# 43rd Street Outfall Basin Study

## Basis of Design Report

Project ST510C; Work Order 22

**Prepared For:**

**City of Tampa**

**Stormwater Department**

**Submitted To:**

**Southwest Florida Water Management District**

**Prepared By:**

DRMP

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**March 2013**

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# 1. INTRODUCTION

## 1.1. Background

Flooding problems have persisted along a segment of the 43rd Street Outfall ditch from between Columbia Street to the 43rd Street crossing. The City of Tampa has indicated the frequency and severity of the flooding problems have increased since widening of I-4 reconstruction was completed in 2004. The Hillsborough Area Regional Transit (HART) Authority has documented structural and site flooding at the headquarters facility on 21st Avenue, to the north of Columbia Street. Both HART and the City have documented roadway overtoppings at 10th Avenue and 43rd Street. Past flooding problems are evident at the 43rd Street crossing with a berm that has been constructed along the ditch bank by an adjacent property owner.

## 1.2. Purpose and Scope

The City of Tampa and HART are cooperatively funding this study to; 1) analyze the flooding problems within the study area, 2) develop and compare preliminary alternatives to improve flood protection, 3) make a recommendation to improve flood protection, and 4) to incorporate water quality improvements as may be beneficial in seeking co-operative funding from the SWFWMD for design and construction phases. The City has authorized DRMP, Inc. to proceed with this study with the scope of work outlined below. The surface water model and GIS development for this study has generally been conducted in accordance with the ***City of Tampa GIS Stormwater Model Parameterization Guide*** (City GIS Guide), dated December 2011. Alternatives and recommendations in this report are preliminary in nature with additional survey and data collection necessary for the final design. Note that all elevation data for this study is reported in the NAVD88 vertical datum.

Task 1: Data Collection

This task involved collection and review of all data relevant to the flooding problems and developing a surface water model for the entire 43rd Street Outfall drainage basin. Data collected generally included; flooding documentation, available GIS layers, LiDAR terrain, City drainage and infrastructure information, Environmental Resource Permit (ERP) files at SWFWMD, and FDOT roadway projects. Supplemental field survey of existing culverts and ditch cross-sections was also conducted for this study with assistance from Polaris Associates, Inc. under separate authorization with the City.

Task 2: Develop Existing Conditions Model

This task involved developing a surface water model using XP-SWMM for the drainage basin contributing to the 43rd Street Outfall system. The model has been verified for accuracy by comparing peak stage results with observed and documented flooding conditions. A critical duration analysis was conducted of 5-year storms with the following durations: 1-hour, 2-hour, 4-hour, 8-hour, and 24-hour. The duration exhibiting the highest stages and flows in the focal area of the study was used for flooding and alternatives analyses. The 25-year, 24-hour storm was also simulated for design and permitting considerations of the alternatives analysis.

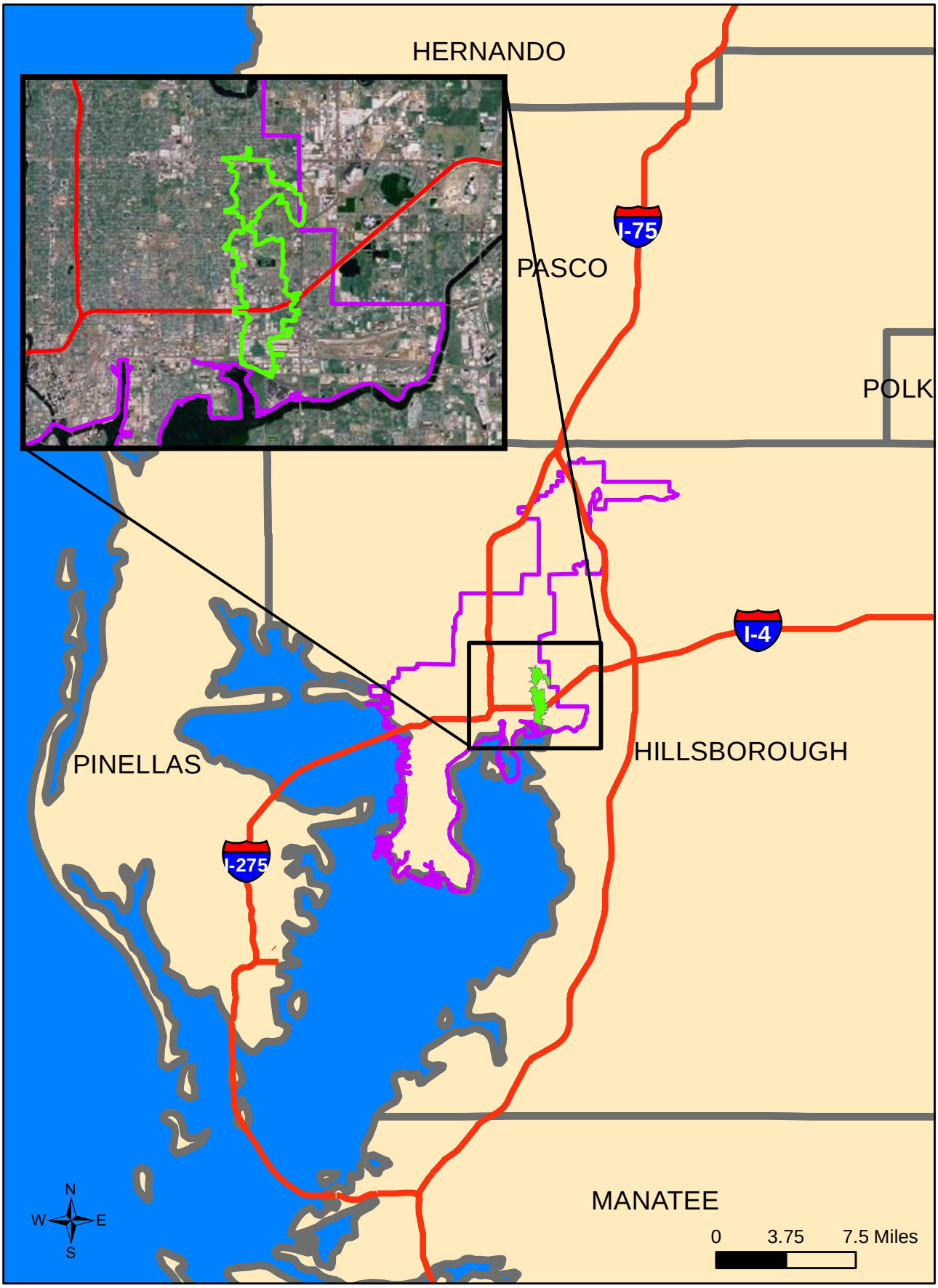
Task 3: Alternatives Analysis

This task involved preliminary analysis of feasible alternatives to address flooding problems in the focal area of the study from the HART facility southward to the 43rd Street crossing. Flood protection alternatives have been preliminarily designed to meet the level of service protection for the 5-year critical storm event. Alternatives considered include culvert and ditch conveyance upgrades, flow diversion, detention ponds, or any combination thereof. Potential utility conflicts have been researched and assessed for level of impacts for each alternative, with a summary table included in this report. Preliminary construction and property costs were tabulated for the alternatives. Water quality improvements werel also be incorporated into the alternatives where feasible. This final Basis of Design Report (BODR) documents the study and the recommendations, for ultimate submittal to the SWFWMD. Additionally, a GIS directory with all project files and model development has been submitted separately as described in the City GIS Guide.

# 2. PROJECT APPROACH

## 2.1. General Description of Study Area

The study area is the entire drainage basin contributing to the drainage system known by the City of Tampa as the 43rd Street Outfall system. This drainage basin comprises approximately 1,118 acres of mostly urban lands. Figure 1 on the following page shows location of the drainage basin for the 43rd Street Outfall.

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43rd Street Outfall Basin Study

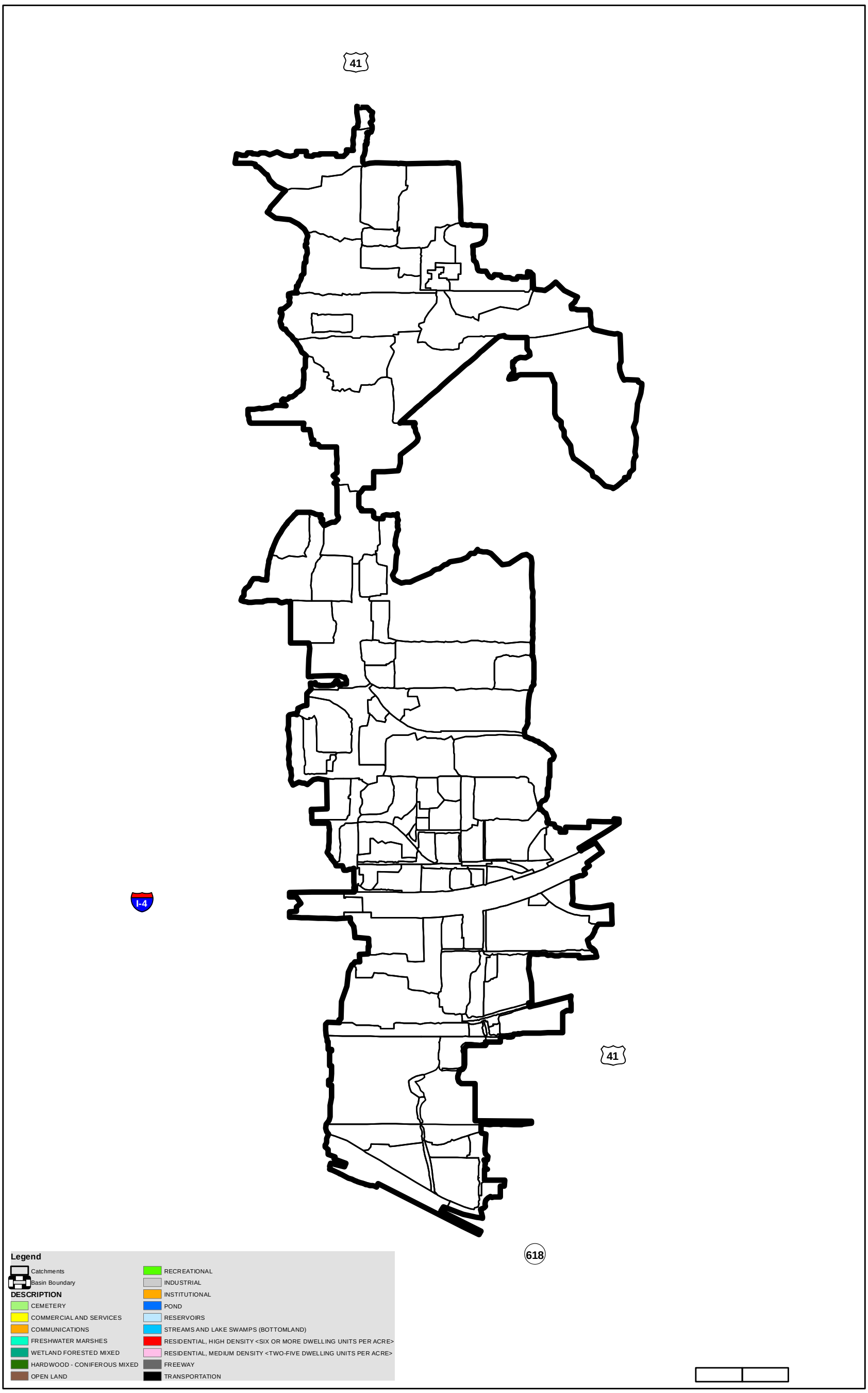
Location Map

Figure 1

A land use GIS layer has been developed for this study originating from SWFWMD in the FLUCCS format. Some land use classifications have been adjusted for this study for modeling purposes. The land use layer is depicted on Figure 2 on the following page. The top two land uses include Commercial and Services at 38% and High Density Residential at 26%. Table 1 below is a breakdown of the land use types with acreages, percentages of the study area, and estimated percent imperviousness by land use type.

**Table 1 – Land Uses**

| Land Use Classification | Area (acres) | Percentage of Total Area (%) | Estimated Percentage of Impervious Area (%) |
|---|---|---|---|
| COMMERCIAL AND SERVICES | 422.9 | 37.8 | 70 |
| RESIDENTIAL, HIGH DENSITY <SIX OR MORE DWELLING UNITS PER ACRE> | 288.2 | 25.8 | 33 |
| CEMETERY | 85.9 | 7.7 | 13 |
| FREEWAY | 65.8 | 5.9 | 84 |
| INDUSTRIAL | 64.5 | 5.8 | 38 |
| INSTITUTIONAL | 60.5 | 5.4 | 54 |
| TRANSPORTATION | 35.7 | 3.2 | 91 |
| HARDWOOD - CONIFEROUS MIXED | 30.3 | 2.7 | 0 |
| POND | 29.7 | 2.7 | 71 |
| RECREATIONAL | 12.1 | 1.1 | 11 |
| RESIDENTIAL, MEDIUM DENSITY <TWO-FIVE DWELLING UNITS PER ACRE> | 7.0 | 0.6 | 36 |
| OPEN LAND | 6.6 | 0.6 | 0.0 |
| STREAMS AND LAKE SWAMPS (BOTTOMLAND) | 3.6 | 0.3 | 0.0 |
| FRESHWATER MARSHES | 3.5 | 0.3 | 0.0 |
| RESERVOIRS | 0.8 | 0.1 | 0.0 |
| COMMUNICATIONS | 0.7 | 0.1 | 0.0 |
| WETLAND FORESTED MIXED | 0.6 | 0.1 | 0.0 |
| **Totals** | **1,118.4** | **100.0** | |

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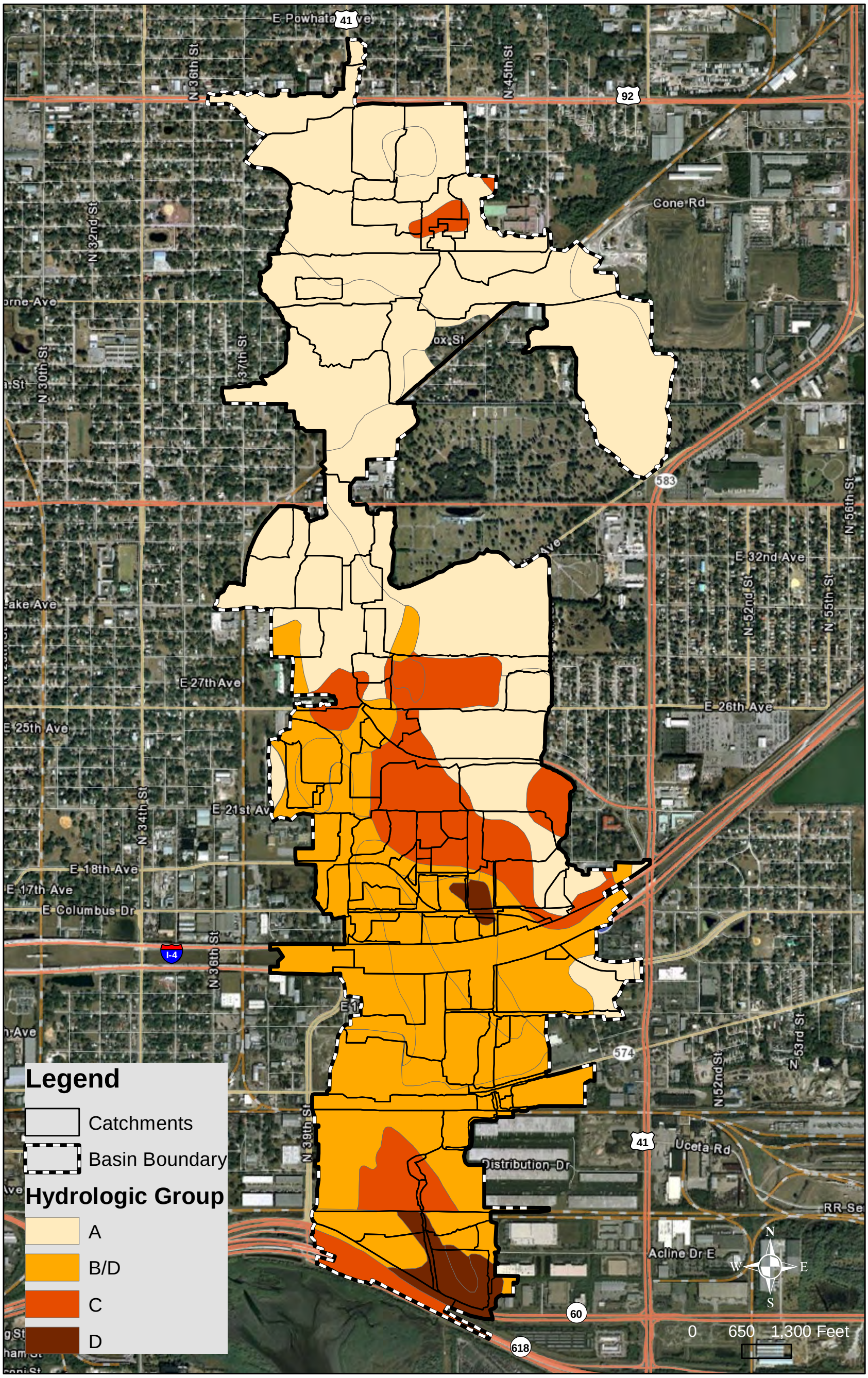
# 43rd Street Outfall Basin Study
# Land Use Map

Figure 2

The soils within the study area vary from well-drained sandy soils, characterized as hydrologic soil group (HSG) type A, in the northern and central parts at higher elevations to poorly-drained silty sands in the southern parts of the study area, characterized as HSG types C, B/D, and D. Soils classified as B/D are characterized as type D in a native and undrained state, however, they are considered B in urban areas with extensive and long-established drainage systems such as this study area. Therefore, B/D soils in this study area are characterized as type B. Figure 3 on the following page depicts the HSG soil types for the study area based on a soils GIS layer from SWFWMD. Table 2 below is a breakdown of the HSG soil types with acreages and percentages of the study area.

**Table 2 – Soils**

| Hydrologic Soil Group (HSG) | Area (acres) | Percentage of Total Area (%) |
|---|---|---|
| A | 575.9 | 51.5 |
| B (B/D) | 363.5 | 32.5 |
| C | 151.7 | 13.6 |
| D | 27.3 | 2.4 |
| **Totals** | **1118.4** | **100.0** |




| | | | |
|---|---|---|---|
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## 2.2. Data Collection

Data collection was conducted at the onset of the study, with the following general description of relevant data:

- HART and City documentation of flooding on July 9, 2011
- HART site map
- City of Tampa GIS stormwater inventory (including drainage structures, piping, and channels)
- GIS data including LiDAR-based terrain, land use, soils, parcels, roadways, wetlands
- City of Tampa Drainage Atlas (historic hard copy maps)
- Environmental Resource Permit (ERP) files from SWFWMD
- FDOT roadway plans, drainage maps, and supporting calculations
- City of Tampa roadway and stormwater retrofit projects
- Surface water models of adjacent basins
- Field reviews to confirm drainage patterns and characteristics
- Survey of select channel cross-sections and culverts conducted by Polaris for this study

LiDAR data was obtained from SWFWMD based on flights taken in 2007 in the NAVD 88 vertical datum. This LiDAR data was developed into GIS terrain for extensive use in this study in developing the surface water model. Following are some of the major roadway and project construction plan sets that were utilized in developing the model for this study.

- Final Roadway Plans for reconstruction of SR 585A and 45 (N 40$^{th}$ Street) dated 1966
- Melburne Boulevard Pond Retrofit Project, Record Drawings dated October 3, 2003
- Final Roadway Plans for widening of SR 400 (I-4) dated 2003
- Permitted Roadway Plans for Lee Roy Selmon Crosstown Expressway dated 2002

Two studies of adjacent basins are available on the east side of this study area as described below:

- ***East Lake Watershed Management Plan Update***, prepared for Hillsborough County, study conducted by Ayres Associates completed in January 2007
- ***Southern Portion of 29$^{th}$ Street Outfall Drainage Study***, prepared for City of Tampa, study conducted by Bayside Engineering, Inc in August 1997 (with future model update and retrofit design proposed by Kimley-Horn and Associates)

All data historical or paper sources utilized in developing the surface water model are documented in the GIS modeling directory by hyperlink of the model features to “pdf”

documents of the relevant plan sheets with "clouding" of the specific data used. This methodology for documenting the model development (model backup) follows requirements set by the ***City of Tampa GIS Stormwater Model Parameterization Guide*** (or City GIS Guide).

## 2.3. Drainage Basin Characterization

The drainage basin for the 43rd Street Outfall is a linearly shaped basin approximately 3.2 miles long in the north-south direction with the upper 2.2 miles comprised of the storm sewer system for SR 599/569, a major arterial FDOT roadway also known as US 41 and locally known as 40th Street. The northern reaches of the system exist as an inter-connect with the storm sewer of US 92, or Hillsborough Avenue, that runs in the east-west direction. At the 40th Street and Hillsborough Avenue intersection, a 30-inch pipe is directed eastward and a 24-inch pipe is directed southward, so a smaller share of the flows is expected to flow south through the study area, with majority of flow traveling east out of the study area.

For the upper two-thirds of the drainage system length, the 40th Street storm sewer is the primary component, increasing in size to a 4-foot by 11-foot box culvert at the divergence from the roadway. Invert elevations along the system start at 46.1 ft, NAVD and fall 22.6 feet at a 0.20% slope to 23.5 ft, NAVD at the divergence from 40th Street. Along this route there are a number of connections from private stormwater pond outfalls serving commercial and residential developments. There are also several side street storm sewer systems that converge with the 40th Street system; notably at East Chelsea Street, East Lake Avenue, and East 28th Avenue. An important component of this system is a large stormwater treatment pond that was the subject of a major renovation in 2002 known as the Melburne Boulevard Pond Retrofit Project. This site was previously an FDOT borrow pit that had been connected to the 40th Street system as an off-line attenuation pond. The retrofit involved re-piping the system so that all flows go through the pond that has been broken up into treatment cells with specific functions being settling particles, treatment with wetlands plants, and residence time with open water permanent pool. Flows from this pond flow back into the 40th Street storm sewer via a 8-foot long concrete weir located within a structure in the road right-of-way.

The primary drainage system exits the 40th Street right-of-way at Columbus Drive and traverses eastward via ditch with numerous large box culverts at driveways. This segment of the system crosses from the north side of Columbus Drive to the south side at a Y-intersection with 19th Avenue. Additionally, several local drainage systems converge in this area including a segment of I-4, some highly impervious commercial sites, and a system from the HART headquarters facility. The HART system is part of the focal areas of this study. The HART system originates from the north at the 21st Avenue storm sewer that collects drainage from a residential area approximately 36 acres in size. This system enters the HART facility as a 29x45-inch storm pipe. The HART facility is drained with several ditch bottom inlets along the pipe system and surface flows from graded paved areas into adjacent ditching. This pipe is discharged into a ditch with an adjoining ditch from the east, that flows southward to the Y intersection at 19th Avenue

and Columbus Drive. It should be noted that residential and commercial areas drain into the HART collection system with no attenuation as these areas were developed prior to current stormwater rules that require attenuation and treatment. Other surrounding school, park, and commercial sites appear to have been constructed more recently with stormwater ponds connecting to the primary drainage system downstream of the HART system. Invert elevations along this part of the system fall 0.7 feet at a 0.03% slope from 23.5 ft, NAVD to 22.8 ft, NAVD at the headwall under I-4.

The 43rd Street outfall drainage system crosses the I-4 corridor through a 408 foot long 4-foot by 12-foot box culvert and travels generally southward as a ditch with box culvert crossings at roads including 10th Avenue, SR 574 (7th Avenue), and two crossings of railroad tracks. This portion of the system is another focal area of the study. Through this segment of the system, the ditch is described with a channel cross section of 15-foot wide bottom with steep banks and flows confined within the banks except at overtopping of roadway crossings. Flows enter the ditch along this segment from off-site residential and industrial/commercial areas, some with on-site stormwater ponds. The ditch system makes several jogs westward and crosses under 43rd Street through dual 36-inch culverts. This pipe crossing causes a constriction of flow in the ditch system with water backing up in the ditch and flowing across private properties. There is evidence of this flooding with protective measures that one property owner has taken by building an earthen berm along the property line. Invert elevations along this part of the system fall 9.1 feet at a 0.27% slope from 22.8 ft, NAVD to 13.7 ft, NAVD at the headwall of the 43rd Street crossing.

The southern portion of the 43rd Street outfall system is a ditch with three more sets of railroad crossings, the southern-most being a wooden bridge on piles. The ditch traverses through a sizeable undeveloped area that serves as overbank storage during high flows. Flows contribute to this segment from large industrial and commercial sites, with some of the smaller ones including stormwater ponds. The system leaves the study area at the crossing under SR 60 and the Lee Roy Selmon Expressway (SR 618) that is a 364 foot long 8-foot by 7-foot box culvert. Invert elevations along this part of the system fall 16.4 feet at a 6.36% slope from 13.7 ft, NAVD to -2.7 ft, NAVD at the headwall of the SR 60 crossing. On the south side of this crossing the system discharges into the northern-most reach of McKay Bay in the estuarine part of Tampa Bay.

## 2.4. Flooding Conditions

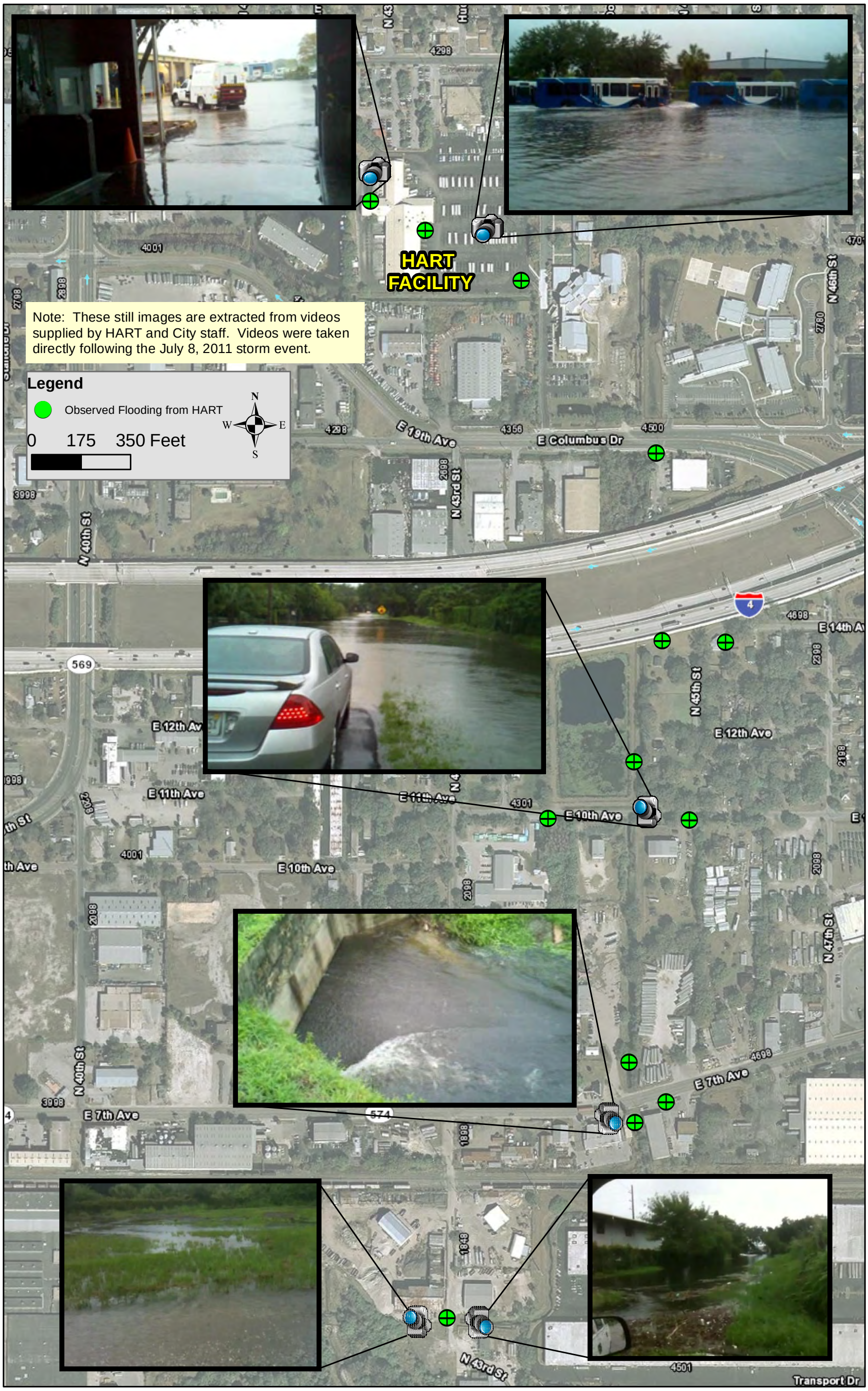
Flooding problems are known to occur generally in the southern half of the drainage basin. Several documented flooding areas that are listed and further described below are the focus area of this study:

1. HART Authority headquarters facility on 21st Avenue
2. South side of Columbus Drive, 43rd Street outfall ditch
3. South side of I-4, 43rd Street outfall ditch
4. 10th Avenue, 43rd Street outfall ditch
5. 7th Avenue (SR 574), 43rd Street outfall ditch
6. 43rd Street, outfall ditch

These locations of witnessed flooding are also documented in the accompanying GIS database as "flooding points" with accompanying pictures and videos taken by HART and City staff after a storm event on July 8, 2011. Rainfall records were reviewed from both SWFWMD and NOAA archives for all recording stations in the vicinity of the study area. The Tampa International Airport (NOAA site) is 7 miles to the west with recorded 3.7 inches of rainfall over a 11-hour period. Two stations at SWFWMD water control stations are 2.4 and 3.0 miles to the east with recordings of 4.7 and 5.0 inches over 6-hour periods.

The photos and video of the flooding at the HART facility shows flooding of service bays on the west side within the main building at about 6-inches deep and flowing south. Also, the southeastern part of the parking area is flooded up to about the middle of the tires on the buses. Video taken at 10th Avenue shows flooding over the roadway for an estimated distance of 420 feet from the culvert crossing westward to the stop sign at 43rd Street. Video taken at 7th Avenue does not show roadway flooding, however, it does show high flow velocity and falling water surface profile on the downstream side of the culvert crossing. Video taken at 43rd Avenue shows water sheet flowing across private property toward the large wooded area to the south where the ditch re-emerges. Still images extracted from the videos of documented flooding with locations are also depicted in Figure 4 on the following page.

Scott Garth (DRMP) field reviewed the HART facilities and adjacent properties on June 24, 2012 (Tropical Storm Debby) and observed no flooding, leading to the belief that flooding in this basin appears to be associated with short intense rainfall events.




| | | | |
|---|---|---|---|
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## 2.5. Model Development

A surface water model has been developed for this study using the computer program XP-SWMM. The underlying program is the Environmental Protection Agency (EPA) Storm Water Management Model (SWMM) with utilization of two components, or blocks, for this study. Stormwater runoff hydrographs are developed using the RUNOFF block with a collection of sub-catchment, or basins, and rainfall distributions. The hydographs are dynamically routed through the hydraulic junction-link network using the EXTRAN block.

### **2.5.1** GIS Database Framework

A GIS database has been developed for this study following the guidelines in the ***City of Tampa GIS Stormwater Model Parameterization Guide*** (or City GIS Guide). A junction-link network and catchments are included in this GIS database in support of the XP-SWMM model framework with all relevant hydraulic and hydrologic information included in attribute tables. Soils and land use layers are included as utilized for developing the hydrology of the basins. Sampling of impervious area by land use was conducted for the purposes of developing hydrology parameters with a supporting GIS layer. Model backup information is included as "pdf" documents that are hyperlinked in GIS with red "clouding" directing attention to information utilized in building the model. Times of concentration flow paths are included with supporting hydraulic data in an attribute table. Topography is included with a terrain and 0.5 foot contours based in LiDAR. Other features are also included such as the vertical datum conversion, flooding points, government-owned parcels, stormwater ponds, and the Tampa stormwater inventory.

### **2.5.2** Vertical Datum

All deliverables for this study are based on the **NAVD 88 vertical datum**. The main data sources for the model are referenced to the NAVD 88 datum including the terrain and survey conducted for this study. However, a number of other supporting documents for building the model are referenced to the NGVD 29 vertical datum. The following conversion factor was used as necessary for this study:

Elevation in NAVD 88 = Elevation in NGVD 29 – 0.86 feet

This conversion factor is the average elevation difference between these two datums based on three points spaced out within the study area as determined from the CORPSCON program supported by the Army Corps of Engineers. The three points and supporting information for the datum conversion are included as a GIS layer.

### **2.5.3** Hydrology Methodology

The SCS Runoff Curve Number (CN) method has been chosen as the hydrology method for this study. Other methods such as Green-Ampt or Horton were considered and not chosen due to the high percentage of poorly-drained soils, especially in the focus area of the study. To meet City GIS Guide criteria, both DCIA and nDCIA impervious areas were estimated for each catchment based on GIS intersection of catchments with the land use layer. Impervious areas were estimated by choosing samples of typical development units within each land use category and delineating the amount of DCIA and nDCIA within each sample. Percentages for each land use category were calculated and utilized in the GIS intersection with catchments. Note that for modeling purposes, DCIA and nDCIA were combined into a total impervious area value. CN's were calculated for each catchment for the pervious area only. These composite CN values were developed using the CN values for the land use category, open space, with fair hydrologic condition and varying hydrologic soil group (HSG) soil types as listed in Table 2-2a of the TR-55 manual titled ***Urban Hydrology for Small Watersheds*** by the Soil Conservation Service (SCS), dated June 1986. Additionally, for any B/D HSG types the B values were used due to extensive and historic ditching throughout these parts of the study area. The impervious area sampling and CN calculations are included as GIS layers and supporting spreadsheets in the electronic delivery of this study.

Times of concentration (Tc's) have been developed for each catchment using TR-55 methodology. The upstream flow regime is considered sheet flow up to a maximum of 300 feet in length and calculated using the Manning's kinematic solution. The next downstream flow regime may include shallow concentrated flow over either pervious or impervious surface with the average velocity determined using the formulas from Figure 3-1 of the TR-55 manual. In some cases, other flow regimes were used including channel, gutter, pipe, and/or channel flow with assumed velocities of 1.0, 1.5, and 5.0 fps, respectively. The T'c flow paths are included as a GIS layer and the supporting spreadsheet for calculating the T'c values is included in the electronic delivery of this study.

Catchment delineations were performed by digitizing divides primarily based on the terrain. Ditching and piping collection systems were also considered in the delineations based on the City stormwater GIS inventory and various other plans and documents as included in the GIS database. A separate catchment has been delineated for any stormwater pond greater than 0.5 acres, and some smaller ponds were also included. The primary 43$^{rd}$ Street ditch system has been separated out with catchments based on criteria in the City GIS Guide to ensure that overbank storage is counted separately from the channel. Also based on direction from the City in the project scope, a separate catchment is delineated for any collection system with 36-inch or larger sized piping. There are a total of 121 catchments for this model, ranging in size from 0.18 acres to 81.27 acres.

This methodology was discussed with the City and SWFWMD in a meeting on 11-16-2012 and was found to be acceptable.

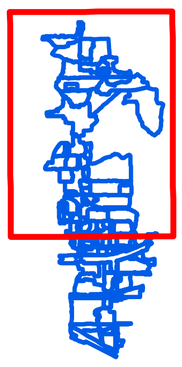
### **2.5.4** Hydraulics

A junction-link network is set up in the XP-SWMM model to simulate stormwater routing through the study area. The northern half of the study area is composed primarily of the 40th Street storm sewer system that is modeled as a series of pipe links with junctions at drainage structures. The link-junction framework is a simplification of the physical system with junctions at pipe confluences and changes in pipe size. The southern half of the study area is composed primarily of channel and culvert segments along the 43rd Street outfall ditch. Major secondary systems with piping at 36-inch diameter or larger, or stormwater pond outfall systems are modeled hydraulically and connected to the primary system. Several secondary ditch systems also tie into the 43rd Street outfall ditch in the vicinity of Columbus Drive, one of which drains the HART facility. The junctions along the primary system are generally zero-storage nodes, with storage areas accounted for in adjacent and connecting junctions. Stage-area relationships were automatically generated using GIS by intersecting the catchments with the terrain. One-tenth foot intervals were input into the model as directed in the City GIS Guide with some simplification of data where the number of allowable data points was exceeded in XP-SWMM. All junctions are inputted in the model as "sealed" so that the 2D function of the model is not utilized. Instead, overland weirs are included in the model to account for any overtopping of berms, roads, etc. that would allow flows under flooding conditions. These overland weirs were cut from the terrain, and using guidance from the program documentation are modeled in XP-SWMM as short 35-foot long channels. The exact spatial location and orientation of these overland weirs are included as a GIS layer. Stormwater pond outfalls are generally multi-faceted links that may contain a combination of weirs, orifices, and pipes. For this model using XP-SWMM, any vertical openings in structures (round or rectangular) are modeled as "side-mounted" orifices. Horizontal open tops of structures are modeled as vertical weirs. A junction is included to represent the interior part of any structure with piping to an outfall. Note that all box culverts are described in this report with the vertical dimension x horizontal dimension (H' x W').

Survey was conducted for this project to accurately model the 43rd Street outfall ditch from the intersection of Columbus Drive and 19th Avenue downstream to the 43rd Street crossing. Culvert invert elevations, sizes, and types were documented at each crossing. Existing water levels and silt build-up were noted. Ditch cross-sections were surveyed at the upstream and downstream side of each culvert crossing. The collected survey data is included in the GIS database. The 43rd Street outfall ditch is modeled as a channel with irregular sections based on surveyed cross-sections and trapezoidal sections at all other locations, that are approximated based on the terrain. All other hydraulic components of the model were developed either from as-built/construction plans or other collected documentation with some approximations of elevations based on the terrain. The sources of all hydraulic data used in the model are documented in the GIS database.

The model includes the following hydraulic components: 198 junctions, 109 pipes, 10 orifices, 45 weirs, 24 channels, and 122 overland weirs.

Aerial Extent of Figure 5a



**Legend**

- CATCHMENTS
- JUNCTIONS
- PIPES
- CHANNELS
- CONTROL STRUCTURES (WEIRS)
- ORIFICES
- WEIRS (OVERLAND)

**Storm Water Ponds**

**Pond_Type**

- Dry Pond
- Wet Pond

Melburne Blvd. Pond

N S E W

0 500 1,000 Feet

| | | | |
|---|---|---|---|
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Melbourne Blvd. Pond

HART FACILITY

Aerial Extent of Figure 5b

**Legend**

- CATCHMENTS
- JUNCTIONS
- PIPES
- CHANNELS
- CONTROL STRUCTURES (WEIRS)
- ORIFICES
- WEIRS (OVERLAND)

**Storm Water Ponds**

**Pond_Type**

- Dry Pond
- Wet Pond

N W E S

0 500 1,000 Feet

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# 43rd Street Outfall Basin Study

# Existing Conditions Junction-Link Map

Figure 5b

### **2.5.5** Channel Base Flows

From reviewing encountered water levels and evidence of normal high conditions (staining on endwalls), it appears there is a significant base flow along the 43rd Street outfall ditch originating at the Melburne Avenue pond and increasing to the outfall culvert under SR 60. Therefore, the model was set up with base flows originating at strategic junctions along the primary ditch. Flows were determined by an iterative method of running the model and checking for stable water levels at the preferred elevations along the ditch. These initial stages were set using the "initial depth" parameter in XP-SWMM. Included below is Table 3 with the base flow values and initial depths at the selected junctions along the ditch segment with base flow.

**Table 3 – Base Flow Conditions**

| Junction Name | Location | Initial Elevation (ft, NAVD) | Initial Depth in Model (ft) | Base Flow added at Junction (cfs) |
|---|---|---|---|---|
| NA0505 | Melburne Blvd. pond east of the waste management facility | 26.94 | 1.00 (relative to orifice) | 10 |
| NA0165 | 4'x11' box culvert on north side of East Columbus Dr near E 19th Ave. | 25.04 | 2.00 | 34 |
| NA0225 | 4'x12.2' box culvert on south side of E 10th Ave. | 23.70 | 2.80 | 19 |
| NA0255 | Twin 36" pipes, upstream side of 43rd Street crossing | 15.50 | 2.00 | 26.5 |
| NA0295 | 8'x7' box culvert on the north side of Adamo Drive | 3.70 | 5.96 | 0 |

### **2.5.6** Boundary Conditions

Boundary conditions exist at four (4) outfalls or inter-connect locations around the perimeter of the study area. The primary model outfall is located on the south side of the 43rd Street outfall ditch box culvert crossing SR 60 and the Cross-town Expressway, junction NA0300 in the model. This boundary condition was set at a constant elevation of 3.57 ft, NAVD based on staining of the endwall. The three other boundary conditions are at inter-connections between adjacent drainage systems. Two of these are located just north of SR 60 on the east side of the study area (junctions NA0965 and NA0980 in the model), and one is located along Hillsborough Avenue at the north end of the study area (junction NA0305 in the model). For all three locations the boundary conditions are set at constant elevations at which significant overland flows would occur leaving the drainage basin under study. The reasoning is to set tailwater conditions that would not likely be exceeded, thereby, generating conservative flows leaving the study area at these inter-connects. Links connected to these boundary junctions were set for positive flow only to prevent backflows into the model.

**Table 4 – Boundary Conditions**

| Junction Name at Boundary Condition | Location | Description of Boundary Condition | Tailwater Elevation (ft, NAVD) | Rationale for Setting Tailwater Elevation |
|---|---|---|---|---|
| NA0300 | McKay Bay, connected to Tampa Bay | primary outfall for 43rd Street outfall ditch | 3.57 | staining on endwall |
| NA0965 | SR 60 storm sewer system, south end of basin just east of primary outfall NA0300 | inter-connect with 29th Street outfall, east side of study area | 6.50 | top of drainage structure |
| NA0980 | Acline Drive south side ditch, just north of NA0965 | inter-connect with 29th Street outfall, east side of study area | 5.70 | top of ditch bank |
| NA0305 | Hillsborough Avenue storm sewer system, north end of basin, east side | inter-connect with larger storm sewer that travels east then north to Hillsborough River | 49.40 | overland flow elevation |

# 3. EXISTING CONDITIONS

## 3.1. Model Verification

The model was verified by comparing the documented flooding from the July 8, 2011 storm event against model peak stages for the storm event that most closely matches that total rainfall depth. The recorded rainfalls for this event vary from 3.7 to 5.0 in the region with storm durations from 6 hours to 11 hours. The modeled storm that most closely matches the actual event at the study area is the 5-year, 4-hour storm event with 4.32 inches of rainfall. There are four locations where flooding was documented by photograph or video with the estimated flood elevation compared to the modeled peak stage in Table 5 below.

**Table 5 – Flood Stages Comparison for Model Verification**

| Junction Name | Location | Flood Stage (ft, NAVD) | | Source |
|---|---|---|---|---|
| | | 5-Year, 4-Hour | Observed | |
| **HART Facility** | | | | |
| NA0620 | Northwest corner of HART facility | 29.23 | 29.2 | estimated 6-inch flood depth in service bays, 28.6 service bays finished floor |
| NA0650 | Southeast corner of HART facility | 28.32 | 28.55 | estimated 1.75-foot deep (half way up bus tires), 26.8 low pavement elevation in parking area |
| **43rd Street Outfall Ditch** | | | | |
| NA0220 | Upstream side of 10th Avenue crossing | 27.44 | 27.0 | based on extent of flooding over roadway in video |
| NA0255 | Upstream side of 43rd Street crossing | 18.66 | 19.0 | estimated 6-inch depth sheet flow over 18.5 low top of ditch bank |

## 3.2. Critical Duration Analysis

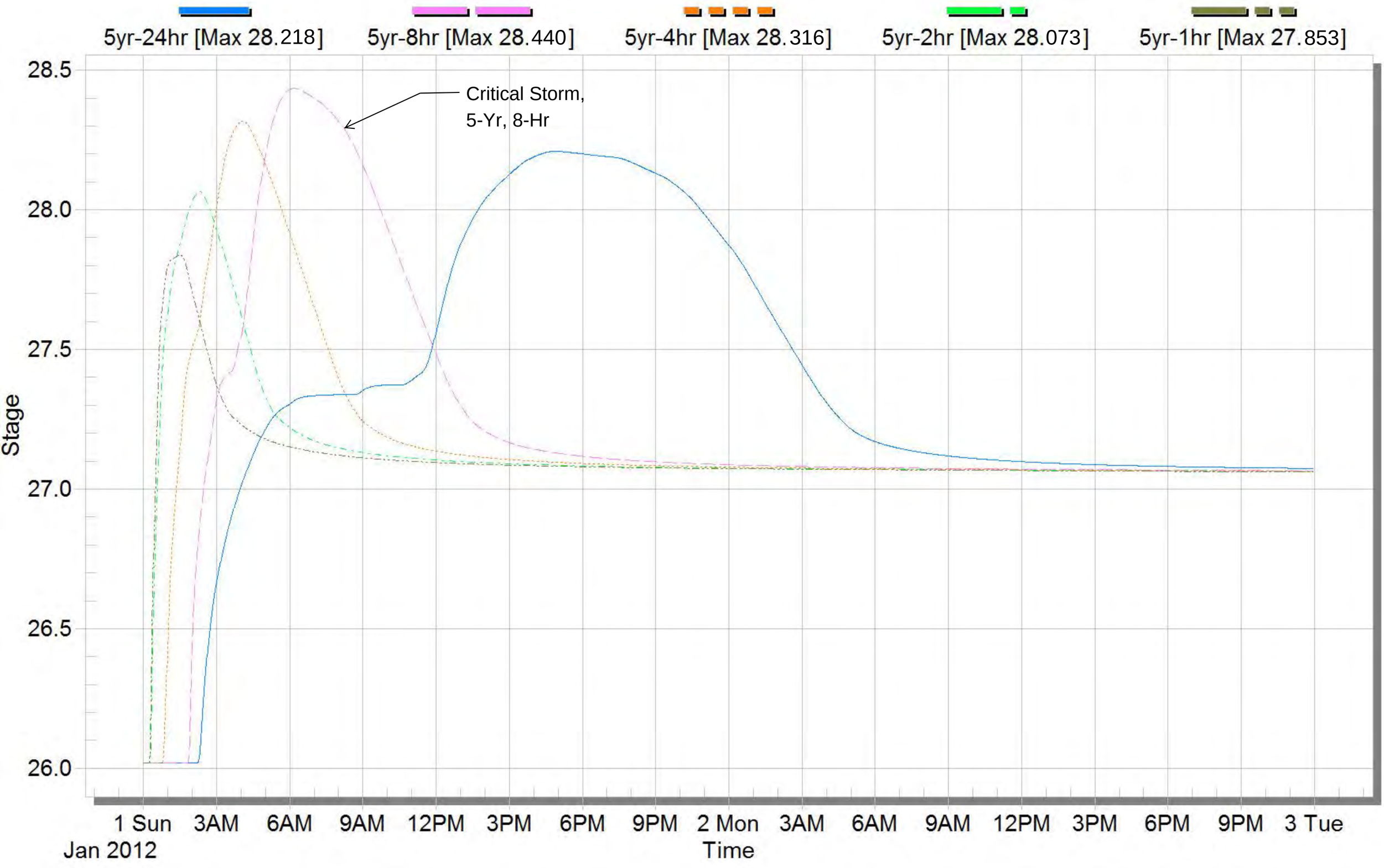
Pursuant to City requirements a critical duration analysis was performed for a series of 5-year storm events with varying durations and total rainfalls as listed in Table 6 below.

**Table 6 – Critical Duration Analysis 5-Year Frequency Storms**

| Storm Duration | Rainfall Depth (inches) |
|---|---|
| 1-hour | 2.80 |
| 2-hour | 3.50 |
| 4-hour | 4.32 |
| 8-hour | 5.36 |
| 24-hour | 7.44 |

For this study, the critical storm is considered the duration that produces the most severe flooding at the focus area along the 43rd Street outfall ditch between the HART facility and the 43rd Street crossing. For the focus area, the critical storm is the 5-year, 8-hour storm. Figure 6 on the following page is a graph showing the time-stage relationships for each of the 5-year storms for the model junction at the HART facility. The 5-year, 8-hour peak stage is also the highest stage at all other junctions within the focus area.

# Node - NA0650




| | | | |
|---|---|---|---|
| DRMP ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS | 43rd Street Outfall Basin Study<br>Time-Stage Graph at HART Facility, Junction NA0650<br>(Determination of 5-Year Storm Critical Duration) | | Figure<br>6 |

## 3.3. Existing Condition Model Results

Table 7 below is a summary of peak stage and flow conditions at selected nodes in the focus area of the study along the 43rd Street outfall ditch between the HART facility and the 43rd Street crossing. Critical elevations are included for determination of flooding severity.

**Table 7 – Peak Stages at Select Nodes in Focus Area for Existing Conditions**

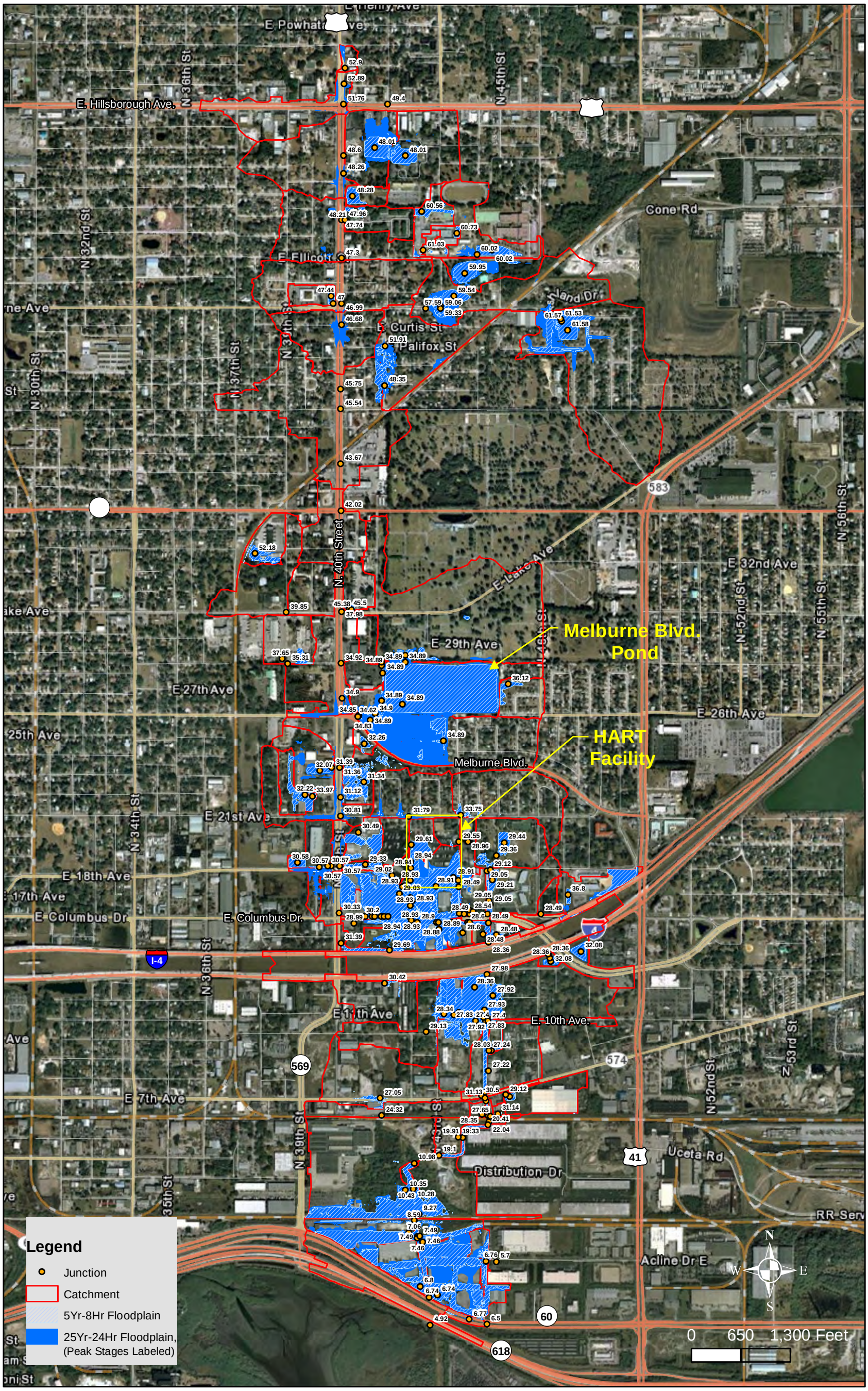
| Junction Name | Location | Peak Stage (ft, NAVD) | | Critical Elevation |
|---|---|---|---|---|
| | | 5-Year, 8-Hour | 25-Year, 24-Hour | |
| **HART Facility** | | | | |
| NA0620 | Northwest corner of HART facility | 29.33 | 29.61 | 28.6 service bays finished floor |
| NA0655 | Southeast corner of HART facility | 28.32 | 28.79 | 26.9 low pavement elevation in parking area |
| NA0605 | HART facility outfall ditch, north side of 19th Avenue crossing | 28.44 | 28.93 | 27.8 low edge of pavement |
| **43rd Street Outfall Ditch** | | | | |
| NA0210 | Upstream side of I-4 crossing | 27.86 | 28.36 | 28.0 top of ditch bank |
| NA0215 | Downstream side of I-4 crossing | 27.61 | 27.98 | 28.0 top of ditch bank |
| NA1005 | Upstream side of 10th Avenue crossing | 27.52 | 27.83 | 26.0 low edge of pavement |
| NA0230 | Upstream side of 7th Avenue crossing | 25.93 | 27.22 | 30.1 top of ditch bank |
| NA0240 | Upstream side of railroad crossings | 25.02 | 26.35 | 29.1 low point of rail bed |
| NA0255 | Upstream side of 43rd Street crossing | 18.84 | 19.10 | 18.5 low top of ditch bank |

Shading indicates flooding at junction.

Peak stages and flows for all of the modeled storms under existing conditions are included in Appendix A and attribute tables for junctions and links, respectively, in the GIS database.

## 3.4. Predicted Flooding under Existing Conditions

Floodplains for existing conditions have been delineated for the 5-year, 8-hour (critical storm) and the 25-year, 24-hour storm events based on peak stages generated from the model, see Figure 7 on the following page for floodplains shown on the aerial view. In the focus area, significant roadway flooding with overtopping occurs for both mapped storms due to ditch bank overtoppings along 19th Avenue and Columbus Drive. Roadway flooding and overtopping also occurs for both storms at the 43rd Street outfall ditch crossing with 10th Avenue.

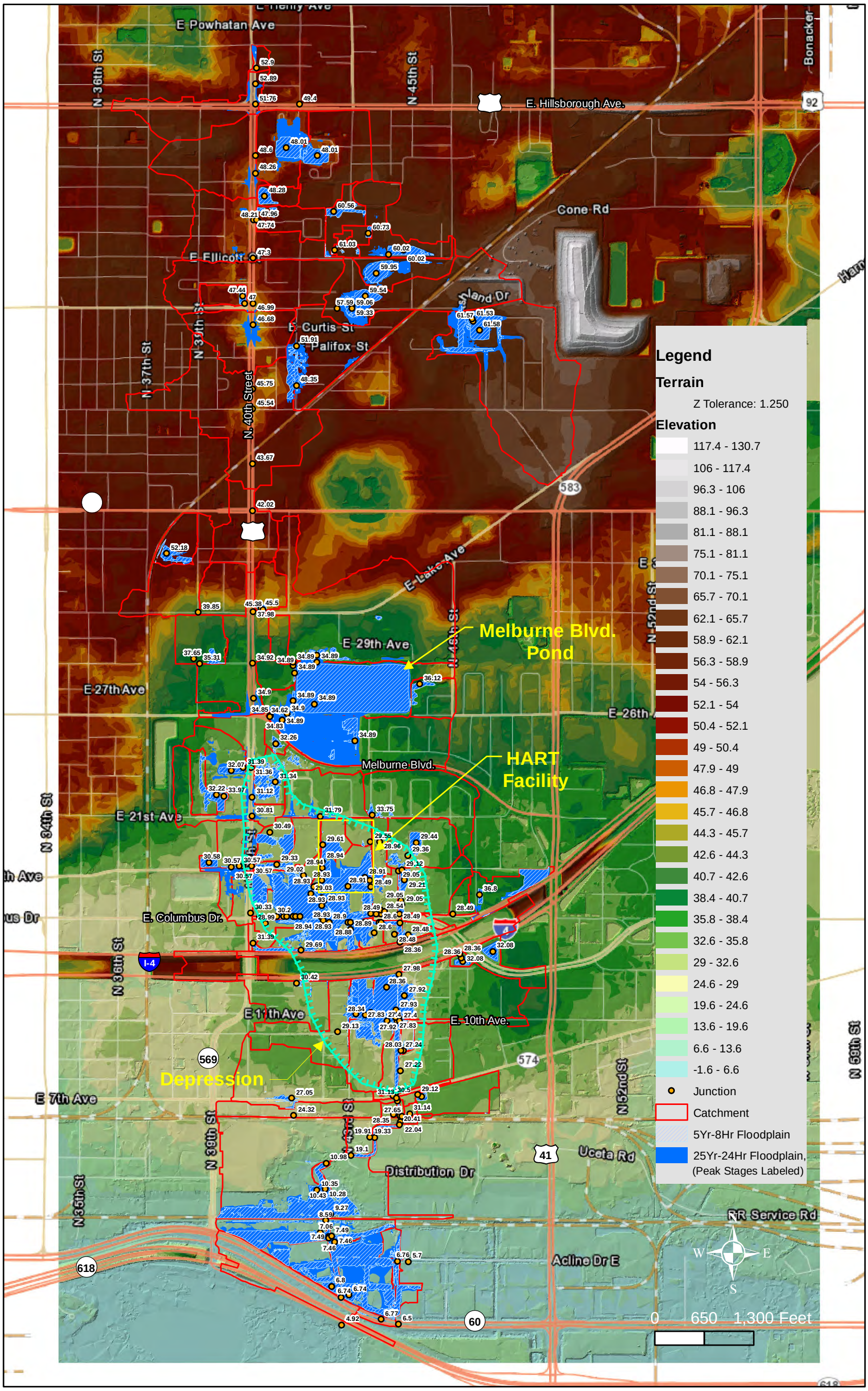



| | | | |
|---|---|---|---|
| DRMP ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS<br>December, 2012 | 43rd Street Outfall Basin Study<br>Existing Conditions<br>Floodplains over Aerial Map | | Figure 7 |

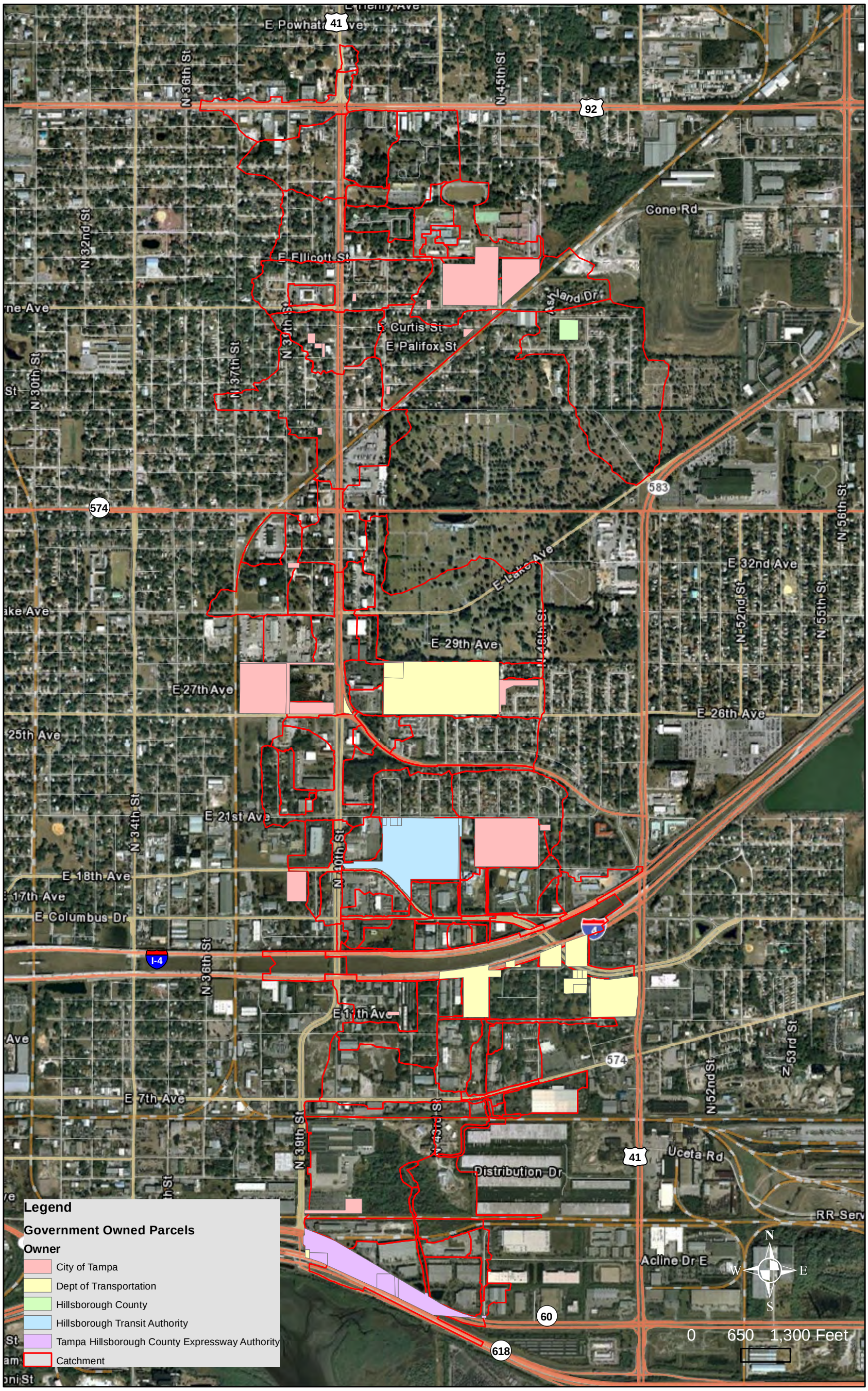
A large expanse of flooding over commercial sites, including the HART facility and others, occurs on both sides of I-4 in the vicinity of these roadway flooding areas. From review of the topography of this area, the cause of this flooding appears to be due to inadequate conveyance exiting a depression that is bisected by I-4. The 43rd Street outfall ditch crossings at 7th Avenue and adjacent railroad tracks appear to be the point of constriction. See Figure 8 on the following page for a view of the floodplains over terrain to see the floodplain extents within the depression and the point of conveyance constriction. This phenomenon is also documented by video during the July 8, 2011 event as high velocity flows were seen on the south side of 7th Avenue. A more localized flooding problem also appears at the south end of the focus area at the 43rd Street ditch crossing. At this location, flows overtop the ditch banks and across properties due to an undersized culvert along the ditch.

At the south end of the study area (outside of focus area), there also appears to be flooding for both the 5-year, 8-hour and 25-year, 24-hour storms of commercial areas and a City street (Acline Drive), and overtopping of railroad tracks crossing. Several large buildings may be at risk of flooding for the 25-year, 24-hour event.

Flooding also appears to the north of the focus area. For the 25-year, 24-hour storm, the Melburne Boulevard stormwater pond appears to overtop the banks and cause flooding of the entire Ace AA Used Auto Parts facility. Flooding also appears along several sections of a storm sewer system connecting two stormwater ponds to the 40th Street storm sewer including sections of Chelsea Street, 42nd Street, Osborne Avenue, and Ashland Drive. At the eastern pond on Ashland Drive, street flooding occurs for both mapped storms, and residential structures may be at risk for the 25-year storm. At the western pond on Osborne Avenue, both streets and residences appear to be at risk for both of the mapped storms. More street flooding appears to the south along 42nd Street for both mapped storms.




| | | | |
|---|---|---|---|
| DRMP ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS<br>December, 2012 | 43rd Street Outfall Basin Study<br>Existing Conditions<br>Floodplains over Terrain Map | | Figure 8 |




| | | | |
|---|---|---|---|
| DRMP ENGINEERS • SURVEYORS • PLANNERS • SCIENTISTS<br>December, 2012 | 43rd Street Outfall Basin Study<br>Government-Owned Parcels Map | | Figure 9 |

# 4. PROPOSED CONDITIONS

## 4.1. Proposed Improvement Alternatives

Three sets of preliminary alternatives have been developed and compared for improving flood protection in the problem areas identified in this study. These three preliminary alternatives are depicted in Figures 10, 11, and 12, and they are generally described below. Additionally, water surface profiles of the 43rd Street Outfall Ditch segment through the focus area are included for the three alternatives and existing conditions for the critical storm (5-year, 8-hour) in Appendix C.

**Alternative 1: Conveyance Upgrades with South Pond**

- Channel widening and reconstruction (varying widths up to **34 feet**) from HART Facility southward to 43rd Street crossing, distance of 3,970 linear feet.
- Installation of fabric filled concrete rip-rap, or other armoring, from I-4 crossing to 43rd Street crossing, distance of 2,740 linear feet.
- Acquisition of additional **4.3 acres** (affecting 16 properties) of right-of-way or easements for channel/culvert work.
- Secondary trunk line along Columbus Drive, **(2) 4' x 10' box culverts** for distance of 1,100 linear feet.
- Culvert crossing upgrades with multiple box culverts/pipes at **six (6)** roadway crossings and **two (2)** railroad crossings.
- Construction of **9.4 acre** stormwater pond for attenuation and treatment (South Pond).

**Alternative 2: Conveyance Upgrades with North and South Ponds**

- Channel widening and reconstruction (varying widths up to **15 feet**) from HART Facility southward to 43rd Street crossing, distance of 3,970 linear feet.
- Installation of fabric filled concrete rip-rap, or other armoring, from I-4 crossing to 43rd Street crossing, distance of 2,740 linear feet.
- Acquisition of additional **3.3 acres** (affecting 14 properties) of right-of-way or easements for channel/culvert work.
- Secondary trunk line along Columbus Drive, **(2) 48-inch pipes** for distance of 1,100 linear feet.
- Culvert crossing upgrades with multiple box culverts/pipes at **six (6)** roadway crossings and **two (2)** railroad crossings.
- Construction of **9.4 acre** stormwater pond for attenuation and treatment (South Pond).
- Construction of **7.1 acres** stormwater pond for flood storage and treatment (North Pond).

**Alternative 3: Diversion System with North and South Ponds**

- Diversion system along 40th Street with **4' x 6' box culvert**, distance of 3,900 linear feet.
- Acquisition of additional **0.4 acres** (affecting 4 properties) of right-of-way or easements for culvert work.
- Culvert crossing upgrades with single box culverts/pipes at **two (2)** roadway crossings and **one (1)** railroad crossing.
- Construction of **9.4 acre** stormwater pond for attenuation and treatment (South Pond).
- Construction of **7.1 acres** stormwater pond for flood storage and treatment (North Pond).

Note that additional conveyance (pipe) and inlet upgrades within the HART Facility may be beneficial to improve protection of portions of the property from localized flooding.

## 4.2. Proposed Stormwater Ponds

Following are characteristics of the preliminary designs of these ponds with the primary design functions in the headings (elevations in ft, NAVD88):

**North Pond (7.1 Ac) – flood storage**

- Off-line Wet Detention
- Property acreage = 7.1 acres (South Side of Columbus Drive)
- Berm Elevation = 27.5
- Control Elevation = 25.0
- Bottom Elevation = 16.5 (max. depth of 8.5 feet)
- Permanent Pool Volume = 39.9 ac-ft

It should also be mentioned that for Alternative 3, the North Pond may be designed with a bleed-down device at a lower control elevation (24.0 or lower) with a connection to the proposed diversion box culvert on 40th Street. Adding one or more feet vertically of additional storage in the pond may further improve flood protection and allow reducing the size of the 4' x 6' diversion box culvert. Additionally, a flap gate could be considered on the box culvert connection to the Columbus Drive ditch to direct and capture large storm flows into the pond. A small bleed-down pipe could be installed in parallel to allow slow and controlled recovery of the pond back into the ditch.

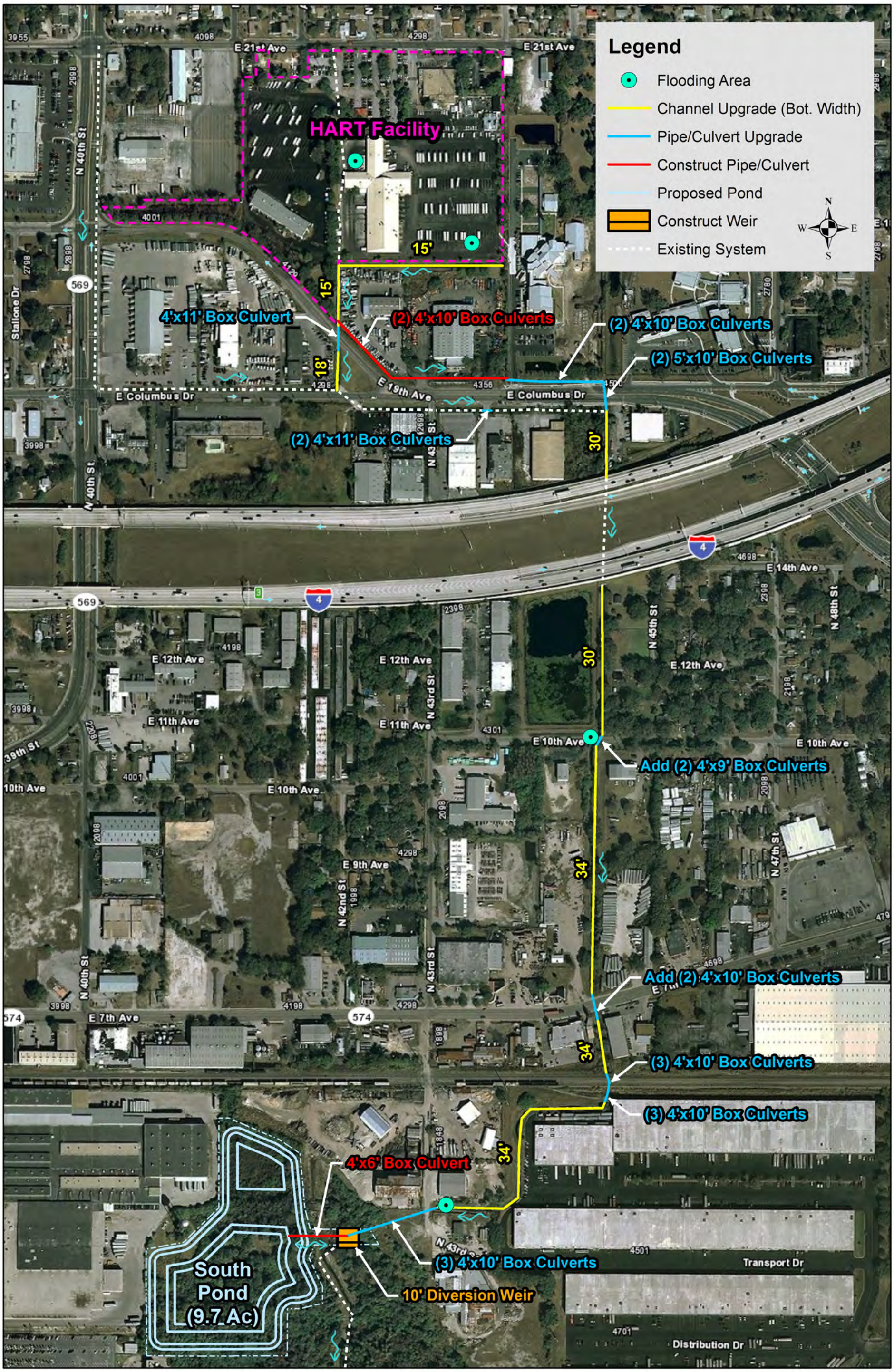
**South Pond – attenuation and treatment**

- Off-line/on-line Wet Detention
- Property acreage = 9.4 acres
- Berm Elevation = 20.0
- Shelf Elevation = 9.0
- Control Elevation = 6.0
- Bottom Elevation = -1.0 (max. depth of 7.0 feet)
- Permanent Pool Volume = 20.8 ac-ft

The South Pond could be designed to maximize treatment flow path with the addition of a small bleed-down device toward the southeast corner of the pond with connection to the adjacent outfall ditch.

All three alternatives provide significant water quality benefits to the receiving water of Tampa Bay through detention of stormwater in the permanent pools in the combinations of proposed North and South Ponds. The 43rd Street outfall is located in the Palm River Basin as delineated by FDEP (WBID 1536E). This basin is listed and verified as impaired for Dissolved Oxygen and Nutrients.

Please note that site-specific geotechnical investigations will be necessary to establish seasonal high/normal groundwater levels and possibly base seepage flows across the potential pond sites for use in final design. Contamination investigations over all potential pond sites are strongly encouraged early in the design process due to the historical industrial uses of the area. Additionally, potential for hazardous materials (such as asbestos or others) to exist in the existing buildings to be demolished for pond sites should be considered in evaluating costs and use of potential pond sites.

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**Alternative 1 - Conveyance Upgrades with South Pond**

**Figure 10**

0 175 350 Feet


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**Alternative 2 - Conveyance Upgrades with North & South Ponds**

**Figure 11**

0 175 350 Feet


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43rd Street Outfall Basin Study

**Alternative 3 - Diversion System with North & South Ponds**

**Figure 12**

0 175 350 Feet

## 4.3. Proposed Conditions Model Results

The three alternatives have been determined in order to provide flood protection at the HART site, all roadway crossings, and private properties along the 43rd Street outfall ditch alignment within the focus area of the study between the HART site and the 43rd Street crossing. No adverse effects from proposed improvements are expected upstream of the focus area. Additionally, the south pond is included in the alternatives for the purpose of fully attenuating the increase of storm flows due to proposed channel and culvert upgrades so that downstream portions of the system and private properties see no adverse effects from the project.

The expected level of service for flood protection is the critical duration of the 5-year recurrence interval, identified as the 8-hour duration storm. Peak stages of the alternatives presented are below critical low pavement areas or within the top of ditch banks as further detailed in the table included below.

**Table 8 – Peak Stages at Select Nodes in Focus Area for Proposed Conditions**

| Junction Name | Location | Peak Stage (ft, NAVD) 5-Year, 8-Hour | | | | Critical Elevation |
|---|---|---|---|---|---|---|
| | | Existing | Alt. 1 | Alt. 2 | Alt. 3 | |
| **HART Facility** | | | | | | |
| NA0655 | Southeast corner of HART facility | 28.32 | 26.85 | 26.88 | 26.89 | 26.9 low pavement elevation in parking area |
| NA0605 | HART facility outfall ditch, north side of 19th Avenue crossing | 28.44 | 26.82 | 26.84 | 26.84 | 27.8 low edge of pavement |
| **43rd Street Outfall Ditch** | | | | | | |
| NA0210 | Upstream side of I-4 crossing | 27.86 | 25.92 | 26.03 | 26.21 | 28.0 top of ditch bank |
| NA0215 | Downstream side of I-4 crossing | 27.61 | 24.81 | 25.70 | 26.12 | 28.0 top of ditch bank |
| NA1005 | Upstream side of 10th Avenue crossing | 27.52 | 24.38 | 25.39 | 26.05 | 26.0 low edge of pavement |
| NA0230 | Upstream side of 7th Avenue crossing | 25.93 | 21.78 | 23.13 | 25.61 | 30.1 top of ditch bank |
| NA0240 | Upstream side of railroad crossings | 25.02 | 19.39 | 20.86 | 24.56 | 29.1 low point of rail bed |
| NA0255 | Upstream side of 43rd Street crossing | 18.84 | 16.50 | 16.79 | 17.12 | 18.5 low top of ditch bank |

A critical aspect of this project will be to ensure that no adverse impacts occur downstream of the proposed improvements due to improving conveyance of the existing system. The South Pond is included in all alternatives and sized in order to provide attenuation so there is no increase in peak flows, as shown in the following table. The 25-year, 24-hour storm event was analyzed to show compliance with the attenuation requirement in SWFWMD permitting rules.

**Table 9 – Peak Flows Comparison for Proposed Conditions**

| Link Name | Location | Peak Flow (CFS) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 5-Year, 8-Hour | | | | 25-Year, 24-Hour | | | |
| | | Existing | Alt. 1 | Alt. 2 | Alt. 3 | Existing | Alt. 1 | Alt. 2 | Alt. 3 |
| RA0280 | 43rd St Outfall Ditch, South of Railroad | 399 | 353 | 317 | 319 | 491 | 484 | 448 | 460 |

## 4.4. Discussion and Comparison of Alternatives

Three feasible alternatives have been developed to provide comparable and reasonable levels of flood protection within the focus area of the study. Advantages and challenges are found with all three alternatives.

More specifically, Alternatives 1 and 2 focus on upsizing and improving conveyance of the existing 43rd Street outfall ditch. Increases of slope and conveyance also lead to increases of velocities in the channel to the extent that channel lining is recommended from the I-4 crossing southward to the 43rd Street crossing for a distance of 2,740 linear feet. For cost estimating, fabric-filled concrete rip-rap has been identified, however, other types of armoring could be explored such as articulating block or ditch pavement. Additionally, for Alternative 1 and to a lesser extent Alternative 2, right-of-way acquisitions or easements will be necessary for up to 4.3 acres involving 16 property owners along the banks of the existing channel segments. These negotiations could prove challenging to manage within a scheduled timeframe and cost, especially if grant funding and obligations are involved.

The main component of Alternative 3 is a proposed new diversion 4’ x 6’ box culvert along 40th Street, a portion of which is FDOT State Road 569. For Alternative 3, early coordination with FDOT will be important to gain FDOT’s commitment to this conceptual plan.

Construction of large box culvert under active railroad tracks (or bore and jack equivalent pipes) owned by CSX railroad is a component of all three alternatives that is expected to be complex in design, approval, and construction. Alternative 3 provides an advantage concerning railroad issues in that the box culvert size is 4’ x 6’, as opposed to up to triple 4’ x 10’ for Alternative 1.

Utility relocations and conflict resolutions are expected to be difficult but not prohibitive for all three alternatives. See Appendix F for more detailed information about existing utilities. Both Alternative 2 and 3 involve negotiations with up to three separate property owners for construction of the North and South Ponds. These negotiations may lead to uncertainty in the schedule and project costs. An alternative site for the North Pond is also feasible on the north side of Columbus Drive, should the preferred location as shown on exhibits prove infeasible.

## 4.5. Estimated Alternative Costs

Detailed cost estimates are included for all three alternatives in Appendix C. Most construction unit prices are based on FDOT average annual construction contract values tabulated for the year 2011. Property cost estimates are further detailed in Appendix E, and are based on market or assessed property values displayed on the Hillsborough County Property Appraiser's website. For some of the properties, recent sales values are also available for comparison. Alternative 3 is estimated as the least cost alternative at **$8,963,000** including design, property acquisition, and construction costs.

**Table 10 – Summary of Estimated Project Costs for Alternatives**

| Alternative | Estimated Project Cost |
|---|---|
| 1: Conveyance Upgrades with South Pond | $ 9,110,000 |
| 2: Conveyance Upgrades with North and South Ponds | $ 9,149,000 |
| **3: Diversion System with North and South Ponds** | **$ 8,963,000** |

## 4.6. Recommendation and Phasing

The scope of the flooding problem is large and a major commitment to improve the situation will be necessary. We understand the City is planning to partner for funding and divide the improvements into multiple phases to reach the desired level of flood protection in the study area.

Though estimated costs are close among the alternatives, the recommended course of action to provide necessary flood protection for the study area is **Alternative 3 with a diversion system along 40th Street and North and South Ponds**. The main reasons for this choice of recommendation are; 1) involvement with many fewer property owners (three as opposed to up to 19) that are critical to the project success, (2) avoidance of major disruptions to the 43rd Street outfall ditch, (3) and further distribution or splitting of stormwater flows instead of promotion of higher flow rates.

Following is a schedule of possible phasing for the recommendations. Each phase may be subdivided into property acquisitions and design/construction sub-phases.

**Table 11 – Phasing of Recommendations**

| Phases | Estimated Property Costs | Estimated Design and Construction Costs | Total Estimated Phase Cost |
|---|---|---|---|
| **1**: Construct North Pond and connection to HART | $ 1,500,000 | $ 1,266,000 | $ 2,766,000 |
| **2**: Construct South Pond, diversion weir, and box culvert across 43rd Street | $ 400,000 | $ 1,754,000 | $ 2,154,000 |
| **3**: Construct diversion system along 40th Street to South Pond | $ 57,000 | $ 3,986,000 | $ 4,043,000 |
| | | Total = | $ 8,963,000 |

# Appendix A

## Existing Conditions XP-SWMM Model Input and Results

*(under separate cover)*

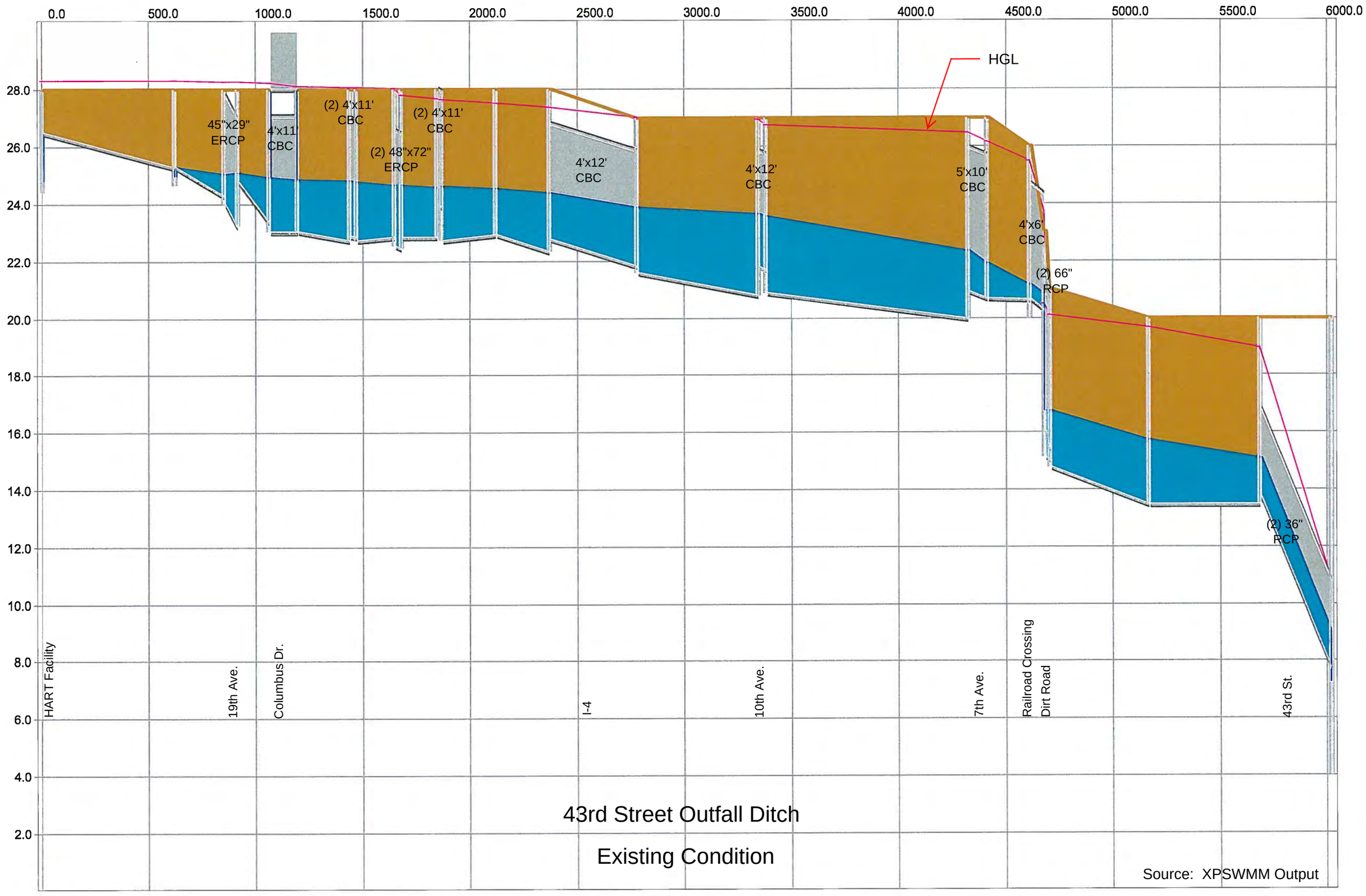
# Appendix B

## Proposed Conditions XP-SWMM Model Input and Results

*(under separate cover, includes Alternative 4)*

# Appendix C

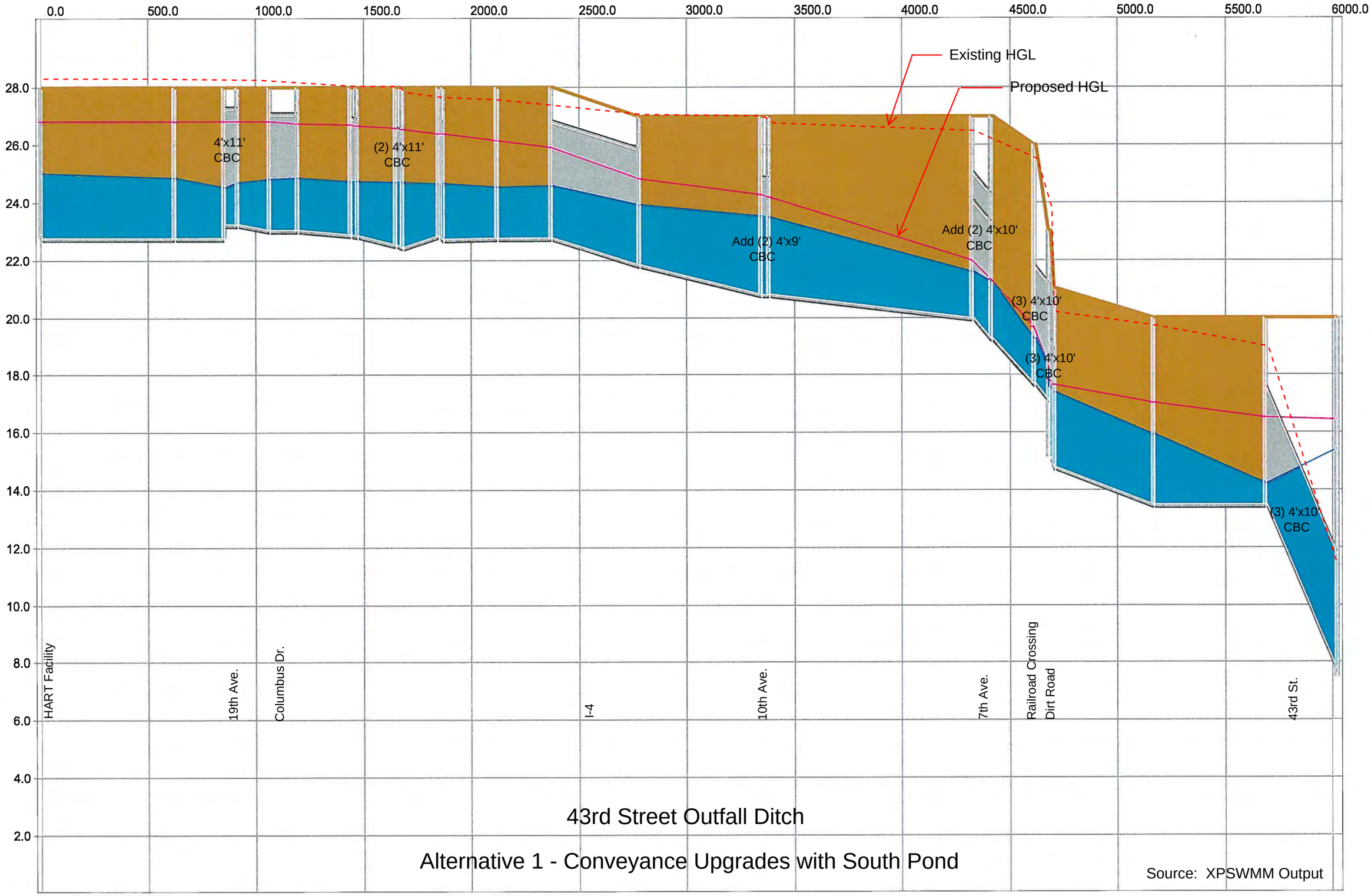
## 43rd Street Outfall Ditch Profiles for Existing and Proposed Conditions




43rd Street Outfall Ditch

Existing Condition

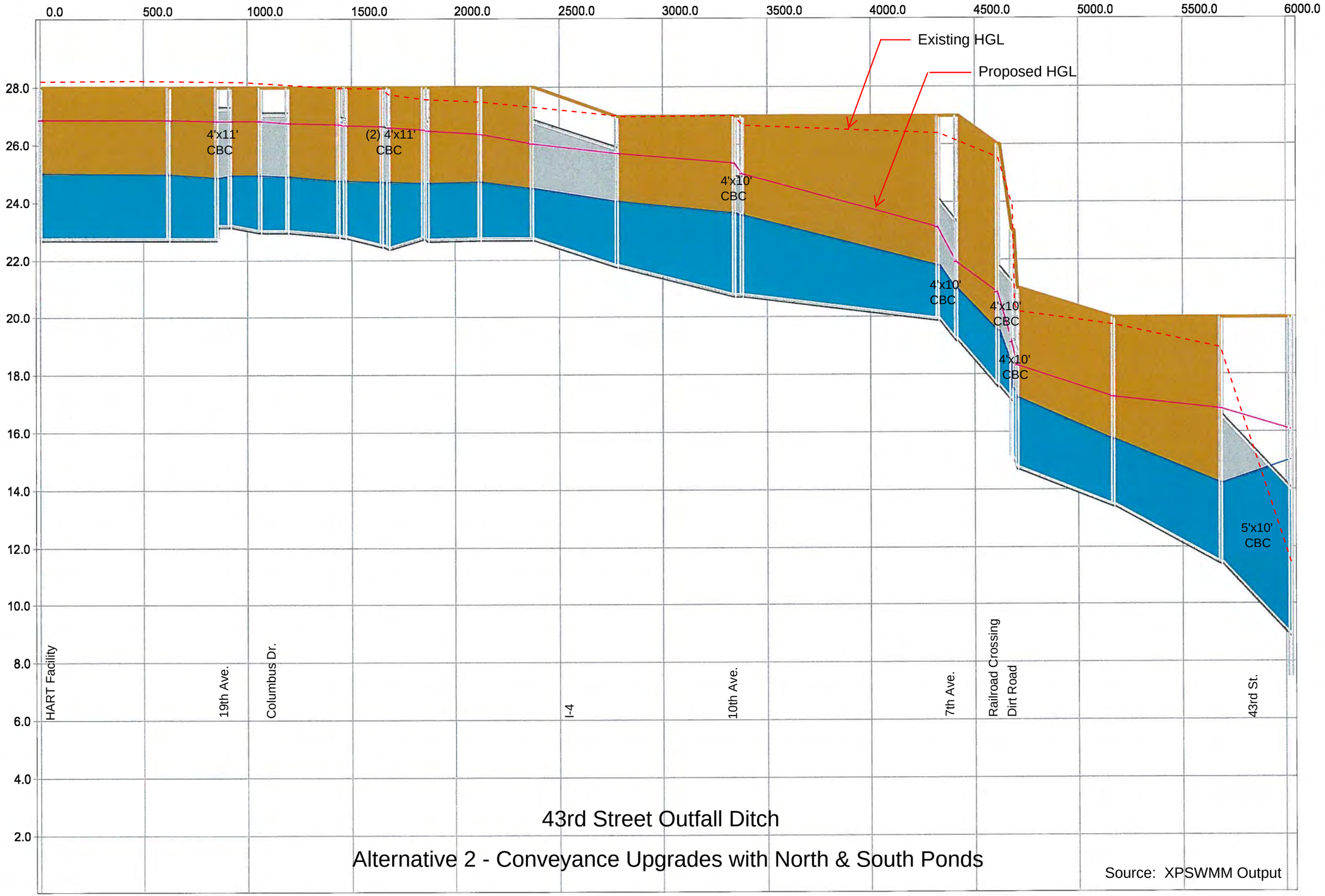
Source: XPSWMM Output




43rd Street Outfall Ditch

Alternative 1 - Conveyance Upgrades with South Pond

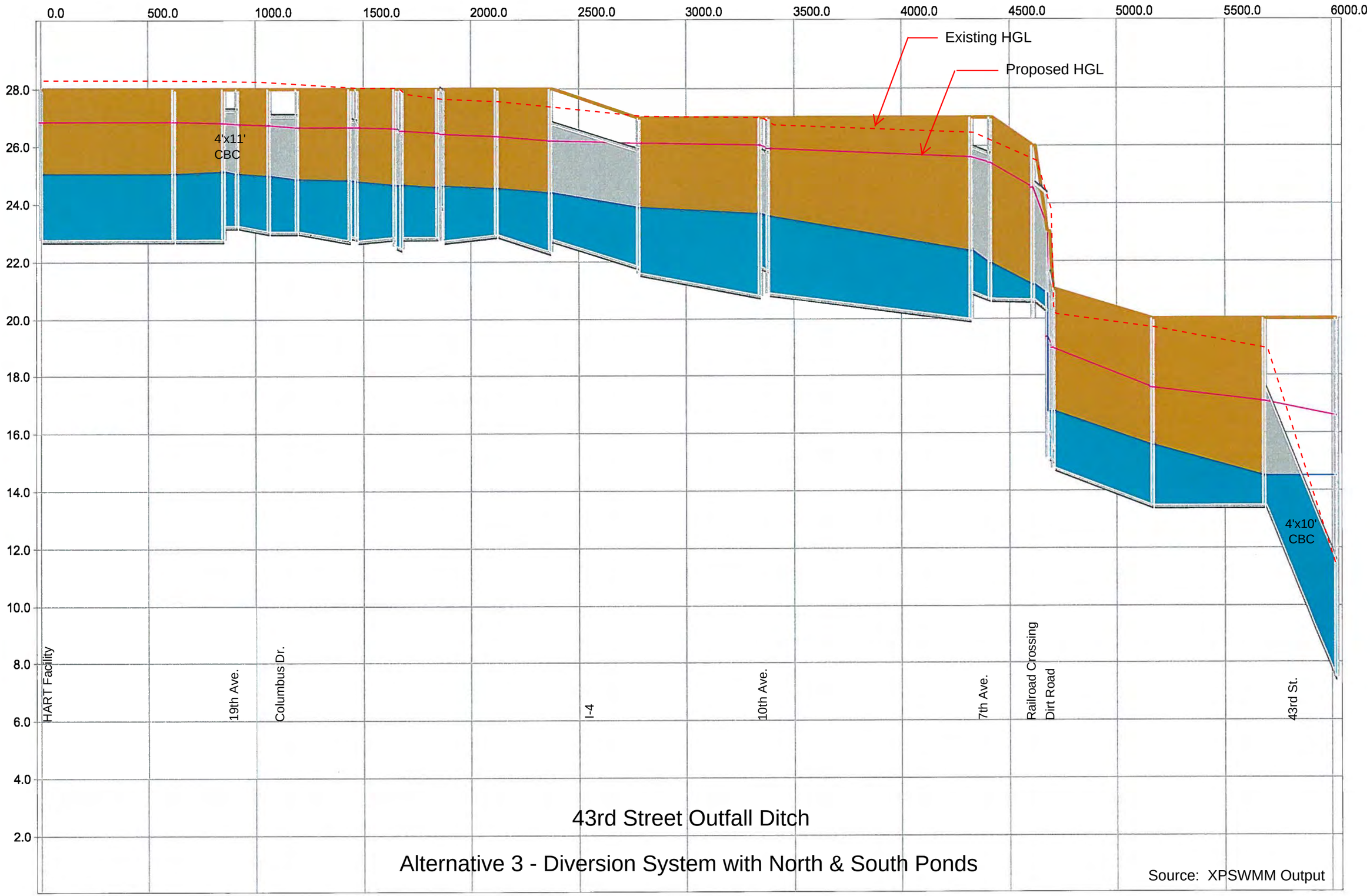
Source: XPSWMM Output




43rd Street Outfall Ditch

Alternative 2 - Conveyance Upgrades with North & South Ponds

Source: XPSWMM Output




43rd Street Outfall Ditch

Alternative 3 - Diversion System with North & South Ponds

Source: XPSWMM Output

# Appendix D

Preliminary Project
Cost Estimates

# Engineer's Estimate of Project Costs for Improvements to 43rd Street Outfall Ditch Basin

**Alternative 1 - Conveyance Upgrades with South Pond**

| Item Number | Description | Unit Cost | Units | Quantity | Total Cost |
|---|---|---|---|---|---|
| 1 | Clearing and Grubbing | $7,500.00 | AC | 20.6 | $154,500 |
| 2 | Erosion Control | $10,000 | LS | 1 | $10,000 |
| 3 | Structure with 10-foot Diversion Weir | $10,000.00 | EA | 1 | $10,000 |
| 4 | Manhole Riser (for access to box culvert) | $3,000.00 | EA | 2 | $6,000 |
| 5 | Concrete for Endwall | $670.00 | CY | 137.0 | $91,790 |
| 6 | Building Demolition (1 story with small machinery) | $4.50 | SF | 13,800 | $62,100 |
| 7 | Box Culvert, 4' x 6' | $526.00 | LF | 230 | $120,980 |
| 8 | Box Culvert, 4' x 9' | $684.00 | LF | 68 | $46,512 |
| 9 | Box Culvert, 4' x 10' | $736.00 | LF | 1,932 | $1,421,952 |
| 10 | Box Culvert, 4' x 11' | $789.00 | LF | 129 | $101,781 |
| 11 | Box Culvert, 5' x 10' | $789.00 | LF | 180 | $142,020 |
| 12 | Channel Excavation | $6.80 | CY | 39,511 | $268,675 |
| 13 | Channel Lining with Fabric Formed Riprap | $60.00 | SY | 21,174 | $1,270,467 |
| 14 | Pond Excavation | $4.00 | CY | 111,830 | $447,320 |
| 15 | Pond Berm Embankment | $5.00 | CY | 9,056 | $45,280 |
| 16 | Performance Turf (Sod) | $1.70 | SY | 41,500 | $70,550 |
| 17 | Chain-link Fence (6') | $13.00 | LF | 8,770 | $114,010 |
| 18 | Concrete Sidewalk (Driveway), 6-inch Thick | $40.00 | SY | 472 | $18,880 |
| 19 | Concrete Sidewalk, 4-inch Thick | $29.00 | SY | 392 | $11,368 |
| 20 | Roadway Open Cut Restoration | $57.00 | SY | 858 | $48,906 |
| 21 | Roadway Lane Restoration | $43.00 | SY | 2,583 | $111,069 |
| | Maintenance of Traffic (12%) | | | | $548,899 |
| | Mobilization & Demobilization (10%) | | | | $512,306 |
| | Contingency Cost (20%) | | | | $1,127,073 |
| | **Construction Cost Sub-total** | | | | **$6,762,437** |
| | Construction Engineering Inspection and Testing (5%) | | | | $338,122 |
| | Engineering Design and Permitting (7%) | | | | $473,371 |
| | Railroad Compliance and Permitting | $100,000.00 | LS | 1 | $100,000 |
| | Property Acquisition for Conveyance Upgrades and South Pond (see separate tabulation) | | | | $1,436,000 |
| | **Estimated Project Costs, Alternative 1** | | | | **$9,110,000** |

# Engineer's Estimate of Project Costs for Improvements to 43rd Street Outfall Ditch Basin

**Alternative 2 - Conveyance Upgrades with South and North Ponds**

| Item Number | Description | Unit Cost | Units | Quantity | Total Cost |
|---|---|---|---|---|---|
| 1 | Clearing and Grubbing | $7,500.00 | AC | 25.7 | $192,450 |
| 2 | Structure with 12-foot Diversion Weir | $10,000.00 | EA | 1 | $10,000 |
| 3 | Modify Drainage Structure (connect pipe) | $1,500.00 | EA | 1 | $1,500 |
| 4 | Manhole Riser (for access to box culvert) | $3,000.00 | EA | 2 | $6,000 |
| 5 | Concrete for Endwall | $670.00 | CY | 118.0 | $79,060 |
| 6 | Building Demolition (with wrecking ball) | $2.00 | SF | 58,800 | $117,600 |
| 7 | Building Demolition (with small machinery) | $4.50 | SF | 13,800 | $62,100 |
| 8 | Reinforced Concrete Pipe (RCP), 48-inch | $130.00 | LF | 2,350 | $305,500 |
| 9 | Box Culvert, 3' x 4' | $400.00 | LF | 90 | $36,000 |
| 10 | Box Culvert, 4' x 6' | $526.00 | LF | 230 | $120,980 |
| 11 | Box Culvert, 4' x 10' | $736.00 | LF | 215 | $158,240 |
| 12 | Box Culvert, 4' x 11' | $789.00 | LF | 129 | $101,781 |
| 13 | Box Culvert, 5' x 10' | $789.00 | LF | 335 | $264,315 |
| 14 | Channel Excavation | $6.80 | CY | 15,465 | $105,162 |
| 15 | Channel Lining with Fabric Formed Riprap | $60.00 | SY | 15,162 | $909,733 |
| 16 | Pond Excavation | $4.00 | CY | 212,194 | $848,776 |
| 17 | Pond Berm Embankment | $5.00 | CY | 9,132 | $45,660 |
| 18 | Performance Turf (Sod) | $1.60 | SY | 61,274 | $98,038 |
| 19 | Chain-link Fence (6') | $13.00 | LF | 11,120 | $144,560 |
| 20 | Concrete Sidewalk (Driveway), 6-inch Thick | $38.00 | SY | 472 | $17,936 |
| 21 | Concrete Sidewalk, 4-inch Thick | $29.00 | SY | 392 | $11,368 |
| 22 | Roadway Open Cut Restoration | $57.00 | SY | 755 | $43,035 |
| 23 | Roadway Lane Restoration | $43.00 | SY | 2,000 | $86,000 |
| | Maintenance of Traffic (12%) | | | | $451,895 |
| | Mobilization & Demobilization (10%) | | | | $421,769 |
| | Contingency Cost (20%) | | | | $927,892 |
| | **Construction Cost Sub-total** | | | | **$5,567,351** |
| | Construction Engineering Inspection and Testing (5%) | | | | $278,368 |
| | Engineering Design and Permitting (7%) | | | | $389,715 |
| | Railroad Compliance and Permitting | $75,000.00 | LS | 1 | $75,000 |
| | Property Aquisition for Conveyance Upgrades and South/North Ponds (see separate tabulation) | | | | $2,839,000 |
| | **Estimated Project Costs, Alternative 2** | | | | **$9,149,000** |

# Engineer's Estimate of Project Costs for Improvements to 43rd Street Outfall Ditch Basin

**Alternative 3 - Diversion System with North and South Ponds**

| Item Number | Description | Unit Cost | Units | Quantity | Total Cost |
|---|---|---|---|---|---|
| 1 | Clearing and Grubbing | $7,500.00 | AC | 21.5 | $161,400 |
| 2 | Structure with 10-foot Diversion Weir | $10,000.00 | EA | 1 | $10,000 |
| 3 | Modify Drainage Structure (connect pipe) | $1,500.00 | EA | 2 | $3,000 |
| 4 | Manhole Riser (for access to box culvert) | $3,000.00 | EA | 12 | $36,000 |
| 5 | Concrete for Endwall | $670.00 | CY | 34.8 | $23,329 |
| 6 | Building Demolition (with wrecking ball) | $2.00 | SF | 58,800 | $117,600 |
| 7 | Box Culvert, 3' x 5' | $421.00 | LF | 90 | $37,890 |
| 8 | Box Culvert, 4' x 6' | $526.00 | LF | 3,910 | $2,056,660 |
| 9 | Box Culvert, 4' x 10' | $736.00 | LF | 335 | $246,560 |
| 10 | Box Culvert, 4' x 11' | $789.00 | LF | 67 | $52,863 |
| 11 | Channel Excavation | $6.80 | CY | 1,867 | $12,696 |
| 12 | Pond Excavation | $4.00 | CY | 212,194 | $848,776 |
| 13 | Pond Berm Embankment | $5.00 | CY | 9,132 | $45,660 |
| 14 | Performance Turf (Sod) | $1.60 | SY | 48,601 | $77,762 |
| 15 | Chain-link Fence (6') | $13.00 | LF | 5,690 | $73,970 |
| 16 | Concrete Sidewalk (Driveway), 6-inch Thick | $38.00 | SY | 981 | $37,278 |
| 17 | Concrete Sidewalk, 4-inch Thick | $29.00 | SY | 1,190 | $34,510 |
| 18 | Roadway Open Cut Restoration | $57.00 | SY | 375 | $21,375 |
| 19 | Roadway Lane Restoration | $43.00 | SY | 6,714 | $288,702 |
| | Maintenance of Traffic (12%) | | | | $502,324 |
| | Mobilization & Demobilization (10%) | | | | $468,835 |
| | Contingency Cost (20%) | | | | $1,031,438 |
| | **Construction Cost Sub-total** | | | | **$6,188,628** |
| | Construction Engineering Inspection and Testing (5%) | | | | $309,431 |
| | Engineering Design and Permitting (7%) | | | | $433,204 |
| | Railroad Compliance and Permitting | $75,000.00 | LS | 1 | $75,000 |
| | Property Costs for Minor Conv. Upgrades and South/North Ponds (see separate tabulation) | | | | $1,957,000 |
| | **Estimated Project Costs, Alternative 3** | | | | **$8,963,000** |

# Appendix E

Property Needs Back-up Information

| FOLIO | Owner | Size (acres) | Assessed or Market Value | Buildings | Last Sale | Last Sale Date | Notes |
|---|---|---|---|---|---|---|---|
| North Pond (South side of Columbus Drive) | | | | | | | |
| 1604760000 | Bravura Investment Corp. | 3.13 | $200,812 | No | $250,000 | 9/17/2003 | |
| 1604750000 | Ricknata, LLC | 0.58 | $60,984 | No | $500,000 | 12/30/2010 | |
| 1605630000 | Ricknata, LLC | 2.21 | $144,597 | No | --- | --- | included above |
| 1605640100 | Ricknata, LLC | 2.48 | $1,047,600 | Yes | --- | --- | included above |
| | | 8.40 | | | | | |
| North Pond - Option (North Side of Columbus Drive) | | | | | | | |
| 1581050000 | Old Dominion Freight Line, Inc. | 5.63 | $1,237,657 | Yes | $590,000 | 8/1/1993 | For Sale? |

| | | |
|---|---|---|
| Estimated Property Purchase Price = | $1,000,000 | based on considerations of assessed values and last sale prices of two options |
| Estimated Administrative/Legal Costs = | $500,000 | 50% of estimated purchase price (from sample of FDOT estimates) |
| Estimated Total Property Costs = | $1,500,000 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| South Pond | | | | | | | |
| 1752930000 | Southgate Tampa Industrial Ltd. Partnership | 38.6 (using 9.7) | $1,060,103 | Yes (not affected) | N/A | | land only ($27,500 per acre) |

| | | |
|---|---|---|
| Estimated Property Purchase Price = | $266,750 | based on market land value prorated for 9.4 acres out of 38.6 acres total |
| Estimated Administrative/Legal Costs = | $133,375 | 50% of estimated purchase price (from sample of FDOT estimates) |
| Estimated Total Property Costs = | $400,000 | |

| FOLIO | Owner | Size (acres) | Assessed or Market Value | Buildings | Last Sale | Last Sale Date | Property Value Rate | | Alternative 1 Impacts | | Alternative 2 Impacts | | Alternative 3 Impacts | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Size (acres) | Cost | Size (acres) | Cost | Size (acres) | Cost |
| Conveyance Upgrades | | | | | | | | | | | | | | |
| Assume upgrades on HART property will not require property costs | | | | | | | | | | | | | | |
| 1581170100 | Messina Holdings, Inc. | 4.07 | $426,012 | Yes (not affected) | N/A | | $105,000.00 | per acre | 0.08 | $8,400 | 0.04 | $4,200 | 0.04 | $4,200.00 |
| 1581170200 | Messina Properties, Inc. | 2.39 | $251,965 | Yes (not affected) | N/A | | $105,000.00 | per acre | 0 | $0 | 0 | $0 | 0 | $0.00 |
| 1581200000 | Bowman Transportation, Inc. | 0.32 | $45,000 | No | N/A | | total purchase | total | 0 | $45,000 | 0 | $45,000 | 0 | $0.00 |
| 1603900000 | CMDL Investments, LLC | 1.08 | $20,212 | No | N/A | | $19,000.00 | per acre | 0.35 | $6,650 | 0.25 | $4,750 | 0 | $0.00 |
| Assume upgrades on FDOT property will not require property costs | | | | | | | | | | | | | | |
| 1606770000 | JL Baker Life Estate | 0.46 | $9,686 | Yes (not affected) | N/A | | $21,000.00 | per acre | 0.13 | $2,730 | 0.09 | $1,890 | 0 | $0.00 |
| 1605820000 | Alton and Cathy Harn | 0.3 | $7,920 | No | N/A | | $26,000.00 | per acre | 0.13 | $3,380 | 0.09 | $2,340 | 0 | $0.00 |
| 1605800000 | Alton and Cathy Harn | 0.42 | $11,808 | Yes (not affected) | N/A | | $28,000.00 | per acre | 0.13 | $3,640 | 0.09 | $2,520 | 0 | $0.00 |
| 1603980000 | Alton and Cathy Harn | 0.21 | $7,575 | No | N/A | | $36,000.00 | per acre | 0.14 | $5,040 | 0.1 | $3,600 | 0 | $0.00 |
| 1606850100 | Carl and Kathy Adkins | 2.63 | $204,607 | Yes (not affected) | N/A | | $78,000.00 | per acre | 0.36 | $28,080 | 0.26 | $20,280 | 0 | $0.00 |
| 1606860100 | Tampa 10 Properties, LLC | 1.36 | $117,467 | Yes (not affected) | N/A | | $86,000.00 | per acre | 0.02 | $1,720 | 0 | $0 | 0 | $0.00 |
| 1606860000 | Mabco Holdings, Inc. | 2.88 | $317,302 | Yes (not affected) | N/A | | $110,000.00 | per acre | 0.1 | $11,000 | 0 | $0 | 0 | $0.00 |
| 1606860250 | A-1 Beverage Service, Inc. | 2.29 | $288,938 | Yes (not affected) | N/A | | $126,000.00 | per acre | 0.23 | $28,980 | 0.11 | $13,860 | 0 | $0.00 |
| 1607270000 | Solid North, LLC | 0.94 | $373,700 | Yes | $400,000 | 12/28/2012 | total purchase | total | 0 | $373,700 | 0 | $373,700 | 0 | $0.00 |
| 1606960000 | C and S Industries | 0.57 | $72,600 | Yes (not affected) | N/A | | $127,000.00 | per acre | 0 | $0 | 0 | $0 | 0 | $0.00 |
| 1604730000 | Metropolitan Life Insurance | 22.06 | $803,381 | Yes (not affected) | N/A | | $36,000.00 | per acre | 0.73 | $26,280 | 0.51 | $18,360 | 0 | $0.00 |
| 1604270000 | 1607 Property Inc. | 2.61 | $210,560 | Yes (not affected) | N/A | | $81,000.00 | per acre | 0.13 | $10,530 | 0.11 | $8,910 | 0 | $0.00 |
| 1604280000 | Pamela Snead | 6.45 | $290,742 | Yes (one bldg. affected) | $550,000 | 3/5/2004 | estimated $45,000 per acre plus $100,000 for one bldg. | total and per acre | 0.38 | $117,100 | 0.3 | $113,500 | 0 | $0.00 |
| 1604060000 | Pamela Snead | 0.54 | $58,370 | No | N/A | | $108,000.00 | per acre | 0.17 | $18,360 | 0.12 | $12,960 | 0.12 | $12,960.00 |
| 1607950000 | GAC Tampa, Inc. | 2.92 | $315,037 | Yes (not affected) | N/A | | $108,000.00 | per acre | 0 | $0 | 0 | $0 | 0.1 | $10,800.00 |
| 1604060100 | JVS Contracting, Inc. | 4.31 | $349,380 | Yes (not affected) | N/A | | $81,000.00 | per acre | 0 | $0 | 0 | $0 | 0.12 | $9,720.00 |
| | | | | | | | | **Totals =** | **4.34** | **$690,590** | **3.33** | **$625,870** | **0.38** | **$37,680.00** |

Alternative 1

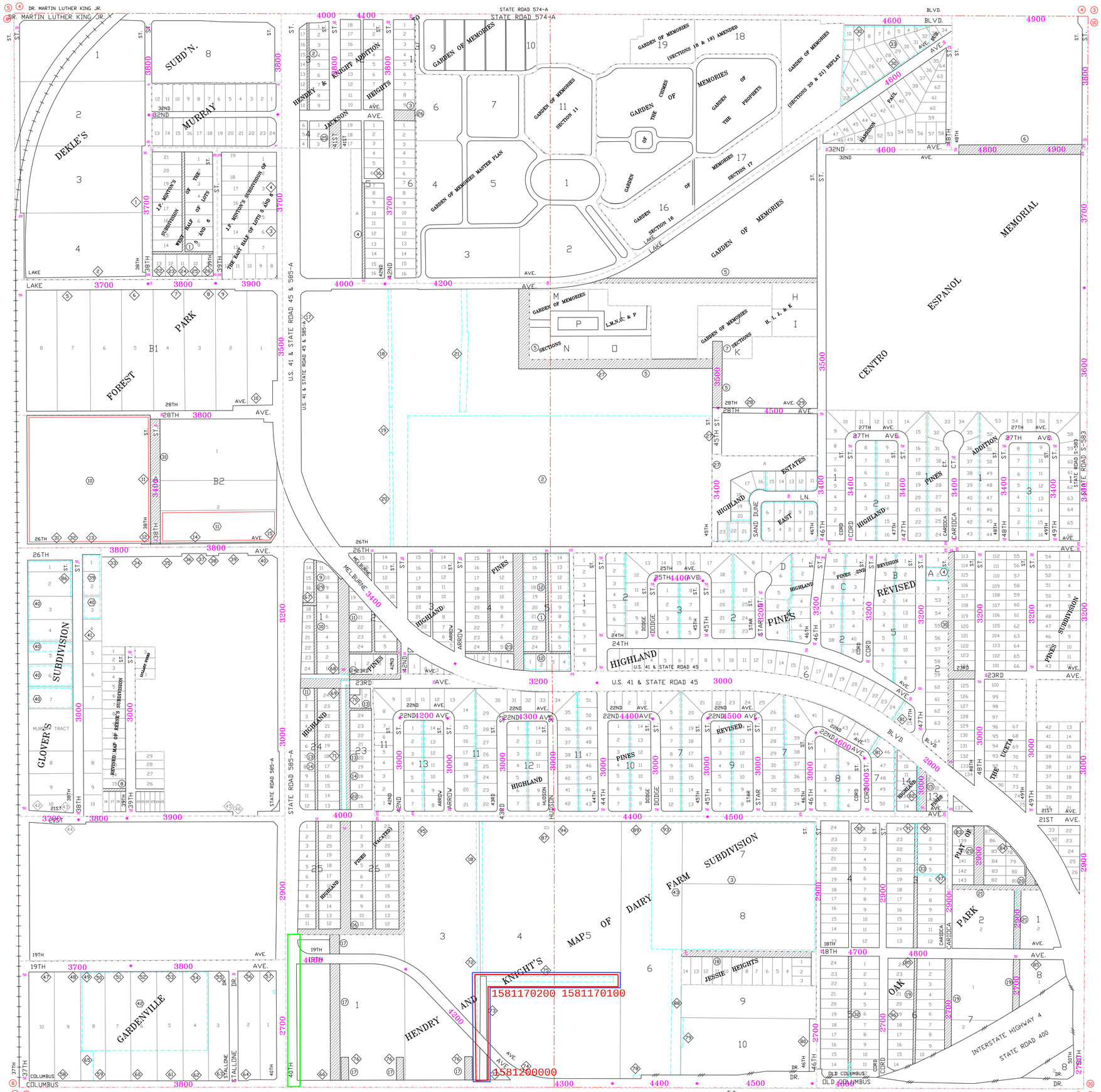
| | | |
|---|---|---|
| Estimated Property Purchase Price = | $690,590 | based on prorated market land value for partial takes of property or assessed value for full property takes with buildings |
| Estimated Administrative/Legal Costs = | $345,295 | 50% of estimated purchase price (from sample of FDOT estimates) |
| Estimated Total Property Costs = | $1,036,000 | |

Alternative 2

| | | |
|---|---|---|
| Estimated Property Purchase Price = | $625,870 | based on prorated market land value for partial takes of property or assessed value for full property takes with buildings |
| Estimated Administrative/Legal Costs = | $312,935 | 50% of estimated purchase price (from sample of FDOT estimates) |
| Estimated Total Property Costs = | $939,000 | |

Alternative 3

| | | |
|---|---|---|
| Estimated Property Purchase Price = | $37,680 | based on prorated market land value for partial takes of property or assessed value for full property takes with buildings |
| Estimated Administrative/Legal Costs = | $18,840 | 50% of estimated purchase price (from sample of FDOT estimates) |
| Estimated Total Property Costs = | $57,000 | |




## LAND USE REFERENCES

### VACATINGS OF R/W & EASEMENT

1. Ord. 1886-A
2. Ord. 4423-A
3. Ord. 5223-A
4. Ord. 3680-A
5. Ord. 6335-A
6. Ord. 4358-A
7. Ord. 5322-A
8. Ord. 1271-A
9. Ord. 2000-173 Vr. Easmt.
10. Ord. 4208-A
11. Ord. 4208-A
12. Ord. 6386-A
13. Ord. 3597-A
14. Ord. 3544-A
15. Ord. 6753-A
16. D.B. 907, Pg. 26 & 27
17. Ord. 1823-A
18. Ord. 7773-A
19. Ord. 4818-A
20. Ord. 8270-A
21. Ord. 8270-A Vr. Easmt.
22. Ord. 8333-A
23. Ord. 8333-A
24. Ord. 9468-A
25. Ord. 9328-A
26. Ord. 92-99
27. Ord. 93-209
28. Ord. 94-84
29. Res. 99-774
30. Ord. 2001-40
31. Ord. 2001-86
32. Ord. 2010-169 Easements
33. Ord. 2012-49 Pri. Drain. Easmt.

### ACQUISITIONS OF R/W & EASEMENT

1. Res. 1040-E
2. Res. 6182-F
3. C.M.B. "M", Pg. 432
4. C.M.B. "M", Pg. 437
5. Res. 6183-F
6. Res. 5917-F
7. Res. 5906-F
8. Res. 5907-F
9. Res. 7562-F
10. Res. 2855-E
11. Res. 5300-G
12. Res. 3622-D
13. Res. 6915-F
14. Res. 3613-D
15. Res. 6314-D
16. Res. 6315-D
17. Res. 6841-G
18. Res. 5272-D
19. Res. 5592-D
20. Res. 5272-D
21. Res. 0745-H
22. Res. 5909-F
23. Res. 5920-F
24. Res. 5913-F
25. Res. 5910-F
26. Res. 5915-F
27. D.B. 1076, Pg. 596
28. Res. 2855-E
29. Res. 2855-E
30. D.B. 1172, Pg. 647
31. Res. 7420-E
32. Res. 5306-C
33. Res. 7597-E
34. Res. 7596-E
35. Res. 7728-F
36. Res. 3376-D
37. Res. 7874-F
38. Res. 8277-F
39. Res. 7659-F
40. Res. 7659-F
41. D.B. 807, Pg. 313
42. Res. 8278-F
43. Res. 8139-F
44. Res. 7529-F
45. Res. 6736-F
46. Res. 6737-F
47. Res. 5290-D
48. Res. 5178-D
49. Res. 5175-D
50. Res. 5176-D
51. Res. 5263-F
52. Res. 5177-D
53. Res. 5209-D
54. Res. 5210-D
55. Res. 5065-D
56. Res. 5221-D
57. Res. 5223-D
58. D.B. 704, Pg. 548
59. D.B. 706, Pg. 206
60. D.B. 706, Pg. 208
61. D.B. 739, Pg. 221
62. D.B. 739, Pg. 223
63. D.B. 706, Pg. 202
64. D.B. 707, Pg. 415
65. Res. 8177-F
66. C.M.B. "K", Pg. 358
67. Res. 1164-E
68. Res. 2322-E
69. Res. 8393-D
70. Res. 8392-D
71. Res. 8392-D
72. Res. 6234-D
73. Res. 2388-D
74. Res. 6345-D
75. Res. 4631-H
76. D.B. 542, Pg. 297
77. Res. 6450-C
78. Res. 5441-D
79. Res. 2601-F
80. Res. 2600-F
81. Res. 3779-D
82. Res. 3283-G
83. Res. 778-E
84. Res. 778-E
85. Res. 6346-E
86. Res. 1416-G
87. Res. 6043-H
88. Res. 90-0588
89. Res. 430-D
90. Res. 432-D
91. Res. 433-D
92. Res. 434-D
93. Res. 435-D
94. Res. 436-D
95. Res. 437-D
96. Res. 2010-398
97. Res. 2012-428

### CITY PROPERTIES

1. Res. 5004-D & Res. 5006-D
2. (D.O.T.)
3. O.R. 3137, Pg. 882
4. Res. 8366-G
5. Res. 1758-D & Ord. 6417-A
6. Res. 454-F
   Res. 9963-F
   Res. 455-F
   Res. 452-F
   Res. 452-F
7. Res. 8730-G
   Res. 9858-E
   Res. 659-F
   Res. 752-F
   Res. 868-F
   Res. 2097-F
   Res. 2507-F
8. O.R. 3137, Pg. 879
9. Res. 1037-G
10. Res. 98-1669
11. Res. 98-1670

Property Needs for 43rd Street Outfall Basin Improvements

### SMALL SUBDIVISIONS

Approximate Property Needs

- Alternative 1
- Alternative 2
- Alternative 3
- XXXXXXXXXX Property Appraiser FOLIO No.

NORTH

0 200 400

NOTE:
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Growth Management & Development Services

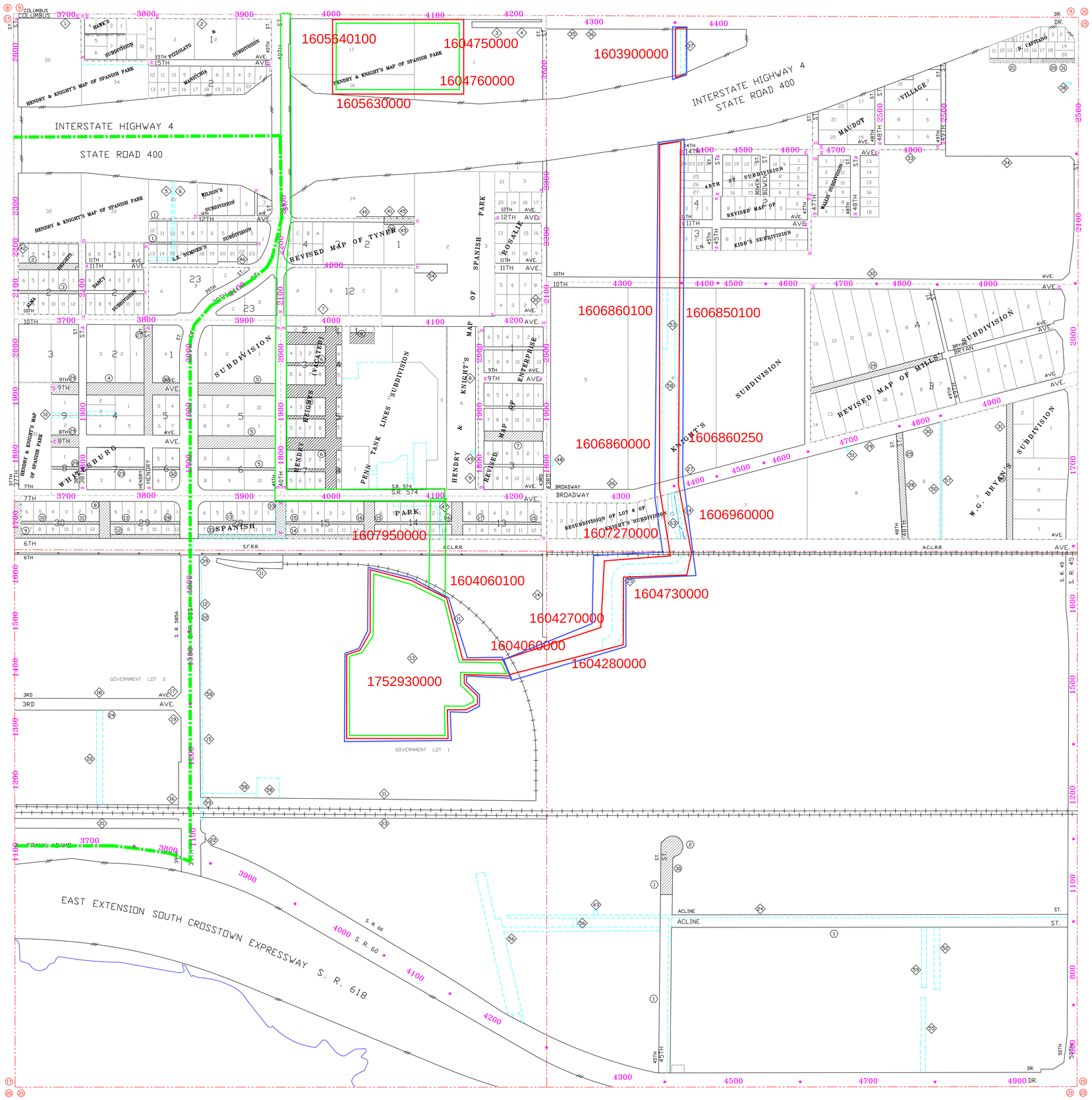
SCALE: 1" = 200'
REVISED: 05/08/12
BY: bl

CITY OF TAMPA, FLORIDA

R/W ATLAS

SEC. 9-T29S-R19E

ATLAS NO. G-15




## LAND USE REFERENCES

### VACATINGS OF R/W & EASEMENT

1. Ord. 4717-A
2. Ord. 4392-A
3. Ord. 6613-A
   Util. Esmt.
4. Ord. 6897-A
   Dr. Esmt.
5. Ord. 1961-A
6. D.B. 892, Pg 142
7. Ord. 8180-A
8. Ord. 5334-A
   Util. Esmt.
9. Ord. 5334-A
   Dr. & Util. Esmt.
10. Ord. 3116-A
11. Ord. 4165-A
12. D.B. 362, Pg. 482
13. D.B. 1511, Pg. 511
14. Ord. 3402-A
15. D.B. 407, Pg. 46
16. D.B. 408, Pg. 230
17. C.M.B. 15, Pg. 475
18. Ord. 2675-A
19. Ord. 2057-A
20. Ord. 4100-A
21. Ord. 4190-A
22. Ord. 619-A
23. Ord. 2057-A
24. ERV-X30
25. Ord. 5627-A
26. Ord. 9561-A
27. Ord. 89-132
28. Ord. 9586-A
    Util. Esmt.
29. Ord. 90-254
30. Ord. 2001-A
31. Res. 2005-1247
32. Ord. 2011-102
33. Ord. 2012-59
    Esmts./Conditons

### ACQUISITIONS OF R/W & EASEMENT

1. C.M.B. 15, Pg. 429
2. C.M.B. 15, Pg. 430
3. Res. 6345-D
4. Res. 6346-D
5. Res. 5005-E
6. Res. 5650-E
7. C.M.B. "K", Pg. 376
8. D.B. 1479, Pg. 353
9. D.B. 1479, Pg. 354
10. Res. 5697-C
11. D.B. 1601, Pg. 115
12. D.B. 1046, Pg. 278
13. D.B. 247, Pg. 448
14. Res. 5697-C
15. Res. 6431-C
16. Ord. 2667-A
17. Res. 7600-E
18. Res. 6431-C
19. Res. 1870-C
20. Res. 6205-F
    Res. 5744-F
    Res. 5745-F
21. Res. 750-D
22. Res. 6430-C
23. D.B. "KK", Pg. 448
24. Res. 3985-U
25. Res. 5021-A
26. Ord. 2001-A
27. C.M.B. "J", Pg. 403
28. D.B. 826, Pg. 317
29. C.M.B. "J", Pg. 343
30. C.M.B. 7, Pg. 414
31. D.B. 1116, Pg. 115
32. C.M.B. "K", Pg. 376
33. D.B. 724, Pg. 598
34. Res. 2957-D
35. Res. 5180-D
36. Res. 5181-D
37. Res. 3597-D
38. res. 4746-F
39. Res. 5801-D
40. Res. 3351-H
41. Res. 4590-H
42. Res. 4896-H
43. Res. 6209-H
44. Res. 8211-H
45. Res. 8212-H
46. Res. 217-I
47. Res. 385-I
48. Res. 3003-I
49. Res. 3065-I
50. Res. 1625-I
51. Res. 1625-I
52. Res. 89-2067
53. Res. 8013-H
54. Res. 3227-I
55. Res. 89-1265
56. Res. 89-0510
57. Res. 2368-I
58. Res. 91-200
59. Res. 92-1500
60. Res. 92-1305
61. Res. 91-1996
62. Res. 93-1106
63. Res. 2006-107

### CITY PROPERTIES

1. Res. 473-I
2. Res. 474-I

### SMALL SUBDIVISIONS

Approximate Property Needs

- Alternative 1
- Alternative 2
- Alternative 3
- XXXXXXXXXX Property Appraiser FOLIO No.

NORTH

0 200 400

NOTE:
IT IS INTENDED THAT THE ACCURACY OF THIS MAP COMPLY WITH U.S. NATIONAL MAP ACCURACY STANDARDS. HOWEVER, THE CITY MAKES NO WARRANTY, EXPRESSED OR IMPLIED, AS TO THE ACCURACY OF THE DETAILS SHOWN ON THIS MAP OR OF THE REPRODUCTION THEREOF.



Growth Management & Development Services

SCALE: 1" = 200'
REVISED: 06/15/12
BY: BL

CITY OF TAMPA, FLORIDA

R/W ATLAS

SEC. 16-T29S-R19E

ATLAS NO. H-15

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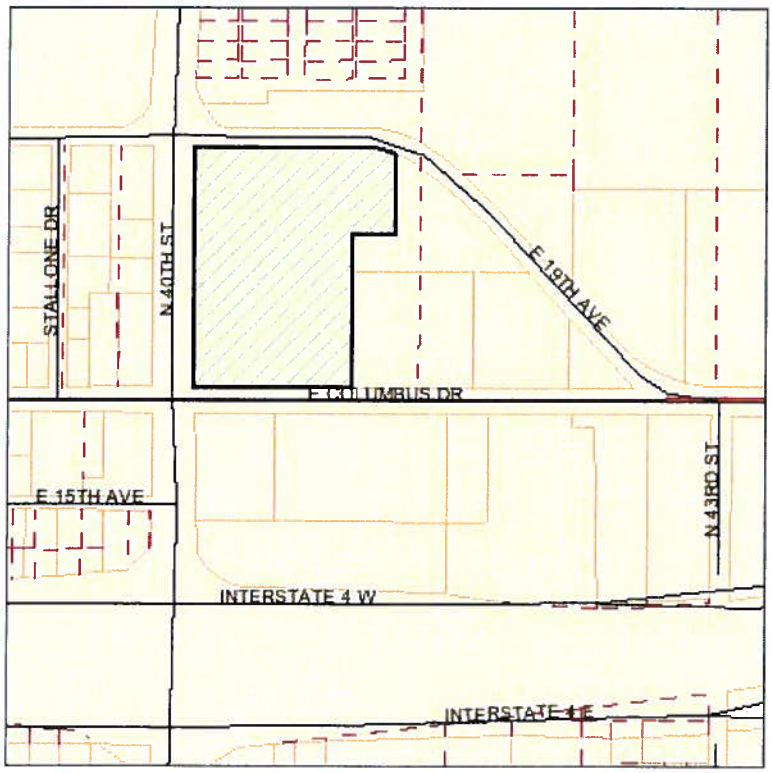
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1581050000 |
| PIN NUMBER: | A-09-29-19-4BO-000000-00001.0 |
| OWNER 1: | OLD DOMINION FREIGHT LINE INC |
| ADDRESS: | 4004 E COLUMBUS DR<br>TAMPA |
| LEGAL DESC: | LOT 1 LYING N OF 19TH AVE |
| DOR CODE: | 4814 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $532,448 |
| EXTRA FEATURE VALUE: | $101,888 |
| LAND VALUE (MARKET): | $603,321 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $1,237,657 |
| ASSESSED VALUE (A10): | $1,237,657 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $1,237,657 |

| SALES INFORMATION | NEW! |
|---|---|
| 12/1/1988 | $100.00 |
| 12/1/1988 | $800,000.00 |
| 8/1/1993 | $590,000.00 |

FOLIO: 1581050000 PIN: A-09-29-19-4BO-000000-00001.0 ACREAGE: 5.63 / SQFT: 245,133

Map created on 1/25/2013 1:53:05 PM.

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**Bob Henriquez**
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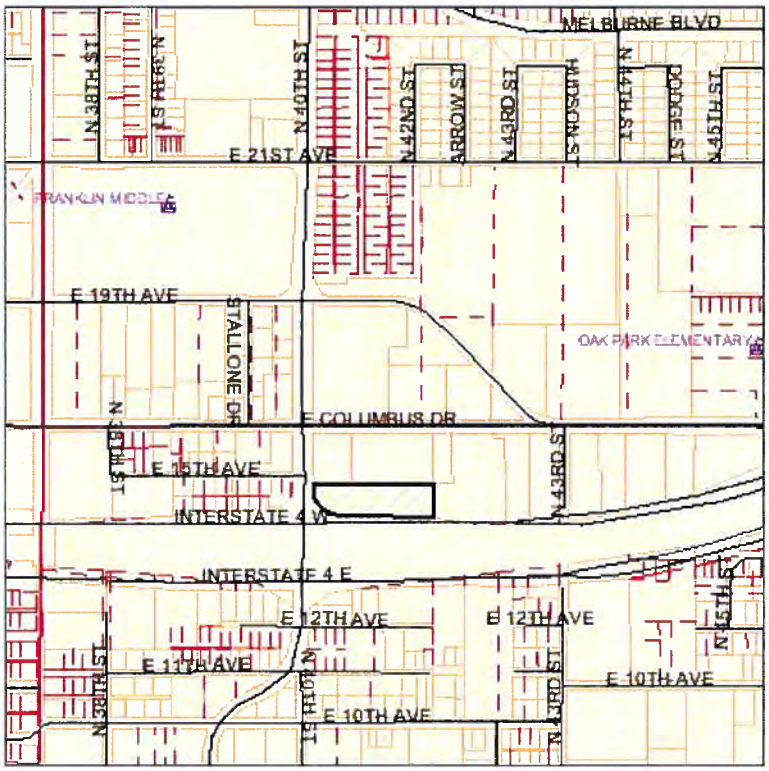


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1605630000 |
| PIN NUMBER: | A-16-29-19-4CZ-000016-00000.0 |
| OWNER 1: | RICKNATA LLC |
| ADDRESS: | 2411 N 40TH ST<br>TAMPA |
| LEGAL DESC: | ALL BLOCK 16 LESS STATE RD 400 |
| DOR CODE: | 4000 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $0 |
| EXTRA FEATURE VALUE: | $0 |
| LAND VALUE (MARKET): | $144,597 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $144,597 |
| ASSESSED VALUE (A10): | $144,597 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $144,597 |

| SALES INFORMATION | NEW! |
|---|---|
| 1/1/1976 | $100.00 |
| 7/1/1989 | $1,750,000.00 |
| 6/1/1992 | $1,000,000.00 |
| 12/30/2010 | $500,000.00 |

FOLIO: 1605630000 PIN: A-16-29-19-4CZ-000016-00000.0 ACREAGE: 2.21 / SQFT: 96,365

Map created on 1/25/2013 2:09:04 PM.

0 376 ft

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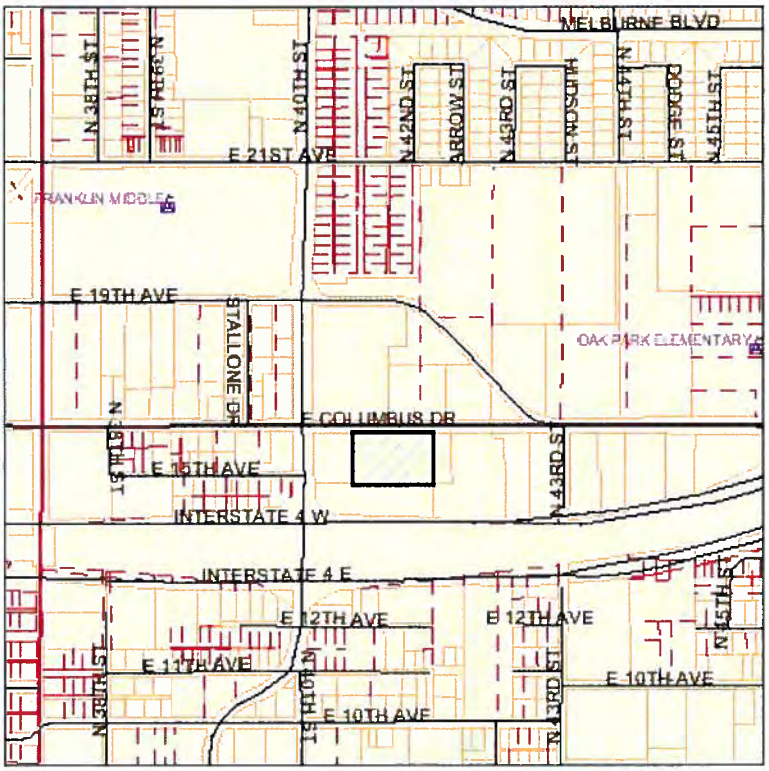
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1605640100 |
| PIN NUMBER: | A-16-29-19-4CZ-000017-00000.1 |
| OWNER 1: | RICKNATA LLC |
| ADDRESS: | 4011 E COLUMBUS DR<br>TAMPA |
| LEGAL DESC: | E 413.24 FT OF BLK 17 LESS R/W FOR COLUMBUS DR |
| DOR CODE: | 3924 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $1,163,483 |
| EXTRA FEATURE VALUE: | $55,731 |
| LAND VALUE (MARKET): | $262,504 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $1,047,600 |
| ASSESSED VALUE (A10): | $1,047,600 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $1,047,600 |

| SALES INFORMATION | NEW! |
|---|---|
| 12/30/2010 | $500,000.00 |
| 6/1/1992 | $1,000,000.00 |
| 7/1/1989 | $1,750,000.00 |
| 1/1/1976 | $100.00 |

FOLIO: 1605640100 PIN: A-16-29-19-4CZ-000017-00000.1 ACREAGE: 2.48 / SQFT: 107,943

Map created on 1/25/2013 2:09:18 PM.

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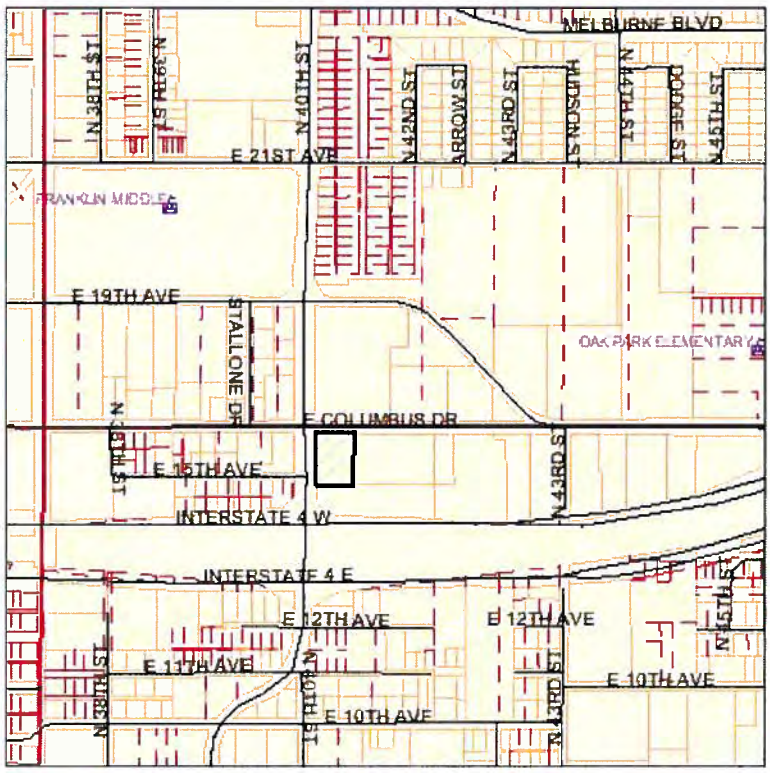
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1605640000 |
| PIN NUMBER: | A-16-29-19-4CZ-000017-00000.0 |
| OWNER 1: | GUTIERREZ GLADYS MONTERO TRUSTEE |
| ADDRESS: | 2611 N 40TH ST<br>TAMPA |
| LEGAL DESC: | 413.24 FT |
| DOR CODE: | 1420 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $88,128 |
| EXTRA FEATURE VALUE: | $139,059 |
| LAND VALUE (MARKET): | $180,970 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $408,157 |
| ASSESSED VALUE (A10): | $408,157 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $408,157 |

| SALES INFORMATION | NEW! |
|---|---|
| 6/8/2001 | $100.00 |
| 4/1/1995 | $120,000.00 |
| 1/1/1970 | $88,800.00 |

FOLIO: 1605640000 PIN: A-16-29-19-4CZ-000017-00000.0 ACREAGE: 1.16 / SQFT: 50,462

Map created on 1/25/2013 2:09:28 PM

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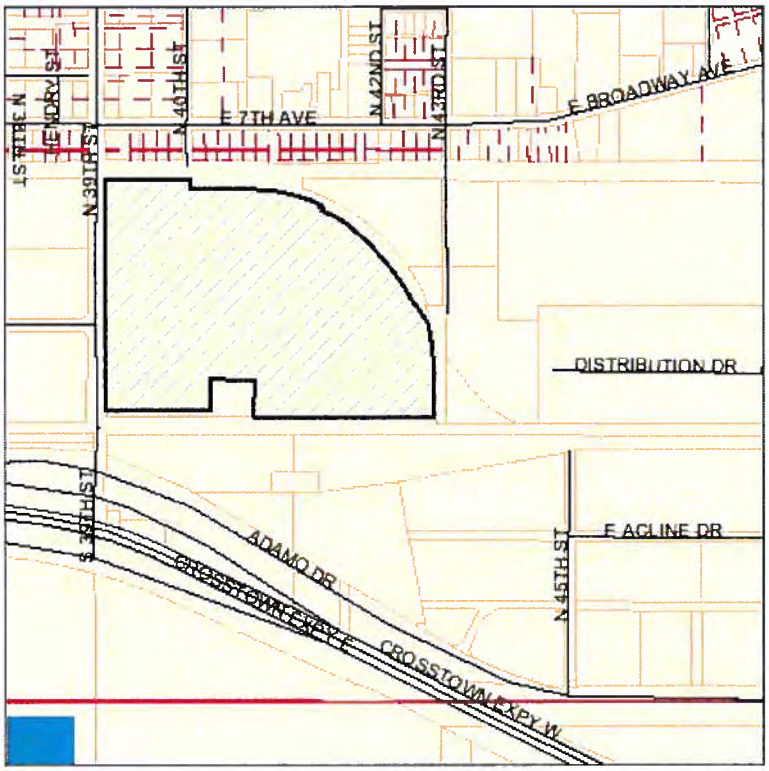
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1752930000 |
| PIN NUMBER: | A-16-29-19-ZZZ-000005-89970.0 |
| OWNER 1: | SOUTHGATE TAMPA INDUSTRIAL LTD PARTNERSHIP |
| ADDRESS: | 1601 N 39TH ST<br>TAMPA |
| LEGAL DESC: | 535.50 FT AND S 38 FT TO POB |
| DOR CODE: | 4840 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $4,922,252 |
| EXTRA FEATURE VALUE: | $176,693 |
| LAND VALUE (MARKET): | $1,060,103 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $6,004,600 |
| ASSESSED VALUE (A10): | $6,004,600 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $6,004,600 |

| SALES INFORMATION | NEW! |
|---|---|
| 6/1/1998 | $807,600.00 |
| 4/1/1988 | $4,700,000.00 |

FOLIO: 1752930000 PIN: A-16-29-19-ZZZ-000005-89970.0 ACREAGE: 38.60 / SQFT: 1,681,629

Map created on 1/25/2013 2:06:17 PM.

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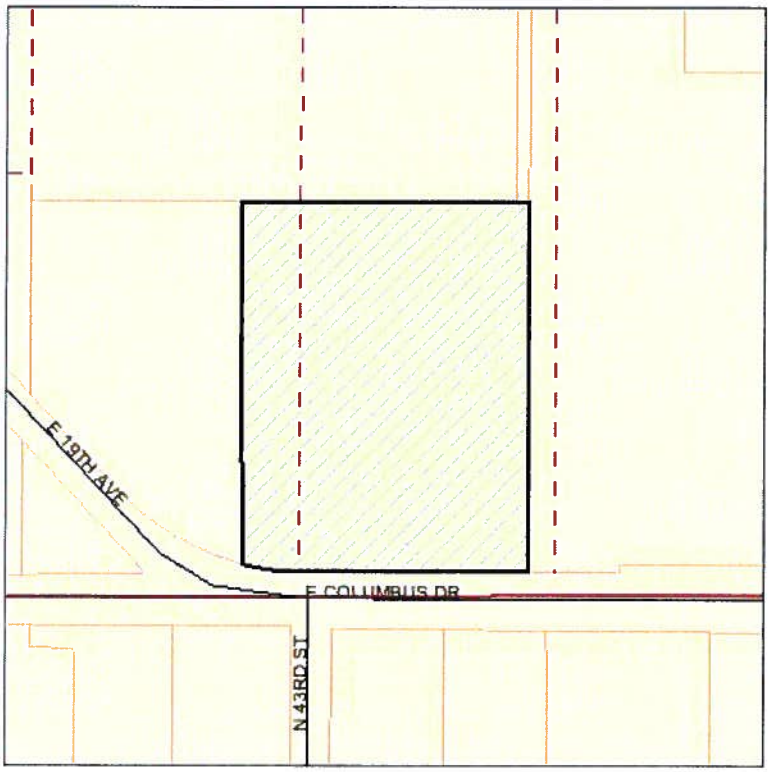
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1581170100 |
| PIN NUMBER: | A-09-29-19-4BO-000000-00004.1 |
| OWNER 1: | MESSINA HOLDINGS INC |
| ADDRESS: | 4310 E COLUMBUS DR<br>TAMPA |
| LEGAL DESC: | N 89 DEG 5 MIN 59 SEC W 293.44 FT TO POB |
| DOR CODE: | 4830 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $327,411 |
| EXTRA FEATURE VALUE: | $52,455 |
| LAND VALUE (MARKET): | $426,012 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $749,400 |
| ASSESSED VALUE (A10): | $749,400 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $749,400 |

| SALES INFORMATION | NEW! |
|---|---|
| 12/1/1995 | $100.00 |
| 12/1/1996 | $100.00 |
| 7/1/1997 | $808,500.00 |

FOLIO: 1581170100 PIN: A-09-29-19-4BO-000000-00004.1 ACREAGE: 4.07 / SQFT: 177,235

Map created on 2/11/2013 1:47:21 PM.

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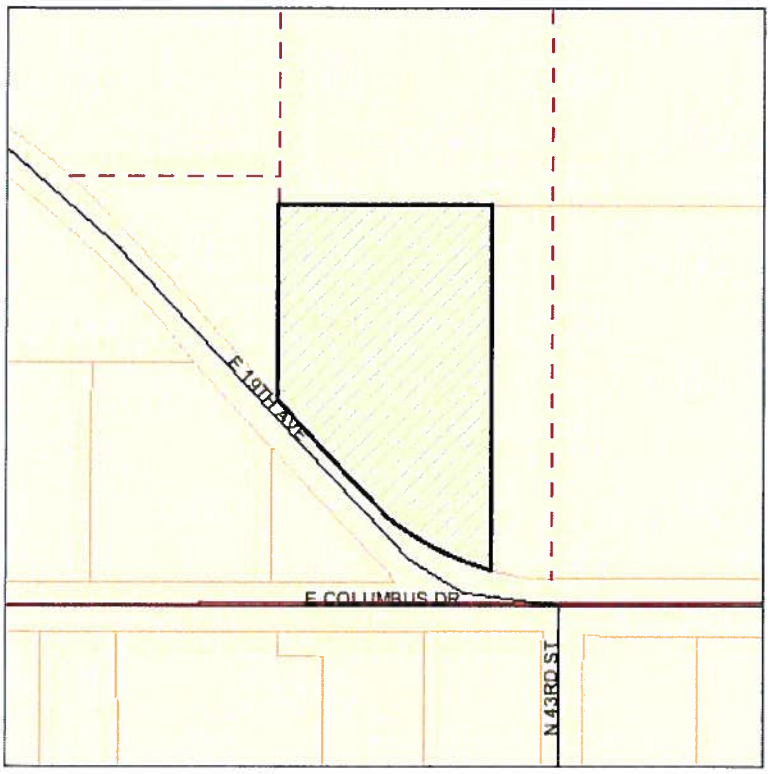
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1581170200 |
| PIN NUMBER: | A-09-29-19-4BO-000000-00004.2 |
| OWNER 1: | MESSINA PROPERTIES INC |
| ADDRESS: | 4306 E COLUMBUS DR<br>TAMPA |
| LEGAL DESC: | W 467.44 FT TO POB |
| DOR CODE: | 2753 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $35,568 |
| EXTRA FEATURE VALUE: | $44,695 |
| LAND VALUE (MARKET): | $251,965 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $332,228 |
| ASSESSED VALUE (A10): | $332,228 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $332,228 |

| SALES INFORMATION | NEW! |
|---|---|
| 5/18/2000 | $395,000.00 |
| 1/1/1998 | $330,000.00 |
| 12/1/1995 | $262,700.00 |
| 4/1/1992 | $135,000.00 |

FOLIO: 1581170200 PIN: A-09-29-19-4BO-000000-00004.2 ACREAGE: 2.39 / SQFT: 104,214

Map created on 2/11/2013 1:45:28 PM.

0 94 ft

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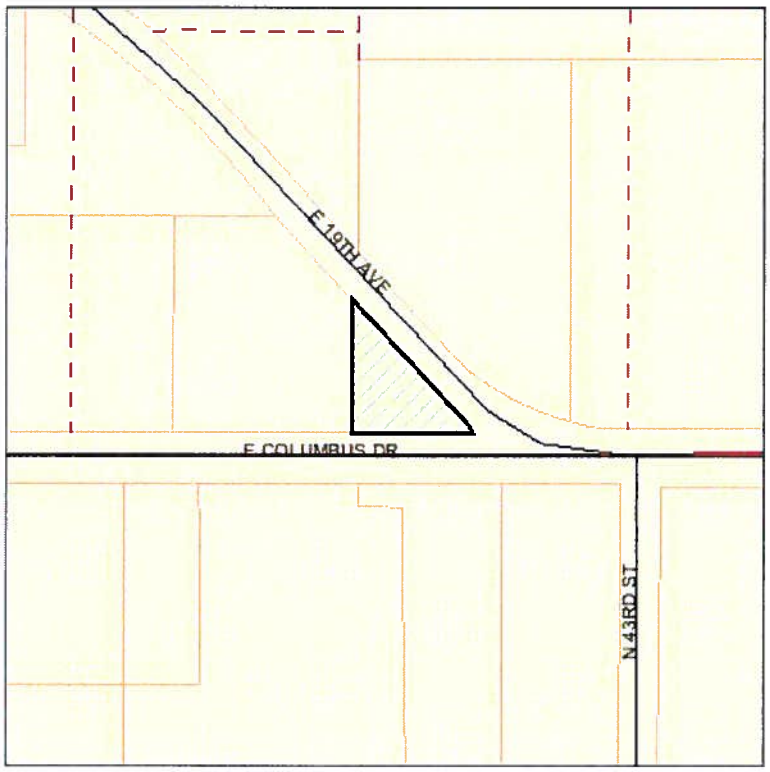
Bob Henriquez
HILLSBOROUGH COUNTY PROPERTY APPRAISER




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1581200000 |
| PIN NUMBER: | A-09-29-19-4BO-000000-00004.3 |
| OWNER 1: | BOWMAN TRANSPORTATION INC |
| ADDRESS: | 0 E COLUMBUS<br>TAMPA |
| LEGAL DESC: | DR AND ELY ALONG DR TO BEG |
| DOR CODE: | 4000 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $0 |
| EXTRA FEATURE VALUE: | $0 |
| LAND VALUE (MARKET): | $20,212 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $20,212 |
| ASSESSED VALUE (A10): | $20,212 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $20,212 |

No Sales Found.

FOLIO: 1581200000 PIN: A-09-29-19-4BO-000000-00004.3 ACREAGE: 0.32 / SQFT: 13,761

Map created on 2/11/2013 1:49:52 PM.

0 95 ft

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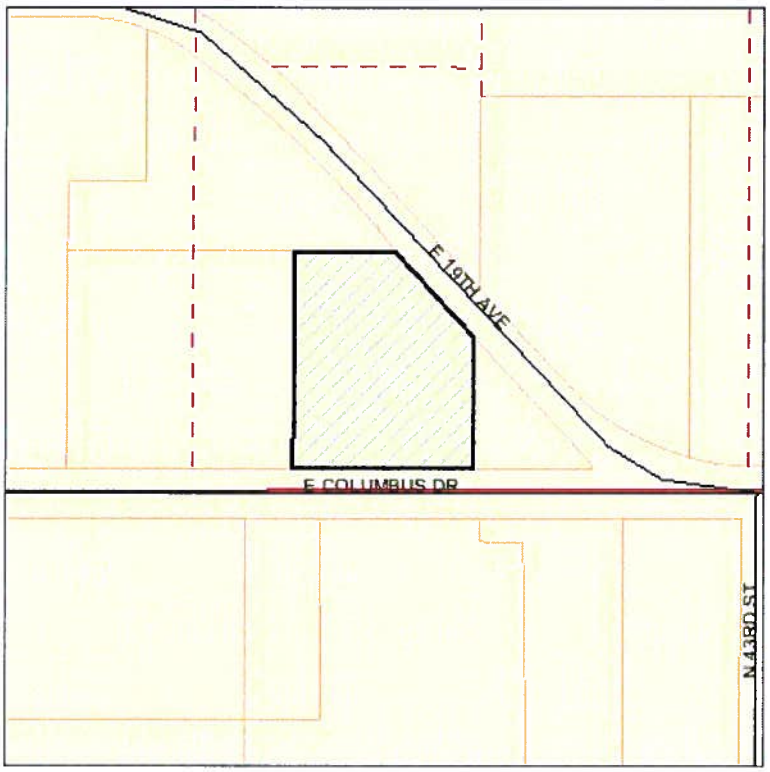
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1581080100 |
| PIN NUMBER: | A-09-29-19-4BO-000000-00003.0 |
| OWNER 1: | DAVIS NANCY JEAN TRUSTEE |
| | LASKIN LINDA DAVIS TRUSTEE |
| ADDRESS: | 4219 E 19TH AV |
| | TAMPA |
| LEGAL DESC: | OF LOT 3 S 162.55 FT AND W 231.20 FT TO BEG |
| DOR CODE: | 4400 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $176,272 |
| EXTRA FEATURE VALUE: | $41,248 |
| LAND VALUE (MARKET): | $160,717 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $378,237 |
| ASSESSED VALUE (A10): | $378,237 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $378,237 |

| SALES INFORMATION | NEW! |
|---|---|
| 11/1/1978 | $94,000.00 |
| 2/1/1979 | $94,600.00 |
| 7/1/1994 | $100.00 |
| 5/6/2011 | $100.00 |
| 5/9/2011 | $100.00 |

FOLIO: 1581080100 PIN: A-09-29-19-4BO-000000-00003.0 ACREAGE: 1.36 / SQFT: 59,231

Map created on 2/11/2013 1:52:06 PM.

0 95 ft

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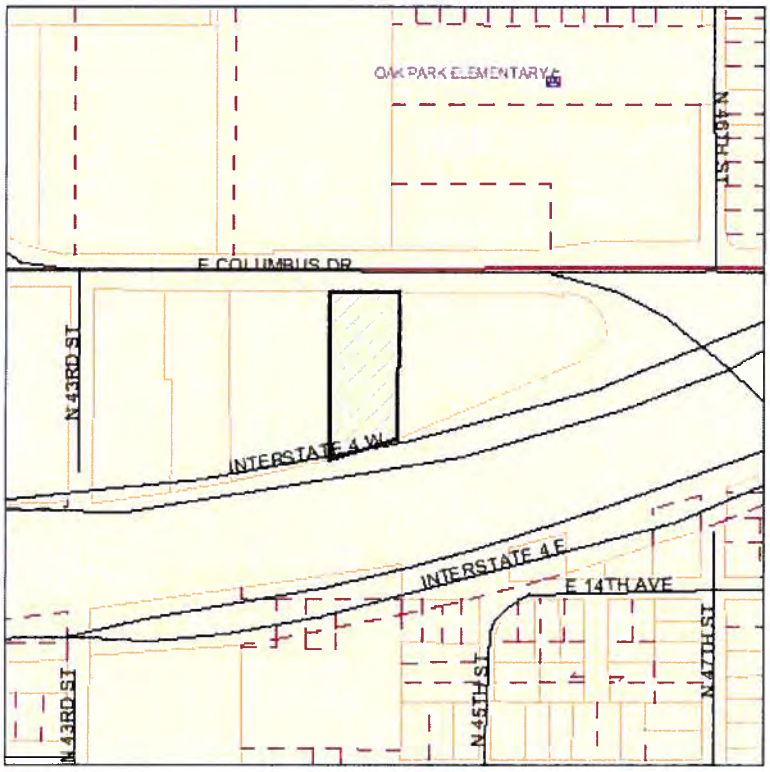
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1603900000 |
| PIN NUMBER: | A-16-29-19-ZZZ-000005-80230.0 |
| OWNER 1: | CMDL INVESTMENTS LLC |
| ADDRESS: | 4501 E COLUMBUS DR<br>TAMPA |
| LEGAL DESC: | LYING N OF SR 400 AND S OF COLUMBUS DR |
| DOR CODE: | 4000 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $0 |
| EXTRA FEATURE VALUE: | $0 |
| LAND VALUE (MARKET): | $45,000 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $45,000 |
| ASSESSED VALUE (A10): | $45,000 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $45,000 |

| SALES INFORMATION | NEW! |
|---|---|
| 10/18/2004 | $800,000.00 |
| 3/1/1997 | $410,000.00 |
| 8/1/1984 | $1,100,000.00 |
| 8/1/1982 | $100,000.00 |

FOLIO: 1603900000 PIN: A-16-29-19-ZZZ-000005-80230.0 ACREAGE: 1.08 / SQFT: 47,058

Map created on 2/11/2013 1:56:29 PM

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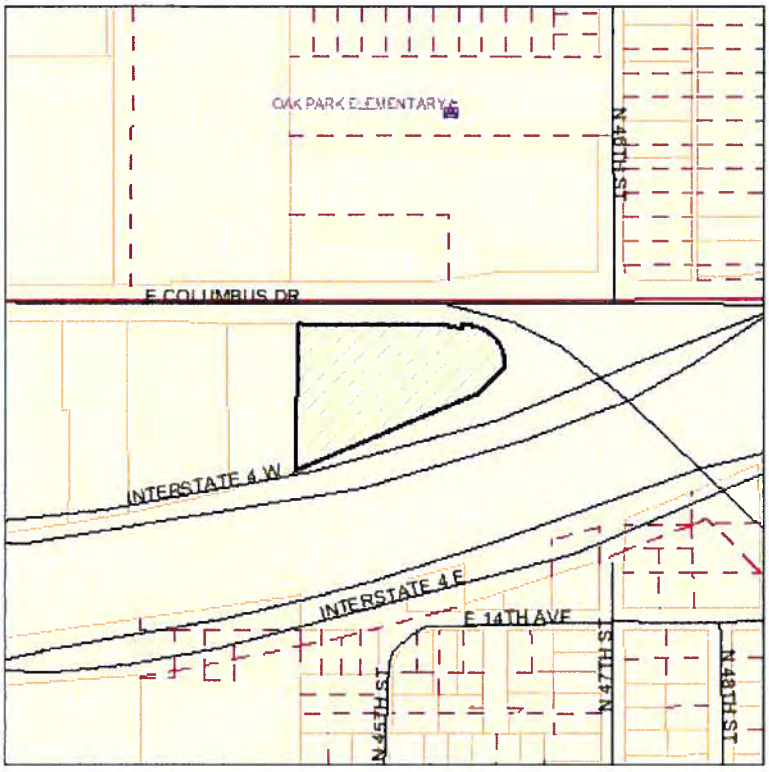
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1603640000 |
| PIN NUMBER: | A-16-29-19-ZZZ-000005-80100.0 |
| OWNER 1: | CMDL INVESTMENTS LLC |
| ADDRESS: | 4501 E COLUMBUS DR<br>TAMPA |
| LEGAL DESC: | 83.7 FT MOL TO BEG LESS RD R/W |
| DOR CODE: | 2502 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $150,454 |
| EXTRA FEATURE VALUE: | $15,097 |
| LAND VALUE (MARKET): | $150,031 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $315,582 |
| ASSESSED VALUE (A10): | $315,582 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $315,582 |

| SALES INFORMATION | NEW! |
|---|---|
| 10/18/2004 | $800,000.00 |
| 3/1/1997 | $410,000.00 |
| 8/1/1984 | $1,100,000.00 |
| 8/1/1982 | $335,000.00 |

FOLIO: 1603640000 PIN: A-16-29-19-ZZZ-000005-80100.0 ACREAGE: 2.04 / SQFT: 88,925

Map created on 2/11/2013 1:58:01 PM.

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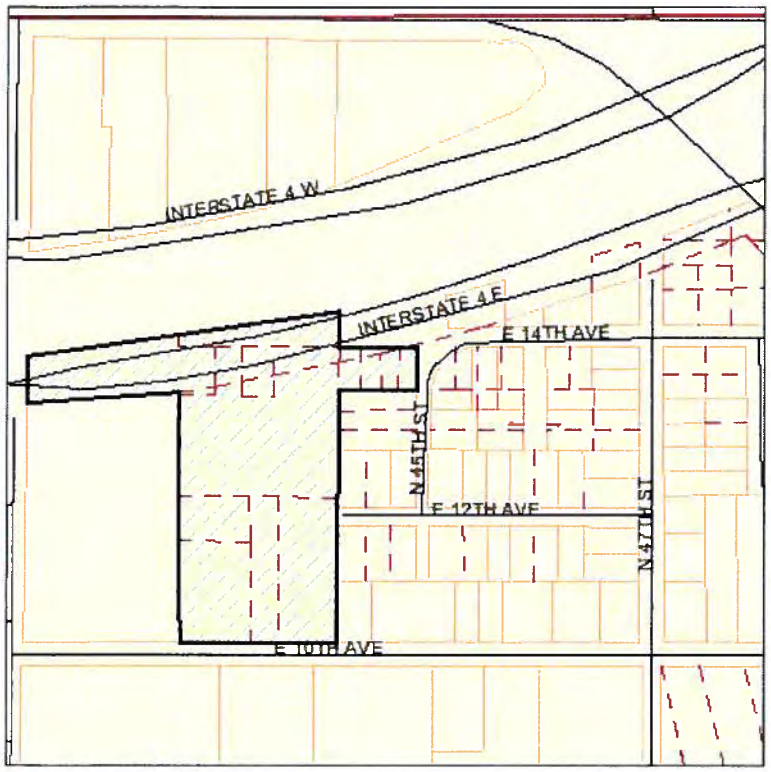
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1606750000 |
| PIN NUMBER: | A-16-29-19-4D6-000000-00021.0 |
| OWNER 1: | DEPT OF TRANSPORTATION |
| ADDRESS: | 4405 E 14TH AV<br>TAMPA |
| LEGAL DESC: | OF NW 1/4 OF NE 1/4 LYING S OF ST RD 400 |
| DOR CODE: | 8700 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $0 |
| EXTRA FEATURE VALUE: | $0 |
| LAND VALUE (MARKET): | $185,400 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $185,400 |
| ASSESSED VALUE (A10): | $185,400 |
| EXEMPT VALUE: | $185,400 |
| TAXABLE VALUE: | $0 |

| SALES INFORMATION | NEW! |
|---|---|
| 12/12/2002 | $100.00 |
| 10/10/2002 | $100.00 |
| 8/27/2002 | $100.00 |
| 4/16/2002 | $100.00 |
| 6/28/2001 | $100.00 |
| 6/28/2001 | $100.00 |
| 6/28/2000 | $100.00 |
| 6/1/1997 | $50,000.00 |
| 6/1/1997 | $20,000.00 |
| 10/22/1996 | $100.00 |
| 10/1/1996 | $100.00 |
| 10/1/1996 | $100.00 |
| 10/1/1996 | $100.00 |
| 12/1/1994 | $21,000.00 |
| 12/1/1994 | $11,000.00 |
| 11/1/1990 | $100.00 |
| 8/1/1988 | $100.00 |
| 2/1/1987 | $25,000.00 |
| 7/1/1981 | $17,500.00 |
| 7/1/1977 | $1,700.00 |
| 1/1/1976 | $100.00 |
| 9/1/1967 | $100.00 |
| 8/1/1967 | $100.00 |
| 5/1/1967 | $100.00 |
| 4/1/1960 | $100.00 |

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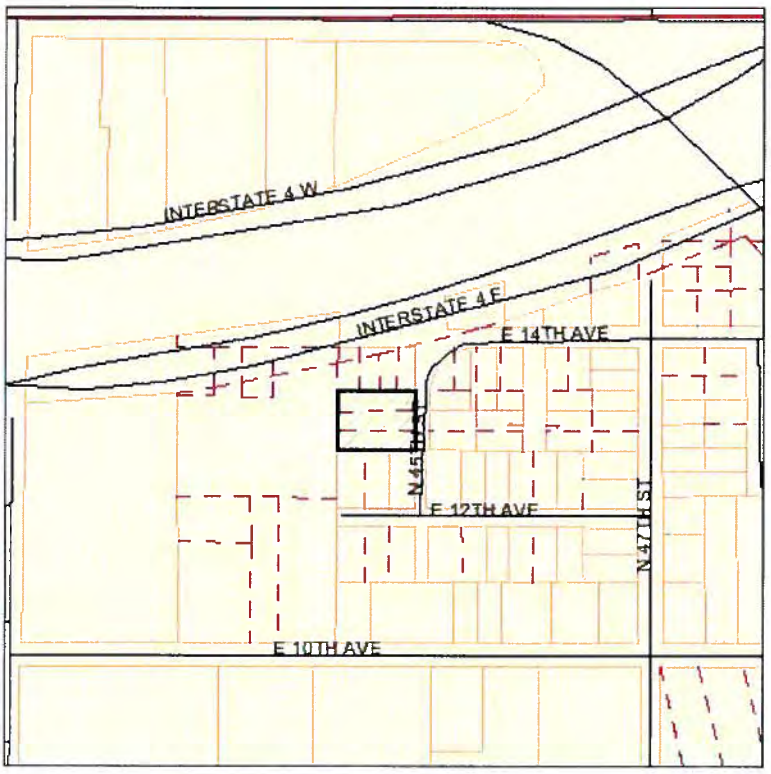
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1606770000 |
| PIN NUMBER: | A-16-29-19-4D6-000000-00025.0 |
| OWNER 1: | BAKER J L LIFE ESTATE |
| | MATTHEWS JANICE |
| ADDRESS: | 2308 N 45TH ST |
| | TAMPA |
| LEGAL DESC: | LOT 25 26 AND 27 |
| DOR CODE: | 0100 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $17,554 |
| EXTRA FEATURE VALUE: | $7,291 |
| LAND VALUE (MARKET): | $9,686 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $34,531 |
| ASSESSED VALUE (A10): | $34,531 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $34,531 |

| SALES INFORMATION | NEW! |
|---|---|
| 2/7/2012 | $100.00 |

FOLIO: 1606770000 PIN: A-16-29-19-4D6-000000-00025.0 ACREAGE: 0.46 / SQFT: 19,942

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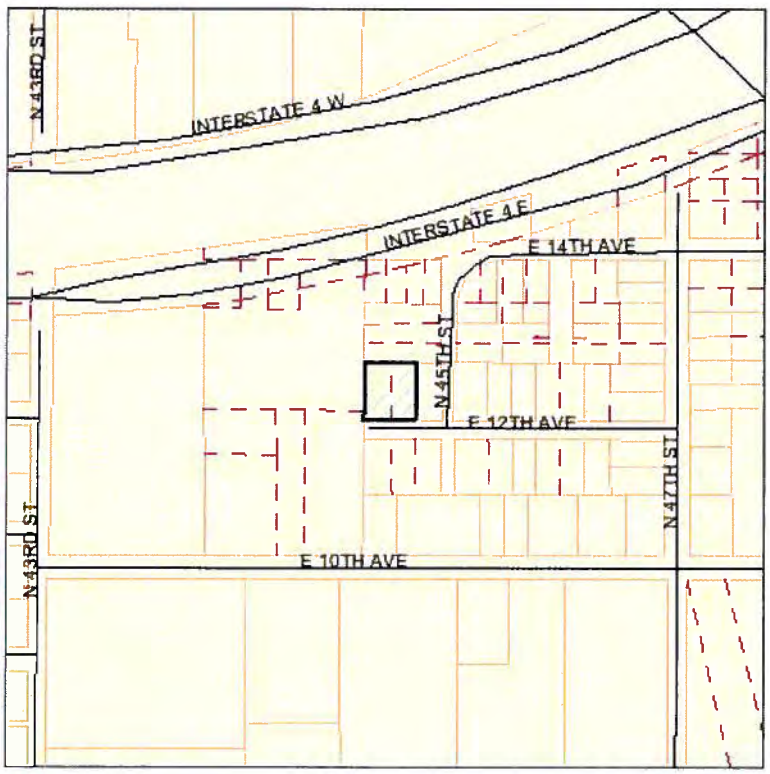
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1605820000 |
| PIN NUMBER: | A-16-29-19-4D0-000004-00002.0 |
| OWNER 1: | HARN ALTON E JR |
| | HARN CATHY J |
| ADDRESS: | 0 |
| | TAMPA |
| LEGAL DESC: | LOTS 2 AND 3 BLOCK 4 |
| DOR CODE: | 0000 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $0 |
| EXTRA FEATURE VALUE: | $0 |
| LAND VALUE (MARKET): | $7,920 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $7,920 |
| ASSESSED VALUE (A10): | $7,920 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $7,920 |

| SALES INFORMATION | NEW! |
|---|---|
| 11/1/1977 | $100.00 |
| 4/1/1978 | $24,500.00 |
| 2/1/1979 | $100.00 |

FOLIO: 1605820000 PIN: A-16-29-19-4D0-000004-00002.0 ACREAGE: 0.30 / SQFT: 12,992

Map created on 2/11/2013 2:14:06 PM

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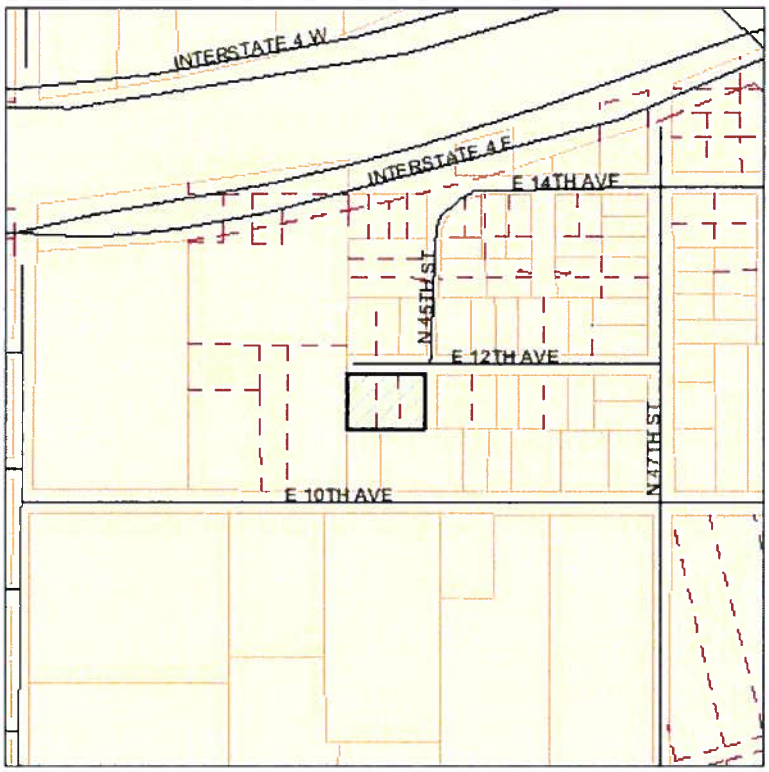


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1605800000 |
| PIN NUMBER: | A-16-29-19-4D0-000003-00001.0 |
| OWNER 1: | HARN ALTON E JR |
| | HARN CATHY J |
| ADDRESS: | 4405 E 12TH AV |
| | TAMPA |
| LEGAL DESC: | LOTS 1 2 AND 3 BLOCK 3 |
| DOR CODE: | 0100 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $18,623 |
| EXTRA FEATURE VALUE: | $11,007 |
| LAND VALUE (MARKET): | $11,808 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $41,438 |
| ASSESSED VALUE (A10): | $40,548 |
| EXEMPT VALUE: | $25,000 |
| TAXABLE VALUE: | $15,548 |

| SALES INFORMATION | NEW! |
|---|---|
| 11/1/1977 | $100.00 |
| 4/1/1978 | $24,500.00 |
| 2/1/1979 | $100.00 |

FOLIO: 1605800000 PIN: A-16-29-19-4D0-000003-00001.0 ACREAGE: 0.42 / SQFT: 18,410

Map created on 2/11/2013 2:14:59 PM.

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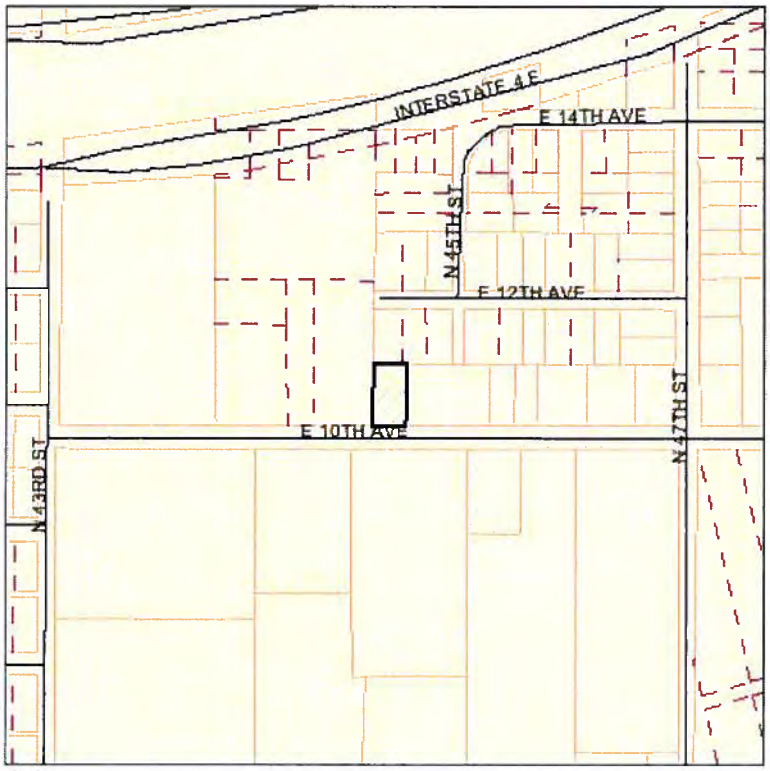


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1603980000 |
| PIN NUMBER: | A-16-29-19-ZZZ-000005-80320.0 |
| OWNER 1: | HARN ALTON E JR |
| | HARN CATHY J |
| ADDRESS: | 4404 10TH ST |
| | TAMPA |
| LEGAL DESC: | FT TO BEG |
| DOR CODE: | 9900 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $0 |
| EXTRA FEATURE VALUE: | $0 |
| LAND VALUE (MARKET): | $7,575 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $7,575 |
| ASSESSED VALUE (A10): | $7,575 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $7,575 |

| SALES INFORMATION | NEW! |
|---|---|
| 11/1/1977 | $100.00 |
| 4/1/1978 | $24,500.00 |
| 2/1/1979 | $100.00 |

FOLIO: 1603980000 PIN: A-16-29-19-ZZZ-000005-80320.0 ACREAGE: 0.21 / SQFT: 8,932

Map created on 2/11/2013 2:15:30 PM

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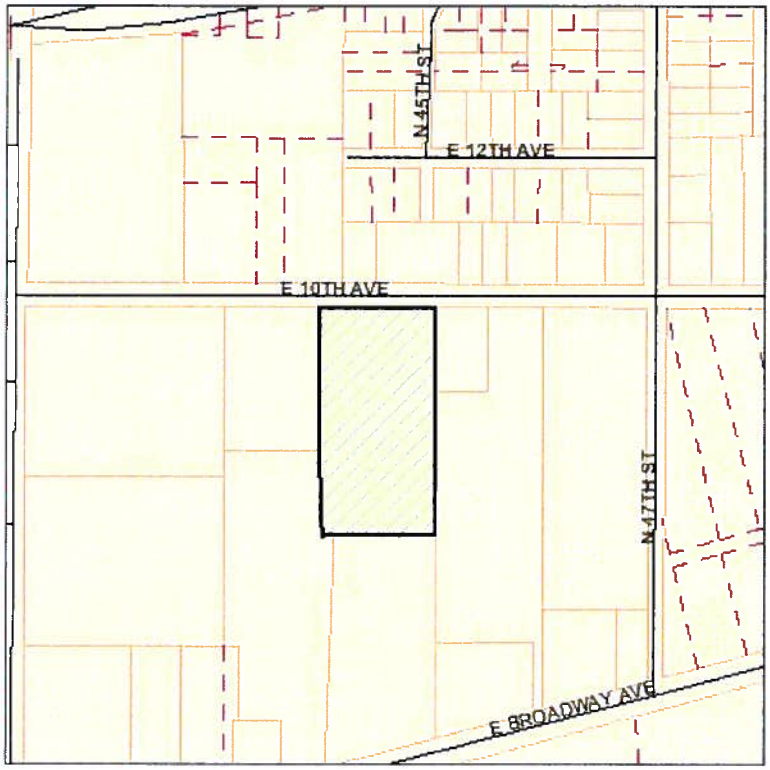


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1606850100 |
| PIN NUMBER: | A-16-29-19-4D7-000000-00004.0 |
| OWNER 1: | ADKINS CARL |
| | ADKINS KATHY |
| ADDRESS: | 4445 E 10TH AV |
| | TAMPA |
| LEGAL DESC: | 240 FT TO POB |
| DOR CODE: | 4820 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $277,434 |
| EXTRA FEATURE VALUE: | $22,995 |
| LAND VALUE (MARKET): | $204,607 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $414,800 |
| ASSESSED VALUE (A10): | $414,800 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $414,800 |

| SALES INFORMATION | NEW! |
|---|---|
| 7/2/2004 | $100.00 |
| 10/1/2002 | $124,900.00 |
| 5/23/2000 | $55,000.00 |
| 7/1/1978 | $100.00 |
| 7/1/1978 | $100.00 |
| 11/19/2010 | $100.00 |

FOLIO: 1606850100 PIN: A-16-29-19-4D7-000000-00004.0 ACREAGE: 2.63 / SQFT: 114,642

Map created on 2/11/2013 2:16:23 PM.

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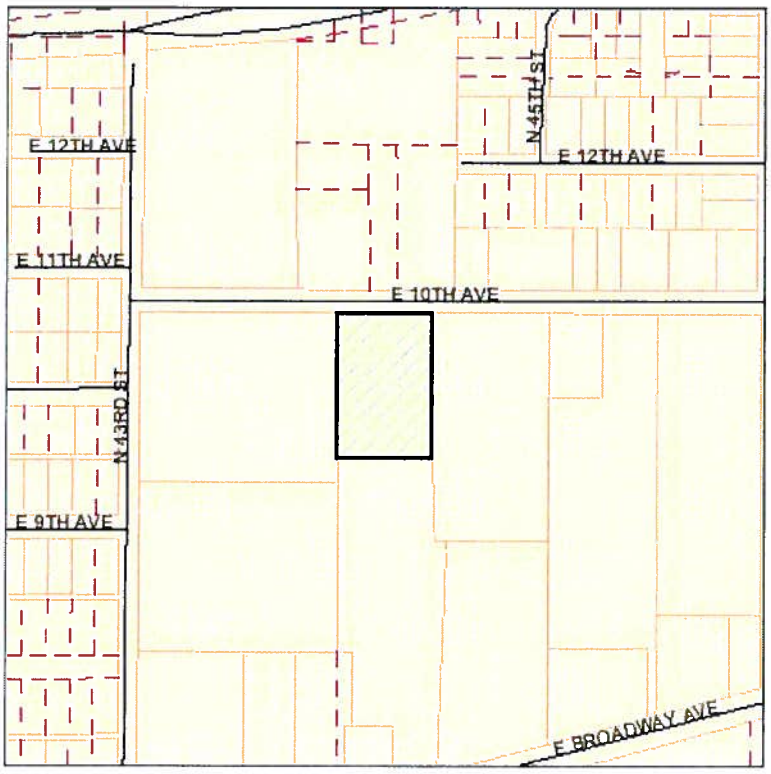


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1606860100 |
| PIN NUMBER: | A-16-29-19-4D7-000000-00004.2 |
| OWNER 1: | TAMPA 10 PROPERTIES LLC |
| ADDRESS: | 4401 E 10TH AV<br>TAMPA |
| LEGAL DESC: | W 197 FT OF N 300 FT OF LOT 4 |
| DOR CODE: | 4820 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $59,890 |
| EXTRA FEATURE VALUE: | $8,844 |
| LAND VALUE (MARKET): | $117,467 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $186,201 |
| ASSESSED VALUE (A10): | $186,201 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $186,201 |

| SALES INFORMATION | NEW! |
|---|---|
| 12/19/2002 | $135,000.00 |
| 1/1/1999 | $109,100.00 |
| 6/1/1996 | $100,000.00 |
| 11/1/1995 | $100.00 |
| 7/26/2006 | $100.00 |
| 1/6/2009 | $145,000.00 |

FOLIO: 1606860100 PIN: A-16-29-19-4D7-000000-00004.2 ACREAGE: 1.36 / SQFT: 59,062

Map created on 2/11/2013 2:17:55 PM.

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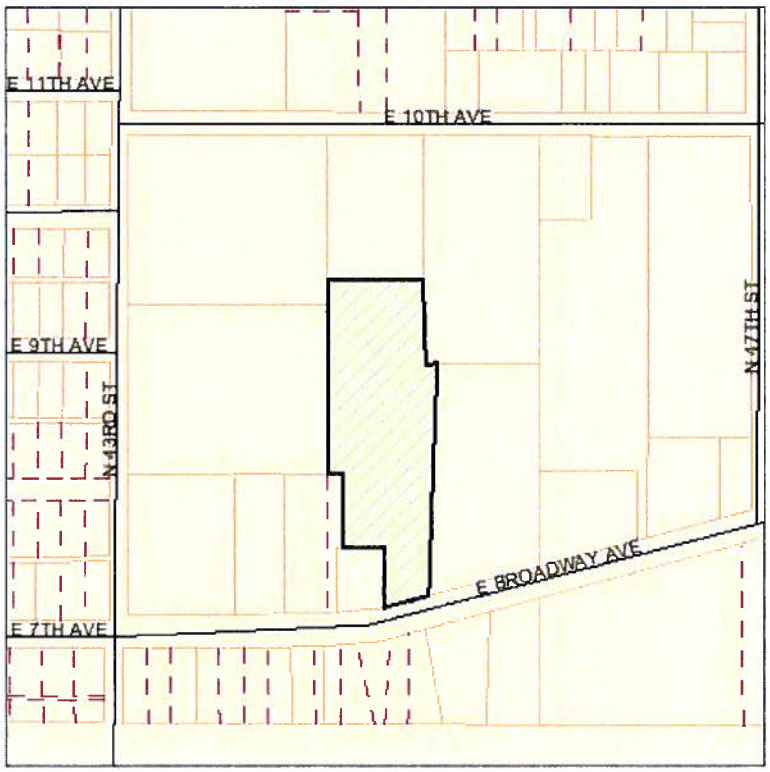


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1606860000 |
| PIN NUMBER: | A-16-29-19-4D7-000000-00004.1 |
| OWNER 1: | MABCO HOLDINGS INC |
| ADDRESS: | 4444 E BROADWAY AV<br>TAMPA |
| LEGAL DESC: | POB LESS W 197 FT OF N 300 FT OF SD LOT 4 |
| DOR CODE: | 1227 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $1,390 |
| EXTRA FEATURE VALUE: | $6,000 |
| LAND VALUE (MARKET): | $317,302 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $324,692 |
| ASSESSED VALUE (A10): | $324,692 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $324,692 |

| SALES INFORMATION | NEW! |
|---|---|
| 3/20/2001 | $100.00 |
| 7/1/1999 | $230,000.00 |
| 7/1/1978 | $100.00 |
| 7/1/1978 | $100.00 |
| 5/22/2006 | $450,000.00 |
| 8/26/2011 | $325,000.00 |

FOLIO: 1606860000 PIN: A-16-29-19-4D7-000000-00004.1 ACREAGE: 2.88 / SQFT: 125,438

Map created on 2/11/2013 2:18:45 PM.

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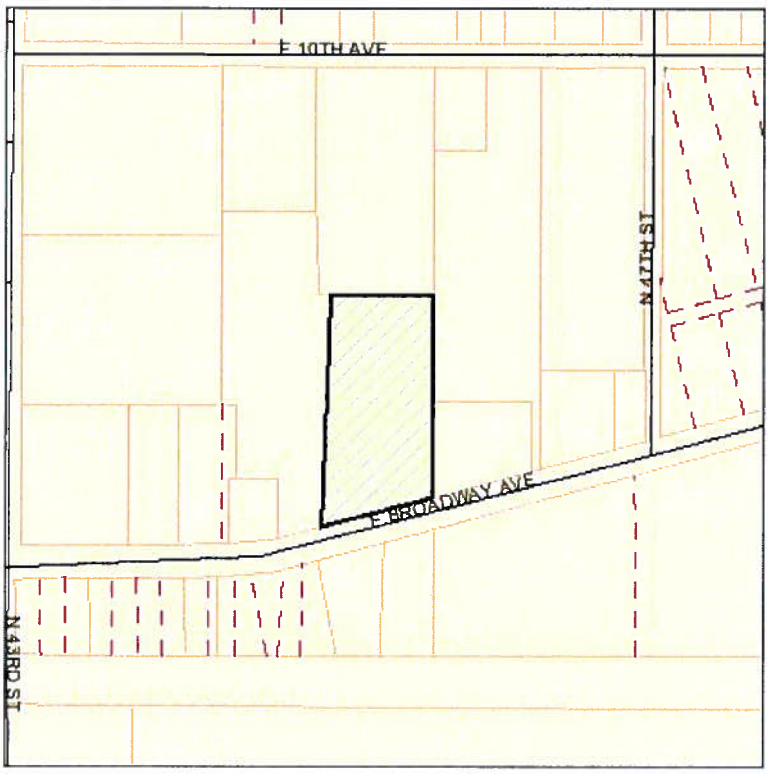


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1606860250 |
| PIN NUMBER: | A-16-29-19-4D7-000000-00004.3 |
| OWNER 1: | A-1 BEVERAGE SERVICE INC |
| ADDRESS: | 4446 E BROADWAY AV |
| | TAMPA |
| LEGAL DESC: | TO 240.69 FT TO POB |
| DOR CODE: | 4900 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $22,257 |
| EXTRA FEATURE VALUE: | $12,728 |
| LAND VALUE (MARKET): | $228,938 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $263,923 |
| ASSESSED VALUE (A10): | $263,923 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $263,923 |

| SALES INFORMATION | NEW! |
|---|---|
| 3/1/1983 | $100.00 |
| 1/1/1991 | $220,000.00 |
| 7/1/1996 | $131,000.00 |

FOLIO: 1606860250 PIN: A-16-29-19-4D7-000000-00004.3 ACREAGE: 2.29 / SQFT: 99,792

Map created on 2/11/2013 2:19:25 PM.

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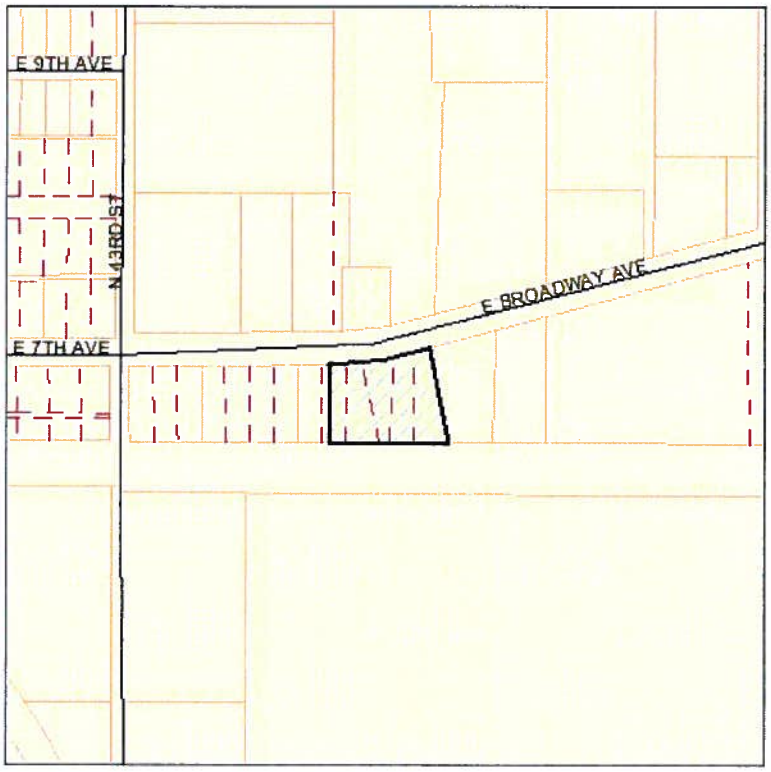


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1607270000 |
| PIN NUMBER: | A-16-29-19-4D8-000000-00011.0 |
| OWNER 1: | SOLID NORTH LLC |
| ADDRESS: | 4319 E 7TH AV<br>TAMPA |
| LEGAL DESC: | E 25 FT OF LOT 9 AND ALL OF LOTS 10 THRU 13 |
| DOR CODE: | 1830 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $236,394 |
| EXTRA FEATURE VALUE: | $26,433 |
| LAND VALUE (MARKET): | $113,882 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $373,700 |
| ASSESSED VALUE (A10): | $373,700 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $373,700 |

| SALES INFORMATION | NEW! |
|---|---|
| 6/21/2004 | $750,000.00 |
| 3/31/2000 | $188,400.00 |
| 4/8/2009 | $552,300.00 |
| 12/14/2011 | $100.00 |
| 12/14/2011 | $170,000.00 |
| 12/28/2012 | $400,000.00 |

FOLIO: 1607270000 PIN: A-16-29-19-4D8-000000-00011.0 ACREAGE: 0.94 / SQFT: 40,762

Map created on 2/11/2013 2:20:27 PM.

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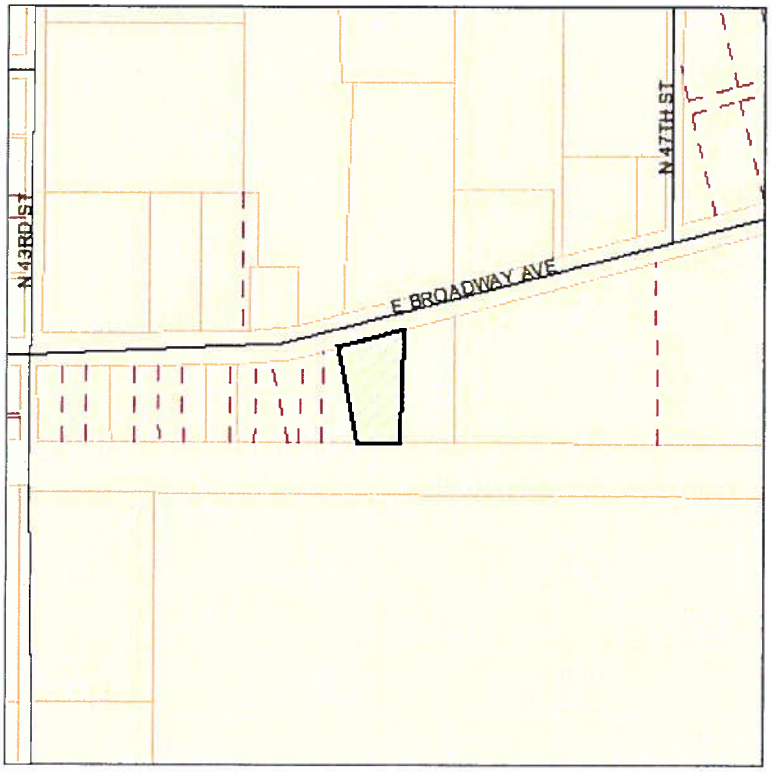


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1606960000 |
| PIN NUMBER: | A-16-29-19-4D7-000000-00007.1 |
| OWNER 1: | C & S INDUSTRIES |
| ADDRESS: | 4401 E BROADWAY AV<br>TAMPA |
| LEGAL DESC: | 38 MIN E ALONG WLY BDRY OF LOT 7, 225.4 FT TO BEG |
| DOR CODE: | 4830 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $195,499 |
| EXTRA FEATURE VALUE: | $6,274 |
| LAND VALUE (MARKET): | $72,600 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $243,300 |
| ASSESSED VALUE (A10): | $243,300 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $243,300 |

| SALES INFORMATION | NEW! |
|---|---|
| 1/1/1975 | $10,000.00 |
| 10/1/1984 | $110,000.00 |
| 12/1/1991 | $100.00 |
| 9/23/2005 | $615,000.00 |
| 9/27/2010 | $100.00 |
| 12/12/2010 | $397,000.00 |

FOLIO: 1606960000 PIN: A-16-29-19-4D7-000000-00007.1 ACREAGE: 0.57 / SQFT: 24,636

Map created on 2/11/2013 2:21:13 PM.

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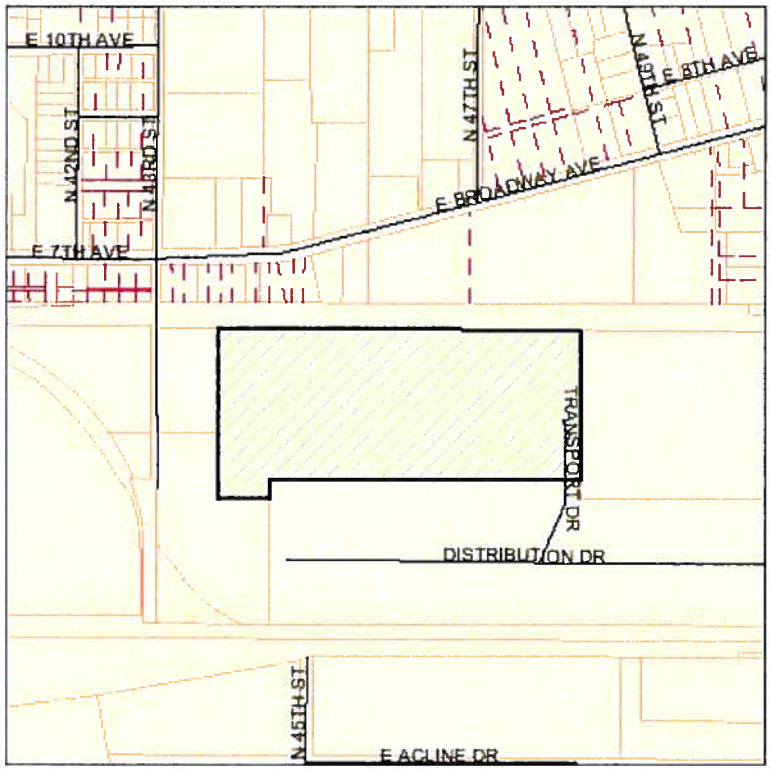


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1604730000 |
| PIN NUMBER: | A-16-29-19-ZZZ-000005-80750.0 |
| OWNER 1: | METROPLITAN LIFE INS |
| ADDRESS: | 4528 TRANSPORT DR |
| | TAMPA |
| LEGAL DESC: | TO BEG |
| DOR CODE: | 4830 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $10,196,773 |
| EXTRA FEATURE VALUE: | $189,974 |
| LAND VALUE (MARKET): | $803,381 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $10,560,000 |
| ASSESSED VALUE (A10): | $10,560,000 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $10,560,000 |

| SALES INFORMATION | NEW! |
|---|---|
| 1/1/1978 | $4,107,700.00 |
| 12/1/1978 | $4,607,000.00 |
| 5/1/1985 | $7,200,000.00 |

FOLIO: 1604730000 PIN: A-16-29-19-ZZZ-000005-80750.0 ACREAGE: 22.06 / SQFT: 960,941

Map created on 2/11/2013 2:22:12 PM

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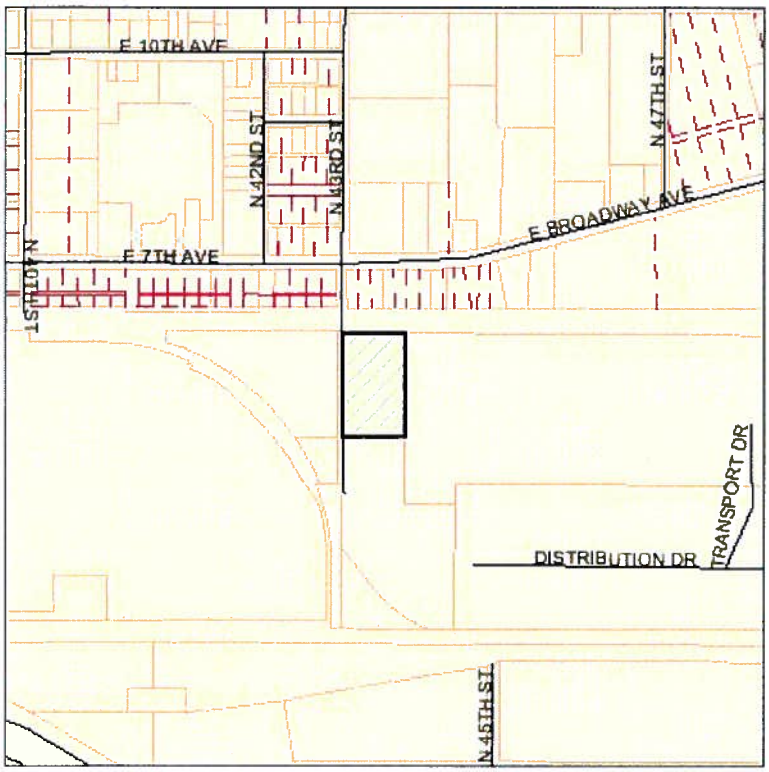


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1604270000 |
| PIN NUMBER: | A-16-29-19-ZZZ-000005-80520.0 |
| OWNER 1: | 1607 PROPERTY INC |
| ADDRESS: | 1607 N 43RD ST |
| | TAMPA |
| LEGAL DESC: | BEG |
| DOR CODE: | 4830 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $135,798 |
| EXTRA FEATURE VALUE: | $51,428 |
| LAND VALUE (MARKET): | $210,560 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $397,786 |
| ASSESSED VALUE (A10): | $397,786 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $397,786 |

| SALES INFORMATION | NEW! |
|---|---|
| 11/10/2004 | $100.00 |
| 8/31/2000 | $99,091.00 |

FOLIO: 1604270000 PIN: A-16-29-19-ZZZ-000005-80520.0 ACREAGE: 2.61 / SQFT: 113,502

Map created on 2/11/2013 2:23:24 PM.

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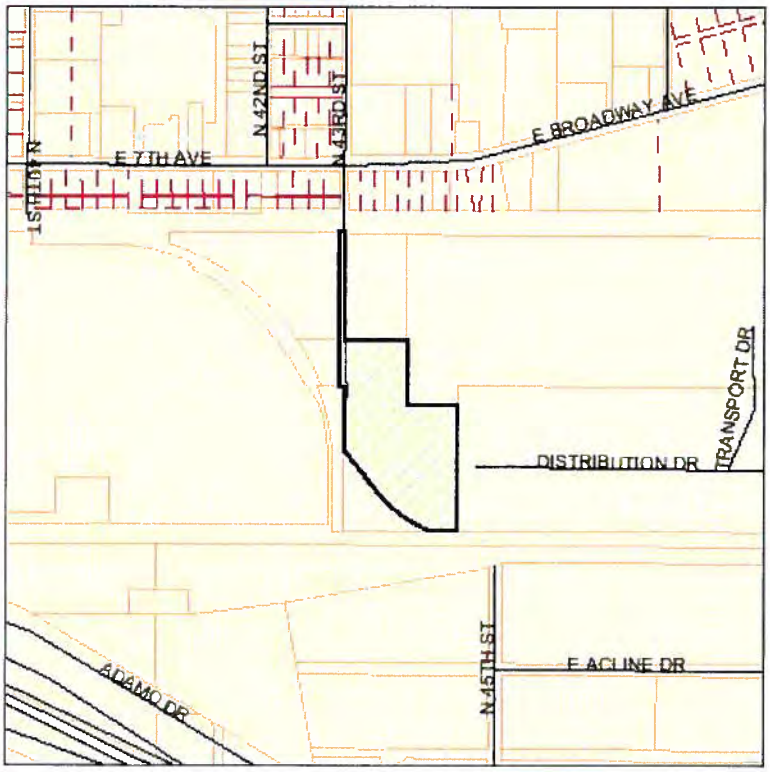


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1604280000 |
| PIN NUMBER: | A-16-29-19-ZZZ-000005-80530.0 |
| OWNER 1: | SNEAD PAMELA J |
| ADDRESS: | 1601 N 43RD ST<br>TAMPA |
| LEGAL DESC: | LESS RR R/W & LESS THE S 600 FT THEREOF |
| DOR CODE: | 4104 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $184,235 |
| EXTRA FEATURE VALUE: | $25,099 |
| LAND VALUE (MARKET): | $290,742 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $500,076 |
| ASSESSED VALUE (A10): | $500,076 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $500,076 |

| SALES INFORMATION | NEW! |
|---|---|
| 3/5/2004 | $550,000.00 |
| 12/1/1986 | $300,000.00 |
| 9/1/1983 | $600,000.00 |
| 5/11/2012 | $100.00 |

FOLIO: 1604280000 PIN: A-16-29-19-ZZZ-000005-80530.0 ACREAGE: 6.45 / SQFT: 280,856

Map created on 2/11/2013 2:24:05 PM.

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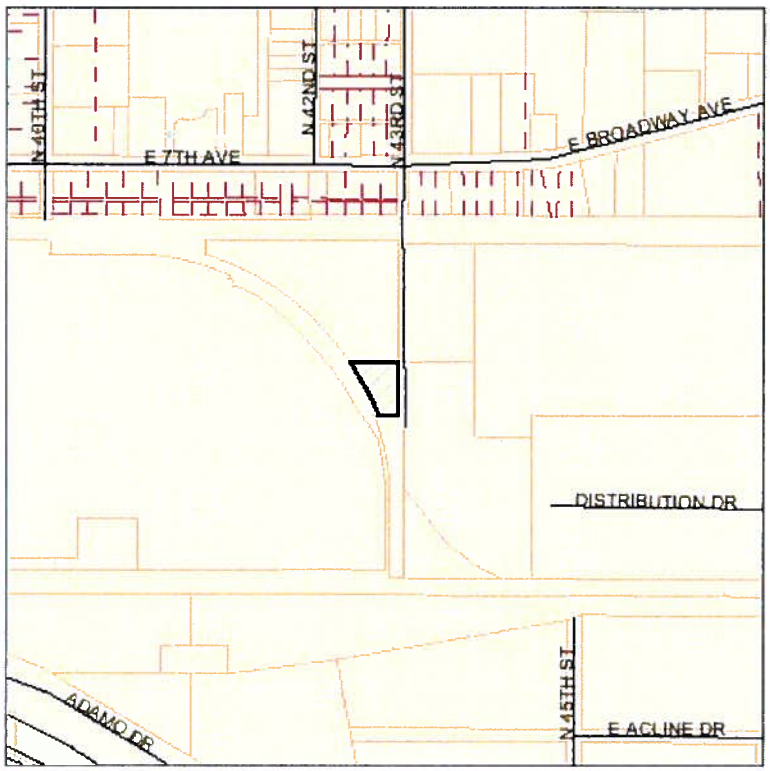


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1604060000 |
| PIN NUMBER: | A-16-29-19-ZZZ-000005-80390.0 |
| OWNER 1: | SNEAD PAMELA J |
| ADDRESS: | 1600 N 43RD ST |
| | TAMPA |
| LEGAL DESC: | LESS RR R/WS AND LESS E 20 FT |
| DOR CODE: | 4000 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $0 |
| EXTRA FEATURE VALUE: | $0 |
| LAND VALUE (MARKET): | $58,370 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $58,370 |
| ASSESSED VALUE (A10): | $58,370 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $58,370 |

| SALES INFORMATION | NEW! |
|---|---|
| 3/5/2004 | $550,000.00 |
| 12/1/1986 | $300,000.00 |
| 9/1/1983 | $600,000.00 |
| 1/1/1900 | $0.00 |
| 5/11/2012 | $100.00 |

FOLIO: 1604060000 PIN: A-16-29-19-ZZZ-000005-80390.0 ACREAGE: 0.54 / SQFT: 23,618

Map created on 2/25/2013 8:38:45 AM.

0 271 ft

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HILLSBOROUGH COUNTY PROPERTY APPRAISER


[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1604060100 |
| PIN NUMBER: | A-16-29-19-ZZZ-000005-80400.0 |
| OWNER 1: | JVS CONTRACTING INC |
| ADDRESS: | 1602 N 43RD ST |
| | TAMPA |
| LEGAL DESC: | S 454.95 FT TO BEG LESS E 20 FT |
| DOR CODE: | 4840 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $38,246 |
| EXTRA FEATURE VALUE: | $13,134 |
| LAND VALUE (MARKET): | $349,380 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $400,760 |
| ASSESSED VALUE (A10): | $400,760 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $400,760 |

| SALES INFORMATION | NEW! |
|---|---|
| 9/13/1999 | $100.00 |
| 9/13/1999 | $100.00 |
| 9/13/1999 | $100.00 |
| 11/1/1980 | $250,000.00 |
| 5/11/2006 | $500,000.00 |

FOLIO: 1604060100 PIN: A-16-29-19-ZZZ-000005-80400.0 ACREAGE: 4.31 / SQFT: 187,838

Map created on 2/25/2013 8:40:02 AM.

0 271 ft

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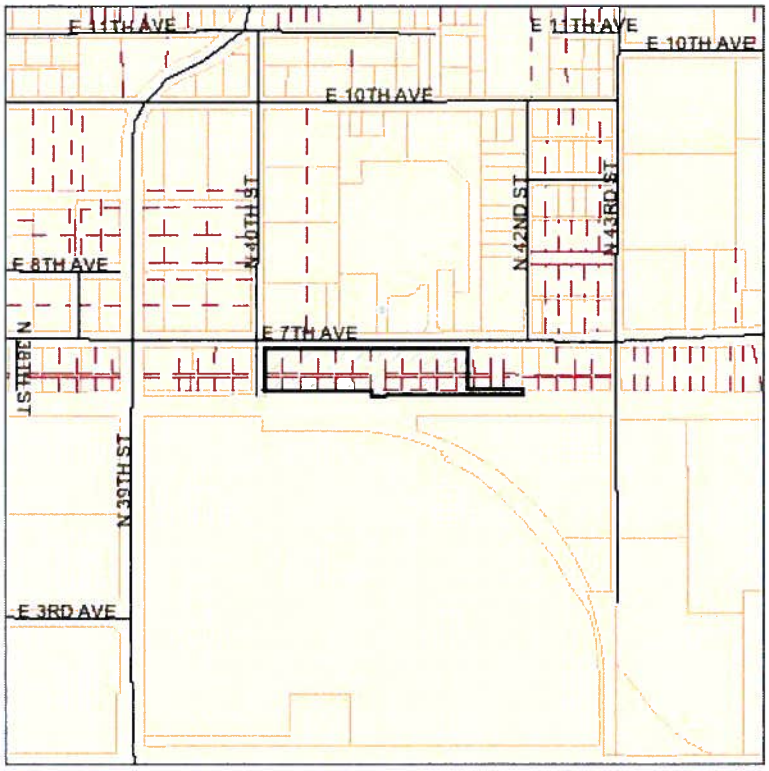
**Bob Henriquez**
**HILLSBOROUGH COUNTY PROPERTY APPRAISER**




[ VIEW PROPERTY RECORD INFORMATION ]

| | |
|---|---|
| FOLIO: | 1607950000 |
| PIN NUMBER: | A-16-29-19-4OB-000015-00001.0 |
| OWNER 1: | GAC TAMPA INC |
| ADDRESS: | 4001 E 7TH AV |
| | TAMPA |
| LEGAL DESC: | AND S TO RR RT OF WAY BLOCK 14 |
| DOR CODE: | 4103 |

| VALUE SUMMARY: | |
|---|---|
| BUILDING VALUE: | $686,417 |
| EXTRA FEATURE VALUE: | $44,310 |
| LAND VALUE (MARKET): | $315,037 |
| LAND VALUE (AGRI.): | $0 |
| JUST (MARKET) VALUE: | $1,045,764 |
| ASSESSED VALUE (A10): | $1,045,764 |
| EXEMPT VALUE: | $0 |
| TAXABLE VALUE: | $1,045,764 |

| SALES INFORMATION | NEW! |
|---|---|
| 5/1/1993 | $100.00 |
| 12/1/1985 | $22,200.00 |

FOLIO: 1607950000 PIN: A-16-29-19-4OB-000015-00001.0 ACREAGE: 2.92 / SQFT: 126,997

Map created on 2/25/2013 8:40:34 AM.

0 271 ft

# Appendix F

Utilities Information

# Preliminary Utilities Information for Proposed Improvements to 43rd Street Outfall Basin

| General Location | Type | Exact Location | Size | Potential Impact to Design |
|---|---|---|---|---|
| 19th Ave. | Gravity Sanitary Sewer | Northern lane crossing to the south to connect to system on Columbus | Unknown | Low |
| Columbus Ave. | Gravity Sanitary Sewer | Northern lane (east bound) | Unknown | Low |
| Columbus Ave. | Water Main | South side, just inside R/W. Cross drain located about 200' west of proposed Columbus crossing | 12" | High |
| Columbus Ave. | Gas | South side, 12' north of R/W line. Crosses Columbus about 340' west of proposed Columbus crossing | 3" | Low |
| Columbus Ave. | Telecommunications (AT&T BFO) | Near R/W on south side | N/A | Low |
| Columbus Ave. | Telecommunications | North side, 6-8 feet off pavement | N/A | Low |
| 7th Ave. | Gravity Sanitary Sewer | Northern lane | Unknown | High |
| 7th Ave. | Power/Light Poles | Both sides near R/w | N/A | High |
| 7th Ave. | Water | 18' off south R/W | 12" | High |
| 7th Ave. | Sanitary Force Main | Westbound lane line | 42" | High |
| 7th Ave. | Gas | North lane | 3" | Low |
| 40th St. (north of 39th intersection) | Telecommunications (Bell System) | Btwn. Right two lanes (north bound) | N/A | Medium |
| 40st St. (north of 39th intersection) | Power/Light Poles | Near R/W on east side and in utility strip on west side | N/A | Medium |
| 40th St. (north of 39th intersection) | Gas | East side, near R/W | 2" | Low |
| 40th St. (north of 39th intersection) | Water | West side, crossing at Columbus | 16" | High |
| 40th St. (south of 39th intersection) | Power/Light Poles | East side, near R/W | N/A | Medium |
| 40th St. (south of 39th intersection) | Gravity Sanitary Sewer | West lane | Unknown | Medium |
| 40th St. (south of 39th intersection) | Telecomm Pedestal | SE corner of 40th and 10th (direction unknown) | N/A | Low |
| 40th St. (south of 39th intersection) | Water | 13' off west R/W, crossing at 10th Ave. | 16" | High |

# Appendix G

Meeting Minutes

**DRMP, INC.**

Principals
Wayne D. Chalifoux
Donaldson K. Barton, Jr.
Lucius J. Cushman, Jr.
Jon S. Meadows
Lawrence L. Smith, Jr.
William T. Stone

DRMP
ENGINEERS · SURVEYORS · PLANNERS · SCIENTISTS

# 43RD STREET OUTFALL
# Kick Off Meeting

## MEETING MINUTES
## JULY 31, 2012

**Attendees:**
Artie Cintron – HART, cintrona@gohart.org
Randy Stribling – HART, striblingr@gohart.org
Alex Awad – City of Tampa, DPW, alexander.awad@tampagov.net
Al Hoel – City of Tampa, Stormwater, alhoel@tampa.net
Scott Letasi – SWFWMD, scott.letasi@watermatters.org
Robin Baily – SWFWMD, robin.bailey@watermatter.org
Scott Garth – DRMP, sgarth@drmp.com
John Minton – DRMP, jminton@drmp.com

**I.** Co-op Funding
- Applications due October 17th
- First co-op funding meeting is August 17th
- Money would be available in October 2013 (FY 14)
- We could do co-op funding for design cost only – future funding for construction cost

**II.** HART Survey – NAVD 88 by Charlotte Survey
- Some preoperty to the South was bermed off by a private property owner.
- Scott Garth to request survey be done in 1988

**III.** Models
- Any adjacent models available for boundary conditions
- No need to model anything under 24”
- Scott Letasi – check city GIS inventory
    - 24” pipes and above
- Interconnetivity at Acline – Mike Miller
- DRMP to look for Government owned lands

**IV.** Flooding
- Did not Occur during Tropical Storm Debbie (June 24-25, 2012).
- Storm has to be a shorter duration
- Scott Garth to contact Megan at FDOT for complaints.
    - Wait until after existing conditions for FDOT meeting
- Robin Bailey can provide SWFWMD complaint database

**V.** Funding
- Funding is 75% city; 25% HART

CC: Attendees
File

3816 W. Linebaugh Ave.
Suite 400
Tampa, Florida 33618
Phone: 813.265.9800
Fax: 813.265.9822

**DRMP, INC.**

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# 43RD STREET OUTFALL
# Progress Meeting

## MEETING MINUTES
## NOVEMBER 16, 2012

**Attendees:**
Alex Awad – City of Tampa, DPW
John Early – City of Tampa
Scott Garth – DRMP
Ken Kniel - DRMP

**I.** SWFWMD application was for FY 14 (July is the beginning of FY 14), so time is OK

**II.** In August 2013, city will need to apply for FY 15 grants

**III.** City is OK with SCS method (CN) and FDOT rainfall distributions if SWFWMD is.

**IV.** Identify properties needed and viable properties

**V.** Invite Robin Bailey and Scott Letasi

**VI.** Ask Dallas if any water/sewer GIS

**VII.** Contact Yvette Bowman or Mike Miller if we want to use city actual unit cost, but using FDOT historical unit cost is OK
- Use property appraised value for property cost

**VIII.** Contact Jimmy Cook or Barbara Lynch on CDC on North Boulevard
- Give them H-15 (Atlas Page) and they can research easements for us.

CC: Attendees
File

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# 43RD STREET OUTFALL STUDY

Project ST510C

Final BODR Meeting

City of Tampa Office – 6th Floor Conference Room

## MEETING MINUTES
## MARCH 1, 2013

**Attendees:**
Alex Awad, City of Tampa
John Early, City of Tampa
Randy Stribling, HART
Lynda Crescentini, HART
Scott Garth, DRMP
John Minton, DRMP
Ken Kniel, DRMP

The final BODR meeting was held at the City of Tampa Office to discuss the 43rd Street Outfall Study. Below is a summary of the items discussed.

- John Minton went over alternatives.
  - Alternative 1: Conveyance upgrades
  - Alternative 2: 5 acre site 4-sale $1.8M (Alex)
    - 3.3 acre site vacant $0.50M – active hotel willing to sell
  - Alternative 3: By-Pass
    - New Outfall down 40th Street
    - Minimal Upgrades to existing channel

- Question 1: Is South pond a viable option (i.e. is it a wetland)?
  Answer: Some wetlands associated with ditching.

- Question 2: Alex asked if we could consider using all three parcels up North.
  - Lynda asked if we could check with FDOT for any surplus parcels for I-4 (Bill Scott – FDOT).

- $1.5M FY 2014 for property acquisition…$50K each to design ($100K)

- Geotech will be needed for ponds and contamination potential

- Lynda – Agreed to initate meeting with FDOT
  - Scott to determine FDOT PM for 39th Street RRR for Lynda

- Application due date for FY 2015 would be October 2014

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- Alex requested that DRMP do another analysis to use the 7.1 acre (South side of Columbus Drive) + 5 acre (North side of Columbus Drive) to reduce size of box culvert down 40th Street to pipe.
    - Could the 30" pipe under CSX remain as is?

## ACTION ITEMS:

1. DRMP (Scott Garth) to determine FDOT PM for 39th Street RRR
2. DRMP (Scott Garth) to contact Bill Scott at FDOT for any surplus R/W
3. HART (Lynda Cresentini) to set up FDOT meeting

cc: File
Attendees

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# Appendix H

Alternative 4

## Development of Fourth Alternative

The City has reviewed the draft of the report and conducted preliminary research on potential pond sites considered in the study. With the availability of properties in the study area, the City requested for DRMP to consider an additional alternative that relies more heavily on property acquisition in the vicinity of the flooding problem area along Columbus Drive. The addition of this fourth alternative is included in the final report as Appendix H. This fourth alternative is intended to resemble Alternative 3 with a diversion system along 40th Street, that is reduced in size from a box culvert to a pipe. The reduced size of the diversion system is beneficial considering close proximity to utilities and bore/jack requirements under the railroad tracks.

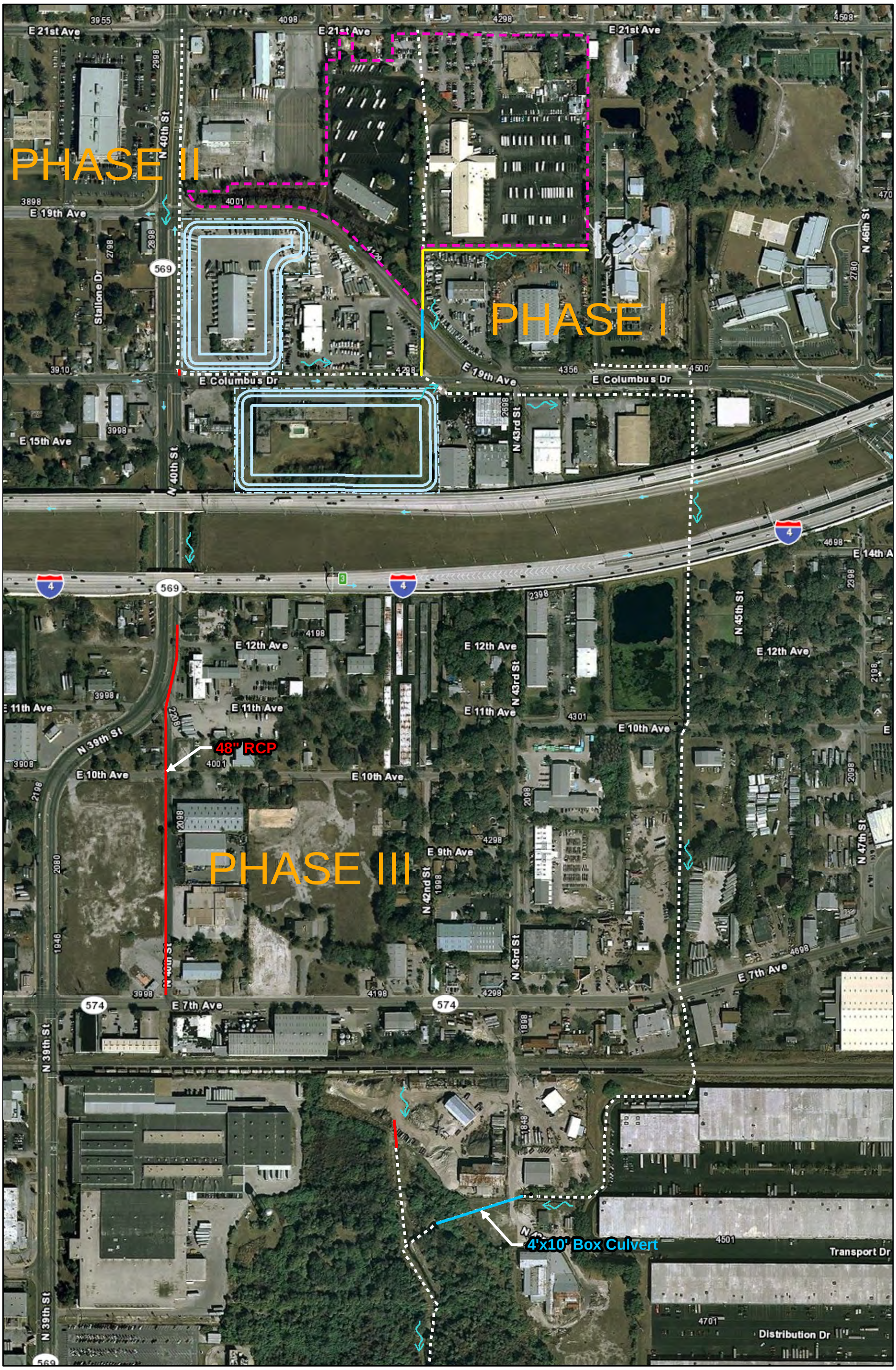
Alternative 4: Diversion System with two (2) North Ponds

- Diversion system along 40th Street with **48-inch pipe**, distance of 3,900 linear feet.
- Acquisition of additional **0.4 acres** (affecting 4 properties) of right-of-way or easements for culvert work.
- Culvert crossing upgrades with single box culverts/pipes at **two (2)** roadway crossings and **one (1)** railroad crossing.
- Construction of two stormwater ponds on either side of Columbus Drive sized at **7.1 acres** and **5.7 acres** that will provide flood storage, attenuation, and stormwater treatment (two North Ponds).

Alternative 4 differs from Alternative 3 in that the diversion system size has been substantially reduced in size from a 4' x 6' box culvert to a 48-inch pipe, and stormwater attenuation is sufficient in the two (2) north ponds to eliminate the need for the south pond. Characteristics of the preliminary design for the additional north pond are described below with the primary design function in the heading (elevations in ft, NAVD88).

North Pond (5.7 Ac) – stormwater attenuation/flood storage

- On-line Wet Detention
- Property acreage = 5.7 acres (North side of Columbus Drive)
- Berm Elevation = 29.0
- Control Elevation = 25.0
- Bottom Elevation = 16.5 (max. depth of 8.5 feet)
- Permanent Pool Volume = 28.2 ac-ft




DRMP
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February, 2013

43rd Street Outfall Basin Study

**Alternative 4 - Diversion System with 2 North Ponds**

**Figure H-1**

0 175 350 Feet

As indicated in the table of peak stages below, Alternative 4 provides similar levels of flood protection as Alternative 3 at the critical areas of the study.

**Table H-1 – Peak Stages at Select Nodes in Focus Area for Proposed Conditions**

| Junction Name | Location | Peak Stage (ft, NAVD) 5-Year, 8-Hour | | | | | Critical Elevation |
|---|---|---|---|---|---|---|---|
| | | Existing | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | |
| **HART Facility** | | | | | | | |
| NA0655 | Southeast corner of HART facility | 28.32 | 26.85 | 26.88 | 26.89 | 26.80 | 26.9 low pavement elevation in parking area |
| NA0605 | HART facility outfall ditch, north side of 19th Avenue crossing | 28.44 | 26.82 | 26.84 | 26.84 | 26.79 | 27.8 low edge of pavement |
| **43rd Street Outfall Ditch** | | | | | | | |
| NA0210 | Upstream side of I-4 crossing | 27.86 | 25.92 | 26.03 | 26.21 | 26.20 | 28.0 top of ditch bank |
| NA0215 | Downstream side of I-4 crossing | 27.61 | 24.81 | 25.70 | 26.12 | 26.10 | 28.0 top of ditch bank |
| NA1005 | Upstream side of 10th Avenue crossing | 27.52 | 24.38 | 25.39 | 26.05 | 26.03 | 26.0 low edge of pavement |
| NA0230 | Upstream side of 7th Avenue crossing | 25.93 | 21.78 | 23.13 | 25.61 | 25.56 | 30.1 top of ditch bank |
| NA0240 | Upstream side of railroad crossings | 25.02 | 19.39 | 20.86 | 24.56 | 24.50 | 29.1 low point of rail bed |
| NA0255 | Upstream side of 43rd Street crossing | 18.84 | 16.50 | 16.79 | 17.12 | 14.82 | 18.5 low top of ditch bank |

In the table included below, peak flows are compared in the channel downstream of the confluence with the proposed diversion system. For Alternative 4, proposed peak flows remain below existing conditions providing assurance of no adverse impacts downstream. Additionally, the existing and proposed peak flows are compared as required by SWFWMD.

**Table H-2 – Peak Flows Comparison for Proposed Conditions**

| Link Name | Location | Peak Flow (CFS) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 5-Year, 8-Hour | | | | | 25-Year, 24-Hour | | | | |
| | | Existing | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 | Existing | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 |
| RA0280 | 43rd St Outfall Ditch, South of Railroad | 399 | 353 | 317 | 319 | 396 | 491 | 484 | 448 | 460 | 485 |

## Discussion and Comparison of Alternatives

Alternative 4 involves acquisition of an additional property with an existing building and road frontages. If property acquisitions for Alternative 4 go favorably, the overall project cost would be significantly reduced by downsizing the diversion system (see summary of estimated alternative costs below). Additionally, other benefits with a downsized diversion system are envisioned including easier utility conflict resolution, lower difficulty and faster construction, lower maintenance of traffic demands, and less disruption to property owners (especially at CSX railroad crossing).

**Table H-3 – Summary of Estimated Project Costs for Alternatives**

| Alternative | Estimated Project Cost |
|---|---|
| 1: Conveyance Upgrades with South Pond | $ 9,110,000 |
| 2: Conveyance Upgrades with North and South Ponds | $ 9,149,000 |
| 3: Diversion System with North and South Ponds | $ 8,963,000 |
| **4: Diversion System with Two (2) North Ponds** | **$ 7,123,000** |

## Recommendation and Phasing

The amended recommendation for this study is to proceed with feasibility investigations into purchasing the three potential pond sites included in both Alternatives 3 and 4 as listed below:

1. North Pond (7.1 Ac) – south of Columbus Drive w/ two-story building
2. North Pond (5.7 Ac) – north of Columbus Drive w/ warehouse building
3. South Pond (9.7 Ac) – west of 43rd Street crossing

At this time, Alternative 4 is the recommendation of this study due to considerable construction and design savings. However, any combination of two out of these three properties will satisfy the needs for pond construction for this project.

Included below is a schedule of possible phasing for Alternative 4.

**Table H-4 – Phasing of Recommendation**

| Phases | Estimated Property Costs | Estimated Design and Construction Costs | Total Estimated Phase Cost |
|---|---|---|---|
| **1**: Construct North Pond (7.1 Ac) and connection to HART | $ 1,500,000 | $ 1,266,000 | $ 2,766,000 |
| **2**: Construct North Pond (5.7 Ac) | $ 1,500,000 | $ 654,000 | $ 2,154,000 |
| **3**: Construct diversion system along 40th Street and 43rd Street box culvert | $ 57,000 | $ 2,146,000 | $ 2,203,000 |
| | | Total = | $ 7,123,000 |

Included below is a breakdown of the estimated construction, design, and property costs for Alternative 4.

# Preliminary Project Cost Estimate for Alternative 4

**Alternative 4 - Diversion System with two (2) North Ponds**

| Item Number | Description | Unit Cost | Units | Quantity | Total Cost |
|---|---|---|---|---|---|
| 1 | Clearing and Grubbing | $7,500.00 | AC | 27.2 | $204,000 |
| 2 | Structure with 10-foot Diversion Weir | $10,000.00 | EA | 0 | $ |
| 3 | Modify Drainage Structure (connect pipe) | $1,500.00 | EA | 2 | $3,000 |
| 4 | Manhole Riser (for access to box culvert) | $3,000.00 | EA | 12 | $36,000 |
| 5 | Concrete for Endwall | $670.00 | CY | 34.8 | $23,329 |
| 6 | Building Demolition (with wrecking ball) | $2.00 | SF | 84,200 | $168,400 |
| 7 | Reinforced Concrete Pipe (RCP), 48-inch | $130.00 | LF | 3,780 | $491,400 |
| 8 | Box Culvert, 3' x 5' | $421.00 | LF | 90 | $37,890 |
| 9 | Box Culvert, 4' x 6' | $526.00 | LF | 0 | $ |
| 10 | Box Culvert, 4' x 10' | $736.00 | LF | 335 | $246,560 |
| 11 | Box Culvert, 4' x 11' | $789.00 | LF | 67 | $52,863 |
| 12 | Channel Excavation | $6.80 | CY | 1,867 | $12,696 |
| 13 | Pond Excavation | $4.00 | CY | 158,864 | $635,456 |
| 14 | Pond Berm Embankment | $5.00 | CY | 76 | $380 |
| 15 | Performance Turf (Sod) | $1.60 | SY | 36,683 | $58,693 |
| 16 | Chain-link Fence (6') | $13.00 | LF | 4,450 | $57,850 |
| 17 | Concrete Sidewalk (Driveway), 6-inch Thick | $38.00 | SY | 981 | $37,278 |
| 18 | Concrete Sidewalk, 4-inch Thick | $29.00 | SY | 1,190 | $34,510 |
| 19 | Roadway Open Cut Restoration | $57.00 | SY | 375 | $21,375 |
| 20 | Roadway Lane Restoration | $43.00 | SY | 6,714 | $288,702 |
| | | | | | |
| | Maintenance of Traffic (12%) | | | | $289,246 |
| | Mobilization & Demobilization (10%) | | | | $269,963 |
| | Contingency Cost (20%) | | | | $593,918 |
| | | | | | |
| | **Construction Cost Sub-total** | | | | **$3,563,508** |
| | | | | | |
| | Construction Engineering Inspection and Testing (5%) | | | | $178,175 |
| | Engineering Design and Permitting (7%) | | | | $249,446 |
| | Railroad Compliance and Permitting | $75,000.00 | LS | 1 | $75,000 |
| | | | | | |
| | Property Costs for Minor Conv. Upgrades and two (2) North Ponds (see separate tabulation) | | | | $3,057,000 |
| | | | | | |
| | **Estimated Project Costs, Alternative 4** | | | | **$7,123,000** |

**Cost Estimate Notes:**

1) Unit Costs are based on FDOT Item Average Statewide Unit Costs (2011), except as noted below.

2) Building Demolition unit prices are from "Get-A-Quote.net".

3) Maintenance of traffic includes permanent striping and signing.

4) Roadway Open Cut Restoration based on Type B Stabilization (Pay Item No. 160-4) at $3.10 /sy, Optional Base Group 9 (Pay Item No. 285-709) at $12.30/sy, and 3 inches of Superpave Asphaltic Concrete (Pay Item No. 334-1-13) at $13.00/sy with 50% contingency for milling and additional overlay pavement for lane reconstruction and 100% continency for open cut restoration.