CITY OF MIAMI BEACH

OFFICE OF THE INSPECTOR GENERAL

FINAL REPORT

OIG Report No. 20-07

Management of the Palm & Hibiscus Neighborhood Infrastructure Improvement Project

---

March 10, 2021

Updated and Revised

AUTHORITY

The City of Miami Beach's Inspector General shall have the power to report and/or recommend to the City Commission and/or City Manager whether a particular project or program is, or was, necessary and, if deemed necessary, whether the method used for implementing the project or program is, or was, efficient both financially and operationally.

Any review of a proposed project or program shall be performed in such a manner as to assist the City Commission and City Manager in determining whether the project or program is the most feasible or efficient solution to a particular need or problem. Monitoring of an existing project or program may include reporting whether the project is on time, within budget, and in conformity with plans, specifications, and applicable law.

Function authority and powers
Office of the Inspector General
City of Miami Beach Code
Section 2-256 (d) (5)

VOLUME I: TABLE OF CONTENTS

I. ABBREVIATIONS AND ACRONYMS USED IN THIS REPORT 9

II. RELEVANT LAWS, REGULATIONS, AND AUDIT CRITERIA 10

III. EXECUTIVE SUMMARY 11

IV. INTRODUCTION 21

V. THE BEGINNING 29

A. (2010–2013) The City updates its Stormwater Management Master Plan and approves and begins planning the Palm and Hibiscus Project 29

B. The City's Progressive Design-Build contract with Lanzo; role of Public Works; CIP's process for managing construction contracts 31

C. (Feb. – March 2012) The City selects an engineering firm to prepare a Design Criteria Package (DCP) for the Palm and Hibiscus project 35

D. (Dec. 2012) Stantec drainage study concludes it is "not possible" to raise the elevations of North and South Coconut Lanes because of unusually low elevations of adjacent houses 37

E. (July – Dec. 2013) City approves DCP by Stantec and Crews; selects Lanzo as qualified general contractor for Palm and Hibiscus project; estimates total cost at $9.4 million 39

F. (Jan. – Feb. 2014) Mayor Philip Levine elected with mandate to accelerate and expand the City's efforts to reduce flooding 40

G. (Jan. – Sept. 2014) The City and Lanzo struggle to incorporate new road elevation design criteria over fears that raising roads will cause new flooding; under pressure from Homeowners Association, City awards Lanzo a contract for the project's design phase without a finished DCP 42

H. (Oct. – Nov. 2014) The City approves a DCP that fails to provide clear direction for preparing construction plans; CIP Consulting Engineer Crews warns that some DCP requirements may not be possible 45

VI. THE DESIGN PHASE 49

A. (Feb. – March 2015) Engineer of Record Rubio begins preparing construction plans for the drainage system without clear guidance in the DCP for elevating roads; City tells Lanzo to assume all roads will be raised to 3.7 feet above sea level.....49

B. (April 27 - May 26, 2015) The City Engineer Mowry agrees to waive road elevation criteria for North and South Coconut Lanes; City officials reach a consensus about the need for change in policy to allow public drainage systems to collect water from private lots. 53

C. (June 2015) Lanzo submits 60% and 90% plans with west Palm Island road elevations at 2.2 feet above sea level; Lanzo submits lump sum estimate of $34,447,283; Homeowners Associations objects to clearing right-of-ways; CIP orders "pause" 56

D. (June 2015) Lanzo submits 90% plans, with Rubio's near-finished stormwater and hardscape sections; Homeowners Association objects to clearing right-of-ways to build swales; City postpones milestone review 57

E. (Sept. 2015) The City approves use of Rubio plans to obtain permits from DERM and the SFWMD; during king tide flooding, Mowry advocates for raising elevations of roads on Palm Island.....60

F. (Oct. 9 – 12, 2015) City approves Mowry's decision to change elevation criteria, requires raising North and South Coconut Lanes additional 1.5 feet; design engineer concludes the higher roads will cause new flooding of adjacent lots 62

G. (Oct. 14 – Oct. 15, 2015) Mowry's decision requires complete revision of the Rubio plans; City decides not to provide new funding for that purpose or allow Lanzo time for that work; Wade Trim decides to terminate Rubio and Craig A. Smith & Associates as subcontractor. 65

VII. WADE TRIM'S SOLUTION 67

A. (October 2015) The City approves conceptual engineering solution developed by Wade Trim; adopts expedited design methodology that Mowry used as Engineer of Record for Sunset Harbour project.....67

B. (Oct. 30, 2015)- The City approves RFI# 35 (Private Property Drainage Water Accommodation") and Wade Trim's conceptual plans for a drainage system designed to connect with drains on private lots; City staff tell Homeowner's Association Commission will change policy to allow residents to connect yard drains to the City drainage system69

C. (Nov. 4, 2015) The City and Lanzo finalize plans for installing private-side yard drains; direct Rubio to submit his plans to DERM with permit application; direct Wade Trim engineer Kremers to reengineer, redesign, and revise Rubio's construction.....72

D. (Nov. 5 – Dec. 9, 2015) The City approves Wade Trim's revised plans for the drainage system in west Palm Island and unveils the initial version of a policy to allow the connection of yard drains on private property to the public drainage system.....74

E. (Jan. 11 – 30, 2016) The City awards $38.5 million build contract to Lanzo with finished plans for new public-private drainage system or drainage studies to verify its expected performance; Concurrent with these activities, the City continues to review and approve Rubio's use of the original plans to obtain permits 77

F. (Feb. 26 – March 19, 2016) At the direction of the City and Lanzo, Rubio continues using his plans to obtain permits for the project; Wade Trim engineers Kremers and Wright complete their revision of the Rubio plans.....79

G. (April 7 - 28, 2016) The City and Lanzo finalize plans for installing permanent yard drains in private lots; DERM begins the final phase of reviewing the City's permit application 81

VIII. PERMITTING AND CONSTRUCTION.....90

A. (May 5 – July 5, 2016) The regulatory agencies issued permits for the project based on the Rubio plans. With this in hand, the City directed Lanzo to begin construction using the Kremers plans 90

B. (May 2016 – Dec. 2017) The City and Lanzo make significant changes to the construction plans to accommodate demands from the Homeowners Association; Wade Trim engineers recommend notifying DERM and obtaining a permit modification to no avail 98

C. (Feb. – April 2017) In February City Manager Morales affirms policy prohibiting connection of privately owned yard drains to the public drainage system; in April the City Commission directs City staff to develop an "engineering solution and policy" to allow property owners to connect private-side drains to the drainage system 100

D. (March 7 – April 26, 2017) Carpenter and Mowry continue pursuing change in policy; Commission approves policy allowing connection of private-side yard drains to public drainage system 102

E. (June – Nov. 2017) National recognition for City's proactive efforts to address climate change; first signs of trouble with permitting agencies over City's efforts to accelerate work on a stormwater drainage project 108

IX. EXPANSION AND DISCLOSURE 111

A. (Jan. – April 2018) The City decides to begin installing private-side yard drains under the Class II permit; CIP tells homeowners that the unpermitted right-of-way drainpipes will be used as connection points to the mainline pipe 111

B. (April 4 - May 10, 2018) The City decides to begin a new phase of construction that extends the public drainage system into private property; creates City Drainage Connection Permit 116

C. (Jan. – Feb. 2021) In written responses to a draft of this report, Carpenter and Interim City Manager Raul Aguila acknowledge 88 unpermitted stubout or right-of-way drainage connections were built as permanent, but inoperative, parts of the drainage system 130

X. FINDINGS 134

XI. RECOMMENDATIONS 139

XII. EVALUATION OF WRITTEN RESPONSES 141

A. Response received after Feb. 8, 2021 from Interim City Manager Raul Aguila and former City Commissioner John Elizabeth Aleman 142

B. Responses of elected and appointed officials and a representative of the Homeowners Association 145

C. Responses of current and former City staff named in this report 145

D. Responses of engineers and engineering firms Lanzo, Wade Trim and AECOM ... 147

XIII. POSTSCRIPT: THE PROBLEM OF MANY HANDS 149

XIV. SUPPLEMENTAL MATERIALS 150

A. Volume II: OIG Engineer's Technical Report & Auditor's Financial Analysis

B. Volume III: Written Responses and Rebuttals <----- Click this link to access to Volume III

Aerial photograph of west Palm Island in April 2020

Figure 1 Aerial photograph of west Palm Island, with view of North and South Coconut Lanes and Palm Island Avenue taken April 27, 2020 by Smith Aerial Photos and submitted to City of Miami Beach by Lanzo Construction Co. Fla.

I. ABBREVIATIONS AND ACRONYMS USED IN THIS REPORT

ACM	Assistant City Manager
CIP	Capital Improvement Projects Office
CAS	Craig A. Smith & Associates
DCP	Design Criteria Package
EOR	Engineer of Record
FFE	First Floor Elevation
DERM	Miami-Dade Division of Environmental Resources Management
GMP	Guaranteed Maximum Price
HOA	Homeowners Association Star, Palm and Hibiscus Islands
NAVD	North American Vertical Datum
OIG	Office of Inspector General
SFWMD	South Florida Water Management District

II. RELEVANT LAWS, REGULATIONS, AND AUDIT CRITERIA

- Florida Statutes Title XIX (Public Business) Chapter 287.055 "Consultant Competitive Negotiation Act" applies to the selection by local governments of a design professional to prepare the Design Criteria Package (DCP) and serve as the agency's representative during the award of a design-build construction contract

- Florida Status Title XXXII (Regulation of Professions and Occupations) Chapter 471 (Engineering) establishes legal requirements for licensing of professional engineers in Florida, authorizes a Board of Professional Engineers and the discipline for professional misconduct.

- Florida Administrative Code (FAC) 61G15 establishes the Florida Board of Professional Engineers and the Board's Professional Responsibility Rules. The rules describe the roles and obligations of an Engineer of Record (EOR) "in responsible charge" of preparing construction plans for submission to regulatory agencies to obtain permits.

- Miami Dade County Code Chapter 24 (Environmental Protection) Sec. 24.48.(1 -11) This section of the MDC Code provides the applicable local law for the permitting of stormwater drainage systems that empty into bodies of water in Miami-Dade County and the basis of DERM requirement for permit applications.

- Internal Standards for the Federal Government, U. S. Government Accountability Office, provides generally accepted standards for operating an effective system of internal controls and audit criteria for identifying risks to internal controls that can prevent help government agencies from achieving their objective, including management override of internal controls.

III. EXECUTIVE SUMMARY

This report was prepared in response to requests by City Commissioners Michael Gongora and Mark Samuelian that the Inspector General investigate the unpermitted construction of drains on public and private property during the Palm and Hibiscus Neighborhood Infrastructure Improvement Project ("the project"), and the increase in the cost and complexity of the unfinished project. Their requests followed statements made during public hearings in October 2019 about the prolonged delay in the City's efforts to resolve a cease and desist order issued by the Miami-Dade Division of Environmental Resources Management (DERM) that stopped work on the project

During the project, the City of Miami Beach ("City") and Lanzo Construction Co. Florida ("Lanzo") were jointly and severally responsible for obtaining a Class II permit from the Division of Environmental Resource Management (DERM), within the Miami-Dade County Department of Regulatory and Economic Resources (RER), to construct a stormwater drainage system in compliance with the Miami-Dade County Code. The City and Lanzo also were responsible for obtaining an Environmental Resources Permit from the South Florida Water Management District (SFWMD). The City's contract with Lanzo made the design-builder responsible for preparing permit application on behalf of the City as owner and permittee and obtaining the permits. An Engineer of Record for the stormwater drainage system was responsible for preparing, signing, and sealing construction plan and submitted the application.

Beginning in November 2015, the City and Lanzo directed two engineering firms and engineers – Craig A. Smith & Associates (CAS) with Orlando Rubio, and Wade Trim with Holly Kremers – to develop distinctly different construction plans for different purposes. Rubio finished plans based on a standard design to give to the permitting agencies. Kremers was assigned to revise those plans to provide connections for private-side yard drains in each lot on west Palm Island. The City and Lanzo obtained a Class II permit from DERM, and an Environmental Resources Permit from the SFWMD in May 2016 after submitting outdated, revised, and superseded construction plans and technical documents that described a standard right-of-way drainage system. Unbeknownst to the regulatory agencies, the plans and documentation the City and Lanzo

submitted with the permit applications did not describe the stormwater drainage system that the City intended to build.

After Lanzo's design engineers had prepared nearly finished construction plans for a standard right-of-way drainage system, the City Administration decided in early October 2015 to require a design change that added a foot or more to the elevation of North and South Coconut Lanes. This decision significantly increased the risk that building up the pavement to that height would create a dam-like barrier that would trap floodwaters on adjacent private lots at lower elevations. To counter this risk, the responsible City officials made a second decision. They decided to build a public right-of-way drainage system with a different design and intended purpose that included permanent connections for privately owned yard drains in every residential lot on west Palm Island. ("private-side yard drains"). After making this decision, the responsible City officials and the Lanzo design-build team knew, or had reason to know, that such a drainage system could result in an more complicated and prolonged environmental permitting process and could present other issues that might delay the project.

Under pressure to begin construction from the City's political leaders and the Homeowners Association that represented residents on Palm and Hibiscus Islands, the Capital Projects Improvement (CIP) office directed the two engineering firms, CAS and Wade Trim, to work on different versions of construction plans for the drainage system to be used for different purposes. CAS Senior Engineer Rubio was assigned to complete the nearly-finished his plans for a standard right-of-way drainage system that would be used to obtain permits ("Rubio plans"). Wade Trim Vice President Kremers was assigned to re-engineer, redesign, and revise the Rubio plans based on a non-standard and unprecedented conceptual design for a municipal drainage system in Miami-Dade County that Wade Trim's engineers were not sure DERM would permit ("Kremers plans").

The permitting review process by DERM and the SFWMD took nearly seven months. During that period, CIP and Lanzo actively managed the parallel efforts of the two engineering firms and the City staff approved two different "100% Final Design" plans for building the drainage system on west Palm Island. The plans by Rubio were used to obtain permits. After the permits were issued, the plans by Kremers would replace and supersede the permitted plans and thereafter be used to build the essential infrastructure for a non-standard drainage system that could connected in the future to yard drains in residential lots.

The environmental permits issued by SFWMD and DERM were based on the superseded construction plans by Rubio that did not accurately describe the stormwater drainage system the City intended to construct. During the permitting review process, this legally significant change in responsibility for the plans was not disclosed to the regulatory agencies. Between December 2015 and May 2016, the CIP and Lanzo oversaw and approved the parallel work by Rubio, Kremers and their respective engineering firms on separate versions of construction plans for the same project. During this period, the City approved a final version of the standard plans by Rubio for a right-of-way drainage system that was submitted to the SFWMD in December 2015 and to DERM in March 2016 as part of City's environmental permit applications.

At that point, the permit applications, and the supporting documentation submitted to the agencies did not truthfully describe the stormwater drainage system that the City and Lanzo intended to construct. During the seven months review process, the SFWMD and DERM remained under the impression that Rubio was the Engineer of Record for the project and relied on his representations on behalf of the City. During most of this period, CIP, Lanzo and Wade Trim knew that Rubio had ceased to perform most of the functions of an Engineer of Record set forth in Florida law and that Kremers was performing the critical functions of approving engineering decisions that impact public, health and safety.

On May 5, 2016, the SFWMD unwittingly issued an Environment Resources Permit for the project based on the revised and superseded Rubio plans. On May 27, 2016, DERM did the same, unwittingly issuing a Class II permit based on plans signed and sealed by Rubio that the City did not intend to use. In both instances, the regulatory agencies relied on permit applications, construction plans, and technical documents that showed the proposed system met water quality standards, that omitted material facts and contained information that was untrue and misleading.

Once the permits were issued based on the Rubio plans, the City and Lanzo replaced those plans with the revised and different Kremers plans, that she signed and sealed in June 2016 and which the City's Public Works Department approved in July. For the next two years, the City and Lanzo used the Kremers plans to build a stormwater drainage system which included pipes that extended laterally from the mainline drainage system at the edge of the right-of-way in front of each house on west Palm Island.

The purpose of these permanent right-of-way drainpipes and stubouts was to provide connections for the future installation of yard drains in each private lot on west Palm Island. The

array of lateral pipes that extended from the main drainage pipe were fitted with connection tees or stubouts (which together comprised the stubouts) were not on the Rubio plans and were not approved by the permits issued in 2016. At no time did the City, Lanzo and Wade Trim advise the SFWMD or DERM of the significant changes in design and construction or submit the plans signed and sealed by Kremers and approved by the Public Works Department for approval.

In early 2018, the City directed Lanzo and Wade Trim to begin the design work for installing private-side yard drains in dozens of private lots. This new phase of construction would complete the City's plan to install one or more private-side yard drains in each lot using the permanent right-of-way drainpipes to connect private-side yard drains to the public drainage system. This work was not included in the City's contract with Lanzo and was not covered by the existing permits, which had been issued for construction of a drainage system in the right-of-ways. On or before February 2018, the City and Lanzo began the initial efforts for extending the drainage system onto private property. During this period, Wade Trim recommended that the City and Lanzo notify DERM and SFWMD of this new phase of construction and obtain a modification of the existing Class II permit from DERM and the Environmental Resources Permit from SFWMD. The agencies received no such notification.

In May 2018, the project's two-year Class II permit expired. When the City and Lanzo applied to DERM for a new permit, they did not disclose the Kremers plans. For the second time, DERM was misled by a permit application based on the long-since superseded and unused Rubio plans. The City's new application for a permit was accompanied by correspondence from a Wade Trim engineer that omitted material facts and contained information that false or misleading about the drainage system under construction. The misrepresentations included a statement that significant changes had not been made to the original Rubio plans, and other statements that reinforced the fiction that the City and Lanzo were still using the Rubio plans. On May 29, 2018, DERM again unwittingly issued a new Class II permit based on the outdated construction plans prepared by Rubio.

The deception of the SFWMD and DERM continued for 31 months. It ended after a whistleblower sent the agency an email with photographs of the installation of a private-side yard drain on a residential lot on Palm Island that was connected to an unpermitted drainpipe in the right-of way. The permanent right-of-way drainage pipe was connected to the City's new stormwater drainage system that emptied into Biscayne Bay.

The circumstances and organizational pressures that led to the misleading of the SFWMD and DERM can be traced to two causes. The first was the well-intentioned efforts by former Mayor Philip Levine to accelerate the City's efforts to reduce flooding. The investigation developed no evidence that Mayor Levine ever directed or intended that CIP or Public Works not comply with state and county permitting requirements. Levine's initial efforts achieved significant results. They included the construction of pumping stations and drainage projects that materially reduced flooding in low-lying parts and earned the City national recognition for taking innovative steps to counter the threat of sea level rise. In the case of the Palm and Hibiscus project, the sustained emphasis resulted in City officials cutting corners and neglecting critical tasks related to the project's planning, design, and construction.

The second cause was the concurrent and equally well-intentioned efforts of the Mayor's Blue Ribbon Committee on Sea Level Rise ("Mayor's Committee") to incorporate changes in the design criteria of stormwater drainage and neighborhood infrastructure improvement projects to counter the existential threat of climate change. The Mayor's Committee and its consulting engineer developed changes in design criteria, revisions to the City's Building Code, and justification for stormwater bond issues that, collectively, ensured a comprehensive and essential overhaul of the City's defenses against climate change. In the case of the Palm and Hibiscus project, however, the pressure and imperative to incorporate new road elevation design criteria into the project's construction led City officials to make decisions that created the circumstances and incentives that contributed to the permitting violations.

The combined pressure to accelerate the project's planning and execution, and to also incorporate aggressive road elevation criteria resulted in serious override of the City's internal controls. Ultimately, these pressures reached a tipping point in October 2015, when the City made an eleventh-hour decision at the end of the project's design phase that dramatically increased the project's cost and technical difficulty. This resulted in ill-considered decisions by the responsible City staff to proceed with construction of the Palm and Hibiscus project before they had developed engineering solutions to the technical challenges, finished preparing construction plans and obtained proper permits. The City staff members managing the project who were involved in those decisions have contended that, because Lanzo was contractually responsible for obtaining permits, they had no responsibility to insure that the permit applications were accurate, complete, and in compliance with the Miami-Dade County Code requirements for such permits.

As set forth in this report, the City decided to raise North and South Coconut Lanes to a height at or near the minimum crown-of-road elevation of 3.7 feet NAVD (a measurement of sea level) at the end of the project's design phase. The City made this decision knowing that this would create a dam-like barrier that could cause new flooding and trap stormwater on dozens of private lots. To mitigate the new flood risk, the City then approved a hurriedly developed engineering solution that involved the installation of 135 yard drains in private lots. The City's approval of this solution in November 2015 required a complete revision of the near-finished plans prepared by Rubio for a drainage system with a standard design.

The City staff in charge knew the revision of the Rubio plans would require months of engineering work that could delay permitting of the project. Under pressure to proceed, the City staff decided not to wait for a new set of construction plans. In January 2016, the City Commission awarded Lanzo a $36.5 million contract, plus 10% contingency. At the time of the award, the City did not have finished construction plans for building the stormwater drainage system, drainage studies verifying the system's expected performance, or a reliable basis for determining how much the non-standard system would cost or how long it would take to build.

Given the unprecedented nature of the system's design, Wade Trim engineers did not know whether DERM would issue a Class II permit for a public drainage system that was designed to connect to private-side system. But they did know or should have known that Section 24-48 of the Miami-Dade Code would require a separate Class II permit for the construction of each private-side drain that emptied into a body of water such as Biscayne Bay.

To be clear, this investigation developed no evidence that Mayor Levine or Blue Ribbon Committee Chairman Robins directed City staff to mislead permitting agencies. During his campaign for Mayor, Levine contended that the routine flooding of City streets was a public emergency, which it was. He was elected with a strong mandate from voters to accelerate and expand the City's efforts to reduce flooding and modernize the stormwater drainage system. During his two terms as Mayor, the record shows that he and the responsible City officials made significant progress on those objectives.

Nevertheless, the evidence compiled in this report establishes that the cumulative effect of Levine's "Get it Done" management approach set a tone at the top of City government that was translated by some City staff to justify or rationalize ill-considered decisions and actions in the case

of the Palm and Hibiscus project, that made the Mayor's primary objective of accelerating completion of the project impossible to achieve.

Design changes, cost escalation, schedule delays, and disputes with regulatory agencies are common occurrences in public works construction projects. In the case of the Palm and Hibiscus project, however, the evidence established that the project's prolonged delay and increased costs stem from serious acts of commission and omission by the City staff and Lanzo that overrode the City's internal controls and violated the Miami-Dade County Code regarding the construction of stormwater drainage systems.

This report takes a critical look at the management of a single City of Miami Beach public works project designed to reduce flooding and counter the future effects of sea level rise. The official actions and decisions that gave rise to the circumstances and pressures that culminated in DERM's enforcement action occurred over a period of seven years. While this report describes an extensive history of the project, and includes background on related topics that provide context for understanding the causes of the project's difficulties, the focus of this investigaton is on the actions by City staff and City contract personnel leading to the permitting violations, the DERM enforcement action, and related managerial problems.

Given the importance of an engineering background for an understanding of the project's development, the Office of Inspector General (OIG) retained a consulting engineer with extensive experience in the planning, design, permitting, and managing of construction projects by local governments to assist with review of technical documents and construction plans. The consulting engineer's report is included in Volume II of this report. To be clear, this report does not question the quality of the engineering services provided by Wade Trim and CAS during the project; the Commission's decision to ultimately approve the connection of private-side yard drains to the system; or alleged any criminal act.

The purpose and scope of this investigation was to examine the decisions and acts that resulted in a prolonged enforcement action by DERM that has delayed completion of the project, increased its cost, and caused residents and members of the Commission to question the City Adminsitration's capacity to manage large-scale investments to reduce flooding and counter the effects of sea level rise. The findings are focused on actions during the permitting process in 2016 and 2018 that were not consistent with the requirements of DERM and the SFWMD and an override of the internal controls, policies, and procedure that CIP uses to manage design-build

contracts. As required by ordinance, a draft report was provided to the named entities and individuals who were allowed 30 working days to provide written responses. Where appropriate, information from these are responses are were incorporated in the report.

The OIG received a Joint Response, and individual statements, from Assistant City Manager Eric Carpenter, Capital Improvement Projects (CIP) office Director David Martinez, and Public Works Director Roy Coley. In sum, the Joint Response contended the changes made to the permitted plans by Rubio in 2016 and shown in the Kremers plans were "immaterial" and could be disclosed to regulators at the end of the project in As-Built plans; and, further, that the City's decision in early 2018 to begin installing private-side yard drains did not require modification of the project's Class II permit issued by DERM and an Environmental Resources Permit (ERP) issued by SFWMD that authorized construction of a drainage system in the right-of-ways. The Joint Response said this report "demonstrates a fundamental misunderstanding of the standard procedures and practices surrounding drainage permits…Once the project is completed, the engineer of record submits signed and sealed as-built drawings, certifies the installation, and requests closure of the permit."

The Office disagrees with this view. The report applies provisions of the Miami-Dade Code Section 24.48, and SFWMD regulations and specific conditions of each permit. Since initiating the enforcement action, DERM issued Class II permits for each of the installed private-side yard drains connected to the drainage system. Having first learned of the changes to the Rubio plans during a review of the draft report, SWFMD staff said the agency will require a modification of the City's permit. During an interview with OIG staff, SFWMD Division Director Jill Creech said, "The extent of the difference between the two plans certainly would have been appropriate to have a modification."

The Palm and Hibiscus project was always going to present the City and its design-builder with hard problems of design, engineering, and construction. Recently, City staff stated that they anticipate completion and permitting of the project within four months. In providing written responses to the draft findings of this report, they submitted emails from residents of Palm and Hibiscus Island that hailed the efforts of Public Works and CIP and infrastructure improvements made to their neighborhoods.

While this report summarizes evidence of poor judgment, professional misconduct, and disregard for the applicable laws, regulations, and professional standards, the findings and recommendations are made with two caveats in mind.

First, that the records and testimony gathered during this investigation supports a conclusion that, in the matters described in this report, the responsible City officials believed they were acting with the knowledge and approval of the City's political and administrative leadership and in the best interests of the City. There is no evidence that they acted unilaterally or with corrupt or wrongful intent.

Secondly, the evidence supports a conclusion that the responsible personnel with the design builder Lanzo, and the engineering firms Wade Trim and CAS, believed they were acting at the direction of CIP and Public Works and with the approval of the responsible City officials. The evidence establishes that the incentives and pressures for their actions originated with the City and were largely the result of frequent changes in the project's design and the pressure to expedite work and hold down costs. On this subject, it bears noting that DERM has taken no actions against Lanzo, Wade Trim or the design engineers in connection with the unpermitted construction. On this subject, DERM Director Lee. N. Hefty said in an interview, "A contractor working for the government, I don't expect, is going to do things for free. They're going to make sure whatever they're doing, they're going to get paid for. So in my estimation, the responsibility and the direction must have been coming from the City because why would a contractor do this additional work without assurances that it was being paid for…that's what leads us to believe that the City is the one that was behind the desire and directions for this additional work."

Regarding the excuse proffered by City staff that it was not responsible for the permitting of the project, it is correct that Lanzo was assigned the role of preparing and submitting the permits under its contract with the City. It is our conclusion, however, that the denial of responsibility by City staff to ensure the proper permitting of this now projected $50 million project reflects a glaring weakness in internal controls. The City is both owner of the project and the actual permittee, and must provide signatory approval of the permit conditions, as well as oversee the work performed by its contractors. City staff members involved in the project, including well-qualified engineers familiar with the project details, should not consider themselves passive spectators in the permitting process. As public servants and the City's representatives, they have an obligation to protect the City's interests and to ensure its compliance with environmental regulations.

A NOTE ON CONTEXT

As already indicated, this report takes a critical look at the management of an important City of Miami Beach flood prevention project. The scope of the report includes the project history in detail, but focuses on managerial decisions leading to the permitting issues and their consequences. It is not intended to be a critique of the City's policy choices or the engineering decisions or methods used, which are outside of the scope of the report. It also does not purport to pass judgment on success of the project. We have been informed by some City staff members that the Palm/Hibiscus project is nearing completion, and that the serious problems identified in this report have been addressed and may at last be getting resolved. The Engineering Division of the Public Works Department has assumed responsibility for permitting and the DERM has advised that the working relationship has dramatically improved. We hope these improvements are sustained. If they are, then the hard work of the City Administration that has been done to move past these issues will deserve credit. It is well understood that the City's efforts at stormwater control have been recognized as innovative and groundbreaking. Despite the emergency conditions under which these projects have been undertaken, and the novel problems they have presented, City staff members overall have performed well in confronting these challenges.

IV. INTRODUCTION

The genesis of DERM's enforcement action can be traced to a whistleblower's emails that contained photographs of construction work on a private lot in west Palm Island.

On the morning of Sept. 20, 2018, Maria Molina, supervisor of DERM's Water Control Section, opened an email with photographs attached to a message expressing disbelief that the City was allowing the discharge of pollutants into Biscayne Bay. When she opened the attachments, Molina saw photographs of an open trench in the front yard of a residence at 253 North Coconut Lane. In the trench was a newly laid PVC pipe connected to a 12-inch drainpipe in the right-of-way with two 12-inch drains in the front yard and garage. (Figure 2)

DERM's Water Control Section is responsible for enforcing Section 24-48 of the Miami-Dade Code and issuing Class II permits for the construction of stormwater drainage systems that empty into bodies of water. Article VI, Section 24-48 of the Miami-Dade Code makes it "unlawful for any person to perform work or authorize, allow, suffer or permit work to be performed …[on] the construction of a drainage system for any project anywhere in Miami-Dade County" without a valid Class II permit from the Miami-Dade County Division of Environmental Resources Management (DERM). DERM's Water Control Section is responsible for enforcing Section 24-48 and issuing Class II permits.

Molina sent one of her staff to inspect the building site, but the inspection was unavailing. The construction work was finished, and the trench closed. Given DERM's mission of enforcing environmental protection laws and issuing construction permits, it is not uncommon for the agency to receive complaints that a property owner is having construction done without a permit. In this instance, a single phrase set this complaint apart. It included an earlier email to City Manager Jimmy Morales that complained about the City "allowing private properties to connect to the storm water system," apparently on Palm and Hibiscus project.

Figure 2. Photographs a whistleleblower sent to DERM Sept. 20, 2018 that resulted in the agency's discovery of 88 unpermitted right-of-way drainage connections that were a primary basis of the agency's enforcement action against the City stopping work on the project

Molina was familiar with the City's ambitious efforts to respond to sea level rise with innovative engineering solutions. DERM's Water Control Section had played a small but pivotal role in the City's efforts by permitting the City's growing portfolio of projects to modernize its drainage system. She and her staff attended monthly meetings with City officials to review the status of ongoing projects; they met often with the City's contractors to discuss the permitting of new pumping stations and stormwater drainage construction projects.

Despite this working relationship, there had previously been tensions between the City and DERM over compliance with permitting requirements. In one instance, a DERM enforcement action had derailed a signature project in the City's sea level rise initiative. In August 2017 another whistleblower had tipped off DERM to the removal of mangrove plants along a section of the Indian Creek project, prompting the agency to direct the contractor to stop work. When former City Manager Jimmy Morales learned of DERM's action, he sent an Aug. 30, 2017 email to former City Engineer Bruce A. Mowry and Assistant City Manager Eric Carpenter that said, "Bruce and Eric, we cannot proceed on this basis. I recognize that this is an emergency, but that does not authorize us to do work on properties we do not own and to do so without a permit."

A primary objective of DERM's enforcement actions is to obtain compliance with permitting regulations, using the leverage of its authority to stop work on a project. In the case of the Indian Creek sea wall issue, DERM began working with the City to provide a modification of the permit. While these negotiations were underway, the project's contractor emailed Mowry asking if the company could resume construction. In a reply email on Sept. 14, 2017, Mowry said the work could proceed, adding, "The City will address all issues with DERM. We are working under an emergency condition that was declared by the City for this project, Thanks."

Four days later, DERM discovered that construction had resumed and notified the City that it was violating the cease and desist order. This episode triggered additional enforcement actions by the SFWMD and the U. S. Army Corps of Engineers. The City canceled the project's contract; Mowry agreed to leave his position with the City.

Now, little more than a year after those events, DERM's staff was faced with another whistleblower complaint about another high-profile project in Miami Beach. Molina and her staff were well-versed in the Palm and Hibiscus project. In May 2016, Molina had issued a two-year Class II permit to the City to build a stormwater drainage system in the public right-of-way as part of a neighborhood infrastructure improvement project on both islands. In May 2018 she had issued

another Class II permit so that work on the project could be completed. In both instances, engineers in the Water Control Section had relied on construction plans for building a standard right-of-way drainage system. Those plans had said nothing about connecting the new system to foot-wide drains in private property.

What Molina had never done was to issue a Class II permit for the construction of a privately-owned stormwater drainage system at 253 North Coconut Lane or approve a modification of the City's Class II permit allowing connections of yard drains on private property to the public drainage system. DERM had the authority to permit such connections, but only after approving construction plans and the results of computer modeling of the new drainage system's expected performance.

Perplexed, on Oct. 5, 2018 Molina forwarded the chain of emails and photographs to the City's Assistant Director of the Environment & Sustainability Department, Margarita Wells, with an email that said, "We just want to check if the city allowed this connection (if it is a connection) from this private property to the City system."

After consulting with other officials, Wells sent a response on October 9, 2018 that said, "Yes, there are a few isolated circumstances where private properties have historically depended on the public right-of-way for surface water drainage. As we raise the adjacent road to the minimum crown of road elevation approved by City Commission (to 3.7 feet NAVD), the conditions at these properties are reviewed by Public Works and allowed, through a permit, to connect temporarily via a yard drain to our (drainage system) in order to reduce their risk of flooding."

Molina was surprised by this response. No municipality in Miami-Dade County has the legal authority to issue permits for the construction of stormwater drains that ultimately empty into a body of water. Molina responded with an email that reminded Wells of the legal requirements under Sec. 24-48 in an message that said, "By connecting to the City's system, the home is now connected directly to a system that outfalls to a water body. I would need a CLII permit from this home." Molina closed with the admonition that the same requirement would apply to other unpermitted privately-owned stormwater drains connected to the City's drainage system: "Keep in mind all the private home connections will require a CLII permit."

DERM Senior Engineer Mayra De Torres had conducted the agency's seven-month review of the City's original application for a Class II permit to build the right-of-way stormwater drainage system on Palm and Hibiscus islands. When she saw whistleblower's photographs, what caught her

eye was the 12-inch drain in the right-of-way, the pipe that appeared to have been used to connect the private-side yard drains at 254 North Coconut Lane to the public drainage system.

DERM's review of the City's application had included a close examination of the project's construction plans and a drainage study report, both signed and sealed by the project's CAS engineer Rubio, the Engineer of Record for the drainage system. The right-of-way drainpipe in front of 253 North Coconut Lane had not been shown on the plans by Rubio that had served as the basis of the Class II permit.

De Torres arranged to meet with a construction manager from Lanzo Construction Co. Florida ("Lanzo"), the general contractor for the Palm and Hibiscus project, at 253 North Coconut Lane to examine the drain in the right-of-way. During the inspection, the contractor disclosed that Lanzo had installed more than 80 12-inch right-of-way drainpipes and stubouts that were not shown on the construction plans DERM had approved and not authorized by the City's Class II permit. As needed, the unpermitted stubouts and right-of-way drainpipes were being put to temporary use during construction to drain stormwater trapped in adjacent lots by the newly elevated roads.

Twelve months passed. During the next twelve months, DERM inspectors confirmed that, at the City's direction, Lanzo had installed a right-of-way drainpipe in front of each house on west Palm Island and that eight private-side yard drains had been connected to the drainage system. In July 2019 the agency issued a "cease and desist" order and directed the City to obtain a modification of its existing Class II permit. This enforcement action disrupted a $775,000 effort by the City to install approximately 90 private-side yard drains and to connect those privately-owned drains to the public drainage system. As the months passed, the Homeowners Association that represents Palm and Hibiscus Island became concerned about the lack of progress.

In September 2019 their complaints reached Commission Mark Samuelian, chairman of the Sustainability and Resiliency Committee, which raised the issue at a Sept. 25, 2019 hearing. During the hearing, CIP Director David Martinez said the project's contractors were preparing construction plans for the construction of 60 to 70 private-side yard drains. He said, "We are providing that same information to DERM for them to tell us how they're going to do it…everything's predicated on DERM letting us run loose with the work that we have to do." During the hearing, former Commissioner John Elizabeth Aleman contended that DERM staff was reluctant to approve the use of private-side yard drains and suggested that City Manager Morales raise the issue with more

senior County officials and determine “the capacity of DERM…in terms of turnaround for projects.”

Intent of resolving the impasse, Samuelian invited DERM officials to a hearing of the committee on Oct. 23 to explain the delay in issuing permits. During that session, DERM Director Lee N. Hefty rejected the suggestion that the agency was holding up completion of the project. He said DERM was still waiting for the City to provide construction plans so new permits, or modification of the existing permit, could be issued.

During the hearing Hefty said, “What we need from the City is details on how they want their drainage system to be designed. To submit those to us with the proper certification so that we can review and approve it.” He observed that permit violation had been pending for months, and, he continued, “We want the City to come into compliance. Work was done without a permit, and we need that work to be done under a permit.”

During the hearing, Carpenter said:

> I would tell you that Palm Island is certainly much more challenging because I think that's where we have about 88 of the hundred and eight properties or connections that we're talking about, particularly on the Coconuts. That's where we installed a number of temporary construction drains. As we were going through the process, **we realized that raising the roads up could potentially put some of these properties in a little bit different situation during construction activity. So we installed approximately 88 temporary construction drains while we were out there.** Those are ultimately going to either get converted to a private property drain or if we can't resolve the harmonization issue with the private property owner, then we would permit those as a permanent drainage structure. (Emphasis added)

A week later, during the City Commission meeting on Oct. 30, Samuelian summarized the new information from Hefty and likened the situation to the permitting violation that had stopped work on the Indian Creek seawall. "Like we had in Indian Creek, we now have unpermitted work, and we are in violation," Samuelian said. Among the questions he said he wanted answered was, "How did this happen?"

Carpenter was present for the City Commission hearing and had prepared a presentation. He was accompanied by Kremers, who had replaced Rubio as the Engineer of Record after DERM issued the Class II permit. Carpenter said DERM’s enforcement action stemmed from a difference of opinion about when the City and Lanzo should have notified DERM about the right-of-way drainpipe connections and obtained a modification of the Class II permit.

Carpenter said the project had "gone through an evolution" since DERM had issued a Class II permit for the project. He said that when changes were made to a project's plans during construction, it was customary for general contractors to notify DERM at the end of a project when they submitted "As-Built" construction plans showing additions. Carpenter said, "It is a judgment call of DERM as to when is the most appropriate time to go through that modification process."

Carpenter invited Kremers to explain why the right-of-way drains had not been disclosed to DERM as part of the City's application for a permit. Reiterating Carpenter's earlier explanation, she said the right-of-way drainpipes were not disclosed because they were "temporary" construction drains that were never intended to be a permanent part of the drainage system. She said the "88 drains that you've been hearing about, these are temporary construction drains. There was one installed in the right-of-way in front of each property on North and South Coconut."

Kremers said the drainpipes were installed as a temporary precaution because "we wanted to make sure that we had that in place…in case any flooding issues were to occur during construction." She explained that, "The intent was that when the project was complete and before the stormwater system was placed in service, that those drains would be…abandoned, and the permanent drainage system would be in place at that time."

City Manager Jimmy Morales summarized the Administration's response by reiterating that the 88 pipes and drainage connections Lanzo had installed in the right-of-ways in front of each lot on west Palm Island were temporary drains for use during construction; and, further, that the City had adopted a policy to allow property owners to connect to the City's drainage system. Morales concluded that City staff had identified 98 properties on both islands that qualified for installation of private-side yard drains.

At the close of the discussion, Gongora observed that the City Commission had provided "tens of millions of dollars over the past two years" for the Palm and Hibiscus and the Indian Creek projects, and "yet the work doesn't really get done." Further, he expressed frustration with the City Commission's inability to obtain information about the status of the projects. He concluded by asking the City Clerk to convey a request to the Inspector General that the office investigate to "find out what went wrong with permitting. Why we budgeted so much money and it's gone over budget? Why these projects aren't working correctly, why the residents are waiting years and years and years with no results?"

V. THE BEGINNING

A. (2010–2013) The City updates its Stormwater Management Master Plan and approves and begins planning the Palm and Hibiscus Project

Ten years ago, former Mayor Matti Bower and members of the City Commission made decisions that put the City of Miami Beach in the front ranks of waterfront municipalities in the United States that were awake to the existential threat climate change, frustrated with street flooding during storms, and prepared to invest in public works projects to reduce flooding and counter the future effects of sea level rise.

In 2010 the City awarded a $600,000 contract to the engineering firm CDM-Smith to update the City's 15-year-old Stormwater Management Master Plan. During the next three years, they approved more than $50 million in new stormwater drainage projects. One of those was Neighborhood No. 13 Palm and Hibiscus Right-of-Way Infrastructure Improvement Project ("project").

In August 2012, Mayor Bower and the City Commission approved the new stormwater master plan and increased the Level of Service (LOS) for the expected performance of the City's stormwater drainage system. The process of establishing, or raising, the service level for the City drainage system required striking a balance between how much flood protection the City could afford to build over 20 years versus the maximum flood levels that the City was prepared to accept. The decision entailed adopting design criteria that comprised the Level of Service.

Several of these design criteria that are used to establish the City service level are material to understanding the history of the Palm and Hibiscus project. As set forth below, changes in the design criteria made under former Mayor Levine play an important role in the decisions that contributed to the project's permitting issue.

In adopting a new Level of Service (LOS), or changing the criteria that are part of the service level, the Commission under Mayor Bower was establishing the expected standard of performance for new drainage systems. When the City builds a new stormwater drainage system, it awards a contract for the construction of a system that can prevent maximum flooding up to the Level of Service. As noted in City's 2011 Stormwater Drainage Master Plan, "LOS decisions will

directly affect the size and cost of proposed improvement alternatives." Higher levels of service provide more protection against flooding, but also entail higher construction costs. In 2013, the Commission adopted a $200 million, 20-year plan of investments.

One critical design criteria is known as the tailwater boundary, or groundwater criteria. It is based on the North American Vertical Datum of 1988 or NAVD, which is equivalent to local sea level. The tailwater boundary criteria sets the elevation baseline that is used to design new stormwater drainage systems and has an impact on the cost of a new drainage system. Generally, raising the tailwater boundary criteria means raising the elevation of gutters, roads, and swales. Under former Mayor Bower, the Commission used an intermediate estimate of the rate of sea level rise developed by the U. S. Army Corps of Engineers and raised the tailwater boundary criteria from .04 feet NAVD to .67 fee).

The design basis storm is a criteria that is based on estimated rainfall during 24-hour period. It is used to design the capacity of a drainage system. Like the tailwater boundary criteria, the design basis storm criteria can be adjusted, depending on the level of service. A project's design basis storm criteria are included in the DCP. They are used to design the drainage system and prepare construction plans. It is also used to conduct computer modeling and simulation evaluations known as drainage studies.

Drainage studies verify the expected performance of the drainage system. In reviewing permit applications, DERM and the SFWMD require the submission of finished construction plans and drainage studies based on those plans. They use the results of the studies to verify that a new drainage system can handle the quantity of stormwater expected during the design basis storm and meet water quality standards for stormwater discharged into bodies of water.

Concurrent with raising these design criteria, the Commission authorized $50 million in new construction, including the Palm and Hibiscus neighborhood improvement project.

On June 11, 2011, the City issued Request For Qualifications (RFQ) #35-11 for a consultant to produce a "Design Criteria Package for Palm and Hibiscus Island as well as a Master Design Criteria Package to be used as a template for other City horizontal right of way projects." It would be the City's first effort to apply the new design criteria to a neighborhood infrastructure project. It also was the City's first use of a variation of the standard design-build construction contract. The new approach, known as a progressive design-build contract, would give the City a more direct role in shaping the construction plans.

In January 2012, after failing to reach agreement with the highest ranked firm, CIP asked the second ranked firm, C3TS (which later became Stantec Consulting), to submit a proposal. C3TS Senior Project Manager, Jeffrey Crews, who later represented Stantec, submitted a Scope of Work that included the following description:

> The term Progressive Design Build is defined as a methodology where the Design-Build Team is hired predominantly on the basis of qualifications without identifying an ultimate project cost. As the project develops through the Design Phase, the Design Builder will provide a Guaranteed Maximum Price (GMP) for the project. At the end of the Design Phase, the City has the option to accept the GMP and continue with the Design Builder through the Construction Phase or may utilize the plans developed for continuation with some other means of project delivery without further involvement from the Design Builder.

B. The City's Progressive Design-Build contract with Lanzo; role of Public Works; CIP's process for managing construction contracts

Within City government, Public Works was considered the owner of the Palm and Hibiscus project and would operate the drainage system once it was built. CIP was responsible for managing all aspects of the construction for Public Works. City Engineer Mowry was responsible for approving the project's design criteria package and mid-construction changes to the criteria. Public Works would approve the construction plans for the stormwater drainage system. Mowry reported to Public Works Director Carpenter. Both Public Works and CIP had successfully managed numerous stormwater drainage projects. The two agencies had overlapping roles and responsibilities.

Public Works did not have the resources to manage a portfolio of large-scale design-build construction projects, but CIP had both the mission and the resources to do that job. Over a decade of operations, CIP had built an integrated process for managing every phase of a large-scale construction project. CIP Director Martinez and his predecessors had assembled a staff of experienced project managers, engineers, and subject-matter experts, many with degrees in architecture, construction management, project management, environmental engineering, and other technical specialties.

As an organization, CIP's policies, practices, operations, and software were aligned with the stages of the design-build contracting process. To manage a dozen or more projects a year, CIP used eBuilder, a high-end, web-based dashboard that was specially configured for design-build contracts. (Figure No. 3) Additionally, CIP integrated into each project an outside architecture and engineering firm to handle the myriad of technical and administrative aspects of large construction projects. These tasks included conducting daily field inspections, monitoring the general contractor's compliance with permitting requirements, and managing the Request for Information process that documented large and small changes in a project.

Several distinctive aspects of the design-build contracting process are material to this investigation. Title XIX, Section 287.055, Florida Statutes ("Consultants' Competitive Negotiation Act") prescribes the design-build contract model for public construction projects by local agencies and identifies the critical elements. Several of these relate to the issues that arose during the Palm and Hibiscus project.

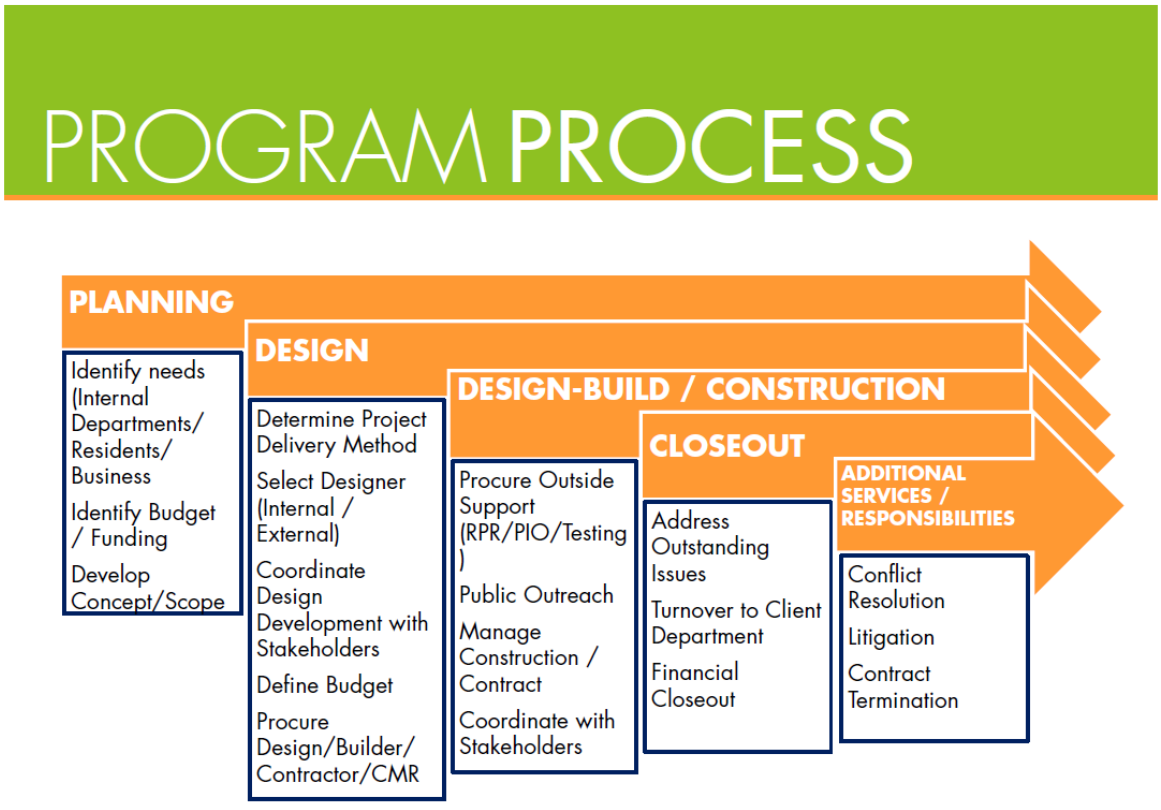


Figure 3: CIP slide that shows the end-to-end process the office used to manage design build projects.

For example, the Act describes the signal importance of beginning the process by developing a Design Criteria Package (DCP). The primary purpose of a DCP is to clearly communicate to the general contractor and its engineers how the owner (in this case the City) wants the project built. A finished DCP provides the project's design engineers with "specified performance-based criteria for the public construction project, including…schematic layouts and conceptual design criteria," according to the Act. Because design engineers use the DCP's specifications and directions to draw construction plans, a DCP should provide "a clear, concise, performance-oriented outline specification of the requirements of the project which defines the design constraints and the time and budgetary constraints to be achieved," according to F.A.C. Rule 13D-23.002(6).

An equally important purpose of the DCP is to give the owner and general contractor a reasonable basis for estimating the costs and the technical difficulty of preparing the construction plans, and, ultimately, negotiating a lump sum price for the project's design phase. Section (2)(J) of the Act says, "The purpose of the design criteria package is to furnish sufficient information to permit design-build firms to prepare a bid or a response to an agency's request for proposal, or to permit an agency to enter into a negotiated design-build contract."

Given the DCP's pivotal importance to the success of a design-build project, Florida law directs a local government to retain its own engineer or architect to prepare the DCP. Subsection (9)(b) of the Act says, "The design criteria package must be prepared and sealed by a design criteria professional employed by or retained by the agency." For the Palm and Hibiscus project, the City selected Stantec Consulting engineer Jeffrey Crews as the project's designated Design Criteria Professional.

To ensure that the construction plans reflect the DCP's directions, design-build contracts provide for a periodic review of the construction plans by the owner at the 30%, 60%, 90% and 100% stages of completion. Changes to the project's design, specifications and construction plans occur during both phases, and can have financial, legal, or operational implications for the owner and builder. To document and manage changes during a project, CIP uses an online Request for Information form that is uploaded to eBuilder. In the Palm and Hibiscus project, Lanzo Construction Manager Bob Beaty and Wade Trim Engineer Daniel Garcia submitted RFI's with queries or proposed solutions. Crews managed the RFI process and responded on behalf of CIP.

Florida law and the Miami-Dade Code govern the construction of stormwater drainage systems that empty into bodies of water. Like those of CIP and most general contractors, the procedures and practices of the SFWMD and DERM also closely align with the design-build process. To ensure the integrity and reliability of the permitting process, Florida law and Section 24-48 of Miami-Dade Code also govern the role of a design-build project's Engineer of Record. Pursuant to the Florida Administrative Code, the professional responsibility rules for licensed engineers require that an Engineer of Record "personally makes engineering decisions or reviews and approves proposed decisions prior to their implementation, including the consideration of alternatives, whenever engineering decisions which could affect the health, safety and welfare of the public are made."

For a stormwater drainage system, the Engineer of Record's primary responsibility is to prepare, sign, and seal the final plans at the end of the project's design phase, and certify to permitting agencies that the plans are accurate and, in particular, that they do not cause harmful flooding or negatively impact adjacent property. In order to perform this responsibility, the rules require that the Engineer of Record "shall be completely in charge of, and satisfied with, the engineering aspects of the project,… shall have the ability to review design work at any time during the development of the project," and should make final decisions about the "selection of engineering alternatives."

The Palm and Hibiscus project was the City's first attempt to use a "Progressive Design-Build" project delivery model. This approach is a variation of the standard Design-Build contracting process. According to a primer published by the Design Build Institute of America (DBIA), the Progressive Design Build model is an "excellent option when an owner wants to use design-build but remain actively involved in the design decisions" and also wants greater control and "transparency into the design-builder's proposal cost (including the pricing for risk and contingencies) and the ultimate cost for final design and construction."

The project is awarded in two phases. During the Pre-Construction Design phase, the design build team's engineers prepare construction plans based on the DCP. According to the DBIA:

> At the point in time where the design has been advanced to an appropriate level of definition that aligns with the owner's requirements, the design-builder will provide a formal commercial proposal (including the overall contract price) for Phase Two services. The proposal is often established when the design is approximately 40 to 60 percent complete, but it can occur anytime (including as late as 90 to 100 percent

design completion), depending on the amount of control the owner desires to maintain over the design definition.

The Final Design and Construction phase is awarded based on a lump sum Guaranteed Maximum Price (GMP). According to the DBIA primer, "Once the owner and design-builder agree upon commercial terms (including the project's price and schedule), the design-builder will complete the design and construction of the facility in accordance with those commercial terms."

The City's contract with Lanzo provided CIP with the maximum period of control over the design of the construction plans. The Phase I Preconstruction and Design Phase required submission of construction plans at the 30%, 60%, 90% and 100% stage of completion milestones. It said final payment would be withheld until all permits were issued based on a final 100% plans signed and sealed by the Engineer of Record. Further, the City's contract made Lanzo responsible for obtaining all permits. It said, "The Design-Builder shall be responsible for obtaining all necessary licenses and permits not being provided by the City, and for complying with Applicable Laws in connection with the prosecution of the Work."

As set forth below, the responsible City officials said in interviews that they were not responsible for obtaining permits or complying with the requirements of DERM and SFWMD. In an interview, Assistant City Manager Eric Carpenter, who signed the City's permit applications, said, "The permit submittal process is one that is required of the design-builder. The design-builder puts together the design, puts together the permit packages, and then typically would submit those permit packages to the City. The City, as the owner needs to execute the permit before DERM will review it."

C. (Feb. – March 2012) The City selects an engineering firm to prepare a Design Criteria Package (DCP) for the Palm and Hibiscus project

On Feb 8, 2012, the City Commission awarded a contract to Stantec to produce a Design Criteria Package (DCP) for the project. Crews was the project's designated Design Criteria Professional. Under Florida law, cities that use design-build contracts for public construction projects are required to begin the process by developing a Design Criteria Package (DCP). The DCP is a foundational document in which the City spells out what it wants the general contractor to build. The law requires that a DCP "must specify performance-based criteria for the public

construction project" and provide "…conceptual design criteria of the project, cost or budget estimates, design and construction schedules" and other metrics.

The DCP is used at every stage of a design-build project: by the City to solicit Request for Qualification proposals from general contractors; by design-build firms to prepare bids for the pre-construction design phase contract; by design engineers to prepare construction plans; and by Design Criteria Professionals to verify a project was built to the City's specifications.

Given its importance to the success of a design-build project, Florida law requires that cities retain their own Design Criteria Professional to prepare the document and "to serve as the agency's representative" to assist in supervising and approving "detailed working drawings of the project; and for evaluation of the compliance of the project construction with the design criteria package."

The City's contract with Stantec included tasks that are material to this investigation, including the clarity of the DCP's criteria and the obligation to obtain the approval of permitting agencies. For example, it required Stantec to finalize all design criteria (clearly defining the entire scope of work to be performed) to be utilized by the contractor to bid, design and construct the Project. The contract further required Stantec to address issues related to infrastructure design analysis and performance specifications. More specifically, the contract required that in preparing the DCP, Stantec "shall seek the approval of the DCP" from the permitting agencies including DERM and SFWMD.

On March 22, 2012, Crews met with engineers in DERM's Water Control Section to describe the Palm and Hibiscus project and determine the types of drainage solutions the agency would be inclined to permit on islands surrounded by Biscayne Bay. He also inquired about the type of drainage studies DERM would require for the project. A drainage study measures the performance of a drainage system, including its ability to prevent flooding. Engineers use software approved by the Federal Emergency Management Agency (FEMA) to model the expected hydrologic and hydraulic performance of a proposed drainage system during a hypothetical extreme weather event known as a design basis storm.

Drainage studies produce two measurements that regulators use to approve drainage systems. The first measures the total quantity or volume of stormwater the proposed system could be expected to remove during a 24-hour storm. The second measures the capacity of the system to

retain the first inch of rain during a storm, considered the most polluted, and prevent its discharge into a body of water.

After his meeting with DERM, Crews produced minutes that said in part, "The area considered for water quality is the footprint of the Right-of-Way. Contributions from the properties do not need to be considered." The minutes indicated that DERM was open to the use of a relatively new water technology that enabled the use of pumping stations equipped with water quality treatment systems instead of methods like traditional gravity wells to retain the first inch of stormwater on site. The minutes said, "Stormwater treatment units (centrifugal) is an option for the County but SFWMD (South Florida Water Management District) is still reviewing them. They have accepted one specific unit that includes filtration as part of the treatment."

D. (Dec. 2012) Stantec drainage study concludes it is "not possible" to raise the elevations of North and South Coconut Lanes because of unusually low elevations of adjacent houses

Stantec and Crews used the City's newly updated tailwater boundary design criteria to develop a DCP and initial 30% construction plans for Palm and Hibiscus Islands. The starting point was a voluminous Design Basis study of the two islands. It explained that the pre-construction stormwater drainage system on west Palm Island, which the City intended to replace, had used North and South Coconut Lanes to collect stormwater runoff from private lots and channel it to drains and catch basins.

The Design Basis study said, "Coconut Lane is a two-way road that extends around Palm Avenue on the west half of the island. It is surrounded by residential properties and outlined with a flush concrete curb through its entire length. The pavement has an inverted crown section that slopes toward the center, where runoff from the right-of-way and adjacent areas is collected by intermittently located catch basins."

The design of the existing stormwater drainage system before construction is material to this investigation. The original system was outdated and routinely overwhelmed by severe storms and seasonal king tides. However, because the elevation of North and South Coconut Lanes was generally lower than the adjacent houses, the inverted centerline of those roads allowed the

"positive" flow of stormwater from private lots into right-of-ways and roads for collection by the drainage system. Before DERM can issue a Class II permit to build a new public or private drainage system, Miami-Dade Code 24-48 requires a project's Engineer of Record to certify that the new drainage system will not create a "Harmful obstruction or undesirable alteration of the natural flow of the water within the area of the proposed work" or harm to adjacent property.

Crews and his colleagues at Stantec produced a DCP and prepared a 30% set of construction plans. Thereafter, they conducted drainage studies of the proposed drainage system to determine if its expected performance would meet regulatory standards. The results were summarized in a December 2012 Drainage Analysis report that described the terrain and geological challenges of building a stormwater drainage system on west Palm Island. It said, "Soil permeability within the project site is poor and the site has extremely low ground elevations. High ground water and tidally influenced groundwater levels lead to flooding the site under minimal rainfall. High tidal elevations during Proxigean spring tides (two weeks during spring and fall) often compound the issue by forcing seawater back into the drainage system and over the pavement surface."

Ultimately, Stantec and Crews designed a modern stormwater drainage system with larger pipes, new catch basins, refurbished swales, rebuilt curbs and gutters, and resurfaced roads. The construction plans included one automated pumping station equipped with a water treatment unit and injection wells to handle the first inch-and-a-half of rainfall (providing for either on-site retention or treatment of stormwater before discharge. The DCP said:

> All road right-of-ways within the limits of the Project shall receive upgraded drainage to include new piping, catch basins, manholes, outfalls, centrifugal treatment units and pumped drainage wells…The proposed drainage improvements for Palm Island consist of a collection system of catch basins, manholes and conveyance pipes along the long axis of the island. At either end of the island, the collection system connects into stormwater pump stations discharging into pressurized drainage wells. Existing outfalls are maintained as existing and interconnected to the new system. Each outfall and well is protected with tide-flex valves and stormceptor units for quality treatment.

However, the one option that Stantec and Crews firmly ruled out was raising the elevation of roads on Palm Island by more than two inches. The Drainage Analysis report said, "Palm Island has extremely low road elevations below Proxigean spring high tides…Some areas will be raised minimally (up to 2") but major grade changes in this area

were not possible due to the low elevations of yards, garages and even finished floor elevations of the adjacent homes."

E. (July – Dec. 2013) City approves DCP by Stantec and Crews; selects Lanzo as qualified general contractor for Palm and Hibiscus project; estimates total cost at $9.4 million

From the outset, the City's Capital Improvement Projects (CIP) office managed the project for Public Works. Stantec and Crews helped CIP draft the Request for Qualification solicitation based on the DCP. Five contractors submitted proposals. Two members of the Homeowners Association representing Palm and Hibiscus Islands served on the committee that selected Lanzo Construction Co. Florida as the highest ranked bidder.

On July 17, 2013, the City Commission authorized CIP to begin negotiations with Lanzo for the project's design phase or "Phase 1 – Pre-Construction and Design." In August 2013, CIP notified Lanzo that the City estimated the project's cost at $9.4 million dollars, based on the Stantec DCP and 30% plan. Lanzo countered with a proposed lump sum price of $10.4 million, including $599,464 for the project's design phase. In a Letter to the City Commission dated Sept. 18, 2013, City Manager Jimmy Morales provided a timeline for the Palm and Hibiscus project with a completion date in August 2015.

By the end of 2013, the City had approved a 20-year, $200 million plan to modernize its stormwater drainage system. It had completed projects in the Normandy Shores Neighborhood, Nautilus Neighborhood, Sunset Islands I & II, and South Pointe II, installed pumping stations in Sunset Harbour and other areas, and was managing other projects in various stages of development, among them the Palm and Hibiscus project. On May 3, 2013 the City awarded Lanzo a $2,040,459 contract to upgrade three existing pumping stations in Sunset Harbour.

Nevertheless, flooding of streets from storms and seasonal king tides remained a frequent and frustrating part of life in Miami Beach. During the 2013 mayoral race, Philip Levine made the issue of combatting sea level rise the centerpiece of his campaign and was elected with a strong mandate to accelerate the City's efforts to reduce current flooding and counter the future effects of climate change.

F. (Jan. – Feb. 2014) Mayor Philip Levine elected with mandate to accelerate and expand the City's efforts to reduce flooding

On January 6, 2014, newly elected Mayor Philip Levine sent an email to City Manager Morales and members of the City Commission wishing them a Happy New Year and declaring, "Because the flooding epidemic on Miami Beach is of such great importance and must be tackled on an emergency basis, I have formed a Blue Ribbon Panel on Flooding Mitigation consisting of qualified Miami Beach residents."

Attached was a memorandum establishing an advisory board that Levine vested with the mission, authority, funding, and staff to become involved in all aspects of planning, designing, and funding stormwater drainage and neighborhood infrastructure projects. The chairman of the panel was Scott Robins, a successful developer in Miami Beach. Under "Powers and Duties," the memorandum said the Committee shall report directly to the Mayor; use the services of a consulting engineer and City Attorney's Office; and contact staff at all levels of City government. City Engineer Mowry was the City's liaison to the Committee.

During the next three years, both Levine and Robins developed a close working relationship with Mowry, who functioned as the intellectual author and advocate for recommendations by the Committee that were later approved by the City Commission. The Committee held frequent meetings and required the attendance of the responsible City officials including Carpenter, Mowry, and CIP Director David Martinez. The City awarded a $7 million contract to the global engineering firm AECOM, which provided the Committee with its own consulting engineer, Thomas McGowan.

On January 30, 2014, in response to a query from an engineering contractor, Mowry wrote an email about prospective changes in the City's design criteria that he copied to Morales, Carpenter, and Martinez. It said, "We will be making several changes to the criteria over the next several months…The position of using mean sea level data is not appropriate because the tide has peak elevations that cause flooding. A peak tide event should be used in a design of any drainage system in the City…The City Commission, at their next meeting, will be considering the adoption of tailwater criteria of 2.7 feet NAVD for all projects in the City."

On February 12, 2014, the City Commission approved a resolution based on a recommendation to raise the tailwater boundary criteria to 2.7 feet above mean sea level. The resolution included the following:

> WHEREAS, the City's Stormwater Management Master Plan (SWMMP) takes into account climate change and estimates of projected sea level rise over the next 30 years and, as a result, for all new projects, a sea level elevation of 2.7 feet NAVD88 (based upon the South Florida Climate Change Compact projection) is being used for stormwater design purposes and an elevation of 5.7 feet NAVD88 (a vertical control datum established in 1991 used to define elevations) is being used as a minimum for public seawall elevations;

Typically, formal recommendations of the Mayor's Blue Ribbon Committee on matters of policy or design criteria were presented at meetings of the Flooding Mitigation Committee and forwarded to the Commission for action without a Letter to the Commission. This process bypassed the City Administration's usual process and did not require review and approval by former City Manager Morales or his input. During an interview with OIG staff, Morales said, "Your observation is correct. The Mayor's Clmmittee was very proactive, met frequently, worked with staff, and their recommendations usually went straight to the Commission. But in fairness, with the analysis done usually by the City staff and AECOM."

In addition to recommending policy changes to the Commission, the Mayor's Committee also weighed in on decisions about specific projects. According to CIP Director Martinez, the Mayor's Committee operated on two levels, recommending policy to the Commission, and weighing in on decisions about specific projects. Martinez said in an interview, "then it became 'What projects do we implement that on? I believe that part of those things really only came from a directive from the panel through Public Works to CIP saying, 'OK, on this project, we're not going to implement the road raising, and we're only going to do this on this one. We're going to do it all on this one.'" (Emphasis added)

During meetings with City staff, the Committee discussed the risk that elevating roads in Palm and Hibiscus and other low lying neighborhoods would cause new flooding and create a need for change in City policy to allow privately-owned, or private-side, stormwater drains to connect to the City drainage system. Consistent with the authority Levine had vested in the Committee, Robins communicated directly with Carpenter, Martinez and Mowry and was consulted about how and to what extent the new design criteria should be applied to specific neighborhoods.

To the extent that Robins was viewed as Levine's representative, his frequent interaction with Public Works staff and AECOM consultant McGowan lends credence to statements by former

City Manager Morales that he was not aware during 2015 and 2016 that the drainage system on Palm Island was at that time being designed to accommodate private-side yard drains.

During an interview with OIG staff Morales said, “I think Palm and Hibiscus was the first project where we did road raising in a single-family neighborhood. And that highlighted the issue then of, as we're raising the road, how we are impacting the properties. So, the requirement to, I believe, connect individual properties to our system was well into the project. It was not something that had been part of the original project.” When shown the exhibits described below, including the Kremers plans, Morales said, “I had no idea…the engineers and the team, whatever, whoever it was, already had that in mind from day one and lied to DERM about it. That's news to me.”

Meanwhile, CIP and Lanzo were still negotiating a price for the design phase of the Palm and Hibiscus project. On Feb. 27, 2014, Lanzo proposed a lump sum price of $599,464 for the project’s design phase based on the DCP developed by Stantec’s Crews that did not take into consideration the new design criteria for local sea level.

G. (Jan. – Sept. 2014) The City and Lanzo struggle to incorporate new road elevation design criteria over fears that raising roads will cause new flooding; under pressure from Homeowners Association, City awards Lanzo a contract for the project’s design phase without a finished DCP

On July 1, 2014, at a pre-design meeting, Mark Tomczyk, CIP’s Senior Project Manager for the Palm and Hibiscus Project, explained to Lanzo representatives how the changes in design criteria, based on the Committee's recommendations and the City Commission's consent, would affect the project. During the meeting, he circulated a new version of the DCP that incorporated the new design criteria and included raising roads and installing yard drains.

After the meeting, Crews sent an email to Public Works with his concerns about raising road elevations higher than the finished floors of homes on west Palm Island. Assistant City Engineer Douglas Seaman responded by suggesting the possibility of relaxing the elevation requirements in areas with lower elevations, subject to Mowry's approval: "We will need to look on a case by case basis at any location that cannot meet the above criteria and provide a variance," Seaman wrote.

By August 2014, the Palm and Hibiscus Homeowner Association's CIP Oversight Committee had grown impatient over the delay in awarding Lanzo a contract for the project's Pre-Construction Design or Build phase. On August 17, 2014, HOA President Pierre De Agostini sent a lengthy email complaint to Levine that he copied to Morales, City Attorney Raul Aguila, Assistant City Manager Mark Taxis (who oversaw CIP and Public Works at the time), Martinez, Tomczyk, and others. De Agostini's letter said, "The lack of progress on this negotiation is very disturbing. By now, a contract should be worked out with the firm chosen as the 1st. We need to move on with this! Mr. Mayor, please push this contract negotiation to finalization! Our residents would be most grateful."

Levine forwarded the email to Morales with a message that said "Not sure what is going on here but getting really bad feedback from these folks over this situation. Can you please intervene?" Morales emailed City Attorney Aguila with the message, "Let's discuss tomorrow with David," a reference to CIP Director Martinez. Subsequent events indicate that De Agostini's inquiry added pressure on City officials to accelerate work on the project.

One source of delay was a decision to have another engineer assume responsibility for incorporating the new design criteria into the project's DCP. At the direction of the Mayor's Committee, on August 28 the City Administration transferred this task from Stantec's Crews, CIP's Design Criteria Professional, to AECOM's McGowan, the Committee's consultant who was assigned to Public Works.

A significant challenge was developing language that gave the design-build team direction in preparing construction plans that included raising the elevation of roads. Public Works engineers and the engineers on the design team had not developed an engineering solution to prevent newly-elevated roads from flooding adjacent properties. One roadblock was the lack of basic data. While Carpenter, Mowry, and Martinez had discussed the challenge that elevating roads in west Palm Island could cause new flooding of the adjacent private lots, Public Works and CIP had not obtained a survey of the first finished floor elevations (FFE) of houses on North and South Coconut Lanes in that area. Without a current survey, it was difficult to estimate how high roads in west Palm Island could be raised without trapping stormwater on private lots. In a written response, AECOM engineer McGowan said, "This information was unavailable at the time the DCP language was requested, therefore, some flexibility in the DCP language was necessary."

Given the potential costs and technical difficulty of raising road elevation, and the lack of a engineering solution to mitigate the flood rise, the City and Lanzo did not have sufficient information to estimate the technical difficulty or cost of preparing the project's construction plans or engineering services.

During an interview, former City Manager Morales said, "**there was a lot of political pressure to move these projects along. Mayor Levine got elected in part on a sort of flooding mandate and quickly formed this Blue Ribbon Panel…there was a tremendous amount of pressure to move these projects forward."**

Under pressure to proceed, the City Administration decided to award a contract based on Lanzo's estimated cost of the outdated DCP that Crews had prepared in 2013, which had not included the elevation of roads, while McGowan continued his work on the revising the DCP. On Sept. 17, 2014, the Commission approved a $599,464 contract to Lanzo for Pre-Construction Design phase of the project. A Sept. 23, 2014 Scope of Service, which described the tasks Lanzo had agreed to perform, reflected the DCP's unfinished state. For example, it said that "all road right-of-way within the limits of the Project shall be constructed to newly targeted elevations as requested by Owner [City]," but did not specify the targeted elevation. Regarding the minimum grate elevation, the Scope of Work said the lowest grate of storm drain "shall be established where reasonably possible at elevation 2.78' (sic) NAVD." Regarding the risk that raising roads would obstruct the historic flow of stormwater and cause new flooding, the document said, "Additional design considerations will be made to maintain positive drainage from the private lots," again, without specifying an engineering solution.

The decision to award the design contract to Lanzo without the benefit of a finished DCP placed additional pressure on City staff who were responsible for the project. It also foreshadowed other decisions the City Administration would make to accelerate the contracting process and override contract provisions or internal controls embedded in CIP's process for managing design-build projects. During an interview, CIP Director Martinez said, "There was no saying no," he said, to the pressure and imperative to accelerate the project. "There were no other options. That was the mandate and that's how it's going to be."

H. (Oct. – Nov. 2014) The City approves a DCP that fails to provide clear direction for preparing construction plans; CIP Consulting Engineer Crews warns that some DCP requirements may not be possible

The Homeowners Association recognized that the Sept. 14, 2014 award of the design contract to Lanzo Sept. 14, 2014 was half-step forward and did not mean the project's design phase and preparation of the construction plans would get underway. Revision of the DCP remained a work in progress. Nevertheless, the residents were eager for that work to begin. On Oct. 6, 2014 Tim Rose, then serving as the group's executive director, pressed CIP Director Martinez for an update in an email that said, "We can't wait. Don't keep us hanging."

In his response, Martinez said, "The extent of design changes, covered by the design criteria package (DCP) is currently being reviewed by the City's consultant." This was a reference to McGowan. His work on the DCP continued through the balance of October. Notwithstanding the DCP's unfinished status, on Oct. 14, 2014, the City Administration proposed adding $251,016 to Lanzo's award for the design phase.

In a Letter to Commission, Morales attributed the need for more funding to McGowan's work and "subsequent review by the City Engineer's office" that determined "additional modifications to the DCP were required." The following day, the City Commission adopted Amendment #1 to Lanzo's progressive design build contract, bringing the total award for the pre-construction design phase to $850,480. It said, "the City's Public Works Department has requested that staff implement the enhanced stormwater system criteria and, further, that "upon receipt of AECOM's review comments (October 31, 2014) and a subsequent review by the City Engineer's office (November 3, 2014), it was determined that additional modifications to the DCP were required."

On Nov. 4, 2014, Crews received the approved DCP from Public Works as a fait accompli and found that it still lacked clear guidance for implementing the elevation design criteria. On November 5, 2014, Crews forwarded the DCP to CIP, Lanzo and Wade Trim in an email that said, "Please find attached the final DCP the City is moving forward with. In trying to get final comments from Public Works, they ended up substantially rewriting the Drainage section. The text deviates some from previous intentions…but we have to move forward with the understanding that this document represents the ultimate requirements as dictated by Public Works."

Crews included comments to the sections related to the elevation criteria that indicated McGowan and Public Works had again postponed decisions about whether and how to apply the new road elevation requirements. “Decisions about how to apply the design criteria would be determined after Lanzo had completed a survey of the first finished floor elevations. Crews wrote, "I think many of these implications will become clearer as we get the survey and progress further through the project. In the end, I think these will sort themselves out as we continue through. The City is intending to move forward with this version. Further comments and responses are only going to slow things down and ultimately, we won't know the implications until we get farther."

The DCP established a new Level of Service that was based on “24-hour storm event totaling 7.5 inches of rainfall” during a design basis storm. The proposed drainage system was required to limit maximum flood levels to an “an elevation not greater than the lowest crown of road elevation within a drainage basin, or be within twelve (12) inches of the lowest habitable FFE within the basin during the design storm event.”

For the purposes of conducting drainage studies and modeling the performance of the drainage system, the DCP established an area that encompassed most of the public land and private property on the islands, with the exception of backyards facing Biscayne Bay that tended to drain over seawalls. The DCP said, “For drainage design and modeling of the piping and pump station system, the drainage area shall be sized to account for, and reflect the actual contributory area – and shall include at a minimum all road rights-of-way, 100% of interior (landlocked) lots and 50% of waterfront lots.” Drainage studies calculated two measures, the quantity of volume of stormwater the system was designed to handle, and the capacity of the system to meet water quality standards.

Regarding the second standard, the DCP said, “Water quality treatment shall be provided for the road right-of-way and adjoining commercial properties and exclude residential lots (treatment area).” Further, it said “Water quality volumes shall be determined based on a treatment depth of 2.5 inches times the percentage of impervious area over the treatment area. This volume shall be increased 150% for discharge into Outstanding Florida Waters,” an increase that meant the system was designed to provide water quality treatment for a larger volume of water. It indicated a system with a large capacity.” The drainage system would treat the stormwater using a stormwater treatment device that would be installed in each pumping station.

The ability to use pumping stations allowed the City to forego the use of traditional methods of retaining the first polluted inch of stormwater onsite. For the purposes of meeting water quality standards, the tributary area was large enough to allow for the collection of stormwater from the

residential lots “excluded” from design criteria. Similarly, the pumping stations were designed and equipped to treat all the stormwater collected from public and private land and meet DERM water quality standards for ultimate discharge into Biscayne Bay. In other words, the drainage system was sized to provide water quality treatment for stormwater from right-of-ways and private residential lots.

The DCP guidance on the project’s Level of Service was subject to change after the new FFE elevation survey. It said, "Flood Stages shall be limited to an elevation not greater than the lowest crown of road elevation within a drainage basin, or be within twelve (12) inches of the lowest habitable FFE within the basin during the design storm event." In his comments, Crews wrote, "This ties the maximum design flood of the 7.5" storm to the FFE. The maximum flood allowed is relaxed to allow full flooding…However the FFE comparison might be more critical. Since we don't yet know the FFE, we don't know how critical this limitation will be.”

Notwithstanding McGowan’s efforts and the additional time for revision, the DCP’s guidance on minimum elevations was open-ended and deferred resolution of the most difficult technical challenges. For example, the DCP's direction for applying the new criteria for stormwater drains said, “Minimum gutter elevation shall be established where reasonably possible at elevation 2.78' (sic) NAVD." The roadways section of the DCP specified, "Where practicable, minimum road crown elevations shall be 3.7 feet NAVD." In his comments, Crews wrote, "This seems more critical than before but is mitigated by the ‘where practicable’ clause." The DCP repeated the admonition that in the process of elevating roads and storm grates, the design-builder should not alter the historic flow of stormwater from the adjacent properties, saying “Additional design considerations will be made to maintain positive drainage from the private lots,” but failed to say how this should be done.

The next sentence in the DCP specified, "The maximum road crown in any given drainage sub-basin shall be twelve (12) inches below the lowest habitable finished floor elevation within the sub-basin." This suggested that an elevated road had to be at least a foot *below* the lowest first finished floor of adjacent houses. In his comments, Crews wrote, "This may not even be possible since the lowest FFE may already be lower than the max existing crown +12". We won't know until the survey. Since we are only really looking to raise the low areas, I don't see a scenario where we would be raising high areas any higher than existing conditions.”

The minimum grate elevation, or lowest acceptable elevation for a drain, was 2.7 feet above sea level or (NAVD). Like the minimum crown-of-road elevation criteria, this, too, was qualified in the DCP and left case-by-case discretion of the City Engineer: "Where practicable, minimum catch basin grate elevations shall be set above 2.70 feet, NAVD. Catch basin grate elevations below1.66 feet, NAVD shall not be permitted without prior approval of the City Engineer." The DCP's delegation to former City Engineer Mowry of the authority to make case-by-case changes in the design criteria would open the door to significant changes in the project's design criteria.

Crew's critique flagged a second issue in the DCP – the proposed use of right-of-ways to construct grass swales that would results in schedule delays and add to the project's cost. Given the generally poor permeability of the soil on both islands, Public Works viewed the creation of grass swales as a priority and essential to minimizing flooding of adjacent private lots. The relatively wide right-of-ways on Hibiscus Island and those alongside Palm Avenue offered one of the few topographic advantages that could be used to mitigate the risk that elevating roads would cause new flooding.

If the DCP's open-ended directions for applying the elevation design criteria and calculating Level of Service lacked specificity, the DCP's guidance for designing and building grass swales was unambiguous and clear. The DCP said, "The swales shall be graded gently, sloping from the edge of right of way without mounding or obstruction conveying the runoff into the inlets." And, further, that "The stormwater inlets shall be located on both sides of the streets, placed either in the valley gutter or adjacent to the valley gutter on the swale side of the gutter allowing runoff into the inlet structure." Additionally, the swales were intended to provide backup if a storm with more than 7.5 inches of rain in 24 hours overwhelmed pumping stations and caused maximum flood levels greater than the system's Level of Service. Thus, the DCP said, "The elevation of the swales shall match the elevation of the inlet structures to allow partial storage of excess runoff in the swale during heavy rainfall events."

Given the large number of trees and the hedges along the relatively narrow streets, the DCP allowed for leaving such "encroachments" in place if they did not disrupt the flow of stormwater to drains in the swales. The DCP said, "Placement of inlet structures should take into consideration existing driveways and trees that would remain, if they do not interfere with the street construction, utilities placement or the longitudinal stormwater flow in the swale." The DCP allowed no such accommodation for the many fences, gates, and other "encroachments" onto public land. Those

would be removed during construction and "…walls, decorative curbs, hardscape or any other forms of landscaping will not be allowed in the right-of-way."

In his comment, Crews wrote, "In other words, areas of the R/W get cleared if the Encroachment Analysis shows that it needs to be an official swale as part of the design."

Public Works was intent on having Lanzo build an effective stormwater drainage system on the islands. This put a premium on converting the right-of-ways into swales by clearing the right-of-ways as needed. In contrast, CIP was responsible for getting the project built on time and within the budget allocated by the Commission. CIP's process for managing road and stormwater construction contracts includes minimizing the impact on residents. After seeing the DCP, CIP staff anticipated objections from residents who valued their tree-lined streets.

Crews markup of the DCP criteria for swales reflected the views of CIP, Stantec's client. He wrote, "I think this found its way into this document from when they intended to completely clear the swales. The current intent is to discern on a case-by-case basis what can stay or needs to go through the Encroachment Analysis process."

Crews' observation about swales identified a second section in the DCP that would prove problematic. As set forth below, Rubio had completed a near-finished set of plans at the 90% that include extensive use of swales. This required the removal of trees and other encroachments from the right-of-ways. Upon learning of these plans, objections from the Homeowners Association disrupted the project's design phase and resulted in significant changes to those plans.

VI. THE DESIGN PHASE

A. (Feb. – March 2015) Engineer of Record Rubio begins preparing construction plans for the drainage system without clear guidance in the DCP for elevating roads; City tells Lanzo to assume all roads will be raised to 3.7 feet above sea level

On the afternoon of Feb. 4, 2015, the Lanzo design team filed into a CIP conference room for a team meeting. They were led by Lanzo Construction Manager Bob Beaty. With him was Holly Kremers, a vice president with the Wade Trim engineering firm and subcontractor to Lanzo, and Orlando A. Rubio, an engineer with the firm Craig A. Smith & Associates (CAS), a subcontractor

to Wade Trim. Between January 2014 and the end of 2018, Kremers was the “engineer in responsible charge” or Engineer of Record for all but two sections of the project’s construction plans.

The two exceptions were most important and technically challenging sections of the construction plans. These were known as the "Stormwater" section, which would contain engineering drawings for building the drainage system, including the pumping stations, and the "Hardscape" section, comprised of drawings for roads, right-of-ways, and other above-ground infrastructure. The two sections had to be closely aligned. The design of roads and right-of-ways would determine how well the new drainage system would prevent flooding during a design basis storm with 7.5 inches of rain in 24 hours. Rubio would serve as the Engineer of Record responsible for the two essential tasks of (a) preparing, signing, and sealing the Stormwater and Hardscape sections of the plans and (b) submitting the plans to DERM and SFWMD certifying their accuracy and compliance with applicable laws and regulations. Rubio’s designation as the engineer ‘in responsible charge.” With this role came the responsibility to approve all changes to the plans that involved public health, safety, and welfare.

The Lanzo design team was met by representatives from CIP and Public Works. CIP Senior Project Coordinator Mark Tomczyk and CIP Project Coordinator Olga Sanchez were responsible for managing the design and construction phases of the project with City Engineer Bruce A. Mowry. They were joined by Stantec’s Jeffrey Crews, CIP’s consulting engineer. Minutes of CIP progress meetings with the Lanzo team were prepared by the staff of one of the contractors, approved by CIP, and made part of the project’s record. Some minutes identified speakers; some did not.

Lanzo had not completed the new survey of finished floor elevations (FFE) and garages, but the earlier results had confirmed the fears of Crews and others about the unusually low elevation of houses on west Palm Island. The lowest FEE was 1.64 feet above sea level, more than two feet lower than new design criteria of 3.7 feet above sea level. Road elevations were generally lower. A pre-construction survey recorded existing crown-of-road elevations for South Coconut Lane that ranged from 1.15 feet to 1.83 feet above local sea level. For North Coconut Lane, the range was 1.05 feet to 1.75 feet above sea level; for the western end of Palm Avenue elevations ranged from 2.05 to 2.60 feet above sea level.

During the Feb. 4, 2015 meeting, the City staff discounted the importance of the first finished floor elevations of houses on west Palm island and told the design engineers that they should adhere to the minimum crown-of-road elevation of 3.7 feet above sea level. The minutes said, "City indicated that the road standard per the DCP is to be maintained and that existing FFE will not dictate the proposed road grades." In addition, the minutes said, "City advised to assume entire roadway design will consist of 3.7' NAVD for minimum crown elevation and 3.7' NAVD sidewalk elevation where practical. City advised that for residences with extremely low finished floor, a formal City ruling process will have to be taken for adjacent roadway design and harmonization treatments."

The next day, CIP staff and members of the Lanzo design team, including Rubio, the Engineer of Record for the stormwater section of the plans, met with DERM's Water Control Section staff, including Senior Engineer Mayra de Torres who would conduct the agency's review of the City's application for a Class II permit. The Miami-Dade agency encouraged such consultations to avoid permitting delays.

Rubio led the briefing, according to minutes prepared by Wade Trim. He described the City's plans to use three automated pumping stations equipped with a stormwater quality treatment device known as a Downstream Defender. These devices were a relatively recent innovation in the design of stormwater drainage systems. They were designed to screen out pollutants and solid objects as water passed through the pumping stations. Rubio explained that drainage studies, which estimated the capacity of the proposed system to prevent flooding and meet water quality standards, would be based on 100% of rain in the right-of-ways, 100% of the landlocked lots, and 50% of waterfront lots.

On the morning of Feb. 18, 2015, Lanzo Construction Manager Bob Beaty uploaded RFI #10, "Roadway and sidewalk elevation criteria," to CIP's eBuilder system with the survey results of first finished floor elevations on west Palm Island attached. RFI# 10 summarized the still-unresolved challenges of incorporating the new elevation design criteria into the project without flooding adjacent properties. RFI #10 said:

> The City has directed the Design-Builder to increase roadway crown elevations and sidewalk elevations to a minimum of 3.7' NAVD. The current, ongoing field survey has recorded existing finished floor elevations of residences on Palm and Hibiscus Islands to be as low as 1.64' NAVD. **In addition, our landscape architect has advised that a significant number of trees will be impacted should a 3.7' NAVD minimum crown and sidewalk elevation be employed throughout the islands**…The challenges resulting from

> this design criterion which proposes raising roadway and sidewalk elevations including driveways will result in a significant increase in project cost, due to landscaping mitigation as required by permitting with Miami-Dade County, as well as driveway harmonization treatments and stormwater design for drainage basins with lower existing FFE. We request confirmation that it is the direction of the City to raise all roadway crown and sidewalk elevations throughout Palm and Hibiscus Islands to 3.7' NAVD. (Emphasis added.)

Beaty attached a photograph showing the right-of-way along Palm Avenue that contained numerous trees. Based on the new survey data, the City agreed to waive the road elevation design criteria for west Palm Island. Minutes of a CIP progress meeting the same day said, "City willing to accept designs that have elevations less than 3.7' NAVD, but not lower than 2.7' NAVD."

The City also agreed to waive the design criteria elevation requirement for the minimum or lowest elevation (2.7 feet above sea level) for drains or storm grates in the area, which was usually a foot or more below the road. The minutes said, "The freeboard criteria between lowest FFE and lowest grate elevation may be relaxed or compromised on a case by case basis so as long as the minimum road centerline elevation is not below 2.7' NAVD. City will respond to RFI."

To the Lanzo design team and CIP Consultant Crews, this compromise elevation brought the design criteria into closer alignment with actual conditions on west Palm Island. In the days that followed, though, Rubio found that flooding continued to occur at 2.7 feet above sea level and proposed lowering the centerline elevation by another five inches, to 2.2 feet above sea level.

On March 27, 2015, the Lanzo team sent CIP a 30% set of plans with the crown-of-road elevations in west Palm Island at 2.2 feet above sea level. The submission included the results of new drainage studies. Such studies use advanced software to model the expected performance of a proposed stormwater drainage system. The purpose of this computer modeling was to verify that the proposed drainage system would meet regulatory standards for water management to ensure the system (a) did not cause flooding of nearby properties; and (b) would meet standards of water quality to ensure the system would not pollute bodies of water, in this case Biscayne Bay.

The results of the drainage studies showed that the proposed system–with centerline road elevations of 2.2 feet above sea level on west Palm Island, and 3.7 feet for road roads elsewhere–would meet the requirements of the SFWMD and DERM, during a hypothetical severe weather event, known as design basis storm, with 7.5 inches of rain during a 24-hour period. In a report of the drainage study results, Rubio attributed the results to the lower road elevations, and observed

that the City had agreed to allow "flexibility" in using centerline road elevations lower than the minimum crown-of-road elevation of 3.7 feet above sea level.

AECOM's McGowan, the consulting engineer who was retained to provide the Mayor's Committee with technical assistance, was assigned to review Rubio's 30% plans on behalf of Public Works. The department's official comments on the 30% plans questioned the technical assumptions in Rubio's drainage studies: "The report suggests a need to relax the LOS (Level of Service) requirement of flood stages not exceeding the low crown of road or 12-inches below the lowest FFE in the basin. There is not enough information on the plans or within the calculations to support such a variance at this time."

B. (April 27 - May 26, 2015) The City Engineer Mowry agrees to waive road elevation criteria for North and South Coconut Lanes; City officials reach a consensus about the need for change in policy to allow public drainage systems to collect water from private lots.

On April 27, 2015, Lanzo Construction Manager Beaty uploaded a copy of Rubio's hardscape plans that showed road elevations on west Palm Island as part of RFI# 10. It said, "The roadway crown elevations that are below 2.7' NAVD have been highlighted. As can be seen from the Hardscape Key Sheet the low crown elevation locations are concentrated on the west half of Palm Island." On May 1, Crews provided a response from the City that said, "The City Engineer will evaluate the proposed elevations with City Leadership."

On May 6, 2015, Mowry responded to a query from Crews with an email that reiterated the City's willingness to allow the use of lower road elevations on west Palm Island, including 2.2 feet above sea level. The email said, "I have been thinking about the street elevations on the end of Palm Island that is very low. I still have concerns about building road elevations low enough to flood at high tides. I would recommend that we maintain the crown of road in this area only for the project to be designed to elevated to an elevation of 3.7 feet NAVD in the future, but we would set minimum crown of road of 2.2 feet NAVD when necessary to accommodate these low finished floor homes and yards. We could allow greater than 2% slope from crown to curb, maybe allow up to 3%."

For the Lanzo design team, the City's approval of the downward adjustment of an additional five inches in elevation was a critically important milestone. Fixing the minimum height of roads and storm grates was essential to completing other parts of the construction plans. CIP Consulting Engineer Crews said the City's waiver of the minimum design criteria and approval of a centerline elevation of 2.2 feet above sea level for North and South Coconut Lanes was a considered decision and the result of a successful negotiation between engineers from the City and Lanzo. In an interview with OIG staff, Crews said, "It would have been worse if we went all the way to 3.7. Imagine those roads with another foot and a half. Then it wouldn't be 100…properties that were underwater, it would be two hundred."

During meetings of the Mayor's Blue Ribbon Committee in May 2015, the minutes show that the responsible City officials repeatedly discussed the risk that raising roads on west Palm Island to the minimum elevation criteria of 3.7 feet above sea level would cause new flooding and, further, that they discussed changes in City policy that would allow the use of private-side yard drains to mitigate the consequences of road elevation. Minutes of the May 12th meeting show CIP Director Martinez "shared that an upcoming issue for residential neighborhoods will be flooding back onto private property when roads and sidewalks are raised. A policy needs to be adopted by the City Commission. Primarily, interior properties will be affected."

During an interview with OIG staff, City Engineer Mowry said the need to both raise road elevations and develop a policy that allowed the collection of stormwater from private lots was a consensus view that he, Carpenter and Martinez shared and discussed with Robins and members of the Mayor's Committee and with members of the Flooding Mitigation Committee. Mowry said the following:

> I can tell you that people such as Eric Carpenter were fully aware of this and was in agreement that we make these designs…So CIP, the Public Works Director and the City Engineer in the Blue Ribbon Committee, we're all in concurrence of this and that we wanted to be able to have this…This is this was not something done in the dark…CIP would have been very well aware of it and Stantec, who was also doing a review of it, was fully aware of the direction. And this did follow the policy in which I was being directed to implement at the time, because we were anticipating in the future that we would get a direction to be able to take water from private property…we put this in so that we had the flexibility to be able to make that connection in the future.

During an interview with OIG staff, Mowry said he assumed the design changes in October 2015 that required revision of the plans were communicated to DERM and SFWMD, and that he was not involved in the permitting process with either agency. More broadly, he said "there was

never any guidance" from Carpenter or Levine suggesting or directing that information be withheld from DERM. "Whenever I talked with any of them, they basically…wanted to be above board on everything. So there was no policy that I was aware of within the City or direction from management saying hide things."

In a written response to this report's finding, Carpenter, who oversaw Public Works at the time, denied that he had a conversation with Mowry regarding the decision that the former City Engineer announced Oct. 9, 2019 rescinding the waiver of the elevation design criteria for west Palm Island. In response to a direct question about whether he approved Mowry's decision, Carpenter's response was, "To my knowledge I was not involved in discussions regarding the inlet elevations on west Palm Island during this time period."

Regarding the City's Oct. 30, 2015 approval, conveyed by Mowry, of RFI #35 ("Private Property Drainage Water Accommodation") and Wade Trim's conceptual plans to build a drainage system with connection for private-side yard drains, Carpenter's written response said, "More than four years after the fact, I am not sure of when the initial discussions took place in relation to the Oct. 30, 2015 date but I was consulted on the need to provide stubouts to allow the possibility of future connections without disturbing work that needed to be done on the roadway."

During a CIP progress meeting May 14, 2015, the City staff reiterated that Rubio could set the centerline elevation of roads on west Palm Island as low as 2.2 feet above sea level. But when Beaty followed up with an RFI to confirm this commitment, the City's response came with a caveat. The answer from Crews said: "As noted, it was agreed to place segments of the roadway in the vicinity of low lying homes at a minimum centerline elevation at 2.2 feet…The agreement was to design the 90% plans with this criteria at which time the City will evaluate the impacts further. Please proceed accordingly."

During a May 26, 2015 meeting of the Mayor's Committee the discussion returned to the likelihood that elevating roads on west Palm Island would cause new flooding to adjacent homes. The minutes said: "Chair Robins said that there are 20 homes on Palm and Hibiscus Islands that are below the proposed new street elevation. If the streets are rebuilt at the current elevation the homes will end up below water and will also in time have to deal with ground water intrusion."

C. (June 2015) Lanzo submits 60% and 90% plans with west Palm Island road elevations at 2.2 feet above sea level; Lanzo submits lump sum estimate of $34,447,283; Homeowners Associations objects to clearing right-of-ways; CIP orders "pause"

Shortly before the 60% version of the construction plans was due for a milestone review, CIP and Lanzo met to review their joint understanding about the design criteria for the stormwater and hardscape sections of the construction plans. According to the minutes, CIP staff confirmed that the "minimum crown elevation of 2.2' NAVD is to be used for lower elevation areas in western sections of Palm Island along South Coconut Lane and North Coconut Lane," and, further, that CIP also agreed that in order to construct the swales Rubio had included in his plans, "hedges, bushes, etc. can be removed from the ROW without replacement…City reaffirmed that mitigation plan includes 310 trees cited in DCP."

On June 1, 2015, the Lanzo team submitted a 60% set of construction plans. At this point, the hardscape and stormwater sections of the plans Rubio had produced were nearly complete and included detailed technical specifications. The plans set the centerline road elevations at 2.2 feet in west Palm Island and converted most right-of-ways into grass swales with inlet drains. The following day, the Lanzo team sent CIP a Draft Guaranteed Maximum Price (GMP) of $34,447,283 based on 60% plans. The GMP included more than 400 pages of estimates from subcontractors and unit prices for building materials. It was accompanied by a draft technical specifications document and construction schedule of 18 months, and the list of assumptions Lanzo had used to develop the estimates.

The assumptions were based on directives in the DCP and CIP's modifications of the design criteria through the RFI process. Assumption #17 ("Existing landscape will be removed to accommodate Swales") described the main requirement for converting the limited open ground in right-of-ways to grass swales with drains. Because this would entail clearing the right-of-ways of many trees, hedges, gates and fences, the other assumptions included planting 310 trees after construction and a plan for re-landscaping. Taken together, the 60% plans with technical specifications and the lump sum estimate and construction schedule described how the project would be built, how much it would cost, and how long it would take to finish.

The City's comments on 60% plans illustrated the difference in priorities between Public Works, which was focused on designing an efficient drainage system, and CIP, which was intent on minimizing conflicts with residents that would make it harder to build the system. The comments from Public Works said Rubio's drainage studies "did not indicate whether the project's expected "Level of Service is being provided, or if the pumping systems are large enough." A comment from CIP said, "The proposed drainage/roadway work appears to impact numerous trees and/or palms," and asked about plans to plant trees elsewhere on the islands.

D. (June 2015) Lanzo submits 90% plans, with Rubio's near-finished stormwater and hardscape sections; Homeowners Association objects to clearing right-of-ways to build swales; City postpones milestone review

On June 19, 2015, Lanzo submitted a 90% set of plans to the City. The stormwater and hardscape sections with Rubio as the Engineer of Record were at a "near-finished" stage for constructing a standard drainage system. The City had not objected to Rubio's extensive use of grass swales and setting the centerline elevation of North and South Coconut Lanes at 2.2 feet above sea level.

At this point, the stormwater and hardscape sections of the plans were essentially done. Over the course of six months and two milestone reviews, the stormwater and hardscape sections of the construction plans by Rubio proposed a stormwater drainage system, roads, and right-of-way infrastructure that complied with the DCP's directives about the design of swales and the City's modification of the road elevation design criteria.

Drainage studies based on these plans indicated that Rubio had proposed something that in December 2012 the Stantec Drainage Analysis had said was "not possible" for North and South Coconut Lanes. Where he could raise roads on Hibiscus Island and east Palm Island to 3.7 feet above sea level without flooding private lots, he did so. On west Palm Island, where the drainage studies showed that elevation would result in flooding of houses with low first finished floors, the City's waiver had allowed Rubio to propose raising North and South Coconut Lanes by six to ten inches above their existing elevation.

The drainage studies also indicated that the two pumping stations on Palm Island would provide a dramatic improvement in the Level of Service over the existing drainage system and prevent flooding of streets during a storm with up to 7.5 inches of rain in 24 hours. More extreme weather events with 10 or more inches of rain in a single day would still overwhelm the drainage system. Even in those worst-case scenarios, though, the proposed drainage system in Rubio's plans would remove floodwaters far faster than the gravity-based system it would replace.

The drainage studies showed that the new drainage system would meet the water quality and quantity standards that DERM and the SFWMD required for permitting. The computer modeling indicated it could remove all the rain that fell on public and private ground during a design basis storm, except for rain in backyards that faced the Bay. The drainage study also established that the proposed drainage system would not cause new or harmful flooding of private homes that had garages or first finished floor with elevations below 2.2 feet above sea level.

On June 15, 2015 the Commission approved a resolution to allow the Marriot Residence Inn at West Ave. and 17th Street to connect its stormwater drainage system to the City system. The After-Action minutes from the meeting said the resolution would serve "Until The City Approves Code Modifications To A Citywide Storm Water Connection Fee Program". In a written response, Carpenter that this was tantamount to approval to develop a policy to connect private yard drains to the City system. Carpenter's response said, "This, combined with the direction to size the stormwater systems to account for all of the inland lots and half of the waterfront lots, clearly demonstrates the direction if not the intent of the City Commission to include private properties in the adaptation plans, and not as an after the fact approval of modifications to the program…The City Commission gave direction to the Administration on June 10, 2015 to prepare a framework to allow private connections to the public stormwater system."

On June 19, 2015, the same day that Lanzo submitted the 90% construction plans, Senior Project Manager Tomcyzk received a letter from the Homeowners Association President, Pierre De Agostini, expressing strong objections to cutting down trees in the right-of-ways to construct swales throughout Hibiscus Island and parts of Palm Island. Members of the Association had learned of the plans to clear right-of-ways to build swales. "The fact that the City is planning to ask residents to remove from the right-of-way hedges and other plantings that have existed for generations, which will not physically affect the construction of this project, will be a very contentious issue," he

warned. De Agostini demanded a meeting with City Manager Morales "as soon as possible to resolve these important issues to our community."

The impact of the letter on the project was immediate. The same day, Wade Trim engineer Garcia notified Rubio and others on the design team that CIP had decided to stop work on the plans. The email said, "We have been directed by the City of Miami Beach to complete our responses to their 60% comments and then pause all design activities until we receive comments from the HOA Board on our 60% submittal." CIP postponed the 90% milestone review.

When Beaty learned of the HOA's objections and CIP's subsequent efforts to mollify the HOA by agreeing to change the plans, he used the RFI process to defend the swale-based design, and remind CIP that it was based on the design criteria that had been approved by the City.

On Aug. 8 Beaty uploaded RFI# 23 ("Swale Definition"), which said, "These swales are necessary to best ensure that rain water falling into the City Right-of-Way stays in the City Right-of-Way," and that building the swales meant clearing most right-of-ways of trees and other encroachments and rebuilding many driveways that extended into public land. Further, RFI#23 expressed Beaty's concern about verbal assurances that CIP had given the Homeowners Association about changing the plans.

RFI #23 concluded, "Landscape/Driveway area between the concrete valley gutter and the ROW Line will be preserved as much as possible. Please note that this may include the clearing of the entire Landscape/Driveway area if necessary for swale construction." He closed with an effort to elicit clear guidance from CIP, saying "Please confirm that this swale definition is acceptable to the City." CIP never provided a response to RFI #23.

Lanzo's budget included $500,000 for landscaping at the end of project. A landscaping contractor, Savino Miller, who was part of the design-build team, had prepared a landscaping section in the construction plans that provided for replacing the trees lost during the clearing of right-of-ways by planting trees elsewhere on the island. CIP had shared the construction plans with the HOA at the 30% stage of completion; during meetings with residents, CIP and the Lanzo staff explained the plans for clearing right-of-ways and mitigating the impact of that work.

Nevertheless, as a consequence of the complaints by the HOA, CIP postponed the 90% milestone review. As set forth below, the City decided to award a separate $500,000 contract for new landscaping and make changes to the design of swales in the construction plans. This was the

first of several significant changes to the drainage system's construction plans that were made at the request of the HOA. During an interview, Wade Trim engineer Thomas Brezinski, who led the Wade Trim team and handled negotiations with the City, said, , "I think the City started a job in one way and responded to what their residents wanted which has been the driver of all these changes. They've been reacting to the residents."

Those changes reflected the difference in priorities between Public Works and CIP that Crews had identified in the DCP and the hurried preparation of the DCP. Yet the changes also support a conclusion that, notwithstanding their support for construction of a modern stormwater drainage system that reduced current flooding, residents on the islands were not prepared to sacrifice the tree-lined ambience of the islands to the cause of building a stormwater drainage system designed to reduce future flooding caused sea level rise.

In a written response to the report, HOA President Ian Kaplan attributed the need for changes to poor planning by City staff. The response said, "The assertion that the Homeowners Association is responsible for delays in the project due to objections over the removal of trees is false. There was clearly a lack of adequate planning in the original plans to preserve the trees…Had proper planning taken place initially, no delays would have been encountered and the financial savings from minimizing tree removals would have been maximized."

E. (Sept. 2015) The City approves use of Rubio plans to obtain permits from DERM and the SFWMD; during king tide flooding, Mowry advocates for raising elevations of roads on Palm Island

On Sept. 16, 2015, Rubio emailed Carpenter a completed copy of the Miami-Dade County application for a Class II permit for his signature on behalf of the City as the owner of the construction project and applicant for the permit. Carpenter's assistant forwarded the permit application to Martinez and Mowry. Five days later, Wade Trim's Daniel Garcia emailed Rubio with a request that he send the permit's supporting documentation—the final design construction plans and the drainage study—to the City for review. "The City would like to fully review all documentation for permits prior to submittal to agencies," Garcia said.

During the final week of September, heavy rains caused extensive flooding on Palm Island and an unusually high king tide occurred that resulted in complaints from residents. On Sept. 26, 2015, a resident of Palm Island sent Mayor Levine an email with photographs of flooding around her house that began, "Thanks for taking care of the flood in Miami Beach but unfortunately you forgot Palm Island."

Levine forwarded the email to Mowry, Carpenter, and Morales with a message that said, "Plan?" Mowry contacted Lanzo staff who agreed to plug the outfalls and deploy a portable pump. In an email to Levine that he copied to Carpenter and Morales, Mowry wrote, "This is the recommendation for Palm Island. I believe we have put a pump on the island to at least show we tried. I will continue to recommend that raising elevations is the only solution to ensure a future for Miami Beach. This has been my recommendation since the first day I became the City Engineer." Later the same day, Mowry pressed his argument for raising the elevation of roads on North and South Coconut Lanes and amending City policy to allow the use of private-side yard drains. Mowry's email said:

> The neighborhood improvement project design for Palm Island is at a 60% complete (sic) with a proposed agenda item for action at the meeting in December/January for a contract to construct drainage with pump stations next year. The major problem we are encountering is the existing street elevations are below high tide and the older homes were built at low elevations. These owners are objecting to higher streets and this will result with streets that flood if they are not raised. We will need to develop a policy if we raise streets in these situations. The pumps will help but raising elevation is necessary to save the City.

On Oct. 5, CIP and Public Works had completed their review of the permit applications, the Rubio plans, and other documentation. CIP Director Martinez sent Carpenter the permits for his signature with a cover memo that said, "Backup documentation including water quality and water quantity calculations, drainage calculations and stormwater standard details to support this application are included in a CD attached to this request." On Oct. 6, 2015, a Tuesday, Carpenter signed the permit application on behalf of the City as owner and permittee.

F. (Oct. 9 – 12, 2015) City approves Mowry's decision to change elevation criteria, requires raising North and South Coconut Lanes additional 1.5 feet; design engineer concludes the higher roads will cause new flooding of adjacent lots

Three days after Carpenter signed the applications for permits based on the Rubio plans, Mowry met with CIP officials and Crews and announced that the City had decided to rescind its waiver of the minimum elevation design criteria requirements for west Palm Island that had set the elevation baseline for stormwater and roadway sections of those plans.

During a meeting with CIP staff on Oct. 9, 2015 Mowry explained that, in light of recent flooding during a king tide, he had decided to make the minimum grate elevation of 2.7 feet above sea level design criteria mandatory for all parts of Palm and Hibiscus Islands. This criteria established the lowest elevation for drains and had an impact on how high roads could be raised and how swales were built. The City's earlier waiver of this criteria had allowed Rubio to set the centerline road elevations of North and South Coconut Lanes at 2.2 feet above sea level.

In a written response, Mowry said Carpenter and other senior City staff approved the decision to change the elevation criteria for west Palm Island. Mowry wrote, "When the elevation changes were established for Palm Island, the City Engineer had to discuss these changes with the Director of Public Works for his approval. The Director of Public Works and I did have these discussions before I gave direction for the design of Palm Island to CIP." In a written response on this issue, Carpenter wrote, "To my knowledge I was not involved in discussions regarding the inlet elevations on west Palm Island during this time period" was not surprised to learn of the decision after the fact.

On Oct. 12, Crews notified Lanzo and Wade Trim of Mowry's decision and the change in elevation design criteria in an email titled, "Palm and Hibiscus Islands Directive." It said, "The City Engineer has directed that the absolute minimum elevation on the project be no lower than 2.7' NAVD at the grate elevations. Please design all roadways within the project area to meet this criterion."

The City made the decision knowing that the design engineers, including Engineer of Record Rubio, had concluded that the higher road elevation would cause new flooding of residential lots on west Palm Island. During an interview with OIG staff, CIP consulting engineer Crews said, "The major complication came with raising the roads because it inverted a lot of the properties that

had previously been higher than the road…[and] had natural gravity drainage to shed to the road." Crews said that "when the road went up, suddenly they were behind the dam…we were making their historical situation worse."

Wade Trim engineer David Mullen, the current Engineer of Record for the stormwater system, used a similar analogy to explain the expected effect of the City's decision. During an interview with OIG staff, he said: "Yes, the construction, the elevating of the roadway, would basically put up a dam in the middle of the roadway blocking the existing stormwater flow." Rubio also used the analogy of a dam-like barrier during an interview with OIG staff.

For Rubio, Mowry's decision and the risk, if not absolute certainty, that it would cause harmful flooding raised several issues, including one that implicated his responsibilities to approve and make design changes to the construction plans that would have an impact on public health and safety, and meeting the requirements of permitting agencies.

As a licensed professional engineer, Rubio's submission of the City's permit applications to DERM and the SFWMD crossed a threshold and entered a legal realm that is governed by Florida law and the professional responsibility rules for professional engineers, adopted pursuant to 61G15 of the Florida Administrative Code.

These rules are unusually detailed. They govern every aspect of the process from the layout of each engineering sheet to the requirement that every page of a construction plan bear the signature of the Engineer-of-Record, the date the page was signed, and that both be stamped with a seal with the engineer's license number. The bulk of the rules and their primary purpose are two-fold: (1) to establish the responsibilities and legal prerogatives of "the engineer in responsible charge" of drawing a project's construction plans, commonly referred to as the Engineer-of-Record, and (b) to ensure the credibility and trustworthiness of signed and sealed engineering documents that are submitted to the "Authority Having Jurisdiction" or regulatory agency, for the purpose of obtaining a construction permit based on the plans.

A handful of these rules are material to the events described in this section. Among the most important to regulatory agencies are the rules for verifying "who is in responsible charge for the preparation, signing, dating, sealing and issuing of any engineering document(s)" and ensuring that a permitting agency assume that the plans they review for the purposes of issuing a permit were prepared by a single engineer who is legally responsible for the accuracy of every document,

written representation or letter certifying the information that the agency relies on in deciding to issue a permit.

Given the importance of the Engineer of Record's role in protecting the integrity of the permitting process, the State's rules explain how to distinguish the "responsible engineer in charge" of preparing construction plans from other engineers who may contribute to a project's technical documents. "As a test to evaluate whether an engineer is the Engineer of Record, the following shall be considered…2. The engineer shall be completely in charge of, and satisfied with, the engineering aspects of the project. 3. The engineer shall have the ability to review design work at any time during the development of the project and shall be available to exercise judgment in reviewing these documents."

The policies and practices of the DERM and SFWMD are based on Florida law and are essentially the same. Both agencies rely on the accuracy and completeness of documents, information and certifications signed and sealed by the Engineer of Record. Both agencies will begin their review of an application based on unfinished construction plans but will not issue a permit until they review final plans signed and sealed by the Engineer of Record. In design-build projects these final plans are labeled "100% Final Design" that are approved by the project's owner after the final milestone review during a project's design phase.

After DERM and SFWMD issue permits for the construction of stormwater drainage system, both agencies have an unequivocal requirement that the project be constructed based on the signed and sealed final plans they reviewed and relied on in making the decision to issue a permit. DERM's Class II permit is issued subject to the following condition: "This permit only authorizes the grading and drainage work summarized in page 1 of this permit. Any additional work not shown in this permit or on the approved plans shall require additional Class II permit approval." Further, the DERM permit says that if the project is not built "in accordance with the conditions of the permit, the Code, or the approved plans upon which the permit was issued," then DERM can withdraw the permit and order that the work be stopped.

Despite the legal rigor of these requirements, both agencies acknowledge the operational reality that during the construction of a complex stormwater drainage system, general contractors often need to make minor adjustments, such as installing a fire hydrant on a different corner than originally planned.

Consequently, both agencies allow owners (in this case the City) and general contractors (Lanzo) to disclose minor changes at the end of a project when they submit an "As-Built" set of construction plans. However, this accommodation is limited to minor changes in the field that do not alter the project's design or require significant changes to the construction plans. The District's regulations state that, "Major changes, including changes to permit authorization or special or limiting conditions would require a permit modification before implementation."

A provision in the Miami-Dade Code requires that all applications for Class II permits include a "Letter of Engineer's Certification" affirming that the proposed stormwater drainage system will not create a "Harmful obstruction or undesirable alteration of the natural flow of the water within the area of the proposed work," or cause a "Material injury to adjacent property"

The evidence supports a conclusion that Rubio, Wade Trim engineers including Kremers, CIP Consulting Engineer Crews, City Engineer Mowry, and other engineers involved in the project knew, or had reason to know, there was a high probability that raising North and South Coconut Lanes a foot or more above 2.2 feet above sea level would disrupt the historical "positive" flow of stormwater from private lots and cause the "ponding" of trapped floodwater.

G. (Oct. 14 – Oct. 15, 2015) Mowry's decision requires complete revision of the Rubio plans; City decides not to provide new funding for that purpose or allow Lanzo time for that work; Wade Trim decides to terminate Rubio and Craig A. Smith & Associates as subcontractor.

The City's decision to raise road elevations required a complete revision of the near-finished stormwater and hardscape plans that Rubio prepared for the 90% milestone review in June. Raising the elevation of the drains and road by a foot or more would have an impact on other parts of the design.

In an initial assessment for Wade Trim, Rubio wrote that, "Driveway harmonization will be (and has been) a significant effort and is intensified by the higher elevation. Note: revisions to water main plans may need to be considered unless deeper installation of water main is kept as a result of the road being elevated." The change also meant that the results of drainage studies based on Rubio's 60% plans, which Rubio had just submitted to the SFWMD as part of the City's permit

application, would need to be revised. If elevations throughout the drainage system were raised by 1.5 feet, the results of the earlier tests would no longer be a reliable estimate of the drainage system's performance.

Further, Mowry's decision had financial consequences that were immediate. The change in criteria significantly increased the technical difficulty of the project. CAS assumed that Rubio would handle revisions of the stormwater and hardscape sections of the plans and sent Wade Trim a purchase order to pay for the additional engineering work on Oct. 15. Wade Trim rejected the purchase order and advised CAS that its own engineers would perform the revisions.

During an interview with OIG staff, Wade Trim's Brzezinski said his firm decided to have Wade Trim engineers do the revisions instead of Rubio because, at that point, the City declined to provide additional funding. Brzezinski said, "We were asked to finish the job for an amount of money that was less than what we wanted." In the weeks that followed, Wade Trim engineer Kremers began revising the stormwater section; Wade Trim engineer Carey Wright revised the hardscape section under Kremers' direction.

On Oct. 14, City Manager Morales submitted a Letter to the Commission (LTC) in support of Amendment #2 to the Lanzo contract, providing $73,400 for "additional design services." The funding request was not related to the City's decision to require the minimum grate and road elevations on west Palm Island. The funding sought under Amendment #2 was for changes requested by the Homeowners Association and the Fire Department, as well as those required by a new City ordinance that made it more difficult to cut down trees. This reflected the City's decision to override guidance in the DCP regarding swales that allowed the removal of trees that obstructed the flow of stormwater.

The LTC recalled that just eleven months earlier the City Commission had added $251,016 to Lanzo's design contract to cover the cost of incorporating the new stormwater design criteria into the construction plans, and noted that "the City's Public Works Department (PWD) has requested that staff implement the enhanced stormwater system criteria." Addressing the City Commission in support of Amendment #2, CIP Director Martinez said, "This is a progressive design build contract. We're strictly going through the design phase right now. There have been some additional design modifications that have come up that need to be incorporated into the design. So we're asking for this amendment for the design builder Lanzo Construction to continue and wrap up the design so we can bring up a guaranteed maximum price in December of this year."

Two aspects of the Commission's action are material to this investigation. First, Amendment #2 did not request funds for the additional engineering services required to revise the stormwater and hardscape plans based on the City's design changes. This would result in a decision by Wade Trim to terminate CAS as a subcontractor and assume responsibility for revising the Rubio plans. Second, declaring that the additional funds would enable the City to end the project's design phase by December and negotiate a GMP with Lanzo meant the City was not prepared to allow time for Wade Trim to prepare new construction plans and drainage studies.

VII. WADE TRIM'S SOLUTION

A. (October 2015) The City approves conceptual engineering solution developed by Wade Trim; adopts expedited design methodology that Mowry used as Engineer of Record for Sunset Harbour project

The City's decisions in October 2015 to change the elevation design criteria for west Palm Island, override CIP's project management process, discard the Rubio plans, and begin construction without a revised set of plans were not made in a vacuum or without considering the risks that the higher road elevations in west Palm Island would cause new flooding of adjacent private property.

These decisions were based on the confidence that the responsible City officials and their contractors had in an expedited design and construction methodology they had been using in a project in Sunset Harbour, the first project during Mayor Levine's tenure that included elevating roads above adjacent private lots and using yard drains to mitigate flooding.

During an interview with OIG staff, Carpenter said, "I can tell you that obviously we were in construction on Sunset Harbour at the time, we were learning a lot because we were actually building elevated roadways in a very constrained environment. And I am assuming that the team would have taken some of those lessons learned and tried to apply them to Palm and Hibiscus."

The responsible City officials viewed the Sunset Harbour project as an early success story and proof that they could manage the challenges of accelerating the design and construction of a

stormwater drainage project and develop innovative drainage solutions. Mowry ran the project; Wade Trim's Kremers designed the plans; Lanzo's Beaty was in charge of construction. By the last quarter of 2015, they had integrated the installation of pumping stations with water quality treatment devices, raised the elevation of roads by 6 to 30 inches, and installed 12-inch yard drains to collect stormwater trapped by the newly-raised streets.

In an interview with OIG staff, Beaty said the City's decision in October 2015 to raise North and South Coconut Lanes and Coconut Court a foot or more above the 2.2 foot height in the Rubio plans left the City with no alternative but to follow the Wade Trim solution. Beaty said, "You know as soon as you raise the road...you know you've got to do something to accommodate these people.... so they (the City) by design, they generated a problem that had to be dealt with."

During the final week of October 2015, Kremers and Wright had begun refining conceptual drawings for building a drainage system that connected to drains in private lots on west Palm Island. Starting with the standard drainage system in the Rubio plans, Kremers added an array of 12-inch PVC pipes ("laterals") that would extend out from the mainline pipe in the road to the edge of the right-of-way in front of each house. These could be used to connect a pipe that extended vertically up to the right-of-way or horizontally into the private lot. During an interview, Mowry said, "We wanted to be able to have this" to provide connection for private-side yard drains in the future.

On Oct. 23, Wade Trim engineer Wright finished a schematic drawing labeled "N. S. Coconut Lane Driveway Tie-in" that showed how private-side yard drains would be connected to the right-of-way drainpipes. Oct. 26, 2015, the day that CIP had set for submitting the 90% plans, was a turning point for the project. First, Lanzo sent the City a 90% set of plans that contained few changes to the stormwater and hardscape sections prepared by Rubio, and conceptual drawings by Wade Trim showing how the private-side yard drains would use the lateral pipes and right-of-way drainpipes to connect to the drainage system. Second, Rubio changed the designation of his 60% plans to "90%" plans, signed and sealed these plans, and submitted them to DERM as a supplement to the City's application.

B. (Oct. 30, 2015)- The City approves RFI# 35 (Private Property Drainage Water Accommodation") and Wade Trim's conceptual plans for a drainage system designed to connect with drains on private lots; City staff tell Homeowner's Association Commission will change policy to allow residents to connect yard drains to the City drainage system

On Oct. 30, 2015, Beaty uploaded RFI # 34 "Harmonization of Private Property". Included with the RFI were Wade Trim conceptual drawings showing how the private-side drains would connect to the drainage system. Beaty explained that the new design would ultimately require construction work in private property. Beaty concluded with language that sought to limit Lanzo's responsibility for additional work beyond the right-of-ways. The RFI said: "The Limits of Harmonization past the ROW and into private property will only include drive areas and only extend to the point of 7:1 grade transition to the existing grade of the drive area. Any further harmonization will be 'By Others,' including any necessary adjustments to gates, doors, entrance ways, etc. Harmonization will be limited to driveway transition as defined by the attached driveway restoration policy."

The same day, Oct 30, Beaty uploaded RFI #35, "Private Property Drainage Water Accommodation," and again attached a Wade Trim conceptual drawing showing how a private-side drain would connect to the public drainage system. (Figure No. 4)

He wrote, "The attached section for elevating roadways provides drainage accommodation for Private Surface Water Runoff. I understand from discussions that this drainage system should be 'Capped' at the Right-of-Way for future connection by the Private Property Owner. This future connection will include a check valve on the private property side to ensure City drainage water does not 'Back-up' onto private property. Future Connection will be installed 'By Others.'"

REQUEST FOR INFORMATION

PROJECT NAME: Neighborhood #13, Palm & Hibiscus Islands PROJECT No. F-430

RFI No. 035 Request for Information Date: October 30, 2015

TO: Jeff Crews, PE - Stantec, Olga Sanchez – Miami Beach CIP

FROM: Bob Beaty, PE, Lanzo

REFERENCES:

PLAN No. Sections SPEC SECTION: _____ SHOP DRAWING: _____

INFORMATION REQUESTED: Private Property Drainage Water Accommodation

The attached section for elevating roadways provides drainage accommodation for Private Surface Water Runoff. I understand from discussions that this drainage system should be "Capped" at the Right-of-Way for future connection by the Private Property Owner. This future connection will include a check valve on the private property side to ensure City drainage water does not "Back-up" onto private property.

Future Connection will be installed "By Others".

Please confirm this expectation.

_____ TITLE: Project Manager

REPLY:

Figure 4 RFI #35 "Private Property Drainage Water Accommodation" requesting confirmation of the City's plans to build a drainage system designed to provide private-side yard drains. (Emphasis added by OIG staff).

Attached to RFI #35 was a Wade Trim conceptual drawing showing how right-of-way drainpipes would be connected to yard drains in private lots. (Figure No. 5)

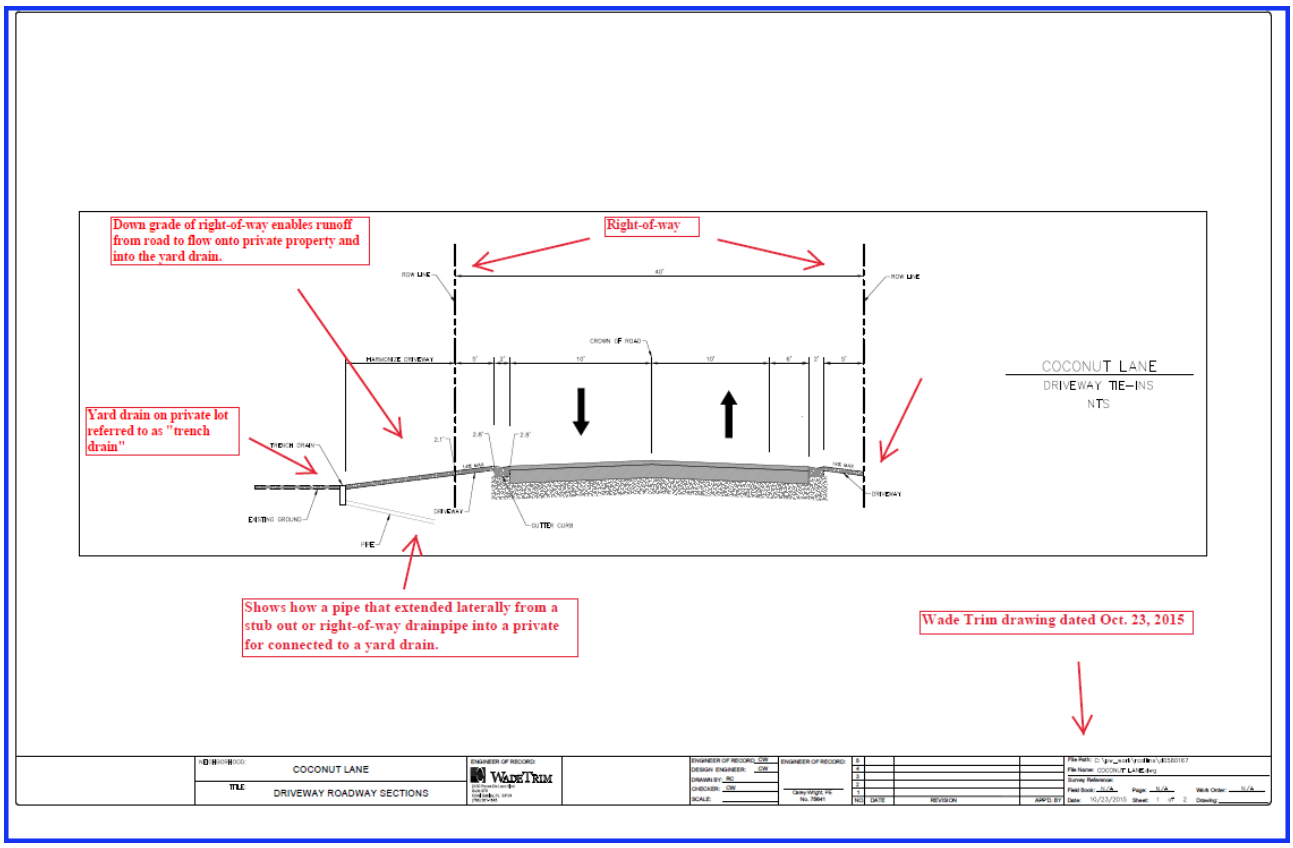


Figure 5 Wade Trim conceptual drawing attached to RFI #35 "Private Property Drainage Water Accommodation" that former City Engineer Mowry approved on behalf of the City. [Annotation added by OIG staff]

CIP Consulting Engineer Crews of Stantec, who administered the RFI process, forwarded the RFIs to Mowry who responded promptly: "The City agrees with the connection to be made as described in the RFI."

During an interview with OIG staff Mowry said, "This was not something done in the dark…CIP, the Public Works Director, the City Engineer and the Blue Ribbon Committee, were all in concurrence of this and that we wanted to be able to have this…I made those statements, but they were based upon the direction that was given to me as from management and from committee meetings that were going on"

During an interview with OIG staff, Carpenter said he did not recall when the decision was made to approve the redesign of the drainage system to provide for connections to private-side yard

drains. “I don't know at what point in relation to the contract execution that those concepts started to get circulated. I remember hearing about stub-outs from right-of-way drains, but I don't remember at what point those discussions started.”

Regarding the City’s Oct. 30, 2015 approval conveyed by Mowry of RFI #35 (“Private Property Drainage Water Accommodation”) and Wade Trim’s conceptual plans to build a drainage system with connection for private-side yard drains, Carpenter said in an interview he could not recall when he learned of the plans. In a written response, he wrote, “More than four years after the fact, I am not sure of when the initial discussions took place in relation to the Oct. 30, 2015 date, but I was consulted on the need to provide stubouts to allow the possibility of future connections without disturbing work that needed to be done on the roadway.”

The Rubio plans were the result of difficult negotiations that resulted in a standard drainage system that complied with the DCP. AECOM engineer Thomas McGowan, who prepared the stormwater and hardscape sections of the DCP and participated in review of the 60% and 90% construction plans by Public Works, said the Rubio plans were the result of a compromise. He said in a statement, “I attended several meetings at CIP including Rubio and Crews wherein the intent of the DCP language was discussed, where flexibility existed, and means and methods to resolve the technical issues. The result was the Rubio design with road crowns in specific locations at 2.2 feet, NAVD, and a standard stormwater management system design as reflected in the 100% Rubio plans.”

C. (Nov. 4, 2015) The City and Lanzo finalize plans for installing private-side yard drains; direct Rubio to submit his plans to DERM with permit application; direct Wade Trim engineer Kremers to reengineer, redesign, and revise Rubio’s construction

On Nov. 4, Beaty sent CIP a revised lump sum estimate of $43,719,010 to build the project with the new road elevations and connections for private-side yard drains, an increase of $9.2 million above the previous estimate based on the 60% plans by Rubio. Lanzo’s new estimate included $1,204,933 for “265 Yard Drains with Tee,” and added six months to the schedule.

It would take several months for Kremers to revise the stormwater and hardscape sections of the Rubio plans. Without a finished set of plans, Lanzo based its estimate on a list of assumptions. These assumptions were derived from the DCP and modifications to the design criteria that Lanzo had set forth in correspondence and the City had confirmed through the RFI process. These

included assumptions that, except for driveways, Lanzo's work would be limited to the right-of-way; that "existing Landscape will be removed as necessary to accommodate construction of Swales;" and, importantly, that "the Work Definition associated with CIP's October 12, 2015 directive is complete with concepts presented in Lanzo's RFI-034 (Private Property Harmonization), RFI-035 "Private Property Drainage Water Accommodation", & Savino-Miller's November 3 E-Mail (Remove / Replace 225 Trees)."

In sum, as of Nov. 4, 2015, Wade Trim's conceptual designs for connecting private-side yard drains to the public drainage system, and the plan to install large numbers of private-side yard drains had been incorporated into Lanzo's Work Definition under its contract with the City. As set forth below, while the City would negotiate a lower lump sum price for the project, it would approve the materials and labor associated with the installation of "265 Yard Drains with Tees." During this period the City and Lanzo directed Rubio to continue his efforts to obtain permits for the project using his now-discarded plans for a standard drainage system.

Also, on Nov. 4, 2015 a clerk in DERM's Water Control Section logged the agency's receipt of the City's application for a Class II permit based on the now discarded construction plans by Rubio. Included with the City's application was a technical report that the City approved Oct. 6 and Rubio signed and sealed on Nov. 2, 2015. The report said the project would include "elevated roadways where possible, installation of new potable water main systems, installation of stormwater collection systems with 3 stormwater pumping stations equipped with water quality treatment units and gravity bypass stormwater outfalls with dissipation structures discharging into Biscayne Bay."

The report contained a section titled "Proposed Construction" that described the City's new minimum (or lowest) grate or drain elevation of 2.7 feet above sea level, and the minimum crown-of-road or centerline elevation of 3.7 feet above sea level. Using the acronym CMB for City of Miami Beach, the report explained that, in accordance with the project's DCP, the City planned to apply its new elevation design criteria to the "Roadways" or hardscape section of the construction plans. The report said, "CMB criteria requires that minimum road crowns are set at or above elevation 3.7' NAVD. For the West Palm Island System, and primarily on North and South Coconut Lane, this was not possible due to the existing topography (garages and existing yard grades) encountered below the future design groundwater elevation of 2.7' NAVD."

The technical report referred to two charts showing the results of Lanzo's survey of the first finished floors (FFE) and garages for each house on west Palm Island. Approximately 60 homes

had elevations lower than the minimum crown-of-road criteria of 3.7 feet NAVD. For that reason, the report said, “The criteria posed significant driveway harmonization and resident accessibility issues which cannot be addressed at this time unless each affected lot undergoes full blown redevelopment. As such, North and South Coconut Lane road crown elevations will be no lower than 2.2' NAVD as allowed by CMB with edge of pavement grades matching existing elevations.” (Emphasis added.)

Nearly a month had passed since Mowry’s announced the City Administration’s decision to require use of the elevation criteria to west Palm Island that would require raising the centerline elevation of North and South Coconut Lanes a foot or more higher than 2.2 feet above sea level.

D. (Nov. 5 – Dec. 9, 2015) The City approves Wade Trim’s revised plans for the drainage system in west Palm Island and unveils the initial version of a policy to allow the connection of yard drains on private property to the public drainage system

As engineers in DERM and the SFWMD began their review of the City’s application for permits based on the discarded Rubio plans, Wade Trim refined the conceptual drawing for connecting private-side drains and the City explained the new approach to the Homeowners Association.

On Nov. 5, Kremers approved Wright’s conceptual drawing labeled “Coconut Lane Driveway Tie-Ins” that contained additional details. (Figure No. 6) The drawing included notes describing a stratety for the ponding of stormwater in private lots on North and South Coconut Lanes that engineers feared could occur after the roads were raised.

The strategy entailed two steps: installing 12-inch drain connections at the edge of the right-of-way in front of most homes in west Palm Island; and thereafter using drains as connection points for the installation of drains inside private lots. An engineering note on the diagram said, “Estimate 135 yard drains based on preliminary analysis of 3 drains per yard.” In the upper half of the same drawing, Kremers also illustrated the 14% slope that would be needed for driveways that descended from newly elevated roads. The City approved the Wade Trim solution the same day.

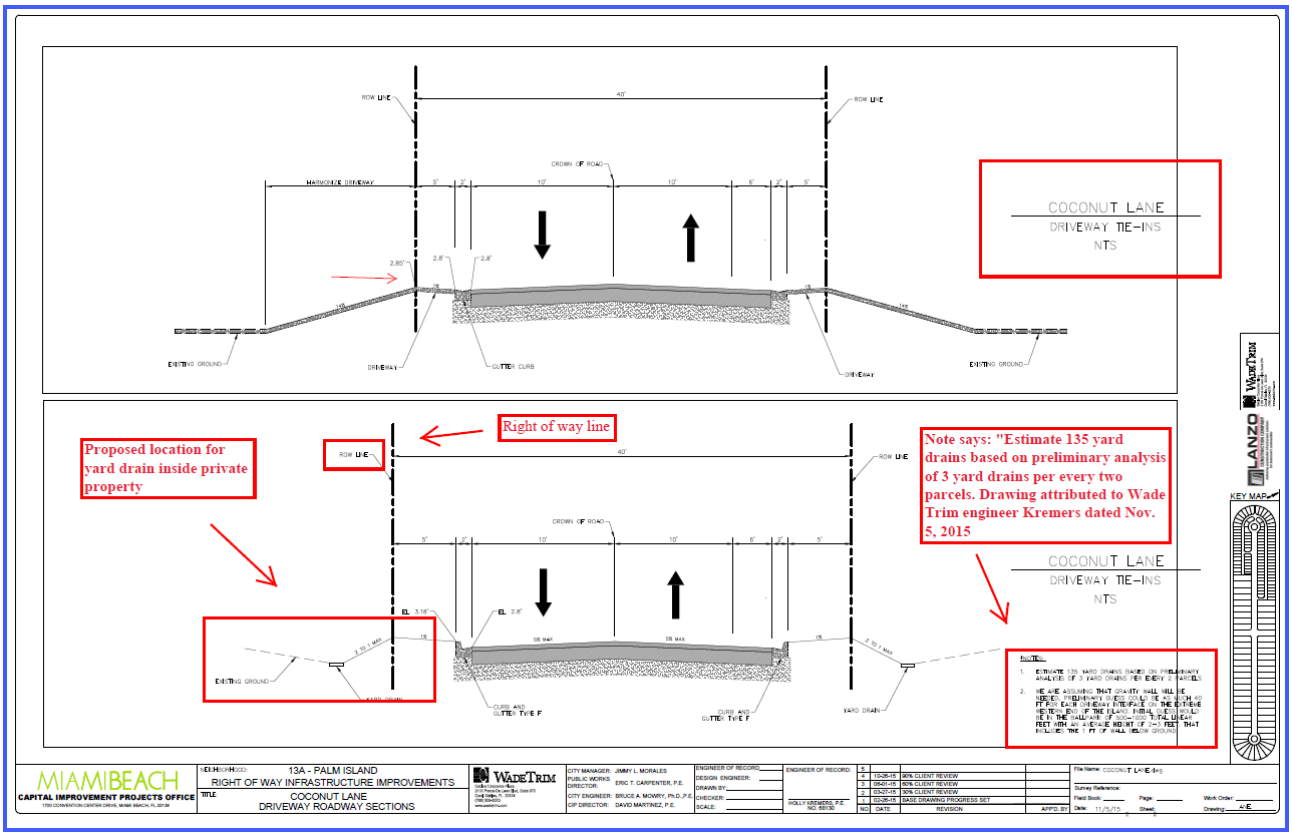


Figure 6 Wade Trim drawing "Coconut Lane Driveway Tie-ins" dated Nov. 5, 2015 attributed engineer Holly Kremers [Annotation added]

On the evening of Nov. 5, City Engineer Mowry, CIP staff, and representatives from Lanzo and Wade Trim met with the Board of Directors of the Homeowners Association. The first order of business was to explain the City's decision to require the minimum grate elevation of 2.7 feet above sea level, and the City's plan for addressing the new flooding that this change was expected to cause for houses at lower elevations on North and South Coconut Lanes. The minutes included the following:

> Lanzo presented conceptual cross-sections for South and North Coconut Lanes. The concept will raise the roads such that the lowest stormwater catch basin is at a minimum elevation of 2.7' NAVD, and will continue at the new higher elevation to the edge of the right-of-way. Harmonization onto private property take place at a 1:7 slope into driveways and a 1:2 slope in non-driveway areas. Additional harmonization on private property will be responsibility of the homeowner.

City staff described plans for the Commission to change a policy that prohibited the connection of privately owned yard drains to the public drainage system that so such connections could be made at the owner's expense. The minutes said:

> The City elaborated on the typical sections provided by Lanzo and the City's approach to stormwater management: The proposed roadway design will capture all rainwater that falls within the right-of-way via the City's stormwater system. **Drainage accommodation for surface water runoff from private property will be per a future City ordinance that will require property owners to pay for stormwater disposal from their private property into the City's stormwater drainage system. As part of the current improvement project, a stub-out will be provided for each property and "capped" at the right-of-way (ROW) for future connection (if desired) by the property owner.** This future connection will require a check valve on the private property side to ensure City drainage water does not 'back-up' onto private property. (Emphasis added.)

This was the first iteration of the "policy" that Mowry and Martinez had been saying the City would need to adopt if it raised the elevation of roads in neighborhoods with unusually low elevations. Like the installation of the right-of-way drainpipes, the plan to have the Commission allow the connection of private-side yard drains to the system was an essential feature of the Wade Trim engineering solution the City Administration had agreed upon to mitigate new flooding caused by the elevated roads. During an interview, Mowry said, "We were anticipating in the future that we would get a direction to be able to take water from private property."

On Dec. 9, 2015, the City Commission passed a resolution setting a maximum base price of $35 million for the project's construction phase with a ten percent contingency for a total not-to-exceed price of $38.5 million, and authorized the City to terminate its agreement with Lanzo if the parties could not agree on a price, and to solicit bids from other general contractors. In a written response by Carpenter, he said "Information was provided in agenda memos drafted by Public Works and CIP Departments and submitted to Mr. Morales for inclusion in the Commission Agendas," for the Dec. 8, 2015 Commission meeting. The Commission Memorandum contained correspondence from Lanzo as an attachment that referred RFI #35 ("Private Property Drainage Water Accommodation") but did not include the RFI or the Wade Trim drawings. Carpenter's response said,

On or about Dec. 8, 2015, the City approved a version of the stormwater section of the plans prepared by Rubio, now labeled "100% Final Design" and dated Dec. 9, 2015. On Dec. 11, Rubio signed and sealed this version of his plans, and sent it to SFWMD. Thereafter, that agency used this

version of the Rubio plans to complete its review of the City's permit application. The following week, Kremers approved revisions to the hardscape section of the revised plans for west Palm Island that raised the crown-of-road elevation for North and South Coconut Lanes to 3.2 feet above sea level. This was six inches lower than the City's minimum design criteria of 3.7 feet above sea level. The adjustment indicated that even Wade Trim found it impossible to raise the roads any higher.

E. (Jan. 11 – 30, 2016) The City awards $38.5 million build contract to Lanzo with finished plans for new public-private drainage system or drainage studies to verify its expected performance; Concurrent with these activities, the City continues to review and approve Rubio's use of the original plans to obtain permits

On Jan. 11, 2016, the City Commission approved Amendment #3 awarding a $38.5 million contract to Lanzo to build the project. The City awarded the contract to begin construction without the benefit of finished construction plans for the stormwater and hardscape sections of the project. CIP Director Martinez said the priority that former Mayor Levine placed on accelerating project's put "a **lot of pressure on the administration" that ruled out further delay in the Palm and Hibiscus project. "This thing was moving at light speed...And there was no option to stop these things." Further, Martinez said Mowry was under particular pressure to get results. "He was tasked with getting these projects done, in my mind, at whatever cost. Getting them done. So he was not going to let anything get in his way to get them done."**

During January, CIP attempted to fill this gap by conducting a final milestone review of the finished, or "100% Final Design" version of the Kremers plans, and inadvertently had Crews and Public Works staff review the Rubio plans. The confusion occurred for two reasons. First, because CIP was managing the work of two engineering firms--CAS and Wade Trim--who were revising the same section of construction plans for distinctly different purposes; and, second, because the City and Lanzo decided to postpone submission to DERM of a signed and sealed final version of the Rubio plans for three months.

In January 2016 CIP conducted a "100% Milestone Review" of the "100% Final Design" plans by Kremers. But these plans were not finished. This resulted in Crews and Public Works mistaking the Rubio plans for the Kremers plans. This mix-up resulted in statements in a CIP Comment and Review spreadsheet dated Jan. 30, 2016 that shed light on the intended purpose of the right-of-way drainpipes that were installed in front of each house on west Palm Island.

In the process of critiquing what he thought were the Kremers plans, Crews observed that the grate elevations on west Palm Island were lower than the minimum elevation of 2.7 feet. His comment said, "These plans have not been updated to include the higher grate elevations required. This sheet shows grates at 1.30', 1.40' etc." Crews also noted the absence of the lateral pipes that would provide right-of-way drainpipe connections for the future installation of private-side yard drains. Crews' comment said, "These plans do not show the miscellaneous connections discussed for the swale and private party connections."

The responses attributed to CAS (presumably Rubio) show an attempt to clarify that the plans were unchanged because Rubio was not involved in Wade Trim's revision of the stormwater and hardscape sections of the plans. The CAS comment said, "CAS was aware of the scope change and requested a change order on 10.12.15 for another scope change from WT. On 10.15.15, WT opined to CAS that they were better suited to address the elevation… by Dec. 2015 but have not clarified 'engineer in responsible charge' matters with CAS nor to the best of our knowledge modified plans as they indicated."

The CAS response about the "engineer in responsible charge," refers to rules in Florida that apply when an Engineer of Record is replaced. Before signing and sealing plans prepared by another engineer, the F.A.C. rules require successor engineers to "redo" the engineering calculations, document that they have "rethought and reworked the entire design process," and notify the prior Engineer of Record they are taking charge of the project.

The exchange of comments reflected the impending end of Rubio's responsibility for preparation of the stormwater and road plans and approval of design changes. In developing the original drainage system, Rubio had decided to use 18-inch and 36-inch drains on both islands to improve the performance of the system to collect stormwater in the swales and right-of-ways. Because the size and location of drains helps determine the performance of the drainage system and its ability to prevent flooding, such decisions can have an impact on the "health, safety and welfare" of residents.

The CIP comment and response spreadsheet included a comment from Wade Trim that the issue of drain size should be discussed with the City and said, "12" [inch] SDR 35 yard drains to be used in west Palm section." The response from CAS referred to Rubio's earlier response to Beaty. It said, "CAS has had discussions with the Contractor and CAS recommends keeping the 18" grates in Palm Island with a USF 5608 grate and a 12" storm pipe (if the DCP has been relaxed from 18" to 12") connecting to the proposed 12" Inserta Tee."

The foregoing statement, and other evidence support a conclusion that Rubio was excluded from Wade Trim's revision of his plans, but that on or before January 2016 he knew, or should have known, that the City's decision required that his plans be reengineered, redesigned, and redrawn; that Wade Trim engineers were making these revisions without his approval; and that he was no longer carrying out the functions of the Engineer of Record for the stormwater and hardscape sections of the plans.

F. (Feb. 26 – March 19, 2016) At the direction of the City and Lanzo, Rubio continues using his plans to obtain permits for the project; Wade Trim engineers Kremers and Wright complete their revision of the Rubio plans

Despite Rubio's lack of involvement in Wade Trim's revision of his plans, he continued to represent the City as the project's Engineer of Record for the stormwater drainage section in his dealings with SFWMD and DERM. CIP, Lanzo and Wade Trim staff continued to oversee and approve his efforts to secure the permits.

With the exception of his interactions with the permitting agencies, Rubio no longer carried out responsibilities of an Engineer of Record for the stormwater and hardscape sections of the revised plans for the new drainage system the City intended to build on west Palm Island. During an interview with OIG staff, Rubio said he never saw and did not approve the revisions by Kremers and Wright. There is no evidence that Rubio notified DERM or the SFWMD that he was no longer in charge of the plans for the drainage system or that it was being revised.

While DERM and the SFWMD used the discarded Rubio plans to conduct their permitting reviews, Kremers and Wright continued revising the Rubio plans with the assistance of CIP and

Public Works. The evidence supports a conclusion that between February and May 2016, Kremers carried out the functions of Engineer of Record with one exception: She did not sign and seal the revised stormwater section of the plans. The purpose of this singular omission was explained in Wade Trim's correspondence with CIP.

In a letter to CIP Senior Project Manager Mark Tomcyzk dated March 3, 2016, a Wade Trim manager described the firm's plans to continue designating Rubio as the Engineer of Record until the District and DERM had issued permits based on the Rubio plans. It said, "As discussed, Wade Trim will be appropriating design documents from Craig A. Smith & Associates (CAS) for the Neighborhood 13 Palm and Hibiscus Islands Right-of-Way Infrastructure Improvements project once 100% submittal has been fully approved by the City of Miami Beach and relevant permits acquired from SFWMD and Miami-Dade RER (DERM)."

For the City, Lanzo and Wade Trim, the alternative to this arrangement was to notify DERM and the SFWMD that Kremers and Wright had replaced Rubio. Had they done so, there is a high probability that DERM would then have asked to receive finished plans signed and sealed by Kremers. According to the pertinent section of the Miami-Dade Code, "If the engineer who provided certification pursuant to Section 24-48.2(I)(B)(2) or pursuant to Section 24-48.2(II)(A)(4) is discharged by the property owner or his agent, or if said engineer ceases to work on the proposed or approved work, all work by this permit shall immediately cease and shall not be resumed until a new engineer is obtained. The property owner shall also be required to obtain a new engineer who shall meet all the requirements of this permit." In early March, Kremers and Wright prepared the 100% Final Design versions of the revised stormwater and roadway sections, with a cover date of Feb. 26, 2016. Wright's hardscape section included a schematic drawing that showed how private-side yard drains would be connected to the drainage system. A note on one drawing said, "Estimate 90 12-inch yard drains based on preliminary analysis of 1 yard drain per parcel." In some areas, the revised plans replaced the 18-inch drains preferred by Rubio for the 12-inch drains favored by Beaty, an indication that Rubio no longer was making decisions as the Engineer of Record.

After receiving the "100% Final Design" plans from Kremers dated March 19, 2016, Crews conducted a review on behalf of CIP. His comments were circulated in a spreadsheet titled "Second 100% Review Comments." Regarding the stormwater section for North and South Coconut Lanes, Crews expressed surprise that additional pipes for the private-side yard drains had not been added to the plans. He wrote, "The configuration of private property collection basins does not meet the

intent of the discussed improvements. Each property should have its own connection and longitudinal pipes cannot run on private property." Crews reminded Kremers that the lateral pipes that extended from the mainline drainage pipe to the right-of-way in front of each lot should not go onto private property.

Even as the City and Lanzo worked with Kremers on the redesign, CIP and Wade Trim staff continued to oversee and approve Rubio's ongoing efforts to obtain a Class II permit on behalf of the City. On March 10, 2016, the City and Wade Trim approved a letter from Rubio to DERM providing written answers to information requests. The correspondence was copied to CIP Project Coordinator Sanchez, Lanzo Construction Manager Beaty, and Wade Trim engineer Garcia. On March 19, 2016, Wade Trim engineer Garcia delivered a signed and sealed version of Rubio's "100% Final Design" plans for Palm Island, which also bore the cover date Feb. 26, 2016, and plans for Hibiscus Island dated Feb. 22.

Since January, Lanzo had been working on other parts of the construction project that did not require a DERM permit. By March, Crews had become concerned about the length of time that Lanzo had been working without the benefit of a finished set of construction plans. In a March 22, 2016, email to CIP staff Crews said, "Despite the fact that the "100%" plans continue to evolve, I went ahead and prepared comments (on the Kremers plans) so that I was on record. I am concerned that these plans are not where they need to be. More importantly, I am concerned that the elevations are higher than they should be. Meanwhile, we are installing water main based on those elevations."

This statement for the record by Crews addressed the potential risks, in terms of cost and schedule delay, of the City's decision to allow Lanzo to begin construction before the revised stormwater and hardscape plans were finished.

G. (April 7 - 28, 2016) The City and Lanzo finalize plans for installing permanent yard drains in private lots; DERM begins the final phase of reviewing the City's permit application

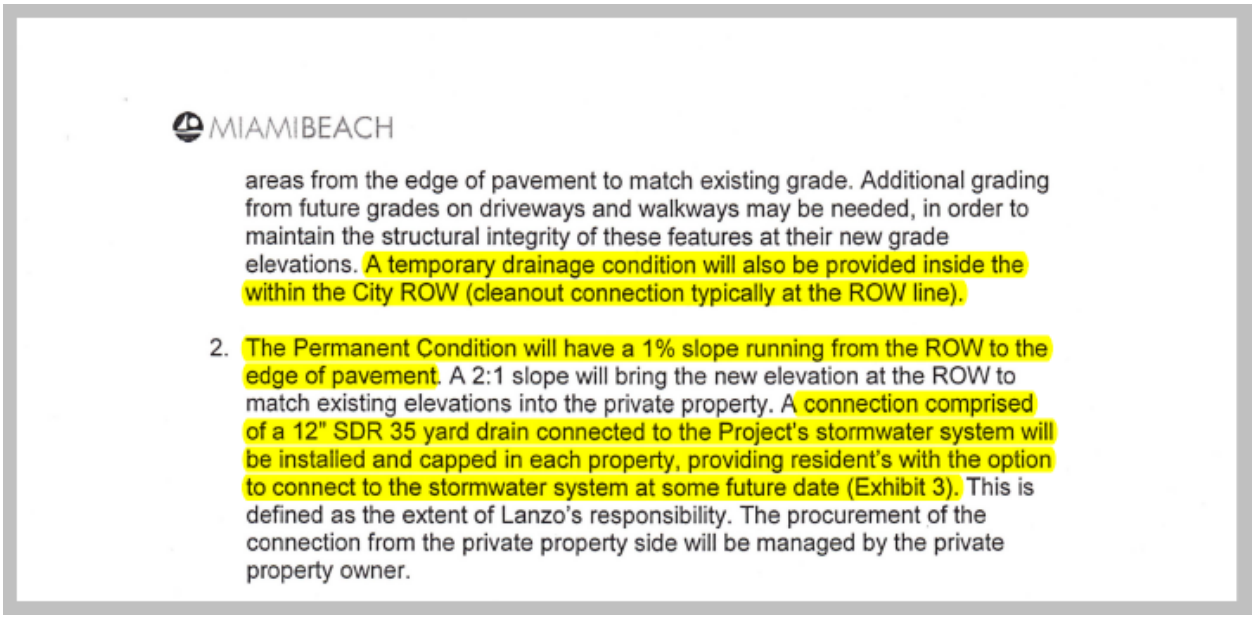
On the morning of April 7, 2016, CIP Project Coordinator Sanchez and CIP consulting engineer Crews traveled to Palm Island where they met with Lanzo Construction Managers Beaty, Pablo Riano and Victor Serrano, and Wade Trim engineers Wright and Garcia. The purpose of the

field meeting was to finalize plans for installing yard drains at the edge of right-of-ways and in private lots along North and South Coconut Lanes.

Five months had passed since the City had approved Wade Trim's conceptual design for an alternative stormwater drainage system that connected to private yard drains. During this period, the City oversaw the parallel efforts of Rubio and Kremers. Also during this period, CIP and Public Works reviewed and commented on 90% and 100% versions of the discarded Rubio plans, and approved his written responses to requests for information from DERM and the SFWMD. Concurrent with this activity, CIP and Public Works also oversaw the ongoing revisions of Rubio's plans by Kremers and Wright. During February and March, CIP and Public Works both reviewed versions of the revised plans and provided comments that were incorporated into a final draft.

In early April, the City and Lanzo had reason to believe that the City's permit applications were in the final stage of the review process at both agencies. In early March, Rubio had sent DERM engineer De Torres a written response to what he assumed would be the agency's last request for information. He concluded with a plea, "The Design Team and the City are on a fast track to get this project started and any assistance you can provide to expedite the permit issuance is appreciated."

The purpose of the April 7, 2016, meeting in west Palm Island was to (1) verify the work that Lanzo would do in the right-of-ways and on private property, (2) identify the tasks the City would need to accomplish in order for Lanzo to install pipes and drainage connections on private property, and (3) delineate the options available to property owners and their responsibilities during construction. The understandings and agreement reached during the meeting were recorded in jointly approved minutes. The minutes were titled "North & South Coconut Lane – Special Harmonization," and bore logos of the City, Lanzo, and Wade Trim. The two-page document summarized the City's plans "to address construction adjacent to and along these properties." Figure No. 7 is an excerpt from the minutes that recorded the agreement between the City, Lanzo, and Wade Trim to install permanent pipes and drainage connections on private property and connect these private-side drainage systems to the public drainage system using the pipes and connections installed in the right-of-way.



MIAMIBEACH

areas from the edge of pavement to match existing grade. Additional grading from future grades on driveways and walkways may be needed, in order to maintain the structural integrity of these features at their new grade elevations. A temporary drainage condition will also be provided inside the within the City ROW (cleanout connection typically at the ROW line).

2. The Permanent Condition will have a 1% slope running from the ROW to the edge of pavement. A 2:1 slope will bring the new elevation at the ROW to match existing elevations into the private property. A connection comprised of a 12" SDR 35 yard drain connected to the Project's stormwater system will be installed and capped in each property, providing resident's with the option to connect to the stormwater system at some future date (Exhibit 3). This is defined as the extent of Lanzo's responsibility. The procurement of the connection from the private property side will be managed by the private property owner.

Figure 7 Excerpt from minutes of April 7, 2016 meeting describing plans by the City, Lanzo, and Wade Trim to install private-side yard drains and connect them to the City drainage system using the pipes and drainage connections in the right-of-ways.

The minutes of the April 7 meeting begin with a summary of events that preceded the City's decision to build a public drainage system that connected to private-side yard drains. RFI #34 and Wade Trim's drawing of the changes in grade that the higher road elevations required were attached as exhibits. The minutes said: "The City has established a minimum grate elevation and roadway crown elevation of 2.7' NAVD for west Palm Island. The proposed roadway elevation adjustments will impact driveways, front yard and backyard interfaces between private property and public ROW. The impacts will extend into the private properties, in some properties more than others." The minutes included as an attachment the conceptual drawing by Wade Trim that showed how the lateral 12-inch drain pipe installed in the right-of-way in front of a private lot would connect a private-side yard drain with the mainline pipe in the road.

Three sections in the April 7, 2016, minutes delineated the responsibilities and tasks as to Lanzo, the City, and property owners. The first section described a "temporary condition" while Lanzo cleared and regraded the right-of-way in front of a house and reconstructed the driveway to match the elevated road. It said, "In order to provide property owners with the opportunity to make adjustments to their property interfaces with the new elevation at the public ROW…Lanzo has

provided a temporary condition, which will only impact driveways, walkways, and a small width of green area." This part of the agreement was based on the City's approval of RFI # 34 (Harmonization), which established that Lanzo was not responsible for additional reconstructive work beyond this limited area.

Given the extent to which existing fixtures and landscaping beyond the right-of-way might be demolished during construction, the summary said that the "temporary condition" was intended to allow the homeowners to make "adjustments" during the project at their own expense. The minutes continued, "Additional grading from future grades on driveways and walkways may be needed, in order to maintain the structural integrity of these features at their new grade Elevations. A temporary drainage condition will also be provided inside the within [*sic*] the City ROW (cleanout connection typically at the ROW line)." This part of the agreement referred to the permanent lateral pipes, tees, and drainage connections Lanzo would install in the right-of-way in front of the houses. During construction this permanent part of the drainage system would also be available if the elevated roads caused new flooding or trapped stormwater on private lots.

During an interview with OIG staff, former City Engineer Mowry said the lateral and right-of-way drainpipes were installed as permanent parts to the drainage system to accommodate the future connection of private-side yard drains. He said the right-of-way drainpipes also were used to prevent flooding during construction. Mowry said, "We did have the accommodation. It was just being appropriate and good planning that we had this thing designed and we knew that we were going to have to take the runoff from construction anyway because we could not run water from public property into private property. And so we knew that even during construction we had to have these and we said 'Why don't we put them in so that we then have the flexibility to connect a private individual in the future." Similarly, CIP Consulting Engineer Crews said that using the permanent lateral pipes and right-of-way drainpipes as a "temporary" means to collect stormwater during construction was an essential precaution and an effective use of the permanently installed equipment. He said in an interview:

> On one hand, one of the things that it was accomplishing was creating that potential connection point for every property. The other thing that it allowed the contractor to do is to create a temporary system during construction so that those laterals....went to the property line, and turned up into small drains. That became a temporary connection point, not a connection, a temporary inlet. Because, what happens in this is when they raise the roads, the problems happen right away for the private property…So those drains that were turned up at the right-of-way became at least a temporary relief point so that the private lot wouldn't flood. Because there was a

> danger that if we raise the roads and there was some delay between raising the roads and getting the property situated with whatever eventual solution would take care of them, that if they flooded, they wouldn't get any flood relief until it either spilled over into the bay or got as high as the roads.

The April 7, 2016, minutes described a "Permanent Condition" that would entail reversing the slope inside private lots and extending a pipe from the right-of-way connection drain to a low point in the private lot for use as a yard drain. It said, "The Permanent Condition will have a 1% slope running from the ROW to the edge of pavement," and a slightly steeper slope from the edge of the right-of-way "to match existing elevations into the private property." Thereafter, the minutes continued, "…**A connection comprised of a 12" SDR 35 yard drain connected to the Project's stormwater system will be installed and capped in each property, providing residents with the option to connect to the stormwater system at some future date."** (Emphasis added.)

Lanzo would leave behind a newly graded right-of-way and a rebuilt private driveway, but in many cases the construction would require much additional construction and landscaping further inside the property. After the City's decision in late October to further elevate North and South Coconut Lanes and to have Lanzo build Wade Trim's engineering solution to mitigate the expected flooding and impoundment of stormwater on private lots, Beaty had emphasized the limits of Lanzo's responsibility for work on private property. These limitations were documented in the minutes of the April 7 meeting. They said, "Should the resident wish to harmonize from property interfaces at ROW to all areas further into the property, the resident can do so and is allotted time for this between the dates that the Temporary and Permanent Conditions are constructed."

As to the City's responsibilities and assigned tasks, the minutes described the need to change existing City policy to allow property owners to connect their personal yard drains to the City's drainage system. Without a change in the existing policy, the City could not allow these connections. Further, the minutes described the additional task assigned to the City of obtaining written authorization from each property owner for Lanzo to work further inside each property. Without the signed harmonization agreements, Lanzo could not dig necessary trenches inside a private lot and lay an additional length of PVC pipe that extended from the lateral pipe and right-of-way drain connection to a low point on the owner's property. "The City is to define (right-of-way) harmonization policy, private party drainage connection policy, and endorsement of typical

section…City to finalize letters to send out to residents affected by special harmonization conditions."

Finally, the parties agreed on the responsibilities and options that would be available to each homeowner who agreed to have a yard drain installed on private property. The minutes said, the "procurement of the connection from the private property side will be managed by the private property owner." This meant that after the City and Lanzo installed the permanent private-side drain connection, the property owner would be responsible for the costs of activating the drain to collect and transfer stormwater from their yard into the public drainage system. During an interview with OIG staff, Mowry said the change in policy was an integral part of the City's decision in 2016 to install the permanent laterals and drainage connections in front of each lot on west Palm Island. He said, "We were anticipating in the future that we would get a direction to be able to take water from private property…we put this in so that we had the flexibility to be able to make that connection in the future."

After the April 7, 2016 meeting, CIP staff moved forward with the tasks assigned to the City that were necessary prerequisites for Lanzo's installation of the private-side drain connections. The minutes of a CIP construction progress meeting with the Lanzo design team on April 26 said, "Some properties can be asked if they want a yard drain, resident to decide…Some harmonization agreements still not signed…Residents were contacted." Further, the minutes said, "Residents wishing to connect to system only need plumbing permit from city."

In order to identify the best location for installing pipes and drain connections on private lots, CIP and Lanzo also discussed the need to conduct a more detailed elevation survey of private lots in west Palm Avenue to determine the best location for the private-side drain connection. The minutes said, "Scope of survey into private property only required to determine appropriate drain location." The minutes contained no reference to the need to modify the City's pending applications with the SFWMD and DERM for permits to construct a public stormwater drainage system to allow for its extension into approximately 90 lots on west Palm Island.

From Lanzo's point of view, the City's decision in late October 2015 to require adherence to the minimum grate elevation criteria of 2.7 feet above sea level on west Palm Island (which required raising North and South Coconut Lanes above the centerline elevation of 2.2 feet above sea level in the Rubio plans) was a "changed condition" under the contract. At this point, though, the Commission had not amended the contract with Lanzo to authorize an expanded scope of work

to extend the stormwater drainage system beyond the right-of-way for the installation of private-side drain connections.

Without contractual language that also covered work on private property, Lanzo's management feared exposure to liability for damages for what occurred on private lots from elevating North and South Coconut Lanes to the point where they trapped stormwater on private lots and caused new flooding. During an interview with OIG staff, Beaty said the ability to refer to the right-of-way drainpipes as "temporary" provided a justification or legal rationale for the work the City wanted done. Beaty said, "The road is higher than the private property. The accommodation and the need was understood, but the method of accommodation wasn't. That was resolved with temporary drainage…What that allowed us to do is build the drainage system and build the road and come up with a method of accommodating private residents. But that was not in our contract."

The City Administration made the decision that Mowry announced Oct. 9, 2015, which required raising the roads on west Palm Island by an additional foot, despite the concerns of design engineers that the road would change the existing positive flow of stormwater from private lots and cause harmful flooding to adjacent private property. Having crossed this threshold, the responsible City officials, including Carpenter, Martinez, and Mowry, recognized that they had to develop a way of mitigating the expected flooding.

In the absence of contractual language and/or an amendment to Lanzo's contract that explicitly authorized construction work on private property and the installation of underground infrastructure for private-side drain connections, Beaty and other Lanzo construction managers used written and electronic means of documenting the City's directions and commitments, including email, correspondence with CIP, the RFI process, the jointly approved minutes of CIP progress meetings, and, ultimately, electronic recordings of those meetings.

For example, in a letter to CIP Senior Project Manager Tomczyk dated April 27, 2016, Beaty restated Lanzo's understandings with the City that were recorded in the minutes of the April 7 meeting and in RFI submissions. The letter said in part: "Request for Information (RFI) 34 & 35 (attached) dated October 30, 2015 provide current contract definition with regard to Private Property Harmonization…and Private Property Drainage Water Accommodation (Capped 12" for future connection by Others and a temporary yard drain)."

During an interview with OIG staff, former Wade Trim Vice President Kremers said that the designation of the right-of-way drains as "temporary" was an accommodation to the City. Kremers said: "While we were designing this project, the City was in the process of developing a policy for…whether it would and how it would allow private properties to connect to the system. The ultimate plan was they would be allowed to connect. They (the City) just weren't sure of the means yet." During an interview with OIG staff, Beaty said the right-of-way drain connections were described as temporary installations "because at that point, the definition of how it was going to be accommodated, and who was going to pay for it, that definition didn't exist."

On April 28, City Engineer Mowry attended a CIP progress meeting that included CIP, Lanzo, and Wade Trim staff. According to the minutes, he confirmed the City's plan to operate the public drainage system and allow property owners of private-side drains to connect to it for a monthly fee. The minutes said, "Bruce M. (PW) explained the process of billing regarding private property drainage. It will be a flat rate per month, regardless of rain."

During an interview with OIG staff, Mowry said that during the decision-making process in early 2016, he, Carpenter and Martinez agreed on the strategy the City implemented. He said they discussed the flood risks of elevating roads before the Mayor's Blue Ribbon Committee and described the option of using private-yard drains to remove trapped floodwaters from private lots. Based on these interactions, Mowry said he and his colleagues concluded that they were authorized to have Lanzo build a public drainage system that was designed to connect to private-side yard drains, with the understanding that the necessary change in City policy would be made at a later date.

In written responses, Carpenter said he did not recall when he learned that the lateral pipes and connection tees, which together are also referred to as stubouts, were added to the construction plans. However, in a written response, Carpenter indicated he was aware of the changes and the City's decision to approve Wade Trim plans to build a drainage system designed to connect with private-side yard drains by at least Dec. 9, 2015 when Public Works and CIP provided former City Engineer Morales with memoranda that referred to RFI #35 ("Private Property Drainage Water Accommodation") in a Commission Memorandum.

Further, Carpenter's response acknowledged his awareness of changes to Rubio's plans. He stated, "The incorporation of the secondary drainage system on west Palm Island evolved over time.

The initial modification was only the inclusion of stubouts from the existing primary drainage system that remained unchanged."

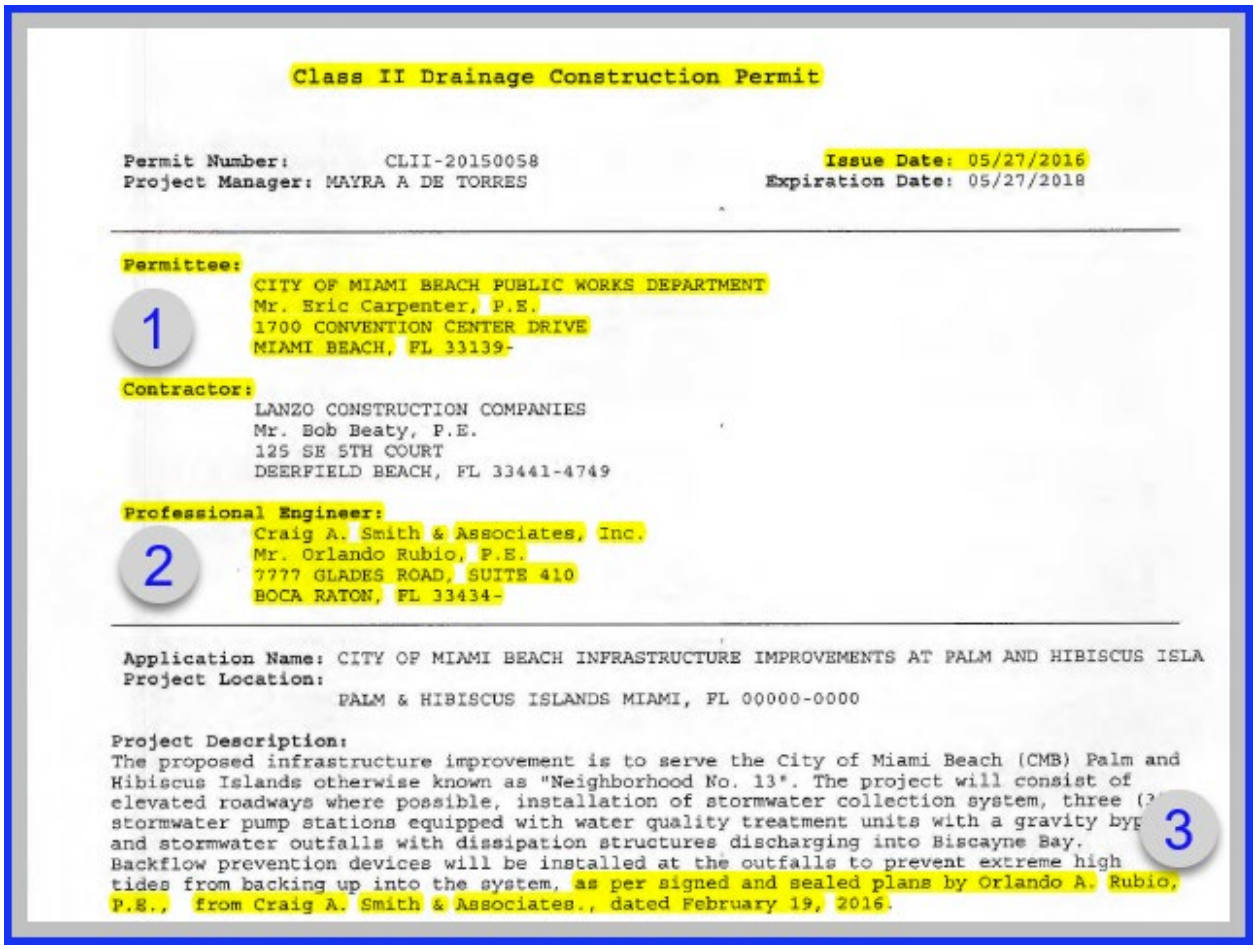
VIII. PERMITTING AND CONSTRUCTION

A. (May 5 – July 5, 2016) The regulatory agencies issued permits for the project based on the Rubio plans. With this in hand, the City directed Lanzo to begin construction using the Kremers plans

On May 5, 2016, the SFWMD issued to the City an Environmental Resources Permit based on the outdated Rubio plans titled, "100% Final Design," dated Dec. 9, 2015, that Rubio had signed, dated and sealed on Dec. 11, 2015. The first general condition of the permit said, "All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62- 330.315, F.A.C. Any deviations that are not so authorized shall subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S."

During the next two weeks, Kremers and Wright incorporated the City's comments into the now fully reengineered and revised Rubio plans, known as the Kremers plans. This work resulted in a second version also titled "100% Final Design Plans," dated May 18, 2016, by Kremers. Consistent with the March 2, 2016, understanding between Wade Trim and CIP, Kremers and Wright did not sign, date and seal the revised stormwater and hardscape plans.

On May 27, 2016, DERM issued a Class II permit for the Palm and Hibiscus project to Carpenter on behalf of the City "per signed and sealed plans by Orlando A. Rubio, P.E., from Craig A. Smith & Associates." (Figure No. 8) Like the permit issued by the SFWMD, the DERM permit contained a condition stating: "This permit only authorizes the grading and drainage work summarized in page 1 of this permit. **Any additional work not shown in this permit or on the approved plans shall require additional Class II permit approval."** (Emphasis added.)



Class II Drainage Construction Permit

Permit Number: CLII-20150058
Project Manager: MAYRA A DE TORRES

Issue Date: 05/27/2016
Expiration Date: 05/27/2018

Permittee:
CITY OF MIAMI BEACH PUBLIC WORKS DEPARTMENT
Mr. Eric Carpenter, P.E.
1700 CONVENTION CENTER DRIVE
MIAMI BEACH, FL 33139-

1

Contractor:
LANZO CONSTRUCTION COMPANIES
Mr. Bob Beaty, P.E.
125 SE 5TH COURT
DEERFIELD BEACH, FL 33441-4749

Professional Engineer:
Craig A. Smith & Associates, Inc.
Mr. Orlando Rubio, P.E.
7777 GLADES ROAD, SUITE 410
BOCA RATON, FL 33434-

2

Application Name: CITY OF MIAMI BEACH INFRASTRUCTURE IMPROVEMENTS AT PALM AND HIBISCUS ISLA
Project Location:
PALM & HIBISCUS ISLANDS MIAMI, FL 00000-0000

Project Description:
The proposed infrastructure improvement is to serve the City of Miami Beach (CMB) Palm and Hibiscus Islands otherwise known as "Neighborhood No. 13". The project will consist of elevated roadways where possible, installation of stormwater collection system, three (3 stormwater pump stations equipped with water quality treatment units with a gravity byp and stormwater outfalls with dissipation structures discharging into Biscayne Bay. Backflow prevention devices will be installed at the outfalls to prevent extreme high tides from backing up into the system, as per signed and sealed plans by Orlando A. Rubio, P.E., from Craig A. Smith & Associates., dated February 19, 2016.

3

Figure 8 Excerpt from Class II permit dated May 27, 2016. Item #1 identifies Carpenter as the designated permittee, Item #2 identifies Engineer of Record Orlando A. Rubio, Item #3 shows the permit was based on plans signed and sealed by Rubio.

The two drawings below show pages from the Rubio plans and the Kremers plans for the same section of South Coconut Lane. Figure No. 9 shows the standard right-of-way drainage system designed by Rubio, which included four 18-inch drains that were connected to the drainage system by four pipes extending from the force main. The drainage study conducted by Rubio showed that these drains were sufficient to collect stormwater from the right-of-way.

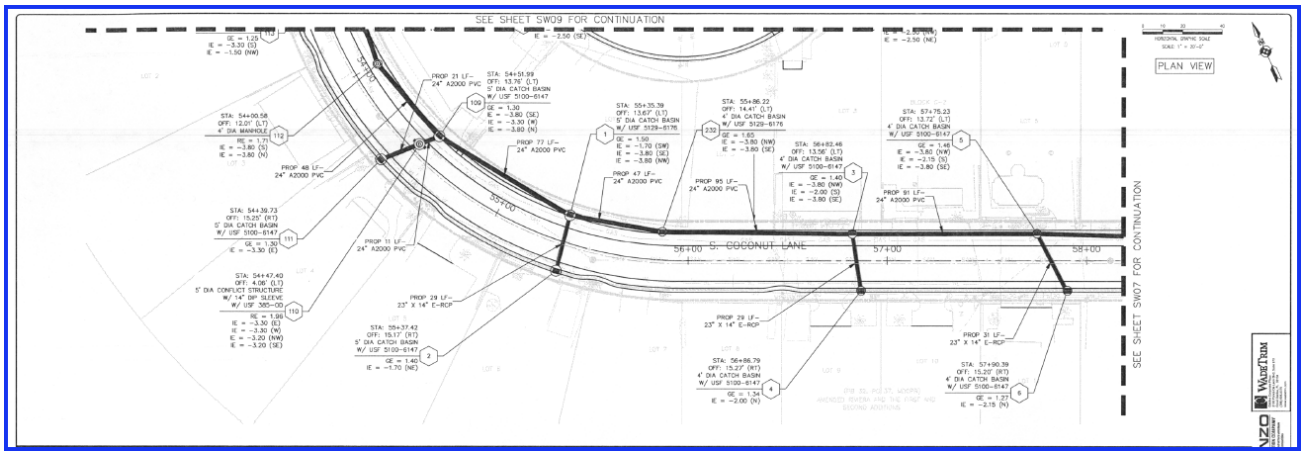


Figure 9 Excerpt from the permitted Rubio plans for a section of South Coconut Lane that shows standard design for a right-of-way drainage system.

On June 20, 2016, Kremers signed and sealed the revised stormwater section of the plans; Wright signed and sealed the revised hardscape section. The array of lateral pipes Kremers added to the Rubio plans were the essential infrastructure for building a public stormwater drainage system that was configured to connect to private-side yard drains.

Figure No. 10 below show the same plans prepared by Kremers for the same section of South Coconut Lane. The lateral pipes shown in blue tint on the Kremers plans extend from the mainline pipe to the right-of-way in front of each residential lot on west Palm Island. The primary purpose of lateral pipes was to provide permanent links between the mainline pipe and one or more private-side yard drains in each lot. During an interview with OIG staff, CIP Consulting Engineer Crews said, "One purpose was to create that future potential connection point that, if the City had gone through with that policy, you, as homeowner at a given address, could say, 'I've got water that I don't know what to do with it. Here's my $35 a month'…they would have allowed you to connect. You make the connection; you get to discharge your water to the public system."

As shown in the Kremers plans, the intention was to equip the end of each lateral pipe with a tee connection fixture, also known as a stubout, with two connections for additional drains. A vertical connection could be used to establish temporary or permanent drainpipes or inlets in the right-of-way ("right-of-way drainpipes"). A horizontal connection could connect with pipes in as many adjacent lots as possible for permanent private-side yard drains. (See Figure 10 below and OIG Consulting Engineers Technical Report re: Exhibit 1 Comparison of Rubio plans and Kremers plans for additional examples.)

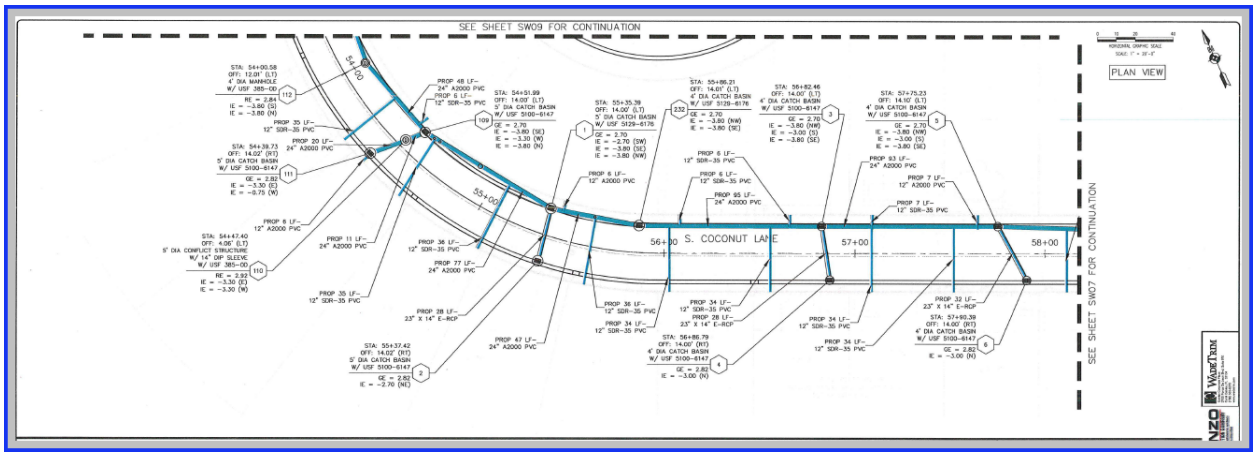


Figure 10 Excerpt from Kremers plans for the same section of South Coconut lanes shows the addition of lateral pipes (in blue tint) that extend from the main pipe to the edge of the right-of-way in front of each house on West Palm Island.

The Hardscape section of the revised plans below included a drawing titled “Typical Roadway Section for North and South Coconut Lanes” and a schematic drawing titled “Yard Drain Detail” that showed how the lateral pipes would connect to private-side yard drains. (Figure No. 11)

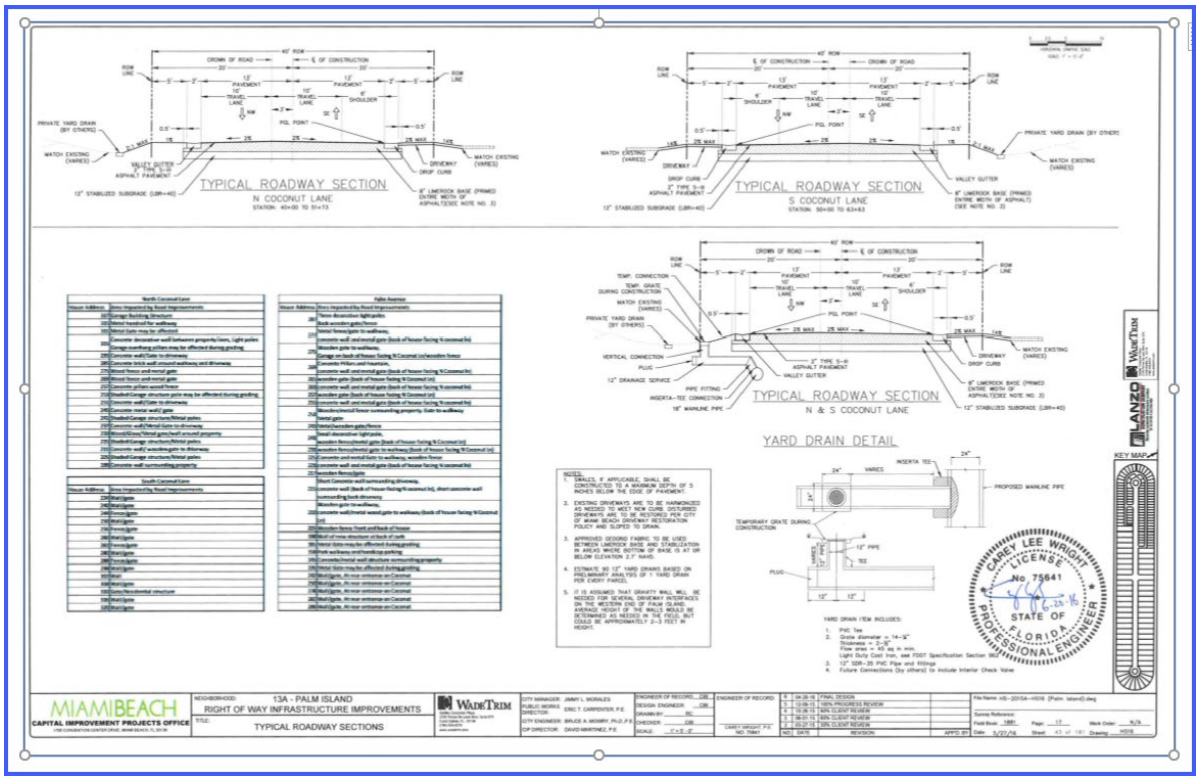


Figure 11. Engineering plans labeled "Typical Roadway Section for N.& S. Coconut Lane" signed and sealed June 20, 2016 by Wade Trim engineer Wright. The "Yard Drain Detail" in lower right shows a lateral pipe extending mainline pipe fitted with a connection tee at the end. Together, the lateral pipe and tee comprised the right-of-way drainage connections or "stubouts" for connecting future private-side yard drains to the public system.

Beaty equated the lateral pipes, tees, and caps installed in the right-of-ways in front of each house on west Palm Island to permanent water and sewer lines installed in a new development before houses are built. Beaty said, "When you go to a new residential development, you never go onto private property. You do all your work in the right-of-way. What you do is you establish a service within the right-of-way up to the property line for connection by the private owner at a later date. What that does is that when they build the house and the plumber comes in, a plumber has a place to connect the sewer pipes."

Mowry said that from the beginning of the redesign by Kremers of the Rubio plans, the City planned to build a drainage system that provided right-of-way drainpipes to use in the future to provide connections to private-side yard drains. He said, "We were anticipating in the future that we would get direction to be able to take water from private property… it was just being appropriate and good planning that we had this thing designed."

The City's Joint Response said, "The documents prepared by Wade Trim did not add inlets," or open drains, and added:

> This is not a material change, nor does it make the permit documents false or misleading. The DCP and early meetings with DERM clearly established the tributary area of the stormwater collection system for this project to include the entire right-of-way, the entire private, non-waterfront lots, and½ the private waterfront lots. This did not change between the two sets of documents; is not a material change to the permit; and does not make the permit documents "false or misleading." Simply stated, the Wade Trim drawings did not alter the functionality, effectiveness, or ability of the project to protect the Bay, and comply with Code.

An additional three weeks passed while the plans were reviewed by Public Works.

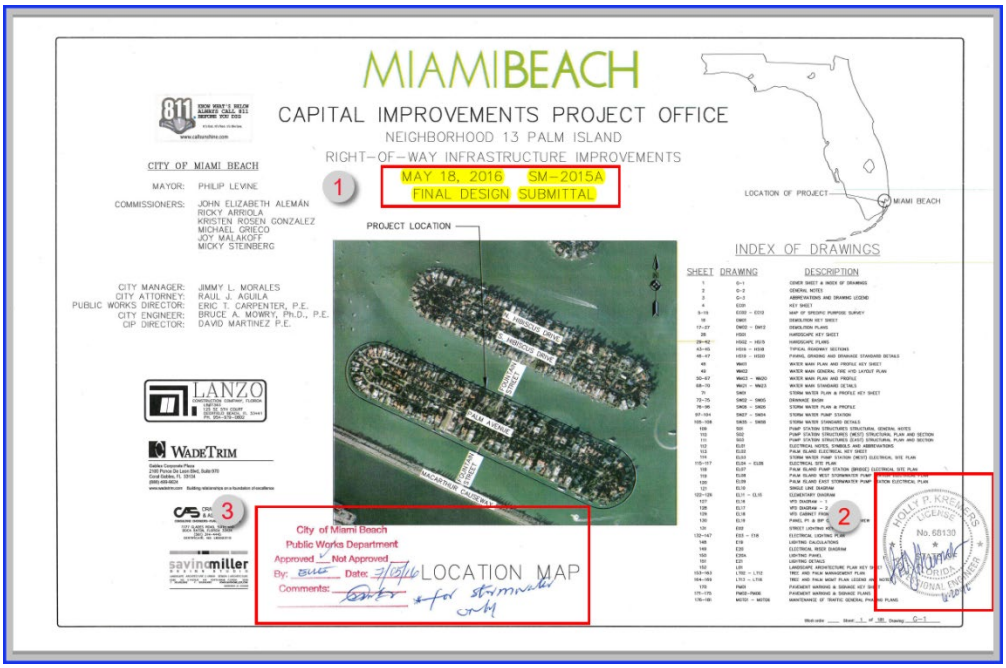


Figure 12 Cover page of Kremers plans. Item #1 shows cover date of May 18, 2016, Item #2 shows plans were signed and sealed by Kremers on June 20, 2016, Item #3 shows plans approved by Public Works July 5, 2016

On July 5, 2016, each page of the stormwater section was stamped with a Public Works approval form and signed by Assistant City Engineer Eugene Egemba (Figure No.12). The array of lateral pipes in the Kremers plans and the corresponding technical specifications for the connections tees, which together comprised an extension of the system known as stubouts, were approved as permanent parts of the drainage system.

During an interview with OIG staff, current Public Works Director Roy Coley said the lateral pipes that extended to the front of each house on North and South Coconut Lanes were

approved by Public Works as permanent installations. When asked if the lateral pipes shown on the Kremers plans were intended to connect private-side yard drains to the public drainage system as shown in the Wade Trim drawing titled "Typical Cross Section Driveway-Tie for the Coconuts," Coley said, "That's correct." Coley said lateral pipes and right-of-way drainpipes on the plans approved by Public Works were not intended to be temporary construction drains. He said, "No. As far as I'm concerned, the temporary drains were a construction activity…we didn't approve them and there's no engineering from Public Works for temporary inlets."

During an interview with OIG staff, Lanzo Construction Manager Beaty said the plan was to build a system that could connect to private yard drains, but that in 2016 the construction of drains on private property was not part of Lanzo's contract with the City to build a right-of-way drainage system. Beaty said, "When the road is higher than the private properties, there's a need for accommodation and the need was understood, but the method of accommodation wasn't… That was resolved with temporary drainage." Beaty's recollection was consistent with the minutes of a CIP progress meeting on Oct. 13, 2016. The minutes said, "Harmonization Meetings Summary spreadsheet for Coconut Lane was discussed. Certain components including wall/gate harmonization are homeowner responsibility, yard drain in certain areas is a temporary condition, it will be plugged when homeowner establishes their private side drainage system."

During an interview with OIG staff, Kremers explained the genesis of the decision to describe the 88 "permanent" right-of-way pipes and drain connections as "temporary" : "The original...design kept some portions of the road low so we wouldn't be trapping pools of water on people's property. The design criteria was modified so the roads were required to be raised. It was at that point when we knew we were going to have to make accommodations for private property drainage. And the City at that point didn't have a policy established and was working on it."

CIP Senior Project Manager Samadi took over management of the project in July 2016 after Tomcyzk left his position. During an interview with OIG staff, Samadi said that from the beginning of her involvement, she understood that the plan was to use the right-of-way drain pipes to install private-side yard drains. She said:

> The set of the plans that we were working from the time that I took over the project had those yard drains in it and I could not understand what that was and it was explained to me in detail as to what was the purpose of those yard drains. The purpose of the drains [was] for during the construction, and they were going to be plugged. And at some point in the future, when the city approved, they were ...going to allow the residents to connect to these drains like a stormwater utility permit type of payment and things of that nature...the yard drains

were already a part of the plans. I am not sure. I don't think they were permitted, but they were part of the plans when I took over the project and that was what was going to be constructed.

The evidence supports a conclusion that between Dec 9, 2015, and May 27, 2016, the responsible City officials and City contractors knew, or had reason to know, that DERM and the SFWMD were reviewing plans prepared by Rubio that the City did not intend to follow; that the permitting agencies were basing their permitting decision on the Rubio plans; and that Rubio had ceased to function as the Engineer of Record. Ultimately, both agencies issued permits based on the Rubio plans. Soon after receiving a Class II permit on May 27, 2017 based on the approved plans signed and seal by Rubio, the City adopted the unpermitted plans prepared, signed and sealed by Kremers.

Carpenter said in an interview that he was not aware the Rubio plans were revised by Kremers. “I can honestly say that I don't recall reviewing those plans. I don't know whether those plans were, you know, put together as one obviously is with harmonization and one is without harmonization, meaning that we're able to reach an agreement with a private property owner to be able to encroach into their property, do additional filling to be able to match an elevated roadway.” Further, Carpenter said that when he signed the permit he was not aware of any decision to use the Rubio plans for obtain permits from SFWMD and, concurrently, direct Wade Trim’s Kremers to prepare an alternative set of plans with connections for private-side yard drains. Carpenter said, “I think the simple answer to that is no.”

During interviews with OIG staff, DERM engineers Molina and De Torres said they believe they were misled in 2016 when they were led to believe that Rubio was the Engineer of Record for the stormwater drainage section of the plans, and that the City intended to use the 100% Final Design plans prepared by Rubio to build the drainage system. During an interview, Molina said: “The work scope of a Class II is to…check the quality, check the quantity, and also the piping. The fact that they added extra piping, extra connections, that also implies that we have new owners in place. It would have required a Class II permit…Had they come to us and showed us, ‘This is our plans.’…I would have requested a permit modification.

DERM Director Hefty disputed the rationale offered by Carpenter and Beaty that, given the system’s capacity to provide water quality treatment for stormwater from both public and private lots, there was no need to notify DERM of changes in the system design to accommodate private-side yard drains. Hefty said this change in design “should have been included initially or, if they

came up with a design change of this significance, it would have required a modification to the permit. Further, he said:

> It sounds to me like what they're trying to say is they didn't think they needed to get DERM's approval because they thought they had overdesigned it. But those two things are apples and oranges. If they've overdesigned, great, include those calculations in your request for a modification. It'll make it easy for my staff to review and approve. But the requirement to obtain a permit is pursuant to the Code. They don't get to decide when they get a permit or not based on what they think DERM cares about. The Code spells out when a permit is required, a permit was required, and they didn't obtain it.

During interviews with the OIG staff, the responsible current or former City officials, including Carpenter, Martinez, Mowry, Samadi, and Sanchez contended Lanzo was solely responsible for permitting. They claimed that the City as owner and permittee was not responsible for obtaining permits or ensuring that the agencies were provided with the Kremers plans because the City's agreement with Lanzo made the general contractor responsible for obtaining all permits. During an interview, Carpenter said, "The Engineer of Record is responsible for design and permitting of the project." Martinez said his staff will assist in processing the applications, but that contractually the design builder is responsible for permitting.

During an interview with OIG staff, DERM Director Lee Hefty stated,

> I've been a public servant for more than 30 years. And you can't outsource stewardship, so as a public servant, we have a higher level of obligation, responsibility to the public. And so for the city to simply say, 'Hey, it's not our fault we hired somebody else,' I don't buy that excuse. Quite frankly, we are public servants for a reason. We have a higher moral obligation to ensure the public is protected. So I don't care how many people you hire, you are ultimately responsible. So that's my professional opinion.

The Office of Inspector General strongly agrees with this view.

B. (May 2016 – Dec. 2017) The City and Lanzo make significant changes to the construction plans to accommodate demands from the Homeowners Association; Wade Trim engineers recommend notifying DERM and obtaining a permit modification to no avail

After issuing a permit, both DERM and the SFWMD require the project owner and general contractor to use the approved plans to build the project and notify them of significant changes.

However, both agencies acknowledge the operational reality that during the construction of a complex stormwater drainage system, contractors often need to make minor adjustments, such as installing a fire hydrant in a different part of a street, or shifting the placement of a storm drain by several feet to improve the drainage in a swale.

For that reason, both agencies allow owners and contractors to disclose minor changes at the end of a project when they submit an "As-Built" set of construction plans indicating what has been constructed. But this accommodation is limited and is not intended to include changes to the project's design. The SFWMD's policy says, "Major changes, including changes to permit authorization or special or limiting conditions would require a permit modification before implementation." The DERM application requires a project's owner and Engineer of Record to attest that, "To the best of my knowledge and belief, the information, data and plans submitted are true, complete and accurate, and I will apprise the Department of any changes to information provided in this application."

Because Wade Trim engineer Garcia was based in the firm's Coral Gables office, he attended CIP progress meetings, attended numerous meetings with residents on Palm and Hibiscus Island, and responded to requests from CIP and Lanzo. Under Florida rules that apply to licensed professional engineers, Garcia functioned as a "delegated engineer" who provided engineering services under the direction of Engineer of Record Kremers.

As the Wade Trim engineer with day-to-day responsibility for servicing the project, Garcia attended most CIP progress meetings and was instrumental in the engineering work these changes required. During an interview with OIG staff, Wade Trim engineer Garcia said that by 2017 he had grown frustrated with the number of significant changes that CIP had directed Lanzo and Wade Trim to make to the construction plans, most of them at the request of the Homeowners Association. Garcia stated that he was concerned about the failure to notify DERM of the significant changes and the agency's reaction if all the changes were only disclosed at the end of the project. In 2017 Garcia prepared a spreadsheet of issues with CIP, including one labeled "Disregard for approved permits." It said:

> MDRER/SFWMD: Significant changes have been directed by CIP to stormwater design (as a result of changes in tree removal directives); it has only been recently that CIP has expressed concern with project certification; it is unclear whether CIP weighed risk of permit certification against universal directive to save ALL trees, including not removing trees in swale areas that reduce conveyance efficiency and integrity of the proposed stormwater system (the removal of trees in the swale area was an explicit directive in DCP).

One of these significant changes was a redesign of the swales that, in the Rubio plans, would have been created by clearing the right-of-way along Palm Avenue North. In response to requests from the HOA, in October 2016 the City directed Lanzo to redesign those plans to preserve the trees and other encroachments in the right-of-way. This represented a significant change to the Rubio plans.

During an interview with OIG staff, Wade Trim engineer Garcia said he urged the City and Lanzo to notify DERM of the significant changes to the project's construction plans and determine the need to modify the Class II permit. Garcia said, "On a number of occasions I had recommended that we reach out to RER (DERM) sooner to begin discussions regarding some of these changes that had been going on. And every time I would present that, they would say, you know, 'wait, let's wait,' or, you know, 'don't talk to them directly.'" Garcia stated that he was given these directions by CIP Senior Project Manager Mina Samadi and Lanzo Senior Construction Manager Pablo Riano. Garcia said, "That came from not only Mina but also Pablo…Pablo was my client, or Lanzo, and so I advised Lanzo that we really should start discussions earlier with RER (DERM). But then he also put the clamp on that, so I was essentially muzzled."

C. (Feb. – April 2017) In February City Manager Morales affirms policy prohibiting connection of privately owned yard drains to the public drainage system; in April the City Commission directs City staff to develop an "engineering solution and policy" to allow property owners to connect private-side drains to the drainage system

The Palm and Hibiscus project was the first neighborhood project where the City had applied the strategy Mowry had approved in Sunset Harbour that combined raising roads and using 12-inch drains to mitigate new flooding. It also was the first neighborhood project that suffered from the unintended consequences of accelerating the project's design and disrupting CIP's process for managing large scale design-build construction projects.

One of the earliest warning signs was the City's failure to develop a framework and policy for managing the legal, regulatory, and operational issues that City officials knew were likely to result from a project that raised roads a foot or more higher than the elevation of adjacent

properties, and depended on an unprecedented and untested engineering solution that relied on the use of private-side yard drains.

When the City decided in October 2015 to require Lanzo to raise roads in west Palm Island a foot or more above the 2.2 foot centerline elevation in the Rubio plans, Carpenter, Mowry, Martinez, and other decision-makers knew that requiring the minimum grate elevation of 2.7 feet above sea level could result in new flooding of private residential lots. Mowry and other City officials recognized the need to develop a legal justification and an administrative process for managing the connections.

Sixteen months after Mowry and others had assured the HOA Board at a Nov. 2015 briefing that the City would change the policy prohibiting the connection of private-side yard drains to the City system, that had not happened. This suggests that City Manager Morales and his staff had not yet agreed on an approach that allowed the connections but also protected the City from liability for the legal and financial risks associated with causing new or harmful flooding on private property.

Meanwhile, Lanzo had been installing the drainage system, and word of the City's allowing residents to connect their personal yard drains to the public drainage system had spread to other neighborhoods. In response to an increasing number of inquiries about the City's policy, Morales sent the City Commission an LTC dated Feb. 9, 2017, titled "Elevating Roads and Reducing Floor Risk-Frequently Asked Questions (FAQ)." The FAQ explained that residents were responsible for any new flooding caused by newly elevated roads and ruled out the connection of private-side yard drains to the City's drainage system.

Two of the FAQ's questions and answers are material to this investigation. The first asked, "Will elevating the roads flood my property?" The City's answer was, "The street improvement projects are designed to capture and manage all water within the public right of way. If water from private property flows to the street, when the street is raised, this water will have to change the direction of flow to other locations on the private property. Water will not flow from the elevated City street into private property."

Historically, stormwater that fell on private lots on west Palm Island had flowed into the street, where the inverted center of the pavement, had channeled the water into the drainage system. Raising the roads in front of those houses would block or alter that historical flow of stormwater and, in worst case scenarios, cause this water to pond or collect on the homeowner's lot.

The FAQ statement that "water will not flow from the elevated City street into private property" was, at this point, an aspiration and design objective of the construction plans, but was not true. If it were true that the elevated roads would not cause new flooding, the City and Lanzo would not have decided to install private-side drain connections in most lots on west Palm Island.

The second question asked was, "How can I tie my stormwater infrastructure into the City's drainage efforts?" The City's answer was, "Currently this is not an option for private property owners, but we are exploring options to provide our residents with additional water management options in the future." While expressed in nuanced language, the answers indicated that the City recognized the risk that raising roads would cause new flooding on private lots; was unwilling to assume a city-wide duty to prevent such flooding; and intended to shift the legal responsibility for any flood damage caused by elevating roads to individual property owners. On its face, the FAQs restatement of existing City policy appeared to rule out the use of the engineering solution that Wade Trim had developed to remove trapped stormwater from private lots.

In light of subsequent events, the Feb. 2, 2017, LTC suggests that Morales was not aware at that time that the drainage system was already designed to connect with private-side yard drains. However, Mowry and other engineers involved in the project considered the use of private-side yard drains an essential part of their plan to raise North and South Coconut Lanes a foot or more above 2.2 feet above sea level. During an interview with OIG staff, Morales said he was not aware that the drainage system had been designed to connect to private-side yard drains. Morales said the option of using the right-of-way drainpipes or stubouts for private-side drains was presented to him in 2018 as "work we would have to go back in and do."

D. (March 7 – April 26, 2017) Carpenter and Mowry continue pursuing change in policy; Commission approves policy allowing connection of private-side yard drains to public drainage system

During March 2017, Mowry continued to assure Lanzo that the City's new policy would be adopted, and that private-side drains would be installed and residents would be allowed to connect their new private-side drains to the public drainage system. When the subject came up during a CIP progress meeting March 7, 2017, Mowry said he expected the new policy to be presented to the

Mayor's Blue Ribbon Committee in April. According to a recording of the meeting, Mowry said, "Based on what the committee has, if they recommend to move forward, then we can go to the City Commission….if the City Commission basically concurs with it, then the program will be set up sometime in Summer to make a connection."

During the same meeting, Mowry acknowledged that allowing residents to connect personal drains to the system raised potential legal issues for the City that had to be sorted out. Mowry said, "Actually, I have a meeting with the City Attorney's office. It is an active process. We have experts coming in from other places to help us talk about this because we are one of the first places in the whole country that's ever done this. And even legal precedent of this has to be asked."

During March 2017, Carpenter and Assistant City Attorney Eve Boutsis began drafting a resolution approving the change in policy at the request of Aleman.

On March 31, 2017, Boutsis sent a draft to Carpenter in an email that said, "Eric, this is my first attempt at the draft stormwater policy resolution that City Commissioner Aleman is seeking…thought I would kick this off – for discussion purposes." The text said, "the City stormwater policy requires private property owners to construct on-site stormwater management systems to handle their stormwater volume, however, certain single-family properties place additional demands on the City's stormwater management system because they are (1) older single-family properties that did not have the same requirements at time of construction, (2) single-family properties that partially redevelop and increase the impervious area of a property without the associated stormwater improvements; and (3) single-family properties that are illegally connected to the public stormwater management system."

Concurrent with these efforts, City officials generated support for the new policy through news media coverage. On April 5, the *Miami Herald* published an article ("Miami Beach residents worry: Will city's anti-flood work dump water in my yard?") about an open house the City held in response to the "level of concern among property owners that the city is moving fast on infrastructure projects that are not completely understood by the public. Each homeowner will want to know what will happen to their property when the crown of the street is raised."

The article added, "In the coming months, city staffers want to propose a program that would allow private property owners to connect to upgraded street drainage systems for a fee. This

would allow homeowners who have drainage issues to keep their properties dry after the streets are raised."

At an April 26, 2017 City Commission meeting, Commissioner Aleman introduced the resolution calling it "a really significant paradigm shift" in City policy. During an interview, Aleman said she learned of the option of connecting private-side yard drains by City staff: "Bruce Mowry, Eric Carpenter, Roy Coley, [Assistant Public Works Director]Jay Fink were the ones that informed me the most…Yes, absolutely. I mean, I attended numerous of those blue ribbon panels. I consulted with Eric and Roy and Jay and Bruce all the time."

During an interview with OIG staff, Aleman said that during this period she attended meetings with residents where City staff discussed stormwater improvements in other neighborhoods that included raising roads. Because the City's long-standing policy of prohibiting the connection of privately owned yards drains to the drainage system remained in effect, Mowry at this point was telling residents they would be responsible for managing stormwater on their property. During an interview with OIG staff, Mowry said, "The policy of the City has always been that the City wasn't responsible to manage or handle water that was coming from private property…we were saying "No, they had to basically put in their own systems to do that."

This explanation heightened the concerns of residents in other neighborhoods with unusually low elevations that faced the potential risk of new flooding if their roads were elevated. In her written response to the OIG, Aleman said she heard from "single family homeowners, many of whom were deeply concerned, if not downright scared, that the City was going to make changes to infrastructure that would cause flooding in their homes and was not planning to provide any support or assistance mitigating such flooding."

Intent on addressing these fears, Aleman took up the cause of these residents In an interview with OIG staff, Aleman said she consulted with Carpenter and other City staff about the feasibility of allowing residents to "tie-in" their own yard drains to the public system. During an interview, Aleman said "When I came forward with this concept…they let me know that the capacity, the carrying capacity of the system, was already sized to handle that private stormwater runoff. And they would get to work on an engineering solution to figure out how to put in-falls on those private homes. The connections were not, as I understand it, part of the design at that time. It's that the capacity of the main system was adequate."

The first part of what Aleman said she was told was true. To accommodate the future connection of private-side yard drains, the City had designed the drainage system on Palm Island with the capacity to collect and treat stormwater in the right-of-way and on private property. However, the second part of what Aleman said she was told was not accurate. The underground stubouts and right-of-way drainage connections for each house on west Palm Island were, in fact "part of the design at that time," according to the construction Kremers prepared after the City's October 2015 decision to increase the elevation of roads on west Palm Island. And, by 2017, the underground infrastructure for that "engineering solution" that had already been built.

The resolution Aleman introduced said the City would assume responsibility for designing and implementing "a stormwater system with sufficient capacity to handle both public and private stormwater runoff," and "…develop a policy and engineering solution for private property owners within the City' s municipal stormwater system." It directed the City to "coordinate a stormwater system that would have the capacity to allow private property owners to connect to the system," and to establish a monthly stormwater fee "to ensure proper capitalization of the program through cost recovery."

During her presentation of the resolution, Aleman said she had developed the resolution on an expedited basis. She said, "I would have normally taken this resolution through the Blue Ribbon Panel on Sea Level Rise and had them endorse it through all the proper channels." However, she decided to expedite the process after hearing from constituents "who are really, really concerned about the message that they were receiving, which was based on the old policy. This policy says you're going to get to tie in now. We're not going to drain our water on you and we're not going to charge you to tie in. And I thought residents needed to hear that sooner rather than later."

The resolution provided Carpenter and Mowry broad authority and legal basis for proceeding with the City's plan to install a lateral pipe and drain connection in private lots and use the right-of-way drain pipe to connect the private-side drainage system to the public drainage system. This was the policy change that Mowry had said would occur during multiple CIP meetings with Lanzo and had unveiled for the Homeowners Association in November 2015.

Aleman's description of the resolution as authorizing a "really significant paradigm shift" was not an exaggeration; the financial, legal, and operational implications for the City were potentially significant. Mowry, in a recorded statement during a CIP meeting in March, had stated that he would be attending a meeting in the City Attorney's office with legal experts to sort out the

legal issues of what he called the "unprecedented" step of connecting private-side yard drains to a public drainage system. However, City Attorney Raul Aguila said in an interview with OIG staff that no such meeting occurred, and he was not asked to provide legal advice on the subject. During an interview, Aguila said, "I do recognize and respect the pressure that's put upon administrative staff to get these projects done. But I think the lessons learned from this project is that you cannot sacrifice process for expediency."

During an interview, CIP Director Martinez said of the 2017 resolution, "They haphazardly passed a directive without thinking of unintended consequences to provide a drain connection to every property. That is something that in my experience is unheard of."

During an interview Carpenter said, "What this particular resolution was intended to do was to give some relief to the private property owners that were hurting at the time because the roadway had been elevated and there had not been any authorization to install private stormwater drains on private property."

Subsequent events and records examined during the investigation, support a conclusion that the primary purpose of the resolution was to provide after-the-fact authorization and legal justification for the private-side drains the City had already allowed, and any new connections of such drains to the system.

In a written response to this report, Aleman said this conclusion was "grossly inaccurate" and mischaracterized the "true impetus" for efforts. There is no basis to doubt that the impetus of Aleman's introduction of the resolution was a sincere desire to address the fears of residents about the risk of flooding from newly elevated road and that she acted in good faith and without knowledge of the unpermitted construction plans by Kremers.

However, the evidence, including her statements during an interview with OIG staff, also indicate that the initial effect of her well-intentioned efforts provided after-the-fact authorization and justification, albeit unwittingly, for the City's unpermitted construction of the infrastructure for a right-of-way drainage system on west Palm Island that was designed to connect to an array of private-side yard drains.

As Aleman observed in her written response, her sworn statement during the investigation "clearly indicates that I was unaware of the connections for every home in 2017" had already been installed. As set forth elsewhere in this report, the evidence establishes that the right-of-way drainage connections or stubouts were already "part of the design at that time," and had been

installed in front of each house on west Palm Island. The failure to disclose to DERM and SFWMD the City's plans to install the additional array of pipes and connection to provide "future connections by others" was a key element of the permitting violation.

In retrospect, Aleman said in an interview with OIG staff that the 2017 resolution was never intended to authorize or justify actions that were contrary to permitting requirements. She said, "The Commission is setting the policy…so to have that policy change, I stand behind it. I think it's completely appropriate." But she added, "The implementation of that, and to actually proceed to do work without proper approval and permitting, I can't support that. And I was really surprised that that happened."

Further, Aleman contended that the regulatory enforcement action that later delayed the project eroded public support for the City's plans to undertake similar projects in other neighborhoods. She said in an interview that, "Those are the things that break the trust with the community, where our residents think, 'What is the government doing? And what do you mean you were constructing things without permits? If I did that as a resident, you know, there'd be hell to pay."

During the latter half of 2017, Wade Trim engineer Garcia said he grew concerned about the regulatory implications of converting the temporary drains to permanent fixtures and connection points for drains in private yards. Garcia had worked on the project since early 2015, had served as Wade Trim's liaison with Rubio, and assisted his work in obtaining the DERM permit.

Garcia knew that DERM had issued a Class II permit based on the previously discarded Rubio plans and that the City had replaced those permitted plans with the unpermitted plans by Kremers. He also knew that during 2016 and 2017 the City had directed the Lanzo team to make other significant changes to the construction plans. Based on the number and significance of those changes, Garcia said in an interview with OIG staff, that he recommended the City and Lanzo conduct new drainage studies to verify the system's performance, and to notify DERM of the significant changes to the plans.

During an interview with OIG staff, Garcia said, " I can say that on many occasions, I raised red flags and I tried to push back, but it felt like just the support wasn't there, you know, going up the chain, so to speak…Wade Trim runs a business and they want to keep clients happy and

etcetera. But on several occasions, Lanzo had already done things to Wade Trim that I thought weren't correct. And I was surprised that we were still in business with them."

E. (June – Nov. 2017) National recognition for City's proactive efforts to address climate change; first signs of trouble with permitting agencies over City's efforts to accelerate work on a stormwater drainage project

Mayor Levine's accomplishments were substantive and had the sustained support of an affluent and progressive community that was awake to the existential threat of sea level rise, and prepared to pay higher utility rates to reduce flooding and protect property values. A November 2017 Engineer's Report for a stormwater series bond issue estimated the total cost for new and existing stormwater drainage and neighborhood infrastructure projects at $658,940,087.

Having ensured that the City would have sufficient funding for a sustained build-up of its defenses against climate change, AECOM's McGowan, Carpenter, Mowry in Public Works, and Robins as chairman of the Mayor's Blue Ribbon Committee collaborated on plans for using these funds to overhaul the City's 70-year-old stormwater drainage system in seven to ten years. This would entail the construction of 57 additional pumping stations, each with a backup pump and power station. Where possible, these stormwater drainage upgrades were integrated into neighborhood right-of-way infrastructure improvement projects, that included upgraded water and sewer lines, roads, sidewalks, lighting, and landscaping.

The Engineer's report said, "The financial plan for improvements to the City's stormwater management system, as described in this Engineer's Report, includes adequate funding for improvements to be constructed and installed in the manner and time periods currently contemplated." This conclusion assumed that the projects would be well-managed and would not suffer significant increases in cost. The report estimated the Palm and Hibiscus project at $32,161,390. At that point, the cost of the project was $38.5 million and climbing. At present, the total project cost is projected to exceed $50 million (See Appendix 2).

During the June 2017 United States Conference of Mayors, Mayor Levine led a panel discussion about the City's resiliency efforts and asked Carpenter to describe his strategy. Carpenter

said: “I have the benefit of being an engineer by training, but also having one foot in the administrative side of the government. So my role was really twofold: putting the team together of the engineers that needed to decipher the problems, but also identifying those problems and helping the policymakers set the policies that were going to fix the problems.”

Carpenter noted that a key to the City’s expanding initiative was persuading regulatory agencies to issue permits for drainage solutions that fell outside the existing framework of environmental law and regulations that required public and private stormwater drainage systems to retain the first inch of rain (the most heavily polluted) and prevent its discharge into a body of water. “We were working with outdated technology because it was all the environmental regulators had been familiar with,” Carpenter said, “And so we had a large learning curve, not just of ourselves, but also educating the regulatory community on how we can do this better and still not have any adverse impact on our surrounding environment.”

A critical step had been persuading the SFWMD and DERM to allow the use of water quality devices in pumping stations to meet water quality standards instead of retaining the first flush of stormwater in a well or cistern. This opened the door to wider deployment of large pumping stations that could discharge all rain from a storm or king tide into Biscayne Bay or the Atlantic Ocean. During the Mayor’s Conference panel, Carpenter said, “We've had to push the envelope, not only on the technology side, but also challenge the regulators to evolve with us. We’ve basically come up with some very innovative techniques to be able to treat the water before it gets discharged into the bay.” A prerequisite to the City’s accomplishments were increases in stormwater rates that served as the basis of bond issues in 2015 and 2017

Regulatory approval of the water treatment equipment also changed hydrologic and hydraulic modeling of expected performance of stormwater systems (“drainage studies”). In theory, it allowed the City to meet DERM’s water quality standards with a pumping system that could collect all or most of the stormwater on public and private property. This development was material to evaluating the City’s actions during the Palm and Hibiscus project. To establish that a public drainage system would meet water quality standards, DERM required drainage studies based on the amount of rain expected to fall within the right-of-way during a design basis storm. That requirement had not changed. But use of the treatment devices meant the City was installing pumping stations that could ensure the water quality of stormwater collected from both public and private property.

Levine turned next to Mowry, saying, “You're more than a chief engineer. You're Eric's general on the ground constantly,” and asked him to “tell us from an engineering point of view, what are the unique, advanced things that you've had to do and had to look at and reconfigure?” Mowry said that the City’s success had depended less on his technical acumen than Levine’s “Get it Done” philosophy and the support of the residents. “Technical is easy,” Mowry said. He added, “It's the issue of getting it all together and getting the funding and getting the community together…and that's how I implement our solutions here.”

During the panel, Carpenter and Mowry did not mention their ongoing and unprecedented plan to build a public drainage system that was designed to connect private-side yard drains to the public stormwater drainage system.

IX. EXPANSION AND DISCLOSURE

A. (Jan. – April 2018) The City decides to begin installing private-side yard drains under the Class II permit; CIP tells homeowners that the unpermitted right-of-way drainpipes will be used as connection points to the mainline pipe

On the afternoon of Jan. 19, 2018, CIP and Lanzo staff met with Stuart B. Cooper of 262 South Coconut Lane and explained the City's plans to install two private-side yard drains in his front yard that would be connected to the mainline pipe in the road using the 12-inch drain pipe that Lanzo had installed in the right-of-way in front of the house.

Two years earlier Cooper had been one of the west Palm Island property owners who received the Aug. 3, 2016, letter from Mowry that said, "During the construction phase of this project, the contractor will install a temporary collection system inside your property to mitigate the stormwater runoff from the right of way. This is a temporary system and will be capped once the final elevations are established and the project restoration is complete."

On Feb. 8, 2018, CIP Public Information Specialist Lauren Firtel followed up in an email to another resident that said, "The contractor explained that you have a drain that sits at the right-of-way with a single connection point to allow for you and the other property owners to connect to the public right-of-way. The City Commission passed a resolution which allows for private property owners to connect to the public drainage system and a method is currently being established."

Firtel's account of how the contractor explained the process for using the right-of-way drain pipes for connecting a private-side yard drain to the drainage system is consistent with the City's plans for a permanent condition that was described in the minutes of the April 7, 2016 meeting with CIP, Lanzo and Wade Trim staff to finalize the harmonization process for North and South Coconut Lanes.

The City had not yet adopted a new policy allowing private drains to connect to the drainage system, but CIP was proceeding on the assumption that the change would happen soon. They were able to do this during the first quarter of 2018 because the City had installed at least 85 lateral pipes

and right-of-way pipe connections in front of or near each house on North and South Coconut Lanes. CIP's communications with residents between January and March, signaling the City's plans to use those right-of-way drainpipes for their intended purpose: as permanent connection points for private-side yard drains to the mainline pipe.

As set forth below, the evidence establishes that Wade Trim engineers recommended notifying DERM of the new phase of construction on private property and obtaining a modification to the City's Class II permit. After agreeing to new drainage studies to show DERM the drainage system could still meet water quality standards, the City and Lanzo jointly arrived at an understanding not to notify DERM and did not do so.

The New Drainage Directive (NDD) was prepared by Public Works under the direction of Assistant City Manager Carpenter, with the assistance and approval of lawyers in the City Attorney's office and City Attorney Raul Aguila, as well as City Manager Morales. During March and April, CIP and Public Works began implementing the new directive without further action by the City Commission.

CIP staff carried out most of the activities with Lanzo and Wade Trim. The administrative aspects of the policy were carried out by Public Works and staff in the Building Department. The new phase of construction work beyond the right-of-way was not referenced in the City's contract with Lanzo to design and build a "right-of-way" project. It was performed under task orders. Aside from Typical Drive-way Tie-In for North and South Coconut Lane in the hardscape section of the Kremers plans, Wade Trim did not have construction plans and had not conducted drainage studies to verify that the large scale installation of private-side yard drains would meet DERM's water quality standards.

The new work on private property was not covered by the City's Class II permit for work in the right-of-way, and not included on the Kremers plans. During March, according to Wade Trim engineer Garcia, he raised with Lanzo and CIP the need to notify DERM of the new work and obtain a modification of the Class II permit.

Minutes of CIP progress meetings indicate that during February and March of 2018, Lanzo, Wade Trim and CIP staff discussed the need to notify DERM and obtain a modification of the project's Class II permit. Wade Trim engineer Garcia said he again recommended to Lanzo, Wade

Trim's client, and to CIP that the City and Lanzo notify DERM of the new construction and obtain a modification of the City's Class II permit.

On March 20, 2018, Garcia sent Lanzo Construction Manager Victor Serrano an email explaining that the new drainage studies were necessary because the number of significant changes made to the plans had made the drainage studies done by Rubio and Kremers obsolete. The email said the computer modeling would include, "Review of stormwater as-builts to update ICPR (or drainage study) model to create baseline conditions; there have been many significant changes to the design we originally proposed, so want to make sure we reflect installed conditions as our baseline."

Given the number and significance of the changes the City had directed Lanzo to make since July 2016, the June 2015 study by Rubio submitted to DERM and the June 2016 version by Kremers were by then both outdated. Those results were based on the performance of the proposed drainage system with different designs.

Regardless of when the City and Lanzo disclosed the changes to DERM, the agency would expect to see updated construction plans and a drainage study based on those plans. The purpose of conducting a new drainage study in April 2018 was to verify that, even with the actual changes that had already been made and the additional changes the City proposed to make, the expected performance of the drainage system on Palm Island would still meet DERM water quality standards.

During an interview with OIG staff, Garcia said that Wade Trim did not have a complete understanding of all the work Lanzo had done at the direction of the City. Given the number of both large and small changes to the unpermitted stormwater plans that Kremers had signed and sealed in June 2016, Garcia said the first task was to obtain an updated version of the Kremers As-Built plans. Garcia said: "We were sort of mid-construction. And so, we're having to put [into computer modeling] what's been installed already in the field and then what is planned to be installed in the field."

Garcia said the As-Built plans would be used to conduct a drainage study to establish a new baseline of expected performance for the drainage system, based on the changes since July 2016. Once a new performance baseline had been established, Garcia said he would conduct a second round of drainage studies to model the expected effect of private-side yard drains on the

performance of the drainage system. In an interview with OIG staff, Garcia said, "To proceed with the design, you gotta confirm that this makes sense from the stormwater perspective. And so you do a model…of this and confirm that the proposed changes work or make sense."

Based on the information he had received from CIP, Garcia estimated that one or more drains would be installed in about half the private lots on west Palm Island. An important aspect of the second drainage study was verifying that the private-side drains would not cause new flooding, which was possible. In his email to Serrano, Garcia said he would "create new [sic] scenario with proposed private side connections (our initial count shows between 30 and 40 additional connections); we need to make sure the hydraulic grade line does not create potential flooding conditions in the properties, now that they will be connected to the public stormwater system."

On March 15, during a CIP progress meeting, the participants discussed the City's plans to expand the new phase of construction beyond the right-of-way. That meeting was attended by CIP staff members Samadi and Sanchez, CIP consultant Crews, Riano and Serrano from Lanzo, Garcia and Mullen from Wade Trim. **According to the minutes, the participants discussed the engineering work for the new construction beyond the right-of-way, and Wade Trim's recommendation that the City and Lanzo notify DERM and obtain a modification of the Class II permit** (Emphasis added)**.**

The text of the minutes indicate that CIP staff discussed, but did not approve, the recommendation Garcia said he made that the City and Lanzo notify DERM of the New Drainage Directive phase of construction and obtain a modification of the existing Class II permit, and further, that the parties reached a consensus that the work on private lots could be performed under the existing Class II permit for the right-of-way project. Section 5.0 of the minutes ("Design") said: "Private connections discussed: The intent is to provide connection specifically if properties are low. D/B (Design/Build) team noted this as a changed condition and will need to review calculations and permits. **Work to take place under existing permits," (**Emphasis added.)

Nevertheless, this did not end discussion of contacting the permitting agencies. On March 22, 2018 Lanzo Construction Manager Riano sent CIP Project Coordinator Sanchez an estimate of $63,877 for "additional yard drains to the already approved drainage system, for properties that have a floor elevation lower than the proposed crown of the adjacent road at the Palm & Hibiscus project." The correspondence included a Wade Trim Scope-of-Work for preparing As-Built plans and drainage studies to "confirm feasibility of City-directed private side connections," and

obtaining modifications of the existing permits from DERM and the SFWMD to allow construction of private yard drains. (Figure No. 13)

WADE TRIM

Scope of Work and Fee for Services
City of Miami Beach
Palm and Hibiscus Islands

Scope of Work: Stormwater modeling efforts to confirm feasibility of City-directed private side connections

Tasks include:
Review of stormwater as-builts to update ICPR model to create baseline conditions
Create new scenario with proposed private side connections
Review actual pump operating conditions (pump reports to be provided by the City)
ICPR model version upgrade

TASK NO.	TASK DESCRIPTION	PROJECT MANAGER	SENIOR CIVIL ENGINEER	STAFF ENGINEER
	Miami Beach Hourly Rates	$138.00	$138.00	$116.15
1.0	**Stormwater baseline and new model scenarios**			
1.1	Review of stormwater as-builts to update ICPR model to create baseline conditions	10	50	0
1.2	Create baseline model (ICPR model conversion)	10	100	0
1.3	Create new scenario with proposed private side connections	10	50	0
1.4	Review actual pump operating conditions (pump report to be provided by City)	4	2	0
1.5	Prepare report summarizing comparison between baseline and new scenario	8	20	20
1.6	QA/QC	4	8	0
2.0	**PERMITTING (SFWMD, MDRER): Submittal of supporting documents addressing changes to original permitted design**			
2.1	Prepare report regarding differences between installed and original design conditions	16	50	20
2.2	Address permitting agency comments	16	20	10
	GRAND TOTALS	**78**	**300**	**50**
	Hourly Rates	$138.00	$138.00	$116.15
	Labor Cost per Category	$10,764	$41,400	$5,808

Figure 13 Excerpt from Wade Trim Scope-of-Work for engineering services required to notify DERM and SFWM of City's plans to install private-side yard drains and obtain a modification of existing permits submitted March 22, 2018 [Emphasis added]

On April 9, 2018 Sanchez sent Garcia, Riano, and Serrano an email ("Palm Island Coconut Ln. Harmonization Complete – IMPORTANT") that suggested the City did not object to Lanzo and Wade Trim contacting DERM to obtain a permit modification. The email said, "I am still waiting for Daniel's list of FFE and center line of the road elevation to determine which address does this correspond to? Run your drainage model and apply for permit mod. If you need to. Provide a reasonable request for change order with design and construction cost. Implement the work to meet the new directive and meet your deadlines."

Notwithstanding this email, subsequent events, other records, and statements from Garcia and Riano during sworn interviews, support a conclusion that the responsible City officials discouraged the Lanzo team from disclosing the new phase of construction to the permitting agencies. CIP approved funding for Wade Trim to prepare As-Built plans and conduct a new drainage study, but did not approve $17,560 for engineering services associated with notifying SFWMD and DERM about the City's plans to install private-side yard drains and obtain permit modifications.

Despite rejecting Wade Trim's recommendation to notify DERM and the SFWMD about the new phase of construction, the City approved funding for Wade Trim to prepare an As-Built version of the unpermitted Kremers plans and to conduct new drainage studies based on those plans. The work was funded under a revised Wade Trim Scope of Work that omitted reference to contacting the permitting agencies.

B. (April 4 - May 10, 2018) The City decides to begin a new phase of construction that extends the public drainage system into private property; creates City Drainage Connection Permit

On April 4, 2018, Samadi sent Lanzo and Wade Trim additional information about the New Drainage Directive and the City's policy for selecting the lots where the new drain connections would be installed. The email said in part: "Any Property that has signed the Harmonization Agreement and has FFE at or below the new crown of the road shall receive a yard drain/catch basin inside the private property, at the low point, referred to as the "connection point" with a plug that can be removed and connected to the system."

The City's efforts to extend the public drainage system into private lots and issue Drainage Connection Permits to connect those drains to the system, and Wade Trim's concurrent efforts to prepare an As-Built set of plans and drainage study for Palm and Hibiscus Islands, were completed during the six weeks preceding the expiration of the project's Class II permit

On April 18, 2018 Engineer of Record Kremers completed an As-Built version of the stormwater section of the construction plans that showed the right-of-way drainpipes and other significant changes the City had directed Lanzo to make during the project. As planned, Garcia used

those updated plans to conduct drainage studies that established a new performance baseline for the system. The results for Palm Island were submitted to CIP in a report titled dated May 3, 2010. This was documentation that the City and Lanzo could use to obtain a modification and extension of the project's Class II permit. They did not do so.

On April 24, 2018, Chief Resiliency Officer Susan M. Torriente emailed Carpenter about developing an installation guide for residents suggested by City Commissioner Aleman. It said in part, "Com. Aleman called me about this potential private tie-in to the public infrastructure system. She would like me to create an easy "how to" manual or brochure for other residents. Can we meet to discuss process and steps so I can help in terms of streamlining."

Carpenter's response, copied to Morales, Martinez, and Coley said: "Building, CIP and Public Works have met on this to streamline the process as an attempt to provide concierge service for the residents that want to connect. I believe that we have a good process of Building [Department] allowing the walk-through of a plumbing permit with documents provide [sic] by a licensed plumber and a form signed by Public Works. We are just waiting on legal review of the form and then we could certainly use some help on the Communication side to get the word out."

On May 1, 2018 Lanzo Construction Manager Riano emailed DERM Senior Engineer De Torres a request for a six-month extension. She responded, "As per the Miami-Dade County Chapter 24-48, the application for the permit extension must be submitted."

On May 10, 2018 three events occurred: CIP held a progress meeting with Lanzo and Wade Trim staff; the City Attorney's Office approved the City's new Drainage Connection permit; Garcia signed a cover letter for the City's application for a new Class II permit.

The CIP progress meeting included Lanzo owner Joseph D'Alessandro, and Lanzo construction managers Beaty, Riano and Serrano and Wade Trim engineers Brezinski, Kremers, Garcia, Wright, and David Mullen, and CIP Project Manager Samadi and Project Coordinator Sanchez. The minutes reflect an extensive discussion of pending items, including permitting. However, the minutes indicate discussion of two permits other than the Class II permit.

The new Drainage Connection Permit made "all present and future owners" of the property responsible for the performance of the private-side yard drain and clarified that in allowing the connection the City was not assuming a duty to prevent flooding on the property. The permit said, "The property owner agrees to indemnify and hold harmless the City, its agents and assigns for any

damages resulting from this agreement" absent negligence. And further, that the "property owner shall be responsible for the maintenance and repairs of the storm water connections within the property." It concluded with a disclaimer that said, "This permit shall only be valid for this drainage connection, and any new development or redevelopment of the subject property shall follow the City's Land Development Regulations." If the existing structure on the property were to be redeveloped, the City would require the owner to raise the property's elevation.

The May 10, 2018 Garcia signed a letter to DERM intended for submission with the City's application for a second Class II permit. CIP Project Coordinator Sanchez made the letter part of the application package in lieu of an "Engineer's Letter of Certification" signed by Engineer of Record Kremers.

On May 15, 2018, Assistant City Manager Carpenter signed the City's second application for a Class II permit. The same day, CIP Project Coordinator Sanchez emailed the signed application for a Class II permit to DERM Senior Engineer De Torres. The investigation obtained no records that established that Carpenter saw Garcia's May 10, 2015 letter to DERM's Supervisor Molina. During interviews with OIG staff, Carpenter said it was his practice to have CIP review permit applications prepared by the design-builder and to sign the application based on CIP's review and approval.

The DERM permit application at Section 2 included a checklist of documentation required with each application signed by the project's Engineer of Record. It said, "Checklist: INCOMPLETE APPLICATION PACKAGE WILL NOT BE PROCESSED" and thereafter contained boxes to check for 3 copies of the project's construction plans, drainage studies, and the Letter of Certification from the Engineer of Record that the proposed drainage system would not alter the positive flow of water or cause harmful flooding. In the new application, these boxes were checked to indicate that the required documentation, including the construction plans, were attached. They were not.

The application did not include the recently updated As-Built version of the Kremers plans, the updated drainage study by Garcia based on those plans, and an Engineer's Letter of Certification from Kremers. Instead, the email from CIP to DERM included the permit application signed by Carpenter and the May 10, 2018 cover letter on Wade Trim letterhead signed by Garcia. The letter included an explanation for not submitting the required documentation, including the

construction plans. The statement said, "For all required documentation as outlined in Section 2 and Attachment B, please refer to original permit application for Permit No. 20150058, as a reference."

This was a reference to the original plans prepared by Rubio that had been the basis of the 2016 permit. It indicated that the Rubio plans were being used to build the drainage system. Those plans also would serve as the basis of the City's application for a new permit in 2018. The reference to the "original permit application" also encompassed the Engineer's Letter of Certification that Rubio had signed as part of the first application. In that letter, he had stated that he would provide "periodic inspections throughout the construction period with staff under my responsible charge," and prepare a set of As-Built plans for the agency to review at the end of the project. Rubio was at this point no longer serving as the Engineer of Record for the drainage system.

By omitting a second letter of certification signed by Kremers, and omitting plans signed and sealed by Kremers, the application was omitting information that was (a) required by the application and (b) material to DERM's review of the application. In lieu of this documentation, the May 10, 2018 letter signed by Garcia provided an unusual and irregular supplement to the standard DERM application form. It contained five questions from DERM's "Application for Time Extension of Class II…Permit."

One question said, "Describe the work, as authorized by the above-referenced permit that has not been completed up to date." In the letter, Garcia wrote the following: "Swale area grading, pump stations, private-side yard drains, lighting, final lift of asphalt, pavement and marking." All but one of the items on that list were routine tasks performed at the end of a project. The outlier in the middle of the group was "Private-side yard drains." No "private-side yard drains were "authorized by the" the 2016 permit. This statement in Garcia's letter was factually false.

In response to the question, "Has the work performed to date as authorized by the above-referenced permit been conducted in accordance with the permit description, approved plans and restrictions, limitations or conditions of the permit? If not, describe in detail work that has been conducted that is not in accordance with the permit." Garcia's response to this question did not answer the first question as to whether work on the project to date had been done in accordance with the original permit description and "approved plans." The truthful answer was no, the work had not been done according to the Rubio plans.

Garcia answered, “City provided a change in directive requiring installation of private-side yard drains for properties that have finished floor elevations below the adjacent crown of road.” This referred to the New Drainage Directive adopted by Public Works in April.” Thereafter, his answer summarized the City’s rationale for its assumption that that private-side yard drains were not a material change because the design of the drainage system was scaled to handle water on both public and private lots.

The answer continued, “The original stormwater design criteria required that the drainage area be sized to account for and reflect the actual contributory area at a minimum all road rights-of-way, 100% of interior (landlocked) lots and 50% of waterfront lots. Thusly there is enough capacity in the system to account for this additional stormwater load, particularly in light of the fact that few of the properties fall within this new City criteria.” At this point, it was not clear how many lots would have private-side yard drains installed but it was expected to be more than “a few.” Garcia had estimated 40 to 50, but the number could be as high as 90 on west Palm Island.

Next, Garcia said, “Additional City-directed changes will be submitted via revised plans for Palm Island and Hibiscus Islands during permit certification submittals; these mainly relate to change of pipe alignments to reduce impact to existing vegetation, addition of a secondary drainage system to reduce potential flooding in isolated areas, and lowering of proposed elevation of roads to reduce harmonization impacts to private properties.”

The preceding paragraph suggested that the City and Lanzo would be making changes in the future to the plans (“Additional City-directed changes”) under new directives from the City and (b) that those changes would be described in As-Built plans at the end of the project.

Submission of As-Built plans is an activity that is described in the Engineer’s Letter of Certification. The Engineer of Record agrees to “prepare a set of reproducible record prints of drawings showing changes made during the construction process based upon the marked-up prints, drawings, and other data furnished by the contractor to me.” As noted previously, it is common practice for a contractor to disclose minor adjustments made during construction. DERM and SFWMD permits are issued with a condition that requires a permittee to report significant changes, after which the agency determines the need for a permit modification.

In sum, Wade Trim and Lanzo had prepared, and CIP had submitted, an application for a new permit in 2018 that relied on the construction plans, drainage studies, and certification letter signed by Rubio for the 2016 application, and did not submit the recently completed As-Built plans, the updated drainage studies, and a certification letter from Kremers.

Dissatisfied by the incomplete application and contents of the cover letter by Garcia, De Torres sent Sanchez a pointed email that said, "We need a certification from the Engineer of Record of the original permit to certify that not [*sic*] changes to the original signed and sealed plans dated _____ and drainage calculations dated _____ approved under CLII-20150058 have changed." The plain meaning of this email was a request from DERM to CIP to submit a statement from Kremers certifying that no significant changes had been made to the signed and sealed (though already outdated) plans by Rubio, dated Feb. 26, 2016, and that DERM had approved when it issued the 2016 permit.

At this point, Kremers was the project's Engineer of Record for the Stormwater section of the plans and for most others. However, she could not have honestly certified that no significant changes had been made to the Rubio plans or Rubio's drainage calculations. She had revised the Rubio plans in 2016 and recently prepared an As-Built update of the alternative plans. Kremers did not provide a response to DERM. Instead, this task fell to Garcia, Wade Trim's Miami-based project manager.

During an interview, Garcia stated that he never saw the email from De Torres to Sanchez asking that the Engineer of Record certify that significant changes had not been made to the permitted Rubio plans dated Feb. 26, 2016. Garcia said, "What I was told from Olga [Sanchez] and Pablo [Riano] was that they wanted a statement from the project manager stating, you know, no changes had been made."

After consulting with Riano, Garcia said he prepared and signed a letter on Wade Trim letterhead addressed to DERM Section Chief Molina. He emailed the signed correspondence to Riano who approved the document on behalf of Lanzo and forwarded it to Sanchez. The letter included the following statement: "**The purpose of this letter is to state that the original signed and sealed plans dated February 22, 2016 for Hibiscus Island and February 26, 2016 for Palm Island and drainage calculations dated October 2015 approved under CLII-20150058 have not had significant changes."** (Figure 14)

WADE TRIM

FL LC Reg. No. C000121

Wade Trim, Inc.
2100 Ponce de Leon Boulevard, Suite 940 • Coral Gables, FL 33134
786.361.1645 • www.wadetrim.com

May 17, 2018

Department of Regulatory and Economic Resources
Environmental Resources Management
701 NW 1st Court, 6th Floor
Miami, Florida 33136

Attention: Mayra De Torres, Engineer II

Re: City of Miami Beach Neighborhood 13A Infrastructure Improvements
Palm and Hibiscus Islands
Class II Permit Renewal (Permit No. CLII-20150058)

Dear Ms. De Torres:

The purpose of this letter is to state that the original signed and sealed plans dated February 22, 2016 for Hibiscus Island and February 26, 2016 for Palm Island and drainage calculations dated October 2015 approved under CLII-20150058 have not had significant changes.

The City of Miami Beach has recently revised the project's stormwater design criteria, which we are currently evaluating. Should the new criteria result in any significant changes, as they relate to the original signed and sealed plans and drainage calculations, they will be reflected in the project permit certification documents.

Please do not hesitate in contacting me with any questions.

Very truly yours,

Daniel I. Garcia

Wade Trim, Inc.

Daniel Garcia, PE
Project Manager

LNZ2003.02S

cc: Pablo Riano (Lanzo)

Figure 14 May 17, 2018 letter from Wade Trim engineer Garcia assuring DERM signification changes had not been made to the Rubio plans.

The statements in the letter were not true and misrepresented the status of the project. The first sentence falsely stated that "significant changes" had not been made to (1) the "100% Final Design" construction plans dated Feb. 26, 2016 by Rubio that were approved by CIP and Public Works and (2) drainage study calculations by Rubio based on those plans summarized in a report dated October 2015. The Rubio plans had been extensively revised in early 2016. During 2016 and 2017 additional significant changes were made in response to requests from the Homeowners Association. Given the number of significant changes, Wade Trim thought it necessary to conduct a new drainage study to verify the system's expected performance. More broadly, the statement conveyed the false and misleading impression that the City and Lanzo had been using the Rubio

plans to build the system and would continue to do so. In interviews with OIG staff Garcia said, “I wasn't trying to mislead DERM.” He said he was trying to keep “this project moving forward for the residents of Palm and Hibiscus Island and for the City” until such time as he could present DERM with a coherent description of the changes the City had directed Lanzo to make to the project.

Garcia said he recalled discussing DERM’s request for a certification letter as well as his second letter to DERM dated May 17, 2018 with Kremers. During an interview with OIG staff, Kremers said she was not aware of the May 17, 2018 letter signed by Garcia. Notwithstanding her role as Engineer of Record, Kremers said she did not know who was responsible for notifying DERM that significant changes had been made to the Rubio plans. She said, “I don't know the answer to that,” but thereafter contended, “The intent was not to try to hide any kind of changes” because “there’s nothing to be gained” from misleading DERM.

Garcia stated that in preparing the letters for DERM he took direction from Riano who transmitted the signed copies to Sanchez. During an interview with OIG staff, Riano agreed that the changes the City had directed Lanzo to make to the construction plans were significant, and that the statements in Garcia’s letter dated May 17, 2018 were not true. He said Lanzo and City staff made a joint decision that it would be sufficient to report the changes in As-Built plans at the end of the project. Riano said, “The City is aware of what's going on. Stantec is aware of what's going on. Wade Trim is aware of what's going on. Lanzo is aware of what's going on. And yes, I guess that should not have been done. The proper thing would have been to notify them, stop the project, get the revision and then move on again.”

When asked about the May 17, 2018 letter by Garcia during interview with OIG staff, CIP Director Martinez said, “I would have to say it isn't accurate…they appear to be a significant change. Then by definition, there is a significant change. So that makes the letter not accurate.” Advised of the DERM staff’s view that they were misled by the Garcia letter, Martinez said, “I agree…I don't know why Wade Trim decided that they felt comfortable signing this. Maybe their opinion of significant changes is different than, than, than mine…I'd be speculating why they didn't just come out and say, you know, ‘There's been these changes.’”

Asked during an interview why the City and Lanzo might be reluctant to notify DERM of changes to the construction plans, Riano said, "They will put a stop on the project and we should have ceased activities until the permit is approved. Revised and approved." He said the impetus for submitting Garcia's May 17, 2018 to DERM was "the idea to keep going. I think it's more because of the way the project was moving and the way we needed things to be done, without opening a can of worms. The idea would be to provide this letter, get the extension of the permit."

During an interview with OIG staff, Sanchez said she would not have sent the letters by Garcia to DERM without the approval of a more senior official in CIP and before the submission was discussed with staff from Public Works, Stantec, and Lanzo. Sanchez said, "Before I submit anything to DERM everything is discussed. It's not like it is my decision…always everything was discussed at meetings." She said all submissions to DERM were "reviewed by Public Works." She said Public Works staff were the City personnel in a position to say, "Oh no, you cannot submit that letter because it is our understanding that it is significantly changed on the design." She said, "And they didn't say anything. That's why we provided the letter to DERM based on that."

Sanchez reported to Senior Project Manager Samadi. In an interview Samadi said, "I want to emphasize this is the design builder's responsibility. I don't know why they didn't apply for a permit. I don't know. I don't know. It is beyond me to understand why they didn't do what they were supposed to have done." She said she was not aware of the letters written by Garcia, or that Sanchez, her subordinate, was involved in submitting the application for the second permit. "She (Sanchez) was my project manager, but sometimes she did things that I didn't know…example of it here. I would not have asked her to submit this package and application directly to DERM because this would be the contract design builder's responsibility. I would have suggested against this move."

After reviewing a draft of this report, Sanchez provided a written statement that took exception to Samedi's characterization and said the following:

> At the CIP Department, no documents that goes to an external agency, leaves the department without the approval of a Senior, Assistant Director, or Director. No documents that needs a signature from an Assistant City Manager leaves the CIP Department without the approval of a Senior, Assistant Director, or Director. That was the policy as a Capital Projects Coordinator, I did not have the authority to undertake this action on my own nor could I have bypassed three levels of supervision. Furthermore, we discussed all projects at regular weekly meetings and

> we always were required to obtain prior authorization to proceed with all projects related matters.

During an interview with OIG staff, Carpenter said he was not aware that the permitted plans by Rubio had been revised by Kremers in 2016 and, in May 2018, would not have known that the plans had been revised. He said, "So, from my perspective, I certainly wouldn't have seen a need to go to DERM to modify the drawings if I didn't realize the drawings had been modified." During the investigation, the OIG staff did not identify emails, correspondence, or other records that establish that Carpenter was aware of the two letters signed by Garcia.

During an interview, Carpenter said he recalled being informed at some point about concerns that the City and Lanzo needed to notify DERM that significant changes had been made to the project's construction plans, but said he could not recall when that occurred. Carpenter said, "I remember those questions coming. At what point in time those questions came, I don't, at this point, remember. But my feeling would be that if someone came to me with that feeling, I would have said, 'Then let's go back to DERM and let's get their modification issued.'"

Additionally, Carpenter said, "I can't speak for anyone else, but I certainly wouldn't have misrepresented to DERM what we were intending to do. I can tell you that. Obviously, we were in construction on Sunset Harbor at the time, we were learning a lot because we were actually building elevated roadways in a very constrained environment. And I am assuming that the team would have taken some of those lessons learned and tried to apply them to Palm and Hibiscus." On May 29, 2018, DERM Supervising Engineer Molina issued a second Class II permit, again based on the outdated Rubio plans, for the Palm and Hibiscus project "per signed and sealed plans by Orlando A. Rubio, P.E., from Craig A. Smith & Associates, dated February 19, 2016, and the letter from Daniel Garcia, P.E., from Wade Trim, Inc., dated May 17, 2018." The permit was issued to Carpenter as the permit holder in correspondence addressed to Kremers as the project's Engineer of Record. For the second time, DERM had unwittingly relied on misrepresentations in an application filed on behalf of the City and Lanzo, and issued a Class II permit for the project.

The new permit ensured that Lanzo and Wade Trim could continue with the new work of installing private yard drains under the new permit. Five days after City received the second permit, Morales sent an email to Mayor Gelber and members of the City Commission ("Subject: R9W –

Status Update on the Residential Stormwater Tie-In Initiative") with an attached copy of the new "Drainage Connection Permit for Single Family Residents." The City Manager's email said:

> All properties within Palm and Hibiscus Islands can connect to the City's stormwater system with a plumbing permit and execution of the attached form (drainage connection permit form). The cost of the permit is a percentage of the cost of the work. The first permit was issued to 215 Palm Ave. (construction cost $1,000 and permit cost $115).
>
> When the resident decides to connect to the City's stormwater system, CIP meets with the residents to advise the following: Process of Connecting to the City's Stormwater System, which includes property owner's proposed drainage connection sketch, a plumbing permit from the Building Department and associated fees and Drainage Connection Form.

Two City permits had been issued, Morales said, for the connection of private-side yard drains to the system. Additionally, 109 residents on west Palm Island had signed harmonization agreements allowing work on their lots. The new permit and the email describing the process did not mention the legal requirement for each property owner to obtain a Class II Permit from DERM before a new stormwater drainage system that emptied into the Bay could be installed on private property.

A. (May 29 – Sept. 11, 2018) Events related to the construction at 252 North Coconut Lane, DERM enforcement action and the City's response to notification that Class II permits were required.

On Sept. 11, 2018, Public Works Director Coley signed a Drainage Connection Permit for the connection of two private drains at 253 North Coconut Lane. Attached to the permit were engineering drawings that described the construction work that would later be captured in the photographs a whistleblower emailed to DERM Engineering Supervisor Molina. (Figure No. 15)

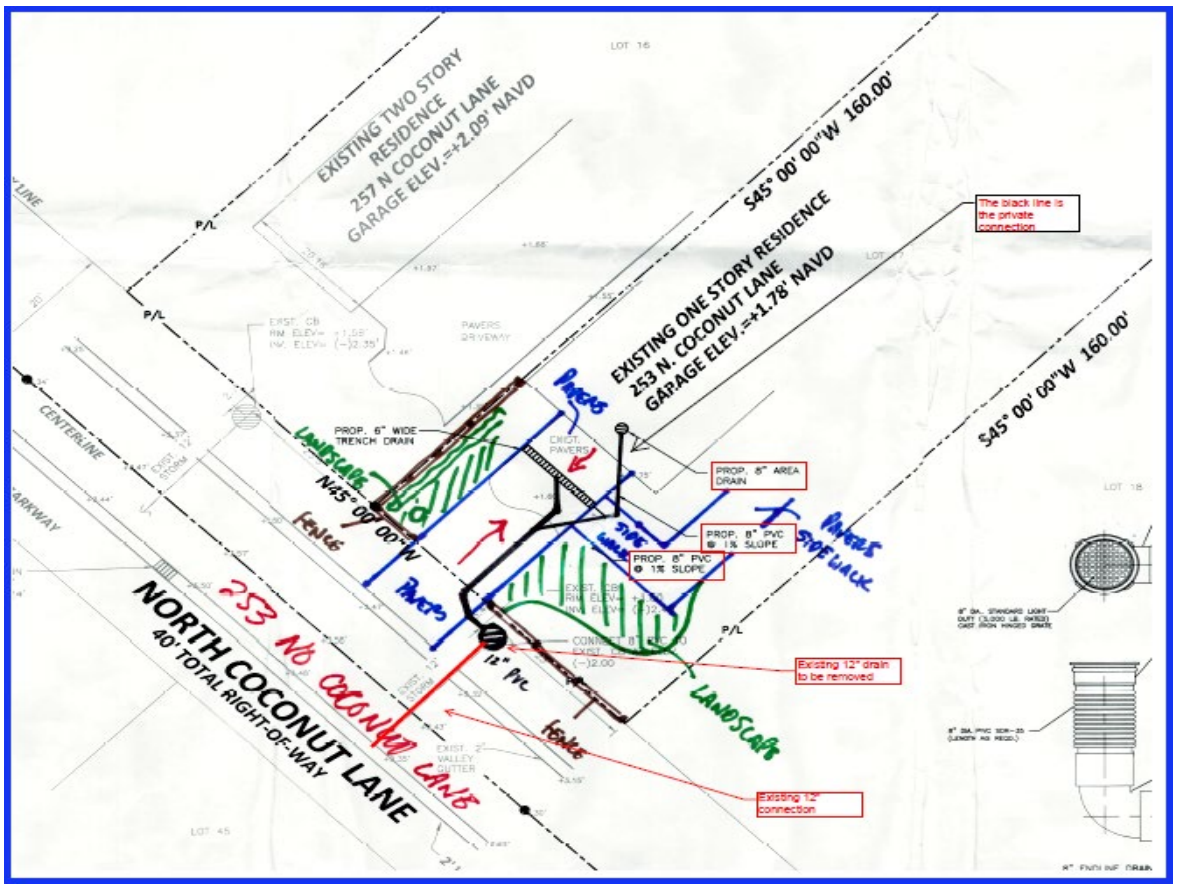


Figure 15 Construction plans approved by Public Works for installing two private-side yard drains at 252 North Coconut Lane and connected to the City drainage system by a drainpipe in the right-of-way.

On the afternoon of Sept. 19, 2018, former City Manager Jimmy Morales received an email with the same photographs of construction at 252 North Coconut Lane that the whistleblower would send to DERM Supervisor Molina the following day. Morales knew the whistleblower to be a vocal critic of the City's new practice of issuing Drainage Connection Permits to allow homeowners to connect their privately-owned stormwater drains to the public drainage system. Morales forwarded the email to Assistant City Manager Eric Carpenter, Public Works Director Roy Coley, and Environment and Sustainability Director Elizabeth Wheaton with a message that said, "FYI. He won't stop. Make sure we have a good response to this."

On Oct. 17, 2018, one week to the day after Molina warned Assistant Director of Environment and Sustainability Wells that separate Class II permits were required for each private-side drain connected to the drainage system, CIP Director David Martinez stood before the City Commission to speak in support of Amendment No. 5 to the City's contract with Lanzo

Construction. The amendment provided $775,000 in new funding for large scale construction of 12-inch yard drains inside private lots on west Palm Island.

At the request of Martinez, however, Mayor Dan Gelber had put amendment #5 to the Lanzo contract on the City Commission's meeting agenda. Gelber explained that he decided to expedite the process after talking with Martinez about the urgent need for the new funding. "I don't want to shorten a process at the expense of doing it right," Gelber said, "but I think when we talked about it you felt we could bring it to the City Commission and perhaps shortcut a little bit of it because we met with some residents who…are extremely frustrated."

Martinez agreed. He said, "We had met last week with residents of Palm and Hibiscus Island, mainly Palm Island, in discussions in terms of wrapping up this project and completing the few items we have left to do." He said Lanzo would be "installing a drain somewhere on private property. It may or may not follow up with the resident tying into it. That's their choice. The process is set up for that to happen if they elect to…they are not forced to."

Further, Martinez said in presenting Amendment No. 5, he was unveiling a new policy that responded to an April 2017 resolution that directed the City Administration to "engineering solution and policy" to allow residents to connect their personal yard drains to the public drainage system. Martinez said, "It's taken awhile to determine what the policy is. We have finally defined it and what you see here is the effort that a design-builder would have to take in order to address approximately 50 to 60 properties that would fall into this category on Palm and Hibiscus Island."

The City Commission approved Amendment No. 5. The resolution did three things: First, it added the task of constructing private-side yard drains to Lanzo's contract with the City. Second. it authorized the use of the stubouts and right-of-way drainpipes as connection points for approximately 90 drains on private property. Third, it provided funding for a new phase of construction that was not covered by the City's Class II permit. At this point the City's Class II permit did not include any construction outside the right-of-way, or the stubouts and right-of-way drainpipes installed in front of each house on west Palm Island.

Five days after the Commission approved Amendment No. 5, Wade Trim Vice President Holly Kremers signed a letter to Lanzo Construction Manager Pablo Riano that said the following:

Temporary 12 [inch] stormwater inlets along the low-lying N&S Coconut Lanes as part of the road elevation design were included in the approved 100% Palm Island construction plans dated

August 2016. These drains were not intended to be permanent and were to be cut and capped as the elevating of the road proceeded along the roadway. Capital Improvement Projects and City Commission provided directive to allow private side connections to these temporary stub-outs and requested Wade Trim provide a recommended design to convert the temporary construction drains to permanent drainage connection points.

During an interview with OIG staff, Kremers said the 88 unpermitted drainpipes in the right-of-ways "are the temporary, are formerly the temporary, construction drain. OK, so they were there and as indicated for construction means and methods…And the City said, 'Well, hey, as long as they're there, let's keep them and turn them into permanent drains and use them to allow the private property connections to connect to the City's drainage system.' OK, so now we're permitting them as permanent drains. "On Oct. 25, 2018 Lanzo Project Manager Riano submitted a formal request to CIP for direction to enable the project's design engineers to begin preparing plans for the new construction activity. The request for information began: "Per the directive provided by City of Miami Beach Commission and CMB Capital Improvement Project Department to allow private property drainage connections to the temporary twelve (12) inch edge drains."

In the weeks ahead, DERM's Water Control Staff met with personnel from Wade Trim and Lanzo and conducted their own field research. By February 2019, the agency had identified more than 100 unpermitted drainage structures. The bulk of these were the right-of-way drainpipes or stubouts that extended to the front of each house, but several were private-side yard drains that had been connected to the public drainage system.

On April 26, 2019, Kremers sent Lanzo Construction Manager Serrano a Scope of Work and change order for $126,385 that the City subsequently approved. It included language that acknowledged the unusual and non-standard design of the system and the doubts that Wade Trim had entertained about whether DERM would permit the proposed public-private drainage system. The Scope-of-Work said the following: Task 1-DERM CLII Permit Requirements Investigation**. Due to the lack of precedence for DERM permitting of a residential stormwater connection to the public stormwater collection system, an investigation of the permitting requirements and process will need to be performed to quantify the level of service required.** This task is broken down into the following sub-tasks: 1.1 – Meetings with Regulatory agencies 1.2 – Investigation of Permit Requirements. (Emphasis added)

Six months passed before the Oct. 2019 testimony during a public hearing of the Environment and Sustainability Committee that discussed enforcement action and the unpermitted construction of right-of-way drainpipes before members of the Commission.

C. (Jan. – Feb. 2021) In written responses to a draft of this report, Carpenter and Interim City Manager Raul Aguila acknowledge 88 unpermitted stubout or right-of-way drainage connections were built as permanent, but inoperative, parts of the drainage system

In July 2020 a Wade Trim Senior Project Manager Jim Penkovsky engineer spoke by phone with SFWMD Section Chief Dustin Wood about the need to modify the project Environmental Resources Permit regarding the design and construction of the secondary drainage system, and then followed up with an email to Wood that said:

> In a follow-up to our conversation, it is my understanding that the work described herein is considered 'de minimus' and no permit mod is required for the subject permit (attached for convenience). Briefly, as part of the project the City has asked the design-build team of Lanzo and Wade Trim to provide for drains within select private properties to assist in localized drainage at those properties. The ERP project description is right-of-way based. So we did want to inform the District of our encroachment into the private side at an average of 10' into each property…DERM permitting is almost complete and property owner agreements are in place."

Wood responded with an email that said, "The installation of yard drains within the permitted surface water management system as described below will not require a permit modification." (July 30,2020 email attached). Carpenter, Martinez, and Coley cited Wood's decision in a joint response to a draft of this report that said, "it has recently been confirmed by the South Florida Water Management District that the introduction of the secondary drainage system will not require any additional documentation or a permit modification." These emails were provided to the OIG for the first time by Lanzo in its response, dated January 15, 2021, to the OIG draft report.

During a subsequent interview of SFWMD officials by OIG staff, which included a review of differences between the Rubio and Kremers plans, SFWMD senior officials, including Executive Director Jill Creech and Bureau Chief Jesse Markle, indicated that they were not aware of the Kremers plans. In a written response to the draft report on behalf of the agency (attached), Markle states, "The District's July 30, 2020 response to the e-mail from Wade Trim engineer Jim Penkosky of the same date was based solely on the information provided in the e-mail without benefit of review of the Wade Trim/Kremers construction plans or any supporting stormwater management

(SWM) calculations, which were not provided. As such, our position that "[t]he installation of yard drains within the permitted surface water management system…will not require a permit modification" is no longer the case."

Markle said SFWMD will require the City to obtain "A modification to Environmental Resource Permit (ERP) 13-06125-P to address the changes made to the… system during construction that were not contemplated by the ERP will be required." Markle said the City will be required to demonstrate that it "has real property interest… to operate and maintain the portion of the… system that extends into private property and, further, demonstrate that the areas outside the right-of-way "that was not considered under the permit that is now contributing discharge" to the drainage system "does not lead to a violation of State water quality standards" or "lead to substantially different flood protection."

As set forth above, during 2019 Carpenter and Kremers offered explanations for construction of the 88 unpermitted stubouts or right-of-way drainage connections in correspondence and during public hearings. In sum, they contended that unpermitted pipes and connection tees, or stubouts, and right-of-way drainpipes were "temporary construction drains" that were never intended to be permanent parts of the drainage system and, therefore, did not require permitting and disclosure to DERM. The contradiction between their explanations and the statements of DERM Director Hefty prompted Commissioners Gongora and Samuelian to request this investigation.

On Dec. 4, 2020, the OIG staff circulated a draft of this report to the responsible City officials. On Jan. 21, 2021, Carpenter, Martinez, and Coley submitted a 17-page memorandum to the OIG responding to the draft report on the investigation's findings ("Joint Response"). The Joint Response reiterated the prior statements of Carpenter and Kremers that the 88 stubouts or right-of-way drainage connections were "temporary construction drains," and were not intended to be permanent extensions of the drainage system. More specifically, the Joint Response quoted Carpenter's statement during the Oct. 23, 2019 hearing that "we installed approximately 88 temporary construction drains that were never intended to be part of the drainage system." It also quoted Kremer's statement during the Oct. 30, 2019 hearing that the "88 drains that you've been hearing about, these are temporary construction drains. There was one installed in the right-of-way in front of each property on North and South Coconut."

However, the Joint Response also included a new description of the intended purpose of the 88 unpermitted stubouts or right-of-way drainage connections that indicated they had been

constructed as permanent, but inoperative, parts of the system and in that some of these right-of-way drainpipes were subsequently used on a temporary basis to mitigate flooding caused by the construction process. This segment of the Joint Response said:

> The incorporation of the secondary drainage system on west Palm Island evolved over time in response to the needs of the residents and the public response to the partially completed Project. **The initial modification was only the inclusion of stub out pipes from the existing primary drainage system that remained unchanged.** Since these stub outs were only to provide for a future connection, with no additional water entering the system, they created no change to the resulting operation of the system. **Subsequently the Design/Build team used some of these stub outs as temporary construction drains within the right of way during the construction activities.** (Emphasis added)

Given the inconsistency of this statement with the prior statements of Carpenter and Kremers, the OIG staff sought clarification by providing a written question to Mr. Carpenter and his attorney. The question asked, "Did Mr. Mowry consult with you before approving on Oct. 30, 2015 the Wade Trim conceptual plans to build a drainage system that accommodated the future connection of yard drains on private lots and did you approve this plan and engineering solution for west Palm Island?"

On Feb. 1, 2021 Carpenter submitted a response that failed to clarify his prior statements. His answer said, "More than four years after the fact, I am not sure of when the initial discussions took place in relation to the October 30, 2015 date but I was consulted on the need to provide stub outs (sic) to allow for the possibility of future connections without disturbing the work that needed to be done on the roadway."

The OIG published a Final Report on Feb. 8, 2021. On Feb. 9, 2021 Interim City Manager Raul Aguila submitted a memorandum on behalf of the City Administration that repeated the revised explanation from the Joint Response. In sum, this considered statement by the City Administration appeared to confirm a primary finding of this investigation (see Finding #1 below), namely that description of the unpermitted right-of-way drainpipes as "temporary construction drains" was a fiction and the 88 unpermitted right-of-way drainage connections were always intended as permanent extensions of the drainage system that would be used to connect private-side yard drains to the drainage system. Their auxiliary use to provide temporary relief from possible flooding during construction does not change their original intended purpose to provide permanent connections for private-side yard drains.

DERM's belated discovery of the 88 unpermitted stubouts or right-of-way drainage connections was a primary basis of the agency's enforcement action.

X. FINDINGS

Finding #1. The stubouts, consisting of lateral pipes fitted with connect tees that extended from the main drainage system to the front of each house on west Palm Island were constructed as permanent parts of the stormwater drainage system. They were available to mitigate flooding during construction. Evidence, including statements under oath by multiple witnesses, established that the description of these installations as "temporary construction drains" after they were discovered by DERM, was a legal fiction.

This "temporary" designation was intended to protect the City and Lanzo from legal liability until the City adopted a policy for connecting private-side yard drains to the public drainage system, and to postpone the legal requirement to obtain the approval of permitting agencies for their installation. The purpose of the City's investment in the engineering design and construction services and material, starting sometime in 2015, was to build the permanent infrastructure required to connect private-side yard drains to the public drainage system. The responsible City officials decided to add the feature to the standard drainage system designed by Orlando Rubio, because engineers feared the newly elevated roads of North and South Coconut Lanes would trap stormwater on private lots and cause harmful flooding.

To ameliorate the harmful effects of new flooding, the City decided to have Lanzo and Wade Trim prepare new construction plans for a drainage system designed to connect private-side yard drains to the public system. The evidence establishes that this plan by the City was based on a considered decision by the responsible City officials. In November 2015 and during the subsequent six months when the permitting agencies reviewed the outdated Rubio plans, the responsible City officials had a duty to fully and timely disclose to DERM and the SFWMD that the project's construction plans and the intended purpose of the drainage system had changed in significant ways. Similarly, when the Commission approved the award for the project's construction phase on Dec. 9, 2015, the City Administration had an obligation to fully and timely disclose to the Commission that construction of a drainage system designed to connect to private-side yard drains would significantly increase the cost and technical difficulty of difficulty of the project.

Finding # 2. In May 2016 DERM issued Class II permit based on plans for a standard right-of-way drainage system prepared, signed, and sealed by Orlando A. Rubio, PE., without seeing the Kremers plans; similarly, the SFWMD issued an Environmental Resources Permit based on the Rubio plans and without the benefit of reviewing the Kremers plans.

During a seven month review of the City's permit application between November 2015 and May 2016, DERM and SFWMD staff remained under the impression that Rubio was the project's Engineer of Record for the Stormwater section of the construction plans, and ultimately issued the permit based on plan dated Feb. 26, 2016 that were prepared, signed, and sealed by Rubio.

On or after November 2015, the City Administration directed Wade Trim engineers to revise the plans by Rubio. On or after January 2016, Wade Trim engineer Holly Kremers, PE had assumed the defacto role of Engineer of Record for the Stormwater Section. Ultimately she, and not Rubio, prepared, signed, and sealed the plans that the City used to build the project. DERM and SFWMD staff were left with the mistaken impression that Rubio was "engineer in responsible charge" of the plans and that the plans they were reviewing would be used to build the project.

Had DERM SFWMD been notified of the change, they would have required submission of final plans signed and sealed by Kremers. Instead, DERM, as well as SFWMD, issued permits based on plans prepared by Rubio and Rubio's "Engineer's Letter of Certification." The failure of Rubio and Kremers to notify regulators was not consistent with provisions in Florida law and professional responsibility rules that apply to an Engineer of Record, the person responsible for the plans.

Finding #3. In early 2018 the City directed Lanzo and Wade Trim proceed with the design and construction of private-side yard drains on west Palm Island but did not disclose this new phase of construction to DERM and SFWMD, turn over the updated Kremers plans, or obtain modification of the existing Class II permit.

Upon learning in early 2018 of a decision by the City to proceed with a new phase of construction on private property, that was not covered by the existing permits from DERM and SFWMD, Lanzo and Wade Trim personnel recommended that the City approve and fund

preparation of As-Built construction plans; conduct new drainage studies and notify DERM and SFWMD of the new phase of construction work that the City proposed to do outside the right-of-way, and obtain a modification of the existing permits.

The City approved production of As-Built plans and new drainage studies, but disregarded the Lanzo/Wade Trim recommendations. Instead, the City directed Lanzo to proceed with the work under the existing Class II and Environmental Resources permits. By August 2018, the City and Lanzo had developed detailed plans for installing private-side yard drains in many houses on west Palm Island using the unpermitted right-of-way drainpipes connected to the public drainage system. At all times, the responsible officials with the City, who were also licensed professional engineers, knew or should have known that Section 24-48 of the Miami-Dade Code required that the owner of each new private-side yard drain obtain a Class II permit.

Finding #4. In May 2018, in applying for a second Class II permit, the City did not give DERM recently updated As-Built plans and new drainage studies. Instead, the City obtained a permit based on the Rubio plans a letter from a Wade Trim engineer falsely stating that significant changes had not been made to the Rubio plans.

The DERM permit application and letter in May 2018 from Wade Trim engineer Garcia were incomplete, inaccurate, and omitted facts that were material to DERM's permitting decision. In this instance, the false statements and misrepresentations, especially Wade Trim engineer Garcia's certification that significant changes had not been made to the Rubio plans, appear to be intentional. Based on those representations, DERM unwittingly issued a second permit based on the superseded Rubio plans.

Finding # 5. The pressure to accelerate work on the project resulted in a sequence of decisions that disrupted CIP's management of the project and resulted in an override of internal controls, policies and procedures designed to protect the City's interests and to achieve its objectives in design-build projects. The investigation established that the City lacks a clear policy for planning and managing design-build construction projects.

Finding #6. The City awarded Lanzo a contract for the project's pre-construction design phase without a finished DCP.

In response to the Homeowners Association and perceived pressure from former Mayor Philip Levine, on Sept. 19, 2014, the City Administration recommended award of a $599,464 contract to Lanzo for the pre-construction design phase of the project without a finished DCP. The Commission approved the recommendation. Without a finished DCP, the City and Lanzo did not have a reliable means of estimating the cost and complexity of preparing the construction plans. The award ratcheted up the pressure on City staff and their contractors to complete the technically challenging work of incorporating the new elevation design criteria into the DCP in ways that did not cause new flooding, and that would dramatically increase the cost and complexity of the project.

A major roadblock to resolving the technical issues in the project's DCP was the City's failure to obtain a survey of the elevation of garages and first finished floor of houses on west Palm Island, a task that can have been accomplished in a matter of weeks. In a written response to the OIG, AECOM engineer McGowan said, "Prioritizing speed over technical refinement in the project's design created a cascade of problems.

On Nov. 18, 2014, or one month after the first award, the City Commission passed Amendment #1 to Lanzo's contract that increased the award $251,016. This brought the total cost for preparing the project's construction plans to $850,480, a figure that would be increased again in less than a year. The need for this amendment was an early indicator of problems in the project's design phase.

Finding #7. The City overrode the role of the project's Design Criteria Professional and adopted a DCP that did not provide Lanzo with clear guidance for raising road elevations on west Palm Island.

In an effort to exert control over how the City's new elevation design criteria would be incorporated into the DCP, the City agreed to a demand from the Mayor's Blue Ribbon Panel on Sea Level Rise that the panel's consulting engineer, AECOM's McGowan, assume responsibility for revising the DCP. This decision undermined the role assigned to the project's Design Criteria Professional, engineer Jeffery Crews, and discounted the value of the City's $599,464 contract with Stantec. Crews did not write the DCP sections on stormwater drainage and roadways. He provided CIP with a critique that expressed his reservations about the DCP guidance regarding the construction of swales and the elevation of grates and roads. In both cases the guidance proved problematic.

In the rush to develop a DCP that reflected the recommendations of the Mayor's Blue Ribbon Panel on Sea Level Rise, the City failed to produce a DCP that gave the Lanzo team clear guidance about how to apply new elevation criteria; it also failed to provide Lanzo and CIP with a reliable basis for estimating the cost and technical difficulty of preparing the construction plans.

The DCP's guidance about designing roads, for example, defaulted to a recommendation that Lanzo raise the centerline elevation of roads to the new design criteria "where practicable," and do so without causing flooding or obstructing the "positive" flow of stormwater. Together, these first two decisions were red flag indicators of a rushed and poorly managed process for planning the expenditures on a project whose final cost is expected to exceed $50 million. These decisions ignored the purpose of provisions in Florida law that apply to the planning of a design-build construction project by municipalities and discounted provisions in the City's contract with Stantec that were intended to reinforce the design-build process.

Finding #8. After deciding to change the project's elevation criteria, the City failed to provide sufficient time and resources for Wade Trim to prepare construction plans for a drainage system designed to connect to private-side yard drains and verify its expected performance.

While the responsible City officials recognized that the change in elevation criteria would require revision of the stormwater and hardscape plans by Rubio, they decided that the City could not afford to wait for the design engineers to revise the plans. The consequences and potential costs of the design change were not fully disclosed to the City Commission; and a necessary request for another large increment of additional funding for new construction plans and drainage studies was delayed.

The basis or wisdom of the City's decision in October 2015 to change the elevation criteria for west Palm Island is beyond the scope of this investigation; the implementation of the decision is not. The City made a serious error by failing to pause and allow time for the Lanzo design team to revise the construction plans and prepare a credible cost estimate. The failure to acknowledge, and address, the engineering challenges that the criteria change created - and fully disclose these risks to the Commission - set the stage for many of the consequences that followed.

Finding # 9. The City awarded Lanzo a $38.5 million contract for the build or construction phase of the project without finished construction plans for the stormwater and hardscape

sections of the project and without a reliable basis for estimating costs associated with providing connections to private-side yard drains.

On Jan. 11, 2016, the City Commission awarded Lanzo a $38.5 million contract for the project's build phase without finished construction plans addressing the engineering challenges that resulted from the October 2015 decision to increase the elevation of roads in west Palm Island, or a reliable means of estimating how much the project would cost, or how long it would take to build. Instead, without providing the necessary funding and time required to redesign, reengineer, and revise the stormwater and hardscape sections of the construction plans and conduct new drainage studies, the City decided to award the contract based on conceptual drawings and narrative descriptions in RFI documents and correspondence. Considered together, findings #3, #4 and #5 manifest an override of the City's internal controls and a decision to disregard CIP's process for managing design-build construction contracts.

XI. RECOMMENDATIONS

Recommendation #1. Establish by ordinance that the Director of the Environmental and Sustainability Department shall have the final authority and responsibility to approve the submission of all applications for permits by the City from the South Florida Water Management District (SFWMD), the Miami-Dade Department of Regulatory and Economic Resources (RER) and its Division of Environmental Resource Management (DERM), or any other federal, state or county agency with environmental enforcement authority over issuance of a permit for any City project; and, further, that the Director of the Environmental and Sustainability Department shall immediately, and in writing, report to the City Manager and the Inspector General any concerns expressed by those agencies, or by any other parties, about alleged lack of compliance with federal, state or county laws and regulations related to the permitting of any such projects.

Recommendation #2. Establish by ordinance that, notwithstanding any provision in a City contract, that the City official who signs an application for a permit included under Recommendation #1 be responsible to personally verify in writing to the City Manager the

accuracy and completeness of all such permit applications and associated documentation submitted to any such regulatory agency.

Recommendation #3. The City Administration should develop policies and procedures for the management of design-build contracts that provide a framework of guidelines, practices, and internal controls to guide management of design-build projects. The City Manager should develop the policy in consultation with CIP, Public Works and the Procurement Director.

Recommendation #4. Establish by ordinance that, prior to approving significant changes in the design criteria of a design-build project after the award of the construction phase of the project, require that the City Manager notify the Commission, provide justification for the change and its impact on project cost schedule.

Recommendation #5. Direct the City Manager to provide an evaluation of the costs and benefits of the City's present use of multiple architecture and engineering consultants versus those of retaining a single project management contractor to provide the City with an integrated, coordinated, and disciplined end-to-end process for planning, designing, and managing the City's portfolio of design-build projects to counter the effects of sea level rise.

Recommendation #6. Require that CIP, Public Works, and the Procurement Department working together, in consultation with the Finance Department, develop a list of key indicators and provide an annual report to the Commission on projects that are at a high risk of cost overruns, schedule delays or performance failures.

Recommendation #7. Amend the City's Debarment Ordinance to authorize the Inspector General to conduct fact investigations in support of the Debarment Panel and submit to the City Manager and Director of Procurement reports of investigations on the performance of City contractors for possible debarment.

XII. EVALUATION OF WRITTEN RESPONSES

The "Principles and Standards for Offices of Inspector General" (May, 2014) developed by the Association of Inspectors General describes the qualitative standards for evidence used in an OIG report as follows: "Sufficient, competent, and relevant evidence is to be obtained to afford a reasonable basis for the investigative findings and conclusions" and provides the following guidelines:

- Evidence is sufficient if there is enough of it to support the report's findings.
- Evidence used to support findings is relevant if it has logical, sensible relationships to those findings.
- Evidence is competent to the extent that it is consistent with fact (valid).

On Dec. 4, 2020 a draft of this report was sent to the persons and entities whose activities were "reported on" in the text to provide an opportunity for submission of written response or rebuttal within 30 working days. In recognition that weekdays and holidays during that period could not be counted, the due date for responses was set at January 22, 2021. Assistant City Manager Eric Carpenter and CIP Director David Martinez were allowed an additional seven working days, through February 2, 2021, to provide further responses on their own.

Where a written response identified errors or material omissions, presented new evidence or information, or suggested clarifications that had merit, the OIG staff made revisions to the Final Report to enhance its accuracy and fairness and increase the potential value of its recommendations to the City Commission and residents of Miami Beach

In instances where a respondent strongly objected to a finding or characterization of his or her actions, the office re-examined the underlying evidence and, where appropriate, conducted additional interviews. In such cases, rebuttal statements from the written responses, or statements from sworn interviews, were added to the Final Report to provide context and reflect alternative explanations that were consistent with the evidence.

A. Response received after Feb. 8, 2021 from Interim City Manager Raul Aguila and former City Commissioner John Elizabeth Aleman

On Jan. 21, 2021 Carpenter, Martinez, and Public Works Director Ray Coley submitted a 14-page memorandum with 575 pages of exhibits ("Joint Response") based on the draft report. Additionally, OIG staff met with Carpenter, Martinez, Coley and Michael R. Band, an attorney representing Mr. Carpenter, to discuss their concerns.

Following this meeting, OIG staff provided Carpenter and Martinez with a list of questions to clarify certain issues of fact. On Feb. 2, 2021, Carpenter submitted a seven-page memorandum entitled "A Response to Office of Inspector General Draft Report 20-07 Supplemental Questions." Mr. Martinez declined to provide written answers, and submitted no further information. Ultimately, the OIG staff used Carpenter's responses and submissions from other individuals to make revisions that added 37 pages to final report.

On Feb. 8, 2021, a Final Report was submitted to Mayor Gelber and members of the Commission and made public. The next morning, Feb. 9, 2021, the Inspector General received an email from the Office of the City Manager transmitting a memorandum titled "City's Written Responses/Explanation and Rebuttals to the OIG Draft Report 20-07 – Palm and Hibiscus Island Neighbor Improvement project." This submission included 463 pages of exhibits and was signed by Interim City Manager Raul Aguila ("Aguila memo").

Consistent with intent of the ordinance, the Inspector General directed that the belated Aguila memo responding to the draft report and not the final report, be treated as if had been filed timely, and that any material responses by the City Administration be addressed in an updated and revised version of the final report.

The Aguila memo was based on the draft of the report circulated in December and not the Final Report. The criticisms leveled in this response appear to be based on the earlier written submissions from Carpenter and his colleagues that had been incorporated into the Final Report as appropriate. Further, the Aguila memo adopted some claims by the responsible City officials that were discussed at length in the Final Report and, in some instances were not in dispute or had no bearing on the report's findings. For example, the Aguila memo contended that, "The contract required the Design/Build to comply with all applicable laws and regulations," a fact that was never in dispute, but did not address the unwillingness of City staff to accept responsibility for monitoring compliance with permitting regulations.

Similarly, the Aguila response said, "The nearly completed Project functions as it was intended" and, further, that "The regulatory agencies have permitted the vast majority of the private property connections without any additional water treatment requirements." It appears these claims are offered in support of a request from Carpenter's attorney that the OIG delay completion of the Final Report for four months when City staff anticipated completing the project. The Aguila response said, "Unfortunately the OIG was unwilling to give the appropriate time to conduct what we believe would have been a more comprehensive evaluation of the completed project."

As set forth in the report, the purpose and scope of the investigation was based on requests from members of the Commission that the Inspector General conduct an investigation to determine "what happened" during the project that resulted in DERM's enforcement action and to identify managerial issues related to the permitting violations. The investigation was never intended to be a comprehensive evaluation of the finished project, which remains ongoing as of the date of this updated version of the report. This response represents an eleventh-hour request on behalf of the responsible City officials to expand the scope of the investigation to include subsequent remedial actions taken in response to the permitting violations.

Significantly, the Aguila memo adopted as fact a revised description of the unpermitted construction activity that triggered DERM's enforcement action and that appears to contradict or amend explanations that Carpenter and Wade Trim engineer Kremers had provided to Commission members during hearings in October 2019. This revised version of events relates to the "stubouts" or unpermitted right-of-way drainage connections that Carpenter and Kremers had said were "temporary construction drains" that were not intended to be permanent parts of the drainage system and which therefore did not require permitting.

In contrast, the Aguila response said the unpermitted installations were permanent, but inoperative, parts of the stormwater drainage system that also were used as temporary drains during construction. Given the materiality of this statement to an issue of fact in this investigation, revisions were made by OIG staff to the last section of this updated Final Report.

On Feb. 3, 2021 the OIG staff was informed that former Commissioner John Elizabeth Aleman had been inadvertently omitted from the list of persons who were emailed a copy of the draft report on Dec. 4, 2020. As a result of this regrettable mistake, Ms. Aleman did not have an opportunity to provide a written response to the draft report. The Inspector General apologized to Ms. Aleman,

invited her to submit a written response to the final report, and promised to (a) include her submission in an updated version of this report and (b) revise the Final Report to correct any inaccuracies or material omissions.

In her written response, Ms. Aleman strongly objected the characterization of Resolution 2017-29840, which she sponsored, and the Commission approved unanimously on April 26, 2017. She described as "pure conjecture and grossly inaccurate" the report's conclusion that the resolution provided an "after-the-fact authorization and legal justification" for the unpermitted construction on west Palm Island.

It appears that former Commissioner Aleman misconstrued the OIG conclusion as criticism of the Commission's decision to approve a change in City policy to allow the connection of private-side yard drains to the system. It was not. The Final Report made it clear that the OIG staff did not pass judgement on the validity of engineering solutions or changes in policy or design criteria related to the stormwater drainage system. The investigation focus was on the flawed implementation of those policy changes and the extent that had an impact on the permitting or management of the project.

Furthermore, the investigation developed no evidence that in 2017 Aleman was aware of the long-standing plans that Mowry had shared with the Homeowners Association in November 2015 to have the Commission change the policy that had prevented the connection of privately-owned yard drains to the public drainage system.

It bear noting that Aleman's written response confirmed that she relied on Carpenter and Mowry for information about the design of the drainage system, and that she was not informed in 2017 that the drainage system on west Palm Island had already been designed and built to provide connections for private-side yard drains. Aleman's concerns, and an error in the chronology regarding her role, were addressed with revisions to this revised and updated version of Final Report and by the addition of statements by Aleman during her interview with OIG staff.

Additionally, Aleman's written response recommended that the "City obtain Elevation Reports for all residential properties within municipal boundaries" and thereafter "create a database of finished floor elevations by soliciting certificates from residents (most will have done one for their flood insurer) and update the database on an ongoing basis with data from the Building Department, filling in any gaps prior to initiating residential stormwater design efforts." With such a database, she said the "City will know the precise elevation of every finished floor, and be able to design accordingly, and use that data in stormwater / event modeling, and use it to assist residents

with the most challenging circumstances." Based on the evidence obtained during this investigation, this recommendation merits consideration by the Commission.

B. Responses of elected and appointed officials and a representative of the Homeowners Association

Former Mayor Levine and former Chairman of the Mayor's Blue Ribbon Committee on Sea Level Rise Scott Robins did not submit written responses to the draft report. However, the Inspector General (IG) met with Levine and his attorney at their request. During the meeting, Levine and his counsel strongly objected to the use of the word "pressure" to describe the impact on City staff of Levine's public efforts to accelerate work on construction projects to reduce flooding, and the imperative to incorporate new design criteria to counter the future effects of sea level rise. Subsequently, Levine's counsel submitted emails from former City Manager Morales stating that Levine never "exercised any improper pressure or influence" and from Acting City Attorney Aguila stating that, while serving as City Attorney, he never received complaints of Levine having "used any undue influence or pressuring City staff with regard to various projects.

The report does not state that the actions of Levine and Robins, as to the Palm and Hibiscus project, were wrongful or improperly motivated. It sets forth facts that show the unintended consequences that occurred in one construction project. It bears noting that during sworn interviews, Morales and Martinez used the word "pressure" in describing their perceptions of factors that influenced decision-making during the project. A written response on behalf of the Homeowners Association objected to the characterization of the group's actions during the project. Revisions were made to the report that address those concerns.

C. Responses of current and former City staff named in this report

Assistant City Manager Carpenter, CIP Director Martinez and Public Works Director Coley submitted a 17-page joint response as well as separate individual responses. Additionally, at the request of an attorney representing Carpenter, the Inspector General and Special Agent Jim McGee met with these officials and the attorney as a group to discuss their concerns. During this meeting, Carpenter's attorney, Michael Band, Esq., Carpenter, Martinez, and Coley provided additional verbal comments. In sum, Carpenter's counsel contended that draft report accused Carpenter and the others of crimes including conspiring to mislead DERM and reiterated their position that

Carpenter, Martinez, and Coley had no motive to mislead the regulatory agencies; and that they had relied on the design-build team to comply with permitting requirements.

Further, Carpenter's counsel argued that the "language" used in the report was incendiary and implied or created the false and unfair impression that Carpenter and his colleagues had engaged wrongful actions when, in fact, they were doing their best in a difficult situation and sought to act in the best interests of the City. Following the meeting, Carpenter addressed follow-up questions in a five-page supplemental response that identified what he viewed as errors or omissions in the draft and/or characterizations that cast his actions in a false light.

The written response from Martinez strongly objected to the criticism of CIP management of the project and stressed that the design-builder, Lanzo, was responsible for obtaining permits from DERM and SFWMD and that he and City staff had a right to rely on their professional judgements. His response said, "Neither the City Administration, Office of Capital Improvement Projects, nor I, have violated the laws of Miami-Dade County regarding the construction of stormwater drainage systems. There has been no mismanagement, deception, negligence, or serious misrepresentations."

The draft report did not allege crimes or intentional torts by any individual. The draft report did not state that Carpenter, Martinez, and Coley "conspired" to mislead DERM and the SFWMD; directed others to withhold the Rubio plans during the 2016 permitting process; directed others to indicate to DERM that significant changes had not been made to the Rubio plans; or directed others not to notify DERM in early 2018 of the City's plans to begin installing private-side yard drains. Further, the draft report did not state that these individuals engaged in a civil or criminal "conspiracy" to defraud DERM.

The evidence obtained during the investigation established that the City's two applications for permits from DERM and SFWMD did not include the construction plans, prepared by Wade Trim Vice President and Professional Engineer Holly Kremers, that the City intended to use to build the project; that, as a consequence, DERM and SFWMD relied on the submitted but no longer applicable Rubio plans in granting permits for the project in 2016; that DERM relied on the representation by Wade Trim Professional Engineer Garcia, submitted on behalf of the City and Lanzo, that significant changes had not been made to the Rubio plans; that, from the whistleblower's complaint, engineers in DERM's Water Control Section were surprised by their discovery that the City had installed 85 or more right-of-way drainpipes on west Palm Island that

were not on the permitted plans; that the DERM engineers responsible for issuing the two permits stated in sworn interviews that they believe they were misled during the permitting process in 2016 and 2018; and that DERM's subsequent enforcement action reflects the gravity of the omissions during the permitting process. Additionally, SFWMD, which had not been notified by the whistleblower and did not initiate action against the City, has now determined, upon review of the Kremers plans provided to it by the OIG, that the City needs to apply for a modification of its permit from that agency.

The written responses of Carpenter, Martinez, and Coley did not provide evidence that alters these facts. However, in the interest of fairness and completeness, the report was revised to include additional statements from the respondents and from DERM staff on this subject, as well as a response from the Bureau Chief at the Environmental Resource Bureau/Regulation Division at SFWMD. The language used to describe the actions of Carpenter, Martinez and Coley in the draft report was reviewed for fairness and clarity and, where appropriate, was revised. Former City Engineer Mowry and former CIP Project Coordinator Sanchez submitted responses that affirmed their statements during interviews. Sanchez and CIP Senior Capital Project Coordinator Mina Sanchez reiterated their department's position that it was Design-Builder Lanzo's responsibility under its contract, or that of its consultant Wade Trim, and not that of CIP, to obtain all necessary permits for construction of the project. No acknowledgement of any responsibility on the part of the City to monitor permitting activities was included.

D. Responses of engineers and engineering firms Lanzo, Wade Trim and AECOM

Wade Trim engineer Holly Kremers, CAS engineer Rubio, and Stantec Consulting engineer Jeffrey Crews did not provide written responses; no current or former employee of Lanzo other than Robert Beaty provided a response. Former Wade Trim engineer Garcia provided a detailed and thoughtful response, that included observations that were incorporated into the report. His statement did not dispute the report's description of his actions during the 2018 permitting process. Wade Trim and Lanzo provided responses that contained general denials of wrongdoing or any intention to mislead DERM and the SFWMD during the permitting process. Neither contractor disputed specific facts related to the actions of their personnel during the permitting process.

Wade Trim's response from President/CEO Andrew McCune said, "Relative to Wade Trim, we find the report to contain numerous is representations and faulty conclusions; so many that responding to each would be overly burdensome" and, further, said "The design-build team worked

with and at the direction of the City of Miami Beach. We were transparent in our dealings with the City and other stakeholders. Wade Trim never intentionally misled or deceived any party and the implication of such is simply false." Similarly, the response from Lanzo's Beaty stated, "A picture of deception by the City of Miami Beach, Wade Trim and Lanzo is seemingly presented which is not factual and far from the truth."

Additionally, both contractors suggested the OIG staff lacked the technical expertise to evaluate their actions. "The report should clearly indicate that the conclusions are being drawn, not by a "member of the same profession" as required by the contract, but by a party limited in familiarity with design engineering, construction, and design-build delivery, making it [OIG] unqualified to assess the performance or standard of care." Lanzo's response said, "Lanzo does not cast blame upon the OIG for its erroneous presentation, understanding that the engineering and construction aspects of the Palm and Hibiscus Neighborhood Infrastructure Project are quite complex and beyond the normal report and recommendation background of your office." In bears noting the Inspector General retained a consulting engineer, Louse Aurigemma, PE to provide technical assistance during the investigation. His signed and sealed report, which supports the OIG position, is included in the Appendix.

The Lanzo response to the OIG draft report on January 15, 2021, included an exchange of emails that occurred on July 30, 2020 (i.e., during this investigation, though not previously provided to the OIG by Lanzo or City staff) between a representative of Wade Trim and Dustin Wood, Section Leader with the Environmental Resource Bureau at SFWMD. The Lanzo response to the OIG said, "Please note that South Florida Water Management District (SFWMD) issued Environmental Resource Permit 13-06125-P for the Palm and Hibiscus surface water management system. In response to the discussion concerning the addition of yard drains to the system, the SFWMD representative stated 'The installation of yard drains within the permitted surface water management system as described below will not require a permit modification.'" The City's Joint Response also referred to this email and said, "Furthermore, it has recently been confirmed by the South Florida Water Management District that the introduction of the secondary drainage system will not require any additional documentation or a permit modification."

Notably, the July 30 email to Lanzo came from an Environmental Resource Bureau Section Leader not directly involved in the project, and was based upon incomplete information and without the SFWMD having been provided with a copy of the Kremers plans. In response to this new information, the OIG staff conducted an interview with SFWMD staff, which has now had the

benefit of reviewing the OIG draft report. As indicated in the final report, the SFWMD response to a query from an Wade Trim project manager in an email dated July 30, 2020, which was referenced in responses from Lanzo and City, does not reflect the agency's present views. The City will be required to seek a modification of its permit from SFWMD.

A response from AECOM engineer McGowan resulted in the revisions and clarification of technical concepts related to the DCP. The Office received not written response from Rubio or Craig A. Smith.

XIII. POSTSCRIPT: THE PROBLEM OF MANY HANDS

> *...we should surely still hold the officials morally responsible for failing to take precautions to avoid the harmful consequences of the actions of other people when those actions are predictable responses to the officials' own actions.*
> Dennis F. Thompson, Political Ethics and Public Office (Cambridge: Harvard University Press, 1987) p. 58

The mismanagement and misconduct in the Palm/Hibiscus project outlined in this report includes acts of commission and omission, lapses both intentional and unintentional. Harvard political scientist and ethicist Dennis Thompson has tackled the "problem of many hands" in connection with the difficulty of affixing legal or moral responsibility to individuals when wrong decisions in government are made through the actions of layers of personnel, some of whose actions or inactions may affect but not determine the decisions.

There are not enough facts produced in this report to accurately assess the responsibility of all of the players involved in the Palm and Hibiscus Stormwater Drainage project. When there are multiple government departments, as well as consultants and subconsultants to them and to multiple private contractors involved in making complicated, technical decisions on a project gone awry, it becomes too easy for many of them to point elsewhere when the blame is assessed for the missteps taken. When the roles of those players are overlapping and ill-defined, the problem of assessing responsibility deepens.

In the end, some consideration needs to be given to whether the numerous public and private consultants interwoven into the Palm and Hibiscus Stormwater Drainage, without clear lines of authority, have added to or subtracted from the transparency of the decision-making process, as well as to the overall efficiency of the project. One gets the impression that the motivation behind the retention of so many consultants could have more to do with insulating the decision-makers from responsibility, than it does with marshalling the professional expertise with the necessary brainpower to ensure the project's success.

There are other projects of a similar nature to be completed in the City of Miami Beach. It is hoped that the unraveling of the issues raised in the Palm and Hibiscus Project will help the City better evaluate these concerns in the road ahead.

XIV. SUPPLEMENTAL MATERIALS

A. Volume II: OIG Engineer's Technical Report & Auditor's Financial Analysis

B. Volume III: Written Responses and Rebuttals <------- Click link to access Volume III

FINAL REPORT

OIG Report No. 20-07

Management of the Palm and Hibiscus Right-of-Way Infrastructure Improvement Project

---

Joseph M. Centorino

Inspector General

F. James McGee

OIG Special Agent

Volume II

OIG Consulting Engineer's Technical Report

And

Auditor's Financial Analysis

TECHNICAL REPORT

Neighborhood No. 13 Palm and Hibiscus Islands Right-of-Ways Infrastructure Improvements

Prepared for the

Office of the Inspector General, Miami Beach, Florida

October 2020

Prepared by

Louis C. Aurigemma, P.E.
Independent Consulting Engineer
+1.954.303.4179
louaurigemma@yahoo.com

October 2020

Prepared by

Louis C. Aurigemma, P.E.
Independent Consulting Engineer
+1.954.303.4179
louaurigemma@yahoo.com

I certify to the best of my knowledge and belief that the information contained in this Engineering Report is true and accurate. The independent opinions presented are based on my experience and engineering judgment during the review of the documents provided to me by the Miami Beach Office of the Inspector General.

Louis C. Aurigemma

Louis C. Aurigemma, P.E.

State of Florida Professional Engineer License 31896

February 5, 2021

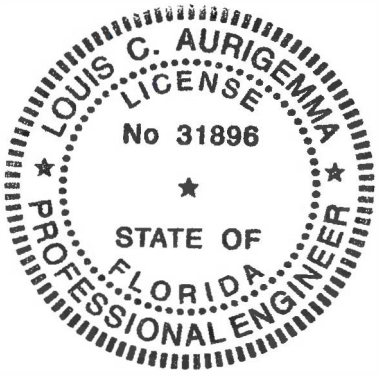


Table of Contents

I. Table of Contents

II. Introduction 4
III. Professional qualifications 5
IV. Report structure and limitations 6
V. Executive Summary 7
VI. Part 1: The City's application for permits Background, chronology, significant events 9
A. The City use of the Rubio plans to apply for a Class II permit in 2016 9
B. City approves alternative plans for drainage system that accommodates yard drains 10
C. The City's application for a Class II permit in 2018 11
D. City tells DERM no significant changes were made to Rubio plans and obtains permit 12
VII. Part 2: Exhibits and observations 13
E. General observations 14
1. Exhibit 1 consists of two separate sheets. The first cover page is that of the CAS/Rubio plans that served as basis of Class II permit issued May 27, 2016. The second cover page is that of the WT/Kremers plans dated May 18, 2016 used by City to construct drainage system. 15
2. Exhibit 2 consists of two separate sheets. Page SW06 from Rubio plans is a drawing of the stormwater drainage system for South Coconut Lane. Page SW06 from Kremers plans showing the stormwater drainage system with additional lateral pipes that extend to the front of each lot. 16
3. Exhibit 3 consists of two sheets. The Typical Roadway Sections from Rubio plans for N. & S. Coconut Lanes and Coconut Ct. shows a swale-based drainage system within Right-of-Ways (ROW). The Typical Roadway Sections by WT EOR Wright show plans for connecting private yard drains and drains at edge of ROW; estimates called for 90 12-inch yard drains 17
4. Exhibit 4 (4 pages) Request for Information #035 "Private Property Drainage Water Accommodation" dated Oct. 30, 2015 and attachments that included as attachments WT drawings for Coconut Lane Tie-ins to yard drains installed in private lots or in ROW adjacent to property line and subsequent email from former City Engineer Bruce A. Mowry, P.E., also dated Oct. 30, 2015, approving proposed design. 18
5. Exhibit 5 Excerpt from Kremers plans (page G03) Construction Sequencing Notes stating lateral pipes under road and yard drains "shall be temporary drainage…during construction." 21
6. Exhibit 6 is cover of City's Technical Report submitted to DERM with permit application in October 2015 with CAS (Rubio) as the Engineer of Record. 21
7. Exhibit 7 is excerpt from report, identified in Exhibit 6, explaining use of minimum crown-of-road elevation of 2.2 feet NAVD for North & South Coconut Lanes and Coconut Court. The design criteria elevation of 3.7 feet NAVD is "not possible" because first finished floor elevations are below "future design groundwater design basis 2.7 feet NAVD). 22
8. Exhibits 8 (4 pages) is excerpt from Drainage Report prepared by WT Engineer of Record, Daniel Garcia, P.E., dated May 3, 2018, that show additional installations of secondary drainage pipes on Palm Avenue that connect to private yard drains. (Annotations and markups added for emphasis). 23

9. Exhibit 9 is correspondence dated from Wade Trim South Florida Manager to CIP Senior Project Manager explaining that "once 100% submittal has been fully approved by the City of Miami Beach and relevant permits acquired from South Florida Water Management District and Miami-Dade RER" WT would replace CAS as the Engineer of Record (*no record of the transfer is provided per Exhibit 9A - Chapter 61G15-27 of the Florida Administrative Code*). 26

10. Exhibit 10 is May 17, 2018 exchange of emails between DERM Engineer Mayra De Torres to CIP Project. De Torres asks that the City submit a statement from EOR certifying that no significant changes had been made to the Rubio plans that had served as the basis of Class II permit issued May 27, 2016. Sanchez transmits correspondence from Engineer of Record, Daniel Garcia..... 28

11. Exhibit 11 is WT correspondence dated May 17, 2018 that Sanchez emailed as attachment to DERM Engineer Mayra De Torres, wherein WT EOR Daniel Garcia stated that Rubio plans that had served as the basis of the first Class II permit, and Rubio plans and the drainage study calculations based on those plans, "had no had significant changes" during construction..... 29

12. Exhibit 12 is excerpt from DERM Class II permit dated May 27, 2018 issued to designated City permittee Assistant City Manager Eric Carpenter and Wade Trim EOR Holly Kremers, P. E. stating permit was issued "per signed and sealed plans by Orlando A. Rubio, P.E., from Craig A. Smith & Associates., dated February 19, 2016 and the letter from Daniel Garcia, P.E., from Wade Trim, Inc., dated May 17, 2018..... 30

VIII. Part 3 Evaluation of explanations by the City and Wade Trim..... 31

F. Claim that unpermitted yard drains were a temporary condition..... 32

IX. Part 4: Factors the contributed to the project unfinished status. 33

II. Introduction

I was retained by the City of Miami Beach Office of Inspector General (OIG) to provide technical assistance in connection with an investigation of the Neighborhood No. 3 Palm and Hibiscus Islands Infrastructure Improvements ("the Project") and the City's application for environmental permits to build stormwater drainage systems that emptied into Biscayne Bay, a designated Official Florida Water subject to enhanced environmental protection. My review included, but was not limited to, the examination of documents, emails reports, engineering drawings, engineering calculations, City/Agency permits and photographs; and interviews of appropriate City staff and City Consultants/Contractors.

The specific purpose of this investigation was to identify the material events, actions and decisions during the planning, design, permitting and construction phases of the project that gave rise to two issues of concern to the Mayor, City Commission, and City Administration: (1) the enforcement actions taken by the Division of Environmental Resources Management (DERM), Miami-Dade County Department of Regulatory and Economic Resources (RER), regarding the City's alleged unpermitted construction of yard drains on public and private property; (2) the Project's frequent design changes, schedule delays, escalating costs and unfinished status.

It is important to set forth what this report does not address. This report does not address the merits of the many changes in design criteria and policy that the City of Miami Beach ("the City") adopted between 2014 and 2018 in response to the effects of climate change and sea level rise. The report focuses on the engineering, project management, and contract administration issues that occurred during the City's implementation of a major construction project in which the City applied the new criteria.

III. Professional qualifications

During a 40+ year career as a Civil Engineer, I have been responsible for the design and management of public works/utilities projects for municipalities and the administration and oversight of construction contracts. I have served on more than 100 technical evaluation committees for construction projects ranging from $100,000 to $750 million in value. I served as Executive Director of the City of Riviera Beach (FL) Utility Special District and City Engineer/Assistant Public Works Director in the City of Coral Springs (FL). In the private sector, I was Director of Civil Engineering for Keith and Schnars, P.A., Fort Lauderdale (FL) Consulting Engineering firm, primarily working on the design and construction management for water and wastewater projects for the City of Fort Lauderdale. I was also a Regional Manager for the Nielsen-Wurster Group, a construction claims consultant primarily working on Florida Department of Transportation (FDOT) engagements. In my current position as an independent consulting engineer, I have provided technical evaluation assistance to the Millennium Challenge Corporation (mcc.gov), an independent United States Government Foreign Aid Agency (US STATE Department); and performed Annual Bondholder Facilities Reports for the South Martin Regional Utility (SMRU)/Town of Jupiter Island, Florida (2016-2020). I am a licensed professional engineer in Florida, Connecticut, Georgia, Alabama, Tennessee and Texas, and a Life Member of the American Society of Civil Engineers (ASCE) and the American Public Works Association (APWA). I earned a Bachelor of Science Degree in Civil Engineering from the University of New Haven (CT).

IV. Report structure and limitations

The purpose of this report is to provide my professional opinions regarding the documents and testimony obtained by the OIG staff with respect to the planning, design and construction of the Neighborhood No. 13 Palm and Hibiscus Islands Right-of-Way Infrastructure Improvement Projects ("the Project"), and the administration of the City's contract with Design-Build Firm (DBF), Lanzo Construction Co. Florida, ("Lanzo"). Additionally, the report contains my professional opinions regarding material issues of fact and the explanations and testimony provided by the responsible current and former City officials and staff, as well as those of the DBF-Lanzo and its engineering subconsultants, Wade Trim (WT) and Craig A. Smith & Associates. (CAS).

The opinions expressed in this report are my own. They are based on my knowledge, skills, and training as a licensed professional engineer and 40+ year public and private sector work history specializing in in the design and management of public works projects for municipalities and other governmental entities. The views expressed are based on sworn interviews of witnesses during the course of the OIG investigation and my examination of exhibits. In particular, I have carefully compared the Stormwater Drainage and Hardscape sections of the 100% Final Design Plans dated Feb. 22, 2016, signed and sealed by Engineer of Record Orlando A. Rubio, P.E. of Craig A. Smith & Associates ("the Rubio plans") with the same sections contained in alternative 100% Final Design Plans dated May 18, 2016, signed and sealed by Wade Trim Engineers of Record Holly Kremers, P.E. ("Kremers plans") and Carey Wright, P.E. and other pertinent technical documents.

The report is broken down into four distinct sections as follows:

Part 1: The City's application for permits. This section of the report provides a summary of material events. It examines the City/DBF's use of the Rubio plans to obtain permits from during 2016 and again in 2018. Also, the City/DBF's concurrence of the Kremers plans to build an alternative stormwater drainage system designed to accommodate the connection of private yard drains.

Part 2: Background, chronology, significant events: This section contains excerpts of keyexhibits that show the changes between the Rubio plans and Kremers plans that resulted in the 2016 installation of underground infrastructure and yard drains not shown on the Rubio plans; the installation of an additional secondary drainage system in 2017; and the City application for a second Class II permit from DERM in May 2018.

Part 3: Evaluation of explanations by the City and Wade Trim: This section contains an evaluation of the statements and explanations about the events and decisions made by current and former City officials and members of the Lanzo design team in sworn interviews or before the City Commission.

Part 4: Primary causes of the project's unfinished status: This section describes the two factors that in my professional opinion, and based on my evaluation of the exhibits and testimony, were the primary causes of the project's troubled history: the twin imperatives to accelerate work on the project and simultaneously incorporate the City's new design criteria to counter sea level rise.

V. Executive Summary

In 2016, the City used the Rubio plans to obtain a Class II permit from the Miami-Dade County Division of Environmental Resources Management (DERM) to construct a stormwater drainage system. Almost immediately after applying for the permit based on the Rubio plans, the City instructed DBF-Lanzo's consulting engineer, Wade Trim, (Holly Kremers, P.E.) to prepare alternative plans for a modified drainage system designed to connect to swale drainage and private yard drains.

During the six-month DERM permit review process, the City and DBF-Lanzo/Wade Trim proceeded on this parallel track with the understanding that after DERM issued a permit, the Rubio plans would be replaced by the WT/Kremers plans. After DERM issued the permit on May 27, 2016, the City/DBF did not use the Rubio plans, and the DBF-Lanzo began construction using the WT/Kremers plans. In 2018, the City applied for a second Class II permit for the project and succeeded in gaining approval without disclosing the WT/Kremers plans.

On May 27, 2018, DERM issued the second permit based on the Rubio plans and a certification from a Wade Trim Professional Engineer, Daniel Garcia, stating that "no significant changes" had been made to the previously submitted/approved Rubio 2016 stormwater drainage plans. In September 2018 a whistleblower alerted DERM to efforts to connect a private yard drain on Palm Island to the municipal stormwater drainage system. Pursuant to a DERM field inspection, it was discovered that unpermitted yard drains had been installed on public and private property in Palm Island West, resulting in the present enforcement action.

Pursuant to the DERM Class II Permit General Conditions, Section 31 states:

"If the engineer who provided certification pursuant to Section 24-48.2(I)(B)(2) or pursuant to Section 24-48.2(II)(A)(4) is discharged by the property owner or his agent, or if said engineer ceases to work on the proposed or approved work, all work by this permit shall immediately cease and shall not be resumed until a new engineer is obtained. The property owner shall also be required to obtain a new engineer who shall meet all the requirements of this permit."

The evidence shows that the City/DBF never disclosed the Kremers plans to DERM or notified the agency of its new drainage design. During this investigation, DERM engineers Maria Molina and Mayra deTorres testified that they believed they were deliberately misled by the City and its representatives. In my professional opinion, the evidence gathered during this investigation supports the testimony of the DERM engineers: they were misled and misled more than once.

In my opinion, the statement in the Garcia letter to DERM that "no significant changes" had been made to the Rubio plans was false and omitted facts that Mr. Garcia knew were material to the request from De Torres and material to DERM's review of the City's second permit application. The involvement of CIP staff in submitting the Garcia letter to DERM is consistent with other evidence that indicates the City and DBF-Lanzo/Wade Trim acted in concert on permitting matters.

By contract, it is the responsibility of the DBF-Lanzo to obtain all permits for the Project. Any modifications to the permit(s) required the DBF to adhere to the permit conditions from the permitting agencies for resubmittal of updated plans, specifications, calculations, etc. **Therefore, in my professional opinion, the DBF-Lanzo has constructed the stormwater drainage system in the Palm/Hibiscus Infrastructure Improvements Project without a valid SFWMD permit and DERM Class II Permits as the DBF-Lanzo did not comply with the respective conditions of the said permits.**

VI. Part 1: The City's application for permits Background, chronology, significant events

On Oct. 6, 2015, Assistant City Manager, Eric Carpenter, signed a DERM application for a Class II permit based on the Rubio plans and a technical report sent to DERM that described the City's use of design criteria to counter the effects of sea level rise, including a minimum crown-of-road elevation of 3.7 feet NAVD. The report explained the City's decision to waive the new criteria for roads in Palm Island West where it was "not possible" to raise the roads to 3.7 feet NAVD "due to the existing topography (garages and existing yard grades) encountered below the future design groundwater elevation of 2.7' NAVD" and said, "As such, North and South Coconut Lane road crown elevations will be no lower than 2.2' NAVD."

On Oct. 12th, the City notified the DBF-Lanzo/Wade Trim that it had decided to raise the minimum crown-of-road elevation for Palm Island West to 3.7 feet NAVD. This was a significant change that would require a complete revision of the Stormwater Drainage and Hardscape sections of the plans. City Engineer Bruce A. Mowry, PE, and other City staff recognized that the new elevation would result in the impoundment of stormwater on private lots lower than 3.7 NAVD. For that reason, the City authorized DBF-Lanzo/Wade Trim to begin designing an alternative drainage system that would accommodate connection with swale and yard drains.

A. The City use of the Rubio plans to apply for a Class II permit in 2016

Despite the change in criteria and development of alternative construction plans, the City continued with the permit application process based on Rubio's plans. DERM received the City permit application Nov. 4, 2015 based on the Rubio plans and drainage calculations. The same day, the City approved Wade Trim's conceptual designs for an alternative stormwater drainage that would accommodate connections to 12-inch yard drains installed on private property or in Right-of-Ways adjacent to the property line in front of each lot on Palm Island West. Between December 9, 2015 and May 9, 2016, the City approved successive iterations of the Kremers plans.

During the same period, the City conducted 100% milestone review of Rubio's plans. In a letter dated March 2, 2016 to CIP Senior Project Manager, Mark Tomcyk, PE; a Wade Trim Manager, Victor H. Herrera, PE, confirmed a plan to replace Rubio as Engineer of Record after permits were issued based on the Rubio plans and stated "As discussed, Wade Trim will be appropriating design documents from Craig A. Smith & Associates (CAS) for the Neighborhood 13 Palm and Hibiscus Islands Right-of-Way Infrastructure Improvements project once 100% submittal has been fully approved by the City of Miami Beach and relevant permits acquired from South Florida Water Management District and Miami-Dade RER." (**Exhibit 9**)

Chapter 61G15-27.001 of the Florida Administrative Code (FAC) identifies the "Procedures for a Successor Professional Engineer Adopting As Their Own the Work of Another Engineer". (**Exhibit 9A**) It seems that the intent of Mr. Herrera was that Wade Trim would obtain the CAS drawings per the Rules of the Florida Board of Professional Engineers, modify the drawings and calculations and submit the modified plans to the permitting agencies as a modification to the permits issued.

The City issued a Second Notice to Proceed (NTP #2), with an effective date of January 28, 2016, to the DBF for Phase 2 Services – Construction Work. The SFWMD issued 5-year Environmental Resource Permit No. 13-06125-P on May 5, 2016 and DERM issued a 2-year Class II permit 20150058 on May 27, 2016. Unfortunately, the modifications to the original stormwater plans and calculations were never submitted to the permitting agencies.

The DERM Class II General Conditions, Section 31, states as follows:

"If the engineer who provided certification pursuant to Section 24-48.2(I)(B)(2) or pursuant to Section 24-48.2(II)(A)(4) is discharged by the property owner or his agent, or if said engineer ceases to work on the proposed or approved work, all work by this permit shall immediately cease and shall not be resumed until a new engineer is obtained. The property owner shall also be required to obtain a new engineer who shall meet all the requirements of this permit."

Focusing on the DERM Class II permit, it is my opinion that any major modifications to the permit would probably have had an immediate stop work order, thereby causing unknown construction delays and unknown additional costs.

B. City approves alternative plans for drainage system that accommodates yard drains

On May 18, 2016, Kremers and Wright completed work on the alternative plans. Consistent with Wade Trim's plan and understanding with the City, however, Kremers and Wright did not immediately sign and seal the alternative plans. On May 27, 2016 DERM issued a Class II permit based on the Rubio plans. On June 10, 2016, Kremers signed and sealed the alternative stormwater drainage plans; Wright signed and sealed the alternative plans for the hardscape section. On June 10, 2016, Kremers signed and sealed the project's alternative 100% Final Design plans.

On July 7, the City's Public Works Department approved the Kremers plans. Thereafter DFB-Lanzo built the stormwater drainage system based on Kremers plans during 2016. During 2017, the City directed DBF-Lanzo/Wade Trim to design and construct a secondary drainage system that provided for additional 12-inch yard drains. The drawings for the new system extended over three pages of the stormwater drainage plans.

I analyzed the Lanzo **Primavera schedule** update of March 31, 2020 for completed Drainage and Roadway Construction activities during the DERM Class II permit No. 2015-0058 timeframe (Issue Date: May 27, 2016; Expiration Date: May 27, 2018). The focus in the table below is Palm Island: North/South Coconut Lanes and western Palm Avenue. My review of the entire schedule update indicates that all drainage construction on Palm/Hibiscus Islands was completed by January 31, 2018.

Palm Island

Zone 3 – North Coconut Lane

Zone 4 – South Coconut Lane

Zone 6 – west cul-de-sac

Activities		Finish Date
Z3PDR0030	Install Temporary Drainage	May 27, 2016
Z3PDR0060	Palm Avenue Drainage Installation	July 18, 2016
Z4PDR0060	Palm Avenue Drainage Installation	Nov. 8, 2016
Z4PDR0030	Install Temporary Drainage	Mar. 15, 2017
Z3PSR0060	Reconstruct Road Base	Nov. 30, 2017
Z3PSR0070	Paving 1st Lift	Dec. 1, 2017
Z3PDR0070	North Coconut Lane Drainage	Jan. 12, 2018
Z3PSR0040	Sidewalks and Driveway	Nov. 24, 2017
Z4PDR0070	Palm Avenue 18+00 West Drainage Installation	Dec. 15, 2017
Z4PDR0080	South Coconut Lane Drainage Installation	Jan. 31, 2018

C. The City's application for a Class II permit in 2018

During 2017, the City directed DBF-Lanzo to make significant changes and addition to the Kremers plans for the alternative drainage system. At the City's direction, DBF-Lanzo/Wade Trim designed and constructed a secondary drainage system on Palm Island West that was connected to additional swale and yard drains. The drawings for this additional infrastructure extended across three pages of the stormwater plans.

Class II permits are issued for two years. In May 2018, the City submitted a second application for a permit due to an expiring first permit. This permit application was signed by Carpenter (again), representing the City as Applicant and Wade Trim Engineer of Record, Daniel Garcia, P.E., the successor to Kremers. The DERM application required the City to submit construction plans and drainage calculations based on those plans. However, CIP project manager/CIP Project Coordinator Olga Sanchez did not include the plans or drainage calculations. In lieu of the Kremers plans, the City staff submitted correspondence signed by Daniel Garcia, P.E. A DERM supervising engineer, Mayra De Torres, sent Sanchez an email asking that the project's Engineer of Record certify that no significant changes had been made to the Rubio plans.

D. City tells DERM no significant changes were made to Rubio plans and obtains permit

On May 17, 2018, Garcia, as a Professional Engineer, signed a letter to DERM that said in part, "The purpose of this letter is to state that the original signed and sealed plans dated February 22, 2016 for Hibiscus Island and February 26, 2016 for Palm Island and drainage calculations dated October 2015 approved under CLII-20150058 have not had significant changes." **(Exhibit 11)**

DERM accepted Garcia's representations. On May 27, 2018, DERM Senior Professional Engineer Maria Molina approved a second Class II permit (200180038) in official correspondence addressed to Carpenter that said the permit had been approved "per signed and sealed plans by Orlando A. Rubio, P.E., from Craig A. Smith & Associates, dated February 19, 2016 and the letter from Daniel Garcia, P.E., from Wade Trim, Inc., dated May 17, 2018".

As noted above, the DERM Class II Permit General Conditions, Section 31, is applicable:

"If the engineer who provided certification pursuant to Section 24-48.2(I)(B)(2) or pursuant to Section 24-48.2(II)(A)(4) is discharged by the property owner or his agent, or if said engineer ceases to work on the proposed or approved work, all work by this permit shall immediately cease and shall not be resumed until a new engineer is obtained. The property owner shall also be required to obtain a new engineer who shall meet all the requirements of this permit."

The evidence shows that the City/DBF never disclosed the Kremers plans to DERM or notified the agency of its new drainage design. During this investigation, DERM engineers Molina and De Torres testified that they believe they were deliberately misled by the City and its representatives. In my professional opinion, the evidence gathered during this investigation supports the testimony of the DERM engineers: they were misled and misled more than once.

In my opinion, the statement in the Garcia letter to DERM that "no significant changes" had been made to the Rubio plans was false and omitted facts that Mr. Garcia knew were material to the request from deTorres and material to DERM's review of the City's second permit application. The involvement of CIP staff in submitting the Garcia letter to DERM is consistent with other evidence that indicates the City and DBF-Lanzo/Wade Trim acted in concert permitting matters.

By contract, it is the responsibility of the DBF-Lanzo to obtain all permits. Any modifications to the permit(s) required the DBF to adhere to the permit conditions from the permitting agencies for resubmittal of updated plans, specifications, calculations, etc.

Therefore, in my professional opinion, the DBF-Lanzo has constructed the stormwater drainage system in the Palm/Hibiscus Infrastructure Improvements Project without a valid SFWMD permit and DERM Class II Permits as the DBF-Lanzo did not comply with the respective conditions of the said permits.

VII. Part 2: Exhibits and observations

This section contains excerpts from exhibits with observations. For purposes of comparison, it begins sequential excerpts of pages from Feb. 26, 2016 100% Design Submittal (Rubio plans) submitted to DERM and the May 16, 2016 WT/Kremer's plans and related items. Subsequent exhibits related to the installation o f asecondary drainage system in Palm Island West in 2017, plans for WT engineer Kremers replaced CAS Rubio after DERM granted a Class II permit based on Rubio's plans; and representations to DERM in 2018 by the City and WT engineer Daniel Garcia that no significant changes had been made to the original Rubio plans.

I analyzed the following sets of Palm Island plans:

The Rubio (CAS) Plans: Neighborhood 13 Palm Island Right-of-Way Infrastructure Improvements February 26, 2016 SM-1205-A 100% Design Submittal (pages 1-72) and Set #2 Neighborhood 13 Hibiscus Island (pages 73-155) signed and sealed by Engineer of Record (EOR) Orlando A. Rubio, P.E. Craig A. Smith & Associates; submitted to DERM with City of Miami Beach application for Class II permit issued May 27, 2016.

The Kremers (WT) Plans: Set #1 May 18, 2016 SM-2015A Neighborhood 13 Palm island Right-of-Way Infrastructure Improvements; Signed and sealed by Holly Kremers P.E (Wade Trim Engineers) June 20, 2016; Hardscape page HS01-HS09 Signed & Sealed by Carey Wright. Stamped and Signed Public Works Department July 7, 2016 "for Stormwater only". Set #2 May 18, 2016 SM-2015-A Neighborhood 13 Hibiscus Island Right-of-Way Infrastructure Improvements. Signed and sealed by Holly Kremers June 16, 2016; Pages HS01-HS15) Signed and sealed by Carey Wright P.E. (Wade Trim Engineers) Stamped and signed by Public Works Department July 7, 2016 "for Stormwater only".

The Mullen (WT) As-Built Plans: Storm Drainage As Built plans signed and David Mullen, P. E. (Wade Trim Engineers) Dec. 13, 2019. Set #1 Neighborhood 13 Palm Island Stormwater Drainage As-Built Palm Island plans dated April 29, 2016 for Palm Island (pages 1-25) Set #2 Neighborhood 13 Hibiscus Island Stormwater Drainage As-Built (Undated) plans signed and sealed Nov. 27, 2019 by David Mullen, P.E. (December 13, 2019) submitted to DERM.

E. General observations

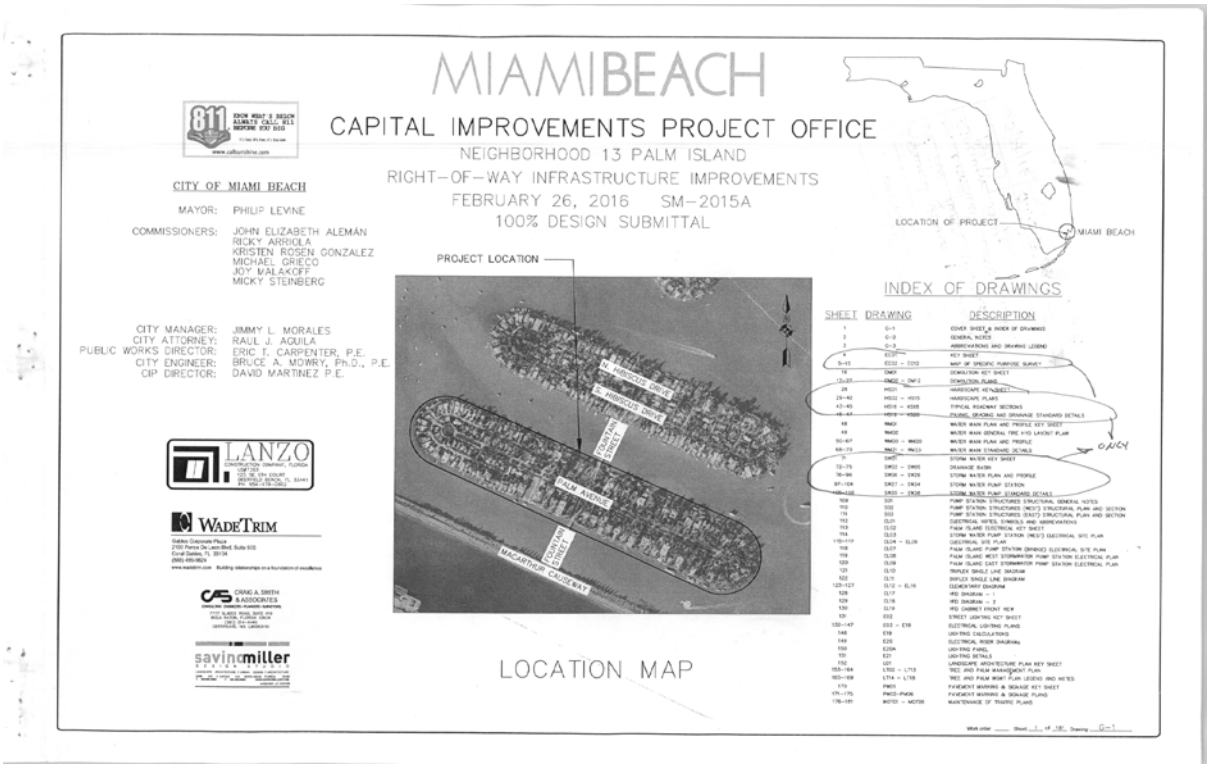
Comparisons of Palm Island plans were made between the February 2016 CAS drawings and the May 2016 WT drawings as identified in Exhibits 1 and 2 on the following pages. The storm drainage plans showed significant changes, mainly in the area of North and South Coconut Lanes on Palm Island. The WT storm drainage plans were advanced to show temporary/yard drains (and private drains by others) in the plans and typical cross sections. Rim/grate elevations also changed due to raising of the road elevations. The road elevations at North and South Coconut Lanes were raised approximately 12" on the WT plans, which created significant property harmonization problems.

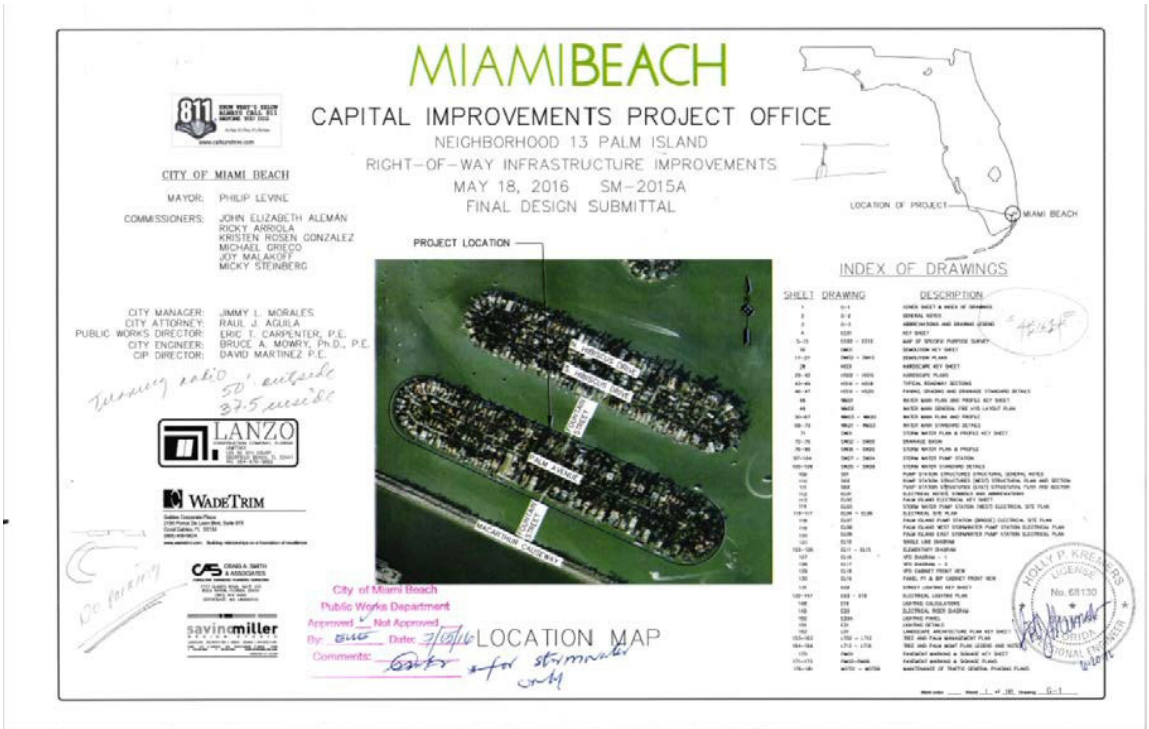
Comparisons of WT Palm Island plans were made between the May 2016 WT drawings and the December 2019 WT storm water As-Built drawings. The said December 2019 WT storm As-Built plans incorporated the design changes recommended in the May 3, 2018 Drainage Report for Palm Island prepared by WT engineer, Daniel Garcia, P.E., but never permitted through Miami-Dade DERM.

The As-Built storm drainage plans had one major deviation: ***the addition of secondary 24" drainage pipes on the south side of Palm Avenue west, draining towards the stormwater pump station and new 30" drainage pipes connecting the west cul-de-sac drainage eastward towards the stormwater pump station.*** There were other minor modifications in the storm water drainage piping. Review of the roadway manhole rim elevations indicated the roadway was built in substantial conformance with the WT May 2016 plans.

Comparisons of Hibiscus Island plans were also analyzed between the February 2016 CAS drawings and the May 2016 WT drawings. The storm drainage plans were essentially the same, with minor changes in storm water drainage piping. The pipe diameters remained the same. The road elevations and roadway cross sections were essentially the same with only minor variances.

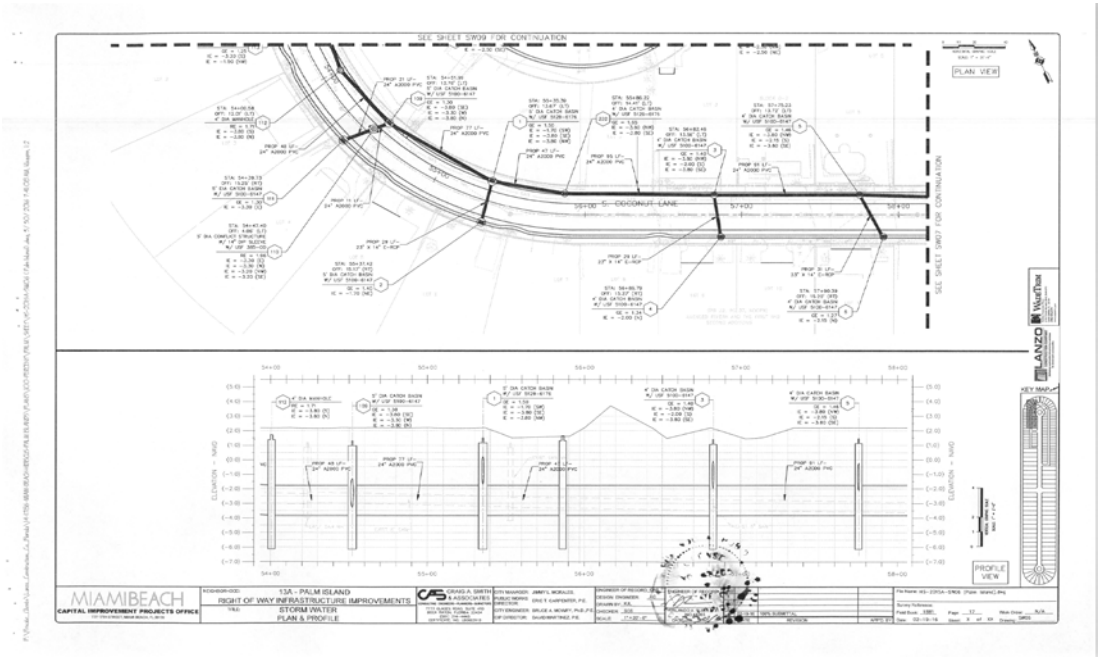
1. **Exhibit 1 consists of two separate sheets. The first cover page is that of the CAS/Rubio plans that served as basis of Class II permit issued May 27, 2016. The second cover page is that of the WT/Kremers plans dated May 18, 2016 used by City to construct drainage system.**

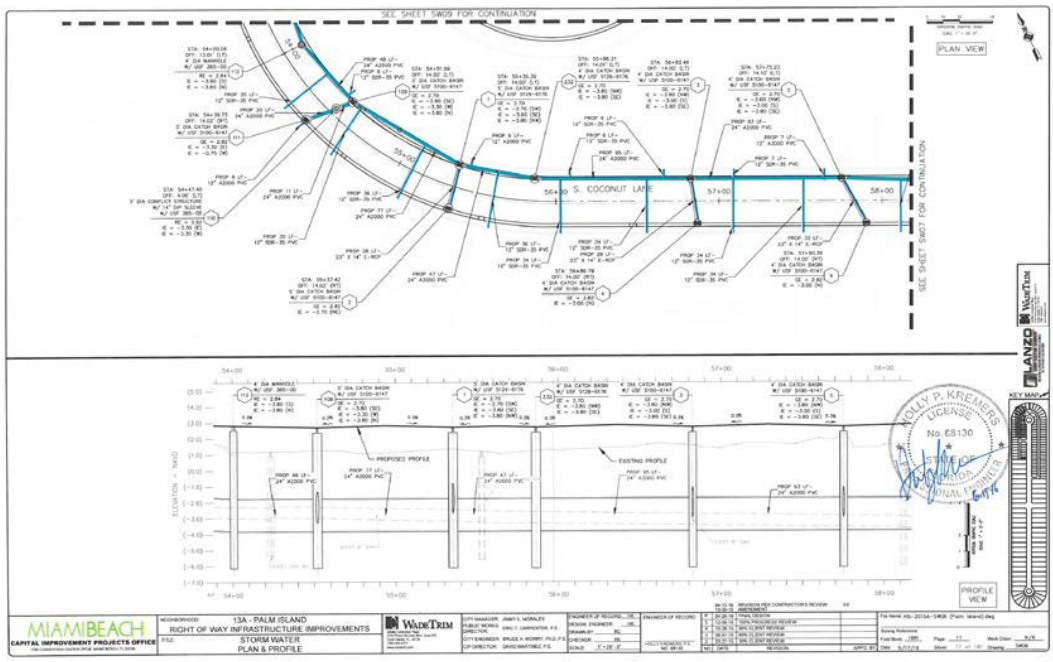




2. **Exhibit 2 consists of two separate sheets. Page SW06 from Rubio plans is a drawing of the stormwater drainage system for South Coconut Lane. Page SW06 from Kremers plans showing the stormwater drainage system with additional lateral pipes that extend to the front of each lot.**

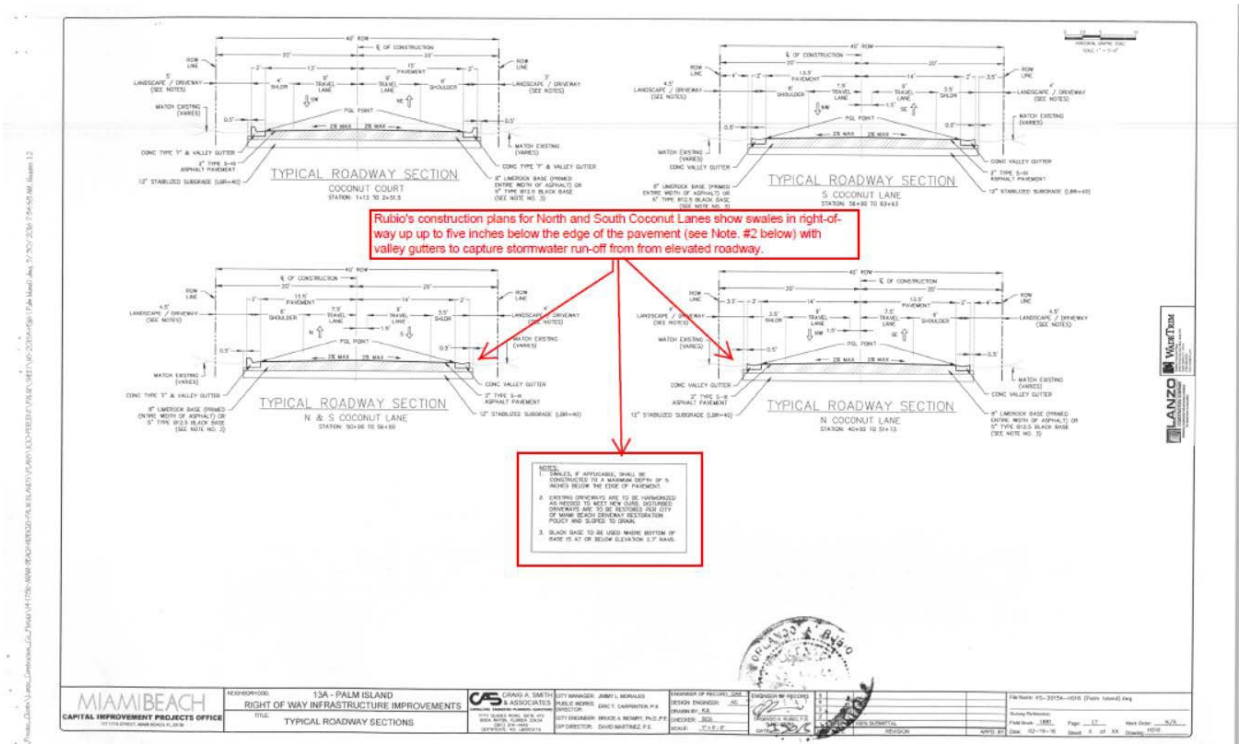
Exhibit 2

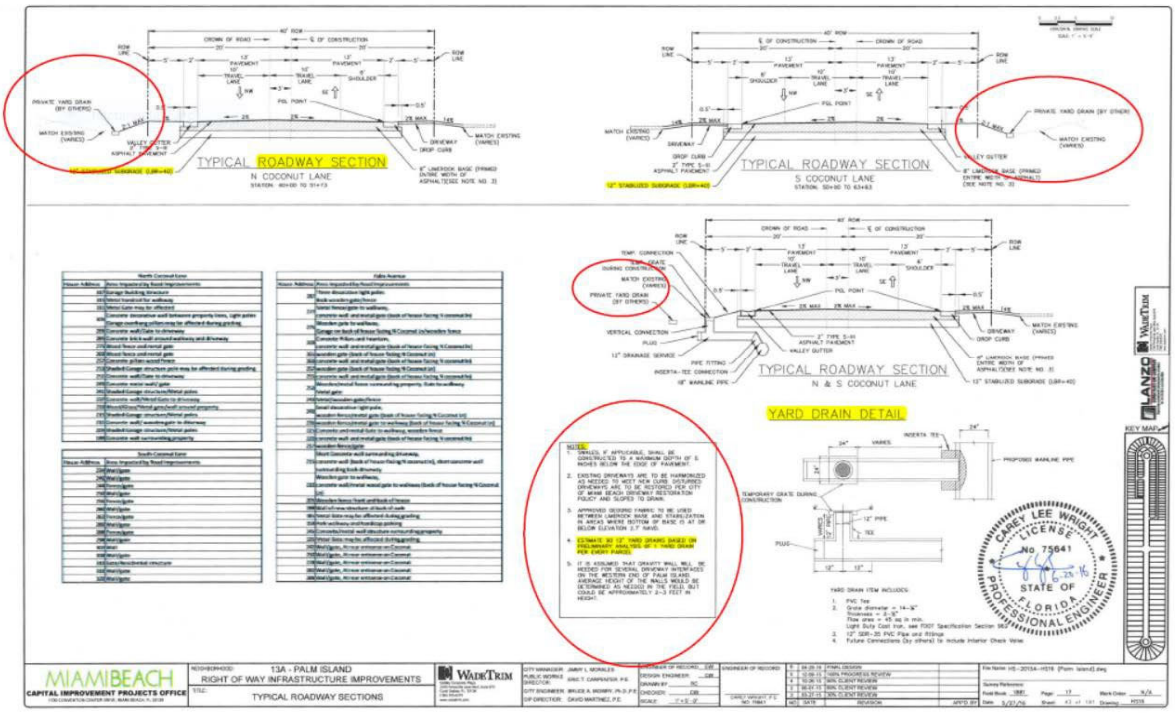




3. **Exhibit 3 consists of two sheets. The Typical Roadway Sections from Rubio plans for N. & S. Coconut Lanes and Coconut Ct. shows a swale-based drainage system within Right-of-Ways (ROW). The Typical Roadway Sections by WT EOR Wright show plans for connecting private yard drains and drains at edge of ROW; estimates called for 90 12-inch yard drains.**

Exhibit 3





4. **Exhibit 4 (4 pages) Request for Information #035 "Private Property Drainage Water Accommodation" dated Oct. 30, 2015 and attachments that included as attachments WT drawings for Coconut Lane Tie-ins to yard drains installed in private lots or in ROW adjacent to property line and subsequent email from former City Engineer Bruce A. Mowry, P.E., also dated Oct. 30, 2015, approving proposed design.**

Exhibit 4

REQUEST FOR INFORMATION

PROJECT NAME: Neighborhood #13, Palm & Hibiscus Islands PROJECT No. F-430

RFI No. 035 Request for Information Date: October 30, 2015

TO: Jeff Crews, PE - Stantec, Olga Sanchez – Miami Beach CIP

FROM: Bob Beaty, PE, Lanzo

REFERENCES:

PLAN No. Sections SPEC SECTION: _____ SHOP DRAWING: _____

INFORMATION REQUESTED: Private Property Drainage Water Accommodation

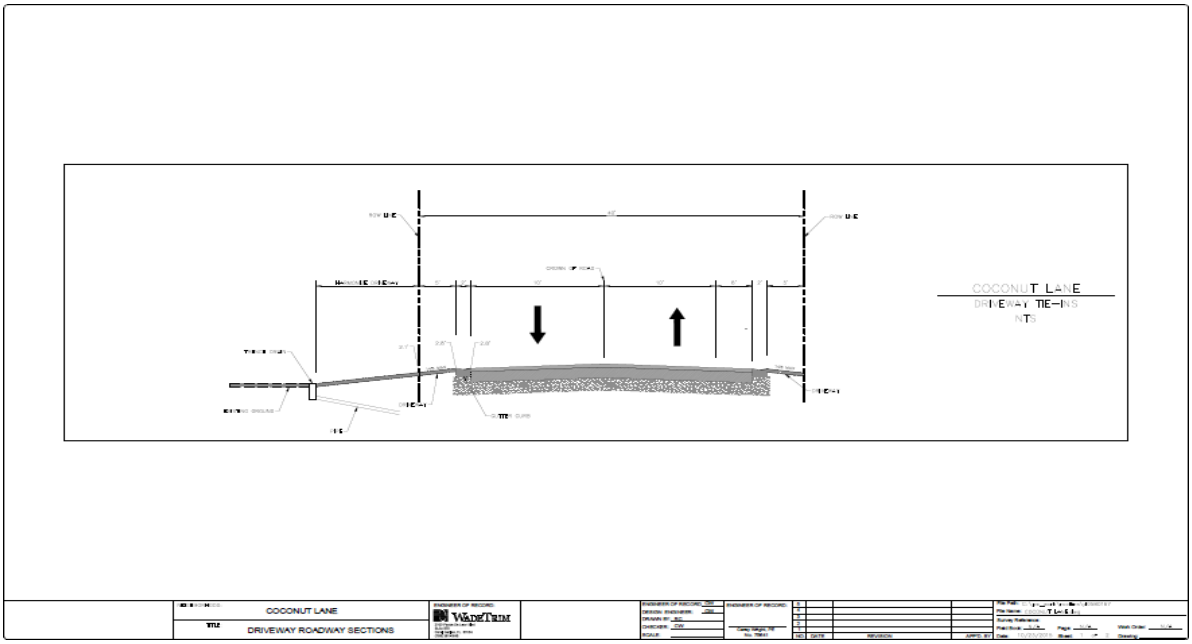
The attached section for elevating roadways provides drainage accommodation for Private Surface Water Runoff. I understand from discussions that this drainage system should be "Capped" at the Right-of-Way for future connection by the Private Property Owner. This future connection will include a check valve on the private property side to ensure City drainage water does not "Back-up" onto private property.

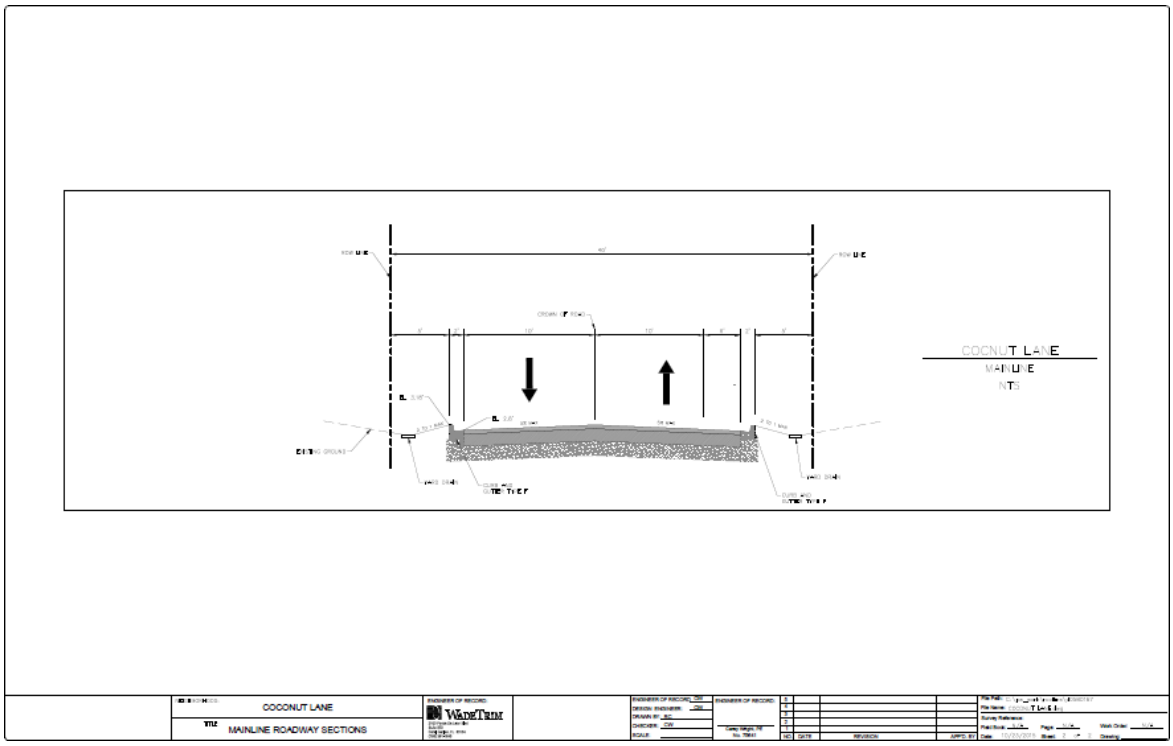
Future Connection will be installed "By Others".

Please confirm this expectation.

_____ TITLE: Project Manager

REPLY:


COCONUT LANE
DRIVEWAY TIE-INS
NTS
COCONUT LANE
DRIVEWAY ROADWAY SECTIONS


COCONUT LANE
MAINLINE
NTS
COCONUT LANE
MAINLINE ROADWAY SECTIONS

McGee, James

From: Mowry, Bruce
Sent: Friday, October 30, 2015 3:39 PM
To: 'Crews, Jeff'
Cc: Tomczyk, Mark; Sanchez, Olga; Egemba, Eugene; Buell, Roger
Subject: RE: ACTION REQ'D - ROW Palm & Hibiscus Island Enhancement - Private Property Drainage Water Accommodation

Jeff,
The City agrees with the connection to be made as described in the RFI.
Thanks,
Bruce

MIAMIBEACH
Bruce A. Mowry, Ph.D., P.E.
City Engineer
1700 Convention Center Drive, Miami Beach, FL 33139
Tel: 305-673-7080 ext. 6565 / Cell: 786-759-8941
BruceMowry@MiamiBeachFL.gov

We are committed to providing excellent public service and safety to all who live, work and play in our vibrant, tropical, historic communit

From: Crews, Jeff [mailto:jeff.crews@stantec.com]
Sent: Friday, October 30, 2015 2:48 PM
To: Mowry, Bruce
Cc: Tomczyk, Mark; Sanchez, Olga
Subject: FW: ACTION REQ'D - ROW Palm & Hibiscus Island Enhancement - Private Property Drainage Water Accommodation

Bruce can you please provide a response to the RFI below so that we can appropriately communicate the directive to the design-build team

Thank you

Jeffrey Crews, PE
Senior Associate
Stantec
21301 Powerline Road Suite 311 Boca Raton FL 33433-2305
Phone: 561-487-3379 ext 235
Cell: 954-804-2713
Fax: 561-487-3466
jeff.crews@stantec.com

The content of this email is the confidential property of Stantec and should not be copied, modified, retransmitted, or used for any purpose except with Stantec's written authorization. If you are not the intended recipient, please delete all copies and notify us immediately.

Please consider the environment before printing this email.

From: Bob Beaty via e-Builder [mailto:bounces@e-builder.net]
Sent: Friday, October 30, 2015 2:01 PM
To: Crews, Jeff
Subject: ACTION REQ'D - ROW Palm & Hibiscus Island Enhancement - Private Property Drainage Water Accommodation

5. Exhibit 5 Excerpt from Kremers plans (page G03) Construction Sequencing Notes stating lateral pipes under road and yard drains "shall be temporary drainage…during construction."

Exhibit 5

NURSERY.

5. UPON REMOVAL OF TREES TO BE RELOCATED WITHIN A GIVEN SECTION OF A WORK AREA (BEGINNING WITH AREA 1), CONTRACTOR SHALL BEGIN CONSTRUCTION OF PHASE "B" AS SHOWN ON CONSTRUCTION PHASING AND MOT SCHEMATICS, INCLUDING CONSTRUCTION OF DRAINAGE STRUCTURES AND PIPES, ETC.

   A. PORTIONS OF STORM WATER DRAINAGE PIPES CROSSING UNDER THE ROADWAYS SHALL BE TEMPORARY. DRAINAGE SHALL BE PROVIDED THROUGHOUT THE PROJECT TO ENSURE MINIMUM SERVICE TO PREVENT FLOODING DURING CONSTRUCTION. DURING PHASE "B" CONSTRUCTION, CONTRACTOR SHALL PROVIDE TEMPORARY CONNECTION(S) FROM THE NEW DRAINAGE STRUCTURES / PIPE TO EXISTING STORM WATER DRAINAGE SYSTEM AND / OR PROVIDE GAPS IN NEW CURB AND GUTTER AT EXISTING LOW POINTS, AS DIRECTED BY THE ENGINEER. IN THE FIELD. TEMPORARY PAVEMENT SHALL BE USED BEFORE MOVING TO THE NEXT ZONE AND TRENCHES WILL NOT REMAIN UNCOVERED FOR MORE THAN 14 DAYS. PROPER DUST CONTROL AND STORM WATER POLLUTION PREVENTION BMP'S SHALL BE USED.

   B. DURING INSTALLATION OF PORTIONS OF DRAINAGE PIPE CROSSING UNDER THE ROADS, IT MAY BE NECESSARY TO REDUCE TRAFFIC TO ONE LANE; IN SUCH CASES THE CONTRACTOR SHALL PROPERLY MAINTAIN TRAFFIC REGULATED BY FLAG MEN AND ADEQUATE SIGNAGE.

   C. ALL EXISTING AND NEW INLETS SHALL BE COVERED WITH FILTER CLOTH THAT WILL BE MAINTAINED AND CLEANED ON A DAILY BASIS. THE CONTRACTOR SHALL PROVIDE TEMPORARY DRAINAGE AS NEEDED TO MAINTAIN THE CURRENT FLOOD PROTECTION AT MINIMUM THROUGHOUT CONSTRUCTION.

   D. ONCE THE STORM WATER DRAINAGE PORTION OF PHASE "B" IS COMPLETED WITHIN A GIVEN SECTION OF AN AREA, DRAINAGE CONSTRUCTION CREWS SHALL WORK ON DRAINAGE CONSTRUCTION SEQUENTIALLY (WORK AREA 1, 2, 3, 4), UNTIL ALL PHASES ARE CONSTRUCTED AND THE THE COMMENCEMENT OF PHASE "C".

6. THE CONTRACTOR SHALL BEGIN CONSTRUCTION OF PHASE "C" WITHIN THE SAME ZONE AS SHOWN CONSTRUCTION PHASING AND MOT SCHEMATICS, INCLUDING CONSTRUCTION OF CURB AND GUTTER, DRIVEWAY CURBS, SIDEWALK, UTILITY DUCT BANK (FPL, AT&T ATLANTIC

6. Exhibit 6 is cover of City's Technical Report submitted to DERM with permit application in October 2015 with CAS (Rubio) as the Engineer of Record.

Craig A. Smith & Associates

CITY OF MIAMI BEACH

SFWMD/ACOE/FDEP JOINT ENVIRONMENTAL RESOURCE PERMIT APPLICATION & MIAMI-DADE COUNTY DRER CLASS II PERMIT APPLICATION FOR

Neighborhood No.13A: Palm and Hibiscus Islands
Right-of-Way Infrastructure Improvement Project

October 2015

CAS Project Nos. 14-1786

Prepared By:

CAS

Corporate Office:
7777 Glades Road, Suite 410
Boca Raton, FL 33434
561.314.4445
Fax 561.314.4457

ORLANDO A. RUBIO — STATE OF FLORIDA — ENGINEER

Orlando A. Rubio, PE
FL Reg. #48265

Date

7. **Exhibit 7 is excerpt from report, identified in Exhibit 6, explaining use of minimum crown-of-road elevation of 2.2 feet NAVD for North & South Coconut Lanes and Coconut Court. The design criteria elevation of 3.7 feet NAVD is "not possible" because first finished floor elevations are below "future design groundwater design basis 2.7 feet NAVD).**

Exhibit 7

g. Roadways: CMB criteria requires that minimum road crowns are set at or above elevation 3.7' NAVD. For the Palm Island West System and primarily on North and South Coconut Lane, this was not possible due to the existing topography (garages and existing yard grades) encountered below the future design groundwater elevation of 2.7' NAVD (see Figures 2 and 3). The criteria posed significant driveway harmonization and resident accessibility issues which cannot be addressed at this time unless each affected lot undergoes full blown redevelopment. As such, North and South Coconut Lane road crown elevations will be no lower than 2.2' NAVD as allowed by CMB with edge of pavement grades matching existing elevations. As redevelopment occurs on the islands, either by choice or by the effects of climate change conditions, the CMB will require the redevelopment or new construction to comply with the intended criteria. This will allow the CMB to elevate the road and drainage rims/grates at a later date.

8. **Exhibits 8 (4 pages) is excerpt from Drainage Report prepared by WT Engineer of Record, Daniel Garcia, P.E., dated May 3, 2018, that show additional installations of secondary drainage pipes on Palm Avenue that connect to private yard drains. (Annotations and markups added for emphasis).**

Exhibit 8

DRAINAGE REPORT

Palm Island

Wade Trim Job Number:
LNZ2003.01S

Prepared For:

CITY OF MIAMI BEACH

MIAMIBEACH

Submittal Date:
May 3, 2018

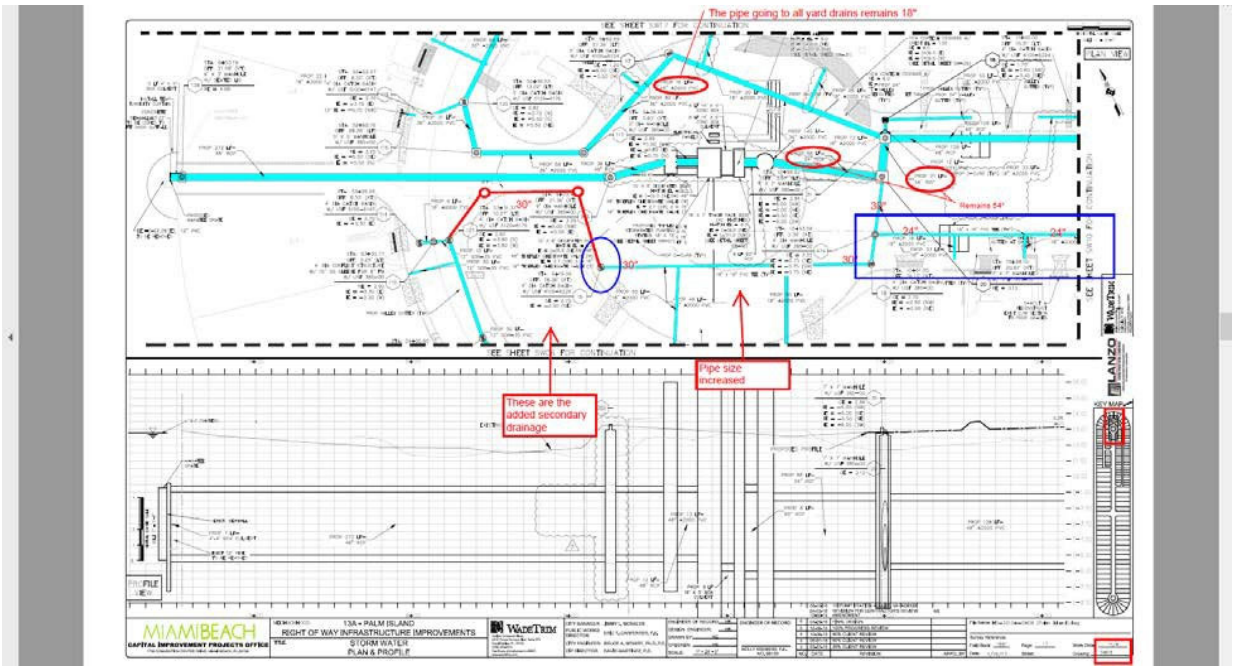
Prepared by:

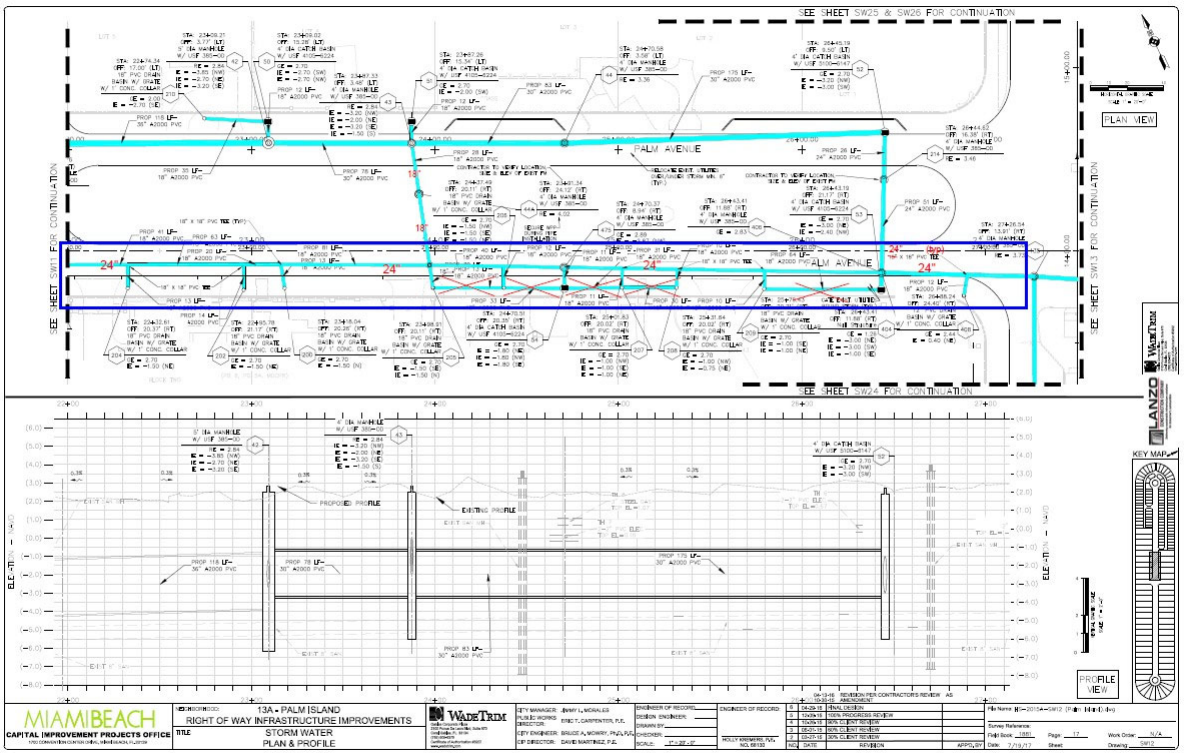
WADETRIM

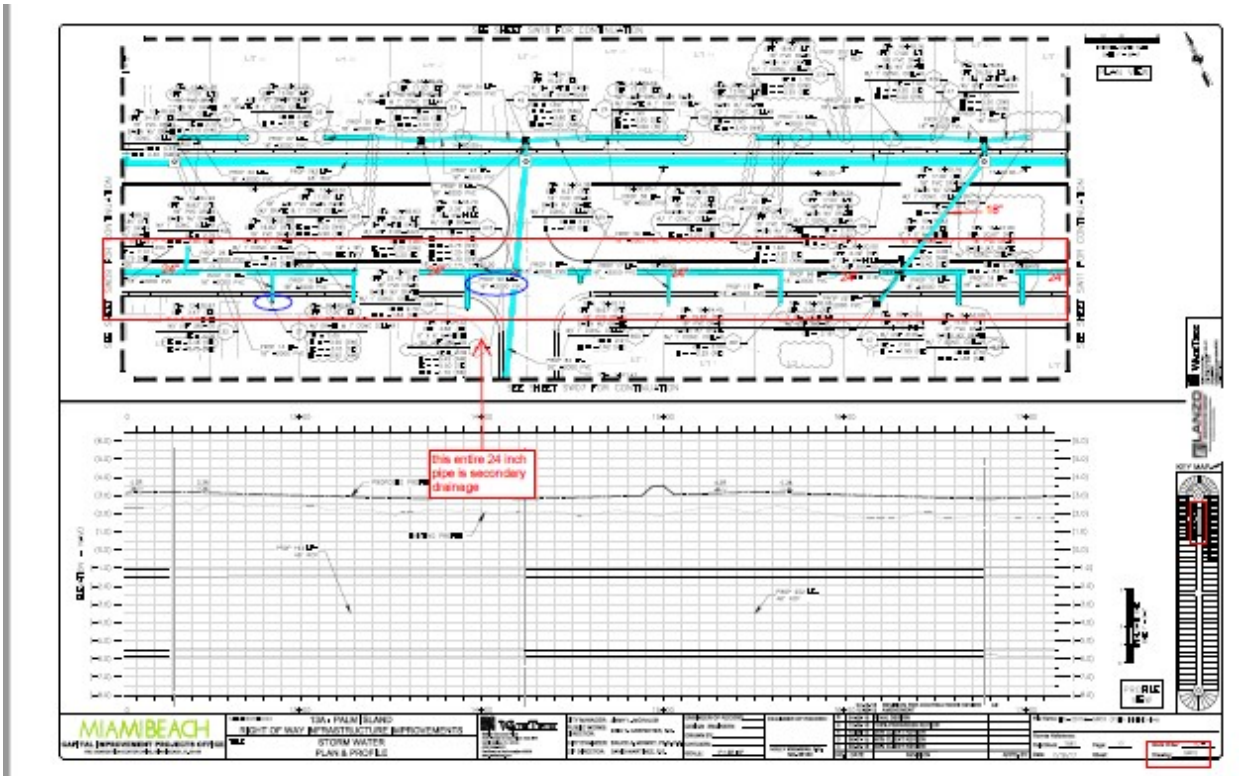
2100 Ponce de Leon Blvd, Suite 970
Coral Gables, FL 33134
Phone: (786) 361-1645

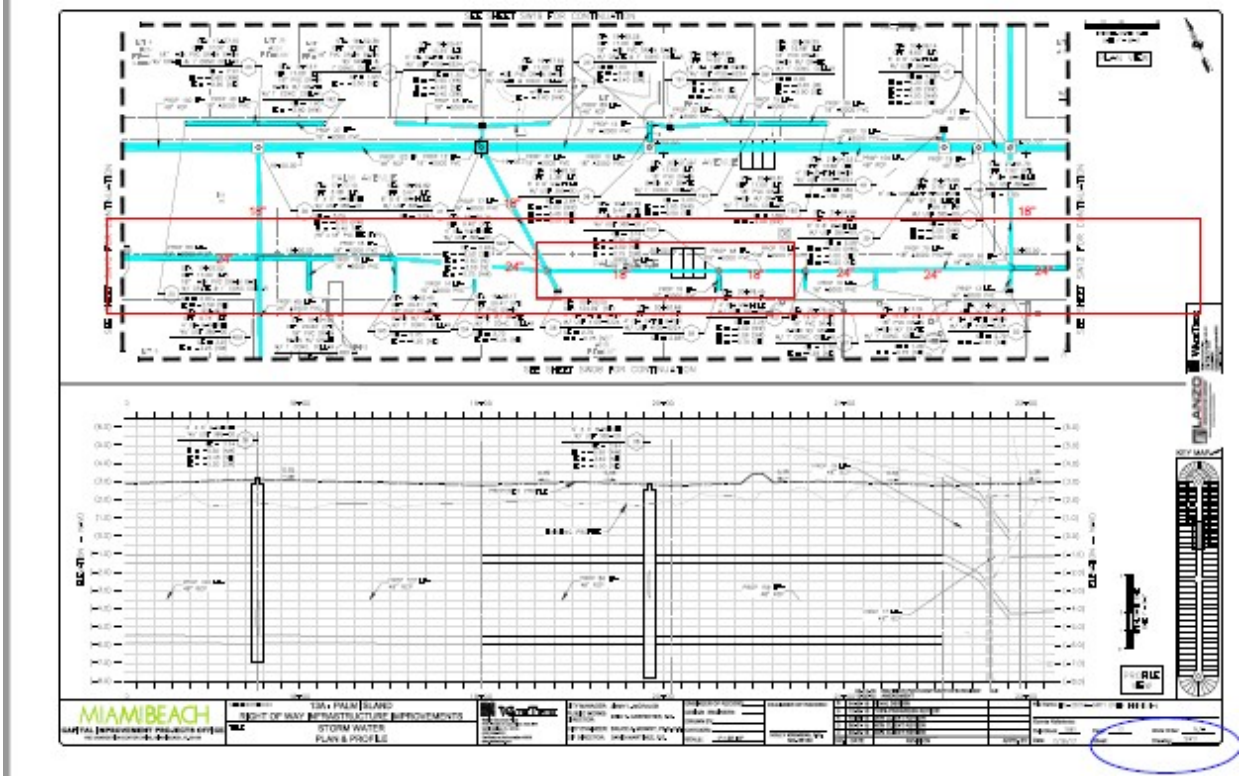
Engineer of Record:

Daniel I. Garcia
P.E. No. 62299




SEE SHEET SW25 & SW26 FOR CONTINUATION
PALM AVENUE
PLAN VIEW
SEE SHEET SW13 FOR CONTINUATION
SEE SHEET SW24 FOR CONTINUATION
PROPOSED PROFILE
EXISTING PROFILE
KEY MAP
PROFILE VIEW
MIAMIBEACH
CAPITAL IMPROVEMENT PROJECTS OFFICE
13A - PALM ISLAND
RIGHT OF WAY INFRASTRUCTURE IMPROVEMENTS
STORM WATER
PLAN & PROFILE
WATERTRIM
LANZO


this entire 24 inch pipe is secondary drainage
MIAMIBEACH
STORM WATER
PLAN & PROFILE


MIAMIBEACH
STORM WATER
PLAN & PROFILE

9. Exhibit 9 is correspondence dated from Wade Trim South Florida Manager to CIP Senior Project Manager explaining that "once 100% submittal has been fully approved by the City of Miami Beach and relevant permits acquired from South Florida Water Management District and Miami-Dade RER" WT would replace CAS as the Engineer of Record (*no record of the transfer is provided per Exhibit 9A - Chapter 61G15-27 of the Florida Administrative Code*).

WADE TRIM

March 2, 2016

Mark Tomczyk
Senior Capital Improvement Projects Coordinator
Office of Capital Improvements
City of Miami Beach
777 17th Street, Miami Beach, FL 33139

Re: City of Miami Beach, Florida
Neighborhood 13 Palm and Hibiscus Islands Right-of-Way Infrastructure Improvements

Dear Mr. Tomczyk:

As discussed, Wade Trim will be appropriating design documents from Craig A. Smith & Associates (CAS) for the Neighborhood 13 Palm and Hibiscus Islands Right-of-Way Infrastructure Improvements project once 100% submittal has been fully approved by the City of Miami Beach and relevant permits acquired from South Florida Water Management District and Miami-Dade RER. CAS has been informed of our intent to appropriate design documents and will be duly notified in releasing responsibility of all their project documents. We respectfully request approval from the City for this transfer of responsibility.

Very truly yours,

Wade Trim, Inc.

Victor H. Herrera, PE
South Florida Area Manager

cc: file

Wade Trim, Inc.
2100 Ponce de Leon Boulevard
Suite 970
Coral Gables, FL 33134

786.361.1645
888.499.9624
786.361.1646 fax
www.wadetrim.com

CHAPTER 61G15-27

PROCEDURES FOR THE ADOPTION OF ANOTHER'S WORK

61G15-27.001 Procedures for a Successor Professional Engineer Adopting As Their Own the Work of Another Engineer

61G15-27.001 Procedures for a Successor Professional Engineer Adopting As Their Own the Work of Another Engineer.

(1) A successor professional engineer seeking to reuse already sealed plans, prints, engineering specifications, and/or engineering calculations under the successor professional engineer's seal shall do so in compliance with Section 471.025(4), F.S. In other words, calculations, site visits, research and the like must be documented and producible upon demand. Plans, prints, engineering specifications, and/or engineering calculations need not be redrawn by the successor professional engineer; however, justification for such action must be available through well kept and complete documentation on the part of the successor professional engineer as to their having rethought and reworked the entire design process. A successor professional engineer must use their own title block, seal and signature and must remove the title block, seal and signature of the original professional engineer before reusing any sealed, prints, engineering specifications, and/or engineering calculations used for permitted works.

(2) Prior to sealing and signing such work a successor professional engineer shall be required to notify the original professional engineer, their successors, or assigns of the successor's intention to use or reuse the original professional engineer's work. Notification shall be by certified letter or other verifiable communication to the last known physical or electronic address of the original professional engineer.

(3) A professional engineer's reliance upon and legal use of another's engineering work, in the normal course of providing original service, is not reuse or adoption of such other engineer's work as contemplated by Section 471.025(4), F.S., and the professional engineer relying upon such work is not a "successor engineer" as used in that section. Such engineering work includes but is not limited to, geotechnical reports, soil investigation reports, legal surveys, and other works that may be sealed, but which are used to support the professional engineer's work and are not adopted as the professional engineer's original service or work product.

Rulemaking Authority 471.033(2) FS. Law Implemented 471.025(4), 471.033(1)(j), 471.005(6) FS. History–New 8-25-87, Amended 4-21-88, 8-3-88, Formerly 21H-27.001, Amended 8-8-18, 12-29-19.

10. Exhibit 10 is May 17, 2018 exchange of emails between DERM Engineer Mayra De Torres to CIP Project. De Torres asks that the City submit a statement from EOR certifying that no significant changes had been made to the Rubio plans that had served as the basis of Class II permit issued May 27, 2016. Sanchez transmits correspondence from Engineer of Record, Daniel Garcia.

Exhibit 10

McGee, James

From: OlgaSanchez@miamibeachfl.gov
Sent: Thursday, May 17, 2018 12:29 PM
To: Mayra.DeTorres@miamidade.gov
Cc: VictorS@Lanzo.org; Maria.Molina@miamidade.gov; PabloR@Lanzo.org
Subject: RE: Palm & Hibiscus Class II Drainage Construction Permit-Palm and Hibiscus Permit No. 20150058
Attachments: 20180517_MDRER permit renewal.pdf

Good afternoon Mayra,

Please see attached letter from EOR.

Also let me know when we can pay for the permit.

Thanks,

MIAMIBEACH

Olga Sanchez, E.I., LEED AP, *Capital Projects Coordinator*
CAPITAL IMPROVEMENT PROJECTS OFFICE
1700 Convention Center Drive, Miami Beach, FL 33139
Tel: 305.673.7071/ Fax: 786.673.7073 / Cell: 786.367.7253
olgasanchez@miamibeachfl.gov
We are committed to providing excellent public service and safety to all who live, work and play in our vibrant, tropical, historic community.

From: De Torres, Mayra (RER) [mailto:Mayra.DeTorres@miamidade.gov]
Sent: Tuesday, May 15, 2018 4:03 PM
To: Sanchez, Olga
Cc: Victor Serrano; Molina, Maria, P.E. (RER); 'Pablo Riano'
Subject: RE: Palm & Hibiscus Class II Drainage Construction Permit-Palm and Hibiscus Permit No. 20150058

Good Afternoon Olga,

We need a certification from the Engineer of Record of the original permit to certify that not changes to the original signed and sealed plans dated _____ and drainage calculations dated _____ approved under CLII-20150058 have changed.

If you have any questions, please do not hesitate to contact me.

Mayra De Torres, Engineer II
Department of Regulatory and Economic Resources
Environmental Resources Management
701 NW 1st Court, 6th Floor, Miami, Florida 33136
(305) 372-6638 (305) 372-6489 fax
http://www.miamidade.gov/economy
"Delivering Excellence Every Day"
Please consider the environment before printing this email.

1

11. Exhibit 11 is WT correspondence dated May 17, 2018 that Sanchez emailed as attachment to DERM Engineer Mayra De Torres, wherein WT EOR Daniel Garcia stated that Rubio plans that had served as the basis of the first Class II permit, and Rubio plans and the drainage study calculations based on those plans, "had no had significant changes" during construction.

Exhibit 11

WADE TRIM

FL LC Reg. No. CD00121

Wade Trim, Inc.
2100 Ponce de Leon Boulevard, Suite 940 • Coral Gables, FL 33134
786.361.1645 • www.wadetrim.com

May 17, 2018

Department of Regulatory and Economic Resources
Environmental Resources Management
701 NW 1st Court, 6th Floor
Miami, Florida 33136

Attention: Mayra De Torres, Engineer II

Re: City of Miami Beach Neighborhood 13A Infrastructure Improvements
Palm and Hibiscus Islands
Class II Permit Renewal (Permit No. CLII-20150058)

Dear Ms. De Torres:

The purpose of this letter is to state that the original signed and sealed plans dated February 22, 2016 for Hibiscus Island and February 26, 2016 for Palm Island and drainage calculations dated October 2015 approved under CLII-20150058 have not had significant changes.

The City of Miami Beach has recently revised the project's stormwater design criteria, which we are currently evaluating. Should the new criteria result in any significant changes, as they relate to the original signed and sealed plans and drainage calculations, they will be reflected in the project permit certification documents.

Please do not hesitate in contacting me with any questions.

Very truly yours,

Daniel I. Garcia

Wade Trim, Inc.

Daniel Garcia, PE
Project Manager

LNZ2003.02S

cc: Pablo Riano (Lanzo)

12. Exhibit 12 is excerpt from DERM Class II permit dated May 27, 2018 issued to designated City permittee Assistant City Manager Eric Carpenter and Wade Trim EOR Holly Kremers, P. E. stating permit was issued "per signed and sealed plans by Orlando A. Rubio, P.E., from Craig A. Smith & Associates., dated February 19, 2016 and the letter from Daniel Garcia, P.E., from Wade Trim, Inc., dated May 17, 2018.

Exhibit 12

2018052915315824

OFFICIAL DOCUMENT

MIAMI-DADE COUNTY
Carlos A. Gimenez, Mayor

Department of Regulatory and Economic Resources
Environmental Resources Management
701 NW 1st Court, 6th Floor
Miami, Florida 33136-3912
T 305-372-6567 F 305-372-6407
miamidade.gov

Class II Drainage Construction Permit

Permit Number: CLII-20180038 **Issue Date:** 05/29/2018
Project Manager: MAYRA A DE TORRES **Expiration Date:** 05/29/2020

Permittee:
City of Miami Beach Public Works Dept.
Mr. Eric Carpenter, P.E.
1700 Convention Center Drive
Miami Beach, FL 33139-

Contractor:
LANZO CONSTRUCTION CO., FLORIDA
Mr. Bob Beaty, P.E.
125 SE 5TH COURT
DEERFIELD BEACH, FL 33441-

Professional Engineer:
WADETRIM ONE TAMPA CENTER
Mr. Holly Kremers
201 NORTH FRANKLIN STREET, SUITE 1350
TAMPA, FL 33602-

Application Name: CITY OF MIAMI BEACH INFRASTRUCTURE IMPROVEMENTS PALM AND HIBISCUS ISLANDS
Project Location:
ALL RIGHTS-OF-WAY ON PALM ISLAND & HIBISCUS ISLAND MIAMI BEACH, FL 00000-

Project Description:
The proposed infrastructure improvement is to serve the City of Miami Beach (CMB) Palm and Hibiscus Islands otherwise known as "Neighborhood No. 13". The project will consist of elevated roadways where possible, installation of stormwater collection system, three (3) stormwater pump stations equipped with water quality treatment units with a gravity bypass and stormwater outfalls with dissipation structures discharging into Biscayne Bay. Backflow prevention devices will be installed at the outfalls to prevent extreme high tides from backing up into the system, as per signed and sealed plans by Orlando A. Rubio, P.E., from Craig A. Smith & Associates., dated February 19, 2016 and the letter from Daniel Garcia, P.E., from Wade Trim, Inc., dated May 17, 2018.

Specific Conditions:
1. Prior to any additional work in tidal waters, the following shall be submitted to

THE ABOVE NAMED PERMITTEE IS HEREBY AUTHORIZED TO PERFORM THE WORK SHOWN ON THE APPLICATION AND APPROVED DRAWINGS, PLANS, AND OTHER DOCUMENTS ATTACHED HERETO OR ON FILE WITH THE DEPARTMENT AND MADE PART HEREOF, SUBJECT TO THE ATTACHED GENERAL AND SPECIAL CONDITIONS.

THIS PERMIT AND PLANS SHALL BE KEPT ON SITE DURING ALL PHASES OF CONSTRUCTION

Page 1 of 6

VIII. Part 3 Evaluation of explanations by the City and Wade Trim

This section addresses the responses and explanations that witnesses from the City, Lanzo, and Wade Trim provided during interviews with OIG and in statements to the City Commission. I was asked by OIG Special Agent Jim McGee to consider the testimony by Garcia that he did not intend to mislead DERM or conceal the Kremers plans from DERM, and testimony from both Garcia and Kremers that it was permissible to disclose the changes to the Rubio plans to DERM in As-Built plans at the end of the project. Garcia said this was always his intention. I was also asked to consider statements by Carpenter during a hearing of the City Commission on Oct. 30, 2017, wherein he said that "ultimately, it is a judgment call of DERM as to when is the most appropriate time to go through that modification process, because the vast majority of all Class II permits are modified at their closeout. Very seldom does anybody install a stormwater project that is exactly the same as what was designed and funded."

In my professional opinion, Ms. Kremers and Mr. Carpenter misstated the disclosure obligations of a permittee and mischaracterized the Rubio plans. Carpenter twice signed DERM applications (as the Permittee/Owner) for a Class II permit wherein he affirmed that "I will apprise the Department of any changes to information provided in this application." Carpenter also signed an application for an Environmental Resources Permit from the South Florida Water Management District (issued May 5, 2016) based on the Rubio plans. The state permit's first general condition said the following: "All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized shall subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S. for the Palm and Hibiscus project."

In my opinion, Carpenter also mischaracterized the practices of DERM and other regulatory agencies regarding the use of As-Built plans. DERM and other agencies do recognize that unforeseen circumstances occur during construction projects that require the general contractor to make minor adjustments in the field that differ from construction plans. For reasons of efficiency, permitting agencies typically allow the disclosure of minor changes in As- Built plans submitted at the end of a project. If the agency concludes that the changes are significant enough to warrant a modification of the permit, the original permit will be modified. As Carpenter said, in such instances "it is a judgment call of DERM" whether a permit needs to be modified.

However, this is not one of those instances. In this case, the evidence shows that the project's owner (the City), the DBF-Lanzo and its subconsultant engineering firm (Wade Trim) seemed to knowingly engaged in a concerted effort during the DERM permit review process to develop an alternative set of construction plans to accommodate the connection of private yard drains. During 2016, Lanzo used the Kremers plans to construct dozens of 12-inch yard drains and an array of pipes to connect those drains to the stormwater main pipe.

During construction of the stormwater drainage system on Palm Island West, the City was in possession of a Class II permit for the Palm and Hibiscus project. However, the evidence shows that DERM unwittingly issued that permit based on plans to construct a different drainage system, one that was not designed to accommodate swale/private yard drains. In my opinion, the exhibits and testimony I reviewed support a conclusion that the City constructed a stormwater drainage system on Palm Island West without a valid permit.

F. Claim that unpermitted yard drains were a temporary condition

I was asked to consider the testimony of Kremers, Garcia, and other witnesses who contended that the 12-inch yard drains installed in the Right-of-Ways were a "temporary condition" to mitigate flooding of private lots during construction of the system and, further, that it was always their intention that these "temporary yard drains" would be capped and abandoned at the end of construction.

Given the totality of the evidence, it is my opinion that the designation of the 12-inch yard drains as "temporary yard drains" may have been mislabeled. Any temporary drains would be considered a means and method of construction by the contractor to keep the area as dry as possible where work was to be performed. Temporary drains for means and methods of construction are not typically shown on construction plans as they will have been removed before the completion of the stormwater drainage construction. Permanent drains can function as temporary drains, however, these permanent drains must be shown on the construction plans. There was no reason to obscure to the purpose of the yard drains and evade responsibility for failing to disclose the existence of these drains during the 2018 DERM application process. On this subject, I credit the testimony of Public Works Director, Roy Coley, who stated that the laterals and yard drains were always intended to be permanent installations and were approved for permanent use by the Public Works Department.

IX. Part 4: Factors the contributed to the project unfinished status.

The balance of this report provides additional observations about the factors that had an adverse impact during planning, design, and construction phases of the project and the administration of the City's progressive design-build contract with DBF-Lanzo. In my professional opinion, two related factors were the primary cause of the project's troubled history and unfinished status.

The first was the sustained and intense pressure that former Mayor Levine, the Mayor's Blue Ribbon Committee, and the Homeowners Association from Palm and Hibiscus Islands placed on City staff to accelerate their work on the project during the development of the project Design Criteria Package (DCP) and during the project's pre-construction design phase and the construction phase.

The second was the concurrent and also sustained pressure on City staff to incorporate the new design criteria into the project, specifically including the minimum grate elevation of 2.7 NAVD and the minimum crown-of-road elevation criteria of 3.7 feet NAVD. Accelerating work on a complex design-build construction project was a challenging and high risk assignment for the Capital Improvement Projects (CIP) staff, the Design Criteria Professional, and the design-build team DBF-Lanzo and its engineering consultants, Wade Trim, and Craig A. Smith & Associates. Incorporating the City's new design criteria into the Palm and Hibiscus project was a separate, distinct and equally challenging high-risk assignment.

Requiring that both of these complex tasks be accomplished simultaneously with the resources available to CIP was, in my judgement, an error. There is virtual certainty that the generation of engineering design changes and contract administration issues would be costly and complicated to mitigate. The City's decision at the end of the project's design phase to change the minimum crown-of-road criteria to 3.7 feet NAVD was a serious error of design management. It compounded the already intense pressure on CIP and Lanzo exponentially.

Below is a chronology of events leading to the City Commission approval of the Guaranteed Maximum Price (GMP):

- The City negotiated Phase 1 - Design and Pre-Construction Services with the DBF in the amount of $599,464 approved on September 18, 2014 based on the original DCP in the RFQ.
- During the period from June 2013 and October 2014, the City's Stormwater Master Plan Consultant, AECOM, was contracted to review the DCP. City staff from the Public Works Department were also tasked to review the DCP to implement modifications as outlined in the Stormwater Master Plan.
- The City Commission adopted Resolution No. 2014-28852, (dated November 19, 2014) approving Amendment No. 1 with DBF-Lanzo in the amount of $251,016 for additional design services associated with the adopted enhanced stormwater criteria.

- The City Commission adopted Resolution No. 2015-29178, (dated October 14, 2015) approving Amendment No. 2 with the DBF in the amount of $73,240 for additional design services required to meet the revised City Landscape ordinance, comments from the Home Owners Association, and the changes in criteria from the City's Fire and Public Works Departments related to the placement of Florida Power and Light (FPL) transformers within the public right-of-way.
- City CIP Staff contracted with Rib U.S. Cost to provide a 90% Construction Cost Estimate for the Palm and Hibiscus Islands Neighborhood Improvement Projects. The November 25, 2015 report estimated a base cost of $31,008,940, which did not include the 7.5% design-build fee and owner's contingency fee.
- The Agreement between the City and Lanzo for Progressive Design Build Services, dated September 18, 2014, contained Article 4.3 Guaranteed Maximum Price (GMP) (Phase 2 Services), which described the acceptance/rejection procedures for the GMP. **The City had the option at this point to terminate the contract and re-examine the project. However, the City decided to proceed and accepted the DBF's GMP.**
- The City Commission adopted Resolution No. 2015-29643, (dated December 9, 2015) approving Amendment No. 3 with the DBF for a Guaranteed Maximum Price (GMP) of $36,500,000 plus a $2,000,000 City contingency for Phase 2 – Construction Services.
- The Office of Capital Improvement Projects (CIP) issued Notice to Proceed #2 to the DBF dated January 28, 2016 for the commencement of construction work (Phase 2). The DBF was given **540 days** to complete Phase 2, by July 22, 2017, as documented in the DCP.

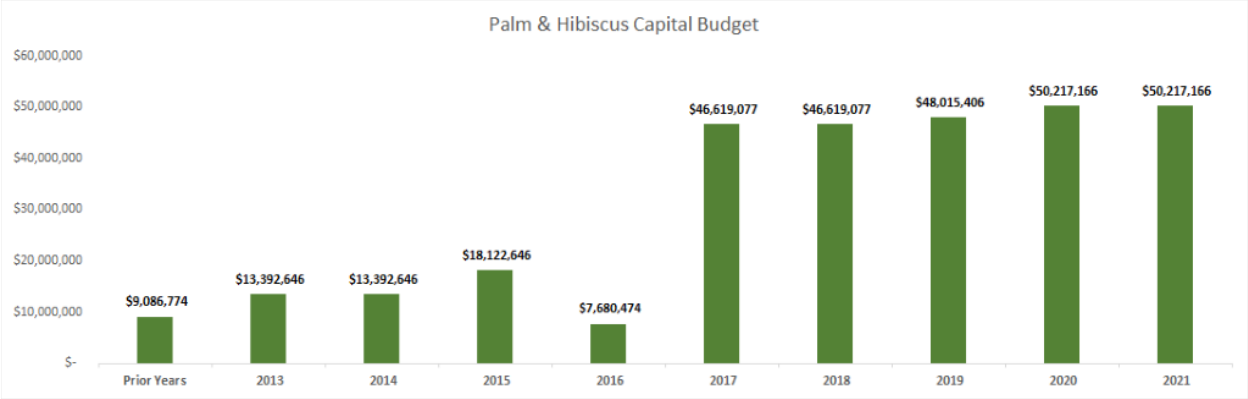
At that point, CIP was managing a fundamentally different project that required the DBF-Lanzo and its subconsultant engineer, Wade Trim, to design a modified stormwater drainage system. In my professional opinion, adopting that strategy was a fundamental error. Under pressure to begin construction, the City/DBF failed to consider that a modified stormwater drainage system design and change in the EOR may have caused DERM to stop the project for additional modified permit review time. After concluding that the King Tide phenomenon made it imperative that the minimum crown-of-road elevations for North and South Coconut Lanes and Coconut Court be raised by an additional 1.5 feet, the City should have stopped the project, refined the DCP, and issued a new solicitation. However, stopping or deferring the project was not a serious option due to the pressure placed on City staff.

Under pressure to begin construction, the City took a different path. At that point in time, the combined pressure to speed up their work and the imperative to embed the design criteria in the project's construction plans compelled the City/DBF-Lanzo to proceed with a design that the responsible City officials knew would cause flooding of homes on Palm Island West. The exhibits and testimony are replete with indicators of this pressure and the deleterious consequences that stemmed from the pressure City staff felt to continue the progress of this project.

That decision triggered a sequence of events and other decisions that set the stage for the actions previously described. It is important to note that the lack of communication and truthful exchanges with the permitting agencies exposed the City and DBF to scrutiny and significant additional costs in the construction of this project, which, as of the date of this report, is not completed.

Auditor's Financial Analysis

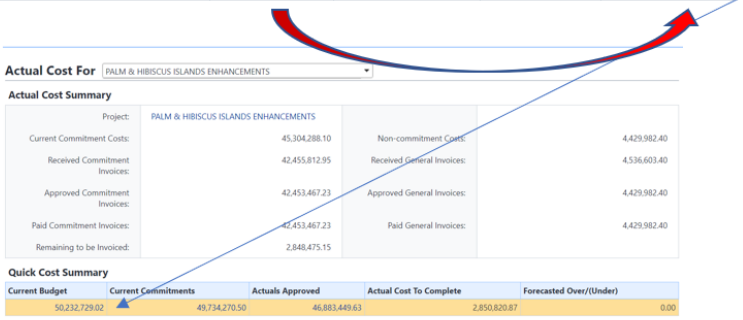
PALM AND HIBISCUS NEIGHBORHOOD IMPROVEMENT PROJECT'SCAPITAL BUDGET ESTIMATE INCREASED FROM $9,086,774 TO $50,217,166 MAINLY DUE TO DESIGN AND SCOPE CHANGES



The original intent of the project was completely different from the actual construction. The City requested changes during the design phase and the construction process that increased the project budget from $9 million to a $50 million-dollar project. Those changes included adding generators, increasing the roadway crowns generally to 3.7' NAVD, raising the Palm lower areas, Coconut Lane one-way redesign, re-design and relocation of drainage system to avoid Tree / Hedges Removal, lowering roadway elevations and additional secondary drainage on Hibiscus Island installation of underground sleeves and conduits design on Coconut Lane, permitting, construction and harmonization of additional private storm drains , among other changes. It seems that the City did not have a clear understanding of the scope of the project during the design phase prior to construction.

MIAMIBEACH

Line Item	Description	Original Budget	Approved Changes	Current Budget	Projected Budget
1000	New Construction	7,298,711.00	35,274,704.07	42,573,415.07	42,573,415.07
2000	Furnishings, Fixtures, and Equipment	0	1,396,329.00	1,396,329.00	1,396,329.00
4000	A/E Professional Fees	837,245.00	1,564,990.65	2,402,235.65	2,402,235.65
5000	CIP Fees	299,406.00	3,169,339.50	3,468,745.50	3,468,745.50
7000	Contingency	266,954.00	-259,408.20	7,545.80	7,545.80
8000	Program Management Fees	384,458.00	0	384,458.00	384,458.00
Totals		9,086,774.00	41,145,955.02	50,232,729.02	50,232,729.02



Actual Cost For PALM & HIBISCUS ISLANDS ENHANCEMENTS

Actual Cost Summary

Project:	PALM & HIBISCUS ISLANDS ENHANCEMENTS		
Current Commitment Costs:	45,304,288.10	Non-commitment Costs:	4,429,982.40
Received Commitment Invoices:	42,455,812.95	Received General Invoices:	4,536,603.40
Approved Commitment Invoices:	42,453,467.23	Approved General Invoices:	4,429,982.40
Paid Commitment Invoices:	42,453,467.23	Paid General Invoices:	4,429,982.40
Remaining to be Invoiced:	2,848,475.15		

Quick Cost Summary

Current Budget	Current Commitments	Actuals Approved	Actual Cost To Complete	Forecasted Over/(Under)
50,232,729.02	49,734,270.50	46,883,449.63	2,850,820.87	0.00

Over the years, Palm and Hibiscus had problems with the inadequate drainage infrastructure and low ground elevations that created a condition of moderate flooding in the area and contributed to deteriorated roadways.

The City made the decision to address these issues, and, on June 8, 2012, entered into an agreement with Stantec (formerly Corzo Castella Carballo Thompson Salman, PA or C3TS) to develop a Design Criteria Package (DCP) for the Right-of-Way Infrastructure Improvement for Neighborhood No.13 Palm & Hibiscus Islands and to evaluate compliance of the project construction.

The Mayor and City Commission at that time approved the issuance of Request for Qualifications (RFQ) No. 251- 2013TC on October 24, 2012, for Design/ Build Services for Neighborhood No. 13: Palm & Hibiscus Islands Right-of-Way Infrastructure Improvement Project. The RFQ was issued on June 10, 2013, with an opening date of July 11, 2013, with the Design Criteria Package provided by Stantec dated June 14, 2013.

On September 18, 2014 the City of Miami Beach entered into an agreement with Lanzo Construction Co. Florida to perform design, and construction of the Palm & Hibiscus Islands Right of Way (ROW) Infrastructure Improvement Project under the progressive design- build methodology in the amount of $599,464. The Design-Builder was to initiate the design period, encompassing the completion of the design to the level needed to define actual construction costs and begin construction activities in the field; collaborate with the City during the design process to ensure that design solutions reflect the most efficient construction means and methods and that the Project would meet the schedule, quality, permitting, and safety requirements; and procure long lead items, conduct field investigations, and early release construction packages; and once Design- Builder had advanced in the design to a sufficient level of detail to produce a reliable estimate with well- understood risks and contingencies, a

cost of construction (Guaranteed Maximum Price) will be submitted by the Design- Builder to the City for its approval.

Soon after the City entered into an agreement with Lanzo Construction Co. the City passed (Resolution No. 2014-28852) on recommendation of the Mayor's Blue Ribbon Panel on Flooding and Sea Rise and the Flooding Mitigation Committee, as well as the City's Flooding Mitigation Consultant (AECOM) calling for design services for additional pump stations on both Palm and Hibiscus Islands, new surveying services, revisions to the 30% Design Drawings, increasing the road minimum elevation, and Design Review meetings with the Community; and pursuant to these required design modifications, the Design-Build Firm submitted a proposal for these additional services in the not-to exceed amount of $251,016.

The contractor, Lanzo, hired Orlando Rubio from Craig A. Smith Associates to design the drainage system for "Neighborhood No.1 3A: Palm and Hibiscus Islands Right-of-Way Infrastructure Improvement Project" consisting of elevated roadways, where possible, installation of new potable water main systems, installation of stormwater collection systems with three stormwater pumping stations equipped with water quality treatment units and gravity bypass stormwater outfalls with dissipation structures discharging into Biscayne Bay within 25.53 acres of existing rights-of-way.

The technical report dated October 2015 submitted with the permit application stated that the City's criteria requires that minimum road crowns are set at or above elevation 3.7' NAVD; however, for the Palm Island West System and primarily on North and South Coconut Lane, this was not possible due to the existing topography encountered below the future design groundwater elevation of 2.7' NAVD. As such, North and South Coconut Lane road crown elevations would be no lower than 2.2' NAVD as allowed by CMB. The criteria posed significant driveway harmonization and resident accessibility issues, which could not be addressed at that time unless each affected lot underwent total or complete redevelopment. The City would then elevate the road and drainage rims/grates in that area at a later time. However, after a king tides event on October 2015, Bruce Mowry the former City Engineer eliminated the relaxed 2.2' NAVD on the Coconut Lanes, triggering a chain of events that caused scope changes that substantially increased the project budget.

On October 14, 2015, the City Commission authorized the Mayor and the City Clerk to execute the Lanzo Construction Amendment No. 2 (Resolution No. 2015-29178) to incorporate additional design services required to meet the revised City landscape ordinance, comments from Home Owners Association (HOA), the City's Fire Department analysis, the City's Public Works Department (PWD) change in criteria relating to the placement of Florida Power and Light (FPL) transformers within the City Right-of-Way, and other design criteria clarifications. This amendment increased the contract price by a not-to-exceed sum of $73,240.

At this point, Lanzo Construction had already billed the City $923,720 on design services (Phase 1). The 90% design plans completed by Rubio were used as the basis to develop a guaranteed maximum price. If the City did not agree with the price, the manager would have the alternative to exercise the "off-ramp" provision of the Agreement, allowing the City to

terminate Lanzo's services and seek alternate contractors to complete the Phase 2 construction services.

On December 9, 2015, the City Commission authorized the Mayor and the City Clerk to enter into further negotiations with Lanzo Construction Co. (Resolution No. 2015-29243) to execute guaranteed maximum price (GMP) Amendment No. 3 in the amount not to exceed $35,000,000 plus a ten percent owner's project contingency, and 2,000,000 owners contingency for a grand total of $38,500,000.

After the execution of the project Guaranteed Maximum Price (GMP), the Public Works Department requested the addition of 2,700 linear feet (LF) of 6" diameter ductile iron pipe and 9 gate valves to be installed in all side streets (courts) within Hibiscus Island. On July 21, 2016 **Change Order No.1**, was issued from the approved contingency funds in the amount of $313,905.06 for the additional watermain installation and to supply and maintain temporary pumps to mitigate king tides on Palm and Hibiscus Islands.

On October 29, 2018, **Change Order No. 2**, was issued from the approved contingency funds in the amount of $686,094.94, for additional services requested by the City, which included, force main replacement; additional water main drainage on Hibiscus Island; additional temporary pavement; Hurricane Irma impacts; associated general conditions and other miscellaneous work; credits related to scope of work reductions in street lighting, speed tables and road width reduction along North and South Coconut Lanes; and a time extension of four hundred and sixty-seven (467) calendar days.

Item	Change Order 2	Amount
RCO#3	Credit for Street light elimination	$ (700,000.00)
RCO#4	Credit for road width reduction of Coconut Lanes	$ (138,989.00)
RCO#5	Credit for Speed Tables Elimination	$ (96,000.00)
RCO#6	Credit for Valley Gutter	$ (4,856.40)
RCO#7	Additional Water Meters and Relocations	$ 21,623.60
RCO#8	Fire Hydrant Relocation at 199 N. Coconut Lane	$ 6,082.08
RCO#9	Fire Hydrant Relocation at 285 S. Hibiscus Dr.	$ 5,564.20
RCO#10	Existing service Repair @ 39 Palm Avenue	$ 4,788.81
RCO#11	Coconut Lane One-Way Redesign (Wade Trim)	$ 92,080.39
RCO#12	Palm Island Force Main Repair	$ 3,802.55
RCO#13	Palm Island King Tide Mitigation	$ 4,820.67
RCO#14	Palm Island Force Main Replacement	$ 56,894.96
RCO#15	Additional Water Main Valves	$ 42,617.17
RCO#16	Clean and CCTV Existing Outfalls	$ 24,645.00
RCO#17	Palm Ave. South Drainage Re-Design and Installation	$ 465,343.62
RCO#18	Hibiscus Outfall Tree Accommodation	$ 23,007.75
RCO#19	Hibiscus Island Additioanl Secondary Drainage/ Lowering Roads	$ 197,055.36
RCO#20	Coconut Lane Underground Sleeves	$ 157,172.40
RCO#21	Hibiscus Island Force Main Replacement	$ 37,713.56
RCO#22	Hurricane Irma Impact	$ 51,419.00
RCO#23	Additional General Conditions	$ 431,309.22
	Total Change Order #2	$ 686,094.94

The most significant changes included as part of Change Order No. 2 are the following:

1. RCO# 11 - Coconut Lane One-Way Redesign - After the construction plans were approved for the project, the Palm and Hibiscus Home Owners Association requested the conversion of the Coconut Lanes to a one-way roadway in order to accommodate the underground utilities equipment for the future franchise utility undergrounding of West Palm Island per Resolution No.2016-29643. In order to accommodate this request, the portion of the island had to be re-designed. This additional work includes additional design efforts. The impact to the schedule for this additional design effort is 70 days.

2. RCO#17- Palm Avenue South Re-Design and Relocation of Drainage System to Avoid Tree/Hedges Removal - The original project construction documents included the stormwater collection system along the south side of Palm Avenue to be installed in the swale area. The City of Miami Beach Commission voted on July 13, 2016, not to remove any tree/hedges located two or more feet behind the existing curb and gutter. The Design/Build Team re-designed and re-routed the storm water collection system to be constructed within the roadway and installed additional piping and drainage structures to accommodate the existing trees and hedges within the swales. This additional work includes the design, labor and material associated with the shifting of the system to the roadway. The impact to the schedule for this additional work is 55 days.

3. RCO#19- Hibiscus Island Lowering Roadway Elevations and Additional Secondary Drainage - The original project construction documents for Hibiscus Island included the raising of the roadway at locations to an elevation higher than the 3.7' NAVD minimum City standards to minimize the restoration efforts and reduce the need for harmonization within private property. CIP requested that the Design/Build Team revise and re-design these affected areas. The new design included the lowering of the roadways and installing additional secondary drainage at these locations. This additional work includes the redesign of the hardscape plans, revision of the drainage modeling for Hibiscus Island, recalculation of the proposed swale grading, addition of collection structures in some areas, depiction of existing elevations, final design elevations and new proposed elevations. This additional work includes, re-design, labor and material associated with the lowering of the roadways and adding secondary drainage. The impact to the schedule for this additional work is 45 days.

4. RCO#20- Coconut Lane Underground Sleeves - The Homeowners Association informed the City about their future plans to underground the overhead utilities on the west side of Palm Island. In an effort to minimize the need of excavate the new constructed roadway CIP requested the installation of underground sleeves and conduits while building the North and South Coconut Lane streets. These sleeves were installed at strategic locations crossing the road from one side to the other in order to facilitate the future installation of FPL, ATT and ABB systems. This additional work includes labor and material associated with the installation of the underground sleeves. The impact to the schedule for this additional work is 35 days.

5. RCO #23- Additional general conditions (467 days x amount per day $923.57 as per negotiated number).

General Conditions				
RCO No.	Work Description	Impact to Schedule (days)	Amount per Day	Total Amount
7	Additional Water Meters and Relocations	15	$923.57	$13,853.62
8	Fire Hydrant Relocation at 199 N. Coconut Lane	15	$923.57	$13,853.62
9	Fire Hydrant Relocation at 285 S. Hibiscus Dr.	15	$923.57	$13,853.62
10	Existing service Repair @ 39 Palm Avenue	12	$923.57	$11,082.89
11	Coconut Lane One-Way Redesign (WadeTrim)	70	$923.57	$64,650.20
12	Palm Island Force Main Repair	15	$923.57	$13,853.62
13	Palm Island King Tide Mitigation	0	$923.57	$0.00
14	Palm Island Force Main Replacement	35	$923.57	$32,325.10
15	Additional Water Main Valves	20	$923.57	$18,471.49
16	Clean and CCTV Existing Outfalls	50	$923.57	$46,178.72
17	Palm Ave. South Drainage Re-Design and Installation	55	$923.57	$50,796.59
18	Hibiscus Outfall Tree Accommodation	15	$923.57	$13,853.62
19	Hibiscus Island Additional Secondary Drainage / Lowering Roads	45	$923.57	$41,560.85
20	Coconut Lane Underground Sleeves	35	$923.57	$32,325.10
21	Hibiscus Island Force Main Replacement	25	$923.57	$23,089.36
22	Hurricane Irma Impact	45	$923.57	$41,560.85
		467	Total	$431,309.22

On December 26, 2018, **Amendment No. 4 (Change Order No. 3)**, was issued in the amount of $1,900,000, for work associated with the design, permitting, installation, testing, start-up and certification of auxiliary power bi-fuel generator for the three (3) stormwater Pumps Stations.

On April 18, 2019, **Amendment No. 5 (Change Order No. 4)**, was issued in the amount of $775,000 for costs associated with additional design, permitting and construction services including installation of a yard drain and connection to the City's drainage system, harmonization and restoration within the private property to its original or better condition as well as General Conditions Costs, General Allowance, Design Builders Fee and Specific Allowance for certain required tasks, which level of effort is unknown at this time.

On July 19, 2019, **Amendment No. 6 (Change Order No. 5)** was approved to include a credit in favor of the City in the amount of $50,000 for the removal of a portion of landscaping scope not to be performed by Lanzo under this Agreement, the portion of landscape work also establishes a General Allowance in the amount of $500,000 from the previously authorized Project contingency funds to be allocated towards future unforeseen tasks associated with the completion of this Project and as further set forth in the Agreement.

On September 11, 2019, pursuant to the additional scope required for the implementation of the new drainage directive (Resolution No. 2019-30683), the Mayor and the City Commission adopted Resolution No. 2019-30984 authorizing the City Manager to execute Amendment No. 7 in the amount of $840,000 plus 84,000 City contingency for the design, permitting, construction and harmonization of additional private storm drain connections, inclusive of additional work on the previously approved properties, for a total of approximately 95 properties. This Amendment shall be subject and conditioned upon Mayor and City Commission's approval of the fiscal year 2020 Capital Budget pertaining to this project.

On September 24, 2019, **Amendment No. 7 (Change Order No. 6)** was approved in the amount of $840,000 plus $84,000 City contingency for additional scope required for the implementation of the new drainage directive, increasing the number of private drain connections and augmented the treatment requirements for previously approved properties for the design, permitting, construction and harmonization of additional private storm drain connections, inclusive of additional work on the previously approved properties, for a total of approximately 95 properties.

Lanzo Construction Co.	Date	Amount
Progressive Design & Build Agreement	18-Sep-14	$ 599,464.00
Amendment #1	19-Nov-14	$ 251,016.00
Amendment #2	14-Oct-15	$ 73,240.00
Total Design Phase 1		**$ 923,720.00**
		$ 35,000,000.00
Amendment #3	14-Jan-16	$ 1,500,000.00
Change Order No. 1	21-Jul-16	$ 313,905.06
Change Order No. 2	30-Oct-18	$ 686,094.94
Change Order No. 3 Amendment #4	19-Dec-18	$ 1,900,000.00
Change Order No. 4 Amendment #5	25-Mar-19	$ 775,000.00
Change Order 5 Amendment #6	19-Jul-19	$ (50,000.00)
Change Order 6 Amendment #7	24-Sep-19	$ 840,000.00
Total Construction Phase 2		**$ 40,965,000.00**
Total Lanzo's Contract		**$ 41,888,720.00**

Per Eric Carpenter's January 21, 2021 memorandum, he stated "The City entered into a progressive design/build contract with Lanzo Construction that resulted in a Guarantee Maximum Price authorization by the City Commission for $38.5 Million. The addition of several scope changes directed by the Commission has resulted in a final construction cost of $40.9 Million."

However, in addition to the amounts paid to Lanzo Construction Co. for the Progressive Design Build, the City also hired contractors to provide additional consulting services that increased the total Project Cost. As shown below, the total amount paid according to E-builder was $46.9 million, the current commitments are $49.7 million, and the total Budget is $50.2 million as of February 4, 2021.

Actual Cost For PALM & HIBISCUS ISLANDS ENHANCEMENTS

Actual Cost Summary

Project:	PALM & HIBISCUS ISLANDS ENHANCEMENTS		
Current Commitment Costs:	45,304,288.10	Non-commitment Costs:	4,429,982.40
Received Commitment Invoices:	42,455,812.95	Received General Invoices:	4,536,603.40
Approved Commitment Invoices:	42,453,467.23	Approved General Invoices:	4,429,982.40
Paid Commitment Invoices:	42,453,467.23	Paid General Invoices:	4,429,982.40
Remaining to be Invoiced:	2,848,475.15		

Quick Cost Summary

Current Budget	Current Commitments	Actuals Approved	Actual Cost To Complete	Forecasted Over/(Under)
50,232,729.02	49,734,270.50	46,883,449.63	2,850,820.87	0.00

In addition, AECOM's Task Order 2 Flood Mitigation Consulting Services, Task 0001 Develop Project Work Plan includes the following tasks that were already performed:

- Project Management Activities including meetings with City staff
- Review of various documents and projects including Lower North Bay Road, **Palm & Hibiscus Islands**, and Sunset Islands 3 & 4
- **Prepare drainage portions of Design Criteria Packages for Palm & Hibiscus Islands** and Central Bayshore South
- Attend Blue Ribbon Panel, Land Use and Sustainability & Resiliency Committee meetings.
- Preparation of Deep Well Injection Feasibility White Paper
- Assistance with Florida Stormwater Association Presentation
- Resiliency Study – Code Review
- Stormwater Utility Rate Study Evaluation for ERU adjustment and Impact Fees.
- Develop preliminary methodology for Payment in Lieu of stormwater connection fee.
- Historic Neighborhoods and Elevation Maps
- Base Flood Elevation White Paper
- Indian Creek Linear Park State Revolving Fund RFI
- Indian Creek Linear Park Facilities Plan and Preliminary Design
- Statement of Work and Use of Vulnerability and Risk Assessment Models
- Engineer's Bond Report and Updates to 5-year Master Plan
- Meetings concerning the bonding and preparation of the Engineer's Report for the bonds
- Engineer's Opinion of Preliminary Construction Cost for pumping station and surface facilities costs
- Research, review, and revise Miami Beach City Code – Building Code and Flood Ordinances

Although Task Order 2 included work performed on Palm and Hibiscus islands, there was no known means to accurately allocate these expenditures among the other projects. Therefore, the actual cost of the Palm and Hibiscus island project is most likely even higher than the $49.7 million already committed.

The followings are Palm and Hibiscus Island Enhancement expenditures actuals paid as of February 4, 2021:

MIAMIBEACH

Company	Invoice Amount
Atlantic Broadband Total	$ 55,717.50
C3TS ARCHITECTS Total	$ 329,440.90
CAP Government Inc Total	$ 89,969.00
City of Miami Beach Total	$ 4,738.56
City of Miami Beach - Building Department Total	$ 50,999.28
City of Miami Beach - CIP Office Total	$ 3,373,072.27
Craven Thompson & Associates, Inc. Total	$ 150,484.07
DERM (NOT TO BE USED FOR PAYMENTS) Total	$ 3,336.71
EDAW Total	$ 104,448.00
EnviroWaste Services Group, Inc. Total	$ 11,895.75
Florida Department of Health Total	$ 650.00
Florida Transportation & Engineering Total	$ 2,317.95
FPL Total	$ 424,492.00
Hazen & Sawyer Total	$ 384,458.00
Infinite Source Communications Group Total	$ 328,147.50
J. FLETCHER ENTERPRISES, INC. DBA Trimac Outdoor Total	$ 4,640.00
LAKDAS/YOHALEM ENGINEERING, INC Total	$ 9,290.00
Lanzo Construction Company of Florida Total	$ 39,810,864.23
Lee Construction Group, Inc. Total	$ 297,057.16
Media Relations Group, LLC. Total	$ 27,691.25
Metro Express Inc Total	$ 4,422.00
MIAMI DADE COUNTY Total	$ 40,750.08
MIAMI DADE COUNTY - DERM (2) NOT TO BE USED FOR PAYMENTS Total	$ 20,261.50
Nutting Engineers of Florida Total	$ 3,515.00
PALM-HIBISCUS-STAR ISLANDS ASSOC. INC. Total	$ 17,276.00
South Florida Water Management Total	$ 5,500.00
STANTEC CONSULTING SERVICES Total	$ 1,312,835.10
U.S. Cost Incorporated Total	$ 56,700.00
Universal Engineering Sciences Total	$ 30,812.64
WADE TRIM, INC. Total	$ 36,633.90
Grand Total	$ 46,992,416.35

Received	$	108,966.72
Paid	$	46,883,449.63
	$	46,992,416.35

Recommendations:

It is important that the Capital Improvement Projects office (CIP) implement aspects of best practices for managing projects, including the following recommendation intended to strengthen the City's ability to manage future projects and avoid the problems that drove up costs in Palm & Hibiscus project:

1. The City should have a better understanding of the intended project before starting the procurement process.
2. If the City's policies change, City staff should analyze and consider the impact (financial, design, time, etc.) of applying those changes to projects that are in the

construction process already. The Commission could consider requiring the project manager to certify that any proposed change is essential to the success of the project and provide realistic estimates of the estimated costs and impact on the project's schedule.

3. Making significant changes to a project's design criteria or construction plans after work has begun poses a significant risk to the success of a neighborhood infrastructure improvement project and should be avoided. To mitigate the risk of cost escalation caused by changes in a projects design criteria or construction plans the city can establishes a formal mechanism to evaluate, document, and authorize any significant change that is proposed after a project's bid is issued.

4. The City could enhance its ability to provide oversight of CIP's capital improvement program by completing an annual Affordability Analysis based on current cost estimates and schedules for all stormwater drainage and neighborhood improvement projects. An Affordability Analysis would help decisionmakers determine if there is adequate funding to complete CIP's capital projects.