip(ft):			Exit Loss Coef: 0.100
Main XSec:	XS-3	XS-3	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:			Stabilizer Option: None
AuxElev2(ft):	0.000	0.000	
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):			
LtSdSlp(h/v):			
RtSdSlp(h/v):			

---

Name: CH-PD16	From Node: PD-16	Length(ft): 2745.00
Group: BASE	To Node: PD-15	Count: 1

	UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry:	Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft):	0.000	0.000	Flow: Both
TClpInitZ(ft):	9999.000	9999.000	Contraction Coef: 0.300
Manning's N:			Expansion Coef: 0.100
Top Clip(ft):			Entrance Loss Coef: 0.000
Bot Clip(ft):			Exit Loss Coef: 0.100
Main XSec:	XS-5	XS-5	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:			Stabilizer Option: None
AuxElev2(ft):	0.000	0.000	
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):			
LtSdSlp(h/v):			
RtSdSlp(h/v):			

---

Name: CH-PD18	From Node: PD-18	Length(ft): 205.00
Group: BASE	To Node: PD-17	Count: 1

	UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry:	Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft):	0.400	0.400	Flow: Both
TClpInitZ(ft):	9999.000	9999.000	Contraction Coef: 0.300
Manning's N:			Expansion Coef: 0.100
Top Clip(ft):			Entrance Loss Coef: 0.000
Bot Clip(ft):			Exit Loss Coef: 0.100
Main XSec:	XS-4	XS-4	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft):	0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:			Stabilizer Option: None
AuxElev2(ft):	0.000	0.000	
Aux XSec2:			
Top Width(ft):			
Depth(ft):			
Bot Width(ft):			
LtSdSlp(h/v):			
RtSdSlp(h/v):			

---

Name: CH-PD19	From Node: PD-19	Length(ft): 740.00
Group: BASE	To Node: PD-5	Count: 1

	UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry:	Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft):	3.000	3.000	Flow: Both
TClpInitZ(ft):	9999.000	9999.000	Contraction Coef: 0.300

Manning's N:		Expansion Coef: 0.100
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.100
Main XSec: XS-1	XS-1	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

---

Name: CH-PD2	From Node: PD-2	Length(ft): 1015.00
Group: BASE	To Node: PD-3	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 4.000	4.000	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.300
Manning's N:		Expansion Coef: 0.100
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.100
Main XSec: XS-1	XS-1	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

---

Name: CH-PD22	From Node: PD-22	Length(ft): 910.00
Group: BASE	To Node: PD-21	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 0.500	0.500	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.300
Manning's N:		Expansion Coef: 0.100
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.100
Main XSec: XS-4	XS-4	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

---

Name: CH-PD4	From Node: PD-4	Length(ft): 1520.00
Group: BASE	To Node: PD-19	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 3.500	3.000	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.300
Manning's N:		Expansion Coef: 0.100
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.100
Main XSec: XS-1	XS-1	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn

Aux XSec1:		Stabilizer Option: None
AuxElev2(ft):	0.000      0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: CH-PD6	From Node: PD-6	Length(ft): 130.00
Group: BASE	To Node: PD-7	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 3.000	3.000	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.300
Manning's N:		Expansion Coef: 0.100
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.100
Main XSec: XS-2	XS-2	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

Name: CH-PD8	From Node: PD-8	Length(ft): 850.00
Group: BASE	To Node: PD-9	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Irregular	Irregular	Solution Algorithm: Automatic
Invert(ft): 2.000	2.000	Flow: Both
TClpInitZ(ft): 9999.000	9999.000	Contraction Coef: 0.300
Manning's N:		Expansion Coef: 0.100
Top Clip(ft):		Entrance Loss Coef: 0.000
Bot Clip(ft):		Exit Loss Coef: 0.100
Main XSec: XS-2	XS-2	Outlet Ctrl Spec: Use dc or tw
AuxElev1(ft): 0.000	0.000	Inlet Ctrl Spec: Use dn
Aux XSec1:		Stabilizer Option: None
AuxElev2(ft): 0.000	0.000	
Aux XSec2:		
Top Width(ft):		
Depth(ft):		
Bot Width(ft):		
LtSdSlp(h/v):		
RtSdSlp(h/v):		

==== Drop Structures =====

Name: DS-PD1	From Node: PD-1	Length(ft): 80.00
Group: BASE	To Node: PD-2	Count: 1
UPSTREAM	DOWNSTREAM	Friction Equation: Average Conveyance
Geometry: Circular	Circular	Solution Algorithm: Automatic
Span(in): 30.00	30.00	Flow: Both
Rise(in): 30.00	30.00	Entrance Loss Coef: 0.500
Invert(ft): 7.900	7.300	Exit Loss Coef: 0.500
Manning's N: 0.024000	0.024000	Outlet Ctrl Spec: Use dc or tw
Top Clip(in): 0.000	0.000	Inlet Ctrl Spec: Use dn
Bot Clip(in): 0.000	0.000	Solution Incs: 10

Upstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall



Downstream FHWA Inlet Edge Description:  
Circular Concrete: Square edge w/ headwall

\*\*\* Weir 1 of 1 for Drop Structure DS-PD1 \*\*\*

TABLE

Count: 1	Bottom Clip(in): 0.000
Type: Horizontal	Top Clip(in): 0.000
Flow: Both	Weir Disc Coef: 3.200
Geometry: Arch	Orifice Disc Coef: 0.600
Span(in): 48.00	Invert(ft): 14.000
Rise(in): 24.00	Control Elev(ft): 14.000

==== Weirs =====

Name: CPR_Overflow	From Node: PR-6 Collection
Group: BASE	To Node: POND
Flow: Both	Count: 1
Type: Vertical: Fread	Geometry: Trapezoidal
Bottom Width(ft): 0.00	
Left Side Slope(h/v): 400.00	
Right Side Slope(h/v): 400.00	
Invert(ft): 16.500	
Control Elevation(ft): 16.500	
Struct Opening Dim(ft): 9999.00	
TABLE	
Bottom Clip(ft): 0.000	
Top Clip(ft): 0.000	
Weir Discharge Coef: 3.200	
Orifice Discharge Coef: 0.600	

Name: NE ORIFICE	From Node: NORTHEAST POND
Group: BASE	To Node: BROWNS_CREEK
Flow: Both	Count: 1
Type: Horizontal	Geometry: Circular
Span(in): 5.40	
Rise(in): 5.40	
Invert(ft): 11.000	
Control Elevation(ft): 10.000	
TABLE	
Bottom Clip(in): 0.000	
Top Clip(in): 0.000	
Weir Discharge Coef: 3.200	
Orifice Discharge Coef: 0.600	

Name: NE WEIR	From Node: NORTHEAST POND
Group: BASE	To Node: BROWNS_CREEK
Flow: Both	Count: 1
Type: Vertical: Mavis	Geometry: Trapezoidal
Bottom Width(ft): 8.00	
Left Side Slope(h/v): 4.00	
Right Side Slope(h/v): 4.00	
Invert(ft): 12.720	
Control Elevation(ft): 12.720	
Struct Opening Dim(ft): 9999.00	
TABLE	
Bottom Clip(ft): 0.000	
Top Clip(ft): 0.000	
Weir Discharge Coef: 3.200	
Orifice Discharge Coef: 0.600	

---

Name: NPDESa\_Orifice      From Node: POND  
Group: BASE              To Node: NPDESa  
Flow: Both              Count: 1  
Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 11.00  
Rise(in): 10.00  
Invert(ft): 3.100  
Control Elevation(ft): 3.100

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

---

Name: NPDESa\_OverWeir      From Node: POND  
Group: BASE              To Node: NPDESa  
Flow: Both              Count: 1  
Type: Vertical: Mavis      Geometry: Irregular

XSec: NPDESa  
Invert(ft): 7.000  
Control Elevation(ft): 7.000  
Struct Opening Dim(ft): 9999.00

TABLE

Bottom Clip(ft): 0.000  
Top Clip(ft): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

---

Name: NPDESa\_Weir      From Node: POND  
Group: BASE              To Node: NPDESa  
Flow: Both              Count: 1  
Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 53.00  
Rise(in): 0.46  
Invert(ft): 5.790  
Control Elevation(ft): 5.790

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

---

Name: NPDESa\_Weir2      From Node: POND  
Group: BASE              To Node: NPDESa  
Flow: Both              Count: 1  
Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 63.00  
Rise(in): 9999.00  
Invert(ft): 6.250  
Control Elevation(ft): 6.250

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

---

Name: NPDESb\_Orifice      From Node: POND  
Group: BASE              To Node: NPDESb  
Flow: Both              Count: 1

---

Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 11.00  
Rise(in): 10.00  
Invert(ft): 3.100  
Control Elevation(ft): 3.100

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

---

Name: NPDESb\_OverWeir      From Node: POND  
Group: BASE      To Node: NPDESb  
Flow: Both      Count: 1  
Type: Vertical: Mavis      Geometry: Irregular

XSec: NPDESb  
Invert(ft): 7.000  
Control Elevation(ft): 7.000  
Struct Opening Dim(ft): 9999.00

TABLE

Bottom Clip(ft): 0.000  
Top Clip(ft): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

---

Name: NPDESb\_Weir      From Node: POND  
Group: BASE      To Node: NPDESb  
Flow: Both      Count: 1  
Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 44.00  
Rise(in): 0.46  
Invert(ft): 5.790  
Control Elevation(ft): 5.790

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

---

Name: NPDESb\_Weir2      From Node: POND  
Group: BASE      To Node: NPDESb  
Flow: Both      Count: 1  
Type: Vertical: Mavis      Geometry: Rectangular

Span(in): 51.00  
Rise(in): 9999.00  
Invert(ft): 6.250  
Control Elevation(ft): 6.250

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

---

Name: Pond\_Overspill      From Node: POND  
Group: BASE      To Node: BROWNS\_CREEK  
Flow: Both      Count: 1  
Type: Vertical: Fread      Geometry: Rectangular

Span(in): 280.00  
Rise(in): 99999.00  
Invert(ft): 8.700

Control Elevation(ft): 8.700

TABLE

Bottom Clip(in): 0.000  
Top Clip(in): 0.000  
Weir Discharge Coef: 3.200  
Orifice Discharge Coef: 0.600

==== Hydrology Simulations =====

Name: Proposed\_100yr  
Filename: C:\Adkinson Engineering\SJRPP\Drainage\PROPOSED\Proposed\_100yr.R32

Override Defaults: Yes  
Storm Duration(hrs): 24.00  
Rainfall File: Flmod  
Rainfall Amount(in): 12.50

Time(hrs)	Print Inc(min)
36.000	5.00

Name: Proposed\_25yr  
Filename: C:\Adkinson Engineering\SJRPP\Drainage\PROPOSED\Proposed\_25yr.R32

Override Defaults: Yes  
Storm Duration(hrs): 24.00  
Rainfall File: Flmod  
Rainfall Amount(in): 9.50

Time(hrs)	Print Inc(min)
36.000	5.00

Name: Proposed\_Drawdo  
Filename: C:\Adkinson Engineering\SJRPP\Drainage\PROPOSED\Proposed\_Drawdo.R32

Override Defaults: Yes  
Storm Duration(hrs): 24.00  
Rainfall File: Flmod  
Rainfall Amount(in): 0.00

Time(hrs)	Print Inc(min)
36.000	5.00

Name: Proposed\_MA  
Filename: C:\Adkinson Engineering\SJRPP\Drainage\PROPOSED\Proposed\_MA.R32

Override Defaults: Yes  
Storm Duration(hrs): 24.00  
Rainfall File: Flmod  
Rainfall Amount(in): 5.00

Time(hrs)	Print Inc(min)
36.000	5.00

==== Routing Simulations =====

Name: Proposed\_100yr      Hydrology Sim: Proposed\_100yr  
Filename: C:\Adkinson Engineering\SJRPP\Drainage\PROPOSED\Proposed\_100yr.I32

Execute: No      Restart: No      Patch: No  
Alternative: No

Max Delta Z(ft): 0.50      Delta Z Factor: 0.00500  
Time Step Optimizer: 0.000  
Start Time(hrs): 0.000      End Time(hrs): 96.00

---

Min Calc Time(sec): 0.1000	Max Calc Time(sec): 2.0000
Boundary Stages: Browns_Creek	Boundary Flows: Landfill II

Time(hrs)	Print Inc(min)
-----	-----
96.000	5.000
Group	Run
-----	-----
BASE	Yes

---

Name: Proposed_25yr	Hydrology Sim: Proposed_25yr
Filename: C:\Adkinson Engineering\SJRPP\Drainage\PROPOSED\Proposed_25yr.I32	

Execute: Yes	Restart: No	Patch: No
Alternative: No		

Max Delta Z(ft): 0.50	Delta Z Factor: 0.00500
Time Step Optimizer: 0.000	
Start Time(hrs): 0.000	End Time(hrs): 96.00
Min Calc Time(sec): 0.1000	Max Calc Time(sec): 2.0000
Boundary Stages: Browns_Creek	Boundary Flows: Landfill II

Time(hrs)	Print Inc(min)
-----	-----
96.000	5.000
Group	Run
-----	-----
BASE	Yes

---

Name: Proposed_Drawdo	Hydrology Sim: Proposed_Drawdo
Filename: C:\Adkinson Engineering\SJRPP\Drainage\PROPOSED\Proposed_Drawdo.I32	

Execute: No	Restart: No	Patch: No
Alternative: No		

Max Delta Z(ft): 0.50	Delta Z Factor: 0.00500
Time Step Optimizer: 0.000	
Start Time(hrs): 0.000	End Time(hrs): 96.00
Min Calc Time(sec): 0.1000	Max Calc Time(sec): 2.0000
Boundary Stages: Browns_Creek	Boundary Flows:

Time(hrs)	Print Inc(min)
-----	-----
96.000	5.000
Group	Run
-----	-----
BASE	Yes

---

Name: Proposed_MA	Hydrology Sim: Proposed_MA
Filename: C:\Adkinson Engineering\SJRPP\Drainage\PROPOSED\Proposed_MA.I32	

Execute: No	Restart: No	Patch: No
Alternative: No		

Max Delta Z(ft): 0.50	Delta Z Factor: 0.00500
Time Step Optimizer: 0.000	
Start Time(hrs): 0.000	End Time(hrs): 96.00
Min Calc Time(sec): 0.1000	Max Calc Time(sec): 2.0000
Boundary Stages: Browns_Creek	Boundary Flows: Landfill II

Time(hrs)	Print Inc(min)
-----	-----
96.000	5.000
Group	Run
-----	-----
BASE	Yes

=====  
 === Boundary Conditions ===  
 =====

Name: Landfill II                      Node: PD-19                      Type: Flow

Time(hrs)	Flow(cfs)
-----	-----
0.000	0.000
0.080	0.000
0.180	0.000
0.260	0.000
0.340	0.000
0.420	0.000
0.500	0.000
0.600	0.000
0.680	0.000
0.770	0.000
0.850	0.000
0.920	0.000
1.000	0.000
1.080	0.000
1.170	0.000
1.250	0.000
1.330	0.000
1.420	0.000
1.500	0.000
1.580	0.000
1.670	0.000
1.750	0.000
1.830	0.000
1.920	0.000
2.000	0.000
2.080	0.000
2.170	0.000
2.250	0.000
2.330	0.000
2.420	0.000
2.500	0.000
2.580	0.000
2.670	0.000
2.750	0.010
2.830	0.010
2.920	0.010
3.000	0.010
3.080	0.010
3.170	0.010
3.250	0.010
3.330	0.010
3.420	0.010
3.500	0.020
3.580	0.020
3.670	0.020
3.750	0.020
3.830	0.020
3.920	0.030
4.000	0.030
4.080	0.030
4.170	0.030
4.250	0.040
4.330	0.040
4.420	0.040
4.500	0.050
4.580	0.050
4.670	0.060
4.750	0.060
4.830	0.070
4.920	0.070

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5.000	0.080
5.080	0.080
5.170	0.090
5.250	0.100
5.330	0.110
5.420	0.120
5.500	0.130
5.580	0.130
5.670	0.140
5.750	0.140
5.830	0.150
5.920	0.160
6.000	0.160
6.080	0.170
6.170	0.180
6.250	0.190
6.330	0.200
6.420	0.210
6.500	0.220
6.580	0.230
6.670	0.250
6.750	0.260
6.830	0.270
6.920	0.280
7.000	0.290
7.080	0.300
7.170	0.310
7.250	0.330
7.330	0.340
7.420	0.350
7.500	0.370
7.580	0.380
7.670	0.400
7.750	0.410
7.830	0.420
7.920	0.440
8.000	0.450
8.080	0.470
8.170	0.480
8.250	0.500
8.330	0.520
8.420	0.530
8.500	0.550
8.580	0.570
8.670	0.590
8.750	0.610
8.830	0.630
8.920	0.650
9.000	0.670
9.090	0.700
9.170	0.720
9.250	0.740
9.340	0.760
9.420	0.780
9.500	0.800
9.590	0.830
9.670	0.850
9.750	0.880
9.840	0.900
9.920	0.930
10.000	0.960
10.080	0.990
10.170	1.020
10.250	1.060
10.340	1.100
10.420	1.140
10.500	1.180
10.580	1.220
10.670	1.280
10.750	1.330
10.830	1.390
10.920	1.450
11.000	1.510
11.080	1.580
11.170	1.640
11.250	1.700
11.330	1.790

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11.420	1.930
11.500	2.090
11.580	2.400
11.670	3.060
11.750	3.910
11.830	5.050
11.920	6.710
12.000	8.580
12.080	10.120
12.170	10.900
12.250	11.420
12.330	11.720
12.420	11.700
12.500	11.550
12.580	11.320
12.670	10.970
12.750	10.570
12.830	10.140
12.920	9.690
13.000	9.230
13.080	8.760
13.170	8.290
13.250	7.830
13.330	7.400
13.420	6.980
13.500	6.600
13.580	6.230
13.670	5.880
13.750	5.550
13.830	5.250
13.920	4.970
14.000	4.710
14.080	4.470
14.170	4.250
14.250	4.050
14.330	3.860
14.420	3.680
14.500	3.520
14.580	3.370
14.670	3.230
14.750	3.100
14.830	2.980
14.920	2.860
15.000	2.760
15.080	2.660
15.170	2.570
15.250	2.480
15.330	2.400
15.420	2.330
15.500	2.260
15.580	2.190
15.670	2.130
15.750	2.070
15.830	2.010
15.920	1.960
16.000	1.910
16.080	1.860
16.170	1.820
16.250	1.770
16.330	1.730
16.420	1.690
16.500	1.660
16.580	1.620
16.670	1.590
16.750	1.550
16.830	1.520
16.920	1.490
17.000	1.460
17.080	1.440
17.170	1.410
17.250	1.390
17.330	1.360
17.420	1.340
17.500	1.320
17.580	1.300
17.670	1.280
17.750	1.260



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17.830	1.240
17.920	1.220
18.000	1.200
18.080	1.180
18.170	1.160
18.250	1.150
18.330	1.130
18.420	1.120
18.500	1.110
18.580	1.090
18.670	1.080
18.750	1.070
18.830	1.050
18.920	1.040
19.000	1.020
19.080	1.010
19.170	1.000
19.250	0.990
19.330	0.980
19.420	0.970
19.500	0.960
19.580	0.950
19.670	0.940
19.750	0.930
19.830	0.920
19.920	0.920
20.000	0.910
20.080	0.900
20.170	0.890
20.250	0.880
20.330	0.870
20.420	0.860
20.500	0.850
20.580	0.840
20.670	0.830
20.750	0.820
20.830	0.810
20.920	0.810
21.000	0.800
21.080	0.790
21.170	0.780
21.250	0.780
21.330	0.770
21.420	0.760
21.500	0.760
21.580	0.750
21.670	0.750
21.750	0.740
21.830	0.740
21.920	0.730
22.000	0.730
22.080	0.720
22.170	0.720
22.250	0.720
22.330	0.710
22.420	0.710
22.500	0.710
22.580	0.700
22.670	0.700
22.750	0.690
22.830	0.690
22.920	0.680
23.000	0.680
23.080	0.670
23.170	0.660
23.250	0.660
23.330	0.650
23.420	0.650
23.500	0.650
23.580	0.640
23.670	0.630
23.750	0.630
23.830	0.620
23.920	0.620
24.000	0.610
24.080	0.600
24.170	0.590

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24.250	0.570
24.330	0.560
24.420	0.540
24.500	0.520
24.580	0.500
24.670	0.480
24.750	0.460
24.830	0.450
24.920	0.430
25.000	0.420
25.080	0.400
25.170	0.390
25.250	0.370
25.330	0.360
25.420	0.350
25.500	0.340
25.580	0.330
25.670	0.320
25.750	0.310
25.830	0.300
25.920	0.290
26.000	0.280
26.080	0.270
26.170	0.270
26.250	0.260
26.330	0.250
26.420	0.250
26.500	0.240
26.580	0.230
26.670	0.230
26.750	0.220
26.830	0.220
26.920	0.210
27.000	0.200
27.080	0.200
27.170	0.190
27.250	0.190
27.330	0.180
27.420	0.180
27.500	0.170
27.580	0.170
27.670	0.170
27.750	0.160
27.830	0.160
27.920	0.160
28.000	0.150
28.080	0.150
28.170	0.150
28.250	0.150
28.340	0.140
28.420	0.140
28.500	0.140
28.580	0.140
28.680	0.130
28.760	0.130
28.840	0.130
28.920	0.130
29.000	0.120
29.090	0.120
29.170	0.120
29.250	0.120
29.340	0.110
29.420	0.110
29.500	0.110
29.590	0.110
29.670	0.100
29.750	0.100
29.840	0.100
29.920	0.100
30.000	0.090
30.090	0.090
30.170	0.090
30.250	0.090
30.340	0.090
30.420	0.080
30.500	0.080
30.590	0.080

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30.670	0.080
30.750	0.080
30.840	0.080
30.920	0.080
31.000	0.070
31.090	0.070
31.170	0.070
31.250	0.070
31.340	0.070
31.420	0.070
31.500	0.070
31.590	0.070
31.670	0.070
31.750	0.070
31.840	0.060
31.920	0.060
32.000	0.060
32.090	0.060
32.170	0.060
32.250	0.060
32.340	0.060
32.420	0.060
32.500	0.060
32.590	0.060
32.670	0.060
32.750	0.060
32.840	0.050
32.920	0.050
33.000	0.050
33.090	0.050
33.170	0.050
33.250	0.050
33.340	0.050
33.420	0.050
33.500	0.050
33.590	0.050
33.670	0.050
33.750	0.050
33.840	0.050
33.920	0.050
34.000	0.050
34.090	0.050
34.170	0.040
34.250	0.040
34.340	0.040
34.420	0.040
34.500	0.040
34.590	0.040
34.670	0.040
34.750	0.040
34.840	0.040
34.920	0.040
35.000	0.040
35.090	0.040
35.170	0.040
35.250	0.040
35.340	0.040
35.420	0.040
35.500	0.040
35.590	0.040
35.670	0.040
35.750	0.040
35.840	0.040
35.920	0.040
36.000	0.040
36.090	0.030
36.170	0.030
36.250	0.030
36.340	0.030
36.420	0.030
36.500	0.030
36.590	0.030
36.670	0.030
36.750	0.030
36.840	0.030
36.920	0.030
37.000	0.030

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37.090	0.030
37.170	0.030
37.250	0.030
37.340	0.030
37.420	0.030
37.500	0.030
37.590	0.030
37.670	0.030
37.750	0.030
37.840	0.030
37.920	0.030
38.000	0.030
38.090	0.030
38.170	0.030
38.250	0.030
38.340	0.030
38.420	0.030
38.500	0.030
38.590	0.030
38.670	0.030
38.750	0.030
38.840	0.030
38.920	0.030
39.000	0.020
39.090	0.020
39.170	0.020
39.250	0.020
39.340	0.020
39.420	0.020
39.500	0.020
39.590	0.020
39.670	0.020
39.750	0.020
39.840	0.020
39.920	0.020
40.000	0.020
40.090	0.020
40.170	0.020
40.250	0.020
40.340	0.020
40.420	0.020
40.500	0.020
40.590	0.020
40.670	0.020
40.750	0.020
40.840	0.020
40.920	0.020
41.000	0.020
41.090	0.020
41.170	0.020
41.250	0.020
41.340	0.020
41.420	0.020
41.500	0.020
41.590	0.020
41.670	0.020
41.750	0.020
41.840	0.020
41.920	0.020
42.000	0.020
42.090	0.020
42.170	0.020
42.250	0.020
42.340	0.020
42.420	0.020
42.500	0.020
42.590	0.020
42.670	0.020
42.750	0.020
42.840	0.020
42.920	0.020
43.000	0.020
43.090	0.020
43.170	0.020
43.250	0.020
43.340	0.020
43.420	0.020

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43.500	0.020
43.590	0.020
43.670	0.020
43.750	0.020
43.840	0.020
43.920	0.020
44.000	0.020
44.090	0.020
44.170	0.020
44.250	0.020
44.340	0.020
44.420	0.020
44.500	0.010
44.590	0.010
44.670	0.010
44.750	0.010
44.840	0.010
44.920	0.010
45.000	0.010
45.090	0.010
45.170	0.010
45.250	0.010
45.340	0.010
45.420	0.010
45.500	0.010
45.590	0.010
45.670	0.010
45.750	0.010
45.840	0.010
45.920	0.010
46.000	0.010
46.090	0.010
46.170	0.010
46.250	0.010
46.340	0.010
46.420	0.010
46.500	0.010
46.590	0.010
46.670	0.010
46.750	0.010
46.840	0.010
46.920	0.010
47.000	0.010
47.090	0.010
47.170	0.010
47.250	0.010
47.340	0.010
47.420	0.010
47.500	0.010
47.590	0.010
47.670	0.010
47.750	0.010
47.840	0.010
47.920	0.010
48.000	0.010
96.000	0.000

-----

Name: Browns\_Creek

Node: BROWNS\_CREEK

Type: Stage

Time(hrs)      Stage(ft)

-----

0.000	0.560
100.000	0.560

---

Basin Name: POND  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: POND  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: Uh256  
Peaking Fator: 256.0  
Spec Time Inc (min): 1.33  
Comp Time Inc (min): 1.33  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 10.00  
Time Shift (hrs): 0.00  
Area (ac): 22.600  
Vol of Unit Hyd (in): 1.000  
Curve Number: 97.000  
DCIA (%): 0.000

Time Max (hrs): 12.04  
Flow Max (cfs): 128.46  
Runoff Volume (in): 9.136  
Runoff Volume (ft3): 749466

---

Basin Name: PR-1  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: PD-2  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: Uh256  
Peaking Fator: 256.0  
Spec Time Inc (min): 6.01  
Comp Time Inc (min): 5.00  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 45.10  
Time Shift (hrs): 0.00  
Area (ac): 113.300  
Vol of Unit Hyd (in): 1.000  
Curve Number: 81.000  
DCIA (%): 0.000

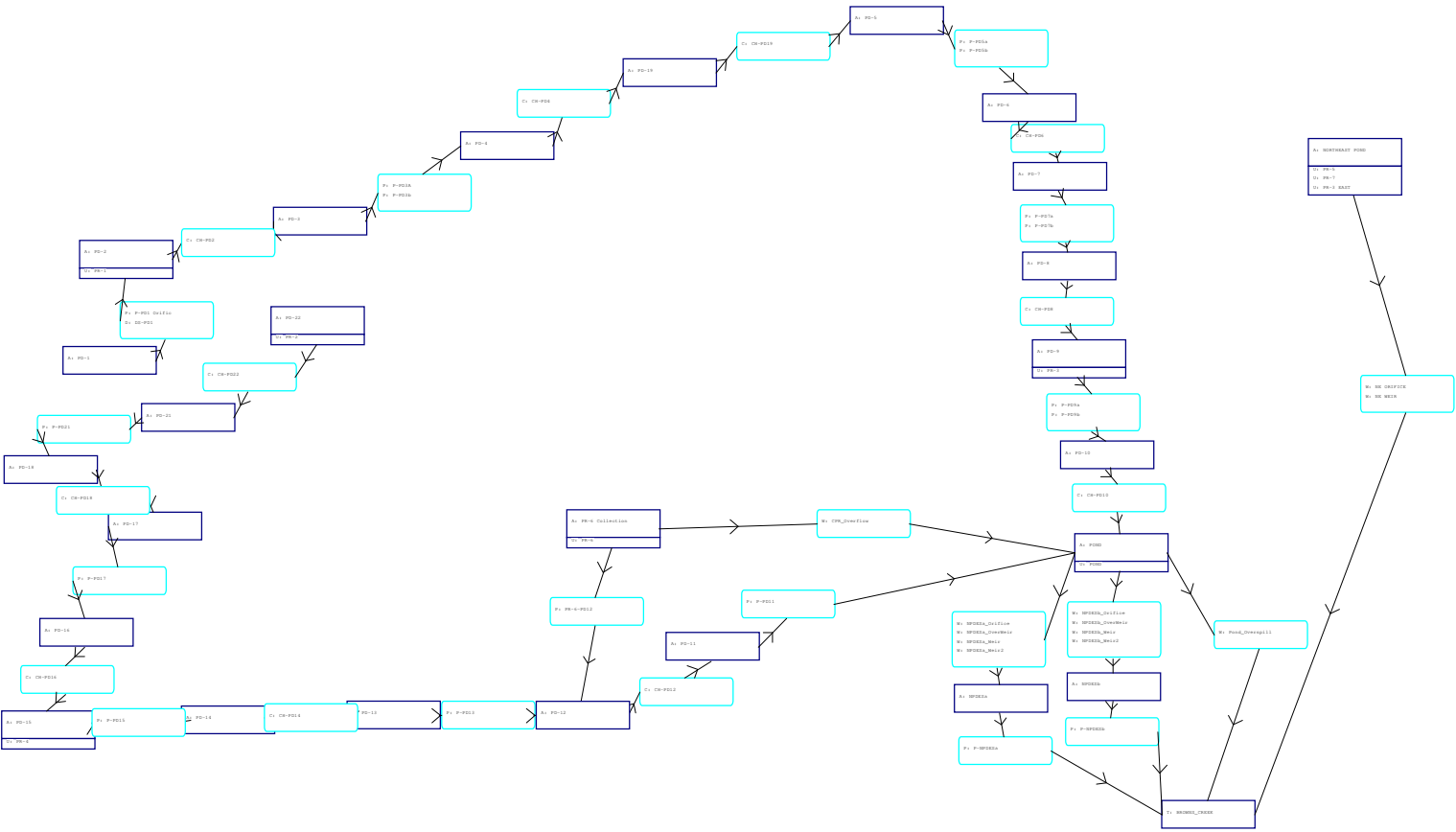
Time Max (hrs): 12.42  
Flow Max (cfs): 266.05  
Runoff Volume (in): 7.166  
Runoff Volume (ft3): 2947366

---

Basin Name: PR-2  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: PD-22  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: Uh256  
Peaking Fator: 256.0  
Spec Time Inc (min): 7.00  
Comp Time Inc (min): 5.00  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 52.50  
Time Shift (hrs): 0.00  
Area (ac): 110.400  
Vol of Unit Hyd (in): 1.000  
Curve Number: 77.000

- Nodes  
A Stage/Area  
V Stage/Volume  
T Time/Stage  
M Manhole
- Basins  
O Overland Flow  
U SCS Unit CN  
S SBUH CN  
Y SCS Unit GA  
Z SBUH GA
- Links  
P Pipe  
W Weir  
C Channel  
D Drop Structure  
B Bridge  
R Rating Curve  
H Breach  
E Percolation  
F Filter  
X Exfil Trench



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DCIA (%): 0.000

Time Max (hrs): 12.58  
Flow Max (cfs): 220.24  
Runoff Volume (in): 6.659  
Runoff Volume (ft3): 2668587

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Basin Name: PR-3  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: PD-9  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: Uh256  
Peaking Fator: 256.0  
Spec Time Inc (min): 7.27  
Comp Time Inc (min): 5.00  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 54.50  
Time Shift (hrs): 0.00  
Area (ac): 45.000  
Vol of Unit Hyd (in): 1.000  
Curve Number: 70.000  
DCIA (%): 0.000

Time Max (hrs): 12.58  
Flow Max (cfs): 75.95  
Runoff Volume (in): 5.773  
Runoff Volume (ft3): 942957

---

Basin Name: PR-3 EAST  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: NORTHEAST POND  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: Uh256  
Peaking Fator: 256.0  
Spec Time Inc (min): 2.00  
Comp Time Inc (min): 2.00  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 15.00  
Time Shift (hrs): 0.00  
Area (ac): 15.100  
Vol of Unit Hyd (in): 1.000  
Curve Number: 61.000  
DCIA (%): 0.000

Time Max (hrs): 12.10  
Flow Max (cfs): 41.07  
Runoff Volume (in): 4.623  
Runoff Volume (ft3): 253412

---

Basin Name: PR-4  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: PD-15  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: Uh256  
Peaking Fator: 256.0  
Spec Time Inc (min): 8.92



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Comp Time Inc (min): 5.00  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 66.90  
Time Shift (hrs): 0.00  
Area (ac): 70.300  
Vol of Unit Hyd (in): 1.000  
Curve Number: 77.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.75  
Flow Max (cfs): 119.75  
Runoff Volume (in): 6.664  
Runoff Volume (ft3): 1700700

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Basin Name: PR-5  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: NORTHEAST POND  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: Uh256  
Peaking Fator: 256.0  
Spec Time Inc (min): 2.28  
Comp Time Inc (min): 2.28  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 17.10  
Time Shift (hrs): 0.00  
Area (ac): 6.200  
Vol of Unit Hyd (in): 1.000  
Curve Number: 88.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.12  
Flow Max (cfs): 26.65  
Runoff Volume (in): 8.034  
Runoff Volume (ft3): 180823

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Basin Name: PR-6  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: PR-6 Collection  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: Uh256  
Peaking Fator: 256.0  
Spec Time Inc (min): 9.36  
Comp Time Inc (min): 5.00  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 70.20  
Time Shift (hrs): 0.00  
Area (ac): 90.200  
Vol of Unit Hyd (in): 1.000  
Curve Number: 67.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.83  
Flow Max (cfs): 118.93  
Runoff Volume (in): 5.390  
Runoff Volume (ft3): 1764826

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Basin Name: PR-7  
Group Name: BASE  
Simulation: Proposed\_25yr  
Node Name: NORTHEAST POND  
Basin Type: SCS Unit Hydrograph

Unit Hydrograph: Uh256  
Peaking Fator: 256.0  
Spec Time Inc (min): 3.60  
Comp Time Inc (min): 3.60  
Rainfall File: Flmod  
Rainfall Amount (in): 9.500  
Storm Duration (hrs): 24.00  
Status: Onsite  
Time of Conc (min): 27.00  
Time Shift (hrs): 0.00  
Area (ac): 13.700  
Vol of Unit Hyd (in): 1.000  
Curve Number: 82.000  
DCIA (%): 0.000  
  
Time Max (hrs): 12.24  
Flow Max (cfs): 43.63  
Runoff Volume (in): 7.291  
Runoff Volume (ft3): 362612

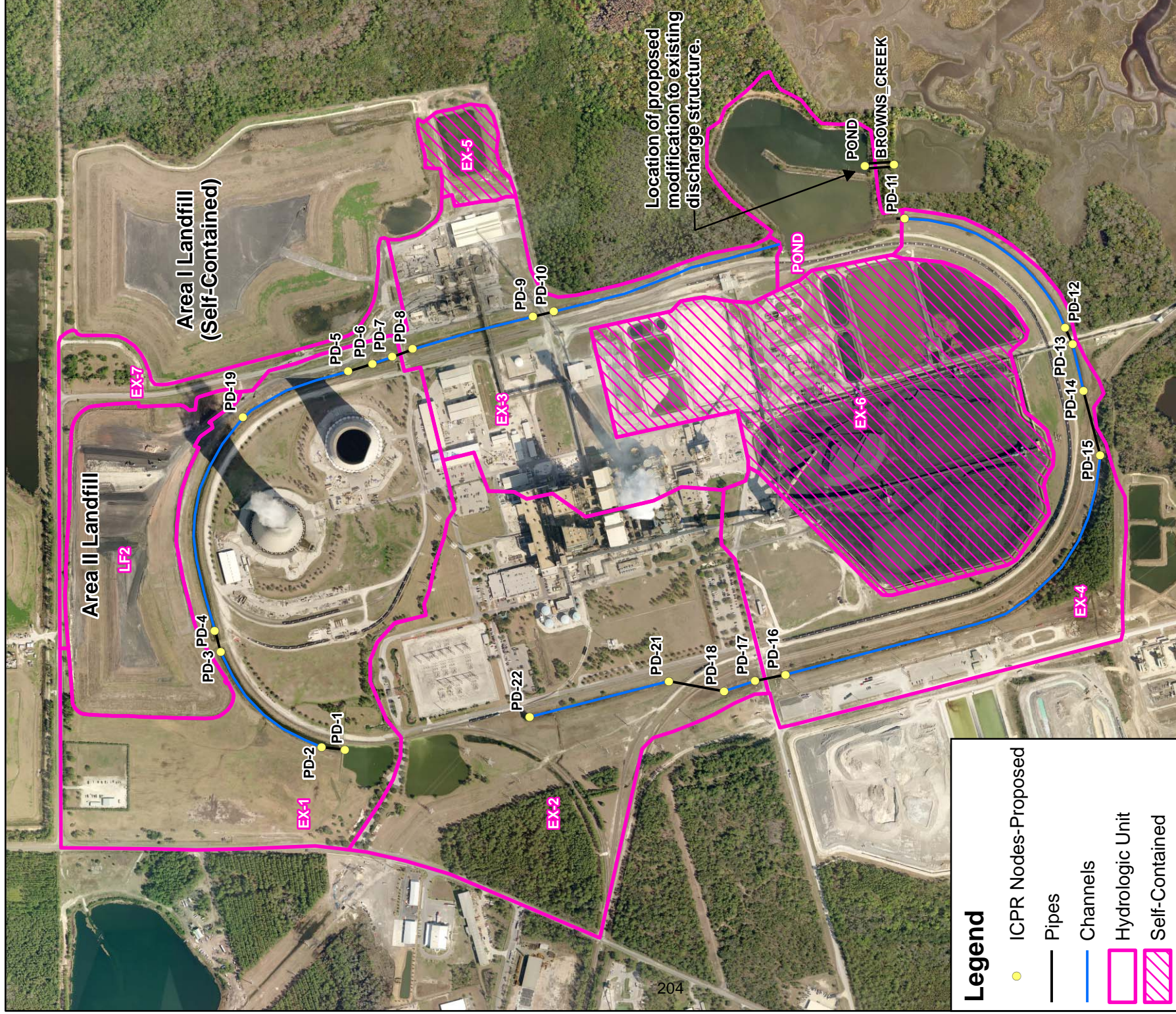
Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
BROWNS_CREEK	BASE	Proposed_25yr	0.00	0.56	3.00	-1.7400	371	24.01	76.90	0.00	0.00
NORTHEAST_POND	BASE	Proposed_25yr	12.82	13.97	15.00	0.0019	116626	12.17	108.31	12.82	54.97
NPDESa	BASE	Proposed_25yr	24.12	5.44	12.00	-0.0024	183	24.12	39.71	24.12	39.72
NPDESb	BASE	Proposed_25yr	24.15	6.01	12.00	-0.0024	155	24.12	33.22	24.15	33.24
PD-1	BASE	Proposed_25yr	0.00	13.30	14.30	0.0000	60157	0.00	0.00	0.00	0.00
PD-10	BASE	Proposed_25yr	23.16	7.73	11.00	0.0007	113335	16.94	61.78	17.54	51.78
PD-11	BASE	Proposed_25yr	23.72	7.86	9.00	0.0005	79970	15.90	81.59	16.22	70.24
PD-12	BASE	Proposed_25yr	23.15	8.01	9.00	0.0008	81001	15.44	88.09	15.90	81.59
PD-13	BASE	Proposed_25yr	23.19	8.02	9.00	0.0008	48720	15.31	57.48	15.68	53.01
PD-14	BASE	Proposed_25yr	23.23	8.03	9.00	0.0008	48861	14.49	63.65	15.31	57.48
PD-15	BASE	Proposed_25yr	23.26	8.05	9.00	0.0009	191448	13.13	117.38	14.49	63.65
PD-16	BASE	Proposed_25yr	23.29	8.05	10.00	0.0010	191478	13.50	93.28	14.30	38.40
PD-17	BASE	Proposed_25yr	23.28	8.06	10.00	0.0010	62569	13.38	115.99	13.50	93.28
PD-18	BASE	Proposed_25yr	23.27	8.06	10.00	0.0012	62638	13.24	134.20	13.38	115.99
PD-19	BASE	Proposed_25yr	16.14	8.94	13.00	0.0012	138095	14.21	109.40	15.37	85.84
PD-2	BASE	Proposed_25yr	13.11	12.06	13.00	0.0025	132441	12.42	266.05	12.99	186.25
PD-21	BASE	Proposed_25yr	23.23	8.06	12.00	0.0014	88999	12.93	176.84	13.24	134.20
PD-22	BASE	Proposed_25yr	13.09	8.68	12.00	0.0024	92960	12.58	220.24	12.93	176.84
PD-3	BASE	Proposed_25yr	14.49	10.46	13.00	0.0013	115994	12.99	186.25	13.25	163.52
PD-4	BASE	Proposed_25yr	14.67	10.31	13.00	0.0016	130312	13.25	163.52	14.27	105.32
PD-5	BASE	Proposed_25yr	17.94	8.28	13.00	0.0008	85298	15.37	85.84	15.87	73.13
PD-6	BASE	Proposed_25yr	18.18	8.22	13.00	0.0008	66305	15.87	73.13	16.36	65.96
PD-7	BASE	Proposed_25yr	18.90	8.08	13.00	0.0008	64781	16.36	65.96	16.88	60.41
PD-8	BASE	Proposed_25yr	19.80	8.00	13.00	0.0006	64238	16.88	60.41	17.41	56.64
PD-9	BASE	Proposed_25yr	22.99	7.76	13.00	0.0009	79295	16.73	68.47	16.94	61.78
POND	BASE	Proposed_25yr	24.12	7.58	8.70	0.0004	754932	16.69	124.72	24.12	72.93
PR-6 Collection	BASE	Proposed_25yr	16.86	9.24	17.00	0.0012	281381	12.83	118.93	13.18	42.08

Name	Group	Simulation	Max Time Flow hrs	Max Flow cfs	Max Delta Q cfs	Max Time US Stage hrs	Max US Stage ft	Max Time DS Stage hrs	Max DS Stage ft
CH-PD10	BASE	Proposed_25yr	17.54	51.78	0.249	23.16	7.73	24.12	7.58
CH-PD12	BASE	Proposed_25yr	15.90	81.59	0.046	23.15	8.01	23.72	7.86
CH-PD14	BASE	Proposed_25yr	15.31	57.48	-0.128	23.23	8.03	23.19	8.02
CH-PD16	BASE	Proposed_25yr	14.30	38.40	0.682	23.29	8.05	23.26	8.05
CH-PD18	BASE	Proposed_25yr	13.38	115.99	-0.148	23.27	8.06	23.28	8.06
CH-PD19	BASE	Proposed_25yr	15.37	85.84	0.029	16.14	8.94	17.94	8.28
CH-PD2	BASE	Proposed_25yr	12.99	186.25	0.104	13.11	12.06	14.49	10.46
CH-PD22	BASE	Proposed_25yr	12.93	176.84	0.108	13.09	8.68	23.23	8.06
CH-PD4	BASE	Proposed_25yr	14.27	105.32	0.046	14.67	10.31	16.14	8.94
CH-PD6	BASE	Proposed_25yr	16.36	65.96	0.174	18.18	8.22	18.90	8.08
CH-PD8	BASE	Proposed_25yr	17.41	56.64	0.476	19.80	8.00	22.99	7.76
CPR_Overflow	BASE	Proposed_25yr	0.00	0.00	0.000	16.86	9.24	24.12	7.58
DS-PD1	BASE	Proposed_25yr	0.00	0.00	0.000	0.00	13.30	13.11	12.06
NE ORIFICE	BASE	Proposed_25yr	12.82	1.32	0.001	12.82	13.97	0.00	0.56
NE WEIR	BASE	Proposed_25yr	12.82	53.66	0.054	12.82	13.97	0.00	0.56
NPDESa_Orifice	BASE	Proposed_25yr	18.16	6.43	0.001	24.12	7.58	24.12	5.44
NPDESa_OverWeir	BASE	Proposed_25yr	24.12	7.58	0.002	24.12	7.58	24.12	5.44
NPDESa_Weir	BASE	Proposed_25yr	24.12	1.08	0.001	24.12	7.58	24.12	5.44
NPDESa_Weir2	BASE	Proposed_25yr	24.12	25.67	0.004	24.12	7.58	24.12	5.44
NPDESb_Orifice	BASE	Proposed_25yr	17.95	6.32	0.001	24.12	7.58	24.15	6.01
NPDESb_OverWeir	BASE	Proposed_25yr	24.12	6.99	0.002	24.12	7.58	24.15	6.01
NPDESb_Weir	BASE	Proposed_25yr	22.16	0.89	0.001	24.12	7.58	24.15	6.01
NPDESb_Weir2	BASE	Proposed_25yr	24.12	20.78	0.003	24.12	7.58	24.15	6.01
P-NPDESa	BASE	Proposed_25yr	24.12	39.72	5.844	24.12	5.44	24.01	3.78
P-NPDESb	BASE	Proposed_25yr	24.15	33.24	4.888	24.15	6.01	24.08	3.75
P-PD1 Orific	BASE	Proposed_25yr	0.00	0.00	0.000	0.00	13.30	13.11	12.06
P-PD11	BASE	Proposed_25yr	16.22	70.24	0.279	23.72	7.86	24.12	7.58
P-PD13	BASE	Proposed_25yr	15.68	53.01	0.978	23.19	8.02	23.15	8.01
P-PD15	BASE	Proposed_25yr	14.49	63.65	0.678	23.26	8.05	23.23	8.03
P-PD17	BASE	Proposed_25yr	13.50	93.28	-0.926	23.28	8.06	23.29	8.05
P-PD21	BASE	Proposed_25yr	13.24	134.20	-0.721	23.23	8.06	23.27	8.06
P-PD3A	BASE	Proposed_25yr	13.24	81.60	0.037	14.49	10.46	14.67	10.31
P-PD3b	BASE	Proposed_25yr	13.25	81.95	0.514	14.49	10.46	14.67	10.31
P-PD5a	BASE	Proposed_25yr	15.89	35.74	0.016	17.94	8.28	18.18	8.22
P-PD5b	BASE	Proposed_25yr	15.85	37.39	0.017	17.94	8.28	18.18	8.22
P-PD7a	BASE	Proposed_25yr	16.88	30.27	0.126	18.90	8.08	19.80	8.00
P-PD7b	BASE	Proposed_25yr	16.88	30.14	0.159	11.97	9.40	19.80	8.00
P-PD9a	BASE	Proposed_25yr	16.89	32.59	0.017	22.99	7.76	23.16	7.73
P-PD9b	BASE	Proposed_25yr	15.79	29.72	0.021	22.99	7.76	23.16	7.73
Pond_Overspill	BASE	Proposed_25yr	0.00	0.00	0.000	24.12	7.58	0.00	0.56
PR-6-PD12	BASE	Proposed_25yr	13.18	42.08	0.033	16.86	9.24	23.15	8.01

## 5.0 DRAINAGE MAPS

5.1 Pre-development Drainage Map



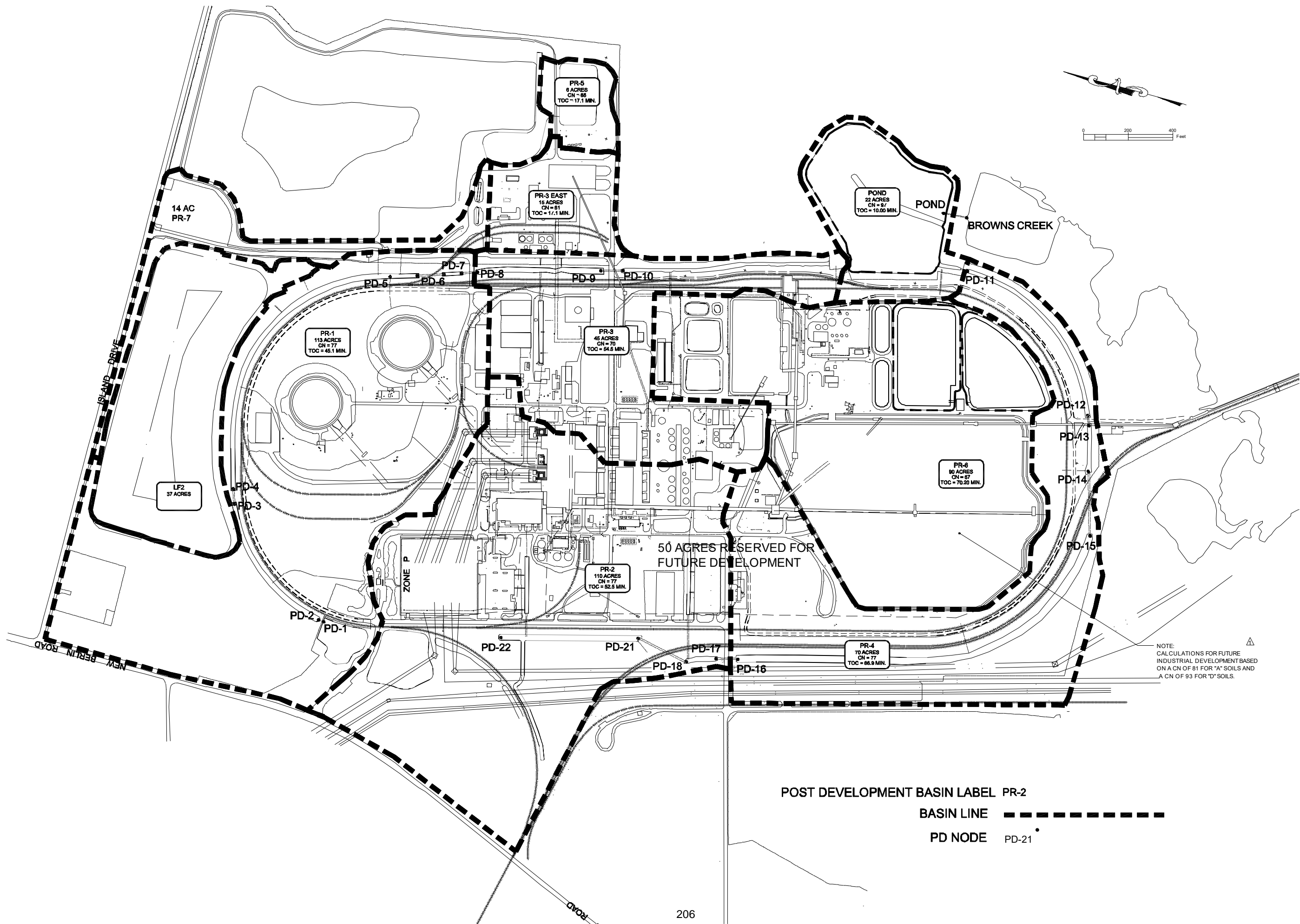


**Figure 4**  
**JEA SIRPP**  
**Landfill II Closure**  
**Proposed Hydrologic Conditions**  
**Existing Conditions as of 2017**



## 5.2 Post-Restoration Drainage Map





**ADKINSON ENGINEERING**  
4720 SALISBURY ROAD, SUITE 223  
JACKSONVILLE, FLORIDA 32256  
PHONE (904) 881-4206

**JEA**  
ST. JOHNS RIVER POWER PARK  
DECOMMISSIONING & DEMOLITION  
GRADING, DRAINAGE,  
AND EROSION CONTROL PLANS  
ST. JOHNS RIVER POWER PARK  
DUVAL COUNTY, FLORIDA

NO.	DATE	REVISION DESCRIPTION	SURVIVOR COMMENTS
1	11/29/17		

**POST DEVELOPMENT DRAINAGE MAP**

JOB NO.	JOB
DATE	October 9, 2017
SCALE	AS SHOWN
SHEET	C-003

END OF REPORT