

LOWER SWEETWATER CREEK WATERSHED MANAGEMENT PLAN

(Chapters 1-15)

Submitted to:



Hillsborough County

Stormwater Management Section
601 East Kennedy Boulevard
Tampa, Florida 33601

Submitted by:



Ayres Associates Inc

8875 Hidden River Parkway, Suite 200
Tampa, Florida 33637

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EXECUTIVE SUMMARY

Introduction

In September 2003, Hillsborough County retained Ayres Associates Inc to update the Watershed Management Plan (WMP) for the Lower Sweetwater Creek (LSC), which was originally prepared in 2001. The main objective of this project is to perform water resources, natural systems assessment, Total Maximum Daily Load (TMDL), and water quality modeling for the watershed and prepare its supporting documents.

This study does not include the task of updating hydrological and hydraulic models for the watershed. As a result, Chapters 1 through 6 of this report remain for the most part, similar to the original version prepared in 2001. Throughout the report, where water quantity is discussed, this was generally left unchanged. Chapters 7 through 15 have been added to the report to reflect recent watershed conditions and studies performed during this study.

Based on the information collected and the analysis performed, a series of alternatives were developed to address water quality issues within the watershed. Chapter 15 presents the recommended projects for water quality improvement. In addition, a cost estimate for each recommended project was prepared. Since no hydraulic analysis could be performed, the accurate project sizing was not known. Therefore, project costs presented in this report may be subject to adjustments, depending on their actual size and detailed designs.

Existing Condition

The Lower Sweetwater Creek (LSC) Watershed is located in the Northwest part of Hillsborough County, and discharges into Old Tampa Bay. This watershed is approximately 10.5 square miles in area. It is one of the most heavily urbanized watersheds in Hillsborough County. It receives runoff from Egypt Lake and Town N' Country, as well as from areas within the jurisdiction of the City of Tampa, including Al Lopez Park, Drew Park, and Tampa International Airport.

The original study was completed in September 1998 and updated in FY2002 to reflect the drainage system improvement during previous 4 years. The 1998 study addressed the flooding problems within two main areas: Town N' Country and Peppermound Creek. The recommended or implemented Capital Improvement Projects (CIP) within the Town N' Country and Peppermound Creek include:

A. Town N' Country

The objective of the Town N' Country Long Term Solution is to provide 10-year level of service (LOS) flood protection for the homes and streets in the Town N' Country target area. Stormwater levels of service are defined in the Hillsborough County Comprehensive Plan, Stormwater Element and used in level of service analysis.

1. Phase I. Dam and Pump Station- Completed

Canal A is a tributary to Lower Sweetwater Creek and flows from west to east and ultimately outfalls into Lower Sweetwater Creek at its confluence with the Henry Street Canal. The Henry Street Canal (HSC) flows from east to west; modeling results show that under conditions that existed during the summer of 1995, floodwater from the HSC may have caused Canal A to flow backwards (from east to west). The first phase of the project was completed in May 1996. As an interim measure, the Lower Sweetwater Creek channel between Hillsborough Avenue and the Henry Street Canal was cleaned to reduce the resistance of flow to the Bay. A dam and pump station were constructed in Canal A to improve flood protection for the Town N' Country area west of Hanley Road during high frequency (low rainfall) events. These improvements are expected to lower the computed 25-year flood levels by approximately one half of a foot from 1993 conditions. The dam and pump station was planned, designed, and constructed during the twelve-month period following the flood.

2. Phase II. Stormwater Collection System Upgrade- Completed

As a second phase of the project, a portion of the stormwater collection system for Hanley Road has been upgraded. The upgrade includes the outfall pipe (with inlets) to a 43" X 68" ERCP which carries stormwater runoff from Hanley Road to Lower Sweetwater Creek. This phase of the project provides capacity and increases the effective drainage area served by the stormwater collection system. The County entered into a Joint Project Agreement with private property owners for implementation of this phase of the project. A 20' drainage easement has been dedicated to the County for this phase of the project.

3. Phase III. Berm Construction - Completed

As a third phase of the Long Term Solution, an effective berm had been completed between Lower Sweetwater Creek and Hanley Road from Hillsborough Avenue to West Comanche Avenue. The berm will prevent flood flows across certain low points between the Lower Sweetwater Creek channel and Hanley Road that would bypass the pump station in Canal A. The berm is an integral component of the pump station design and has been able to achieve the expected flood protection benefit of the pump station. The completion of phases I, II, and III are expected to collectively lower 25-year flood levels by approximately 0.8 feet from 1993 conditions.

4. Phase IV& V. Outfall to Sweetwater Creek - Completed

The fourth phase of the Long Term Solution consists of providing an additional outfall for the LSC watershed drainage area of Town N' Country west of the dam and pump station north of Hillsborough Avenue. This proposed project consists of two components. The proposed outfall would pump flow from Canal BN to Sweetwater Creek along Webb road via a 48" forcemain. The proposed alignment of the forcemain is along the Canal BN. This project would allow stormwater runoff to drain from both the box culvert and the pump station east of Hanley Road completed in Phase I. The second component (Phase V) includes crossings upgraded at Powhattan Avenue, Town N' Country Boulevard in order to prevent the significant headloss along these crossings. Phase VI and V had been completed during FY 1999-2000 to increase the level of flood protection for this area of Town N' Country.

B. Peppermound Creek

The objective of the Peppermound Creek Crossing Upgrade project is twofold:

- 1) The increase of conveyance capacity of the four (4) roadway crossings in the reach of the creek north of Memorial Highway is expected to reduce the headloss at these crossings and to reduce water surface elevations below the top of road for the 10-year/24-hour design event; and
- 2) The reduction of head loss in this reach of the creek is also expected to reduce the tailwater elevation for the Tanglewood/Gateway stormwater collection system. The Tanglewood/Gateway system is tailwater controlled and is therefore greatly influenced by the water surface elevations present in the Peppermound Creek between the road crossings of Tanglewood Lane and Glenview Lane.

1. Peppermound Creek Crossing Upgrade - Interim solution (pump station)

The proposed Peppermound Creek Crossing Upgrade includes improving the four crossings of the Creek upstream of Memorial Highway, including Tanglewood Lane, Glenview Lane, Springside Lane, and Winston Lane. Under current conditions, the conveyance capacity of Peppermound Creek is larger than that of the four road crossings. Improving the road crossing at Tanglewood Lane and Glenview Lane to 5' x 7' concrete box culvert (or equivalent) and improving Glenview Lane, Springside Lane, and Winston Lane to 5' x 10' concrete box culvert (or equivalent) is expected to reduce hydraulic loss in this reach and to reduce 10-year computed water surface elevations to levels below the top of road level at these crossings. The proposed crossing upgrades should be implemented in a downstream to upstream order.

2. Tanglewood/Gateway Stormwater Collection System Upgrade - Interim solution (pump station) under design

The Tanglewood/Gateway stormwater collection system upgrade includes improving the entire collection system to 36" RCP or hydraulic equivalent. The increased flow area is expected to more efficiently convey flow thereby reducing headloss in the system and reducing water surface elevations. However, this project should not be implemented without the Peppermound Creek Crossing Upgrade Project. The Peppermound Creek project is an integral component of this project. Upgrading the Tanglewood/Gateway collection system without reducing the tailwater condition for this system is expected to have minimal or no benefit.

All five (5) phases of implemented CIPs within Town N' Country area has been updated in 2002 existing condition report and model. An interim solution of pump station with berm for Peppermound Creek system is under design and will be completed in FY2003. The 2002 existing condition update also includes: model re-numbering, model calibration by using most recent storm events, data converting from all CAD files to GIS system, and delineation of 100-year flood plain.

This report will be updated when the digital one-foot contour data are available. This will enable to more accurately count the storage volume for model simulation and flood plain delineation.

C. Water Quality, Natural Systems, and TMDL Requirements

The assessment of existing water quality and natural systems for the watershed is presented in Chapters 7 and 8, respectively, while water supply issues are discussed in Chapter 9. The existing information was used to perform pollutant loading and removal modeling (Chapter 10). The modeling results were used to develop water quality level of service (LOS) that is discussed in Chapter 11. Public involvement process and survey of potential contaminant sources are described in Chapters 12 and 13, respectively. Subsequently, best management practices (BMPs) were developed to address existing water quality issues that are presented in Chapter 14. In selecting the location for final structural BMPs, attempts were made to identify and use available publicly owned properties. Additional exploratory site visits were also performed to examine the suitability of the sites for specific projects. Final recommendations along with individual preliminary cost estimates are presented in Chapter 15.

To meet water quality standards both the Federal (Clean Water Act [CWA]) and state (Chapter 62-302, Florida Administrative Code [F.A.C.]) rules apply, and certain actions must be taken to protect, restore, and maintain water quality. In addition, for the area of this project, discharges to surface waters are also regulated by the Florida Department of Environmental Protection (FDEP), Southwest Florida Water Management District (SWFWMD), Hillsborough County Environmental Protection Commission (HCEPC), and/or the US EPA, depending on types and magnitude of the discharge. Water quality assessment of the LSC and TMDL evaluations were conducted taken into considerations all the applicable regulations by collecting water quality data and using a water quality model described in Chapter 7. A brief summary is described below.

1. Overall Water Quality Level of Service (LOS)

Using an average score for all water quality parameters combined, the overall LOS score for the entire Lower Sweetwater Creek watershed was determined to be an F. The scores of F for total nitrogen (TN), total phosphorus (TP), and total suspended solids (TSS) dominated the entire watershed, indicating that these parameters are the major water quality parameters of concern. This is due to the fact that the Lower Sweetwater Creek watershed is heavily developed and is primarily comprised of high density residential, commercial/services, industrial, and highway/utility land uses. These land uses contribute large quantities of various pollutants into surface water bodies. The low LOS score for the entire watershed (F) indicates that contiguous natural systems do not exist in the watershed that can treat the discharges before reaching the receiving waters because most subbasins have been highly developed and produce extensive loadings of pollutants.

Unless effective treatment measures are implemented, continued loading to surface waters in the watershed, and eventually into Old Tampa Bay, may result in significant water quality degradation. Efforts to reduce loading of pollutants to the Lower Sweetwater Creek, channels, lakes, sinkholes, and groundwater should be incorporated into future management activities for the watershed. Reduction of pollutant loading should include implementation of local and regional stormwater best

management practices (BMPs) to reduce or eliminate pollutant loading to receiving waters. To achieve this goal, a variety of BMPs, such as wet detention ponds, baffle boxes, alum treatment, improved wastewater treatment systems, and restoration of natural ecosystems may be used.

2. Natural System Conditions

The LSC watershed area is over 7,500 acres and contains plant communities, both terrestrial and aquatic, that provide a variety of important environmental functions. These functions include habitats for listed species and other wildlife, stabilization of stream banks and lake shores, improvement of water and air quality, and moderation of water and air temperatures. The plant communities in the watershed have undergone several periods of significant alteration since the 1830's as land use in the watershed have changed from original conditions to agriculture to the current suburban/urban uses. Land use changes have reduced the acreage of native plant communities, impaired water quality in streams, degraded many plant communities (e.g., invasion of non-native plants), and highly disturbed stream banks and lake shores. Most populations of native wildlife have been either reduced and/or eliminated. The changes to the natural system impact ecosystem behavior in ways that may alter water quality and viability of habitats. In order to remedy the adverse impacts to water quality, maintain healthy habitats, and meet the regulatory requirements, appropriate BMPs are recommended. Such recommendations are made based on the survey of existing natural conditions and water quality improvement goals.

3. Regulatory Background/TMDL

The Total Maximum Daily Load was originally promulgated as a part of the Federal Water Pollution Control Act and was later expanded by the Clean Water Act (CWA). The law requires states to define state-specific water quality standards for various designated uses and to identify water bodies that do not meet established water quality standards. Water bodies that do not meet such water quality standards as a result of human-induced conditions, are to be considered impaired.

In Florida, the TMDL process is multi-phased and includes identification, verification, and listing of impaired waterbodies, followed by the development and implementation of constituent-specific TMDL for different water quality parameters. FDEP issued its final report for LSC TMDL for fecal coliforms and nutrients in 2004 and as of writing of this report there are no approved TMDLs for LSC. However, public water supply requirements have impacted water levels/quality in both the surface water system and aquifers in the Tampa Bay region and TMDL development for receiving waters will be required in the near future.

4. Pollutant Loading and Water Quality Level of Service (LOS)

The gross pollutant loading within the watershed was estimated based on the 2004 land use and soils characteristics. The 2004 land use map indicated 10 different land use categories that were evaluated for the pollutant loading model. Water quality evaluations were performed by assessing 12 water quality constituents in receiving waters. Gross pollutant loading was estimated by assuming no treatment of stormwater runoff. This parameter indicates the potential of each land use in yielding contaminants into the environment. To approximate the net pollutant loading within

the watershed, the loading reduction due to the existing BMPs, was subtracted from the gross loading value for that watershed. Analyses were conducted at both watershed and subbasin levels. The details of these analyses are discussed in Chapter 10 of this report.

Based on these results, a water quality treatment level of service was determined at the subbasin and watershed levels within the Lower Sweetwater Creek watershed. This type of analysis facilitates prioritization of water quality improvement alternatives for the LSC watershed. Water quality treatment levels-of-service (LOS) criteria were used as part of this study to allow comparisons of existing and proposed stormwater treatment conditions to pollutant loading goals and to help prioritize alternative BMPs throughout the watershed.

Three water quality constituents were identified and analyzed in greater detail due to their importance in local water quality management programs. These parameters included total suspended solids, total phosphorus, and total nitrogen. In addition, based on specific concerns, some subbasins required assessment of other parameters, including heavy metals and bacteria. Excess nitrogen can stimulate algal growth resulting in reduced light penetration through the water column, resulting in loss of seagrass. Other factors that affect light availability in the Bay are also of concern, including excess total suspended solids. Excess phosphorous can promote eutrophication and algal blooms, leading to degradation of water quality. Results from the pollutant loading model were used to develop LOS for each water quality constituents that are fully described in Chapter 11 of this report.

D. Structural BMP Alternatives

Analyses were performed using GIS to strategically locate structural BMP sites for water quality and natural systems improvements. Various methods were used to identify feasible alternative projects for implementation that are described extensively in Chapter 14. Water quality conditions were evaluated using the County's Water Quality Treatment Level of Service criteria and pollutant loading model. The proposed alternatives are developed to improve water quality and natural systems consistent with the overall goals of the County.

Recent aerial photos were used to identify the most suitable and cost-effective sites for implementation of structural BMPs. The main criteria for site selection included proximity to streams/rivers (500-meter buffer zone), open areas, and publicly owned properties that are readily available for stormwater treatment in the form of retention or detention facilities. Initially a total of 41 locations for potential siting of structural BMPs are identified. Of the 41 potential sites, 30 fall within the 500-meter buffer of major streams. GIS analyses were performed to verify that the identified sites had no existing construction and were open areas suitable for construction of a stormwater treatment facility. The analysis showed that only 15 of the 30 identified sites met this criterion. Further GIS analyses were performed to identify the parcels that were publicly owned. This resulted in 6 sites that met all the criteria. These sites are recommended as potential structural BMPs locations based on the established criteria in this study. Site location, photos, maps and detailed preliminary cost estimates are described in Chapter 15. A brief summary of

each site and total costs are presented below:

1. Paula Drive

The proposed BMP site is 6 acres behind a shopping center owned by Hillsborough County. The Paula Drive site presented an ideal location for development of a stormwater treatment facility because the area is dominated by residential and built-up lands contributing large amounts of pollutants into the watershed's surface waters. A field visit confirmed that the site is already under development and will be the site of a public library. Based on its size and location, a water quality treatment system would provide much needed water quality improvement to the surrounding areas. The cost estimate for the treatment system will depend on the nature of the facility and will be determined when the County finalizes the specifics of the system to be built.

2. Kelly Road

The proposed site is 9 acres that can potentially contain an artificial water body (lake) and is the location of Sandy Perrone Park. A playground is located to the west of the maintenance building on the site. The western half of the parcel has a small forested patch. Inspection of the western half of the parcel identified a small natural wetland and two shallow basins of water – parts of a natural wetland. This wetland provides some treatment of the surface water in the watershed, but it could be greatly expanded and improved. The total cost for construction of an expansion to the wetland is approximately \$300,000.

3. Tampa International Airport (TIA) Area

The proposed site is composed of a number of parcels ranging in size from 4 to 10 acres. It has a major stream flowing through the parcels and a wetland in the vicinity that can be expanded for stormwater treatment and storage. This site seems to be an ideal location for a large structural BMP. The size of the parcel, government ownership, lack of structures, and proximity to the major stream network makes it an ideal candidate for construction of a large treatment pond. Due to the site's proximity to the airport, permitting the construction might be an issue. Further investigation should be made regarding the opportunity for BMP construction on this parcel. The total costs of implementing the recommended BMP is estimated to be \$1,416,000.

4. Hillsborough and Hoover intersection

The proposed site is 10 acres surrounded by industrial and commercial parks. A small wetland is also present in the vicinity that can be expanded to enhance natural system functions. The size and location of the site make it a perfect candidate for a large treatment pond. A small wetland is located in the southwestern corner of the parcel that can be expanded. There is a fence surrounding the wetland area, however the fencing has not been maintained and requires repairs to be functional. The total cost of structural BMPs at this site is estimated to be \$1,383,800.

5. Occident Street

The proposed site is 16 acres surrounded by densely populated residential areas suitable for stormwater retention and wetland construction. This area is the site of West Dog Park. An open grassy area is located to the south of the park and already contains a small pond that is not

maintained. The pond is covered with grass and vegetation. While the area is not large enough for construction of an effective retention pond, the existing area may be improved and expanded to effectively treat the stormwater received from many neighboring residential communities and the West Dog Park located immediately to the north. The total costs for the expansion and development of stormwater treatment facility is estimated to be \$532,000.

6. Hangar Court

The proposed site is two, 3 acre sites located on both sides of the street that can be used to construct wetlands or a stormwater treatment facility. The first parcel is approximately 3 acres in size and is located on the corner of Hangar Court and Hoover Boulevard, located along Channel G. The second parcel, which looks like an open field, is also approximately 3 acres, and is located on the other side of Hangar Court. The total cost of implementing the recommended BMPs at this site is estimated to be \$300,000.

In addition to the structural BMPs enumerated above, there are various state and local agencies that provide educational and outreach materials for the public at large and academic institutions. The specifics of these educational programs are presented in Chapter 15.



CHAPTER 1: INTRODUCTION

1.1 Project Location and Description

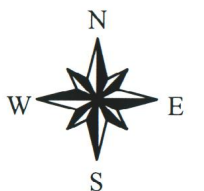
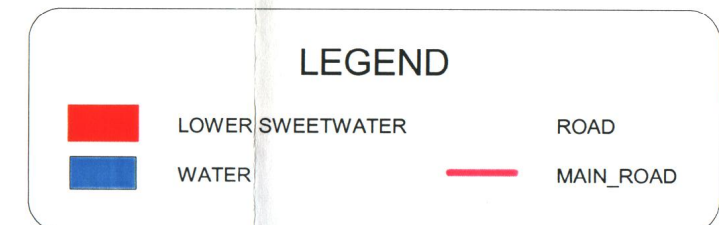
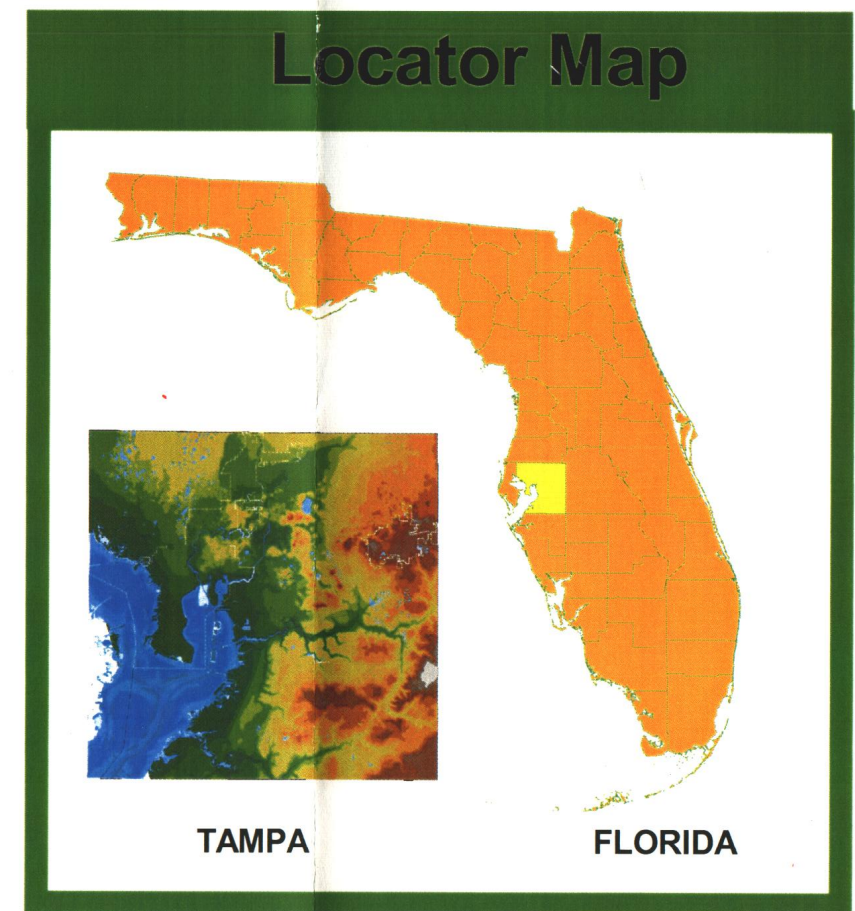
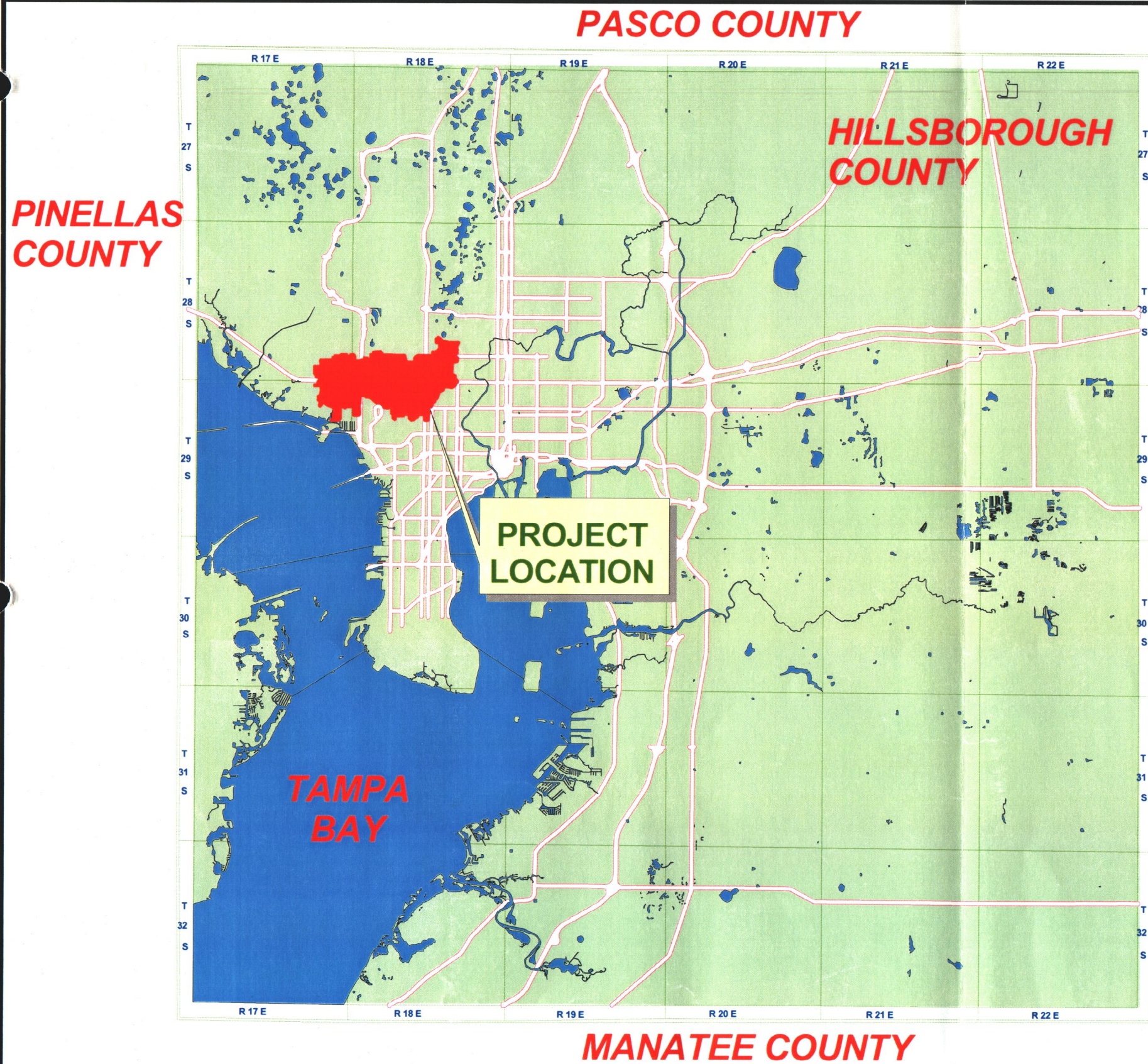
The Lower Sweetwater Creek (LSC) watershed lies in the northwest portion of Hillsborough County, and is approximately 10.5 square miles in area. The watershed is generally bordered on the east by Armenia Avenue, on the west by Webb Road, on the north by Sligh Avenue and on the south by Tampa Bay Boulevard, Memorial Highway, and Old Tampa Bay. The location of the LSC watershed is shown in Figure 1-1.

The watershed includes portions of the Town 'n Country area of Hillsborough County, portions of the Tampa International Airport (TIA), the Town 'n Country Hospital, and portions of the Drew Park area of the City of Tampa. Hillsborough Avenue divides the basin in the east-west direction roughly into two halves. The Veteran's Expressway, Dale Mabry Highway, Anderson Road, and Eisenhower Blvd are other major roads that pass through the watershed.

The topography of the LSC Watershed area is relatively flat with gentle slopes. Areas adjacent to Old Tampa Bay and the Town 'n Country area are relatively flat, while areas associated with some of the interior regions in the proximity of Egypt Lake have somewhat more relief. In the Town 'n Country area, ground elevations are on the order of 6 to 13 feet (all elevations are NGVD), while north of Egypt Lake the elevations could get as high as 40 feet.

Most of the soils that exist in the LSC area are not well drained. However, due primarily to the effects of development, many of these soils are in a "drained" condition. For instance, in the Town 'n Country area and in the residential areas further south toward Old Tampa Bay, the natural soils have been "drained" through the lowering of groundwater levels. The lower water table levels in these areas have resulted from the construction of the storm sewer systems and drainage ditches associated with site development. The soils found in the areas along and around the Henry Street Canal (HSC) are in a similar condition. The portion of the watershed area further to the east upstream, around Egypt Lake, is comprised of a variety of soils that range from well drained to poorly drained. The same can be said of the soils in the southeastern portion of the project area.

The LSC Watershed area contains mostly urban land use/cover. Significant residential areas are located in the southwestern, western, and eastern portions of the project area. These residential areas tend to be older neighborhoods comprised mostly of less than quarter-acre lot sizes. There are no traditional agricultural areas within the project limits. The largest concentration of commercial/industrial land use is located at the Tampa International Airport and in the areas immediately adjacent to the airport property. The Drew Park area, located east of the airport in the jurisdictional boundaries of the City of Tampa, has the largest extent of commercial land cover.



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LOWER SWEETWATER CREEK AREA
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FIGURE 1-1
LOWER SWEETWATER CREEK WATERSHED
PROJECT LOCATION MAP

The areas adjacent to Hillsborough Avenue, Dale Mabry Highway, Anderson Road, Benjamin Road and Memorial Highway also contain intensive commercial development existed for some time. The areas around Egypt Lake include more of a single-family residential land use. However, there are a few rather large apartment complexes adjacent to the Lake. This watershed area contains very little open space. Horizon Park and the Rocky Point Golf Course, in addition to County-owned property at Westgate Park and land adjacent to Occident Street, are among the largest open space land. Tidal marshes are located at the southeastern end of the watershed, along Old Tampa Bay, but this area also contains a dense residential neighborhood.

1.2 Current Management of the Watershed

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1.3 Climate of the Lower Sweetwater Creek Watershed

The climate in Hillsborough County can be characterized as subtropical. The average annual rainfall is approximately 50 inches. The wet season is approximately four months long during the summer, usually beginning in June and ending in September. The summer is generally hot and humid with daily high temperatures in the 90's. Afternoon thunderstorms of high intensity and short duration are common during the wet season.

1.4 Historical Flooding

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1.5 Scope of the Project

The scope of the flood protection element of the LSC WMMP project includes the establishment of the existing conditions for the LSC stormwater management infrastructure in terms of computed water surface elevations and flows. A computer model of the physical characteristics of the stormwater conveyance/storage system has been developed to determine the existing conditions for the 2.33-year/24 hour, 5-year/24 hour, 10-year/24 hour, 25-year/24 hour, 50-year/24-hour and 100-year/24 hour storms. A flood protection level of service analysis was then performed to identify the locations and extent of flooding problems.

1.6 Background and Data Collection

Survey

Survey data for the structure crossings and channel cross sections was obtained in 1992 by County survey crews for the majority of the hydraulic elements in the model. Updated survey information was obtained by County survey crews for portions of the basin in 1995 and was incorporated in the model. Some survey information was utilized from previous efforts. The majority of the cross section and structure crossing data for the Henry Street Canal was obtained from previous survey collected for the Henry Street Ditch Drainage Study by Florida Land Design and Engineering, Inc., 1985.

Literature Review

Previous reports for the area that were consulted for this SWMMP were:

- Henry Street Ditch Drainage Study, Florida Land Design and Engineering, 1985.
- Hillsborough County National Pollutant Discharge Elimination System Program, Application for Discharges from Municipal Separate Storm Sewer Systems, Part 2, Discharge Characterization Final Results, March, 1994.
- Drew Park Drainage Study, City of Tampa, Post, Buckley, Schuh, and Jernigan, Inc., October 1991.
- Southwest Florida Water Management District Surface Water Management Conceptual Permit for Tampa International Airport, South System Drainage Calculations, Griener, Inc., September 1990.
- Southwest Florida Water Management District Surface Water Management Conceptual Permit for Tampa International Airport, North System Drainage Calculations, Griener, Inc., September 1990.
- Spruce Street Canal Surface Water Management Master Plan and Conceptual Permit Application, Final Study Design Task Document, Hillsborough County Aviation Authority, Griener, March 1990.
- Design Computations for George Road over Henry Street Ditch, State Project No. 97102-3302 WPI No. 7153105, Hillsborough County, BHR of Tampa, Inc., and E.C. Driver and Associates, Inc., December 1991.

Construction Plans and As-Built

FDOT construction plans, County construction plans, and private development construction plans were used to supplement survey information.

Field Reconnaissance

Field observations were made within the watershed area on several occasions. They were as follows:

March 7, 1990 - Initiation of the Lower Sweetwater Creek Photograph Log by County personnel. This notebook contains color photographs of most crossing structures and cross sections contained in the hydrodynamic model. Manning 'n' values used in the model were determined for cross sections from the information contained in this photograph log. Typical Manning 'n' values used in the model are documented in the photograph log.

June 27, 1995 - A windshield damage assessment was conducted by the Hillsborough County Emergency Planning Department on June 27, 1995 following the June 24, 1995 storm event. The windshield assessment identified nineteen (19) residential dwelling units damaged by the resulting flooding. Several streets in the Town N' Country area west of Hanley Road, east of Webb Road, south of Clifton Street, and north of Hillsborough Avenue were also inundated by this event, including portions of Gateway Drive, Halifax Drive, Larimer Drive, Santa Monica Drive, Ambassador Drive, Paula Drive, Comanche Avenue West, Powhattan Avenue, Town N' Country Boulevard and Hanley Road. Rainfall records for this event were measured by the USGS Gage # 2306647 (Channel "G" and Hanley Road) at 6.65 inches and by the Tampa International Airport Gage at 5.29 inches (24-hour duration). No rainfall was measured on June 23, 1995.

August 3, 1995 - High water marks for portions of Town N' Country Canal A, Henry Street Canal, and Lower Sweetwater Creek were identified by County personnel with orange paint following Tropical Storm Erin, occurring August 2, 1995. Rainfall records for this event were measured by the USGS rainfall gage# 2306647 (Channel "G" and Hanley Road) at 2.29 inches and by the Tampa International Airport rainfall gage at 2.72 inches (24-hour duration). No rainfall was measured August 2, 1995.

August 8, 1995 - Elevations of high water marks identified on August 3, 1995 were collected by County personnel. High water mark elevations were computed by adding or subtracting a measured distance of the high water mark above or below a known elevation (taken mostly from crossing structure survey data).

August 26, 1995 - A field measurement of the water surface elevation was taken at the Hesperides Street crossing of the Henry Street Canal by County personnel.

Sept. 30, 1997 - High water marks for portions of the Henry Street Canal and Lower Sweetwater Creek were identified by County personnel with orange paint following a two-day rainfall event occurring on September 26 and 27, 1997. The southwestern portion of Hillsborough County experienced less rainfall than the southern and central portions of Hillsborough County. Rainfall records for this event were measured by the SWFWMD Channel A rainfall gage at 4.22 inches and by the Tampa International Airport rainfall gage at 9.82 inches (48-hour duration) with the majority of the rainfall occurring on September 26, 1997.

1.7 Project Objectives

The need for a Watershed Management Master Plan (WMMP) flood protection element is based on the need for a reasonable level of flood protection for public facilities. The Hillsborough County Comprehensive Plan Stormwater Management Element states that the target level of service for most major stormwater conveyance facilities is the protection of roads and property from substantial flooding during a 25-year frequency and 24-hour duration storm event. The County is also committed to addressing natural systems, water supply and water quality problems related to stormwater and surface water. The objectives of the flood protection element of this first step of project are to evaluate the existing stormwater management infrastructure of the LSC watershed, identify deficient facilities relative to the level of service targets. In the future with a completion of alternative analysis, it will provide a list of recommended solutions to some of the identified deficiencies.

Deficiencies associated with the stormwater management infrastructure include flooding and the transport of potential pollutants. Proper management of this resource can result in reduced flooding and cleaner surface waters. Other objectives include the restoration and/or restoration of stressed wetlands and natural systems, the promotion of groundwater/aquifer recharge, and the integration/development of recreational activities and opportunities. The development of this WMMP produces information needed to make informed resource management decisions.



CHAPTER 2: GENERAL DESCRIPTION

The Lower Sweetwater Creek (LSC) watershed drains approximately 10.5 square miles of land located in northwest area of Hillsborough County, Florida. The Watershed is primarily subuLSCn, and drains into Old Tampa Bay. The watershed is generally bordered on the east by Armenia Avenue, on the west by Webb Road, on the north by Sligh Avenue and on the south by Tampa Bay Boulevard, Memorial Highway, and Old Tampa Bay. The watershed, shown in Figure 2-1, is composed of 272 smaller units or sub-basins ranging in size from approximately 0.6 to 249.2 acres.

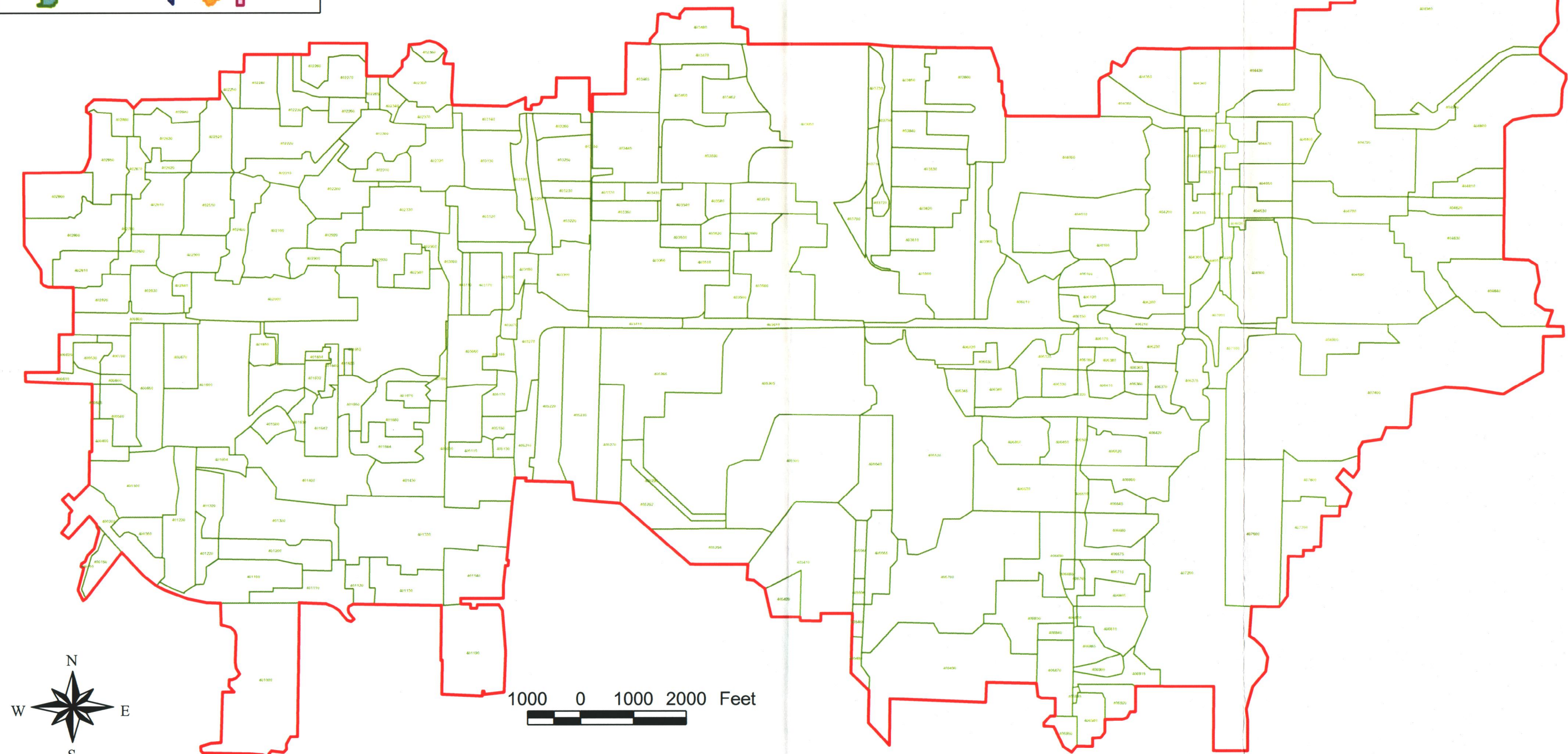
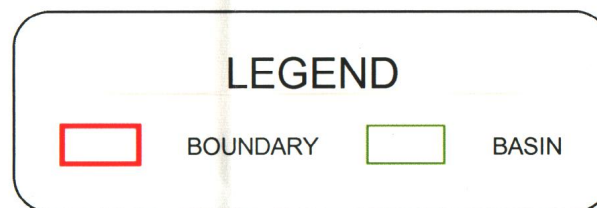
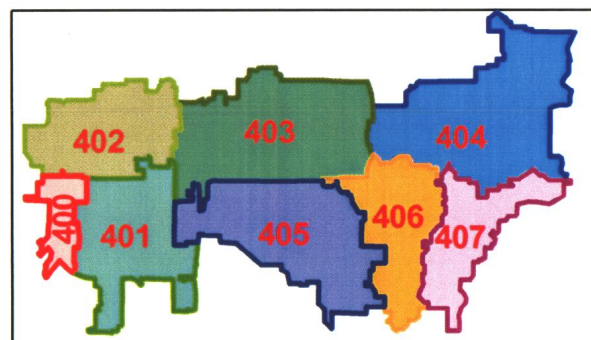
2.1 Climate

The climate of the LSC, and for Hillsborough County as a whole, can be classified as humid subtropical. Annual average precipitation is around 50 inches and almost 60% of this total falls during the four-month rainy season that extends from June through September. This time frame coincides with the occurrence of most tropical storms and hurricanes and the conditions are ripe for regular, convective afternoon and evening thunderstorms. These summer events, which can be very localized, are highly variable in both intensity and volume. The larger, normal summer storm events and those associated with tropical systems can cause flooding problems in areas where there are deficiencies in existing stormwater systems.

Winter rainfalls is, historically, relatively light and is generally associated with the weak cold fronts that descend from the northern part of the country and travel south through the region. However, in late 1997 and early 1998, some of the largest rain events occurred in the winter months, and this is especially true in El Nino years.

The annual mean temperature in Hillsborough County is about 72 degree F (Fahrenheit). The mean monthly temperature ranges from a low of approximately 60 degree F in January to a high of approximately 82 degree F in August. Typically, summer temperature ranges from morning lows in the high 70's and low 80's to afternoon highs that routinely reach into the mid-90's, but rarely do they exceed 100 degree F. Summer humidity that ranges into the upper 90's can further exacerbate the situation. Conversely, typical winter low temperatures generally range above freezing into the 40's; only occasionally dropping into the low 20's and teens. High temperatures generally reach into the upper 60's or low 70's for most of the season, especially between passages of the cold fronts.

According to the National Weather Service in Ruskin, humidity does not vary as seasonally as temperature and rainfall. The Service keeps daily records for 1 and 7 o'clock A.M. and 1 and 7 o'clock P.M. The 7 A.M. time period generally records the highest humidity with the annual average at 88% with the 1 P.M. time period recording the lowest at an average of 58%.



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FIGURE 2-1

LOWER SWEETWATER WATERSHED
SUBBASIN DELINEATION MAP

Evapotranspiration rates vary, and limited data are available for analysis. Estimates of 39 inches per year have been reported. Viessman, et al. (1977) reports the figure to be closer to 48 inches per year. Lake evaporation data often quoted for use in Hillsborough County are those reported from Lake Alfred in Polk County, supplemented by scattered data available from the Lake Padgett weather station. Studies conducted by Tampa Bay Water estimate the lake evaporation rate to average approximately 56 inches per year in the study area.

2.2 Topography

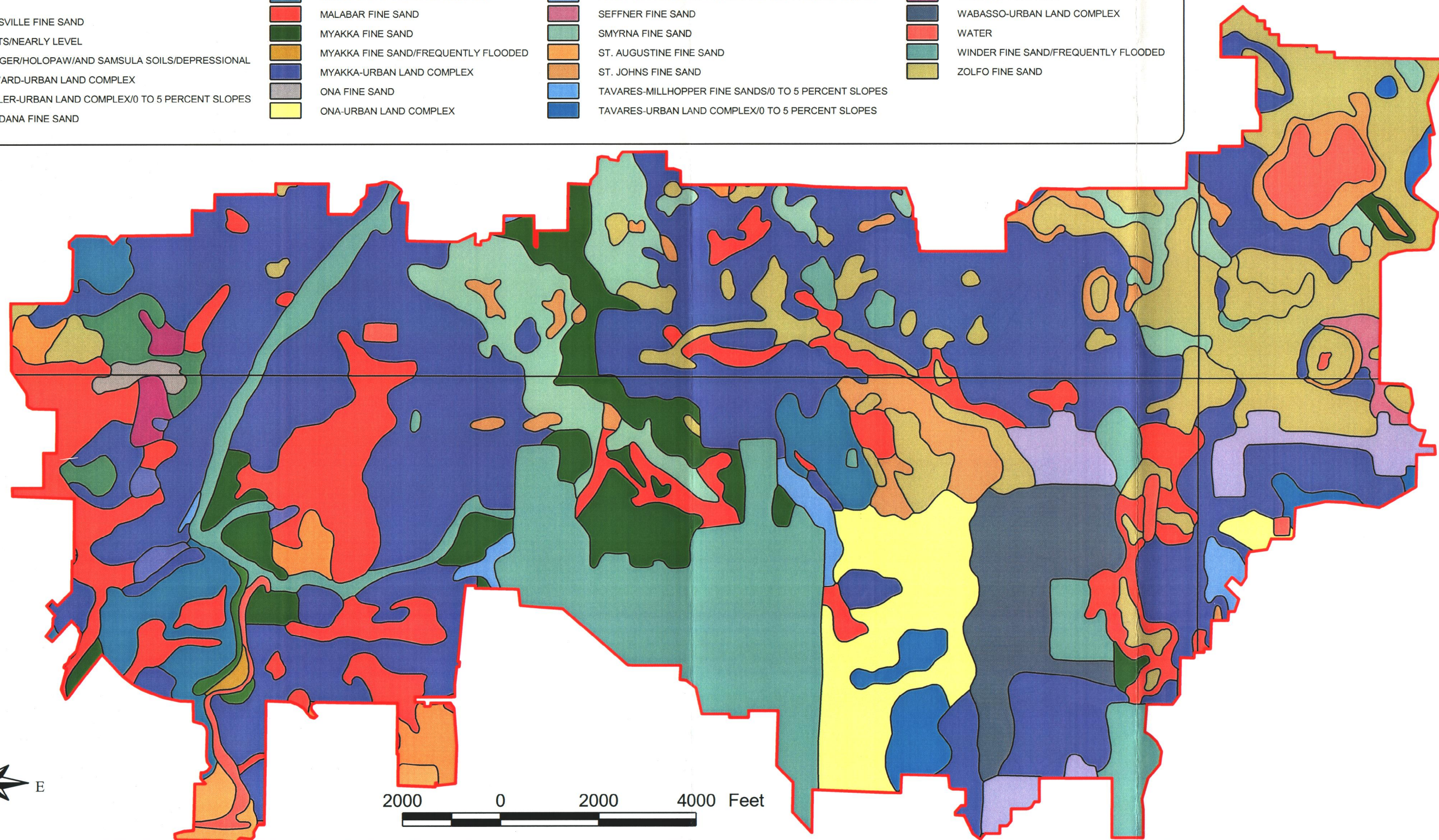
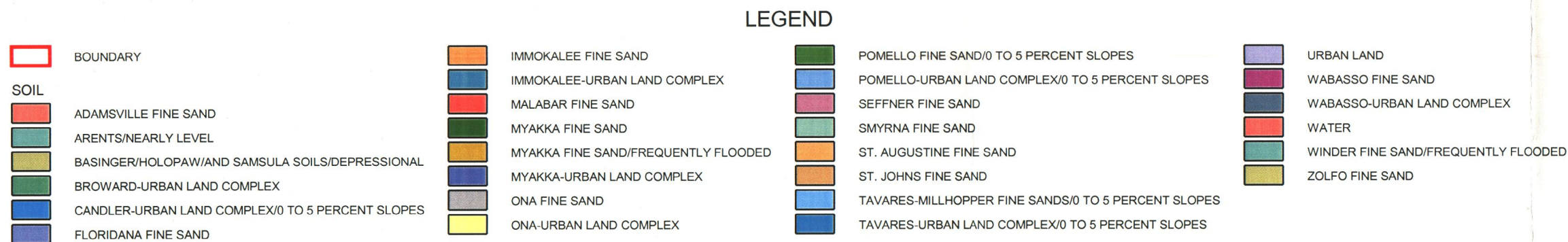
Topography varies from a high of 40 feet National Geodetic Vertical Datum (NGVD) in the northeast portion of the watershed near Egypt Lake to a lower near sea level to its outfall at the old Tampa Bay.

2.3 Soils

Soil distribution by type is shown in Figure 2-2. This information was developed based on SCS Soil Survey with Geographical Information Systems (GIS) coverages developed by SWFWMD. Much useful information, such as drainage classification, percent slope, water table depth, permeability, natural vegetation and potential uses for development and agriculture, can be obtained by consulting the SCS Manual for Hillsborough County for each particular soil type.

These soil types can be arranged into four groups based on their runoff-potential; these types are shown in Figure 2-3. The hydrologic groups are commonly used in watershed planning to estimate infiltration rates and moisture capacity. Soil properties that influence the minimum rate of infiltration obtained for a bare soil after prolonged wetting are: a) depth to seasonally high water table, b) intake rate and permeability, and c) depth to a layer or layers that slow or impede water movement. The major soil hydrologic groups are:

- Group A (low runoff potential) soils have high infiltration rates and a high rate of water transmission even when thoroughly wetted. They have typical infiltration rates of 10 in./hr when dry and 0.50 in./hr when saturated. Soil types found in the LSC that fall into this group include the Candler fine sands, Orsino fine sand, and the Tavares-Millhopper fine sands.
- Group B (moderately runoff potential) soils have moderate infiltration rates when thoroughly wetted and a moderate rate of water transmission. They have typical infiltration rates of 8 in./hr when dry and 0.40 in./hr when saturated.

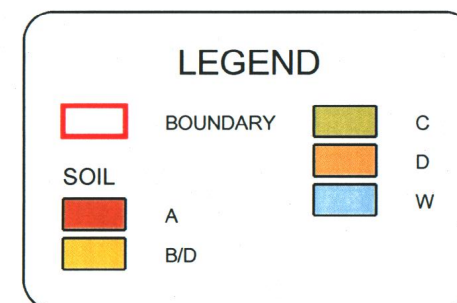
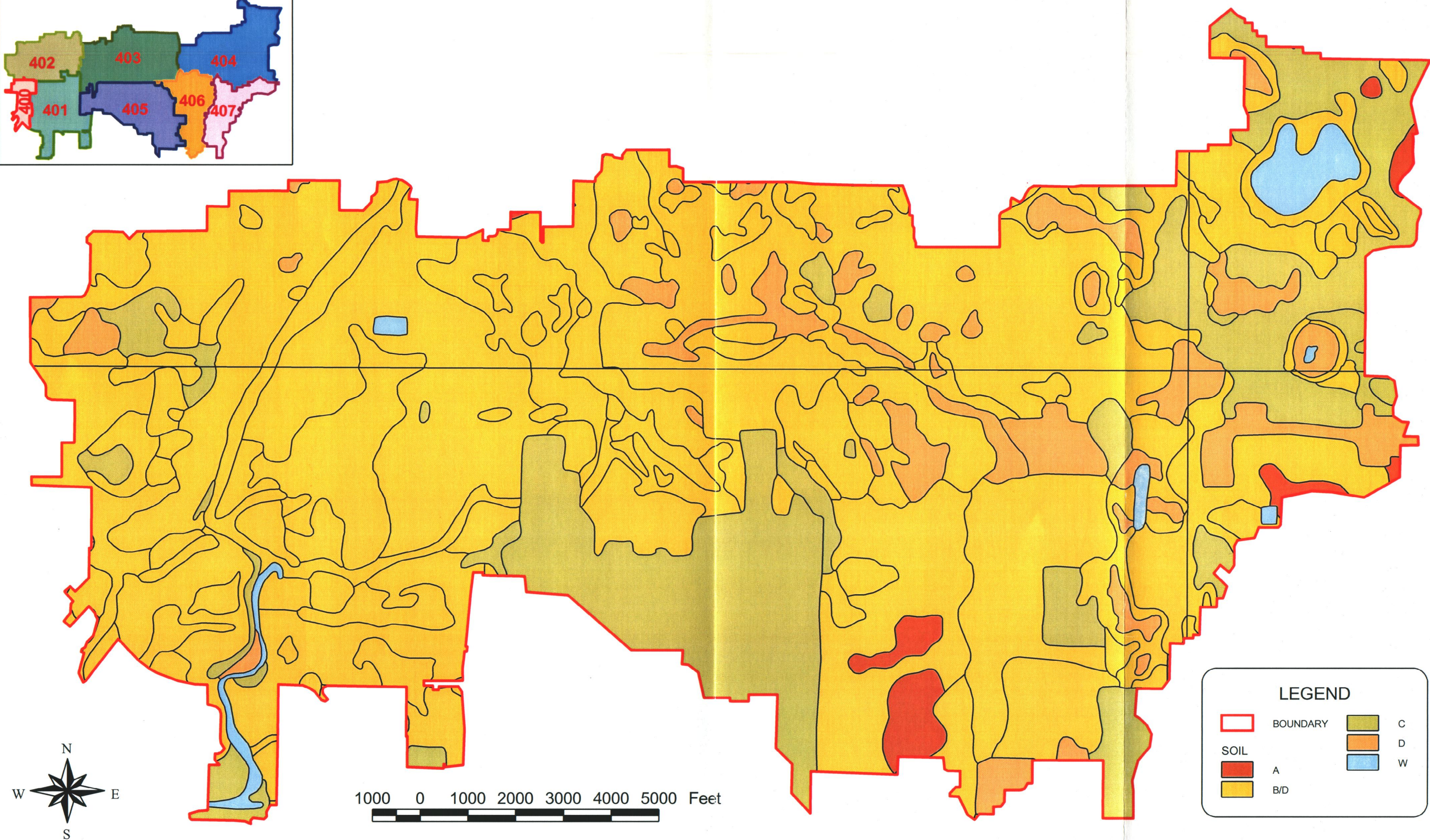
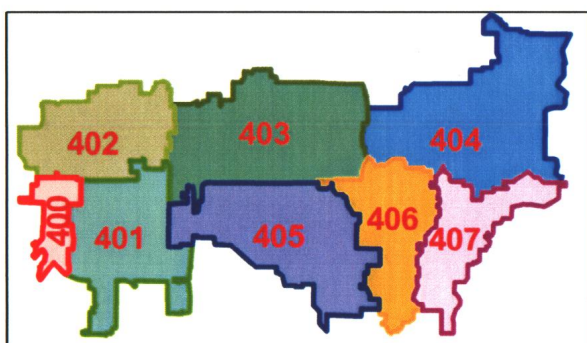


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FIGURE 2-2

LOWER SWEETWATER WATERSHED
SOIL CLASSIFICATION BY TYPE



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FIGURE 2-3

LOWER SWEETWATER WATERSHED
SOIL CLASSIFICATION BY HYDROLOGIC GROUP

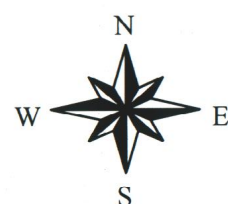
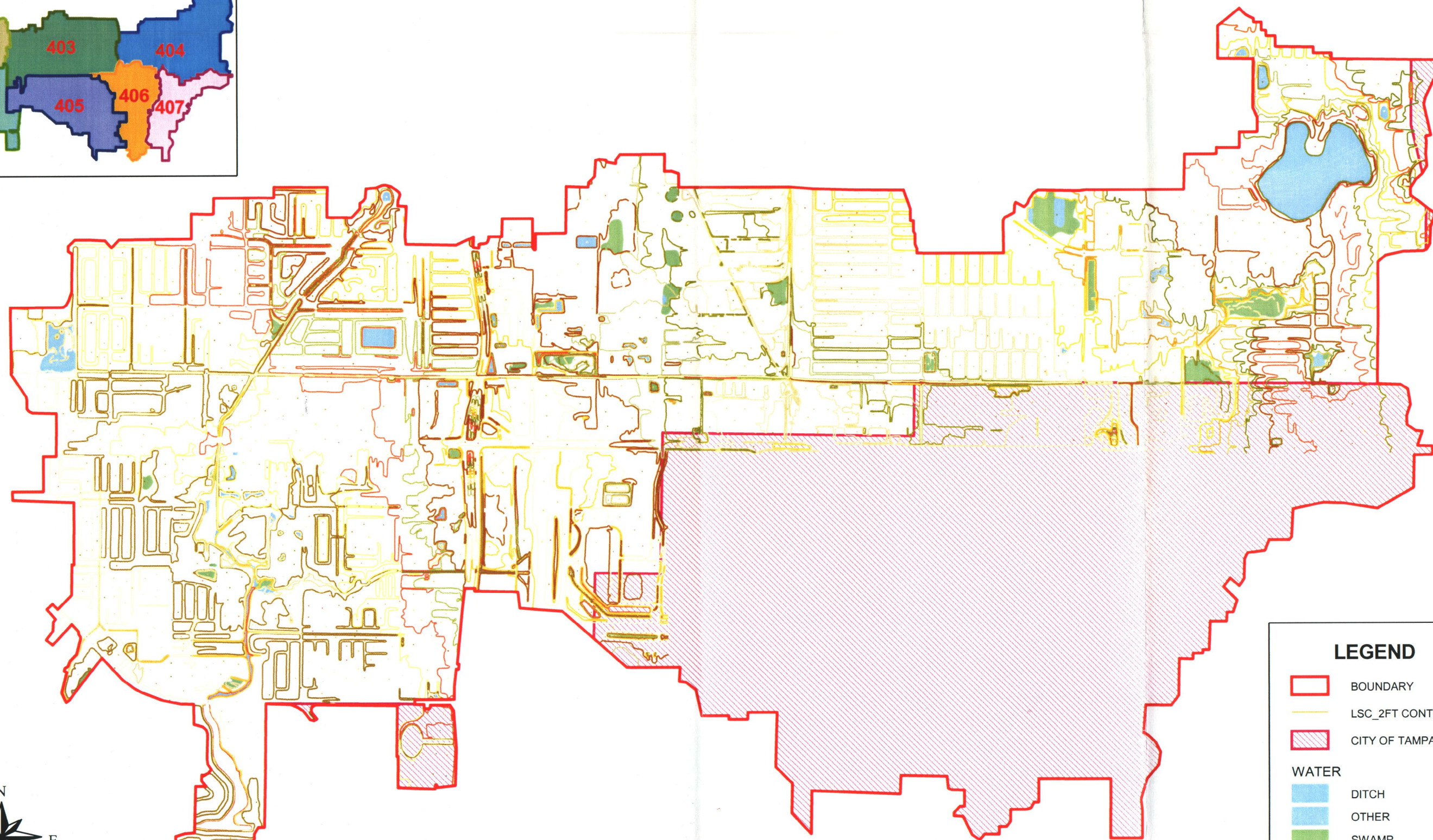
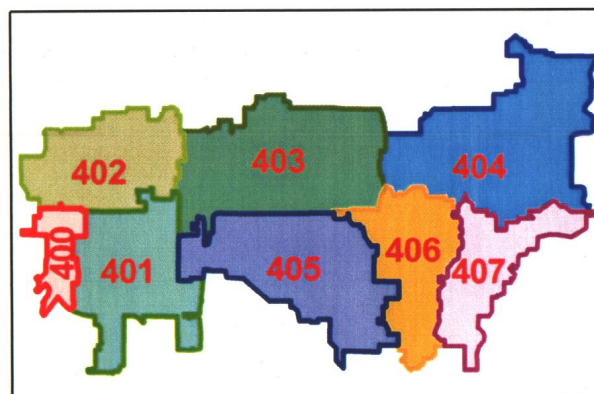
- Group C (moderately high runoff potential) soils have low infiltration rates when thoroughly wetted and a low rate of water transmission. They have typical infiltration rates of 5 in./hr when dry and 0.25 in./hr when saturated. Soil types found in the LSC that fall into this group includes Seffner fine sand, and Zolfo fine sand.
- Group D (high runoff potential) soils have very slow infiltration rates when thoroughly wetted and a very low rate of water transmission. They have typical infiltration rates of 3 in./hr when dry and 0.10 in./hr when saturated. Soil types found in the LSC that fall within this group include Basinger, Holopaw and Samsula, Chobee muck.
- Dual classifications (e.g. A/D or B/D) can be assigned to soils that exhibit substantially different hydrologic characteristics during the wet and dry seasons. During the wet season, these soils become saturated throughout much of the soil column due to elevated water table conditions. Infiltration is thus impeded and the soils exhibit Group D infiltration and runoff rates. During the dry season when the water levels recede, infiltration rates increase and runoff rates decline to Group A or Group B levels. Soil types that fall within the B/D classification found within the LSC are Chobee loamy fine sand, Felda fine sand, Floridana fine sand, Immokalee fine sand, Malabar fine sand, Myakka fine sand, Myakka-ULSCn land complex, Ona fine sand, St. Johns fine sand, Wabasso-ULSCn land complex and Winder fine sand.

Soils can also be classified as either hydric or non-hydric, which relates to whether the soils had wetland or upland origins, respectively. Those soils designated as hydric develop under anaerobic conditions in wetland areas and generally contain a large amount of organics, are poorly to very poorly drained or depressional in nature, and are associated with a high seasonal water table. Those soils, which are non-hydric, lack these characteristics and are associated with upland or transitional areas. Soil types with the hydric classification found within the LSC are Basinger, Holopaw and Samsula, Chobee loamy fine sand, Chobee muck, Eaton mucky sand, Felda fine sand, Floridana fine sand, Malabar fine sand, St. Johns fine sand and Winder fine sand. All of the other types would be considered non-hydric.

2.4 Land Use / Coverage

Existing Land Use

As stated previously, the LSC encompasses a wide variety of land uses. The Southwest Florida Water Management District's 1999 Land Use/Land Cover Map is shown in Figure 2-4. The majority of these residential areas tend to be older subdivisions with little or no stormwater treatment being provided.



2000 0 2000 4000 Feet

LEGEND

- BOUNDARY
- LSC_2FT CONTOUR
- CITY OF TAMPA

WATER

- DITCH
- OTHER
- SWAMP



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FIGURE 2-4

LOWER SWEETWATER WATERSHED
TOPOGRAPHIC MAP

Table 2-1 Existing Land Uses (1999) – Lower Sweetwater Creek Watershed

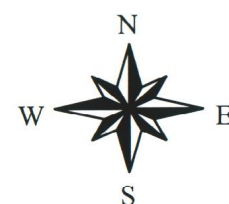
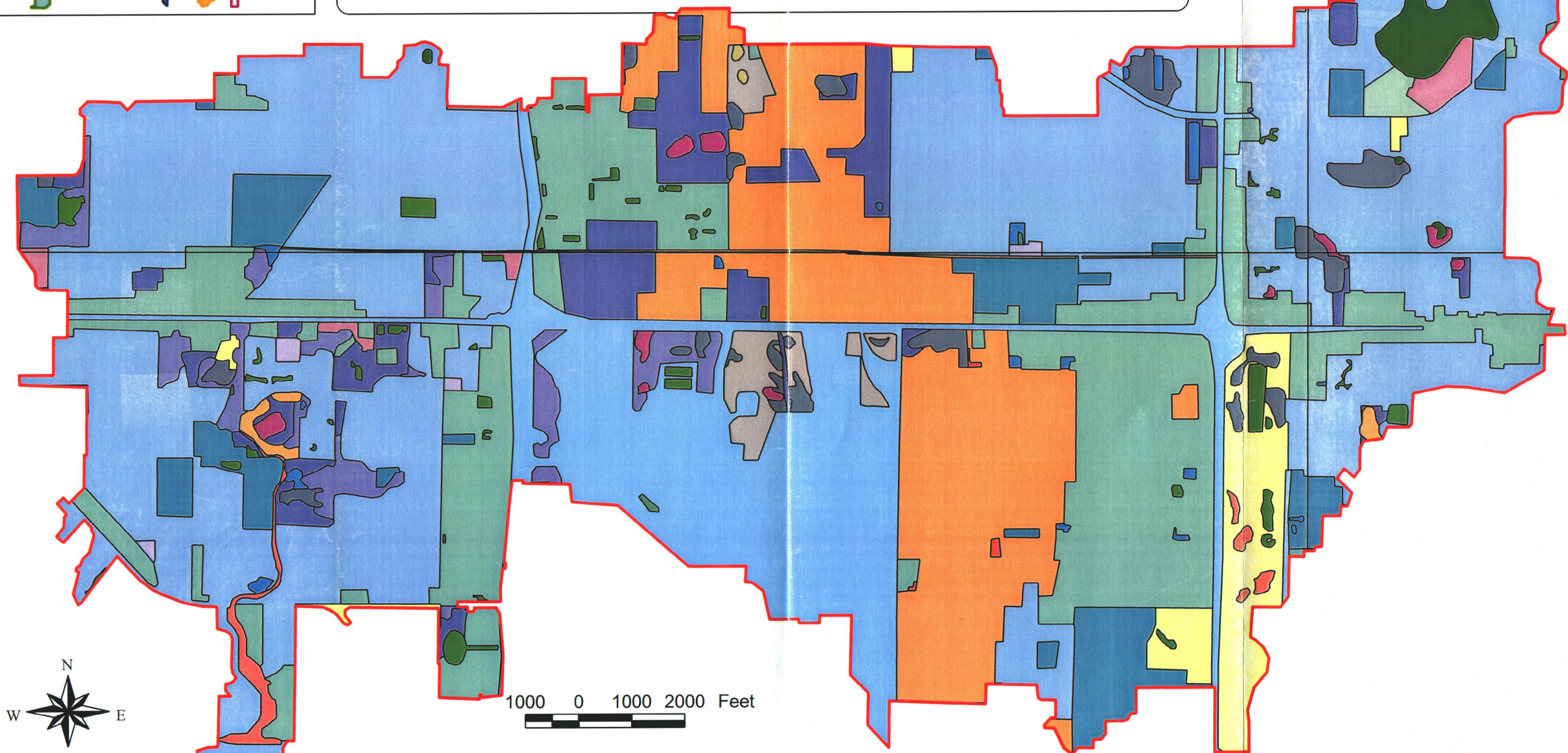
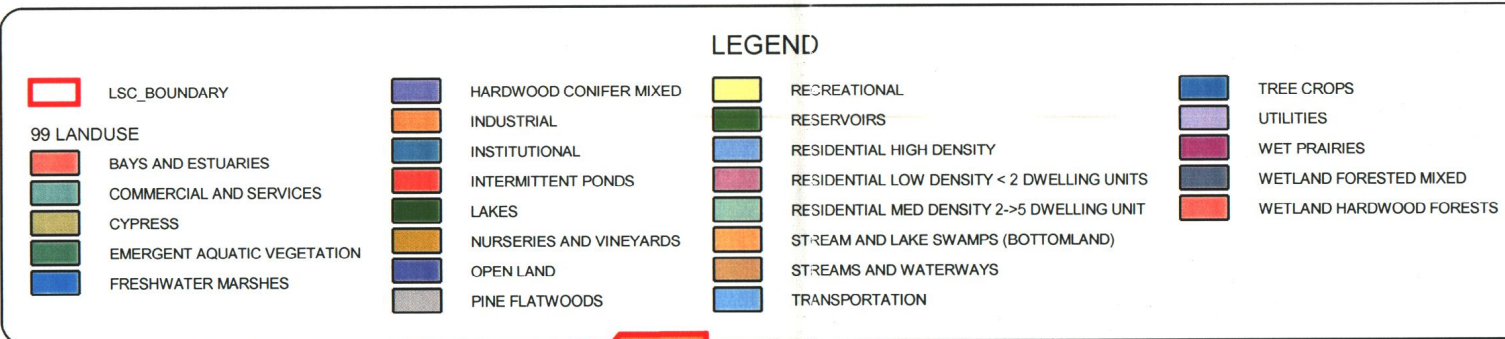
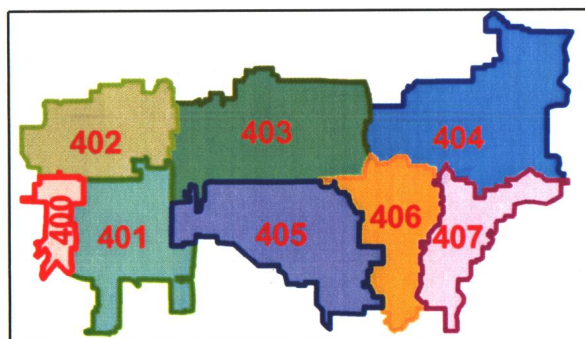
FLUCCSCODE	LAND USE CATEGORY	TOTAL ACREAGE	PERCENT OF TOTAL
1100	RESIDENTIAL LOW DENSITY < 2 DWELLING UNITS	34.336	0.51
1200	RESIDENTIAL MED DENSITY 2->5 DWELLING UNIT	29.148	0.43
1300	RESIDENTIAL HIGH DENSITY	2550.571	37.89
1400	COMMERCIAL AND SERVICES	1110.127	16.49
1500	INDUSTRIAL	811.65	12.06
1700	INSTITUTIONAL	320.2	4.76
1800	RECREATIONAL	196.804	2.92
1900	OPEN LAND	305.357	4.54
2200	TREE CROPS	0.756	0.01
4110	PINE FLATWOODS	74.507	1.11
4340	HARDWOOD CONIFER MIXED	142.127	2.11
5100	STREAMS AND WATERWAYS	13.850	0.21
5200	LAKES	66.327	0.99
5300	RESERVOIRS	62.762	0.93
5400	BAYS AND ESTUARIES	23.283	0.35
6100	WETLAND HARDWOOD FORESTS	7.596	0.11
6150	STREAM AND LAKE SWAMPS (BOTTOMLAND)	14.688	0.22
6210	CYPRESS	2.099	0.03
6300	WETLAND FORESTED MIXED	103.475	1.54
6410	FRESHWATER MARSHES	23.467	0.35
6430	WET PRAIRIES	23.538	0.35
6440	EMERGENT AQUATIC VEGETATION	4.807	0.07
6530	INTERMITTENT PONDS	2.46	0.04
8100	TRANSPORTATION	796.518	11.83
8300	UTILITIES	11.836	0.18
		6732.289	100.00

Future Land Uses

Due to the highly urbanized and developed areas in the LSC, there are not many changes in land use predicted and planed by the Hillsborough County Comprehensive Plan as shown in Figure 2-5.

2.5 Physiography and Hydrology

The LSC lies within the Polk Upland physiographic unit as defined by White. This unit is part of the Central or Mid-Peninsular physiographic zone, one of three in Florida. This zone is characterized by discontinuous highlands formed by sub-parallel ridges that are separated by broad valleys. Land elevation in the LSC varies between 40 feet NGVD in the northeast portion of the watershed to near sea level at the Old Tampa Bay. These elevations are shown on Figure 2-6.



1000 0 1000 2000 Feet

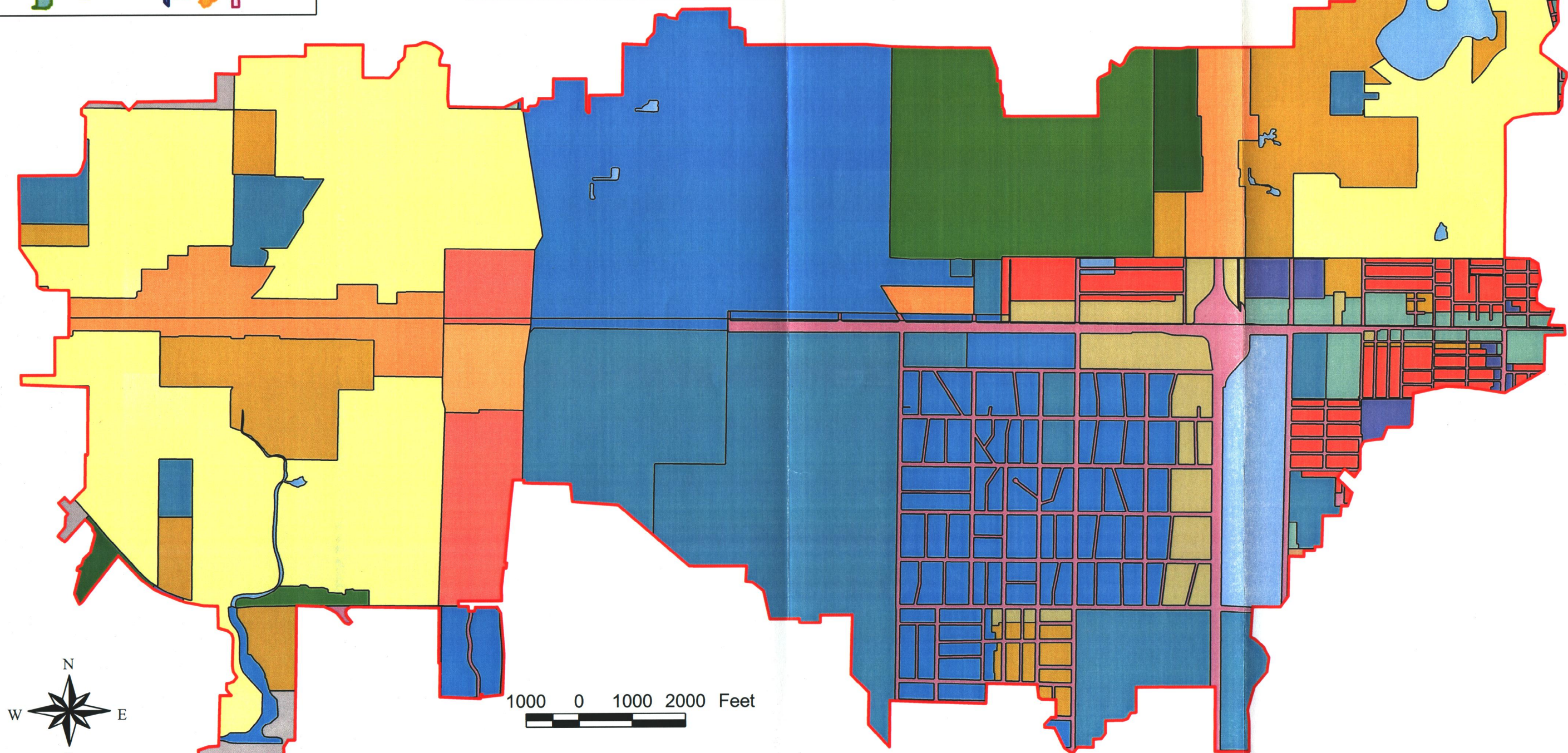
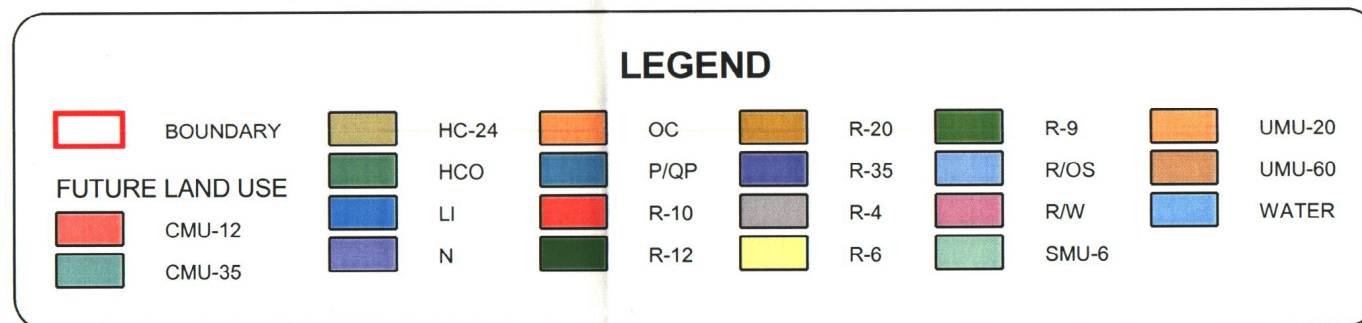
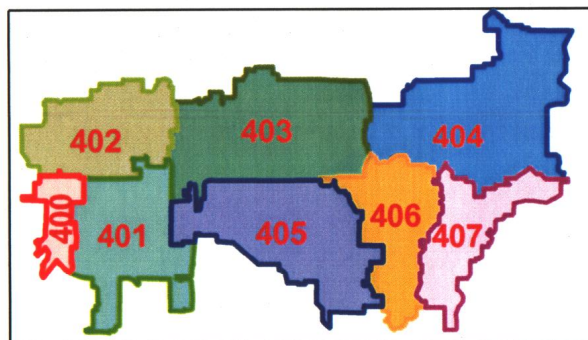


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FIGURE 2-5

LOWER SWEETWATER WATERSHED
1999 SWFWMD LANDUSE/LAND COVER MAP



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FIGURE 2-6

PLANNING COMMISSION GENERALIZED
FUTURE LAND USE MAP (2015)

The watershed has three major outfalls. These include the Peppermound Creek System, Low Sweetwater Creek System and Channel G of Sweetwater Creek for Thompson Lateral. Surface flows are generally from the northeast to the southwest toward the Lower Sweetwater Creek outfall. Hydrologically, surface flows originate for the most part through stormwater runoff with some influence from groundwater flows from lake seepage.

2.6 Hydrogeology

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CHAPTER 3: WATERSHED DESCRIPTION

3.1 Introduction

This chapter contains a general description of the major conveyance systems in the LSC watershed. The existing conditions system performance and potential problem areas for various storm events are described in the Existing Conditions Level of Service Analysis (Chapter 6) for the major conveyance systems.

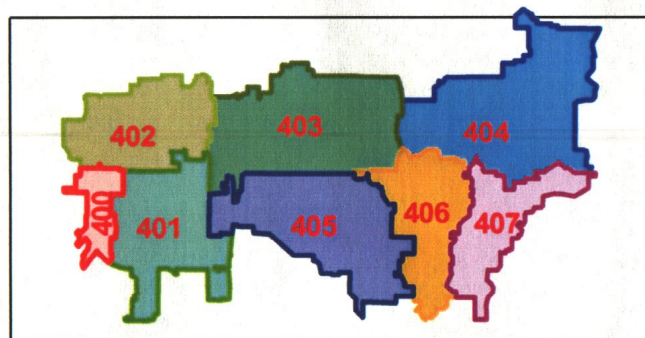
The analysis of existing condition is presented and discussed through areas that represent the major outfall and conveyance systems in the LSC WMMP area. All major conveyance systems are systematically numbered for further modeling purpose as shown in Figure 3-1. It is classified into systems as described in the following:

- Peppermound Creek System (400xxx System)
- LSC South System (401xxx System – South of Hillsborough Avenue)
- LSC North System (402xxx System – North of Hillsborough Avenue)
- The Henry St. Canal (HSC) West System (403xxx System – West of Manhattan Avenue)
- The Henry St. Canal (HSC) East System (404xxx System – East of Manhattan Avenue)
- The Tampa International Airport (TIA) North System (405xxx System)
- Drew Park System (406xxx System)
- The Al Lopez Park System (407xxx System)

Figure 3-1 also identifies the locations of major outfalls, as well as associated laterals with each system within the LSC WMMP area.

3.2 Pepper Mound Creek System (400xxx System)

The majority of the Peppermound Creek subbasin lies generally south of Hillsborough Avenue, north of Bay Pointe Drive and Old Tampa Bay, west of Town N' Country Boulevard, and east of Halifax Drive. There are some commercial developments that discharge to the creek. The system begins near the intersection of Town N' Country Boulevard and Hillsborough Avenue. The portion of the storm sewer system of Hillsborough Avenue between Halifax Drive and Hanley Road contributes the stormwater runoff collected from the roadway to the headwaters of the Outfall. From its origin, the Outfall flows due south under Cornwall Lane toward Tanglewood Lane. Most of the Outfall is an open channel with grassy side slopes and a muddy, silty bottom. The creek, for most of its distance, has residential backyards on either side of its channel. A single pipe conveys stormwater under Tanglewood Lane and into a channel directed toward Glenview Lane.

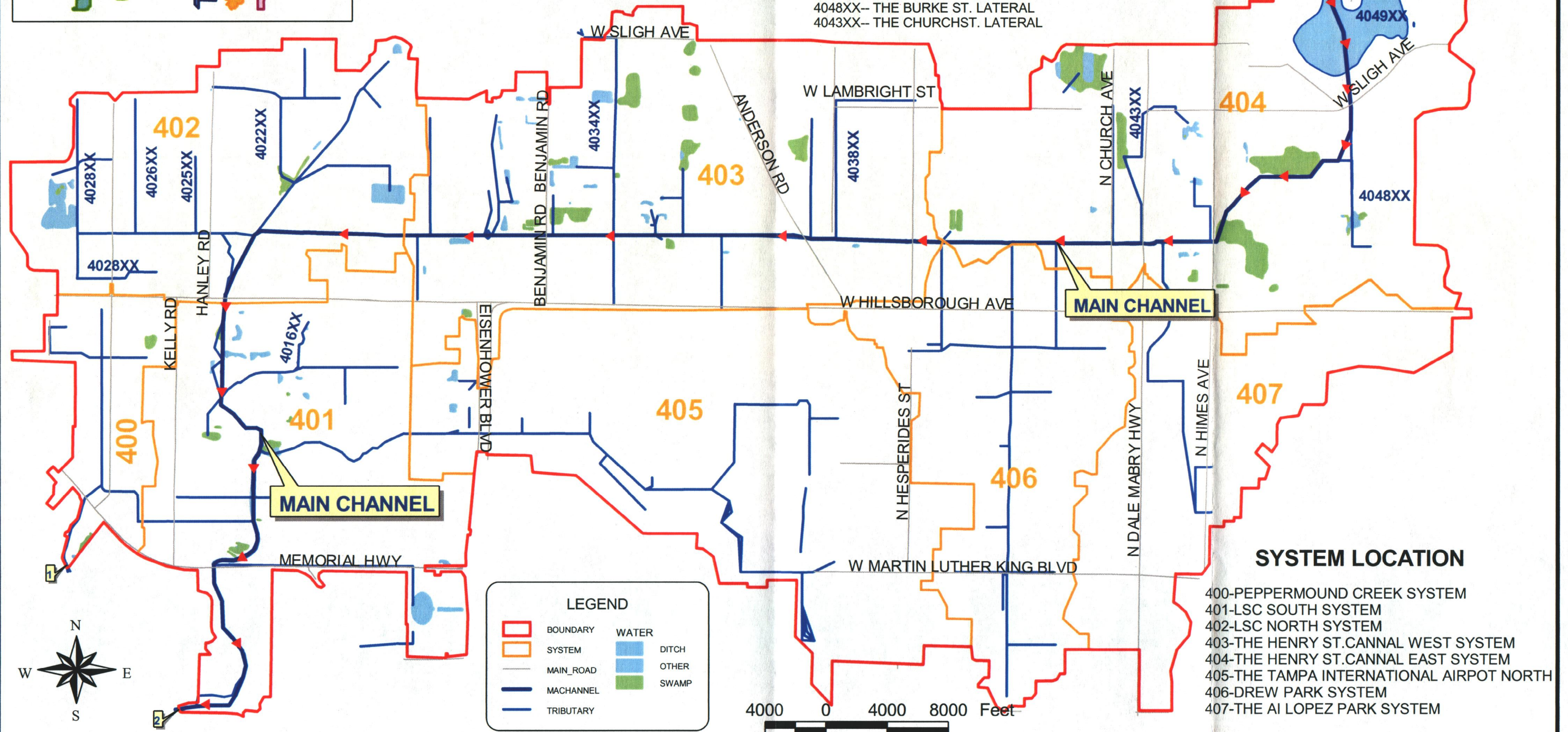


OUTFALL LOCATIONS

1. HILLSBOROUGH AVE OUTFALL
2. LOWER SWEETWATER OUTFALL

LATERAL LOCATION

- 4016XX-- GOLFWOOD LATERAL
- 4022XX-- WILLOWWOOD LATERAL
- 4025XX-- TNC-1
- 4026XX-- TNC-2
- 4028XX-- TNC-3
- 4028XX-- TNC-4
- 4038XX-- THE OCCIDENT ST. LATERAL
- 4034XX-- THE THOMPSON
- 4049XX-- THE EGYPT LAKE LATERAL
- 4048XX-- THE BURKE ST. LATERAL
- 4043XX-- THE CHURCHST. LATERAL



SYSTEM LOCATION

- 400-PEPPERMOUND CREEK SYSTEM
- 401-LSC SOUTH SYSTEM
- 402-LSC NORTH SYSTEM
- 403-THE HENRY ST.CANNAL WEST SYSTEM
- 404-THE HENRY ST.CANNAL EAST SYSTEM
- 405-THE TAMPA INTERNATIONAL AIRPORT NORTH
- 406-DREW PARK SYSTEM
- 407-THE AI LOPEZ PARK SYSTEM



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FIGURE 3-1

LOWER SWEETWATER SUB-WATERSHED
MAJOR CONVEYNCE SYSTEMS

Approximately halfway between the crossing of the outfall system with Tanglewood and Glenview Drive is the confluence with a lateral storm collection system and it drains a portion of the residential area between Hillsborough Avenue and Tanglewood Drive to the outfall system. The lateral, known as the Tanglewood/Gateway system, is a closed conduit system. It discharges to an open channel and subsequently outfalls to Peppermound Creek between the crossings of Tanglewood and Gateway. The creek continues south after flow passes through the pipe under Glenview Lane, with little change in conveyance characteristics between this crossing and the next crossing at Springside Lane. The flow is then passed south under Springside Lane, and then under Winston Lane, as the channel conveys the stormwater toward Memorial Highway. A considerable amount of accumulated debris (i.e. tires, wood, trash, etc.) is frequently deposited on the upstream side of the Memorial Highway crossing, creating a potential clogging problem. Downstream from the Memorial Highway box culverts, the vegetation on the side slope of the channel becomes very dense. Most of the vegetation is woody, but there are few actual trees of any significant size. The channel bottom has the same muddy, silty composition that it had further upstream, with little change. The creek passes between two separate apartment complexes at this point. The channel is deeper within this reach due to the fill placed on the adjacent sites to build-up the tops-of-bank. The channel is crossed by a private footbridge approximately halfway between Memorial Highway and Bay Pointe Drive. The channel cross-section is reduced under the bridge by the support abutments on each side. The creek finally passes the flow under Bay Pointe Drive through twin box culverts, and into Old Tampa Bay.

3.3 Lower Sweetwater Creek South System (401xxx)

The Lower Sweetwater Creek channel south of the Hillsborough Avenue drains the entire LSC basin with the exception of Peppermound Creek. Commercial, industrial, and residential land uses contribute runoff to the creek. The channel receives flow from at least three significant contributing systems: LSC North System, the Henry Street Canal (HSC) and the TIA System. The channel begins at the downstream of Hillsborough Avenue. After passing under Hillsborough Avenue, the channel becomes very wide and splits into two rather broad conveyance ways. The eastern conveyance way is the larger channel of the two; it accepts flow from the Golfwood lateral, located to the east. This channel has heavily vegetated side slope with woody growth, and a muddy, silt bottom. The eastern channel appears to have been excavated while the western channel may have been the natural conveyance path prior to the development of the area. The normal water levels in the channels are tidally influenced at this point and the water is generally clear during low flow. The east and west channels converge approximately 500' downstream and then again near the northern boundary of the Berkeley Preparatory School site, forming two oxbows. The segment of the channel just downstream of this point appears to have also been excavated and is wider at this point. The side slopes are very slight and are heavily vegetated with woody growth and some trees. The bottom is sandy, with a very mild slope. The direction of flow is affected by tide in this reach, but it is generally south toward Memorial Highway. This portion of the Outfall accepts the flow from the TIA System, located to the east. At the point where the southern property line of the Berkeley Preparatory School abuts the creek, the channel remains wide with very mild side slope.

From this point downstream, the channel passes through a residential area. The character of the channel changes to take on a more channeled appearance. The channel is defined with seawalls on the eastside, and the amount of natural vegetation observed along the channel banks has been reduced. The flow direction is generally south to the bridge at Memorial Highway. Downstream of the bridge the channel is very wide and is used for small boat traffic. There is little natural vegetation in this reach of the creek; the channel has seawalls on both sides. This is the condition of the channel until it discharges to Old Tampa Bay. This lower reach of the channel is tidally influenced where sediment transport forces due to wave action continuously alter the bottom profile.

The Golfwood Lateral (4016xx)

There is a lateral within this conveyance system. The majority of the Golfwood Lateral lies south of Hillsborough Avenue, west of George Road, and north of the TIA System. There are two large apartment complexes that discharge to the lateral. The Lateral originates near the southwest quadrant of the intersection of George Road and Hillsborough Avenue. The System consists of an open ditch that flows to the west toward La Mesa Circle. The channel passes through the pipe under La Mesa Circle and continues west to Alvarado Drive. The ditch within this portion of the System is grassy and well maintained. The flow is then conveyed under Alvarado Drive and continues through an open ditch toward the east property line of an apartment complex. This portion of the open conveyance system has adjacent residential backyards to the south and dense woods to the north. The bottom is flat with little vegetation. Flow is then discharged into the apartment complex property through a culvert as it continues in a westward direction. Within the apartment complex property, the runoff collected from Hillsborough Avenue between the bridge over LSC on the east and George Road on the west joins the flow in the Golfwood Lateral. The Hillsborough Avenue stormwater enters the Lateral from the north via an open channel. The flow continues toward the west, downstream from this confluence, through a second culvert that is internal to the apartment complex. The flow is then discharged at the west of the apartment complex into a rather overgrown open ditch and flows further to the west and into the property of a second apartment complex. The flow passes through only one culvert internal to this apartment complex as it is conveyed to the west of the property. The open ditch through this segment of the Lateral has heavy vegetal growth both on its bottom and along its side slopes. The lateral ultimately flows to the Lower Sweetwater Creek main channel, which is located on the west of the second Reflections Apartment complex.

3.4 Lower Sweetwater Creek North System (402xxx)

Lower Sweetwater Creek North System drains area from the origination of the confluence of Sweeter Creek Channel G to the north, Hillsborough Avenue to the south, George Road to the east, and Web Road to the west. It also collects runoff from a portion of Town N' Country that is mostly residential. The channel begins near Channel G and flows in a southwesterly direction toward its confluence with HSC, where the Henry Street System-West and the Town 'n Country Lateral converge and continue flowing to Hillsborough Avenue. From the upstream point near

Sweetwater Creek Channel G, flow is directed through an open ditch to the crossing at Runningwoods Drive. This channel segment is relatively deep, is heavily vegetated on its side slope, and has a mucky bottom. After passing under Runningwoods Drive the flow continues in a southerly direction along Sawyer Road through an open ditch toward a piped crossing at Hanna Avenue. This segment of the channel is also heavily vegetated on its side slope for a portion of the distance to Hanna Avenue. Closer to Hanna Avenue, the channel is well maintained with grassed side slope that are relatively steep. There also exists a wide maintenance berm in this area that is absent in the upper reaches of the channel. On the downstream side of Hanna Avenue, the channel becomes more heavily vegetated on its bottom as well as on its side slope. A Willowwood Lateral outflows from the northwest into this system within this stretch. Further to the south, the channel becomes more densely filled with cattails and water hyacinths. The channel bottom becomes flatter as it approaches the confluence with the Town 'n Country lateral and HSC west system. From there it flows to the south toward the bridge at Hillsborough Avenue. The portion of the channel between the bridge and the confluence is relatively flat with moderately vegetated side slope; the channel has been realigned in the past.

A small portion of downstream of HSC is included into this system. In HSC, the water from upstream passes under George Road and continuously flows west toward Golden Drive. After passing under Golden Drive the Canal widens somewhat and the bottom is sandy with very little vegetation. There are residential areas on both sides of the System within this segment. The next downstream road crossing is the bridge at Sawyer Road. From Sawyer Road to the confluence with the LSC main channel, the canal has a wide sandy bottom with woody vegetation growing on the side slope.

Willowwood Lateral (4022xx)

The majority of Willowwood Lateral lies south of Channel G, west of the LSC Channel, and east of Hanley Road. The stormwater runoff collected by this Lateral is generated mostly from adjacent residential areas. The Lateral is made up mostly of an open ditch system that begins in the east right-of-way of Hanley Road, just south of Channel G. From that point the flow is conveyed to the east toward Armand Drive. The ditch is fairly well maintained with rather steep, grassy sideslopes, and is relatively free from larger vegetation types. The lateral passes under Armand Drive and flows eastward and then southward in an open ditch along Willowwood toward Hanna Avenue. This portion of the ditch system is very similar in character to the upper portions of the Lateral. Downstream from Hanna Avenue, this lateral discharges to the LSC Channel through a heavily vegetated reach at the confluence.

Town N' Country Lateral (402400-402800)

Town n' Country Lateral is the major drainage lateral for the Town N' Country area located between Hanley Road, Webb Road, Jackson Springs Boulevard, and Hillsborough Avenue. The lateral directs flow to the east toward and under the crossing at Town N' Country Boulevard. The lateral then accepts stormwater runoff from the adjacent streets and yards as it directs flow toward the crossing at Hanley Road. In between Hanley Road and Town N' Country Boulevard the System receives stormwater discharged from two small laterals (TNC-1 & TNC-2) in the north. A dam and

pump station were constructed in this location just downstream from the Hanley Road crossing after the floods in the summer of 1995. The purpose of the dam is to prevent reverse flow (from east to west) in the Town N' Country Lateral during period of high discharges in downstream and in the Henry Street Canal. Such flow reversal was reported during the floods of 1995. There are two pumps, one with rated capacity of 30 cfs and the other with rated capacity of 60 cfs. There are also two 42-inch diameter pipes through the dam each with a check valve on its downstream end. The pumps and check valves provide an outfall for the Town N' Country area west of Hanley Road. From there, the flow continues to the east where the canal discharges to LSC at its confluence with the HSC.

TNC-1 (4025xx)

The majority of TNC-1 lies south of Jackson Springs Road, east of TNC-2, and west of Hanley Road. The Lateral begins near the intersection of Jackson Springs Road and Hanley Road. The direction of flow is south through an open ditch. The ditch has steep, grassed side slope as well as a vegetated, wet bottom. The Lateral flows south toward Hanna Avenue, with residential backyards abutting both sides of the ditch. The direction of flow continues to the south under Hanna Avenue. The character of the ditch changes very little throughout its length. The configuration of the side slope is steep and grassed with wide maintenance areas along the banks. The Lateral flows south toward the crossing at Henry Street. The ditch accepts runoff from the adjacent streets and yards in this reach. After passing under Henry Street, the channel flows southward until it discharges into the Town N' Country Lateral.

TNC-2 (4026xx)

The majority of TNC-2 lies south of Jackson Springs Road, east of Town N' Country Boulevard, and west of TNC-1. The Lateral originates east of the intersection of Jackson Springs Road and Hanley Road. The direction of flow is south through an open ditch. The ditch has steep, grassed side slope, as well as a vegetated, wet bottom. The Lateral flows south toward Hanna Avenue, with residential backyards abutting both sides of the ditch. The direction of flow continues to the south under Hanna Avenue. The character of the ditch changes very little throughout its length. The side slopes are steep and grassed, with wide maintenance areas along the banks. The Lateral continues to flow south toward the crossing at Henry Street. The ditch accepts runoff from the adjacent streets and yards in this stretch. After passing under Henry Street, the ditch continues to flow south until it is ultimately discharges into the Town N' Country Lateral.

TNC-3 (4028xx)

TNC-3 Lateral lies south of Jackson Springs Road, east of Webb Road, and west of the LSC Main Channel. The System begins near the intersection of Jackson Springs Road and Town N' Country Boulevard. The initial direction of flow is south through an open ditch. The ditch has steep side slopes that are grassed, as well as a vegetated wet bottom, with heavy vegetation on the west top-of-bank. The canal flows to the south with residential backyards abutting on its east. These characteristics prevail until the System meets the western property line of the Town N' Country Hospital. The stormwater management system of the hospital discharges to the canal from the west. The direction of flow in the canal continues to the south adjacent to the hospital site, and

then makes a turn to the east to the confluence of Town n' Country Lateral and a small lateral TNC-4. The character of the ditch changes somewhat at this point. The ditch bottom is now submerged in shallow water, but the configuration of the side slope is steep and grassed. A pump station has been built at this location in 2000 to alleviate the flooding problem around this area.

TNC-4 (4028xx)

The majority of this lateral lies south of Westgate Park, east of Town N' Country Boulevard, and west of Ambassador Drive. The Lateral begins west of Ambassador Drive. The direction of flow is west through an open ditch. The ditch has steep, grassed sideslopes, as well as a vegetated, wet bottom. Westgate Park abuts the Lateral on the north, and a large shopping center abuts the Lateral on the south within this segment. The flow is then directed further to the west toward and under Town N' Country Boulevard. Within this segment, the ditch receives runoff from adjacent residential backyards located to the north. The character of the ditch changes very little throughout its length. The TNC-4 continues to carry flow west, and then turns sharply north; it then flows toward and under the crossing at Comanche Avenue. The ditch accepts runoff from the adjacent streets and yards as it flows further north to the crossing of Powhattan Avenue. After passing under Powhattan Avenue the flow continues to the north until it ultimately discharges into the Town N' Country Lateral.

3.5 Henry Street Canal West System (403xxx)

The majority of the Henry Street Canal West System (the western portion of the Henry Street Canal) lies north of Hillsborough Avenue, east of the LSC main channel, and west of Manhattan Avenue. This portion of the Henry Street Canal begins west of Manhattan Avenue and flows west toward to the LSC main channel. This system starts from Manhattan Avenue with a small tributary from south near Pierce J.H.S (Drew Park discharge west point) and continuously flows toward west to the bridge crossing at Hesperides Avenue. The Canal segment west of the Hesperides Avenue bridge has a somewhat sandy, wet bottom with grassed side slope. The flow direction continues west toward the CSX Railroad trestle and the Anderson Road crossing. This portion of the System has residential land use to the north and commercial areas to the south where contribute stormwater runoff to the Canal. Before passing under the railroad trestle, the System receives runoff from north through the Occident St. Lateral. After passing under the railroad trestle and Anderson Road, the Canal continues to flow west toward Hoover Boulevard. The channel between Anderson Road and Hoover Boulevard has a sandy bottom with woody vegetation on its side slope, and receives runoff from the adjacent commercial areas. After passing under Hoover Boulevard the Canal continues to flow west. There are commercial areas located on both the north and south sides of the System. From Hoover Boulevard to the confluence with the Thompson Center Lateral, the Canal has a sandy bottom with woody vegetation on its side slope. From the confluence, the flow is directed through the canal with a rather steep, grassed side slope, some woody shrubs/vegetation, and a well vegetated, wet bottom. The System flows west toward the bridge at Benjamin Road. After passing under Benjamin Road the flow continues toward the Veterans Expressway. The segment west of Benjamin Road bridge has a somewhat sandy, wet

bottom, with sandy, grassed side slope. The side slope shows indication of sloughing which contributes to sediment transport within the System. The flow continues west toward the George Road crossing. Overall, the System is in fair maintenance condition. However, some portions of the Canal have excessive amounts of vegetation on the side slope.

The Occident St. Lateral (4038xx)

The majority of the Occident St. Lateral lies north of the Henry Street Canal and south of Sligh Avenue, along Occident Street. This Lateral begins near the intersection of Hesperides Avenue and Lambright Street. From this location stormwater runoff is collected in an open ditch and is conveyed west toward Occident Street. At Occident Street the flow enters a storm sewer collection system and is conveyed to the south within the east right-of-way of Occident Street. The flow travels through a closed conduit system with inlets from this point to the Henry Street Canal. Nearly all of the runoff entering the Lateral is from adjacent residential areas. The configuration of the large curb inlet at the intersection of Occident Street and Henry Street presents a safety hazard during flood events. This multiple throat inlets have large openings, and the projected hydraulic conditions during extreme storm events could lead to significant flow velocities at the inlet.

The Thompson Center Lateral (4034xx)

The majority of the Thompson Center Lateral lies north of the Henry Street Canal, east of Benjamin Road, and south of Sligh Avenue. The Lateral receives runoff from the Thompson Center site where commercial business parks located south of Sligh Avenue. The Lateral, at the Thompson Center outflow point, flows in two directions. The flow can move either to the north, toward Sligh Avenue and Sweetwater Creek Channel G, or to the south through a ditch system and into the Henry St. System-West. The north lateral of the Thompson Center outflow point is a piped system that conveys flow north under Sligh Avenue, through a wetland system, and ultimately into Channel G. The Lateral segment south of the outflow point of Thompson Center is an open ditch that conveys flow to the south. The ditch itself is an excavated channel that contains very dense vegetation on both its bottom and side slope. As the flow is conveyed to the south, several commercial developments discharge to the Lateral. The Benjamin Center Industrial Park, Telecom Plus, the Westport Commerce Center, and portions of the Airport Service Center all discharge into the Lateral. With the exception of the portion that is piped through the property of the Westport Commerce Center, the south portion of the Lateral is an open ditch that appears to receive very little maintenance. The ditch also receives runoff from a large disturbed depression area located north of the Airport Service Center. This area was, at some time in the past, used as a tropical fish farm; but now the area is vacant land.

3.6 Henry Street Canal East System (404xxx)

The majority of the Henry St. System-East (the eastern portion of the Henry Street Canal) lies north of Hillsborough Avenue, east of the Manhattan Avenue, south of Egypt Lake, and west of MacDill Avenue. This portion of the Henry Street Canal originates at Egypt Lake Lateral in north and the Burke St. Lateral in the south. These two laterals confluence at a channel near the intersection of

Woodlynne Road and Jean Street. The flow is then directed under Woodlynne Road to the west. The flow passes through a large culvert on private property, and then is conveyed toward Paris Street via a ditch abuts the south boundary of a drained wetland. This ditch, located between Woodlynne Road and Paris Street, is a deeply excavated feature that is in fair maintenance condition, and has a wet, mucky bottom. At Paris Street, the System turns to the southwest toward Idlewild Avenue. After passing under Idlewild Avenue, the ditch system flows through a wetland and carries flow further west toward the crossing at Himes Avenue. After passing under Himes Avenue, the channel becomes more defined with a noticeable increase in depth. The direction of flow is to the west toward the private bridge at an automobile dealership. The channel cross-section in this portion of the System is crowded with small trees and other woody vegetation. Just upstream from the private bridge the ditch receives inflow from the channel that drains the Horizon Park area within the City of Tampa. (Details of the existing conditions within the Horizon Park area stormwater management system are not included in this report.) The flow passes under the private bridge and continues to move to the west through the ditch and toward the crossing at Dale Mabry Highway. The System receives runoff from the Dale Mabry Highway stormwater collection system, and continues to flow to the west. Downstream from Dale Mabry Highway the channel becomes concrete-lined. The lining extends from the downstream side of Dale Mabry Highway to the crossing at Church Street, at the location where the Church St. Lateral outflows into the System.

The water continuously flows to the west under the Church Street crossing and through a wide channel. The channel has steep, grassed side slope, with some woody shrubs/vegetation, and a well vegetated, wet bottom. The System directs flow west toward the bridge at Lois Avenue. This portion of the Canal receives runoff from a densely populated residential land use to the north, and a somewhat less dense residential area to the south. Stormwater outflow is collected from the Drew Park portion of the City of Tampa at three locations within the System. (As stated earlier, the details of the existing conditions within the Drew Park area's stormwater management system are not included in this report.) The first (east) and second (central) of these discharge points are located between the Church St. Lateral and the Lois Avenue bridge. The Drew Park runoff enters this segment of the System through a box culvert (east discharge point) and through a recently upgraded box culvert/weir/energy dissipater structure (central discharge point). The City of Tampa has planned improvement for a large portion of the storm collection system east of Lois Avenue. A portion of the conveyance and storage improvements has been completed north of Hillsborough Avenue. After the System flow passes under Lois Avenue, the third (west) Drew Park discharge point contributes to the Canal flow via an open channel.

The Egypt Lake Lateral (4049xx)

Portion of the Henry Street Canal originates at Egypt Lake and flows south toward Lambright Street. The flow is directed through a ditch to the south from the Lake to the north right-of-way of Lambright Street. At this point the flow enters a pipe system. The flow is discharged from the pipe system into a channel near the intersection of Woodlynne Road and Jean Street. At this point the flow from the Burke St. Lateral enters the System.

The Burke St. Lateral (4048xx)

The majority of the Burke St. Lateral lies north of Hillsborough Avenue, east of Woodlynn Road and west of Habana Avenue. This Lateral originates near the intersection of Henry Avenue and Habana Avenue, within the City of Tampa. From this location, the runoff is collected at a low area and is conveyed west through several residential culverts. At Macdill Avenue the flow is directed north into Burke Park and Lake Britton. From Burke Park the flow is conveyed through shallow roadside ditches to the north, and under Burke Street, Paris Street and Jean Street. Nearly all of the runoff entering the Lateral is from adjacent residential areas. The ditches and pipe system comprise the Lateral appear to be in fair condition.

The Church St. Lateral (4043xx)

The majority of the Church St. Lateral lies north of the Henry St. System-East, west of Dale Mabry Highway, and south of Sligh Avenue. This Lateral begins near the intersection of Sligh Avenue and Church Street. From this location, runoff is collected in an open ditch and conveyed to the south under Sligh Avenue. The Lateral is comprised of a series of deep ditches and driveway culverts that are located along the east right-of-way of Church Street. The only road crossing downstream from Sligh Avenue is at Idlewild Avenue, near the downstream end of the Lateral. Nearly all of the runoff entering the Lateral is from an adjacent residential area. The direction of flow in the Lateral is to the south, with ultimate discharge into the Henry Street Canal.

3.7 Tampa International Airport System (405xxx) – within TIA Jurisdiction

The Tampa International Airport (TIA) property area has an extensive stormwater conveyance system in which has not been modeled or evaluated in detail by efforts reported herein. The purpose of including this system is to provide an appropriate estimate of expected flows from these areas into the County stormwater conveyance systems. Results of the existing conditions model runs for the Level of Service is not included in this report Chapter 6.

The majority of the TIA System considered in the report lies generally south of the Golfwood Estates subdivision, west of Eisenhower Boulevard, and north of West Chelsea Street. This System accepts a substantial inflow from the Tampa International Airport located to the east. The System also receives flow from Eisenhower Boulevard and two large developments - Presidents Plaza and the Sunforest Professional Office Complex. The stormwater runoff from a portion of Tampa International Airport is collected within the airport property and is discharged to the west under Eisenhower Boulevard through twin box culverts. The System begins at the Eisenhower Boulevard crossing, and conveys flow west toward George Road. The System accepts flow from the office complexes to the north and an industrial area to the south before directing the flow through the bridge at George Road. The channel upstream from George Road has high steep banks with heavily vegetated side slope and a sandy bottom. The channel downstream from the bridge has more mild grassy side slope and a sandy bottom. As the flow continues to move to the

west the channel becomes shallower with flatter side slope and the vegetation increases dramatically. The System passes through a marshy, wet, undeveloped area as it continues west toward the LSC Outfall. At the confluence with the LSC, the System appears to be much more natural, with slight side slope and natural vegetation along the low banks.

3.8 Drew Park System (406xxx) – within City of Tampa Jurisdiction

The Drew Park System is portion of the City of Tampa and has an extensive stormwater conveyance system in which has not been modeled or evaluated in detail by efforts reported herein. The purpose of including this system is to provide an appropriate estimate of expected flows from these areas into the County stormwater conveyance systems. Results of the existing conditions model runs for the Level of Service is not included in this report Chapter 6.

This system is in south of Henry Street Canal East System. The system drains area bounded by N. Manhattan Avenue in west, N. Dale Mabry in east, Tampa Bay Boulevard in south, and Henry Street Canal in north. All sub-basins within this system contain a variety of land uses consisting of light industrial, commercial, light and medium density residential and public development. This system flows north along Lois Avenue roadside ditch with street and driveway cross-drains, coupled with two minor flow network along W. Crest Avenue/ N. Hale Avenue/ N. Hesperides Street, and ultimately discharges into Henry Street Canal West System.

3.9 Al Lopez Park System (407xxx) – within City of Tampa Jurisdiction

The Al Lopez Park area is portion of the City of Tampa and has an extensive stormwater conveyance system in which has not been modeled or evaluated in detail by efforts reported herein. The purpose of including this system is to provide an appropriate estimate of expected flows from these areas into the County stormwater conveyance systems. Results of the existing conditions model runs for the Level of Service is not included in this report Chapter 6.

This system is located approximately 350 feet east of Dale Mabry Highway and contains areas of public and recreation open spaces with surrounded commercial developments. The public developments (stadiums) drain into dual ponds with a significant internal storage prior overflow to a pipe/ditch system. This system then flows north along Dale Mabry ramp and crosses Hillsborough Avenue and ultimately discharges into Henry Street Canal East System.



CHAPTER 4: HYDROLOGIC/HYDRAULIC MODEL METHODOLOGY

General Hydrology / Hydrologic Model Development

This report project utilized several computer software models and analysis techniques to create the numeric data on which decisions for this report could be made. This chapter provides a general description of these methods and approaches as they pertain to this report's project.

The U.S. Soil Conservation Service (SCS) Runoff Curve Number (CN) method has been used to convert storm rainfall into runoff. This method estimates the expected stormwater runoff on the basis of soil and land cover characteristics. Runoff hydrographs have been developed by the U.S. Soil Conservation Service Dimensionless Unit Hydrograph method.

The locations for inflow hydrograph generation have been determined by the development of a link/node or reach/junction relationship for the stormwater conveyance system or network. The distribution of these inflows within the conveyance system has been accomplished by routing the inflows through the system using a hydrodynamic routing technique. The projections of the rise and fall of water surface elevations with time have also been accomplished with this routing technique.

4.1 Hydrology

Land Use

The SWFWMD GIS Land Use Coverage (1999) was used to represent existing conditions land use. The SWFWMD land use coverage is based on 1999 aerial infrared photography. Each land use polygon in the GIS coverage is associated with an attribute that designates a classification from the Florida Land Use Classification System (FLUCS) – also known as the Florida Land Use, Cover and Forms Classification System (FLUCFCS). There has been some minor development in the LSC watershed since 1999 that is not represented in the SWFWMD coverage. As impervious area increases, runoff usually increases. However, SWFWMD has been regulating the quantity of stormwater runoff since 1984. The objective of this regulation is to prevent peak runoff rates under developed conditions from exceeding peak runoff rates associated with predevelopment conditions. The Land Use/Land Cover data used in the analysis are shown in Figure 2-6. SWFWMD uses the ARC/INFO GIS in Unix System, which is compatible to Hillsborough County ARC/INFO GIS performed in Windows NT Workstation version GIS system.

Soils

Hydrologic soil polygons were developed from the SCS Soil Survey of Hillsborough County, Florida, 1989. Each soil with identification numbers contained in the Soil Survey can be associated with its corresponding hydrologic soil group. Hydrologic soil groups in the LSC watershed consist of six designations- A, B, C, D, B/D and Water. The "A" soil has a high infiltration rate and low runoff potential. Class "B" soil is moderately well drained soils and have a moderate infiltration rate. Class "C" soils have slow infiltration rates and may contain a layer of fine texture soil impedes the downward movement of water. Class "D" soils include poorly drained, very silty/clayey/organic soils or soils with high groundwater tables. The dual hydrologic classification (B/D) includes soils have a seasonal high water table but can be drained. The first hydrologic soil group designates the drained condition and the second hydrologic soil group designates the undrained condition of the soil. For soils classified with dual hydrologic soil groups, a representative hydrologic soil group was determined by the corresponding land cover; areas with developed or urban land cover were assigned hydrologic soil group "B" and areas with undeveloped or rural land cover were assigned hydrologic soil group "D". Contiguous soil types with the same hydrologic soil group designation were aggregated into one polygon.

4.1.1 Hydrologic Model

A computer model has been utilized to generate SCS-type inflow hydrographs for input to the hydrodynamic model. The U.S. EPA Stormwater Management Model (SWMM) EXTRAN block was modified to include the SCS synthetic unit hydrograph method to generate subbasin runoff. SCS unit hydrograph methodology requires input of subbasin areas, times of concentration, runoff curve numbers, initial rainfall abstraction ratios, and unit hydrograph shape factors.

4.1.2 Rainfall Depths and Distribution

Rainfall depths are estimated from the SWFWMD isohyetographs contained in the Hillsborough County Stormwater Technical Manual. The specific rainfall depths for the LSC WMMP project were determined to be as shown in Table 4-1.

Table 4-1 Storm Event and Rainfall Depth Relationship

STORM EVENT	RAINFALL DEPTH (in)
Mean Annual	4.5
5 - year	5.5
10 - year	7.0
25 - year	8.0
50 - year	10.0
100 - year	11.5

4.1.3 Time-of-Concentration (TOC)

Time-of-concentration were estimated by adding the travel time for segments of appropriate flow paths. The methods for calculating the travel times is reflective of that documented in the Hillsborough County Stormwater Management Technical Manual. The following methods were used to establish travel times.

FLOW REGIME	METHOD
Overland Flow	Kinematic Wave Equation
Shallow Concentrated Paved	SCS Equations relating velocity to watercourse slope
Shallow Concentrated Unpaved	SCS Equations relating velocity to watercourse slope
Channel Flow	Assumed Velocity 2 ft/sec
Pipe Flow	Assumed Velocity 3 ft/sec

4.1.4 Basin Delineations

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4.1.5 Runoff Curve Numbers

Curve number calculations were based on a GIS intersection of the SWFWMD land use coverage with the SWFWMD soil coverage and with the County subbasin map. The subbasin map was prepared in AutoCAD and exported in DXF format. It was then imported to the County GIS system for overlay with the soil and land use coverages. The resulting GIS polygons are associated with attributes of soil type and FLUCS code. Each soil type was then associated with a hydrologic soil group (A, B, C, or D) as discussed in previous sections, and each FLUCS code was associated with an SCS land use category. A CN value was then assigned to each polygon based on the specific hydrologic soil group and land cover classification. The average CN value for a sub-basin was finally computed by area weighted method which dividing the product of each polygon area times CN by the sub-basin area. The program generated an ASCII output file containing the subbasin identification number and area, the average CN value, and sub-basin area for input to the hydrologic model.

4.1.6 Initial Abstraction

An initial abstraction coefficient of 0.2 was used throughout this study as recommended in the County Technical Manual. The SWMM Combine Block was then utilized to interface the runoff hydrographs to the hydrodynamic model.

4.1.7 Shape Factor

The Hillsborough County Stormwater Management Technical Manual indicates that a value of 256 with a corresponding dimensionless unit hydrograph, is more appropriate for the County.

Therefore, the program was altered to accept the 256 factor and the SCS Type II Florida Modified unit hydrograph.

4.2 Hydraulics

4.2.1 Hydraulic Model

The hydrodynamic routing model used in the WMMP was a modification of the U.S. EPA EXTRAN model version 4.31. Several modifications to the software were necessary. The first of these is addition of the SCS method of runoff hydrograph generation described in the Hydrology section. In addition to increasing the dimensions of a number of key parameters, other modifications were made to the EXTRAN model. Most of the changes have been enhancements to the inputs and the outputs. Input/output enhancements included:

- Specifying reach numbers for orifices and weirs;
- Using elevations, rather than depths above invert, for data;
- Adding standard horizontal elliptical and arch pipe shapes;
- Including the entrance/exit and other minor headloss and pipe stretch factor into internal calculation;
- An output summary of Froude number for each conduit which can be used to indicate the instability problem area; and
- The hydrograph output for each sub-basin.

4.2.2 Natural Channels

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4.2.3 Conduits

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4.2.4 Storage Facilities

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4.2.5 Weirs

Left Blank for Inclusion in Future Updates.

4.2.6 Orifices

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4.2.7 Initial Water Surface Elevations

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4.2.8 Dummy Junctions and Conduits

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4.2.9 Boundary Conditions

The Lower Sweetwater Creek project area has two outfalls to Old Tampa Bay and one boundary near the north of Johns Road and Benjamin Center (Thompson Center Lateral). The boundary condition used for all design event model simulations for both outfalls to the Bay was a constant water surface elevation of 2.5 feet NGVD. This elevation represents the expected mean high tide for this region of Old Tampa Bay. An initial water surface elevation of 2.5 feet was used for tidally influenced junctions. A fixed elevation boundary is used for John Road outfall.

4.2.10 Numeric Instability

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4.2.11 Link-Node Diagram

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CHAPTER 5: HYDROLOGIC/HYDRAULIC MODEL CALIBRATION & VERIFICATION

This chapter contains the calibration procedure and data used for the LSC existing conditions model. The goal of the calibration effort was to develop a hydraulic model that reflects observed conditions in the watershed which can be used to predict system performance for future events and to evaluate alternative projects in the watershed.

5.1 Existing Conditions Data Collection

5.1.1 Selection

The September 26-27, 1997 rainfall event was selected for model calibration event. This storm event occurred near the beginning of a weather pattern known as El Nino that brought heavier than normal rainfall for the 1997-1998 winter. High water marks collected immediately following the event as well as flooding complaints reported during El Nino period are shown in Figure 5-2. This event was selected due to the availability of gage records and high water mark data and the magnitude of the storm. The Tampa International Airport measured 7.59 inches of rainfall during the first 24-hour period (September 26) and 2.23 inches during the second 24-hour period (September 27). The 25-year, 24-hour design event for this area has a total of 8.0 inches which is closely approximated to the rainfall occurring on September 26, 1997. Since the TIA gage is located within the watershed, a rainfall depth of 9.82 inches was used for model calibration.

Rainfall depth and distribution for the September 26-27, 1997 event was obtained from Tampa International Airport records for a 48-hour period. Hourly discharge and stage records obtained from USGS gage #02306654, Henry Street Canal near Tampa (upstream of Golden Drive cross-drain) are contained in Table 5-1. Hourly rainfall depths for the TIA gage are contained in Table 5-2. The calibration event hydrologic input file was developed using the TIA rainfall distribution and depth.

5.1.2 Antecedent Moisture Condition (AMC)

The moisture condition of the soil is unknown at the time of the event, but is oftentimes estimated by the accumulated rainfall depth in the five-day period prior to the event. The TIA rainfall gage reported approximately 1.5 inches of rainfall in the five-day period preceding the calibration event, which corresponds to AMC II conditions. Therefore, the calibration event hydrology was formulated with AMC II curve numbers. The 25-year, 24-hour design event for this area has a depth of 8.0 inches. Although the September 26, 1997 event has a smaller rainfall depth than the 25-year design event, it most closely approximates the depth, duration, and antecedent moisture condition of the design event for the storms under consideration. The data for calibration is summarized in Table 5-3 and the results of this calibration storm event are shown in Figures 5-3 and 5-4.

TABLE 5-1
USGS STAGE/DISCHARGE RECORDS FOR
SEPTEMBER 26-27, 1997 STORM EVENT (USGS Gage #02306654)

9/26/1997	Hour	STAGE	DISCHARGE
0:15:00	0.25	3.92	12
0:30:00	0.5	3.91	12
0:45:00	0.75	3.91	12
1:00:00	1	3.9	11
1:15:00	1.25	3.9	11
1:30:00	1.5	3.9	11
1:45:00	1.75	3.89	11
2:00:00	2	3.89	11
2:15:00	2.25	3.89	11
2:30:00	2.5	3.88	11
2:45:00	2.75	3.88	11
3:00:00	3	3.88	11
3:15:00	3.25	3.87	11
3:30:00	3.5	3.87	11
3:45:00	3.75	3.87	11
4:00:00	4	3.87	11
4:15:00	4.25	3.87	11
4:30:00	4.5	3.87	11
4:45:00	4.75	3.88	11
5:00:00	5	3.93	12
5:15:00	5.25	4.02	14
5:30:00	5.5	4.21	19
5:45:00	5.75	4.29	21
6:00:00	6	4.26	20
6:15:00	6.25	4.2	19
6:30:00	6.5	4.15	17
6:45:00	6.75	4.12	16
7:00:00	7	4.1	16
7:15:00	7.25	4.09	16
7:30:00	7.5	4.08	16
7:45:00	7.75	4.06	15
8:00:00	8	4.14	17
8:15:00	8.25	4.36	23
8:30:00	8.5	4.73	35
8:45:00	8.75	4.97	44
9:00:00	9	5.15	52
9:15:00	9.25	5.33	60
9:30:00	9.5	5.61	73
9:45:00	9.75	5.9	89
10:00:00	10	6.12	102
10:15:00	10.25	6.28	112
10:30:00	10.5	6.4	120
10:45:00	10.75	6.52	128
11:00:00	11	6.86	152
11:15:00	11.25	7.25	182
11:30:00	11.5	8.01	249
11:45:00	11.75	9.14	368
12:00:00	12	10.24	505
12:15:00	12.25	11.12	645
12:30:00	12.5	11.6	767
12:45:00	12.75	11.89	859
13:00:00	13	12.1	953

Table 5-2
September 26-27 Rainfall Data From NOAA @TIA

Date	Time	Rainfall Amount Reading	Accumulated Rainfall	Unit Mass Curve
9/26/1997	0	0	0	0
9/26/1997	1	0.03	0.03	0.003064351
9/26/1997	2	0	0.03	0.003064351
9/26/1997	3	0.05	0.08	0.008171604
9/26/1997	4	0	0.08	0.008171604
9/26/1997	5	0	0.08	0.008171604
9/26/1997	6	0.38	0.46	0.046986721
9/26/1997	7	0.2	0.66	0.06741573
9/26/1997	8	0.25	0.91	0.092951992
9/26/1997	9	0.5	1.41	0.144024515
9/26/1997	10	2.07	3.48	0.35546476
9/26/1997	11	0.74	4.22	0.431052094
9/26/1997	12	0.78	5	0.51072523
9/26/1997	13	0.1	5.1	0.520939734
9/26/1997	14	0.09	5.19	0.530132789
9/26/1997	15	0.12	5.31	0.542390194
9/26/1997	16	0.34	5.65	0.57711951
9/26/1997	17	0.26	5.91	0.603677222
9/26/1997	18	1.08	6.99	0.713993871
9/26/1997	19	0.06	7.05	0.720122574
9/26/1997	20	0.18	7.23	0.738508682
9/26/1997	21	0.13	7.36	0.751787538
9/26/1997	22	0.03	7.39	0.75485189
9/26/1997	23	0.14	7.53	0.769152196
9/26/1997	24	0.32	7.85	0.801838611
9/27/1997	1	0	7.85	0.801838611
9/27/1997	2	0.04	7.89	0.805924413
9/27/1997	3	0.2	8.09	0.826353422
9/27/1997	4	0.09	8.18	0.835546476
9/27/1997	5	0.12	8.3	0.847803882
9/27/1997	6	0.25	8.55	0.873340143
9/27/1997	7	0.54	9.09	0.928498468
9/27/1997	8	0.21	9.3	0.949948927
9/27/1997	9	0.12	9.42	0.962206333
9/27/1997	10	0.08	9.5	0.970377937
9/27/1997	11	0	9.5	0.970377937
9/27/1997	12	0.02	9.52	0.972420838
9/27/1997	13	0	9.52	0.972420838
9/27/1997	14	0	9.52	0.972420838
9/27/1997	15	0	9.52	0.972420838
9/27/1997	16	0.14	9.66	0.986721144
9/27/1997	17	0.06	9.72	0.992849847
9/27/1997	18	0	9.72	0.992849847
9/27/1997	19	0	9.72	0.992849847
9/27/1997	20	0	9.72	0.992849847
9/27/1997	21	0.07	9.79	1
9/27/1997	22	0	9.79	1
9/27/1997	23	0	9.79	1
9/27/1997	24	0	9.79	1
	Total	9.79		

Table 5-3 Summary of Data for Calibration

Date	Maximum Discharge * (cfs)	Maximum Stage * (ft)	Rainfall Depth @ Channel "A" - SWFWMD	Rainfall Depth @ Tampa International Airport (inch) NOAA
September 26-27, 1997 **	1210	12.60	--	9.82/9.79***

* Represents maximum instantaneous discharge measured at USGS gage #02306654 (measured in unit –15 minutes interval)

** 48-hour simulation

*** TIA 2 days Data (amount) / 48 Hourly Data (Rainfall Distribution)

5.1.3 Precipitation Data

Calibration data, including measured rainfall depths and distributions, corresponding high water marks, measured water surface elevations and corresponding measured flows, was collected for several rainfall events. Collected flow data includes measurements from the Henry Street Canal near Tampa stream flow gage (USGS #02306654) located on the right upstream wingwall of the Golden Drive bridge on the Henry Street Canal approximately 2500' upstream of the confluence with Lower Sweetwater Creek and is shown in Figure 5-1. The initial period of record for this stage gage spans from October 1985 to September 1990. The gage was reestablished in April 1992 and is currently in operation. Rainfall records were collected for two gages in or near the watershed, including the Tampa International Airport (TIA) rainfall gage and the SWFWMD rainfall gage located at Channel A, just west of the LSC basin boundary. Both gages are continuous rainfall gages.

5.1.4 Surface Water Data

High water marks were collected at locations along Lower Sweetwater Creek and the Henry Street Canal immediately following the September 26-27, 1997 rainfall event. Locations where high water marks were collected are shown in Table 5-4.

Computed and measured stages were compared. The measured and computed maximum stage at the USGS gage at Golden Drive and all downstream HWM agreed well (gage measured 12.6 feet NGVD, computed value 12.81 feet NGVD) as show in Table 5-4. However, the maximum stages computed along Henry Street Canal, east of gage station # 02306654 (junction 403810 and 403900), are lower than the HWM recorded. The Manning n and homogenous rainfall distribution for entire watershed may play a factor for this storm event at upstream area.

Table 5-4 High Water Marks (HWM) for September 26-27, 2002 Storm Event

System	Location Description	Comments	HWM Elevation (ngvd)	Model Simulated Results	Model Junction Number
LSC North System	West bank @ confluence	HWM on west bank	7.7	7.67	402100
LSC North System	Sawyer Road	HWM on upstream	9.1	9.04	402930
LSC North System	Clifton in yard	Average along Clifton Avenue	11.6	N/A	N/A
LSC North System	Golden Drive	Average along Golden Drive	11.5	N/A	N/A
LSC North System	USGS Golden Drive	USGS gage # 02306654	12.6	12.81	402950
HSC West System	Benjamin Road	Upstream side	16.9	16.11	430350
HSC West System	5802 Occident Road Driveway	HWM on driveway on north side of HSC	23.7	22.59	403810
HSC West System	Hesperides	Upstream side of bridge	25.2	22.84	403900

5.2 Calibration Parameters and Methodology

Based on the watershed features and methodology described in Chapter 2 and 3 with available topographical data, the watershed was subdivided into 272 subbasins. These subbasins are further connected into a drainage network by junctions and conduits (pipe, channel, control structure and boundary) as shown in Exhibit 5-1. Following the assembly of the hydrologic and hydraulic components of the LSC model, several checks were performed on the model hydrology and hydraulic components to confirm compliance with collected data.

5.2.1 Hydrologic Parameters

Three fundamental hydrologic reviews were performed to ensure that runoff contributions from all areas of the LSC watershed were being considered in the hydrologic model. Basin area summations were performed to ensure that the entire watershed area was included in the hydrologic model. An overall watershed area was compared to the summation of the individual basin areas. The results of the comparison revealed an approximate area of 6688 acres for the LSC watershed. The exact watershed boundaries are indeterminate because there are known interconnections between the Sweetwater Creek Watershed and the Lower Sweetwater Creek Watershed, especially at flood stage. This condition will be examined in the future study when all watersheds within Northwest of County are combined. Comparison of runoff and computed flows was also performed. Runoff depth for the 25-year design event was computed by the SCS runoff formula for all subbasins draining to the Lower Sweetwater Creek Outfall. Runoff volume was then computed by multiplying runoff depth by subbasin area. Total runoff volume was computed by summing runoff for all subbasins draining to the Lower Sweetwater Creek Outfall. An "average" SCS Runoff depth over the entire basin was then computed by dividing the runoff volume by the

watershed area. Next, the total volume computed by the modified EXTRAN model through LSC outfall was divided by the same contributing basin area to obtain the "average" depth of runoff over the basin for design storm event. These general hydrologic checks suggest that runoffs contributing to the Lower Sweetwater Creek Outfall is properly connected at a macroscopic level.

5.2.2 Hydraulic Parameters

The hydraulic model review consisted of connectivity diagram checking and an evaluation of the computed water surface elevations and flows at each junction and reach, respectively, for the most severe storm event (100-year 24-hour event). Software has been developed to plot the connectivity diagram through input file to detect man-made error during the editing processes. The 100-year storm event's discharge/stage analysis was to assess the reasonableness and consistency of the variations and magnitudes of flows and elevations throughout the hydraulic network. Discharge continuity checks were performed at junctions to ensure that continuity of flow was maintained. Water surface elevations at specific junctions were compared to nearby or adjacent subbasin boundary elevations to determine if additional reaches were needed to further distribute flows, and to determine if additional stormwater storage areas were necessary.

5.2.3 Calibration Methods

After the fundamental hydrologic and hydraulic checks were completed, a calibration process was conducted to evaluate the general reliability of the model for producing reasonable results. The calibration process includes simulating a measured event by adjusting the hydrologic input parameters according to the measured rainfall depth and distribution and comparing computed water surface elevations and flows to the measured values. The hydrologic and/or hydraulic model is then adjusted so that computed and measured values more closely match.

5.3 Existing Conditions Model Calibration

Model verification is an important measure to be undertaken to ensure that adjustments made to the model during calibration are appropriate and to ensure that the model will produce reliable results. The September 13-15 2001 storm event was selected for model verification event. This storm event occurred during tropical depression Gabrielle covering entire Tampa Bay area. This event was selected due to the availability of gage and the magnitude of the storm. The SWFWMD Channel A measured 6.16 inches of rainfall during the 43-hour period (17:50 9/13/2001 to 13:00 9/15/2001). Hourly discharge and stage records obtained from USGS gage #02306654, Henry Street Canal near Tampa are contained in Table 5-5. Recorded rainfall depths from SWFWMD Channel A gage are contained in Table 5-6. The moisture condition of the soil is estimated from the accumulated rainfall depth in the five-day period prior to the event. The Channel rainfall gage reported approximately 0.41 inches of rainfall in the five-day period preceding the verification event, which corresponds to AMC-I conditions. The simulated results are shown in Figure 5-5 and 5-6. The model is under estimated in both stage and discharge.

TABLE 5-5
USGS STAGE/DISCHARGE RECORDS FOR
SEPTEMBER 13-15, 2001 STORM EVENT (USGS Gage #02306654)

9/13/2001	Hour	STAGE	DISCHARGE
0:15:00	0.25	3.19	5.109898
0:30:00	0.5	3.19	5.109898
0:45:00	0.75	3.19	5.109898
1:00:00	1	3.2	5.260764
1:15:00	1.25	3.2	5.260764
1:30:00	1.5	3.2	5.260764
1:45:00	1.75	3.2	5.260764
2:00:00	2	3.2	5.260764
2:15:00	2.25	3.2	5.260764
2:30:00	2.5	3.2	5.260764
2:45:00	2.75	3.2	5.260764
3:00:00	3	3.2	5.260764
3:15:00	3.25	3.2	5.260764
3:30:00	3.5	3.2	5.260764
3:45:00	3.75	3.2	5.260764
4:00:00	4	3.2	5.260764
4:15:00	4.25	3.2	5.260764
4:30:00	4.5	3.2	5.260764
4:45:00	4.75	3.2	5.260764
5:00:00	5	3.2	5.260764
5:15:00	5.25	3.2	5.260764
5:30:00	5.5	3.2	5.260764
5:45:00	5.75	3.2	5.260764
6:00:00	6	3.2	5.260764
6:15:00	6.25	3.2	5.260764
6:30:00	6.5	3.2	5.260764
6:45:00	6.75	3.2	5.260764
7:00:00	7	3.2	5.260764
7:15:00	7.25	3.2	5.260764
7:30:00	7.5	3.2	5.260764
7:45:00	7.75	3.2	5.260764
8:00:00	8	3.2	5.260764
8:15:00	8.25	3.2	5.260764
8:30:00	8.5	3.2	5.260764
8:45:00	8.75	3.2	5.260764
9:00:00	9	3.2	5.260764
9:15:00	9.25	3.2	5.260764
9:30:00	9.5	3.19	5.109898
9:45:00	9.75	3.19	5.109898
10:00:00	10	3.19	5.109898
10:15:00	10.25	3.19	5.109898
10:30:00	10.5	3.19	5.109898
10:45:00	10.75	3.19	5.109898
11:00:00	11	3.19	5.109898
11:15:00	11.25	3.19	5.109898
11:30:00	11.5	3.19	5.109898
11:45:00	11.75	3.19	5.109898
12:00:00	12	3.19	5.109898
12:15:00	12.25	3.19	5.109898
12:30:00	12.5	3.19	5.109898
12:45:00	12.75	3.19	5.109898

Table 5-6

September 13-15 Rainfall Data From SWFWMD

Date	Time	Rainfall Amount Reading	Accumulated Rainfall
9/13/2001	0:59:59	0.03	0.03
9/13/2001	12:59:59	0.00	0.03
9/13/2001	17:52:15	0.10	0.13
9/13/2001	19:07:42	0.10	0.23
9/13/2001	23:02:17	0.10	0.33
9/13/2001	23:45:33	0.10	0.43
9/14/2001	0:56:57	0.10	0.53
9/14/2001	0:59:59	0.00	0.53
9/14/2001	2:50:43	0.10	0.63
9/14/2001	4:04:59	0.10	0.73
9/14/2001	4:30:54	0.10	0.83
9/14/2001	4:44:57	0.10	0.93
9/14/2001	4:59:39	0.10	1.03
9/14/2001	5:14:30	0.10	1.13
9/14/2001	5:31:04	0.10	1.23
9/14/2001	5:46:53	0.10	1.33
9/14/2001	6:03:00	0.10	1.43
9/14/2001	6:24:14	0.10	1.53
9/14/2001	6:55:41	0.10	1.63
9/14/2001	7:16:31	0.10	1.73
9/14/2001	7:28:08	0.10	1.83
9/14/2001	7:38:10	0.10	1.93
9/14/2001	7:45:24	0.10	2.03
9/14/2001	7:51:46	0.10	2.13
9/14/2001	7:54:33	0.10	2.23
9/14/2001	7:57:38	0.10	2.33
9/14/2001	8:03:17	0.10	2.43
9/14/2001	8:08:49	0.10	2.53
9/14/2001	8:14:31	0.10	2.63
9/14/2001	8:24:21	0.10	2.73
9/14/2001	8:34:45	0.10	2.83
9/14/2001	8:54:12	0.10	2.93
9/14/2001	9:21:06	0.10	3.03
9/14/2001	9:36:09	0.10	3.13
9/14/2001	9:56:04	0.10	3.23
9/14/2001	10:34:54	0.10	3.33
9/14/2001	10:44:19	0.10	3.43
9/14/2001	10:52:00	0.10	3.53
9/14/2001	11:08:56	0.10	3.63
9/14/2001	11:23:00	0.10	3.73
9/14/2001	11:29:42	0.10	3.83
9/14/2001	11:36:46	0.10	3.93
9/14/2001	11:46:01	0.10	4.03
9/14/2001	11:59:03	0.10	4.13
9/14/2001	12:32:26	0.10	4.23
9/14/2001	12:59:59	0.08	4.31
9/14/2001	16:12:30	0.10	4.41
9/14/2001	18:47:45	0.10	4.51
9/14/2001	19:05:38	0.10	4.61
9/14/2001	19:25:40	0.10	4.71
9/14/2001	19:42:46	0.10	4.81
9/14/2001	19:58:04	0.10	4.91
9/14/2001	20:40:48	0.10	5.01
9/14/2001	23:37:11	0.10	5.11
9/15/2001	0:27:49	0.10	5.21
9/15/2001	0:59:59	0.06	5.27
9/15/2001	1:24:36	0.10	5.37
9/15/2001	1:39:39	0.10	5.47
9/15/2001	2:00:40	0.10	5.57
9/15/2001	2:18:01	0.10	5.67
9/15/2001	2:40:55	0.10	5.77
9/15/2001	2:58:59	0.10	5.87
9/15/2001	3:51:41	0.10	5.97
9/15/2001	4:43:50	0.10	6.07
9/15/2001	12:59:59	0.09	6.16
Total		6.16	

However, a sensitivity study has been conducted with AMC-II soil condition during this storm event and the results of this storm event sensitivity are shown in Figures 5-7 and 5-8. It is recommended the soil condition for this storm event may be within AMC-I and AMC-II. The second peak appeared in recorded data may coincidentally occur with tidal surge which was not included in the boundary condition. A further investigation may be required to justify this event. The data used for verification is summarized in Table 5-7.

Table 5-7 Summary of Data for Verification

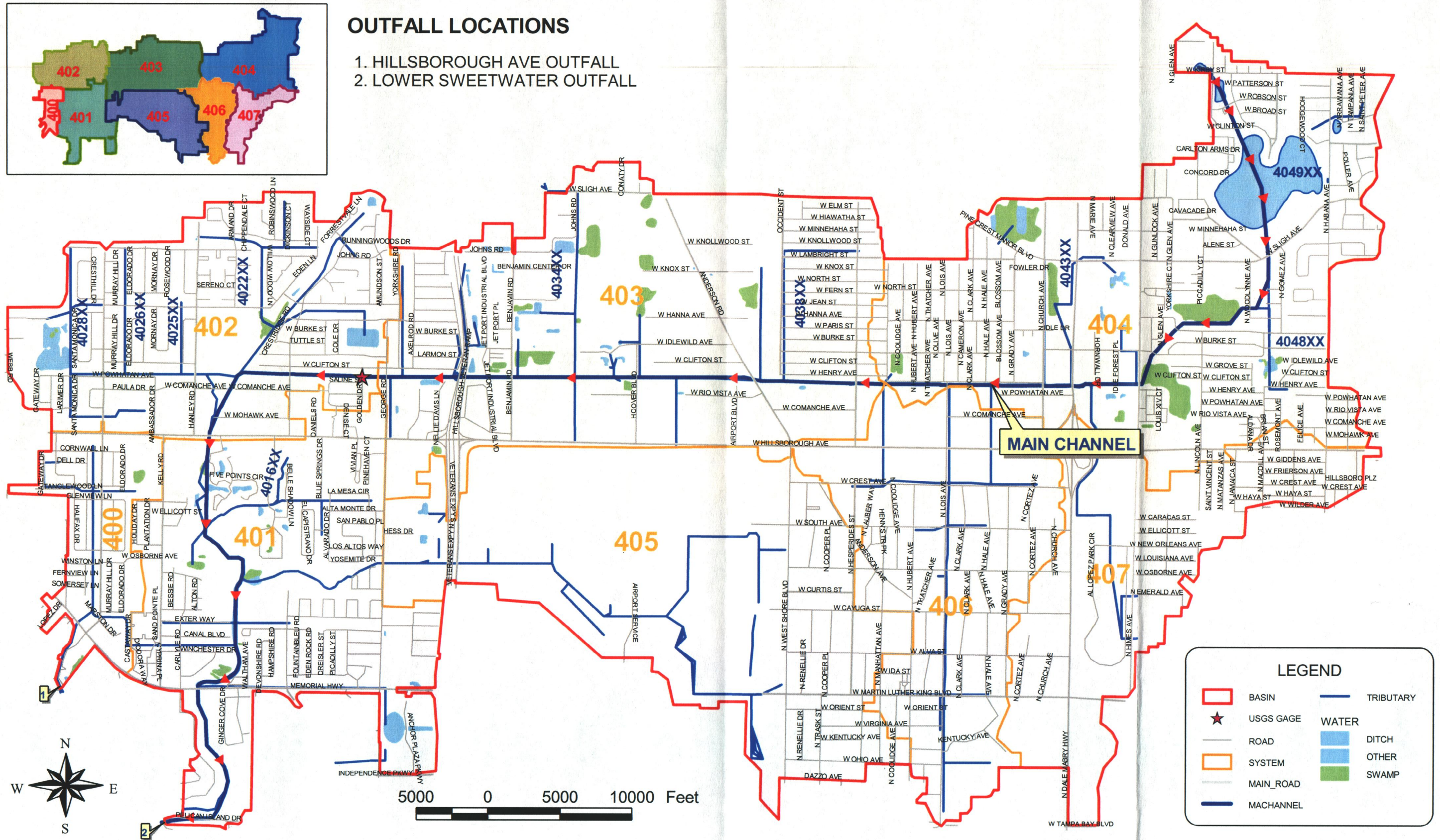
Date	Maximum Hourly Discharge * (cfs)	Maximum Hourly Stage* (ft)	Rainfall Depth @ Channel "A" -SWFWMD	Rainfall Depth @ TIA (in.) NOAA/USGS
September 13-15, 2001 **	510/538 ***	10.62/10.79***	6.16	----

* Represents maximum instantaneous discharge measured at USGS gage #02306654

** 72-hour simulation

*** First peak /Second peak

1. HILLSBOROUGH AVE OUTFALL
2. LOWER SWEETWATER OUTFALL

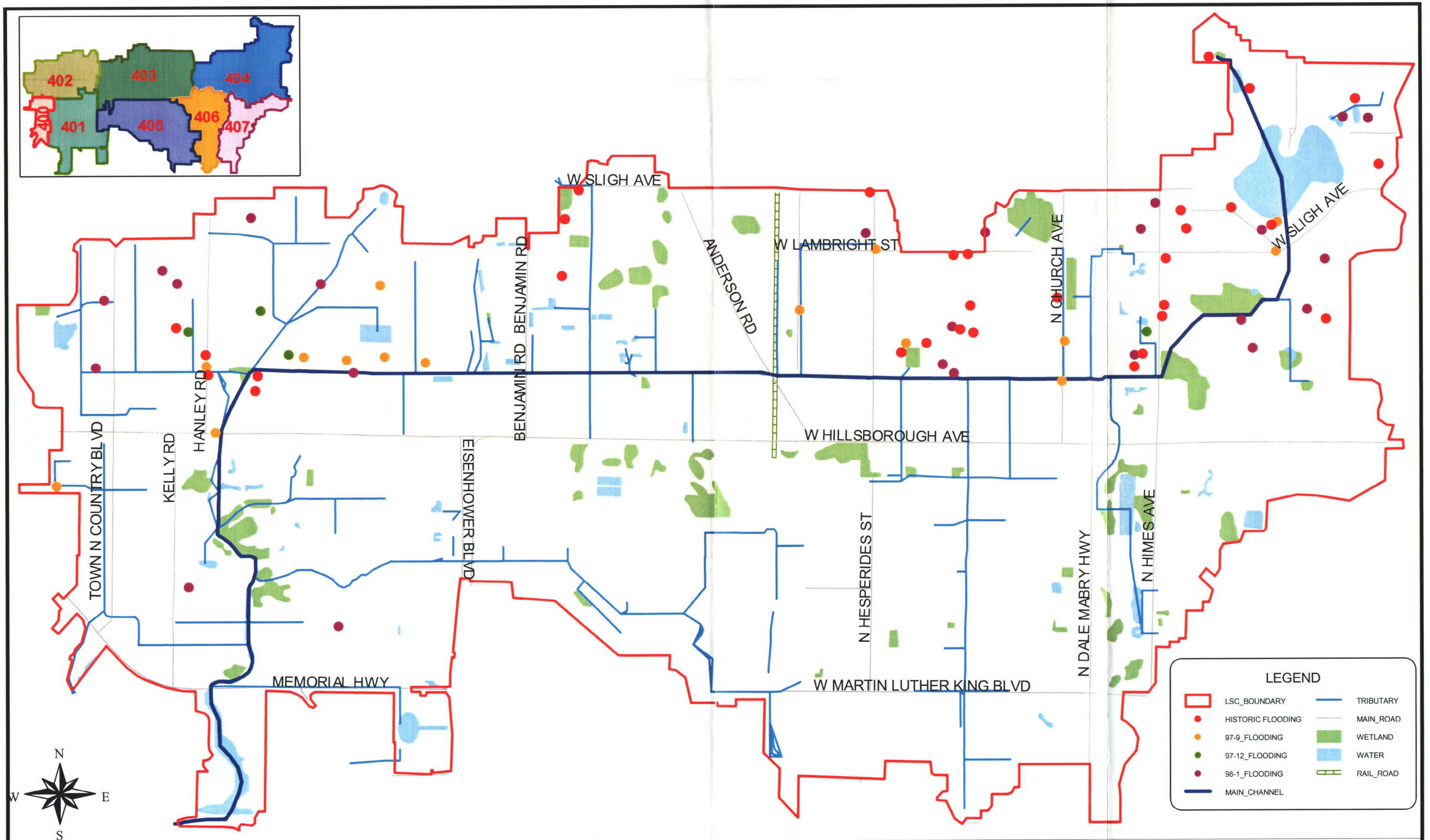


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FIGURE 5-1

LOWER SWEETWATER WATERSHED USGS GAGE LOCATION MAP



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FIGURE 5-2

LSC SUB-WATERSHED
HISTORIC FLOODING DATA

Figure 5-3 Stage Comparision September 26-27, 1997 Storm Event Calibration- AMC II

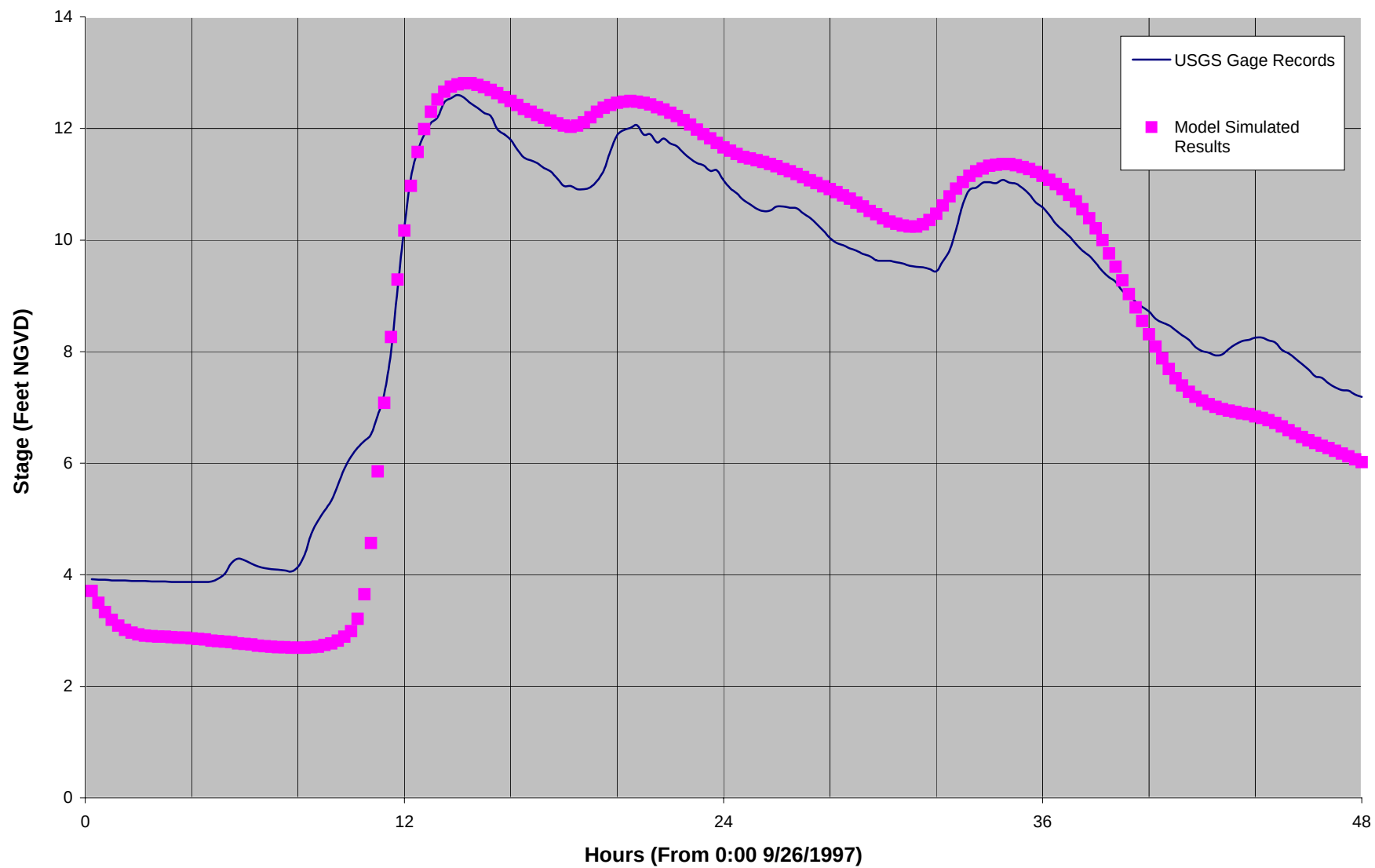


Figure 5-4 Discharge Comparision September 26-27, 1997 Storm Event Calibration-AMC II

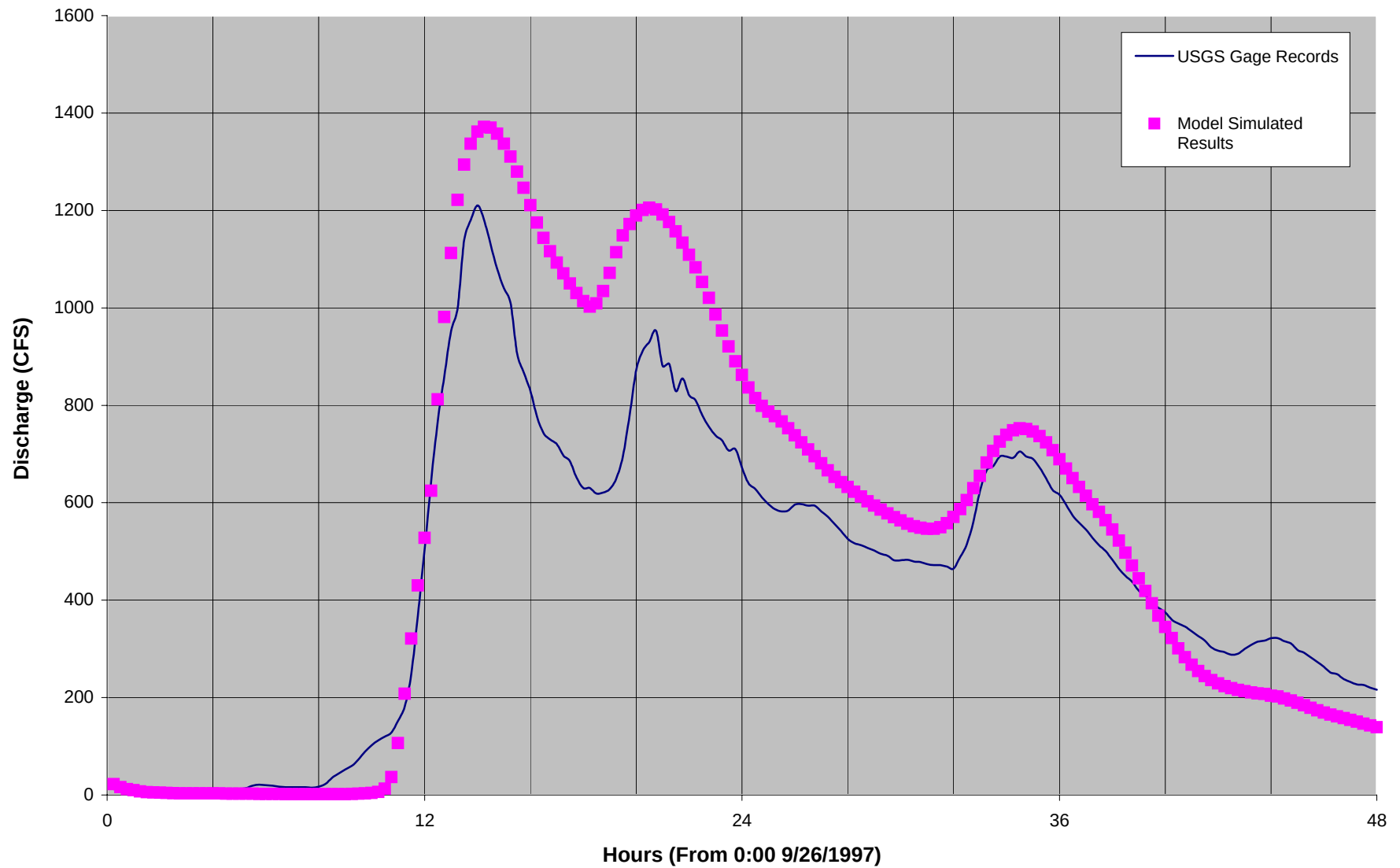


Figure 5-5 Stage Comparison September 13-15, 2001 Storm Event Calibration-AMC I

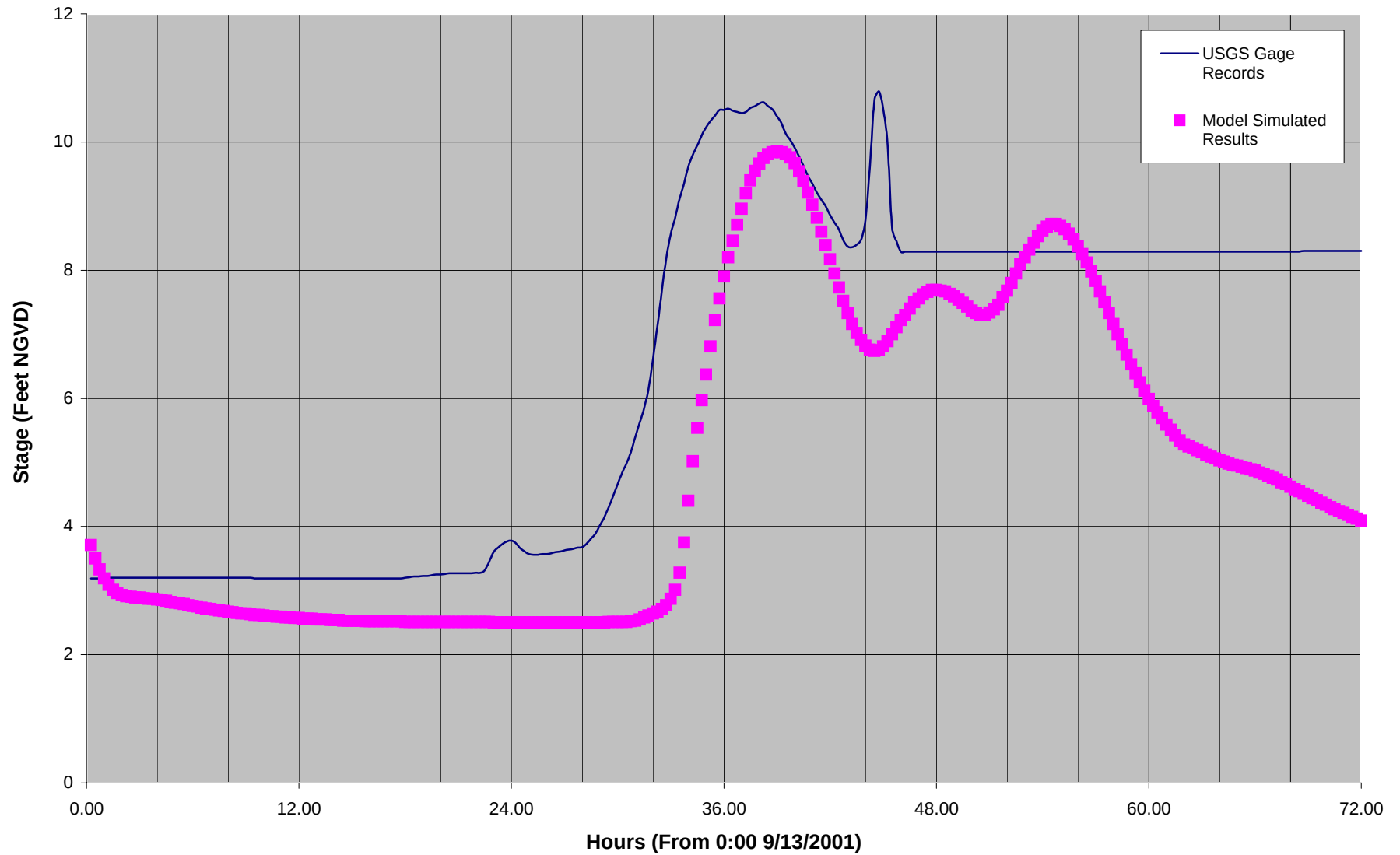


Figure 5-6 Discharge Comparison September 13-15, 2001 Storm Event Calibration- AMC I

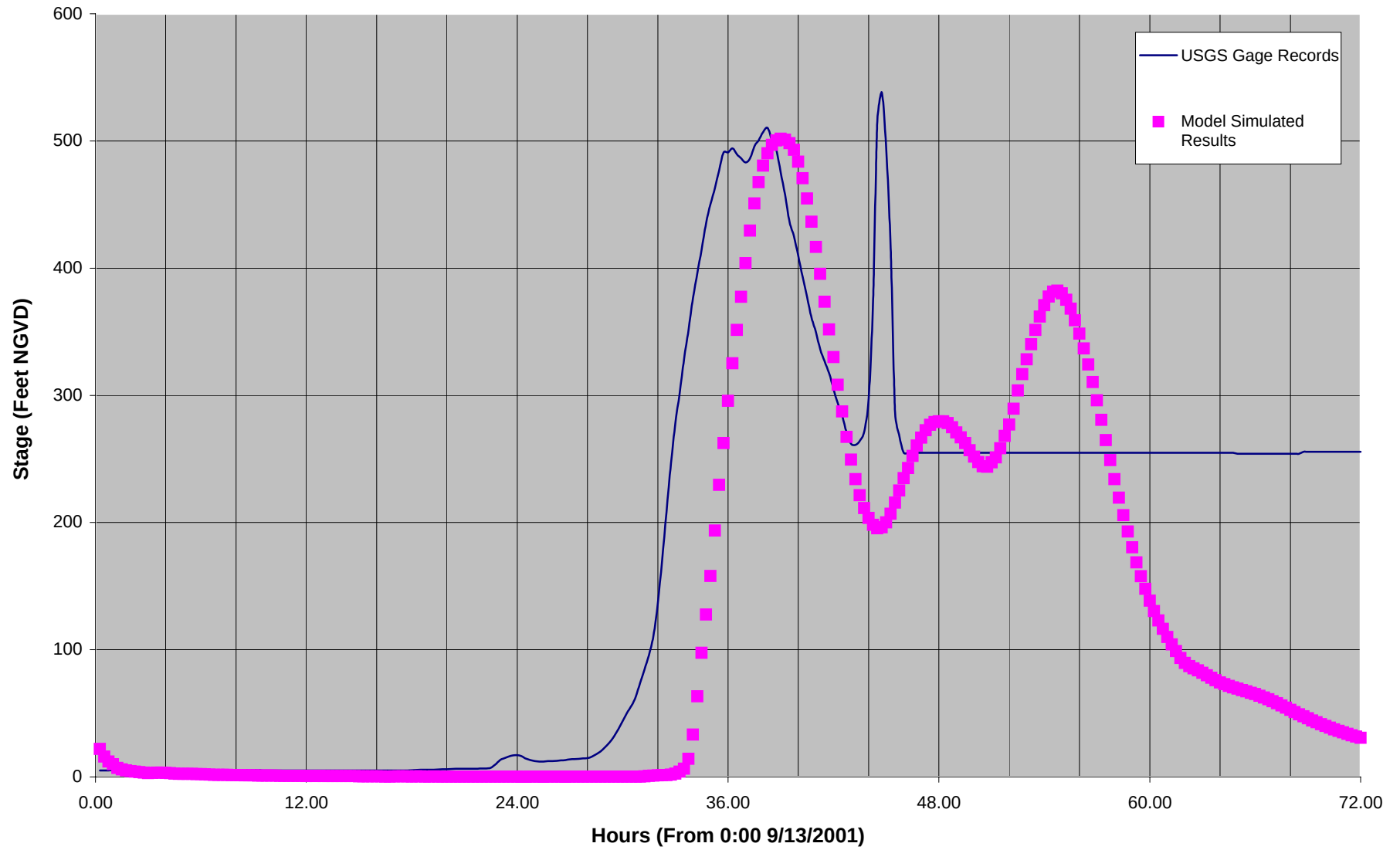


Figure 5-7 Stage Comparison September 13-15, 2001 Storm Event Calibration-AMC II

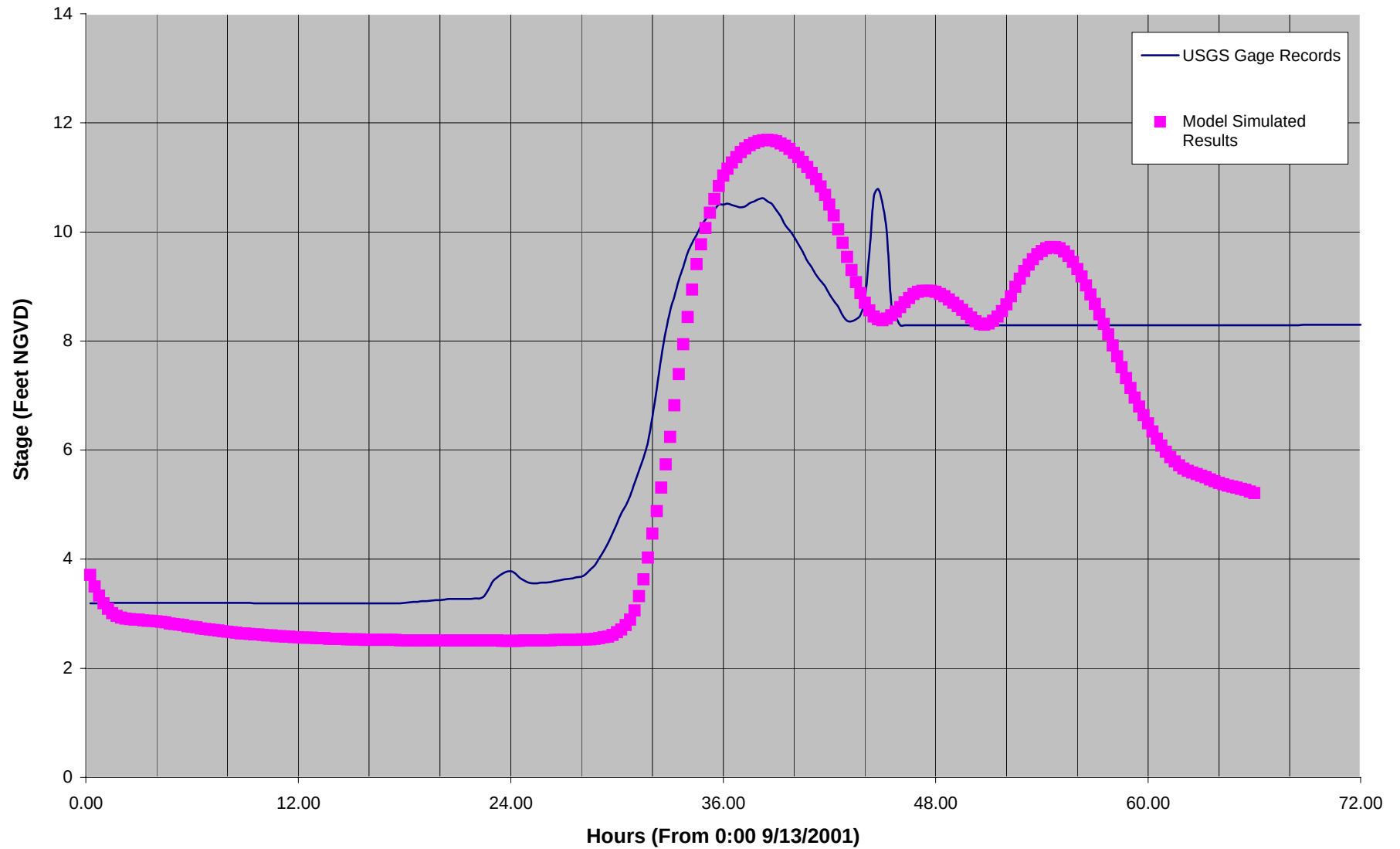
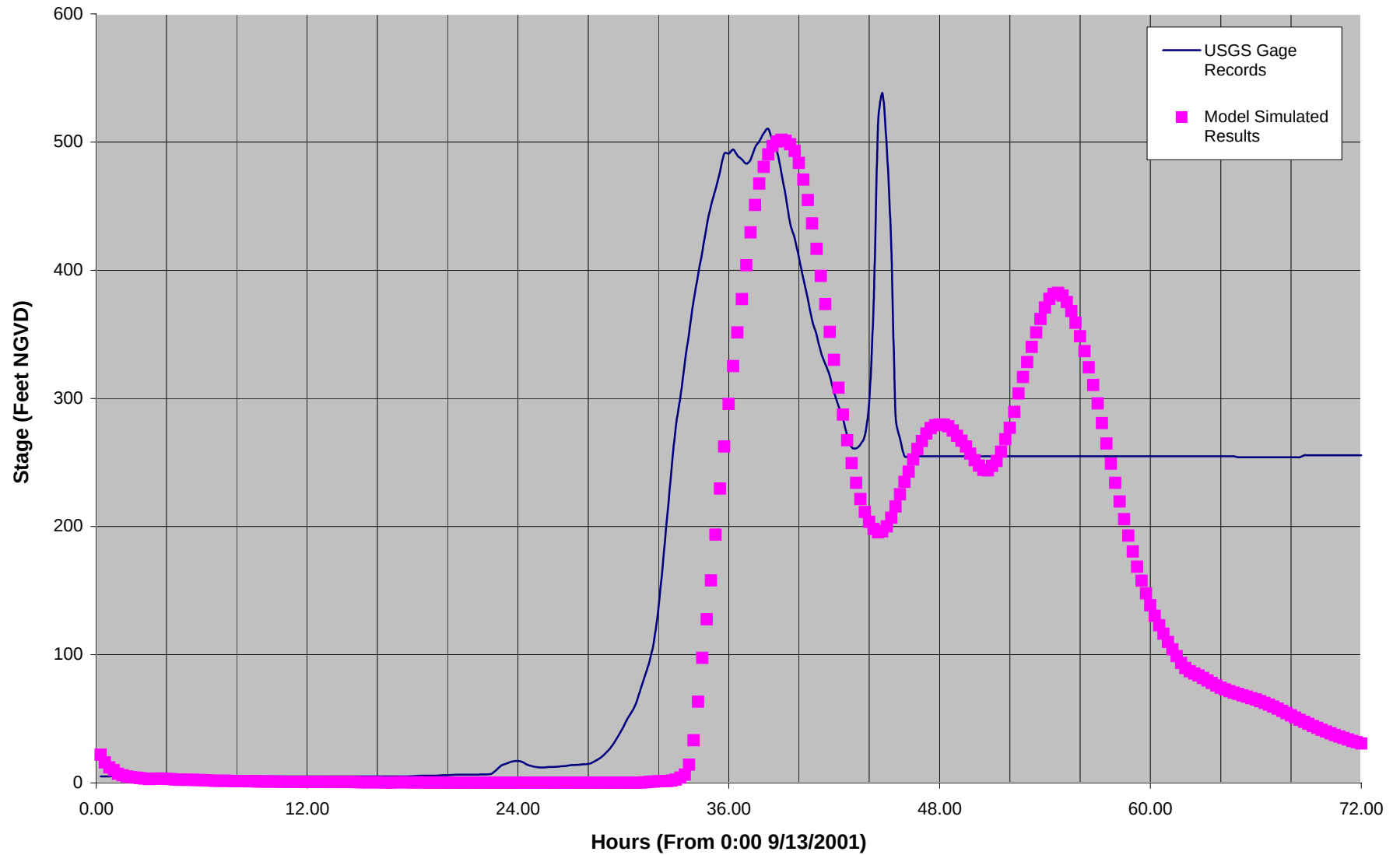


Figure 5-8 Discharge Comparision September 13-15, 2001 Storm Event Calibration -AMCII





CHAPTER 6: EXISTING CONDITIONS LEVEL OF SERVICE

This chapter briefly describes the level of service (LOS) methodology used to analyze the Lower Sweetwater Creek (LSC) watershed and the existing conditions LOS deficiencies within the study area. Figures 6-1 to 6-6 contain a graphical representation of the LSC level of service analysis for various storm events up to 100-yr/24-hr frequency while Table 6-1 shows all the results in each junction identified in connectivity diagram network. However, the discussion will be limited up to County's ultimate (target) 25-year 24-hour LOS.

6.1 Standard Design Storm Events

Lower Sweetwater Creek Watershed design storm events are as follows:

2.33-yr/24-hr, 5-yr/24-hr, 10-yr/24-hr, 25-yr/24-hr, 50-yr/24-hr and 100-yr/24-hr

6.2 Existing Conditions Model Simulation Results

Establishment of Landmark Elevations

In order to evaluate the LOS for a watershed, landmark elevations must first be determined. These elevations refer to landmarks contained in the LOS definitions, including roads, sites, and structures. Landmark elevations are established for every subbasin in the watershed. These landmarks then serve as a tool for determining the level of service for the subbasin, and on a broader scale, the system and the watershed. The landmark elevations established for LOS analysis are the critical or lowest landmark elevations in a subbasin. The critical landmark elevations are reflective of the worst case flooding that could occur in a subbasin. These are obtained from survey data and from topographic analysis. Every subbasin in the watershed is examined for the critical structure, site and road elevation as shown in Table 6-3. Table 6-3 contains landmark elevations determined for each LSC subbasin in the unincorporated portion of Hillsborough County. These landmark elevations reflect the flood depth tolerance contained in Table 6-2.

Comparison of Computed Results and Landmark Elevations

Using flood protection LOS designation criteria described and contained in Table 6-2, the landmark elevations for each subbasin are compared to the computed results of the hydraulic model. In general, computed result for the most downstream junction was used for comparison with landmark elevations. Table 6-3 compares the difference between established landmark elevations and computed water surface elevations for the 2.33-yr/24-hr, 5-yr/24-hr, 10-yr/24-hr, 25-yr/24-hr, 50-yr/24-hr and 100-yr/24-hr storm events. The water surface profiles from model results for LSC main channel and Henry Street Canal are also shown in Exhibits 6-1 and 6-2, respectively. All model inputs and summarized outputs are listed in Appendices 6-1 through 6-3.

Table 6-1
Lower Sweetwater Creek Existing Water Surface Elevation

LOWER SWEETWATER CREEK (EXISTING CONDITION)							LOCATION
EXISTING WATER SURFACE ELEVATIONS							
JUNCTION ID	Water Surface Elevations						
	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	
401000	2.53	2.55	2.59	2.63	2.72	2.81	
401100	3.69	4.29	5.17	5.67	6.52	7.07	
401200	3.82	4.44	5.36	5.88	6.74	7.31	
401300	3.85	4.49	5.42	5.93	6.81	7.38	
401400	4.52	5.19	6.07	6.55	7.33	7.81	
401600	4.83	5.55	6.47	6.95	7.73	8.22	
401700	5.08	5.82	6.76	7.25	8.05	8.54	
401800	5.19	5.93	6.87	7.36	8.15	8.64	
401900	5.39	6.14	7.09	7.58	8.38	8.88	
402000	5.55	6.32	7.31	7.81	8.65	9.19	
402080	5.80	6.61	7.62	8.15	9.02	9.58	
402090	6.10	6.96	8.03	8.59	9.51	10.09	
402100	6.21	7.08	8.17	8.73	9.66	10.24	
402200	6.21	7.09	8.17	8.74	9.66	10.25	
402290	6.21	7.09	8.17	8.74	9.66	10.25	
402300	6.23	7.11	8.20	8.77	9.69	10.27	
402340	6.23	7.11	8.20	8.77	9.69	10.28	
402350	6.24	7.12	8.21	8.77	9.70	10.29	
402360	7.16	7.21	8.21	8.77	9.70	10.29	
402920	7.28	8.18	9.30	9.89	10.89	11.47	
402930	7.54	8.47	9.67	10.41	11.51	12.10	
402940	8.89	9.83	10.98	11.60	12.63	13.24	
402950	11.77	12.45	13.30	13.79	14.73	15.33	
403000	11.89	12.61	13.49	14.00	14.96	15.57	
403050	11.92	12.64	13.55	14.08	15.05	15.68	
403100	11.94	12.65	13.55	14.07	15.06	15.69	
403160	12.57	13.36	14.35	14.91	15.95	16.60	
403200	12.69	13.50	14.52	15.09	16.19	16.97	
403300	14.55	15.47	16.63	17.26	18.40	19.15	
403350	14.65	15.58	16.77	17.40	18.59	19.43	
403400	16.03	17.05	18.36	19.06	20.33	21.17	
403500	16.48	17.50	18.80	19.49	20.77	21.60	
403548	16.76	17.75	19.02	19.70	20.96	21.77	
403550	16.95	17.97	19.28	20.05	21.53	22.32	
403600	17.56	18.56	19.85	20.59	22.04	22.83	
403650	17.95	18.94	20.21	20.92	22.35	23.15	
403700	18.83	19.72	20.91	21.56	22.91	23.69	
403750	19.78	20.62	21.72	22.32	23.46	24.03	
403800	19.90	20.71	21.80	22.39	23.51	24.07	
403898	21.13	21.90	22.89	23.43	24.46	25.00	
403900	21.37	22.29	23.45	24.25	25.34	25.82	
404000	21.41	22.33	23.48	24.27	25.33	25.80	
404098	22.27	23.05	24.07	24.78	25.76	26.20	
404100	22.40	23.20	24.23	24.93	25.96	26.46	
404200	22.92	23.68	24.67	25.33	26.30	26.76	
404298	23.20	23.93	24.91	25.55	26.48	26.92	
404300	23.39	24.16	25.34	26.08	27.17	27.81	
404400	23.58	24.33	25.50	26.22	27.28	27.89	
404498	23.82	24.59	25.82	26.72	27.88	28.71	
404499	24.13	24.88	26.11	26.96	28.10	28.89	
404500	24.27	25.04	26.28	27.13	28.27	29.05	
404600	26.61	26.88	27.21	27.65	28.52	29.19	

Table 6-1
Lower Sweetwater Creek Existing Water Surface Elevation

LOWER SWEETWATER CREEK (EXISTING CONDITION) EXISTING WATER SURFACE ELEVATIONS							LOCATION
JUNCTION ID	Water Surface Elevations						
	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	
404690	27.16	27.56	28.13	28.52	29.45	30.30	
404698	28.45	28.75	29.12	29.34	29.79	30.46	
404700	29.11	29.68	30.51	30.88	31.82	32.25	
404710	29.19	29.72	30.55	30.92	31.84	32.27	
404720	29.59	30.29	31.23	31.86	33.05	33.84	
404730	31.02	31.22	31.57	31.92	33.09	33.87	
404740	32.65	33.36	34.43	34.82	35.38	35.81	
404800	33.06	34.00	35.35	35.74	36.30	36.72	
404900	33.35	34.03	35.45	35.82	36.55	37.14	
404910	33.49	34.00	35.46	35.83	36.47	36.94	
404920	33.97	34.30	35.47	35.84	36.44	37.96	
404930	35.54	35.68	35.88	36.00	36.43	37.98	
404940	36.31	36.65	37.13	37.45	38.10	38.44	
400100	2.56	2.60	2.69	2.79	3.04	3.37	
400150	2.92	3.07	3.29	3.43	3.70	3.90	
400160	2.76	2.90	3.19	3.42	3.82	4.13	Hanley Road / N. side of Canal A, just W of Hanley
400180	2.95	3.13	3.49	3.74	4.16	4.47	Henry Street
400190	3.15	3.39	3.80	4.08	4.53	4.84	
400200	3.33	3.63	4.23	4.70	5.55	6.12	Powhattan Ave
400300	3.40	3.71	4.33	4.80	5.65	6.22	Henry Street and Canal F
400340	3.41	3.73	4.39	4.83	5.70	6.22	
400350	3.54	4.06	4.81	5.22	6.05	6.54	
400390	3.50	3.81	4.49	4.97	5.78	6.32	
400400	4.19	4.87	6.19	6.61	7.16	7.52	Powhattan Blvd
400500	4.77	5.67	6.56	6.90	7.43	7.79	Santa Monica
400590	4.79	5.68	6.58	6.92	7.44	7.80	Town n' Coutry Blvd
400600	5.19	6.33	7.34	7.66	8.07	8.32	Town n' Country Blvd
400605	5.19	6.33	7.35	7.67	8.08	8.33	
400610	5.39	6.73	7.71	8.03	8.49	8.77	Ambassador Ave
400615	5.62	6.77	7.77	8.11	8.59	8.88	
400620	6.15	6.83	7.83	8.18	8.69	9.00	
400630	6.38	6.88	7.87	8.24	8.76	9.08	
400650	5.21	6.36	7.35	7.67	8.07	8.31	
400660	5.21	6.36	7.35	7.67	8.07	8.30	N of Comanche Ave SE of Confluence
400670	6.55	6.55	6.55	6.78	7.61	7.98	Clifton Strt. Just NE of Confluence
400700	5.28	6.45	7.36	7.68	8.09	8.34	Clifton Strt/ Clifton Strt E of Sawyer Rd Inter. N and S of Clifton
400800	5.28	6.46	7.36	7.68	8.10	8.35	Golden Dr. S side of HSC
401110	3.70	4.29	5.17	5.67	6.52	7.09	Golden Dr. N side of HSC
401120	3.70	4.30	5.19	5.69	6.55	7.12	E of Golden Dr and Henry Strt Intersection
401130	3.71	4.31	5.20	5.72	6.72	7.92	George Rd, W Hills Ave, / Just S of George Rd and Hils Ave Intersect.
401140	3.71	4.32	5.22	5.74	7.12	8.47	
401150	3.99	4.44	5.39	5.94	7.29	8.57	
401160	4.84	4.94	5.75	6.36	7.66	8.82	
401170	6.02	6.02	6.02	6.02	6.05	6.07	Yorkshire Rd and S Comfort Blvd
401180	7.93	8.27	8.34	8.36	8.41	8.42	
401186	7.93	8.27	8.37	8.42	8.53	8.59	
401188	7.93	8.27	8.49	8.64	9.11	9.35	Beaumont Ctr Blvd
401190	7.93	8.28	8.72	9.06	9.74	10.32	

Table 6-1
Lower Sweetwater Creek Existing Water Surface Elevation

LOWER SWEETWATER CREEK (EXISTING CONDITION) EXISTING WATER SURFACE ELEVATIONS							LOCATION
JUNCTION ID	Water Surface Elevations						
	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	
401210	3.82	4.44	5.36	5.87	6.74	7.31	
401220	3.80	4.39	5.24	5.70	6.51	7.20	
401230	3.69	4.26	5.09	5.54	6.26	6.75	W of Benjamin just N of HSC
401240	3.61	4.16	5.00	5.45	6.15	6.64	
401310	3.85	4.49	5.42	5.93	6.81	7.38	
401320	3.86	4.49	5.42	5.94	6.81	7.38	
401330	3.86	4.49	5.42	5.93	6.81	7.38	
401410	5.01	5.49	6.25	6.72	7.47	7.89	
401420	5.82	6.28	6.83	7.18	7.88	8.29	
401430	6.02	6.47	7.00	7.32	7.97	8.36	
401440	6.87	7.22	7.65	7.82	8.25	8.57	
401500	5.60	5.85	6.47	6.94	7.70	8.18	Hillsborough Ave
401602	5.01	5.55	6.47	6.95	7.73	8.22	
401604	5.07	5.55	6.47	6.95	7.74	8.22	
401610	4.83	5.55	6.47	6.95	7.73	8.22	Benjamin Rd
401620	4.87	5.61	6.56	7.03	7.79	8.29	Alvarez Road
401630	4.87	5.61	6.56	7.03	7.79	8.29	
401632	6.00	6.17	6.57	7.04	7.80	8.30	Benjamin Rd and Johns Rd
401640	4.93	5.69	6.65	7.11	7.86	8.36	
401642	4.93	5.70	6.66	7.11	7.86	8.37	
401650	4.94	5.72	6.66	7.12	7.86	8.36	Hoover Blvd
401652	4.93	5.69	6.66	7.11	7.86	8.36	
401654	5.03	5.70	6.66	7.11	7.86	8.36	
401656	4.93	5.70	6.66	7.11	7.86	8.36	
401660	4.94	5.72	6.66	7.12	7.87	8.36	
401662	4.94	5.72	6.66	7.12	7.87	8.36	
401664	4.94	5.72	6.67	7.12	7.87	8.36	
401670	6.91	7.29	7.91	8.33	9.22	9.75	
401680	6.95	7.31	7.92	8.34	9.22	9.75	
401690	7.48	7.71	8.09	8.57	9.61	10.37	
401750	5.61	5.84	6.78	7.27	8.07	8.56	
401850	5.29	5.94	6.88	7.37	8.16	8.65	
402210	7.72	8.79	9.90	10.36	11.13	11.62	
402220	7.74	8.80	9.90	10.36	11.13	11.62	
402230	8.04	8.91	9.97	10.42	11.17	11.65	
402238	8.08	8.92	9.97	10.43	11.17	11.65	
402240	8.83	9.40	10.55	10.90	11.37	11.76	
402250	8.84	9.41	10.56	10.90	11.37	11.76	
402260	8.23	8.98	10.01	10.46	11.21	11.68	S Occident Strt, Henry Strt
402270	10.57	11.78	13.49	13.85	14.37	14.71	Occident and Idlewild
402280	10.59	11.79	13.50	13.85	14.38	14.71	Occident and Hanna
402285	9.78	9.90	10.05	10.47	11.21	11.68	Occident and North Strt
402310	9.59	9.88	10.28	10.53	11.10	11.58	N Occident Strt
402320	9.62	9.91	10.30	10.56	11.13	11.60	Lambright and Hesperides
402330	9.08	9.43	9.97	10.31	10.93	11.36	Hesperides
402370	8.67	8.81	9.00	9.12	9.69	10.28	
402392	5.77	6.59	7.60	8.13	8.95	9.45	
402394	5.48	6.34	7.42	7.96	8.66	9.05	
402398	6.21	7.08	8.17	8.73	9.66	10.24	
402400	5.23	6.14	7.39	7.95	8.64	9.04	
402500	5.22	6.13	7.39	7.95	8.64	9.03	
402510	5.24	6.23	7.40	7.96	8.65	9.04	

Table 6-1
Lower Sweetwater Creek Existing Water Surface Elevation

LOWER SWEETWATER CREEK (EXISTING CONDITION) EXISTING WATER SURFACE ELEVATIONS							LOCATION
JUCTION ID	Water Surface Elevations						
	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	
402518	5.24	6.23	7.40	7.96	8.65	9.04	
402520	6.44	6.67	7.48	8.02	8.94	9.26	SE of Church Strt and Sligh Intersect.
402600	5.16	6.11	7.38	7.95	8.64	9.03	
402610	5.83	7.04	8.13	8.50	9.03	9.23	Blossom Strt / S of Pine Crest Manor Blvd along Blossom Strt
402620	5.85	7.05	8.14	8.51	9.04	9.23	
402630	7.51	8.75	9.36	9.66	10.16	10.49	
402640	7.52	8.75	9.36	9.66	10.16	10.49	
402698	5.14	6.10	7.38	7.94	8.64	9.03	E of Dale Mabry N of Idlewild
402700	5.01	5.95	7.31	7.91	8.61	9.00	Dale Mabry
402800	5.00	5.95	7.31	7.90	8.61	9.00	Lambright / NE of Dale Mabry and Lambright Intersect.
402810	5.01	5.95	7.31	7.91	8.61	9.00	
402818	5.01	5.95	7.31	7.91	8.61	9.01	South of Lambright Strt E of Dale Mabry
402820	5.77	6.72	7.43	7.92	8.62	9.01	
402828	5.77	6.73	7.44	7.92	8.62	9.01	
402830	6.15	7.20	7.95	8.13	8.63	9.02	
402840	6.15	7.20	7.95	8.13	8.63	9.02	Idlewild just E of Dale Mabry
402850	5.01	5.95	7.31	7.91	8.61	9.00	W of Himes Ave and N of Idlewild
402860	5.46	6.04	7.03	7.60	8.61	9.07	Larmont Avenue
402870	5.96	6.08	7.31	7.91	8.61	9.00	Idlewild just E of Himes
402880	5.81	5.95	7.31	7.91	8.61	9.00	
402900	8.59	8.64	8.71	8.75	9.66	10.25	Woodlynne Rd
403060	11.96	12.68	13.58	14.11	15.09	15.72	
403070	14.79	14.84	14.92	14.96	15.10	15.72	Paris Strt
403110	15.10	15.25	15.47	15.61	15.86	16.03	Burke Strt
403120	11.97	12.70	13.84	14.46	15.29	15.80	
403125	11.97	12.70	13.84	14.46	15.30	15.80	
403130	11.98	12.72	14.29	15.16	15.83	16.20	
403140	11.98	12.72	14.29	15.16	15.84	16.20	
403170	12.59	13.42	14.48	15.12	16.57	17.78	
403180	15.07	15.18	15.34	15.44	15.96	16.61	Friend Ave / S of kirby Strt and E of Tampania Ave
403190	12.59	13.37	14.37	14.93	15.99	16.62	
403210	12.69	13.51	14.53	15.10	16.21	16.98	
403220	16.67	16.95	17.59	17.96	18.57	18.97	
403230	15.72	16.85	17.69	18.09	18.73	19.15	
403240	12.71	13.52	14.54	15.12	16.22	17.00	
403250	16.82	16.99	17.23	17.38	17.65	17.84	
403260	15.81	15.98	16.90	17.37	17.87	18.17	
403270	15.24	15.65	16.22	16.57	17.24	17.71	
403360	21.94	22.28	22.76	23.10	23.78	24.30	
403370	22.19	22.49	22.98	23.31	23.97	24.48	
403404	19.35	19.55	19.80	19.93	20.37	21.18	
403406	20.20	20.41	20.63	20.75	20.99	21.24	
403408	20.22	20.45	20.71	20.87	21.16	21.31	
403410	20.25	20.51	20.84	21.05	21.32	21.47	
403420	16.12	17.08	18.38	19.08	20.35	21.18	
403425	18.47	18.75	19.15	19.40	20.39	21.22	
403430	17.65	17.85	18.42	19.11	20.37	21.19	
403435	23.43	23.49	23.56	23.60	23.67	23.73	
403440	19.25	19.68	20.90	22.34	23.76	24.17	

Table 6-1
Lower Sweetwater Creek Existing Water Surface Elevation

LOWER SWEETWATER CREEK (EXISTING CONDITION) EXISTING WATER SURFACE ELEVATIONS							LOCATION
JUCTION ID	Water Surface Elevations						
	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	
403445	22.61	23.10	23.41	23.60	24.04	24.33	
403450	21.69	23.07	23.26	23.54	24.05	24.33	
403460	21.35	21.60	21.88	22.38	23.78	24.20	
403462	24.21	24.26	24.34	24.38	24.47	24.52	
403465	22.20	22.69	23.41	23.62	23.96	24.27	
403470	21.58	21.97	22.45	22.78	23.77	24.17	
403480	21.59	21.98	22.46	22.77	23.69	24.07	
403488	21.12	21.23	21.41	21.57	21.99	22.17	
403490	21.13	21.24	21.43	21.59	22.04	22.23	
403508	20.09	20.09	20.09	20.09	20.79	21.56	
403510	15.48	16.42	17.88	18.88	20.92	21.40	
403516	16.52	17.57	18.95	19.72	20.83	21.64	
403518	19.26	20.01	20.76	21.36	22.65	23.17	
403520	19.99	20.21	20.83	21.42	22.69	23.25	
403528	18.04	18.35	18.96	19.74	21.05	21.65	
403530	22.13	22.49	22.99	23.29	23.86	24.25	
403536	18.21	18.43	18.96	19.76	21.41	22.44	
403538	20.59	21.81	23.56	23.90	24.53	24.93	
403540	23.92	24.46	25.23	25.74	26.69	27.35	
403560	17.20	19.07	22.68	23.43	24.23	24.67	
403570	19.73	21.13	23.82	24.24	24.82	25.17	
403580	20.15	21.29	23.88	24.31	24.91	25.28	
403590	24.10	24.33	24.62	24.80	25.11	25.35	
403606	24.12	24.24	24.39	24.49	24.63	24.73	
403608	24.34	24.54	24.83	25.03	25.50	25.83	
403610	24.39	24.61	24.94	25.17	25.77	26.21	
403710	22.56	22.66	22.84	22.99	23.23	23.72	
403720	25.62	25.65	25.74	25.82	25.93	25.99	
403730	24.86	24.97	25.12	25.21	25.37	25.47	
403810	20.67	22.03	23.88	24.48	25.38	25.95	
403820	21.28	23.27	24.60	25.16	26.05	26.65	
403830	21.86	24.26	25.55	26.06	26.89	27.41	
403840	23.04	24.69	26.51	27.00	27.75	28.21	
403850	24.24	25.12	27.80	28.29	28.97	29.38	
403858	26.51	28.22	29.76	30.17	30.81	31.21	
403860	26.56	28.24	29.77	30.19	30.83	31.23	
404008	23.18	23.53	24.67	25.77	26.41	26.72	
404010	26.28	26.56	26.77	26.88	27.08	27.21	
404308	26.07	27.34	29.74	30.25	30.84	31.20	
404310	29.39	30.25	31.37	31.72	32.19	32.51	
404314	29.53	30.45	31.55	31.87	32.36	32.69	
404316	30.07	31.25	32.48	32.75	33.20	33.51	
404318	30.23	31.50	32.67	32.92	33.37	33.71	
404320	30.90	32.34	33.06	33.27	33.71	34.04	
404330	31.12	32.71	33.71	34.11	34.56	34.85	
404340	31.18	32.85	33.96	34.41	35.02	35.31	
404350	29.96	30.23	30.63	30.89	31.33	31.63	
404360	31.04	31.23	31.57	31.80	32.24	32.54	
404410	25.79	26.28	27.40	28.23	29.90	31.13	
404415	27.34	28.17	29.64	30.69	33.02	34.88	
404420	28.80	29.24	29.87	30.79	33.16	35.04	
404430	30.30	31.07	33.39	35.64	37.55	38.05	

Table 6-1
Lower Sweetwater Creek Existing Water Surface Elevation

LOWER SWEETWATER CREEK (EXISTING CONDITION) EXISTING WATER SURFACE ELEVATIONS							LOCATION
JUNCTION ID	Water Surface Elevations						
	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	
404440	31.98	34.06	36.37	36.92	37.83	38.36	
404450	33.66	36.52	37.22	37.53	38.17	38.67	
404460	33.75	36.62	37.27	37.59	38.24	38.74	
404468	34.05	36.73	37.29	37.61	38.26	38.76	
404470	36.69	36.85	37.30	37.63	38.28	38.79	
404550	24.29	25.06	26.31	27.16	28.33	29.13	
404610	30.55	30.90	31.32	31.56	32.10	32.42	
404620	32.02	32.38	32.83	33.08	33.63	33.97	
404630	32.12	32.49	32.95	33.21	33.79	34.14	
404640	32.87	33.32	33.69	33.89	34.41	34.71	
404650	33.68	33.93	34.27	34.49	34.80	34.99	
404810	33.59	34.62	36.36	36.89	37.68	38.10	
404820	36.92	37.10	37.94	39.05	39.82	40.18	
404825	36.76	37.50	38.50	39.25	40.00	40.40	
404830	37.09	37.94	38.95	39.46	40.19	40.61	
404840	39.83	40.19	40.65	40.88	41.35	41.66	
404950	41.35	41.44	41.56	41.63	41.77	41.86	
404960	43.91	44.76	45.97	46.69	47.97	48.66	
404970	43.97	44.78	46.00	46.72	48.15	48.69	
404980	44.01	44.79	46.01	46.74	48.46	48.96	
404985	43.88	44.13	44.67	45.08	46.15	46.95	
404990	45.62	45.92	46.44	46.82	47.34	47.64	
405000	6.94	7.30	7.75	7.93	8.36	8.67	
405100	8.61	9.11	9.72	9.98	10.41	10.66	
405110	8.55	9.10	9.74	10.05	10.67	11.64	
405120	8.68	9.26	10.01	10.39	11.29	11.98	
405130	11.55	12.18	12.94	13.33	13.65	13.79	
405140	11.58	12.28	13.11	13.55	14.02	14.22	
405150	11.54	12.64	14.53	14.58	14.97	15.15	
405160	12.78	13.01	13.36	13.78	14.27	14.47	
405165	13.54	13.86	14.29	14.51	15.08	15.39	
405170	13.73	14.08	14.59	14.84	15.29	15.48	
405180	15.11	15.24	15.36	15.42	15.53	15.61	
405200	9.19	9.73	10.38	10.66	11.12	11.38	
405210	8.11	8.54	9.07	9.31	9.72	9.95	
405220	9.47	9.87	10.35	10.56	10.92	11.12	
405230	11.25	11.67	12.17	12.39	12.74	12.93	
405240	11.38	11.80	12.31	12.52	12.87	13.06	
405250	11.59	12.03	12.56	12.80	13.17	13.37	
405260	11.88	12.30	12.83	13.06	13.42	13.61	
405270	12.96	13.69	14.54	15.00	15.95	16.49	
405280	13.48	14.40	15.56	16.42	17.80	18.62	
405290	13.75	14.62	15.73	16.55	17.90	18.69	
405292	14.65	16.21	17.55	18.27	19.35	20.04	
405294	14.69	16.27	17.63	18.35	19.42	20.11	
405235	11.80	12.75	14.17	15.08	16.85	18.12	
405285	15.22	16.80	18.90	20.10	20.71	20.99	
405300	14.31	15.05	16.08	16.81	18.07	18.84	
405305	19.69	20.73	22.59	23.89	26.37	28.13	
405310	14.88	15.51	16.42	17.07	18.25	18.97	
405320	15.14	15.77	16.71	17.44	18.77	19.59	
405390	15.65	16.23	17.09	17.73	18.96	19.74	

Table 6-1
Lower Sweetwater Creek Existing Water Surface Elevation

LOWER SWEETWATER CREEK (EXISTING CONDITION)							LOCATION
EXISTING WATER SURFACE ELEVATIONS							
JUCTION ID	Water Surface Elevations						
	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	
405400	15.78	16.91	17.88	18.53	19.75	20.57	
405410	16.25	17.42	18.54	19.23	20.45	21.23	
405420	16.98	18.04	19.08	19.66	20.69	21.33	
405430	17.66	18.53	19.47	20.00	20.90	21.44	
405440	18.43	19.16	19.99	20.52	21.29	21.77	
405450	19.01	19.71	20.50	21.03	21.74	22.19	
405460	19.22	19.94	20.71	21.22	21.92	22.36	
405470	19.38	20.14	20.89	21.39	22.07	22.50	
405480	19.68	20.51	21.23	21.70	22.35	22.77	
405490	20.56	21.49	22.18	22.54	23.10	23.45	
405500	16.58	16.92	17.48	18.05	19.17	19.91	
405510	17.45	17.79	18.29	18.64	19.47	20.09	
405520	18.72	19.25	20.27	20.64	21.33	22.00	
405530	18.76	19.30	20.31	20.68	21.36	22.03	
405535	21.90	23.48	26.01	27.17	28.40	28.85	
405540	18.77	19.31	20.32	20.69	21.37	22.03	
405550	19.23	19.98	20.42	20.76	21.41	22.03	
405555	20.13	20.32	20.70	20.97	21.54	22.14	
405560	19.22	19.98	20.42	20.77	21.42	22.03	
405570	19.22	19.98	20.43	20.77	21.42	22.03	
405580	19.23	20.10	20.79	21.11	21.74	22.19	
405590	19.23	20.11	20.80	21.11	21.75	22.19	
405600	20.17	20.51	20.87	21.17	21.79	22.24	
405700	20.83	21.17	21.60	21.87	22.36	22.71	
406010	23.80	24.08	24.41	24.60	25.48	25.94	
406015	24.82	25.00	25.20	25.32	25.54	25.99	
406020	26.22	26.62	27.28	27.65	28.65	29.28	
406025	26.36	26.74	27.35	27.71	28.68	29.30	
406030	27.13	27.90	29.20	30.15	32.18	33.79	
406100	22.48	23.27	24.28	24.97	26.00	26.50	
406105	22.53	23.32	24.32	25.03	26.05	26.55	
406110	22.56	23.35	24.35	25.07	26.09	26.59	
406120	23.14	23.72	24.71	25.46	26.44	26.93	
406130	23.31	23.82	24.74	25.47	26.45	26.93	
406140	23.79	24.26	25.11	25.87	26.78	27.19	
406150	24.12	24.50	25.21	25.92	26.80	27.20	
406160	24.55	25.04	25.81	26.43	27.16	27.42	
406170	25.15	25.51	26.21	26.72	27.44	27.70	
406180	25.70	26.08	26.75	27.16	27.83	28.09	
406200	22.93	23.70	24.70	25.36	26.37	26.90	
406210	22.94	23.70	24.70	25.36	26.37	26.91	
406220	22.96	23.71	24.72	25.38	26.41	26.96	
406230	22.98	23.73	24.73	25.40	26.45	27.03	
406300	26.03	26.36	26.88	27.24	27.87	28.12	
406310	27.06	27.49	27.90	28.11	28.66	28.99	
406320	27.13	27.54	27.94	28.14	28.68	29.01	
406330	27.06	27.94	28.07	28.14	28.29	28.40	
406335	27.07	27.94	28.07	28.14	28.29	28.40	
406340	27.37	28.52	30.30	31.54	34.29	36.56	
406345	28.07	29.58	32.11	33.91	37.83	41.01	
406360	22.99	23.73	24.74	25.40	26.48	27.07	
406365	23.21	23.74	24.75	25.41	26.58	27.14	

Table 6-1
Lower Sweetwater Creek Existing Water Surface Elevation

LOWER SWEETWATER CREEK (EXISTING CONDITION)							LOCATION
EXISTING WATER SURFACE ELEVATIONS							
JUCTION ID	Water Surface Elevations						
	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	
406370	24.33	24.59	24.94	25.42	26.72	27.26	
406375	25.78	26.24	26.94	27.07	27.28	27.49	
406380	24.36	24.56	24.98	25.64	26.70	27.25	
406390	24.75	24.90	25.19	25.72	26.72	27.26	
406400	27.65	27.99	28.34	28.61	28.99	29.20	
406410	28.90	29.02	29.10	29.16	29.27	29.36	
406420	28.90	29.03	29.11	29.16	29.28	29.36	
406450	28.04	28.29	28.59	28.77	29.06	29.26	
406460	28.05	28.30	28.60	28.77	29.06	29.26	
406500	27.66	28.00	28.35	28.62	29.00	29.21	
406510	27.86	28.10	28.42	28.70	29.08	29.30	
406520	27.87	28.10	28.43	28.70	29.09	29.31	
406600	28.19	28.51	28.89	29.09	29.36	29.54	
406610	28.23	28.54	28.92	29.12	29.40	29.57	
406620	28.51	28.80	29.08	29.25	29.51	29.70	
406630	28.20	28.51	28.89	29.09	29.36	29.54	
406645	28.52	28.81	29.09	29.26	29.52	29.71	
406660	28.83	29.22	29.61	29.78	30.04	30.22	
406675	28.85	29.24	29.63	29.80	30.07	30.25	
406680	28.78	29.16	29.56	29.74	30.01	30.20	
406690	28.41	28.89	29.37	29.60	29.93	30.12	
406710	28.94	29.33	29.71	29.89	30.17	30.37	
406800	28.96	29.36	29.74	29.92	30.20	30.40	
406805	29.66	30.09	30.39	30.56	30.84	31.02	
406810	29.73	30.12	30.40	30.56	30.84	31.02	
406820	29.01	29.43	29.84	30.04	30.37	30.62	
406825	29.01	29.43	29.84	30.04	30.36	30.61	
406830	29.01	29.43	29.84	30.03	30.21	30.33	
406835	29.22	29.54	29.90	30.09	30.40	30.65	
406840	30.44	30.81	31.25	31.53	32.09	32.50	
406845	29.34	29.80	30.17	30.39	30.78	31.06	
406850	29.36	29.81	30.19	30.41	30.81	31.09	
406855	30.50	30.86	31.29	31.57	32.12	32.53	
406860	30.46	30.82	31.26	31.54	32.09	32.50	
406870	30.86	30.98	31.32	31.60	32.16	32.56	
406885	30.51	30.87	31.30	31.58	32.13	32.54	
406900	30.89	31.45	32.12	32.52	33.25	33.74	
406905	30.89	31.46	32.13	32.53	33.25	33.75	
406910	31.18	31.61	32.25	32.65	33.38	33.89	
406915	31.19	31.63	32.26	32.66	33.40	33.90	
406935	30.99	31.52	32.19	32.60	33.34	33.85	
406940	31.06	31.57	32.25	32.66	33.42	33.94	
406950	31.07	31.59	32.27	32.68	33.45	33.97	
407000	24.49	25.26	26.55	27.39	28.56	29.33	
407100	24.55	25.33	26.66	27.52	28.79	29.62	
407200	24.71	25.49	26.83	27.69	28.95	29.77	
407300	24.75	25.51	26.87	27.73	28.97	29.79	
407400	25.51	26.71	27.63	28.15	29.26	30.06	
407500	25.84	26.84	27.98	28.58	29.75	30.66	
407600	26.30	26.93	28.02	28.61	29.77	30.67	
407700	26.31	26.94	28.04	28.64	29.80	30.85	
407800	26.30	26.93	28.03	28.62	29.78	30.68	

6.3 Level of Service (LOS) Analysis

The Hillsborough County Comprehensive Plan, Stormwater Management Element contains definitions for level of service flood protection designations. According to these definitions, a storm return period and duration (i.e., 25-year/24-hour) and letter designation (i.e., B) are needed to define the level of flood protection (i.e. 25-year/24-hour level B). The flood level designations contained in the Comprehensive Plan are A, B, C, and D; A being the highest level and D being the lowest. However, these criteria are somewhat subjective. Therefore, it is necessary to establish quantitative criteria by which to assign LOS designations. An allowable tolerance that is demographically representative for Hillsborough County before flooding can be classified was assigned to LOS designations A-D as shown in Table 6-2 below. This table contains the interpretation of the Comprehensive Plan definitions used in the LOS analysis herein.

Table 6-2 Level of Service Definition Interpretations

Level	HC Comprehensive Plan Definitions	Master Plan Interpretation
A	No significant street flooding	No flooding
B	No major residential yard flooding	Street flooding is 3" or more above the crown
C	No significant structure flooding	Site flooding is 6" or more
D	No limitation on flooding	Structure flooding

The LOS designations contained in the Comprehensive Plan contain the assumption that sites are higher than roads and structures are higher than sites. However, this is not always the case. The LOS analysis methodology used herein evaluates road, site and structure landmark elevations independently.

The Comprehensive Plan contains estimated Adopted (existing conditions) and Ultimate (proposed) LOS designations for several watersheds in Hillsborough County. According to the Comprehensive Plan, the 25-year/24-hour level B is the target LOS for all areas of Hillsborough County except for the Rocky/Brushy Creek and Sweetwater Creek watersheds. One goal of this WMMP is to update the LOS designation for LSC with the results of a formal LOS analysis for this watershed. The LOS analysis for existing conditions is contained in this chapter.

Table 6-3. Lower Sweet Water Creek (EXISTING CONDITION) EXISTING LEVEL OF SERVICE										Flood Level						Predicted Flood Location (road /site/structure)
Subbasin	Landmark Elevations			Water Surface Elevations						Designations						
	Road	Site	Struct	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	2.33-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
400100	5.25	5.50	6.00	2.56	2.60	2.69	2.79	3.04	3.37	A	A	A	A	A	A	
400150	6.55	5.30	6.00	2.92	3.07	3.29	3.43	3.70	3.90	A	A	A	A	A	A	
400200	6.45	6.40	6.90	3.33	3.63	4.23	4.70	5.55	6.12	A	A	A	A	A	A	
400300	5.35	6.50	7.00	3.40	3.71	4.33	4.80	5.65	6.22	A	A	A	A	B	B	Town n' Country Blvd
400350	6.25	5.50	7.00	3.54	4.06	4.81	5.22	6.05	6.54	A	A	A	A	C	C	
400400	5.75	6.90	7.00	4.19	4.87	6.19	6.61	7.16	7.52	A	A	B	B	D	D	Winston Ave
400500	5.75	7.50	7.00	4.77	5.67	6.56	6.90	7.43	7.79	A	A	B	B	D	D	Springside Ln
400600	7.25	8.00	8.00	5.19	6.33	7.34	7.66	8.07	8.32	A	A	B	B	D	D	
400605	6.25	7.50	8.50	5.19	6.33	7.35	7.67	8.08	8.33	A	B	B	C	C	C	Springside Ln
400610	7.25	7.50	8.50	5.39	6.73	7.71	8.03	8.49	8.77	A	A	C	C	C	D	Tanglewood Ln / N and S of Tanglewood Lane
400620	6.05	6.50	8.00	6.15	6.83	7.83	8.18	8.69	9.00	B	C	C	D	D	D	Dr Intersection
400630	6.25	7.50	8.00	6.38	6.88	7.87	8.24	8.76	9.08	B	B	C	D	D	D	Halifax Dr / NE of Halifax Dr and Dell Dr Intersection
400650	6.65	7.50	8.00	5.21	6.36	7.35	7.67	8.07	8.31	A	A	B	C	D	D	Glenview Ln
400670	8.75	7.50	9.50	6.55	6.55	6.55	6.78	7.61	7.98	A	A	A	A	C	C	Near Town n' Country Plaza Shop Ctr
400700	6.75	9.00	9.50	5.28	6.45	7.36	7.68	8.09	8.34	A	A	B	B	B	B	Tanglewood Ln
400800	8.25	7.50	10.00	5.28	6.46	7.36	7.68	8.10	8.35	A	A	A	C	C	C	
401000	7.25	6.80	8.20	2.53	2.55	2.59	2.63	2.72	2.81	A	A	A	A	A	A	
401100	5.25	5.50	6.00	3.69	4.29	5.17	5.67	6.52	7.07	A	A	A	C	D	D	
401120	8.25	9.50	10.00	3.70	4.30	5.19	5.69	6.55	7.12	A	A	A	A	A	A	
401130	7.55	8.50	8.50	3.71	4.31	5.20	5.72	6.72	7.92	A	A	A	A	A	B	
401140	9.25	9.50	10.30	3.71	4.32	5.22	5.74	7.12	8.47	A	A	A	A	A	A	
401200	5.65	6.50	7.00	3.82	4.44	5.36	5.88	6.74	7.31	A	A	A	B	C	D	
401220	7.15	7.40	8.60	3.80	4.39	5.24	5.70	6.51	7.20	A	A	A	A	A	B	
401230	5.55	7.00	8.00	3.69	4.26	5.09	5.54	6.26	6.75	A	A	A	A	B	B	
401300	6.45	6.80	7.30	3.85	4.49	5.42	5.93	6.81	7.38	A	A	A	A	C	D	
401320	7.25	8.50	8.00	3.86	4.49	5.42	5.94	6.81	7.38	A	A	A	A	A	B	
401330	7.45	8.50	9.00	3.86	4.49	5.42	5.93	6.81	7.38	A	A	A	A	A	A	
401400	4.65	7.50	8.00	4.52	5.19	6.07	6.55	7.33	7.81	A	B	B	B	B	C	Bray Road
401430	8.45	8.50	9.20	6.02	6.47	7.00	7.32	7.97	8.36	A	A	A	A	A	A	
401500	999.00	999.00	999.00	5.60	5.85	6.47	6.94	7.70	8.18	E	E	E	E	E	E	
401600	7.25	7.50	7.00	4.83	5.55	6.47	6.95	7.73	8.22	A	A	A	A	D	D	
401604	8.25	7.50	9.00	5.07	5.55	6.47	6.95	7.74	8.22	A	A	A	A	C	C	
401630	7.25	999.00	999.00	4.87	5.61	6.56	7.03	7.79	8.29	A	A	A	A	B	B	
401632	999.00	8.50	10.00	6.00	6.17	6.57	7.04	7.80	8.30	A	A	A	A	A	A	
401640	999.00	8.50	10.00	4.93	5.69	6.65	7.11	7.86	8.36	A	A	A	A	A	A	
401642	999.00	8.50	10.00	4.93	5.70	6.66	7.11	7.86	8.37	A	A	A	A	A	A	
401650	8.00	9.00	10.00	4.94	5.72	6.66	7.12	7.86	8.36	A	A	A	A	A	B	
401652	8.75	10.30	11.00	4.93	5.69	6.66	7.11	7.86	8.36	A	A	A	A	A	A	
401654	8.25	8.50	8.00	5.03	5.70	6.66	7.11	7.86	8.36	A	A	A	A	A	D	
401656	999.00	999.00	999.00	4.93	5.70	6.66	7.11	7.86	8.36	E	E	E	E	E	E	
401660	8.25	10.50	10.00	4.94	5.72	6.66	7.12	7.87	8.36	A	A	A	A	A	B	
401664	7.85	8.50	9.00	4.94	5.72	6.67	7.12	7.87	8.36	A	A	A	A	B	B	
401670	9.75	10.50	11.00	6.91	7.29	7.91	8.33	9.22	9.75	A	A	A	A	A	B	
401690	11.25	11.50	13.00	7.48	7.71	8.09	8.57	9.61	10.37	A	A	A	A	A	A	
401750	7.25	7.50	10.50	5.61	5.84	6.78	7.27	8.07	8.56	A	A	A	B	C	C	
401850	7.25	7.50	10.50	5.29	5.94	6.88	7.37	8.16	8.65	A	A	A	B	C	C	

Table 6-3. Lower Sweet Water Creek (EXISTING CONDITION) EXISTING LEVEL OF SERVICE										Flood Level						Predicted Flood Location (road /site/structure)
Subbasin	Landmark Elevations			Water Surface Elevations						Designations						
	Road	Site	Struct	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	2.33-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
402000	9.25	9.80	9.30	5.55	6.32	7.31	7.81	8.65	9.19	A	A	A	A	A	A	
402100	999.00	9.50	11.00	6.21	7.08	8.17	8.73	9.66	10.24	A	A	A	A	C	C	
402200	10.95	10.50	12.00	6.21	7.09	8.17	8.74	9.66	10.25	A	A	A	A	A	A	
402210	9.37	11.50	12.00	7.72	8.79	9.90	10.36	11.13	11.62	A	A	B	B	B	C	Hanna Ave
402220	10.25	12.30	12.00	7.74	8.80	9.90	10.36	11.13	11.62	A	A	A	B	B	B	
402230	12.25	13.50	14.80	8.04	8.91	9.97	10.42	11.17	11.65	A	A	A	A	A	A	
402240	10.45	12.00	14.00	8.83	9.40	10.55	10.90	11.37	11.76	A	A	B	B	B	B	Armand Dr
402250	11.00	11.00	12.00	8.84	9.41	10.56	10.90	11.37	11.76	A	A	A	A	C	C	
402260	14.25	14.50	15.00	8.23	8.98	10.01	10.46	11.21	11.68	A	A	A	A	A	A	
402270	14.25	13.50	14.80	10.57	11.78	13.49	13.85	14.37	14.71	A	A	A	C	C	C	
402280	14.15	14.50	15.00	10.59	11.79	13.50	13.85	14.38	14.71	A	A	A	A	B	C	
402285	16.25	16.50	18.00	9.78	9.90	10.05	10.47	11.21	11.68	A	A	A	A	A	A	
402300	13.05	15.50	16.00	6.23	7.11	8.20	8.77	9.69	10.27	A	A	A	A	A	A	
402310	14.95	15.50	16.30	9.59	9.88	10.28	10.53	11.10	11.58	A	A	A	A	A	A	
402320	15.25	16.50	18.30	9.62	9.91	10.30	10.56	11.13	11.60	A	A	A	A	A	A	
402330	10.85	10.50	13.00	9.08	9.43	9.97	10.31	10.93	11.36	A	A	A	A	C	C	
402340	13.05	13.50	14.60	6.23	7.11	8.20	8.77	9.69	10.28	A	A	A	A	A	A	
402350	10.75	11.50	12.00	6.24	7.12	8.21	8.77	9.70	10.29	A	A	A	A	A	A	
402360	999.00	16.50	17.50	7.16	7.21	8.21	8.77	9.70	10.29	A	A	A	A	A	A	
402370	13.05	15.50	16.50	8.67	8.81	9.00	9.12	9.69	10.28	A	A	A	A	A	A	
402400	7.85	7.50	8.70	5.23	6.14	7.39	7.95	8.64	9.04	A	A	A	C	C	D	Clifton Street / Corner of Hanley Rd and Canal A
402500	7.25	7.50	8.50	5.22	6.13	7.39	7.95	8.64	9.03	A	A	B	C	D	D	Hanley Road / N. side of Canal A, just W of Hanley
402510	6.45	8.50	9.00	5.24	6.23	7.40	7.96	8.65	9.04	A	A	B	B	C	D	Henry Street
402520	9.45	11.50	12.00	6.44	6.67	7.48	8.02	8.94	9.26	A	A	A	A	A	A	
402600	6.65	8.50	9.00	5.16	6.11	7.38	7.95	8.64	9.03	A	A	B	B	C	D	Powhattan Ave
402610	7.45	8.50	9.00	5.83	7.04	8.13	8.50	9.03	9.23	A	A	B	C	D	D	Henry Street and Canal F
402620	8.55	10.50	11.00	5.85	7.05	8.14	8.51	9.04	9.23	A	A	A	A	B	B	
402630	10.25	10.50	11.60	7.51	8.75	9.36	9.66	10.16	10.49	A	A	A	A	A	B	
402640	10.05	10.50	12.00	7.52	8.75	9.36	9.66	10.16	10.49	A	A	A	A	B	B	
402700	8.05	8.50	9.30	5.01	5.95	7.31	7.91	8.61	9.00	A	A	A	A	C	C	Powhattan Blvd
402800	7.65	8.80	9.30	5.00	5.95	7.31	7.90	8.61	9.00	A	A	A	B	B	C	Santa Monica
402810	6.26	8.50	8.80	5.01	5.95	7.31	7.91	8.61	9.00	A	A	B	B	C	D	Town n' Coutry Blvd
402820	6.79	8.50	8.60	5.77	6.72	7.43	7.92	8.62	9.01	A	A	B	B	D	D	Town n' Country Blvd
402830	9.25	8.50	10.00	6.15	7.20	7.95	8.13	8.63	9.02	A	A	A	A	C	C	
402840	7.15	8.50	10.00	6.15	7.20	7.95	8.13	8.63	9.02	A	B	B	B	C	C	Ambassador Ave
402850	9.45	10.50	11.50	5.01	5.95	7.31	7.91	8.61	9.00	A	A	A	A	A	A	
402860	8.25	8.50	10.00	5.46	6.04	7.03	7.60	8.61	9.07	A	A	A	A	C	C	
402870	9.75	10.50	11.60	5.96	6.08	7.31	7.91	8.61	9.00	A	A	A	A	A	A	
402880	9.75	10.50	11.00	5.81	5.95	7.31	7.91	8.61	9.00	A	A	A	A	A	A	
402900	9.25	7.30	9.00	8.59	8.64	8.71	8.75	9.66	10.25	C	C	C	C	D	D	N of Comanche Ave SE of Confluence
402920	10.25	10.50	12.00	7.28	8.18	9.30	9.89	10.89	11.47	A	A	A	A	C	C	Clifton Strt. Just NE of Confluence
402930	9.67	6.37	10.50	7.54	8.47	9.67	10.41	11.51	12.10	C	C	C	C	D	D	Clifton Strt/ Clifton Strt E of Sawyer Rd Inter. N and S of Clifton
402940	10.85	10.74	12.50	8.89	9.83	10.98	11.60	12.63	13.24	A	A	C	C	D	D	Golden Dr. S side of HSC
402950	10.87	10.50	12.81	11.77	12.45	13.30	13.79	14.73	15.33	C	C	D	D	D	D	Golden Dr. N side of HSC

Table 6-3. Lower Sweet Water Creek (EXISTING CONDITION) EXISTING LEVEL OF SERVICE										Flood Level						Predicted Flood Location (road /site/structure)
Subbasin	Landmark Elevations			Water Surface Elevations						Designations						
	Road	Site	Struct	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	2.33-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
403000	11.66	11.50	13.00	11.89	12.61	13.49	14.00	14.96	15.57	C	C	D	D	D	D	E of Golden Dr and Henry Strt Intersection
403060	13.25	12.50	14.80	11.96	12.68	13.58	14.11	15.09	15.72	A	C	C	C	D	D	George Rd, W Hills Ave, / Just S of George Rd and Hils Ave Intersect.
403070	18.25	18.20	19.20	14.79	14.84	14.92	14.96	15.10	15.72	A	A	A	A	A	A	
403100	999.00	16.00	17.00	11.94	12.65	13.55	14.07	15.06	15.69	A	A	A	A	A	A	
403110	999.00	999.00	999.00	15.10	15.25	15.47	15.61	15.86	16.03	E	E	E	E	E	E	
403120	13.05	14.50	15.00	11.97	12.70	13.84	14.46	15.29	15.80	A	A	B	B	D	D	Yorkshire Rd and S Comfort Blvd
403130	15.05	15.50	18.00	11.98	12.72	14.29	15.16	15.83	16.20	A	A	A	B	C	C	
403140	19.25	19.50	20.00	11.98	12.72	14.29	15.16	15.84	16.20	A	A	A	A	A	A	
403170	16.25	17.00	18.00	12.59	13.42	14.48	15.12	16.57	17.78	A	A	A	A	B	C	Beaumont Ctr Blvd
403180	17.25	18.50	20.00	15.07	15.18	15.34	15.44	15.96	16.61	A	A	A	A	A	A	
403190	16.55	17.50	19.00	12.59	13.37	14.37	14.93	15.99	16.62	A	A	A	A	A	B	
403200	16.55	19.50	20.50	12.69	13.50	14.52	15.09	16.19	16.97	A	A	A	A	A	B	
403220	21.25	19.50	20.70	16.67	16.95	17.59	17.96	18.57	18.97	A	A	A	A	A	A	W of Benjamin just N of HSC
403230	23.25	19.50	19.00	15.72	16.85	17.69	18.09	18.73	19.15	A	A	A	A	A	D	
403250	23.25	21.00	22.00	16.82	16.99	17.23	17.38	17.65	17.84	A	A	A	A	A	A	
403260	18.25	19.30	20.30	15.81	15.98	16.90	17.37	17.87	18.17	A	A	A	A	A	A	
403270	18.25	19.50	20.70	15.24	15.65	16.22	16.57	17.24	17.71	A	A	A	A	A	A	
403300	20.25	20.50	21.00	14.55	15.47	16.63	17.26	18.40	19.15	A	A	A	A	A	A	
403350	21.25	21.00	22.00	14.65	15.58	16.77	17.40	18.59	19.43	A	A	A	A	A	A	
403360	999.00	22.50	24.00	21.94	22.28	22.76	23.10	23.78	24.30	A	A	C	C	C	D	
403370	999.00	999.00	999.00	22.19	22.49	22.98	23.31	23.97	24.48	E	E	E	E	E	E	
403410	21.25	999.00	999.00	20.25	20.51	20.84	21.05	21.32	21.47	A	A	A	A	B	B	Hillsborough Ave
403435	25.25	24.50	25.00	23.43	23.49	23.56	23.60	23.67	23.73	A	A	A	A	A	A	
403445	24.25	999.00	999.00	22.61	23.10	23.41	23.60	24.04	24.33	A	A	A	A	A	B	
403450	23.25	999.00	999.00	21.69	23.07	23.26	23.54	24.05	24.33	A	A	B	B	B	B	Benjamin Rd
403460	23.25	25.50	27.50	21.35	21.60	21.88	22.38	23.78	24.20	A	A	A	A	B	B	Alvarez Road
403462	24.25	24.50	26.00	24.21	24.26	24.34	24.38	24.47	24.52	A	B	B	B	B	C	
403465	23.25	23.92	24.92	22.20	22.69	23.41	23.62	23.96	24.27	A	A	B	B	C	C	Benjamin Rd and Johns Rd
403470	24.25	23.50	24.00	21.58	21.97	22.45	22.78	23.77	24.17	A	A	A	A	C	D	
403480	24.25	23.20	27.00	21.59	21.98	22.46	22.77	23.69	24.07	A	A	A	A	C	C	
403500	21.75	25.00	26.00	16.48	17.50	18.80	19.49	20.77	21.60	A	A	A	A	A	A	Hoover Blvd
403510	24.25	22.20	26.00	15.48	16.42	17.88	18.88	20.92	21.40	A	A	A	A	A	A	
403520	25.25	24.00	26.00	19.99	20.21	20.83	21.42	22.69	23.25	A	A	A	A	A	A	
403530	999.00	31.50	32.00	22.13	22.49	22.99	23.29	23.86	24.25	A	A	A	A	A	A	
403540	25.25	24.50	26.00	23.92	24.46	25.23	25.74	26.69	27.35	A	A	C	C	D	D	
403560	23.25	24.20	25.00	17.20	19.07	22.68	23.43	24.23	24.67	A	A	A	B	C	C	
403570	25.25	25.10	26.00	19.73	21.13	23.82	24.24	24.82	25.17	A	A	A	A	A	C	
403580	25.25	24.00	24.00	20.15	21.29	23.88	24.31	24.91	25.28	A	A	A	D	D	D	
403590	27.00	27.00	28.00	24.10	24.33	24.62	24.80	25.11	25.35	A	A	A	A	A	A	
403600	25.25	24.00	25.60	17.56	18.56	19.85	20.59	22.04	22.83	A	A	A	A	A	A	
403610	28.25	999.00	999.00	24.39	24.61	24.94	25.17	25.77	26.21	A	A	A	A	A	A	
403650	25.25	26.40	30.00	17.95	18.94	20.21	20.92	22.35	23.15	A	A	A	A	A	A	
403700	27.25	24.80	28.00	18.83	19.72	20.91	21.56	22.91	23.69	A	A	A	A	A	A	
403710	30.25	999.00	999.00	22.56	22.66	22.84	22.99	23.23	23.72	A	A	A	A	A	A	
403720	999.00	999.00	999.00	25.62	25.65	25.74	25.82	25.93	25.99	E	E	E	E	E	E	
403730	30.25	999.00	999.00	24.86	24.97	25.12	25.21	25.37	25.47	A	A	A	A	A	A	
403750	30.75	31.00	30.50	19.78	20.62	21.72	22.32	23.46	24.03	A	A	A	A	A	A	

Table 6-3. Lower Sweet Water Creek (EXISTING CONDITION) EXISTING LEVEL OF SERVICE										Flood Level Designations						Predicted Flood Location (road /site/structure)
Subbasin	Landmark Elevations			Water Surface Elevations												
	Road	Site	Struct	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	2.33-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
403800	25.15	25.50	26.00	19.90	20.71	21.80	22.39	23.51	24.07	A	A	A	A	A	A	
403810	22.35	24.50	26.00	20.67	22.03	23.88	24.48	25.38	25.95	A	A	B	B	C	C	S Occident Strt, Henry Strt
403820	23.25	24.50	26.00	21.28	23.27	24.60	25.16	26.05	26.65	A	B	C	C	D	D	Occident and Idlewild
403830	24.75	25.50	28.00	21.86	24.26	25.55	26.06	26.89	27.41	A	A	C	C	C	C	Occident and Hanna
403840	26.25	28.50	30.00	23.04	24.69	26.51	27.00	27.75	28.21	A	A	B	B	B	B	Occident and North Strt
403850	27.65	29.10	30.00	24.24	25.12	27.80	28.29	28.97	29.38	A	A	B	B	B	C	N Occident Strt
403860	28.25	29.50	30.00	26.56	28.24	29.77	30.19	30.83	31.23	A	A	C	D	D	D	Lambright and Hesperides
403900	24.65	25.50	26.00	21.37	22.29	23.45	24.25	25.34	25.82	A	A	A	A	B	C	Hesperides
404000	26.25	28.50	29.00	21.41	22.33	23.48	24.27	25.33	25.80	A	A	A	A	A	A	
404010	36.25	36.50	38.50	26.28	26.56	26.77	26.88	27.08	27.21	A	A	A	A	A	A	
404100	28.25	29.50	30.00	22.40	23.20	24.23	24.93	25.96	26.46	A	A	A	A	A	A	
404200	27.25	28.50	29.00	22.92	23.68	24.67	25.33	26.30	26.76	A	A	A	A	A	A	
404300	29.25	28.50	29.10	23.39	24.16	25.34	26.08	27.17	27.81	A	A	A	A	A	A	
404310	31.25	31.50	32.00	29.39	30.25	31.37	31.72	32.19	32.51	A	A	B	C	D	D	
404320	36.55	33.50	34.00	30.90	32.34	33.06	33.27	33.71	34.04	A	A	A	A	C	D	
404330	35.25	35.00	36.00	31.12	32.71	33.71	34.11	34.56	34.85	A	A	A	A	A	A	
404340	36.25	34.00	35.00	31.18	32.85	33.96	34.41	35.02	35.31	A	A	A	C	D	D	SE of Church Strt and Sligh Intersect.
404350	32.25	32.00	33.00	29.96	30.23	30.63	30.89	31.33	31.63	A	A	A	A	A	A	
404360	31.25	31.50	32.00	31.04	31.23	31.57	31.80	32.24	32.54	A	A	C	C	D	D	Blossom Strt / S of Pine Crest Manor Blvd along Blossom Strt
404400	30.75	28.50	29.10	23.58	24.33	25.50	26.22	27.28	27.89	A	A	A	A	A	A	
404410	34.25	999.00	999.00	25.79	26.28	27.40	28.23	29.90	31.13	A	A	A	A	A	A	
404415	33.25	999.00	999.00	27.34	28.17	29.64	30.69	33.02	34.88	A	A	A	A	A	B	
404420	35.25	35.50	36.00	28.80	29.24	29.87	30.79	33.16	35.04	A	A	A	A	A	A	E of Dale Mabry N of Idlewild
404430	36.25	37.50	41.00	30.30	31.07	33.39	35.64	37.55	38.05	A	A	A	A	C	C	Dale Mabry
404450	36.25	36.50	37.00	33.66	36.52	37.22	37.53	38.17	38.67	A	C	D	D	D	D	Lambright / NE of Dale Mabry and Lambright Intersect.
404460	39.65	40.10	41.00	33.75	36.62	37.27	37.59	38.24	38.74	A	A	A	A	A	A	
404470	39.25	37.50	38.00	36.69	36.85	37.30	37.63	38.28	38.79	A	A	A	C	D	D	South of Lambright Strt E of Dale Mabry
404498	29.25	29.50	31.00	23.82	24.59	25.82	26.72	27.88	28.71	A	A	A	A	A	A	
404500	31.55	30.50	30.70	24.27	25.04	26.28	27.13	28.27	29.05	A	A	A	A	A	A	
404620	34.25	34.50	35.00	32.02	32.38	32.83	33.08	33.63	33.97	A	A	A	A	A	A	
404630	31.75	32.50	33.00	32.12	32.49	32.95	33.21	33.79	34.14	B	B	C	D	D	D	Idlewild just E of Dale Mabry
404650	35.25	34.50	35.00	33.68	33.93	34.27	34.49	34.80	34.99	A	A	A	A	C	C	W of Himes Ave and N of Idlewild
404690	31.25	33.50	34.00	27.16	27.56	28.13	28.52	29.45	30.30	A	A	A	A	A	A	Larmont Avenue
404700	31.55	33.00	34.00	29.11	29.68	30.51	30.88	31.82	32.25	A	A	A	A	B	B	Idlewild just E of Himes
404720	35.25	35.50	37.40	29.59	30.29	31.23	31.86	33.05	33.84	A	A	A	A	A	A	
404800	35.15	36.50	38.50	33.06	34.00	35.35	35.74	36.30	36.72	A	A	B	B	B	C	Woodlynne Rd
404810	40.25	39.16	42.00	33.59	34.62	36.36	36.89	37.68	38.10	A	A	A	A	A	A	
404820	38.05	40.50	41.00	36.92	37.10	37.94	39.05	39.82	40.18	A	A	A	B	B	B	Paris Strt
404830	38.93	39.50	41.00	37.09	37.94	38.95	39.46	40.19	40.61	A	A	B	B	C	C	Burke Strt
404900	38.25	39.00	40.00	33.35	34.03	35.45	35.82	36.55	37.14	A	A	A	A	A	A	
404940	38.25	39.30	41.00	36.31	36.65	37.13	37.45	38.10	38.44	A	A	A	A	A	B	
404950	47.65	45.50	49.50	41.35	41.44	41.56	41.63	41.77	41.86	A	A	A	A	A	A	
404960	48.25	48.50	49.00	43.91	44.76	45.97	46.69	47.97	48.66	A	A	A	A	A	C	
404970	48.25	49.30	50.30	43.97	44.78	46.00	46.72	48.15	48.69	A	A	A	A	A	B	
404980	47.25	47.50	48.00	44.01	44.79	46.01	46.74	48.46	48.96	A	A	A	A	D	D	Friend Ave / S of kirby Strt and E of Tampania Ave

Table 6-3. Lower Sweet Water Creek (EXISTING CONDITION) EXISTING LEVEL OF SERVICE										Flood Level Designations						Predicted Flood Location (road /site/structure)	
	Landmark Elevations			Water Surface Elevations													
	Subbasin	Road	Site	Struct	2.33-yr	5-yr	10-yr	25-yr	50-YR	100-yr	2.33-yr	5-yr	10-yr	25-yr	50-yr		
404985	48.25	48.10	49.00	43.88	44.13	44.67	45.08	46.15	46.95	A	A	A	A	A	A		
404990	47.75	48.50	49.00	45.62	45.92	46.44	46.82	47.34	47.64	A	A	A	A	A	A		
405000	11.95	13.50	15.00	6.94	7.30	7.75	7.93	8.36	8.67	A	A	A	A	A	A		
405110	999.00	11.25	999.00	8.55	9.10	9.74	10.05	10.67	11.64	A	A	A	A	A	C		
405130	17.25	15.50	16.00	11.55	12.18	12.94	13.33	13.65	13.79	A	A	A	A	A	A		
405150	17.25	14.25	15.00	11.54	12.64	14.53	14.58	14.97	15.15	A	A	C	C	C	D		
405165	18.25	15.50	16.00	13.54	13.86	14.29	14.51	15.08	15.39	A	A	A	A	A	A		
405170	17.25	16.50	18.00	13.73	14.08	14.59	14.84	15.29	15.48	A	A	A	A	A	A		
405210	14.75	17.50	18.00	8.11	8.54	9.07	9.31	9.72	9.95	A	A	A	A	A	A		
405220	17.25	999.00	999.00	9.47	9.87	10.35	10.56	10.92	11.12	A	A	A	A	A	A		

6.4 Level of Service (LOS) Determinations

The LOS designations are discussed for the LSC systems listed below:

- Peppermound Creek
- Lower Sweetwater Creek South System
- Lower Sweetwater Creek North System
- Henry Street Canal West System
- Henry Street Canal East System

LOS designations are assigned in three levels of detail: subbasin, system and watershed. Subbasins were aggregated into seven systems (Peppermound Creek, Lower Sweetwater Creek South, Lower Sweetwater Creek North, Henry Street Canal West, and Henry Street Canal East) according to general conveyance system and drainage patterns. For each return period storm event, the LOS designation is first determined for the subbasin. Then the LOS is determined for the individual systems based on the aggregated subbasins comprising the system. Finally, the LOS designation is determined for the overall watershed. The LOS of the LSC watershed is reflective of the worst case system and the LOS of the system is reflective of the worst case subbasin. Figures 6-1 to 6-6 contain a graphical representation of the LSC level of service analysis for the 2.33-yr/24-hr, 5-yr/24-hr, 10-yr/24-hr, 25-yr/24-hr, 50-yr/24-hr, and 100-yr/24-hr storm events.

It is important to be aware of the limits of the methodology used for in the LOS analysis. Most landmark elevation information was taken from topographic maps, some of which are approximately 20 years old. In addition, the LOS analysis may not identify flood protection deficiencies for secondary systems (local storm sewer system) contained in a subbasin since only the major systems and laterals are contained in the hydraulic model. Conversely, since only the critical landmark elevations were identified in each subbasin, areas within a subbasin may contain a higher LOS than that assigned.

6.4.1 Peppermound Creek System

South of the Town N' Country System lies the Peppermound Creek System. The general location of the PCS is south of Hillsborough Avenue, north of Memorial Avenue, east of Webb Road and west of Kelly Road.

The PCS has an LOS C for the 25-year/24 hour storm event. The Hillsborough County Modified EXTRAN model predicts that during the 25-year/24 hour storm event, Localized street and site flooding will occur in the PCS. General locations of predicted street and site flooding are listed below.

Street flooding during the 25-year/24 hour storm event:

- Halifax Drive
- Town N' Country Blvd
- Winston Avenue
- Springside Lane
- Tanglewood Lane
- Glenview Lane
- Cornwall Lane

Site flooding during the 25-year/24 hour storm event:

- Northeast of Halifax Drive and Dell Drive intersection
- Near Cornwall Lane and Halifax Drive intersection
- North and south of Tanglewood Lane
- Near Town N' Country Plaza Shop Center

6.4.2 Lower Sweetwater Creek South System

The Lower Sweetwater Creek South System (LSCSS) is located just east of the PCS. The LSCSS general location is north of Memorial Highway and South of Hillsborough Avenue. Kelly Road borders LSCSS system on the west and Eisenhower Boulevard on the east.

The LSCSS has a LOS B for the 25-year/24 hour storm event. The Hillsborough County Modified EXTRAN model predicts that during the 25-year/24 hour storm event, local street flooding will occur on Bray Road.

6.4.3 Lower Sweetwater Creek North System

Lower Sweetwater Creek North System (LSCNS) is located east of Town N' Country and north of LSCSS. The general location of the LSCNS is south of Fountain Avenue and north of the Henry Street Canal. Hanley Road borders the LSCNS system on the west and Sweetwater Creek on the east.

The LSCNS has a LOS C for the 25-year/24 hour storm event. The Hillsborough County Modified EXTRAN model predicts that during the 25-year/24 hour storm event, Localized street and site flooding will occur in the LSCNS. In the LSCNS, Hanna Avenue and Armand Drive are predicted to have localized flooding and localized site flooding is predicted to occur along Comanche Avenue southeast of the confluence with Canal A.

Town N' Country Lateral

The Town N' Country Lateral is located in the northeast portion of the Lower Sweetwater Creek North System. The general system boundaries are Jackson Springs Road on the north and Hillsborough Avenue on the south. Webb Road borders the system on the west and Hanley Road on the east.

The Town N' Country System has a LOS C for the 25-year/24 hour storm event. The Hillsborough County Modified EXTRAN model predicts that during the 25-year/24 hour storm event, localized street and site flooding will occur in the Town N' Country System. General locations of predicted street and site flooding are listed below.

Street flooding during the 25-year/24 hour storm event:

- Clifton Street
- Golden Drive
- Hanley Road
- Henry Street
- Ambassador Avenue
- Town N' Country Boulevard
- Powhattan Avenue
- Santa Monica

Site flooding during the 25-year/24 hour storm event:

- On the corner of Hanley Road and TNC-1 lateral
- On the north side of TNC-1 lateral just west of Hanley Road
- On Clifton Street just northeast of confluence
- East of Sawyer Road along Clifton Street on north and south side
- Along Golden Drive on north and south side of Henry Street Canal
- East of Golden Drive and Henry Street Intersection
- South of George Road and Hillsborough Avenue Intersection

Structure flooding during the 25-year/24 hour storm event:

- East of Sawyer Road along Clifton Street
- Along Golden Drive on south side of Henry Street Canal
- East of Golden Drive and Henry Street Intersection

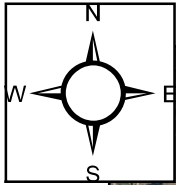
6.4.4 Henry Street Canal West System

The Henry Street Canal West System (HSCWS) is located just east of the LSCNS. The HSCWS general location is north of Hillsborough Avenue and south of Sligh Avenue. George Road borders HSCWS system on the west and the Manhattan Avenue borders the HSCWS system on the east.

The HSCWS has a LOS D for the 25-year/24 hour storm event. The Hillsborough County Modified EXTRAN model predicts that during the 25-year/24 hour storm event, localized structure, site, and street flooding will occur. General locations of predicted street, site, and structure flooding are listed below.

Street flooding occurred on February 3, 2006 on Hesperides Avenue, south of Sligh Avenue. Following is a location map showing three flood areas and corresponding site photos.

Flooding at N Hesperides St (Feb.03, 2006)



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Location 1:
Pictures # 263-268 (North)
Picture # 269 (NE)
Pictures # 270-272 (North)
Pictures # 273-274 (South)
Pictures # 275-278 (North)

Location 2:
Picture # 279 (South)
Pictures # 280-281 (East)

Location 3:
Pictures # 282-283 (South)
Picture # 284 (West)
Pictures # 285-286 (South)



Location 1: Picture # 264



Location 1: Picture # 265



Location 2: Picture #279



Location 2: Picture #281



Location 3: Picture # 284



Location 3: Picture # 285

Street flooding during the 25-year/24 hour storm event:

- George Road
- Hillsborough Avenue
- Yorkshire Road
- Southern Comfort Boulevard
- Benjamin Road
- Johns Road
- Alvarez Road
- Hesperides Avenue
- Occident Street

Site flooding during the 25-year/24 hour storm event:

- West of Benjamin just north of Henry Street Canal

6.4.5 Henry Street Canal East System

The Henry Street Canal East System (HSCES) is located just east of HSCWS. The HSCES general location is north of the Henry Street Canal and south of Sligh Avenue. The Manhattan Avenue borders HSCES system on the west and the Egypt Lake borders HSCES system on the east.

The HSCES system has a LOS D for the 25-year/24 hour storm event. The Hillsborough County Modified EXTRAN model predicts that during the 25-year/24 hour storm event, localized street, site, and structure flooding will occur in the HSCES system. General locations of predicted street, site and structure flooding are listed below.

Street flooding during the 25-year/24 hour storm event:

- Hanna Avenue
- Idlewild Avenue
- North Street
- Lambright Street
- Dale Mabry
- Blossom Street
- Idlewild Avenue

Site flooding during the 25-year/24 hour storm event:

- South of Pine Crest Manor Boulevard along Blossom Street
- Southeast of Church Street and Sligh Intersection
- Northeast of Dale Mabry and Lambright intersection
- South of Lambright and east of Dale Mabry
- West of Himes and Idlewild Avenue
- East of Dale Mabry and north of Idlewild

Structure flooding during the 25-year/24 hour storm event:

- South of Pine Crest Manor Boulevard along Blossom Street
- Northeast of Dale Mabry and Lambright Street Intersection
- West of Himes Avenue and north of Idlewild Avenue

Egypt Lake Lateral (ELL)

Egypt Lake Lateral (ELL) is located in the northeastern corner of the LSC watershed. The ELL is bordered by the city of Tampa on the south and HSCES on the west. The general street boundaries are Himes Avenue on the west, Armenia Avenue on the east, Kirby Street on the north and Henry Street on the south.

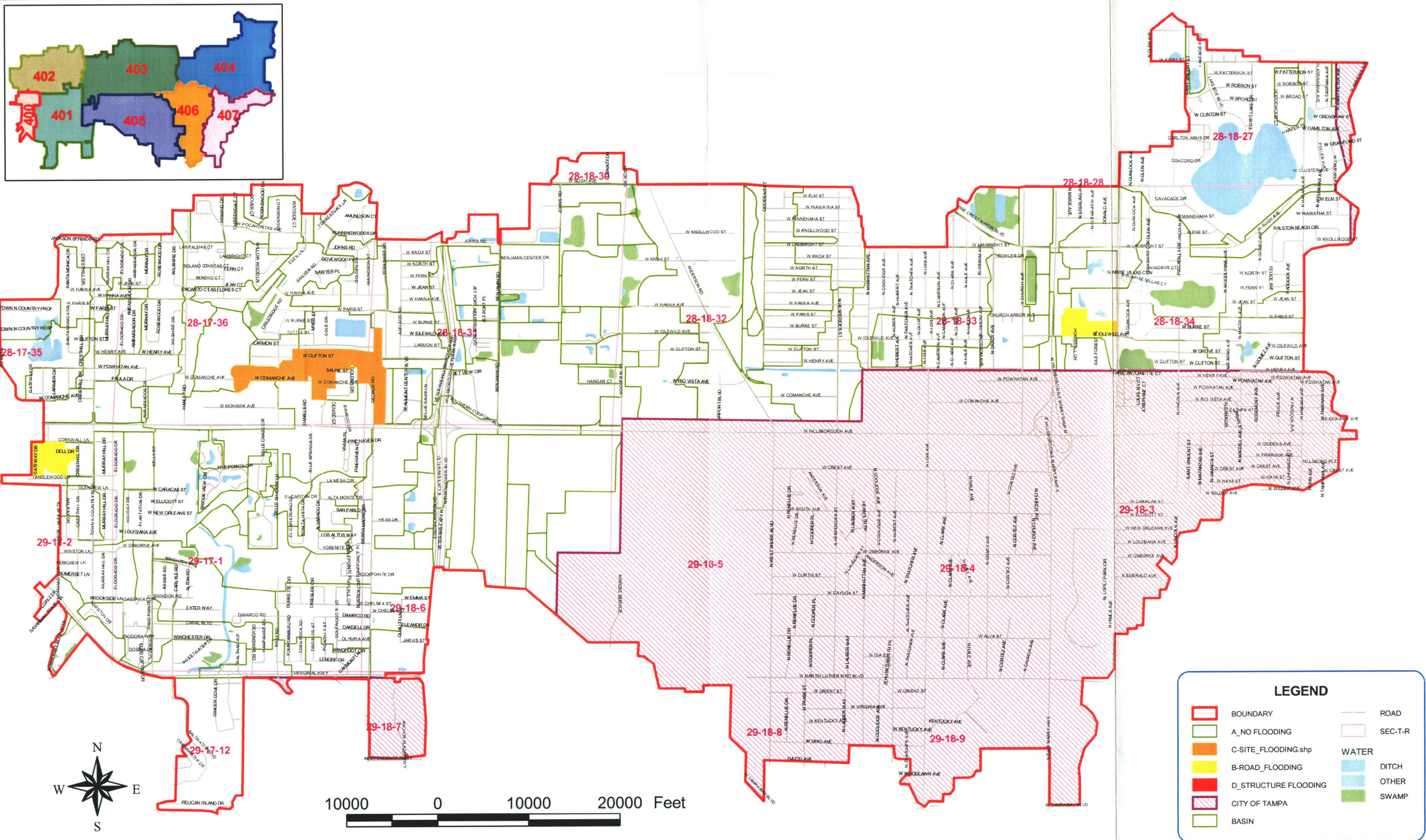
The ELL has a LOS C for the 25-year/24 hour storm event. The Hillsborough County Modified EXTRAN model predicts during the 25-year/24 hour storm event, localized street and site flooding will occur in the ELL system. General locations of predicted street, site and structure flooding are listed below.

Street flooding during the 25-year/24 hour storm event:

- Larmont Avenue
- Idlewild Street
- Burke Street
- Woodlynne Road
- Friend Avenue

Site flooding during the 25-year/24 hour storm event:

- South of Kirby Street and east of Tampania Avenue

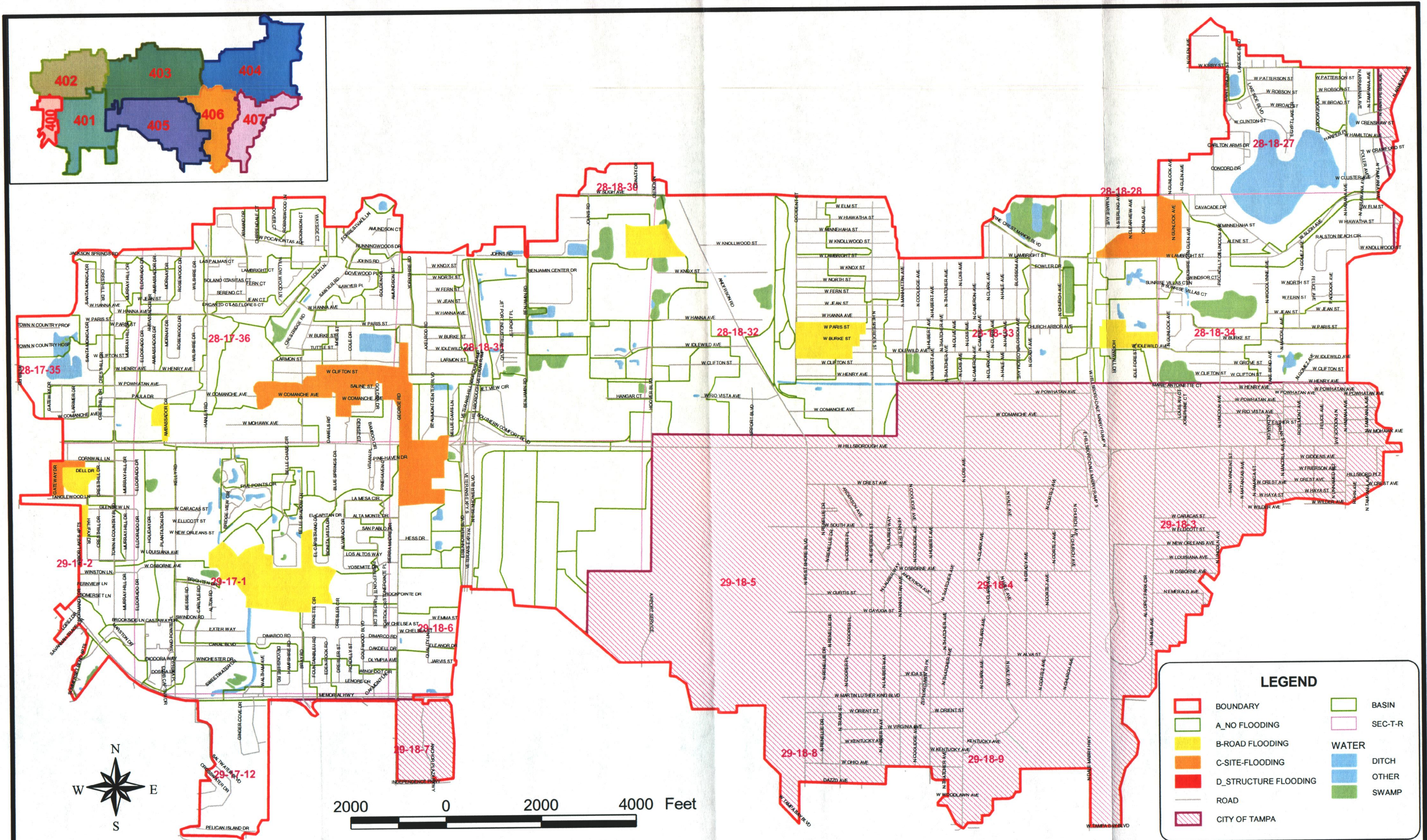


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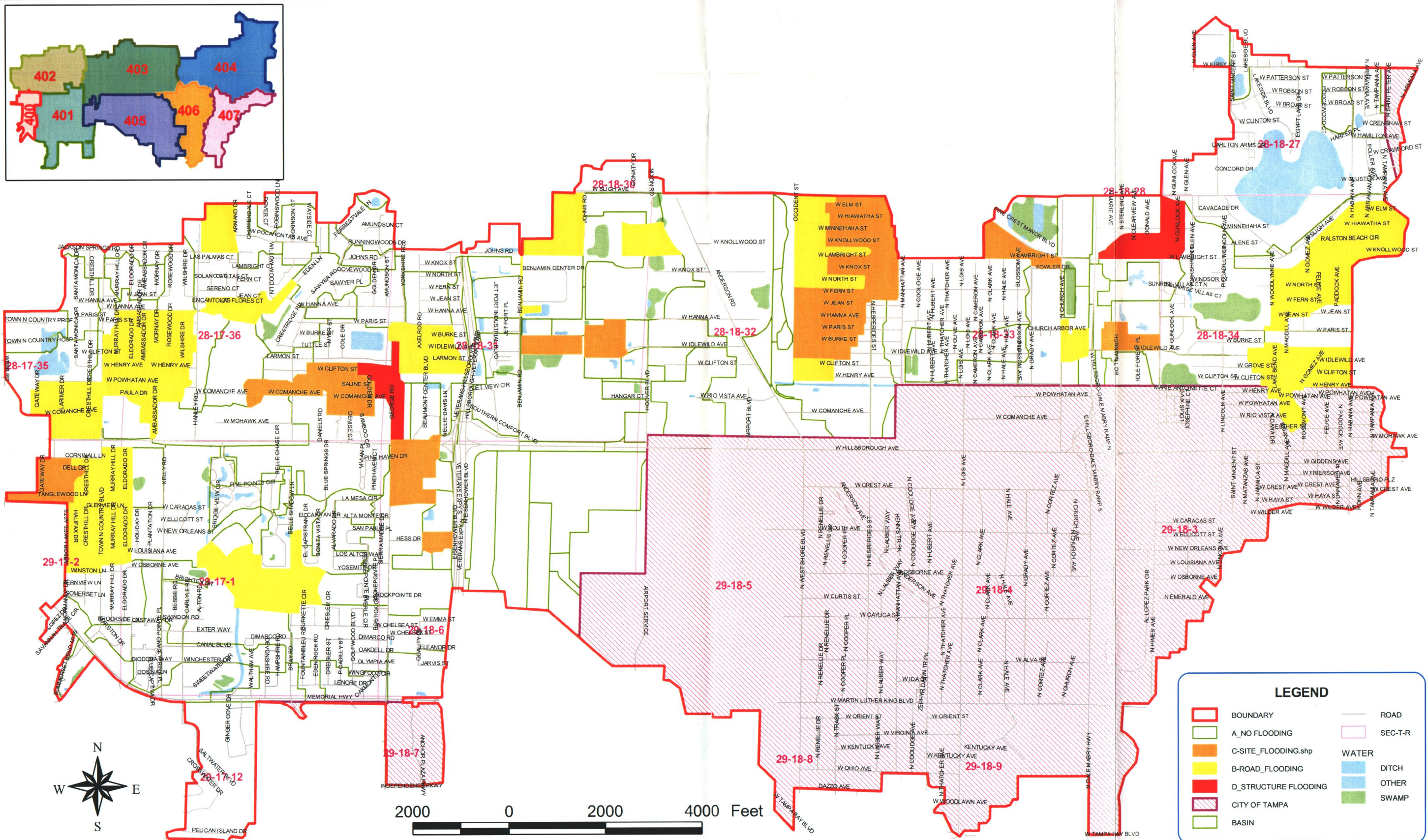
FIGURE 6-1

EXISTING CONDITIONS 2.33YR/24HR.
LEVEL OF SERVICE ANALYSIS MAP



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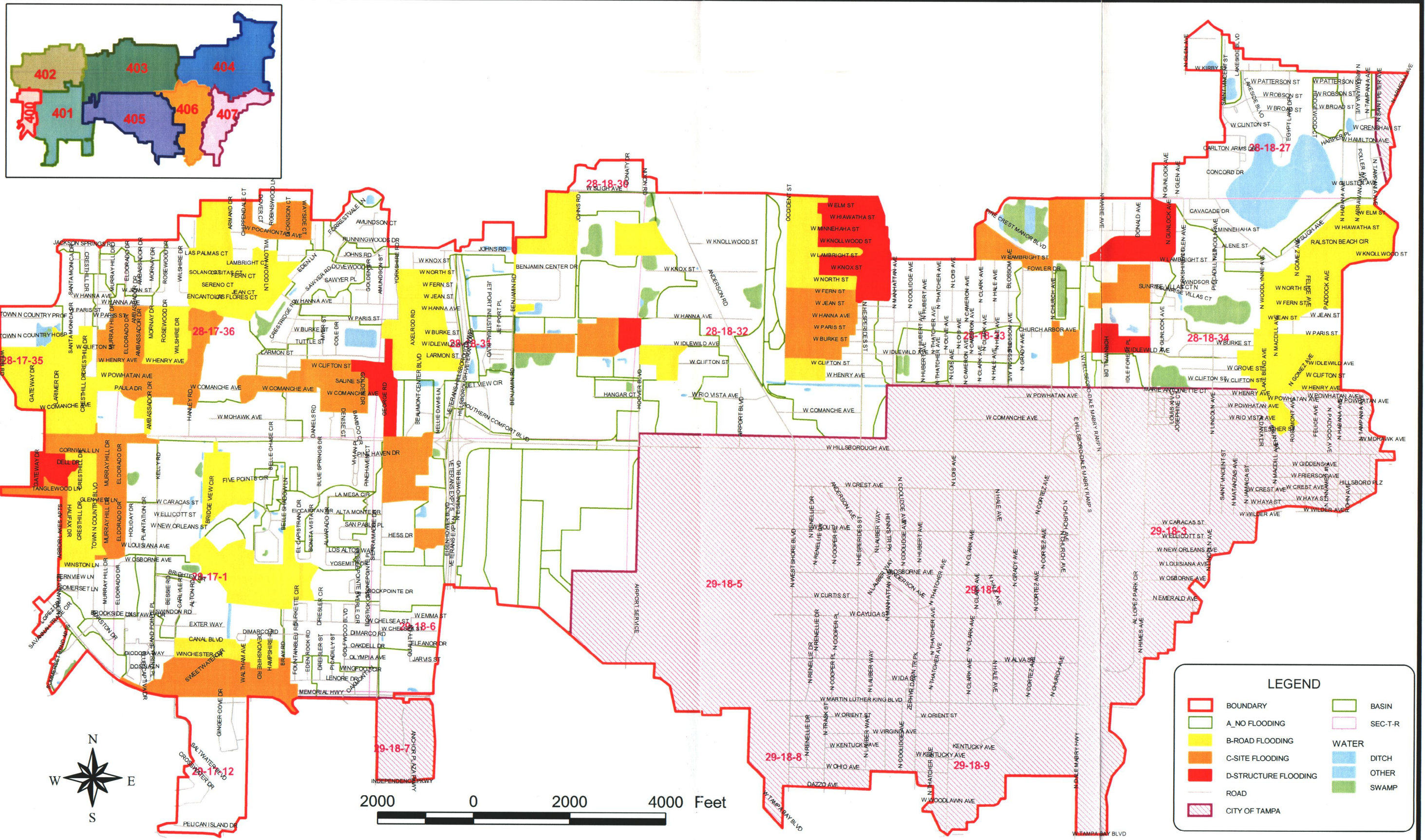


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FIGURE 6-3

EXISTING CONDITIONS 10 YR/24HR.
LEVEL OF SERVICE ANALYSIS MAP



LEGEND

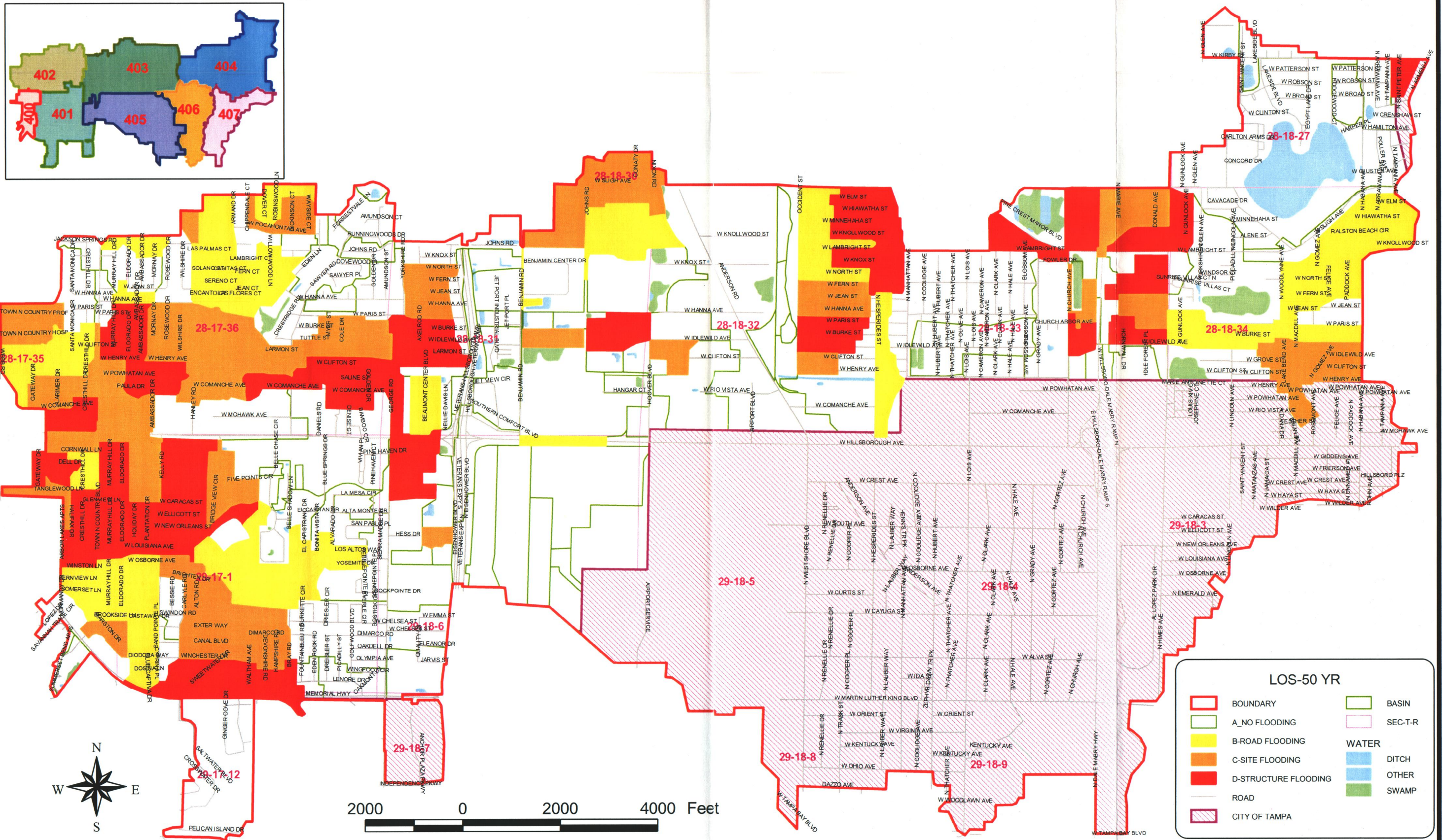
BOUNDARY	BASIN
A-NO FLOODING	SEC-T-R
B-ROAD FLOODING	WATER
C-SITE FLOODING	DITCH
D-STRUCTURE FLOODING	OTHER
ROAD	SWAMP
CITY OF TAMPA	



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**LOWER SWEETWATER CREEK AREA
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FIGURE 6-4
EXISTING CONDITIONS 25 YR/24HR.
LEVEL OF SERVICE ANALYSIS MAP

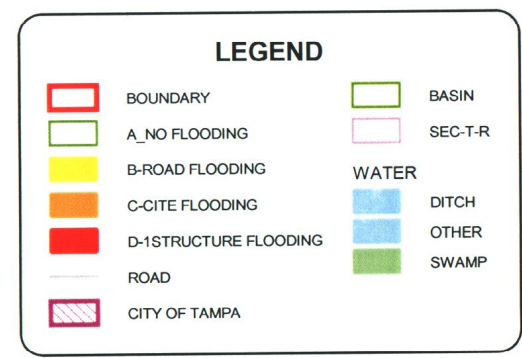
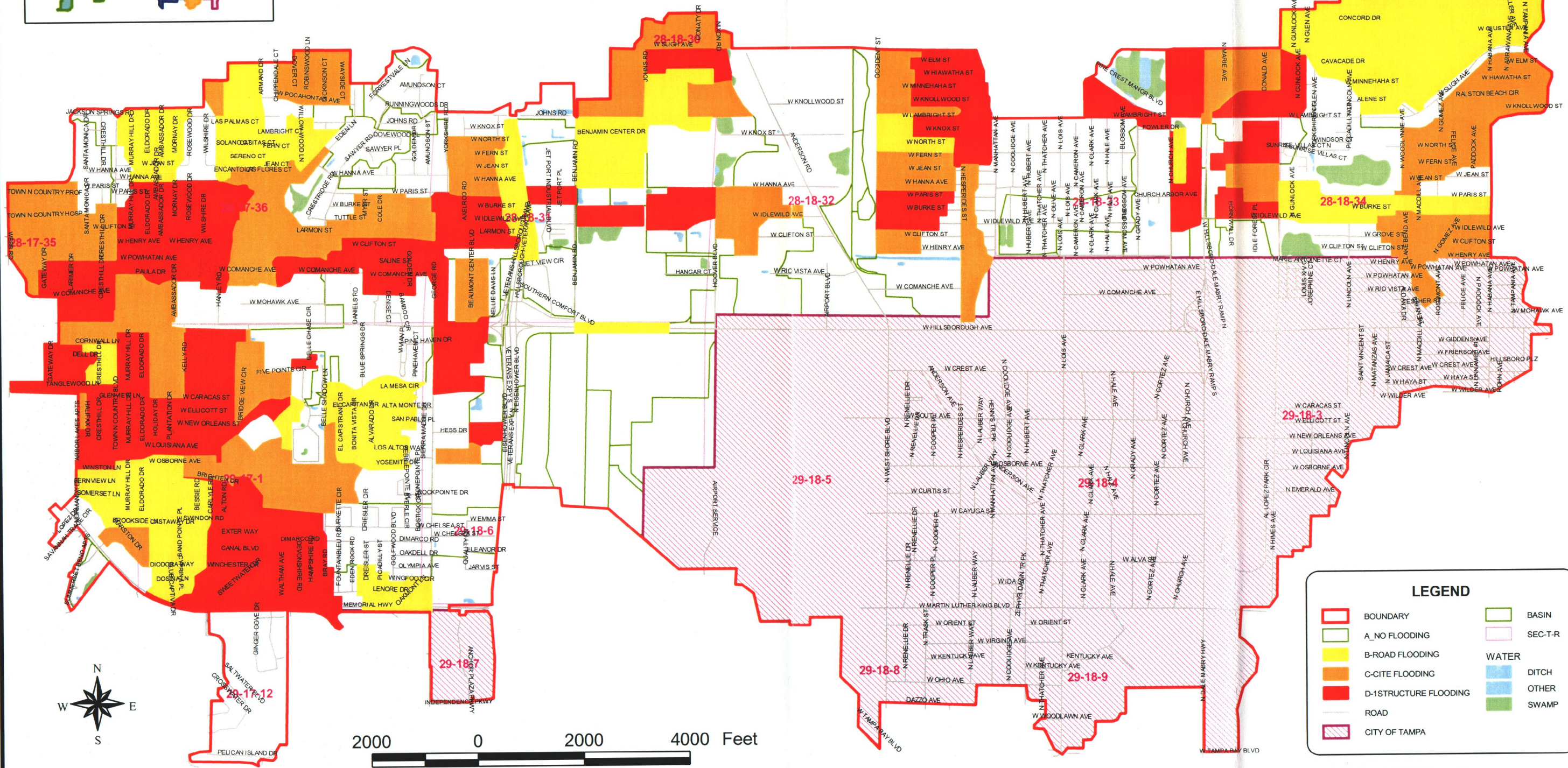
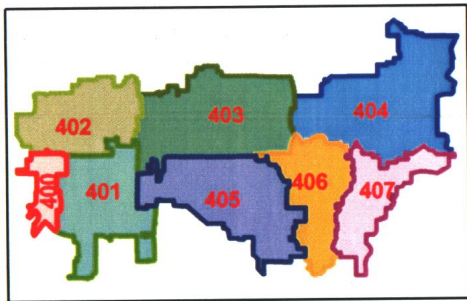


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STORMWATER MANAGEMENT
SECTION

LOWER SWEETWATER CREEK AREA STORMWATER MANAGEMENT MASTER PLAN SEPT. 2002

FIGURE 6-5

EXISTING CONDITIONS 50 YR/24HR.
LEVEL OF SERVICE ANALYSIS MAP



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SECTION

LOWER SWEET WATER
STORMWATER MANAGEMENT
MASTER PLAN
SEPT. 2002

FIGURE 6-6
EXISTING CONDITIONS 100 YR/24 HR.
LEVEL OF SERVICE ANALYSIS MAP

APPENDIX 6-1

Hydrological Input Data for SCS Method Runoff Calculation

Hydrological Input Data for SCS Method Runoff Calculation

```
* =====
*           WATERSHED PARAMETER FILE
*           LOWER SWEETWATER CREEK
ID  LOWER SWEETWATER CREEK WATERSHED MODEL CALIBRATION
ID  HILLSBOROUGH COUNTY DEPT OF PUBLIC WORKS
*
* =====
*           IT RECORD
*
*   Simulation time control
*       NMIN -- Interface file time step. The COMBINE block
*             (ICOMB = 10 or 11) will store hydrograph values
*             at this time interval.
*
*       DATE -- Beginning date for simulation
*
*       ITIME -- Beginning time for simulation
*
*       NQ    -- Number of values in runoff hydrographs.
*
*   NMIN    DATE    ITIME    NQ
*   September 5-8, 1988 Calibration Storm Event
*IT   15    880905      0      648
*IT   10    880905      0      648
*   24-Hour Duration Design Storm Event
IT   10    990101      0      150
* =====
*           IO RECORD
*   Currently not implemented in the Modified SWMM model
*   IPRT    IPLT
*   0,1,2    All
*   3        Input Data and Intermediate and Master Summaries
*   4        Input Data and Master Summary
*   5        Job specification and Master Summary Only
*
*   0,1      No Printer Plots--Can be overridden on K0 record
*   2        Plot All
*
IO   3        0
*
* =====
*           JR RECORD
*   Rainfall depth used by the COMBINE block (ICOMB = 11) to generate
*   runoff hydrographs.
*   100-Year/24-Hour Design Storm
*JR   PREC    11.50
*   050-Year/24-Hour Design Storm
*JR   PREC    10.00
*   025-Year/24-Hour Design Storm
JR   PREC     8.00
*   010-Year/24-Hour Design Storm
*JR   PREC     7.00
*   005-Year/24-Hour Design Storm
*JR   PREC     5.50
*   233-Year/24-Hour Design Storm
*JR   PREC     4.50
* =====
*           RAINFALL DISTRIBUTION
*
*   PG      -- Record identifier
*   GAGE     -- Six character gage identifier
*   UDEPTH  -- Unit Depth (Should have value of 1.0)
*   TSTEP   -- Time step for input hyetograph values (min)
```

Hydrological Input Data for SCS Method Runoff Calculation

```
*          IDATE  -- Beginning date
*          ITIME  -- Beginning time
*          PC      -- Cumulative rainfall fractions
*                  (Note: Data are fixed format)
* =====
* =====
*          SEPTEMBER 5-8, 1988 STORM DISTRIBUTION  (60-MIN INCREMENTS)
*          FROM TAMPA INTERNATIONAL AIRPORT HOURLY RAINFALL DATA
*
*  GAGE      UDEPTH
PGSEPT88      1.0
*
*  TSTEP  IDATE      ITIME
IN      60 880905      0
PC .0000 .0146 .0236 .0303 .0348 .0438 .0584 .0730 .0753 .0775
PC .1112 .1506 .1551 .1719 .1730 .1730 .1730 .1730 .1730 .1730
PC .1730 .1742 .1775 .1865 .1921 .2067 .2213 .2472 .3067 .3270
PC .4607 .4764 .4798 .4809 .4888 .4898 .4933 .4955 .4966 .4966
PC .4966 .4966 .4966 .4966 .5191 .5270 .5528 .6438 .6764 .6831
PC .6831 .6876 .6944 .6944 .6944 .6944 .6944 .6944 .6966 .6977
PC .6989 .7000 .7011 .7022 .7034 .7045 .7045 .7045 .7045 .7045
PC .7056 .7124 .7214 .7360 .7472 .7685 .7854 .8022 .8494 .8640
PC .8899 .9101 .9180 .9247 .9247 .9348 .9438 .9966 1.000 1.000
*
* =====
*          SCS 24-HR, TYPE II FLORIDA-MODIFIED DISTRIBUTION (30-MIN INCREMENTS)
*
*  GAGE      UDEPTH
PGSCSFLM      1.0
*
*  TSTEP  IDATE      ITIME
IN      30 990101      0
PC .000 .006 .012 .019 .025 .032 .039 .047 .054 .062
PC .071 .080 .089 .099 .110 .122 .134 .148 .164 .181
PC .201 .226 .258 .308 .607 .719 .757 .785 .807 .826
PC .842 .857 .870 .882 .893 .904 .913 .923 .931 .940
PC .948 .955 .962 .969 .976 .983 .989 .995 1.000 1.000
*
* =====
*          THE FOLLOWING RECORD (PR) DETERMINES WHICH OF THE ABOVE DISTRIBUTIONS
*          WILL BE USED FOR THE CURRENT RUN.
*          SCS 24-HR, TYPE II FLORIDA-MODIFIED DISTRIBUTION
PRSCSFLM
* =====
*
* =====
*
*          WATERSHED PARAMETERS
*
*          The COMBINE block (ICOMB = 11) will use the following
*          watershed parameters to compute SCS runoff hydrographs.
*
*          SUBBASIN--Subbasin number
*          NJUNC    -- SWMM junction ID number. Runoff hydrograph
*                   will be written to interface file with this
*                   identification number.
*          TC       -- Time-of-concentration in minutes
*                   (Minimum value = 20 minutes). Modified
*                   COMBINE block (ICOMB = 11) will change any
*                   smaller value to 20 minutes.
*          CN       -- Runoff Curve Number.
*          ACRE     -- Drainage area in acres.
```


Hydrological Input Data for SCS Method Runoff Calculation

```

*      IACOEFF  -- Initial abstraction coefficient.
*                  Ia = IACOEFF * S, where S is soil storage
*                  in inches.  IACOEFF is frequently 0.2 so that
*                  Ia = 0.2*S
*      K        -- Shape Factor in SCS method.  Standard value is
*                  484.  Another value sometimes used is 256.
*                  COMBINE block (ICOMB = 11) will generate a
*                  triangular dimensionless unit hydrograph appropriate
*                  to this shape factor.
*      KPRINT    -- Print control parameter.
*                  0 = Hydrograph summary only.
*                  1 = Time step print of hydrograph
*                  2 = Detail print of convolution process

```

```

* ----- *

```

* 400 SYSTEM

WP	400100	400100	15	2.6	99	0.2	256	0
WP	400150	400150	15	8.7	92	0.2	256	0
WP	400200	400200	81	4.4	88	0.2	256	0
WP	400300	400300	39	39.8	75	0.2	256	0
WP	400350	400350	15	10	85	0.2	256	0
WP	400400	400400	36	9.3	77	0.2	256	0
WP	400500	400500	15	15.6	76	0.2	256	0
WP	400600	400600	15	3.6	76	0.2	256	0
WP	400605	400605	30	1.2	78	0.2	256	0
WP	400610	400610	36	7.6	78	0.2	256	0
WP	400620	400620	31	8.9	78	0.2	256	0
WP	400630	400630	32	5.6	78	0.2	256	0
WP	400650	400650	15	15.6	76	0.2	256	0
WP	400660	400660	135	18.2	72	0.2	256	0
WP	400700	400700	42	8.5	81	0.2	256	0
WP	400800	400800	37	15.9	93	0.2	256	0

```

* ----- *

```

* 401 SYSTEM

WP	401000	401000	50	87.9	84	0.2	256	0
WP	401100	401100	52	31.4	83	0.2	256	0
WP	401110	401110	48	21	85	0.2	256	0
WP	401120	401120	48	8.2	78	0.2	256	0
WP	401130	401130	41	22.2	79	0.2	256	0
WP	401140	401140	66	26.7	83	0.2	256	0
WP	401190	401190	15	46.1	85	0.2	256	0
WP	401200	401200	36	21.4	78	0.2	256	0
WP	401220	401220	15	8.1	76	0.2	256	0
WP	401240	401240	43	30.6	80	0.2	256	0
WP	401300	401300	114	50.8	74	0.2	256	0
WP	401320	401320	46	13.3	75	0.2	256	0
WP	401330	401330	54	83.3	78	0.2	256	0

WP	401400	401400	57	55	78	0.2	256	0
WP	401430	401430	47	32.5	78	0.2	256	0
WP	401500	401500	46	7.4	84	0.2	256	0
WP	401600	401600	185	75.9	80	0.2	256	0
WP	401604	401604	22	8.4	84	0.2	256	0
WP	401630	401630	48	5.7	84	0.2	256	0
WP	401632	401632	15	5.4	93	0.2	256	0
WP	401640	401640	15	4.8	87	0.2	256	0
WP	401642	401642	15	15.4	93	0.2	256	0
WP	401650	401650	41	11.2	79	0.2	256	0
WP	401652	401652	88	98.7	77	0.2	256	0
WP	401654	401654	15	2.1	93	0.2	256	0
WP	401656	401656	15	1.8	92	0.2	256	0

Hydrological Input Data for SCS Method Runoff Calculation

WP	401664	401664	50	15.5	78	0.2	256	0
WP	401660	401660	39	21.7	76	0.2	256	0
WP	401670	401670	38	8.1	80	0.2	256	0
WP	401690	401690	27	5.3	76	0.2	256	0
WP	401750	401750	15	16	94	0.2	256	0
WP	401850	401850	15	6.7	94	0.2	256	0

* 402 SYSTEM								
WP	402000	402000	27	39.1	90	0.2	256	0
WP	402100	402100	64	38.1	76	0.2	256	0
WP	402200	402200	35	24.9	83	0.2	256	0
WP	402210	402210	32	16.3	77	0.2	256	0
WP	402220	402220	33	40.1	82	0.2	256	0
WP	402230	402230	43	14.4	77	0.2	256	0
WP	402240	402240	15	16.1	79	0.2	256	0
WP	402250	402250	15	5.1	87	0.2	256	0
WP	402260	402260	15	7	79	0.2	256	0
WP	402270	402270	27	17.8	76	0.2	256	0
WP	402280	402280	32	12.5	78	0.2	256	0
WP	402285	402285	33	3.6	75	0.2	256	0
WP	402300	402300	44	26.2	82	0.2	256	0
WP	402310	402310	35	10.2	81	0.2	256	0
WP	402320	402320	71	26.9	76	0.2	256	0
WP	402330	402330	34	28.8	78	0.2	256	0
WP	402340	402340	15	5.1	82	0.2	256	0
WP	402350	402350	36	21.3	79	0.2	256	0
WP	402360	402360	15	3.9	74	0.2	256	0
WP	402370	402370	40	9.3	77	0.2	256	0
WP	402400	402400	76	21.2	85	0.2	256	0
WP	402500	402500	40	20.2	84	0.2	256	0
WP	402510	402510	41	24.5	77	0.2	256	0
WP	402520	402520	41	20.1	77	0.2	256	0
WP	402600	402600	42	10.4	81	0.2	256	0
WP	402610	402610	45	24.1	82	0.2	256	0
WP	402620	402620	32	5.3	75	0.2	256	0
WP	402630	402630	42	20.5	76	0.2	256	0
WP	402640	402640	35	10	75	0.2	256	0
WP	402700	402700	27	3.7	84	0.2	256	0
WP	402800	402800	232	37.9	74	0.2	256	0
WP	402810	402810	33	16.5	76	0.2	256	0
WP	402820	402820	28	14.8	88	0.2	256	0
WP	402830	402830	21	17	83	0.2	256	0
WP	402840	402840	15	15.4	90	0.2	256	0
WP	402850	402850	29	23.3	77	0.2	256	0
WP	402860	402860	15	23.9	84	0.2	256	0
WP	402870	402870	29	8.8	77	0.2	256	0
WP	402880	402880	49	8.7	75	0.2	256	0
WP	402900	402900	45	8.7	74	0.2	256	0
WP	402920	402920	35	12.9	77	0.2	256	0
WP	402930	402930	40	22.4	76	0.2	256	0
WP	402940	402940	53	8.5	75	0.2	256	0
WP	402950	402950	24	5.3	71	0.2	256	0

* 403 SYSTEM								
WP	403000	403000	31	13.1	69	0.2	256	0
WP	403060	403060	93	28.4	80	0.2	256	0
WP	403070	403070	15	5.4	89	0.2	256	0
WP	403100	403100	45	11.7	85	0.2	256	0
WP	403110	403110	15	4.1	93	0.2	256	0
WP	403120	403120	48	30.4	76	0.2	256	0
WP	403130	403130	41	24.8	76	0.2	256	0

Hydrological Input Data for SCS Method Runoff Calculation

WP	403140	403140	31	26.6	85	0.2	256	0
WP	403170	403170	15	16.4	87	0.2	256	0
WP	403180	403180	15	6.5	86	0.2	256	0
WP	403190	403190	32	11.8	72	0.2	256	0
WP	403200	403200	15	14.9	77	0.2	256	0
WP	403220	403220	15	15	90	0.2	256	0
WP	403230	403230	15	6.9	90	0.2	256	0
WP	403250	403250	15	19.2	92	0.2	256	0
WP	403260	403260	15	10	93	0.2	256	0
WP	403270	403270	15	29.2	88	0.2	256	0
WP	403300	403300	15	24.2	85	0.2	256	0
WP	403370	403370	15	5	94	0.2	256	0
WP	403400	403400	120	80.8	82	0.2	256	0
WP	403410	403410	48	8.1	88	0.2	256	0
WP	403425	403425	15	10.9	90	0.2	256	0
WP	403435	403435	15	7.6	91	0.2	256	0
WP	403445	403445	15	37.2	94	0.2	256	0
WP	403450	403450	21	1.9	90	0.2	256	0
WP	403460	403460	48	24.8	79	0.2	256	0
WP	403462	403462	167	15	83	0.2	256	0
WP	403465	403465	15	24.4	93	0.2	256	0
WP	403470	403470	117	17	84	0.2	256	0
WP	403480	403480	79	22.7	84	0.2	256	0
WP	403510	403510	15	7.7	80	0.2	256	0
WP	403520	403520	15	7.4	84	0.2	256	0
WP	403530	403530	15	7.6	81	0.2	256	0
WP	403540	403540	15	14.2	80	0.2	256	0
WP	403550	403550	33	18.6	84	0.2	256	0
WP	403560	403560	15	10.8	88	0.2	256	0
WP	403570	403570	27	18.7	87	0.2	256	0
WP	403580	403580	15	6.7	81	0.2	256	0
WP	403590	403590	90	53.7	77	0.2	256	0
WP	403600	403600	26	50.9	84	0.2	256	0
WP	403610	403610	84	13.8	87	0.2	256	0
WP	403650	403650	136	200.6	87	0.2	256	0
WP	403730	403730	51	8.2	83	0.2	256	0
WP	403700	403700	15	8.8	91	0.2	256	0
WP	403750	403750	138	23.7	86	0.2	256	0
WP	403800	403800	58	53.4	88	0.2	256	0
WP	403720	403720	15	3	84	0.2	256	0
WP	403710	403710	59	7.1	84	0.2	256	0
WP	403900	403900	33	23.6	82	0.2	256	0
WP	403810	403810	38	8.5	75	0.2	256	0
WP	403830	403830	56	24.7	82	0.2	256	0
WP	403820	403820	48	22.6	79	0.2	256	0
WP	403840	403840	66	15.1	80	0.2	256	0
WP	403850	403850	45	21.3	77	0.2	256	0
WP	403860	403860	56	59.1	75	0.2	256	0

* 404 SYSTEM								
WP	404000	404000	76	115.7	76	0.2	256	0
WP	404010	404010	83	48.3	78	0.2	256	0
WP	404100	404100	38	16.6	77	0.2	256	0
WP	404200	404200	70	60.1	80	0.2	256	0
WP	404360	404360	28	16.2	82	0.2	256	0
WP	404350	404350	15	27.3	91	0.2	256	0
WP	404300	404300	41	9.6	84	0.2	256	0
WP	404310	404310	40	8.8	89	0.2	256	0
WP	404320	404320	43	8.4	86	0.2	256	0
WP	404415	404415	15	5.3	99	0.2	256	0
WP	404330	404330	20	5.6	76	0.2	256	0

Hydrological Input Data for SCS Method Runoff Calculation

WP	404340	404340	15	21.4	88	0.2	256	0
WP	404450	404450	106	26.1	77	0.2	256	0
WP	404430	404430	45	30.6	85	0.2	256	0
WP	404460	404460	39	14.8	85	0.2	256	0
WP	404470	404470	15	17.7	90	0.2	256	0
WP	404650	404650	15	14.2	90	0.2	256	0
WP	404420	404420	15	11.1	97	0.2	256	0
WP	404630	404630	47	12	93	0.2	256	0
WP	404410	404410	15	2.1	98	0.2	256	0
WP	404620	404620	15	1.9	92	0.2	256	0
WP	404400	404400	30	15.2	84	0.2	256	0
WP	404498	404498	15	6.3	95	0.2	256	0
WP	404500	404500	27	42.8	94	0.2	256	0
WP	404600	404600	43	33.6	89	0.2	256	0
WP	404698	404698	65	101.6	81	0.2	256	0
WP	404710	404710	43	29	76	0.2	256	0
WP	404830	404830	35	48.4	79	0.2	256	0
WP	404820	404820	39	13.3	77	0.2	256	0
WP	404720	404720	62	80.8	81	0.2	256	0
WP	404900	404900	15	19.4	81	0.2	256	0
WP	404800	404800	48	85	75	0.2	256	0
WP	404810	404810	43	14	75	0.2	256	0
WP	404840	404840	53	44	76	0.2	256	0
WP	404940	404940	120	249.2	80	0.2	256	0
WP	404960	404960	29	26.6	74	0.2	256	0
WP	404980	404980	15	7.6	75	0.2	256	0
WP	404970	404970	15	3.8	74	0.2	256	0
WP	404950	404950	28	16.2	71	0.2	256	0
WP	404985	404985	28	16.8	80	0.2	256	0
WP	404990	404990	40	14.7	67	0.2	256	0

* 405 SYSTEM								
WP	405000	405000	96	45	82	0.2	256	0
WP	405110	405110	15	5.9	82	0.2	256	0
WP	405130	405130	15	3.7	79	0.2	256	0
WP	405150	405150	15	5.5	81	0.2	256	0
WP	405165	405165	29	6.4	78	0.2	256	0
WP	405180	405180	15	10.3	82	0.2	256	0
WP	405210	405210	15	13.3	91	0.2	256	0
WP	405220	405220	107	32.1	79	0.2	256	0
WP	405235	405235	74	49.8	80	0.2	256	0
WP	405270	405270	15	23.3	82	0.2	256	0
WP	405280	405280	15	10	77	0.2	256	0
WP	405285	405285	267	75.8	80	0.2	256	0
WP	405292	405292	28	22.9	79	0.2	256	0
WP	405294	405294	98	26.3	90	0.2	256	0
WP	405305	405305	347	186.7	78	0.2	256	0
WP	405410	405410	59	71.8	83	0.2	256	0
WP	405420	405420	15	10.4	94	0.2	256	0
WP	405460	405460	15	2.9	94	0.2	256	0
WP	405480	405480	15	4.4	96	0.2	256	0
WP	405490	405490	93	91.6	84	0.2	256	0
WP	405500	405500	70	91	68	0.2	256	0
WP	405535	405535	74	124.4	82	0.2	256	0
WP	405540	405540	57	30.4	80	0.2	256	0
WP	405555	405555	52	18.9	85	0.2	256	0
WP	405560	405560	15	5.3	89	0.2	256	0
WP	405580	405580	15	2.3	91	0.2	256	0
WP	405700	405700	96	111.5	83	0.2	256	0

* 406 SYSTEM

Hydrological Input Data for SCS Method Runoff Calculation

WP	406010	406010	148	40	86	0.2	256	0
WP	406020	406020	89	40.8	82	0.2	256	0
WP	406030	406030	15	5.8	89	0.2	256	0
*								
WP	406100	406100	76	10.4	72	0.2	256	0
WP	406120	406120	32	6.9	74	0.2	256	0
WP	406130	406130	15	8.6	92	0.2	256	0
WP	406140	406140	15	7	90	0.2	256	0
WP	406150	406150	15	2.8	90	0.2	256	0
*								
WP	406200	406200	45	16.3	77	0.2	256	0
WP	406210	406210	70	9.6	90	0.2	256	0
WP	406230	406230	15	15.4	86	0.2	256	0
*								
WP	406310	406310	43	7.8	86	0.2	256	0
WP	406320	406320	39	28.5	85	0.2	256	0
WP	406330	406330	21	8.1	85	0.2	256	0
WP	406335	406335	26	19	87	0.2	256	0
WP	406340	406340	20	13	89	0.2	256	0
WP	406345	406345	15	8.8	85	0.2	256	0
WP	406360	406360	61	4.4	85	0.2	256	0
WP	406365	406365	15	2.2	85	0.2	256	0
WP	406370	406370	52	9.5	85	0.2	256	0
WP	406375	406375	23	19.2	85	0.2	256	0
WP	406380	406380	15	5.9	91	0.2	256	0
*								
WP	406420	406420	35	30.9	85	0.2	256	0
WP	406450	406450	30	11.7	85	0.2	256	0
WP	406460	406460	33	23.6	85	0.2	256	0
WP	406500	406500	15	3.5	85	0.2	256	0
WP	406520	406520	35	16.3	85	0.2	256	0
*								
WP	406600	406600	125	17.8	85	0.2	256	0
WP	406610	406610	15	4.2	85	0.2	256	0
WP	406620	406620	38	42.8	85	0.2	256	0
WP	406645	406645	55	12.3	85	0.2	256	0
WP	406660	406660	63	17.4	85	0.2	256	0
WP	406675	406675	27	11.3	85	0.2	256	0
WP	406680	406680	15	3.1	85	0.2	256	0
WP	406690	406690	32	26.4	84	0.2	256	0
WP	406710	406710	45	12.6	85	0.2	256	0
*								
WP	406800	406800	15	3.9	85	0.2	256	0
WP	406805	406805	72	12.3	85	0.2	256	0
WP	406810	406810	35	19.1	76	0.2	256	0
WP	406850	406850	15	0.6	76	0.2	256	0
WP	406840	406840	15	5	85	0.2	256	0
WP	406855	406855	63	31.1	80	0.2	256	0
WP	406870	406870	31	19.5	83	0.2	256	0
WP	406885	406885	15	9.2	76	0.2	256	0
WP	406900	406900	15	5.5	76	0.2	256	0
WP	406910	406910	16	10.1	76	0.2	256	0
WP	406915	406915	15	11.6	76	0.2	256	0
WP	406935	406935	15	0.7	78	0.2	256	0
WP	406940	406940	15	11.7	76	0.2	256	0
WP	406950	406950	30	5.9	71	0.2	256	0

* 407 SYSTEM								
WP	407000	407000	15	13.9	92	0.2	256	0
WP	407100	407100	18	17.4	90	0.2	256	0
WP	407200	407200	90	191.3	84	0.2	256	0

<u>Hydrological Input Data for SCS Method Runoff Calculation</u>								
WP	407400	407400	128	239	81	0.2	256	0
WP	407600	407600	154	68.1	77	0.2	256	0
WP	407700	407700	55	22.3	86	0.2	256	0
WP	407800	407800	36	23.1	84	0.2	256	0

APPENDIX 6-2

Hydraulic Input Data for HCSWMM Extran Routing

Hydraulic Input Data for HCSWMM Extran Routing

```

* =====
*          LOWER SWEETWATER CREEK
*          2002 Version Existing Conditions Model
*          INCLUDE 1999 PUMP STATION @ 402800
* =====
*
* =====
* NBLOCKS  INBLK1  OUTBLK1  INBLK2  OUTBLK2
SW         2         8        12        12         0
* NITCH  NSCRATCH(1)NSCRATCH(2)NSCRATCH(3)NSCRATCH(4)NSCRATCH(5)NSCRATCH(NTH)
MM         6        10        11        13        14        15        16
*
@ 8      'LSC025EX.WPX'
@ 11     'LSC025EX.HOT'
@ 12     'LSC025EX.INT'
@ 15     'LSC025EX.SMX'
@ 16     'LSC025EX.PLT'
$COMBINE
A1 11
B1 ' GENERATE HYDROGRAPH FROM SCS METHOD INTERNALLY'
B1 ' MAKE SWMM INTERFACE FILE
* =====
$EXTRAN
A1 'LOWER SWEETWATER CREEK STUDY AREA-EXISTING CONDITION'
A1 'HILLSBOROUGH COUNTY,FLORIDA'
B0      2      0      1
BB      1      0
*
*      No. of length of start start print print
*      time steps time step time print interval interval redo
*B1      3600      1.0      0.0      1      3600      3600      0
*B1      86400     1.0      0.0      1      3600      3600      0
B1      100800     1.0      0.0      1      3600      3600      0
*B1      172800     1.0      0.0      1      900       900       0
B2      0
*      B3      0      0      0      0      0      0      0
B3      1      2      1      2      0      0      0
B4 402950
B5 9402940 9403000
B6 402950
B7 9402940 9403000
*
* =====*
* 400-SYSTEM-PEPPERMOUND CREEK SYSTEM
* =====*
* BOUNDARY JUNCTION400051/400052
C1 1400100 400100 400051 0.0 2 0.00 4.5 6.0 50.0 -1.06 -1.55 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 2400100 400100 400052 0.0 2 0.00 4.5 6.0 50.0 -1.06 -1.55 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 9400160 400160 400100 0.0 8 0.00 0.0 0.0 800.0 0.30 -1.06 0.0400 400160 0.00180 0.00 0.00 0.00
1.00
C1 9400180 400180 400160 0.0 8 0.00 0.0 0.0 200.0 0.40 0.30 0.0400 400180 0.00180 0.00 0.00 0.00
1.00
C1 9400190 400190 400180 0.0 8 0.00 0.0 0.0 400.0 0.30 0.40 0.0400 400190 0.00030 0.00 0.00 0.00
1.00
C1 1400200 400200 400190 0.0 2 0.00 4.0 6.0 100.0 0.20 0.30 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 2400200 400200 400190 0.0 2 0.00 4.0 6.0 100.0 0.20 0.30 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 9400300 400300 400200 0.0 6 0.00 17.0 15.0 300.0 -0.04 0.20 0.0300 1.00000 1.00000 0.00 0.00 0.00
1.00
C1 9400390 400390 400300 0.0 8 0.00 0.0 0.0 1050.0 -0.08 -0.04 0.0400 400390 0.00004 0.00 0.00 0.00
1.00
C1 1400400 400400 400390 0.0 3 8.80 2.7 4.1 30.0 0.01 -0.08 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 1400500 400500 400400 0.0 3 12.90 3.2 5.0 400.0 -0.10 -0.17 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 9400590 400590 400500 0.0 8 0.00 0.0 0.0 1050.0 -0.03 -0.10 0.0400 400590 0.00010 0.00 0.00 0.00
1.00
C1 1400600 400600 400590 0.0 1 0.00 3.5 3.5 30.0 -0.04 -0.01 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 1400700 400700 400600 0.0 1 0.00 3.5 3.5 30.0 -0.09 -0.02 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 9400800 400800 400700 0.0 8 0.00 0.0 0.0 700.0 1.70 -0.09 0.0400 400800 0.00300 0.00 0.00 0.00
1.00
*
C1 1400340 400340 400300 0.0 3 11.40 3.0 4.8 50.0 1.11 0.42 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 9400350 400350 400340 0.0 6 0.00 6.0 10.0 1200.0 1.24 1.11 0.0400 1.00000 1.00000 0.00 0.00 0.00
1.00
* CONNECT TO 401 SYSTEM @ 401240 3036"CMP SURVEY 19-01
C1 1400350 400350 401240 0.0 1 0.00 3.0 3.0 22.0 1.42 0.87 0.0240 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 2400350 400350 401240 0.0 1 0.00 3.0 3.0 22.0 1.24 1.04 0.0240 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 3400350 400350 401240 0.0 1 0.00 3.0 3.0 22.0 1.89 1.49 0.0240 0.00000 0.00000 0.50 1.00 0.00
5.00
*
* TANGLEWOOD TRIBUTARY
C1 9400605 400605 400600 0.0 6 0.00 10.0 12.0 400.0 0.60 0.40 0.0350 0.50000 1.00000 0.00 0.00 0.00
1.00
C1 1400610 400610 400605 0.0 1 0.00 2.5 2.5 100.0 1.00 0.70 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400615 400615 400610 0.0 1 0.00 2.5 2.5 600.0 1.60 1.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400620 400620 400615 0.0 3 2.80 1.5 2.5 500.0 2.60 1.60 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400630 400630 400620 0.0 1 0.00 1.5 1.5 225.0 3.30 2.60 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
*
C1 1400650 400650 400600 0.0 1 0.00 3.5 3.5 30.0 0.37 0.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00

```

Hydraulic Input Data for HCSWMM Extran Routing

```

C1 9400660 400660 400650 0.0 6 0.00 17.0 20.0 550.0 1.00 0.37 0.0400 1.00000 1.00000 0.00 0.00 0.00
1.00
*=====
* END OF 400-SYSTEM
*=====
*
*=====
* 401-SYSTEM - SOUTH LOWER SWEETWATER SYSTEM
*=====
* MAIN CHANNEL # STR
*-----*
* SP# 1 12-29-17
C1 9401000 401000 400053 0.0 8 0.00 0.0 0.0 300.0 -6.80 -7.70 0.0400 401000 0.00030 0.00 0.00 0.00
1.00
* SP# 1 1-29-17
C1 9401100 401100 401000 0.0 8 0.00 0.0 0.0 3200.0 -4.10 -6.80 0.0400 401100 0.00030 0.00 0.00 0.00
1.00
* SP# 3 1-29-17
C1 9401200 401200 401100 0.0 8 0.00 0.0 0.0 1400.0 -2.40 -4.10 0.0400 401200 0.00030 0.00 0.00 0.00
1.00
* SP# 3 1-29-17
C1 9401300 401300 401200 0.0 8 0.00 0.0 0.0 350.0 -2.60 -2.80 0.0400 401300 0.00090 0.00 0.00 0.00
1.00
* SP# 6 1-29-17
C1 9401400 401400 401300 0.0 8 0.00 0.0 0.0 1000.0 -2.60 -2.80 0.0400 401400 0.00060 0.00 0.00 0.00
1.00
* SP# 14 1-29-17
C1 9401600 401600 401400 0.0 8 0.00 0.0 0.0 1200.0 -2.40 -2.60 0.0400 401600 0.00040 0.00 0.00 0.00
1.00
* SP# 20 1-29-17
C1 9401700 401700 401600 0.0 8 0.00 0.0 0.0 1500.0 -1.80 -2.00 0.0400 401700 0.00030 0.00 0.00 0.00
1.00
* SP# 22 1-29-17
C1 9401800 401800 401700 0.0 8 0.00 0.0 0.0 550.0 -1.70 -1.80 0.0400 401800 0.00010 0.00 0.00 0.00
1.00
* split channe
C1 9401700 401700 401600 0.0 8 0.00 0.0 0.0 1200.0 -1.80 -2.00 0.0400 401700 0.00030 0.00 0.00 0.00
1.00
C1 9401800 401800 401700 0.0 8 0.00 0.0 0.0 550.0 -1.70 -1.80 0.0400 401800 0.00030 0.00 0.00 0.00
1.00
* SP# 23 1-29-17
C1 9401900 401900 401800 0.0 8 0.00 0.0 0.0 250.0 -0.88 -1.10 0.0400 401900 0.00001 0.00 0.00 0.00
1.00
*-----*
* END OF MAIN CHANNEL
*-----*
*-----*
* ANCHOR GLASS OUTFALL TO MEMORIAL AVE
C1 1401110 401110 401100 0.0 2 0.00 6.0 8.0 100.0 -4.00 -4.10 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
C1 1401120 401120 401110 0.0 1 0.00 5.5 5.5 220.0 -2.40 -4.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 1401130 401130 401120 0.0 1 0.00 5.0 5.0 220.0 -0.90 -2.40 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 1401140 401140 401130 0.0 1 0.00 4.5 4.5 220.0 0.00 -0.80 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 1401150 401150 401140 0.0 1 0.00 2.0 2.0 220.0 2.99 2.44 0.0130 0.00000 0.00000 0.50 1.00 0.00
2.00
C1 1401160 401160 401150 0.0 1 0.00 1.5 1.5 65.0 3.75 3.49 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
*
* 5.75
* changed the invert of 401160 to make the model stable. By J. Su on May 20, 2002.
* Acturally, the flow of 1401160 is controlled by weir 401190 to 401160.
*
* WEIR 401190 401160
* JUNCTION 401190 WEIR FLOW TO TWO DIRECTION
* WEIR 401190 401188
C1 1401188 401188 401186 0.0 1 0.00 2.0 2.0 272.0 5.75 6.50 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 2401186 401186 401180 0.0 3 2.00 1.5 2.0 59.0 6.91 6.18 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
C1 1401186 401186 401180 0.0 3 2.00 1.5 2.0 59.0 6.86 6.23 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
* WEIR 401180 401170
* OUTFALL BOUNDARY
C1 9401170 401170 400054 0.0 6 0.00 10.0 50.0 1000.0 5.50 5.00 0.0400 0.00000 0.00000 0.00 0.00 0.00
1.00
*-----*
C1 9401210 401210 401200 0.0 8 0.00 0.0 0.0 1100.0 -1.90 -2.40 0.0400 401210 0.00050 0.00 0.00 0.00
1.00
C1 1401220 401220 401210 0.0 3 11.40 3.0 4.8 40.0 0.24 -0.19 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 2401220 401220 401210 0.0 3 11.40 3.0 4.8 40.0 0.24 -0.19 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 1401230 401230 401220 0.0 1 0.00 5.5 5.5 40.0 1.14 1.37 0.0130 0.00000 0.00000 0.50 1.00 0.00
15.00
C1 9401240 401240 401230 0.0 6 0.00 6.0 10.0 650.0 0.87 1.14 0.0400 1.00000 1.00000 0.00 0.00 0.00
1.00
*-----*
C1 9401310 401310 401300 0.0 8 0.00 0.0 0.0 1100.0 -1.74 -2.10 0.0400 401310 0.00030 0.00 0.00 0.00
1.00
C1 1401320 401320 401310 0.0 1 0.00 2.5 2.5 40.0 -1.60 -1.74 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 9401330 401330 401300 0.0 8 0.00 0.0 0.0 1050.0 1.18 -2.10 0.0400 401330 0.00310 0.00 0.00 0.00
1.00
*-----*
* AIRPORT OUTFALL
* SP# 8 1-29-17
C1 9401410 401410 401400 0.0 8 0.00 0.0 0.0 800.0 0.50 -1.50 0.0400 401410 0.00250 0.00 0.00 0.00
1.00
* SP# 9 1-29-17

```


C1	1401420	401420	401410	0.0	1	0.00		3.0	3.0	19.0	0.21	0.87	0.0130	0.00000	0.00000	0.50	1.00	0.00
25.00																		
C1	2401420	401420	401410	0.0	1	0.00		3.0	3.0	19.0	-0.60	0.14	0.0130	0.00000	0.00000	0.50	1.00	0.00
25.00																		
C1	3401420	401420	401410	0.0	1	0.00		3.0	3.0	19.0	-0.60	0.63	0.0130	0.00000	0.00000	0.50	1.00	0.00
25.00																		
C1	401420	401420	401410	0.0	1	0.00		3.0	3.0	19.0	0.34	0.60	0.0130	0.00000	0.00000	0.50	1.00	0.00
25.00																		
* SP# 10	1-29-17																	
C1	9401430	401430	401420	0.0	8	0.00		0.0	0.0	1000.0	1.00	-0.95	0.0400	401430	0.00200	0.00	0.00	0.00
1.00																		
* SP# 12	1-29-17																	
C1	9401440	401440	401430	0.0	8	0.00		0.0	0.0	1000.0	3.40	1.00	0.0400	401440	0.00200	0.00	0.00	0.00
1.00																		

* SOUTH CANAL C																		
C1	9401610	401610	401600	0.0	8	0.00		0.0	0.0	700.0	-0.80	-2.00	0.0400	401610	0.00170	0.00	0.00	0.00
1.00																		
C1	1401620	401620	401610	0.0	1	0.00		4.0	4.0	80.0	-1.06	-0.62	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																		
C1	9401630	401630	401620	0.0	8	0.00		0.0	0.0	750.0	1.50	0.00	0.0400	401630	0.00200	0.00	0.00	0.00
1.00																		
C1	1401640	401640	401630	0.0	3	11.40		3.0	4.8	40.0	1.50	1.40	0.0130	0.00000	0.00000	0.50	1.00	0.00
15.00																		
C1	1401650	401650	401640	0.0	1	0.00		3.0	3.0	35.0	1.80	1.70	0.0130	0.00000	0.00000	0.50	1.00	0.00
10.00																		
C1	9401660	401660	401650	0.0	8	0.00		0.0	0.0	870.0	2.18	1.80	0.0400	401660	0.00040	0.00	0.00	0.00
1.00																		
C1	1401670	401670	401660	0.0	1	0.00		2.0	2.0	31.0	5.12	4.98	0.0130	0.00000	0.00000	0.50	1.00	0.00
12.00																		
C1	9401680	401680	401670	0.0	8	0.00		0.0	0.0	800.0	6.20	5.12	0.0400	401680	0.00140	0.00	0.00	0.00
1.00																		
C1	1401690	401690	401680	0.0	1	0.00		2.0										

Hydraulic Input Data for HCSWMM Extran Routing

C1 9402280	402280	402270	0.0	8	0.00	0.0	0.0	800.0	9.50	6.90	0.0400	402280	0.00330	0.00	0.00	0.00
1.00																
C1 9402285	402285	402260	0.0	8	0.00	0.0	0.0	650.0	9.30	6.60	0.0400	402285	0.00420	0.00	0.00	0.00
1.00																
*																
* PARIS STREET DITCH AND POND																
C1 1402310	402310	402200	0.0	1	0.00	3.0	3.0	70.0	7.91	7.61	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9402320	402320	402310	0.0	8	0.00	0.0	0.0	1300.0	7.85	7.61	0.0400	402320	0.00110	0.00	0.00	0.00
1.00																
C1 1402330	402330	402320	0.0	1	0.00	3.0	3.0	310.0	7.83	7.85	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
*																
C1 1402370	402370	402340	0.0	1	0.00	3.0	3.0	67.0	7.90	6.46	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
*																
C1 9402398	402398	402100	0.0	8	0.00	0.0	0.0	860.0	0.00	-0.80	0.0400	402398	0.00280	0.00	0.00	0.00
1.00																
*																
* CHECK VALVES																
C1 1402400	402400	402398	0.0	-1	0.00	3.5	3.5	41.0	1.00	0.50	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1402400	402400	402398	0.0	-1	0.00	3.5	3.5	41.0	1.00	0.50	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
*																
* ADD STORM SEWER ALONG HANLEY ROAD																
C1 1402400	402400	402394	0.0	1	0.00	3.0	3.0	525.0	0.54	2.01	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1402394	402394	402392	0.0	1	0.00	2.5	2.5	165.0	2.05	2.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
4.00																
C1 1402392	402392	402080	0.0	-3	16.60	3.6	5.7	300.0	1.88	1.61	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
* Hanley Rd																
C1 1402500	402500	402400	0.0	2	0.00	6.0	7.0	100.0	0.10	0.00	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1402500	402500	402400	0.0	2	0.00	6.0	7.0	100.0	0.10	0.00	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
* CANAL A																
C1 1402510	402510	402500	0.0	1	0.00	3.3	3.3	64.0	0.33	1.28	0.0240	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 9402518	402518	402510	0.0	8	0.00	0.0	0.0	1130.0	3.95	0.33	0.0400	402518	0.00320	0.00	0.00	0.00
1.00																
C1 1402520	402520	402518	0.0	1	0.00	3.0	3.0	55.0	4.10	3.95	0.0240	0.00000	0.00000	0.50	1.00	0.00
10.00																
*																
C1 9402600	402600	402500	0.0	8	0.00	0.0	0.0	1200.0	0.90	0.00	0.0400	402600	0.00080	0.00	0.00	0.00
1.00																
* CANAL B																
C1 1402610	402610	402600	0.0	1	0.00	3.0	3.0	61.0	0.36	0.78	0.0240	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 9402620	402620	402610	0.0	8	0.00	0.0	0.0	1160.0	2.10	0.70	0.0400	402620	0.00120	0.00	0.00	0.00
1.00																
C1 1402630	402630	402620	0.0	1	0.00	2.0	2.0	47.0	3.69	2.28	0.0240	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 9402640	402640	402630	0.0	8	0.00	0.0	0.0	1150.0	5.30	3.81	0.0400	402640	0.00130	0.00	0.00	0.00
1.00																
*																
C1 9402698	402698	402600	0.0	8	0.00	0.0	0.0	450.0	0.12	0.78	0.0400	402698	0.00120	0.00	0.00	0.00
1.00																

* LSC PHASE IV PUMP STATION - DESING 1999/COMPLETED 2000																

C1 1402700	402700	402698	0.0	2	0.00	4.0	7.0	90.0	0.00	0.00	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 9402800	402800	402700	0.0	8	0.00	0.0	0.0	610.0	0.00	0.00	0.0400	402800	0.00220	0.00	0.00	0.00
1.00																

* CANAL DW 1999-PUMP STATION IMPROVED																
C1 1402810	402810	402800	0.0	2	0.00	4.0	7.0	193.0	0.50	0.00	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
*																
C1 9402818	402818	402810	0.0	8	0.00	0.0	0.0	650.0	1.12	0.50	0.0400	402818	0.00170	0.00	0.00	0.00
1.00																
C1 1402820	402820	402818	0.0	3	6.40	2.3	3.6	60.0	0.94	1.12	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9402828	402828	402820	0.0	8	0.00	0.0	0.0	750.0	1.29	0.94	0.0400	402828	0.00050	0.00	0.00	0.00
1.00																
C1 1402830	402830	402828	0.0	1	0.00	3.0	3.0	60.0	1.71	1.29	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 9402840	402840	402830	0.0	8	0.00	0.0	0.0	1050.0	4.10	1.71	0.0400	402840	0.00230	0.00	0.00	0.00
1.00																

* CANAL C																
C1 9402850	402850	402800	0.0	8	0.00	0.0	0.0	1300.0	3.10	1.30	0.0400	402850	0.00140	0.00	0.00	0.00
1.00																
* OUTFALL OF HOSPITAL																
C1 1402860	402860	402850	0.0	1	0.00	0.8	0.8	30.0	4.36	4.00	0.0130	0.00000	0.00000	0.50	1.00	0.00
20.00																
C1 9402870	402870	402850	0.0	8	0.00	0.0	0.0	680.0	5.40	3.10	0.0400	402870	0.00140	0.00	0.00	0.00
1.00																
C1 9402880	402880	402850	0.0	8	0.00	0.0	0.0	1150.0	5.28	3.10	0.0400	402880	0.00190	0.00	0.00	0.00
1.00																

* HENRY STREET CANAL MAIN CHANNEL																
C1 9402920	402920	402100	0.0	8	0.00	0.0	0.0	1000.0	0.63	-0.80	0.0400	402920	0.00300	0.00	0.00	0.00
1.00																
* SAWYER RD. BRIDGE																
C1 1402930	402930	402920	0.0	2	0.00	9.8	26.3	150.0	0.64	0.63	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1402930	402930	402920	0.0	2	0.00	8.9	20.1	150.0	3.24	3.14	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9402940	402940	402930	0.0	8	0.00	0.0	0.0	1500.0	2.00	0.64	0.0400	402940	0.00097	0.00	0.00	0.00
1.00																

Hydraulic Input Data for HCSWMM Extran Routing

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* SP# 40 GOLDEN DRIVE
C1 1402950 402950 402940 0.0 4 153.00 10.1 22.0 100.0 2.20 2.00 0.0200 0.00000 0.00000 0.50 1.00 0.00
1.00
*-----*
* END OF 402-SYSTEM
*-----*
*
*-----*
* 403-SYSTEM - WEST HENRY STREET SYSTEM
*-----*
* CONNECT TO 402 SYSTEM @ 402950
C1 9403000 403000 402950 0.0 8 0.00 0.0 0.0 514.0 1.50 2.20 0.0400 403000 0.00127 0.00 0.00 0.00
1.00
* NEW GEORGE RD.
C1 1403050 403050 403000 0.0 2 0.00 12.6 30.0 50.0 1.50 1.48 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 2403050 403050 403000 0.0 2 0.00 8.4 19.0 50.0 5.71 5.61 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 3403050 403050 403000 0.0 2 0.00 8.4 19.0 50.0 5.71 5.61 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 9403100 403100 403050 0.0 8 0.00 0.0 0.0 500.0 3.60 1.50 0.0400 403100 0.00646 0.00 0.00 0.00
1.00
C1 9403160 403160 403100 0.0 8 0.00 0.0 0.0 1050.0 5.00 3.60 0.0400 403160 0.00220 0.00 0.00 0.00
1.00
* NW EXP HWY
C1 1403200 403200 403160 0.0 2 0.00 11.8 35.0 140.0 5.09 5.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 2403200 403200 403160 0.0 2 0.00 7.9 18.0 140.0 9.30 9.20 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 3403200 403200 403160 0.0 2 0.00 7.9 18.0 140.0 9.30 9.20 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 9403300 403300 403200 0.0 8 0.00 0.0 0.0 950.0 6.50 5.09 0.0400 403300 0.00150 0.00 0.00 0.00
1.00
* BENJAMIN ROAD
C1 1403350 403350 403300 0.0 2 0.00 12.9 38.0 200.0 6.80 6.70 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 2403350 403350 403300 0.0 2 0.00 8.6 16.7 200.0 11.10 11.09 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 3403350 403350 403300 0.0 2 0.00 8.6 16.7 200.0 11.10 11.09 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 9403400 403400 403350 0.0 8 0.00 0.0 0.0 1270.0 7.60 6.80 0.0400 403400 0.00010 0.00 0.00 0.00
1.00
C1 9403500 403500 403400 0.0 8 0.00 0.0 0.0 750.0 8.37 7.60 0.0400 403500 0.00210 0.00 0.00 0.00
1.00
C1 9403548 403548 403500 0.0 8 0.00 0.0 0.0 530.0 10.39 8.37 0.0400 403548 0.00381 0.00 0.00 0.00
1.00
* HOOVER AVE.
C1 1403550 403550 403548 0.0 2 0.00 10.1 20.0 49.0 10.38 10.39 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 2403550 403550 403548 0.0 2 0.00 10.1 20.0 49.0 10.38 10.39 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 9403600 403600 403550 0.0 8 0.00 0.0 0.0 800.0 10.13 10.38 0.0400 403600 0.00120 0.00 0.00 0.00
1.00
C1 9403650 403650 403600 0.0 8 0.00 0.0 0.0 780.0 11.60 10.13 0.0400 403650 0.00100 0.00 0.00 0.00
1.00
C1 9403700 403700 403650 0.0 8 0.00 0.0 0.0 1050.0 13.40 11.60 0.0400 403700 0.00200 0.00 0.00 0.00
1.00
* BOX CULVERT @ ANDERSON RD.
C1 1403750 403750 403700 0.0 2 0.00 14.4 20.0 50.0 13.50 13.40 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 2403750 403750 403700 0.0 2 0.00 9.6 20.2 50.0 18.28 18.18 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 9403800 403800 403750 0.0 8 0.00 0.0 0.0 230.0 15.00 14.05 0.0400 403800 0.00270 0.00 0.00 0.00
1.00
C1 9403898 403898 403800 0.0 8 0.00 0.0 0.0 1580.0 14.73 15.00 0.0400 403898 0.00020 0.00 0.00 0.00
1.00
* SP# 12 N. HESPERIDE ST.
C1 1403900 403900 403898 0.0 2 0.00 7.0 9.0 43.0 14.71 15.03 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 2403900 403900 403898 0.0 2 0.00 7.0 9.0 43.0 14.12 14.73 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 3403900 403900 403898 0.0 2 0.00 7.0 9.0 43.0 14.81 14.84 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
* END OF 403 SYSTEM MAIN CHANNEL
*-----*
C1 1403060 403060 403050 0.0 3 12.90 2.5 5.0 160.0 5.51 4.61 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
*-----*
* YORKSHIRE RD. TRIBUTARY
C1 1403120 403120 403100 0.0 1 0.00 4.0 4.0 160.0 6.45 4.73 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 9403125 403125 403120 0.0 8 0.00 0.0 0.0 950.0 8.60 6.40 0.0400 403125 0.00230 0.00 0.00 0.00
1.00
C1 1403130 403130 403125 0.0 1 0.00 2.5 2.5 57.0 8.08 8.27 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 2403130 403130 403125 0.0 1 0.00 2.5 2.5 57.0 8.02 8.07 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 9403140 403140 403130 0.0 8 0.00 0.0 0.0 1300.0 7.20 8.30 0.0400 403140 0.00080 0.00 0.00 0.00
1.00
* LOWER U/S INVERT (UNSTABLE)
C1 1403190 403190 403160 0.0 1 0.00 2.5 2.5 200.0 10.00 8.90 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
*-----*
* VETERANS - HILLSBOROUGH AVE. RAMP
C1 1403210 403210 403200 0.0 1 0.00 5.0 5.0 291.0 5.58 4.80 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1403220 403220 403210 0.0 1 0.00 2.0 2.0 400.0 12.50 11.96 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1403230 403230 403220 0.0 1 0.00 1.3 1.3 360.0 11.05 11.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1403240 403240 403210 0.0 1 0.00 3.5 3.5 1450.0 6.00 5.58 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00

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Hydraulic Input Data for HCSWMM Extran Routing

C1 1403260	403260	403240	0.0	1	0.00	2.0	2.0	488.0	13.00	12.38	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																

* BENJAMIN RAOD N.																
C1 1403360	403360	403350	0.0	3	1.80	1.2	1.9	196.5	20.67	20.28	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
* WEIR 403370 403360																

* ALVAREZ RD. SYSTEM																
C1 1403404	403404	403400	0.0	1	0.00	3.5	3.5	60.0	18.20	18.00	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 9403406	403406	403404	0.0	8	0.00	0.0	0.0	1250.0	19.00	18.00	0.0400	403406	0.00980	0.00	0.00	0.00
1.00																
C1 1403408	403408	403406	0.0	1	0.00	3.0	3.0	56.0	17.78	17.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1403410	403410	403408	0.0	2	0.00	2.0	3.0	54.0	17.79	17.74	0.0130	0.00000	0.00000	0.50	1.00	0.00
8.00																
* JOHNS RD./BENJAMIN CENTER SYSTEM																
C1 1403420	403420	403400	0.0	8	0.00	0.0	0.0	530.0	14.20	12.10	0.0400	403420	0.01530	0.00	0.00	0.00
1.00																
C1 9403430	403430	403420	0.0	8	0.00	0.0	0.0	530.0	16.30	14.20	0.0400	403430	0.00400	0.00	0.00	0.00
1.00																
C1 1403440	403440	403430	0.0	1	0.00	4.5	4.5	300.0	16.61	16.30	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9403460	403460	403440	0.0	8	0.00	0.0	0.0	1450.0	19.70	16.60	0.0400	403460	0.00210	0.00	0.00	0.00
1.00																
C1 1403470	403470	403460	0.0	1	0.00	3.0	3.0	887.0	19.38	18.74	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1403480	403480	403470	0.0	2	0.00	2.0	3.2	68.0	19.21	18.74	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1403490	403490	403480	0.0	1	0.00	2.0	2.0	52.0	19.33	19.21	0.0130	0.00000	0.00000	0.50	1.00	0.00
8.00																
* OUTFALL TO NORTH BOUNDARY 400055 400056																
* WEIR 403490 403488																
C1 1403488	403488	400055	0.0	2	3.00	1.5	2.0	78.0	17.92	17.54	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 9403488	403488	400056	0.0	6	0.00	10.0	50.0	200.0	20.90	20.80	0.0400	4.00000	4.00000	0.00	0.00	0.00
1.00																

* WEST END OF IDLEWILD AVE.																
C1 1403508	403508	403500	0.0	1	0.00	2.0	2.0	100.0	20.04	19.94	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
* WEIR 403510 403508																
C1 1403516	403516	403500	0.0	1	0.00	3.0	3.0	216.0	11.70	11.67	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 1403518	403518	403516	0.0	1	0.00	1.3	1.3	200.0	16.13	16.10	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
* WEIR 403520 403518																
C1 1403528	403528	403516	0.0	1	0.00	2.0	2.0	49.0	16.87	16.03	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
* WEIR 403530 403528																
C1 1403536	403536	403516	0.0	1	0.00	3.0	3.0	49.0	17.18	16.03	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1403538	403538	403536	0.0	1	0.00	1.5	1.5	49.0	17.91	17.18	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
* WEIR 403540 403538																

* HOOVER BLVD. NORTH																
C1 1403560	403560	403550	0.0	1	0.00	2.5	2.5	70.0	10.94	10.82	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1403570	403570	403560	0.0	1	0.00	2.5	2.5	70.0	16.29	15.94	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1403580	403580	403570	0.0	1	0.00	2.0	2.0	70.0	18.64	18.29	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1403590	403590	403570	0.0	1	0.00	2.0	2.0	70.0	22.71	22.19	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																

C1 9403606	403606	403600	0.0	8	0.00	0.0	0.0	1320.0	22.60	22.00	0.0400	403606	0.00050	0.00	0.00	0.00
1.00																
C1 1403608	403608	403606	0.0	1	0.00	2.5	2.5	75.0	22.91	22.60	0.0130	0.00000	0.00000	0.50	1.00	0.00
10.00																
C1 1403610	403610	403608	0.0	2	0.00	2.0	4.0	75.0	23.03	22.91	0.0130	0.00000	0.00000	0.50	1.00	0.00
10.00																

* C1 9403710 403710 403700 0.0 8 0.00 0.0 0.0 1000.0 21.40 19.98 0.0400 403710 0.00740 0.00 0.00 0.00																
1.00																
* C1 9403730 403730 403710 0.0 8 0.00 0.0 0.0 1500.0 23.90 21.40 0.0400 403730 0.00170 0.00 0.00 0.00																
1.00																

C1 1403810	403810	403800	0.0	1	0.00	4.0	4.0	40.0	16.03	15.76	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1403820	403820	403810	0.0	1	0.00	4.0	4.0	40.0	17.56	16.03	0.0130	0.00000	0.00000	0.50	1.00	0.00
15.00																
C1 1403830	403830	403820	0.0	1	0.00	4.0	4.0	40.0	19.68	17.56	0.0130	0.00000	0.00000	0.50	1.00	0.00
15.00																
C1 1403840	403840	403830	0.0	1	0.00	4.0	4.0	40.0	20.90	19.68	0.0130	0.00000	0.00000	0.50	1.00	0.00
15.00																
C1 1403850	403850	403840	0.0	1	0.00	3.5	3.5	40.0	22.40	20.90	0.0130	0.00000	0.00000	0.50	1.00	0.00
15.00																
C1 1403858	403858	403850	0.0	1	0.00	2.0	2.0	40.0	23.65	22.47	0.0130	0.00000	0.00000	0.50	1.00	0.00
8.00																
C1 9403860	403860	403858	0.0	8	0.00	0.0	0.0	1550.0	24.00	22.40	0.0400	403860	0.00100	0.00	0.00	0.00
1.00																
=====																
* END OF 403-SYSTEM																
=====																
=====																
* 404-SYSTEM - EAST HENRY STREET SYSTEM																
=====																
* CONNECT TO 403 SYSTEM @ 403900																

Hydraulic Input Data for HCSWMM Extran Routing

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* MAIN CHANNEL
C1 9404000 404000 403900 0.0 8 0.00 0.0 0.0 650.0 17.20 14.12 0.0400 404000 0.00470 0.00 0.00 0.00
1.00
C1 9404098 404098 404000 0.0 8 0.00 0.0 0.0 1200.0 17.00 17.20 0.0400 404098 0.00020 0.00 0.00 0.00
1.00
* SP# 18 LOIS AVE.
C1 1404100 404100 404098 0.0 2 0.00 9.4 19.0 50.0 17.10 17.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
C1 2404100 404100 404098 0.0 2 0.00 9.4 19.0 50.0 17.10 17.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
C1 9404200 404200 404100 0.0 8 0.00 0.0 0.0 1175.0 18.65 17.10 0.0400 404200 0.00200 0.00 0.00 0.00
1.00
C1 9404298 404298 404200 0.0 8 0.00 0.0 0.0 900.0 18.13 18.65 0.0400 404298 0.00260 0.00 0.00 0.00
1.00
* SP# 21 N. CHURCH AVE.
C1 1404300 404300 404298 0.0 2 0.00 7.0 10.0 51.0 18.44 18.13 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
C1 2404300 404300 404298 0.0 2 0.00 7.0 10.0 51.0 18.52 18.20 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
C1 9404400 404400 404300 0.0 8 0.00 0.0 0.0 600.0 19.20 18.44 0.0400 404400 0.00130 0.00 0.00 0.00
1.00
* SP# 22 DALE MABRY HWY.
C1 1404498 404498 404400 0.0 2 0.00 7.0 10.0 70.0 19.40 19.20 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 2404498 404498 404400 0.0 2 0.00 7.0 10.0 70.0 19.40 19.20 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
*
C1 9404499 404499 404498 0.0 6 0.00 14.0 20.0 375.0 19.68 19.40 0.0350 1.00000 1.00000 0.00 0.00 0.00
1.00
*
* BILL CURRIE FORD 1985 HENRY ST. DITCH DRAINAGE STUDY
C1 1404500 404500 404499 0.0 2 0.00 10.3 14.0 100.0 19.73 19.68 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 2404500 404500 404499 0.0 2 0.00 10.3 15.0 100.0 19.73 19.68 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
* U/S INVERT BASED ON SURVEY POINT 200' WEST OF HIMES TO STABILIZE CHANNEL
C1 9404600 404600 404500 0.0 8 0.00 0.0 0.0 900.0 22.00 19.73 0.0400 404600 0.00220 0.00 0.00 0.00
1.00
* SP# 21 HIMES AVE.
C1 1404690 404690 404600 0.0 1 0.00 4.0 4.0 57.0 24.06 24.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
C1 1404690 404690 404600 0.0 1 0.00 4.0 4.0 57.0 23.96 23.92 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
C1 1404690 404690 404600 0.0 1 0.00 4.0 4.0 57.0 23.85 23.82 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
C1 9404698 404698 404690 0.0 8 0.00 0.0 0.0 850.0 23.80 23.85 0.0400 404698 0.00040 0.00 0.00 0.00
1.00
* SP#22 IDLEWILD AVE.
C1 1404700 404700 404698 0.0 3 11.40 3.0 4.8 40.0 24.59 23.90 0.0130 0.00000 0.00000 0.50 1.00 0.00
15.00
C1 2404700 404700 404698 0.0 3 11.40 3.0 4.8 40.0 24.59 23.80 0.0130 0.00000 0.00000 0.50 1.00 0.00
15.00
C1 9404710 404710 404700 0.0 8 0.00 0.0 0.0 700.0 25.92 24.59 0.0400 404710 0.00840 0.00 0.00 0.00
1.00
* SP# 23 PARIS ST.
C1 1404720 404720 404710 0.0 2 0.00 4.0 7.0 50.0 26.01 25.92 0.0130 0.00000 0.00000 0.50 1.00 0.00
20.00
C1 9404730 404730 404720 0.0 8 0.00 0.0 0.0 1350.0 28.69 26.01 0.0400 404730 0.00180 0.00 0.00 0.00
1.00
* SP# 18
C1 1404740 404740 404730 0.0 3 19.00 4.0 6.0 21.0 29.13 28.69 0.0130 0.00000 0.00000 0.50 1.00 0.00
15.00
* SP# 16 WOODLYNNE AVE.
C1 1404800 404800 404740 0.0 1 0.00 4.0 4.0 50.0 28.47 28.28 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
C1 2404800 404800 404740 0.0 1 0.00 4.0 4.0 50.0 28.49 28.39 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
* END OF MAIN CHANNEL
*-----*
* Add Idlewild/Manhattan Project
C1 1404008 404008 404000 0.0 1 0.00 2.5 2.5 52.0 22.00 21.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
2.00
C1 1404008 404008 404000 0.0 1 0.00 1.3 1.3 52.0 22.90 22.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
2.00
*-----*
* NORTH CHURCH AVE. SYSTEM
C1 1404308 404308 404300 0.0 1 6.40 2.3 3.6 27.0 22.60 21.57 0.0130 0.00000 0.00000 0.50 1.00 0.00
15.00
C1 1404310 404310 404308 0.0 1 0.00 3.0 3.0 300.0 26.66 25.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
3.00
C1 1404314 404314 404310 0.0 1 0.00 4.0 4.0 20.0 25.44 25.41 0.0130 0.00000 0.00000 0.50 1.00 0.00
15.00
C1 1404316 404316 404314 0.0 1 0.00 3.0 3.0 50.0 25.85 25.46 0.0130 0.00000 0.00000 0.50 1.00 0.00
8.00
C1 1404318 404318 404316 0.0 1 0.00 4.0 4.0 62.0 26.13 26.06 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 1404320 404320 404318 0.0 1 0.00 3.0 3.0 120.0 26.28 26.69 0.0130 0.00000 0.00000 0.50 1.00 0.00
4.00
C1 1404330 404330 404320 0.0 1 0.00 3.5 3.5 118.0 27.35 26.11 0.0130 0.00000 0.00000 0.50 1.00 0.00
2.00
C1 1404340 404340 404330 0.0 1 0.00 4.0 4.0 118.0 28.00 26.50 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
* WEIR 404350 404340
C1 1404360 404360 404350 0.0 1 0.00 2.0 2.0 110.0 28.05 28.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
4.00
*-----*
* N. DALE MABRY SYSTEM
C1 1404410 404410 404400 0.0 1 0.00 2.5 2.5 320.0 24.30 22.20 0.0130 0.00000 0.00000 0.50 1.00 0.00
2.00
C1 1404415 404415 404410 0.0 1 0.00 2.5 2.5 320.0 25.50 24.30 0.0130 0.00000 0.00000 0.50 1.00 0.00
2.00

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Hydraulic Input Data for HCSWMM Extran Routing

C1 1404420	404420	404415	0.0	2	0.00	5.0	4.0	320.0	24.90	24.20	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 1404430	404430	404420	0.0	1	0.00	4.0	4.0	860.0	26.30	25.90	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1404440	404440	404430	0.0	1	0.00	2.5	2.5	338.0	28.59	26.30	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
* EAST OF DALE MABRY SURVEY POINT #10 TO #13 (NEGLECT SWALE) RCP&CMP (LOWER U/S INVERT)																
C1 1404450	404450	404440	0.0	1	0.00	2.5	2.5	220.5	30.20	28.40	0.0150	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1404460	404460	404450	0.0	2	0.00	3.0	3.0	150.0	30.30	30.20	0.0130	0.00000	0.00000	0.50	1.00	0.00
4.00																
* SURVEY POINT #6 TO #9 MODEL PIPE ONLY (NEGLECT SWALE)																
C1 1404468	404468	404460	0.0	1	0.00	2.5	2.5	650.0	32.80	30.56	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
* WEIR 404470 404468																

* BRIDGE W/ GAGE CROSSING MODELED AS BOX CULVERT NEED HT																
* For stability poppurse, this pipe was intentionally extened from 16' to 26'																
* J. Su 5/20/2002																
C1 1404550	404550	404500	0.0	2	0.00	9.0	33.0	26.0	19.60	19.55	0.0130	0.00000	0.00000	0.50	1.00	0.00
10.00																

* W. IDLEWILD AVE. SYSTEM																
C1 1404610	404610	404600	0.0	1	0.00	2.0	2.0	99.0	27.14	25.98	0.0130	0.00000	0.00000	0.50	1.00	0.00
4.00																
C1 1404620	404620	404610	0.0	1	0.00	2.0	2.0	40.0	28.62	28.57	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1404630	404630	404620	0.0	3	1.80	1.2	1.9	40.0	28.67	28.62	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 2404630	404630	404620	0.0	3	1.80	1.2	1.9	40.0	28.67	28.62	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1404640	404640	404630	0.0	1	0.00	2.0	2.0	70.0	29.58	28.85	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
* WEIR 404650 404640																

C1 1404810	404810	404800	0.0	3	11.40	3.0	4.8	230.0	32.13	29.68	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 1404820	404820	404810	0.0	3	8.70	2.6	4.2	500.0	33.99	33.76	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1404825	404825	404820	0.0	3	8.70	2.6	4.2	65.0	34.58	34.50	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1404830	404830	404825	0.0	3	8.70	2.6	4.2	67.0	34.36	34.24	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1404840	404840	404830	0.0	3	4.40	1.8	3.0	105.0	38.53	36.98	0.0130	0.00000	0.00000	0.50	1.00	0.00
4.00																

* EGYPT LAKE TO DISCHARGE OF BURKE ST OUTFALL																
* SP# 1-D & 1-E																
C1 1404900	404900	404800	0.0	1	0.00	4.5	4.5	700.0	31.92	28.58	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
* SP# 1-C																
C1 1404910	404910	404900	0.0	1	0.00	3.0	3.0	100.0	32.67	31.92	0.0130	0.00000	0.00000	0.50	1.00	0.00
4.00																
* SP# 1-B																
C1 1404920	404920	404910	0.0	1	0.00	3.0	3.0	120.0	33.12	32.67	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9404930	404930	404920	0.0	6	0.00	6.0	12.0	600.0	35.23	33.12	0.0350	2.00000	2.00000	0.00	0.00	0.00
1.00																
* SP# 1-A																
C1 1404940	404940	404930	0.0	3	8.70	2.6	4.2	20.0	35.27	35.23	0.0240	0.00000	0.00000	0.50	1.00	0.00
5.00																
* WEIR 404950 404940																
C1 1404960	404960	404950	0.0	1	0.00	1.5	1.5	260.0	40.60	40.44	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 1404970	404970	404960	0.0	1	0.00	2.5	2.5	530.0	41.61	41.46	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 1404980	404980	404970	0.0	1	0.00	2.0	2.0	100.0	42.18	41.75	0.0130	0.00000	0.00000	0.50	1.00	0.00
4.00																

C1 1404985	404985	404940	0.0	1	0.00	1.5	1.5	260.0	42.85	37.10	0.0130	0.00000	0.00000	0.50	1.00	0.00
4.00																
C1 1404990	404990	404985	0.0	1	0.00	1.5	1.5	220.0	44.84	43.57	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																

* END OF 404-SYSTEM																

* 405-SYSTEM-CITY OF TAMPA (TIA NORTH SYSTEM)																

* GEORGE RD BRIDGE REMOVED LOW CHORD AT 9.50 L=60																
* CONNECT TO 401 SYSTEM @401440																
C1 1405000	405000	401440	0.0	2	0.00	6.0	50.0	60.0	3.50	3.40	0.0130	0.00000	0.00000	0.50	1.00	0.00
10.00																
C1 9405100	405100	405000	0.0	6	0.00	10.0	10.0	650.0	3.55	3.50	0.0350	2.00000	2.00000	0.00	0.00	0.00
1.00																
C1 9405200	405200	405100	0.0	6	0.00	10.0	10.0	650.0	3.60	3.50	0.0350	2.00000	2.00000	0.00	0.00	0.00
1.00																

* AIRPORT OUTFALL AT NW EXPWAY																
C1 1405210	405210	405200	0.0	2	0.00	8.0	12.0	228.0	4.80	4.75	0.0130	0.00000	0.00000	0.50	1.00	0.00
3.00																
C1 2405210	405210	405200	0.0	2	0.00	8.0	12.0	228.0	4.80	4.75	0.0130	0.00000	0.00000	0.50	1.00	0.00
3.00																
* NORTH CONVEYANCE - NW SECTION																
C1 9405220	405220	405210	0.0	6	0.00	15.3	10.0	300.0	6.00	4.80	0.0350	2.00000	3.00000	0.00	0.00	0.00
1.00																
C1 9405230	405230	405220	0.0	6	0.00	10.6	11.3	650.0	7.50	6.00	0.0350	2.00000	3.00000	0.00	0.00	0.00
1.00																
C1 9405240	405240	405230	0.0	6	0.00	13.8	19.0	150.0	7.80	7.50	0.0350	2.60000	2.60000	0.00	0.00	0.00
1.00																

C1 1405250	405250	405240	0.0	2	0.00	7.0	12.5	30.0	8.30	7.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 2405250	405250	405240	0.0	2	0.00	7.0	12.5	30.0	8.30	7.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
10.00 C1 9405260	405260	405250	0.0	6	0.00	9.8	19.0	200.0	8.60	8.30	0.0350	2.60000	2.60000	0.00	0.00	0.00
1.00 C1 1405270	405270	405260	0.0	2	0.00	5.0	5.0	520.0	8.63	8.60	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 2405270	405270	405260	0.0	2	0.00	5.0	5.0	520.0	8.63	8.60	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 3405270	405270	405260	0.0	2	0.00	5.0	5.0	520.0	8.63	8.60	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 1405280	405280	405270	0.0	2	0.00	5.0	5.0	300.0	8.70	8.63	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 2405280	405280	405270	0.0	2	0.00	5.0	5.0	300.0	8.70	8.63	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 3405280	405280	405270	0.0	2	0.00	5.0	5.0	300.0	8.70	8.63	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 9405290	405290	405280	0.0	6	0.00	11.8	17.5	500.0	9.00	8.70	0.0400	1.90000	1.80000	0.00	0.00	0.00
1.00 C1 9405300	405300	405290	0.0	6	0.00	15.0	16.5	870.0	10.30	9.00	0.0400	2.30000	1.80000	0.00	0.00	0.00
1.00 C1 9405310	405310	405300	0.0	6	0.00	10.0	16.3	650.0	10.70	10.30	0.0400	2.50000	1.70000	0.00	0.00	0.00
1.00 C1 1405320	405320	405310	0.0	2	0.00	6.0	6.0	230.0	11.50	10.79	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 2405320	405320	405310	0.0	2	0.00	6.0	6.0	230.0	11.50	10.79	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 3405320	405320	405310	0.0	2	0.00	6.0	6.0	230.0	11.50	10.79	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 9405390	405390	405320	0.0	6	0.00	11.4	16.9	700.0	11.20	10.90	0.0400	1.80000	1.80000	0.00	0.00	0.00
* FROM 405390 SPLIT INTO TWO TRIBUTARIES																
C1 1405400	405400	405390	0.0	1	0.00	4.0	4.0	650.0	12.40	12.20	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 2405400	405400	405390	0.0	1	0.00	4.0	4.0	650.0	12.40	12.20	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 3405400	405400	405390	0.0	1	0.00	4.0	4.0	650.0	12.40	12.20	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 1405410	405410	405400	0.0	1	0.00	4.0	4.0	700.0	12.50	12.40	0.0106	0.00000	0.00000	0.50	1.00	0.00
1.00 C1 2405410	405410	405400	0.0	1	0.00	4.0	4.0	350.0	12.50	12.40	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00 C1 3405410	405410	405400	0.0	1	0.00	4.0	4.0	350.0	12.50	12.40	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00 C1 1405420	405420	405410	0.0	1	0.00	4.0	4.0	700.0	14.00	12.50						

Hydraulic Input Data for HCSWMM Extran Routing

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C1 9405540 405540 405530 0.0 6 0.00 13.0 35.0 900.0 16.00 15.80 0.0350 2.50000 2.50000 0.00 0.00 0.00
1.00
* WEIR 405550 405540
C1 9405560 405560 405550 0.0 6 0.00 10.0 15.0 450.0 16.04 16.03 0.0350 2.00000 2.00000 0.00 0.00 0.00
1.00
C1 9405570 405570 405560 0.0 6 0.00 10.0 15.0 560.0 16.05 16.04 0.0400 3.30000 2.30000 0.00 0.00 0.00
1.00
C1 1405580 405580 405570 0.0 1 0.00 3.0 3.0 250.0 17.50 17.30 0.0169 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 2405580 405580 405570 0.0 1 0.00 3.0 3.0 250.0 17.50 17.30 0.0169 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 9405590 405590 405580 0.0 6 0.00 9.0 15.0 350.0 17.00 16.00 0.0400 2.70000 2.70000 0.00 0.00 0.00
1.00
*-----*
* END OF TWO MAIN CHANNEL
*-----*
* 405 SYSTEM SMALL TRIBUTARY
* @ EISENHOWER BUSINESS PARK
*-----*
C1 1405120 405120 405100 0.0 1 0.00 2.5 2.5 60.0 6.70 6.22 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
* WEIR 405130 405120
C1 1405140 405140 405130 0.0 3 7.40 2.4 3.8 60.0 9.29 8.92 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
* WEIR 405160 405140
C1 1405165 405165 405160 0.0 1 0.00 2.5 2.5 60.0 11.49 11.50 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 1405170 405170 405165 0.0 1 0.00 2.5 2.5 273.0 11.82 11.49 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
*-----*
C1 1405285 405285 405280 0.0 1 0.00 2.0 2.0 250.0 9.50 8.70 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1405292 405292 405290 0.0 1 0.00 2.5 2.5 200.0 10.00 9.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1405294 405294 405292 0.0 1 0.00 5.0 5.0 600.0 11.00 10.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1405235 405235 405230 0.0 1 0.00 2.5 2.5 30.0 7.60 7.50 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
*-----*
C1 1405305 405305 405300 0.0 1 0.00 3.0 3.0 130.0 16.50 16.20 0.0240 0.00000 0.00000 0.50 1.00 0.00
4.00
*-----*
C1 1405535 405535 405530 0.0 1 0.00 3.0 3.0 130.0 19.00 17.30 0.0240 0.00000 0.00000 0.50 1.00 0.00
4.00
C1 2405535 405535 405530 0.0 1 0.00 3.0 3.0 130.0 19.00 17.30 0.0240 0.00000 0.00000 0.50 1.00 0.00
4.00
* WEIR 405555 405550
*-----*
* 2 24" RCP GO TO SOUTH AND WHEN WATER LEVEL HIGHER THAN 20.17 THEN WATER FLOW TO NORTH DITCH
C1 1405600 405600 405450 0.0 1 0.00 3.0 3.0 150.0 16.00 15.20 0.0195 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1405700 405700 405600 0.0 1 0.00 2.0 2.0 40.0 17.50 17.40 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 2405700 405700 405600 0.0 1 0.00 2.0 2.0 40.0 17.50 17.40 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
*-----*
*=====
* END OF 405-SYSTEM
*=====
*-----*
* 406-SYSTEM-CITY OF TAMPA
* (DREW PARK SYSTEM ALONG N. LOIS AVENUNE)
*=====
* CONNECT TO 404 SYSTEM @ 404100
C1 1406100 406100 404100 0.0 2 0.00 6.0 10.0 135.0 20.50 19.80 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 2406100 406100 404100 0.0 2 0.00 6.0 8.0 135.0 17.25 17.10 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
C1 1406105 406105 406100 0.0 2 0.00 6.0 18.0 450.0 17.50 17.25 0.0130 0.00000 0.00000 0.50 1.00 0.00
2.00
C1 1406110 406110 406105 0.0 2 0.00 6.0 18.0 30.0 17.60 17.50 0.0130 0.00000 0.00000 0.50 1.00 0.00
15.00
C1 1406120 406120 406110 0.0 3 17.60 3.7 6.0 30.0 19.70 19.90 0.0130 0.00000 0.00000 0.50 1.00 0.00
20.00
C1 2406120 406120 406110 0.0 3 17.60 3.7 6.0 30.0 19.70 19.90 0.0130 0.00000 0.00000 0.50 1.00 0.00
15.00
C1 9406130 406130 406120 0.0 6 0.00 10.6 14.0 340.0 20.40 19.70 0.0300 2.80000 2.20000 0.00 0.00 0.00
1.00
C1 1406140 406140 406130 0.0 3 17.60 3.7 6.0 50.0 20.50 20.40 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 2406140 406140 406130 0.0 3 17.60 3.7 6.0 45.0 20.50 20.40 0.0130 0.00000 0.00000 0.50 1.00 0.00
10.00
C1 9406150 406150 406140 0.0 6 0.00 10.5 14.0 400.0 20.70 20.50 0.0400 2.80000 2.20000 0.00 0.00 0.00
1.00
C1 1406160 406160 406150 0.0 3 17.60 3.5 6.0 120.0 21.80 20.70 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 2406160 406160 406150 0.0 3 17.60 3.5 6.0 120.0 21.80 20.70 0.0130 0.00000 0.00000 0.50 1.00 0.00
5.00
* HILLSBOROUGH AVENUE. CROSS-DRAIN
C1 1406170 406170 406160 0.0 2 0.00 4.0 10.0 160.0 22.15 21.80 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
* LOIS AVE. DITCH GAGE STATION**
C1 1406180 406180 406170 0.0 3 17.60 4.0 5.7 180.0 22.30 22.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 2406180 406180 406170 0.0 3 17.60 4.0 5.7 180.0 22.30 22.00 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 9406300 406300 406180 0.0 6 0.00 10.0 10.0 460.0 22.40 22.30 0.0300 1.90000 2.50000 0.00 0.00 0.00
1.00
C1 1406310 406310 406300 0.0 1 0.00 3.0 3.0 205.0 22.50 22.40 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 2406310 406310 406300 0.0 1 0.00 3.0 3.0 205.0 22.50 22.40 0.0130 0.00000 0.00000 0.50 1.00 0.00
1.00

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Hydraulic Input Data for HCSWMM Extran Routing

C1 3406310	406310	406300	0.0	1	0.00	3.0	3.0	205.0	22.50	22.40	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 4406310	406310	406300	0.0	1	0.00	3.0	3.0	205.0	22.50	22.40	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9406320	406320	406310	0.0	6	0.00	10.5	10.0	500.0	22.40	22.50	0.0310	2.90000	3.70000	0.00	0.00	0.00
1.00																
C1 1406400	406400	406320	0.0	1	0.00	3.0	3.0	100.0	22.60	22.40	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 2406400	406400	406320	0.0	1	0.00	3.0	3.0	100.0	22.60	22.40	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 3406400	406400	406320	0.0	1	0.00	3.0	3.0	100.0	22.60	22.40	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 4406400	406400	406320	0.0	1	0.00	3.0	3.0	100.0	22.60	22.40	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 9406500	406500	406400	0.0	6	0.00	10.0	8.0	400.0	22.80	22.60	0.0280	1.90000	3.40000	0.00	0.00	0.00
1.00																
C1 1406510	406510	406500	0.0	1	0.00	3.0	3.0	200.0	22.90	22.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 2406510	406510	406500	0.0	1	0.00	3.0	3.0	200.0	22.90	22.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 3406510	406510	406500	0.0	1	0.00	3.0	3.0	200.0	22.90	22.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9406520	406520	406510	0.0	6	0.00	10.0	8.0	150.0	23.30	22.90	0.0280	1.10000	1.60000	0.00	0.00	0.00
1.00																
C1 1406600	406600	406520	0.0	1	0.00	3.0	3.0	60.0	23.40	23.30	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 2406600	406600	406520	0.0	1	0.00	3.0	3.0	200.0	23.40	23.30	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 3406600	406600	406520	0.0	1	0.00	3.0	3.0	200.0	23.40	23.30	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1406630	406630	406600	0.0	1	0.00	1.5	1.5	60.0	24.20	24.10	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 2406630	406630	406600	0.0	1	0.00	1.5	1.5	60.0	24.20	24.10	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 9406610	406610	406600	0.0	6	0.00	10.5	8.0	490.0	24.30	23.20	0.0280	1.10000	1.60000	0.00	0.00	0.00
1.00																
C1 1406620	406620	406610	0.0	1	0.00	3.0	3.0	100.0	24.30	24.32	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 2406620	406620	406610	0.0	1	0.00	3.0	3.0	100.0	24.30	24.32	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 3406620	406620	406610	0.0	1	0.00	3.0	3.0	100.0	24.30	24.32	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9406645	406645	406620	0.0	6	0.00	10.5	8.0	210.0	24.60	24.30	0.0280	2.30000	2.70000	0.00	0.00	0.00
1.00																
C1 1406660	406660	406645	0.0	1	0.00	3.0	3.0	38.0	24.40	24.60	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 2406660	406660	406645	0.0	1	0.00	3.0	3.0	100.0	24.40	24.60	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9406675	406675	406660	0.0	6	0.00	10.5	6.0	440.0	25.20	24.40	0.0280	2.10000	1.90000	0.00	0.00	0.00
1.00																
C1 1406680	406680	406675	0.0	1	0.00	2.3	2.3	14.0	26.00	25.95	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 2406680	406680	406675	0.0	1	0.00	2.3	2.3	38.0	26.00	25.95	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1406690	406690	406680	0.0	1	0.00	2.5	2.5	360.0	26.10	26.02	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1406710	406710	406675	0.0	1	0.00	3.0	3.0	100.0	25.10	25.20	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 2406710	406710	406675	0.0	1	0.00	3.0	3.0	360.0	25.10	25.20	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9406800	406800	406710	0.0	6	0.00	10.0	8.0	460.0	25.70	25.10	0.0280	4.00000	2.10000	0.00	0.00	0.00
1.00																
*																
C1 1406805	406805	406800	0.0	1	0.00	3.0	3.0	800.0	27.64	25.70	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9406810	406810	406805	0.0	6	0.00	10.8	4.0	500.0	27.80	27.64	0.0410	4.80000	3.30000	0.00	0.00	0.00
1.00																
*																
C1 9406825	406825	406820	0.0	6	0.00	10.8	4.0	500.0	26.50	26.40	0.0440	3.10000	1.60000	0.00	0.00	0.00
1.00																
C1 1406830	406830	406825	0.0	1	0.00	2.0	2.0	100.0	26.60	26.50	0.0130	0.00000	0.00000	0.50	1.00	0.00
4.00																
*																
C1 9406835	406835	406820	0.0	6	0.00	10.8	4.0	260.0	26.80	27.50	0.0400	2.10000	2.10000	0.00	0.00	0.00
1.00																
C1 1406840	406840	406835	0.0	1	0.00	1.5	1.5	70.0	26.40	26.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 1406840	406840	406835	0.0	1	0.00	1.5	1.5	60.0	26.80	26.78	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 9406860	406860	406840	0.0	6	0.00	10.8	4.0	280.0	27.30	26.80	0.0400	2.10000	2.10000	0.00	0.00	0.00
1.00																
C1 1406870	406870	406860	0.0	1	0.00	1.5	1.5	70.0	27.20	27.30	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 1406870	406870	406860	0.0	1	0.00	1.5	1.5	70.0	27.20	27.30	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
*																
C1 1406820	406820	406800	0.0	2	0.00	2.5	3.5	70.0	26.40	25.95	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 1406820	406820	406800	0.0	2	0.00	2.5	3.5	60.0	26.40	25.95	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 1406845	406845	406820	0.0	1	0.00	2.0	2.0	610.0	26.67	27.50	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
*																
C1 1406845	406845	406800	0.0	1	0.00	2.5	2.5	60.0	26.53	26.28	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 9406850	406850	406845	0.0	6	0.00	10.8	5.0	250.0	26.72	26.53	0.0280	3.70000	4.30000	0.00	0.00	0.00
1.00																
C1 1406855	406855	406850	0.0	1	0.00	2.5	2.5	800.0	26.66	26.72	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 9406885	406885	406855	0.0	6	0.00	10.8	5.0	500.0	26.64	26.66	0.0350	3.70000	4.30000	0.00	0.00	0.00
1.00																

Hydraulic Input Data for HCSWMM Extran Routing

C1 1406900	406900	406885	0.0	1	0.00	2.0	2.0	70.0	27.07	26.64	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 9406905	406905	406900	0.0	6	0.00	10.8	5.0	270.0	27.14	27.07	0.0280	3.70000	4.30000	0.00	0.00	0.00
1.00																
C1 1406910	406910	406905	0.0	3	7.40	2.4	3.8	600.0	27.50	27.20	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9406915	406915	406910	0.0	6	0.00	10.8	2.0	500.0	28.50	28.20	0.0440	4.00000	4.00000	0.00	0.00	0.00
1.00																
C1 1406935	406935	406905	0.0	3	7.40	2.4	3.8	100.0	27.32	27.14	0.0130	0.00000	0.00000	0.50	1.00	0.00
8.00																
C1 1406940	406940	406935	0.0	3	7.40	2.4	3.8	100.0	27.22	27.11	0.0130	0.00000	0.00000	0.50	1.00	0.00
8.00																
C1 1406950	406950	406940	0.0	3	5.10	2.0	3.2	100.0	29.42	29.10	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																

* SMALL BRANCH																
* CONNECT TO 404 SYSTEM @ 404000																
C1 9406010	406010	404000	0.0	6	0.00	10.3	15.0	990.0	21.60	20.90	0.0400	4.20000	5.00000	0.00	0.00	0.00
1.00																
C1 9406015	406015	406010	0.0	6	0.00	10.7	12.0	200.0	23.84	21.60	0.0400	1.20000	1.80000	0.00	0.00	0.00
1.00																
C1 1406020	406020	406015	0.0	2	0.00	3.0	6.0	35.0	24.25	23.84	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 9406025	406025	406020	0.0	6	0.00	10.8	5.5	720.0	24.50	24.25	0.0130	0.80000	1.30000	0.00	0.00	0.00
1.00																
C1 1406030	406030	406025	0.0	1	0.00	1.5	1.5	35.0	25.00	24.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 1406340	406340	406025	0.0	1	0.00	1.3	1.3	35.0	24.68	24.50	0.0130	0.00000	0.00000	0.50	1.00	0.00
10.00																
C1 2406340	406340	406025	0.0	1	0.00	1.3	1.3	35.0	24.68	24.50	0.0130	0.00000	0.00000	0.50	1.00	0.00
10.00																
C1 3406340	406340	406025	0.0	1	0.00	1.3	1.3	35.0	24.55	24.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																

* BLOSSOM AVE. DITCH GAGE STATION**																
* CONNECT TO 404 SYSTEM @ 404200																
C1 1406200	406200	404200	0.0	2	0.00	4.5	11.0	200.0	19.33	18.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9406210	406210	406200	0.0	6	0.00	10.0	14.0	400.0	19.80	19.33	0.0300	1.30000	1.60000	0.00	0.00	0.00
1.00																
C1 1406220	406220	406210	0.0	2	0.00	4.5	11.0	200.0	20.10	19.80	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 1406230	406230	406220	0.0	2	0.00	4.5	10.5	200.0	20.20	20.10	0.0130	0.00000	0.00000	0.50	1.00	0.00
2.00																
C1 1406360	406360	406230	0.0	2	0.00	4.5	10.5	18.0	20.90	20.20	0.0130	0.00000	0.00000	0.50	1.00	0.00
20.00																

C1 1406390	406390	406300	0.0	1	0.00	2.0	2.0	90.0	22.70	22.40	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1406380	406380	406360	0.0	3	7.40	2.4	3.8	63.0	22.40	22.30	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
C1 9406390	406390	406380	0.0	6	0.00	10.0	5.0	500.0	22.70	22.40	0.0450	0.90000	1.60000	0.00	0.00	0.00
1.00																
C1 1406365	406365	406360	0.0	3	20.50	4.0	6.3	18.0	21.60	20.90	0.0130	0.00000	0.00000	0.50	1.00	0.00
15.00																
C1 1406370	406370	406365	0.0	3	16.60	3.6	5.7	18.0	22.70	22.00	0.0130	0.00000	0.00000	0.50	1.00	0.00
15.00																
C1 1406375	406375	406370	0.0	1	0.00	3.0	3.0	18.0	23.10	23.30	0.0130	0.00000	0.00000	0.50	1.00	0.00
15.00																

C1 1406330	406330	406300	0.0	1	0.00	2.5	2.5	100.0	22.80	22.50	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9406335	406335	406330	0.0	6	0.00	10.0	14.0	500.0	23.40	22.80	0.0400	3.30000	2.60000	0.00	0.00	0.00
1.00																
C1 1406340	406340	406335	0.0	1	0.00	1.5	1.5	35.0	24.55	24.60	0.0130	0.00000	0.00000	0.50	1.00	0.00
10.00																
C1 1406345	406345	406340	0.0	1	0.00	1.3	1.3	35.0	25.10	25.15	0.0130	0.00000	0.00000	0.50	1.00	0.00
10.00																
C1 1406345	406345	406340	0.0	1	0.00	1.3	1.3	35.0	25.10	25.15	0.0130	0.00000	0.00000	0.50	1.00	0.00
10.00																

C1 1406410	406410	406400	0.0	1	0.00	1.5	1.5	100.0	23.30	24.10	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 2406410	406410	406400	0.0	1	0.00	1.5	1.5	100.0	23.30	24.10	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9406420	406420	406410	0.0	6	0.00	10.0	2.0	300.0	24.60	23.30	0.0400	6.20000	3.80000	0.00	0.00	0.00
1.00																
C1 1406450	406450	406400	0.0	1	0.00	2.3	2.3	600.0	23.50	23.55	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 2406450	406450	406400	0.0	1	0.00	2.3	2.3	100.0	23.50	23.55	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9406460	406460	406450	0.0	6	0.00	10.0	5.0	500.0	23.50	23.50	0.0440	2.90000	1.10000	0.00	0.00	0.00
1.00																

* END OF 406-SYSTEM																

Hydraulic Input Data for HCSWMM Extran Routing

C1 1407400	407400	407300	0.0	3	8.80	2.7	4.1	150.0	22.54	22.18	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 2407400	407400	407300	0.0	3	8.80	2.7	4.1	150.0	22.54	22.18	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1407500	407500	407400	0.0	3	5.10	2.0	3.2	150.0	24.54	24.34	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 2407500	407500	407400	0.0	3	5.10	2.0	3.2	150.0	24.54	24.34	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 3407500	407500	407400	0.0	3	5.10	2.0	3.2	150.0	24.54	24.34	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 9407600	407600	407500	0.0	6	0.00	8.0	20.0	920.0	25.00	24.50	0.0400	2.00000	2.00000	0.00	0.00	0.00
1.00																
C1 1407700	407700	407600	0.0	3	7.40	2.4	3.8	150.0	23.58	22.31	0.0130	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1407800	407800	407600	0.0	3	12.90	3.2	5.0	150.0	23.27	23.01	0.0130	0.00000	0.00000	0.50	1.00	0.00
5.00																
=====																
* END OF 407-SYSTEM																
=====																
=====																
* DUMMY-SYSTEM																
=====																
* 400 SYSTEM																
C1 1400001	400001	400150	0.0	1	0.00	1.0	1.0	100.0	88.00	1.90	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400001	400001	400630	0.0	1	0.00	3.0	3.0	100.0	88.00	4.30	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400001	400001	400610	0.0	1	0.00	5.0	5.0	100.0	88.00	1.50	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400001	400001	400670	0.0	1	0.00	1.0	1.0	100.0	88.00	6.50	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
* 401 SYSTEM																
C1 1400001	400001	401180	0.0	1	0.00	5.0	5.0	100.0	88.00	6.20	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400001	400001	401190	0.0	1	0.00	1.0	1.0	100.0	88.00	6.90	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400001	400001	401850	0.0	1	0.00	1.0	1.0	100.0	88.00	4.50	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400001	400001	401750	0.0	1	0.00	1.0	1.0	100.0	88.00	4.50	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400001	400001	401654	0.0	1	0.00	1.0	1.0	100.0	88.00	4.70	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400001	400001	401656	0.0	1	0.00	1.0	1.0	100.0	88.00	4.20	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400002	400002	401632	0.0	1	0.00	1.0	1.0	100.0	88.00	5.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400002	400002	401500	0.0	1	0.00	1.0	1.0	100.0	88.00	4.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400002	400002	401642	0.0	1	0.00	1.0	1.0	100.0	88.00	3.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
* 402 SYSTEM																
C1 1400002	400002	402360	0.0	1	0.00	1.0	1.0	100.0	88.00	7.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400002	400002	402394	0.0	1	0.00	10.0	10.0	100.0	88.00	3.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400002	400002	402400	0.0	1	0.00	5.0	5.0	100.0	88.00	2.50	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400002	400002	402900	0.0	1	0.00	1.0	1.0	100.0	88.00	8.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
* 403 SYSTEM																
C1 1400002	400002	403220	0.0	1	0.00	3.0	3.0	100.0	88.00	12.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400002	400002	403250	0.0	1	0.00	3.0	3.0	100.0	88.00	13.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400002	400002	403570	0.0	1	0.00	7.0	7.0	100.0	88.00	16.29	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400003	400003	403560	0.0	1	0.00	5.0	5.0	100.0	88.00	13.50	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400003	400003	403210	0.0	1	0.00	5.0	5.0	100.0	88.00	7.50	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400003	400003	403240	0.0	1	0.00	5.0	5.0	100.0	88.00	9.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400003	400003	403488	0.0	1	0.00	5.0	5.0	100.0	88.00	17.90	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400003	400003	403180	0.0	1	0.00	1.0	1.0	100.0	88.00	14.50	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400003	400003	403540	0.0	1	0.00	1.0	1.0	100.0	88.00	21.94	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400003	400003	403520	0.0	1	0.00	1.0	1.0	100.0	88.00	19.03	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400003	400003	403510	0.0	1	0.00	1.0	1.0	100.0	88.00	12.81	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400003	400003	403425	0.0	1	0.00	1.0	1.0	100.0	88.00	17.25	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400003	400003	403435	0.0	1	0.00	1.0	1.0	100.0	88.00	22.51	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400004	400004	403445	0.0	1	0.00	1.0	1.0	100.0	88.00	15.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400004	400004	403450	0.0	1	0.00	1.0	1.0	100.0	88.00	21.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
* 404 SYSTEM																
C1 1400004	400004	403462	0.0	1	0.00	1.0	1.0	100.0	88.00	17.00	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400004	400004	403370	0.0	1	0.00	1.0	1.0	100.0	88.00	20.43	0.0240	0.00000	0.00000	0.50	1.00	0.00
1.00																
C1 1400004	400004	403170	0.0	1	0.00	1.0	1.0	100.0	88.00	10.20	0.0240	0.0				

Hydraulic Input Data for HCSWMM Extran Routing

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C1 1400004 400004 403110 0.0 1 0.00 1.0 1.0 100.0 88.00 14.18 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400004 400004 403720 0.0 1 0.00 1.0 1.0 100.0 88.00 24.00 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400004 400004 403465 0.0 1 0.00 1.0 1.0 100.0 88.00 20.35 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400004 400004 403070 0.0 1 0.00 1.0 1.0 100.0 88.00 13.80 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400005 400005 403530 0.0 1 0.00 1.0 1.0 100.0 88.00 20.57 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400005 400005 403270 0.0 1 0.00 1.0 1.0 100.0 88.00 13.50 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
*
* 404 SYSTEM
C1 1400005 400005 404010 0.0 1 0.00 1.0 1.0 100.0 88.00 18.50 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400005 400005 404830 0.0 1 0.00 5.0 5.0 100.0 88.00 35.00 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400005 400005 404460 0.0 1 0.00 5.0 5.0 100.0 88.00 32.00 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400005 400005 404440 0.0 1 0.00 5.0 5.0 100.0 88.00 29.00 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400005 400005 404308 0.0 1 0.00 5.0 5.0 100.0 88.00 24.00 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400005 400005 404650 0.0 1 0.00 1.0 1.0 100.0 88.00 32.60 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400005 400005 404470 0.0 1 0.00 1.0 1.0 100.0 88.00 35.84 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
*
* 405 SYSTEM
C1 1400005 400005 405555 0.0 1 0.00 1.0 1.0 100.0 88.00 17.10 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400006 400006 405110 0.0 1 0.00 1.0 1.0 100.0 88.00 7.18 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400006 400006 405150 0.0 1 0.00 1.0 1.0 100.0 88.00 9.30 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
C1 1400006 400006 405180 0.0 1 0.00 1.0 1.0 100.0 88.00 14.17 0.0240 0.00000 0.00000 0.50 1.00 0.00
1.00
*=====
* END OF DUMMY-SYSTEM
*=====
*=====
* NATURAL CHANNEL DATA
*=====
*=====
* 400-system
*=====
C2 0.05 0.05 0.025
C3 400160 9 100.00 137.00 0.00 0.00 900.0 0.00 0.00
C4 17.40 50.00
7.40 50.10
6.30 100.00
1.50 110.00
0.30 117.00
C4 1.40 128.00
5.40 137.00
7.60 187.00
17.60 187.10
*
*# add channel 400180
C2 0.05 0.05 0.025
C3 400180 9 150.00 174.00 0.00 0.00 200.0 0.00 0.00
C4 17.34 100.0
7.34 100.1
8.13 150.00
1.80 151.00
0.40 160.00
C4 2.50 173.00
8.08 174.00
9.04 224.00
19.04 224.10
*
C2 0.05 0.05 0.025
C3 400190 9 100.00 137.00 0.00 0.00 400.0 0.00 0.00
C4 17.40 50.00
7.40 50.10
6.30 100.00
1.50 110.00
0.30 117.00
C4 1.40 128.00
5.40 137.00
7.60 187.00
17.60 187.10
*
*# Use 400590 survey
C2 0.05 0.05 0.025
C3 400390 11 44.00 70.00 0.00 0.00 1050.0 0.00 0.00
C4 17.10 10.000
7.10 10.10
7.10 30.00
6.30 44.000
1.90 51.000
C4 0.50 57.000
1.70 64.000
3.70 68.000
5.600 70.000
5.6 89.9
C4 15.6 90.0
*
*# Update with '95 survey
C2 0.05 0.05 0.025
C3 400590 11 44.00 70.00 0.00 0.00 1050.0 0.00 0.00

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Hydraulic Input Data for HCSWMM Extran Routing

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C4      17.10  10.000
        7.10  10.10
        7.10  30.00
        6.30  44.000
        1.90  51.000
C4      0.50  57.000
        1.70  64.000
        3.70  68.000
        5.600 70.000
        5.6   89.9
C4      15.6   90.0
*
*#Update 400800 with survey
C2 0.05 0.05 0.025
C3 400800 11 46.00 66.00 0.00 0.00 700.0 0.00 0.00
C4      18.00 10.000
        8.00 10.10
        8.00 30.00
        7.20 46.000
        2.30 53.000
C4      1.60 56.000
        2.20 60.000
        6.80 66.000
        8.100 70.000
        8.1   89.9
C4      18.1   90.0
*=====
* 401-system
*=====
C2 0.030 0.030 0.025
C3 401000 7 0.00 74.00 0.00 0.00 300.0 0.00 0.00
C4      8.00 -50.00
        4.26 0.00
        -2.40 20.00
        -6.80 36.00
        -2.70 72.00
C4      4.20 74.00
        7.50 124.00
C2 0.030 0.030 0.025
C3 401100 10 0.00 89.00 0.00 0.00 3200.0 0.00 0.00
C4      7.75 -50.00
        8.13 0.00
        0.15 4.00
        -0.30 20.00
        -1.00 30.00
C4      -1.10 40.00
        -3.60 55.00
        -6.20 70.00
        -6.70 85.00
        8.19 89.00
*
C2 0.045 0.045 0.025
C3 401200 7 0.00 118.00 0.00 0.00 1790.0 0.00 0.00
C4      10.50 -1.00
        4.50 0.00
        0.20 1.00
        -1.60 45.00
        0.20 108.00
C4      5.90 118.00
        10.90 119.00
C2 0.045 0.045 0.025
C3 401300 7 0.00 118.00 0.00 0.00 350.0 0.00 0.00
C4      10.50 -1.00
        4.50 0.00
        0.20 1.00
        -1.60 45.00
        0.20 108.00
C4      5.90 118.00
        10.90 119.00
C2 0.05 0.05 0.025
C3 401400 9 50.00 125.00 0.00 0.00 1000.0 0.00 0.00
C4      11.20 -200.00
        6.20 00.00
        4.80 50.00
        1.30 65.00
        -2.70 90.00
C4      1.10 121.00
        3.30 125.00
        3.40 175.00
        8.40 375.00
*
C2 0.05 0.05 0.025
C3 401600 12 1100.00 1171.00 0.00 0.00 1200.0 0.00 0.00
* SURVEY POINT H
C4      17.8 1000.0
        7.8 1000.1
        7.6 1050.0
        5.8 1100.0
        1.6 1112.0
C4      1.1 1131.0
        -2.3 1136.0
        -2.5 1152.0
        -1.2 1165.0
        3.3 1171.0
C4      2.0 1207.0
        15.6 1232.0
C2 0.05 0.05 0.025
C3 401700 9 200.00 248.00 0.00 0.00 1500.0 0.00 0.00
C4      17.90 150.00
        7.90 150.10
        7.80 200.00
        0.80 212.00

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Hydraulic Input Data for HCSWMM Extran Routing

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-1.80 227.00
C4 0.60 240.00
7.30 248.00
6.70 288.00
16.70 288.10
C2 0.05 0.05 0.025
C3 401800 9 200.00 310.00 0.00 0.00 550.0 0.00 0.00
C4 17.00 150.00
7.00 150.10
6.50 200.00
1.10 211.00
-2.90 225.00
C4 0.10 240.00
3.00 260.00
6.10 310.00
16.10 310.10
C2 0.05 0.05 0.025
C3 401700 12 235.00 270.00 0.00 0.00 1200.0 0.00 0.00
C4 12.70 185.00
2.70 185.10
2.80 235.00
1.57 237.00
0.20 240.00
C4 -1.10 244.00
-1.10 245.00
0.70 259.00
1.57 261.00
5.90 270.00
C4 7.20 320.00
17.20 320.10
C2 0.05 0.05 0.025
C3 401800 12 235.00 270.00 0.00 0.00 550.0 0.00 0.00
C4 12.70 185.00
2.70 185.10
2.80 235.00
1.57 237.00
0.20 240.00
C4 -1.10 244.00
-1.10 245.00
0.70 259.00
1.57 261.00
5.90 270.00
C4 7.20 320.00
17.20 320.10
C2 0.05 0.05 0.025
C3 401900 11 51.10 122.10 0.00 0.00 250.0 0.00 0.00
C4 18.55 0.0
8.55 0.10
8.40 50.10
7.00 51.10
1.20 70.1
C4 -1.70 87.10
0.20 100.1
3.80 120.1
8.30 122.1
7.3 172.1
C4 17.3 172.2
*
C2 0.05 0.05 0.025
C3 401210 8 110.00 140.00 0.00 0.00 1100.0 0.00 0.00
C4 16.60 100.00
6.60 100.10
6.60 110.00
-2.40 117.00
-2.40 133.00
C4 6.60 140.00
6.60 150.00
16.10 150.10
*
C2 0.05 0.05 0.025
C3 401310 8 110.00 140.00 0.00 0.00 1100.0 0.00 0.00
C4 16.60 100.00
6.60 100.10
6.60 110.00
-2.40 117.00
-2.40 133.00
C4 6.60 140.00
6.60 150.00
16.10 150.10
C2 0.05 0.05 0.025
C3 401330 8 110.00 140.00 0.00 0.00 1050.0 0.00 0.00
C4 16.60 100.00
6.60 100.10
6.60 110.00
-2.40 117.00
-2.40 133.00
C4 6.60 140.00
6.60 150.00
16.10 150.10
*
* SURVEY # 8
C2 0.05 0.05 0.025
C3 401410 9 50.00 80.00 0.00 0.00 1080.0 0.00 0.00
C4 9.60 -200.00
4.60 00.00
3.50 50.00
-0.30 59.00
-1.30 63.00
C4 -0.50 70.00
7.50 80.00
4.30 130.00
9.30 330.00

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Hydraulic Input Data for HCSWMM Extran Routing

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* SURVEY #10
C2 0.05 0.05 0.025
C3 401430 9 50.00 75.00 0.00 0.00 1000.0 0.00 0.00
C4 8.60 -200.00
   3.60 0.00
   4.70 50.00
   -0.20 55.00
   1.40 61.00
C4 2.00 67.00
   4.90 75.00
   5.80 125.00
   10.80 325.00
* SURVEY #12
C2 0.05 0.05 0.025
C3 401440 9 50.00 94.00 0.00 0.00 1000.0 0.00 0.00
C4 12.90 -200.00
   7.90 0.00
   6.00 50.00
   2.40 65.00
   2.90 74.00
C4 1.60 82.00
   7.60 94.00
   8.40 144.00
   13.40 244.00
*-----*
C2 0.05 0.05 0.025
C3 401610 9 180.00 260.00 0.00 0.00 700.0 0.00 0.00
C4 14.30 180.00
   4.30 180.10
   2.90 230.00
   1.70 237.00
   -0.40 244.00
C4 1.40 250.00
   5.30 260.00
   8.50 310.00
   18.50 310.10
C2 0.05 0.05 0.025
C3 401630 9 180.10 260.00 0.00 0.00 750.0 0.00 0.00
C4 14.30 180.00
   4.30 180.10
   2.90 230.00
   1.70 237.00
   -0.40 244.00
C4 1.40 250.00
   5.30 260.00
   8.50 310.00
   18.50 310.10
C2 0.05 0.05 0.025
C3 401660 9 200.00 230.00 0.00 0.00 870.0 0.00 0.00
C4 20.50 150.00
   10.50 150.10
   11.30 200.00
   3.30 210.00
   2.80 214.00
C4 3.50 218.00
   8.90 230.00
   9.00 280.00
   19.00 280.10
C2 0.05 0.05 0.025
C3 401680 9 200.00 250.00 0.00 0.00 800.0 0.00 0.00
C4 19.80 150.00
   9.80 150.10
   9.30 200.00
   5.40 209.00
   4.60 214.00
C4 5.20 219.00
   8.10 231.00
   9.50 250.00
   19.50 250.10
C2 0.05 0.05 0.025
C3 401602 9 230.00 260.00 0.00 0.00 550.0 0.00 0.00
C4 17.80 180.00
   7.80 180.10
   7.30 230.00
   4.90 240.00
   4.30 245.00
C4 5.10 250.00
   7.90 260.00
   7.90 310.00
   17.90 310.10
C2 0.05 0.05 0.025
C3 401652 9 150.00 260.00 0.00 0.00 800.0 0.00 0.00
C4 16.00 150.00
   6.00 150.10
   3.60 200.00
   2.20 206.00
   -1.60 214.00
C4 2.10 221.00
   3.10 224.00
   8.90 260.00
   18.90 260.10
C2 0.05 0.05 0.025
C3 401662 9 222.00 244.00 0.00 0.00 900.0 0.00 0.00
C4 18.60 172.00
   8.60 172.10
   7.00 222.00
   3.90 232.00
   3.30 235.00
C4 4.00 238.00
   7.70 244.00
   8.40 294.00
   18.40 294.10

```

Hydraulic Input Data for HCSWMM Extran Routing

```

*=====
*      402-system
*      ADD XS 402000 (REPLACE BRIDGE W/SURVEY @ BRIDGE)
C2 0.05 0.05 0.025
C3 402000      9      25.10      84.10      0.00      0.00      250.0 0.00 0.00
C4      19.5      0.0
      9.50      0.10
      9.00      25.10
      1.00      40.10
      -0.6      56.1
C4      0.50      73.10
      9.30      84.10
      9.60      99.1
      19.60      99.2
C2 0.05 0.05 0.025
C3 402080     10     225.00     273.00      0.00      0.00     400.0 0.00 0.00
C4      18.6     218.9
      8.60     219.00
      8.60     225.00
      1.00     237.00
      -0.90     253.00
C4     -0.20     271.00
      5.70     273.00
      6.30     278.0
      6.3      298.0
      16.3     298.1
* CHANGE XS TO REPRESENT BERM
C2 0.05 0.05 0.025
C3 402090      9     325.00     386.00      0.00      0.00     700.0 0.00 0.00
C4      17.7     316.9
      7.70     317.00
      7.70     325.00
      1.30     335.00
      0.60     354.0
C4      0.4      371.0
      9.6      386.0
      8.9      411.0
      18.9     411.1
C2 0.05 0.05 0.025
C3 402100      9     325.00     386.00      0.00      0.00     400.0 0.00 0.00
C4      17.4     299.9
      7.40     300.00
      7.70     325.00
      1.30     335.00
      0.60     354.0
C4      0.4      371.0
      9.6      386.0
      8.9      411.0
      18.9     411.1
C2 0.05 0.05 0.025
C3 402200      9     250.00     334.00      0.00      0.00     1250.0 0.00 0.00
C4      16.10     200.00
      6.10     200.10
      5.70     250.00
      -1.30     258.00
      -1.80     268.00
C4     -0.10     278.00
      3.60     284.00
      8.80     334.00
      18.80     334.10
C2 0.05 0.05 0.025
C3 402290      9     245.00     300.00      0.00      0.00     550.0 0.00 0.00
C4      18.10     200.0
      8.10     200.10
      7.60     245.00
      1.30     260.00
      -0.30     271.00
C4      2.10     280.00
      11.10     300.00
      11.20     350.00
      21.20     350.10
C2 0.05 0.05 0.025
C3 402340      9     257.00     314.00      0.00      0.00     1650.0 0.00 0.00
C4      24.10     207.00
      14.10     207.10
      13.50     257.00
      3.30     272.00
      0.90     287.00
C4      3.60     302.00
      10.30     314.00
      11.90     364.00
      21.90     364.10
C2 0.05 0.05 0.025
C3 402358      9     257.00     314.00      0.00      0.00     830.0 0.00 0.00
C4      24.10     207.00
      14.10     207.10
      13.50     257.00
      3.30     272.00
      0.90     287.00
C4      3.60     302.00
      10.30     314.00
      11.90     364.00
      21.90     364.10
*
C2 0.05 0.05 0.025
C3 402220      9     200.00     237.00      0.00      0.00     250.0 0.00 0.00
C4      22.10     150.00
      12.10     150.10
      9.90     200.00
      4.20     211.00
      2.60     215.00
C4      4.20     219.00

```


Hydraulic Input Data for HCSWMM Extran Routing

	9.90	237.00							
	11.10	287.00							
	21.10	287.10							
C2	0.05	0.05	0.025						
C3	402230			9	200.00	237.00	0.00	0.00	800.0 0.00 0.00
C4	22.10	150.00							
	12.10	150.10							
	9.90	200.00							
	4.20	211.00							
	2.60	215.00							
C4	4.20	219.00							
	9.90	237.00							
	11.10	287.00							
	21.10	287.10							
C2	0.05	0.05	0.025						
C3	402238			9	186.00	210.00	0.00	0.00	570.0 0.00 0.00
C4	23.40	155.00							
	13.40	155.10							
	12.10	186.00							
	7.80	194.00							
	7.40	199.00							
C4	8.00	203.00							
	12.10	210.00							
	12.50	260.00							
	22.50	260.10							
C2	0.05	0.05	0.025						
C3	402250			9	186.00	210.00	0.00	0.00	740.0 0.00 0.00
C4	23.40	155.00							
	13.40	155.10							
	12.10	186.00							
	7.80	194.00							
	7.40	199.00							
C4	8.00	203.00							
	12.10	210.00							
	12.50	260.00							
	22.50	260.10							
C2	0.05	0.05	0.025						
C3	402260			9	224.00	250.00	0.00	0.00	450.0 0.00 0.00
C4	24.40	175.00							
	14.40	175.10							
	14.50	224.00							
	7.60	229.00							
	6.60	236.00							
C4	7.50	239.00							
	14.60	250.00							
	15.20	300.00							
	25.20	300.10							
C2	0.05	0.05	0.025						
C3	402280			9	200.00	228.00	0.00	0.00	800.0 0.00 0.00
C4	25.10	150.00							
	15.10	150.10							
	15.20	200.00							
	8.70	209.00							
	8.00	211.00							
C4	8.40	214.00							
	15.70	228.00							
	16.40	278.00							
	26.40	278.10							
C2	0.05	0.05	0.025						
C3	402285			9	224.00	250.00	0.00	0.00	650.0 0.00 0.00
C4	24.40	175.00							
	14.40	175.10							
	14.50	224.00							
	7.60	229.00							
	6.60	236.00							
C4	7.50	239.00							
	14.60	250.00							
	15.20	300.00							
	25.20	300.10							
*									
C2	0.05	0.05	0.025						
C3	402320			9	240.00	280.00	0.00	0.00	1300.0 0.00 0.00
C4	24.70	190.00							
	14.70	190.10							
	14.40	240.00							
	8.60	255.00							
	7.40	261.00							
C4	8.80	268.00							
	15.20	280.00							
	15.60	330.00							
	25.60	330.10							

C2	0.05	0.05	0.025						
C3	402398			9	244.00	290.00	0.00	0.00	860.0 0.00 0.00
C4	19.10	195.00							
	9.10	195.10							
	8.10	244.00							
	0.70	260.00							
	-0.50	267.00							
C4	0.50	274.00							
	8.10	290.00							
	8.60	340.00							
	18.60	340.10							
*									
C2	0.05	0.05	0.025						
C3	402518			9	175.00	200.00	0.00	0.00	1130.0 0.00 0.00
C4	18.20	150.00							
	8.20	150.10							
	8.50	175.00							
	2.70	179.00							
	2.50	184.00							
C4	2.60	190.00							

Hydraulic Input Data for HCSWMM Extran Routing

```

    9.50 200.00
    9.90 250.00
    19.90 250.10
C2 0.05 0.05 0.025
C3 402600 9 235.00 270.00 0.00 0.00 1400.0 0.00 0.00
C4 16.40 185.00
    6.40 185.10
    6.50 235.00
    1.00 249.00
    0.10 254.00
C4 1.10 259.00
    7.50 270.00
    4.90 320.00
    14.90 320.10
C2 0.05 0.05 0.025
C3 402620 9 226.00 252.00 0.00 0.00 1160.0 0.00 0.00
C4 19.10 176.00
    9.10 176.10
    8.80 226.00
    3.00 236.00
    1.40 239.00
C4 2.90 242.00
    9.90 252.00
    4.60 302.00
    14.60 302.10
C2 0.05 0.05 0.025
C3 402640 9 226.00 252.00 0.00 0.00 650.0 0.00 0.00
C4 19.10 176.00
    9.10 176.10
    8.80 226.00
    3.00 236.00
    1.40 239.00
C4 2.90 242.00
    9.90 252.00
    4.60 302.00
    14.60 302.10
C2 0.05 0.05 0.025
C3 402698 11 247.00 277.00 0.00 0.00 450.0 0.00 0.00
C4 18.70 189.90
    8.70 190.00
    8.70 229.00
    8.20 247.00
    1.50 256.00
C4 -0.1 262.00
    1.00 268.00
    7.00 277.00
    8.40 289.00
    8.4 330.0
C4 18.4 330.1
*-----*
* 1999 PUMP STATION
*-----*
C2 0.025 0.025 0.025
C3 402800 9 240.00 270.00 0.00 0.00 610.0 0.00 0.00
C4 18.80 190.00
    8.80 190.10
    8.80 240.00
    0.00 241.00
    0.00 269.00
C4 8.80 270.00
    8.80 280.00
    8.80 330.00
    18.80 330.10
*C2 0.04 0.04 0.04
*C3 402800 9 240.00 280.00 0.00 0.00 650.0 0.00 0.00
*C4 18.80 190.00
* 8.80 190.10
* 8.80 240.00
* 1.20 253.00
* -0.30 262.00
*C4 1.40 270.00
* 8.10 280.00
* 8.80 330.00
* 18.80 330.10
*-----*
C2 0.05 0.05 0.025
C3 402818 11 205.00 226.00 0.00 0.00 650.0 0.00 0.00
C4 18.40 149.90
    8.40 150.00
    8.40 202.00
    7.80 205.00
    2.70 212.00
C4 2.20 215.00
    3.00 219.00
    8.40 226.00
    8.60 239.10
    8.6 285.1
C4 18.6 285.2
C2 0.05 0.05 0.025
C3 402828 11 201.00 232.00 0.00 0.00 750.0 0.00 0.00
C4 18.40 149.90
    8.40 150.00
    8.40 194.00
    7.90 201.00
    2.40 209.00
C4 1.40 215.00
    2.30 222.00
    8.20 232.00
    8.40 234.00
    8.4 285.1
C4 18.4 285.2
C2 0.05 0.05 0.025

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Hydraulic Input Data for HCSWMM Extran Routing

C3	402840	8	300.00	326.00	0.00	0.00	1050.0	0.00	0.00
C4	18.00 280.00								
	8.00 280.10								
	7.90 300.00								
	2.40 308.00								
	3.10 316.00								
C4	7.50 326.00								
	8.25 350.00								
	18.25 350.10								
C2	0.05 0.05 0.025								
C3	402850	9	230.00	260.00	0.00	0.00	1300.0	0.00	0.00
C4	18.20 180.00								
	8.20 180.10								
	8.10 230.00								
	3.30 241.00								
	3.10 246.00								
C4	3.50 249.00								
	8.50 260.00								
	9.30 310.00								
	19.30 310.10								
C2	0.05 0.05 0.025								
C3	402870	9	200.00	226.00	0.00	0.00	680.0	0.00	0.00
C4	19.0 150.00								
	9.00 150.10								
	8.60 200.00								
	3.90 210.00								
	3.80 213.00								
C4	3.80 216.00								
	8.70 226.00								
	8.50 276.00								
	18.5 276.10								
C2	0.05 0.05 0.025								
C3	402880	9	200.00	226.00	0.00	0.00	1150.0	0.00	0.00
C4	19.00 150.00								
	9.00 150.10								
	8.60 200.00								
	3.90 210.00								
	3.80 213.00								
C4	3.80 216.00								
	8.70 226.00								
	8.50 276.00								
	18.50 276.10								
*									
C2	0.05 0.05 0.025								
C3	402920	12	104.60	162.10	0.00	0.00	1000.0	0.00	0.00
C4	21.00 50.00								
	11.00 50.10								
	9.50 100.00								
	10.70 104.60								
C4	3.70 121.60								
	0.40 131.60								
	-0.70 139.90								
	0.40 148.10								
	9.50 162.10								
	9.40 173.70								
C4	11.00 190.00								
	21.00 190.10								
*									
C2	0.05 0.05 0.025								
C3	402940	10	110.50	158.50	0.00	0.00	1500.0	0.00	0.00
C4	19.80 70.00								
	12.00 70.10								
	9.80 100.0								
	9.70 110.50								
	2.80 124.50								
C4	2.10 133.50								
	2.90 142.50								
	11.20 158.50								
	11.00 162.00								
	21.00 162.10								
*									
=====									
* 403-system									
=====									
*									
WEST HENRY CANAL SYSTEM									
*									
C2	0.05 0.05 0.025								
C3	403000	10	100.00	159.00	0.00	0.00	514.0	0.00	0.00
C4	23.00 70.00								
	13.00 70.10								
	13.00 100.00								
	5.700 119.00								
	3.700 131.50								
C4	2.600 137.50								
	3.900 143.50								
	11.20 159.00								
	11.80 164.50								
	21.80 164.51								
*									
C2	0.05 0.05 0.025								
C3	403100	10	100.00	159.00	0.00	0.00	500.0	0.00	0.00
C4	23.00 70.00								
	13.00 70.10								
	13.00 100.00								
	5.70 119.00								
	3.70 131.50								
C4	2.60 137.50								
	3.90 143.50								
	11.20 159.00								
	11.80 164.50								
	21.80 164.60								

Hydraulic Input Data for HCSWMM Extran Routing

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*
C2 0.05 0.05 0.025
C3 403160 12 108.50 171.50 0.00 0.00 1050.0 0.00 0.00
C4 24.70 80.00
    14.70 80.10
    14.70 100.10
    15.50 108.50
    4.60 124.00
C4 2.60 132.50
    4.70 141.00
    8.80 159.00
    14.70 171.50
    15.90 176.50
C4 25.90 176.60
    35.90 176.70
*
*
C2 0.05 0.05 0.025
C3 403300 10 110.00 159.00 0.00 0.00 950.0 0.00 0.00
C4 25.00 104.00
    20.00 105.00
    19.80 110.00
    7.30 130.00
    5.30 136.00
C4 7.40 142.00
    17.40 159.00
    17.50 171.00
    18.50 221.00
    23.50 221.10
*
*
C2 0.05 0.05 0.025
C3 403400 9 108.00 164.80 0.00 0.00 1270.0 0.00 0.00
C4 30.70 100.00
    25.70 100.10
    25.40 108.00
    8.50 132.30
    7.60 138.60
C4 8.60 144.80
    24.20 164.80
    24.90 181.80
    39.90 181.90
*
*
C2 0.05 0.05 0.025
C3 403500 9 107.10 172.30 0.00 0.00 750.0 0.00 0.00
C4 33.80 100.0
    23.90 100.10
    23.80 107.10
    9.30 137.30
    8.80 142.80
C4 9.50 148.30
    25.00 172.30
    24.20 177.30
    34.20 177.40
*
*
C2 0.05 0.05 0.025
C3 403548 9 107.10 172.30 0.00 0.00 530.0 0.00 0.00
C4 33.80 100.0
    23.80 100.10
    23.80 107.10
    9.30 137.30
    8.80 142.80
C4 9.50 148.30
    25.00 172.30
    24.20 177.30
    34.20 177.40
*
*
C2 0.05 0.05 0.025
C3 403600 9 118.50 184.20 0.00 0.00 800.0 0.00 0.00
C4 35.30 100.0
    25.30 100.10
    25.90 118.50
    12.10 143.70
    11.60 152.70
C4 12.10 161.70
    25.70 184.20
    26.00 194.80
    36.00 194.9
*
*
C2 0.05 0.05 0.025
C3 403650 9 118.50 184.20 0.00 0.00 780.0 0.00 0.00
C4 35.30 100.0
    25.30 100.10
    25.90 118.50
    12.10 143.70
    11.60 152.70
C4 12.10 161.70
    25.70 184.20
    26.00 194.80
    36.00 194.90
*
*
C2 0.05 0.05 0.025
C3 403700 9 118.50 184.20 0.00 0.00 1050.0 0.00 0.00
C4 35.30 100.00
    23.30 100.10
    25.90 118.50
    12.10 143.70
    11.60 152.70
C4 12.10 161.70
    25.70 184.20
    26.00 194.80
    36.00 194.90
*

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Hydraulic Input Data for HCSWMM Extran Routing

C2	0.05	0.05	0.025						
C3	403800	9	125.00	185.00	0.00	0.00	230.0	0.00	0.00
C4	36.50	100.00							
	26.50	100.10							
	26.40	125.00							
	16.70	142.50							
	15.40	155.00							
C4	16.90	167.50							
	24.60	185.00							
	25.70	210.00							
	35.70	210.00							
*									
C2	0.05	0.05	0.025						
C3	403898	9	125.00	185.00	0.00	0.00	1580.0	0.00	0.00
C4	36.50	100.0							
	26.50	100.10							
	26.40	125.0							
	16.70	142.50							
	15.40	155.00							
C4	16.90	167.50							
	24.60	185.00							
	25.70	210.00							
	35.70	210.1							
*									

C2	0.05	0.05	0.025						
C3	403125	9	235.00	270.00	0.00	0.00	950.0	0.00	0.00
C4	27.50	209.90							
	17.50	210.00							
	16.60	235.00							
	8.80	247.00							
	8.50	252.00							
C4	8.70	256.00							
	16.30	270.00							
	16.90	320.00							
	26.90	370.10							
*									
C2	0.05	0.05	0.025						
C3	403140	9	235.00	270.00	0.00	0.00	1300.0	0.00	0.00
C4	27.50	209.9							
	17.50	210.00							
	16.60	235.00							
	8.80	247.00							
	8.50	252.00							
C4	8.70	256.00							
	16.30	270.00							
	16.90	320.00							
	26.90	320.10							
C2	0.05	0.05	0.025						
C3	403406	8	200.00	226.00	0.00	0.00	1250.0	0.00	0.00
C4	33.60	150.00							
	23.60	150.10							
	22.90	200.00							
	16.30	211.00							
	15.60	215.00							
C4	23.10	226.00							
	23.50	251.00							
	33.50	251.10							
*									
C2	0.05	0.05	0.025						
C3	403420	10	130.00	160.00	0.00	0.00	530.0	0.00	0.00
C4	35.00	80.00							
	25.00	80.10							
	24.90	105.00							
	24.70	130.00							
	14.90	141.00							
C4	14.20	144.00							
	14.30	147.00							
	24.30	160.00							
	24.48	210.00							
	34.40	210.1							
C2	0.05	0.05	0.025						
C3	403430	10	130.00	160.00	0.00	0.00	350.0	0.00	0.00
C4	35.00	80.00							
	25.00	80.10							
	24.90	105.00							
	24.70	130.00							
	14.90	141.00							
C4	14.20	144.00							
	14.30	147.00							
	24.30	160.00							
	24.48	210.00							
	34.40	210.10							
C2	0.05	0.05	0.025						
C3	403460	9	150.00	176.00	0.00	0.00	1450.0	0.00	0.00
C4	31.13	100.00							
	21.13	100.10							
	22.50	150.00							
	18.70	158.00							
	18.00	162.00							
C4	18.30	164.00							
	25.20	176.00							
	24.70	200.00							
	34.70	200.10							
C2	0.05	0.05	0.025						
C3	403606	9	200.00	281.00	0.00	0.00	1320.0	0.00	0.00
C4	39.50	200.00							
	29.50	200.10							
	22.70	214.00							
	21.10	216.00							
	22.10	218.00							
C4	21.80	231.00							

Hydraulic Input Data for HCSWMM Extran Routing

	28.60	281.00							
	28.40	331.00							
	38.40	331.00							
C2	0.05	0.05	0.025						
C3	403710	9		115.00	148.00	0.00	0.00	1000.0	0.00 0.00
C4	40.10	100.0							
	30.10	100.10							
	29.30	103.00							
	29.10	115.00							
	21.90	126.00							
C4	21.40	134.00							
	22.20	140.00							
	25.70	148.00							
	35.70	148.10							
C2	0.05	0.05	0.025						
C3	403730	10		115.00	146.00	0.00	0.00	1500.0	0.00 0.00
C4	41.90	100.00							
	31.90	100.10							
	31.10	102.00							
	30.70	115.00							
	25.00	127.00							
C4	23.90	132.00							
	24.90	136.00							
	30.30	146.00							
	30.30	196.00							
	40.30	196.10							

C2	0.05	0.05	0.025						
C3	403860	10		165.00	192.00	0.00	0.00	1550.0	0.00 0.00
C4	41.76	150.10							
	31.76	150.10							
	29.56	165.00							
	23.56	176.00							
	23.56	180.00							
C4	24.56	185.00							
	29.86	192.00							
	31.26	199.00							
	31.96	249.00							
	41.96	249.10							

* 404 SYSTEM EAST HENRY CANAL SYSTEM									

C2	0.05	0.05	0.025						
C3	404000	10		132.00	190.00	0.00	0.00	650.0	0.00 0.00
C4	37.97	100.0							
	27.97	100.10							
	27.95	122.00							
	27.60	132.00							
	19.40	145.00							
C4	17.40	161.00							
	17.90	176.50							
	27.80	190.00							
	28.40	200.00							
	38.40	200.10							

C2	0.05	0.05	0.025						
C3	404098	10		132.00	190.00	0.00	0.00	1200.0	0.00 0.00
C4	37.97	100.0							
	27.97	100.10							
	27.95	122.00							
	27.60	132.00							
	19.40	145.50							
C4	17.40	161.00							
	17.90	176.50							
	27.80	190.00							
	28.40	200.00							
	38.40	200.10							
C2	0.05	0.05	0.025						
C3	404200	9		127.50	184.50	0.00	0.00	1175.0	0.00 0.00
C4	38.45	100.00							
	28.45	100.10							
	28.40	120.50							
	28.50	127.50							
	20.30	142.50							
C4	18.70	166.50							
	28.20	184.50							
	28.30	200.00							
	38.30	200.10							
C2	0.05	0.05	0.025						
C3	404298	9		128.00	187.00	0.00	0.00	900.0	0.00 0.00
C4	38.77	100.00							
	28.77	100.10							
	28.85	120.00							
	28.40	128.00							
	22.10	135.50							
C4	19.70	174.50							
	28.50	187.00							
	28.40	200.00							
	38.40	200.10							
*# This reach of channel is concrete									
C2	0.030	0.030	0.015						
C3	404400	10		16.50	43.50	0.00	0.00	600.0	0.00 0.00
C4	34.17	-50.00							
	29.17	0.00							
	28.17	13.50							
	26.52	16.50							
	18.42	25.00							
C4	18.42	35.00							
	26.52	43.50							
	28.77	46.50							
	29.71	60.00							

Hydraulic Input Data for HCSWMM Extran Routing

```

34.71  110.00
*
C2 0.05 0.05 0.025
C3 404600 9 111.00 144.00 0.00 0.00 1140.0 0.00 0.00
C4 39.90 100.0
   29.90 100.10
   28.70 111.0
   22.70 125.0
   22.00 130.25
C4 23.10 135.50
   29.00 144.0
   20.30 155.3
   39.30 155.40
*
C2 0.05 0.05 0.025
C3 404698 7 125.00 157.50 0.00 0.00 850.0 0.00 0.00
C4 35.98 100.0
   25.98 100.1
   24.58 125.0
   19.28 141.25
   24.28 157.5
C4 25.78 182.5
   35.78 182.6
*
C2 0.05 0.05 0.025
C3 404710 8 105.00 131.00 0.00 0.00 650.0 0.00 0.00
C4 38.64 100.0
   28.64 100.1
   28.64 105.0
   24.64 113.0
   24.64 123.0
C4 28.64 131.0
   28.64 173.0
   38.64 173.1
*
C2 0.05 0.05 0.025
C3 404730 9 150.00 180.00 0.00 0.00 1350.0 0.00 0.00
C4 47.89 100.0
   37.39 100.1
   34.00 150.0
   28.39 161.0
   29.29 166.0
C4 28.89 174.0
   32.49 180.0
   31.19 230.0
   41.19 230.0
*=====
* JUNCTION DATA
*=====
* 401 - MAIN CHANNEL
D1 401000 99.00 -6.80 0.00 2.50
D1 401100 99.00 -4.10 0.00 2.55
D1 401200 99.00 -2.40 0.00 2.60
D1 401300 99.00 -2.10 0.00 2.85
D1 401400 99.00 -1.50 0.00 2.70
D1 401600 99.00 -2.40 0.00 2.80
D1 401700 99.00 -1.80 0.00 2.90
D1 401800 99.00 -1.70 0.00 3.00
D1 401900 99.00 -0.88 0.00 3.10
* 402 - MAIN CHANNEL
D1 402000 99.00 -0.75 0.00 3.20
D1 402080 99.00 -0.20 0.00 3.30
D1 402090 99.00 -0.90 0.00 3.40
D1 402100 99.00 -0.80 0.00 3.50
* ORIGINAL SWC D/S CHANNEL
D1 402200 99.00 1.40 0.00 3.60
D1 402290 99.00 -0.93 0.00 3.70
D1 402300 99.00 0.40 0.00 3.80
D1 402340 99.00 0.00 0.00 3.90
D1 402350 99.00 0.00 0.00 4.00
D1 402358 99.00 1.00 0.00 4.10
D1 402360 99.00 7.00 0.00 7.05
* HENRY STRET CANAL
D1 402920 99.00 0.63 0.00 3.60
D1 402930 99.00 0.64 0.00 3.70
D1 402940 99.00 2.00 0.00 3.80
D1 402950 99.00 2.20 0.00 3.90
* 403 - MAIN CHANNEL
D1 403000 99.00 1.50 0.00 4.00
D1 403050 99.00 1.50 0.00 4.00
D1 403100 99.00 3.60 0.00 4.00
D1 403160 99.00 5.00 0.00 5.10
D1 403200 99.00 5.09 0.00 5.19
D1 403300 99.00 6.50 0.00 6.60
D1 403350 99.00 6.80 0.00 6.85
D1 403400 99.00 7.60 0.00 7.65
D1 403500 99.00 8.37 0.00 8.42
D1 403548 99.00 10.39 0.00 10.44
D1 403550 99.00 10.38 0.00 10.43
D1 403600 99.00 10.13 0.00 10.18
D1 403650 99.00 11.60 0.00 11.65
D1 403700 99.00 13.40 0.00 13.45
D1 403750 99.00 13.50 0.00 13.55
D1 403800 99.00 15.00 0.00 15.05
D1 403898 99.00 14.73 0.00 14.78
D1 403900 99.00 14.12 0.00 14.17
* 404 - MAIN CHANNEL
D1 404000 99.00 17.20 0.00 17.23
D1 404098 99.00 17.00 0.00 17.03
D1 404100 99.00 17.10 0.00 17.13
D1 404200 99.00 18.65 0.00 18.75
D1 404298 99.00 18.13 0.00 18.16

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Hydraulic Input Data for HCSWMM Extran Routing

D1	404300	99.00	18.44	0.00	18.47
D1	404400	99.00	19.20	0.00	19.23
D1	404498	99.00	19.40	0.00	19.43
D1	404499	99.00	19.68	0.00	19.73
D1	404500	99.00	19.55	0.00	19.60
D1	404600	99.00	22.00	0.00	22.05
D1	404690	99.00	23.96	0.00	24.00
D1	404698	99.00	23.80	0.00	23.83
D1	404700	99.00	24.59	0.00	24.62
D1	404710	99.00	25.92	0.00	25.97
D1	404720	99.00	26.01	0.00	26.06
D1	404730	99.00	28.69	0.00	28.69
D1	404740	99.00	28.28	0.00	28.31
D1	404800	99.00	28.47	0.00	28.57
D1	404900	99.00	31.92	0.00	32.02
D1	404910	99.00	32.67	0.00	32.70
D1	404920	99.00	33.12	0.00	33.15
D1	404930	99.00	35.23	0.00	35.26
D1	404940	99.00	35.27	0.00	35.30
* END OF MAIN CHANNEL					
=====					
* NODE/JUNCTION DATA					
=====					
* 400 SYSTEM					
=====					
D1	400100	99.00	-1.06	0.00	2.50
D1	400150	99.00	1.90	0.00	2.50
D1	400160	99.00	0.30	0.00	2.50
D1	400180	99.00	0.40	0.00	2.50
D1	400190	99.00	0.30	0.00	2.50
D1	400200	99.00	0.20	0.00	2.50
D1	400300	99.00	-0.04	0.00	2.50
D1	400340	99.00	1.11	0.00	2.50
D1	400350	99.00	1.24	0.00	2.50
D1	400390	99.00	-0.08	0.00	2.50
D1	400400	99.00	-0.17	0.00	2.50
D1	400500	99.00	-0.10	0.00	2.50
D1	400590	99.00	-0.03	0.00	2.50
D1	400600	99.00	-0.04	0.00	2.50
D1	400605	99.00	0.60	0.00	2.50
D1	400610	99.00	1.00	0.00	2.50
D1	400615	99.00	1.60	0.00	2.50
D1	400620	99.00	2.60	0.00	2.70
D1	400630	99.00	3.30	0.00	3.35
D1	400650	99.00	0.37	0.00	2.50
D1	400660	99.00	1.00	0.00	2.50
D1	400670	99.00	6.50	0.00	6.55
D1	400700	99.00	-0.09	0.00	2.50
D1	400800	99.00	1.70	0.00	2.50
=====					
* 401 SYSTEM					
=====					
* INITIAL 2.55					
D1	401110	99.00	-4.00	0.00	2.55
D1	401120	99.00	-2.40	0.00	2.55
D1	401130	99.00	-0.90	0.00	2.55
D1	401140	99.00	0.00	0.00	2.55
* INITIAL 2.60					
D1	401210	99.00	-1.90	0.00	2.60
D1	401220	99.00	0.24	0.00	2.60
D1	401230	99.00	1.14	0.00	2.60
D1	401240	99.00	0.87	0.00	2.60
* INITIAL 2.65					
D1	401310	99.00	-1.74	0.00	2.65
D1	401320	99.00	-1.60	0.00	2.65
D1	401330	99.00	1.18	0.00	2.65
* INITIAL 2.7					
D1	401410	99.00	0.14	0.00	2.70
D1	401420	99.00	-0.95	0.00	2.70
D1	401430	99.00	1.00	0.00	2.70
D1	401440	99.00	3.40	0.00	3.45
* INITIAL 2.8					
D1	401602	99.00	4.10	0.00	4.15
D1	401604	99.00	4.34	0.00	4.39
D1	401610	99.00	-0.80	0.00	2.80
D1	401620	99.00	-1.06	0.00	2.80
D1	401630	99.00	1.50	0.00	2.80
D1	401632	99.00	5.00	0.00	5.05
D1	401640	99.00	1.00	0.00	2.80
D1	401642	99.00	3.00	0.00	3.05
D1	401650	99.00	1.80	0.00	2.80
D1	401652	99.00	-1.60	0.00	2.80
D1	401654	99.00	4.70	0.00	4.75
D1	401656	99.00	4.20	0.00	4.25
D1	401660	99.00	2.18	0.00	2.80
D1	401662	99.00	2.69	0.00	2.80
D1	401664	99.00	2.89	0.00	2.94
D1	401670	99.00	5.12	0.00	5.17
D1	401680	99.00	6.20	0.00	6.25
D1	401690	99.00	6.36	0.00	6.41

Hydraulic Input Data for HCSWMM Extran Routing

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*
D1      401750      99.00      4.50 0.00      4.55
D1      401850      99.00      4.50 0.00      4.55
*=====
*      402 SYSTEM
*=====
*      INITIAL 3.6
D1      402210      99.00      2.00 0.00      3.60
D1      402220      99.00      3.15 0.00      3.60
D1      402230      99.00      5.30 0.00      5.35
D1      402238      99.00      5.10 0.00      5.15
D1      402240      99.00      6.06 0.00      6.11
D1      402250      99.00      6.00 0.00      6.05
D1      402260      99.00      6.60 0.00      6.65
D1      402270      99.00      6.70 0.00      6.75
D1      402280      99.00      9.50 0.00      9.55
D1      402285      99.00      9.30 0.00      9.35
D1      402310      99.00      7.61 0.00      7.66
D1      402320      99.00      7.85 0.00      7.85
D1      402330      99.00      7.83 0.00      7.88
D1      402370      99.00      7.90 0.00      7.95
*      INITIAL 3.3
D1      402392      99.00      1.88 0.00      3.30
D1      402394      99.00      2.01 0.00      3.30
D1      402398      99.00      0.00 0.00      3.30
D1      402400      99.00      0.00 0.00      3.30
D1      402500      99.00      0.00 0.00      3.30
D1      402510      99.00      0.33 0.00      3.30
D1      402518      99.00      3.95 0.00      4.00
D1      402520      99.00      4.10 0.00      4.15
D1      402600      99.00      0.78 0.00      3.30
D1      402610      99.00      0.36 0.00      3.30
D1      402620      99.00      2.10 0.00      3.30
D1      402630      99.00      3.69 0.00      3.74
D1      402640      99.00      5.30 0.00      5.35
*      INITIAL 3.3
D1      402698      99.00      0.12 0.00      3.30
D1      402700      99.00      0.00 0.00      3.30
D1      402800      99.00      0.00 0.00      3.30
D1      402810      99.00      0.50 0.00      3.30
D1      402818      99.00      1.12 0.00      3.30
D1      402820      99.00      0.94 0.00      3.30
D1      402828      99.00      1.29 0.00      3.30
D1      402830      99.00      1.71 0.00      3.30
D1      402840      99.00      4.10 0.00      4.15
D1      402850      99.00      3.10 0.00      3.15
D1      402860      99.00      4.36 0.00      4.41
D1      402870      99.00      5.40 0.00      5.45
D1      402880      99.00      5.28 0.00      5.33
*
D1      402900      99.00      8.00 0.00      8.05
*=====
*      403 SYSTEM
*=====
D1      403060      99.00      5.51 0.00      5.54
D1      403070      99.00      13.80 0.00      13.84
D1      403110      99.00      14.18 0.00      14.21
D1      403120      99.00      6.40 0.00      6.43
D1      403125      99.00      8.07 0.00      8.11
D1      403130      99.00      8.02 0.00      8.06
D1      403140      99.00      7.20 0.00      7.23
D1      403170      99.00      10.20 0.00      10.23
D1      403180      99.00      14.50 0.00      14.54
D1      403190      99.00      10.00 0.00      10.04
*
D1      403210      99.00      5.58 0.00      5.62
D1      403220      99.00      11.00 0.00      11.03
D1      403230      99.00      11.05 0.00      11.08
D1      403240      99.00      6.00 0.00      6.03
D1      403250      99.00      13.00 0.00      13.03
D1      403260      99.00      13.00 0.00      15.81
D1      403270      99.00      13.50 0.00      13.54
D1      403360      99.00      20.67 0.00      20.72
D1      403370      99.00      20.43 0.00      20.46
*
D1      403404      99.00      18.00 0.00      18.05
D1      403406      99.00      17.80 0.00      17.85
D1      403408      99.00      17.74 0.00      17.79
D1      403410      99.00      17.79 0.00      17.84
D1      403420      99.00      14.20 0.00      14.25
D1      403425      99.00      17.25 0.00      17.30
D1      403430      99.00      16.30 0.00      16.35
D1      403435      99.00      22.51 0.00      22.56
D1      403440      99.00      16.61 0.00      16.66
D1      403445      99.00      15.00 0.00      15.05
D1      403450      99.00      21.00 0.00      21.05
D1      403460      99.00      18.74 0.00      18.79
D1      403462      99.00      17.00 0.00      17.03
D1      403465      99.00      20.35 0.00      20.38
D1      403470      99.00      18.74 0.00      18.79
D1      403480      99.00      19.21 0.00      19.26
D1      403488      99.00      17.92 0.00      17.97
D1      403490      99.00      19.33 0.00      19.38
*
D1      403508      99.00      20.04 0.00      20.09
D1      403510      99.00      12.81 0.00      12.84
D1      403516      99.00      11.70 0.00      11.75
D1      403518      99.00      16.13 0.00      16.16
D1      403520      99.00      19.03 0.00      19.06
D1      403528      99.00      16.87 0.00      16.92
D1      403530      99.00      20.57 0.00      20.62
D1      403536      99.00      17.18 0.00      17.23

```

Hydraulic Input Data for HCSWMM Extran Routing

D1	403538	99.00	17.91	0.00	17.96
D1	403540	99.00	21.94	0.00	21.97
D1	403560	99.00	10.94	0.00	10.99
D1	403570	99.00	16.29	0.00	16.34
D1	403580	99.00	18.64	0.00	18.69
D1	403590	99.00	22.71	0.00	22.76
D1	403606	99.00	22.60	0.00	22.65
D1	403608	99.00	22.91	0.00	22.96
D1	403610	99.00	23.03	0.00	23.08
*					
D1	403710	99.00	21.40	0.00	21.45
D1	403720	99.00	24.00	0.00	24.03
D1	403730	99.00	23.90	0.00	23.95
*					
D1	403810	99.00	16.03	0.00	16.08
D1	403820	99.00	17.56	0.00	17.61
D1	403830	99.00	19.68	0.00	19.73
D1	403840	99.00	20.90	0.00	20.95
D1	403850	99.00	22.40	0.00	22.45
D1	403858	99.00	23.65	0.00	23.70
D1	403860	99.00	24.00	0.00	24.08
=====					
* 404 SYSTEM					
=====					
D1	404008	99.00	22.00	0.00	22.10
D1	404010	99.00	18.50	0.00	24.50
D1	404308	99.00	22.60	0.00	22.63
D1	404310	99.00	25.41	0.00	25.44
D1	404314	99.00	25.44	0.00	25.47
D1	404316	99.00	25.85	0.00	25.88
D1	404318	99.00	26.13	0.00	26.16
D1	404320	99.00	26.11	0.00	26.14
D1	404330	99.00	26.50	0.00	26.53
D1	404340	99.00	28.00	0.00	28.03
D1	404350	99.00	28.00	0.00	28.10
D1	404360	99.00	28.05	0.00	28.15
D1	404410	99.00	24.30	0.00	24.33
D1	404415	99.00	24.20	0.00	24.23
D1	404420	99.00	24.90	0.00	24.93
D1	404430	99.00	26.30	0.00	26.33
D1	404440	99.00	28.40	0.00	28.43
D1	404450	99.00	30.20	0.00	30.23
D1	404460	99.00	30.30	0.00	30.33
D1	404468	99.00	32.80	0.00	32.80
D1	404470	99.00	35.84	0.00	35.87
D1	404550	99.00	19.60	0.00	19.63
D1	404610	99.00	27.14	0.00	27.17
D1	404620	99.00	28.62	0.00	28.65
D1	404630	99.00	28.67	0.00	28.70
D1	404640	99.00	29.58	0.00	29.61
D1	404650	99.00	32.60	0.00	32.63
*					
D1	404810	99.00	32.13	0.00	32.16
D1	404820	99.00	33.99	0.00	34.02
D1	404825	99.00	34.24	0.00	34.28
D1	404830	99.00	34.36	0.00	34.40
D1	404840	99.00	38.53	0.00	38.56
D1	404950	99.00	40.44	0.00	40.49
D1	404960	99.00	40.60	0.00	40.65
D1	404970	99.00	41.61	0.00	41.65
D1	404980	99.00	42.18	0.00	42.22
D1	404985	99.00	42.85	0.00	42.88
D1	404990	99.00	44.84	0.00	44.89
=====					
* 405 SYSTEM					
=====					
D1	405000	99.00	3.50	0.00	3.53
D1	405100	99.00	3.55	0.00	3.58
D1	405110	99.00	7.18	0.00	7.28
D1	405120	99.00	6.70	0.00	6.80
D1	405130	99.00	8.92	0.00	8.96
D1	405140	99.00	9.29	0.00	9.39
D1	405150	99.00	9.30	0.00	9.40
D1	405160	99.00	11.50	0.00	11.60
D1	405165	99.00	11.49	0.00	11.59
D1	405170	99.00	11.82	0.00	11.92
D1	405180	99.00	14.17	0.00	14.27
D1	405200	99.00	3.60	0.00	3.63
D1	405210	99.00	4.80	0.00	4.90
D1	405220	99.00	6.00	0.00	6.03
D1	405230	99.00	7.50	0.00	7.53
D1	405240	99.00	7.80	0.00	7.83
D1	405250	99.00	8.30	0.00	8.33
D1	405260	99.00	8.60	0.00	8.63
D1	405270	99.00	8.63	0.00	8.73
D1	405280	99.00	8.70	0.00	8.80
D1	405290	99.00	9.00	0.00	9.10
D1	405292	99.00	10.00	0.00	10.10
D1	405294	99.00	11.00	0.00	11.10
*					
D1	405235	99.00	7.60	0.00	7.70
D1	405285	99.00	9.50	0.00	9.60
D1	405300	99.00	10.30	0.00	10.40
D1	405305	99.00	16.50	0.00	16.60
D1	405310	99.00	10.70	0.00	10.80
D1	405320	99.00	11.50	0.00	11.60
D1	405390	99.00	11.20	0.00	11.30
D1	405400	99.00	12.40	0.00	12.50
D1	405410	99.00	12.50	0.00	12.60
D1	405420	99.00	14.00	0.00	14.10
D1	405430	99.00	14.60	0.00	14.70

Hydraulic Input Data for HCSWMM Extran Routing

D1	405440	99.00	15.00	0.00	15.10
D1	405450	99.00	15.20	0.00	15.30
D1	405460	99.00	15.50	0.00	15.60
D1	405470	99.00	15.90	0.00	16.00
D1	405480	99.00	16.30	0.00	16.40
D1	405490	99.00	16.60	0.00	16.70
D1	405500	99.00	15.00	0.00	15.10
D1	405510	99.00	15.60	0.00	15.70
D1	405520	99.00	15.65	0.00	15.75
D1	405530	99.00	15.80	0.00	15.90
D1	405535	99.00	19.00	0.00	19.10
D1	405540	99.00	16.00	0.00	16.10
D1	405550	99.00	16.03	0.00	16.13
D1	405555	99.00	17.10	0.00	17.20
D1	405560	99.00	16.04	0.00	16.10
D1	405570	99.00	16.05	0.00	16.15
D1	405580	99.00	16.00	0.00	16.10
D1	405590	99.00	17.00	0.00	17.10
D1	405600	99.00	16.00	0.00	16.10
D1	405700	99.00	17.50	0.00	17.60

=====

* 406 SYSTEM

=====

D1	406010	99.00	21.60	0.00	21.63
D1	406015	99.00	23.84	0.00	23.87
D1	406020	99.00	24.25	0.00	24.28
D1	406025	99.00	24.50	0.00	24.53
D1	406030	99.00	25.00	0.00	25.03
D1	406100	99.00	17.25	0.00	17.35
D1	406105	99.00	17.50	0.00	17.60
D1	406110	99.00	17.60	0.00	17.70
D1	406120	99.00	19.70	0.00	19.73
D1	406130	99.00	20.40	0.00	20.43
D1	406140	99.00	20.50	0.00	20.53
D1	406150	99.00	20.70	0.00	20.73
D1	406160	99.00	21.80	0.00	21.83
D1	406170	99.00	22.00	0.00	22.03
D1	406180	99.00	22.30	0.00	22.43
D1	406200	99.00	19.33	0.00	19.36
D1	406210	99.00	19.80	0.00	19.83
D1	406220	99.00	20.10	0.00	20.13
D1	406230	99.00	20.20	0.00	20.23
D1	406300	99.00	22.40	0.00	22.43
D1	406310	99.00	22.50	0.00	22.53
D1	406320	99.00	22.40	0.00	22.43
D1	406330	99.00	22.80	0.00	22.83
D1	406335	99.00	23.40	0.00	23.43
D1	406340	99.00	24.55	0.00	24.58
D1	406345	99.00	25.10	0.00	25.13
D1	406360	99.00	20.90	0.00	20.93
D1	406365	99.00	21.60	0.00	21.63
D1	406370	99.00	22.70	0.00	22.73
D1	406375	99.00	23.10	0.00	23.13
D1	406380	99.00	22.40	0.00	22.43
D1	406390	99.00	22.70	0.00	22.73
D1	406400	99.00	22.60	0.00	22.63
D1	406410	99.00	23.30	0.00	23.33
D1	406420	99.00	24.60	0.00	24.63
D1	406450	99.00	23.50	0.00	23.53
D1	406460	99.00	23.50	0.00	23.53
D1	406500	99.00	22.80	0.00	23.00
D1	406510	99.00	22.90	0.00	22.93
D1	406520	99.00	23.30	0.00	23.33

*

D1	406600	99.00	23.20	0.00	23.23
D1	406610	99.00	24.30	0.00	24.33
D1	406620	99.00	24.30	0.00	24.33
D1	406630	99.00	24.20	0.00	24.23
D1	406645	99.00	24.60	0.00	24.63
D1	406660	99.00	24.40	0.00	24.43
D1	406675	99.00	25.20	0.00	25.23
D1	406680	99.00	26.00	0.00	26.03
D1	406690	99.00	26.10	0.00	26.20
D1	406710	99.00	25.10	0.00	25.13
D1	406800	99.00	25.70	0.00	25.73
D1	406805	99.00	27.64	0.00	27.68
D1	406810	99.00	27.80	0.00	27.83
D1	406820	99.00	26.40	0.00	26.43
D1	406825	99.00	26.50	0.00	26.53
D1	406830	99.00	26.60	0.00	26.70
D1	406835	99.00	26.80	0.00	26.83
D1	406840	99.00	26.80	0.00	26.83
D1	406845	99.00	26.53	0.00	26.56
D1	406850	99.00	26.72	0.00	26.75
D1	406855	99.00	26.66	0.00	26.69
D1	406860	99.00	27.30	0.00	27.33
D1	406870	99.00	27.20	0.00	27.23
D1	406885	99.00	26.64	0.00	26.67
D1	406900	99.00	27.07	0.00	27.10
D1	406905	99.00	27.14	0.00	27.17
D1	406910	99.00	27.50	0.00	27.53
D1	406915	99.00	28.50	0.00	28.53
D1	406935	99.00	27.11	0.00	27.14
D1	406940	99.00	27.22	0.00	27.25
D1	406950	99.00	29.42	0.00	29.45

*

=====

* 407 SYSTEM

=====

D1	407000	99.00	19.97	0.00	20.03
D1	407100	99.00	20.08	0.00	20.13

Hydraulic Input Data for HCSWMM Extran Routing

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D1      407200      99.00      21.00 0.00      21.03
D1      407300      99.00      22.18 0.00      22.21
D1      407400      99.00      22.54 0.00      22.58
D1      407500      99.00      24.54 0.00      24.58
D1      407600      99.00      23.01 0.00      23.03
D1      407700      99.00      23.58 0.00      23.61
D1      407800      99.00      23.27 0.00      23.30
*=====
*      DUMMY JUNCTIONS
*=====
D1      400001      999.00      88.00 0.00      88.0
D1      400002      999.00      88.00 0.00      88.0
D1      400003      999.00      88.00 0.00      88.0
D1      400004      999.00      88.00 0.00      88.0
D1      400005      999.00      88.00 0.00      88.0
D1      400006      999.00      88.00 0.00      88.0
*=====
*      BOUNDARY JUNCTIONS
D1      400051      99.00      -1.55 0.00      2.50
D1      400052      99.00      -1.55 0.00      2.50
D1      400053      99.00      -7.70 0.00      2.50
D1      400054      99.00      5.00 0.00      6.00
D1      400055      99.00      17.54 0.00      17.80
D1      400056      99.00      20.80 0.00      21.00
*
D1      400057      99.00      -1.55 0.00      2.50
*      1999 PUMP TO THIS POINT @ CHANNEL "G"
D1      400061      99.00      -1.55 0.00      2.50
D1      400062      99.00      -1.55 0.00      2.50
D1      400063      99.00      -1.55 0.00      2.50
*=====
*
*      E1 CARD POND STORAGE ELEMENTS
*=====
*      HENRY STREET CANAL OVERBANK STORAGE
*      ARE BASED ON 2-FT DIGITAL CONTOUR
*      402 SYSTEM - HENRY STREET CANAL MAIN CHANNEL
E1      402100      99.00      -1.00      4
E2      0.10      -0.80
          10.86      6.00
          20.50      8.00
          40.57      10.00
*
E1      402930      99.00      -1.00      3
E2      0.100      0.64
          2.358      10.00
          13.089      12.00
*
E1      402950      99.00      -1.00      3
E2      0.10      2.20
          0.765      10.00
          1.085      12.00
*
*      403 SYSTEM - HENRY STREET CANAL MAIN CHANNEL
E1      403050      99.00      -1.00      3
E2      0.10      1.50
          1.259      10.00
          1.910      12.00
*
E1      403200      99.00      -1.00      4
E2      0.10      5.00
          0.970      10.00
          1.234      12.00
          1.500      14.00
*
E1      403350      99.00      -1.00      5
E2      0.10      6.80
          1.607      10.00
          2.244      12.00
          2.354      18.00
          3.289      20.00
*
E1      403550      99.00      -1.00      4
E2      0.10      10.38
          0.808      12.00
          1.547      14.00
          2.591      20.00
*
E1      403750      99.00      -1.00      5
E2      0.10      13.50
          0.897      16.00
          1.501      18.00
          2.232      20.00
          2.500      22.00
*
E1      403900      99.00      -1.00      4
E2      0.10      14.12
          3.231      20.00
          4.589      22.00
          5.000      24.00
*
*      404 SYSTEM - HENRY STREET CANAL MAIN CHANNEL
E1      404100      99.00      -1.00      4
E2      0.10      17.10
          1.037      20.00
          1.823      22.00
          2.550      24.00
*
E1      404300      99.00      -1.00      4
E2      0.10      18.44
          0.422      24.00
          0.556      26.00

```


Hydraulic Input Data for HCSWMM Extran Routing

```

*      0.691    28.00
E1      404498    99.00    -1.00    3
E2      0.10     19.40
        1.678    28.00
        2.724    30.00
*
E1      404690    99.00    -1.00    5
E2      0.10     23.96
        7.924    26.00
        14.544   28.00
        22.900   30.00
        24.470   32.00
*
E1      404720    99.00    -1.00    6
E2      0.10     26.01
        2.749    28.00
        8.936    30.00
        13.347   32.00
        19.174   34.00
        20.000   35.00
*
E1      404740    999.00    4000.00    0
*
E1      404800    99.00    -1.00    6
E2      0.10     28.47
        0.11     32.99
        0.112    33.00
        0.828    34.00
        1.250    37.00
        2.000    39.00
*
E1      404940    99.00    -1.00    5
E2      0.10     35.27
        60.00    35.28
        60.50    37.00
        61.995   38.00
        75.896   40.00
*-----*
*      END OF MAIN CHANNEL
*=====*
*-----*
*      400 SYSTEM
*=====*
E1      400150    999.00    30000.00    0
E1      400400    999.00    4356.00    0
E1      400600    999.00    4356.00    0
E1      400605    999.00    4356.00    0
E1      400610    999.00    4356.00    0
E1      400615    999.00    4356.00    0
E1      400620    999.00    4356.00    0
E1      400630    999.00    4356.00    0
E1      400650    999.00    4356.00    0
*
E1      400670    99.00    -1.00    5
E2      0.10     6.50
        3.10     6.51
        3.13     7.00
        7.63     8.00
        7.63     99.00
*
*=====*
*      401 SYSTEM
*=====*
*      MAIN CHANNEL
*
E1      401400    99.00    -1.00    4
E2      0.10     -1.50
        20.00     4.00
        42.52     8.00
        42.53     99.00
*
E1      401900    999.00    4000.00    0
*
*
E1      401110    999.00    4000.00    0
E1      401120    999.00    4000.00    0
E1      401130    999.00    4000.00    0
E1      401140    999.00    4000.00    0
E1      401150    999.00    4000.00    0
E1      401160    999.00    4000.00    0
E1      401180    999.00    4000.00    0
E1      401186    999.00    4000.00    0
E1      401188    999.00    4000.00    0
*
E1      401190    99.00    -1.00    3
E2      0.10     6.90
        7.37     6.91
        7.38     99.00
*
E1      401220    999.00    4000.00    0
E1      401230    999.00    4000.00    0
E1      401320    999.00    4000.00    0
E1      401500    99.00    -1.00    4
E2      0.100     4.00
        2.59     6.01
        6.24     7.00
        7.35     8.00
*
E1      401602    999.00    4000.00    0
*
E1      401604    99.00    -1.00    3

```

Hydraulic Input Data for HCSWMM Extran Routing

E2	0.10	4.34		
	1.21	4.35		
	1.21	99.00		
E1	401610	999.00	4000.00	0
E1	401630	999.00	4000.00	0
*				
E1	401632	99.00	-1.00	3
E2	0.10	5.00		
	0.165	5.01		
	0.165	99.0		
E1	401642	999.00	40000.00	0
E1	401640	99.00	-1.00	3
E2	0.10	1.00		
	11.81	7.00		
	23.12	8.00		
E1	401650	99.00	-1.00	5
E2	0.10	1.80		
	1.95	7.00		
	6.96	8.00		
	14.24	9.00		
	25.56	10.00		
*				
E1	401654	99.00	-1.00	3
E2	0.096	4.70		
	0.096	4.710		
	0.097	99.00		
*				
E1	401656	99.00	-1.00	3
E2	0.10	4.20		
	1.03	4.21		
	1.04	99.00		
E1	401664	999.00	4000.00	0
*				
E1	401750	99.00	-1.00	3
E2	0.10	4.50		
	1.75	4.51		
	1.75	99.00		
E1	401850	99.00	-1.00	3
E2	0.10	4.50		
	0.702	4.51		
	0.702	99.00		

* 402 SYSTEM				

E1	402080	999.00	4000.00	0
E1	402200	99.00	-1.00	5
E2	0.100	1.40		
	0.10	8.99		
	1.02	9.00		
	1.29	10.00		
	1.67	11.00		
E1	402330	99.00	-1.00	5
E2	0.10	7.83		
	5.00	7.84		
	5.65	10.00		
	10.35	12.00		
	21.97	13.00		
E1	402370	999.00	4000.00	0
E1	402360	99.00	-1.00	4
E2	0.10	7.00		
	0.823	7.01		
	1.02	10.00		
	1.41	13.00		
E1	402392	99.00	-1.00	2
E2	0.1	1.88		
	10.0	999		
E1	402394	99.00	-1.00	2
E2	0.1	2.01		
	10.0	999		
*				
E1	402400	99.00	-1.00	5
E2	0.100	0.00		
	0.11	8.99		
	4.29	9.00		
	9.99	10.00		
	15.78	11.00		
*				
E1	402500	99.00	-1.00	7
E2	0.10	0.00		
	0.10	6.99		
	1.86	7.00		
	3.82	8.00		
	14.93	9.00		
	20.20	10.00		
	20.20	99.00		
E1	402510	99.00	-1.00	7
E2	0.10	0.33		
	0.10	6.99		
	0.82	7.00		
	3.32	8.00		
	7.25	9.00		
	18.04	10.00		
	18.04	99.00		
*				
E1	402520	99.00	-1.00	4
E2	0.10	4.10		
	0.27	5.80		
	0.68	8.70		
	1.94	8.90		
*				
E1	402600	99.00	-1.00	6
E2	0.10	0.78		

Hydraulic Input Data for HCSWMM Extran Routing

	0.10	7.99		
	2.26	8.00		
	5.56	9.00		
	10.4	10.00		
	10.4	99.00		
E1	402610	99.00	-1.00	4
E2	0.10	0.36		
	0.10	8.99		
	6.12	9.00		
	15.40	10.00		
*				
E1	402800	99.00	-1.00	6
E2	0.10	0.00		
	0.15	7.99		
	11.93	8.00		
	14.93	9.00		
	36.73	10.00		
	36.73	99.00		
E1	402810	99.00	-1.00	5
E2	0.10	0.50		
	0.11	6.99		
	2.99	7.00		
	8.52	8.00		
	8.53	99.00		
E1	402820	99.00	-1.00	6
E2	0.10	0.94		
	0.10	6.99		
	0.601	7.00		
	3.33	8.00		
	13.14	9.00		
	13.14	99.00		
E1	402830	99.00	-1.00	6
E2	0.10	1.71		
	0.10	7.99		
	1.37	8.00		
	7.98	9.00		
	17.0	10.00		
	17.00	99.00		
E1	402840	99.00	-1.00	6
E2	0.050	4.10		
	0.050	7.99		
	0.956	8.00		
	2.06	9.00		
	4.40	10.00		
	4.40	99.00		
E1	402850	99.00	-1.00	7
E2	0.10	3.10		
	0.10	8.99		
	1.23	9.00		
	5.51	10.00		
	15.07	11.00		
	22.7	12.00		
	22.7	99.00		
* Hospital Pond				
E1	402860	99.00	-1.00	3
E2	3.88	4.36		
	3.88	9.00		
	3.88	9.10		
E1	402870	99.00	-1.00	6
E2	0.10	5.40		
	0.10	9.99		
	1.26	10.00		
	5.43	11.00		
	7.82	12.00		
	7.82	99.00		
*				
E1	402900	99.00	-1.00	5
E2	0.10	8.00		
	0.947	8.01		
	1.91	9.00		
	2.64	10.00		
	7.56	11.00		
=====				
=====				
* 403 SYSTEM				
=====				
*				
E1	403060	999.00	4000.00	0
E1	403070	99.00	-1.00	3
E2	0.05	13.80		
	0.05	13.81		
	0.07	99.00		
*				
E1	403100	999.00	4000.00	0
E1	403110	999.00	7000.00	0
E1	403120	999.00	4000.00	0
E1	403160	999.00	4000.00	0
E1	403170	999.00	40000.00	0
E1	403180	99.00	-1.00	4
E2	0.100	14.50		
	0.28	14.51		
	0.34	16.0		
	0.42	99.00		
E1	403190	999.00	4000.00	0
*				
E1	403210	999.00	4000.00	0
E1	403220	999.00	4000.00	0
E1	403230	999.00	20000.00	0
E1	403240	999.00	4000.00	0
E1	403250	999.00	15000.00	0
E1	403260	999.00	15000.00	0
E1	403260	999.00	4000.00	0

Hydraulic Input Data for HCSWMM Extran Routing

E1	403270	99.00	-1.00	4
E2	0.10	13.50		
	1.71	13.51		
	1.91	15.50		
	2.11	17.52		
*				
E1	403300	999.00	4000.00	0
E1	403360	999.00	4000.00	0
E1	403370	999.00	15000.00	0
*				
E1	403400	99.00	-1.00	4
E2	0.100	7.60		
	0.200	13.99		
	4.83	14.00		
	8.65	17.50		
E1	403408	999.00	4000.00	0
E1	403410	999.00	8000.00	0
E1	403425	999.00	44000.00	0
E1	403435	999.00	21000.00	0
E1	403445	99.00	-1.00	3
E2	0.10	15.00		
	1.33	15.01		
	1.33	99.00		
E1	403450	99.00	-1.00	3
E2	0.10	21.00		
	0.84	21.01		
	0.84	99.00		
E1	403460	999.00	4000.00	0
E1	403462	99.00	-1.00	4
E2	0.10	17.00		
	0.11	22.9		
	0.463	23.00		
	1.18	26.00		
E1	403465	99.00	-1.00	3
E2	0.10	20.35		
	2.41	20.36		
	2.86	25.35		
E1	403470	999.00	4000.00	0
E1	403480	999.00	4000.00	0
E1	403488	999.00	4000.00	0
E1	403490	999.00	4000.00	0
*				
E1	403508	999.00	4000.00	0
E1	403510	999.00	26000.00	0
E1	403516	99.00	-1.00	2
E2	0.10	11.70		
	10	999.0		
E1	403518	99.00	-1.00	2
E2	0.10	16.13		
	10.0	999.0		
E1	403520	999.00	15000.00	0
E1	403528	999.00	4000.00	0
E1	403530	999.00	4000.00	0
E1	403538	999.00	4000.00	0
E1	403536	999.00	4000.00	0
E1	403540	999.00	18000.00	0
E1	403560	999.00	4000.00	0
E1	403570	999.00	4000.00	0
E1	403580	999.00	4000.00	0
E1	403590	99.00	-1.00	4
E2	0.10	22.71		
	6.04	24.00		
	20.57	25.00		
	21.00	26.00		
*				
E1	403608	999.00	4000.00	0
E1	403610	999.00	4000.00	0
*				
E1	403720	99.00	-1.00	3
E2	0.100	24.00		
	0.229	24.1		
	0.992	27.00		
*				
E1	403810	999.00	4000.00	0
E1	403820	999.00	4000.00	0
E1	403830	999.00	4000.00	0
E1	403840	999.00	4000.00	0
E1	403850	999.00	4000.00	0
*				

* 404 SYSTEM				

E1	404008	999.00	4000.00	0
E1	404010	99.00	-1.00	3
E2	1.35	18.5		
	2.3	24.5		
	2.88	29.0		
*				
E1	404308	999.00	4000.00	0
E1	404310	999.00	4000.00	0
E1	404314	999.00	4000.00	0
E1	404316	999.00	4000.00	0
E1	404318	999.00	4000.00	0
E1	404320	999.00	4000.00	0
E1	404330	999.00	4000.00	0
E1	404340	999.00	8000.00	0
E1	404350	99.00	-1.00	4
E2	0.10	28.00		
	17.56	31.00		
	17.56	31.01		
	20.52	32.01		
E1	404360	99.00	-1.00	4

Hydraulic Input Data for HCSWMM Extran Routing

E2	0.10	28.05		
	0.15	31.01		
	1.33	31.02		
	2.79	32.00		
*				
E1	404400	999.00	4000.00	0
E1	404460	999.00	4000.00	0
E1	404450	999.00	4000.00	0
E1	404440	999.00	4000.00	0
E1	404430	999.00	4000.00	0
E1	404470	99.00	-1.00	3
E2	0.10	35.84		
	3.50	36.00		
	5.56	99.00		
E1	404420	999.00	4000.00	0
E1	404415	99.00	-1.00	3
E2	4.670	24.20		
	4.671	99.00		
	4.672	99.10		
E1	404410	999.00	4000.00	0
E1	404468	999.00	4000.00	0
E1	404500	999.00	4000.00	0
E1	404550	99.00	-1.00	3
E2	0.100	19.60		
	1.467	28.00		
	26.168	30.00		
*				
*				
E1	404610	999.00	4000.00	0
E1	404620	999.00	4000.00	0
E1	404630	999.00	4000.00	0
E1	404640	999.00	4000.00	0
E1	404650	99.00	-1.00	3
E2	1.20	32.60		
	1.25	34.99		
	1.30	35.00		
E1	404810	999.00	4000.00	0
E1	404820	999.00	4000.00	0
E1	404825	999.00	4000.00	0
* 2-FT DIGITAL DATA				
E1	404830	99.00	-1.00	4
E2	0.100	34.36		
	2.540	36.00		
	4.881	38.00		
	9.686	40.00		
E1	404840	99.00	-1.00	5
E2	0.100	38.53		
	0.81	38.54		
	0.85	38.99		
	0.88	39.00		
	1.43	42.00		
*				
E1	404900	999.00	4000.00	0
E1	404910	999.00	4000.00	0
E1	404920	999.00	4000.00	0
E1	404950	99.00	-1.00	4
E2	0.05	40.44		
	0.627	41.00		
	1.02	42.00		
	2.13	43.00		
E1	404960	99.00	-1.00	6
E2	0.10	40.60		
	1.32	44.00		
	1.62	45.00		
	1.92	46.00		
	2.67	47.00		
	2.67	99.00		
E1	404970	999.00	4000.00	0
E1	404980	999.00	8000.00	0
E1	404985	99.00	-1.00	4
E2	0.10	42.85		
	2.12	44.00		
	2.29	45.00		
	2.48	46.00		
E1	404990	99.00	-1.00	5
E2	0.050	44.84		
	0.862	45.00		
	1.01	46.00		
	1.14	47.00		
	1.42	48.00		
*				
=====				
* 405 SYSTEM				
=====				
E1	405110	99.00	-1.00	3
E2	0.10	7.18		
	1.01	7.19		
	1.01	99.00		
E1	405120	999.00	4000.00	0
E1	405130	99.00	-1.00	3
E2	0.10	8.92		
	0.342	8.93		
	0.342	99.00		
E1	405140	999.00	4000.00	0
E1	405150	99.00	-1.00	3
E2	0.10	9.30		
	0.546	9.31		
	0.546	99.00		
E1	405160	999.00	4000.00	0
E1	405165	999.00	4000.00	0
E1	405170	999.00	4000.00	0
E1	405180	99.00	-1.00	3

Hydraulic Input Data for HCSWMM Extran Routing

E2	0.10	14.17		
	0.74	14.18		
	0.74	99.00		
*				
E1	405235	99.00	-1.00	10
E2	0.10	7.60		
	0.23	8.00		
	0.30	9.00		
	0.37	10.00		
	0.44	11.00		
	0.51	12.00		
	1.60	18.00		
	2.00	20.00		
	2.50	22.00		
	2.51	26.00		
E1	405270	99.00	-1.00	7
E2	0.10	8.63		
	0.10	9.37		
	0.94	18.50		
	6.80	19.50		
	19.32	20.50		
	20.0	24.50		
	20.00	99.00		
E1	405285	99.00	-1.00	7
E2	0.10	9.500		
	0.10	13.00		
	0.04	14.00		
	0.08	15.00		
	2.95	20.00		
	34.50	21.00		
	34.51	25.00		
E1	405292	99.00	-1.00	10
E2	0.05	10.0		
	0.05	18.0		
	1.0	18.1		
	1.53	18.30		
	1.56	18.60		
	1.61	19.90		
	1.72	20.00		
	1.83	21.00		
	1.95	22.00		
	2.00	26.00		
E1	405294	99.00	-1.00	10
E2	0.10	11.00		
	0.11	15.50		
	0.78	16.00		
	1.62	17.00		
	2.56	18.00		
	3.64	19.00		
	5.10	20.00		
	5.69	21.00		
	7.05	22.00		
	7.06	26.00		
*				
E1	405305	99.00	-1.00	10
E2	0.10	16.50		
	2.16	16.51		
	2.33	17.50		
	2.69	19.50		
	2.87	20.50		
	3.06	21.50		
	3.24	22.50		
	4.00	24.50		
	6.00	27.00		
	6.01	31.00		
*				
E1	405400	99.00	-1.00	8
E2	0.10	12.40		
	0.10	19.00		
	0.50	19.50		
	0.70	20.00		
	1.00	21.00		
	1.44	22.00		
	2.25	23.00		
	2.25	27.00		
E1	405410	999.00	4000.00	0
E1	405420	99.00	-1.00	5
E2	0.10	14.00		
	0.10	22.00		
	0.33	23.00		
	0.78	24.00		
	0.79	28.00		
E1	405430	99.00	-1.00	10
E2	0.10	14.6		
	0.10	15.90		
	0.71	16.40		
	0.84	17.40		
	0.98	18.40		
	1.11	19.40		
	3.07	21.40		
	6.34	22.40		
	10.84	23.40		
	10.85	27.40		
E1	405440	99.00	-1.00	8
E2	0.05	15.00		
	0.05	19.00		
	0.05	20.00		
	1.02	21.00		
	6.85	22.00		
	14.47	23.00		
	20.0	25.00		
	20.1	29.00		

Hydraulic Input Data for HCSWMM Extran Routing

E1	405450	999.00	4000.00	0
E1	405460	999.00	4000.00	0
E1	405470	999.00	4000.00	0
E1	405480	999.00	4000.00	0
E1	405490	99.00	-1.00	5
E2	0.10	16.60		
	0.20	19.00		
	0.50	20.00		
	1.08	21.00		
	11.27	22.00		
*				
E1	405500	99.00	-1.00	6
E2	0.10	15.00		
	0.10	23.10		
	10.2	23.20		
	12.1	25.10		
	15.00	27.60		
	15.01	28.80		
E1	405535	99.00	-1.00	9
E2	0.05	19.0		
	0.05	22.0		
	0.05	23.0		
	0.09	24.0		
	0.14	25.0		
	1.53	26.0		
	2.00	27.0		
	3.00	30.0		
	3.00	99.00		
E1	405555	99.00	-1.00	8
E2	0.10	17.10		
	1.55	17.11		
	1.56	19.10		
	1.57	21.10		
	1.63	23.10		
	1.69	24.10		
	1.75	25.10		
	1.80	26.10		
*				
E1	405600	99.00	-1.00	6
E2	0.1	16.0		
	0.1	19.0		
	2.7	19.5		
	9.8	20.00		
	12.6	20.50		
	20.0	21.00		
E1	405700	27.00	-1.00	8
E2	0.05	17.50		
	0.05	20.00		
	0.063	21.00		
	0.068	22.00		
	0.099	23.00		
	0.141	24.00		
	0.386	25.00		
	1.102	27.00		
=====				
*	406 SYSTEM			
=====				
E1	406935	999.00	4000.00	0
E1	406950	99.00	-1.00	3
E2	0.10	29.42		
	0.10	29.52		
	0.11	99.00		
E1	406940	99.00	-1.00	3
E2	0.10	27.22		
	0.1	27.32		
	0.11	99.00		
E1	406230	99.00	-1.00	4
E2	0.10	20.20		
	3.07	28.00		
	10.62	29.00		
	10.72	99.00		
E1	406220	99.00	-1.00	3
E2	0.10	20.10		
	0.1	20.20		
	0.11	99.00		
E1	406200	99.00	-1.00	3
E2	0.10	19.33		
	0.1	19.43		
	0.1	99.00		
E1	406120	99.00	-1.00	3
E2	0.10	19.70		
	0.1	19.80		
	0.11	99.00		
E1	406360	999.00	4000.00	0
E1	406905	999.00	4000.00	0
E1	406690	99.00	-1.00	4
E2	0.10	26.10		
	12.90	30.00		
	16.60	31.00		
	16.70	99.00		
E1	406680	999.00	4000.00	0
E1	406675	99.00	-1.00	6
E2	0.10	25.20		
	1.84	28.00		
	8.53	29.00		
	11.60	30.00		
	16.70	31.00		
	16.80	99.00		
E1	406150	999.00	4000.00	0
E1	406160	999.00	4000.00	0
E1	406130	999.00	4000.00	0
E1	406140	999.00	4000.00	0

Hydraulic Input Data for HCSWMM Extran Routing

E1	406105	999.00	4000.00	0
E1	406110	999.00	8000.00	0
E1	406675	999.00	4000.00	0
E1	406170	99.00	-1.00	5
E2	0.10	22.00		
	0.1	27.99		
	0.32	28.00		
	6.94	29.00		
	7.04	99.00		
E1	406180	99.00	-1.00	5
E2	0.10	22.30		
	0.1	27.99		
	2.10	28.00		
	2.80	29.00		
	2.90	99.00		
E1	406675	999.00	4000.00	0
E1	406600	99.00	-1.00	5
E2	0.10	23.20		
	0.11	28.00		
	16.28	29.00		
	17.80	30.00		
	17.90	99.00		
E1	406375	99.00	-1.00	7
E2	0.10	23.10		
	0.11	26.99		
	2.19	27.00		
	12.42	28.00		
	17.24	29.00		
	19.21	30.00		
	19.31	99.00		
E1	406830	99.00	-1.00	4
E2	0.10	26.60		
	0.1	29.99		
	11.12	30.00		
	11.22	99.00		
E1	406870	99.00	-1.00	4
E2	0.10	27.20		
	0.11	30.99		
	1.20	31.00		
	1.30	99.00		
E1	406345	999.00	4000.00	0
E1	406030	999.00	4000.00	0
E1	406840	99.00	-1.00	5
E2	0.10	26.80		
	0.11	29.99		
	0.35	30.00		
	2.93	31.00		
	3.00	99.00		
E1	406885	99.00	-1.00	5
E2	0.10	26.64		
	0.11	29.99		
	2.53	30.00		
	6.12	31.00		
	6.22	99.00		
E1	406800	99.00	-1.00	5
E2	0.10	25.70		
	0.11	29.99		
	2.60	30.00		
	3.53	31.00		
	3.63	99.00		
E1	406710	99.00	-1.00	4
E2	0.10	25.10		
	0.11	29.99		
	3.47	30.00		
	9.93	31.00		
E1	406805	99.00	-1.00	6
E2	0.10	27.64		
	0.11	29.99		
	1.32	30.00		
	7.10	31.00		
	11.33	32.00		
	11.43	99.00		
E1	406810	99.00	-1.00	5
E2	0.10	27.80		
	0.11	29.99		
	1.08	30.00		
	7.67	31.00		
	7.77	99.00		
E1	406660	99.00	-1.00	6
E2	0.10	24.40		
	0.11	28.99		
	3.09	29.00		
	16.29	30.00		
	21.57	31.00		
	21.67	99.00		
E1	406610	99.00	-1.00	5
E2	0.10	24.30		
	0.11	27.99		
	1.50	28.00		
	2.44	29.00		
	2.54	99.00		
E1	406645	99.00	-1.00	6
E2	0.10	24.60		
	0.11	27.99		
	1.08	28.00		
	8.37	29.00		
	12.34	30.00		
	12.44	99.00		
E1	406630	99.00	-1.00	5
E2	0.10	24.20		
	0.11	28.99		
	11.53	29.00		

Hydraulic Input Data for HCSWMM Extran Routing

	25.01	30.00		
	42.27	31.00		
E1	406520	99.00	-1.00	5
E2	0.10	23.30		
	0.11	27.99		
	5.21	28.00		
	16.30	29.00		
	16.40	99.00		
E1	406450	99.00	-1.00	5
E2	0.10	23.50		
	0.11	27.99		
	5.12	28.00		
	10.69	29.00		
	10.79	99.00		
E1	406500	99.00	-1.00	5
E2	0.10	22.80		
	0.15	27.99		
	1.61	28.00		
	3.50	29.00		
	3.60	99.00		
E1	406420	99.00	-1.00	5
E2	0.10	24.60		
	0.11	28.99		
	18.10	29.00		
	29.00	30.00		
	29.10	99.00		
E1	406460	99.00	-1.00	7
E2	0.10	23.50		
	0.11	27.99		
	0.138	28.00		
	1.08	29.00		
	9.40	30.00		
	11.01	31.00		
	11.11	99.00		
E1	406320	99.00	-1.00	6
E2	0.10	22.40		
	0.11	27.99		
	3.06	28.00		
	17.5	29.00		
	28.40	30.00		
	28.50	99.00		
E1	406310	99.00	-1.00	5
E2	0.10	22.50		
	0.11	27.99		
	1.13	28.00		
	7.68	29.00		
	7.78	99.00		
E1	406330	99.00	-1.00	5
E2	0.10	22.80		
	0.11	27.99		
	3.65	28.00		
	7.92	29.00		
	8.02	99.00		
E1	406380	99.00	-1.00	5
E2	0.10	22.40		
	0.11	27.99		
	3.08	28.00		
	5.92	29.00		
	6.02	99.00		
E1	406335	99.00	-1.00	5
E2	0.10	23.40		
	0.11	27.99		
	13.69	28.00		
	13.70	29.00		
	13.71	99.00		
E1	406370	99.00	-1.00	6
E2	0.10	22.70		
	0.11	27.99		
	0.64	28.00		
	9.30	29.00		
	9.31	30.00		
	9.32	99.00		
E1	406365	99.00	-1.00	6
E2	0.10	21.60		
	0.11	27.99		
	0.38	28.00		
	5.27	29.00		
	5.28	30.00		
	5.29	99.00		
=====				
* 407 SYSTEM				
=====				
E1	407400	99.00	-1.00	8
E2	0.10	22.54		
	9.10	22.55		
	9.11	24.35		
	9.30	26.00		
	10.00	27.00		
	11.00	28.00		
	12.00	30.00		
	13.00	31.00		
E1	407600	99.00	-1.00	9
E2	0.10	23.01		
	2.40	23.02		
	2.43	24.50		
	2.90	26.00		
	3.30	27.00		
	3.92	28.00		
	10.00	29.00		
	11.00	30.00		
	12.00	31.00		
E1	407800	999.00	4000.00	0

Hydraulic Input Data for HCSWMM Extran Routing

E1	407700	999.00	4000.00	0				

* GWEIR DATA								

* 400 SYSTEM								

* ROAD OVERTOPPING @ BAY POINTE DR.								
G1	7400100	400100	400057	1	5.00	99.00	48.00	2.60
G1	8400150	400150	400100	1	1.90	99.00	4.50	3.20
* ROAD OVERTOPPING @ MEMORIAL HWY								
G1	7400200	400200	400190	1	6.00	99.00	48.00	2.60
* ROAD OVERTOPPING @ TOWN N COUNTRY BLVD.								
G1	7400340	400340	400300	1	5.29	99.00	20.00	2.60
* ROAD OVERTOPPING @ CASTAWAY DR.								
G1	7400350	400350	401240	1	5.30	99.00	36.00	2.60
* ROAD OVERTOPPING @ WINSTON LN								
G1	7400400	400400	400390	1	5.50	99.00	16.00	2.60
* ROAD OVERTOPPING @ SPRINGSIDE LN								
G1	7400500	400500	400400	1	5.50	99.00	20.00	2.60
* ROAD OVERTOPPING @ GLENVIEW LN								
G1	7400600	400600	400590	1	6.50	99.00	14.00	2.60
* ROAD OVERTOPPING @ HALIFAX DR.								
G1	7400610	400610	400605	1	7.05	99.00	10.00	2.60
G1	7400615	400615	400610	1	6.00	99.00	10.00	2.60
G1	7400620	400620	400615	1	6.00	99.00	10.00	2.60
G1	7400630	400630	400620	1	6.50	99.00	6.00	2.60
* ROAD OVERTOPPING @ T N C								
G1	7400650	400650	400600	1	6.50	99.00	100.00	2.60
G1	6400670	400670	400660	1	7.40	99.00	100.00	1.00
* ROAD OVERTOPPING @ TANGLEWOOD LN								
G1	7400700	400700	400600	1	6.50	99.00	100.00	2.60

* 401 SYSTEM								

G1	8401180	401180	401170	1	8.24	99.00	50.00	2.60

G1	7401188	401188	401186	1	11.00	99.00	8.00	2.60
G1	7401186	401186	401180	1	10.07	99.90	16.00	2.60

G1	8401190	401190	401160	1	6.90	7.90	1.17	3.30
G1	8401190	401190	401188	1	6.90	7.90	1.67	3.30
* ROAD OVERTOPPING @ CARLYLE RD.								
G1	7401220	401220	401210	1	6.50	99.00	39.20	2.60
* ROAD OVERTOPPING @ KELLY RD.								
G1	7401230	401230	401220	1	8.50	99.00	22.00	2.60
* ROAD OVERTOPPING @ CASTAWAY								
G1	7401240	401240	400350	1	7.00	99.00	36.00	2.60

* ROAD OVERTOPPING @ CARLYLE RD.								
G1	7401320	401320	401310	1	5.23	99.00	10.00	2.60
G1	6401330	401330	401300	1	6.30	99.00	25.00	1.00
G1	6401400	401400	401300	1	6.50	99.00	50.00	1.00
G1	6401400	401400	401300	1	7.00	99.00	50.00	1.00
G1	6401410	401410	401300	1	7.40	99.00	400.00	1.00
* ROAD OVERTOPPING @ DIRT RD NEAR HOLLY PARK								
G1	7401420	401420	401410	1	4.60	99.00	48.00	2.60
G1	6401500	401500	401400	1	6.50	99.00	70.00	1.00

G1	6401600	401600	401500	1	6.00	99.00	250.00	1.00
* ROAD OVERTOPPING @ BERKELY PREP								
G1	7401604	401604	401602	1	6.00	99.00	30.00	2.60
G1	8401632	401632	401630	1	5.00	99.00	3.08	3.30
* ROAD OVERTOPPING @ DIRT RD NEAR REFLECTION APT.								
G1	7401640	401620	401610	1	6.30	99.00	19.20	2.60
* ROAD OVERTOPPING @ BELLE CHASE CIRCLE								
G1	7401640	401640	401630	1	6.30	99.00	19.20	2.60
G1	6401642	401642	401640	1	3.00	99.00	25.00	1.00
* ROAD OVERTOPPING @ BELLE SHADOW LANE								
G1	7401650	401650	401640	1	6.20	99.00	12.00	2.60
G1	6401652	401652	401650	1	6.50	99.00	175.00	1.00
G1	8401654	401654	401652	1	4.70	99.00	6.69	3.30
G1	8401656	401656	401652	1	4.20	99.00	4.00	3.30
G1	6401664	401664	401430	1	8.00	99.00	100.00	1.00
* ROAD OVERTOPPING @ MONTE VISTA PLACE(WEST)								
G1	7401664	401664	401662	1	8.00	99.00	60.00	2.60
* ROAD OVERTOPPING @ LA MESA CIRCLE(WEST)								
G1	7401670	401670	401660	1	9.50	99.00	8.00	2.80
* ROAD OVERTOPPING @ LA MESA CIRCLE(EAST)								
G1	7401690	401690	401680	1	11.50	99.00	8.00	2.80

G1	6401700	401700	400670	1	8.50	99.00	250.00	1.00
G1	8401750	401750	401700	1	4.50	99.00	4.00	3.30
G1	8401850	401850	401800	1	4.50	99.00	4.00	3.30

* 402 SYSTEM								

* ROAD OVERTOPPING @ EDEN LANE & HANNA AV. WEST								
G1	7402210	402210	402200	1	9.20	99.00	20.00	2.60
* ROAD OVERTOPPING @ ARMAND DR								
G1	7402240	402240	402238	1	10.18	99.00	13.20	2.60
* ROAD OVERTOPPING @ POCAHONTAS AVE. WEST								
G1	7402270	402270	402260	1	12.86	99.00	10.00	2.60
* ROAD OVERTOPPING @ HANNA AVE. WEST								
G1	7402300	402300	402290	1	8.00	99.00	16.00	2.60
* ROAD OVERTOPPING @ RUNNINGWOODS AVE.								
G1	7402350	402350	402340	1	8.00	99.00	14.40	2.60
* ROAD OVERTOPPING @ SAWYER RD NEAR HANNA AVE.								
G1	7402310	402310	402200	1	11.79	99.00	12.00	2.60
* ROAD OVERTOPPING @ WEST PARIS ST.								
G1	7402330	402330	402320	1	12.50	99.00	12.00	2.60
G1	8402360	402360	402358	1	7.00	99.00	15.00	3.30
* ROAD OVERTOPPING @ SAWYER RD NEAR RUNNINGWOODS								

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	G1	7402370	402370	402340	1	12.50	99.00	12.00	2.60
	*	ROAD OVERTOPPING	@	COMANCHE AVE.	STORM SEWER SYSTEM OVERTOPPING				
	G1	7402394	402394	402392	1	7.50	99.00	2.00	2.60
	*	ROAD OVERTOPPING	@	COMANCHE AVE.	STORM SEWER SYSTEM OVERTOPPING				
	G1	7402400	402400	402394	1	7.11	99.00	30.00	2.60
	G1	7402400	402400	402394	1	7.39	99.00	11.60	2.60
	*								
	*	ROAD OVERTOPPING	@	HANLEY RD					
	G1	7402500	402500	402400	1	7.60	99.00	56.00	2.60
	*	ROAD OVERTOPPING	@	WEST HENRY AVE					
	G1	7402510	402510	402500	1	6.20	99.00	13.20	2.60
	*	ROAD OVERTOPPING	@	WEST HANNA AVE					
	G1	7402520	402520	402518	1	9.20	99.00	12.00	2.60
	*	ROAD OVERTOPPING	@	WEST HENRY AVE					
	G1	7402610	402610	402600	1	7.20	99.00	12.00	2.60
	*	ROAD OVERTOPPING	@	WEST HANNA AVE					
	G1	7402630	402630	402620	1	8.30	99.00	8.00	2.60
	*	ROAD OVERTOPPING	@	TOWN 'N' COUNTRY					
	G1	7402700	402700	402698	1	7.00	99.00	28.00	2.60
	*								
	*	ROAD OVERTOPPING	@	WEST POWHATAN AVE NEAR PUMP STATION					
	G1	7402810	402810	402800	1	6.50	99.00	28.00	2.60
	*	ROAD OVERTOPPING	@	NEAR SANTA MONICA DR					
	G1	7402820	402820	402818	1	6.54	99.00	14.40	2.60
	*	ROAD OVERTOPPING	@	TOWN 'N' COUNTRY					
	G1	7402830	402830	402828	1	7.11	99.00	12.00	2.60
	*	ROAD OVERTOPPING	@	NEAR T'N'C HOSPITAL					
	G1	7402860	402860	402850	1	9.00	99.00	50.00	2.60
	*								
	G1	6402900	402900	402100	1	8.50	99.00	100.00	1.00
	*	ROAD OVERTOPPING	@	SAWYER ROAD					
	G1	7402930	402930	402920	1	11.00	99.00	186.00	2.60
	*	ROAD OVERTOPPING	@	GOLDEN DRIVE					
	*	NOTE: THIS BRIDGE IS HIGHER THAN BOTH SIDES OVTOPPING OCCURED IN BOTH SIDES							
	G1	7402950	402950	402940	1	10.70	99.00	44.00	2.60
	G1	7402950	402950	402940	1	11.00	99.00	44.00	2.60
	*	-----*							
	*	403 SYSTEM							
	*	-----*							
	*	ROAD OVERTOPPING	@	GEORGE RD.					
	G1	7403050	403050	403000	1	11.50	99.00	272.00	2.60
	*	ROAD OVERTOPPING	@	NORTH OF HILL. AVE.					
	G1	7403060	403060	403050	1	12.50	99.90	20.00	2.60
	G1	8403070	403070	403060	1	14.50	99.90	19.00	3.30
	G1	8403110	403110	403100	1	14.18	99.00	2.60	3.30
	*	ROAD OVERTOPPING	@	WEST CLIFTON ST.					
	G1	7403120	403120	403100	1	13.71	99.00	16.00	2.60
	*	ROAD OVERTOPPING	@	WEST PARIS					
	G1	7403130	403130	403125	1	14.61	99.00	20.00	2.60
	*								
	G1	8403170	403170	403160	1	10.20	10.90	3.00	3.30
	G1	8403180	403180	403160	1	14.50	99.00	7.25	3.30
	*	ROAD OVERTOPPING	@	WEST PARIS					
	G1	7403190	403190	403160	1	16.00	99.00	10.00	2.60
	*	7403200	403200	403180	VETERAN EXPRESSWAY NO OVERTOPPING				
	*	VETERAN EXPRESSWAY/HILLS AVE. RAMP SYSTEM							
	G1	7403210	403210	403200	1	12.50	99.00	20.00	2.60
	G1	7403240	403240	403210	1	12.50	99.00	14.00	2.60
	G1	7403220	403220	403210	1	16.50	99.00	8.00	2.60
	G1	7403230	403230	403220	1	16.30	99.00	5.20	2.60
	G1	7403260	403260	403240	1	17.00	99.00	8.00	2.60
	*								
	G1	8403250	403250	403240	1	15.78	99.00	11.00	3.20
	G1	8403270	403270	403200	1	13.50	99.00	3.00	3.20
	*	ROAD OVERTOPPING	@	BENJAMIN RD.					
	G1	7403350	403350	403300	1	21.50	99.00	285.60	2.60
	*	ROAD OVERTOPPING	@	ALONG BENJAMIN RD.					
	G1	7403360	403360	403350	1	24.80	99.00	7.60	2.60
	G1	8403370	403370	403360	1	20.80	99.00	1.25	3.20
	*								
	*	ROAD OVERTOPPING	@	ALONG ALVAREZ RD.					
	G1	7403404	403404	403400	1	21.00	99.00	14.00	2.60
	G1	7403408	403408	403406	1	21.00	99.00	12.00	2.60
	G1	7403410	403410	403408	1	21.00	99.00	12.00	2.60
	*								
	G1	8403425	403425	403420	1	17.25	99.00	2.00	3.30
	G1	6403425	403425	403420	1	23.00	99.00	100.00	1.00
	G1	8403435	403435	403430	1	22.51	99.00	3.00	3.30
	G1	6403435	403435	403430	1	23.30	99.00	100.00	1.00
	*	OVERTOPPING	@	BENJAMIN CENTER					
	G1	7403440	403440	403430	1	23.30	99.00	18.00	2.60
	G1	6403445	403445	403440	1	23.00	99.00	100.00	1.00
	G1	6403450	403450	403445	1	23.00	99.00	100.00	1.00
	G1	6403462	403462	403460	1	24.00	99.00	50.00	1.00
	G1	8403465	403465	403460	1	20.35	20.85	2.50	3.30
	G1	6403465	403465	403460	1	23.35	99.00	100.00	1.00
	*	ROAD OVERTOPPING	@	ALONG SLEIGH & JOHNS RD.					
	G1	7403470	403470	403460	1	22.79	99.00	12.00	2.60
	G1	7403480	403480	403470	1	22.79	99.00	12.80	2.60
	G1	7403490	403490	403480	1	22.04	99.00	8.00	2.60
	*	OUTFALL WEIR							
	G1	8403490	403490	403488	1	20.21	99.00	16.00	3.20
	G1	6403490	403490	403488	1	20.82	99.00	100.00	1.00
	*								
	*	ROAD OVERTOPPING	@	IDLEWILD AVE. W.					
	G1	7403508	403508	403500	1	21.70	99.00	8.00	2.60
	G1	8403510	403510	403508	1	21.00	99.00	2.00	3.30
	*	AIRPORT SERVICE CENTER							
	G1	7403516	403516	403500	1	20.00	99.00	12.00	2.60
	G1	7403518	403518	403516	1	22.55	99.00	5.20	2.60
	G1	8403520	403520	403518	1	19.03	99.00	3.00	3.30
	G1	7403528	403528	403516	1	20.58	99.00	8.00	2.60

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G1	8403530	403530	403528	1	20.57	99.00	1.60	3.30
G1	7403536	403536	403516	1	23.18	99.00	12.00	2.60
G1	7403538	403538	403536	1	23.18	99.00	6.00	2.60
G1	8403540	403540	403538	1	21.94	99.00	1.33	3.30
*	ROAD OVERTOPPING @ HOOVER BLVD.							
G1	7403550	403550	403548	1	21.54	99.00	160.00	2.60
*	SYSTEM ALONG HOOVER BLVD.							
G1	7403560	403560	403550	1	22.62	99.00	10.00	2.60
G1	7403570	403570	403560	1	23.00	99.00	10.00	2.60
G1	7403580	403580	403570	1	23.00	99.00	8.00	2.60
G1	7403590	403590	403570	1	25.50	99.00	8.00	2.60
G1	6403590	403590	403440	1	25.50	99.00	100.00	1.00
*	NORTH OF HILLS. AVE.							
G1	7403608	403608	403606	1	28.34	99.00	10.00	2.60
G1	7403610	403610	403608	1	28.34	99.00	16.00	2.60
*								
G1	6403720	403720	403710	1	25.60	99.00	50.00	1.00
*	ROAD OVERTOPPING @ ANDERSON RD.							
G1	7403750	403750	403700	1	23.00	99.00	160.80	2.60
*	SYSTEM ALONG OCCIDENT ST.							
G1	7403810	403810	403800	1	23.00	99.00	16.00	2.60
G1	7403820	403820	403810	1	23.00	99.00	16.00	2.60
G1	7403830	403830	403820	1	24.50	99.00	16.00	2.60
G1	7403840	403840	403830	1	26.00	99.00	16.00	2.60
G1	7403850	403850	403840	1	27.40	99.00	14.00	2.60
G1	7403858	403858	403850	1	28.50	99.00	8.00	2.60
*	ROAD OVERTOPPING @ HESPERIDES ST. N.							
G1	7403900	403900	403898	1	24.30	99.00	108.00	2.60
*	-----*							
*	404 SYSTEM							
*	-----*							
*	ROAD OVERTOPPING @ N. MANHATTAN							
G1	7404008	404008	404000	1	25.50	99.00	14.20	2.60
G1	8404010	404010	404008	1	25.50	99.00	6.00	3.20
G1	8404010	404010	404008	1	26.50	99.00	24.00	3.20
*	ROAD OVERTOPPING @ LOIS							
G1	7404100	404100	404098	1	27.80	99.00	144.00	2.60
*	ROAD OVERTOPPING @ N. CHURCH							
G1	7404300	404300	404298	1	29.51	99.00	80.00	2.60
*	CHURCH ST. SYSTEM							
G1	7404308	404308	404300	1	29.50	99.00	10.80	2.60
G1	7404310	404310	404308	1	30.50	99.00	12.00	2.60
G1	7404314	404314	404310	1	31.00	99.00	16.00	2.60
G1	7404316	404316	404314	1	32.00	99.00	12.00	2.60
G1	7404318	404318	404316	1	32.00	99.00	16.00	2.60
G1	7404320	404320	404318	1	32.00	99.00	12.00	2.60
G1	7404330	404330	404320	1	34.00	99.00	14.00	2.60
G1	7404340	404340	404330	1	35.00	99.00	16.00	2.60
G1	8404350	404350	404340	1	33.00	99.00	5.00	3.20
G1	7404360	404360	404350	1	33.40	99.00	8.00	2.60
*	N. DALE MABRY SYSTEM							
G1	7404410	404410	404400	1	33.50	99.00	10.00	2.60
G1	7404415	404415	404410	1	35.30	99.00	10.00	2.60
G1	6404420	404420	404410	1	35.30	99.00	100.00	1.00
G1	7404420	404420	404415	1	35.30	99.00	16.00	2.60
G1	7404430	404430	404420	1	36.80	99.00	16.00	2.60
G1	7404440	404440	404430	1	35.90	99.00	10.00	2.60
G1	7404450	404450	404440	1	36.30	99.00	10.00	2.60
G1	7404460	404460	404450	1	36.30	99.00	12.00	2.60
G1	7404468	404468	404460	1	36.50	99.00	10.00	2.60
*	CONTROL STRUCTURE. SURVEY POINT #5							
G1	8404470	404470	404468	1	36.54	99.00	12.00	3.20
G1	8404470	404470	404468	1	35.84	99.00	2.08	3.20
*	ROAD OVERTOPPING @ N. DALE MABRY							
G1	7404498	404498	404400	1	31.13	99.00	80.00	2.60
*	ROAD OVERTOPPING @ U/S OF DALE MABRY							
G1	7404500	404500	404498	1	31.93	99.00	116.00	2.60
*	IDLEWILD AVE. SYSTEM							
G1	7404610	404610	404600	1	30.27	99.00	8.00	2.60
G1	7404620	404620	404610	1	31.58	99.00	8.00	2.60
G1	7404630	404630	404620	1	31.32	99.00	15.20	2.60
G1	7404640	404640	404630	1	33.00	99.00	8.00	2.60
G1	8404650	404650	404640	1	34.50	99.00	20.00	3.30
G1	8404650	404650	404640	1	32.60	99.00	4.00	3.30
*	ROAD OVERTOPPING @ HIMES AVE.							
G1	7404690	404690	404600	1	31.50	99.00	48.00	2.60
*	ROAD OVERTOPPING @ IDLEWILD AVE.							
G1	7404700	404700	404698	1	31.71	99.00	38.40	2.60
*	ROAD OVERTOPPING @ W. PARIS							
G1	7404720	404720	404710	1	34.04	99.00	28.00	2.60
*	ROAD OVERTOPPING @ SOUTH OF WOODLYNNE							
G1	7404740	404740	404730	1	34.41	99.00	24.00	2.60
*	ROAD OVERTOPPING @ N. WOODLYNNE							
G1	7404800	404800	404740	1	34.97	99.00	32.00	2.60
*	CACCIATORE PARK SYSTEM							
G1	7404810	404810	404800	1	37.00	99.00	19.20	2.60
G1	7404820	404820	404810	1	38.91	99.00	16.80	2.60
G1	7404825	404825	404820	1	38.50	99.00	16.80	2.60
G1	7404830	404830	404825	1	38.68	99.00	16.80	2.60
G1	7404840	404840	404830	1	39.94	99.00	12.00	2.60
*	D/S OF EGYPT LAKE							
G1	7404900	404900	404800	1	40.00	99.00	18.00	2.60
G1	7404910	404910	404900	1	40.00	99.00	12.00	2.60
*	ROAD OVERTOPPING @ W. SLIGH AVE.							
G1	7404920	404920	404910	1	40.00	99.00	12.00	2.60
G1	7404940	404940	404930	1	38.00	99.00	16.80	2.60
*								
G1	8404950	404950	404940	1	41.00	99.00	25.00	3.20
G1	7404960	404960	404950	1	48.00	99.00	6.00	2.60
G1	7404970	404970	404960	1	48.00	99.00	10.00	2.60
G1	7404980	404980	404970	1	48.00	99.00	8.00	2.60
G1	7404985	404985	404940	1	47.60	99.00	6.00	2.60

Hydraulic Input Data for HCSWMM Extran Routing

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G1      7404990      404990      404985      1      46.60      99.00      6.00      2.60
*-----*
*      405 SYSTEM - 1 WITHIN H.C
*      @ EISENHOWER BUSINESS PARK
*-----*
G1      8405110      405110      405100      1      7.18      999.00      1.00      3.20
G1      7405120      405120      405100      1      14.50      99.00      10.00      2.60
G1      8405130      405130      405120      1      9.00      999.00      0.75      3.20
G1      8405130      405130      405120      1      13.30      999.00      12.00      3.20
G1      6405150      405150      405110      1      14.50      99.00      100.00      1.00
G1      8405160      405160      405140      1      11.50      999.00      3.00      3.20
G1      6405160      405160      405140      1      15.10      99.00      100.00      1.00
G1      8405180      405180      405170      1      14.17      999.00      3.00      3.20
G1      6405180      405180      405150      1      15.10      99.00      100.00      1.00
*-----*
*      405 SYSTEM - 2 WITHIN CITY OF TAMPA
*-----*
G1      6405430      405430      405400      1      25.00      999.00      100.00      1.00
G1      7405430      405430      405420      1      23.60      999.00      32.00      2.60
G1      6405500      405500      405390      1      23.10      999.00      50.00      1.00
G1      6405500      405500      405430      1      24.50      999.00      100.00      1.00
G1      7405535      405535      405530      1      27.50      999.00      24.00      2.60
G1      8405550      405550      405540      1      19.50      999.00      20.00      3.20
G1      7405550      405550      405540      1      23.00      999.00      44.00      2.60
*-----*
G1      8405555      405555      405550      1      20.10      25.20      6.00      3.20
G1      6405555      405555      405550      1      22.20      999.00      300.00      1.00
G1      7405600      405600      405450      1      20.50      999.00      12.00      2.60
G1      6405600      405600      405590      1      20.17      999.00      100.00      1.00
G1      8405700      405700      405600      1      20.17      999.00      12.00      3.20
*-----*
*      406 SYSTEM - WITHIN CITY OF TAMPA
*-----*
G1      7406100      406100      404100      1      28.00      99.00      72.00      2.60
G1      7406120      406120      406110      1      27.00      99.00      48.00      2.60
G1      7406140      406140      406130      1      27.00      99.00      48.00      2.60
G1      6406150      406150      406010      1      27.00      99.00      50.00      1.00
G1      7406160      406160      406150      1      27.00      99.00      48.00      2.60
G1      7406330      406330      406300      1      27.50      99.00      10.00      2.60
G1      7406400      406400      406320      1      28.50      99.00      48.00      2.60
G1      7406410      406410      406400      1      28.50      99.00      12.00      2.60
*-----*
G1      7406510      406510      406500      1      27.50      99.00      36.00      2.60
G1      7406600      406600      406520      1      28.70      99.00      36.00      2.60
G1      7406620      406620      406610      1      28.60      99.00      36.00      2.60
G1      6406630      406630      406600      1      28.60      99.00      100.00      1.00
G1      7406660      406660      406645      1      29.40      99.00      24.00      2.60
G1      7406710      406710      406675      1      28.00      99.00      24.00      2.60
*-----*
G1      7406845      406845      406820      1      29.50      99.00      8.00      2.60
G1      7406845      406845      406800      1      29.50      99.00      10.00      2.60
G1      7406855      406855      406850      1      30.00      99.00      10.00      2.60
G1      6406860      406860      406855      1      30.00      99.00      50.00      1.00
G1      6406885      406885      406870      1      30.70      99.00      100.00      1.00
*-----*
G1      7406900      406900      406885      1      30.00      99.00      8.00      2.60
G1      7406910      406910      406905      1      31.00      99.00      15.20      2.60
G1      7406935      406935      406905      1      31.00      99.00      15.20      2.60
G1      7406940      406940      406935      1      31.00      99.00      15.20      2.60
G1      7406950      406950      406940      1      31.00      99.00      12.80      2.60
*-----*
*      407 SYSTEM - WITHIN CITY OF TAMPA
*-----*
G1      7407400      407400      407300      1      26.50      99.00      32.80      2.60
*=====*
H1      2      403445      403440      1.00      1.00      1.00      15.00      99.00      0.00      0.00      0.00
H1      2      402400      402398      0.01      60.00      60.00      4.00      99.00      0.00      0.00      0.00
H1      2      402400      402398      0.01      30.00      30.00      3.00      99.00      0.00      0.00      0.00
* 1999-PUMP STATION -LSC PHASE IV
H1      2      402800      400061      0.01      30.00      30.00      3.00      99.00      0.00      0.00      0.00
H1      2      402800      400062      0.01      30.00      30.00      4.00      99.00      0.00      0.00      0.00
H1      2      402800      400063      0.01      30.00      30.00      5.00      99.00      0.00      0.00      0.00
*=====*
* BOUNDARY CONDITION *
*=====*
I1      400051      1
I1      400052      1
*
I1      400053      1
*
I1      400054      2
I1      400055      3
I1      400056      4
* FOR ROAD OVERTOPPING @ BOUNDARY 400051 & 400052
I1      400057      1
* 1999 PUMP STATION BOUNDARY @ SWC CHANNEL "G"
I1      400061      1
I1      400062      1
I1      400063      1
*---B.C GROUP #1-----*
J1      5
J3      0 2 1
J4      0.0 2.50 100.0 2.50
*---B.C GROUP #2-----*
J1      5
J3      0 2 1
J4      0.0 6.00 100.0 6.00
*---B.C GROUP #3-----*
J1      5
J3      0 2 1
J4      0.0 17.80 100.0 17.80

```

Hydraulic Input Data for HCSWMM Extran Routing

```
*---B.C GROUP #4-----*  
J1 5  
J3 0 2 1  
J4 0.0 21.00 100.0 21.00  
$ENDPROGRAM
```

APPENDIX 6-3

25-year / 24-hour Storm Event Simulation Summarized Results

25-year / 24-hour Storm Event Simulation Summarized Results

ZMAX	401000	-6.80	2.63	17.0
ZMAX	401100	-4.10	5.67	17.1
ZMAX	401200	-2.40	5.88	17.1
ZMAX	401300	-2.10	5.93	17.1
ZMAX	401400	-1.50	6.55	17.1
ZMAX	401600	-2.40	6.95	17.0
ZMAX	401700	-1.80	7.25	16.9
ZMAX	401800	-1.70	7.36	16.8
ZMAX	401900	-0.88	7.58	16.7
ZMAX	402000	-0.75	7.81	16.7
ZMAX	402080	-0.20	8.15	16.5
ZMAX	402090	-0.90	8.59	16.5
ZMAX	402100	-0.80	8.73	16.4
ZMAX	402200	1.40	8.74	16.4
ZMAX	402290	-0.93	8.74	16.4
ZMAX	402300	0.40	8.77	16.4
ZMAX	402340	0.00	8.77	16.4
ZMAX	402350	0.00	8.77	16.4
ZMAX	402358	1.00	8.77	16.4
ZMAX	402360	7.00	8.77	16.5
ZMAX	402920	0.63	9.89	15.8
ZMAX	402930	0.64	10.41	15.7
ZMAX	402940	2.00	11.60	15.4
ZMAX	402950	2.20	13.79	15.3
ZMAX	403000	1.50	14.00	15.3
ZMAX	403050	1.50	14.08	15.3
ZMAX	403100	3.60	14.07	15.3
ZMAX	403160	5.00	14.91	15.2
ZMAX	403200	5.09	15.09	15.2
ZMAX	403300	6.50	17.26	15.2
ZMAX	403350	6.80	17.40	15.2
ZMAX	403400	7.60	19.06	15.1
ZMAX	403500	8.37	19.49	15.0
ZMAX	403548	10.39	19.70	15.0
ZMAX	403550	10.38	20.05	15.0
ZMAX	403600	10.13	20.59	14.9
ZMAX	403650	11.60	20.92	14.8
ZMAX	403700	13.40	21.56	14.8
ZMAX	403750	13.50	22.32	14.7
ZMAX	403800	15.00	22.39	14.7
ZMAX	403898	14.73	23.43	15.0
ZMAX	403900	14.12	24.25	15.1
ZMAX	404000	17.20	24.27	15.1
ZMAX	404098	17.00	24.78	15.3
ZMAX	404100	17.10	24.93	15.3
ZMAX	404200	18.65	25.33	15.3
ZMAX	404298	18.13	25.55	15.4
ZMAX	404300	18.44	26.08	15.5
ZMAX	404400	19.20	26.22	15.6
ZMAX	404498	19.40	26.72	15.7
ZMAX	404499	19.68	26.96	15.7
ZMAX	404500	19.55	27.13	15.7
ZMAX	404600	22.00	27.65	15.7
ZMAX	404690	23.96	28.52	16.1
ZMAX	404698	23.80	29.34	14.0
ZMAX	404700	24.59	30.88	15.3
ZMAX	404710	25.92	30.92	15.3
ZMAX	404720	26.01	31.86	15.5
ZMAX	404730	28.69	31.92	15.4
ZMAX	404740	28.28	34.82	13.4
ZMAX	404800	28.47	35.74	13.4

25-year / 24-hour Storm Event Simulation Summarized Results

ZMAX	404900	31.92	35.82	13.4
ZMAX	404910	32.67	35.83	13.4
ZMAX	404920	33.12	35.84	13.4
ZMAX	404930	35.23	36.00	26.9
ZMAX	404940	35.27	37.45	26.9
ZMAX	400100	-1.06	2.79	13.4
ZMAX	400150	1.90	3.43	12.9
ZMAX	400160	0.30	3.42	13.6
ZMAX	400180	0.40	3.74	13.6
ZMAX	400190	0.30	4.08	13.6
ZMAX	400200	0.20	4.70	13.6
ZMAX	400300	-0.04	4.80	13.6
ZMAX	400340	1.11	4.83	16.4
ZMAX	400350	1.24	5.22	16.8
ZMAX	400390	-0.08	4.97	13.6
ZMAX	400400	-0.17	6.61	13.6
ZMAX	400500	-0.10	6.90	13.6
ZMAX	400590	-0.03	6.92	13.6
ZMAX	400600	-0.04	7.66	13.4
ZMAX	400605	0.60	7.67	13.4
ZMAX	400610	1.00	8.03	13.3
ZMAX	400615	1.60	8.11	13.3
ZMAX	400620	2.60	8.18	13.3
ZMAX	400630	3.30	8.24	13.3
ZMAX	400650	0.37	7.67	13.4
ZMAX	400660	1.00	7.67	13.4
ZMAX	400670	6.50	6.78	14.2
ZMAX	400700	-0.09	7.68	13.4
ZMAX	400800	1.70	7.68	13.5
ZMAX	401110	-4.00	5.67	17.1
ZMAX	401120	-2.40	5.69	17.1
ZMAX	401130	-0.90	5.72	17.1
ZMAX	401140	0.00	5.74	17.0
ZMAX	401150	2.99	5.94	17.2
ZMAX	401160	3.75	6.36	17.3
ZMAX	401170	5.50	6.02	15.8
ZMAX	401180	6.18	8.36	15.8
ZMAX	401186	6.50	8.42	15.7
ZMAX	401188	5.75	8.64	15.7
ZMAX	401190	6.90	9.06	15.7
ZMAX	401210	-1.90	5.87	17.1
ZMAX	401220	0.24	5.70	17.1
ZMAX	401230	1.14	5.54	17.0
ZMAX	401240	0.87	5.45	16.9
ZMAX	401310	-1.74	5.93	17.1
ZMAX	401320	-1.60	5.94	17.1
ZMAX	401330	1.18	5.93	17.1
ZMAX	401410	0.14	6.72	16.8
ZMAX	401420	-0.95	7.18	16.2
ZMAX	401430	1.00	7.32	16.1
ZMAX	401440	3.40	7.82	15.1
ZMAX	401500	4.00	6.94	17.0
ZMAX	401602	4.10	6.95	17.0
ZMAX	401604	4.34	6.95	17.0
ZMAX	401610	-0.80	6.95	17.0
ZMAX	401620	-1.06	7.03	17.3
ZMAX	401630	1.50	7.03	17.3
ZMAX	401632	5.00	7.04	17.3
ZMAX	401640	1.00	7.11	17.5
ZMAX	401642	3.00	7.11	17.5
ZMAX	401650	1.80	7.12	17.5

25-year / 24-hour Storm Event Simulation Summarized Results

ZMAX	401652	-1.60	7.11	17.5
ZMAX	401654	4.70	7.11	17.5
ZMAX	401656	4.20	7.11	17.6
ZMAX	401660	2.18	7.12	17.5
ZMAX	401662	2.69	7.12	17.5
ZMAX	401664	2.89	7.12	17.5
ZMAX	401670	5.12	8.33	13.4
ZMAX	401680	6.20	8.34	13.4
ZMAX	401690	6.36	8.57	13.2
ZMAX	401750	4.50	7.27	17.0
ZMAX	401850	4.50	7.37	16.9
ZMAX	402210	2.00	10.36	13.2
ZMAX	402220	3.15	10.36	13.2
ZMAX	402230	5.30	10.42	13.2
ZMAX	402238	5.10	10.43	13.2
ZMAX	402240	6.06	10.90	12.9
ZMAX	402250	6.00	10.90	12.9
ZMAX	402260	6.60	10.46	13.2
ZMAX	402270	6.70	13.85	13.1
ZMAX	402280	9.50	13.85	13.1
ZMAX	402285	9.30	10.47	13.2
ZMAX	402310	7.61	10.53	13.4
ZMAX	402320	7.85	10.56	13.4
ZMAX	402330	7.83	10.31	16.0
ZMAX	402370	7.90	9.12	13.1
ZMAX	402392	1.88	8.13	16.5
ZMAX	402394	2.01	7.96	16.9
ZMAX	402398	0.00	8.73	16.3
ZMAX	402400	0.00	7.95	17.0
ZMAX	402500	0.00	7.95	17.0
ZMAX	402510	0.33	7.96	17.0
ZMAX	402518	3.95	7.96	17.0
ZMAX	402520	4.10	8.02	14.0
ZMAX	402600	0.78	7.95	17.0
ZMAX	402610	0.36	8.50	13.9
ZMAX	402620	2.10	8.51	13.8
ZMAX	402630	3.69	9.66	13.4
ZMAX	402640	5.30	9.66	13.4
ZMAX	402698	0.12	7.94	17.0
ZMAX	402700	0.00	7.91	17.2
ZMAX	402800	0.00	7.90	17.2
ZMAX	402810	0.50	7.91	17.3
ZMAX	402818	1.12	7.91	17.3
ZMAX	402820	0.94	7.92	17.3
ZMAX	402828	1.29	7.92	17.3
ZMAX	402830	1.71	8.13	13.2
ZMAX	402840	4.10	8.13	13.1
ZMAX	402850	3.10	7.91	17.2
ZMAX	402860	4.36	7.60	22.8
ZMAX	402870	5.40	7.91	17.3
ZMAX	402880	5.28	7.91	17.2
ZMAX	402900	8.00	8.75	13.6
ZMAX	403060	5.51	14.11	15.2
ZMAX	403070	13.80	14.96	12.5
ZMAX	403110	14.18	15.61	12.7
ZMAX	403120	6.40	14.46	13.9
ZMAX	403125	8.07	14.46	13.9
ZMAX	403130	8.02	15.16	13.7
ZMAX	403140	7.20	15.16	13.7
ZMAX	403170	10.20	15.12	16.0
ZMAX	403180	14.50	15.44	12.7

25-year / 24-hour Storm Event Simulation Summarized Results

ZMAX	403190	10.00	14.93	15.2
ZMAX	403210	5.58	15.10	15.2
ZMAX	403220	11.00	17.96	12.9
ZMAX	403230	11.05	18.09	12.9
ZMAX	403240	6.00	15.12	15.2
ZMAX	403250	13.00	17.38	12.7
ZMAX	403260	13.00	17.37	13.1
ZMAX	403270	13.50	16.57	13.1
ZMAX	403360	20.67	23.10	13.2
ZMAX	403370	20.43	23.31	13.2
ZMAX	403404	18.00	19.93	13.6
ZMAX	403406	17.80	20.75	13.6
ZMAX	403408	17.74	20.87	13.5
ZMAX	403410	17.79	21.05	13.5
ZMAX	403420	14.20	19.08	15.1
ZMAX	403425	17.25	19.40	13.1
ZMAX	403430	16.30	19.11	15.1
ZMAX	403435	22.51	23.60	12.7
ZMAX	403440	16.61	22.34	13.9
ZMAX	403445	15.00	23.60	13.0
ZMAX	403450	21.00	23.54	13.4
ZMAX	403460	18.74	22.38	14.0
ZMAX	403462	17.00	24.38	15.0
ZMAX	403465	20.35	23.62	13.5
ZMAX	403470	18.74	22.78	13.9
ZMAX	403480	19.21	22.77	13.9
ZMAX	403488	17.92	21.57	13.9
ZMAX	403490	19.33	21.59	13.9
ZMAX	403508	20.04	20.09	0.0
ZMAX	403510	12.81	18.88	25.3
ZMAX	403516	11.70	19.72	14.7
ZMAX	403518	16.13	21.36	13.4
ZMAX	403520	19.03	21.42	13.4
ZMAX	403528	16.87	19.74	14.7
ZMAX	403530	20.57	23.29	12.7
ZMAX	403536	17.18	19.76	14.6
ZMAX	403538	17.91	23.90	13.1
ZMAX	403540	21.94	25.74	13.0
ZMAX	403560	10.94	23.43	12.9
ZMAX	403570	16.29	24.24	12.9
ZMAX	403580	18.64	24.31	12.9
ZMAX	403590	22.71	24.80	17.5
ZMAX	403606	22.60	24.49	14.0
ZMAX	403608	22.91	25.03	13.9
ZMAX	403610	23.03	25.17	13.9
ZMAX	403710	21.40	22.99	13.3
ZMAX	403720	24.00	25.82	13.1
ZMAX	403730	23.90	25.21	13.3
ZMAX	403810	16.03	24.48	13.8
ZMAX	403820	17.56	25.16	13.7
ZMAX	403830	19.68	26.06	13.7
ZMAX	403840	20.90	27.00	13.8
ZMAX	403850	22.40	28.29	13.8
ZMAX	403858	23.65	30.17	13.9
ZMAX	403860	24.00	30.19	13.9
ZMAX	404008	22.00	25.77	14.6
ZMAX	404010	18.50	26.88	14.4
ZMAX	404308	22.60	30.25	13.2
ZMAX	404310	25.41	31.72	13.1
ZMAX	404314	25.44	31.87	13.1
ZMAX	404316	25.85	32.75	13.1

25-year / 24-hour Storm Event Simulation Summarized Results

ZMAX	404318	26.13	32.92	13.0
ZMAX	404320	26.11	33.27	12.9
ZMAX	404330	26.50	34.11	12.8
ZMAX	404340	28.00	34.41	12.8
ZMAX	404350	28.00	30.89	25.7
ZMAX	404360	28.05	31.80	13.7
ZMAX	404410	24.30	28.23	16.7
ZMAX	404415	24.20	30.69	18.7
ZMAX	404420	24.90	30.79	18.4
ZMAX	404430	26.30	35.64	13.5
ZMAX	404440	28.40	36.92	13.6
ZMAX	404450	30.20	37.53	13.8
ZMAX	404460	30.30	37.59	13.8
ZMAX	404468	32.80	37.61	13.9
ZMAX	404470	35.84	37.63	14.0
ZMAX	404550	19.60	27.16	15.7
ZMAX	404610	27.14	31.56	13.1
ZMAX	404620	28.62	33.08	13.1
ZMAX	404630	28.67	33.21	13.1
ZMAX	404640	29.58	33.89	13.1
ZMAX	404650	32.60	34.49	13.0
ZMAX	404810	32.13	36.89	13.5
ZMAX	404820	33.99	39.05	14.7
ZMAX	404825	34.24	39.25	14.7
ZMAX	404830	34.36	39.46	15.0
ZMAX	404840	38.53	40.88	13.7
ZMAX	404950	40.44	41.63	13.1
ZMAX	404960	40.60	46.69	15.3
ZMAX	404970	41.61	46.72	15.1
ZMAX	404980	42.18	46.74	15.1
ZMAX	404985	42.85	45.08	14.7
ZMAX	404990	44.84	46.82	14.3
ZMAX	405000	3.50	7.93	15.1
ZMAX	405100	3.55	9.98	15.2
ZMAX	405110	7.18	10.05	15.4
ZMAX	405120	6.70	10.39	14.2
ZMAX	405130	8.92	13.33	13.6
ZMAX	405140	9.29	13.55	13.6
ZMAX	405150	9.30	14.58	14.3
ZMAX	405160	11.50	13.78	13.5
ZMAX	405165	11.49	14.51	13.0
ZMAX	405170	11.82	14.84	13.0
ZMAX	405180	14.17	15.42	12.7
ZMAX	405200	3.60	10.66	15.2
ZMAX	405210	4.80	9.31	15.2
ZMAX	405220	6.00	10.56	15.2
ZMAX	405230	7.50	12.39	15.3
ZMAX	405240	7.80	12.52	15.3
ZMAX	405250	8.30	12.80	15.3
ZMAX	405260	8.60	13.06	15.4
ZMAX	405270	8.63	15.00	15.4
ZMAX	405280	8.70	16.42	15.4
ZMAX	405290	9.00	16.55	15.4
ZMAX	405292	10.00	18.27	15.7
ZMAX	405294	11.00	18.35	15.7
ZMAX	405235	7.60	15.08	14.7
ZMAX	405285	9.50	20.10	20.6
ZMAX	405300	10.30	16.81	15.4
ZMAX	405305	16.50	23.89	23.3
ZMAX	405310	10.70	17.07	15.3
ZMAX	405320	11.50	17.44	15.2

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ZMAX	405390	11.20	17.73	15.1
ZMAX	405400	12.40	18.53	14.6
ZMAX	405410	12.50	19.23	14.1
ZMAX	405420	14.00	19.66	14.5
ZMAX	405430	14.60	20.00	15.1
ZMAX	405440	15.00	20.52	15.6
ZMAX	405450	15.20	21.03	16.1
ZMAX	405460	15.50	21.22	16.2
ZMAX	405470	15.90	21.39	16.2
ZMAX	405480	16.30	21.70	16.4
ZMAX	405490	16.60	22.54	16.9
ZMAX	405500	15.00	18.05	15.1
ZMAX	405510	15.60	18.64	15.1
ZMAX	405520	15.65	20.64	15.0
ZMAX	405530	15.80	20.68	15.0
ZMAX	405535	19.00	27.17	14.4
ZMAX	405540	16.00	20.69	15.0
ZMAX	405550	16.03	20.76	15.1
ZMAX	405555	17.10	20.97	14.9
ZMAX	405560	16.04	20.77	15.1
ZMAX	405570	16.05	20.77	15.1
ZMAX	405580	16.00	21.11	16.3
ZMAX	405590	17.00	21.11	16.3
ZMAX	405600	16.00	21.17	16.4
ZMAX	405700	17.50	21.87	13.8
ZMAX	406010	21.60	24.60	13.3
ZMAX	406015	23.84	25.32	13.1
ZMAX	406020	24.25	27.65	13.1
ZMAX	406025	24.50	27.71	13.1
ZMAX	406030	25.00	30.15	12.9
ZMAX	406100	17.25	24.97	15.3
ZMAX	406105	17.50	25.03	15.3
ZMAX	406110	17.60	25.07	15.2
ZMAX	406120	19.70	25.46	15.0
ZMAX	406130	20.40	25.47	15.0
ZMAX	406140	20.50	25.87	14.9
ZMAX	406150	20.70	25.92	14.9
ZMAX	406160	21.80	26.43	14.9
ZMAX	406170	22.00	26.72	14.9
ZMAX	406180	22.30	27.16	14.8
ZMAX	406200	19.33	25.36	15.3
ZMAX	406210	19.80	25.36	15.3
ZMAX	406220	20.10	25.38	15.3
ZMAX	406230	20.20	25.40	15.3
ZMAX	406300	22.40	27.24	14.8
ZMAX	406310	22.50	28.11	14.4
ZMAX	406320	22.40	28.14	14.4
ZMAX	406330	22.80	28.14	13.6
ZMAX	406335	23.40	28.14	13.6
ZMAX	406340	24.55	31.54	12.8
ZMAX	406345	25.10	33.91	12.9
ZMAX	406360	20.90	25.40	15.3
ZMAX	406365	21.60	25.41	15.3
ZMAX	406370	22.70	25.42	15.3
ZMAX	406375	23.10	27.07	13.0
ZMAX	406380	22.40	25.64	15.2
ZMAX	406390	22.70	25.72	15.1
ZMAX	406400	22.60	28.61	15.8
ZMAX	406410	23.30	29.16	14.1
ZMAX	406420	24.60	29.16	14.1
ZMAX	406450	23.50	28.77	14.6

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ZMAX	406460	23.50	28.77	14.6					
ZMAX	406500	22.80	28.62	15.9					
ZMAX	406510	22.90	28.70	16.2					
ZMAX	406520	23.30	28.70	16.2					
ZMAX	406600	23.20	29.09	17.5					
ZMAX	406610	24.30	29.12	17.5					
ZMAX	406620	24.30	29.25	17.3					
ZMAX	406630	24.20	29.09	17.7					
ZMAX	406645	24.60	29.26	17.2					
ZMAX	406660	24.40	29.78	16.6					
ZMAX	406675	25.20	29.80	16.5					
ZMAX	406680	26.00	29.74	17.1					
ZMAX	406690	26.10	29.60	21.1					
ZMAX	406710	25.10	29.89	16.2					
ZMAX	406800	25.70	29.92	15.8					
ZMAX	406805	27.64	30.56	15.1					
ZMAX	406810	27.80	30.56	15.1					
ZMAX	406820	26.40	30.04	15.3					
ZMAX	406825	26.50	30.04	15.3					
ZMAX	406830	26.60	30.03	16.4					
ZMAX	406835	26.80	30.09	15.2					
ZMAX	406840	26.80	31.53	14.0					
ZMAX	406845	26.53	30.39	14.3					
ZMAX	406850	26.72	30.41	14.3					
ZMAX	406855	26.66	31.57	13.9					
ZMAX	406860	27.30	31.54	14.0					
ZMAX	406870	27.20	31.60	13.9					
ZMAX	406885	26.64	31.58	13.9					
ZMAX	406900	27.07	32.52	12.9					
ZMAX	406905	27.14	32.53	12.9					
ZMAX	406910	27.50	32.65	12.9					
ZMAX	406915	28.50	32.66	12.9					
ZMAX	406935	27.11	32.60	12.9					
ZMAX	406940	27.22	32.66	12.9					
ZMAX	406950	29.42	32.68	12.9					
ZMAX	407000	19.97	27.39	15.7					
ZMAX	407100	20.08	27.52	15.7					
ZMAX	407200	21.00	27.69	15.7					
ZMAX	407300	22.18	27.73	15.7					
ZMAX	407400	22.54	28.15	16.0					
ZMAX	407500	24.54	28.58	16.8					
ZMAX	407600	23.01	28.61	16.8					
ZMAX	407700	23.58	28.64	16.8					
ZMAX	407800	23.27	28.62	16.9					
ZMAX	400001	88.00	88.00	0.0					
ZMAX	400002	88.00	88.00	0.0					
ZMAX	400003	88.00	88.00	0.0					
ZMAX	400004	88.00	88.00	0.0					
ZMAX	400005	88.00	88.00	0.0					
ZMAX	400006	88.00	88.00	0.0					
ZMAX	400051	-1.55	2.50	0.0					
ZMAX	400052	-1.55	2.50	0.0					
ZMAX	400053	-7.70	2.50	0.0					
ZMAX	400054	5.00	6.00	0.0					
ZMAX	400055	17.54	17.80	0.0					
ZMAX	400056	20.80	21.00	0.0					
ZMAX	400057	-1.55	2.50	0.0					
ZMAX	400061	-1.55	-0.55	0.0					
ZMAX	400062	-1.55	-0.55	0.0					
ZMAX	400063	-1.55	-0.55	0.0					
QMAX	1400100	54.	-1.06	2.79	-1.55	2.50	99.8	13.40	

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QMAX	2400100	54.	-1.06	2.79	-1.55	2.50	99.8	13.40
QMAX	9400160	208.	0.30	3.42	-1.06	2.79	183.9	13.62
QMAX	9400180	224.	0.40	3.74	0.30	3.42	183.7	13.60
QMAX	9400190	208.	0.40	3.74	0.30	4.08	-183.7	13.57
QMAX	1400200	48.	0.30	4.08	0.20	4.70	-91.8	13.55
QMAX	2400200	48.	0.30	4.08	0.20	4.70	-91.8	13.55
QMAX	9400300	204.	0.20	4.70	-0.04	4.80	-177.6	13.55
QMAX	9400390	199.	-0.04	4.80	-0.08	4.97	-117.9	13.67
QMAX	1400400	32.	0.01	6.61	-0.08	4.97	69.0	13.95
QMAX	1400500	38.	-0.10	6.90	-0.17	6.61	44.9	16.43
QMAX	9400590	199.	-0.03	6.92	-0.10	6.90	94.6	13.63
QMAX	1400600	42.	-0.01	6.92	-0.04	7.66	-57.0	13.13
QMAX	1400700	42.	-0.02	7.66	-0.09	7.68	-25.9	12.68
QMAX	9400800	198.	1.70	7.68	-0.09	7.68	33.3	13.35
QMAX	1400340	36.	1.11	4.83	0.42	4.80	67.2	17.40
QMAX	9400350	72.	1.24	5.22	1.11	4.83	66.9	17.32
QMAX	1400350	36.	1.42	5.22	0.87	5.45	-21.1	18.50
QMAX	2400350	36.	1.24	5.22	1.04	5.45	-20.4	18.42
QMAX	3400350	36.	1.89	5.22	1.49	5.45	-21.0	18.25
QMAX	9400605	120.	0.60	7.67	0.40	7.66	40.8	13.33
QMAX	1400610	30.	1.00	8.03	0.70	7.67	19.2	12.93
QMAX	1400615	30.	1.60	8.11	1.00	8.03	5.4	12.72
QMAX	1400620	18.	2.60	8.18	1.60	8.11	6.7	12.62
QMAX	1400630	18.	3.30	8.24	2.60	8.18	2.5	12.73
QMAX	1400650	42.	0.37	7.67	-0.04	7.66	18.9	15.77
QMAX	9400660	204.	1.00	7.67	0.37	7.67	15.1	14.50
QMAX	9401000	178.	-6.80	2.63	-7.70	2.50	2529.3	17.15
QMAX	9401100	179.	-4.10	5.67	-6.80	2.63	2510.4	17.15
QMAX	9401200	150.	-2.40	5.88	-4.10	5.67	2481.1	17.10
QMAX	9401300	150.	-2.60	5.93	-2.80	5.88	2534.5	17.07
QMAX	9401400	167.	-2.60	6.55	-2.80	5.93	2488.8	17.05
QMAX	9401600	244.	-2.40	6.95	-2.60	6.55	1941.6	16.65
QMAX	9401700	236.	-1.80	7.25	-2.00	6.95	730.4	16.33
QMAX	9401800	239.	-1.70	7.36	-1.80	7.25	839.4	16.32
QMAX	9401700	220.	-1.80	7.25	-2.00	6.95	1163.5	16.35
QMAX	9401800	220.	-1.70	7.36	-1.80	7.25	1061.1	16.08
QMAX	9401900	243.	-0.88	7.58	-1.10	7.36	1901.8	16.10
QMAX	1401110	72.	-4.00	5.67	-4.10	5.67	126.9	13.27
QMAX	1401120	66.	-2.40	5.69	-4.00	5.67	89.7	13.28
QMAX	1401130	60.	-0.90	5.72	-2.40	5.69	77.8	13.28
QMAX	1401140	54.	0.00	5.74	-0.80	5.72	40.9	13.60
QMAX	1401150	24.	2.99	5.94	2.44	5.74	6.2	20.65
QMAX	1401160	18.	3.75	6.36	3.49	5.94	5.8	20.47
QMAX	1401188	24.	6.50	8.42	5.75	8.64	-5.6	15.77
QMAX	2401186	18.	6.91	8.42	6.18	8.36	2.8	15.80
QMAX	1401186	18.	6.86	8.42	6.23	8.36	2.8	15.80
QMAX	9401170	120.	5.50	6.02	5.00	6.00	-13.1	0.07
QMAX	9401210	228.	-1.90	5.87	-2.40	5.88	60.5	12.92
QMAX	1401220	36.	0.24	5.70	-0.19	5.87	32.4	12.93
QMAX	2401220	36.	0.24	5.70	-0.19	5.87	32.4	12.93
QMAX	1401230	66.	1.37	5.70	1.14	5.54	58.8	17.40
QMAX	9401240	72.	1.14	5.54	0.87	5.45	59.0	17.48
QMAX	9401310	228.	-1.74	5.93	-2.10	5.93	-25.7	0.12
QMAX	1401320	30.	-1.60	5.94	-1.74	5.93	19.4	13.18
QMAX	9401330	228.	1.18	5.93	-2.10	5.93	123.0	13.17
QMAX	9401410	131.	0.50	6.72	-1.50	6.55	595.9	14.63
QMAX	1401420	36.	0.87	6.72	0.21	7.18	-44.2	12.80
QMAX	2401420	36.	0.14	6.72	-0.60	7.18	-42.1	12.83
QMAX	3401420	36.	0.63	6.72	-0.60	7.18	-44.1	12.72
QMAX	4401420	36.	0.60	6.72	0.34	7.18	-44.1	12.72
QMAX	9401430	132.	1.00	7.32	-0.95	7.18	602.4	14.67

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QMAX	9401440	142.	3.40	7.82	1.00	7.32	585.4	15.10
QMAX	9401610	227.	-0.80	6.95	-2.00	6.95	63.0	27.57
QMAX	1401620	48.	-0.62	6.95	-1.06	7.03	-60.8	27.57
QMAX	9401630	227.	1.50	7.03	-1.06	7.03	58.4	27.52
QMAX	1401640	36.	1.50	7.11	1.40	7.03	56.4	27.55
QMAX	1401650	36.	1.80	7.12	1.70	7.11	51.1	13.55
QMAX	9401660	212.	2.18	7.12	1.80	7.12	70.7	13.13
QMAX	1401670	24.	5.12	8.33	4.98	7.12	22.8	13.40
QMAX	9401680	182.	6.20	8.34	5.12	8.33	8.7	13.15
QMAX	1401690	24.	6.36	8.57	6.20	8.34	11.5	12.83
QMAX	9401602	163.	4.10	6.95	3.60	6.95	-20.6	14.52
QMAX	1401604	40.	4.34	6.95	4.10	6.95	-5.4	14.42
QMAX	2401604	40.	4.34	6.95	4.10	6.95	-5.4	14.42
QMAX	3401604	40.	4.34	6.95	4.10	6.95	-5.4	14.42
QMAX	9401652	246.	1.00	7.11	-1.60	7.11	-97.2	14.05
QMAX	9401662	184.	2.69	7.12	2.18	7.12	19.2	13.97
QMAX	1401664	29.	2.89	7.12	2.69	7.12	23.0	13.20
QMAX	9402000	242.	-0.75	7.81	-0.88	7.58	1902.5	16.10
QMAX	9402080	234.	-0.20	8.15	-0.75	7.81	1893.4	16.10
QMAX	9402090	222.	-0.20	8.15	-0.90	8.59	-1906.1	16.08
QMAX	9402100	222.	-0.80	8.73	-0.90	8.59	1907.1	16.05
QMAX	9402200	247.	1.40	8.74	-0.80	8.73	343.8	13.20
QMAX	9402290	258.	1.40	8.74	-0.93	8.74	-40.3	13.57
QMAX	1402300	48.	0.40	8.77	-0.93	8.74	41.0	13.58
QMAX	9402340	278.	0.50	8.77	0.40	8.77	22.2	0.20
QMAX	1402350	28.	0.05	8.77	0.00	8.77	18.7	13.25
QMAX	9402358	278.	1.00	8.77	0.00	8.77	17.3	0.10
QMAX	1402210	60.	2.58	10.36	1.96	8.74	187.6	13.18
QMAX	9402220	234.	3.15	10.36	2.00	10.36	221.1	13.20
QMAX	9402230	234.	5.30	10.42	3.15	10.36	137.9	13.25
QMAX	9402238	192.	5.30	10.42	5.10	10.43	-45.8	12.72
QMAX	1402240	40.	6.06	10.90	5.83	10.43	48.4	12.60
QMAX	9402250	192.	6.80	10.90	6.00	10.90	-13.6	12.92
QMAX	9402260	223.	6.60	10.46	5.30	10.42	78.4	13.08
QMAX	1402270	30.	6.70	13.85	6.45	10.46	35.3	12.97
QMAX	9402280	221.	9.50	13.85	6.90	13.85	25.6	13.15
QMAX	9402285	223.	9.30	10.47	6.60	10.46	6.9	13.32
QMAX	1402310	36.	7.91	10.53	7.61	8.74	30.1	13.37
QMAX	9402320	218.	7.85	10.56	7.61	10.53	20.4	15.53
QMAX	1402330	36.	7.85	10.56	7.83	10.31	21.3	13.50
QMAX	1402370	36.	7.90	9.12	6.46	8.77	16.7	13.07
QMAX	9402398	235.	0.00	8.73	-0.80	8.73	92.3	12.47
QMAX	1402400	42.	1.00	7.95	0.50	8.73	-54.6	25.43
QMAX	1402400	42.	1.00	7.95	0.50	8.73	-54.6	25.43
QMAX	1402400	36.	2.01	7.96	0.54	7.95	-15.0	12.97
QMAX	1402394	30.	2.80	8.13	2.05	7.96	12.3	27.65
QMAX	1402392	43.	1.88	8.13	1.61	8.15	-11.9	16.27
QMAX	1402500	72.	0.10	7.95	0.00	7.95	44.9	12.75
QMAX	1402500	72.	0.10	7.95	0.00	7.95	44.9	12.75
QMAX	1402510	40.	1.28	7.95	0.33	7.96	-34.1	12.93
QMAX	9402518	209.	3.95	7.96	0.33	7.96	25.5	13.43
QMAX	1402520	36.	4.10	8.02	3.95	7.96	28.4	12.87
QMAX	9402600	196.	0.90	7.95	0.00	7.95	57.9	13.48
QMAX	1402610	36.	0.78	7.95	0.36	8.50	-37.7	13.15
QMAX	9402620	212.	2.10	8.51	0.70	8.50	48.6	13.58
QMAX	1402630	24.	3.69	9.66	2.28	8.51	22.8	12.72
QMAX	9402640	212.	5.30	9.66	3.81	9.66	16.6	13.23
QMAX	9402698	226.	0.78	7.95	0.12	7.94	84.0	14.62
QMAX	1402700	48.	0.12	7.94	0.00	7.91	56.7	25.32
QMAX	9402800	226.	0.00	7.90	0.00	7.91	-84.5	14.58
QMAX	1402810	48.	0.50	7.91	0.00	7.90	87.8	13.05

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QMAX	9402818	197.	1.12	7.91	0.50	7.91	74.8	13.38
QMAX	1402820	28.	1.12	7.91	0.94	7.92	-47.1	12.73
QMAX	9402828	204.	1.29	7.92	0.94	7.92	64.0	12.85
QMAX	1402830	36.	1.71	8.13	1.29	7.92	43.7	12.57
QMAX	9402840	190.	4.10	8.13	1.71	8.13	41.1	12.37
QMAX	9402850	194.	3.10	7.91	1.30	7.90	64.2	12.77
QMAX	1402860	10.	4.36	7.60	4.00	7.91	4.1	25.95
QMAX	9402870	182.	5.40	7.91	3.10	7.91	18.8	12.93
QMAX	9402880	182.	5.28	7.91	3.10	7.91	12.6	13.00
QMAX	9402920	260.	0.63	9.89	-0.80	8.73	1896.2	15.42
QMAX	1402930	118.	0.64	10.41	0.63	9.89	1174.7	15.20
QMAX	1402930	107.	3.24	10.41	3.14	9.89	721.6	15.53
QMAX	9402940	227.	2.00	11.60	0.64	10.41	1897.9	15.23
QMAX	1402950	121.	2.20	13.79	2.00	11.60	758.3	14.10
QMAX	9403000	245.	2.20	13.79	1.50	14.00	-1894.8	15.17
QMAX	1403050	151.	1.50	14.08	1.48	14.00	665.0	15.12
QMAX	2403050	101.	5.71	14.08	5.61	14.00	279.5	15.03
QMAX	3403050	101.	5.71	14.08	5.61	14.00	279.5	15.03
QMAX	9403100	245.	3.60	14.07	1.50	14.08	1867.7	15.08
QMAX	9403160	400.	5.00	14.91	3.60	14.07	1825.5	15.22
QMAX	1403200	142.	5.09	15.09	5.00	14.91	1185.2	15.15
QMAX	2403200	95.	9.30	15.09	9.20	14.91	316.4	15.18
QMAX	3403200	95.	9.30	15.09	9.20	14.91	316.4	15.18
QMAX	9403300	236.	6.50	17.26	5.09	15.09	1784.3	15.18
QMAX	1403350	155.	6.80	17.40	6.70	17.26	1220.5	15.15
QMAX	2403350	103.	11.10	17.40	11.09	17.26	278.5	15.17
QMAX	3403350	103.	11.10	17.40	11.09	17.26	278.5	15.17
QMAX	9403400	388.	7.60	19.06	6.80	17.40	1774.7	15.03
QMAX	9403500	305.	8.37	19.49	7.60	19.06	1623.3	14.63
QMAX	9403548	305.	10.39	19.70	8.37	19.49	1608.4	14.63
QMAX	1403550	121.	10.39	19.70	10.38	20.05	-805.1	14.60
QMAX	2403550	121.	10.39	19.70	10.38	20.05	-805.1	14.60
QMAX	9403600	293.	10.38	20.05	10.13	20.59	-1587.5	14.38
QMAX	9403650	293.	11.60	20.92	10.13	20.59	1553.2	14.45
QMAX	9403700	293.	13.40	21.56	11.60	20.92	1356.9	14.45
QMAX	1403750	173.	13.50	22.32	13.40	21.56	974.5	14.22
QMAX	2403750	115.	18.28	22.32	18.18	21.56	366.9	14.70
QMAX	9403800	253.	15.00	22.39	14.05	22.32	1318.8	14.32
QMAX	9403898	253.	15.00	22.39	14.73	23.43	-1151.0	15.50
QMAX	1403900	84.	15.03	23.43	14.71	24.25	-395.5	15.38
QMAX	2403900	84.	14.73	23.43	14.12	24.25	-372.1	15.60
QMAX	3403900	84.	14.84	23.43	14.81	24.25	-382.3	15.50
QMAX	1403060	30.	5.51	14.11	4.61	14.08	33.7	13.13
QMAX	1403120	48.	6.45	14.46	4.73	14.07	83.5	13.53
QMAX	9403125	228.	8.60	14.46	6.40	14.46	67.6	13.67
QMAX	1403130	30.	8.27	14.46	8.08	15.16	-32.0	12.70
QMAX	2403130	30.	8.07	14.46	8.02	15.16	-32.6	12.67
QMAX	9403140	228.	8.30	15.16	7.20	15.16	-44.9	12.68
QMAX	1403190	30.	10.00	14.93	8.90	14.91	17.6	12.72
QMAX	1403210	60.	5.58	15.10	4.80	15.09	119.8	12.72
QMAX	1403220	24.	12.50	17.96	11.96	15.10	20.4	12.90
QMAX	1403230	16.	11.05	18.09	11.00	17.96	-4.9	12.33
QMAX	1403240	42.	6.00	15.12	5.58	15.10	37.9	12.40
QMAX	1403260	24.	13.00	17.37	12.38	15.12	16.2	13.07
QMAX	1403360	14.	20.67	23.10	20.28	17.40	8.3	13.22
QMAX	1403404	42.	18.20	19.93	18.00	19.06	14.5	13.65
QMAX	9403406	216.	19.00	20.75	18.00	19.93	14.5	13.55
QMAX	1403408	36.	17.80	20.75	17.78	20.87	-14.6	13.45
QMAX	1403410	24.	17.79	21.05	17.74	20.87	14.6	13.30
QMAX	9403420	250.	14.20	19.08	12.10	19.06	113.2	13.28
QMAX	9403430	250.	16.30	19.11	14.20	19.08	101.1	14.40

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QMAX	1403440	54.	16.61	22.34	16.30	19.11	97.4	14.43
QMAX	9403460	200.	19.70	22.38	16.60	22.34	72.9	13.53
QMAX	1403470	36.	19.38	22.78	18.74	22.38	15.6	14.88
QMAX	1403480	24.	19.21	22.77	18.74	22.78	-3.9	14.03
QMAX	1403490	24.	19.33	21.59	19.21	22.77	-19.6	13.87
QMAX	1403488	18.	17.92	21.57	17.54	17.80	8.9	13.93
QMAX	9403488	120.	20.90	21.57	20.80	21.00	23.6	13.93
QMAX	1403508	24.	20.04	20.09	19.94	19.49	0.0	0.02
QMAX	1403516	36.	11.70	19.72	11.67	19.49	45.5	13.08
QMAX	1403518	16.	16.13	21.36	16.10	19.72	8.4	12.88
QMAX	1403528	24.	16.87	19.74	16.03	19.72	22.2	12.82
QMAX	1403536	36.	17.18	19.76	16.03	19.72	30.4	13.10
QMAX	1403538	18.	17.91	23.90	17.18	19.76	21.3	12.93
QMAX	1403560	30.	10.94	23.43	10.82	20.05	72.6	12.77
QMAX	1403570	30.	16.29	24.24	15.94	23.43	39.3	12.42
QMAX	1403580	24.	18.64	24.31	18.29	24.24	13.6	12.40
QMAX	1403590	24.	22.71	24.80	22.19	24.24	15.5	17.48
QMAX	9403606	221.	22.60	24.49	22.00	20.59	17.8	14.05
QMAX	1403608	30.	22.91	25.03	22.60	24.49	17.9	13.90
QMAX	1403610	24.	23.03	25.17	22.91	25.03	18.0	13.72
QMAX	9403710	224.	21.40	22.99	19.98	21.56	34.3	13.82
QMAX	9403730	216.	23.90	25.21	21.40	22.99	14.1	13.25
QMAX	1403810	48.	16.03	24.48	15.76	22.39	142.8	13.07
QMAX	1403820	48.	17.56	25.16	16.03	24.48	101.8	12.82
QMAX	1403830	48.	19.68	26.06	17.56	25.16	82.6	12.90
QMAX	1403840	48.	20.90	27.00	19.68	26.06	77.6	14.57
QMAX	1403850	42.	22.40	28.29	20.90	27.00	67.3	14.33
QMAX	1403858	24.	23.65	30.17	22.47	28.29	35.6	15.95
QMAX	9403860	221.	24.00	30.19	22.40	30.17	72.7	13.65
QMAX	9404000	252.	17.20	24.27	14.12	24.25	1137.2	15.10
QMAX	9404098	252.	17.20	24.27	17.00	24.78	-928.2	15.83
QMAX	1404100	113.	17.10	24.93	17.00	24.78	462.9	15.78
QMAX	2404100	113.	17.10	24.93	17.00	24.78	462.9	15.78
QMAX	9404200	237.	18.65	25.33	17.10	24.93	774.4	15.65
QMAX	9404298	229.	18.65	25.33	18.13	25.55	-687.7	15.95
QMAX	1404300	84.	18.44	26.08	18.13	25.55	344.6	15.92
QMAX	2404300	84.	18.52	26.08	18.20	25.55	341.7	15.90
QMAX	9404400	195.	19.20	26.22	18.44	26.08	659.7	16.12
QMAX	1404498	84.	19.40	26.72	19.20	26.22	314.2	16.08
QMAX	2404498	84.	19.40	26.72	19.20	26.22	314.2	16.08
QMAX	9404499	168.	19.68	26.96	19.40	26.72	623.7	15.95
QMAX	1404500	124.	19.73	27.13	19.68	26.96	300.1	15.93
QMAX	2404500	124.	19.73	27.13	19.68	26.96	323.2	15.92
QMAX	9404600	235.	22.00	27.65	19.73	27.13	245.2	14.15
QMAX	1404690	48.	24.06	28.52	24.00	27.65	73.1	17.23
QMAX	1404690	48.	23.96	28.52	23.92	27.65	74.4	17.28
QMAX	1404690	48.	23.85	28.52	23.82	27.65	75.8	17.57
QMAX	9404698	200.	23.85	28.52	23.80	29.34	-287.8	14.03
QMAX	1404700	36.	24.59	30.88	23.90	29.34	90.0	16.02
QMAX	2404700	36.	24.59	30.88	23.80	29.34	90.1	16.02
QMAX	9404710	168.	25.92	30.92	24.59	30.88	179.3	15.93
QMAX	1404720	48.	26.01	31.86	25.92	30.92	171.0	15.97
QMAX	9404730	234.	28.69	31.92	26.01	31.86	202.4	13.47
QMAX	1404740	48.	29.13	34.82	28.69	31.92	186.5	13.43
QMAX	1404800	48.	28.47	35.74	28.28	34.82	77.5	14.65
QMAX	2404800	48.	28.49	35.74	28.39	34.82	77.5	14.65
QMAX	1404008	30.	22.00	25.77	21.00	24.27	36.8	14.18
QMAX	1404008	16.	22.90	25.77	22.00	24.27	8.4	14.28
QMAX	1404308	28.	22.60	30.25	21.57	26.08	61.2	13.02
QMAX	1404310	36.	26.66	31.72	25.00	30.25	56.3	12.88
QMAX	1404314	48.	25.44	31.87	25.41	31.72	45.9	12.83

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QMAX	1404316	36.	25.85	32.75	25.46	31.87	48.3	12.78
QMAX	1404318	48.	26.13	32.92	26.06	32.75	55.2	12.73
QMAX	1404320	36.	26.69	32.92	26.28	33.27	-48.7	12.55
QMAX	1404330	42.	27.35	34.11	26.11	33.27	54.1	12.70
QMAX	1404340	48.	28.00	34.41	26.50	34.11	48.0	12.55
QMAX	1404360	24.	28.05	31.80	28.00	30.89	19.2	13.48
QMAX	1404410	30.	24.30	28.23	22.20	26.22	33.4	19.83
QMAX	1404415	30.	25.50	30.69	24.30	28.23	32.8	20.17
QMAX	1404420	60.	24.90	30.79	24.20	30.69	113.6	13.30
QMAX	1404430	48.	26.30	35.64	25.90	30.79	101.3	13.60
QMAX	1404440	30.	28.59	36.92	26.30	35.64	39.1	15.52
QMAX	1404450	30.	30.20	37.53	28.40	36.92	30.2	12.93
QMAX	1404460	36.	30.30	37.59	30.20	37.53	26.9	12.90
QMAX	1404468	30.	32.80	37.61	30.56	37.59	12.0	17.92
QMAX	1404550	108.	19.60	27.16	19.55	27.13	374.7	15.85
QMAX	1404610	24.	27.14	31.56	25.98	27.65	29.7	13.10
QMAX	1404620	24.	28.62	33.08	28.57	31.56	25.2	12.65
QMAX	1404630	14.	28.67	33.21	28.62	33.08	6.5	15.53
QMAX	2404630	14.	28.67	33.21	28.62	33.08	6.5	15.53
QMAX	1404640	24.	29.58	33.89	28.85	33.21	15.4	12.65
QMAX	1404810	36.	32.13	36.89	29.68	35.74	64.4	14.85
QMAX	1404820	31.	33.99	39.05	33.76	36.89	55.3	14.85
QMAX	1404825	31.	34.58	39.25	34.50	39.05	40.5	17.78
QMAX	1404830	31.	34.36	39.46	34.24	39.25	37.4	18.85
QMAX	1404840	22.	38.53	40.88	36.98	39.46	32.4	13.62
QMAX	1404900	54.	31.92	35.82	28.58	35.74	39.9	12.45
QMAX	1404910	36.	32.67	35.83	31.92	35.82	20.4	27.18
QMAX	1404920	36.	33.12	35.84	32.67	35.83	20.4	27.08
QMAX	9404930	72.	35.23	36.00	33.12	35.84	20.4	26.90
QMAX	1404940	31.	35.27	37.45	35.23	36.00	20.4	26.90
QMAX	1404960	18.	40.60	46.69	40.44	41.63	11.4	13.55
QMAX	1404970	30.	41.61	46.72	41.46	46.69	19.9	12.67
QMAX	1404980	24.	42.18	46.74	41.75	46.72	11.5	12.70
QMAX	1404985	18.	42.85	45.08	37.10	37.45	15.0	14.23
QMAX	1404990	18.	44.84	46.82	43.57	45.08	8.4	14.30
QMAX	1405000	72.	3.50	7.93	3.40	7.82	585.5	15.07
QMAX	9405100	120.	3.55	9.98	3.50	7.93	544.7	15.22
QMAX	9405200	120.	3.60	10.66	3.50	9.98	528.5	15.25
QMAX	1405210	96.	4.80	9.31	4.75	10.66	264.2	15.23
QMAX	2405210	96.	4.80	9.31	4.75	10.66	264.2	15.23
QMAX	9405220	184.	6.00	10.56	4.80	9.31	524.6	15.23
QMAX	9405230	127.	7.50	12.39	6.00	10.56	498.2	15.32
QMAX	9405240	166.	7.80	12.52	7.50	12.39	451.5	15.45
QMAX	1405250	84.	8.30	12.80	7.80	12.52	225.7	15.43
QMAX	2405250	84.	8.30	12.80	7.80	12.52	225.7	15.45
QMAX	9405260	118.	8.60	13.06	8.30	12.80	451.4	15.43
QMAX	1405270	60.	8.63	15.00	8.60	13.06	150.5	15.42
QMAX	2405270	60.	8.63	15.00	8.60	13.06	150.5	15.42
QMAX	3405270	60.	8.63	15.00	8.60	13.06	150.5	15.42
QMAX	1405280	60.	8.70	16.42	8.63	15.00	148.5	15.38
QMAX	2405280	60.	8.70	16.42	8.63	15.00	148.5	15.38
QMAX	3405280	60.	8.70	16.42	8.63	15.00	148.5	15.38
QMAX	9405290	142.	9.00	16.55	8.70	16.42	427.3	15.25
QMAX	9405300	180.	10.30	16.81	9.00	16.55	400.0	15.12
QMAX	9405310	120.	10.70	17.07	10.30	16.81	380.9	14.55
QMAX	1405320	72.	11.50	17.44	10.79	17.07	127.7	14.52
QMAX	2405320	72.	11.50	17.44	10.79	17.07	127.7	14.52
QMAX	3405320	72.	11.50	17.44	10.79	17.07	127.7	14.52
QMAX	9405390	137.	11.20	17.73	10.90	17.44	385.0	14.48
QMAX	1405400	48.	12.40	18.53	12.20	17.73	57.5	13.07
QMAX	2405400	48.	12.40	18.53	12.20	17.73	57.5	13.07

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QMAX	3405400	48.	12.40	18.53	12.20	17.73	57.5	13.07
QMAX	1405410	48.	12.50	19.23	12.40	18.53	54.9	13.07
QMAX	2405410	48.	12.50	19.23	12.40	18.53	59.6	13.07
QMAX	3405410	48.	12.50	19.23	12.40	18.53	59.6	13.07
QMAX	1405420	48.	14.00	19.66	12.50	19.23	46.4	18.78
QMAX	2405420	48.	14.00	19.66	12.50	19.23	46.4	18.78
QMAX	1405430	48.	14.60	20.00	14.00	19.66	45.2	18.78
QMAX	2405430	48.	14.60	20.00	14.00	19.66	45.2	18.78
QMAX	1405440	48.	15.00	20.52	14.60	20.00	42.6	19.23
QMAX	2405440	48.	15.00	20.52	14.60	20.00	42.6	19.23
QMAX	1405450	48.	15.20	21.03	15.00	20.52	42.4	19.25
QMAX	2405450	48.	15.20	21.03	15.00	20.52	42.4	19.25
QMAX	1405460	36.	15.50	21.22	15.20	21.03	14.0	20.38
QMAX	2405460	36.	15.50	21.22	15.20	21.03	14.0	20.38
QMAX	3405460	36.	15.50	21.22	15.20	21.03	14.0	20.38
QMAX	4405460	36.	15.50	21.22	15.20	21.03	14.0	20.38
QMAX	1405470	36.	15.90	21.39	15.50	21.22	13.8	20.45
QMAX	2405470	36.	15.90	21.39	15.50	21.22	13.8	20.45
QMAX	3405470	36.	15.90	21.39	15.50	21.22	13.8	20.45
QMAX	4405470	36.	15.90	21.39	15.50	21.22	13.8	20.45
QMAX	1405480	36.	16.30	21.70	15.90	21.39	18.3	20.48
QMAX	2405480	36.	16.30	21.70	15.90	21.39	18.3	20.48
QMAX	3405480	36.	16.30	21.70	15.90	21.39	18.3	20.48
QMAX	1405490	24.	16.60	22.54	16.30	21.70	13.5	20.53
QMAX	2405490	24.	16.60	22.54	16.30	21.70	13.5	20.53
QMAX	3405490	24.	16.60	22.54	16.30	21.70	13.5	20.53
QMAX	4405490	24.	16.60	22.54	16.30	21.70	13.5	20.53
QMAX	9405500	180.	15.00	18.05	11.20	17.73	260.2	14.75
QMAX	9405510	108.	15.60	18.64	15.00	18.05	197.2	15.12
QMAX	1405520	54.	15.65	20.64	15.60	18.64	98.6	15.03
QMAX	2405520	54.	15.65	20.64	15.60	18.64	98.6	15.03
QMAX	9405530	114.	15.80	20.68	15.65	20.64	197.4	14.93
QMAX	9405540	156.	16.00	20.69	15.80	20.68	79.1	16.00
QMAX	9405560	120.	16.04	20.77	16.03	20.76	49.3	16.45
QMAX	9405570	120.	16.05	20.77	16.04	20.77	45.3	16.47
QMAX	1405580	36.	17.50	21.11	17.30	20.77	22.4	16.73
QMAX	2405580	36.	17.50	21.11	17.30	20.77	22.4	16.73
QMAX	9405590	108.	17.00	21.11	16.00	21.11	44.3	16.68
QMAX	1405120	30.	6.70	10.39	6.22	9.98	20.9	13.75
QMAX	1405140	29.	9.29	13.55	8.92	13.33	21.8	13.10
QMAX	1405165	30.	11.50	13.78	11.49	14.51	-25.5	13.02
QMAX	1405170	30.	11.82	14.84	11.49	14.51	11.7	12.97
QMAX	1405285	24.	9.50	20.10	8.70	16.42	31.1	23.58
QMAX	1405292	30.	10.00	18.27	9.00	16.55	37.1	12.70
QMAX	1405294	60.	11.00	18.35	10.00	18.27	30.0	17.73
QMAX	1405235	30.	7.60	15.08	7.50	12.39	49.2	14.63
QMAX	1405305	36.	16.50	23.89	16.20	16.81	58.4	23.33
QMAX	1405535	36.	19.00	27.17	17.30	20.68	69.3	13.90
QMAX	2405535	36.	19.00	27.17	17.30	20.68	69.3	13.90
QMAX	1405600	36.	16.00	21.17	15.20	21.03	39.1	23.93
QMAX	1405700	24.	17.50	21.87	17.40	21.17	22.8	12.92
QMAX	2405700	24.	17.50	21.87	17.40	21.17	22.8	12.92
QMAX	1406100	72.	20.50	24.97	19.80	24.93	85.4	14.33
QMAX	2406100	72.	17.25	24.97	17.10	24.93	117.3	12.87
QMAX	1406105	72.	17.50	25.03	17.25	24.97	178.4	12.87
QMAX	1406110	72.	17.60	25.07	17.50	25.03	192.3	12.88
QMAX	1406120	44.	19.90	25.07	19.70	25.46	-101.4	12.87
QMAX	2406120	44.	19.90	25.07	19.70	25.46	-101.5	12.87
QMAX	9406130	127.	20.40	25.47	19.70	25.46	193.0	12.87
QMAX	1406140	44.	20.50	25.87	20.40	25.47	85.5	12.90
QMAX	2406140	44.	20.50	25.87	20.40	25.47	86.0	12.90

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QMAX	9406150	126.	20.70	25.92	20.50	25.87	156.4	12.93
QMAX	1406160	42.	21.80	26.43	20.70	25.92	75.8	12.92
QMAX	2406160	42.	21.80	26.43	20.70	25.92	75.8	13.03
QMAX	1406170	48.	22.15	26.72	21.80	26.43	153.7	12.85
QMAX	1406180	48.	22.30	27.16	22.00	26.72	78.3	12.85
QMAX	2406180	48.	22.30	27.16	22.00	26.72	78.3	12.85
QMAX	9406300	120.	22.40	27.24	22.30	27.16	164.1	12.77
QMAX	1406310	36.	22.50	28.11	22.40	27.24	37.3	19.48
QMAX	2406310	36.	22.50	28.11	22.40	27.24	37.3	19.48
QMAX	3406310	36.	22.50	28.11	22.40	27.24	37.3	19.48
QMAX	4406310	36.	22.50	28.11	22.40	27.24	37.3	19.48
QMAX	9406320	126.	22.50	28.11	22.40	28.14	-147.4	19.58
QMAX	1406400	36.	22.60	28.61	22.40	28.14	35.7	19.78
QMAX	2406400	36.	22.60	28.61	22.40	28.14	35.7	19.78
QMAX	3406400	36.	22.60	28.61	22.40	28.14	35.7	19.78
QMAX	4406400	36.	22.60	28.61	22.40	28.14	35.7	19.78
QMAX	9406500	120.	22.80	28.62	22.60	28.61	119.8	19.57
QMAX	1406510	36.	22.90	28.70	22.80	28.62	31.9	25.38
QMAX	2406510	36.	22.90	28.70	22.80	28.62	31.9	25.38
QMAX	3406510	36.	22.90	28.70	22.80	28.62	31.9	25.38
QMAX	9406520	120.	23.30	28.70	22.90	28.70	115.2	18.87
QMAX	1406600	36.	23.40	29.09	23.30	28.70	37.4	23.43
QMAX	2406600	36.	23.40	29.09	23.30	28.70	30.3	23.43
QMAX	3406600	36.	23.40	29.09	23.30	28.70	30.3	23.43
QMAX	1406630	18.	24.20	29.09	24.10	29.09	-3.0	12.53
QMAX	2406630	18.	24.20	29.09	24.10	29.09	-3.0	12.53
QMAX	9406610	126.	24.30	29.12	23.20	29.09	91.8	13.98
QMAX	1406620	36.	24.32	29.12	24.30	29.25	-28.2	26.22
QMAX	2406620	36.	24.32	29.12	24.30	29.25	-28.2	26.22
QMAX	3406620	36.	24.32	29.12	24.30	29.25	-28.2	26.22
QMAX	9406645	126.	24.60	29.26	24.30	29.25	83.9	26.22
QMAX	1406660	36.	24.60	29.26	24.40	29.78	-37.8	27.00
QMAX	2406660	36.	24.60	29.26	24.40	29.78	-33.7	27.00
QMAX	9406675	126.	25.20	29.80	24.40	29.78	71.7	14.98
QMAX	1406680	28.	26.00	29.74	25.95	29.80	-13.3	12.62
QMAX	2406680	28.	26.00	29.74	25.95	29.80	13.3	12.62
QMAX	1406690	30.	26.10	29.60	26.02	29.74	18.4	28.00
QMAX	1406710	36.	25.20	29.80	25.10	29.89	-24.8	12.50
QMAX	2406710	36.	25.20	29.80	25.10	29.89	-18.7	12.50
QMAX	9406800	120.	25.70	29.92	25.10	29.89	105.6	13.90
QMAX	1406805	36.	27.64	30.56	25.70	29.92	23.7	12.70
QMAX	9406810	130.	27.80	30.56	27.64	30.56	22.9	12.60
QMAX	9406825	130.	26.50	30.04	26.40	30.04	-9.9	12.55
QMAX	1406830	24.	26.60	30.03	26.50	30.04	-6.6	12.55
QMAX	9406835	130.	27.50	30.04	26.80	30.09	-21.8	13.67
QMAX	1406840	18.	26.80	30.09	26.40	31.53	-10.9	13.60
QMAX	1406840	18.	26.80	31.53	26.78	30.09	11.2	13.60
QMAX	9406860	130.	27.30	31.54	26.80	31.53	52.6	13.13
QMAX	1406870	18.	27.30	31.54	27.20	31.60	-8.0	12.40
QMAX	1406870	18.	27.30	31.54	27.20	31.60	-8.0	12.40
QMAX	1406820	30.	26.40	30.04	25.95	29.92	21.0	14.02
QMAX	1406820	30.	26.40	30.04	25.95	29.92	21.4	14.02
QMAX	1406845	24.	27.50	30.04	26.67	30.39	-6.9	13.03
QMAX	1406845	30.	26.53	30.39	26.28	29.92	24.4	12.97
QMAX	9406850	130.	26.72	30.41	26.53	30.39	65.7	13.92
QMAX	1406855	30.	26.72	30.41	26.66	31.57	-17.4	12.68
QMAX	9406885	130.	26.66	31.57	26.64	31.58	-59.0	13.27
QMAX	1406900	24.	27.07	32.52	26.64	31.58	21.0	12.72
QMAX	9406905	130.	27.14	32.53	27.07	32.52	89.0	12.85
QMAX	1406910	29.	27.50	32.65	27.20	32.53	18.3	12.37
QMAX	9406915	130.	28.50	32.66	28.20	32.65	28.0	12.73

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QMAX	1406935	29.	27.32	32.60	27.14	32.53	10.7	12.47
QMAX	1406940	29.	27.22	32.66	27.11	32.60	12.8	12.42
QMAX	1406950	24.	29.42	32.68	29.10	32.66	-6.2	12.35
QMAX	9406010	124.	21.60	24.60	20.90	24.27	129.3	13.73
QMAX	9406015	128.	23.84	25.32	21.60	24.60	94.5	13.12
QMAX	1406020	36.	24.25	27.65	23.84	25.32	94.5	13.12
QMAX	9406025	130.	24.50	27.71	24.25	27.65	56.8	12.83
QMAX	1406030	18.	25.00	30.15	24.80	27.71	15.4	12.87
QMAX	1406340	16.	24.68	31.54	24.50	27.71	14.2	12.77
QMAX	2406340	16.	24.68	31.54	24.50	27.71	14.2	12.77
QMAX	3406340	16.	24.80	27.71	24.55	31.54	-14.2	12.77
QMAX	1406200	54.	19.33	25.36	18.80	25.33	124.5	12.97
QMAX	9406210	120.	19.80	25.36	19.33	25.36	107.4	12.82
QMAX	1406220	54.	20.10	25.38	19.80	25.36	101.1	12.82
QMAX	1406230	54.	20.20	25.40	20.10	25.38	107.5	12.78
QMAX	1406360	54.	20.90	25.40	20.20	25.40	107.7	12.92
QMAX	1406390	24.	22.70	25.72	22.40	27.24	-21.5	13.25
QMAX	1406380	29.	22.40	25.64	22.30	25.40	36.3	12.78
QMAX	9406390	120.	22.70	25.72	22.40	25.64	21.6	13.25
QMAX	1406365	48.	21.60	25.41	20.90	25.40	68.8	13.27
QMAX	1406370	43.	22.70	25.42	22.00	25.41	65.7	12.87
QMAX	1406375	36.	23.30	25.42	23.10	27.07	-47.6	13.05
QMAX	1406330	30.	22.80	28.14	22.50	27.24	34.5	12.63
QMAX	9406335	120.	23.40	28.14	22.80	28.14	43.4	12.63
QMAX	1406340	18.	24.60	28.14	24.55	31.54	-18.3	12.83
QMAX	1406345	16.	25.15	31.54	25.10	33.91	-11.6	13.05
QMAX	1406345	16.	25.15	31.54	25.10	33.91	-11.6	13.05
QMAX	1406410	18.	24.10	28.61	23.30	29.16	-9.1	12.63
QMAX	2406410	18.	24.10	28.61	23.30	29.16	-9.1	12.63
QMAX	9406420	120.	24.60	29.16	23.30	29.16	42.1	12.62
QMAX	1406450	28.	23.55	28.61	23.50	28.77	-10.3	12.55
QMAX	2406450	28.	23.55	28.61	23.50	28.77	-18.2	12.55
QMAX	9406460	120.	23.50	28.77	23.50	28.77	52.9	12.60
QMAX	9407000	144.	19.97	27.39	19.60	27.16	373.9	15.70
QMAX	1407100	96.	20.08	27.52	19.97	27.39	184.9	15.62
QMAX	2407100	96.	20.11	27.52	19.97	27.39	185.7	15.62
QMAX	9407200	144.	21.00	27.69	19.27	27.52	366.9	15.52
QMAX	9407300	144.	22.10	27.73	21.00	27.69	227.8	16.62
QMAX	1407400	32.	22.54	28.15	22.18	27.73	54.6	21.22
QMAX	2407400	32.	22.54	28.15	22.18	27.73	54.6	21.22
QMAX	1407500	24.	24.54	28.58	24.34	28.15	23.6	13.82
QMAX	2407500	24.	24.54	28.58	24.34	28.15	23.6	13.82
QMAX	3407500	24.	24.54	28.58	24.34	28.15	23.6	13.82
QMAX	9407600	96.	25.00	28.61	24.50	28.58	74.9	13.83
QMAX	1407700	29.	23.58	28.64	22.31	28.61	36.7	13.33
QMAX	1407800	38.	23.27	28.62	23.01	28.61	47.5	13.08
QMAX	1400001	12.	88.00	88.00	1.90	3.43	0.0	0.00
QMAX	1400001	36.	88.00	88.00	4.30	8.24	0.0	0.00
QMAX	1400001	60.	88.00	88.00	1.50	8.03	0.0	0.00
QMAX	1400001	12.	88.00	88.00	6.50	6.78	0.0	0.00
QMAX	1400001	60.	88.00	88.00	6.20	8.36	0.0	0.00
QMAX	1400001	12.	88.00	88.00	6.90	9.06	0.0	0.00
QMAX	1400001	12.	88.00	88.00	4.50	7.37	0.0	0.00
QMAX	1400001	12.	88.00	88.00	4.50	7.27	0.0	0.00
QMAX	1400001	12.	88.00	88.00	4.70	7.11	0.0	0.00
QMAX	1400001	12.	88.00	88.00	4.20	7.11	0.0	0.00
QMAX	1400002	12.	88.00	88.00	5.00	7.04	0.0	0.00
QMAX	1400002	12.	88.00	88.00	4.00	6.94	0.0	0.00
QMAX	1400002	12.	88.00	88.00	3.00	7.11	0.0	0.00
QMAX	1400002	12.	88.00	88.00	7.00	8.77	0.0	0.00
QMAX	1400002	120.	88.00	88.00	3.00	7.96	0.0	0.00

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QMAX	1400002	60.	88.00	88.00	2.50	7.95	0.0	0.00		
QMAX	1400002	12.	88.00	88.00	8.00	8.75	0.0	0.00		
QMAX	1400002	36.	88.00	88.00	12.00	17.96	0.0	0.00		
QMAX	1400002	36.	88.00	88.00	13.00	17.38	0.0	0.00		
QMAX	1400002	84.	88.00	88.00	16.29	24.24	0.0	0.00		
QMAX	1400003	60.	88.00	88.00	13.50	23.43	0.0	0.00		
QMAX	1400003	60.	88.00	88.00	7.50	15.10	0.0	0.00		
QMAX	1400003	60.	88.00	88.00	9.00	15.12	0.0	0.00		
QMAX	1400003	60.	88.00	88.00	17.90	21.57	0.0	0.00		
QMAX	1400003	12.	88.00	88.00	14.50	15.44	0.0	0.00		
QMAX	1400003	12.	88.00	88.00	21.94	25.74	0.0	0.00		
QMAX	1400003	12.	88.00	88.00	19.03	21.42	0.0	0.00		
QMAX	1400003	12.	88.00	88.00	12.81	18.88	0.0	0.00		
QMAX	1400003	12.	88.00	88.00	17.25	19.40	0.0	0.00		
QMAX	1400003	12.	88.00	88.00	22.51	23.60	0.0	0.00		
QMAX	1400004	12.	88.00	88.00	15.00	23.60	0.0	0.00		
QMAX	1400004	12.	88.00	88.00	21.00	23.54	0.0	0.00		
QMAX	1400004	12.	88.00	88.00	17.00	24.38	0.0	0.00		
QMAX	1400004	12.	88.00	88.00	20.43	23.31	0.0	0.00		
QMAX	1400004	12.	88.00	88.00	10.20	15.12	0.0	0.00		
QMAX	1400004	12.	88.00	88.00	14.18	15.61	0.0	0.00		
QMAX	1400004	12.	88.00	88.00	24.00	25.82	0.0	0.00		
QMAX	1400004	12.	88.00	88.00	20.35	23.62	0.0	0.00		
QMAX	1400004	12.	88.00	88.00	13.80	14.96	0.0	0.00		
QMAX	1400005	12.	88.00	88.00	20.57	23.29	0.0	0.00		
QMAX	1400005	12.	88.00	88.00	13.50	16.57	0.0	0.00		
QMAX	1400005	12.	88.00	88.00	18.50	26.88	0.0	0.00		
QMAX	1400005	60.	88.00	88.00	35.00	39.46	0.0	0.00		
QMAX	1400005	60.	88.00	88.00	32.00	37.59	0.0	0.00		
QMAX	1400005	60.	88.00	88.00	29.00	36.92	0.0	0.00		
QMAX	1400005	60.	88.00	88.00	24.00	30.25	0.0	0.00		
QMAX	1400005	12.	88.00	88.00	32.60	34.49	0.0	0.00		
QMAX	1400005	12.	88.00	88.00	35.84	37.63	0.0	0.00		
QMAX	1400005	12.	88.00	88.00	17.10	20.97	0.0	0.00		
QMAX	1400006	12.	88.00	88.00	7.18	10.05	0.0	0.00		
QMAX	1400006	12.	88.00	88.00	9.30	14.58	0.0	0.00		
QMAX	1400006	12.	88.00	88.00	14.17	15.42	0.0	0.00		
QWEIR	7400100	400100	400057	-1.06	5.00	-1.55	2.79	0.0	2.50	0.0
QWEIR	8400150	400150	400100	1.90	1.90	-1.06	3.43	25.9	2.79	12.8
QWEIR	7400200	400200	400190	0.20	6.00	0.30	4.70	0.0	4.08	0.0
QWEIR	7400340	400340	400300	1.11	5.29	-0.04	4.83	0.0	4.80	0.0
QWEIR	7400350	400350	401240	1.24	5.30	0.87	5.22	-5.6	5.45	16.9
QWEIR	7400400	400400	400390	-0.17	5.50	-0.08	6.61	48.4	4.97	13.6
QWEIR	7400500	400500	400400	-0.10	5.50	-0.17	6.90	74.7	6.61	13.6
QWEIR	7400600	400600	400590	-0.04	6.50	-0.03	7.66	45.4	6.92	13.4
QWEIR	7400610	400610	400605	1.00	7.05	0.60	8.03	23.6	7.67	13.3
QWEIR	7400615	400615	400610	1.60	6.00	1.00	8.11	22.2	8.03	13.3
QWEIR	7400620	400620	400615	2.60	6.00	1.60	8.18	24.5	8.11	13.2
QWEIR	7400630	400630	400620	3.30	6.50	2.60	8.24	8.8	8.18	13.3
QWEIR	7400650	400650	400600	0.37	6.50	-0.04	7.67	17.6	7.66	14.2
QWEIR	6400670	400670	400660	6.50	7.40	1.00	6.78	-13.8	7.67	13.5
QWEIR	7400700	400700	400600	-0.09	6.50	-0.04	7.68	38.8	7.66	13.4
QWEIR	8401180	401180	401170	6.18	8.24	5.50	8.36	5.6	6.02	15.8
QWEIR	7401188	401188	401186	5.75	11.00	6.50	8.64	0.0	8.42	0.0
QWEIR	7401186	401186	401180	6.50	10.07	6.18	8.42	0.0	8.36	0.0
QWEIR	8401190	401190	401160	6.90	6.90	3.75	9.06	5.7	6.36	15.7
QWEIR	8401190	401190	401188	6.90	6.90	5.75	9.06	6.2	8.64	13.0
QWEIR	7401220	401220	401210	0.24	6.50	-1.90	5.70	0.0	5.87	0.0
QWEIR	7401230	401230	401220	1.14	8.50	0.24	5.54	0.0	5.70	0.0
QWEIR	7401240	401240	400350	0.87	7.00	1.24	5.45	0.0	5.22	0.0
QWEIR	7401320	401320	401310	-1.60	5.23	-1.74	5.94	1.4	5.93	15.1
QWEIR	6401330	401330	401300	1.18	6.30	-2.10	5.93	0.0	5.93	0.0
QWEIR	6401400	401400	401300	-1.50	6.50	-2.10	6.55	0.5	5.93	17.1
QWEIR	6401400	401400	401300	-1.50	7.00	-2.10	6.55	0.0	5.93	0.0
QWEIR	6401410	401410	401300	0.14	7.40	-2.10	6.72	0.0	5.93	0.0
QWEIR	7401420	401420	401410	-0.95	4.60	0.14	7.18	446.5	6.72	15.3
QWEIR	6401500	401500	401400	4.00	6.50	-1.50	6.94	20.6	6.55	17.0
QWEIR	6401600	401600	401500	-2.40	6.00	4.00	6.95	51.3	6.94	14.8
QWEIR	7401604	401604	401602	4.34	6.00	4.10	6.95	-3.5	6.95	14.6
QWEIR	8401632	401632	401630	5.00	5.00	1.50	7.04	19.6	7.03	12.7
QWEIR	7401640	401620	401610	-1.06	6.30	-0.80	7.03	24.1	6.95	18.2
QWEIR	7401640	401640	401630	1.00	6.30	1.50	7.11	26.8	7.03	18.5
QWEIR	6401642	401642	401640	3.00	3.00	1.00	7.11	47.0	7.11	12.8
QWEIR	7401650	401650	401640	1.80	6.20	1.00	7.12	11.5	7.11	14.1

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QWEIR	6401652	401652	401650	-1.60	6.50	1.80	7.11	-17.2	7.12	14.1
QWEIR	8401654	401654	401652	4.70	4.70	-1.60	7.11	7.9	7.11	12.6
QWEIR	8401656	401656	401652	4.20	4.20	-1.60	7.11	-14.2	7.11	13.9
QWEIR	6401664	401664	401430	2.89	8.00	1.00	7.12	0.0	7.32	0.0
QWEIR	7401664	401664	401662	2.89	8.00	2.69	7.12	0.0	7.12	0.0
QWEIR	7401670	401670	401660	5.12	9.50	2.18	8.33	0.0	7.12	0.0
QWEIR	7401690	401690	401680	6.36	11.50	6.20	8.57	0.0	8.34	0.0
QWEIR	6401700	401700	400670	-1.80	8.50	6.50	7.25	0.0	6.78	0.0
QWEIR	8401750	401750	401700	4.50	4.50	-1.80	7.27	33.0	7.25	13.1
QWEIR	8401850	401850	401800	4.50	4.50	-1.70	7.37	18.7	7.36	12.9
QWEIR	7402210	402210	402200	2.00	9.20	1.40	10.36	64.9	8.74	13.2
QWEIR	7402240	402240	402238	6.06	10.18	5.10	10.90	20.9	10.43	12.9
QWEIR	7402270	402270	402260	6.70	12.86	6.60	13.85	25.5	10.46	13.2
QWEIR	7402300	402300	402290	0.40	8.00	-0.93	8.77	10.5	8.74	17.5
QWEIR	7402350	402350	402340	0.00	8.00	0.00	8.77	5.5	8.77	18.2
QWEIR	7402310	402310	402200	7.61	11.79	1.40	10.53	0.0	8.74	0.0
QWEIR	7402330	402330	402320	7.83	12.50	7.85	10.31	0.0	10.56	0.0
QWEIR	8402360	402360	402358	7.00	7.00	1.00	8.77	-10.9	8.77	13.5
QWEIR	7402370	402370	402340	7.90	12.50	0.00	9.12	0.0	8.77	0.0
QWEIR	7402394	402394	402392	2.01	7.50	1.88	7.96	-2.3	8.13	16.5
QWEIR	7402400	402400	402394	0.00	7.11	2.01	7.95	-6.8	7.96	16.4
QWEIR	7402400	402400	402394	0.00	7.39	2.01	7.95	-2.2	7.96	16.5
QWEIR	7402500	402500	402400	0.00	7.60	0.00	7.95	-3.2	7.95	15.9
QWEIR	7402510	402510	402500	0.33	6.20	0.00	7.96	28.7	7.95	13.4
QWEIR	7402520	402520	402518	4.10	9.20	3.95	8.02	0.0	7.96	0.0
QWEIR	7402610	402610	402600	0.36	7.20	0.78	8.50	46.1	7.95	13.9
QWEIR	7402630	402630	402620	3.69	8.30	2.10	9.66	33.0	8.51	13.4
QWEIR	7402700	402700	402698	0.00	7.00	0.12	7.91	-33.1	7.94	14.6
QWEIR	7402810	402810	402800	0.50	6.50	0.00	7.91	22.2	7.90	13.3
QWEIR	7402820	402820	402818	0.94	6.54	1.12	7.92	44.9	7.91	13.4
QWEIR	7402830	402830	402828	1.71	7.11	1.29	8.13	31.2	7.92	13.1
QWEIR	7402860	402860	402850	4.36	9.00	3.10	7.60	0.0	7.91	0.0
QWEIR	6402900	402900	402100	8.00	8.50	-0.80	8.75	12.2	8.73	13.6
QWEIR	7402930	402930	402920	0.64	11.00	0.63	10.41	0.0	9.89	0.0
QWEIR	7402950	402950	402940	2.20	10.70	2.00	13.79	622.0	11.60	15.3
QWEIR	7402950	402950	402940	2.20	11.00	2.00	13.79	533.7	11.60	15.3
QWEIR	7403050	403050	403000	1.50	11.50	1.50	14.08	667.7	14.00	15.2
QWEIR	7403060	403060	403050	5.51	12.50	1.50	14.11	20.1	14.08	14.2
QWEIR	8403070	403070	403060	13.80	14.50	5.51	14.96	19.5	14.11	12.5
QWEIR	8403110	403110	403100	14.18	14.18	3.60	15.61	14.6	14.07	12.7
QWEIR	7403120	403120	403100	6.40	13.71	3.60	14.46	27.0	14.07	13.9
QWEIR	7403130	403130	403125	8.02	14.61	8.07	15.16	21.3	14.46	13.7
QWEIR	8403170	403170	403160	10.20	10.20	5.00	15.12	9.7	14.91	12.9
QWEIR	8403180	403180	403160	14.50	14.50	5.00	15.44	21.6	14.91	12.7
QWEIR	7403190	403190	403160	10.00	16.00	5.00	14.93	0.0	14.91	0.0
QWEIR	7403210	403210	403200	5.58	12.50	5.09	15.10	33.0	15.09	13.4
QWEIR	7403240	403240	403210	6.00	12.50	5.58	15.12	57.7	15.10	12.7
QWEIR	7403220	403220	403210	11.00	16.50	5.58	17.96	36.8	15.10	12.9
QWEIR	7403230	403230	403220	11.05	16.30	11.00	18.09	18.7	17.96	13.1
QWEIR	7403260	403260	403240	13.00	17.00	6.00	17.37	4.6	15.12	13.1
QWEIR	8403250	403250	403240	13.00	15.78	6.00	17.38	71.0	15.12	12.7
QWEIR	8403270	403270	403200	13.50	13.50	5.09	16.57	51.7	15.09	13.1
QWEIR	7403350	403350	403300	6.80	21.50	6.50	17.40	0.0	17.26	0.0
QWEIR	7403360	403360	403350	20.67	24.80	6.80	23.10	0.0	17.40	0.0
QWEIR	8403370	403370	403360	20.43	20.80	20.67	23.31	10.5	23.10	12.8
QWEIR	7403404	403404	403400	18.00	21.00	7.60	19.93	0.0	19.06	0.0
QWEIR	7403408	403408	403406	17.74	21.00	17.80	20.87	0.0	20.75	0.0
QWEIR	7403410	403410	403408	17.79	21.00	17.74	21.05	0.3	20.87	13.5
QWEIR	8403425	403425	403420	17.25	17.25	14.20	19.40	20.7	19.08	13.1
QWEIR	6403425	403425	403420	17.25	23.00	14.20	19.40	0.0	19.08	0.0
QWEIR	8403435	403435	403430	22.51	22.51	16.30	23.60	11.3	19.11	12.7
QWEIR	6403435	403435	403430	22.51	23.30	16.30	23.60	16.5	19.11	12.7
QWEIR	7403440	403440	403430	16.61	23.30	16.30	22.34	0.0	19.11	0.0
QWEIR	6403445	403445	403440	15.00	23.00	16.61	23.60	46.4	22.34	13.0
QWEIR	6403450	403450	403445	21.00	23.00	15.00	23.54	-46.4	23.60	13.0
QWEIR	6403462	403462	403460	17.00	24.00	18.74	24.38	11.9	22.38	15.0
QWEIR	8403465	403465	403460	20.35	20.35	18.74	23.62	7.0	22.38	20.1
QWEIR	6403465	403465	403460	20.35	23.35	18.74	23.62	13.9	22.38	13.5
QWEIR	7403470	403470	403460	18.74	22.79	18.74	22.78	0.0	22.38	0.0
QWEIR	7403480	403480	403470	19.21	22.79	18.74	22.77	0.0	22.78	0.0
QWEIR	7403490	403490	403480	19.33	22.04	19.21	21.59	-13.0	22.77	13.9
QWEIR	8403490	403490	403488	19.33	20.21	17.92	21.59	13.2	21.57	13.9
QWEIR	6403490	403490	403488	19.33	20.82	17.92	21.59	19.3	21.57	13.9
QWEIR	7403508	403508	403500	20.04	21.70	8.37	20.09	0.0	19.49	0.0
QWEIR	8403510	403510	403508	12.81	21.00	20.04	18.88	0.0	20.09	0.0
QWEIR	7403516	403516	403500	11.70	20.00	8.37	19.72	0.0	19.49	0.0
QWEIR	7403518	403518	403516	16.13	22.55	11.70	21.36	0.0	19.72	0.0
QWEIR	8403520	403520	403518	19.03	19.03	16.13	21.42	19.3	21.36	12.7
QWEIR	7403528	403528	403516	16.87	20.58	11.70	19.74	0.0	19.72	0.0
QWEIR	8403530	403530	403528	20.57	20.57	16.87	23.29	23.7	19.74	12.7
QWEIR	7403536	403536	403516	17.18	23.18	11.70	19.76	0.0	19.72	0.0
QWEIR	7403538	403538	403536	17.91	23.18	17.18	23.90	9.6	19.76	13.1
QWEIR	8403540	403540	403538	21.94	21.94	17.91	25.74	31.0	23.90	12.9
QWEIR	7403550	403550	403548	10.38	21.54	10.39	20.05	0.0	19.70	0.0
QWEIR	7403560	403560	403550	10.94	22.62	10.38	23.43	19.1	20.05	12.9
QWEIR	7403570	403570	403560	16.29	23.00	10.94	24.24	35.5	23.43	12.9
QWEIR	7403580	403580	403570	18.64	23.00	16.29	24.31	13.0	24.24	12.8
QWEIR	7403590	403590	403570	22.71	25.50	16.29	24.80	0.0	24.24	0.0
QWEIR	6403590	403590	403440	22.71	25.50	16.61	24.80	0.0	22.34	0.0
QWEIR	7403608	403608	403606	22.91	28.34	22.60	25.03	0.0	24.49	0.0
QWEIR	7403610	403610	403608	23.03	28.34	22.91	25.17	0.0	25.03	0.0
QWEIR	6403720	403720	403710	24.00	25.60	21.40	25.82	5.0	22.99	13.1
QWEIR	7403750	403750	403700	13.50	23.00	13.40	22.32	0.0	21.56	0.0
QWEIR	7403810	403810	403800	16.03	23.00	15.00	24.48	74.6	22.39	13.8

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QWEIR	7403820	403820	403810	17.56	23.00	16.03	25.16	120.9	24.48	13.7
QWEIR	7403830	403830	403820	19.68	24.50	17.56	26.06	79.1	25.16	13.7
QWEIR	7403840	403840	403830	20.90	26.00	19.68	27.00	41.7	26.06	13.8
QWEIR	7403850	403850	403840	22.40	27.40	20.90	28.29	30.5	27.00	13.8
QWEIR	7403858	403858	403850	23.65	28.50	22.40	30.17	45.0	28.29	13.9
QWEIR	7403900	403900	403898	14.12	24.30	14.73	24.25	0.0	23.43	0.0
QWEIR	7404008	404008	404000	22.00	25.50	17.20	25.77	5.2	24.27	14.6
QWEIR	8404010	404010	404008	18.50	25.50	22.00	26.88	31.2	25.77	14.4
QWEIR	8404010	404010	404008	18.50	26.50	22.00	26.88	18.1	25.77	14.4
QWEIR	7404100	404100	404098	17.10	27.80	17.00	24.93	0.0	24.78	0.0
QWEIR	7404300	404300	404298	18.44	29.51	18.13	26.08	0.0	25.55	0.0
QWEIR	7404308	404308	404300	22.60	29.50	18.44	30.25	18.4	26.08	13.2
QWEIR	7404310	404310	404308	25.41	30.50	22.60	31.72	41.9	30.25	13.1
QWEIR	7404314	404314	404310	25.44	31.00	25.41	31.87	27.8	31.72	13.1
QWEIR	7404316	404316	404314	25.85	32.00	25.44	32.75	20.4	31.87	13.1
QWEIR	7404318	404318	404316	26.13	32.00	25.85	32.92	30.5	32.75	13.0
QWEIR	7404320	404320	404318	26.11	32.00	26.13	33.27	40.9	32.92	12.9
QWEIR	7404330	404330	404320	26.50	34.00	26.11	34.11	1.2	33.27	12.8
QWEIR	7404340	404340	404330	28.00	35.00	26.50	34.41	0.0	34.11	0.0
QWEIR	8404350	404350	404340	28.00	33.00	28.00	30.89	-26.7	34.41	12.8
QWEIR	7404360	404360	404350	28.05	33.40	28.00	31.80	0.0	30.89	0.0
QWEIR	7404410	404410	404400	24.30	33.50	19.20	28.23	0.0	26.22	0.0
QWEIR	7404415	404415	404410	24.20	35.30	24.30	30.69	0.0	28.23	0.0
QWEIR	6404420	404420	404410	24.90	35.30	24.30	30.79	0.0	28.23	0.0
QWEIR	7404420	404420	404415	24.90	35.30	24.20	30.79	0.0	30.69	0.0
QWEIR	7404430	404430	404420	26.30	36.80	24.90	35.64	0.0	30.79	0.0
QWEIR	7404440	404440	404430	28.40	35.90	26.30	36.92	26.8	35.64	13.6
QWEIR	7404450	404450	404440	30.20	36.30	28.40	37.53	34.3	36.92	13.9
QWEIR	7404460	404460	404450	30.30	36.30	30.20	37.59	17.5	37.53	13.0
QWEIR	7404468	404468	404460	32.80	36.50	30.30	37.61	12.4	37.59	14.9
QWEIR	8404470	404470	404468	35.84	36.54	32.80	37.63	16.7	37.61	12.9
QWEIR	8404470	404470	404468	35.84	35.84	32.80	37.63	9.3	37.61	12.8
QWEIR	7404498	404498	404490	19.40	31.13	19.20	26.72	0.0	26.22	0.0
QWEIR	7404500	404500	404498	19.55	31.93	19.40	27.13	0.0	26.72	0.0
QWEIR	7404610	404610	404600	27.14	30.27	22.00	31.56	30.5	27.65	13.1
QWEIR	7404620	404620	404610	28.62	31.58	27.14	33.08	38.2	31.56	13.1
QWEIR	7404630	404630	404620	28.67	31.32	28.62	33.21	49.4	33.08	13.1
QWEIR	7404640	404640	404630	29.58	33.00	28.67	33.89	17.6	33.21	13.1
QWEIR	8404650	404650	404640	32.60	34.50	29.58	34.49	0.0	33.89	0.0
QWEIR	8404650	404650	404640	32.60	32.60	29.58	34.49	31.3	33.89	13.0
QWEIR	7404690	404690	404600	23.96	31.50	22.00	28.52	0.0	27.65	0.0
QWEIR	7404700	404700	404698	24.59	31.71	23.80	30.88	0.0	29.34	0.0
QWEIR	7404720	404720	404710	26.01	34.04	25.92	31.86	0.0	30.92	0.0
QWEIR	7404740	404740	404730	28.28	34.41	28.69	34.82	16.2	31.92	13.4
QWEIR	7404800	404800	404740	28.47	34.97	28.28	35.74	55.8	34.82	13.4
QWEIR	7404810	404810	404800	32.13	37.00	28.47	36.89	0.0	35.74	0.0
QWEIR	7404820	404820	404810	33.99	38.91	32.13	39.05	2.4	36.89	14.7
QWEIR	7404825	404825	404820	34.24	38.50	33.99	39.25	25.9	39.05	15.1
QWEIR	7404830	404830	404825	34.36	38.68	34.24	39.46	27.3	39.25	15.0
QWEIR	7404840	404840	404830	38.53	39.94	34.36	40.88	28.4	39.46	13.7
QWEIR	7404900	404900	404800	31.92	40.00	28.47	35.82	0.0	35.74	0.0
QWEIR	7404910	404910	404900	32.67	40.00	31.92	35.83	0.0	35.82	0.0
QWEIR	7404920	404920	404910	33.12	40.00	32.67	35.84	0.0	35.83	0.0
QWEIR	7404940	404940	404930	35.27	38.00	35.23	37.45	0.0	36.00	0.0
QWEIR	8404950	404950	404940	40.44	41.00	35.27	41.63	40.0	37.45	13.1
QWEIR	7404960	404960	404950	40.60	48.00	40.44	46.69	0.0	41.63	0.0
QWEIR	7404970	404970	404960	41.61	48.00	40.60	46.72	0.0	46.69	0.0
QWEIR	7404980	404980	404970	42.18	48.00	41.61	46.74	0.0	46.72	0.0
QWEIR	7404985	404985	404940	42.85	47.60	35.27	45.08	0.0	37.45	0.0
QWEIR	7404990	404990	404985	44.84	46.60	42.85	46.82	1.6	45.08	14.3
QWEIR	8405110	405110	405100	7.18	7.18	3.55	10.05	-6.5	9.98	13.6
QWEIR	7405120	405120	405100	6.70	14.50	3.55	10.39	0.0	9.98	0.0
QWEIR	8405130	405130	405120	8.92	9.00	6.70	13.33	21.6	10.39	13.6
QWEIR	8405130	405130	405120	8.92	13.30	6.70	13.33	0.2	10.39	13.6
QWEIR	6405150	405150	405110	9.30	14.50	7.18	14.58	2.1	10.05	14.3
QWEIR	8405160	405160	405140	11.50	11.50	9.29	13.78	24.8	13.55	13.1
QWEIR	6405160	405160	405140	11.50	15.10	9.29	13.78	0.0	13.55	0.0
QWEIR	8405180	405180	405170	14.17	14.17	11.82	15.42	13.5	14.84	12.7
QWEIR	6405180	405180	405150	14.17	15.10	9.30	15.42	18.4	14.58	12.7
QWEIR	6405430	405430	405400	14.60	25.00	12.40	20.00	0.0	18.53	0.0
QWEIR	7405430	405430	405420	14.60	23.60	14.00	20.00	0.0	19.66	0.0
QWEIR	6405500	405500	405390	15.00	23.10	11.20	18.05	0.0	17.73	0.0
QWEIR	6405500	405500	405430	15.00	24.50	14.60	18.05	0.0	20.00	0.0
QWEIR	7405535	405535	405530	19.00	27.50	15.80	27.17	0.0	20.68	0.0
QWEIR	8405550	405550	405540	16.03	19.50	16.00	20.76	58.7	20.69	16.0
QWEIR	7405550	405550	405540	16.03	23.00	16.00	20.76	0.0	20.69	0.0
QWEIR	8405555	405555	405550	17.10	20.10	16.03	20.97	14.1	20.76	14.9
QWEIR	6405555	405555	405550	17.10	22.20	16.03	20.97	0.0	20.76	0.0
QWEIR	7405600	405600	405450	16.00	20.50	15.20	21.17	15.4	21.03	16.6
QWEIR	6405600	405600	405590	16.00	20.17	17.00	21.17	44.2	21.11	16.7
QWEIR	8405700	405700	405600	17.50	20.17	16.00	21.87	84.8	21.17	13.8
QWEIR	7406100	406100	404100	17.25	28.00	17.10	24.97	0.0	24.93	0.0
QWEIR	7406120	406120	406110	19.70	27.00	17.60	25.46	0.0	25.07	0.0
QWEIR	7406140	406140	406130	20.50	27.00	20.40	25.87	0.0	25.47	0.0
QWEIR	6406150	406150	406010	20.70	27.00	21.60	25.92	0.0	24.60	0.0
QWEIR	7406160	406160	406150	21.80	27.00	20.70	26.43	0.0	25.92	0.0
QWEIR	7406330	406330	406300	22.80	27.50	22.40	28.14	13.3	27.24	13.6
QWEIR	7406400	406400	406320	22.60	28.50	22.40	28.61	4.3	28.14	15.8
QWEIR	7406410	406410	406400	23.30	28.50	22.60	29.16	16.8	28.61	14.1
QWEIR	7406510	406510	406500	22.90	27.50	22.80	28.70	76.5	28.62	18.7
QWEIR	7406600	406600	406520	23.20	28.70	23.30	29.09	22.4	28.70	17.5
QWEIR	7406620	406620	406610	24.30	28.60	24.30	29.25	42.0	29.12	16.8
QWEIR	6406630	406630	406600	24.20	28.60	23.20	29.09	-6.7	29.09	15.5
QWEIR	7406660	406660	406645	24.40	29.40	24.60	29.78	14.7	29.26	16.6

25-year / 24-hour Storm Event Simulation Summarized Results

QWEIR	7406710	406710	406675	25.10	28.00	25.20	29.89	92.8	29.80	13.7
QWEIR	7406845	406845	406820	26.53	29.50	26.40	30.39	16.6	30.04	14.2
QWEIR	7406845	406845	406800	26.53	29.50	25.70	30.39	21.7	29.92	14.2
QWEIR	7406855	406855	406850	26.66	30.00	26.72	31.57	51.2	30.41	13.9
QWEIR	6406860	406860	406855	27.30	30.00	26.66	31.54	-45.7	31.57	13.1
QWEIR	6406885	406885	406870	26.64	30.70	27.20	31.58	-30.4	31.60	12.9
QWEIR	7406900	406900	406885	27.07	30.00	26.64	32.52	81.1	31.58	12.9
QWEIR	7406910	406910	406905	27.50	31.00	27.14	32.65	42.9	32.53	12.8
QWEIR	7406935	406935	406905	27.11	31.00	27.14	32.60	28.9	32.53	12.8
QWEIR	7406940	406940	406935	27.22	31.00	27.11	32.66	28.0	32.60	12.8
QWEIR	7406950	406950	406940	29.42	31.00	27.22	32.68	8.0	32.66	13.2
QWEIR	7407400	407400	407300	22.54	26.50	22.18	28.15	163.1	27.73	16.1
QWEIR	90764	403445	403440	15.00	15.00	16.61	23.60	1.0	22.34	0.0
QWEIR	90765	402400	402398	0.00	0.00	0.00	7.95	60.0	8.73	12.4
QWEIR	90766	402400	402398	0.00	0.00	0.00	7.95	30.0	8.73	0.0
QWEIR	90767	402800	400061	0.00	0.00	-1.55	7.90	30.0	-0.55	0.0
QWEIR	90768	402800	400062	0.00	0.00	-1.55	7.90	30.0	-0.55	12.4
QWEIR	90769	402800	400063	0.00	0.00	-1.55	7.90	30.0	-0.55	12.7
QWEIR	90770	400051	0	-1.55	-1.55	0.00	2.50	99.8	0.00	13.4
QWEIR	90771	400052	0	-1.55	-1.55	0.00	2.50	99.8	0.00	13.4
QWEIR	90772	400053	0	-7.70	-7.70	0.00	2.50	2529.3	0.00	17.1
QWEIR	90773	400054	0	5.00	5.00	0.00	6.00	-13.1	0.00	0.1
QWEIR	90774	400055	0	17.54	17.54	0.00	17.80	8.9	0.00	13.9
QWEIR	90775	400056	0	20.80	20.80	0.00	21.00	23.6	0.00	13.9
QWEIR	90776	400057	0	-1.55	-1.55	0.00	2.50	0.0	0.00	0.0
QWEIR	90777	400061	0	-1.55	-1.55	0.00	-0.55	30.0	0.00	0.0
QWEIR	90778	400062	0	-1.55	-1.55	0.00	-0.55	30.0	0.00	12.4
QWEIR	90779	400063	0	-1.55	-1.55	0.00	-0.55	30.0	0.00	12.7