

# **ATTACHMENT**

**D**

# **DOWNTOWN STORMWATER VAULT**

### **DOWNTOWN STORMWATER VAULT**

In 2006, the CRA entered into contract with Jones Edmunds Engineering to design a stormwater vault for downtown Palmetto (attached).

This project is consistent with CRA objectives, in that it strengthens the City's contribution to the well-being of the community, enables successful on-going revitalization, strengthens downtown as a multi-use center and strengthens Palmetto as a unique place in the region. A master stormwater system in the downtown avoids the need for individual retention systems. This benefits the "walk-ability" of downtown, as on-site retention ponds will disrupt the continuity of storefronts on Old Main Street.

The conceptual design is attached. The CRA Board was interested in further exploration regarding the initial construction of a downsized Vault A, which would accommodate the stormwater runoff from properties generally south of 5<sup>th</sup> Street West. Exploration of Vault B for properties north of 5<sup>th</sup> Street West was thought to be better postponed until additional information was available with regard to the future development of the Palmetto Elementary School and the adjacent properties.

This project can be anticipated to cost approximately \$ 2.4 Million, but there is the opportunity to re-capture some of the initial capital outlay by allowing developers to "buy" their "fair share" of the stormwater vault as they infill the downtown.

#### **QUESTIONS:**

- **Do the mayor and City Commission agree with the conceptual plan for a Downtown master stormwater vault?**
- **If so, what is the appropriate timeline?**

**DOWNTOWN STORMWATER VAULT  
REPORT (EXCERPTS)**

**DRAFT**

**CITY OF PALMETTO  
STORMWATER DETENTION VAULT DESIGN  
PHASE I  
PRELIMINARY ENGINEERING REPORT**

*Prepared for:*

**CITY OF PALMETTO  
600 17<sup>th</sup> Street West  
Palmetto, Florida 34220**

*Prepared by:*

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Certificate of Authorization #1841

**DRAFT REPORT  
March 2008**

## EXECUTIVE SUMMARY

The City of Palmetto (City) has retained Jones Edmunds & Associates, Inc. (Jones Edmunds) to perform a stormwater management study in support of the City's Waterfront District Development Plan (WDDP). The focus of the study is to assess the feasibility of using stormwater detention vault(s). To implement the WDDP, stormwater management facilities must be provided in conformance with Southwest Florida Water Management District (SWFWMD) regulations.

The study area of the WDDP encompasses approximately 52 acres of heavily developed commercial area. As such, implementing the WDDP requires innovative approaches to providing required stormwater management facilities while maximizing the development potential of the area.

This study addresses regulatory permitting requirements, stormwater alternatives, recommendations for further design consideration, and rough-order-of-magnitude cost estimates for select alternatives. The study also provides a basis for the City to use to decide on future stormwater management strategies.

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## 1.0 INTRODUCTION

### 1.1 PROJECT OVERVIEW

The City's Community Redevelopment Agency (CRA) is planning to revitalize the downtown and midtown areas of its Waterfront District which covers an area of approximately 52 acres (see Figure 1 – Site Location Map). The CRA retained the services of Wallace Roberts & Todd, LLC (WRT) to create a Development Plan (Plan) for the Waterfront District. The Plan includes commercial redevelopment and enhancement of existing parks as well as formal green/civic space associated with a new City Hall. The CRA realizes that stormwater management and permitting will be a critical issue associated with implementing the City's Plan. The CRA wishes to evaluate alternative stormwater treatment measures that minimize visual impacts and maximize the development potential of the Waterfront District.

### 1.2 EXISTING CONDITIONS

The Waterfront District consists of buildings that were constructed during the nineteenth and twentieth centuries. The existing stormwater management system in the area routes stormwater from the Waterfront District to outfalls that discharge directly into the Manatee River. This area was developed before current stormwater regulations were implemented. The existing stormwater management system provides minimal treatment and attenuation of stormwater runoff.

According to the *Subsurface Soil and Water Table Exploration for Proposed 'Stormwater Detention Vaults,' City of Palmetto* (Geotechnical Report) performed in November 2006 by Ardaman & Associates, Inc. (Ardaman), the predominant soils within the Waterfront District are Eau Gallie fine sand and Zolfo fine sand, see Appendix A – Geotechnical Report. The Soil Conservation Service (SCS) classifies these soils as having high runoff potential and low infiltration rates.

The seasonal high water table (SHWT) was determined from field investigations performed by Ardaman in November 2006. Ardaman established that the SHWT within the study area is 2.5 to 5.3 feet below existing ground.

### 1.3 PROJECT SCOPE

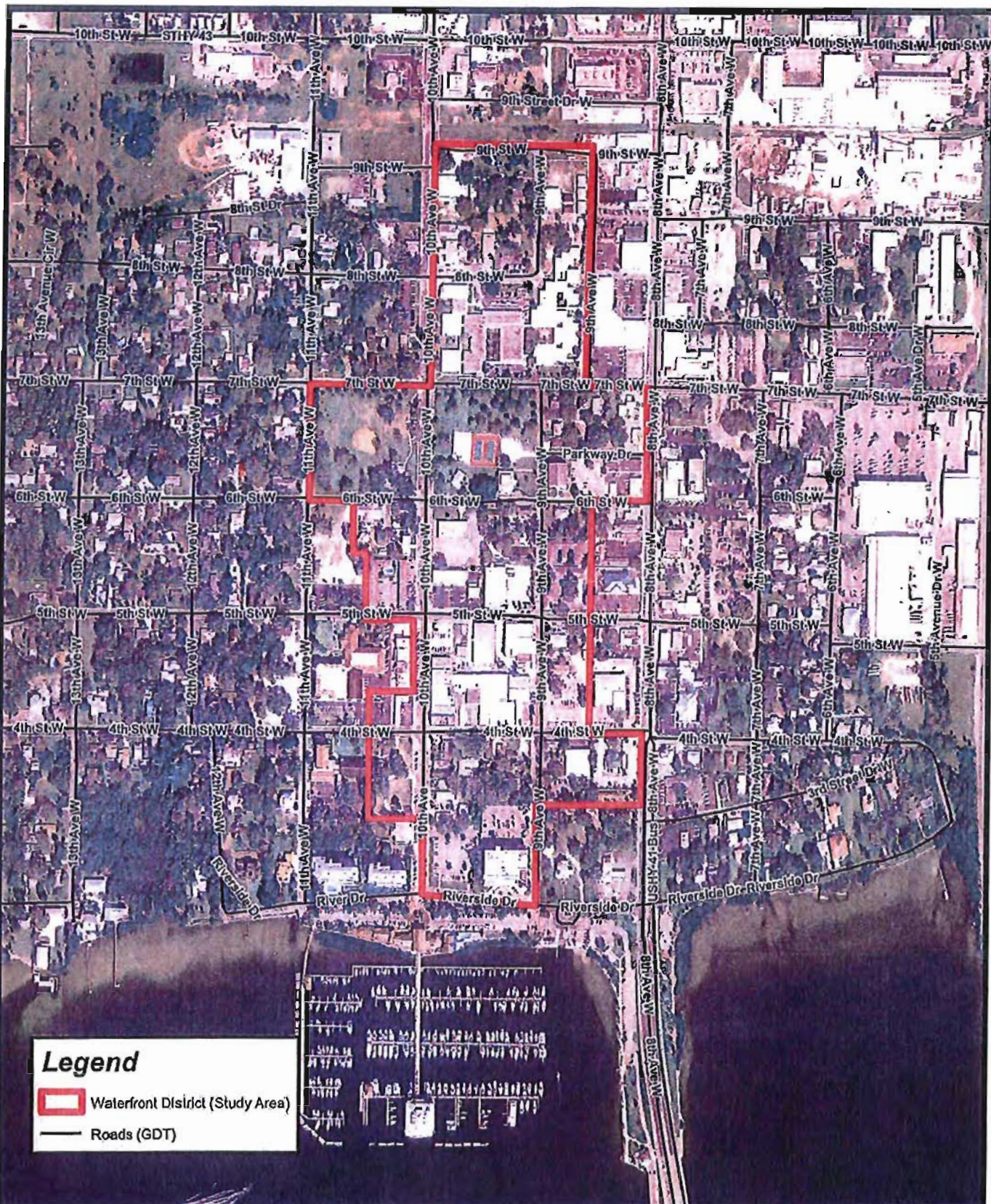
The City retained Jones Edmunds to evaluate the feasibility of a stormwater vault system to serve the area north of Riverside Park and subsequently design a stormwater detention vault system that will be an integral component of the City's WDDP. The project scope involves using a standard three-phase project approach:

- Phase 1—Preliminary Study.
- Phase 2—System Design and Permitting.
- Phase 3—Construction Phase Services.

The initial authorization from the City was for completion of the Phase 1 Preliminary study. The scope of services authorized included completion of a geotechnical evaluation and topographic survey of the project area. See Appendices A and B for Geotechnical Report and Topographic Survey.

This report is issued as Phase 1 – Preliminary Study which is intended to assess the feasibility of using detention vaults for treatment of stormwater, determine the general sizing criteria for a vault system, and evaluate the permitting constraints associated with the project. Due to budget constraints this study does not include a topographic survey of the stormwater system beyond Riverside Drive.





### Legend

- Waterfront District (Study Area)
- Roads (GDT)

**JONES**  
**EDMUNDS**

**Figure 1**  
**Site Location Map**  
**Stormwater Detention Vault Design**  
**City of Palmetto**

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### 3.0 STORMWATER SYSTEM ALTERNATIVES

As previously noted, several alternative methods of stormwater treatment provide a system that could be permitted through the SWFWMD. This section evaluates these potential stormwater treatment alternatives for the Waterfront District. The alternatives are as follows:

- On-Site Wet detention pond
- On-Site Dry detention pond
- Detention vault with exfiltration
- Exfiltration at inlets
- Detention vault with littoral zone
- Detention vault with effluent filtration
- Compensatory treatment at an off-site location

Each of these seven alternatives is described further to document whether it is consistent with the goals of the City's WDDP. All of these alternatives were considered; however only the "detention vault with effluent filtration" and the "compensatory treatment at an off-site location" alternatives were determined to be consistent with the City's vision for the WDDP. These two alternatives are discussed further in Section 4.

#### 3.1 ON-SITE WET DETENTION POND

A wet detention pond provides stormwater treatment by using a littoral zone and permanent pool volume. The "littoral zone" is the shallow zone within a pond or lake. This shallowness allows sufficient sunlight to penetrate through the water, supporting the growth of rooted, emergent aquatic plants. These plants act as a natural filter, removing pollutants contained in the stormwater entering a pond. The littoral zone extends from the water's edge outward as far as rooted plants grow. According to the SWFWMD BOR Chapter 5, the treatment volume shall be discharged in no less than 120 hours (5 days) with no more than one-half the total volume being discharged within the first 60 hours (2.5 days).

A conventional on-site wet detention pond would require a dedicated land area of approximately 5 to 10 acres to provide an adequate treatment volume and required littoral zone for the 52-acre Waterfront District. With the standard commercial block size of approximately 5 acres in the Waterfront District, a block that is planned for commercial or recreational purposes would be needed to accommodate this wet pond. Implementing this stormwater management methodology on-site would not meet the goals of the City's WDDP. This alternative could potentially be implemented off-site as a compensatory storage option.



**Figure 2      Typical Wet Detention Pond**

### 3.2 ON-SITE DRY DETENTION POND

A dry detention pond has a pond bottom positioned above the SHWT and treats stormwater through infiltration of the stormwater into the subsurface soils. According to the SWFWMD BOR Chapter 5, the entire stormwater treatment volume must be recovered within 72 hours.

A conventional on-site dry detention pond would require a dedicated land area of approximately 5 to 10 acres to provide an adequate treatment volume for the 52-acre waterfront district. With the standard commercial block size being approximately 5 acres in the waterfront district, a large portion of a block that is planned for commercial or recreational purposes would be needed to accommodate this dry pond. Implementing this stormwater management methodology on-site would not meet the goals of the City's WDDP. As with the wet detention pond, this alternative could potentially be implemented off-site as a compensatory storage option.



**Figure 3      Dry Pond at the Intersection of Riverside Drive and 10<sup>th</sup> Avenue**



### 3.3 DETENTION VAULT WITH EXFILTRATION

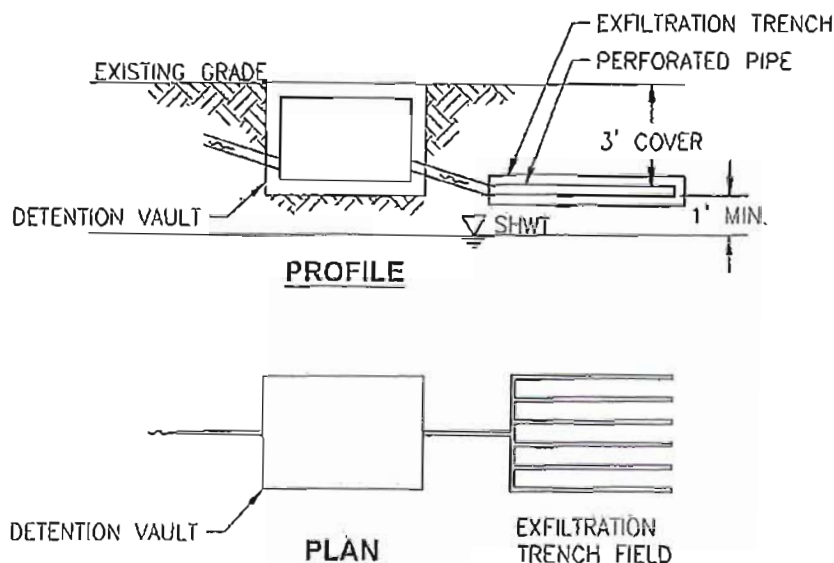
A stormwater detention vault with exfiltration is an enclosed stormwater detention vault with stormwater treated through exfiltration. Stormwater is collected in the detention vault and drained by gravity or pumped to the exfiltration system. A typical exfiltration system consists of filter-wrapped perforated pipe within exfiltration trenches. Exfiltration trench construction involves surrounding the perforated pipe with stone and burying it above the SHWT.

In accordance with conversations with SWFWMD, a detention vault with exfiltration may be permitted if it meets the underground exfiltration systems requirements. According to the SWFWMD BOR Chapter 5, the SHWT must be at least 1 foot below the bottom of exfiltration pipe. With the on-site SHWT between 2.5 to 5.3 feet below existing grade, this system would not meet the BOR requirements for SHWT separation and therefore is not feasible.



**Figure 4 Exfiltration Pipe System**  
(Picture provided by Oldcastle Precast)

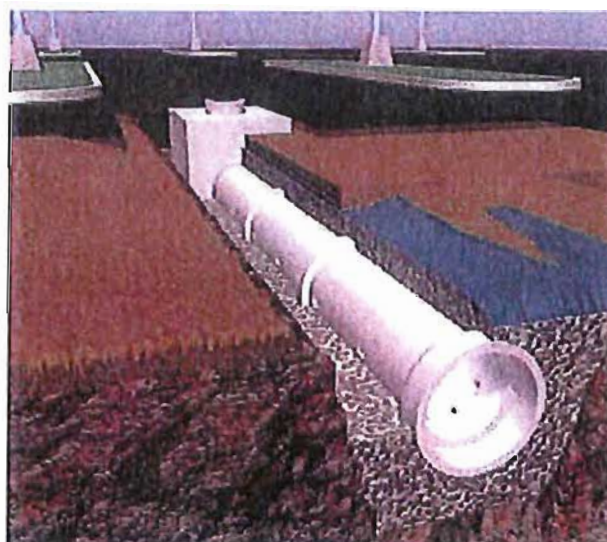




**Figure 5 Detention Vault with Exfiltration**

### 3.4 EXFILTRATION AT INLETS

Exfiltration at inlets involves treating stormwater at each inlet in a piped conveyance system. Exfiltration consists of filter-wrapped perforated pipe within exfiltration trenches. Exfiltration trench construction involves surrounding the perforated pipe with stone and burying it above the SHWT. According to the SWFWMD BOR Chapter 5, the SHWT must be at least 1 foot below the bottom of exfiltration pipe. With the on-site SHWT between 2.5 to 5.3 feet below existing grade, this system would not meet the SHWT requirements and therefore is not feasible.



**Figure 6 Exfiltration Pipe at Inlet**  
(Picture provided by Oldcastle Precast)

Additionally, to provide the required treatment volume, this alternative is not cost effective.

### 3.5 DETENTION VAULT WITH LITTORAL ZONE

A stormwater wet detention vault has a constant permanent pool and consists of an enclosed stormwater detention vault with an external littoral zone. Wet detention relies on treatment by biological processes within the permanent pool and in the littoral zone. According to SWFWMD, this type of system has not been permitted. However, if a littoral zone could be established for a partial vault or if an equivalent process can be demonstrated, SWFWMD may consider this option.

In addition to the detention vault, this system requires dedicated land area for the littoral zone. Permitting requirements necessitate twice the treatment volume of a dry detention vault. A stormwater wet detention vault with a littoral zone is feasible for this project; however, the increased size of the vault and the addition of dedicated land for a littoral zone make this option undesirable compared to other options under consideration.

### 3.6 DETENTION VAULT WITH EFFLUENT FILTRATION

A stormwater detention vault with effluent filtration can be an open-bottom or closed-bottom detention vault with stormwater treated through effluent filtration. Effluent filtration consists of a 2-foot minimum filter material and perforated pipe system at the bottom of a detention vault. Stormwater runoff is collected in the vault and then drains through the base filter material, after which it is collected in the perforated pipe system, drained by gravity or pumped as discharge to outfall into the Manatee River. According to the SWFWMD BOR Chapter 5, the entire stormwater treatment volume must be recovered within 72 hours. Chapter 5 also requires that the seasonal high water level must be at least 1 foot below the center line of the perforated pipe or separated by structural means from the hydraulic contribution of the surrounding water table.

Unfortunately, an open-bottom stormwater detention vault with effluent filtration is not feasible for this project. The SHWT is within the top 5 feet of soil, which does not provide for the required storage space and filter materials needed for infiltration.

A closed-bottom stormwater detention vault with effluent filtration is feasible for this project since it will allow for structural separation from the hydraulic contribution of the surrounding water table.



**Figure 7 Stormwater Detention Vault System with Effluent Filtration (Sand Filtration)**

(Picture provided by CONTECH Construction Products, Inc.)

### 3.7 COMPENSATORY TREATMENT AT AN OFF-SITE LOCATION

Compensatory treatment involves providing the required treatment volume at an off-site location. The concept involves constructing a treatment pond in a different basin in order to improve the overall water quality in the receiving waters (Manatee River). This methodology "compensates" for the stormwater deficiencies in one basin by providing additional treatment in another basin. Typically the dry pond or wet pond treatment system alternatives are used to provide compensatory treatment.

This alternative may be feasible if a suitable offsite location can be used. Considerations include land-acquisition costs, parcel location and topography, potential utility relocation, and public acceptance.

### 3.8 SUMMARY

This study addresses seven potential stormwater management alternatives for the WDDP. Of those potential alternatives, only two were found to be feasible while meeting the goals of the CRA.

Based on this analysis of potential alternatives, the following options appear to be the most feasible:

- Detention vault with effluent filtration.
- Compensatory treatment at an off-site location.

These alternatives are discussed further in Section 4.

#### 4.0 DESCRIPTIVE ANALYSIS OF RECOMMENDED ALTERNATIVES

This section provides an analysis of the two alternatives that were deemed to be feasible for the WDDP.

#### 4.1 DETENTION VAULT WITH EFFLUENT FILTRATION

##### 4.1.1 Permitting Requirements

A detention vault with effluent filtration must meet the SWFWMD BOR Chapter 5 criteria for effluent filtration systems:

- The vault must be able to treat the first ½-inch of rainfall for the drainage basin area.
- The stormwater must pass through a minimum of 2 feet of filter material before entering the perforated pipe.
- The filter material must be washed material meeting Florida Department of Transportation (FDOT) road and bridge specifications for silica sand and quartz gravels. The filter material must have a uniformity coefficient of 1.5 or greater and the effective grain size must be between 0.20 and 0.55 millimeters.
- The total detention volume must be available after 36 hours.
- Pollutants must not be flushed out of the treatment area during any storm intensity up to the 25-year, 24-hour design storm.
- When using a detention vault with effluent filtration system, the SHWT must be a minimum of 1 foot below the centerline of the perforated piping or the vault must be separated from the hydraulic influences of the surrounding water table by structural means.

##### 4.1.2 Groundwater Constraints

According to the Geotechnical Report prepared by Ardaman, the on-site SHWT is between 2.5 to 5.3 feet below existing grade. Therefore, a closed-bottom stormwater detention vault is required to provide separation from the SHWT to allow for filtration within this watertight structure.

##### 4.1.3 Potential Vault Locations

Location options for placement of a stormwater detention vault with effluent filtration were evaluated based on proximity to the existing stormwater collection system (storm sewer) and the proposed land-use from the City's proposed WDDP. The proposed vault locations for different



options are shown in Figure 8 – Option Location Map and Figure 9 – Parking Deck Stormwater Detention Vault Design. Three vault system options are evaluated in this study:

**Option 1:**

- Vault A: A pre-cast vault that provides treatment for the 20-acre existing drainage area discharging to Outfall 2
- Vault B: A pre-cast vault that provides treatment for the 32-acre existing drainage area, pumps out the water, and discharges to Outfall 3

**Option 2:**

- Vault A: A pre-cast vault that provides treatment for the total study area of 52-acres, discharging to Outfalls 2 and 3

**Option 3:**

- Vault A: A cast-in-place vault that provides treatment for the total study area of 52-acres, discharging to Outfalls 2 and 3

Vault A (Options 1, 2, and 3) would be at the southwest corner of 10<sup>th</sup> Avenue and 4<sup>th</sup> Street. It is our understanding that either a municipal parking garage or a private hotel with a parking deck may be constructed on this property. Either facility would be compatible with locating the vaults underneath the proposed parking structures. Vault B (Option 1) would be underneath the proposed ball field in Sutton Park.

#### 4.1.4 Size/Space Requirements

To meet the permitting requirements of the SWFWMD BOR Chapter 5, the detention vault with effluent filtration must treat 2.17 acre-feet of stormwater runoff and include an approximate depth of 3 feet of filter materials and perforated piping. Conceptual schematics of the stormwater detention vault options are shown in Figures 10, 11 and 12. Limiting vault depth to 13 feet below grade due to construction costs associated with excavation and dewatering, the following approximate vault areas are required to provide the required treatment:

**Option 1:**

- Vault A: 0.2 +/- acres
- Vault B: 0.3 +/- acres

**Option 2:**

- Vault A: 0.5 +/- acres

**Option 3:**

- Vault A: 0.5 +/- acres

Preliminary calculations indicate that each of the vaults would be constructed with the following characteristics:

**Option 1:**

Vault A ( Pre-Cast Gravity Vault):

- Closed bottom, 13 feet deep, structurally isolated from SHWT
- 8 feet of workable depth made up of the following:
  - 4 feet of storage
  - 3 feet of effluent filtration pipe and filter media
  - 1 foot of freeboard
- Diversion structure with weir

Vault B (Pre-Cast Pumped Vault):

- Closed bottom, 13 feet deep, structurally isolated from SHWT
- 8 feet of workable depth made up of the following:
  - 4 feet of storage
  - 3 feet of effluent filtration pipe and filter media
  - 1 foot of freeboard
- Diversion structure with weir
- 6-foot-diameter wet well with duplex pumps

**Option 2:**

Vault A (Pre-Cast Gravity Vault):

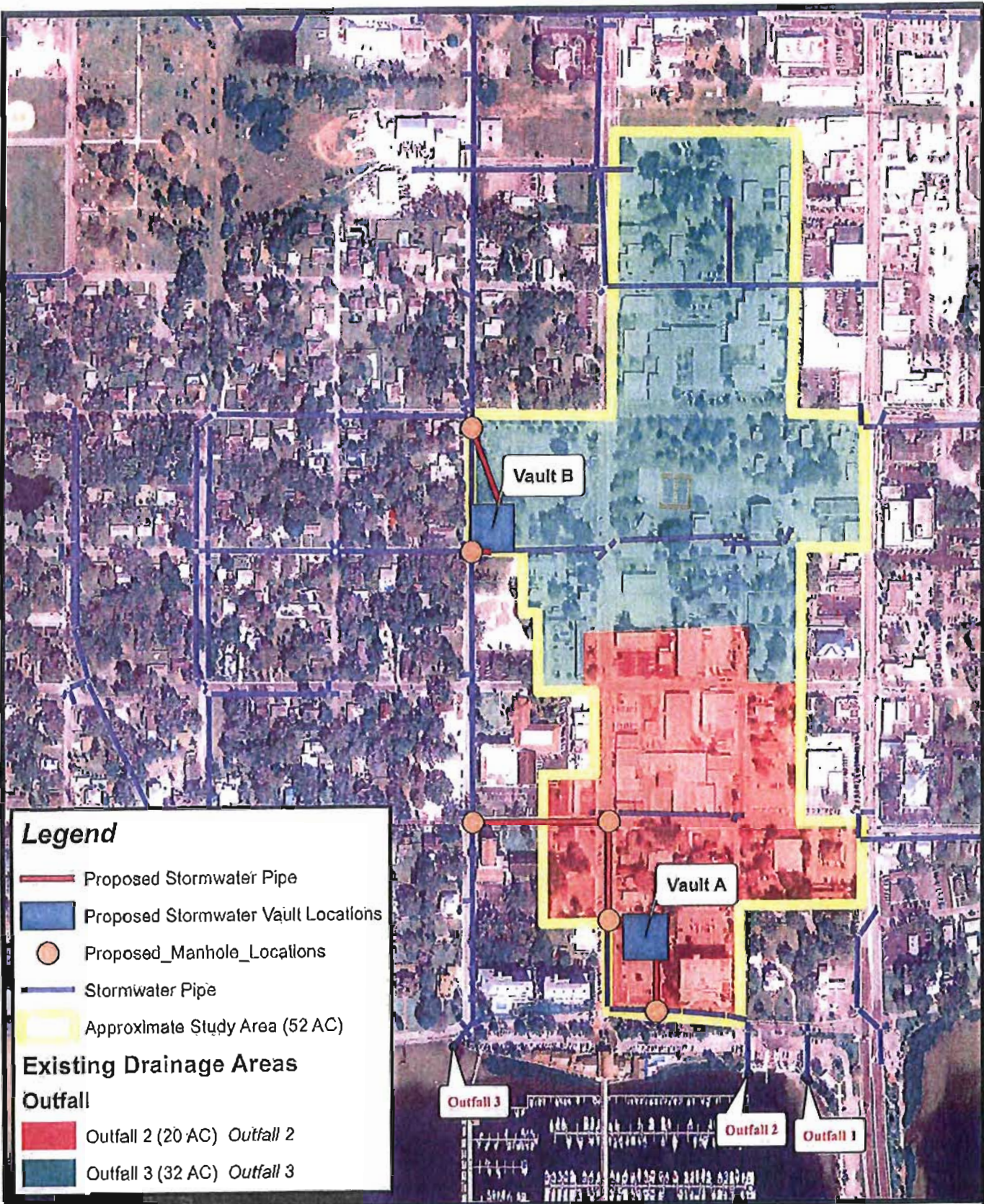
- Closed bottom, 13 feet deep, structurally isolated from SHWT
- 8 feet of workable depth made up of the following:
  - 4 feet of storage
  - 3 feet of effluent filtration pipe and filter media
  - 1 foot of freeboard
- Diversion structure with weir

**Option 3:**

Vault A (Cast-in-place Gravity Vault):

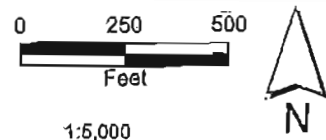
- Closed bottom and structurally isolated from SHWT
- 10 feet of workable depth made up of the following:
  - 6 feet of storage
  - 3 feet of effluent filtration pipe and filter media
  - 1 foot of freeboard
- Diversion structure with weir





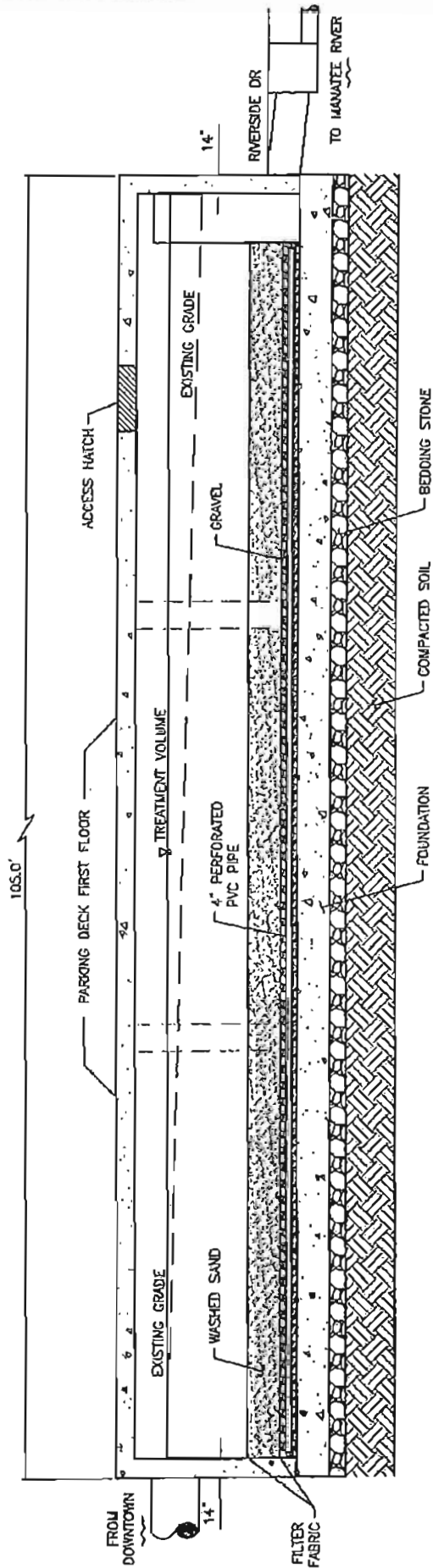
**Figure 8**

Option Location Map  
Stormwater Detention Vault Design  
City of Palmetto



**JONES  
EDMUNDS**





# **PARKING DECK** **STORMWATER DETENTION VAULT DESIGN**

FIGURE 12  
 CITY OF PALMETTO  
 STORMWATER DETENTION  
 VAULT DESIGN  
 NTS

**Table 1      Opinion of Probable Cost**

Task	Item	Description	Opinion of Probable Cost
<b>Option 1: Vault A and B with Pump</b>			
1	Vault A	Construct a stormwater vault using modular units provided by a contractor. Interior base of vault contains perforated PVC pipe system contained within 1 foot of gravel that is covered by plastic filter fabric. A 2 foot layer of sand lies above the filter material and the gravel. It is covered by another layer of plastic filter material.	
2	Vault B	Construct a stormwater vault using modular units provided by a contractor. Interior base of vault contains perforated PVC pipe system contained within 1 foot of gravel that is covered by plastic filter fabric. A 2 foot layer of sand lies above the filter material and the gravel. It is covered by another layer of plastic filter material. Install pump and vault system at the end of the structure to discharge stormwater as necessary.	
3	Diverslon Weir	Construct diversion weir in existing storm structure to route required treatment runoff. Install pipe to route stormwater from weir to stormwater vault.	
<b>Total</b>			<b>\$5,000,000</b>
<b>Option 2: Vault A</b>			
1	Vault A	Construct a stormwater vault using modular units provided by a contractor. Interior base of vault contains perforated PVC pipe system contained within 1 foot of gravel that is covered by plastic filter fabric. A 2 foot layer of sand lies above the filter material and the gravel. It is covered by another layer of plastic filter material.	
2	Diverslon Weir	Construct diversion weir in existing storm structure to route required treatment runoff. Install pipe to route stormwater from weir to stormwater vault.	
<b>Total</b>			<b>\$4,800,000</b>
Task	Item	Description	Opinion of Probable Cost
<b>Option 3: Cast-In-Place Vault</b>			
1	Parking Deck Vault	Build a bottom floor below parking garage. Fill bottom foot with gravel with perforated PVC pipe intermittently spaced inside the gravel. Install layer of filter fabric above gravel. Install 2 feet deep layer of sand above filter fabric and a layer of filter fabric on top of the sand.	
2	Diverslon Weir	Construct diversion weir in existing storm structure to route required treatment runoff. Install pipe to route stormwater from weir to stormwater vault.	
<b>Total</b>			<b>\$4,000,000</b>
<b>Option 4: Compensatory Treatment - Wet Retention Pond</b>			
1	Wet Pond	Construct wet pond with a discharge structure.	
2	Diverslon Weir	Construct diversion weir in existing storm structure to route required treatment runoff. Install pipe to route stormwater from weir to wet pond. Land acquisition was not considered in the estimate.	
<b>Total Excluding Land Acquisition</b>			<b>\$850,000</b>
<b>Option 5: Compensatory Treatment - Dry Detention Pond</b>			
1	Dry Pond	Construct dry pond with a discharge structure.	
2	Diverslon Weir	Construct diversion weir in existing storm structure to route required treatment runoff. Install pipe to route stormwater from weir to dry pond. Land acquisition was not considered in the estimate.	
<b>Total Excluding Land Acquisition</b>			<b>\$300,000</b>

## 5.2 COLLECTION SYSTEM UNIT COST (STORMWATER TREATMENT COST PER SQUARE FOOT)

The overall intent of constructing a centralized stormwater treatment system is to provide a system that the various individual developers involved in the WDDP could use to treat stormwater associated with their sites. To that end the City is interested in having available a means to pass along the cost of the treatment system to each developer that uses the system. Jones Edmunds used the cost opinions developed for the various alternatives to develop unit costs for the stormwater treatment systems. Each option's cost opinion was simply divided by the overall drainage basin area of 52 acres to arrive at a per-acre cost for the system - see Table 2 - Collection System Unit Cost.

When a developer elects to connect to the system, the City could use these unit cost values to develop a stormwater treatment fee for that development. The fee would be calculated by multiplying the appropriate unit cost/acre times the overall acreage of the developer's property within the 52-acre drainage basin.

Table 2 Collection System Unit Cost

<b>Collection System Unit Cost</b> <b>(Stormwater Treatment Cost per Square Foot)</b>		
<b>Option</b>	<b>Opinion of Probable Cost</b>	<b>Cost/Acre</b> <b>(Total Acres = 52)</b>
1 - Vault A and B with Pump	\$5,000,000.00	\$96,153.85
2 - Vault A	\$4,800,000.00	\$92,307.69
3 - Cast-In-Place Vault	\$4,000,000.00	\$76,923.08
4 - Compensatory Treatment Wet Retention Pond*	\$850,000.00	\$16,346.15
5- Compensatory Treatment Dry Detention Pond*	\$300,000.00	\$5,769.23

\*Does not include land-acquisition cost

# **DOWNTOWN STORMWATER VAULT DESIGN**



January 25, 2006

Ms. Tanya Lukowiak  
Executive Director  
Palmetto Community Redevelopment Agency  
516 8<sup>th</sup> Avenue West  
Palmetto, FL 34220-1209

RE: Proposal for Professional Services  
Stormwater Detention Vault Design  
Jones Edmunds File No. 09502  
Palmetto, Florida

Dear Ms. Lukowiak:

Jones Edmunds is very pleased to present our proposal to assist the Palmetto Community Redevelopment Agency (CRA) in designing a stormwater detention vault that will be an integral component of the City's Waterfront District Development Plan. Realizing that stormwater management will be a critical issue associated with the City's development plan, the CRA is interested in pursuing an alternative that minimizes visual impacts and maximizes the Waterfront District development potential.

#### **Project Understanding**

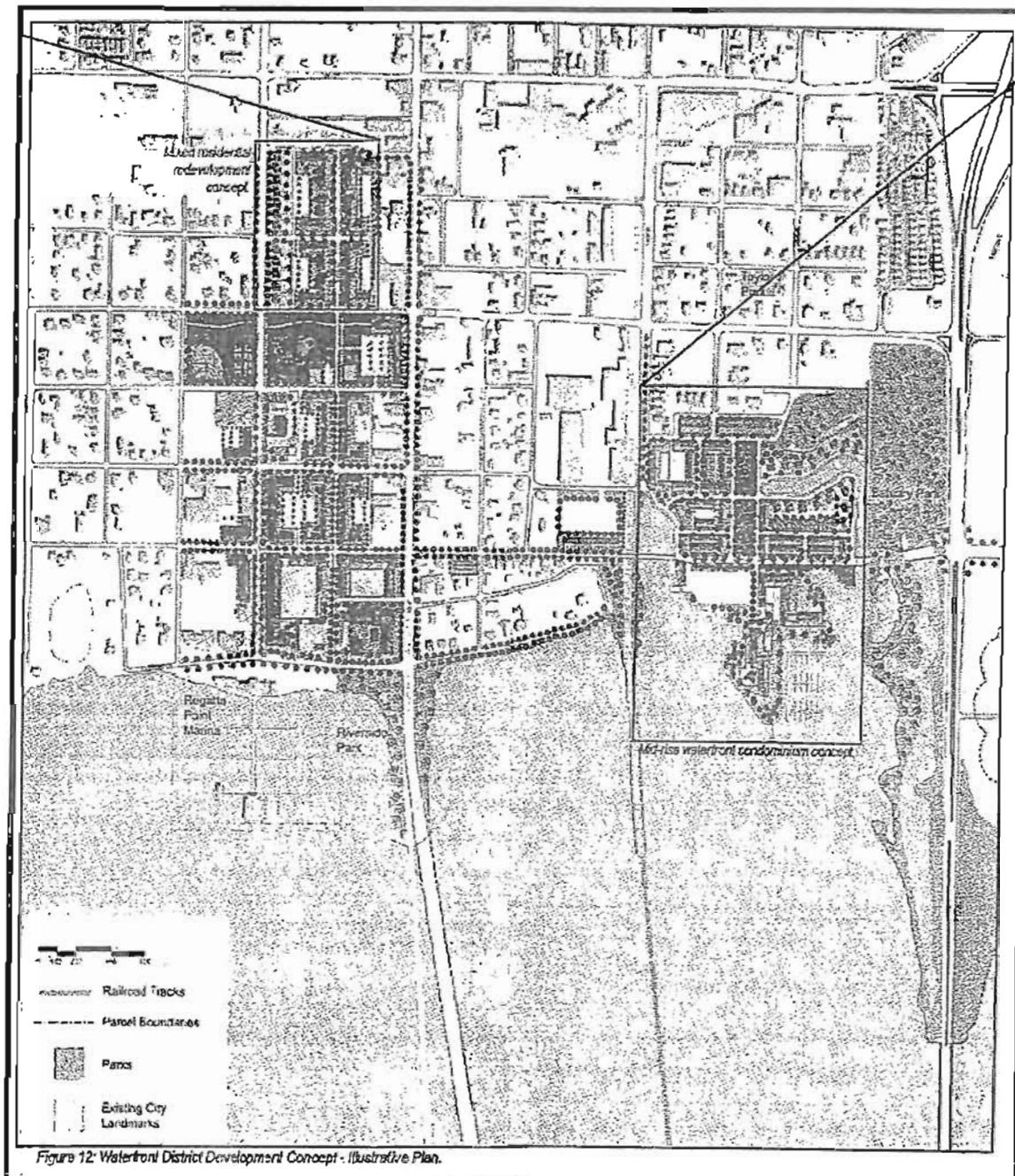
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Existing Southwest Florida Water Management District (SWFWMD) regulations have the potential to impact the open space plan proposed. The regulations require certain best management practices be utilized for development to mitigate potential stormwater impacts. The most widely used of these practices is wet stormwater detention ponds. However, in this case, there are two issues of concern. First, the space available for construction of stormwater ponds is limited. Second, and perhaps more importantly, stormwater ponds are not an aesthetically desirable use for the space that is available.

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From Wallace Roberts & Todd, LLC *Waterfront District Development Plan Draft Report* dated October 2005

To that end, the CRA is interested in the possibility of a buried stormwater vault as an alternative to using ponds for stormwater detention and/or treatment. As such, the CRA has requested assistance from Jones Edmunds in evaluating the feasibility of a stormwater vault to serve the area north of Riverside Park, and in designing such a system.

## **SCOPE OF SERVICES**

Jones Edmunds proposes to conduct this project for the CRA using a standard 3-phased project approach for a stormwater project of this nature. The three phases are:

- Phase 1 – Preliminary Study
- Phase 2 – System Design and Permitting
- Phase 3 – Construction Phase Services

Each of these phases is discussed in detail in the following section.

### **Phase 1 – Preliminary Study**

During the Preliminary Study phase, Jones Edmunds will establish the general sizing criteria for a vault system, as well as explore the general feasibility of constructing a stormwater vault to service the subject area. We envision that the services to be provided during this phase include:

***Project Kickoff Planning Meeting:*** Jones Edmunds will schedule and attend a project kickoff meeting with CRA and Public Works staff, as well as personnel from WRT. The purposes of the meeting will be to review the project goals, establish lines of communication, and to jointly establish the limits of the project area to be utilized in evaluating pre- and post-development stormwater conditions. We will also initiate coordination with WRT so that any stormwater vault is consistent with the overall Waterfront District development plan.

***Initial Meeting with SWFWMD:*** In conjunction with the kickoff meeting, Jones Edmunds will schedule and attend a meeting with City and SWFWMD staff. The purpose of this meeting will be to discuss with District staff the concept of installing a stormwater vault as part of an overall stormwater management plan for the Waterfront District development project. From this discussion we will strive to establish SWFWMD's requirements for the system design, including the level of stormwater treatment that will be required, the design storm events to be used, and other related items.

***Data Gathering and Review:*** Jones Edmunds will gather and review pertinent information related to the project area. This includes review of the City utility drawings of the project area, any existing information regarding subsurface conditions in the area, and any information already assembled by WRT.

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**Geotechnical Investigation:** To aide in our evaluation of a stormwater vault design and to satisfy SWFWMD requirements, a geotechnical investigation of the general project area will be completed. This will include performing borings in the potential locations for the vault to establish subsurface conditions and ground water levels. The geotechnical report must include information on the seasonal high groundwater table, percolation rates, and the ability of the soil to support the heavy concrete structure which will be used as a small stormwater vault. Percolation tests are required to establish the potential for infiltrating stormwater into the subsurface environment.

**Model Development:** Once we receive the survey and geotechnical information, Jones Edmunds will utilize the data to develop a stormwater model of the existing storm drainage system within the project area. In addition to the survey and geotechnical data, we will also utilize information from other available sources such as:

- Record Drawings for projects the City may have on file for the project area,
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Once the model has been developed, we will utilize it to establish the stormwater volumes that any potential vault will need to handle. Model simulations of existing conditions under 24-hour duration design storm events with 2-, 5-, 10- and 25-year frequencies will be performed. These model simulations will be run for the piping system in the current state to provide a check on the ability of the model to simulate the existing drainage problems.

**Evaluation of Post Development Conditions:** The next step in the project will be to utilize the model to evaluate the post development conditions for the project area. For this, we will need to further coordinate with WRT to get a reasonably accurate estimate of what the project area will look like once developed, so that we can determine the critical stormwater volumes for sizing a stormwater vault.

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**Update Meeting:** Following completion of the above tasks, Jones Edmunds will schedule and attend an update meeting with CRA and Public Works staff to review the results from the modeling and the alternatives evaluation.

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**Review Meeting:** Following submittal of the PER, Jones Edmunds will schedule and attend a project review meeting with the City. At this meeting, the PER and its recommendations will be discussed and a path forward for implementing the recommendations established.

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Unfortunately, the extent of services required under Phase 2 cannot be accurately delineated until the Phase 1 services are completed. Once Phase 1 is completed, Jones Edmunds will provide the CRA with a detailed scope of work and budget to complete the system design and permitting.

While we cannot fully define the Phase 2 services at this time, we can state that the main focus of Phase 2 is the complete design of the alternative ultimately chosen by the CRA. Design drawings for the new stormwater system, and its related appurtenances will be included. Wetland impacts are not expected on this project, but will be assessed as required now on all SWFWMD Environmental Resources Permits.

During this phase, applicable permits will be filed with the various jurisdictional agencies which govern this area. Those agencies include the SWFWMD, and potentially, Manatee County, the Florida Department of Transportation (FDOT) and Florida Department of Environmental Protection (FDEP).

The construction plans will be submitted to the City Public Works Department in the regular review intervals of 60%, 90% and 100%. Accompanying the plans will be detailed engineering cost estimates of the proposed design.

Also under this phase, Jones Edmunds will prepare construction documents necessary for advertisement, bidding and award of the project. We will assist the City throughout this process and ultimately make a recommendation of award based on the City's best interests.

### Phase 3 – Construction Phase Services

Similar to Phase 2, the extent of services required under Phase 3 cannot be accurately delineated until the Phase 1 services are completed. In addition, Phase 3 services to be provided will depend on what level construction phase assistance the CRA/City desire. Once Phase 1 is completed, Jones Edmunds will coordinate with the CRA/City to establish the extent of Phase 3 services to be provided and we will then prepare for and provide to the CRA a detailed scope of work and budget to provide the selected construction phase services.

Construction Administration is vitally important to the success of any construction project. Jones Edmunds has a long-standing commitment to the special demands required of construction phase services. Our staff, led by Mr. David Herndon, possesses the highly specialized construction experience required to conduct an effective program of resident observation and construction administration with focus on efficiency, practicality, and claims avoidance. Jones Edmunds has the experience to anticipate potential construction problems, delays, and contractual conflicts. These capabilities affect our client's final cost through cost reduction and minimization of construction-delays. Services we will provide the City of Palmetto include the following:

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Ms. Tanya Lukowiak  
January 25, 2006  
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### BUDGET AND SCHEDULE

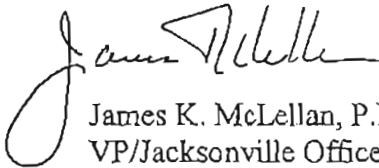
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We are prepared to commence work on this project within seven days of receiving notice to proceed. The schedule for completion of the preliminary engineering report will be driven by how quickly we can get the site survey work completed. At this time, we estimate that the Preliminary Engineering Report can be completed within 120 days from our receipt of the site survey information. For your convenience, we have attached a "suggested letter" of authorization that you can use to indicate your acceptance of our proposal and our notice to proceed.

### CLOSING

Jones Edmunds thanks you for this opportunity to offer our services to the CRA, and we look forward to working with you, your staff and the Public Works staff to successfully complete this challenging project. In the meantime, should you have any questions regarding this proposal, or wish to discuss any aspect in more detail, please feel free to contact me.

Sincerely,



James K. McLellan, P.E.  
VP/Jacksonville Office Manager

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Enclosure

xc: Chris Lukowiak, City of Palmetto  
Karen Falkenberry, Jones Edmunds



**DOWNTOWN STORMWATER VAULT  
ENGINEERING DISCUSSION/PUBLIC  
MEETINGS**

construction cannot begin before the year's end, the CRA will retain ownership until such time the market improves at which time the CRA will re-issue an RFP.

**D. Palmetto Elementary School Update**

Executive Director provided the Board with a summary of the various activities and meetings and that the Palmetto City Commission agreed in principle to the new school being built on the 10 - 11 acre site located on 10<sup>th</sup> Street West, between 14<sup>th</sup> and 18<sup>th</sup> Avenue West. The School Board will purchase and/or swap land with the CRA, to fully reimburse for real estate purchased in anticipation of the construction of a new elementary school downtown.

**E. Riverside Park Design Update**

The Board requested that CRA obtain references from Jones Edmunds with regard to park design, before moving forward with the Riverside Park design draft that has been submitted.

**F. Residential Budget Line Reallocation**

Executive Director updated the Board regarding funds that were allocated to the residential improvements budget line, that were to be used for down payment assistance. This plan is no longer feasible, in that such funds often cannot be used due to tighter lending regulations resulting from poor market conditions. The Board requested a summary of expenses used in Ward 1 over the last 5 years. Mr. Langford recommended that research be done as to the feasibility of contributing a portion of these funds to assist select homeowners in the CRA district who may be jeopardy of foreclosure and at risk for predatory lenders. The initiative would be administered thru the Housing Coalition. Executive Director will bring the results back to the Board.

**G. Master Stormwater Vault Engineering**

Executive Director provided the Board with a summary of the considerations taken into account in exploring the possibility of creating a master stormwater system in the downtown, to include the benefit of avoiding the need for individual retention systems for the benefit of "walk-a-bility", as there is additional construction in the downtown. Discussion ensued about the methodology for new construction to buy into the vault system, repaying the CRA for a substantial financial outlay. Mr. Zirkelbach suggested that the Board hold a workshop to discuss all of the issues surrounding Riverside Drive and the downtown, so that comprehensive plans are made, taking into account the park redesign, the stormwater vault, street and intersection improvements (a discussion item later in the agenda) and the need for a hotel and additional parking. The Board agreed and requested that this item be placed on the agenda for the May meeting, and that the meeting begin at 5:00 PM to allow extra time for meaningful discussion.

**IV. NEW BUSINESS**

**E. CDBG Partnership** The Executive Director advised the Board that the County has made the offer to Palmetto to partner in the Community Development Block Grant (CDBG). In past years, Palmetto has chosen not to participate because it eliminates the City's ability to apply for small cities funds as well as the fact that if we joined in the County's initiative, there is no guarantee of Palmetto being designated to receive any of the funds. The Board agreed and asked the Director to proceed in this same direction with the City Commission.

**F. DEMOLITION OF POTENTIAL SCHOOL BOARD PROPERTIES**

**MOTION:** Mr. Langford moved and Mr. Mollanazar seconded, and a motion carried unanimously to approve the demolition of potential school board property to be done by G & S Grade Service, specifically those properties at 835, 835A, 821, 821.5 & 823 9<sup>th</sup> Ave., with the charges not to exceed \$18,850.00 and payment at normal City cycles.

**G. Stormwater Drain Repairs 5<sup>th</sup> – 7<sup>th</sup> streets/5<sup>th</sup> – 7<sup>th</sup> Avenue**

**MOTION:** Mr. Langford moved, and Mr. Mollanazar seconded, and a motion carried unanimously to approve the stormwater drain repairs being completed by Subterranean Technologies, Inc., not to exceed \$185,000.00 and the complete pipe is to be slip lined and inspected for completeness.

The regularly scheduled meeting was adjourned at 5:35 P.M with a brief recess before starting a 6:00 P.M. workshop.

**V. RIVERSIDE/DOWNTOWN WORKSHOP**

**A. Stormwater Vault Concepts** – Jim McLellan presented an overview of Jones Edmunds & Associates study of options related to stormwater retention in approximately 52 acres of the developed commercial area downtown. Various alternatives were discussed. The complete study is in the Agenda Package. Mr. Maloney suggested that the consultant review the project area on a lot by lot basis to confirm exactly how much of the area is available for potential development.

**B. Downtown Development** – Discussion ensued with commentary from Charlie Ugarte of the Planning & Zoning Board, Harry VanDerNoord of Regatta Pointe & Commissioner Ball offering opinions & suggestions on how to develop the downtown water front area inclusive of parking remedies, additional retail establishments, a more functional boat ramp and a waterfront hotel. The Board instructed the Executive Director to call on as many businesses in the area to attend the next CRA Board meeting/workshop in June, 2008.

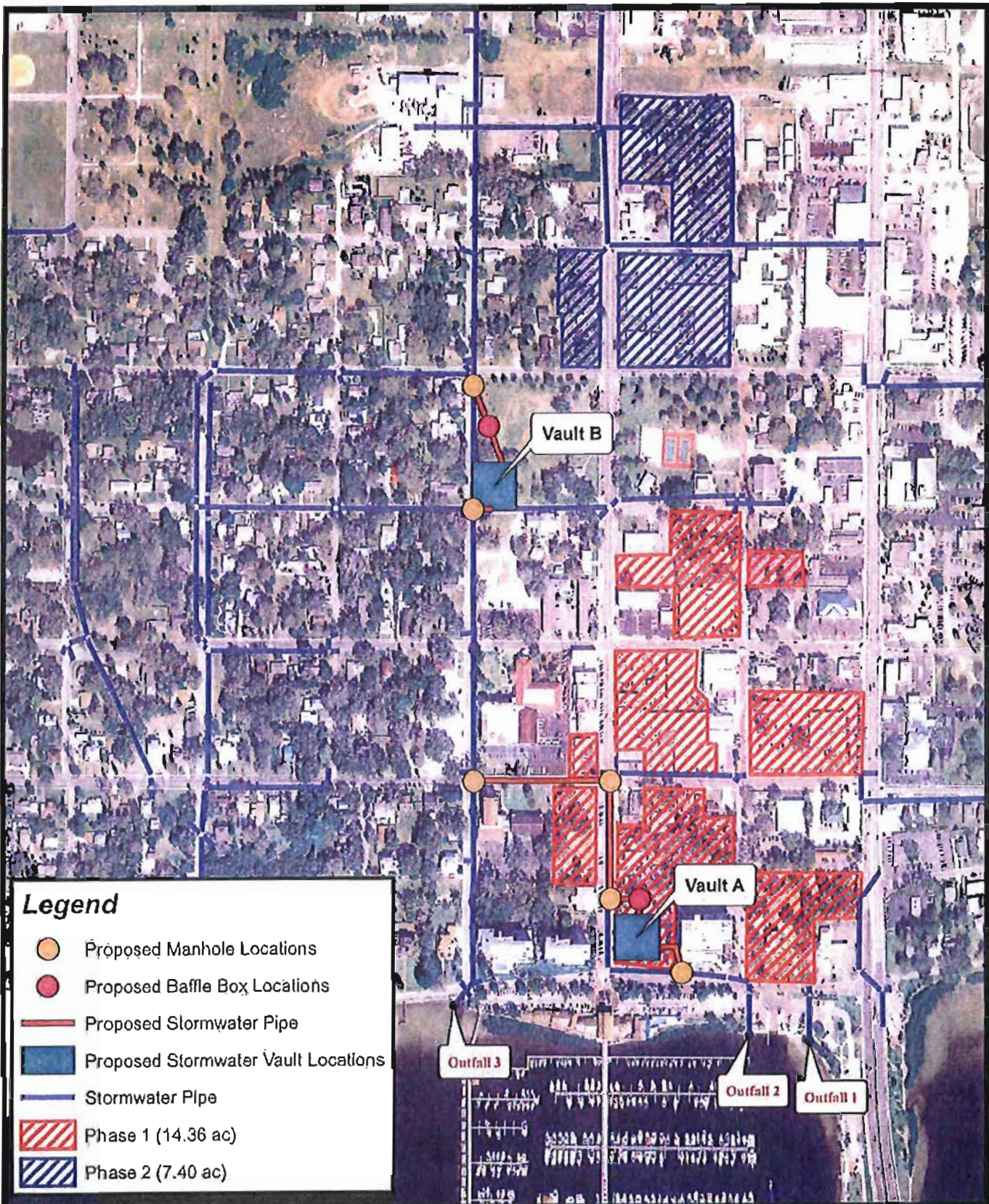
**VI. Executive Director's Comments –**

**A.** Ms. Lukowiak advised the Board of the Ward I Infrastructure Project expenditures to date.



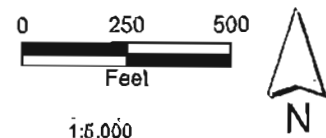
**DOWNTOWN STORMWATER VAULT  
REVISED DESIGN**





**JONES  
EDMUNDS**

**Figure 8**  
Vault Location Map  
Stormwater Detention Vault Design  
City of Palmetto





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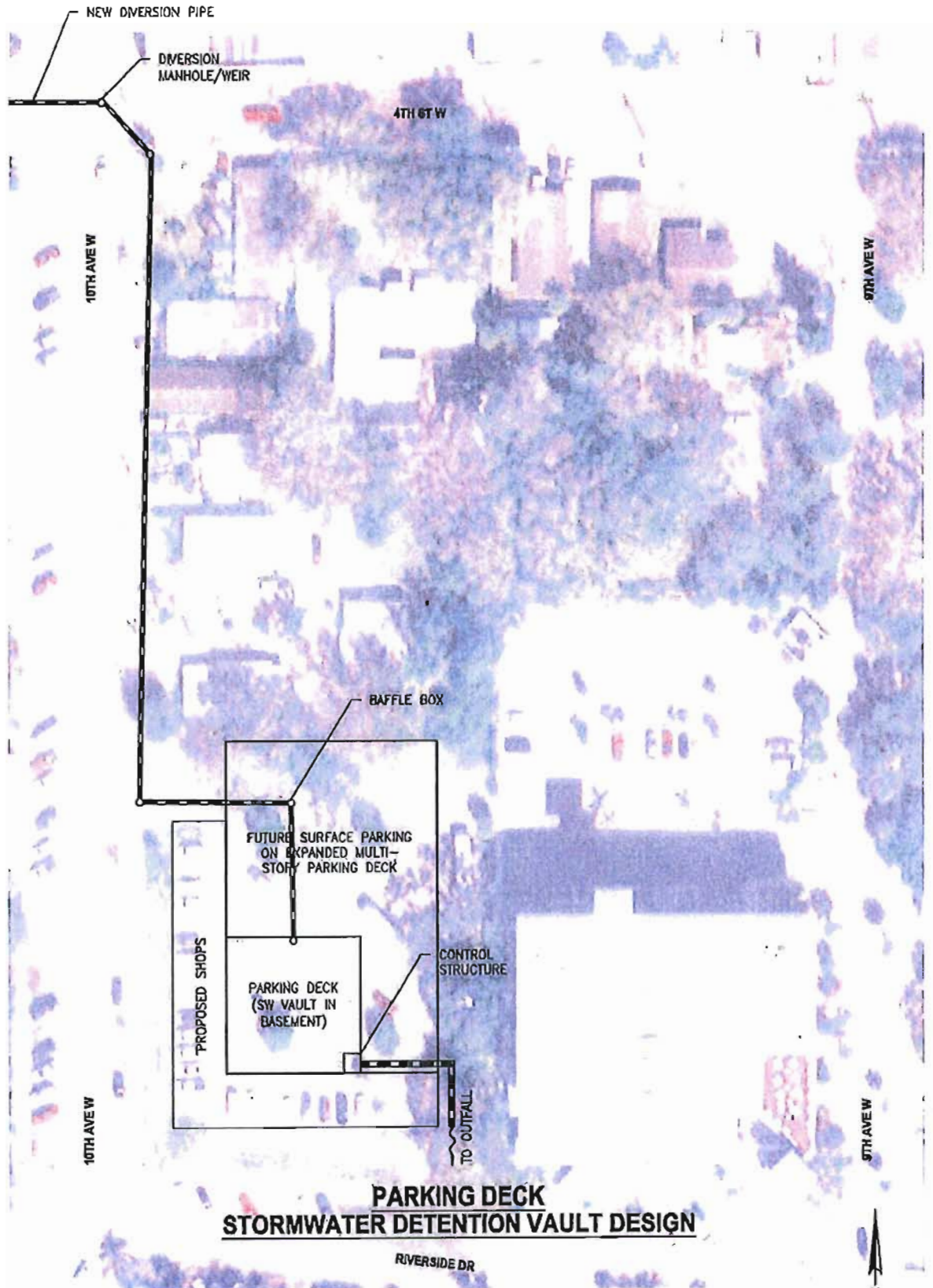
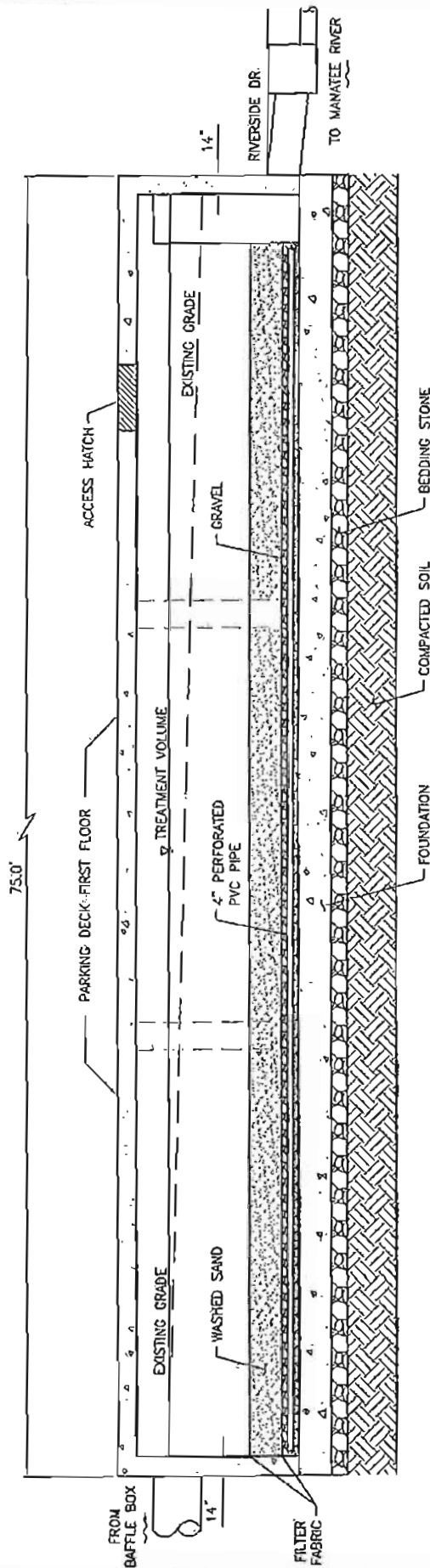


FIGURE 9  
CITY OF PALMETTO  
STORMWATER DETENTION  
VAULT DESIGN  
NTS



**PARKING DECK  
STORMWATER DETENTION VAULT DESIGN**

FIGURE 12  
CITY OF PALMETTO  
STORMWATER DETENTION  
VAULT DESIGN  
NTS



# **DOWNTOWN STORMWATER VAULT ENGINEERING PROPOSAL**



January 25, 2006

Ms. Tanya Lukowiak  
Executive Director  
Palmetto Community Redevelopment Agency  
516 8<sup>th</sup> Avenue West  
Palmetto, FL 34220-1209

RE: Proposal for Professional Services  
Stormwater Detention Vault Design  
Jones Edmunds File No. 09502  
Palmetto, Florida

Dear Ms. Lukowiak:

Jones Edmunds is very pleased to present our proposal to assist the Palmetto Community Redevelopment Agency (CRA) in designing a stormwater detention vault that will be an integral component of the City's Waterfront District Development Plan. Realizing that stormwater management will be a critical issue associated with the City's development plan, the CRA is interested in pursuing an alternative that minimizes visual impacts and maximizes the Waterfront District development potential.

### **Project Understanding**

The City of Palmetto is actively pursuing a program to revitalize downtown Palmetto. As part of this program, the Palmetto CRA retained the services of Wallace Roberts & Todd, LLC (WRT) to create a development plan for the Waterfront District. In their Draft Report, dated October 2005, WRT presents a Concept Plan Overview for the Downtown District that is depicted in Figure 12 from the WRT report (shown on the next page). An integral component of the plan is an open space concept that includes redevelopment and upgrade of existing parks tied to more formal green/civic space associated with a new City Hall to be located in this area.

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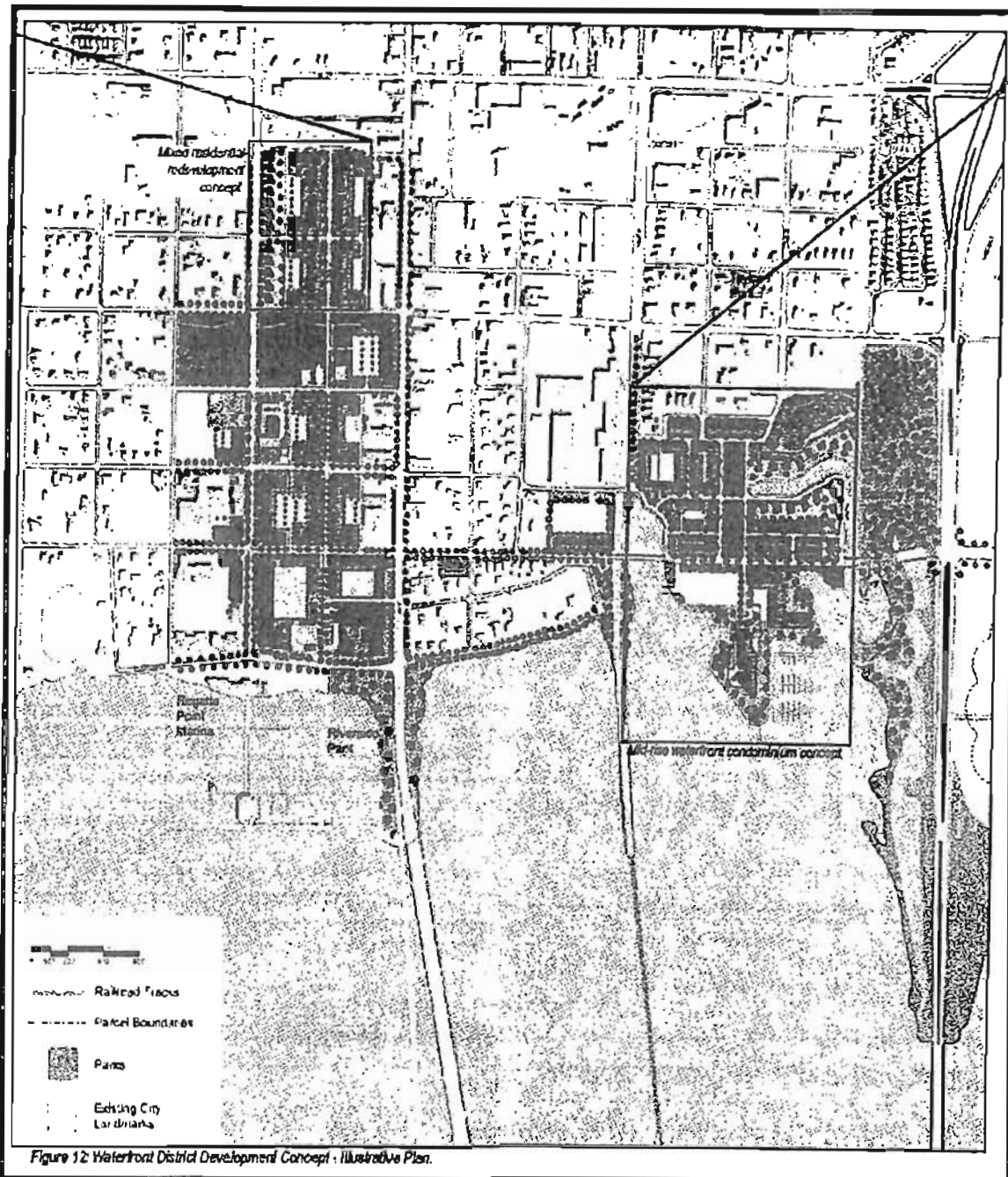


Figure 12: Waterfront District Development Concept - Illustrative Plan.

From Wallace Roberts & Todd, LLC *Waterfront District Development Plan Draft Report* dated October 2005

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### **BUDGET AND SCHEDULE**

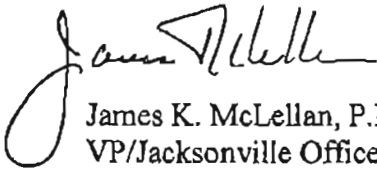
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Enclosure

xc: Chris Lukowiak, City of Palmetto  
Karen Falkenberry, Jones Edmunds

04/09/09 08:50:51  
po311-iq

City Of Palmetto  
Purchase Order Detail

Page 1  
tlukowiak

PO#: 70703 Req No: CR000048

Vendor: JONES,EDMUNDS & ASSOCIATE

SENT TO: 19523 1 JONES EDMUNDS & ASSOCIATES, INC1100 CESERY BLVD SECOND FLOOR JACKSONVILLE, FL 32211

SHIP TO: CR COMMUNITY REDEVELOPMENT AGENCY CITY OF PALMETTO 715 - 4TH STREET W PALMETTO, FL 34221

Est Dt: 03/15/06  
Due Dt: 09/30/06  
Status: Closed

FOB Point:  
Ship Via: SERVICES  
Re-Encum: yes

Terms: NET30  
Batch#: 42697  
Type: N

Hist Desc: STRMWTR DETENTION VAULT DESIGN

Message: REQ TANYA LUKOWIAK  
JEA FILE NO.09502

Line Description G/L Acct#	Qty Req#	Price UOM Job#	Extended	Qty Rcv	Qty Pd	Amt Exp	Open Amt
1. MASTER DRAINAGE ENGINEERING 6905598214	59620.00	1.0000 EACH	59,620.00	59620.00	59620.00	59,620.00	.00
2. JEA 09502-080-01	CR000048						
*** TOTALS ***			59,620.00			59,620.00	.00



**C. 1<sup>st</sup> Ward Project Update & Discussion**

Executive Director informed the board that the project has been phased due to the fact that the estimate has come in at over \$2,000,000.00 vice the original \$1,500,000.00 that was quoted in the past. The City Commission has on their agenda to dedicate \$600,000.00 at their next meeting to supplement this project.

Executive Director and her assistant are now Notaries Public and can go out at the residents' convenience to have the easements signed and notarized. Ms. Lancaster is assisting in this endeavor.

**Mr. Zirkelbach moved, Mr. Langford seconded and motion unanimously for the CRA Executive Director to enter into an agreement with Westra based on the February 2, 2006 proposal.**

**D. SHIP Program**

Executive Director advised the board that the Zipperers' have pulled out of the SHIP Program as they have sold their home.

Ms. Tory's package is included to show that the county is allocating the same amount of money as the CRA.

**IV. NEW BUSINESS**

**A. Approval of Attorney's Fees**

**MOTION: Mr. Zirkelbach moved, Mr. Czaia seconded, and motion carried unanimously to approve the \$1,777.17 in attorney's fees.**

**B. Estimate for Master Drainage Engineering**

Discussion ensued regarding the need for a comprehensible water system to facilitate the revitalized Downtown.

DPW Director Chris Lukowiak explained the purchasing process that led to JEA serving as one of the City Engineers.

**MOTION: Mr. Zirkelbach moved to allow the Executive Director to engage in a contract with Jones Edmunds for the proposal of \$59,620.00 submitted January 26, 2006, Mr. Langford seconded and motion carried unanimously**