Programmatic Section 4(f) Evaluation and Approval for FDOT Projects that Necessitate the Use of Historic Bridges

Project Name: Venetian Causeway Bridges from Bayshore Drive (Miami) to Purdy Avenue (Miami Beach)

FM#: 422713-2-22-01 ETDM#: 12756 FAP#:

Project Review Date: TBD
FDOT District: 6
County: Miami-Dade County

Based upon the criteria and findings required by the Programmatic Section 4(f) Evaluation and Approval for FDOT Projects that Necessitate the Use of Historic Bridges the proposed Venetian Causeway Bridges from Bayshore Drive (Miami) to Purdy Avenue (Miami Beach) with FM No. 422713-2-22-0 meets the requirements set forth in Section 4(f) of the USDOT Act of 1966, as amended, that there is no feasible and prudent alternative to the use of Venetian Islands Resource Group and the proposed action includes all possible planning to minimize harm to the Venetian Islands Resource Group resulting from such use.

Project Description including Section 4(f) Specific Information:

The Venetian Causeway is approximately 2.5 miles long, and is primarily a two-lane undivided facility that provides a major link between the City of Miami and the City of Miami Beach in Miami-Dade County, Florida. The current Causeway follows the original route of the Collins Bridge, a wooden structure built in 1913. The Causeway includes ten fixed span bridges and two bascule leaf span bridges over the Intracoastal Waterway (Bridge Nos. 874459, 874460, 874461, 874463, 874465, 874466, 874471, 874472, 874473, 874474, 874477, and 874481) extending from North Bayshore Drive (City of Miami) to Purdy Avenue (City of Miami Beach). The bridges along the Causeway were originally built in 1926 with an anticipated design life of 50 years.

The Causeway bridges are mainly short span reinforced concrete arch beam bridges. Each bridge section consists of two 12-foot travel lanes with 4-ft bike lanes and 4-foot sidewalks on each side. Between 1996 and 1999, the twelve causeway bridges underwent major rehabilitation that included the concrete arched beams, decks, foundations and the full replacement of all sidewalks and railings. The rehabilitation and repairs to the concrete elements were anticipated to last for ten years. As part of the rehabilitation, the east bascule bridge (Bridge 874474) movable span and machinery was replaced. Spans 17 through 41 of the west bascule bridge (Bridge 874459), including the bascule span, was replaced with a higher profile and wider channel to accommodate navigational traffic. Presently, the bridges exhibit severe deterioration because of their proximity to the very aggressive marine environment.

As a result of the current project, the Venetian Islands Resource Group (8DA14395) was documented. This resource group subsumes the National Register-listed Venetian Causeway (8DA4736). As documented in the 1989 National Register nomination, the Causeway consists of “twelve bridges containing two bascule spans connected by a two lane road” (Welcher 1989). Due to severe deterioration, the bridges are in need of extensive rehabilitation or replacement. Each of the twelve bridges were given individual Florida Master Site File (FMSF) numbers and were included within the newly identified Venetian Islands Resource Group (8DA14395). In consultation with the State Historic Preservation Officer (SHPO), the FMSF site file for the Venetian Causeway (8DA4736) was converted from its current classification as a historic bridge to a resource group. More information

regarding the National Register–listed resource is found in the National Register Nomination form for Venetian Causeway (8DA4736), which is on file at the FMSF.

The resource group classification serves as a comprehensive tool for documenting the entire landscape of the Venetian Islands, including the bridges. While the Venetian Causeway remains National Register-listed, the individual bridges (8DA14373-8DA14384) were evaluated as part of the current project and are considered contributing resources within the Venetian Islands Resource Group (8DA14395). A 730-foot section portion of the westernmost bridge was replaced in 2015. The six islands and five earthen causeway landings of the Venetian Islands were included within this historic designed landscape. The resource group encompasses a designed landscape of man-made islands, bridges, and earthen causeways that resulted from developers' ambitious plans to create a residential development on Biscayne Bay. Between 1915 and 1926, the location and layout of the islands were carefully planned and arranged by real estate developers, particularly the Bay Biscayne Improvement Company, to create a "Venetian" landscape across Biscayne Bay. Employing the most advanced dredging and construction methods of the time, crews shaped islands and connected them using a series of earthen causeways and concrete bridges. The Venetian Islands Resource Group (8DA14395) was determined National Register-eligible under Criteria A and C in the categories of Community Planning and Development, Transportation, Architecture, and Engineering by the SHPO in 2019.

The bridges have a low rise and provide minimal clearance above the mean high water. The guardrails, one of the main decorative features of the bridges, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern. This simple design forms a bold pattern while allowing a view of the bay from all of the bridges. The western terminus contains a pair of tapering octagonal concrete entrance towers topped by lights resembling miniature lighthouses. Inscribed in bas-relief on the towers are the words "Short Way" on the north tower, and "Venetian Way" on the south tower.

As contributing elements to the NRHP Venetian Islands Resource Group (8DA14395) the bridges (Bridge Nos. 874459, 874460, 874461, 874463, 874465, 874466, 874471, 874472, 874473, 874474, 874477, and 874481) were evaluated herein under Section 4(f).

I. Description of Project Scope/Purpose and Need Statement:

Project Scope

The Florida Department of Transportation (FDOT) District 6 is conducting a Project Development & Environment (PD&E) Study to address the identified structural and functional deficiencies of the 12 existing bridges that comprise the Venetian Causeway. The PD&E provides documented information on the type, design and location of improvement alternatives to the Venetian Causeway Bridges. Alternatives evaluated include No-Build and Build Alternatives. Potential build alternatives include replacement or rehabilitation of the bridges.

Purpose and Need

The purpose and need of the proposed project is to address identified structural and functional deficiencies of the 12 existing bridges (ten low-level fixed spans and two movable bascules) through potential alternatives such as replacement or rehabilitation.

The project will address the following needs:

Structural and Functional Deficiencies

The Venetian Causeway is classified as an urban minor arterial in Miami-Dade County, and is a significant transportation route connecting the City of Miami with the City of Miami Beach. The bridges along the Venetian Causeway were originally built in 1926 with an anticipated design life of 50 years. The bridges have exceeded their design life by over 40 years, and in most cases, are classified as Functionally Obsolete (FO). Due to the accelerated state of deterioration, inspection frequency has been increased from the biennial minimum (every other year) required by Federal Highway Administration (FHWA) to bi-annual (twice a year) inspections. Bridge Inspection Reports (conducted between October 2018 and January 2019) yielded sufficiency ratings between 16 and 37.6 on a scale of 100.0. Bridge 1 has a sufficiency rating of 67.6. Bridges with ratings of 50 or below are eligible for replacement funding from FHWA. *Refer to **Figure 1** Project Location Map for bridge locations*. The sufficiency rating of each bridge is shown in ***Table 1.***

FIGURE 1: PROJECT LOCATION MAP

Bridge No.	FDOT Bridge No.	NBI Condition Rating						2019 Sufficiency Rating	Deficiency
		Deck		Superstructure		Substructure			
1	874459	7	Good	5	Fair	6	Good	67.6	Functionally Obsolete
2	874460	5	Fair	5	Fair	6	Fair	36.6	Functionally Obsolete
3	874461	5	Fair	5	Fair	6	Fair	23.6	Functionally Obsolete
4	874463	6	Satisfactory	5	Fair	6	Satisfactory	25.1	Functionally Obsolete
5	874465	5	Fair	5	Fair	6	Fair	23.6	Functionally Obsolete
6	874466	6	Satisfactory	5	Fair	6	Satisfactory	28.1	Functionally Obsolete
7	874471	5	Fair	6	Satisfactory	6	Fair	37.6	Functionally Obsolete
8	874472	6	Satisfactory	5	Fair	6	Satisfactory	25.1	Functionally Obsolete
9	874473	5	Fair	5	Fair	6	Fair	27.4	Functionally Obsolete
10	874474	5	Fair	5	Fair	5	Fair	32.2	Functionally Obsolete
11	874477	5	Fair	6	Satisfactory	6	Fair	34.3	Functionally Obsolete
12	874481	5	Fair	4	Poor	5	Fair	16	Structurally Deficient & Functionally Obsolete

TABLE 1: VENETIAN CAUSEWAY BRIDGE INVENTORY RATINGS

Bridges 2 through 11 are Functionally Obsolete (FO) and Bridge 12 is both FO and Structurally Deficient (SD). A bridge is considered FO if it has deck geometry, load carrying capacity, clearance or approach roadway alignment that no longer meet the criteria for the system of which the bridge is a part. FO bridges are those that do not have adequate lane widths, shoulder widths, or vertical clearances to serve the traffic demand - or those that may be occasionally flooded. Bridges are considered to be SD where: 1) significant load carrying elements are found to be in poor or worse condition due to deterioration or damage or, 2) the adequacy of the waterway opening provided by the bridge is determined to be extremely insufficient to the point of causing intolerable traffic interruptions.

Bridges 1 through 12 are FO since the existing sidewalks and bike lanes are substandard. The bicycle lanes and sidewalks are both 4-ft. wide, except at Bridge 1(spans 1 to 16) where the bicycle lanes are 5-ft. wide. Bridges 2 through 12 do not meet the current design and safety requirements; AASHTO HL-93 live load capacity, scour resistance, wave force resistance or vessel impact resistance standards. Bridge 12 is classified as SD; the superstructure is in poor condition and the bridge sufficiency rating is 16.

Bridges 2 through 12 exhibit advanced corrosion with section loss; unsound concrete in beams and slabs; failed repairs; and extensive deterioration from the corrosive marine environment. This is significant enough to warrant supplemental supports and/or load restrictions. Concrete delamination, spalls, cracking, and rebar corrosion are evident on the bridge deck, diaphragms, and sidewalks. Utility lines and supports on the bridges are deteriorated. The bridge inspection reports also cite:

- Under-deck cracks,
- Failure of compression joints,
- Delamination and cracks on pier walls and abutments,
- Corrosion and section loss of substructure members,
- Major deficiencies in the bridge tender's facility,
- Major deck pavement deterioration,
- Substandard signing,
- Pavement marking and signalization, and
- Major Americans with Disabilities Act (ADA) deficiencies on both sidewalks along the bridges.

Once initiated, corrosion cannot be remedied, and sufficiency ratings are only expected to decrease further over time.

The bridges exhibit severe deterioration because of their proximity to the very aggressive marine environment. Due to new design codes, they do not meet current design and safety requirements. The bridges are continuously being repaired to maintain them in operational condition. ***See Table 2*** *for Bridge Repair Timeline.*

Financial information on the Venetian Causeway demonstrates that the Venetian Causeway costs more to operate, maintain and rehabilitate/repair, than the revenues collected. The County is trying to keep pace with the required maintenance of the bridges; however, the rate of deterioration requires constant expenditures to keep the bridges operational. The bridges require major rehabilitation or replacement in order to meet current design criteria and safety requirements.

Modal Interrelationships

Sidewalks and bicycle lanes exist on both sides of the Venetian Causeway along the entire corridor. Both the City of Miami and the City of Miami Beach Bicycle Master Plans identify

Venetian Causeway as a significant bicycle corridor as it serves as one of the County's most well-traveled recreational and commuter bicycle routes. The existing sidewalks and bike lanes are substandard. The bicycle lanes and sidewalks are both 4-ft. wide, except at Bridge 1 (spans 1 to 16) where the bicycle lanes are 5-ft. wide. The pedestrian and bicycle mobility need to be improved as part of this project.

Emergency Evacuation

The Venetian Causeway not only serves west-east travel between the City of Miami and the City of Miami Beach, but it also serves regional travel as it is one of only two routes leading from south Miami Beach that provides hurricane evacuation capabilities.

TABLE 2: BRIDGE REPAIR TIMELINE

Bridge Construction/ Bridge Replacement	Year	Description
Original Construction	1926	The bridges along the causeway were originally built in 1926 with an anticipated design life of 50 years.
Undocumented Rehabilitation Projects	1926 - 1996	Numerous repairs were performed on the bridges during this time interval. Bridge records only exist since 1996.
Major Bridge Rehabilitation Project	1996 - 1999	The twelve causeway bridges underwent major rehabilitation that included the concrete arched beams, decks, foundations and the full replacement of all sidewalks and railings. The rehabilitation and repairs to the concrete elements were anticipated to last for ten years. As part of the rehabilitation, the east bascule bridge (Bridge 10) movable span and machinery was replaced. Spans 17 through 41 of the west bascule bridge (Bridge 1), including the bascule span, was replaced with a higher profile and wider channel to accommodate navigational traffic.
Bridge Load Restrictions	2004	As a result of the continued deterioration of the bridges, the FDOT authorized Miami-Dade County to post load restrictions on the bridges.
Venetian Causeway Streetscape Improvements Project	2009	The County conducted a Streetscape Improvements Project. This project included the reconstruction of the Causeway's roadway.
Major Bridge Rehabilitation Project	2009 - 2011	The County conducted another major rehabilitation project to repair the causeway's bridges. The scope of work for this rehabilitation included major repairs to the bridge support beams, diaphragms, deck undersides, and support piers.
PD&E Study Project	2011	FDOT in partnership with Miami-Dade County initiated the current PD&E Study to address the identified structural and functional deficiencies of the 12 existing bridges that comprise the Venetian Causeway.
Design-Build Emergency Repair Project	2015 - 2016	The Venetian Causeway underwent an Emergency Repair to replace the remaining original spans of Bridge 1 (spans 1 to 16). The bridges are continuously being repaired to maintain them in operational condition.
Bascule Bridge 10 Rehabilitation	2016	The County conducted rehabilitation project to repair Bascule Bridge 10. It included structural, mechanical, and electrical repairs to improve existing conditions.

II. Detailed explanation of how the Section 4(f) property will be used:

The proposed project includes the replacement of the bridges that are contributing elements to the National Register of Historic Places (NRHP) Venetian Islands Resource Group (8DA14395). The Replacement Alternative consists of the construction of new structures for bridges 2 through 12 (Bridge Nos. 874460, 874461, 874463, 874465, 874466, 874471, 874472, 874473, 874474, 874477, and 874481). Bridge 1 (Bridge No. 874459) was not included as part of the Replacement Alternative. Bridge 1 was already replaced during the major rehabilitation project in 1999, that replaced approximately two-thirds of the bridge - and the emergency repair design-build project in 2016, that replaced the remainder of the bridge.

The demolition of Bridges 2 through 12 will have an adverse effect on the Venetian Islands Causeway Resource Group. This adverse effect finding is primarily related to the bridge structures and will not affect other contributing resources or elements of the Resource Group. The State Historic Preservation Officer (SHPO) concurred with the findings from the Section 106 Evaluation and Determination of Effects Case Study. Minimization and mitigation measures will be implemented and documented in the Memorandum of Agreement (MOA).

The proposed replacement bridges will acknowledge the dimensions and appearance of the original structures. The Preferred Alternative incorporates low profile bridges - consisting of a wider typical section that accommodates wider sidewalks and bicycle lanes, the appearance of the historic railings, and the Venetian bridge lighting fixtures. The approach span bridge section is increased 16-ft. from the existing 41-ft. 10-in. wide section. The 57-ft. 10-in. wide bridge section includes two 8-ft. sidewalks, two 1-ft. 6-in. shoulders, two 7-ft. buffered bicycle lanes and two 11-ft. travel lanes. ***See Figure 2*** *for Superimposed Typical Section.* The Superimposed Typical Section exhibits the Replacement Alternative Typical Section over the Existing Typical Section. The proposed bridge superstructures are arched beams with same span configurations designed to support current AASHTO HL-93 structural design loading.

The proposed drilled shaft foundations are designed to meet current standards for scour, wave force and vessel impact resistances. The raised profile of the new bridges accommodates sea-level rise as the bridges are raised approximately 1-ft above the existing low member elevations. At Bridge 10, the raised vertical profile provides 10.5-ft of vertical clearance at the fender, and 13.5-ft of vertical clearance at the centerline of the channel. The raised vertical profile at the bascule bridge maintains the bascule pier machinery above the 100-year storm surge elevation.

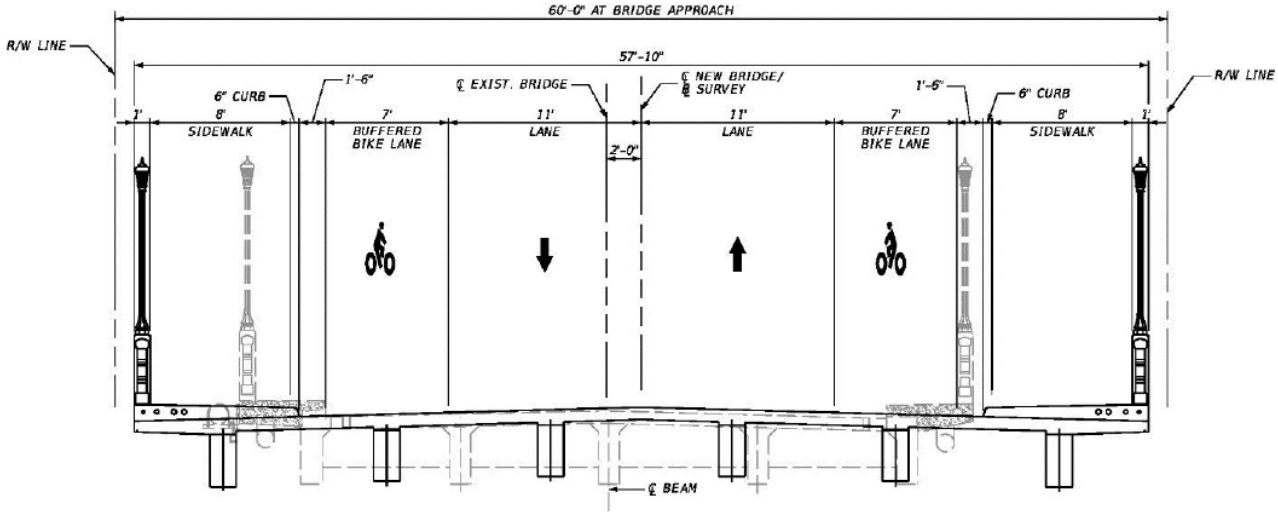

FIGURE 2: SUPERIMPOSED TYPICAL SECTION

III. Applicability Criteria of the Programmatic

All criteria must be met for this programmatic to apply.

☒Yes ☐No The bridge will be replaced or rehabilitated with Federal Funds.

☒Yes ☐No The project will require the "use" of a historic bridge which is on or eligible for listing in the National Register of Historic Places (NRHP).

☒Yes ☐No The bridge is NOT a National Historic Landmark (NHL).

IV. Identify additional Section 4(f) properties in the project area

Are there any additional Section 4(f) properties in the project area? ☒Yes ☐No

1. Collins Canal (8ADA11375)
2. Terrace Towers (8DA11754)
3. Belle Isle Park
4. The Florida Circumnavigational Saltwater Paddling Trail
5. Maurice Gibb Memorial Park

Comments: The 2019 CRAS resulted in the identification of three significant resources:

1. The Collins Canal (8ADA11375), located within the current historic Area of Potential Effect (APE) and was determined National Register-eligible on May 4, 2012.

2. The Terrace Towers (8DA11754), located within the current historic APE and were determined National Register-eligible by the SHPO on January 5, 2011.

☐Yes ☒No Are impacts to other protected Section 4(f) resources greater than *de minimis*?

Explain: The project will be constructed within the existing Venetian Causeway right-of-way and will have no adverse effect on the Collins Canal or Terrace Towers nor any of the recreational resource in the project area.

Belle Island is owned by the City of Miami Beach. The park is located in the center of Belle Island, the easternmost island on Venetian Causeway. The proposed project is limited to the bridges on Venetian Causeway and Miami Beach, there are no impacts within or adjacent to Belle Island Park.

The Florida Circumnavigational Saltwater Paddling Trail, a paddling trail within Biscayne Bay, traverses beneath the project corridor. Between the Miami mainland and Biscayne Island, the trail traverses beneath Bridge 1; between Rivo Alto and Belle Islands, the trail crosses between spoil islands 4 and 5 through the Miami Beach Channel, beneath Bridge 10. There will be a temporary occupancy of the paddling trail where it crosses beneath Bridge 10 while it is temporarily closed during construction. Users will continue to have access beneath Bridge 1 throughout construction.

Maurice Gibb Memorial Park, a City of Miami Beach park, is adjacent to the project corridor on the eastern side. It is approximately four acres and is located on 18th Street and Purdy Avenue. Temporary noise impacts are anticipated during construction adjacent to the park. The park will not be used for staging during construction, and access will be maintained. No right of way will be required from Maurice Gibb Memorial Park to construct the project. For the Replacement Alternative, the travel lanes of Dade Blvd. (south adjacent to the park) will be constructed two feet closer to Maurice Gibb Memorial Park but within the existing road

right of way. However, noise levels are not anticipated to substantially increase. There will be no use of the park, including temporary or permanent use of right-of-way, and proximity impacts such as access limitations will be avoided via appropriate Maintenance of Traffic during construction. Access to the park will be maintained at all times during construction, and during park hours.

V. Alternatives Considered/Findings

Alternatives were developed and evaluated based on the ability of each to meet the project needs and current design standards. The development and analysis of the alternatives included No-Build and Build Alternatives (Rehabilitation and Replacement).

The ability of the bridges to meet the following current design standards was evaluated:

Hurricane Resistance/ Wave Loading

The existing bridges are vulnerable to coastal storms and are below the 100-year Peak Storm Surge elevation of 11.6-ft. NAVD88. As such, the bridges will be subjected to wave loading. Storm surge heights range from 7.7-ft. NAVD (FEMA) to 11.6-ft. NAVD for the 100-year storm. Wave crest is storm surge plus 70% of the maximum wave height. As shown in ***Figure 3*** the Causeway fixed bridges are all below the wave crest elevation flooding the bridges in a 100-year storm event.

The bridges are also considered scour susceptible, as seen in ***Figure 3***. The 100-year base flood event would expose the existing 14-in. concrete piles that are located at an average tip elevation of (-) 19.0-ft. NAVD. The scoured bed elevation after the 100-year storm was projected to be (-) 20.9-ft. NAVD — almost two feet below the pile tip elevation.

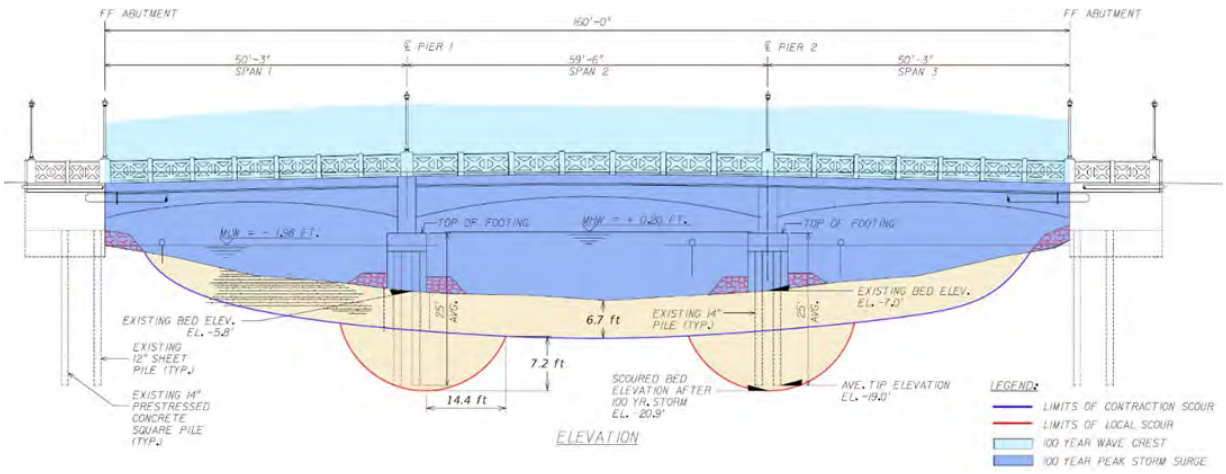

FIGURE 3: BRIDGE STORM SURGE, WAVE CREST AND SCOUR ELEVATIONS

Vessel Collision Classification

The design of bridges over navigable waters must include consideration for possible vessel collision from barges and ocean-going vessels. A probability-based vessel collision risk analysis using site specific vessel data was required. The risk of collapse is evaluated at a different threshold depending on the importance classification. The FDOT has established two different classifications for vessel collision: “Regular (Non-critical)” and “Critical.” Miami-Dade County classified the bridges on the Venetian Causeway as “Critical.” The existing bridges do not meet the current vessel collision resistance requirement for “Critical” bridges.

Load Carrying Capacity of Bridges

The existing bridges do not meet the current *AASHTO Standard Specifications for Movable Highway Bridges* HL-93 design load capacity. Design loading at the time the bridges were designed was based on HS-20 Truck loading. Bridges 3, 5, 7, 9 and 11 experienced advanced deck deterioration and recently had deck repairs. These short-term bridge deck repairs are handled often by the Miami-Dade County Department of Transportation and Public Works (DTPW) to maintain the bridges in operation, however, deterioration continues. The bridge deck repairs consist of new asphalt overlay with steel plate installations at locations where the deck failures have occurred. All bridges have a posted weight limit of 11.0 tons except bridge 12 which is posted at 16.0 tons. ***See Figure 4*** *for Bridge Deck Failure and Repair.*

FIGURE 4: BRIDGE DECK FAILURE AND REPAIR

Safety, Functionality and Area Needs

The Venetian Causeway is utilized by pedestrians and bicyclists for recreational and non-recreational purposes. A recent safety analysis report identified crashes on the bridges and on the corridor roadways, that include bicycle and pedestrian crashes due to the narrow bicycle lanes. Accommodating the needs of non-motorized traffic on the Venetian Causeway should be a priority in the design considerations, and all reasonable and technically feasible action should be taken to design proposed pedestrian and bicycle facilities according to current Greenbook guidelines.

The following alternatives shown in ***Table 3*** *Viable Alternatives* were considered for this study:

TABLE 3: VIABLE ALTERNATIVES

NO-BUILD ALTERNATIVES	
1	**No-Action** – The bridges remain as is with routine maintenance only.
2	**Transportation Systems Management & Operations (TSM&O)** – The bridges remain as is with routine maintenance only. Transit, bicycle, pedestrian and other operational improvements would be made to facilitate transportation along the corridor.
BUILD ALTERNATIVES - REHABILIATION	
Fixed Bridge Alternatives The rehabilitation of the bridges would require that a rehabilitation alternative for the fixed bridges be selected.	
4	**Fixed Bridge Rehabilitation with Beam Strengthening** - Rehabilitation of the fixed bridges to improve safety and load carrying capacity. Includes beam strengthening to achieve a higher load carrying capacity.
Movable Bridge Alternative The rehabilitation alternative of the eastern movable bridge (Bridge 10).	
M1	**Bascule Bridge Rehabilitation** – Rehabilitation of the eastern movable bridge to improve safety and achieve a higher load carrying capacity.
BUILD ALTERNATIVES - REPLACEMENT	
Fixed Bridge Alternatives The replacement of the bridges would require that the structural system for the fixed bridges be selected.	
7	**Arched Beams** – This alternative provides low-level bridges, replicates the arched beams and maintains the look of the existing bridges
Movable Bridge Alternatives The replacement of the eastern movable bridge (Bridge 10) would require that the movable bridge type be selected.	
M4	**Double Leaf Bascule Bridge** – The existing bridge would be replaced in kind.

Considering the historical significance of the Causeway, all efforts were made to protect and preserve the bridges as a historic resource.

A Rehabilitation Alternative was developed that repaired and strengthened the bridges, provided hurricane hardening, and provided a cathodic protection system to mitigate future deterioration and extend the service life of the bridges for another 25 years. Hurricane hardening consisted of stronger foundations to resist wave forces and scour that occurs in a hurricane. The Rehabilitation Alternative was eliminated, since the substandard deck geometry would remain, and the 25-year service life resulted in a higher life-cycle cost.

A Replacement Alternative was also developed that addressed the deficiencies of the bridges and provided a service life of 75 years. The Replacement Alternative acknowledges the appearance of the existing bridges, satisfies the current design criteria, and will have a raised profile to address sea-level rise. The replacement of bridges 2-12 was determined to be the Preferred Alternative. It will only include the replacement of the bridges and the reconstruction of the corresponding bridge's roadway and touch down areas. The residential and spoil island's roadway was previously reconstructed as part of the Venetian Causeway Streetscape Improvements in 2009.

The bridge Replacement Alternative proposes arched beams for the fixed bridges 2 through 9, as well as 11 and 12, and a double leaf bascule bridge for Bridge 10. Bridge 1 will remain in its existing condition - as the easternmost spans of this bridge were replaced in 1999, and the westernmost spans were replaced in 2016.

Throughout the course of the study, the Public Involvement Team conducted several meetings and workshops detailing the development and environmental aspects of the project. ***See Table 4** for Public Involvement Meetings.* The purpose of these meetings was not only to share project information with stakeholders, but to also collect feedback from residents and business owners within the project area. Based on the stakeholder feedback given to the project team, data was collected and applied to improve project development and design.

TABLE 4: PUBLIC INVOLVEMENT MEETINGS

Meeting	Date	Description
Public Kick-Off Meeting	June 25, 2014	The purpose of the Public Kick-Off Meeting was to increase the public's understanding of the study and encourage participation in the process. The public was given information regarding the purpose of the project and an overview of existing conditions in the area. A study schedule was also discussed and distributed to the public at the meeting.
Project Advisory Group (PAG) Meeting No. 1	September 18, 2014	The purpose of the PAG Meeting No. 1 was to allow stakeholders to provide input on the project as the study progressed. The PAG represented the communities and organizations in the immediate area of the project, and ensured that a full range of views were considered during the study. There was a detailed presentation on the project that included: the status of the study, the existing conditions of the causeway bridges, the historic significance of the bridges, the new hurricane wave analysis and vessel impact load requirements on the bridges, and the proposed rehabilitation parameters for the bridges. It was explained that the immediate focus of the study was the rehabilitation of the bridges and that the main purpose of the meeting was to ascertain the Rehabilitation Parameters to be utilized for the development of suitable Rehabilitation Alternatives.
Cultural Resource Committee (CRC) Meeting No. 1	September 24, 2014	The purpose of the CRC Meeting No. 1 was to conduct and document good faith consultation with affected parties in compliance with Section 106 of the National Historic Preservation Act. There was a detailed presentation on the progress and status of the project. The presentation included the information presented at the PAG Meeting No. 1, the resulting Rehabilitation Parameters and information related to historic significance of the bridges. The

Meeting	Date	Description
		CRC members were given the opportunity to ask questions, give comments and share their opinions with the FDOT staff and other governmental representatives about the project.
Project Advisory Group (PAG) Meeting No. 2	February 24, 2015	The purpose of the PAG Meeting No. 2 was to seek input from attendees on the alternatives being considered for the study. The alternatives presented at the meeting included: 1. No-Build 2. Transportation Systems Management & Operations (TSM&O) 3. Rehabilitation 4. Replacement 5. Typical Section Alternatives 6. Railing Alternatives 7. Fixed Bridge Alternatives 8. Movable Bridge Alternatives The presentation addressed the ability of the alternatives to safely carry vehicular traffic, pedestrians and bicyclists. The possible impacts of the different alternatives on the environment, historic resources, aesthetics and the public were also presented.
Alternatives Public Workshop (APW)	May 13, 2015	At the APW Meeting, proposed "Build" alternatives developed for the potential replacement or rehabilitation of the bridges, as well as the "No-Build" alternatives were presented to the public. The corresponding initial environmental impacts, details and any relevant topics for each of the alternatives was presented. This workshop gathered project information and public opinion to use in the selection of the Preferred Alternative. The public was given the opportunity to rank each alternative using a ballot.
Cultural Resource Committee (CRC) Meeting No. 2	May 14, 2015	The purpose of this CRC Meeting No. 2 was to conduct and document good faith consultation with affected parties in compliance with Section 106 of the National Historic Preservation Act. At the meeting, proposed alternatives developed during the study were presented to the public. Input and feedback on the alternatives was discussed and the attendees were given the opportunity to rank each alternative using a ballot.

Meeting	Date	Description
Project Advisory Group (PAG) Meeting No. 3	March 9, 2016	During the PAG Meeting No. 3, the Alternatives Matrix/Ranking Ballots results from the Alternatives Public Workshop were reviewed and analyzed. An overview of the highest-ranking alternatives from the public was shared through renderings and a deliberation took place to gain feedback from the group regarding these alternatives. The life cycle cost and environmental impacts of the project were also shared with members of the advisory group.
Project Advisory Group (PAG) Meeting No. 4	May 16, 2017	During this meeting, the project team discussed the project's Class of Action Determination – Environmental Assessment. The project team also re-examined Alternative 6 – High-Level and the Fixed Bridge as a replacement for the east bascule bridge.
Cultural Resource Committee (CRC) Meeting No. 3	March 6, 2018	The purpose of CRC Meeting No. 3 was to provide an update on the project status and explain the Class of Action Determination of an Environmental Assessment (EA) on November 10, 2016 by the Federal Highway Administration (FHWA) and the NEPA Assignment, which went into effect on December 14, 2016. The project team provided a timeline of what has transpired to date during Project Scope Development and PD&E/NEPA Study.
Cultural Resource Committee (CRC) Meeting No. 4	May 20, 2020	The purpose of the meeting was to provide an update on the project status and present the details of the Preferred Alternative, the Replacement Build Alternative. The project team noted that in the Replacement Alternative the bridges will mimic the existing bridges by maintaining the low-profile bridges, the arched beams, the geometrically design railing, the light fixtures and light poles. The project team also provided a timeline of what has transpired to date during the PD&E Study and outlined the next steps for agency coordination and development of a Memorandum of Agreement.

These meetings and workshops helped the Project Team identify issues, concerns and potential solutions that appropriately improved project plans. Based on this feedback, the most prevalent alternatives were considered and analyzed as options for the project.

REFERENCES

Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida,National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

No-Build Alternative *(Check all that apply)*

☒ **Structural Deficiencies**

The No-Build Alternatives - No-Action and Transportation System Management & Operations (TSM&O) - maintains the existing bridges and roadway approaches in their current condition. No improvements would be made to the structures, except for routine maintenance. The No-Build Alternatives do not correct the situation that causes the bridge to be considered functionally obsolete or structurally deficient. Normal maintenance is not considered adequate to address the lack of scour, wave force, and vessel collision resistance of the bridges.

☒ **Functional/Geometric Deficiencies**

The No-Build Alternatives - No-Action and TSM&O do not include modification or improvements to the existing bridges or approach roadway. Existing geometric features and other deficiencies, including substandard lane and sidewalk width would remain. No changes to the existing vertical navigational clearances would occur on Bridge 10. The No-Build Alternatives do not correct the situation that causes the bridges to be considered functionally or geometrically deficient.

☒ **Justification** *(Summary describing constraints posed by terrain; adverse social, economic and environmental effects; engineering and economic considerations; and preservation standards)*

The No-Action Alternative includes only routine maintenance performed as needed to keep the bridges open to traffic until safety issues, such as reduced capacity due to ongoing deterioration, would require them to be closed. Repair or replacement could be considered at a later date. The No-Action Alternative does not include modification or improvements to the existing bridges or approach roadway. Existing geometric features and other deficiencies, including substandard lane width and curbs would remain. No changes to the existing horizontal and vertical navigational clearances would occur. The routine maintenance that would be performed on the structures would include:

- Spall repairs;
- Structural steel cleaning and painting;
- Steel repairs; and
- Mechanical and electrical maintenance repairs.

The bridges are vulnerable to coastal storms and are below the 100-year Peak Storm Surge elevation of 11.6-ft. NAVD88. Storm surge heights range from 7.7-ft. NAVD(FEMA) to 11.6-ft. NAVD for the 100-year storm. Wave crest is storm surge plus 70% of the maximum wave height. The Causeway fixed bridges would be inundated in the 100-year storm event. The bridges are also scour susceptible. The 100-year base flood event is predicted to result in scour to an elevation (-)20.9-ft. NAVD, which is below average existing pile tip elevation of (-)19.0-ft. NAVD. This would result in bridge failure.

The No-Action Alternative would preserve the historic character of the Venetian Causeway, and does not appear to be an adverse effect to the significant resources under Section 106. There are also no impacts to noise and air quality and no potential for contamination involvement with the no action alternative.

The No-Action Alternative was deemed to be neither feasible nor prudent, as it does not

correct the bridges' structural and functional deficiencies, nor does it extend the anticipated service life of the bridges - which implies continued risk of bridge instability - and it increases the cost and frequency of maintenance of the existing structures. In addition, the lack of appropriate treatment of stormwater runoff will continue to degrade the natural habitat of Biscayne Bay. Over time, continued deterioration of structural elements will pose safety hazards to the public or place intolerable restrictions on travel.

The objective of the TSM&O Alternative is to identify strategies that reduce existing traffic congestion and prevent its occurrence in areas that are currently not congested. These strategies are designed to modify travel behavior and increase system efficiency without costly infrastructure improvements. TSM&O strategies are implemented when one or more of the following occurs:

- Insufficient funds available to meet system improvement needs;
- Increased construction costs for new roadways and transit facilities;
- Increased need to improve operational efficiency; or
- Changes in travel patterns.

TSM&O options generally include traffic signal and intersection improvements, access management and transit improvements. The TSM&O Alternative includes those types of activities designed to maximize the utilization and efficiency of the present system. The alternative components that were considered include the following:

- Traffic signal optimization;
- Traffic operational improvements to include signing and pavement marking improvements;
- Enhanced bus service;
- Facilitated pedestrian and bicyclist measures; and
- Limited repairs on the existing bridges to improve operation.

Similar to the No-Action Alternative, the TSM&O Alternative would preserve the historic character of the bridges and does not appear to be an adverse effect to the significant resources under Section 106, but maintains the existing bridges in their current condition. There are no impacts to noise and air quality and no potential for contamination involvement. The alternative provides some transportation operation improvements on the corridor, but was deemed to be neither feasible nor prudent as it does not correct the bridges' structural and functional deficiencies. In addition, the lack of appropriate treatment of stormwater runoff will continue to degrade the natural habitat of Biscayne Bay. Over time, continued deterioration of structural elements will pose safety hazards to the public or place restrictions on travel.

☒ Recommendation (Mandatory)

This alternative fails the Section 4(f) *prudent and feasible* standard, and is therefore not recommended.

Alternative: Build on New Location (parallel construction/conversion to one-way pair)

☒ Structural Deficiencies

The Build on New Location Alternative would correct all structural deficiencies but is not feasible due to right-of-way constraints.

☒ Functional/Geometric Deficiencies

The Build on New Location Alternative would correct all functional and geometric deficiencies but is not feasible due to right-of-way constraints.

☒ Justification

(Summary describing constraints posed by terrain; adverse social, economic or environmental effects; engineering and economic considerations; and preservation standards)

The Venetian Causeway serves as the only viable access to the residential islands located along the causeway. The procedures implementing the Section 4(f) standards require analysis to determine alternative corridors that would avoid impact to the historic bridges and provide access to the islands. Investigations were conducted to construct bridges on a new location or parallel to the existing bridges. The Build on New Location Alternative would correct all structural, functional and geometric deficiencies. The existing bridges are located in what is realistically the only sensible location, a new location option would result in new bridge landings/access, and would likely result in an adverse effect to the resource group, and thus a use under 4(f). This alternative is not feasible and prudent given the location of the islands and the causeway:

1. The existing bridges are located at the only feasible and prudent site.
2. Building new bridges away from the present site would result in significant social, economic and environmental impacts.
3. The new bridges would require additional right-of-way to connect to the islands.

Similarly, building adjacent bridges require additional right-of-way to connect to the islands and would result in major social, economic and environmental impacts.

☒ Recommendation (Mandatory)

This alternative is determined to fail the Section 4(f) *prudent and feasible* standard, and is therefore not recommended.

Alternative: Rehabilitation of Historic Bridge without Affecting the Integrity of

the Bridge

☒ Structural Deficiencies

The Rehabilitation Alternative partially corrects the situation that causes the bridges to be considered structurally deficient. It does not address the need for increased vertical clearance at bridge 10 in order to reduce traffic interruptions. It partially meets the current safety standards and extends the bridges' service life by 25 years. It does not address the substandard bicycle lanes. Given the age, use, structure type, and exposure conditions of the bridges, additional periodic repairs will also be anticipated. The bridges will still need to be monitored, inspected and maintained with this alternative, and will require replacement after 25 years.

☒ Functional/Geometric Deficiencies

The Rehabilitation Alternative does not correct the situation that causes the bridges to be considered functionally or geometrically deficient. The typical sections would have substandard bicycle lanes. In addition, the rehabilitation alternative would not include changes to the existing vertical navigational clearances on Bridge 10. This alternative requires significant yearly maintenance, does not adequately address all functional and geometric deficiencies, and has a service life of only 25 years.

☒ Justification

(Summary describing constraints posed by terrain; adverse social, economic or environmental effects; engineering and economic considerations; and preservation standards)

Rehabilitation of the Venetian Causeway bridges is directed towards maintaining their eligibility for listing on the NRHP. Specific details of historic elements to be retained will need to be established in accordance with the Secretary of Interior's Standards for Rehabilitation and in keeping with Section 106 of the National Historic Preservation Act (NHPA). It is anticipated that the concrete bridge railings, light standards and arched form of the concrete superstructure will need to be retained in order to maintain the existing historic character. The historical and aesthetic significance of the existing bridges as well as the need to protect and preserve the bridges was an important consideration in developing rehabilitation alternatives. The evaluation criteria for the Bridge Rehabilitation Alternatives shown in ***Table 5***, were developed with input from the Venetian Causeway residents, the Project Advisory Group and Cultural Resource Committee.

The Rehabilitation Alternative improves the structural deficiencies, and some functional deficiencies of the bridges, and extends bridge service life by 25 years. The alternative includes deck replacement, beam strengthening, and foundation strengthening (to meet current structural criteria for live load capacity), scour, wave force, and vessel impact resistances. A program of inspection and routine maintenance will be required to protect the bridges from the harsh marine environment. After 25 years, the bridges would need to be replaced using the Replacement Alternative. This would result in major cost impacts - as the life cycle cost analysis for this alternative was estimated at $179 million, which is $83 million higher than the Replacement Alternative cost estimate of $96 million. Additionally, the Venetian Causeway serves as the only viable access to the residential islands located along the Causeway, and the continued disruption to traffic for the continued maintenance and construction activities associated with the bridges has a major social and economic impact to the residents and users of the causeway.

TABLE 5: EVALUATION CRITERIA FOR BRIDGE REHABILITATION

Criteria	Description
Service Life	Provide for a minimum of 25 years of service life following rehabilitation. It is anticipated that a typical program of inspection and routine maintenance will be performed during the remaining life of the structures. Given the age, use, structure type, and exposure conditions, additional periodic repairs should also be anticipated.
Safety	Meet current safety standards except as noted herein and approved by Design Exception and Variation as required.
Design Speed	35 mph (Posted 30 mph)
Structural Capacity	• Live Load Capacity – AASHTO HL-93 design load • Scour Resistance – Meet Standards • Wave Force Resistance – Meet Standards (Classification – Extremely Critical) • Vessel Impact Resistance – Meet Standards (Classification –Critical)
Traffic Railings	Meet current safety standards.
Bridge & Navigation Clearances	Meet existing horizontal and vertical navigation and bridge clearances.

The Rehabilitation Alternative improves the structural deficiencies, and some functional deficiencies of the bridges, and extends bridge service life by 25 years. The alternative includes deck replacement, beam strengthening, and foundation strengthening (to meet current structural criteria for live load capacity), scour, wave force, and vessel impact resistances. A program of inspection and routine maintenance will be required to protect the bridges from the harsh marine environment. After 25 years, the bridges would need to be replaced using the Replacement Alternative. This would result in major cost impacts - as the life cycle cost analysis for this alternative was estimated at $179 million, which is $83 million higher than the Replacement Alternative cost estimate of $96 million. Additionally, the Venetian Causeway serves as the only viable access to the residential islands located along the Causeway, and the continued disruption to traffic for the continued maintenance and construction activities associated with the bridges has a major social and economic impact to the residents and users of the causeway.

The functional impacts of the corridor will only improve slightly with reduced travel lanes that allow for 1-ft. wider sidewalks - that will meet current minimum sidewalk requirements of the Americans with Disabilities Act (ADA). The existing 4-ft. shoulders will remain as they are, and will not meet the minimum 5.5-ft shoulder requirement for bike lanes - therefore not meeting current safety standards. This alternative will not address the heavy bicycle traffic and the concerns of the residents for bicycle safety on the confined bridge section.

An evaluation matrix was developed to compare and contrast the performance of alternatives in meeting the evaluation criteria, and to quantify its impacts to the natural, social, cultural, and physical environment. Numerical ratings for specific and relevant qualitative and quantitative criteria included a direct comparison of each of the alternatives so that the Preferred Alternative could be identified. Evaluation Criteria include:

- Purpose and Need
- Current Safety Standards
- Service Life
- Typical Section Functionality
- Structural Capacity

- Hurricane Resistance
- Vessel Collision Resistance
- Bridge Clearances
- Maintenance of Traffic during construction
- Utility Services
- Economic Impacts
- Constructability
- Pedestrian and Bicycle Facilities
- Environmental Impacts, and
- Project Costs

A workshop was held with representatives from FDOT, Miami-Dade County, the project team and the public (using the ballot results from the Alternatives Public Workshop). The alternatives were compared and ranked based on the extent to which each alternative met each evaluation criterion.

The anticipated degree of impact to each criterion was ranked from low to high on a scale of zero to five - zero representing no benefit or not applicable, and five representing the least impacts or most beneficial. ***See Table 6.***

The total score was calculated for each alternative to indicate the degree to which the alternative satisfies the evaluation criterion. ***See Table 7.***

The evaluation matrix is used to:
- Clarify the benefits and shortcomings of the alternatives;
- Summarize likely or potential impacts; and to
- Present a score to show how well each alternative meets the project's purpose and need, and satisfies the evaluation criteria.

TABLE 6: EVALUATION CRITERION RANKING

Score	Description
0	No Benefit or Not Applicable
1	Most impactful or least benefit
2	Very impactful or little benefit
3	Moderate impact or moderate benefit
4	Little impact or very beneficial
5	Least impactful or most benefit

The alternative with the highest numerical total points represented the most desirable alternative. As a result, the Rehabilitation Alternative was ranked second with 75 total points. Given the cost of this alternative, the extent of repairs that are likely to be required, and the ranking in the evaluation matrix, the Rehabilitation Alternative was eliminated from further consideration.

☒ Recommendation (Mandatory)

This alternative fails the Section 4(f) *prudent and feasible* standard, and is therefore not recommended.

TABLE 7: EVALUATION MATRIX

Criteria		No Build Alternatives				Build Alternatives			
						Rehabilitation		Replacement	
		Alt 1 - No-Action	Score	Alt 2 - Transportation System Management and Operations	Score	Alt 4 - Rehabilitation with Beam Strengthening and Alt M1 - Bascule Bridge Rehabilitation	Score	Alt 7 - Arched Beams with T1 - Venetian Railing and Alt M4 - Double Leaf Bascule Bridge	Score
Meets Purpose and Need		No	0	No	0	Yes	3	Yes	5
Meets Current Safety Standards		No	1	No	1	Partially	3	Yes	5
Service Life		0-3 years	1	0-8 years	1	25 years	2	75 years	5
Typical Sectional Functionality		Substandard sidewalks and bicycle lanes	1	Substandard sidewalks and bicycle lanes	1	Substandard sidewalks and bicycle lanes	2	Meets current criteria	5
Structural Capacity		H-15	1	H-15	1	HL-93	5	HL-93	5
Hurricane Resistance		Not Satisfied	0	Not Satisfied	0	Satisfied	5	Satisfied	5
Vessel Collision Resistance		Not Satisfied	0	Not Satisfied	0	Satisfied	5	Satisfied	5
Bridge Clearances		Remain	1	Remain	1	Remain	1	Improved (Raised 1')	2
Maintenance of Traffic During Construction		N/A	5	N/A	5	82 months	1	48 months (phased construction)	3
Utility Services		Remain	3	Remain	3	Remain	3	Improved	5
Economic Impact		None	1	None	1	None	3	Improved	5
Constructability		No Impact	5	Minimal	4	Major Impact	1	Some Impact	3
Pedestrian and Bicycle Facilities		Remain as is	1	Remain as is	1	Pedestrian - Improved Bicycle - Remain as is	2	Improved	5
Environmental Impacts									
NATURAL	Benthic Resources	no impact	5	no impact	5	impact to corals from scour protection, substructure & beam strengthening	3	impact to corals from scour protection, substructure replacement, spoil island shoreline	2
NATURAL	Essential Fish Habitat	no impact	5	no impact	5	minimal impacts from construction means and methods	4	minimal impacts from construction means and methods/minimal impact to shoreline of spoil islands	3
NATURAL	Threatened & Endangered Species	no impact	5	no impact	5	minimal impacts from construction means and methods	4	minimal impacts from construction means and methods	3
NATURAL	Water Quality	Scuppers discharge to OFW	0	Scuppers discharge to OFW	0	Scuppers discharge to OFW	0	temporary impacts during construction/overall benefit	5
PHYSICAL	Noise Impacts	no impact	5	no impact	5	minimal impacts from construction means and methods	5	temporary impacts during construction	5
PHYSICAL	Air Quality	no impact	5	no impact	5	minimal impacts from construction means and methods	5	temporary impacts during construction	5
PHYSICAL	Contamination Impacts	Not Applicable	0	Not Applicable	0	Not Applicable	0	Not Applicable	0
Cultural and Historic	Historic - Section 106/4(f)	No Adverse Effect	5	No Adverse Effect	5	No Adverse Effect - some impact to resource	3	Adverse Effect - Resource replaced, National Register of Historic Places listing may be affected	1
SOCIAL and ECONOMI	Aesthetic/Visual Impacts	utilities remain	3	utilities remain	3	utilities remain	4	wider section, bridge aesthetics replicated, utilities hidden, arch and railings remain	4
SOCIAL and ECONOMI	Recreational Areas	Not Applicable	0	Not Applicable	0	Not Applicable	0	Not Applicable	0
SOCIAL and ECONOMI	Community Cohesion	no impact	3	no impact	3	temporary impact to access during construction	3	temporary impact to access during construction	5
Project Costs									
Engineering Costs (Bridges only)		$ -	5	$ -	5	$6.9 Million	3	$11.7 Million	1
Construction Costs (Bridges only)		$ -	5	$ -	5	$53 Million	3	$90 Million	1
Yearly Maintenance Costs (first 25 years)		$1.4 Million	1	$1.4 Million	1	$1.4 Million	1	$100,000	5
Life Cycle Costs over 75 years		Unknown	0	Unknown	0	$179 Million	1	$96 Million	3
Total Points			**67**		**66**		**75**		**101**

Alternative: Replacement

☒ Structural Deficiencies

The Replacement Alternative corrects the situation that causes the bridge to be considered structurally deficient or significantly deteriorated. It addresses all the structural deficiencies and the need for wave loading, vessel collision, load carrying capacity for the bridges and provides an increased vertical clearance at Bridge 10 in order to reduce traffic interruptions. It meets all the current safety standards and extends the bridges' service life by 75 years.

☒ Functional/Geometric Deficiencies

The Replacement Alternative corrects the situation that causes the bridge to be considered functionally or geometrically deficient. It addresses the substandard bicycle lanes and sidewalks. In addition, the replacement alternative would include changes to the existing vertical navigational clearances at Bridge 10. This alternative does not require significant yearly maintenance, addresses all functional and geometric deficiencies, and has a service life of 75 years.

☒ Justification

(Summary describing constraints posed by terrain; adverse social, economic or environmental effects; engineering and economic considerations; and preservation standards)

As shown in the evaluation matrix, Alternative 7 with T1 and M4 received the highest score of 101. This alternative consists of the Replacement Alternative 7 Arched Beams with T1 Venetian Railing and M4 Double Leaf Bascule Bridge, and is the Preferred Alternative. The Preferred Alternative does not include work to Bridge 1.

The Replacement Alternative replaces existing bridges 2 through 12 with new structures. Bridge 1 has already been replaced and is not included. The new bridge structures will be built along the same alignment, and will meet all the governing design regulations (including those for vehicle loading, wave force resistance, and vessel impact resistance). The structures will be designed to be durable and corrosion resistant. The resulting corridor will be improved as the functionally obsolete aspects of the existing bridges would be eliminated and safer bridges provided. The new bridges will provide 75 years of service life, minimize the cost of bridge maintenance activities - and the disruption it causes to normal traffic flow on the corridor for residents and commuters.

The vertical alignment for low-level fixed bridges 2 through 8 and 12 was developed to increase the vertical clearance of the bridges over the bay, address sea-level rise, and meet ADA and design criteria for this class of roadway - without negatively impacting the adjacent intersections and driveways or encroach on adjacent properties. The arched beams of the fixed bridges will mimic the dimensions and appearance of the original structure. The new bridge typical sections will be increased by 16-ft., from the existing 41-ft.10-in. to 57-ft. 10-in., to provide wider sidewalks and bicycle lanes. No right-of-way acquisition is anticipated.

The higher vertical clearances at Bascule Bridge 10 and the improved channel will result in improved navigational traffic on Biscayne Bay for the boating community and fewer bridge openings. This will improve the response time of emergency vehicles that use the

bridge crossings, and that frequently get delayed at present during the frequent openings caused by the existing lower vertical clearance.

This alternative will have minimal environmental impacts overall. There are no impacts to noise and air quality, and the potential for contamination is limited to the work associated with the bridge approaches at the east and west project termini. With no right-of-way acquisition required, there are no permanent impacts to the community. There will be minimal disruption to the traveling public during construction, since traffic will continue to use the bridges as they are replaced. There is no proposed permanent impact to access or connectivity along the corridor. There will be no use of the three Section 4(f) recreational resources along the corridor, which are, Belle Isle Park, Maurice Gibbs Memorial Park, and Florida Circumnavigational Saltwater Paddling Trail. This alternative results in 0.71 acres of permanent shading of Biscayne Bay, and another surface water and essential fish habitat - due to the widening of the bridges. Temporary shading from barge use may also occur during construction. However, no impacts to wetlands located along the causeway or impacts to listed species are anticipated. Best Management Practices (BMPs) and Standard Construction Conditions for In-Water Work for the West Indian Manatee, small tooth sawfish, and sea turtles will be employed during construction - to minimize impacts to water quality and species.

The Replacement Alternative will have an adverse effect on the significant historic resources - due to removal of the original bridges. However, measures to minimize harm will be provided. These measures include a project design that acknowledges the historic appearance of the bridges; incorporating a low profile of the bridges and appearance of the original structure; using arched beams with same span configurations; geometrically designed concrete bridge railings that recognize the historic railing design; including historically sensitive bridge lighting fixtures; and incorporating a historically sensitive bridge tender house design for the New East Bascule Bridge.

The Replacement Alternative resulted in the highest numerical ranking in the Evaluation Matrix with 101 total points. As such it was determined to be the Preferred Alternative. The Replacement Alternative is the least expensive alternative, considering annualized capital and maintenance costs. The life-cycle cost analysis for this alternative was estimated at $96 million. It provides a service life of 75 years, meets all current design criteria, and improves the bicycle and pedestrian mobility facilities.

☒ Recommendation (Mandatory)

This alternative meets the Section 4(f) *prudent and feasible* standard and **is recommended.**

VI. Measures to Minimize Harm

Verify that the project includes all possible planning to minimize harm.

☐ For bridges that are to be rehabilitated, the historic integrity of the bridge is preserved, to the greatest extent possible, consistent with unavoidable transportation needs, safety, and load requirements;

☒ For bridges that are to be rehabilitated to the point that the historic integrity is affected or that are to be moved or demolished, the FDOT ensures that, in accordance with the Historic American Engineering Record (HAER) standards, or other suitable means developed through consultation, fully adequate records are made of the bridge;

☒ For bridges that are to be replaced, the existing bridge is made available for an alternative use, provided a responsible party agrees to maintain and preserve the bridge; and

☒ For bridges that are adversely affected, agreement among the SHPO, ACHP (if participating) and FDOT is reached through the Section 106 process of the NHPA on measures to minimize harm and those measures are incorporated into the project. This programmatic Section 4(f) evaluation does not apply to projects where such an agreement cannot be reached.

Comments:

The proposed action will require demolition and complete replacement of the existing historic Venetian Causeway bridges 2 through 12. The historic elements of the Causeway includes the octagonal concrete entrance towers; the low profile of the bridges; the concrete arched beams; the geometrically designed bridge railings; the lighting poles and fixtures; and the historically designed East Bridge Tender House. The original railings were replaced - as part of the 1996 to 1999 rehabilitation of the bridges - with railings that mimic the appearance of the original. The existing light poles and fixtures are a replicate of the original, and were constructed as part of the 1996 to 1999 rehabilitation.

Measures to minimize harm include:

- Historic bridge recordation in accordance with Historic American Buildings Survey/ Historic American Engineering Record (HABS/HAER) Standards, including Level II documentation and photographs.
- A project design that acknowledges the historic appearance of the bridges; incorporating low profile bridges; arched beams with same span configurations; geometrically designed concrete bridge railings that recognize the historic railing design; historically sensitive bridge lighting fixtures; and historically sensitive bridge tender house design for the New East Bascule Bridge.
- The bridges to be replaced will be made available for an alternative use, if feasible. The octagonal entrance towers will not be marketed as they will remain in the western entrance of the Causeway - as part of the Venetian Islands Resource Group (8DA14395). The concrete arched beams are unsuitable, as they are severely deteriorated and covered with repairs. The railings are not original but could be dismantled and marketed.

The Project Team will coordinate and consult with the Office of Environmental Management (OEM) and with the State Historic Preservation Officer (SHPO) to discuss a feasible marketing approach. The measures to minimize harm were developed in consultation with the SHPO.

VII. Mitigation Commitment

Describe and attach the mitigation agreed to in consultation with SHPO and other consulting parties.

[A copy of the executed Memorandum of Agreement (MOA) will be attached and prepared with input from affected parties. This document will include measures to minimize harm and mitigate adverse effects to the Venetian Island Resource Group.]

VIII. Documentation

The following MUST be attached to this checklist to ensure proper documentation of the Historic Bridge Programmatic Section 4(f):

1. Brief project description
2. Eligibility Determination of Historic Bridge
3. Historic Bridge Report
4. A detailed map of the Section 4(f) property including:
    a. Current and proposed ROW
    b. Property Boundaries
5. Photographs of the bridge detailing conditions cited in alternatives analysis
6. Executed Memorandum of Agreement resolving adverse effects or signed concurrence letter from the Florida SHPO
7. Any letters with consulting parties
8. Detour Map (as needed)

A Historic Bridge Replacement Programmatic Section 4(f) Documentation Report was included as part of the project file.

IX. Summary and Approval

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 14, 2016, and executed by FHWA and FDOT.

The proposed project meets all the applicable criteria set forth in the Programmatic Section 4(f) Evaluation and Approval requirements for FHWA funded projects which necessitate the use of Historic Bridges (see Section 4(f) Reference Resources Page). All alternatives set forth in the subject programmatic were fully evaluated and the findings made are clearly applicable to this project. There are no feasible and prudent alternatives to the use of the historic bridge; and

The project includes all possible planning to minimize harm to the historic property. FDOT will include the measures to minimize harm as environmental commitments as part of the NEPA Document for the proposed project.

X. Approval Signatures

District: I have reviewed this evaluation and all attached documentation and confirm that the proposed project meets the requirements of 23 CFR 774 for a Historic Bridge Programmatic Section 4(f) finding.

Signature: _____ Date: _____

Preparer

Signature: _____ Date: _____

Environmental Manager, or designee

OEM Concurrence: Based upon the above considerations, this a Use of Historic Bridge Programmatic Section 4(f) satisfies the requirements of 23 CFR 774.

Signature: _____ Date: _____

Director of OEM or designee

HISTORIC BRIDGE REPLACEMENT PROGRAMMATIC SECTION 4(f) DOCUMENTATION REPORT

Venetian Causeway Bridges from Bayshore Drive to Purdy Avenue

Existing Bridge Inventory Nos. 874459, 874460, 874461, 874463, 874465, 874466, 874471, 874472, 874473, 874474, 874477, and 874481
Financial Project Identification: 422713-2-22-01
Efficient Transportation Decision Making (EDTM): 12756
Miami-Dade County, Florida

FLORIDA DEPARTMENT OF TRANSPORTATION – DISTRICT
6 Planning and Environmental Management Office
1000 N.W. 111 Avenue
Miami, Florida 33172

DRAFT FINAL

FEBRUARY 2021

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SECTION 1.0 PROJECT DESCRIPTION

The Venetian Causeway is approximately 2.5 miles long, and is primarily a two-lane undivided facility that provides a major link between the City of Miami and the City of Miami Beach in Miami-Dade County, Florida. The causeway includes ten fixed span bridges and two bascule leaf span bridges over the Intracoastal Waterway (bridge numbers 874459, 874460, 874461, 874463, 874465, 874466, 874471, 874472, 874473, 874474, 874477, and 874481) extending from Bayshore Drive (City of Miami) to Purdy Avenue (City of Miami Beach). The purpose of the proposed project is to address identified structural and functional deficiencies of the twelve existing bridges through evaluating potential alternatives - such as replacement or rehabilitation.

The bridges were originally built in 1926, and have been designated as historic landmarks by the City of Miami and City of Miami Beach; they are also listed on the National Register of Historic Places (NRHP). The project will take this historic designation into consideration, and ensure that any decisions on improvements are coordinated through the County and a Task Force of representatives that reflect the local, state, and federal interests of historic preservation. Given the historicity of the bridge, rehabilitation options will also be explored as part of the potential alternatives during the Project Development and Environment (PD&E) Study.

SECTION 2.0 ELIGIBITY DETERMINATION OF HISTORIC BRIDGE

The Venetian Causeway is National Register-listed. The individual bridges (8DA14373 - 8DA14384) were evaluated as part of this current project, and are considered contributing resources within the Venetian Islands Resource Group (8DA14395) - under Criteria A and C in the categories of Community Planning and Development, Transportation, Architecture, and Engineering. Additionally, the six islands and five earthen causeway landings of the Venetian Islands were included within this historic designed landscape.

As documented in the 1989 National Register nomination, the Venetian Causeway consists of “twelve bridges containing two bascule spans connected by a two-lane road”. In consultation with the SHPO/FMSF, the original FMSF site file for the Venetian Causeway (8DA4736) was converted from its classification as a historic bridge to a resource group during the 2019 CRAS. The Venetian Islands Resource Group (8DA14395) includes not only the twelve bridges, but also the six man-made islands, and the five earthen causeways. The recent CRAS identified these elements of the Venetian Causeway contributing to the resource group. During the 2019 CRAS, the current streetscapes were visually surveyed and compared to descriptions of the original roadway and sidewalk widths. The CRAS found that the roadways, curbing, sidewalks, landscaping, and street lighting have all been updated since the time of construction. Therefore, these elements no longer retain sufficient integrity to convey significance and do not contribute to the Venetian Islands Resource Group (8DA14395). The railings and entrance towers are considered notable design features of the Venetian Causeway Resource Group and have been documented as such. However, the bridge railings were replaced in 1996-1999 with a historically compatible design, but they are not technically historic in age. The SHPO determined the Venetian Islands Resource Group (8DA14395) and the contributing resources National Register–eligible.

SECTION 3.0 HISTORIC BRIDGE REPORT

Historic Overview Excerpt and Florida Master Site File Forms for the Newly Recorded Historic Resources from the 2019 Cultural Resource Assessment Survey (CRAS) attached.

Historic Resources Listed or Eligible for Listing in the National Register

8DA14395 Venetian Islands Resource Group

The Venetian Islands Resource Group (8DA14395) is located in Sections 31, 32, and 33 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle) in Miami-Dade County, Florida (Figure 10). The historic designed landscape includes twelve bridges (8DA14373-8DA14384), six man-made islands, and five man-made earthen causeway landings that span Biscayne Bay from NE 15th Street in the City of Miami to Dade Boulevard in the City of Miami Beach (Table 8).

Built between 1915 and 1926, the resource group encompasses a historic designed landscape of man-made islands, bridges, and earthen causeways that resulted from developers' ambitious plans to create a residential development on Biscayne Bay. Previously listed in the National Register in 1989, the documentation has been updated as the Venetian Islands Resource Group (8DA14395), which is still considered National Register-eligible under Criteria A and C in the categories of Community Planning and Development, Transportation, Architecture, and Engineering.

Table 8: Contributing Features in the Venetian Islands Resource Group (8DA14395)

Resource Name	Construction Date
Belle Isle	c. 1915
Rivo Alto Island	c. 1922
Di Lido Island	c. 1923
San Marino Island	c. 1923
San Marco Island	c. 1923
Biscayne Island	c. 1923
Venetian Causeway Bridge 1 (8DA14373)	c. 1926
Venetian Causeway Bridge 2 (8DA14374)	c. 1926
Venetian Causeway Bridge 3 (8DA14375)	c. 1926
Venetian Causeway Bridge 4 (8DA14376)	c. 1926
Venetian Causeway Bridge 5 (8DA14377)	c. 1926
Venetian Causeway Bridge 6 (8DA14378)	c. 1926
Venetian Causeway Bridge 7 (8DA14379)	c. 1926
Venetian Causeway Bridge 8 (8DA14380)	c. 1926
Venetian Causeway Bridge 9 (8DA14381)	c. 1926
Venetian Causeway Bridge 10 (8DA14382)	c. 1926
Venetian Causeway Bridge 11 (8DA14383)	c. 1926
Venetian Causeway Bridge 12 (8DA14384)	c. 1926
Earthen Causeway Landings (five total)	c. 1926

Figure 10: Boundaries and Contributing Features within the Venetian Islands Resource Group (8DA14395)

Venetian Causeway from North Bayshore Drive to Purdy Avenue (422713-2-22-01)

Belle Isle, the earliest of the islands, was largely shaped of dredge material excavated from the surrounding bay bottom during construction of the Collins Canal and Collins Bridge. The island was formed surrounding the eastern portion of the Collins Bridge. A plat map for the island was submitted in 1915 by the Biscayne Engineering Co., owned by W.E. Brown. Development of the island resulted from a partnership between F.C.B. Le Gro and John S. Collins (Figure 11). During the 1920s, several large estates were constructed on the island, including J.C. Penny's residence known as "White Haven" (City of Miami 1990).

Figure 11: 1920s Aerial View of Belle Isle and Collins Bridge
Courtesy State Archives of Florida, Florida Memory Collection

In 1921, the Bay Biscayne Improvement Company began an ambitious effort to construct a chain of islands across Biscayne Bay. Officers of the company included Josiah F. Chaille, Colonel Frank B. Shutts, Marshall Price, and Hugh Anderson, as well as F. C. B. Le Gro, who was already involved in the development of Belle Isle (City of Miami 1990). The "Venetian Islands" were to be constructed from dredge material and deposited along Collins Bridge to form a series of residential isles inspired by the landscape of Venice, Italy. Once the islands were formed, a causeway was to be constructed to provide access to the newly-developed communities.

Island building began immediately with Rivo Alto in 1922 (Figure 12). The remaining islands of Di Lido, San Marco, and San Marino were platted by 1923. Whitney C. Bliss, Engineer of Record, was responsible for establishing the layout of the islands (Welcher 1989). When completed, the islands were expected to contain over four-hundred and fifty residential lots, as well as interior roads and access to the mainland via an elegant causeway. The Bay Biscayne Improvement Company immediately established two sales offices in Miami and began selling lots, still underwater, to would-be homeowners (City of Miami 1990). Contracts included an

agreement that the islands would include roads, sidewalks, and utilities, and that dredging and bulkhead construction would be complete. The newly-constructed Causeway would require a toll, however the fee would be waived for residents (Welcher 1989).

Figure 12: 1925 Photograph of Construction on the Venetian Islands
Courtesy State Archives of Florida, Florida Memory Collection

The final island of the chain, Biscayne Island, was formed from residual dredging material accumulated during the construction of the previous islands, however was not immediately developed during the 1920s (Welcher 1989). The island was home to a small airport operated as the Viking Seaplane Base (Figure 13). In 1936, the Biscayne Island Corporation submitted a plat map showing subdivision for residential development on the island.

Figure 13: 1930s Aerial Photograph of Biscayne Island and the Viking Seaplane Base
Courtesy State Archives of Florida, Florida Memory Collection

The islands, from east to west, are Belle Isle, Rivo Alto Island, Di Lido Island, San Marino Island, San Marco Island, and Biscayne Island (Figure 10). The islands are residential in character, with housing designs from a variety of periods and styles. Biscayne Island and Belle Isle, the islands at both ends of the Causeway have larger scale, high-rise residential development. They provide a transition from the commercial and mixed-use developments of Miami Beach and downtown Miami to the single-family residential development on the middle islands. The islands have mature street trees and tropical landscaping.

As previously discussed in the *Methods* section part of the current project, the residential parcels surrounding the historic APE were evaluated for the potential of a historic district (Figures 14-18). There does not appear to be a significant concentration, linkage, or continuity between the buildings. Many of these buildings have sustained substantial alterations and additions, resulting in an overwhelming loss of integrity of design, materials, workmanship, feeling, and association. Furthermore, there has been continued construction of non-historic residential infill in recent years. Therefore, while the islands themselves are contributing, there does not appear to be sufficient integrity for a historic district within the Venetian Islands.

Based on current photographs of the streetscapes and comparison with descriptions of the original roadway and sidewalk widths, it appears that the roadways, curbing, sidewalks, landscaping, and lighting have all been updated since the time of construction (Figures 14-18). According to the *Section 106 Documentation and Determination of Effects Venetian Causeway Streetscape Improvements Project* (FMSF Manuscript No. 16537) conducted by Janus Research in 2008, these elements no longer retain sufficient integrity to convey significance.

Therefore, these elements do not contribute to the Venetian Islands Resource Group (8DA14395).

Figure 14: Streetscape View of Belle Isle, Facing Southeast

Figure 15: Streetscape View of Rivo Alto Island, Facing West

Figure 16: Streetscape View of Di Lido Island, Facing North

Figure 17: Streetscape View of San Marco Island, Facing Southwest

Figure 18: Streetscape View of Biscayne Island, Facing West

Beginning in 1925, the bridges and earthen causeways were constructed as the final phase in the development of the island communities (Figure 19). Harvey Stanley was responsible for the design of the bridges and the cost for the concrete structures was estimated at two-million dollars (Welcher 1989). The Raymond Concrete Pile Company of New York was selected as the building contractor and James M. Thompson served as superintendent. Plans for the new bridge included a combination of bridges and earthen causeway landings. The large islands would be connected using two bascule-span bridges, ten fixed-span bridges, and a series of earthen causeways. The bridges were completed in 1926, with a formal dedication occurring on February 28 of that year (Welcher 1989).

Figure 19: 1925 Photograph Showing Construction on the Venetian Causeway
Courtesy State Archives of Florida, Florida Memory Collection

A total of ten fixed-span bridges connect the short expanses of bay between the Venetian Islands. These fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center with 3 feet 11 inches overhang. The bridges have a low rise and provide minimal clearance above the mean high water. The guardrails, one of the main decorative features of the bridges, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 20). This simple design forms a bold pattern while allowing a view of the bay from all of the bridges. A 1930s postcard shows the eastern-most bridge, Venetian Causeway Bridge 12 (8DA14384), as it originally appeared (Figure 21).

In addition to the ten fixed-span bridges, two bascule-leaf spans with fixed-span approaches were constructed to cross the larger expanses of the bay. These bridges are composed of fixed tee-beam approach spans that provide a gradual rise culminating in a steel bascule-leaf span constructed of steel. The two bascule bridges have a low rise and provide minimal clearance above the mean high water. The guardrails for both spans retain the distinctive ornamental railings found on the fixed-span bridges. The bridges currently open every half hour between 7am and 7pm, Monday through Friday. On weekends and federal holidays, the bridge opens as required by boat traffic. The bridge may be opened on demand, at any time to permit passage of tug boats with tows, public vessels of the United States, regularly schedule cruise vessels, and in case of emergencies.

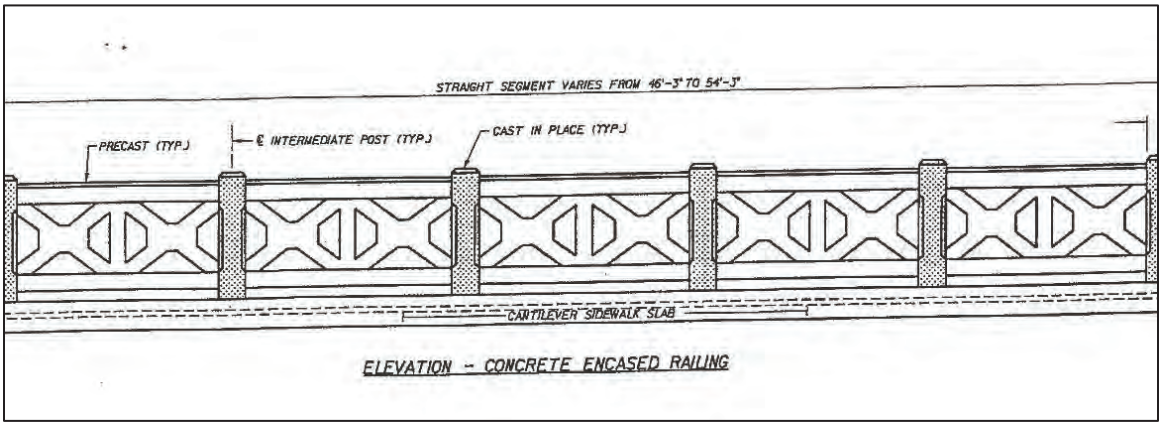


Figure 20: Guardrail Decorative Detail

Figure 21: 1930s Postcard Depicting the Venetian Causeway Bridge 12 (8DA14384)
Courtesy Belle Isle Residents Association

A total of five man-made earthen causeway landings are located between sections of fixed-span bridges (Figure 22). These small islands are constructed of residual dredge material and serve to connect fixed-span sections. The resulting configuration creates a combination of bridge and earthen causeway between large expanses of water. The landings allowed for shorter spans to be constructed between the large islands. The small islands were also intended to create small channels, which added to the "Venetian" feel of the islands.

Figure 22: View from Earthen Causeway Landing between Rivo Alto Island and Di Lido Island, Facing East

Florida Master Site File Forms for Newly Recorded Historic Resources

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14373
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 11
FDOT Bridge # 874459

Bridge Name(s) Venetian Causeway Bridge 1 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 31 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 581965 **N**orthing 2852660
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☐yes ☐no ☒restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription "Short Way", "Venetian Way"

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Movable--Bascule 2. Tee Beam
Overall Condition ☐excellent ☐good ☐fair ☒deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description See continuation

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14373

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 41 Total Length(ft) 2,005

Main Spans: Number 1 Length(ft) 104 Width(ft) 35 Roadway width(ft) 24
Main Span Design Movable--Bascule
Main Span Materials 1. Steel 2. Concrete

Approach Spans: Number 40 Length(ft) 1,901 Width(ft) 35 Roadway width(ft) 24
Approach Span Design Tee Beam
Approach Span Materials 1. Concrete 2. Steel

Deck Materials 1. Concrete 2. Steel

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete abutment with wing walls and riprap

Pier Materials 1. Concrete 2. Steel
Pier Description Reinforced-concrete arched girders, square piers with riprap

RESEARCH METHODS (check all that apply)

- ☒ FDOT database search
- ☐ HABS/HAER record search
- ☒ FMSF record search (sites/surveys)
- ☐ Other methods (specify)
- ☐ Fla. Archives / photo collection
- ☐ property appraiser / tax records
- ☐ library research
- ☐ newspaper files
- ☐ city directory
- ☐ Public Lands Survey (DEP)
- ☐ informal archaeological inspection
- ☐ formal archaeological survey
- ☒ cultural resource survey

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5.
6.

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description — File or accession #'s 2014-23

RECORDER INFORMATION

Recorder Name Janus Research — Affiliation Janus Research
Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 1

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 1 is 2,005 ft. long with 41 spans including a movable bascule span over the navigation channel, 28 fixed approach spans to the west and 12 fixed approach spans to the east of the movable span (Figure 1). It connects Biscayne Island to the mainland (NE 15th Street). The deck carries two lanes of vehicular traffic, one in each direction, as well as one bicycle lane in each direction with an alignment in the east/west direction.

Figure 1: Venetian Causeway Bridge 1 (8DA14373), Facing Northwest

The double-leaf bascule span measures 104 ft. across and 35 ft. wide (Figure 2). It is constructed of steel and reinforced-concrete. The decking is steel grate with concrete sections. On each side of the roadway, there are raised sidewalks, consisting of thin steel plates with skid-resistant surface that cantilever outboard the main girders. Bridge railings at the back of sidewalk consist of steel tube members that replicate the shape of the concrete bridge railings. A series of diagonal members brace the steel framework. A concrete counterweight balances the span to reduce the power and size of equipment required to operate the span.

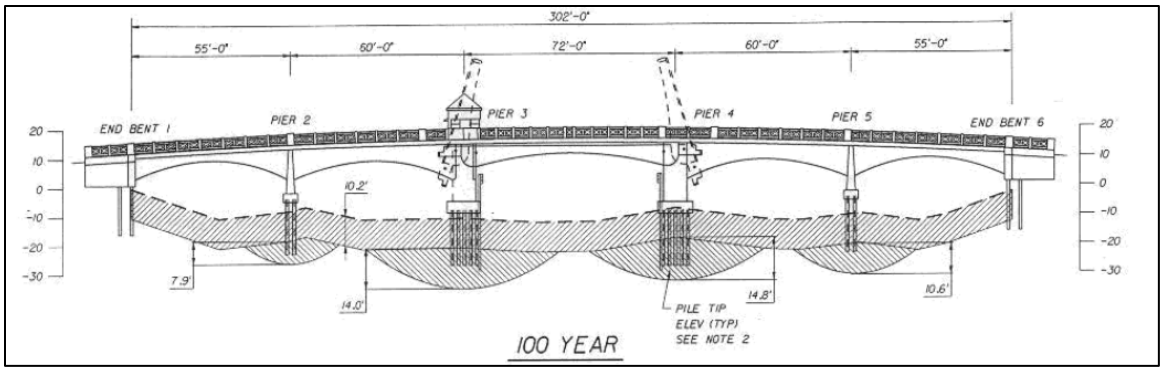


Figure 2: Venetian Causeway Bridge 1 (8DA14373), Profile of Bascule Span

The fixed tee-beam approach spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhang. The bridge has a low rise and provides minimal clearance above the mean high water.

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 2). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The western terminus contains a pair of tapering octagonal concrete entrance towers topped by lights resembling miniature lighthouses. Inscribed in bas relief on the towers are the words "Short Way" on the north tower, and "Venetian Way" on the south tower. At the eastern terminus is a modern toll booth stretching the full width of the road.

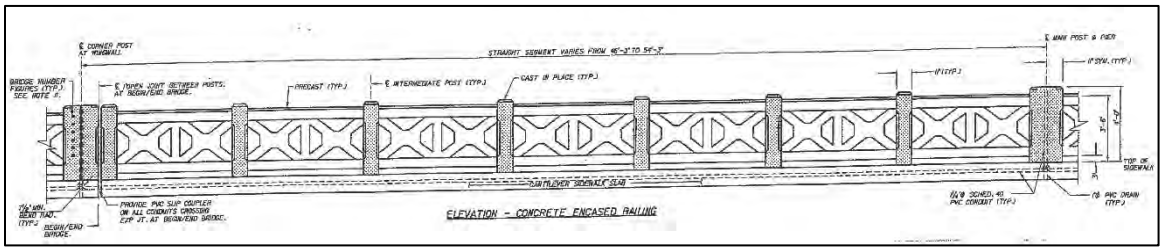


Figure 1: Guardrail Decorative Details

SITE NAME: Venetian Causeway Bridge 1

B. TENDER STATION DESCRIPTION

A 14 ft. by 21 ft. multi-story control house is located on the bascule pier west of the navigation channel on the south side of the roadway. The Mediterranean Revival-style control house is integral with the bascule pier and contains concrete flooring and walls. The control house contains a hip-roof with barrel tiles, decorative arched relief above each window and door, and patterned dental roof soffit cornice.

C. ALTERATIONS

A 1,274ft. length of bridge - including the movable span and the 12 fixed approach spans on each side of the movable span - were replaced during a rehabilitation project conducted in 1999. The remaining 731ft. length of bridge including 16 fixed approach spans west of the bascule span were replaced as a result of a Miami-Dade County Design-Build Project completed in 2015.

The 1999 rehabilitation included:

- Modifications to approach span superstructure including:
  - Removal of the existing sidewalks, utility casements, and bridge railings on north side of roadway;
  - Removal of existing curb and bridge railings on the south side of the roadway;
  - Construction of new 4’ wide sidewalks each side of the roadway with new bridge railings at back of sidewalk; and
  - Installation of new roadway lighting.
- Replacement of abutment back walls, wing walls and approach slabs;
- Repairs to concrete approach span superstructure;
- Repairs to the concrete approach span substructure and foundations;
- Repairs to the decorative monuments at the west end of the bridge;
- Substructure repairs and the Installation of rubble riprap around footings to minimize scour; and
- Partial replacement of Bascule Leaf.

C. BIBLIOGRAPHIC REFERENCES

City of Miami
1990 Venetian Causeway Designation Report. Online resource, http://www.historicpreservationmiami.com/pdfs/Venetian%20Causeway.PDF, accessed July 27, 2015.

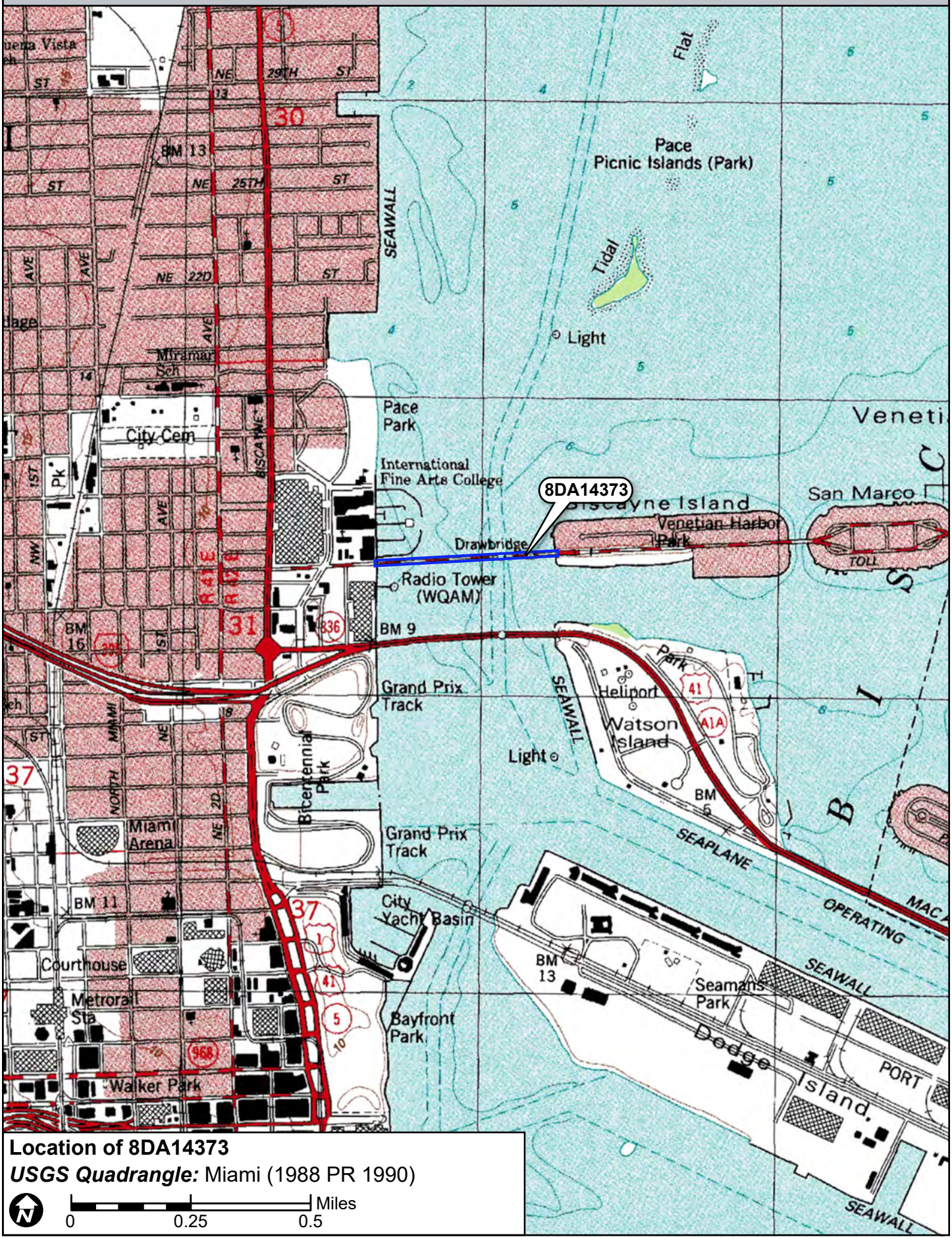
Janus Research
2008 Documentation and Determination of Effects Venetian Causeway Streetscape Improvement Project. On file, Florida Department of State, Division of Historical Resources, Tallahassee, Florida.

Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP

USGS QUADRANGLE MAP



Location of 8DA14373

USGS Quadrangle: Miami (1988 PR 1990)

Miles

0 0.25 0.5

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14374
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 12
FDOT Bridge # 874460

Bridge Name(s) Venetian Causeway Bridge 2 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami Beach **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 31 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 583080 **N**orthing 2852725
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☒yes ☐no ☐restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription n/a

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Tee Beam 2. _____
Overall Condition ☐excellent ☐good ☒fair ☐deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description n/a

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14374

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 3 Total Length(ft) 200

Main Spans: Number 1 Length(ft) 200 Width(ft) 41 Roadway width(ft) 24
Main Span Design Tee Beam
Main Span Materials 1. Concrete 2. Steel

Approach Spans: Number_____ Length(ft)_____ Width(ft)_____ Roadway width(ft)_____
Approach Span Design _____
Approach Span Materials 1._____ 2. _____

Deck Materials 1. Concrete 2. _____

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete pile-supported

Pier Materials 1. _____ 2. _____
Pier Description Pile-supported reinforced concrete w/ wing walls and riprap

RESEARCH METHODS (check all that apply)

☒ FDOT database search	☐ Fla. Archives / photo collection	☐ newspaper files	☐ informal archaeological inspection
☐ HABS/HAER record search	☐ property appraiser / tax records	☐ city directory	☐ formal archaeological survey
☒ FMSF record search (sites/surveys)	☐ library research	☐ Public Lands Survey (DEP)	☒ cultural resource survey

☐ Other methods (specify)_____

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5. _____
6. _____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

RECORDER INFORMATION

Recorder Name Janus Research — Affiliation Janus Research
Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 2

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 2 (8DA14374) is 200 ft. long with three fixed, tee-beam spans (Figure 1). It connects Biscayne Island to San Marco Island. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot travel lanes with 4-foot shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side.

Figure 1: Venetian Causeway Bridge 2 (8DA14374), Facing Northeast

The fixed tee-beam spans are constructed of reinforced concrete (Figure 2). Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhangs. The arched girders provide limited clearance above the mean high water.

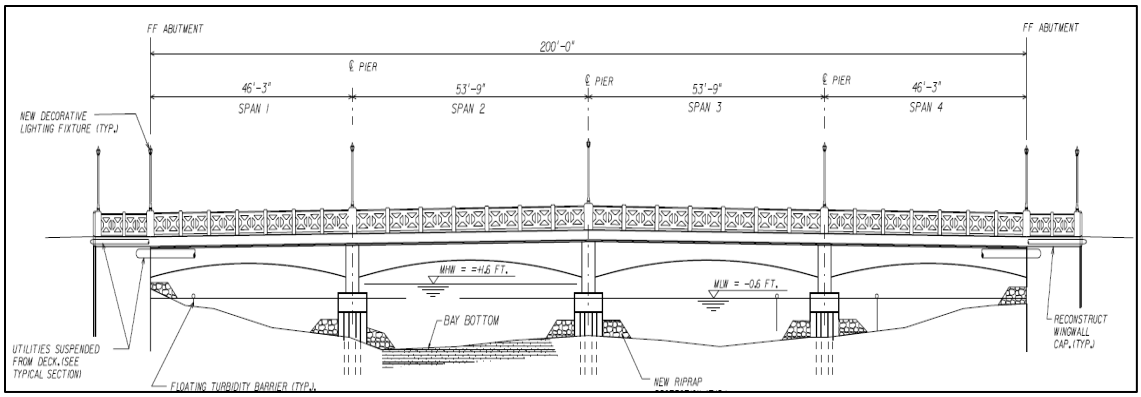


Figure 2: Venetian Causeway Bridge 2 (8DA14374), Elevation View

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 3). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The railings are 3 ft. 6 inch in height and contain 4 ft. high cast-in-place posts.

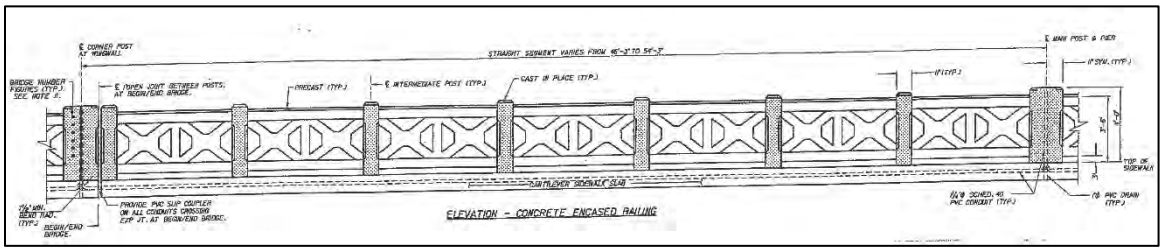


Figure3: Guardrail Decorative Details

B. ALTERATIONS

Between 1996 and 1999, the Florida Department of Transportation (FDOT) provided funding for necessary bridge repairs. The repairs consisted of major rehabilitation of the beams and decking. Historic features including railings, arched beams, and low profile were retained. Between 2009 and 2011, PWWM conducted a major rehabilitation project to repair the Causeway bridges' beams and decks. The scope of work for this project included major repairs to the support beams, including the removal of existing concrete and adding new, reinforcing concrete. Major repairs were also performed on the diaphragm, the deck underside and the support piers.

C. BIBLIOGRAPHIC REFERENCES

City of Miami
1990 Venetian Causeway Designation Report. Online resource, http://www.historicpreservationmiami.com/pdfs/Venetian%20Causeway.PDF, accessed July 27, 2015.

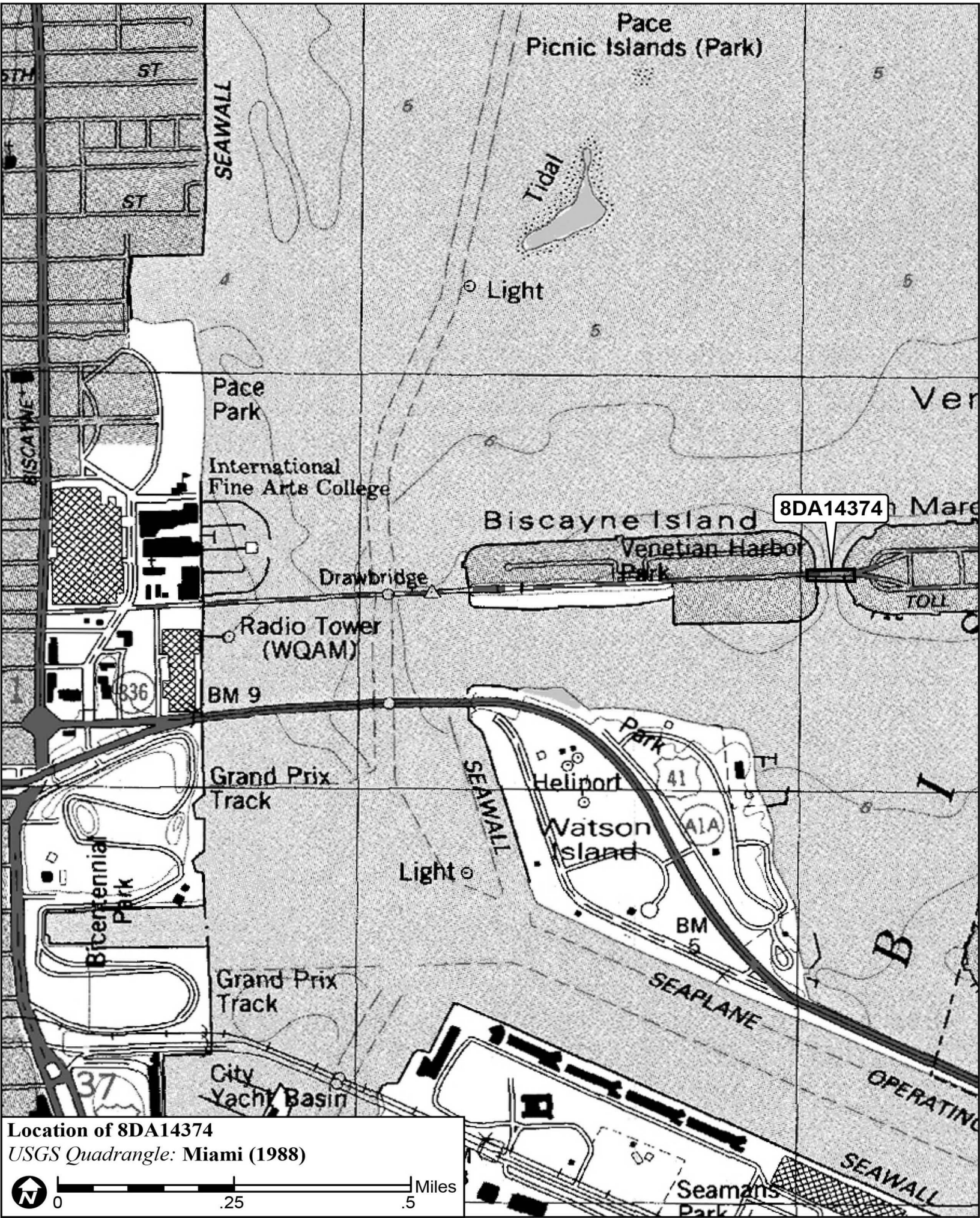
Janus Research
2008 Documentation and Determination of Effects Venetian Causeway Streetscape Improvement Project. On file, Florida Department of State, Division of Historical Resources, Tallahassee, Florida.

Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP

USGS QUADRANGLE MAP



Location of 8DA14374

USGS Quadrangle: **Miami (1988)**

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14375
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 13
FDOT Bridge # 874461

Bridge Name(s) Venetian Causeway Bridge 3 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami Beach **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 32 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 583650 **N**orthing 2852760
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☒yes ☐no ☐restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription n/a

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Tee Beam 2. _____
Overall Condition ☐excellent ☐good ☒fair ☐deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description n/a

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14375

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 3 Total Length(ft) 160

Main Spans: Number 1 Length(ft) 160 Width(ft) 41 Roadway width(ft) 24
Main Span Design Tee Beam
Main Span Materials 1. Concrete 2. Steel

Approach Spans: Number_____ Length(ft)_____ Width(ft)_____ Roadway width(ft)_____
Approach Span Design _____
Approach Span Materials 1._____ 2._____

Deck Materials 1. Concrete 2._____

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete pile-supported

Pier Materials 1._____ 2._____
Pier Description Pile-supported reinforced concrete w/ wing walls and riprap

RESEARCH METHODS (check all that apply)

☒ FDOT database search	☐ Fla. Archives / photo collection	☐ newspaper files	☐ informal archaeological inspection
☐ HABS/HAER record search	☐ property appraiser / tax records	☐ city directory	☐ formal archaeological survey
☒ FMSF record search (sites/surveys)	☐ library research	☐ Public Lands Survey (DEP)	☒ cultural resource survey

☐ Other methods (specify)_____

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5._____
6._____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

RECORDER INFORMATION

Recorder Name Janus Research — Affiliation Janus Research
Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 3

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 3 (8DA14375) is 160 ft. long with three fixed, tee-beam spans (Figure 1). It connects San Marco Island to a small man-made landing to the east. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot travel lanes with 4-foot shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side.

Figure 1: Venetian Causeway Bridge 3 (8DA14375), Facing Southwest

The fixed tee-beam spans are constructed of reinforced concrete (Figure 2). Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhangs. The arched girders provide limited clearance above the mean high water.

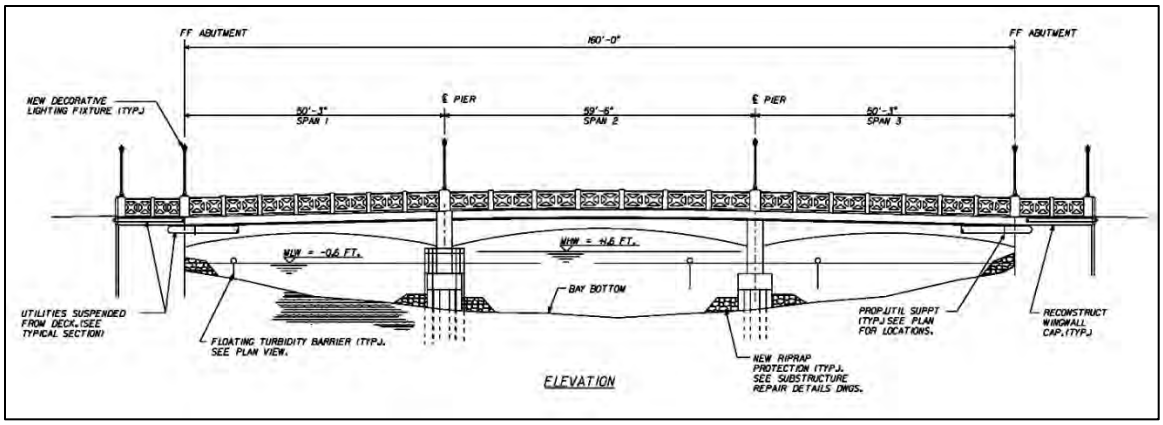


Figure 2: Venetian Causeway Bridge 3 (8DA14375), Elevation View

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 3). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The railings are 3 ft. 6 inch in height and contain 4 ft. high cast-in-place posts.

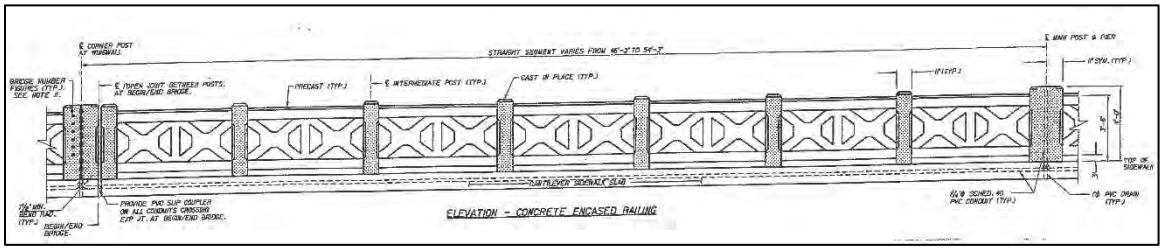


Figure3: Guardrail Decorative Details

B. ALTERATIONS

Between 1996 and 1999, the Florida Department of Transportation (FDOT) provided funding for necessary bridge repairs. The repairs consisted of major rehabilitation of the beams and decking. Historic features including railings, arched beams, and low profile were retained. Between 2009 and 2011, PWWM conducted a major rehabilitation project to repair the Causeway bridges' beams and decks. The scope of work for this project included major repairs to the support beams, including the removal of existing concrete and adding new, reinforcing concrete. Major repairs were also performed on the diaphragm, the deck underside and the support piers.

C. BIBLIOGRAPHIC REFERENCES

City of Miami
1990 Venetian Causeway Designation Report. Online resource, http://www.historicpreservationmiami.com/pdfs/Venetian%20Causeway.PDF, accessed July 27, 2015.

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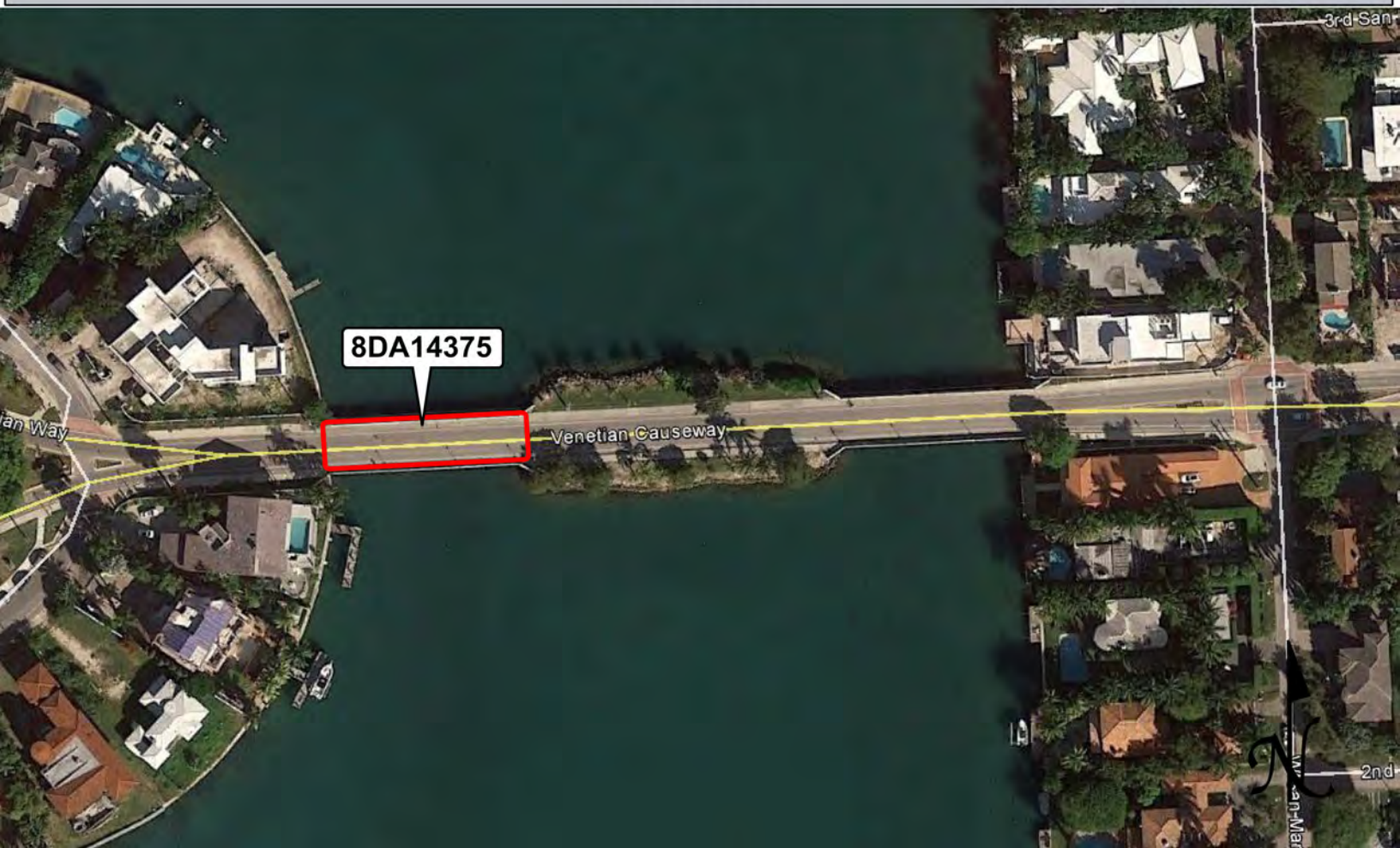
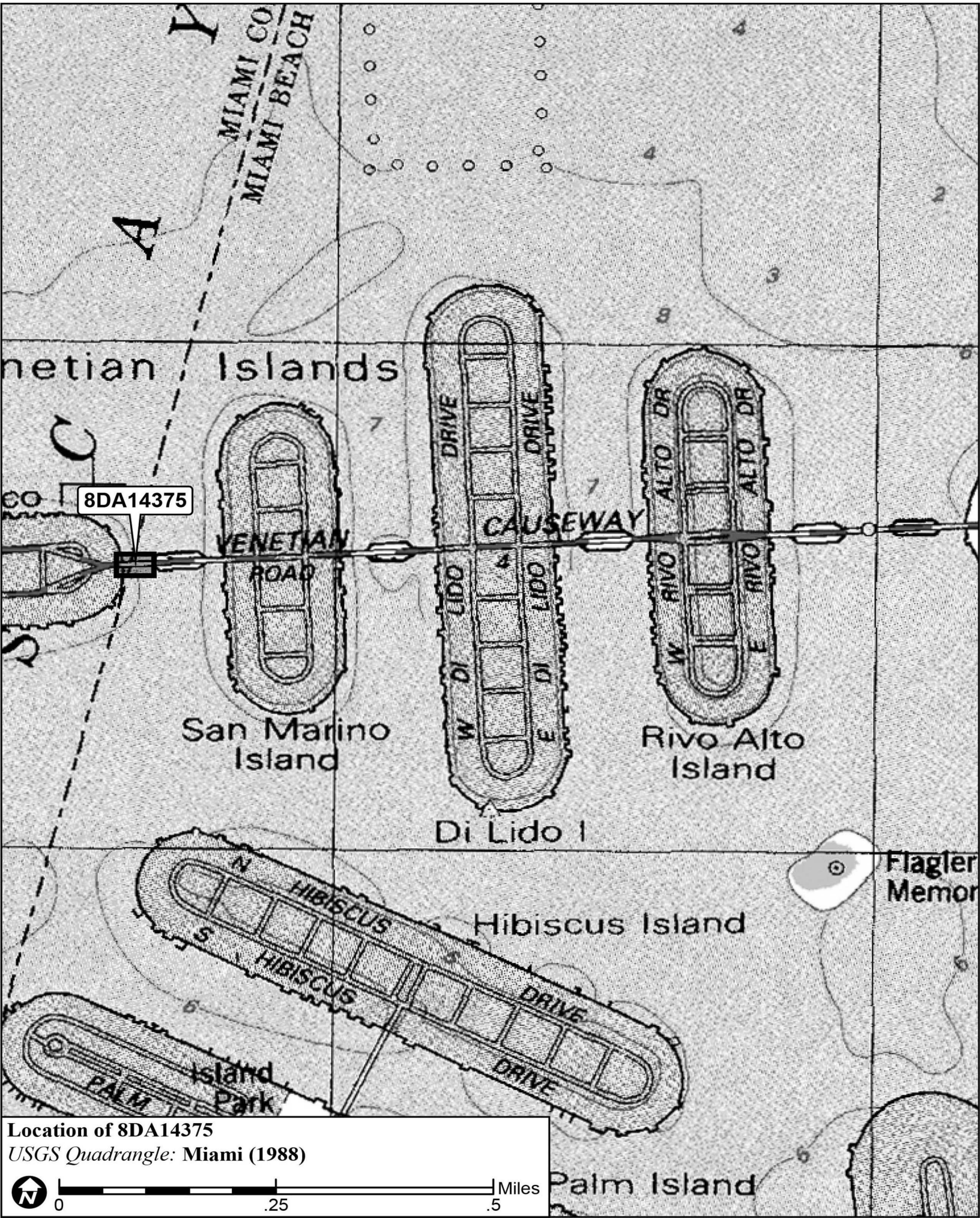
Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP



USGS QUADRANGLE MAP



Location of 8DA14375

USGS Quadrangle: **Miami (1988)**

0 .25 .5 Miles

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14376
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 14
FDOT Bridge # 874463

Bridge Name(s) Venetian Causeway Bridge 4 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami Beach **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 32 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 583785 **N**orthing 2852765
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☒yes ☐no ☐restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription n/a

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Tee Beam 2. _____
Overall Condition ☐excellent ☐good ☒fair ☐deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description n/a

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14376

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 3 Total Length(ft) 160

Main Spans: Number 1 Length(ft) 160 Width(ft) 41 Roadway width(ft) 24
Main Span Design Tee Beam
Main Span Materials 1. Concrete 2. Steel

Approach Spans: Number_____ Length(ft)_____ Width(ft)_____ Roadway width(ft)_____
Approach Span Design _____
Approach Span Materials 1._____ 2._____

Deck Materials 1. Concrete 2._____

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete pile-supported

Pier Materials 1._____ 2._____
Pier Description Pile-supported reinforced concrete w/ wing walls and riprap

RESEARCH METHODS (check all that apply)

☒ FDOT database search	☐ Fla. Archives / photo collection	☐ newspaper files	☐ informal archaeological inspection
☐ HABS/HAER record search	☐ property appraiser / tax records	☐ city directory	☐ formal archaeological survey
☒ FMSF record search (sites/surveys)	☐ library research	☐ Public Lands Survey (DEP)	☒ cultural resource survey

☐ Other methods (specify)_____

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5._____
6._____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

RECORDER INFORMATION

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Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 4

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 4 (8DA14376) is 160 ft. long with three fixed, tee-beam spans (Figure 1). It connects San Marino Island to a small man-made landing to the west. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot travel lanes with 4-foot shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side.

Figure 1: Venetian Causeway Bridge 4 (8DA14376), Facing East

The fixed tee-beam spans are constructed of reinforced concrete (Figure 2). Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhangs. The arched girders provide limited clearance above the mean high water.

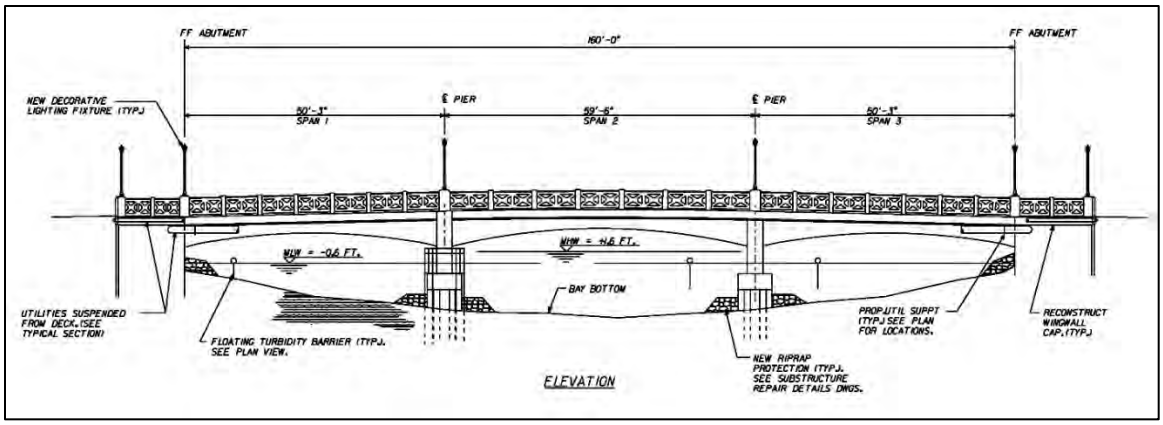

Figure 2: Venetian Causeway Bridge 4 (8DA14376), Elevation View

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 3). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The railings are 3 ft. 6 inch in height and contain 4 ft. high cast-in-place posts.

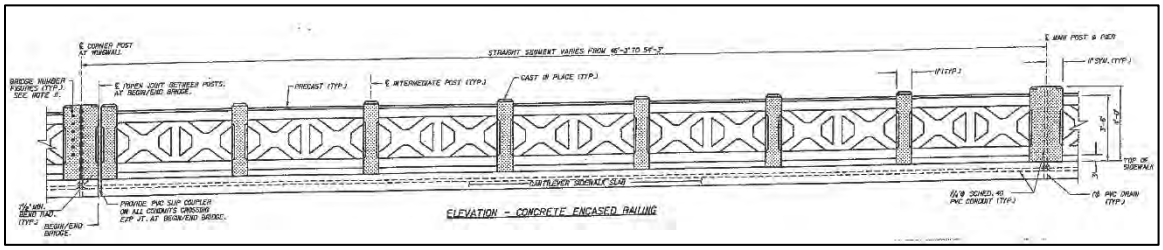

Figure3: Guardrail Decorative Details

B. ALTERATIONS

Between 1996 and 1999, the Florida Department of Transportation (FDOT) provided funding for necessary bridge repairs. The repairs consisted of major rehabilitation of the beams and decking. Historic features including railings, arched beams, and low profile were retained. Between 2009 and 2011, PWWM conducted a major rehabilitation project to repair the Causeway bridges' beams and decks. The scope of work for this project included major repairs to the support beams, including the removal of existing concrete and adding new, reinforcing concrete. Major repairs were also performed on the diaphragm, the deck underside and the support piers.

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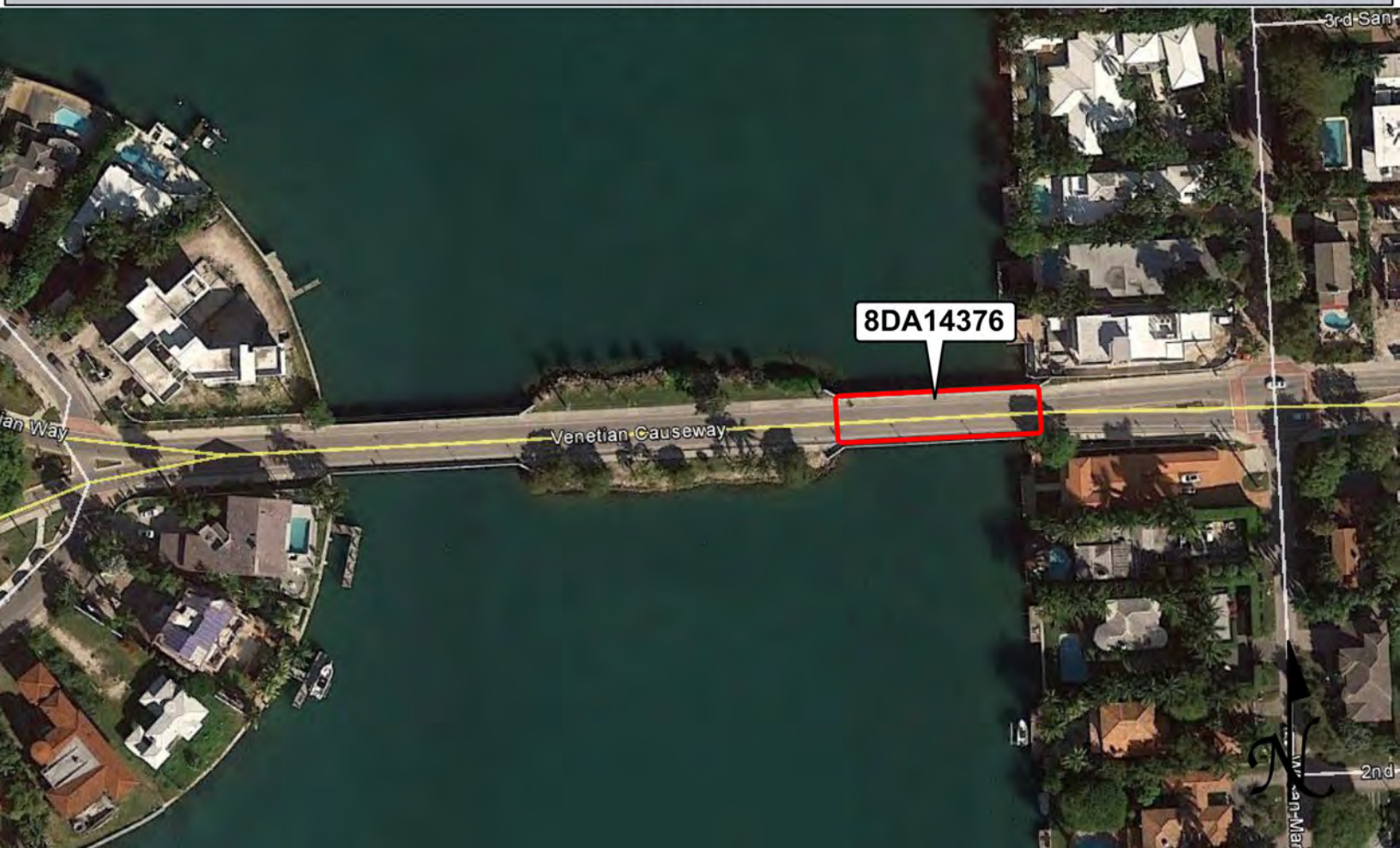
Janus Research
2008 Documentation and Determination of Effects Venetian Causeway Streetscape Improvement Project. On file, Florida Department of State, Division of Historical Resources, Tallahassee, Florida.

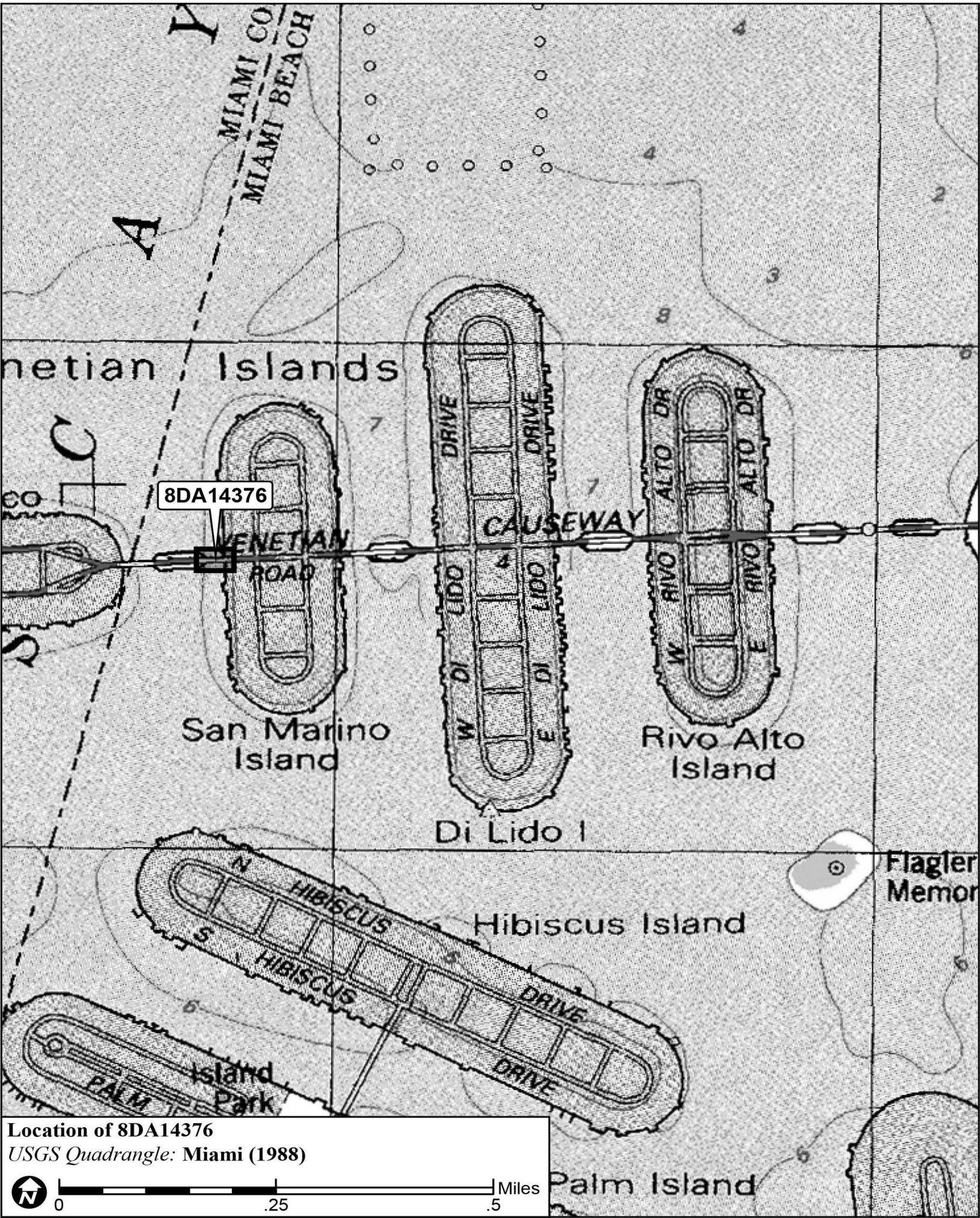
Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP



USGS QUADRANGLE MAP



Location of 8DA14376

USGS Quadrangle: **Miami (1988)**

N

0 .25 .5 Miles

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14377
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 15
FDOT Bridge # 874465

Bridge Name(s) Venetian Causeway Bridge 5 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami Beach **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 32 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 584050 **N**orthing 2852780
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☒yes ☐no ☐restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription n/a

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Tee Beam 2. _____
Overall Condition ☐excellent ☐good ☒fair ☐deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description n/a

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14377

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 3 Total Length(ft) 160

Main Spans: Number 1 Length(ft) 160 Width(ft) 41 Roadway width(ft) 24
Main Span Design Tee Beam
Main Span Materials 1. Concrete 2. Steel

Approach Spans: Number_____ Length(ft)_____ Width(ft)_____ Roadway width(ft)_____
Approach Span Design _____
Approach Span Materials 1._____ 2._____

Deck Materials 1. Concrete 2._____

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete pile-supported

Pier Materials 1._____ 2._____
Pier Description Pile-supported reinforced concrete w/ wing walls and riprap

RESEARCH METHODS (check all that apply)

☒ FDOT database search	☐ Fla. Archives / photo collection	☐ newspaper files	☐ informal archaeological inspection
☐ HABS/HAER record search	☐ property appraiser / tax records	☐ city directory	☐ formal archaeological survey
☒ FMSF record search (sites/surveys)	☐ library research	☐ Public Lands Survey (DEP)	☒ cultural resource survey

☐ Other methods (specify)_____

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5._____
6._____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

RECORDER INFORMATION

Recorder Name Janus Research — Affiliation Janus Research
Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 5

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 5 (8DA14377) is 160 ft. long with three fixed, tee-beam spans (Figure 1). It connects San Marino Island to a small man-made landing to the east. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot travel lanes with 4-foot shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side.

Figure 1: Venetian Causeway Bridge 5 (8DA14377), Facing Southwest

The fixed tee-beam spans are constructed of reinforced concrete (Figure 2). Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhangs. The arched girders provide limited clearance above the mean high water.

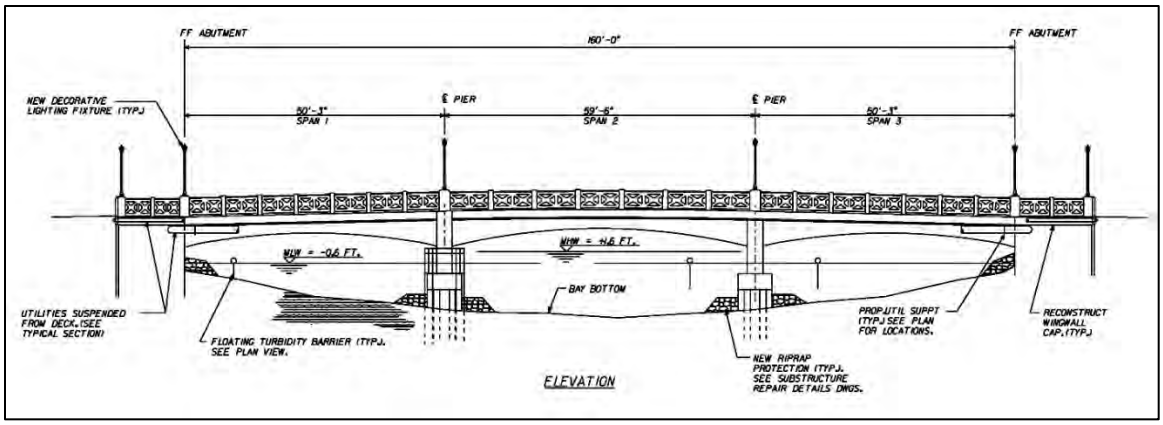


Figure 2: Venetian Causeway Bridge 5 (8DA14377), Elevation View

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 3). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The railings are 3 ft. 6 inch in height and contain 4 ft. high cast-in-place posts.

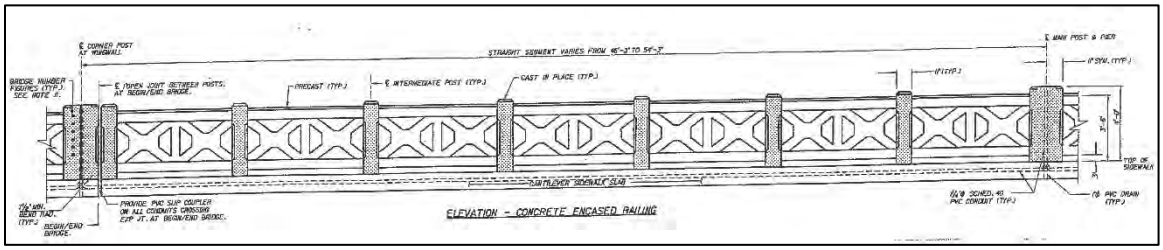


Figure3: Guardrail Decorative Details

B. ALTERATIONS

Between 1996 and 1999, the Florida Department of Transportation (FDOT) provided funding for necessary bridge repairs. The repairs consisted of major rehabilitation of the beams and decking. Historic features including railings, arched beams, and low profile were retained. Between 2009 and 2011, PWWM conducted a major rehabilitation project to repair the Causeway bridges' beams and decks. The scope of work for this project included major repairs to the support beams, including the removal of existing concrete and adding new, reinforcing concrete. Major repairs were also performed on the diaphragm, the deck underside and the support piers.

C. BIBLIOGRAPHIC REFERENCES

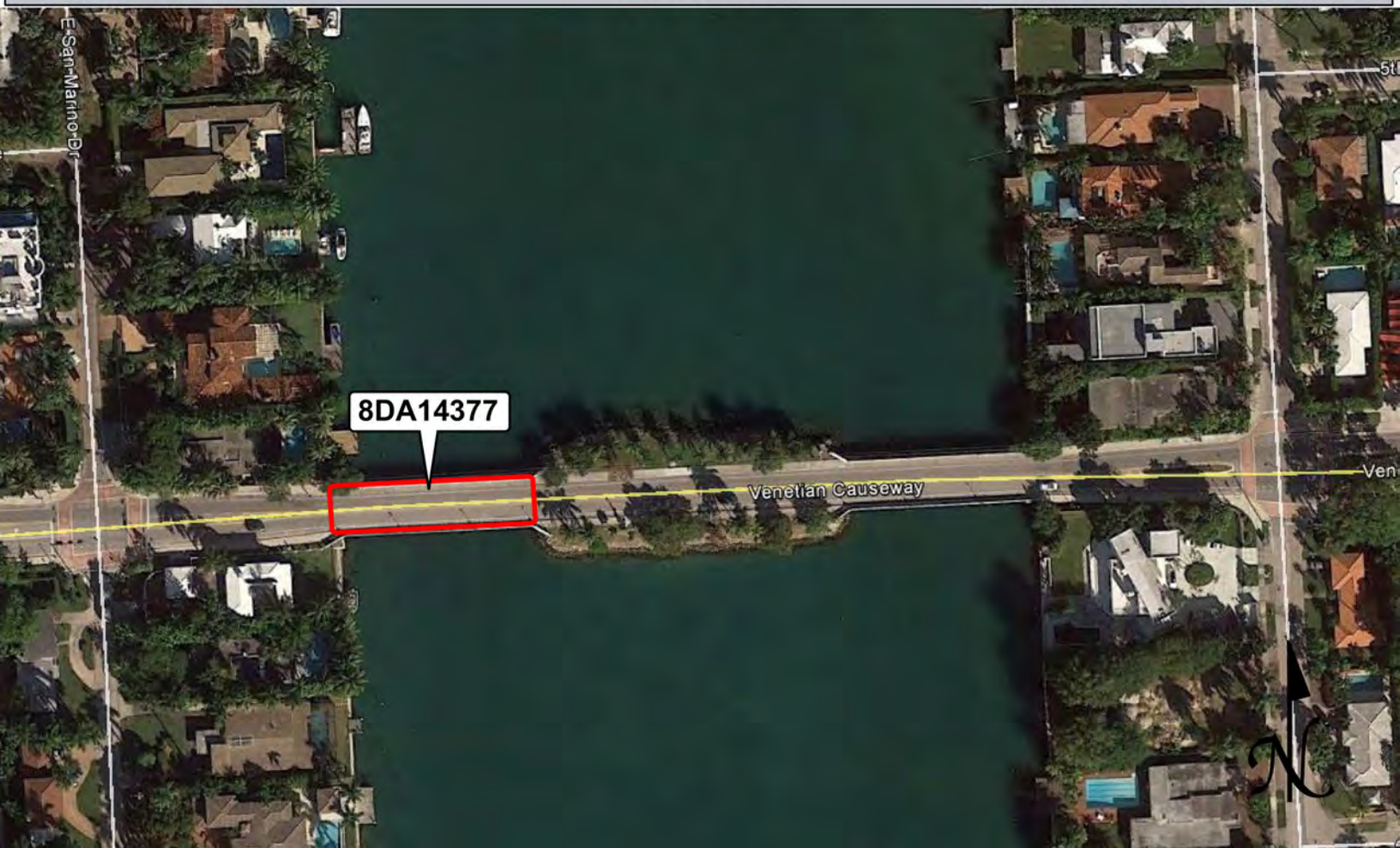
City of Miami
1990 Venetian Causeway Designation Report. Online resource, http://www.historicpreservationmiami.com/pdfs/Venetian%20Causeway.PDF, accessed July 27, 2015.

Janus Research
2008 Documentation and Determination of Effects Venetian Causeway Streetscape Improvement Project. On file, Florida Department of State, Division of Historical Resources, Tallahassee, Florida.

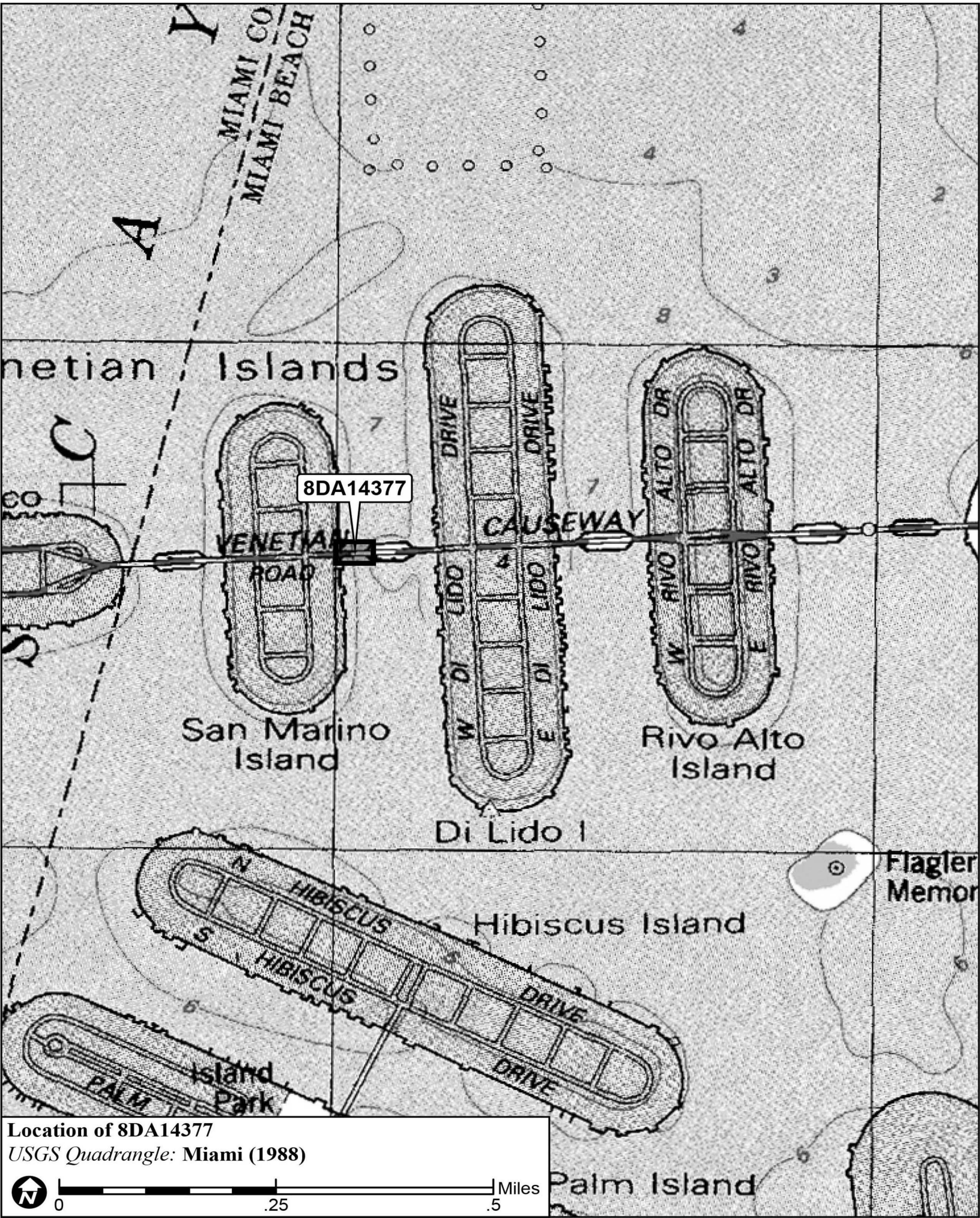
Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP



USGS QUADRANGLE MAP



Location of 8DA14377

USGS Quadrangle: **Miami (1988)**

0 .25 .5 Miles

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14378
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 16
FDOT Bridge # 874466

Bridge Name(s) Venetian Causeway Bridge 6 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami Beach **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 32 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 5 8 4 1 8 0 **N**orthing 2 8 4 2 7 9 0
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☒yes ☐no ☐restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription n/a

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Tee Beam 2. _____
Overall Condition ☐excellent ☐good ☒fair ☐deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description n/a

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14378

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 3 Total Length(ft) 160

Main Spans: Number 1 Length(ft) 160 Width(ft) 41 Roadway width(ft) 24
Main Span Design Tee Beam
Main Span Materials 1. Concrete 2. Steel

Approach Spans: Number_____ Length(ft)_____ Width(ft)_____ Roadway width(ft)_____
Approach Span Design _____
Approach Span Materials 1._____ 2._____

Deck Materials 1. Concrete 2._____

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete pile-supported

Pier Materials 1._____ 2._____
Pier Description Pile-supported reinforced concrete w/ wing walls and riprap

RESEARCH METHODS (check all that apply)

☒ FDOT database search	☐ Fla. Archives / photo collection	☐ newspaper files	☐ informal archaeological inspection
☐ HABS/HAER record search	☐ property appraiser / tax records	☐ city directory	☐ formal archaeological survey
☒ FMSF record search (sites/surveys)	☐ library research	☐ Public Lands Survey (DEP)	☒ cultural resource survey

☐ Other methods (specify)_____

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5._____
6._____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

RECORDER INFORMATION

Recorder Name Janus Research — Affiliation Janus Research
Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable).
Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 6

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 6 (8DA14378) is 160 ft. long with three fixed, tee-beam spans (Figure 1). It connects Di Lido Island to a small man-made landing to the west. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot travel lanes with 4-foot shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side.

Figure 1: Venetian Causeway Bridge 6 (8DA14378), Facing Northeast

The fixed tee-beam spans are constructed of reinforced concrete (Figure 2). Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhangs. The arched girders provide limited clearance above the mean high water.

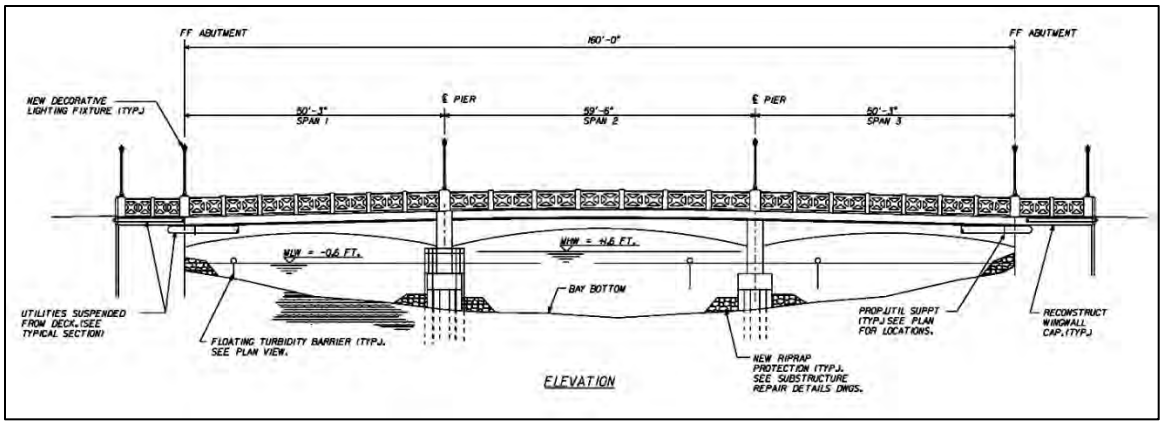


Figure 2: Venetian Causeway Bridge 6 (8DA14378), Elevation View

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 3). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The railings are 3 ft. 6 inch in height and contain 4 ft. high cast-in-place posts.

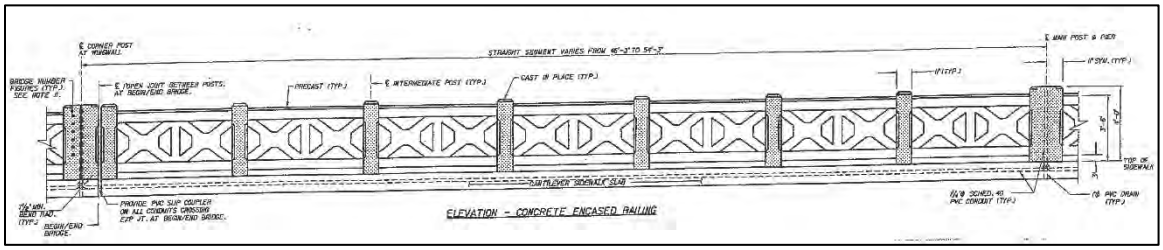


Figure3: Guardrail Decorative Details

B. ALTERATIONS

Between 1996 and 1999, the Florida Department of Transportation (FDOT) provided funding for necessary bridge repairs. The repairs consisted of major rehabilitation of the beams and decking. Historic features including railings, arched beams, and low profile were retained. Between 2009 and 2011, PWWM conducted a major rehabilitation project to repair the Causeway bridges' beams and decks. The scope of work for this project included major repairs to the support beams, including the removal of existing concrete and adding new, reinforcing concrete. Major repairs were also performed on the diaphragm, the deck underside and the support piers.

C. BIBLIOGRAPHIC REFERENCES

City of Miami
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Janus Research
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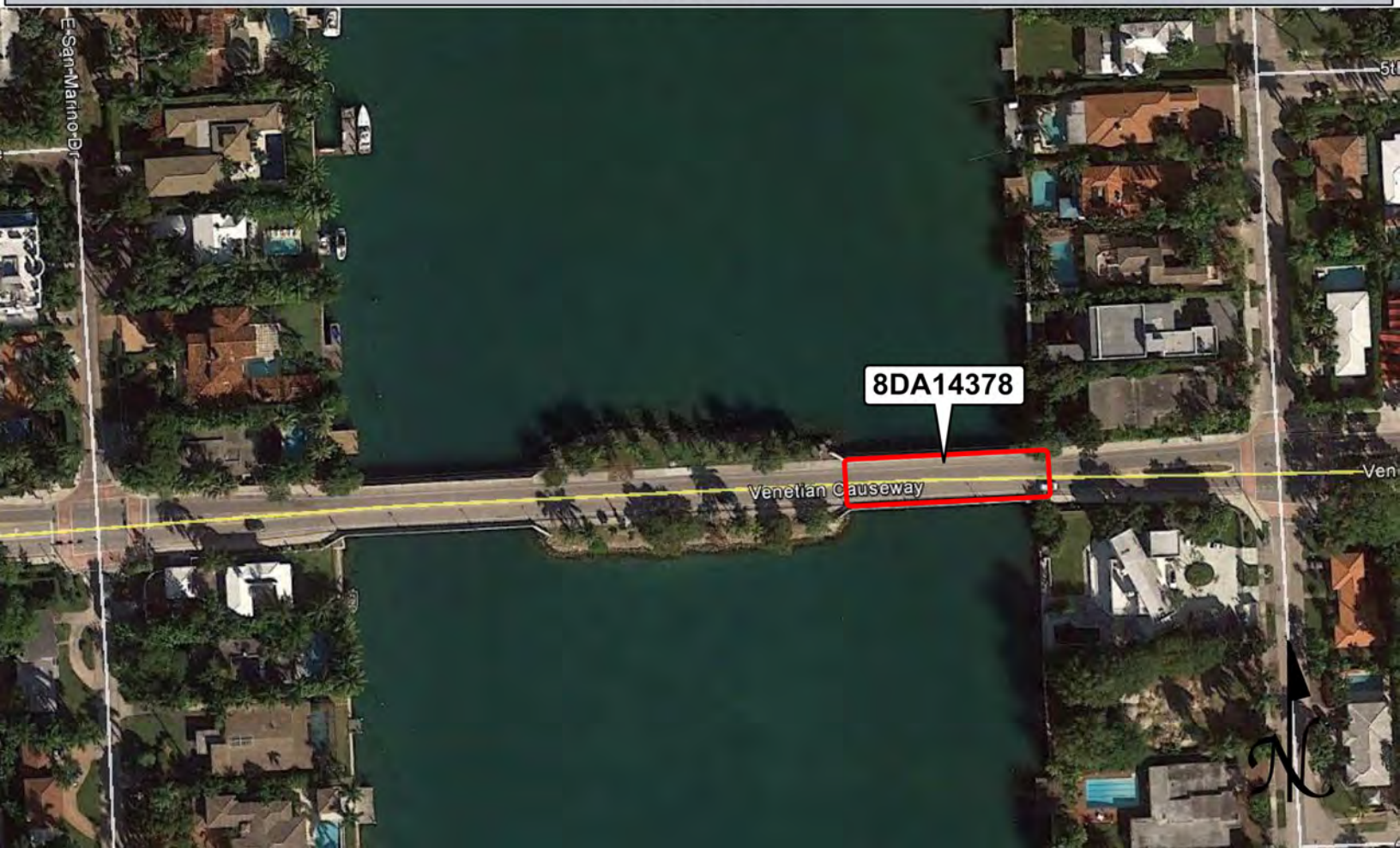
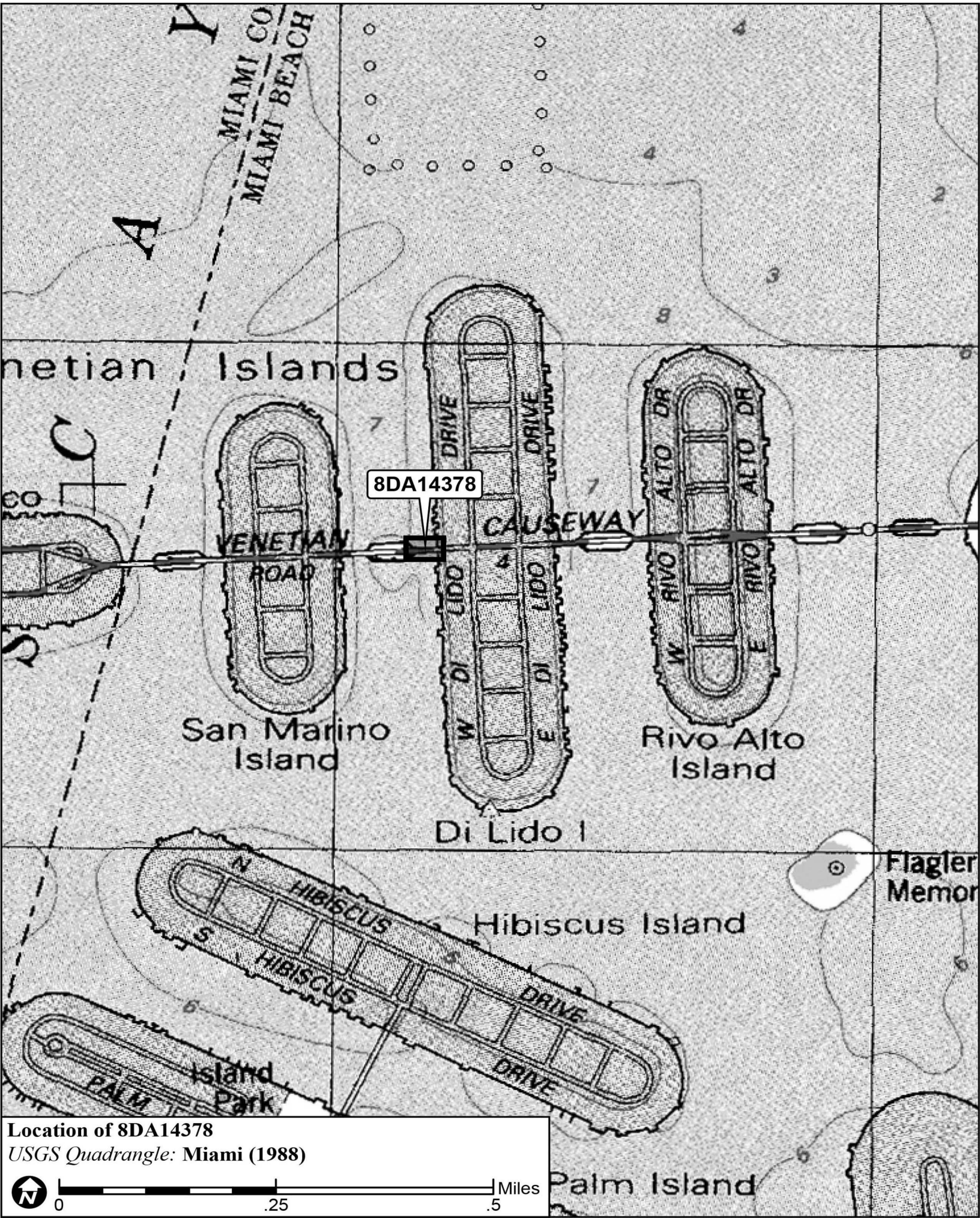
Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP



USGS QUADRANGLE MAP



Location of 8DA14378

USGS Quadrangle: **Miami (1988)**

0 .25 .5 Miles

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14379
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 17
FDOT Bridge # 874471

Bridge Name(s) Venetian Causeway Bridge 7 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami Beach **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 32 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 584445 **N**orthing 2852805
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☒yes ☐no ☐restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription n/a

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Tee Beam 2. _____
Overall Condition ☐excellent ☐good ☒fair ☐deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description n/a

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14379

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 3 Total Length(ft) 160

Main Spans: Number 1 Length(ft) 160 Width(ft) 41 Roadway width(ft) 24
Main Span Design Tee Beam
Main Span Materials 1. Concrete 2. Steel

Approach Spans: Number_____ Length(ft)_____ Width(ft)_____ Roadway width(ft)_____
Approach Span Design _____
Approach Span Materials 1._____ 2._____

Deck Materials 1. Concrete 2._____

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete pile-supported

Pier Materials 1._____ 2._____
Pier Description Pile-supported reinforced concrete w/ wing walls and riprap

RESEARCH METHODS (check all that apply)

☒ FDOT database search	☐ Fla. Archives / photo collection	☐ newspaper files	☐ informal archaeological inspection
☐ HABS/HAER record search	☐ property appraiser / tax records	☐ city directory	☐ formal archaeological survey
☒ FMSF record search (sites/surveys)	☐ library research	☐ Public Lands Survey (DEP)	☒ cultural resource survey

☐ Other methods (specify)_____

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5._____
6._____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

RECORDER INFORMATION

Recorder Name Janus Research — Affiliation Janus Research
Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 7

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 7 (8DA14379) is 160 ft. long with three fixed, tee-beam spans (Figure 1). It connects Di Lido Island to a small man-made landing to the east. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot travel lanes with 4-foot shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side.

Figure 1: Venetian Causeway Bridge 7 (8DA14379), Facing Northwest

The fixed tee-beam spans are constructed of reinforced concrete (Figure 2). Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhangs. The arched girders provide limited clearance above the mean high water.

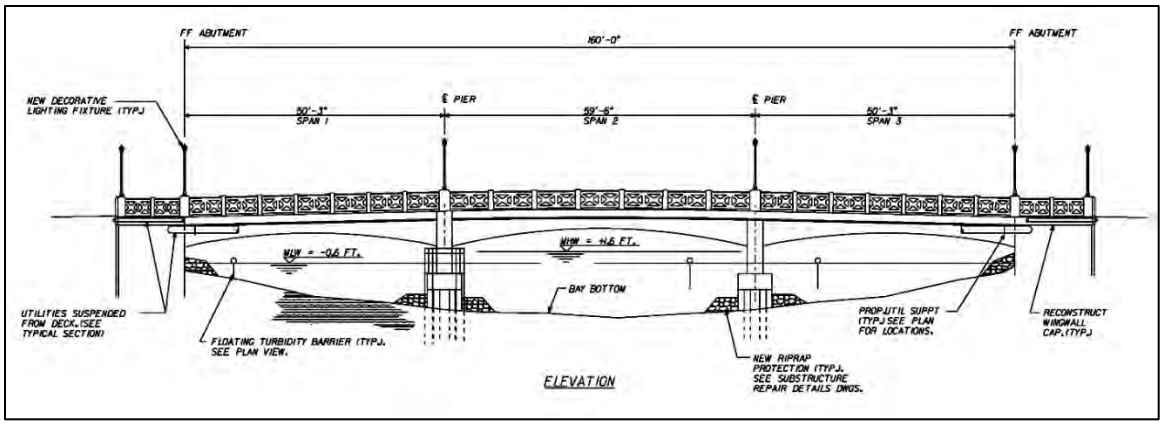


Figure 2: Venetian Causeway Bridge 7 (8DA14379), Elevation View

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 3). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The railings are 3 ft. 6 inch in height and contain 4 ft. high cast-in-place posts.

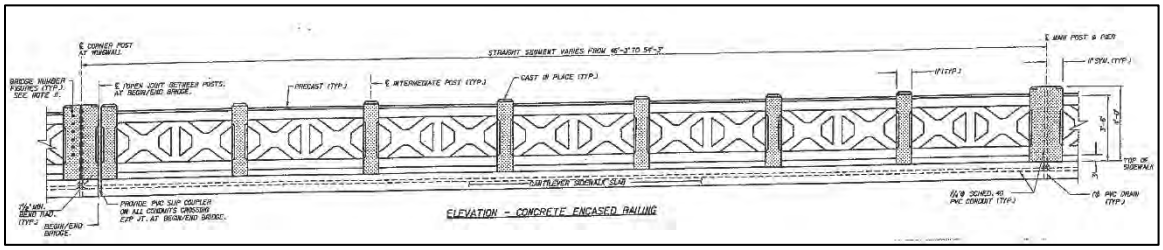


Figure3: Guardrail Decorative Details

B. ALTERATIONS

Between 1996 and 1999, the Florida Department of Transportation (FDOT) provided funding for necessary bridge repairs. The repairs consisted of major rehabilitation of the beams and decking. Historic features including railings, arched beams, and low profile were retained. Between 2009 and 2011, PWWM conducted a major rehabilitation project to repair the Causeway bridges' beams and decks. The scope of work for this project included major repairs to the support beams, including the removal of existing concrete and adding new, reinforcing concrete. Major repairs were also performed on the diaphragm, the deck underside and the support piers.

C. BIBLIOGRAPHIC REFERENCES

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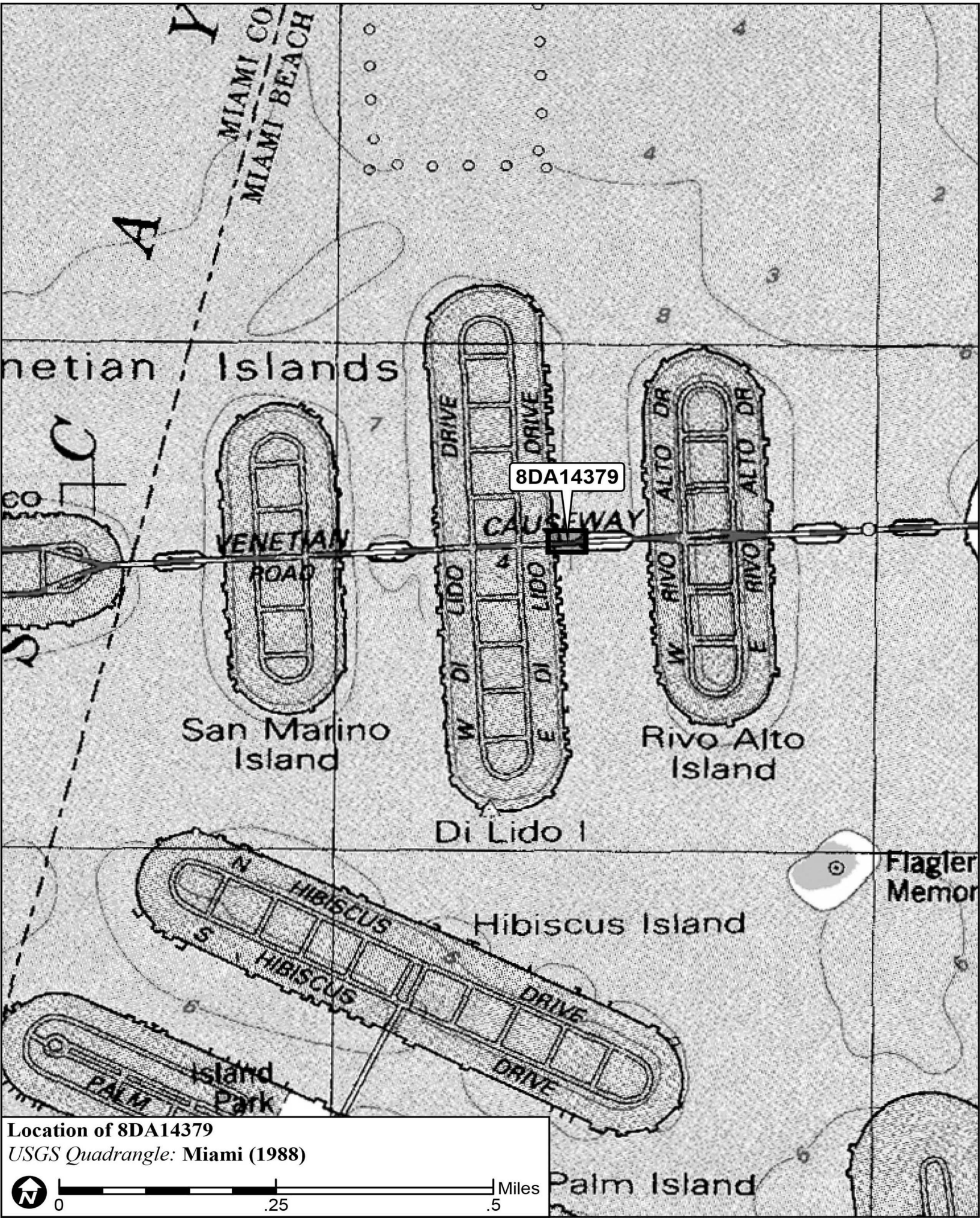
Janus Research
2008 Documentation and Determination of Effects Venetian Causeway Streetscape Improvement Project. On file, Florida Department of State, Division of Historical Resources, Tallahassee, Florida.

Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP

USGS QUADRANGLE MAP



Location of 8DA14379

USGS Quadrangle: **Miami (1988)**

0 .25 .5 Miles

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14380
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 18
FDOT Bridge # 874472

Bridge Name(s) Venetian Causeway Bridge 8 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami Beach **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 32 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 584575 **N**orthing 2852810
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☒yes ☐no ☐restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription n/a

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Tee Beam 2. _____
Overall Condition ☐excellent ☐good ☒fair ☐deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description n/a

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14380

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 3 Total Length(ft) 160

Main Spans: Number 1 Length(ft) 160 Width(ft) 41 Roadway width(ft) 24
Main Span Design Tee Beam
Main Span Materials 1. Concrete 2. Steel

Approach Spans: Number_____ Length(ft)_____ Width(ft)_____ Roadway width(ft)_____
Approach Span Design _____
Approach Span Materials 1._____ 2. _____

Deck Materials 1. Concrete 2. _____

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete pile-supported

Pier Materials 1. _____ 2. _____
Pier Description Pile-supported reinforced concrete w/ wing walls and riprap

RESEARCH METHODS (check all that apply)

☒ FDOT database search	☐ Fla. Archives / photo collection	☐ newspaper files	☐ informal archaeological inspection
☐ HABS/HAER record search	☐ property appraiser / tax records	☐ city directory	☐ formal archaeological survey
☒ FMSF record search (sites/surveys)	☐ library research	☐ Public Lands Survey (DEP)	☒ cultural resource survey

☐ Other methods (specify)_____

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5. _____
6. _____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

RECORDER INFORMATION

Recorder Name Janus Research — Affiliation Janus Research
Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 8

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 8 (8DA14380) is 160 ft. long with three fixed, tee-beam spans (Figure 1). It connects Rivo Alto Island to a small man-made landing to the west. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot travel lanes with 4-foot shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side.

Figure 1: Venetian Causeway Bridge 8 (8DA14380), Facing Northeast

The fixed tee-beam spans are constructed of reinforced concrete (Figure 2). Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhangs. The arched girders provide limited clearance above the mean high water.

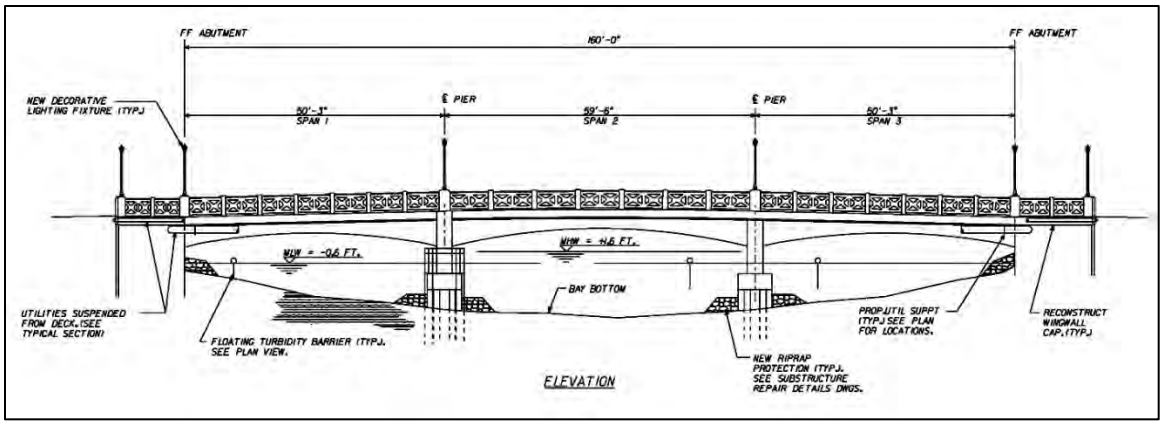


Figure 2: Venetian Causeway Bridge 8 (8DA14380), Elevation View

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 3). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The railings are 3 ft. 6 inch in height and contain 4 ft. high cast-in-place posts.

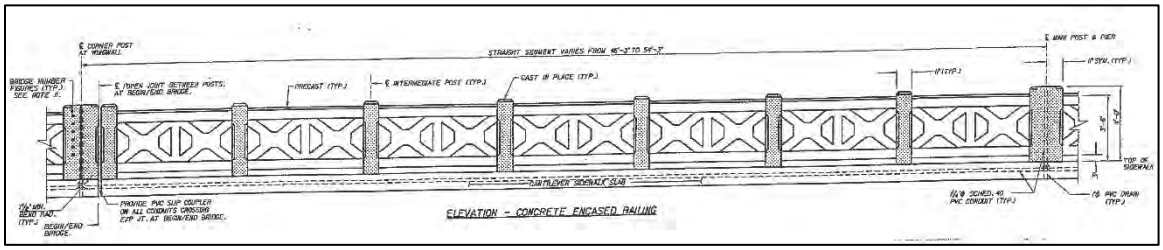


Figure 3: Guardrail Decorative Details

B. ALTERATIONS

Between 1996 and 1999, the Florida Department of Transportation (FDOT) provided funding for necessary bridge repairs. The repairs consisted of major rehabilitation of the beams and decking. Historic features including railings, arched beams, and low profile were retained. Between 2009 and 2011, PWWM conducted a major rehabilitation project to repair the Causeway bridges' beams and decks. The scope of work for this project included major repairs to the support beams, including the removal of existing concrete and adding new, reinforcing concrete. Major repairs were also performed on the diaphragm, the deck underside and the support piers.

C. BIBLIOGRAPHIC REFERENCES

City of Miami
1990 Venetian Causeway Designation Report. Online resource, http://www.historicpreservationmiami.com/pdfs/Venetian%20Causeway.PDF, accessed July 27, 2015.

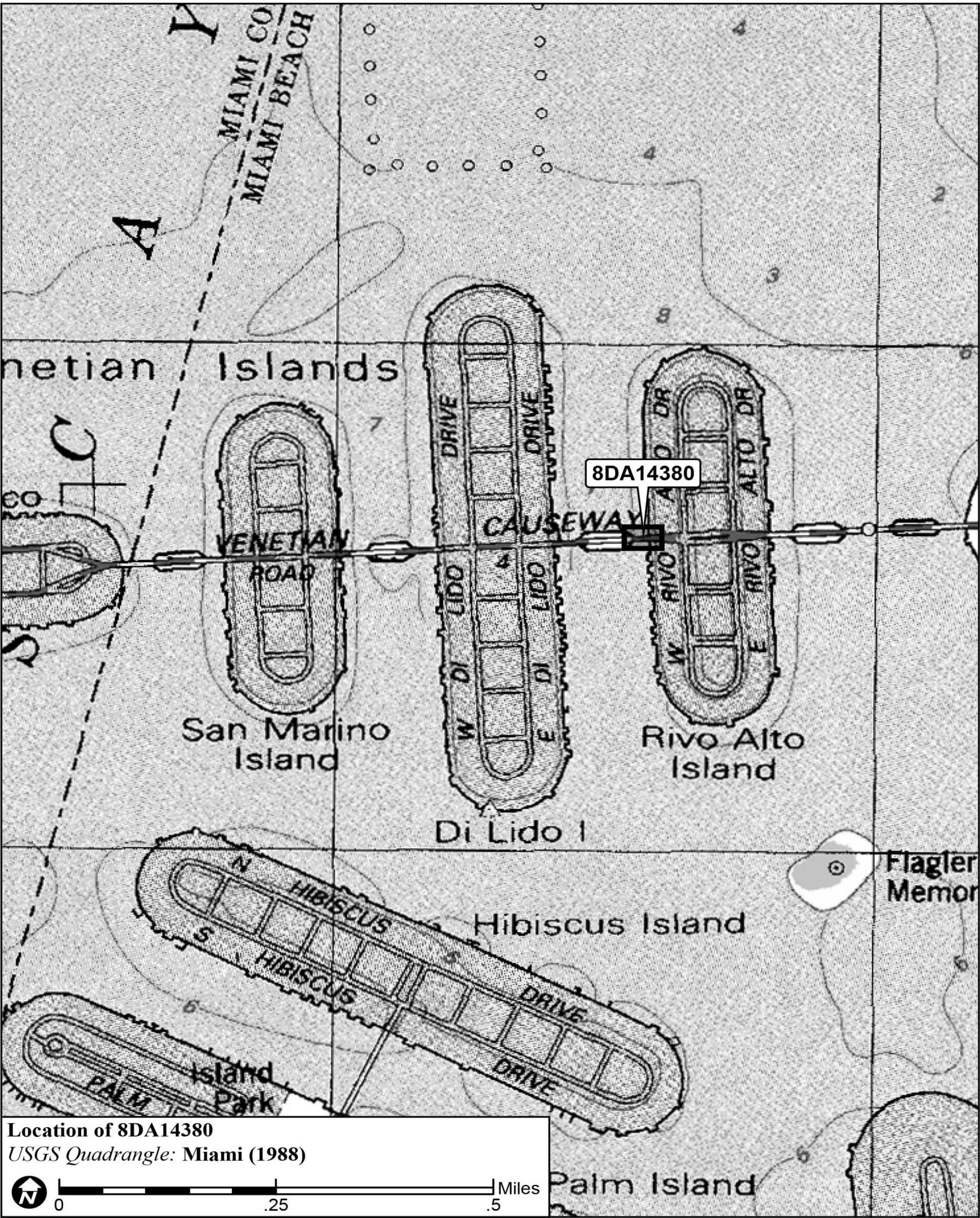
Janus Research
2008 Documentation and Determination of Effects Venetian Causeway Streetscape Improvement Project. On file, Florida Department of State, Division of Historical Resources, Tallahassee, Florida.

Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP

USGS QUADRANGLE MAP



Location of 8DA14380

USGS Quadrangle: **Miami (1988)**

0 .25 .5 Miles

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14381
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 19
FDOT Bridge # 874473

Bridge Name(s) Venetian Causeway Bridge 9 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami Beach **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 32 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 5 8 4 8 4 0 **N**orthing 2 8 5 2 8 3 0
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☒yes ☐no ☐restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription n/a

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Tee Beam 2. _____
Overall Condition ☐excellent ☐good ☒fair ☐deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description n/a

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14381

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 3 Total Length(ft) 154

Main Spans: Number 1 Length(ft) 154 Width(ft) 41 Roadway width(ft) 24
Main Span Design Tee Beam
Main Span Materials 1. Concrete 2. Steel

Approach Spans: Number_____ Length(ft)_____ Width(ft)_____ Roadway width(ft)_____
Approach Span Design _____
Approach Span Materials 1._____ 2._____

Deck Materials 1. Concrete 2._____

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete pile-supported

Pier Materials 1._____ 2._____
Pier Description Pile-supported reinforced concrete w/ wing walls and riprap

RESEARCH METHODS (check all that apply)

☒ FDOT database search	☐ Fla. Archives / photo collection	☐ newspaper files	☐ informal archaeological inspection
☐ HABS/HAER record search	☐ property appraiser / tax records	☐ city directory	☐ formal archaeological survey
☒ FMSF record search (sites/surveys)	☐ library research	☐ Public Lands Survey (DEP)	☒ cultural resource survey

☐ Other methods (specify)_____

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5._____
6._____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

RECORDER INFORMATION

Recorder Name Janus Research — Affiliation Janus Research
Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 9

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 9 (8DA14381) is 154 ft. long with three fixed, tee-beam spans (Figure 1). It connects Rivo Alto Island to a small man-made landing to the east. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot travel lanes with 4-foot shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side.

Figure 1: Venetian Causeway Bridge 9 (8DA14381), Facing Southwest

The fixed tee-beam spans are constructed of reinforced concrete (Figure 2). Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhangs. The arched girders provide limited clearance above the mean high water.

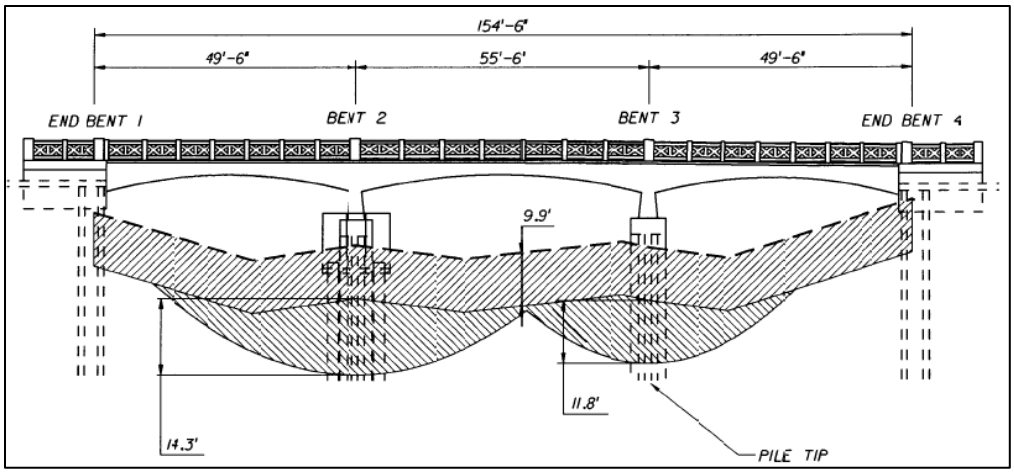


Figure 2: Venetian Causeway Bridge 9 (8DA14381), Elevation View

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 3). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The railings are 3 ft. 6 inch in height and contain 4 ft. high cast-in-place posts.

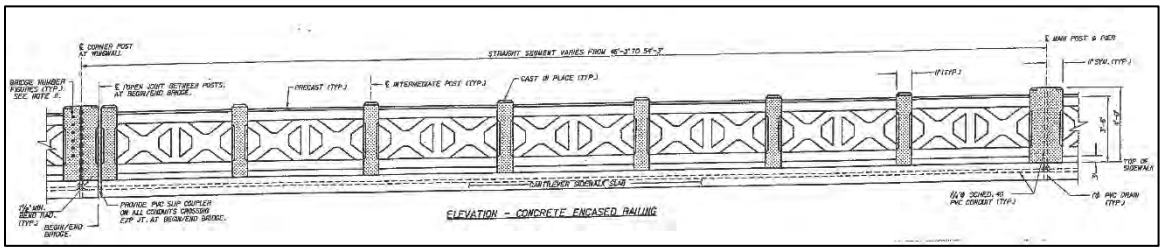


Figure 3: Guardrail Decorative Details

B. ALTERATIONS

Between 1996 and 1999, the Florida Department of Transportation (FDOT) provided funding for necessary bridge repairs. The repairs consisted of major rehabilitation of the beams and decking. Historic features including railings, arched beams, and low profile were retained. Between 2009 and 2011, PWWM conducted a major rehabilitation project to repair the Causeway bridges' beams and decks. The scope of work for this project included major repairs to the support beams, including the removal of existing concrete and adding new, reinforcing concrete. Major repairs were also performed on the diaphragm, the deck underside and the support piers.

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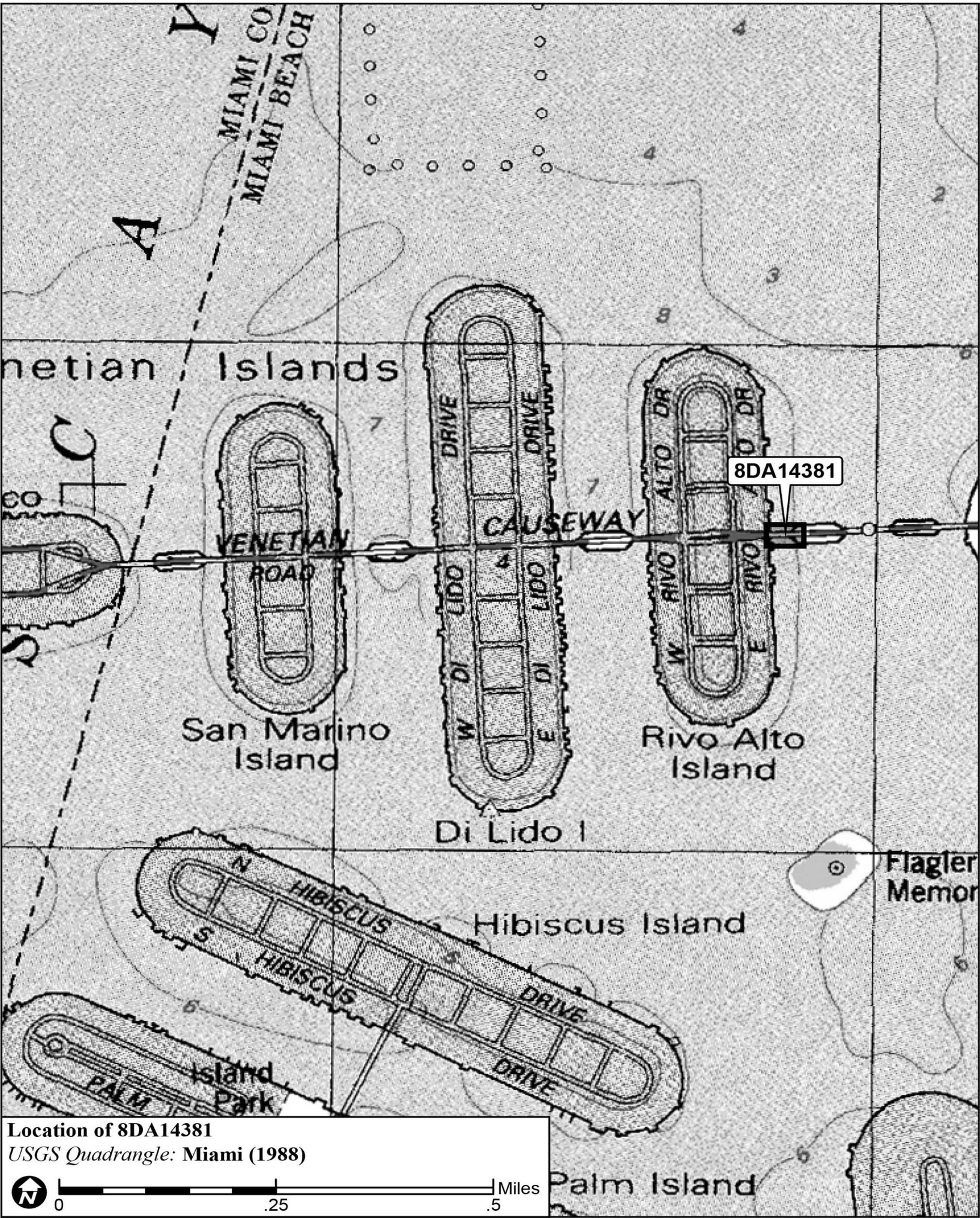
Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP

USGS QUADRANGLE MAP



Location of 8DA14381

USGS Quadrangle: **Miami (1988)**

0 .25 .5 Miles

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14382
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 20
FDOT Bridge # 874474

Bridge Name(s) Venetian Causeway Bridge 10 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 32 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 585000 **N**orthing 2852835
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☐yes ☐no ☒restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription _____

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Movable--Bascule 2. Tee Beam
Overall Condition ☐excellent ☐good ☐fair ☒deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description See continuation

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14382

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 5 Total Length(ft) 302

Main Spans: Number 1 Length(ft) 72 Width(ft) 35 Roadway width(ft) 24
Main Span Design Movable--Bascule
Main Span Materials 1. Steel 2. Concrete

Approach Spans: Number 4 Length(ft) 230 Width(ft) 35 Roadway width(ft) 24
Approach Span Design Tee Beam
Approach Span Materials 1. Concrete 2. Steel

Deck Materials 1. Concrete 2. Steel

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete abutment with wing walls and riprap

Pier Materials 1. Concrete 2. Steel
Pier Description Reinforced-concrete arched girders, square piers with riprap

RESEARCH METHODS (check all that apply)

- ☒ FDOT database search
- ☐ HABS/HAER record search
- ☒ FMSF record search (sites/surveys)
- ☐ Other methods (specify)
- ☐ Fla. Archives / photo collection
- ☐ property appraiser / tax records
- ☐ library research
- ☐ newspaper files
- ☐ city directory
- ☐ Public Lands Survey (DEP)
- ☐ informal archaeological inspection
- ☐ formal archaeological survey
- ☒ cultural resource survey

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5.
6.

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description — File or accession #'s 2014-23

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Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

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❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 10

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 10 (8DA14382) is 302 ft. long with five spans including a movable bascule span over the navigation channel and four fixed approach spans (Figure 1). It connects two small man-made landings located between Belle Isle and Rivo Alto Island. The deck carries two lanes of vehicular traffic, one in each direction, as well as one bicycle lane in each direction with an alignment in the east/west direction.

Figure 1: Venetian Causeway Bridge 10 (8DA14382), Facing East

The double-leaf bascule span measures 72 ft. across and 35 ft. wide (Figure 2). It is constructed of steel and reinforced-concrete. The decking is steel grate with concrete sections. On each side of the roadway, there are raised sidewalks, consisting of thin steel plates with skid-resistant surface that cantilever outboard the main girders. Bridge railings at the back of sidewalk consist of steel tube members that replicate the shape of the concrete bridge railings. A series of diagonal members brace the steel framework. A concrete counterweight balances the span to reduce the power and size of equipment required to operate the span.

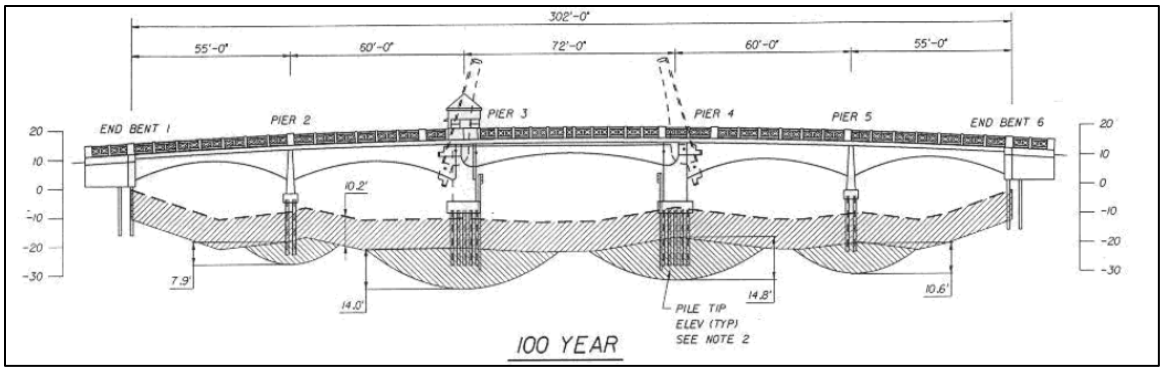


Figure 2: Venetian Causeway Bridge 10 (8DA14382), Profile of Bascule Span

The fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhangs. The bridge has a low rise and provides minimal clearance above the mean high water.

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 3). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The western terminus contains a pair of tapering octagonal concrete entrance towers topped by lights resembling miniature lighthouses. Inscribed in bas relief on the towers are the words "Short Way" on the north tower, and "Venetian Way" on the south tower. At the eastern terminus is a modern toll booth stretching the full width of the road.

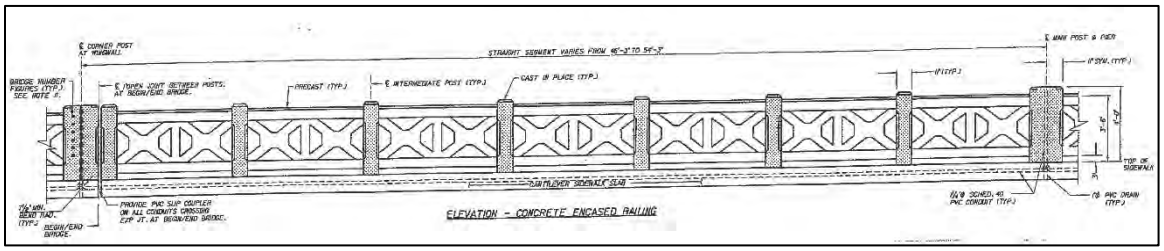


Figure 3: Guardrail Decorative Details

SITE NAME: Venetian Causeway Bridge 10

B. TENDER STATION DESCRIPTION

A 10 ft. wide by 11 ft. long, single-story control house is located on the bascule pier west of the navigation channel on the south side of the roadway. The Mediterranean Revival-style control house is supported on a pair of concrete brackets that cantilever from the outboard side of the arched exterior beams. It has concrete flooring and walls. The control house contains a hip-roof with barrel tiles, decorative arched relief above each window and door, and patterned dental roof soffit cornice.

C. ALTERATIONS

The bascule span superstructure and operating equipment were replaced during a rehabilitation project conducted in 1999. Although significant alterations and repairs have been made to the bridge, a significant portion of the original bridge remains in service including:

- Foundations,
- Approach span concrete piers, beams and deck;
- Bascule span concrete piers; and
- Control house concrete structure.

C. BIBLIOGRAPHIC REFERENCES

City of Miami
1990 Venetian Causeway Designation Report. Online resource, http://www.historicpreservationmiami.com/pdfs/Venetian%20Causeway.PDF, accessed July 27, 2015.

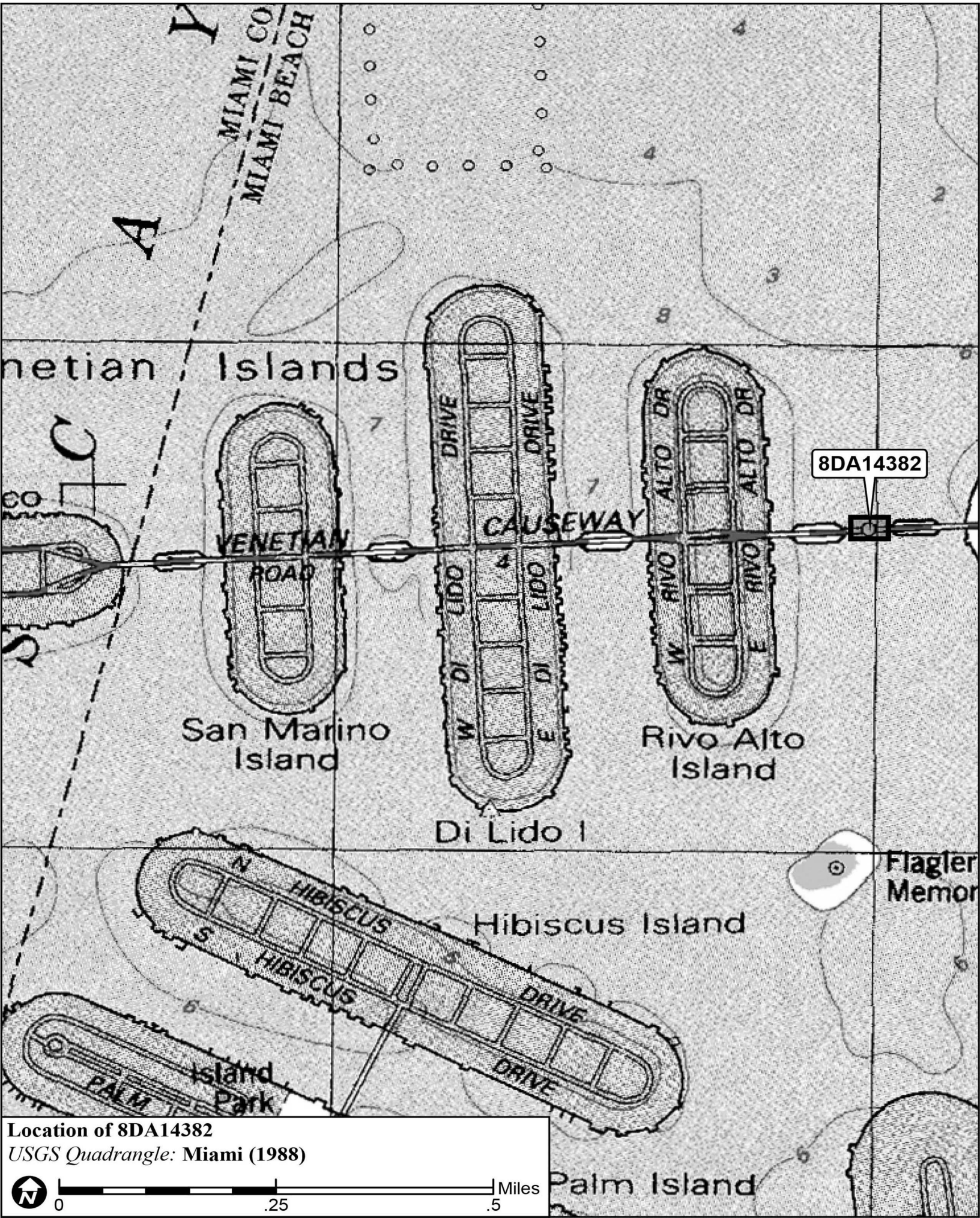
Janus Research
2008 Documentation and Determination of Effects Venetian Causeway Streetscape Improvement Project. On file, Florida Department of State, Division of Historical Resources, Tallahassee, Florida.

Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP

USGS QUADRANGLE MAP



Location of 8DA14382

USGS Quadrangle: **Miami (1988)**

N

0 .25 .5 Miles

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14383
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 21
FDOT Bridge # 874477

Bridge Name(s) Venetian Causeway Bridge 11 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami Beach **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 32 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 585155 **N**orthing 2852850
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☒yes ☐no ☐restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription n/a

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Tee Beam 2. _____
Overall Condition ☐excellent ☐good ☒fair ☐deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description n/a

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14383

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 3 Total Length(ft) 154

Main Spans: Number 1 Length(ft) 154 Width(ft) 41 Roadway width(ft) 24
Main Span Design Tee Beam
Main Span Materials 1. Concrete 2. Steel

Approach Spans: Number_____ Length(ft)_____ Width(ft)_____ Roadway width(ft)_____
Approach Span Design _____
Approach Span Materials 1._____ 2._____

Deck Materials 1. Concrete 2._____

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete pile-supported

Pier Materials 1._____ 2._____
Pier Description Pile-supported reinforced concrete w/ wing walls and riprap

RESEARCH METHODS (check all that apply)

☒ FDOT database search	☐ Fla. Archives / photo collection	☐ newspaper files	☐ informal archaeological inspection
☐ HABS/HAER record search	☐ property appraiser / tax records	☐ city directory	☐ formal archaeological survey
☒ FMSF record search (sites/surveys)	☐ library research	☐ Public Lands Survey (DEP)	☒ cultural resource survey

☐ Other methods (specify)_____

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5._____
6._____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

RECORDER INFORMATION

Recorder Name Janus Research — Affiliation Janus Research
Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable).
Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 11

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 11 (8DA14383) is 154 ft. long with three fixed, tee-beam spans (Figure 1). It connects Belle Isle to a small man-made landing to the west. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foor travel lanes with 4-foot shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side.

Figure 1: Venetian Causeway Bridge 11 (8DA14383), Facing Southeast

The fixed tee-beam spans are constructed of reinforced concrete (Figure 2). Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhang. The arched girders provide limited clearance above the mean high water.

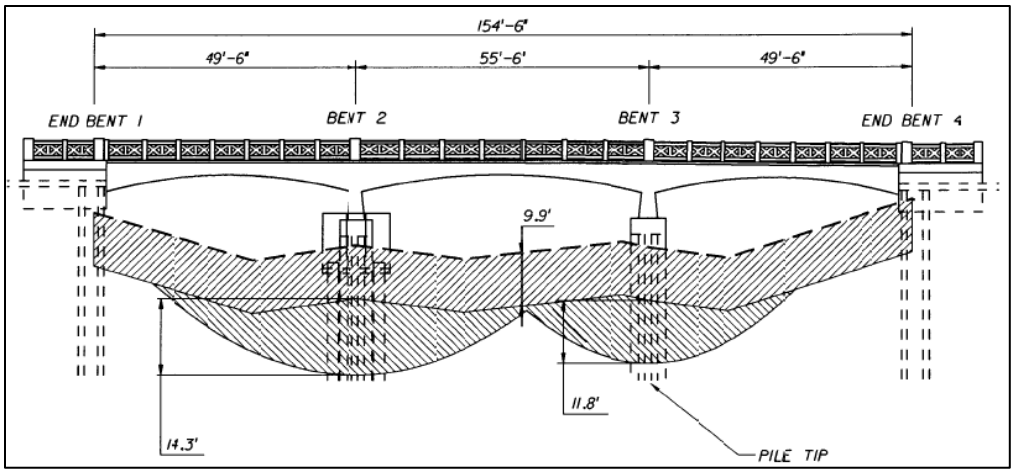


Figure 2: Venetian Causeway Bridge 11 (8DA14383), Elevation View

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 3). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The railings are 3 ft. 6 inch in height and contain 4 ft. high cast-in-place posts.

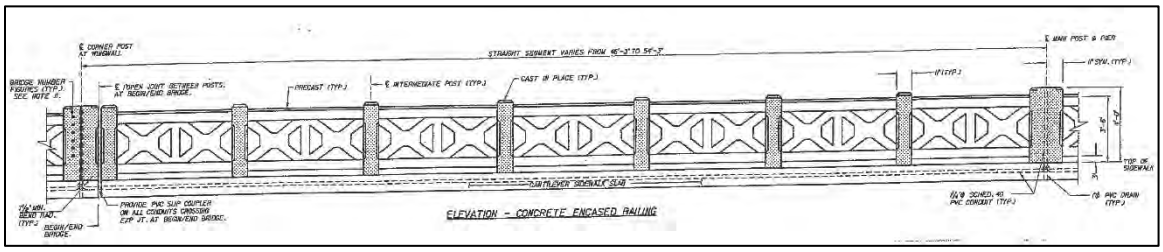


Figure 3: Guardrail Decorative Details

B. ALTERATIONS

Between 1996 and 1999, the Florida Department of Transportation (FDOT) provided funding for necessary bridge repairs. The repairs consisted of major rehabilitation of the beams and decking. Historic features including railings, arched beams, and low profile were retained. Between 2009 and 2011, PWWM conducted a major rehabilitation project to repair the Causeway bridges' beams and decks. The scope of work for this project included major repairs to the support beams, including the removal of existing concrete and adding new, reinforcing concrete. Major repairs were also performed on the diaphragm, the deck underside and the support piers.

C. BIBLIOGRAPHIC REFERENCES

City of Miami
1990 Venetian Causeway Designation Report. Online resource, http://www.historicpreservationmiami.com/pdfs/Venetian%20Causeway.PDF, accessed July 27, 2015.

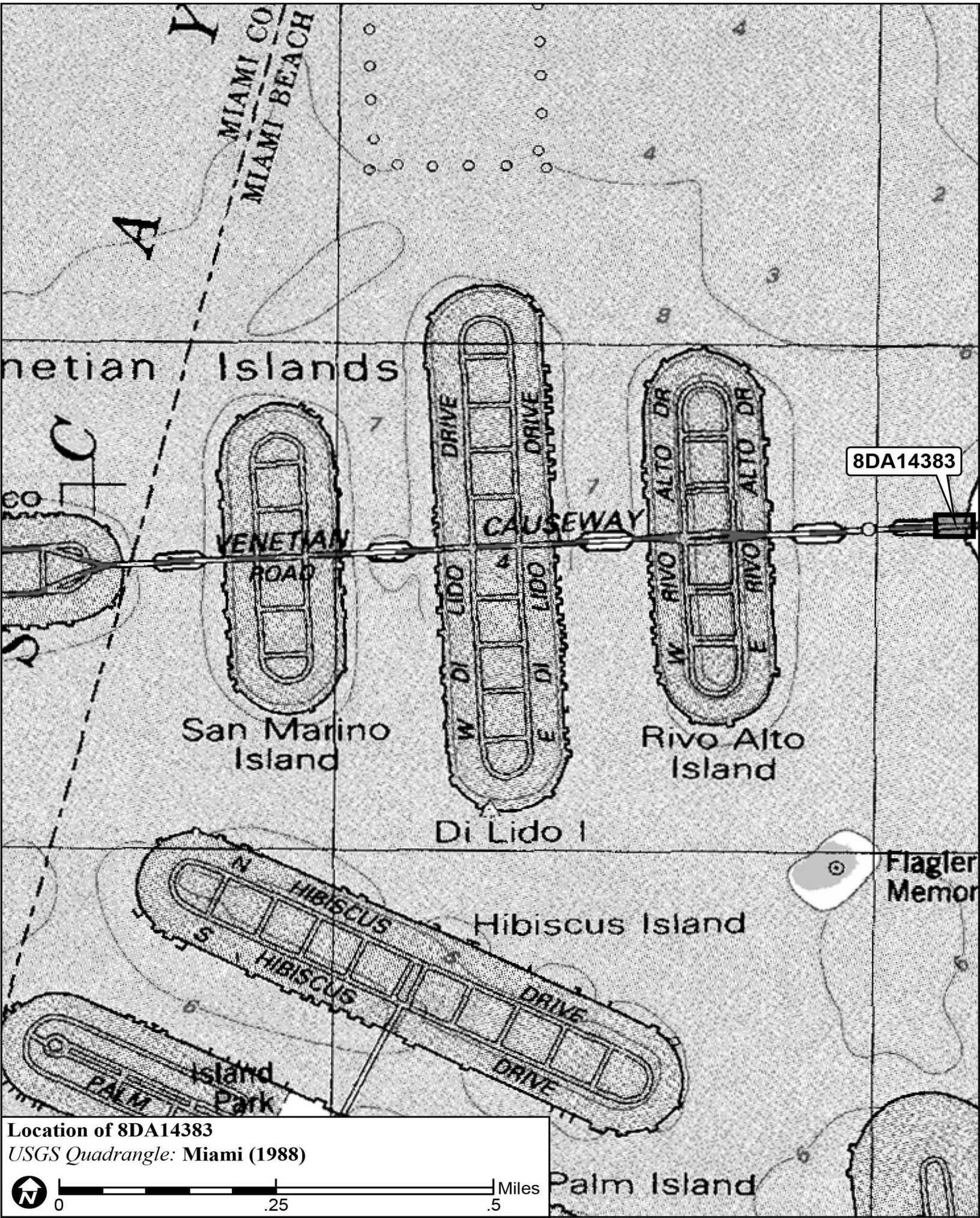
Janus Research
2008 Documentation and Determination of Effects Venetian Causeway Streetscape Improvement Project. On file, Florida Department of State, Division of Historical Resources, Tallahassee, Florida.

Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP

USGS QUADRANGLE MAP



Location of 8DA14383

USGS Quadrangle: **Miami (1988)**

0 .25 .5 Miles

☒Original
☐Update

HISTORICAL BRIDGE FORM
FLORIDA MASTER SITE FILE
Version 4.0 1/07

Consult *Guide to the Historical Bridge Form* for detailed instructions

Site #8 DA14384
Field Date 7-15-2015
Form Date 7-27-2015
Recorder # 22
FDOT Bridge # 874481

Bridge Name(s) Venetian Causeway Bridge 12 **M**ultiple Listing (DHR only) _____
Project Name CRAS Venetian Causeway N Bayshore Dr to Purdy Av **S**urvey # (DHR only) _____
Ownership: ☐private-profit ☐private-nonprofit ☐private-individual ☐private-nonspecific ☐city ☒county ☐state ☐federal ☐Native American ☐foreign ☐unknown

LOCATION & MAPPING

Route(s) Carried/**F**eature(s) Crossed Venetian Way
USGS 7.5 Map Name MIAMI **U**SGS Date 1994 **P**lat or Other Map _____
City/Town (within 3 miles) Miami Beach **I**n City Limits? ☒yes ☐no ☐unknown **C**ounty Dade
Township 53S **R**ange 42E **S**ection 33 ¼ section: ☐NW ☐SW ☐SE ☐NE Irregular-name: _____
Township _____ **R**ange _____ **S**ection _____ ¼ section: ☐NW ☐SW ☐SE ☐NE
Landgrant _____ **T**ax Parcel # _____
UTM Coordinates: **Z**one ☐16 ☒17 **E**asting 585640 **N**orthing 2852880
Other Coordinates: X: _____ Y: _____ **C**oordinate System & Datum _____
Name of Public Tract (e.g., park) _____

HISTORY

Year Built 1926 ☒approximately ☐year listed or earlier ☐year listed or later
Still in use? ☒yes ☐no ☐restricted use (describe) _____
Prior Fords, Ferries, or Bridges at this Location Collins Bridge

Bridge Use: original and current with dates (standard descriptions: auto, railway, pedestrian, fishing pier, abandoned) Auto, pedestrian

Ownership history Miami-Dade County

Designers/Engineers Harvey Stanley
Builders/Contractors Raymond Concrete Pile Co. of New York
Text of Plaque or Inscription n/a

Narrative History (How did bridge come to be built? How was it financed?, etc.) See Venetian Islands Resource Group (8DA14395)

DESCRIPTION

GENERAL

Overall Bridge Design 1. Tee Beam 2. _____
Overall Condition ☐excellent ☐good ☒fair ☐deteriorated ☐ruinous
Style and Decorative Details See continuation

Tender Station Description n/a

Alterations: Dates and Descriptions See continuation

DHR USE ONLY	OFFICIAL EVALUATION	DHR USE ONLY
NR List Date _____ ☐Owner Objection	SHPO – Appears to meet criteria for NR listing: ☐yes ☐no ☐insufficient info Date _____ Init._____ KEEPER – Determined eligible: ☐yes ☐no Date _____ NR Criteria for Evaluation: ☐a ☐b ☐c ☐d (see *National Register Bulletin 15*, p. 2)	

HISTORICAL BRIDGE FORM

Site #8 DA14384

DESCRIPTION (continued)

SUPERSTRUCTURE

Spans: Number 9 Total Length(ft) 460

Main Spans: Number 9 Length(ft) 460 Width(ft) 41 Roadway width(ft) 24
Main Span Design Tee Beam
Main Span Materials 1. Concrete 2. Steel

Approach Spans: Number_____ Length(ft)_____ Width(ft)_____ Roadway width(ft)_____
Approach Span Design _____
Approach Span Materials 1._____ 2._____

Deck Materials 1. Concrete 2._____

SUBSTRUCTURE

Abutment Materials 1. Concrete 2. Steel
Abutment Description Reinforced-concrete pile-supported

Pier Materials 1._____ 2._____
Pier Description Pile-supported reinforced concrete w/ wing walls and riprap

RESEARCH METHODS (check all that apply)

☒ FDOT database search	☐ Fla. Archives / photo collection	☐ newspaper files	☐ informal archaeological inspection
☐ HABS/HAER record search	☐ property appraiser / tax records	☐ city directory	☐ formal archaeological survey
☒ FMSF record search (sites/surveys)	☐ library research	☐ Public Lands Survey (DEP)	☒ cultural resource survey

☐ Other methods (specify)_____

Bibliographic References (give FMSF manuscript # if relevant, use separate sheet if needed) See continuation

OPINION OF RESOURCE SIGNIFICANCE

Potentially eligible individually for National Register of Historic Places? ☐ yes ☒ no ☐ insufficient information
Potentially eligible as contributor to a National Register district? ☒ yes ☐ no ☐ insufficient information
Explanation of Evaluation (**required,** use separate sheet if needed) This bridge is considered ineligible for listing in the National Register on an individual basis. However, it is considered a contributing element to the National Register-eligible Venetian Islands Resource Group (8DA14395).

Area(s) of historical significance (See *National Register Bulletin 15*, p. 8 for categories: e.g. "architecture", "ethnic heritage", "community planning & development", etc.)

1. Community planning & development
2. Transportation
3. Architecture
4. Engineering
5._____
6._____

DOCUMENTATION

Accessible Documentation Not Filed with the Site File - including field & analysis notes, photos, plans, other important documents

1) Document type Field notes — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

2) Document type Field maps — Maintaining organization Janus Research
Document description _____ — File or accession #'s 2014-23

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Recorder Contact Information 1107 N. Ward St., Tampa FL 33607 / (813) 636-8200 / janus@janus-research.com
(address / phone / fax / e-mail)

Required Attachments

❶ **USGS 7.5' TOPO MAP WITH BRIDGE LOCATION MARKED**

❷ **PHOTO OF BRIDGE, ARCHIVAL B&W PRINT OR DIGITAL IMAGE FILE**
If submitting an image file, it must be included on disk or CD AND in hard copy format (plain paper is acceptable). Digital image must be at least 1600 x 1200 pixels, 24-bit color, jpeg or tiff.

SITE NAME: Venetian Causeway Bridge 12

A. STYLE AND DECORATIVE DETAILS

The Venetian Causeway Bridge 12 (8DA14384) is 460 ft. long with nine fixed, tee-beam spans (Figure 1). It connects Belle Isle to Miami Beach (Dade Boulevard). The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot travel lanes with 4-foot shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side.

Figure 1: Venetian Causeway Bridge 12 (8DA14384), Facing Northwest

The fixed tee-beam spans are constructed of reinforced concrete (Figure 2). Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 ft. 6 in. on center with 3 ft. 11 in. overhang. The arched girders provide limited clearance above the mean high water.

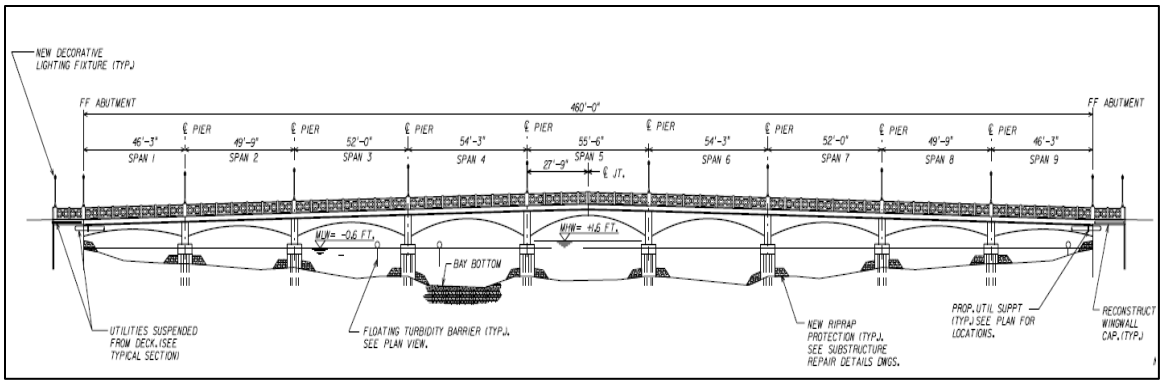

Figure 2: Venetian Causeway Bridge 12 (8DA14384), Elevation View

The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 3). This simple design forms a bold pattern while allowing a view of the bay from all bridges. The railings are 3 ft. 6 inch in height and contain 4 ft. high cast-in-place posts.

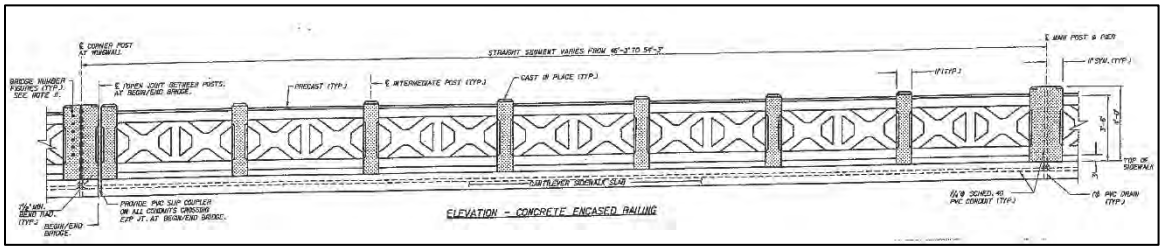

Figure 3: Guardrail Decorative Details

B. ALTERATIONS

Between 1996 and 1999, the Florida Department of Transportation (FDOT) provided funding for necessary bridge repairs. The repairs consisted of major rehabilitation of the beams and decking. Historic features including railings, arched beams, and low profile were retained. Between 2009 and 2011, PWWM conducted a major rehabilitation project to repair the Causeway bridges' beams and decks. The scope of work for this project included major repairs to the support beams, including the removal of existing concrete and adding new, reinforcing concrete. Major repairs were also performed on the diaphragm, the deck underside and the support piers.

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SITE NAME: Venetian Causeway Bridge 12

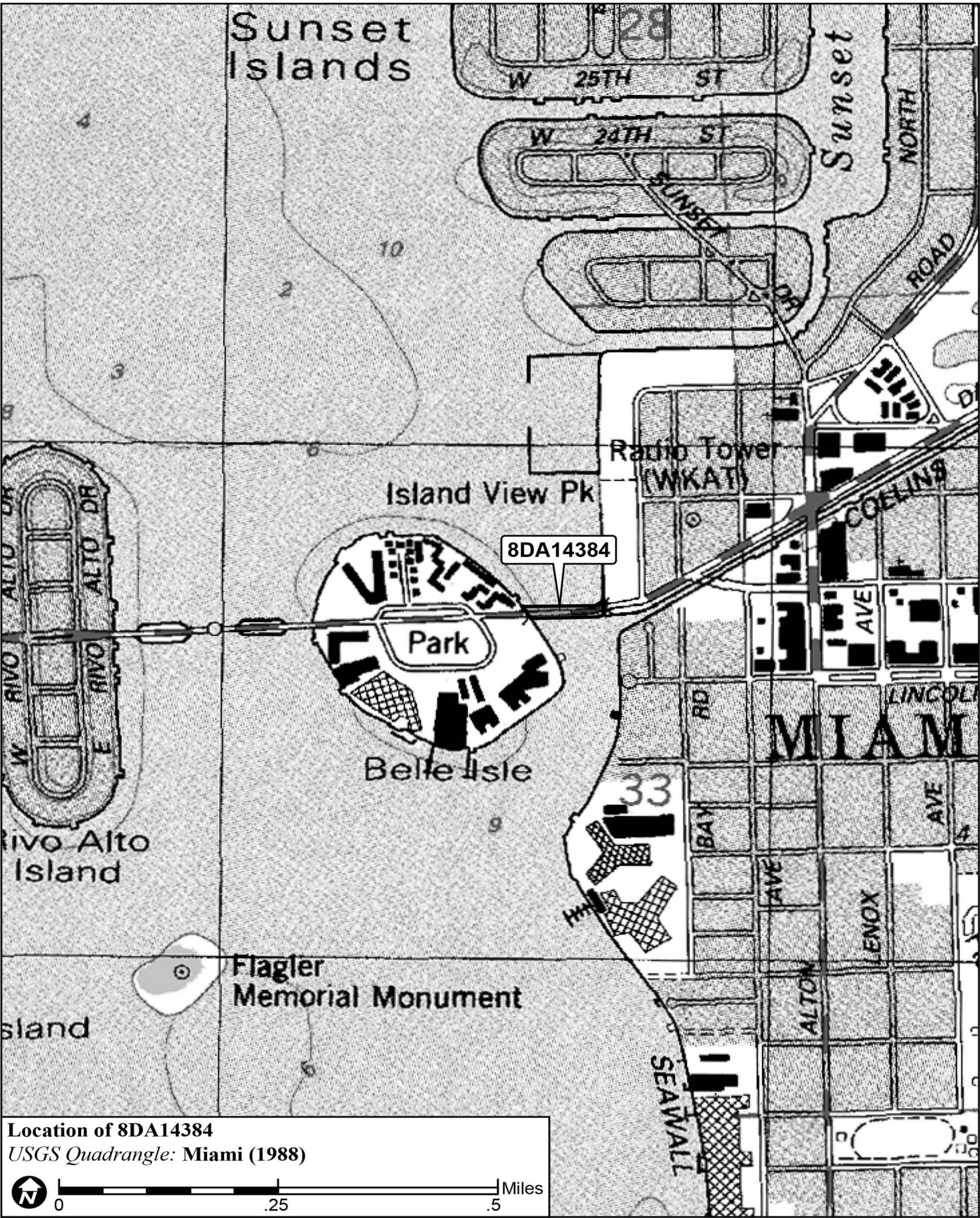
Janus Research
2008 Documentation and Determination of Effects Venetian Causeway Streetscape Improvement Project. On file, Florida Department of State, Division of Historical Resources, Tallahassee, Florida.

Welcher, Vicki
1989 National Register of Historic Places, Venetian Causeway, Miami-Dade County, Florida, National Register # 89000852. Copies available from the Florida Department of State, Division of Historic Resources, Tallahassee, Florida.

PHOTOGRAPH

SKETCH MAP

USGS QUADRANGLE MAP



Location of 8DA14384

USGS Quadrangle: **Miami (1988)**

0 .25 .5 Miles

SECTION 4.0 DETAILED SECTION 4(F) MAPS

The Venetian Causeway is composed of a roadway of eleven islands and a series of twelve bridges. The causeway begins with West Bascule Bridge 1: 874459, and continues with Fixed Bridge 2: 874460, Fixed Bridge 3: 874461, Fixed Bridge 4: 874463, Fixed Bridge 5: 874465, Fixed Bridge 6: 874466, Fixed Bridge 7: 874471, Fixed Bridge 8: 874472, Fixed Bridge 9: 874473, East Bascule Bridge 10: 874474, Fixed Bridge 11: 874477, and ends with Fixed Bridge 12: 874481.

See detailed Section 4(f) maps attached.

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

EAC CONSULTING, INC. CA#7011
5959 Blue Lagoon Drive, Suite 410
Miami, Fl. 33126
305-265-5400
STEPHANIE ROMERO, P.E.
P.E. LIC. 77593
www.eacconsult.com

DRAWN BY:	CHECKED BY:	DESIGNED BY:	CHECKED BY:
EP	AH	SR	RC

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

SHEET TITLE: PROJECT LAYOUT

REF. DWG. NO.:

PROJECT NAME: VENETIAN CAUSEWAY BRIDGES PD&E STUDY

SHEET NO.: 1

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REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

DANIEL GREENBERG, P.E.
P.E. LICENSE NUMBER 76105
EAC CONSULTING, INC.
5959 BLUE LAGOON DR, SUITE 410
MIAMI, FL 33126
CERTIFICATE OF AUTHORIZATION 7011

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 1 VENETIAN CAUSEWAY PD&E STUDY

SHEET NO. 2

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EAC CONSULTING, INC.
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MIAMI, FL 33126
CERTIFICATE OF AUTHORIZATION 7011

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 1 VENETIAN CAUSEWAY PD&E STUDY

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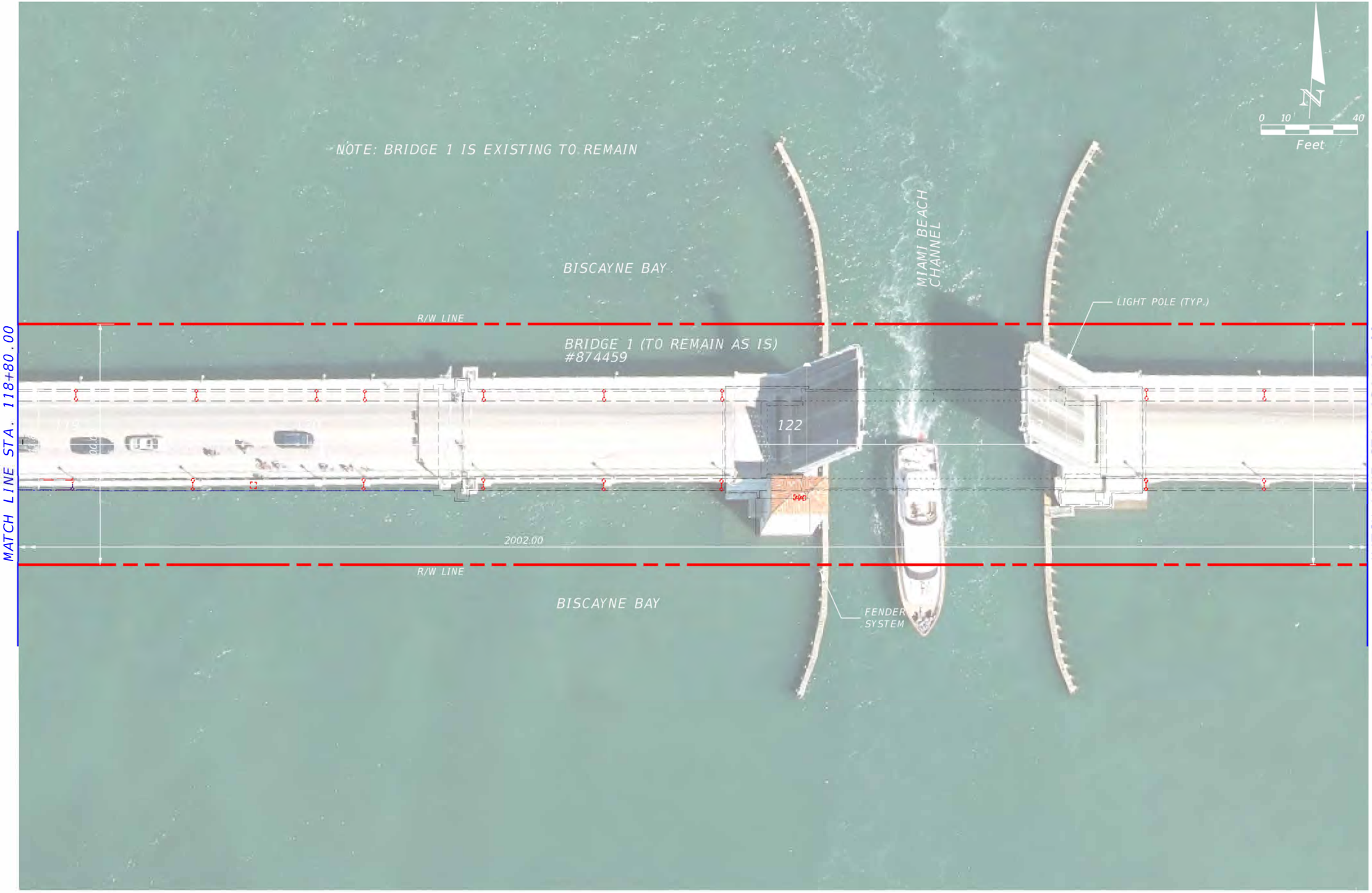

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 1 VENETIAN CAUSEWAY PD&E STUDY

SHEET NO. 5

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MIAMI, FL 33126
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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 1 VENETIAN CAUSEWAY PD&E STUDY

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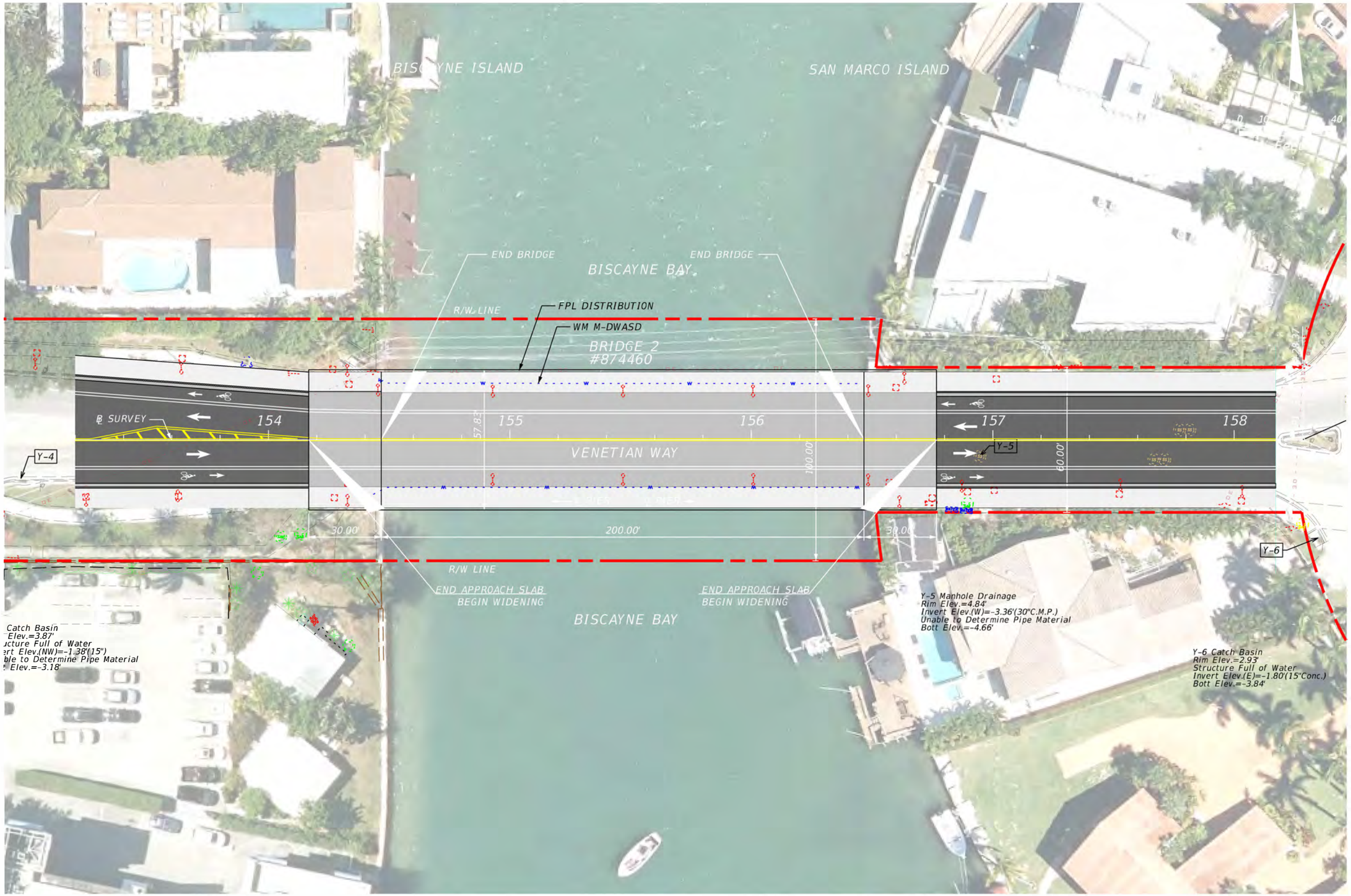

REVISIONS			
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DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 2 VENETIAN CAUSEWAY PD&E STUDY

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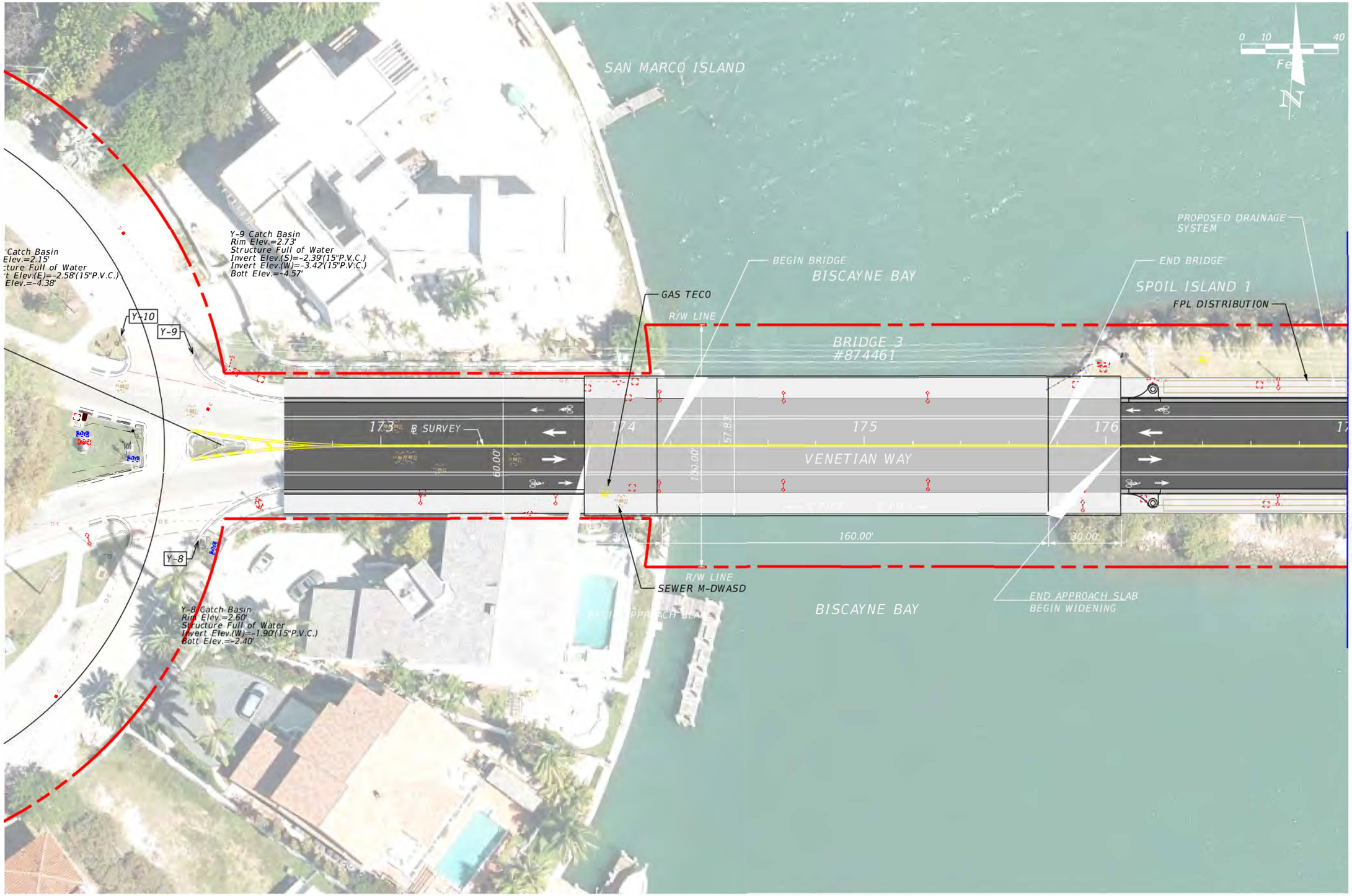

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DATE	DESCRIPTION	DATE	DESCRIPTION

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5959 BLUE LAGOON DR, SUITE 410
MIAMI, FL 33126
CERTIFICATE OF AUTHORIZATION 7011

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 3 VENETIAN CAUSEWAY PD&E STUDY

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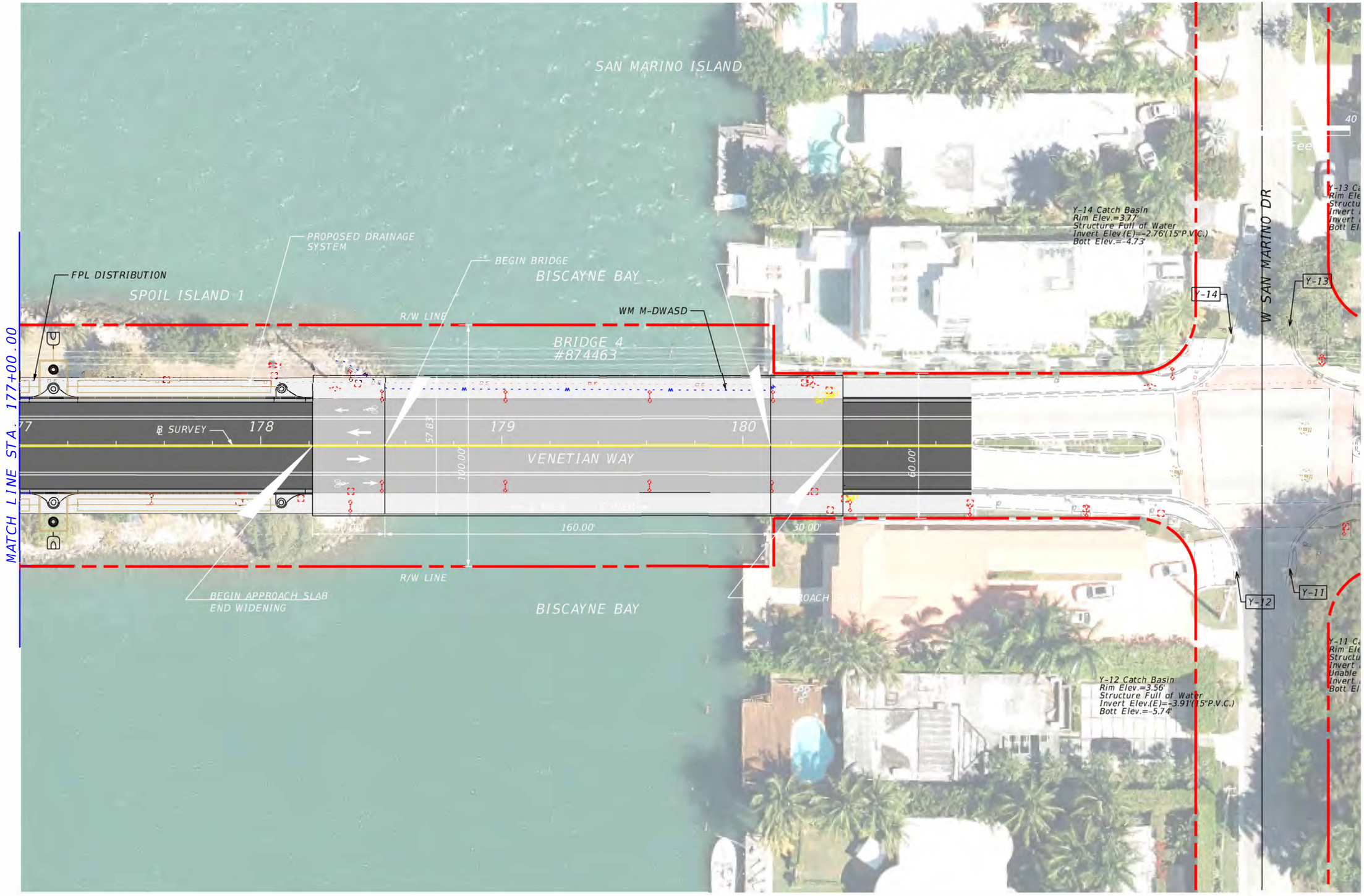

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

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P.E. LICENSE NUMBER 76105
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CERTIFICATE OF AUTHORIZATION 7011

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 4 VENETIAN CAUSEWAY PD&E STUDY

SHEET NO. 8

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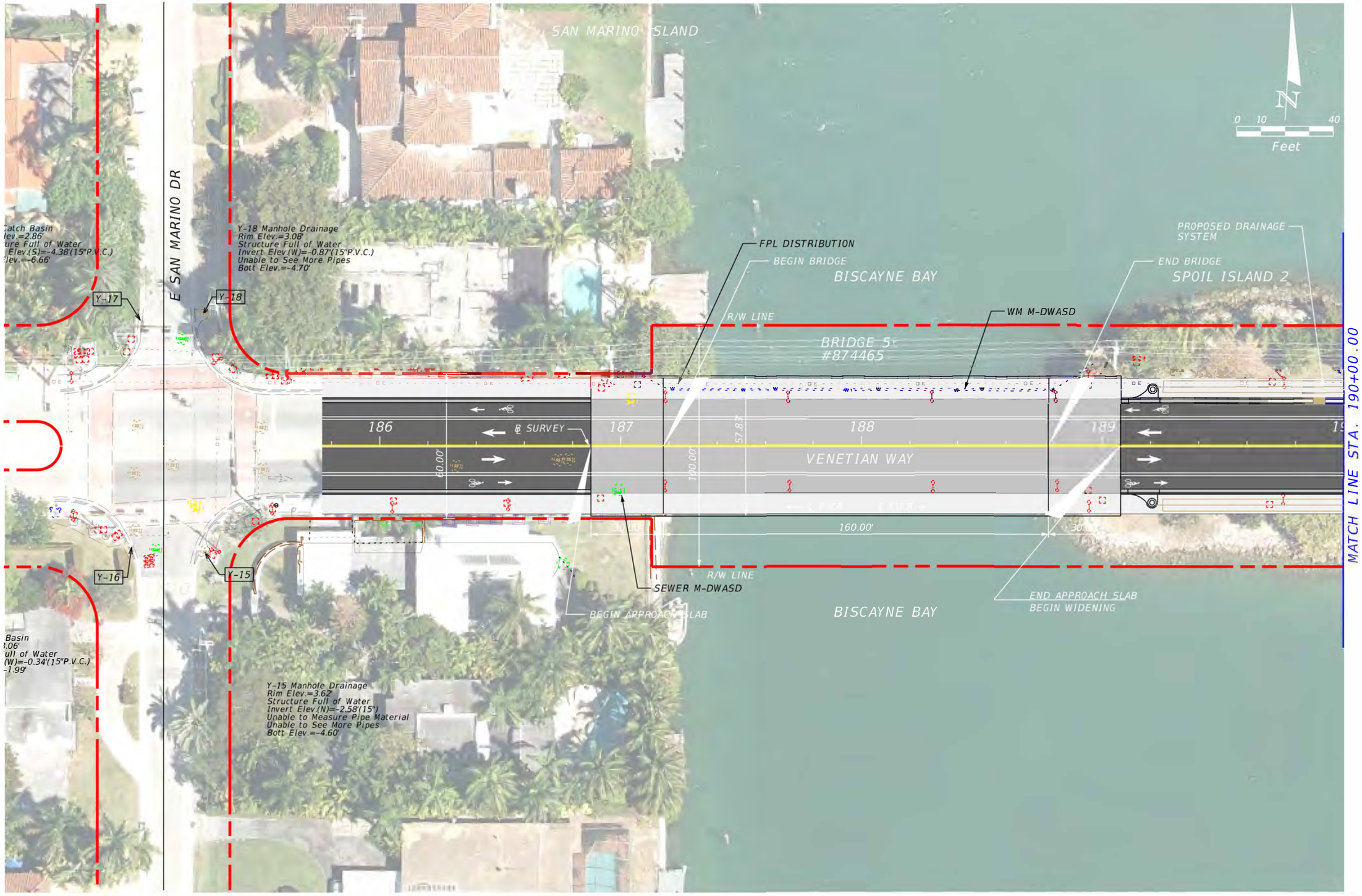

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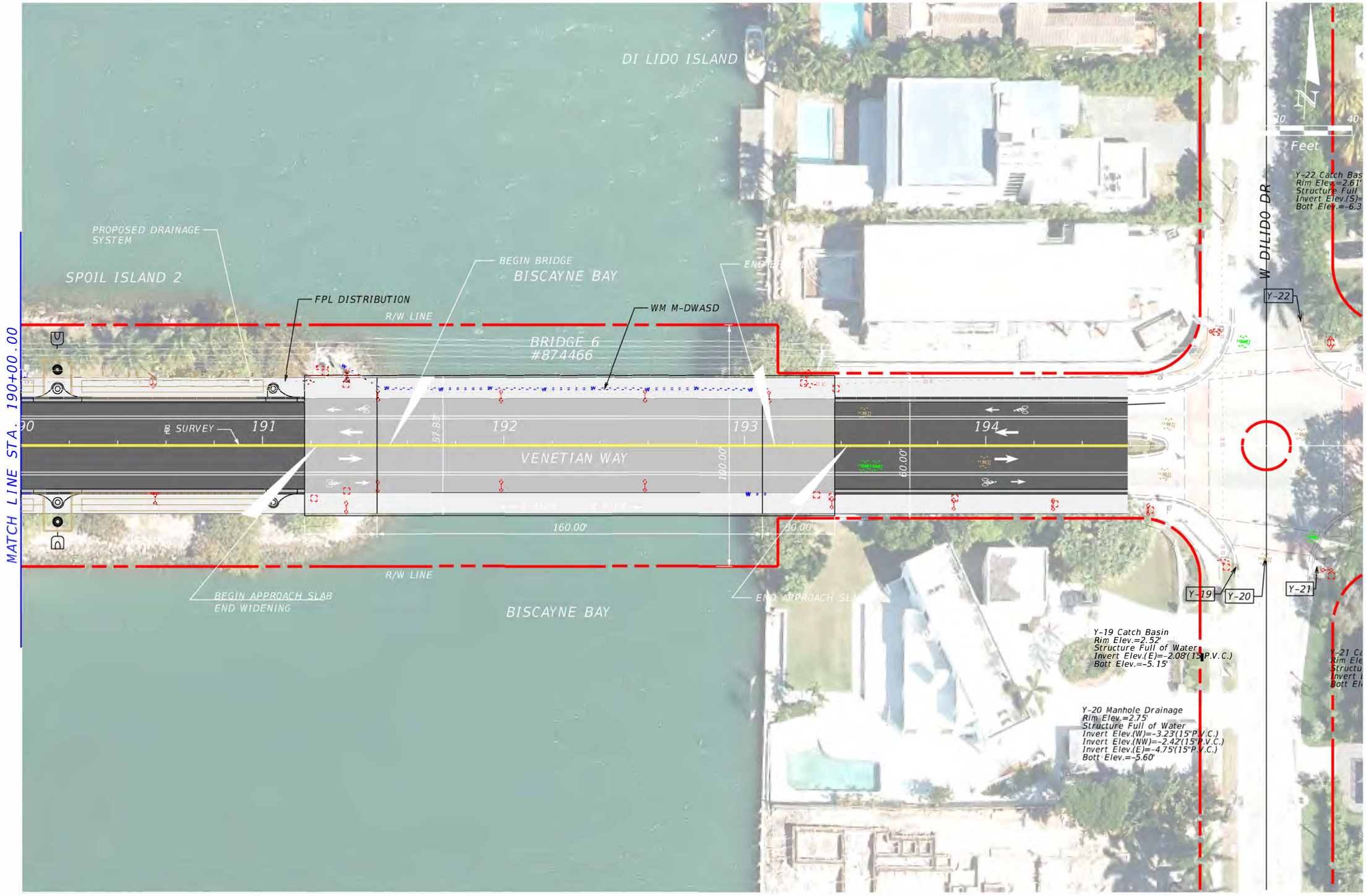
CERTIFICATE OF AUTHORIZATION 7011

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 5 VENETIAN CAUSEWAY PD&E STUDY

SHEET NO. 9



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

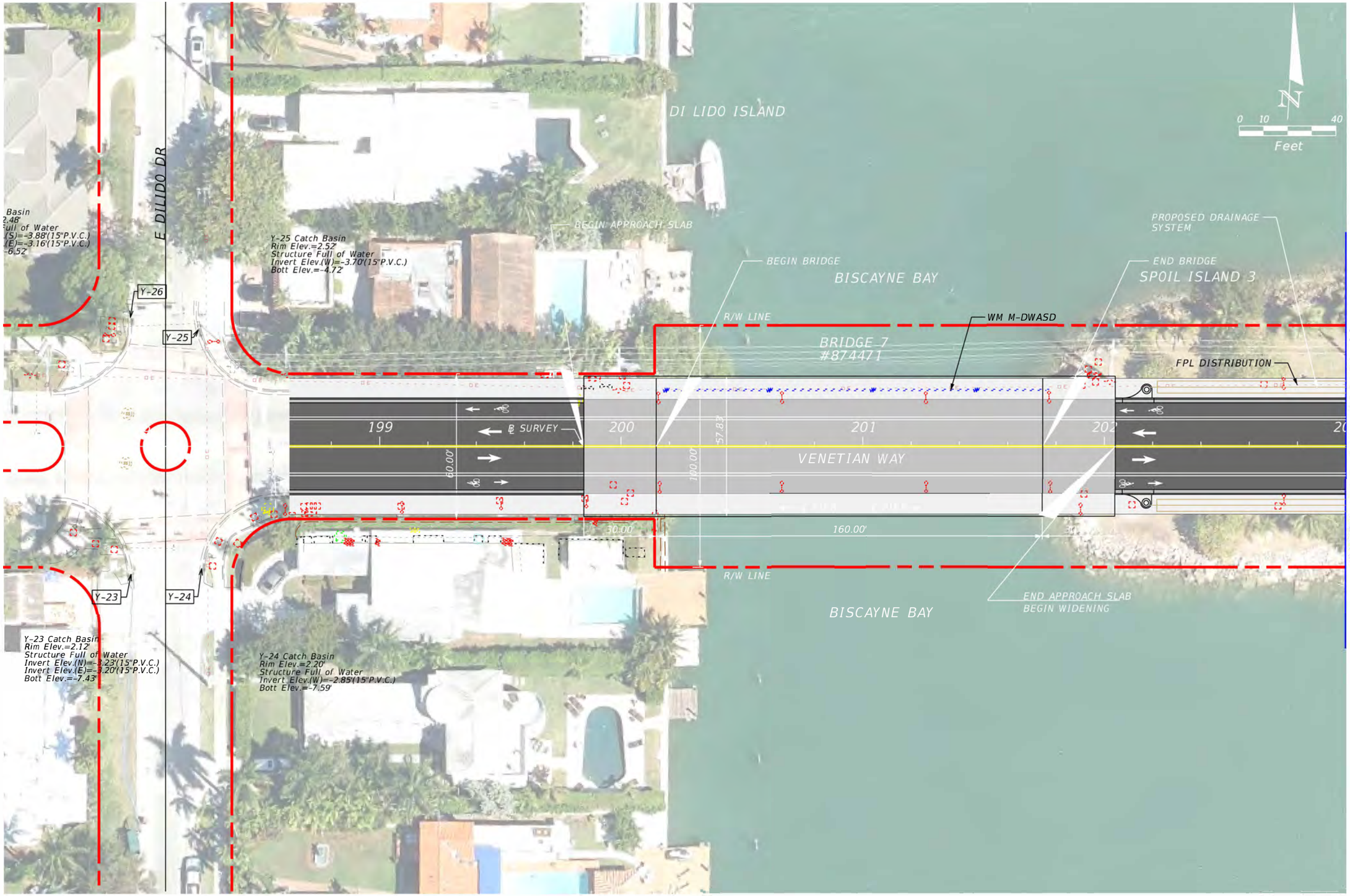
DANIEL GREENBERG, P.E.
P.E. LICENSE NUMBER 76105
EAC CONSULTING, INC.
5959 BLUE LAGOON DR, SUITE 410
MIAMI, FL 33126
CERTIFICATE OF AUTHORIZATION 7011

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 6 VENETIAN CAUSEWAY PD&E STUDY

SHEET NO. 10



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DEPARTMENT OF TRANSPORTATION

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VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 7 VENETIAN CAUSEWAY PD&E STUDY

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ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 8 VENETIAN CAUSEWAY PD&E STUDY

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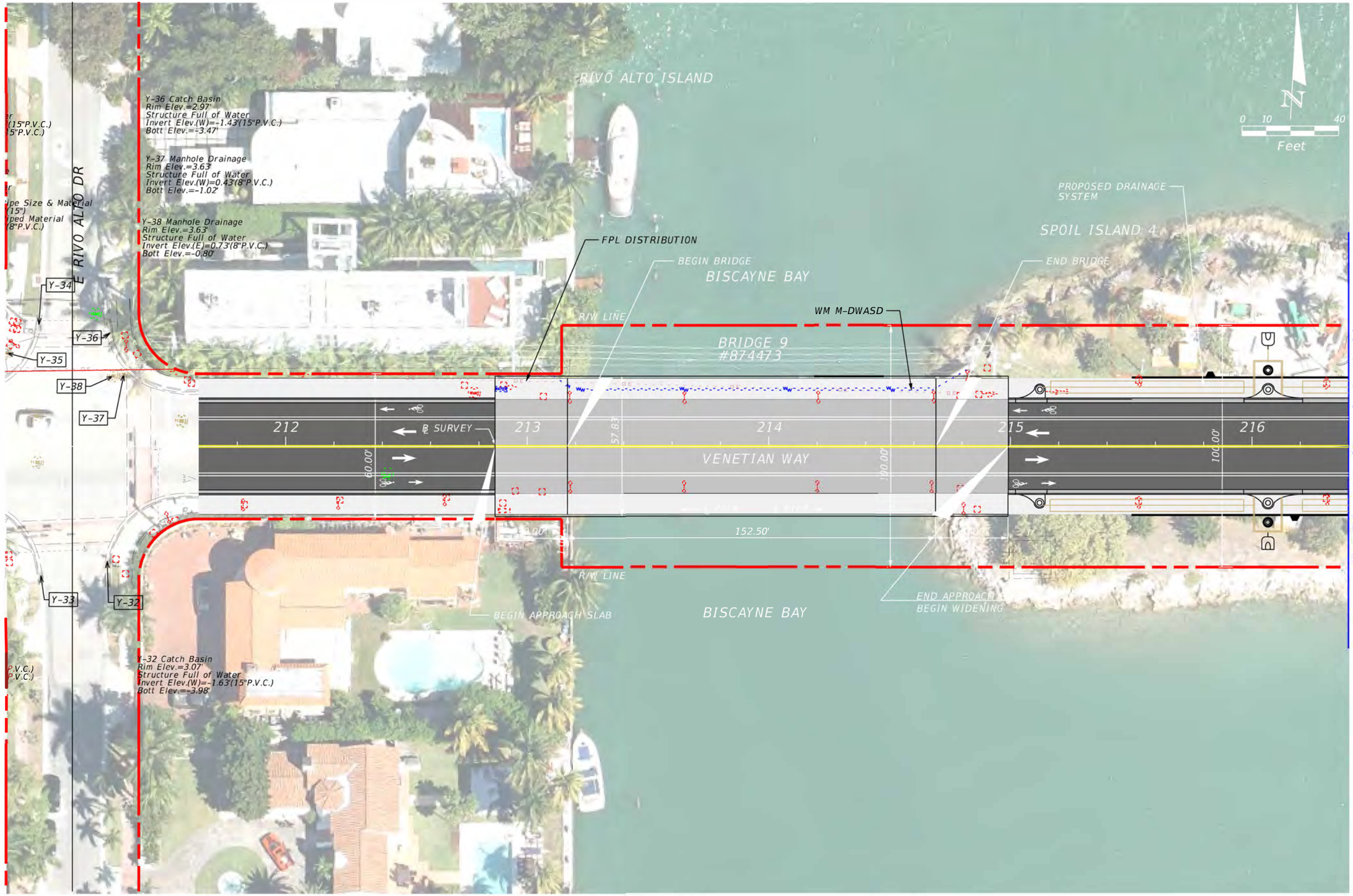

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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 9 VENETIAN CAUSEWAY PD&E STUDY

SHEET NO. 13

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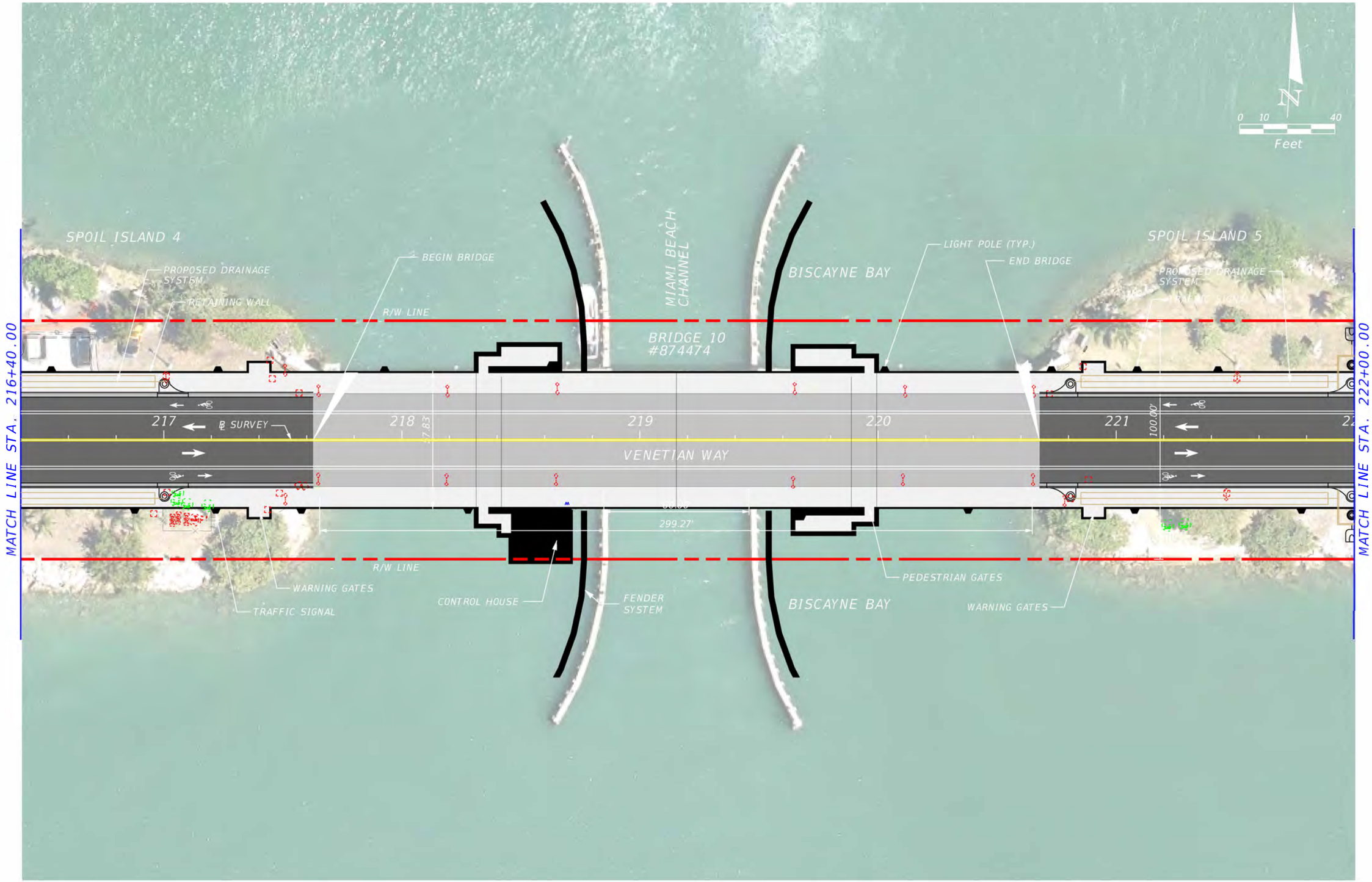

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DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 10 VENETIAN CAUSEWAY PD&E STUDY

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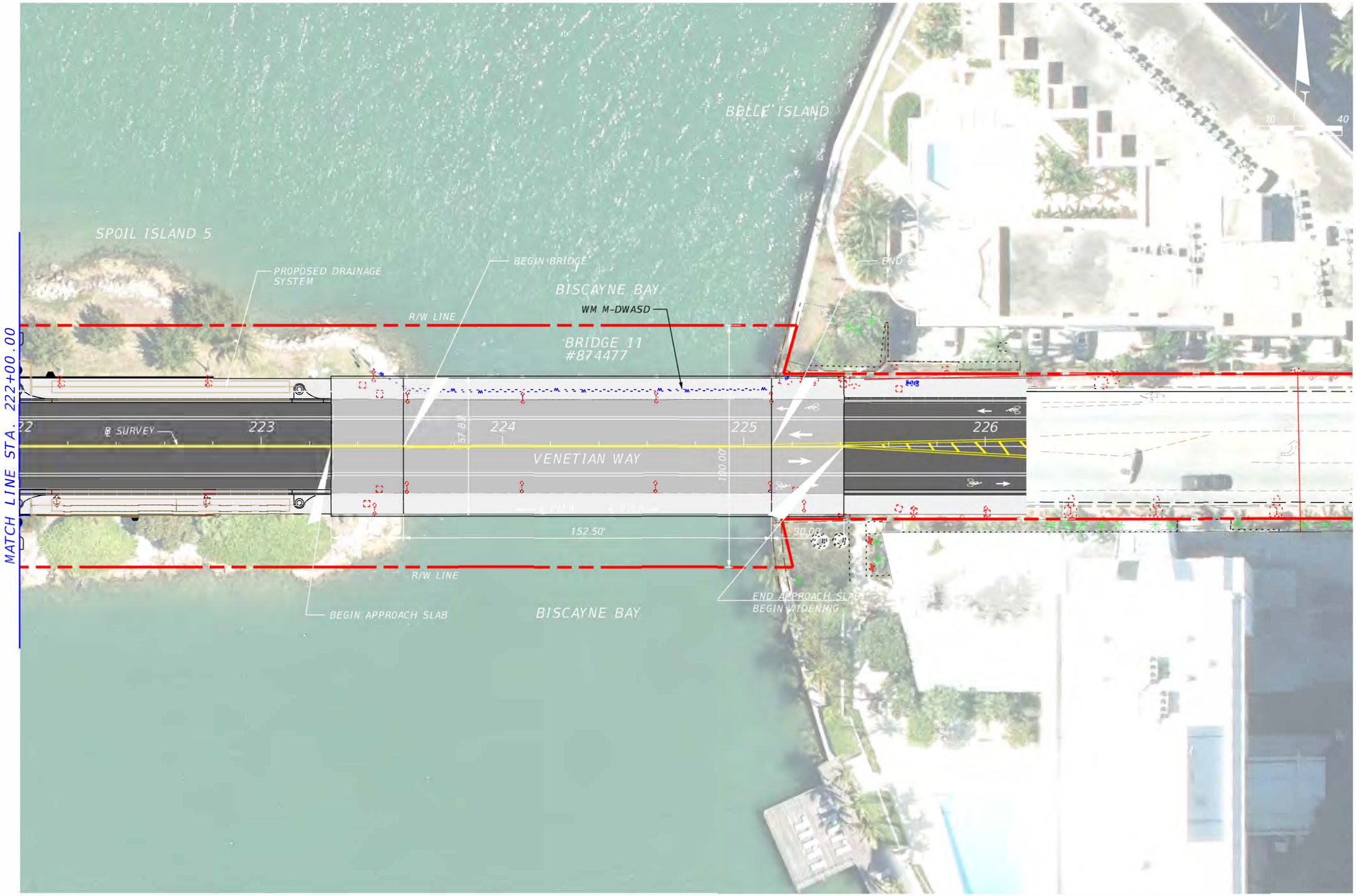

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DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 11 VENETIAN CAUSEWAY PD&E STUDY

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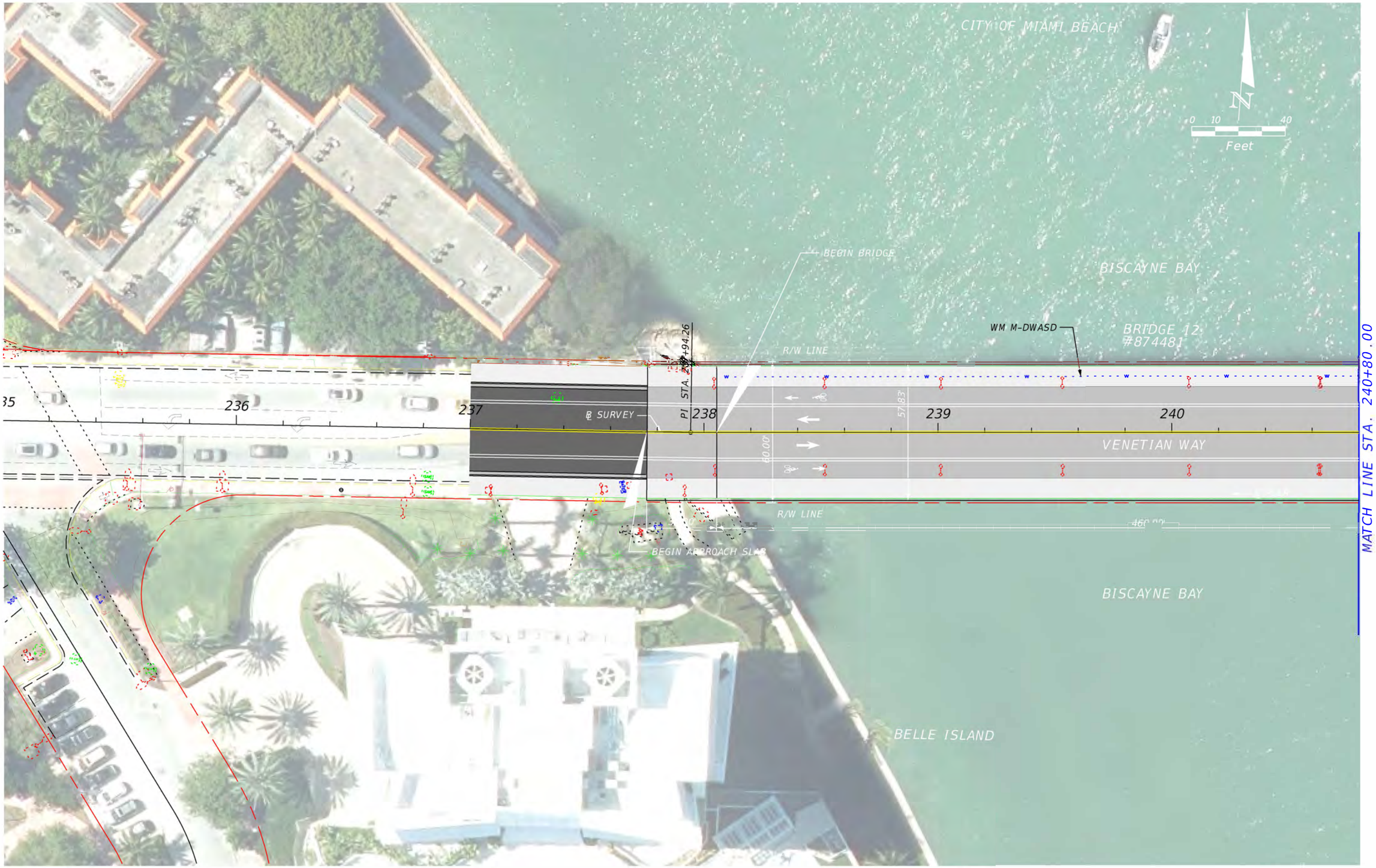

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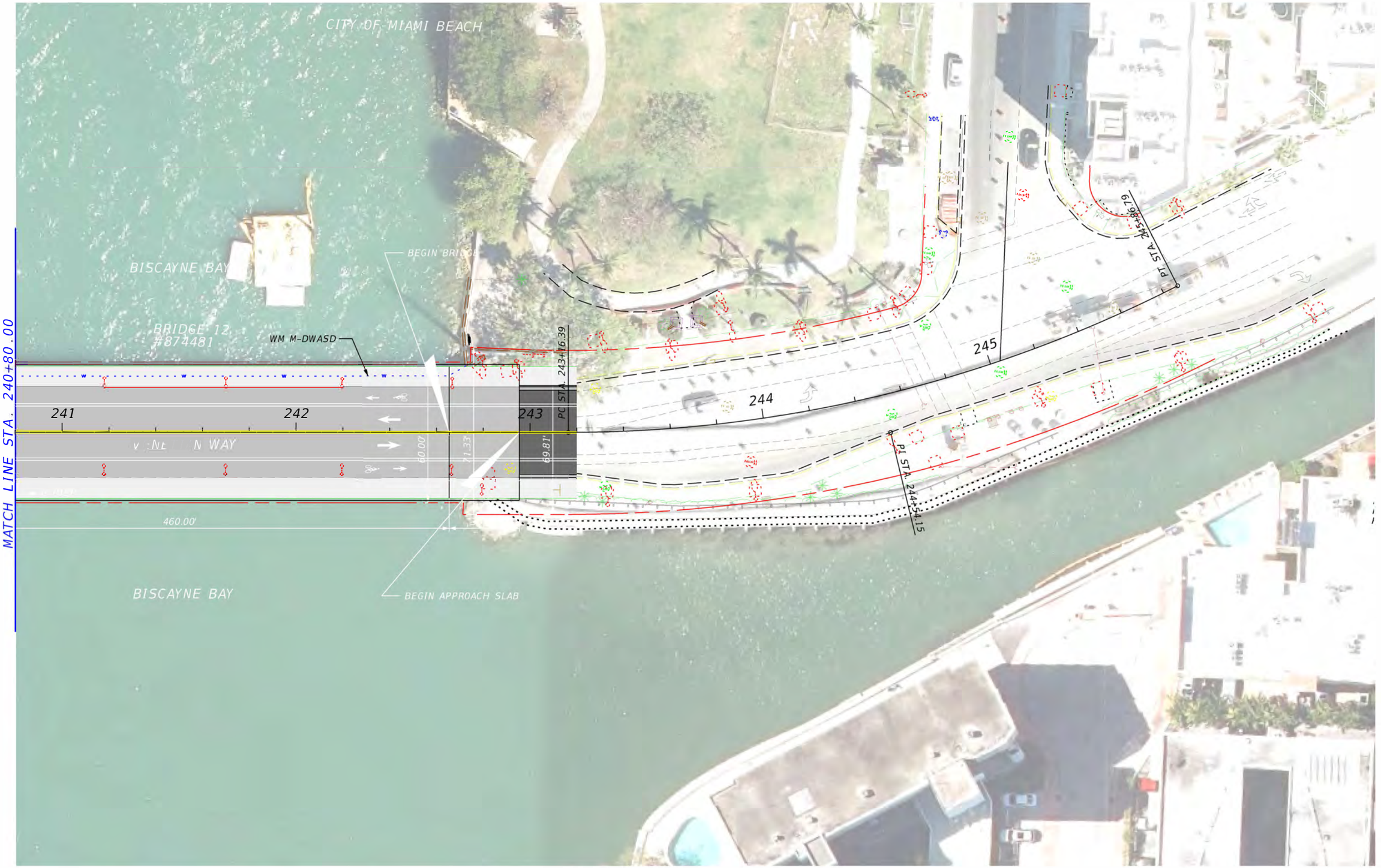
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 12 VENETIAN CAUSEWAY PD&E STUDY

SHEET NO. 16



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STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
VENETIAN WAY	MIAMI-DADE	422713-2-22-01

PREFERRED ALTERNATIVE ROADWAY PLAN VIEW - BRIDGE 12 VENETIAN CAUSEWAY PD&E STUDY

SHEET NO. 17

SECTION 5.0 PHOTOGRAPHS OF BRIDGE CONDITIONS

The photographs shown were taken during a field inspection of the Venetian Causeway bridges. The photographs depict the typical condition of the bridges, and highlight the deficiencies of the structural systems.

Bridge 1 was recently rehabilitated, and existing conditions are healthier than the rest of the bridges. The movable span, and the 12 fixed approach spans on each side of the movable span, were replaced during the Major Rehabilitation Project between 1996 and 1999. No major repairs have been performed to the spans since they were replaced. The remaining 730-ft. 9-in. length of bridge was replaced during the Emergency Repair Design-Build Project between 2015 and 2016.

Bridges 2 through 12 exhibit advanced corrosion with section loss; unsound concrete in beams and slabs; failed repairs; and extensive deterioration from the corrosive marine environment. Concrete delamination, spalls, cracking, and rebar corrosion are evident on the bridge deck, diaphragms, and sidewalks. Utility lines and supports on the bridges are deteriorated.

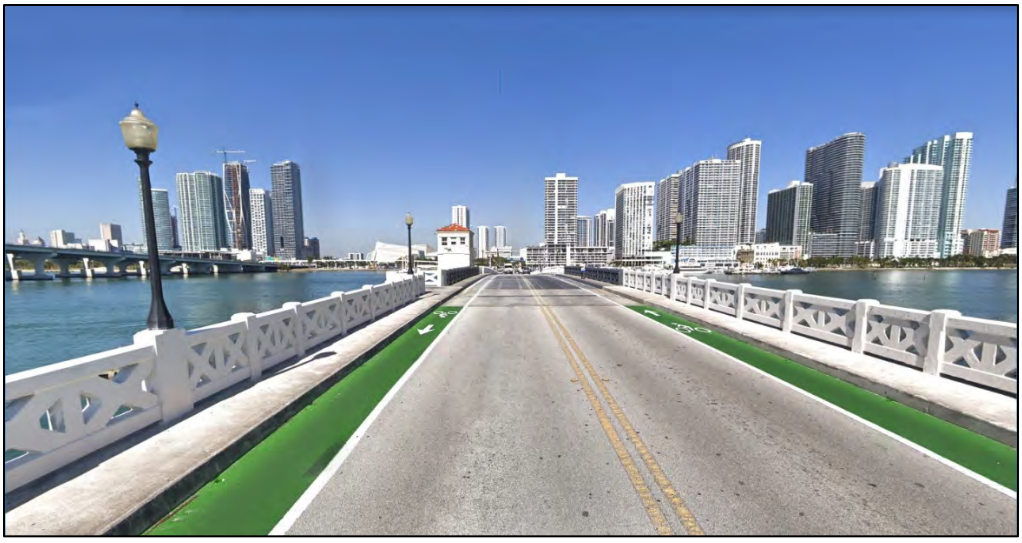

Figure 1: Bridge 1 Existing Conditions

Figure 2: Bridge 1 Westernmost Approach Spans

Figure 3: Bridge 1 Double-Leaf Bascule Span

Figure 4: Bridge 1 Double-Leaf Bascule Span

Figure 5: Bridge 2 Current Conditions

Figure 6: Bridge 3 Current Conditions

Figure 7: Bridge 4 Current Conditions

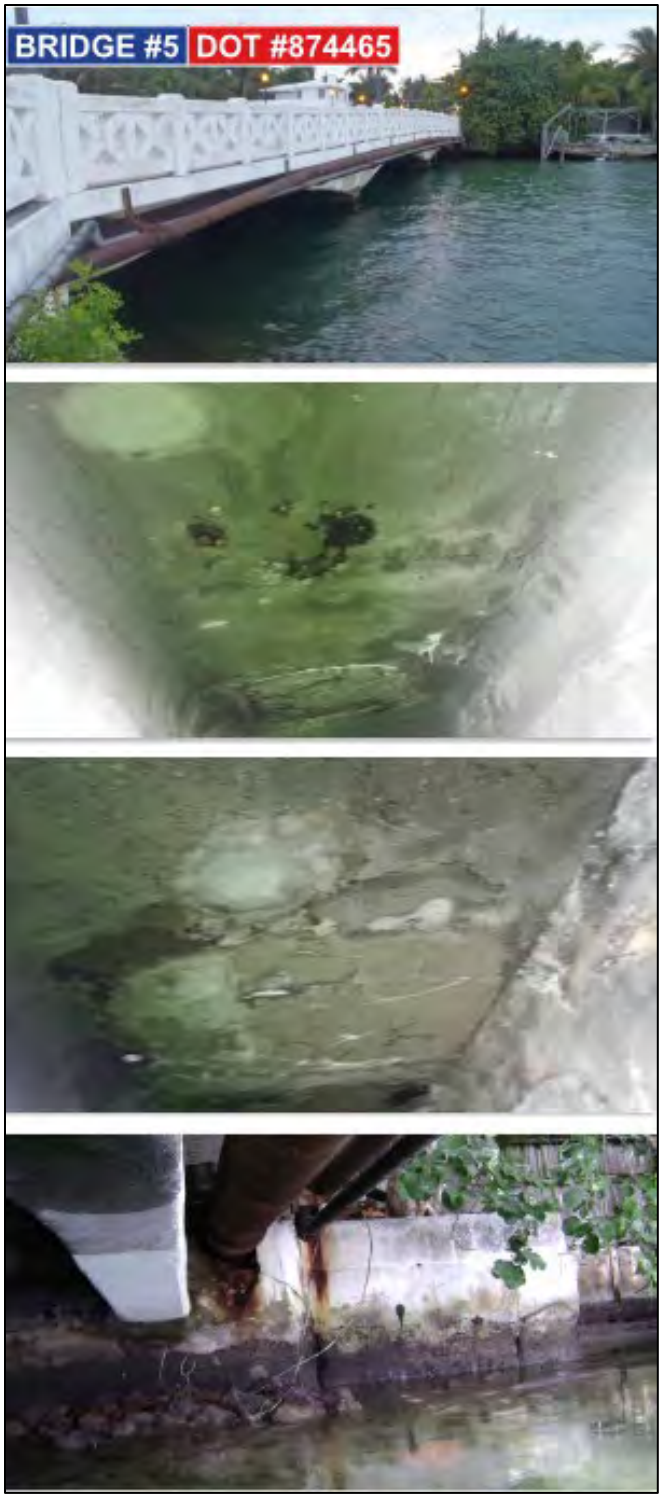

Figure 8: Bridge 5 Current Conditions

Figure 9: Bridge 6 Current Conditions

Figure 10: Bridge 7 Current Conditions

Figure 11: Bridge 8 Current Conditions

Figure 12: Bridge 9 Current Conditions

Figure 13: Bridge 10 Double-leaf Bascule Span – Closed Position

Figure 14: Bridge 10 Double-leaf Bascule Span - Open Position

Figure 15: Bridge 10 Double Leaf Bascule Span - Access Issues

Figure 16: Bridge 10 Double-Leaf Bascule Span - Access Issues

Figure 17: Bridge 11 Current Conditions

Figure 18: Bridge 12 Current Conditions

SECTION 6.0 EXECUTED MEMORANDUM OF AGREEMENT

See Draft MOA attached.

MEMORANDUM OF AGREEMENT
BETWEEN
THE FLORIDA DEPARTMENT OF TRANSPORTATION AND
THE FLORIDA STATE HISTORIC PRESERVATION OFFICER
REGARDING THE
VENETIAN CAUSEWAY FROM NORTH BAYSHORE DRIVE (CITY OF MIAMI) TO PURDY AVENUE (CITY OF MIAMI BEACH) PROJECT, MIAMI-DADE COUNTY, FLORIDA

WHEREAS, Pursuant to 23 United States Code (U.S.C.) § 327 and the implementing Memorandum of Understanding (MOU) executed on December 14, 2016, the Florida Department of Transportation (FDOT) has assumed Federal Highway Administration's (FHWA) responsibilities under the National Environmental Policy Act (NEPA) for highway projects on the State Highway System (SHS) and Local Agency Program (LAP) projects off the SHS; and

WHEREAS, in accordance with the MOU, FDOT's assumption of FHWA's responsibilities under NEPA for highway projects includes assumption of responsibilities for compliance with 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108); and

WHEREAS, FDOT proposes to provide federal financial assistance to Miami-Dade County for the Venetian Causeway improvement project from North Bayshore Drive (City of Miami) to Purdy Avenue (City of Miami Beach) (Financial Management Number 422713-2-22-01) (**the Project**); and

WHEREAS, FDOT has determined that **the Project** represents an undertaking in accordance with 36 CFR § 800.3(a); and

WHEREAS, **the Project** includes the replacement of 11 of the 12 bridge structures listed in the National Register of Historic Places (NRHP) which contribute to the Venetian Islands Resource Group (Florida Master Site File [FMSF] No. 8DA04736), a resource group determined eligible for listing in the NRHP; and

WHEREAS, Miami-Dade County will be designing and constructing the Project, FDOT has consulted with Miami-Dade County regarding the effects of the proposed project on historic properties pursuant to the requirements of 36 CFR Part 800 and has designated Miami-Dade County as a concurring party to this agreement; and

WHEREAS, FDOT has defined **the Project's** area of potential effects (APE) for historic properties as the existing bridges, the related earthen structures, and the parcels immediately adjacent to the current bridge touch down points (see ***Attachment A***); and

WHEREAS, FDOT has consulted with the Florida State Historic Preservation Officer (SHPO) pursuant to the requirements of 36 CFR Part 800 and has determined that **the Project** will have an adverse effect on the Venetian Islands Resource Group (FMSF 8DA04736), which is

eligible for listing in the NRHP and locally designated by the Cities of Miami and Miami Beach as a historic landmark, and includes the Historic Venetian Causeway Bridges, which are listed in the NRHP; and

WHEREAS, FDOT has consulted with the City of Miami, the City of Miami Beach, the United States Coast Guard, the United States Army Corps of Engineers, the Miami Design Preservation League, and Dade Heritage Trust regarding the effects of **the Project** on historic properties; and

WHEREAS, FDOT has provided opportunities for public review and comment regarding the effects of **the Project** on historic properties; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1) FDOT has notified the Advisory Council on Historic Preservation (ACHP) of the adverse effect determination with specified documentation and has invited the ACHP to comment and participate in consultation, and the ACHP has chosen not to participate pursuant to 36 CFR § 800.6(a)(1)(iii); and

NOW, THEREFORE, FDOT **and** the SHPO agree that **the Project** shall be implemented in accordance with the following stipulations to take into account the effect of **the Project** on historic properties.

STIPULATIONS

Prior to initiating any ground disturbing or demolition work, excluding geotechnical and other necessary pre-construction activities, associated with **the Project**, FDOT shall ensure that the following measures are carried out:

I. PROJECT DESIGN

A. Miami-Dade County shall design **the Project** to limit construction impacts to within the right-of-way and elevations delineated on the Preferred Alternative (included in ***Attachment B***). The design of the replacement bridges will reference the historic appearance of the original bridges by incorporating a low profile and appearance of the original structures, using arched beams with the same span configurations, geometrically designed concrete bridge railings that recognize the historic railing design, historically sensitive bridge lighting fixtures, and historically sensitive Bridge Tender House design for the New East Bascule Bridge (Bridge 10). The two (2) historic octagonal entrance towers will not be affected as part of **the Project** and shall remain in their current location.

B. Miami-Dade County shall ensure that the design of **the Project** will comply with the FDOT Design Manual and Standard Plans.

C. Should there be any alterations to the project design that could result in adverse effects to historic properties that are not addressed in this agreement, FDOT shall notify SHPO and other appropriate consulting parties and provide the parties with an opportunity to review and comment on the alterations.

II. DOCUMENTATION OF THE VENETIAN CAUSEWAY RESOURCE GROUP

A. Based on coordination with the U.S. Department of the Interior and the NPS Interior Region 2 Office, and prior to authorizing any demolition or other activity that could adversely affect the bridges and the earthen causeway landings that are components of the Venetian Causeway Resource Group (8DA04736), the Venetian Causeway Bridges (8DA14373-8DA14384) and the earthen causeway landings shall be documented in accordance with the standards and guidelines of the Historic American Landscapes Survey (HALS) Level II (https://www.nps.gov/hdp/standards/HALS/HALSHistoryGuidelines.pdf).

FDOT will ensure that all documentation is completed by Miami-Dade County and accepted by the NPS prior to demolition. The documentation will be prepared, but not limited to, the following:

1. Detailed written historical and descriptive data prepared in accordance with format guidelines containing a construction history of the overall causeway, bridges, and earthen causeway landings, descriptions of the resources including alterations, a description of the overall causeway and changes, any historical photographs in the supplementary materials section where available and produced in accordance with the U.S. Copyright Act, as amended, and a site plan; and
2. Reproduction of existing "as built" and existing drawings included within the written data; and
3. Large-format (4" x 5" or larger negative size) photographs of the overall causeway, bridges, and earthen causeway landings processed for archival permanence in accordance with photographic specifications (*https://www.nps.gov/hdp/standards/PhotoGuidelines.pdf*); and
4. Photo locations keyed to the site plan and included with the "Index to Photographs

B. Miami-Dade County shall provide the draft HALS documentation (non-archival format, electronic version) to FDOT District 6 for submittal to NPS, FDOT Office of Environmental Management (OEM), and SHPO for concurrent review.

C. Prior to demolition of the structure, final edits shall be made and FDOT District 6 will submit the final documentation as follows:

1. An archival copy to the NPS Southeast Regional Office, per HALS guidelines (*https://www.nps.gov/hdp/standards/Transmittal.pdf*); and
2. An archival copy and an electronic copy to the Florida SHPO for inclusion in the FMSF; and
3. Non-archival and electronic copies to OEM, Miami-Dade County, City of Miami, City of Miami Beach, and History Miami.

III. PUBLIC RECOGNITION AND EDUCATION

A. In consultation with SHPO and consulting parties, and through the Florida Division of Historical Resources Marker Program, Miami-Dade County shall develop text for and install four (4) Florida Historical Markers along the Venetian Causeway. Florida Historical Markers will include a narrative description of the history and significance of the Venetian Causeway Resource Group (8DA04736) to the development of Miami and Miami Beach; these markers shall be incorporated into the overall design of **the Project**.

B. Two (2) of the Historical Markers will be placed at the Western end of the Venetian Causeway (one on the north and south side of the roadway) and the other two (2) Historical Markers will be placed at the Eastern end of the Causeway (one on the north and south side of the roadway).

IV. MIAMI-DADE COUNTY BRIDGE CONTEXT

A. Miami-Dade County shall produce a historical context report for bridges in Miami-Dade County that will extend until 1975, for the purpose of providing a consolidated source of information on area historic bridges.

B. The report will also compile information from previous studies and reports and provide an inventory of bridges in Miami-Dade County.

C. Copies of the final documentation shall be provided by Miami-Dade County to FDOT District 6, OEM, SHPO, City of Miami, City of Miami Beach, and History Miami.

V. PROFESSIONAL STANDARDS

All archaeological and historic preservation work carried out pursuant to this Agreement shall be conducted by, or under the direct supervision of, a person or persons meeting the Secretary of the Interior's Professional Qualification Standards for Archaeology and Historic Preservation as set forth at 62 FR 33708-33723 (June 20, 1997) and 36 CFR Part 61 Appendix A.

VI. DURATION

This Memorandum of Agreement will expire if its terms are not carried out within seven (7) years from the date of execution. Prior to expiration, the parties may agree to extend the timeframe for fulfillment of the terms by letter agreement.

VII. POST-REVIEW DISCOVERIES

If properties are discovered that may be historically significant, or if unanticipated effects on historic properties are found, FDOT and Miami-Dade County shall implement the Post Review Discovery Plan established in Stipulation X of the March 15, 2016 Programmatic Agreement among the ACHP, SHPO, and FDOT, as amended on June 4, 2017.

In the unlikely event that human skeletal remains or associated burial artifacts are uncovered within the project area during construction, all work in that area must stop. The individual in charge of the activity that leads to the discovery must notify the Project Engineer and the FDOT District 6 Cultural Resources Coordinator. The discovery must be reported to local law enforcement and the appropriate medical examiner. The medical examiner will determine whether the State Archaeologist should be contacted per the requirements of Section 872.05, Florida Statutes, and Rule 1A-44.004, Florida Administrative Code (FAC).

VIII. REVIEW STIPULATION

Miami-Dade County, FDOT/OEM shall afford the SHPO and other consulting parties, as appropriate and including the NPS, a 30-day period for review and comment following the receipt of delivery of the design plans and documentation stipulated in Sections II, III, and IV described above. Any objections to the findings or plans proposed in these submittals will be addressed in accordance with Stipulation IX, below.

IX. DISPUTE RESOLUTION

Should any signatory to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, FDOT/OEM shall consult with such party to resolve the objection. If FDOT/OEM determines that such objection cannot be resolved, FDOT/OEM shall:

A. Forward all documentation relevant to the dispute, including FDOT/OEM's proposed resolution, to the ACHP. The ACHP shall provide FDOT/OEM its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, FDOT/OEM shall prepare a written response that considers any timely advice or comments regarding the dispute from the ACHP, signatories, and concurring parties, and provide them with a copy of this written response. FDOT/OEM will then proceed according to its final decision.

B. Make a final decision on the dispute and proceed accordingly if the ACHP does not provide its advice regarding the dispute within thirty (30) days. Prior to reaching such a final decision, FDOT/OEM shall prepare a written response that considers any timely comments regarding the dispute from the signatories to the MOA and provide them and the ACHP with a copy of the written response.

C. Fulfill its responsibility to carry out all other actions subject to the terms of

this MOA that are not the subject of the dispute and remain unchanged.

X. AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The signatories must signify their acceptance of the proposed changes to the MOA in writing within 30 days of their receipt. The amendment will be effective on the date a copy signed by the signatories is filed with the ACHP. In accordance with 36 CFR § 800.6(b)(7), if the ACHP was not a signatory to the original agreement, and the signatories execute an amended agreement, FDOT/OEM shall file the amended agreement with the ACHP.

XI. TERMINATION

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other signatories in an effort to amend the MOA per Stipulation X, above. If within thirty (30) days (or another time agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on **the Project,** FDOT/OEM must either (a) execute a MOA pursuant to 36 CFR § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. FDOT/OEM shall notify the signatories as to the course of action it will pursue.

Execution of this MOA by Miami-Dade County, FDOT OEM, and SHPO and implementation of its terms is evidence that Miami-Dade County and FDOT have taken into account the effects of this undertaking on historic properties per the requirements of Section 106 (Public Law 113-287 [Title 54 U.S.C. 306108]), and 36 CFR Part 800 (Protection of Historic Properties).

SIGNATORIES:

FLORIDA STATE HISTORIC PRESERVATION OFFICER

_____ Date
Timothy A. Parsons
Director, Division of Historical Resources
State Historic Preservation Officer

FLORIDA DEPARTMENT OF TRANSPORTATION

_____ Date
Jason Watts
Director, Office of Environmental Management

CONCURRING PARTIES:

FLORIDA DEPARTMENT OF TRANSPORTATION, DISTRICT SIX

_____ Date
Daniel Iglesias, P.E.
Director of Transportation Development

MIAMI-DADE COUNTY

_____ Date
Alice N. Bravo, P.E.
Director, Miami-Dade County Department of Transportation and Public Works

ATTACHMENT A:
Project's Area of Potential Effects (APE)

ATTACHMENT B:
Preferred Alternative Roadway and Bridge Conceptual Plans

SECTION 7.0 LETTERS FROM CONSULTING PARTIES

1. State Historic Preservation Officer (SHPO) Cultural Resource Assessment Survey (CRAS) Concurrence Letter
2. State Historic Preservation Officer (SHPO) Section 106 Evaluation and Determination of Effects Case Study Report Concurrence Letter
3. Advisory Council on Historic Preservation (ACHP) Consultation Letter

FDOT

Florida Department of Transportation

RON DESANTIS
GOVERNOR

1000 NW 111th Avenue
Miami, FL 33172-5800

KEVIN J. THIBAULT, P.E.
SECRETARY

April 17, 2019

Timothy A. Parsons, Ph.D.
Director, Division of Historical Resources, and
State Historic Preservation Officer
R.A. Gray Building
500 S. Bronough Street
Tallahassee FL 32399-0250

Attn: Dr. Adrianne Daggett, Transportation Compliance Review Program

Re: Cultural Resource Assessment Survey (CRAS) for the Venetian Causeway Bridges from North Bayshore Drive in the City of Miami to Purdy Avenue in the City of Miami Beach, Miami-Dade County, Florida
Financial Planning ID [FPID] No. 422713-2-22-01

Dear Dr. Parsons,

Please find the Cultural Resource Assessment Survey (CRAS) for the Venetian Causeway Bridges from North Bayshore Drive in the City of Miami to Purdy Avenue in the City of Miami Beach, Miami-Dade County, Florida (Financial Planning ID [FPID] No. 422713-2-22-01). The purpose of the proposed project is to address identified structural and functional deficiencies of the twelve existing bridges through potential alternatives such as replacement or rehabilitation. The objective of this CRAS was to identify cultural resources and assess their eligibility for listing in the National Register of Historic Places (National Register) according to the criteria set forth in 36 CFR Section 60.4.

The Venetian Causeway is approximately 2.5 miles long and is primarily a two-lane undivided facility that provides a major link between the City of Miami and the City of Miami Beach in Miami-Dade County, Florida. The Causeway includes ten fixed span bridges and two bascule leaf span bridges over the Intracoastal Waterway (bridge numbers 874459, 874460, 874461, 874463, 874465, 874466, 874471, 874472, 874473, 874474, 874477, and 874481) extending from North Bayshore Drive (City of Miami) to Purdy Avenue (City of Miami Beach). The purpose of the proposed project is to address identified structural and functional deficiencies of the twelve existing bridges through potential alternatives such as replacement or rehabilitation.

This assessment complies with Section 106 of the *National Historic Preservation Act (NHPA) of 1966* (Public Law 89-665, as amended), as implemented by 36 CFR 800 -- *Protection of Historic Properties* (incorporating amendments effective August 5, 2004); Stipulation VII of the *Programmatic Agreement among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation (ACHP), the Florida Division of Historical Resources (FDHR), the State Historic Preservation Officer (SHPO), and the FDOT Regarding Implementation of the Federal-Aid Highway Program in Florida* (Section 106 Programmatic Agreement, effective March 2016, amended June 7, 2017); Section 102 of the *National Environmental Policy Act (NEPA) of 1969*, as amended (42 USC 4321 et seq.), as implemented by the regulations of the Council on Environmental Quality (CEQ) (40 CFR Parts 1500–1508); Section 4(f) of the *Department of Transportation Act of 1966*, as amended (49 USC 303 and 23 USC 138); the revised Chapter 267, *Florida Statutes (F.S.)*; and the standards embodied in the FDHR's *Cultural Resource Management Standards and Operational Manual* (February 2003), and Chapter 1A-46 (*Archaeological and Historical Report Standards and Guidelines*), *Florida Administrative Code*. In addition, this report was prepared in conformity with standards set forth in Part 2, Chapter 8 (*Archaeological and Historical Resources*) of the FDOT *Project Development and Environment Manual* (effective June 14, 2017). All work also conforms to professional guidelines set forth in the *Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716, as amended and annotated).

The archaeological APE consists of bridges and associated abutments located on man-made land. The substructural features associated with the bridges are also in an area of Biscayne Bay that has been subjected to dredging and disturbance resulting from installation of underwater cables and pipelines. Based on this, subsurface testing for archaeological sites was not conducted and the archaeological portions of the investigation focused on providing relevant documentation to support the low potential for archaeological sites.

The historic resources survey identified a total of 42 historic resources. There were two previously recorded buildings (8DA11740 and 8DA11754), two previously recorded linear resources (8DA11375 and 8DA12366), two newly recorded resource groups (8DA14395 and 8DA15805), twelve newly identified bridges (8DA14373-8DA14384) and twenty-four newly identified buildings (8DA14385-8DA14393, 8DA15806-8DA15821). The National Register-listed resource, Venetian Causeway (8DA4736), was converted to the Venetian Islands Resource Group (8DA14395) and includes the twelve individual bridges (8DA14373-8DA14384) that make up the Causeway, as well as six man-made islands and five earthen causeway landings that are contributing features within the historic designed landscape.

Two previously recorded resources are considered or determined to be National Register-ineligible. The previously recorded building, Venetian Isles Apartment (8DA11740), has not been evaluated by the SHPO, however the previous surveyor determined that the building was National Register-ineligible. Given its common design and lack of historic significance, this building is considered ineligible for listing in the National Register individually or as part of a historic district. The previously recorded

linear resource, Collins Canal Seawall (8DA12366), was determined to be National Register-ineligible by the SHPO on May 4, 2012.

Two previously recorded resources have been determined to be National Register-eligible. The previously recorded building, Terrace Towers (8DA11754), was determined to be National Register–eligible by the SHPO on January 5, 2011. It is considered eligible for listing in the National Register as the work of a master under Criterion C. The previously recorded linear resource, Collins Canal (8DA11375), was determined to be National Register–eligible by the SHPO on May 4, 2012. It is considered eligible for listing in the National Register under Criteria A and C in the categories of Transportation, Engineering, and Community Planning and Development.

As a result of the current project, the Venetian Islands Resource Group (8DA14395) was documented. This resource group subsumes the National Register-listed Venetian Causeway (8DA4736). Due to severe deterioration, the bridges are in need of rehabilitation or replacement, and spans of the westernmost bridge were recently replaced following consultation with SHPO. Each of the twelve bridges were given individual FMSF numbers and were included within the newly identified Venetian Islands Resource Group (8DA14395). In consultation with the SHPO/FMSF, the FMSF for the Venetian Causeway (8DA4736) will be converted from its current classification as a historic bridge to a resource group. The resource group classification serves as a comprehensive tool for documenting the entire landscape of the Venetian Islands, including the bridges.

While the Venetian Causeway remains National Register-listed, the individual bridges (8DA14373-8DA14384) were evaluated as part of the current project and are considered contributing resources within the Venetian Islands Resource Group (8DA14395). Additionally, the six islands and five earthen causeway landings of the Venetian Islands were included within this historic designed landscape. The resource group encompasses a designed landscape of man-made islands, bridges, and earthen causeways that resulted from developers' ambitious plans to create a residential development on Biscayne Bay. Despite the replacement of spans of the westernmost bridge in 2015, the Venetian Islands Resource Group (8DA14395) is considered National Register-eligible under Criteria A and C in the categories of Community Planning and Development, Transportation, Architecture, and Engineering.

The twenty-four newly identified historic buildings (8DA14385-8DA14393, 8DA15806-8DA15821) and one newly identified historic resource group (8DA15805) are considered National Register-ineligible, individually or as part of a historic district.

We kindly request that this cover letter and enclosed document be reviewed, and concurrence provided by your office. This information is provided in accordance with the provisions contained in 36 CFR, Part 800, as well as the provisions contained in the revised F.S. Chapter 267. If you have any questions regarding the subject project, please contact me at Barbara.Culhane@dot.state.fl.us or (305) 470-5231.

Sincerely,

Barbara B. Culhane, M.S., A.I.C.P.
District Cultural Resources Coordinator/
Environmental Supervisor II

The Florida State Historic Preservation Officer finds the attached Cultural Resource Assessment Survey Report complete and sufficient and ☑ concurs/ ☐ does not concur with the recommendations and findings provided in this cover letter for SHPO/FDHR Project File Number 2016-4285B. Or, the SHPO finds the attached document contains _____ insufficient information.

In accordance with the Programmatic Agreement among the FHWA, ACHP, FDHR, SHPO, and FDOT Regarding Implementation of the Federal-Aid Highway Program in Florida, if providing concurrence with a finding of No Historic Properties Affected for a project as a whole, or to No Adverse Effect on a specific historic property, SHPO shall presume that FHWA will proceed with a *de minimis* Section 4(f) finding at its discretion for the use of land from the historic property.

SHPO Comments:

For Deputy SHPO 6/25/2019

Timothy A. Parsons, Ph.D., Director, and
State Historic Preservation Officer
Florida Division of Historical Resources

[DATE]

FDOT

Florida Department of Transportation

RON DESANTIS
GOVERNOR

1000 NW 111th Avenue
Miami, FL 33172-5800

KEVIN J. THIBAULT, P.E.
SECRETARY

February 4, 2020

Timothy A. Parsons, Ph.D.
Director, Division of Historical Resources, and
State Historic Preservation Officer
R.A. Gray Building
500 S. Bronough Street
Tallahassee FL 32399-0250

Attn: Dr. Adrianne Daggett, Transportation Compliance Review Program

Re: Revised Section 106 Evaluation and Determination of Effects Case Study Report for the Venetian Causeway Bridges from North Bayshore Drive in the City of Miami to Purdy Avenue in the City of Miami Beach, Miami-Dade County, Florida (Financial Planning ID [FPID] No. 422713-2-22-01)

Dear Dr. Parsons,

Please find the revised Section 106 Evaluation and Determination of Effects Case Study Report for the Venetian Causeway Bridges from North Bayshore Drive in the City of Miami to Purdy Avenue in the City of Miami Beach, Miami-Dade County, Florida ([FPID] No. 422713-2-22-01). This report, which should replace the effects document (SHPO/FDHR number 2016-4285C) that was submitted to your office in October of 2019, was prepared for the Florida Department of Transportation (FDOT), District 6 by Janus Research. In accordance with the provisions of Section 106 of the *National Historic Preservation Act (NHPA) of 1966* (Public Law 89-665, as amended), as implemented by 36 CFR 800 -- *Protection of Historic Properties* (incorporating amendments effective August 5, 2004), this case study report documents potential effects of the proposed improvements to the *National Register of Historic Places* (National Register)–listed and eligible resources identified during the *Cultural Resources Assessment Survey (CRAS) for the Venetian Causeway Bridges from North Bayshore Drive in the City of Miami to Purdy Avenue in the City of Miami Beach.*

The 2019 CRAS resulted in the identification of three significant resources: Collins Canal (8DA11375), Terrace Towers (8DA11754), and the Venetian Islands Resource Group (8DA14395). This report was prepared as part of a project studying several alternatives for the rehabilitation or replacement of the twelve historic Venetian Causeway bridges, which are all contributing to the Venetian Islands Resource Group (8DA14395). In a letter dated June 25, 2019, the State Historic Preservation Officer (SHPO) concurred with the findings of the 2019 CRAS.

Various alternatives were evaluated during the PD&E Study. The No-Action and TSM&O Alternatives would result in no effect to any of the identified significant resources. The Rehabilitation Alternatives would result in impacts to the contributing bridges, and therefore, the Venetian Islands Resource Group. The Collins Canal (8DA11375) and Terrace Towers (8DA11754) will not be adversely affected by the Rehabilitation Alternatives.

The preferred alternative includes Replacement Alternative 7 for the fixed bridges, Railing Alternative T1, and Replacement Alternative M4 for the easternmost moveable bridge. This alternative will result in an adverse effect to the contributing bridges and the Venetian Islands Resource Group. Due to the removal of the bridges, the Preferred Alternative will have an adverse effect on the Venetian Islands Causeway Resource Group (8DA14395). This adverse effect finding is primarily related to the bridge structures and will not affect other contributing resources or elements of the Resource Group. In consideration of available project information, the Preferred Alternative will have no adverse effect on the Collins Canal (8DA11375) or Terrace Towers (8DA11754).

During the course of this project, Section 106 consultation took place during three Cultural Resources Committee (CRC) meetings on September 24, 2014, May 14, 2015, and March 6, 2018 with the SHPO, United States Coast Guard, Federal Highway Administration (FHWA), FDOT Office of Environmental Management (OEM), FDOT District 6, Cities of Miami and Miami Beach, Miami-Dade County, Dade Heritage Trust, Miami Design Preservation League, and the consultant project team. These meetings focused on the Section 106 process, proposed alternatives, the historic resources, and potential effects. Further consultation will take place during the development of minimization and mitigation measures, and these will be documented in a Memorandum of Agreement (MOA).

We kindly request that this cover letter and enclosed document be reviewed, and concurrence provided by your office. This information is provided in accordance with the provisions contained in 36 CFR, Part 800, as well as the provisions contained in the revised F.S. Chapter 267. If you have any questions regarding the subject project, please contact me at Barbara.Culhane@dot.state.fl.us or (305) 470-5231.

Sincerely,

Barbara B. Culhane, M.S., A.I.C.P.
District Cultural Resources Coordinator/
Environmental Supervisor II

The Florida State Historic Preservation Officer finds the attached Section 106 Evaluation and Determination of Effects Case Study complete and sufficient and ☑ concurs/ ☐ does not concur with the recommendations and findings provided in this cover letter for

SHPO/FDHR Project File Number 2016-4285D.

Or, the SHPO finds the attached document contains _____ insufficient information.

In accordance with the Programmatic Agreement among the FHWA, ACHP, FDHR, SHPO, and FDOT Regarding Implementation of the Federal-Aid Highway Program in Florida, if providing concurrence with a finding of No Historic Properties Affected for a project as a whole, or to No Adverse Effect on a specific historic property, SHPO shall presume that FHWA will proceed with a *de minimis* Section 4(f) finding at its discretion for the use of land from the historic property.

SHPO Comments:

For Deputy SHPO 2/18/2020

Timothy A. Parsons, Ph.D., Director, and State Historic Preservation Officer
Florida Division of Historical Resources

[DATE]

August 24, 2020

Ms. Barbara B. Culhane, M.S., A.I.C.P.
District Cultural Resources Coordinator/
Environmental Supervisor II
Florida Department of Transportation
1000 NW 111 Ave., Rm. 6109
Miami, FL 33172

Ref: *Proposed Venetian Causeway from North Bayshore Drive to Purdy Avenue Project*
Miami-Dade County, Florida
ACHP Project Number: 15766

Dear Ms. Culhane:

The Advisory Council on Historic Preservation (ACHP) has received your notification and supporting documentation regarding the adverse effects of the referenced undertaking on a property or properties listed or eligible for listing in the National Register of Historic Places. Based upon the information provided, we have concluded that Appendix A, *Criteria for Council Involvement in Reviewing Individual Section 106 Cases*, of our regulations, "Protection of Historic Properties" (36 CFR Part 800), does not apply to this undertaking. Accordingly, we do not believe that our participation in the consultation to resolve adverse effects is needed. However, if we receive a request for participation from the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO), affected Indian tribe, a consulting party, or other party, we may reconsider this decision. Additionally, should circumstances change, and it is determined that our participation is needed to conclude the consultation process, please notify us.

Pursuant to 36 CFR §800.6(b)(1)(iv), you will need to file the final Memorandum of Agreement (MOA), developed in consultation with the Florida State Historic Preservation Officer (SHPO), and any other consulting parties, and related documentation with the ACHP at the conclusion of the consultation process. The filing of the MOA, and supporting documentation with the ACHP is required in order to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with the notification of adverse effect. If you have any questions or require further assistance, please contact Sarah Stokely at (202) 517-0224 or by email at sstokely@achp.gov.

Sincerely,

LaShavio Johnson

LaShavio Johnson
Historic Preservation Technician
Office of Federal Agency Programs

SECTION 8.0 PHASED CONSTRUCTION MAP

See Phased Construction Map attached.

Figure 19: Phased Construction Map

APPENDIX A

CULTURAL RESOURCES ASSESSMENT SURVEY

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by FDOT pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated December 14, 2016 and executed by FHWA and FDOT.

CULTURAL RESOURCE ASSESSMENT SURVEY OF VENETIAN CAUSEWAY FROM NORTH BAYSHORE DRIVE IN THE CITY OF MIAMI TO PURDY AVENUE IN THE CITY OF MIAMI BEACH

MIAMI-DADE COUNTY

Financial Management No. 422713-2-22-01

Prepared for:

Florida Department of Transportation
District 6
1000 NW 111th Avenue
Miami, Florida 33172

FINAL REPORT

February 2019

EXECUTIVE SUMMARY

At the request of the Florida Department of Transportation (FDOT), District 6, Janus Research conducted a Cultural Resource Assessment Survey (CRAS) for the Venetian Causeway Bridges from North Bayshore Drive in the City of Miami to Purdy Avenue in the City of Miami Beach, Miami-Dade County, Florida (Financial Planning ID [FPID] No. 422713-2-22-01). The objective of the survey was to identify cultural resources within the project area of potential effect (APE) and assess the resources in terms of their eligibility for listing in the National Register of Historic Places (National Register) according to the criteria set forth in 36 Code of Federal Regulations (CFR) Section 60.4.

The Venetian Causeway is approximately 2.5 miles long and is primarily a two-lane undivided facility that provides a major link between the City of Miami and the City of Miami Beach in Miami-Dade County, Florida. The Causeway includes ten fixed span bridges and two bascule leaf span bridges over the Intracoastal Waterway (bridge numbers 874459, 874460, 874461, 874463, 874465, 874466, 874471, 874472, 874473, 874474, 874477, and 874481) extending from North Bayshore Drive (City of Miami) to Purdy Avenue (City of Miami Beach). The purpose of the proposed project is to address identified structural and functional deficiencies of the twelve existing bridges through potential alternatives such as replacement or rehabilitation.

The Causeway bridges are mainly short span reinforced concrete arch beam bridges. Each bridge section consists of two 12-foot travel lanes with 4-foot bike lanes and 4-foot sidewalks on each side. Between 1996 and 1999, the twelve causeway bridges underwent major rehabilitation that included the concrete arched beams, decks, foundations and the full replacement of all sidewalks and railings. The rehabilitation and repairs to the concrete elements were anticipated to last for ten years. As part of the rehabilitation, the east bascule bridge (Bridge 10) movable span and machinery were replaced. Spans 17 through 41 of the west bascule bridge (Bridge 1), including the bascule span, were replaced with a higher profile and wider channel to accommodate navigational traffic. Presently, the bridges exhibit severe deterioration because of their proximity to the very aggressive marine environment. Due to new design codes, these bridges do not meet current design and safety requirements.

This assessment complies with Section 106 of the *National Historic Preservation Act (NHPA) of 1966* (Public Law 89-665, as amended), as implemented by 36 CFR 800 -- *Protection of Historic Properties* (incorporating amendments effective August 5, 2004); Stipulation VII of the *Programmatic Agreement among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation (ACHP), the Florida Division of Historical Resources (FDHR), the State Historic Preservation Officer (SHPO), and the FDOT Regarding Implementation of the Federal-Aid Highway Program in Florida* (Section 106 Programmatic Agreement, effective March 2016, amended June 7, 2017); Section 102 of the *National Environmental Policy Act (NEPA) of 1969*, as amended (42 USC 4321 et seq.), as implemented by the regulations of the Council on Environmental Quality (CEQ) (40 CFR Parts 1500–1508); Section 4(f) of the *Department of Transportation Act of 1966*, as amended (49 USC 303 and 23 USC 138); the revised Chapter 267, *Florida Statutes (F.S.)*; and the standards embodied in the FDHR's *Cultural Resource Management Standards and Operational Manual* (February

2003), and Chapter 1A-46 (*Archaeological and Historical Report Standards and Guidelines*), *Florida Administrative Code*. In addition, this report was prepared in conformity with standards set forth in Part 2, Chapter 8 (*Archaeological and Historical Resources*) of the FDOT *Project Development and Environment Manual* (effective June 14, 2017). All work also conforms to professional guidelines set forth in the *Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716, as amended and annotated).

Principal Investigators meet the *Secretary of the Interior's Professional Qualification Standards* (48 FR 44716) for archaeology, history, architecture, architectural history, or historic architecture. Historic resource investigations were conducted in July 2015 under the direction of Amy Groover Streelman, M.H.P. Archaeological investigations were conducted in July 2015 under the direction of Kathleen Hoffman, Ph.D.

The archaeological APE consists of bridges and associated abutments located on man-made land. The substructural features associated with the bridges are also in an area of Biscayne Bay that has been subjected to dredging and disturbance resulting from installation of underwater cables and pipelines. Based on this, subsurface testing for archaeological sites was not conducted and the archaeological portions of the investigation focused on providing relevant documentation to support the low potential for archaeological sites.

The historic resources survey identified a total of 42 historic resources. There were two previously recorded buildings (8DA11740 and 8DA11754), two previously recorded linear resources (8DA11375 and 8DA12366), two newly recorded resource groups (8DA14395 and 8DA15805), twelve newly identified bridges (8DA14373-8DA14384) and twenty-four newly identified buildings (8DA14385-8DA14393, 8DA15806-8DA15821). The National Register-listed resource, Venetian Causeway (8DA4736), was converted to the Venetian Islands Resource Group (8DA14395) and includes the twelve individual bridges (8DA14373-8DA14384) that make up the Causeway, as well as six man-made islands and five earthen causeway landings that are contributing features within the historic designed landscape.

Two previously recorded resources are considered or determined to be National Register-ineligible. The previously recorded building, Venetian Isles Apartment (8DA11740), has not been evaluated by the SHPO, however the previous surveyor determined that the building was National Register-ineligible. Given its common design and lack of historic significance, this building is considered ineligible for listing in the National Register individually or as part of a historic district. The previously recorded linear resource, Collins Canal Seawall (8DA12366), was determined to be National Register-ineligible by the SHPO on May 4, 2012. New seawall construction and deterioration of the existing historic wall has diminished the resources historic integrity of materials, design, and workmanship. Therefore, given its loss of integrity, this resource is still considered ineligible for listing in the National Register individually or as part of a historic district.

Two previously recorded resources have been determined to be National Register-eligible. The previously recorded building, Terrace Towers (8DA11754), was determined to be National Register–eligible by the SHPO on January 5, 2011. It is considered eligible for listing in the

National Register as the work of a master under Criterion C. The previously recorded linear resource, Collins Canal (8DA11375), was determined to be National Register–eligible by the SHPO on May 4, 2012. It is considered eligible for listing in the National Register under Criteria A and C in the categories of Transportation, Engineering, and Community Planning and Development.

As a result of the current project, the Venetian Islands Resource Group (8DA14395) was documented. This resource group subsumes the National Register-listed Venetian Causeway (8DA4736). As documented in the 1989 National Register nomination, the Causeway consists of "twelve bridges containing two bascule spans connected by a two lane road" (Welcher 1989). Due to severe deterioration, the bridges are in need of rehabilitation or replacement, and spans of the westernmost bridge were recently replaced following consultation with SHPO. Each of the twelve bridges were given individual FMSF numbers and were included within the newly identified Venetian Islands Resource Group (8DA14395). In consultation with the SHPO/FMSF, the FMSF site file for the Venetian Causeway (8DA4736) will be converted from its current classification as a historic bridge to a resource group. The resource group classification serves as a comprehensive tool for documenting the entire landscape of the Venetian Islands, including the bridges.

While the Venetian Causeway remains National Register-listed, the individual bridges (8DA14373-8DA14384) were evaluated as part of the current project and are considered contributing resources within the Venetian Islands Resource Group (8DA14395). Additionally, the six islands and five earthen causeway landings of the Venetian Islands were included within this historic designed landscape. The resource group encompasses a designed landscape of man-made islands, bridges, and earthen causeways that resulted from developers' ambitious plans to create a residential development on Biscayne Bay. Between 1915 and 1926, the location and layout of the islands were carefully planned and arranged by real estate developers, particularly the Bay Biscayne Improvement Company, to create a "Venetian" landscape across Biscayne Bay. Employing the most advanced dredging and construction methods of the time, crews shaped islands and connected them using a series of earthen causeways and concrete bridges. Despite the replacement of spans of the westernmost bridge in 2015, the Venetian Islands Resource Group (8DA14395) is considered National Register-eligible under Criteria A and C in the categories of Community Planning and Development, Transportation, Architecture, and Engineering.

The twenty-four newly identified historic buildings (8DA14385-8DA14393, 8DA15806-8DA15821) and one newly identified historic resource group (8DA15805) are considered National Register-ineligible, individually or as part of a historic district. These resources represent residential buildings that do not appear to be associated with any known historic events or trends in the area, nor are they related to any persons important or significant in local, state or national events. Furthermore, these resources have experienced extensive alterations and additions resulting in the loss of historic integrity of design, materials, workmanship, and feeling. Therefore, due to the common architecture, loss of integrity, and lack of historic significance, resources 8DA14385-8DA14393, 8DA15805-8DA15821 are considered ineligible for listing in the National Register individually or as part of a historic district.

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INTRODUCTION

At the request of the FDOT, District 6, Janus Research conducted a CRAS for the Venetian Causeway Bridge from North Bayshore Drive in the City of Miami to Purdy Avenue in the City of Miami Beach, Miami-Dade County, Florida (FPID No. 422713-2-22-01). The objective of the survey was to identify cultural resources within the project APE and assess the resources in terms of their eligibility for listing in the National Register according to the criteria set forth in 36 CFR Section 60.4.

The Venetian Causeway is 2.5 miles long and is primarily a two-lane undivided facility that provides a major link between the cities of Miami and Miami Beach in Miami-Dade County, Florida. The Causeway includes ten fixed span bridges and two bascule leaf span bridges over the Intracoastal Waterway (bridge numbers 874459, 874460, 874461, 874463, 874465, 874466, 874471, 874472, 874473, 874474, 874477, and 874481) extending from North Bayshore Drive (City of Miami) to Purdy Avenue (City of Miami Beach). The purpose of the proposed project is to address identified structural and functional deficiencies of the twelve existing bridges, and identify appropriate No-Build and Build Alternatives (Rehabilitation and Replacement, respectively).

The Causeway bridges are mainly short span reinforced concrete arch beam bridges. Each bridge section consists of two 12-foot travel lanes with 4-foot bike lanes and 4-foot sidewalks on each side. Between 1996 and 1999, the twelve causeway bridges underwent a major rehabilitation that included the concrete arched beams, decks, foundations and the full replacement of all sidewalks and railings. The rehabilitation and repairs to the concrete elements were anticipated to last for ten years. As part of the rehabilitation, the east bascule bridge (Bridge 10) movable span and machinery were replaced. Spans 17 through 41 of the west bascule bridge (Bridge 1), including the bascule span, were replaced with a higher profile and wider channel to accommodate navigational traffic. Presently, the bridges exhibit severe deterioration because of their proximity to the very aggressive marine environment. Due to new design codes, these bridges do not meet current design and safety requirements.

As a result of the continued deterioration of the bridges, in 2004, the FDOT authorized Miami-Dade County to post load restrictions on the bridges. Between 2009 and 2011, the County conducted another major rehabilitation project to repair the Causeway's bridges. The scope of work for this rehabilitation included major repairs to the bridge support beams, diaphragms, deck undersides, and support piers. In 2012, FDOT in partnership with Miami-Dade County initiated the Project Development and Environment (PD&E) Study.

This assessment complies with Section 106 of the *National Historic Preservation Act (NHPA) of 1966* (Public Law 89-665, as amended), as implemented by 36 CFR 800 -- *Protection of Historic Properties* (incorporating amendments effective August 5, 2004); Stipulation VII of the *Programmatic Agreement among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation (ACHP), the Florida Division of Historical Resources (FDHR), the State Historic Preservation Officer (SHPO), and the FDOT Regarding Implementation of the Federal-Aid Highway Program in Florida* (Section 106 Programmatic Agreement, effective March 2016, amended June 7, 2017); Section 102 of the *National*

Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 et seq.), as implemented by the regulations of the CEQ (40 CFR Parts 1500–1508); Section 4(f) of the *Department of Transportation Act of 1966*, as amended (49 USC 303 and 23 USC 138); the revised Chapter 267, *Florida Statutes (F.S.)*; and the standards embodied in the FDHR's *Cultural Resource Management Standards and Operational Manual* (February 2003), and Chapter 1A-46 (*Archaeological and Historical Report Standards and Guidelines*), *Florida Administrative Code*. In addition, this report was prepared in conformity with standards set forth in Part 2, Chapter 8 (*Archaeological and Historical Resources*) of the FDOT *Project Development and Environment Manual* (effective June 14, 2017). All work also conforms to professional guidelines set forth in the *Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation* (48 FR 44716, as amended and annotated).

Principal Investigators meet the *Secretary of the Interior's Professional Qualification Standards* (48 FR 44716) for archaeology, history, architecture, architectural history, or historic architecture. Historic resource investigations were conducted in July 2015 under the direction of Amy Groover Streelman, M.H.P. Archaeological investigations were conducted in July 2015 under the direction of Kathleen Hoffman, Ph.D.

Project Background

The Venetian Causeway is classified as an urban minor arterial road in Miami-Dade County, and is a significant transportation route connecting the City of Miami with the City of Miami Beach in Miami-Dade County, Florida. The current Causeway follows the original route of the Collins Bridge, a wooden structure built in 1913. The bridges along the causeway were originally built in 1926 with an anticipated design life of 50 years.

Between 1996 and 1999, the twelve causeway bridges underwent major rehabilitation that included the concrete arched beams, decks, foundations and the full replacement of all sidewalks and railings. The rehabilitation and repairs to the concrete elements were anticipated to last for ten years. As part of the rehabilitation, the east bascule bridge (Bridge 10) movable span and machinery was replaced. Spans 17 through 41 of the west bascule bridge (Bridge 1), including the bascule span, was replaced with a higher profile and wider channel to accommodate navigational traffic.

As a result of the continued deterioration of the bridges, in 2004 the FDOT authorized Miami-Dade County to post load restrictions on the bridges. Between 2009 and 2011, the County conducted another major rehabilitation project to repair the causeway's bridges. The scope of work for this rehabilitation included major repairs to the bridge support beams, diaphragms, deck undersides, and support piers. In 2011, FDOT in partnership with Miami-Dade County initiated the PD&E Study. Between 2015 and 2016 the Venetian Causeway underwent an Emergency Repair to replace the remaining original spans of Bridge 1 (spans 1 to 16). The bridges are continuously being repaired to maintain them in operational condition.

The deteriorated condition of the bridges, deck geometry, and load carrying capacity of the bridges, affects the ability of the bridges to adequately serve traffic demand; as such, Bridges

2 thru 12 have been classified as functionally obsolete. Bridge 1 has been replaced in phases and is not considered to be functionally obsolete.

Due to the accelerated state of deterioration, inspection dates were increased from biennial inspections (every other year) required by Federal Highway Administration (FHWA) to biannual inspections (every 6 months).

Project Description

The project is guided by the PD&E Manual, Section 339.155(6)(b) Florida Statutes, Executive Orders 11990 and 11988, Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA and 23 CFR 771. Successful completion of the PD&E process must precede the formal decision to proceed with the recommended improvement.

The Venetian Causeway is approximately 2.5 miles long and is primarily a two-lane undivided facility that provides a major link between the City of Miami and the City of Miami Beach in Miami-Dade County, Florida. The causeway includes ten fixed span bridges and two bascule leaf span bridges over the Intracoastal Waterway (bridge numbers 874459, 874460, 874461, 874463, 874465, 874466, 874471, 874472, 874473, 874474, 874477, and 874481) extending from North Bayshore Drive (City of Miami) to Purdy Avenue (City of Miami Beach). The purpose of the proposed project is to address identified structural and functional deficiencies of the twelve existing bridges through potential alternatives such as replacement or rehabilitation.

The bridges were originally built in 1926 and have been designated as historic landmarks by the City of Miami and City of Miami Beach; they are also listed on the National Register of Historic Places (NRHP). The project will take this historic designation into consideration and ensure that any decisions on improvements are coordinated through the County and a Task Force of representatives that reflect the local, state and federal interests of historic preservation. Given the historicity of the bridges, rehabilitation options will also be explored as part of the potential alternatives during the PD&E Study.

The causeway bridges are mainly short span reinforced concrete arch beam bridges. Each bridge section consists of two 12 ft. travel lanes with 4 ft. bike lanes and 4 ft. sidewalks on each side. In 1996, the bridges underwent a major rehabilitation consisting of gunite repairs to the superstructure arch beams and full replacement of all sidewalks and railings. The western bascule bridge (Bridge 1) and its spans 17 through 41 were also replaced. Presently, the bridges exhibit severe deterioration because of their proximity to the very aggressive marine environment. Due to new design codes, these bridges do not meet current design and safety requirements. The corridor is tolled, and is owned and operated by Miami-Dade County. A Project Location Map is included as Figure 1.

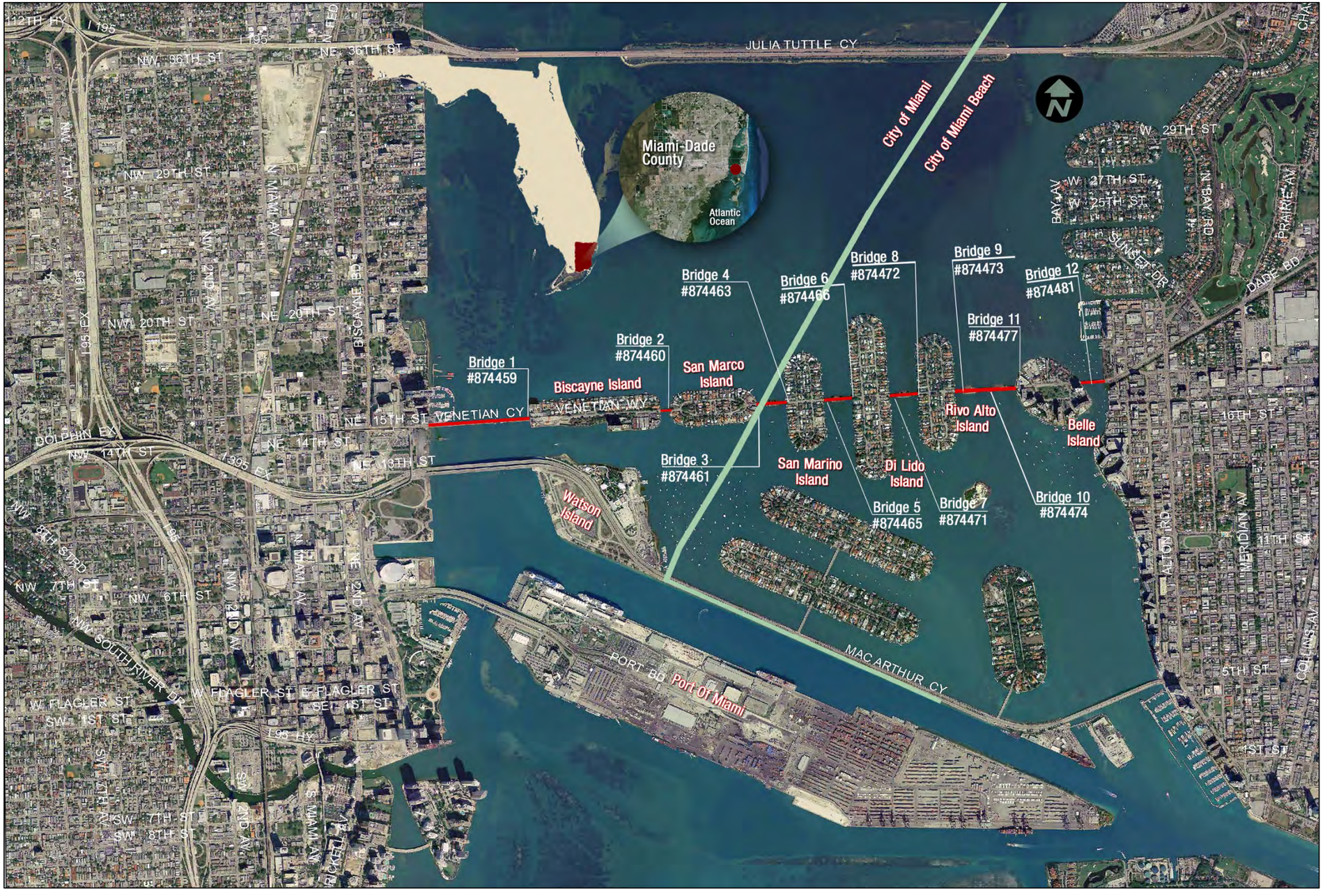

Figure 1: Project Location Map

Purpose and Need

The purpose of the proposed project is to address identified structural and functional deficiencies of the twelve existing bridges (ten low-level fixed spans and two movable bascules) through potential alternatives such as replacement or rehabilitation. The improvements are anticipated to meet the following identified needs:

Structural and Functional Deficiencies

The Venetian Causeway is classified as an urban minor arterial in Miami-Dade County and is a significant transportation route connecting the City of Miami with the City of Miami Beach. The bridges along the Venetian Causeway were originally built in 1926 with an anticipated design life of 50 years. The bridges have exceeded their design life and, in most cases, have been classified as functionally obsolete. Due to the accelerated state of deterioration, inspection dates are being increased from the biennial minimum required by FHWA to biannual inspections. Bridge Inspection Reports (conducted in October 2018) yielded sufficiency ratings between 27.4 and 67.6 on a scale of 100.0 for the various bridges. The sufficiency rating of each bridge is shown in Table 1.

Table 1: Venetian Causeway Bridge Inventory Ratings

Bridge No.	FDOT Bridge No.	2017 Sufficiency Rating	Deficiency
1	874459	67.6	
2	50.0	50.0	Functionally Obsolete
3	874461	38.9	Functionally Obsolete
4	874463	38.9	Functionally Obsolete
5	874465	38.9	Functionally Obsolete
6	874466	40.1	Functionally Obsolete
7	874471	37.6	Functionally Obsolete
8	874472	23.6	Functionally Obsolete
9	874473	27.4	Functionally Obsolete
10	874474	32.2	Functionally Obsolete
11	874477	34.3	Functionally Obsolete
12	874481	34.7	Functionally Obsolete

The superstructure of each of these bridges displays advanced corrosion with section loss of several members that is significant enough to warrant supplemental supports and/or load restrictions. The bridge inspection reports also cite:

- Under-deck cracks,
- Failure of compression joints,
- Delamination and cracks on pier walls and abutments,
- Corrosion and section loss of substructure members,
- Major deficiencies in the bridge tender's facility,
- Major deck pavement deterioration,
- Substandard signing,
- Pavement marking and signalization, and
- Major Americans with Disabilities Act (ADA) deficiencies on both sidewalks along the bridges.

Once initiated, corrosion cannot be remedied and sufficiency ratings are only expected to decrease further over time.

Transportation Plan Consistency

The Venetian Causeway Bridge project is identified in the Miami-Dade Metropolitan Planning Organizations 2040 Long Range Transportation Plan (LRTP) as a Priority I Priority II project. In other words, the Planning and Design phases for this project will be funded in 2015-2020 (Priority I), and the Construction phase will be funded in 2021-2025 (Priority II). The project, described as a bridge replacement, is also shown on Table 6-7, Priority II Projects of the LRTP. Additionally, the Adopted 2012-2016 FDOT Five-Year Work Program shows the Venetian Causeway Bridge project with funding in the amount of $1,770,000 for the PD&E/EMO Study in FY 2012.

Modal Interrelationships

Sidewalks and bicycle lanes exist on both sides of the Venetian Causeway along the entire corridor. Both the City of Miami and the City of Miami Beach Bicycle Master Plans identify the Venetian Causeway as a significant bicycle corridor as it serves as one of the County’s most well-traveled recreational and commuter bicycle routes. Pedestrian facilities will additionally be studied for opportunities to enhance safety and connectivity. Pedestrian and bicycle mobility is anticipated to be improved as a result of this project.

It should be noted that a Miami-Dade Transit bus route also operates along the Causeway corridor, Route 101, Route A. This route connects the Omni Metromover/Bus Terminal adjacent to the Performing Arts Center to Lincoln Road in South Beach. Bus operation will be maintained on the corridor.

Emergency Evacuation

The Venetian Causeway not only serves west-east travel between the City of Miami and the City of Miami Beach, but it also serves regional travel as it is one of only two routes leading from south Miami Beach that provides hurricane evacuation capabilities.

PROJECT ALTERNATIVES

This section summarizes the alternatives considered in the PD&E Study. Alternatives were developed and evaluated based on the ability of each to meet the project needs. The development and analysis of the alternatives included No-Build and Build Alternatives (Rehabilitation or Replacement) as shown in Table 2.

The Rehabilitation Build Alternative was developed by combining a Fixed Bridge Rehabilitation Alternative with the corresponding Bascule Bridge Rehabilitation Alternative. The Replacement Build Alternative was developed by combining a Bridge Typical Section Alternative with a Fixed Bridge Alternative and a Movable Bridge Alternative.

The following evaluation criteria were used to examine the alternatives:

- Ability to satisfy the Purpose and Need for Project
- Project costs
- Right-of-Way (ROW) required
- Potential Natural, Social, and Physical Environmental Impacts
- Section 4(f) as described in 49 U.S.C 303
- Section 106 criteria of the National Historic Preservation Act (NHPA)

Table 2: No-Build and Build Alternatives (Rehabilitation or Replacement)

NO-BUILD ALTERNATIVES	
1	**No-Action** – The bridges remain as is with routine maintenance only.
2	**Transportation Systems Management & Operations (TSM&O)** – The bridges remain as is with routine maintenance only. Transit and other operational improvements would be made to facilitate transportation along the corridor.
BUILD ALTERNATIVES - REHABILITATION	
3	**Fixed Bridge Rehabilitation w/out Beam Strengthening** – Rehabilitation of the fixed bridges to improve safety and load carrying capacity.
4	**Fixed Bridge Rehabilitation with Beam Strengthening** – Rehabilitation of the fixed bridges to improve safety and load carrying capacity. Includes beam strengthening to achieve a higher load carrying capacity.
M1	**Bascule Bridge Rehabilitation** – Rehabilitation of the eastern movable bridge to improve safety and achieve a higher load carrying capacity.
BUILD ALTERNATIVES - REPLACEMENT	
Typical Sections – The replacement of the bridges would require that a new typical section be selected along with the railing type.	
T1	**Venetian Railing** – This railing replicates the existing railing on the bridges, but may not satisfy the current standards for railings.
T2	**Wyoming Railing TL-4 at coping** – This railing is different from the existing railing, but it allows views of the water from the bridges and satisfies the current standards for railings.
T3	**Wyoming Railing TL-3 at curb and Original Venetian Railing at Coping** – This alternative places the Wyoming railing between the bike lane and the sidewalk with a replication of the original Venetian railing at the bridge coping. This would allow the traffic railings on the bridges to meet current standards, yet maintain the Venetian Railing on the outside of the sidewalk at the bridge coping.
T4	**Wyoming Railing TL-3 at curb and Custom Railing at Coping** – This alternative places the Wyoming railing between the bike lane and the sidewalk with a new pedestrian railing at the bridge coping. This would allow the traffic railings on the bridges to meet current standards.
Fixed Bridge Alternatives – The replacement of the bridges would require that the structural system for the fixed bridges be selected.	
5	**Tunnel** – This alternative replaces the movable bridges with a tunnel that maintains navigational traffic and connects to the residential islands.
6	**High-Level Fixed Bridge** – This alternative replaces the movable bridges with a high-level bridge that maintains navigational traffic.
7	**Arched Beams** – This alternative provides low-level bridges, replicates the arched beams and maintains the look of the existing bridges.
8	**Florida I Beams (FIB) with Arched Fascia** – This alternative provides low-level bridges, replicates the existing arched beams at the fascia of the bridge and uses FIB for the interior beams.
9	**Florida I Beams (FIB)** – This alternative provides low-level bridges, uses FIB for all the beams.
10	**Cast-in-Place Slab (Flat/Variable Depth)** – This alternative provides low-level bridges that use a cast-in-place deck that can have either a flat profile or a variable profile that approximates an arch beam.
11	**Infill Spoil Islands** – It was suggested during the Alternatives Public Workshop that removing the existing bridges and filling to create a long spoil island that would bridge the gap to the residential island be evaluated as an alternative.
12	**Value Engineering Alternative** – This alternative consists of seven alternatives for addressing bridges 2 through 12 and 3 alternatives for the typical section.
Movable Bridge Alternatives – The replacement of the eastern movable bridge would require that the movable bridge type be selected.	
M2	**Swing Bridge** – The existing double leaf bascule bridge (drawbridge) would be replaced with one that pivots around a center support and swings open to allow the passage of boats.
M3	**Vertical Lift Bridge** – The existing double leaf bascule bridge (drawbridge) would be replaced with one that lifts the bridge deck vertically to allow the passage of boats below the raised deck.
M4	**Double Leaf Bascule Bridge** – The existing bridge would be replaced in kind.
M5	**Single Leaf Bascule Bridge** – The existing double leaf bascule bridge (drawbridge) would be replaced with one that has only one leaf instead of two.

No-Build Alternative 1 - No-Action

The No-Action Alternative maintains the existing bridges and roadway approaches in their current condition. No improvements would be made to the structures, except for routine maintenance. The No-Action Alternative is used as a basis to evaluate the other project alternatives.

As a result of the bridge inspections dated October 26, 2017 through January 17, 2018, all the bridges, except Bridge 1 in the Causeway were classified as "functionally obsolete." Sufficiency ratings for Bridges 2-12 are all at 50 or below out of a possible 100, based on the FHWA Sufficiency Rating Evaluation. According to the FHWA policy, bridges with a sufficiency rating of less than 50 are eligible for replacement.

The No-Action Alternative includes only routine maintenance performed as needed to keep the bridges open to traffic until safety issues, such as reduced capacity due to ongoing deterioration, would require them to be closed. Repair or replacement could be considered at a later date. The No-Action Alternative does not include modification or improvements to the existing bridges or approach roadway. Existing geometric and other deficiencies, including substandard lane width and curbs would remain. No changes to the existing horizontal and vertical navigational clearances would occur. The routine maintenance that would be performed on the structures would include:

- Spall repairs;
- Structural steel cleaning and painting;
- Steel repairs; and
- Mechanical and electrical maintenance repairs.

The bridges are vulnerable to coastal storms and are below the 100-year Peak Storm Surge elevation of 11.6 feet NAVD88. Storm surge heights range from 7.7 feet (FEMA) to 11.6 feet for the 100-year storm. Wave crest is storm surge plus 70% of the maximum wave height. The Causeway fixed bridges would be inundated in the 100-year storm event. The bridges are also scour susceptible. The 100-year base flood event is predicted to result in scour to an elevation (-)20.9feet, which is below average existing pile tip elevation of (-)19.0feet. This would result in bridge failure.

The No-Action Alternative would preserve the historic character of the Venetian Causeway, and does not appear to be an adverse effect to the significant resources under Section 106. There are also no impacts to noise and air quality and no potential for contamination involvement with the no action alternative. However, the alternative was deemed to be neither feasible nor prudent as it does not correct the bridges' structural and functional deficiencies. In addition, the lack of appropriate treatment of stormwater runoff will continue to degrade the natural habitat of Biscayne Bay. Over time, continued deterioration of structural elements will pose safety hazards to the public or place intolerable restrictions on travel.

No-Build Alternative 2 - Transportation Systems Management & Operations (TSM&O)

The objective of Transportation Systems Management & Operations (TSM&O) multi-modal improvements is to identify strategies that reduce existing traffic congestion and prevent its occurrence in areas that are currently not congested. These strategies are designed to modify travel behavior and increase system efficiency without costly infrastructure improvements. TSM&O strategies are implemented when one or more of the following occurs:

- Insufficient funds available to meet system improvement needs;
- Increased construction costs for new roadways and transit facilities;
- Increased need to improve operational efficiency; or
- Changes in travel patterns.

TSM&O options generally include traffic signal and intersection improvements, access management and transit improvements. The TSM&O Alternative includes those types of activities designed to maximize the utilization and efficiency of the present system. The alternative components that were considered include the following:

- Traffic signal optimization;
- Traffic operational improvements to include signing and pavement marking improvements;
- Enhanced bus service;
- Facilitated pedestrian and bicyclist measures; and
- Limited repairs on the existing bridges to improve operation.

Similar to the No-Action Alternative, the TSM&O Alternative would preserve the historic character of the bridges and does not appear to be an adverse effect to the significant resources under Section 106, but maintains the existing bridges in their current condition. There are no impacts to noise and air quality and no potential for contamination involvement. The alternative provides some transportation operation improvements on the corridor, but was deemed to be neither feasible nor prudent as it does not correct the bridges' structural and functional deficiencies. In addition, the lack of appropriate treatment of stormwater runoff will continue to degrade the natural habitat of Biscayne Bay. Over time, continued deterioration of structural elements will pose safety hazards to the public or place restrictions on travel.

Build Alternatives 3, 4 and M1 - Rehabilitation

Rehabilitation of the Venetian Causeway bridges is directed towards maintaining their eligibility for listing in the National Register. Specific details of historic elements to be retained will need to be established in accordance with the Secretary of Interior's Standards for Rehabilitation and in keeping with Section 106 of the NHPA. It is anticipated that the concrete bridge railings, light standards and arched form of the concrete superstructure will need to be retained in order to maintain the existing historic character. The historical and aesthetic significance of the existing bridges as well as the need to protect and preserve the bridges was

an important consideration in developing rehabilitation alternatives. The evaluation criteria for the Bridge Rehabilitation Alternatives shown in Table 2, were developed with input from the Venetian Causeway residents, the Project Advisory Group and Cultural Resource Committee.

Table 3: Bridge Rehabilitation Evaluation Criteria

Criteria	Description
Service Life	Provide for a minimum of 25 years of service life following rehabilitation. It is anticipated that a typical program of inspection and routine maintenance will be performed during the remaining life of the structures. Given the age, use, structure type, and exposure conditions, additional periodic repairs should also be anticipated.
Safety	Meet current safety standards except as noted herein and approved by Design Exception and Variation as required.
Design Speed	35 mph (Posted 30 mph)
Structural Capacity	• Live Load Capacity – AASHTO HL-93 design load • Scour Resistance – Meet Standards • Wave Force Resistance – Meet Standards (Classification – Extremely Critical) • Vessel Impact Resistance – Meet Standards (Classification –Critical)
Traffic Railings	Meet current safety standards.
Bridge & Navigation Clearances	Meet existing horizontal and vertical navigation and bridge clearances.

The rehabilitation alternatives only apply to Bridges 2 through 12. Bridge 1 has been replaced in phases so none of the original structure remains. The Major Rehabilitation Project between 1996 and 1999 replaced 1,274 feet of the bridge, including the movable span and the 12 fixed approach spans on each side of the movable span. The remaining 730-foot 9-inch length of bridge was replaced during the Emergency Repair Design-Build Project between 2015 and 2016. Bridge 1 will continue to have routine maintenance and was not included for evaluation as part of the Rehabilitation Alternatives.

Existing stormwater management systems in the residential islands and proposed systems on the spoil islands will be utilized to collect runoff from the bridges since scuppers will be eliminated with the replacement of the existing bridge deck. These systems will provide water quality and attenuation. The stormwater management approach will be coordinated through pre-application meetings with DERM, the local environmental agency, and SFWMD, the regional water management district as well as the maintaining agencies, such as the City of Miami and the City of Miami Beach.

For Bridge 12, half of the stormwater runoff will drain toward the City of Miami Beach's stormwater management system along Dade Boulevard and Sunset Harbour Drive. Dade Boulevard has completed reconstruction and the proposed stormwater management approach

will be coordinated with the City of Miami Beach to ensure there is sufficient capacity to handle the stormwater runoff.

Build Alternatives 5 through 11 and M2 through M5 - Replacement

The replacement alternatives consist of the construction of entirely new structures for Bridges 2 through 12. Bridge 1 has already been replaced and was not included for evaluation as part of the Replacement Alternatives. The new bridge structures will be built along the same alignment and will meet all the governing design regulations (including those for wave force resistance and vessel impact resistance). The structures will be designed to be durable and corrosion resistant. The bridge typical sections will be improved by providing wider sidewalks and buffered bicycle lanes.

Similar to the rehabilitation approach, the existing stormwater management systems in the residential islands and proposed systems on the spoil islands will be utilized to collect runoff from the bridges since scuppers will be eliminated. These systems will provide water quality and attenuation. The stormwater management approach will be coordinated through pre-application meetings with DERM, the local environmental agency, and SFWMD, the regional water management district as well as the maintaining agencies, such as the City of Miami and the City of Miami Beach.

For Bridge 12, half of the stormwater runoff will drain toward the City of Miami Beach's stormwater management system along Dade Boulevard and Sunset Harbour Drive. Dade Boulevard has completed reconstruction and the proposed stormwater management approach will be coordinated with the City of Miami Beach to ensure there is sufficient capacity to handle the stormwater runoff.

Railing Alternatives T1 through T4

Bridge railings are required for the protection of traffic and pedestrians. Bridge railings will be designed to satisfy requirements provided by American Association of Highway and Transportation Official's (AASHTO) Guide Specification for Bridge Railings. The railing alternative selection is vital for maintaining the historic character of the bridges, as the new railings might be used to simulate or re-create the original railings.

Alternatives Considered But Eliminated

The following alternatives were considered but not carried forward for more detailed study:

- Alternative 3, Rehabilitation without beam strengthening
- Alternative T2, Wyoming Railing TL-4 at Coping
- Alternative T3, Wyoming Railing TL-3 at curb and Original Venetian Railing at Coping
- Alternative T4, Wyoming Railing TL-3 at curb and Custom Railing at Coping
- Alternative 5, Tunnel
- Alternative 6, High-Level Fixed Bridge
- Alternative 8, Florida I Beam (FIB) with Arched Fascia
- Alternative 9, FIB
- Alternative 10, Cast-in-Place Slab (Flat/Variable Depth)
- Alternative 11, Infill of Spoil Islands
- Alternative 12, Value Engineering
- Alternative M2, Swing Bridge
- Alternative M3, Vertical Lift Bridge
- Alternative M5, Single Leaf Bascule Bridge

AREA OF POTENTIAL EFFECT

The CRAS is a major task required as part of the Section 106 process. An APE must be established in order to determine the physical area in which cultural resources will be identified. For this CRAS, the APE was determined by considering the type of improvements being proposed by the No-Build and Build Alternatives and the potential effects these improvements could have on cultural resources. The improvements under consideration may range from routine maintenance to rehabilitation of the existing bridges to the replacement of the existing bridges. The APE determination also considered the surrounding character of the area and the existing facilities found throughout the corridor. The project APE includes both the archaeological and historic APEs, which are identified based on the proposed project improvements.

The archaeological APE focuses upon identifying and evaluating resources within the geographic limits of the proposed action and its associated ground or bay bottom disturbing activities. Therefore, the archaeological APE was confined to the footprint of subsurface construction activities within the existing ROW.

The APE for historic resources includes the footprint of existing bridges and the earthen structures, as well as the parcels immediately adjacent to where the current bridges touch down. Ms. Ginny Jones, former Architectural Historian with the Compliance and Review Section of the SHPO, participated in the Cultural Resources Committee (CRC) meetings and made several site visits to the Causeway. The APE was deemed appropriate for the project improvements. Figure 2 shows the historic APE for this project.

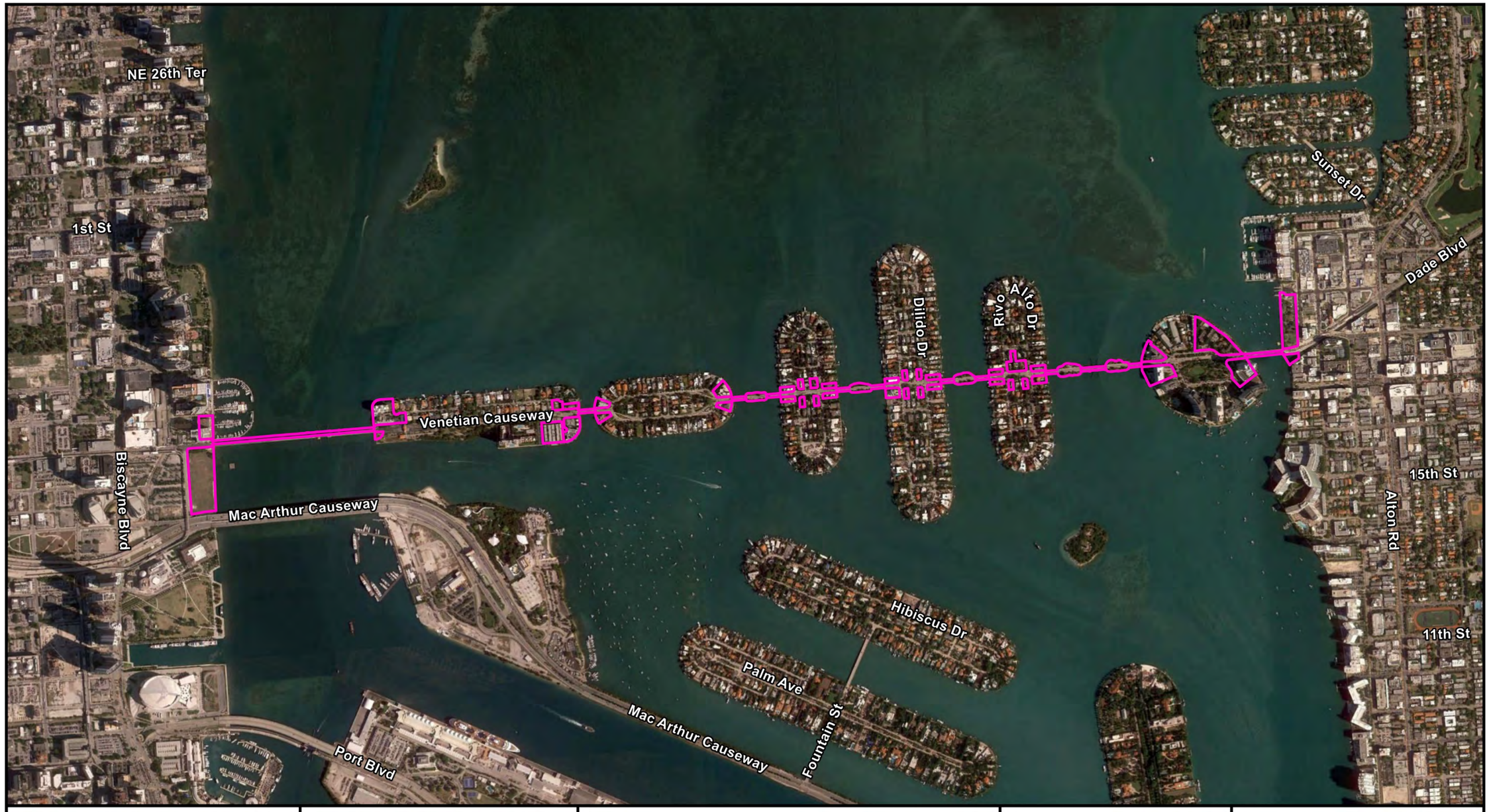

Figure 2: Project APE	*Venetian Causeway from North Bayshore Drive to Purdy Avenue (422713-2-22-01)*	Historic Resources APE	**Note:** The archaeolocal APE was confined to the footprint of subsurface construction activities within the exisitng ROW.	**Miami-Dade County** Meters 0 100 Feet 0 250

ENVIRONMENTAL SETTING

The archaeological APE contains man-made land that has been dredged from the bay bottom beginning in the 1910s. A review of the General Land Office (GLO) historic plat map from 1870 (Florida Department of Environmental Protection [FDEP] 1870) and surveyors' field notes (FDEP 1847) was conducted to establish predevelopment environmental conditions within the project corridor, as well as for evidence of early settlement. The project corridor is located entirely within the waters of Biscayne Bay on man-made land. There were no land forms or settlement illustrated on the historic plat maps or described in the surveyors' notes within or adjacent to the project corridor.

A review of aerial photographs from 1952 and 1968 was conducted to examine land-use and environmental characteristics during the mid-to-late 1900s (University of Florida, George A. Smathers Libraries 2015). By the early 1950s, residential development occupied nearly all of the man-made land within the project APE. The 1952 historic aerial shows that the project corridor and surrounding area have already been subjected to land modification and development, as evidenced by the presence of existing pavement within the road ROW and numerous residential structures. The vegetation at this time appears to have been associated with residential landscaping. As shown in the 1968 aerial photograph, residential development has intensified. Both Belle Isle and Biscayne Island contain larger, multi-family apartment buildings.

Soil data can provide confirmation of the current developed nature of the project corridor indicated by the review of aerial photographs and also provide insight into the past environmental conditions suggested by the historic plat map review. In an attempt to discern the pre-development environment within the project corridor, the 1947 *Soil Survey (Detailed Reconnaissance), Dade County, Florida* (United States Department of Agriculture [USDA] 1958) was reviewed. The entire project corridor is located within "made land." This soil type is used in urban development and was created from the material extracted during the dredging of the bay bottoms in the vicinity of Miami and Miami Beach (USDA 1958:22).

According to the 1996 *Soil Survey of Dade County Area, Florida* (USDA 1996), the project corridor is now located entirely within the Urban land, and Udorthents, limestone substratum, 0 to 5. Urban land is mostly covered by structures and hardscape. The natural soil cannot be observed. Areas not covered by hardscape consist mainly of Udorthents (USDA 1996:21–22). Udorthents, limestone substratum, 0 to 5 consists of fill material that has been excavated from nearby areas and spread over the surface. This layer of fill is usually about 30 inches thick and underlain unconsolidated limestone fragments (USDA 1996:33). No natural vegetation is associated with either soil type. The project corridor currently consists of existing pavement, sidewalk, curb and gutter, residential frontage and access roads, features indicative of buried utilities, and landscaping.

In addition to the review of pertinent environmental factors, a search of the National Oceanic and Atmospheric Administration's (NOAA) Automated Wreck and Obstruction Information System (AWOIS) did not identify any wrecks or obstructions within the archaeological APE. The NOAA Office of Coast Survey Nautical Chart 11467 Intracoastal Waterway West Palm

Beach to Miami (NOAA 2012) indicates that the area of Biscayne Bay where the Venetian Causeway is located has been dredged or consisted of areas with maintained depths and has numerous submerged cables and pipelines. Depths range from eight to nine feet with shallower unaltered waters to the north ranging from two to five feet in depth. The area to the south has been heavily altered by the construction of the Port of Miami. The Intracoastal Waterway is located to the west of Biscayne Island between it and Bayfront Park, Margaret Pace Park, and Maurice Ferré Park, formerly known as Museum Park. No submerged features or obstructions are identified underneath the bridges or adjacent to them.

HISTORICAL OVERVIEW

The following overview traces the historical development of the general study area from European settlement through the twentieth century. The intent of this historical overview is to serve as a guide to field investigations by identifying the possible locations of any resources within the project APE and to provide expectations regarding the potential historic significance of any such resources. A precontact context is not pertinent due to the man made nature and level of previous disturbance of the archaeological APE. Further detailed information regarding the history specfic to the Venetian Causeway can also be found in the National Register of Historic Places Registration Form located in Appendix A.

European Contact and Colonial Period (circa 1513–1821)

Official credit for the discovery of Florida belongs to Juan Ponce de León, whose voyage of 1513 took him along the eastern coast of the peninsula (Tebeau 1971:21). He is believed to have sailed as far north as the mouth of the St. Johns River before turning south, stopping in the Cape Canaveral area and possibly at Biscayne Bay. The expedition then continued southward, following the Florida Keys, making contact with the local Tequesta people en route before turning to the northwest, where they encountered the Calusa along the southwestern Gulf Coast.

Other Spanish explorers followed Juan Ponce de León, and over the next 50 years the Spanish government and private individuals financed expeditions hoping to establish a colony in "La Florida." In 1565, King Philip II of Spain licensed Pedro Menéndez de Avilés to establish a settlement in St. Augustine, Florida. Between 1565 and 1566, Menéndez sailed along the Florida coast placing crosses at various locations and leaving Spaniards "of marked religious zeal" to introduce Christianity to the Native American people (Gannon 1965:29). Settlements with associated missions were established at St. Augustine, San Mateo (Ft. Caroline) and Santa Elena, and smaller outposts and missions were located in Ais, Tequesta, Calusa, and Tocobaga territory (Gannon 1965:29).

By the beginning of the eighteenth century, the Native American population of South Florida had declined considerably as a result of disease, slave raids, intertribal warfare, and attacks from a new group of Native Americans, the Seminoles. The Seminoles, descendants of Creek Indians, moved into Florida during the early eighteenth century to escape the political and population pressures of the expanding American colonies to the north (Wright 1986:218).

By the end of the eighteenth century, the Seminoles had become the dominant Native American group in the state. Groups of fugitive African American slaves also had settled among the Seminoles by the early nineteenth century (Brown 1991:5–19). Armed conflict with pioneers, homesteaders, and eventually the United States Army resulted in the removal of most of the Seminoles from Florida. This action forced the withdrawal of the remaining Seminole population to the harsh environment of the Everglades and Big Cypress Swamp by the late nineteenth century.

Territorial and Statehood Period (1821–1860)

In 1821, after several years of negotiations with Spain, the U.S. acquired Florida as a territory. The population of the territory at that time was still centered in the northern areas around Pensacola, St. Augustine, and Tallahassee. As more European-American settlers moved into the region, conflicts arose with the Seminole people over available land. Pressure began to bear upon the government to remove the Seminoles from northern Florida and relocate them farther south. The Treaty of Moultrie Creek (1823) restricted the Seminole people to approximately four million acres of land in the middle of the state, running south from Micanopy to just north of the Peace River (Mahon 1967: Rear foldout map). The Seminoles did not approve of this treaty because they were reluctant to move from their established homes to an area that they felt could not be cultivated. Other treaties soon followed such as Payne's Landing (1832) and Fort Gibson (1833), which called for Seminole emigration to the western territories (Mahon 1967:75–76, 82–83). These treaties fostered Seminole resentment of settlers that would culminate in the Second Seminole War.

During the Second Seminole War, the area around Lake Tohopekaliga was a Seminole stronghold. They kept their cattle in the woods around the lake and retreated into the cypress swamp west of the lake at the approach of soldiers (Mahon 1967; Sprague 1964; Moore-Willson 1935). Tohopekaliga means "Fort Site" and the lake was so named because the islands within the lake housed the forts and stockades of the Seminoles (Moore-Willson 1935:29). In January 1837, General Jesup's men encountered the Seminoles near the "Great Cypress Swamp." The soldiers drove the Indians into the swamp, across the "Hatcheelustee" and into even more dense swamp (Sprague 1964:172). On the 28th of January, the army "moved forward and occupied a strong position on Lake Tohopekaliga, within a few miles of the point at which the Cypress Swamp approaches it, where several hundred head of cattle were taken" (Sprague 1964:172). Hetherington (1980:3), citing Major Edward Keenan, a "noted authority on the Seminole Wars," believes that General Jesup's base camp was located in the vicinity of the present-day Kissimmee Airport. The "Great Cypress Swamp" and "Hatcheelustee Creek" referred to by Sprague (1964) are now called Reedy Creek Swamp and Reedy Creek (MacKay and Blake 1839; Mahon 1967: Rear fold out map; USGS Lake Tohopekaliga Quadrangle Map 1987; Hetherington 1980:3).

At the beginning of the Second Seminole War, the conflict was centered near the Withlacoochee region. In 1838, U.S. troops moved south to pursue the retreating Seminoles into the Lake Okeechobee and Everglades regions. Colonel Zachary Taylor was sent to the area between the Kissimmee River and Peace Creek. Colonel Persifor Smith and his volunteers were dispatched to the Caloosahatchee River, and U.S. Navy Lt. Levi N. Powell was assigned the task of penetrating the Everglades (Mahon 1967:219–220). Powell's detachment had several skirmishes with Seminole people near Jupiter Inlet. Powell established a depot on the Miami River and erected Fort Dallas in the approximate location of present-day downtown Miami. For three months, Fort Dallas was a base of operations as Powell led his men into the Everglades in search of the Seminoles (Gaby 1993:47).

Miami's earliest permanent land records date from the Second Spanish Period. John Egan's grant from the King of Spain was included as part of his son James's claim after Florida became

a territory of the United States in 1821. A commission was set up to validate claims from the Spanish Period. James Egan's claim for the north bank of the Miami River (640 acres) and his mother Rebecca Egan's claim for the south bank (640 acres) were validated in 1825. These two grants included most of the original limits of the City of Miami (Robbins, Graham and Chillingworth Examining Counsel 1897). Key West resident Richard Fitzpatrick, formerly of South Carolina, purchased the James Egan grant in 1830 for $400. By 1833, he had also purchased the Rebecca Egan grant for $640 and two other grants (Polly and Jonathan Lewis), each 640 acres. These latter two grants were located along the bay, south of Rebecca Egan's grant. Fitzpatrick cleared the land and was in the process of building a large plantation when the Second Seminole War erupted in late 1835. Early in 1836 Fitzpatrick left the area, and the Seminole Indians burned his plantation to the ground. Just weeks before, as President of the Territorial Council, Fitzpatrick had successfully pushed for the creation of Dade County from the larger Monroe County. The United States established Fort Dallas on Fitzpatrick's property in 1838 and occupied it intermittently until the war ended in 1842.

By the time the war was over, Richard Fitzpatrick had lost interest in the area and sold his entire holdings to his nephew, William F. English, for $16,000. English platted the "Village of Miami" on the south bank of the Miami River in 1843 and began building a large plantation house and slave quarters of native oolitic limestone on the north bank. When another Indian outbreak brought the troops back to the Miami River in 1849, English went to California to seek his fortune during the gold rush as a means to finance his new city. He was accidentally killed in California. The Army occupied the English plantation (renamed "Fort Dallas") improved the two stone buildings he had constructed, and added several others.

The troops left a year later, only to return and reactivate Fort Dallas in 1855, at the beginning of the Third Seminole War. During this occupation, the Army again occupied English's stone buildings. Military engineers also constructed the region's first road, connecting Fort Dallas with the military outpost at Fort Lauderdale. William Wagner, a settler who followed the troops to the wilderness, decided to stay after the war. Sometime between 1855 and 1858 he built a simple frame house on a creek that branched off the Miami River. This house and English's slave quarters (Fort Dallas) are now located in Lummus Park, and are the only known buildings of the pioneer era that remain in downtown Miami (Ammidown 1982:11). The Miami Post Office opened in December 1856, receiving mail once a month by boat from Key West. When the Third Seminole War ended, many soldiers settled in the area and Fort Dallas became the nucleus of a permanent community (Patricios 1994:12, 19).

Civil War and Post-War Period (1860–1898)

In the 1880s, interest in the resources of South Florida increased due in large part to people like Hamilton Disston and Henry B. Plant. By 1881, the State of Florida faced a financial crisis involving a title to public lands. On the eve of the Civil War, land had been pledged by the Internal Improvement Fund to underwrite railroad bonds. After the War, when the railroads failed, the land reverted to the State. Almost $1 million was needed by the state to pay off the principal and accumulated interest on the debt, thereby giving clear title.

Hamilton Disston, son of a wealthy Philadelphia industrialist, contracted with the State of Florida in two large land deals: the Disston Drainage Contract and the Disston Land Purchase. The Drainage Contract was an agreement between Disston and the State in which Disston and his associates agreed to drain and reclaim all overflow lands south of present-day Orlando and east of the Peace River in exchange for one-half the acreage that could be reclaimed and made fit for cultivation.

Disston changed Florida from a wilderness of swamps, heat, and mosquitoes into an area ripe for investment. This enabled Henry B. Plant to move forward with his plans to open the west coast of Florida with a railroad-steamship operation called the Jacksonville, Tampa & Key West Railway. Through the Plant Investment Company, he bought up defunct rail lines such as the Silver Springs, Ocala & Gulf Railroad, Florida Transit and Peninsular Railroad, South Florida Railroad, and Florida Southern Railroad to establish his operation (Mann 1983:68; Harner 1973:18–23). In 1902, Henry Plant sold all of his Florida holdings to the Atlantic Coast Line, which would become the backbone of the southeast (Mann 1983:68).

In 1882, three New Jersey men, Henry Lum, Ezra Osborne, and Elnathan Field, along with other investors, purchased a large portion of South Florida's coastal land, including Miami Beach, to establish a coconut plantation. Prior to this time Miami Beach was a seldom visited peninsula (Kleinberg 2001:41). In 1896, John Collins, a horticulturalist and one of the smaller investors in the plantation, came to Florida and became convinced of the island's potential as a farming community. He was a friend of Elnathan Field and invested $5,000 in the project (Lavender 2002:11).

Julia Sturtevant Tuttle, a resident of Cleveland, Ohio, moved to Florida in 1891, and was so taken with the old Fort Dallas property that she purchased it from the Biscayne Bay Company for $2,000.00. George M. Thew had established the Biscayne Bay Company to purchase several of the original land claims and market the property in 1874. Tuttle also recognized the importance of transportation if the region was ever to progress. Consequently, she negotiated with railroad magnate Henry Flagler to transfer to him half of her acreage along the Miami River in exchange for bringing the Florida East Coast (FEC) Railway to Miami. Flagler agreed, and by 1896 the railroad arrived. Flagler used some of the land he received from Julia Tuttle to build the Royal Palm Hotel on the north bank of the river across from Brickell's Point. Flagler extended his railway to Homestead, completing the line by 1903 (Mann 1983).

Miami became a "company town" as Flagler influenced virtually every aspect in the germinal city. The Miami Metropolis, first published in May 1896, became Flagler's mouthpiece, and advocated the incorporation of the town. The City of Miami was incorporated three months after the construction of the railroad, with a population of 502 voters. When the City of Miami was incorporated on July 28, 1896, the mayor and aldermen were all considered "Flagler men." A.L. Knowlton platted Miami for Flagler with the northern boundary of Julia Tuttle's property at First Street (now North 11th Street). The numbers ran south so that 12th Street is now Flagler Street. Avenues ran alphabetically starting with Avenue "A" at the bayfront. Flagler laid out a makeshift bridge over the Miami River at Avenue "G" (NW 2nd Avenue) near the FEC railroad docks. He then dredged the channel across the bay into the Miami River.

Charles Lum, Henry's son, constructed the first home on Miami Beach in 1886, at the present site of 12th Street and Ocean Drive (Zingman 1978:151). The men began planting, however, problems ensued with insects, rabbits, and dense mangrove roots which caused the land not to be conducive to the coconut plantings. Table 3 illustrates the earliest land transactions in and adjacent to the APE.

Table 4: Historic Land Ownership within the Vicinity of the Project

Township 53 South, Range 42 East			
Section	**Portion Owned**	**Owner**	**Date of Deed or Sale**
31	Release of Reservation (submerged)	Bay Biscayne Improvement Company	May 11, 1925
	All Fractions	Michael Oxar	November 30, 1878
	Release of Reservation (submerged)	Bay Biscayne Improvement Company	August 18, 1923
32	Release of Reservation (submerged)	Miami Beach Improvement Co.	February 3, 1915
	Release of Reservation (submerged)	Fidelity Bank & Trust Co.	January 18, 1918
33	Lot 1 & 2	Susan C. Osburn	November 20, 1882
	Lot 3 & 4	Fla. Coast Line Canal & Transport Co.	September 24, 1890
	Release of Reservation (submerged)	Fidelity Bank & Trust Co.	January 18, 1918
	Release of Reservation (submerged)	Alton Beach Realty Co.	September 9, 1919

Spanish-American War Period/Turn-of-the-Century (1898–1916)

At the turn-of-the-century, Florida's history was marked by the outbreak of the Spanish-American War in 1898. As Florida is the closest state to Cuba, American troops were stationed and deployed from the state's coastal cities. Harbors in Tampa, Pensacola, and Key West were improved as more ships were launched with troops and supplies. "The Splendid Little War" was short in duration, but evidence of the conflict remained in the form of improved harbors, expanded railroads, and military installations (Miller 1990). Rapid and widespread growth was the theme of this period in Florida history. Thousands of miles of railroad tracks were laid, including the FEC, Atlantic Coast Line, and Seaboard Air Line railroads. While agriculture, especially the citrus industry, had become the backbone of Florida's economy, manufacturing and industry began growing during the beginning of the century. Fertilizer production, boat building, and lumber and timber products were strong secondary industries (Weaver et al. 1996:3).

The foundation of modern metropolitan Miami was laid in the early years of the twentieth century (Sessa 1950:ii). Flagler's railroad made Miami accessible, and the growth precipitated by this continued after the turn of the century. Construction of the first permanent bridge over the Miami River in 1902 resulted in the rapid development of the south bank as a fashionable residential district, while the commercial district remained north of the river. From 1900 to 1910, the population grew from 1,700 to 5,500; the figure would often double during the tourist season.

The first in a series of economic downturns occurred in 1907, dubbed by the news media as the "Panic of 1907." At the time Miami had three banks and one was about to fail. Overloaded with the strain of financing the luxurious downtown Halcyon Hotel and the street railway company, the Fort Dallas National Bank announced its closing. Although the other banks endured runs from their smaller depositors, they remained solvent (Kleinberg 1989:156).

Around the turn-of-the-century it became clear that the coconut plantation on Miami Beach, started by New Jersey investors in 1886, was failing. In 1907, John Collins and Elnathan Field began clearing mangrove roots and scrub palmetto trees to plant an avocado grove, 1,000 feet from the Atlantic Ocean, 700 feet wide, and one mile long, running north at present-day 28th Street (Lavender 2002:11). This same year during the summer, due to the salt and spray of the ocean, the grove failed and Field sold his land share to Collins, giving him 1,670 acres of ocean-front land (Lavender 2002:11). Collins purchased the interests of many of the other investors, becoming sole owner of virtually all of Miami Beach from 14th Street to 67th Street, and started a successful avocado and mango plantation (Zingman 1978:152). Collins began construction of the island's first canal in 1911. The Collins Canal, as it is known today, was created to quickly move produce from the plantation to markets on the main land. It was completed in 1912.

The year 1912 also marked the creation of the first land sales companies and first plat of land in Miami Beach. The first land sale company in Miami Beach was the Ocean Beach Realty Company, established by J.N. Lummus. The Lummus brothers, J.N. and J.E., had purchased much land to the south of John Collins' land in Miami Beach (Zingman 1978:152–153). The Ocean Beach Realty Company filed the first plat on Miami Beach, and began to develop modest single family residences. Later in 1912, Collins, along with family members including son-in-law Thomas Pancoast, established the Miami Beach Improvement Company and began to sell land for residential development (Patricios 1994:31). The Company intended to raise enough capital to construct a wooden bridge connecting Miami Beach to the mainland and a canal connecting Lake Pancoast to the Bay. The Company ran out of funds and work on the bridge stopped.

During the next year, in 1913, a third Miami Beach development company was established by Carl Graham Fisher: the Alton Beach Realty Company. Fisher was one of the most instrumental real estate developers in the history of Miami Beach. He was a successful Indiana industrialist who made a considerable fortune with the sale of his Prest-O-Lite Corporation in 1911. The company manufactured the first automobile headlamp that did not run on kerosene. He also founded the Indianapolis Speedway and was involved in the planning of the Lincoln

Highway, the first transcontinental highway in the nation, running east to west, and the construction of the Dixie Highway.

The Alton Beach Realty Company lent $50,000 to Collins' company for the completion of the bridge in return for 200 acres of Collins' acreage (Figure 3). Collins and Fisher envisioned a winter resort on the barrier island. Collins, Fisher, and their business partners worked over a decade to create their vision of the island (Florida History, LLC. 2010b:1). The area was opened to real estate in 1913. The company also lent money to the Lummus Brothers in exchange for 210 acres of their development company's land. Fisher desired to develop Miami Beach into an exclusive residential enclave like Palm Beach, while the Lummus' were less discriminating selling more modest home sites (Zingman 1978:155). This resulted in the varied types of residential development on the island (Zingman 1978:155).

Figure 3: Undated Illustration Depicting the Opening of Collins Bridge
Courtesy State Archives of Florida, Florida Memory Collection

In 1915, the three Miami Beach development companies got together and incorporated the Town of Miami Beach, with voters electing J.N. Lummus as mayor. Around this time the first hotels were being constructed in Miami Beach and much effort was made to market it as a seaside resort. Still, sales of residential lots were sluggish during this period (Zingman 1978:159). The same year, Fisher began to clear the land around the Collins Canal to create a commercial axis for his development scheme, Lincoln Road. Fisher himself took residence in a new grand home built on the eastern end of the road facing the ocean.

World War I and Aftermath Period (1917–1919)

The World War I and Aftermath period of Florida's history begins with the United States' entry into World War I in 1917. Wartime activity required the development of several training facilities in the state, and protecting the coastlines was a priority at this time. Although the conflict only lasted until November 1918, the economy was boosted greatly by the war. For example, the war brought industrialization to port cities such as Tampa and Jacksonville, where shipbuilding accelerated. These cities also functioned as supply depots and embarkation points. An indirect economic benefit of the war was an increase in agricultural production, as beef, vegetables, and cotton were in great demand (Miller 1990).

While Florida industrialization and agriculture flourished, immigration and housing development slowed during the war. Tourism increased as a result of the war in Europe, which forced Americans to vacation domestically. Tycoons such as Henry Plant were building the hotels and railroads for people desiring winter vacations in sunny Florida. These magnates took an interest in the improvements and promotion of Florida in an effort to bring in more tourist dollars. The end of the war marked a slight increase in population, and Flagler and Okeechobee counties were created at this time.

Miami-Dade County experienced a tremendous amount of growth and development in the years following World War I. Beginning in 1916, promoters and developers placed advertisements about Miami in northern magazines and newspapers in hopes of attracting more buyers to the area. This advertising expanded yearly (Sessa 1950:47), and the demand for land gradually increased. Since many areas of South Florida were low-lying and therefore prone to flooding during the rainy season, it was necessary to fill these areas to make them suitable for living (Sessa 1950:6). Another option used by developers to create livable land was to purchase bay bottom from the State Internal Improvement Fund, apply for permits from the U.S. Army Corps of Engineers to dredge, and then pump their claims in order to create islands. Some of the islands created by this practice of dredging and filling, which began in 1918, included Palm Island, Hibiscus Island, La Gorce Island, Sunset Islands, and later the Venetian Islands.

In 1917, the Town of Miami Beach was changed into a city, with Lummus remaining as mayor. This same year the construction of the County Causeway, later renamed the MacArthur Causeway, was approved by Miami-Dade County voters. This would connect 5th Street on Miami Beach to NE 13th Street in the City of Miami. However, its construction was interrupted by the war and it was not completed until 1920. At this time, a fourth development company was formed, the Miami Ocean View Company, headed by Fisher's engineer John Levi. The company absorbed Lummus' Ocean Beach Realty Company, and in 1919, J.N. Lummus left the Miami Beach area (Zingman 1978:160).

Carl Fisher's development was slowly developed through World War I, and by 1920 the infrastructure of the area was fully developed with hotels, clubs, and golf courses, especially due to Fisher and his understanding that the sport would bring the audience he desired for Miami Beach (Florida History, LLC. 2010b:2).

Florida Land Boom Period (1920–1929)

After World War I, Florida experienced unprecedented growth. Many people relocated to Florida during the war to work in wartime industries, or were stationed in the state as soldiers. Bank deposits increased, real estate companies opened in many cities, and state and county road systems expanded quickly. Earlier land reclamation projects created thousands of new acres of land to be developed. Real estate activity increased steadily after the war's end and drove up property values. Prices on lots were inflated to appear more enticing to out-of-state buyers. Every city and town in Florida had new subdivisions platted and lots were selling and reselling for quick profits. Southeastern Florida, including cities such as Miami and Palm Beach, experienced the most activity, although the boom affected most communities in central and South Florida (Weaver et al. 1996:3).

Road building became a statewide concern as it shifted from a local to a state function. These roads made even remote areas of the state accessible and allowed the boom to spread. On a daily basis up to 20,000 people were arriving in the state. Besides the inexpensive property, Florida's legislative prohibition on income and inheritance taxes also encouraged more people to move into the state.

The boom of the 1920s transformed the small southern resort town of Miami into a metropolis. As a resort destination, Miami had a "season" that began in December and ended in early April. During the season most of the social and commercial life revolved around the Royal Palm Hotel (Sessa 1950:20). The real estate boom was created in part by the desirable sub-tropical climate of the area, the abundance of available land created by the draining of the Everglades, and the visions and schemes of promoters and developers. Between 1920 and 1923, the population of Miami-Dade County doubled and in the downtown, it was the beginning of the "high-rise" era. The boom brought Miami into the national spotlight as investors, speculators, and hopeful new residents poured into town from all over the United States (Parks 1991:107). Nationally known architectural firms like Schultze and Weaver and Kiehnel and Elliott opened Miami offices and designed major new buildings. Several of the historic buildings that remain in downtown Miami are legacies of the boom era.

As was occurring throughout the rest of Miami-Dade County, land values were increasing rapidly on Miami Beach, often at a rate of 100% per month (Zingman 1978:162). During the height of the boom, land prices could double or triple in just one day. As a result of skyrocketing land values, many institutions located in downtown Miami, including the Miami Woman's Club and Trinity Episcopal Church, decided to sell their downtown property and with the profit build their institutions elsewhere. Residents did the same. Before the boom was over, almost every residence in Fort Dallas Park, including Julia Tuttle's own home as well as her son Harry's, had been torn down and replaced with a hotel or apartment building.

Improved transportation to Miami Beach, with the completion of the County Causeway, caused an immediate increase in land sales in the early 1920s. In addition to the completion of the Causeway, Fisher opened a streetcar line running from Biscayne Boulevard in downtown Miami, along the Causeway to 5th Street, down Alton Road and looping around to terminate at the Collins Canal. By the early 1920s, Alton Road (named by Fisher after Alton, Illinois), had

become one of Miami Beach's major north-south routes (Gomez 2006). Between 1920 and 1925 the population of Miami Beach increased from 644 to 15,000 (City of Miami Beach Planning and Zoning Department 1990: 4).

Figure 4: 1927 Aerial View of Miami Beach and Bridges
Courtesy State Archives of Florida, Florida Memory Collection

Hoping to cash in on the boom, real estate developers dredge the bottom of Biscayne Bay to create additional water-front lots (Welcher 1989). In 1921, the Bay Biscayne Improvement Company began an ambitious effort to construct a chain of islands across Biscayne Bay. Officers of the company included Josiah F. Chaille, Colonel Frank B. Shutts, Marshall Price, and Hugh Anderson, as well as F. C. B. Le Gro, who was already involved in the development of Belle Isle (City of Miami 1990). The "Venetian Islands" were to be constructed from dredge material and deposited along Collins Bridge to form a series of residential isles inspired by the landscape of Venice, Italy. Once the four central islands were formed, the Venetian Causeway was constructed to provide access to the newly-developed communities. The Causeway was completed in 1926. Figure 4 depicts Miami Beach and connecting bridges as they appeared in 1927.

Although infrastructure such as the Venetian Causeway was still being constructed in the mid-1920s, by that time, over-speculation and over-development threatened Miami's vigorous and unprecedented growth. Housing was scarce, more lots were for sale than could be sold, more acreage was available than could be portioned into subdivisions, and prices were out of proportion to the value (Parks 1991:118; Sessa 1950:353). Then, in August of 1925, the FEC Railway announced an embargo on all carload freight except fuel, petroleum, livestock and perishable goods (Sessa 1950:264–265). Soon after, steamship companies followed suit and

refused to bring in any additional goods until buyers cleared out the backlog of goods that existed in warehouses, freight cars, and steamships in Miami. This embargo threatened the economy of the area by delaying or cutting off the arrival of supplies for building contractors and forcing them to lay off workers. Compounding the problems posed by the embargo was an active anti-Florida campaign in the northern states. Major magazines did exposés on the often unscrupulous practices of Florida developers and warned of the dangers of speculating in Florida real estate. Finally, the capsizing of the *Prinz Valdemar*, a World War I era brigantine undergoing renovations, in the middle of the shipping channel in January 1925 prevented the use of the Miami Harbor for 25 days (Parks 1991:120).

Another blow to the boom came with the hurricane in 1926. Despite the warnings that the area was extremely vulnerable to tropical storms and hurricanes, development of Miami, Miami Beach, and the newly-created islands in Biscayne Bay continued uninterrupted until the hurricane of September 19, 1926. Because there had not been a major storm in Miami-Dade County for 16 years, the 1926 hurricane took the area completely by surprise (Tebeau 1980:387). Following the hurricane, the City of Miami lay in ruins. Before South Florida could completely recover from the storm of 1926, another more powerful hurricane struck the coast near West Palm Beach. Considerably more powerful than its 1926 counterpart, the September 16, 1928 storm washed out a great portion of the Okeechobee dike (Tebeau 1980:388). Damage to the coastal areas was staggering, and Florida's land boom turned to bust.

By the time the stock market collapsed in 1929, Florida was suffering from an economic depression. Construction activity halted and industry dramatically declined. Subdivisions platted several years earlier remained empty and buildings stood on lots partially-finished and vacant. The 1929 Mediterranean fruit fly infestation that devastated citrus groves throughout the state only worsened the recession (Weaver et al. 1996). Still, much of the wealthy population of Miami Beach was still demanding public facilities and amenities during this period (Zingman 1978:165).

Depression and New Deal Period (1930–1940)

This era of Florida's history begins with the stock market crash of 1929. As previously discussed, there were several causes for the economic depression in Florida, including the grossly inflated real estate market, hurricanes, and fruit fly infestation. During the Great Depression, Florida suffered significantly. Between 1929 and 1933, 148 state and national banks collapsed, more than half of the state's teachers were owed back pay, and a quarter of the residents were receiving public relief (Miller 1990).

The Depression affected most areas of the state's economy. Beef and citrus production declined, manufacturing slowed, and development projects were stopped. Even the railroad industry felt the pressures of the 1930s, and had to reduce service and let go some personnel. In addition, the increasing use of the automobile lessened the demand for travel by rail. Despite the Depression, tourism remained an integral part of the Florida economy during this period. New highways made automobile travel to Florida easy and affordable and more middle-class families were able to vacation in the "Sunshine State" (Miller 1990).

During the Great Depression, the Miami region fared better than many areas, as tourism helped keep the local economy alive. The city really regained its vigor when it was rebuilt through the policies of President Franklin D. Roosevelt's New Deal (Sessa 1950:350). Federal Emergency Relief Agency (FERA) funds were released to the unemployed, and the Civilian Conservation Corps (CCC) was started to build parks, such as Matheson Hammock and Greynolds Park, which became the nucleus of Miami's future park system. By 1935, the Works Progress Administration (WPA) was in Miami and new public buildings, such as the U.S. Post Office and Courthouse, the Miami Beach Post Office, the Coral Gables Fire Station, and the Miami Shores Golf Club, were constructed. These WPA projects gave jobs to construction workers, who built Liberty Square, Florida's first public housing project, which opened in 1937. The WPA also hired unemployed artists, writers and teachers to teach art to the disadvantaged children, prepare guidebooks to Miami, and develop theater and music projects. The government sent World War I veterans to the Florida Keys to assist in building the Overseas Highway, as well.

In Miami Beach during the late 1930s there was still significant development as hundreds of hotels and apartment buildings were constructed in the style which would come to be known as Art Deco. The number of hotels grew from 100 in 1936 to more than 300 by 1941 (Kleinberg 2001:45). As the Great Depression deepened, Fisher gradually sold his Florida assets as revenues dropped for the hotels and other properties he still held (Florida History, LLC. 2010b:3). While the Fisher hotels declined, the residential developments remained prime home sites and single-family houses continued to be built, much as Fisher had originally intended.

Another hurricane hit south Florida in 1935, this time destroying the FEC Railway's Key West Extension (Bureau of Historic Preservation 1996:6) and further reducing rail traffic in south Miami-Dade County. In 1938, the Overseas Highway was built on the old railroad right-of-way in the Florida Keys. President Franklin Roosevelt accepted the key to Florida City in March 1939 when his motorcade passed through the community during the highway's opening (Irwin n.d.).

World War II and the Post-War Period (1941–1949)

From the end of the Great Depression until after the close of the post-war era, Florida's history was inextricably bound with World War II and its aftermath. It became one of the nation's major training grounds for the various military branches including the Army, Navy, and Air Force. Prior to this time, tourism had been the state's major industry and it was brought to a halt as tourist and civilian facilities, such as hotels and private homes, were placed into wartime service. The influx of thousands of servicemen and their families increased industrial and agricultural production in Florida, and also introduced these new residents to the warm weather and tropical beauty of Florida. Railroads once again profited, since servicemen, military goods and materials needed to be transported. However, airplanes were now becoming the new form of transportation, and Florida became a major airline destination. The highway system was also being expanded at this time. The State Road Department constructed 1,560 miles of highway during the war era (Miller 1990).

Following the outbreak of World War II, Miami and Miami Beach became war camps and major training centers for the Armed Forces. By the end of 1942, many of the area's once empty hotels had become barracks for the Army Air Force Officers Candidate School, an Officers Training School and a basic training center. War agencies tripled the income of the entire state and added about 25 percent to the population. After the war, there was a huge influx of cash from federal agencies. The Federal Security Administration built roads, bridges and public improvements. The Veterans Administration began to disburse millions of dollars in benefits to ex-GIs. The Federal Housing Authority guaranteed the financing of 15,000 new homes each year (*Barrons National Business and Financial Weekly* 1950: 15).

At the conclusion of World War II, Florida's economy was almost fully recovered. Tourism quickly rebounded and once again became a major source of the state's economy. The end of the war also brought an influx of new residents to the area, as former soldiers who had trained in Miami decided to settle there. Consequently, Miami experienced a post-war boom. Between 1940 and 1950, the population nearly doubled, and new subdivisions of small concrete block homes dotted what had once been the outskirts of Miami (Parks 1991:168–170). By 1951, North Miami was considered one of the fastest growing towns in the United States due to the large number of veterans that relocated to the area (City of North Miami n.d.).

Between 1940 and 1950 the population of Miami Beach doubled (Nash and Robinson 2004:14). People were no longer solely coming to Miami Beach for a winter vacation spot, but many now called it their year-round home. Although much of the southern portion of Miami Beach, South Beach, had already been developed, the northern portion of the island, North Beach, and the islands to the north of South Beach were almost entirely developed during this period. Thus, large portions were designed in the Miami Modern, or "MiMo," style, and the architecture had a stylistic cohesion.

Modern Period (1950 to present)

By 1950, the City of Miami had completely restored its credit rating that had been undermined during the depression of the 1930s and the default as to principal and interest on its debt between 1930 and 1934. In 1940, the city allocated all of the ad valorem taxes collected to service the refunding of bonds. The city also took aggressive action to create new facilities that included the Miami-Dade County Auditorium, and the acquisition of the former Pan American Airways facilities at Dinner Key (*Colliers Magazine* 1950).

The population of the City of Miami had reached 172,000 residents by 1950. The population of the county was 495,000 people. During the 1950s, the incorporation of several municipalities in Miami-Dade County signaled that the population was indeed swelling. By 1955, the county population was up to 715,000 residents. Many residential areas of Miami Beach developed rapidly during this period, often in the same manner as suburban developments occurring throughout Miami-Dade County. However, due to the prime value of the land near the beach, there was more multi-unit construction. The 1952 aerials depict the largely-residential Venetian Islands from west to east (Figure 5). The majority of the islands contain residential development. Belle Isle does not yet contain the many high-rise multi-

family buildings that were constructed in the 1960s. The bridges connecting the man-made islands are visible, as are the small man-made earthen landings. A small section of the APE on Biscayne Island remains submerged. The 1968 aerials show increased development of multi-family housing on Biscayne Island and Belle Isle (Figure 6).

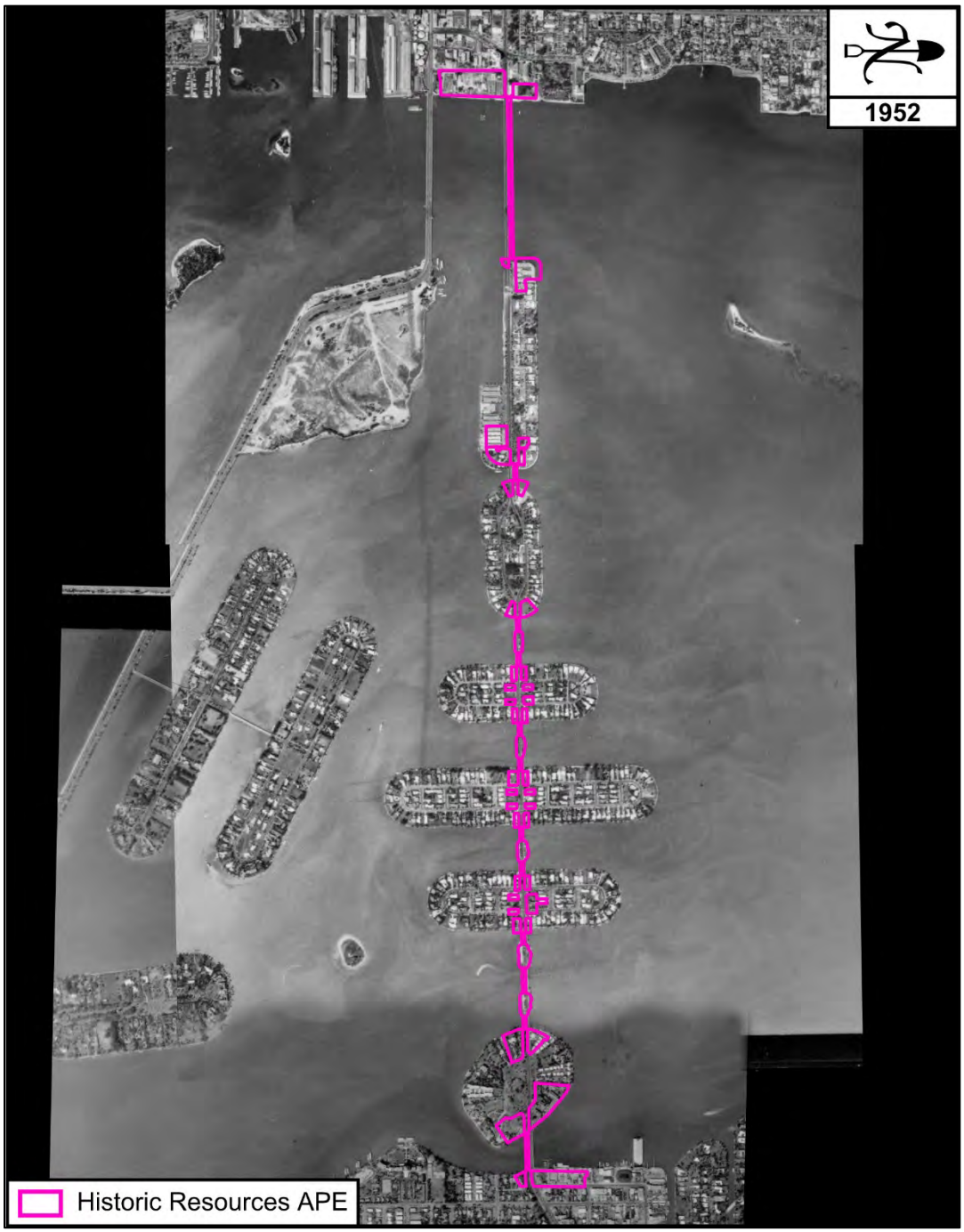

Figure 5: 1952 Aerial Photograph with Historic APE

Figure 6: 1968 Aerial Photograph, Western Extent of Historic APE

One of the most significant developments in Miami history during the second half of the twentieth century was the arrival of tens of thousands of Cuban immigrants. After Fidel Castro took power in 1959, many refugees began arriving in Miami. To accommodate the increasing number of immigrants, the federal government opened the Cuban Refugee Emergency Center in 1962 in the former Miami Daily News Tower. When the emergency center opened, the

building was renamed the Freedom Tower, and came to be a symbol of refuge for Miami's Cuban community.

During the 1960s and 1970s many of Miami Beach's earlier buildings were torn down and replaced by new construction (Kleinberg 2001:47). Many of the buildings which were not demolished were falling into disrepair. Around this time, Barbara Baer Capitman and Leonard Horowitz began to advocate for the preservation of the 1930s-era Miami Beach hotels and the Art Deco Movement was born. In August of 1976, Capitman and her son John formed the Miami Design Preservation League (MDPL) and began to identify a concentration of these 1930s Art Deco buildings in Miami Beach. In October of 1978, MDPL held an Art Deco Week Festival to showcase Miami Beach's Art Deco architecture and raise awareness of it among both tourists and residents. Less than one year later, the Miami Beach Art Deco District (MBAD) was listed in the National Register, becoming the nation's first 20th century historic district. MDPL has continued to be a powerful advocate for historic preservation in Miami Beach through today.

The Venetian Causeway was listed in the National Register in 1989, and is also locally listed by Miami and Miami Beach. Recently due to its deteriorated condition, the Causeway's westernmost bridge was sensitively replaced in consultation with the SHPO. A dramatic change to the Venetian Causeway's immediate surroundings on the City of Miami side of the structure was the demolition of the circa-1960 Miami Herald building, which was located to the southwest of the Causeway; the building is visible on the 1968 aerial (Figure 6). This massive building sited on the Bay was demolished in 2015. Another recently demolished historic building within the Venetian Causeway was the Belle Isle Court Apartments. The Belle Isle Court Apartments were significant in terms of the development of large-scale multi-family housing complexes in the United States and Florida, particularly in the pre-World War II period. However, the apartment buildings were demolished in January 2018 (Freeman 2018).

FLORIDA MASTER SITE FILE SEARCH AND LITERATURE REVIEW

A comprehensive FMSF search and literature review was performed to determine the locations of previously recorded cultural resources. In addition local property appraiser's data, information from the in-house Janus Research library, and historic aerials were consulted during the background research. The search revealed that previous work has been performed in the vicinity and a number of cultural resources exist in and surrounding the APE.

Previously Conducted Cultural Resource Surveys

A search of the FMSF data identified 13 previously conducted cultural resource surveys within the project APE (Table 5).

Table 5: Previously Conducted Surveys within the Project APE

FMSF Survey No.	Title	Date	Author(s)
340	Dade County Archaeological Survey Interim Report	1980	Carr, Robert S.
1085	Downtown Miami Multiple Resource Area	1988	Eaton, Sarah
2127	Dade County historic survey, Phase II: Final Report.	1989	Metropolitan Dade County
3086	A Historical Resource Assessment Survey of the Port of Miami Tunnel and Access Project	1991	Hansen, Howard F.
5218	Cultural Resource Assessment Survey for East-West Multimodal Corridor from West of Palmetto Expressway to Port of Miami, Volume 1: Report, Volume 2: Appendices	1997	Janus Research
14000	Cultural Resources Reconnaissance Study South Florida East Coast Corridor Transit Analysis Miami-Dade, Broward and Palm Beach Counties	2006	Janus Research
14408	Miami Comprehensive Neighborhood Plan	1989	City of Miami Planning Department
14567	CRAS of I-395, from the Midtown Interchange (I-95/SR-836/I-395) to Biscayne Bay, PD&E Study	2007	Janus Research
15638	Cultural Resources Reconnaissance Study Miami Streetcar Analysis City of Miami, Miami-Dade County	2006	Janus Research

FMSF Survey No.	Title	Date	Author(s)
16537	Section 106 Documentation and Determination of Effects Venetian Causeway Streetscape Improvements Project Miami and Miami Beach Miami-Dade County	2008	Janus Research
17942	FCC Form 621 Collocation ("CO") Submission Packet: SFL-012, SW6-455/Tower Terrace, Miami-Dade County, Florida	2010	Florida History, LLC
17957	Section 106 Documentation and Determination of Effects I-395 from the Midtown Interchange (I-95/SR-836/I-395) to Biscayne Bay, Miami-Dade County	2008	Janus Research
18139	FCC Form 621 FCC Wireless Telecommunications Bureau Collocation ("CO") Submission Packet 68290 Venetian Isles Apartments Tower 1198 Venetian Way Miami-Dade County, Florida 33139	2010	Florida History, LLC

Previously Recorded Archaeological Resources

A search of the FMSF data identified no previously recorded archaeological sites within the project APE. No locally-designated archaeological sites or zones were identified within the archaeological APE.

Previously Recorded Historic Resources

A search of the records of the FMSF identified five previously recorded historic resources within the historic resources APE (8DA4736, 8DA11375, 8DA11740, 8DA11754, and 8DA12366). An additional historic resource, the Miami Herald Building (8DA12823), was determined to be ineligible for listing in the National Register by the SHPO on July 7, 2014, and has since been demolished by new owners in early 2015. It was, therefore, not subject to evaluation as part of the current project. Previously recorded historic resources are listed in Table 6.

There is one National Register-listed resource, the Venetian Causeway (8DA4736), identified within the project APE. The Causeway consists of “twelve bridges containing two bascule spans connected by a two lane road” (Welcher 1989). Outstanding structural features include the geometrically designed guardrails and octagonal concrete entrance towers. The bridge was an integral part of the master plan for the residential development of the Venetian Islands and provided a vital link to the surrounding Miami-Miami Beach areas. It was determined to be National Register-eligible under Criteria A and C in the categories of Community Planning

and Development, Transportation, Architecture, and Engineering. The Venetian Causeway was listed in the National Register on July 13, 1989 (Welcher 1989). This resource is also listed with the City of Miami and the City of Miami Beach.

As a result of the current project, the Venetian Islands Resource Group (8DA14395) was documented. This resource group subsumes the National Register-listed Venetian Causeway (8DA4736). As documented in the 1989 National Register nomination, the Causeway consists of "twelve bridges containing two bascule spans connected by a two lane road" (Welcher 1989). Due to severe deterioration, the bridges are in need of extensive rehabilitation or replacement. Therefore, each of the twelve bridges were given individual FMSF numbers and were included within the newly identified Venetian Islands Resource Group (8DA14395). In consultation with the SHPO, the FMSF site file for the Venetian Causeway (8DA4736) will be converted from its current classification as a historic bridge to a resource group. More information regarding the National Register–listed resource is found in the National Register Nomination form for Venetian Causeway (8DA4736), which is on file at the FMSF.

The resource group classification serves as a comprehensive tool for documenting the entire landscape of the Venetian Islands, including the bridges. While the Venetian Causeway remains National Register-listed, the individual bridges (8DA14373-8DA14384) were evaluated as part of the current project and are considered contributing resources within the Venetian Islands Resource Group (8DA14395). Additionally, the six islands and five earthen causeway landings of the Venetian Islands were included within this historic designed landscape. The resource group encompasses a designed landscape of man-made islands, bridges, and earthen causeways that resulted from developers' ambitious plans to create a residential development on Biscayne Bay. Between 1915 and 1926, the location and layout of the islands were carefully planned and arranged by real estate developers, particularly the Bay Biscayne Improvement Company, to create a "Venetian" landscape across Biscayne Bay. Employing the most advanced dredging and construction methods of the time, crews shaped islands and connected them using a series of earthen causeways and concrete bridges. Despite the replacement of a 730-foot section of the westernmost bridge in 2015, the Venetian Islands Resource Group (8DA14395) is considered National Register-eligible under Criteria A and C in the categories of Community Planning and Development, Transportation, Architecture, and Engineering.

The Collins Canal (8DA11375) was determined to be National Register–eligible on May 4, 2012. The portion of Collins Canal that is located within the current historic APE was documented as a result of the *Cultural Resource Assessment Survey for the West Avenue Bridge PD&E Study* (Janus Research 2012, FMSF Manuscript No. 19005) conducted by Janus Research in 2012. It is considered eligible for listing in the National Register under Criteria A and C in the categories of Transportation, Engineering, and Community Planning and Development. Outside of the APE for the project, the Collins Canal is also considered a contributing resource within the City of Miami Beach's Palm View and Collins Waterfront historic districts.

The Venetian Isles Apartment (8DA11740) has not been evaluated by the SHPO, however the previous surveyor considered the building was National Register-ineligible. The building was

documented as a result of the *FCC Form 621 Collocation ("CO") Submission Packet: Venetian Isles Apartments Tower, Miami-Dade County, Florida* (Florida History, LLC 2010b, FMSF Manuscript No. 18139) conducted by Florida History, LLC in 2010. It is considered ineligible for listing in the National Register.

The Terrace Towers (8DA11754) was determined to be National Register–eligible on January 5, 2011. The building was documented as a result of the *FCC Form 621 Collocation ("CO") Submission Packet: SFL-012, SW6-455/Tower Terrace, Miami-Dade County, Florida* (Florida History, LLC 2010a, FMSF Manuscript No. 17942) conducted by Florida History, LLC in 2010. It is considered eligible for listing in the National Register.

The Collins Canal Seawall (8DA12366) has been determined to be National Register-ineligible by the SHPO. The resource was documented as a result of the *Cultural Resource Assessment Survey for the West Avenue Bridge PD&E Study, Miami Beach, Miami-Dade County, Florida* (Janus Research 2012, FMSF Manuscript No. 19005) conducted by Janus Research in 2012. New seawall construction and deterioration of the existing historic wall has diminished the resource's historic integrity of materials, design, and workmanship. Therefore, given its loss of integrity, this resource is considered ineligible for listing in the National Register.

Table 6: Previously Recorded Historic Resources within the Historic APE

FMSF #	Name/ Address	Style	Year	Surveyor Evaluation	SHPO Evaluation
8DA4736	Venetian Causeway	Bridge	c. 1926		National Register-Listed
8DA11375	Collins Canal	Linear Resource	c. 1912	National Register-Eligible	National Register-Eligible
8DA11740	Venetian Isles Apartments / 1198 Venetian Way	Mid-Century Modern	c. 1954	National Register-Ineligible	Not Evaluated by SHPO
8DA11754	Terrace Towers / 3 Island Ave	Mid-Century Modern	c. 1962	National Register-Eligible	National Register-Eligible
8DA12366	Collins Canal Seawall	Linear Resource	c. 1952	National Register-Ineligible	National Register-Ineligible
8DA12823	Miami Herald Building / 1 Herald Plaza	Mid-Century Modern	c. 1960		Demolished

PROJECT RESEARCH DESIGN AND SITE LOCATION MODEL

The analysis of the soils, drainage, and environment of the project footprint confirmed that the project corridor is located entirely within the existing ROW, which consists of bridges and associated concrete abutments, the installation of which was all located on man-made land. The substructural features associated with the bridges are in an area of Biscayne Bay that has been subjected to dredging and disturbance resulting from underwater cables and pipelines. Due to these factors, the project corridor has a low potential for archaeological sites.

METHODS

Archaeological Resources

An archaeological desktop survey was conducted to determine the presence of previously recorded sites, National Register–listed or eligible sites, and the likelihood for unrecorded archaeological sites within the archaeological APE. The desktop analysis included a search of the FMSF, and a review of pertinent historic aerial photographs, historic plat maps, surveyor's notes, and environmental data. As noted, the NOAA Automated Wrecks and Obstructions Information System (AWOIS) and the NOAA Office of Coast Survey Nautical Chart 11467 Intracoastal Waterway West Palm Beach to Miami (NOAA 2012) were also reviewed.

Subsurface testing within the archaeological APE was not conducted as the APE consists of made land or disturbed areas of Biscayne Bay. Photographs were taken to document the existing conditions and are included in the *Results* section of the current report.

Historic Resources

Two architectural historians conducted a historic resources survey July 13-15, 2015 and July 16, 2018, in order to ensure that resources built during or before 1970 within the project area were identified, properly mapped, and photographed. The historic resources survey used standard field methods to identify and record historic resources. In addition, the previous studies of the project area were consulted. Resources within the APE received a preliminary visual reconnaissance. Resources with features indicative of 1970 or earlier construction materials, building methods, or architectural styles were noted on aerial photographs.

For each newly identified historic resource, FMSF forms were filled out with field data, including notes from site observations and research findings. FMSF forms were also updated for previously recorded historic resources where the resources exhibited modifications since they were last recorded, the current study disagreed with the previous surveyors' evaluation of significance, or a historic resource had obtained historic significance since it was last recorded. The estimated date of construction, distinctive features, and architectural style were noted. Photographs were taken with a high resolution digital camera. A log was kept to record the building's physical location and compass direction of each photograph.

In addition to a search of the FMSF, Miami-Dade County Property Appraiser information was also used to approximate building construction dates within the project area. Together, the GIS Data Sets, available through the FMSF and Florida Geographic Data Library (FGDL), and property appraiser information usually yield the dates of the majority of the historic resources located within the project area. The FMSF cultural resources data is obtained quarterly throughout the year through coordination with the FMSF Supervisor/GIS Administrator, Vincent Birdsong. The Miami-Dade County Property Appraiser data is obtained through the FGDL. The project architectural historian identified any resource not accounted for by this information in the field based on the aforementioned methods.

Each resource's individual significance was then evaluated for its potential eligibility for listing in the National Register. Historic physical integrity was determined from site observations, field data, and photographic documentation. Local information was consulted to assist in the research for known significant historical associations.

As part of the current project, the residential parcels surrounding the historic APE were evaluated for the potential of a historic district (Figures 14-18). Although there remain a large number of residential buildings with pre-1970 actual year built (AYB) dates, there does not appear to be a significant concentration, linkage, or continuity between the buildings. The remaining pre-1970 buildings range in construction date from the 1930s through to the 1960s, and they vary a great deal in style and construction. Many of these buildings have sustained substantial alterations and additions, resulting in an overwhelming loss of integrity of design, materials, workmanship, feeling, and association. Furthermore, there has been continued construction of non-historic residential infill in recent years. Many of the parcels along the water contain non-historic homes, and there continues to be rapid demolition and construction. Therefore, there does not appear to be sufficient integrity for an architectural historic district within the Venetian Islands.

One historic resource of note was identified in the 2015 field survey but was demolished in 2018. The Belle Isle Court Apartments located at 31 Venetian Way were constructed in 1939 on the northeastern part of Belle Isle in 1939 on land that had formerly been set aside as a "gateway and community park" (Miami-Dade County 2015). Real estate agent and land developer John R. Larkin of Miami Beach developed the apartments (Miami News 1971). Although small, garden-style apartments became popular on Miami Beach in the 1920s, the size and layout of the Belle Isle Court Apartments was significantly different. The development of large, walk-up apartment complexes composed of multiple detached, or semi-detached, buildings within the United States can largely be traced to the New Deal-era's Public Works Administration and U. S. Housing Authority projects of the 1930s (Johnston 2003). According to a 1939 *Miami News* article one of the largest FHA projects approved by the Miami Office in 1939 was the "$500,000 apartment project on Belle Isle" (*Miami News* 1939a). The Belle Isle Court Apartments were significant in terms of the development of large-scale multi-family housing complexes in the United States and Florida, particularly in the pre-World War II period. However, the apartment buildings were demolished in January 2018 (Freeman 2018).

Local Informants and Certified Local Government Coordination

In accordance with Chapter 1A-46 of the FDHR *Archaeological and Historical Report Standards and Guidelines*, every attempt was made to contact and interview local informants (FDHR 2016). Local informants may often provide valuable information which is otherwise not available through official records or library collections. The City of Miami and the City of Miami Beach are both included on the December 2018 list of Certified Local Governments (CLG) posted on the FDHR website (FDHR 2018).

On September 18, 2014, residents and business owners attended the first Project Advisory Group (PAG). The PAG was originally referred to in previous newsletters as to the Community

Advisory Committee (CAC) for the Venetian Causeway PD&E Study being developed by FDOT District Six. The purpose of the PAG is to allow stakeholders to provide input on the project as the study progresses. The PAG is comprised of residents and businesses forming a stakeholders group representing the communities and organizations in the immediate area of the project that requested to participate to ensure that a full range of views are considered during the study. The meeting was publicly noticed and held at 1000 Venetian Way Condominiums (Clubhouse), Miami Beach, FL 33139. There were three additional PAG meetings at the same location. The second meeting was on February 24, 2015, and the third was on March 9, 2016. The fourth and final PAG meeting was held on May 16, 2017.

CRC meetings were held on Sept 24, 2014 and May 14, 2015. The attendees included members of the community as well as FDOT, SHPO, FHWA, USCG, Cities of Miami and Miami Beach, Miami-Dade County, Dade Heritage Trust, and the consultant project team. The purpose of the meetings was to conduct and document good faith consultation with affected parties in compliance with Section 106 of the National Historic Preservation Act. The meetings were publicly noticed and held at the 1000 Venetian Way Condominiums (Clubhouse), Miami Beach, Florida 33139.

A later CRC meeting was held on March 6, 2018 at the same location. Once again, the same invitees were notified of the meeting, and the focus was on the project improvements and the historic resource, including the Venetian Causeway Resource Group. A topic of discussion included an expanded APE due to the improvements that are proposed. Ms. Ginny Jones, formerly with the SHPO staff, noted that the APE should be expanded slightly to include the parcels closest to the bridge approaches.

On December 13, 2018, Mr. Warren Adams, Historic Preservation Officer for the City of Miami, and Ms. Deborah Tackett, Senior Planner with the City of Miami Beach, were contacted via email regarding any locally significant historic resources located within the project APE. Ms. Tackett responded on December 14, 2018, noting that the City of Miami Beach was not aware of any additional resources within the project APE and had no further concerns about the project at that time. As of the submittal of this report, Mr. Adams has not responded.

RESULTS

Archaeological Results

A pedestrian survey confirmed there are no areas where subsurface testing was feasible. The archaeological APE consists of bridges and associated abutments located on man-made land. The substructural features associated with the bridges are also in an area of Biscayne Bay that has been subjected to dredging and disturbance resulting from underwater cables and pipelines. Based on this, subsurface testing for archaeological sites was not conducted and the archaeological portions of the investigation focused on providing relevant documentation to support the low potential for archaeological sites. Representative photographs of the archaeological APE are included in Figures 7 and 8.

Figure 7: Existing Concrete Decking, Sidewalks, and Railings within the Archaeological APE at Venetian Causeway Bridge 12 (8DA14384), Facing East

Figure 8: Existing Concrete Decking, Sidewalks, and Railings within the Archaeological APE at Venetian Causeway Bridge 10 (8DA14382), Facing East

Historic Resources Survey Results

The historic resources survey identified a total of 42 historic resources. There were two previously recorded buildings (8DA11740 and 8DA11754), two previously recorded linear resources (8DA11375 and 8DA12366), two newly recorded resource groups (8DA14395 and 8DA15805), twelve newly identified bridges (8DA14373-8DA14384) and twenty-four newly identified buildings (8DA14385-8DA14393, 8DA15806-8DA15821). The National Register-listed resource, Venetian Causeway (8DA4736), was converted to the Venetian Islands Resource Group (8DA14395) and includes the twelve individual bridges (8DA14373-8DA14384) that make up the Causeway, as well as six man-made islands and five earthen causeway landings that are contributing features within the historic designed landscape.

Two previously recorded resources are considered or determined to be National Register-ineligible. The previously recorded building, Venetian Isles Apartment (8DA11740), has not been evaluated by the SHPO, however the previous surveyor determined that the building was National Register-ineligible. Given its common design and lack of historic significance, this building is considered ineligible for listing in the National Register individually or as part of a historic district. The previously recorded linear resource, Collins Canal Seawall (8DA12366), was determined to be National Register-ineligible by the SHPO on May 4, 2012. New seawall construction and deterioration of the existing historic wall has diminished the resources historic integrity of materials, design, and workmanship. Therefore, given its loss of integrity, this

resource is still considered ineligible for listing in the National Register individually or as part of a historic district.

Two previously recorded resources have been determined to be National Register-eligible. The previously recorded building, Terrace Towers (8DA11754), was determined to be National Register–eligible by the SHPO on January 5, 2011. It is considered eligible for listing in the National Register as the work of a master under Criterion C. The previously recorded linear resource, Collins Canal (8DA11375), was determined to be National Register–eligible by the SHPO on May 4, 2012. It is considered eligible for listing in the National Register under Criteria A and C in the categories of Transportation, Engineering, and Community Planning and Development.

As a result of the current project, the Venetian Islands Resource Group (8DA14395) was documented. This resource group subsumes the National Register-listed Venetian Causeway (8DA4736). As documented in the 1989 National Register nomination, the Causeway consists of "twelve bridges containing two bascule spans connected by a two lane road" (Welcher 1989). Due to severe deterioration, the bridges are in need of rehabilitation or replacement, and spans of the westernmost bridge were recently replaced following consultation with SHPO. Each of the twelve bridges were given individual FMSF numbers and were included within the newly identified Venetian Islands Resource Group (8DA14395). In consultation with the SHPO/FMSF, the FMSF site file for the Venetian Causeway (8DA4736) will be converted from its current classification as a historic bridge to a resource group. The resource group classification serves as a comprehensive tool for documenting the entire landscape of the Venetian Islands, including the bridges.

While the Venetian Causeway remains National Register-listed, the individual bridges (8DA14373-8DA14384) were evaluated as part of the current project and are considered contributing resources within the Venetian Islands Resource Group (8DA14395). Additionally, the six islands and five earthen causeway landings of the Venetian Islands were included within this historic designed landscape. The resource group encompasses a designed landscape of man-made islands, bridges, and earthen causeways that resulted from developers' ambitious plans to create a residential development on Biscayne Bay. Between 1915 and 1926, the location and layout of the islands were carefully planned and arranged by real estate developers, particularly the Bay Biscayne Improvement Company, to create a "Venetian" landscape across Biscayne Bay. Employing the most advanced dredging and construction methods of the time, crews shaped islands and connected them using a series of earthen causeways and concrete bridges. Despite the replacement of spans of the westernmost bridge in 2015, the Venetian Islands Resource Group (8DA14395) is considered National Register-eligible under Criteria A and C in the categories of Community Planning and Development, Transportation, Architecture, and Engineering.

The twenty-four newly identified historic buildings (8DA14385-8DA14393, 8DA15806-8DA15821) and one newly identified historic resource group (8DA15805) are considered National Register-ineligible, individually or as part of a historic district. These resources represent residential buildings that do not appear to be associated with any known historic events or trends in the area, nor are they related to any persons important or significant in local,

state or national events. Furthermore, these resources have experienced extensive alterations and additions resulting in the loss of historic integrity of design, materials, workmanship, and feeling. Therefore, due to the common architecture, loss of integrity, and lack of historic significance, resources 8DA14385-8DA14393, 8DA15805-8DA15821 are considered ineligible for listing in the National Register individually or as part of a historic district.

The identified historic resources are listed in Table 7 by FMSF number. Figures 9a-9d are maps showing the locations of these resources within the APE. The demolished Belle Isle Court Apartments are also noted on the maps. Following the maps are narratives for each of the identified historic resources. The Venetian Islands Resource Group (8DA14935) is described first, as it was converted from the National Register–listed historic resource, Venetian Causeway (8DA4736). Subsequently, this narrative is followed by narratives for the twelve historic bridges that contribute to the Venetian Islands Resource Group (8DA14935) but are individually ineligible for listing in the National Register. Following this are narratives for the two historic resources previously determined National Register–eligible by SHPO: Collins Canal (8DA11375) and Terrace Towers (8DA11754). Afterwards, narratives are provided for remaining identified historic resource determined or considered National Register–ineligible.

Table 7: Identified Historic Resources within the Historic APE

FMSF #	Name/ Address	Style	Year	National Register Status
8DA11375	Collins Canal	Linear Resource	c. 1912	Determined Eligible
8DA11740	Venetian Isles Apartments / 1198 Venetian Way	Modern	c. 1954	Considered Ineligible
8DA11754	Terrace Towers / 3 Island Ave	Modern	c. 1962	Determined Eligible
8DA12366	Collins Canal Seawall	Linear Resource	c. 1952	Determined Ineligible
8DA14373	Venetian Causeway Bridge 1	Bascule-Leaf Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group
8DA14374	Venetian Causeway Bridge 2	Fixed Tee-Beam Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group
8DA14375	Venetian Causeway Bridge 3	Fixed Tee-Beam Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group

FMSF #	Name/ Address	Style	Year	National Register Status
8DA14376	Venetian Causeway Bridge 4	Fixed Tee-Beam Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group
8DA14377	Venetian Causeway Bridge 5	Fixed Tee-Beam Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group
8DA14378	Venetian Causeway Bridge 6	Fixed Tee-Beam Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group
8DA14379	Venetian Causeway Bridge 7	Fixed Tee-Beam Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group
8DA14380	Venetian Causeway Bridge 8	Fixed Tee-Beam Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group
8DA14381	Venetian Causeway Bridge 9	Fixed Tee-Beam Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group
8DA14382	Venetian Causeway Bridge 10	Bascule-Leaf Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group
8DA14383	Venetian Causeway Bridge 11	Fixed Tee-Beam Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group
8DA14384	Venetian Causeway Bridge 12	Fixed Tee-Beam Span Bridge	c. 1926	Considered Individually Ineligible/Contributing to the Venetian Islands Resource Group
8DA14385	1132 N Venetian Drive	Masonry Vernacular	c. 1955	Considered Ineligible

FMSF #	Name/ Address	Style	Year	National Register Status
8DA14386	230 W San Marino Drive	Masonry Vernacular	c. 1955	Considered Ineligible
8DA14387	226 W San Marino Drive	Masonry Vernacular	c. 1947	Considered Ineligible
8DA14388	227 E San Marino Drive	Masonry Vernacular	c. 1939	Considered Ineligible
8DA14390	433 E Di Lido Drive	Masonry Vernacular	c. 1932	Considered Ineligible
8DA14391	425 E Di Lido Drive	Masonry Vernacular	c. 1949	Considered Ineligible
8DA14392	226 W Rivo Alto Drive	Masonry Vernacular	c. 1939	Considered Ineligible
8DA14393	227 E Rivo Alto Drive	Mediterranean Revival	c. 1932	Considered Ineligible
8DA14395	Venetian Islands Resource Group	Historic Designed Landscape Resource Group	1915-1926	Considered Eligible/ FMSF Number converted from Venetian Causeway (8DA4736), listed on July 13, 1989
8DA15805	Sandpiper Villas Co-Op / 1100-1140 Venetian Way	Masonry Vernacular Resource Group	c. 1949	Considered Ineligible
8DA15806	Sandpiper Villas Co-Op Building 1100	Masonry Vernacular	c. 1949	Considered Ineligible
8DA15807	Sandpiper Villas Co-Op Building 1110	Masonry Vernacular	c. 1949	Considered Ineligible
8DA15808	Sandpiper Villas Co-Op Building 1120	Masonry Vernacular	c. 1949	Considered Ineligible
8DA15809	Sandpiper Villas Co-Op Building 1130	Masonry Vernacular	c. 1949	Considered Ineligible
8DA15810	Sandpiper Villas Co-Op Building 1140	Masonry Vernacular	c. 1949	Considered Ineligible
8DA15811	235 W San Marino Drive	Masonry Vernacular	c. 1935	Considered Ineligible
8DA15812	238 E San Marino Drive	Masonry Vernacular	c. 1936	Considered Ineligible
8DA15813	221 W San Marino Drive	Masonry Vernacular	c. 1937	Considered Ineligible

FMSF #	Name/ Address	Style	Year	National Register Status
8DA15814	210 E San Marino Drive	Masonry Vernacular	c. 1954	Considered Ineligible
8DA15815	435 W Di Lido Drive	Masonry Vernacular	c. 1948	Considered Ineligible
8DA15816	440 E Di Lido Drive	Masonry Vernacular	c. 1946	Considered Ineligible
8DA15817	424 E Di Lido Drive	Masonry Vernacular	c. 1944	Considered Ineligible
8DA15818	241 W Rivo Alto Drive	Masonry Vernacular	c. 1954	Considered Ineligible
8DA15819	230 E Rivo Alto Drive	Mediterranean Revival	c. 1924	Considered Ineligible
8DA15820	225 W Rivo Alto Drive	Masonry Vernacular	c. 1940	Considered Ineligible
8DA15821	222 E Rivo Alto Drive	Masonry Vernacular	c. 1957	Considered Ineligible

Figure 9a: Identified Historic Resources (Map 1 of 4)

Venetian Causeway from North Bayshore Drive to Purdy Avenue (422713-2-22-01)

Historic Resources APE
Historic Resource Group
Historic Bridge
Demolished Historic Resource
8DA000 Newly Recorded Historic Resource
8DA000 Previously Recorded Historic Resource

Miami-Dade County

N
0 150 300 Feet

Figure 9b: Identified Historic Resources (Map 2 of 4)

Venetian Causeway from North Bayshore Drive to Purdy Avenue (422713-2-22-01)

Figure 9c: Identified Historic Resources (Map 3 of 4)

Venetian Causeway from North Bayshore Drive to Purdy Avenue (422713-2-22-01)

Historic Resources APE
Historic Resource Group
Historic Bridge
Demolished Historic Resource
8DA000 Newly Recorded Historic Resource
8DA000 Previously Recorded Historic Resource

Miami-Dade County

N
0 150 300 Feet

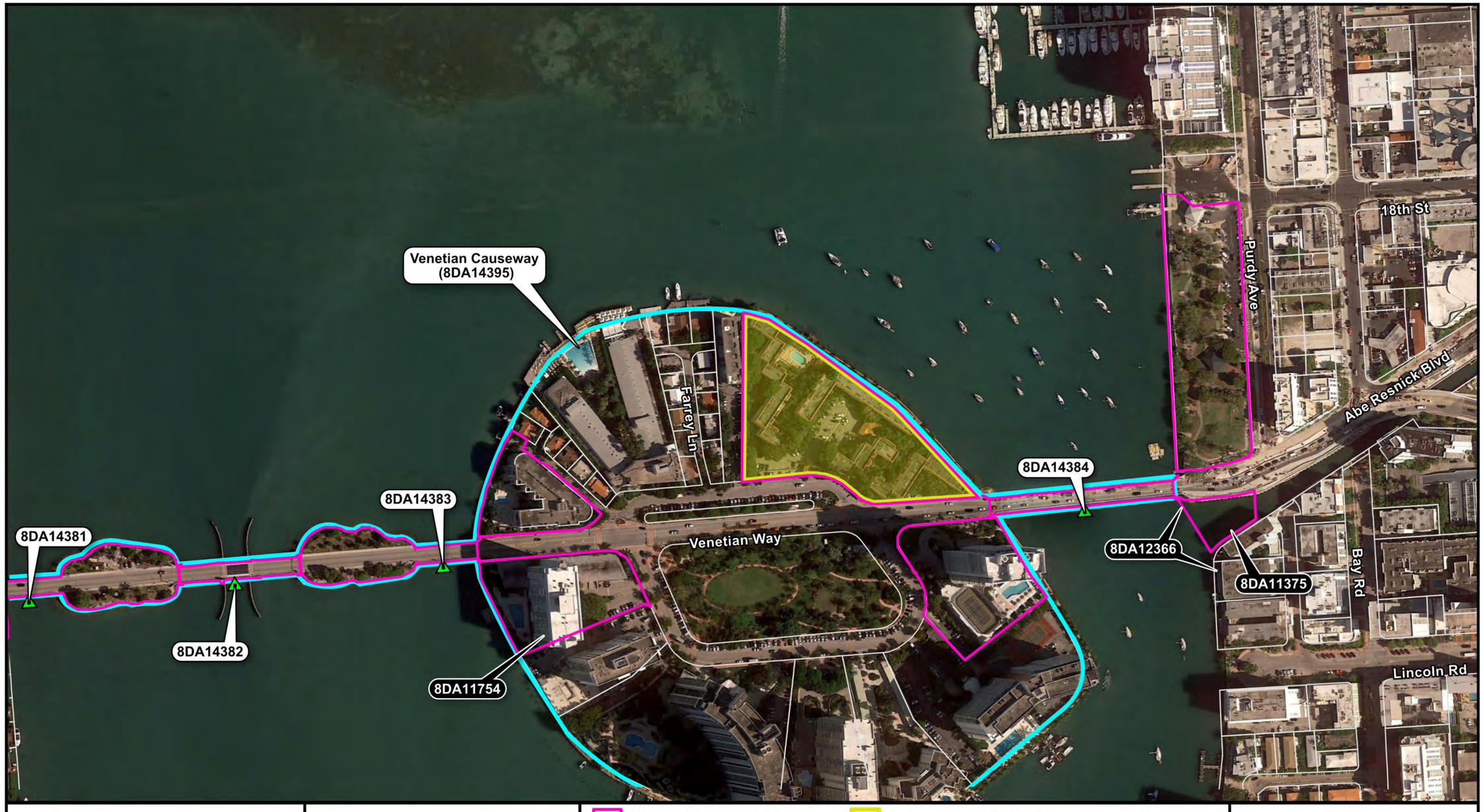

Figure 9d: Identified Historic Resources (Map 4 of 4)

Venetian Causeway from North Bayshore Drive to Purdy Avenue (422713-2-22-01)

- Historic Resources APE
- Historic Resource Group
- Historic Bridge
- Demolished Historic Resource
- 8DA000 Newly Recorded Historic Resource
- 8DA000 Previously Recorded Historic Resource

Miami-Dade County

N

0 150 300 Feet

Historic Resources Listed or Eligible for Listing in the National Register

8DA14395 Venetian Islands Resource Group

The Venetian Islands Resource Group (8DA14395) is located in Sections 31, 32, and 33 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle) in Miami-Dade County, Florida (Figure 10). The historic designed landscape includes twelve bridges (8DA14373-8DA14384), six man-made islands, and five man-made earthen causeway landings that span Biscayne Bay from NE 15th Street in the City of Miami to Dade Boulevard in the City of Miami Beach (Table 8).

Built between 1915 and 1926, the resource group encompasses a historic designed landscape of man-made islands, bridges, and earthen causeways that resulted from developers' ambitious plans to create a residential development on Biscayne Bay. Previously listed in the National Register in 1989, the documentation has been updated as the Venetian Islands Resource Group (8DA14395), which is still considered National Register-eligible under Criteria A and C in the categories of Community Planning and Development, Transportation, Architecture, and Engineering.

Table 8: Contributing Features in the Venetian Islands Resource Group (8DA14395)

Resource Name	Construction Date
Belle Isle	c. 1915
Rivo Alto Island	c. 1922
Di Lido Island	c. 1923
San Marino Island	c. 1923
San Marco Island	c. 1923
Biscayne Island	c. 1923
Venetian Causeway Bridge 1 (8DA14373)	c. 1926
Venetian Causeway Bridge 2 (8DA14374)	c. 1926
Venetian Causeway Bridge 3 (8DA14375)	c. 1926
Venetian Causeway Bridge 4 (8DA14376)	c. 1926
Venetian Causeway Bridge 5 (8DA14377)	c. 1926
Venetian Causeway Bridge 6 (8DA14378)	c. 1926
Venetian Causeway Bridge 7 (8DA14379)	c. 1926
Venetian Causeway Bridge 8 (8DA14380)	c. 1926
Venetian Causeway Bridge 9 (8DA14381)	c. 1926
Venetian Causeway Bridge 10 (8DA14382)	c. 1926
Venetian Causeway Bridge 11 (8DA14383)	c. 1926
Venetian Causeway Bridge 12 (8DA14384)	c. 1926
Earthen Causeway Landings (five total)	c. 1926

1	Venetian Causeway Bridge 1	8DA14373
2	Venetian Causeway Bridge 2	8DA14374
3	Venetian Causeway Bridge 3	8DA14375
4	Venetian Causeway Bridge 4	8DA14376
5	Venetian Causeway Bridge 5	8DA14377
6	Venetian Causeway Bridge 6	8DA14378
7	Venetian Causeway Bridge 7	8DA14379
8	Venetian Causeway Bridge 8	8DA14380
9	Venetian Causeway Bridge 9	8DA14381
10	Venetian Causeway Bridge 10	8DA14382
11	Venetian Causeway Bridge 11	8DA14383
12	Venetian Causeway Bridge 12	8DA14384

Figure 10: Boundaries and Contributing Features within the Venetian Islands Resource Group (8DA14395)

Venetian Causeway from North Bayshore Drive to Purdy Avenue (422713-2-22-01)

Historic Resource Group
Earthen Causeway Landing
00 Historic Bridge

Miami-Dade County

N
Meters 0 100
Feet 0 250

Belle Isle, the earliest of the islands, was largely shaped of dredge material excavated from the surrounding bay bottom during construction of the Collins Canal and Collins Bridge. The island was formed surrounding the eastern portion of the Collins Bridge. A plat map for the island was submitted in 1915 by the Biscayne Engineering Co., owned by W.E. Brown. Development of the island resulted from a partnership between F.C.B. Le Gro and John S. Collins (Figure 11). During the 1920s, several large estates were constructed on the island, including J.C. Penny's residence known as "White Haven" (City of Miami 1990).

Figure 11: 1920s Aerial View of Belle Isle and Collins Bridge
Courtesy State Archives of Florida, Florida Memory Collection

In 1921, the Bay Biscayne Improvement Company began an ambitious effort to construct a chain of islands across Biscayne Bay. Officers of the company included Josiah F. Chaille, Colonel Frank B. Shutts, Marshall Price, and Hugh Anderson, as well as F. C. B. Le Gro, who was already involved in the development of Belle Isle (City of Miami 1990). The "Venetian Islands" were to be constructed from dredge material and deposited along Collins Bridge to form a series of residential isles inspired by the landscape of Venice, Italy. Once the islands were formed, a causeway was to be constructed to provide access to the newly-developed communities.

Island building began immediately with Rivo Alto in 1922 (Figure 12). The remaining islands of Di Lido, San Marco, and San Marino were platted by 1923. Whitney C. Bliss, Engineer of Record, was responsible for establishing the layout of the islands (Welcher 1989). When completed, the islands were expected to contain over four-hundred and fifty residential lots, as well as interior roads and access to the mainland via an elegant causeway. The Bay Biscayne Improvement Company immediately established two sales offices in Miami and began selling lots, still underwater, to would-be homeowners (City of Miami 1990). Contracts included an

agreement that the islands would include roads, sidewalks, and utilities, and that dredging and bulkhead construction would be complete. The newly-constructed Causeway would require a toll, however the fee would be waived for residents (Welcher 1989).

Figure 12: 1925 Photograph of Construction on the Venetian Islands
Courtesy State Archives of Florida, Florida Memory Collection

The final island of the chain, Biscayne Island, was formed from residual dredging material accumulated during the construction of the previous islands, however was not immediately developed during the 1920s (Welcher 1989). The island was home to a small airport operated as the Viking Seaplane Base (Figure 13). In 1936, the Biscayne Island Corporation submitted a plat map showing subdivision for residential development on the island.

Figure 13: 1930s Aerial Photograph of Biscayne Island and the Viking Seaplane Base
Courtesy State Archives of Florida, Florida Memory Collection

The islands, from east to west, are Belle Isle, Rivo Alto Island, Di Lido Island, San Marino Island, San Marco Island, and Biscayne Island (Figure 10). The islands are residential in character, with housing designs from a variety of periods and styles. Biscayne Island and Belle Isle, the islands at both ends of the Causeway have larger scale, high-rise residential development. They provide a transition from the commercial and mixed-use developments of Miami Beach and downtown Miami to the single-family residential development on the middle islands. The islands have mature street trees and tropical landscaping.

As previously discussed in the *Methods* section part of the current project, the residential parcels surrounding the historic APE were evaluated for the potential of a historic district (Figures 14-18). There does not appear to be a significant concentration, linkage, or continuity between the buildings. Many of these buildings have sustained substantial alterations and additions, resulting in an overwhelming loss of integrity of design, materials, workmanship, feeling, and association. Furthermore, there has been continued construction of non-historic residential infill in recent years. Therefore, while the islands themselves are contributing, there does not appear to be sufficient integrity for a historic district within the Venetian Islands.

Based on current photographs of the streetscapes and comparison with descriptions of the original roadway and sidewalk widths, it appears that the roadways, curbing, sidewalks, landscaping, and lighting have all been updated since the time of construction (Figures 14-18). According to the *Section 106 Documentation and Determination of Effects Venetian Causeway Streetscape Improvements Project* (FMSF Manuscript No. 16537) conducted by Janus Research in 2008, these elements no longer retain sufficient integrity to convey significance.

Therefore, these elements do not contribute to the Venetian Islands Resource Group (8DA14395).

Figure 14: Streetscape View of Belle Isle, Facing Southeast

Figure 15: Streetscape View of Rivo Alto Island, Facing West

Figure 16: Streetscape View of Di Lido Island, Facing North

Figure 17: Streetscape View of San Marco Island, Facing Southwest

Figure 18: Streetscape View of Biscayne Island, Facing West

Beginning in 1925, the bridges and earthen causeways were constructed as the final phase in the development of the island communities (Figure 19). Harvey Stanley was responsible for the design of the bridges and the cost for the concrete structures was estimated at two-million dollars (Welcher 1989). The Raymond Concrete Pile Company of New York was selected as the building contractor and James M. Thompson served as superintendent. Plans for the new bridge included a combination of bridges and earthen causeway landings. The large islands would be connected using two bascule-span bridges, ten fixed-span bridges, and a series of earthen causeways. The bridges were completed in 1926, with a formal dedication occurring on February 28 of that year (Welcher 1989).

Figure 19: 1925 Photograph Showing Construction on the Venetian Causeway
Courtesy State Archives of Florida, Florida Memory Collection

A total of ten fixed-span bridges connect the short expanses of bay between the Venetian Islands. These fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center with 3 feet 11 inches overhang. The bridges have a low rise and provide minimal clearance above the mean high water. The guardrails, one of the main decorative features of the bridges, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern (Figure 20). This simple design forms a bold pattern while allowing a view of the bay from all of the bridges. A 1930s postcard shows the eastern-most bridge, Venetian Causeway Bridge 12 (8DA14384), as it originally appeared (Figure 21).

In addition to the ten fixed-span bridges, two bascule-leaf spans with fixed-span approaches were constructed to cross the larger expanses of the bay. These bridges are composed of fixed tee-beam approach spans that provide a gradual rise culminating in a steel bascule-leaf span constructed of steel. The two bascule bridges have a low rise and provide minimal clearance above the mean high water. The guardrails for both spans retain the distinctive ornamental railings found on the fixed-span bridges. The bridges currently open every half hour between 7am and 7pm, Monday through Friday. On weekends and federal holidays, the bridge opens as required by boat traffic. The bridge may be opened on demand, at any time to permit passage of tug boats with tows, public vessels of the United States, regularly schedule cruise vessels, and in case of emergencies.

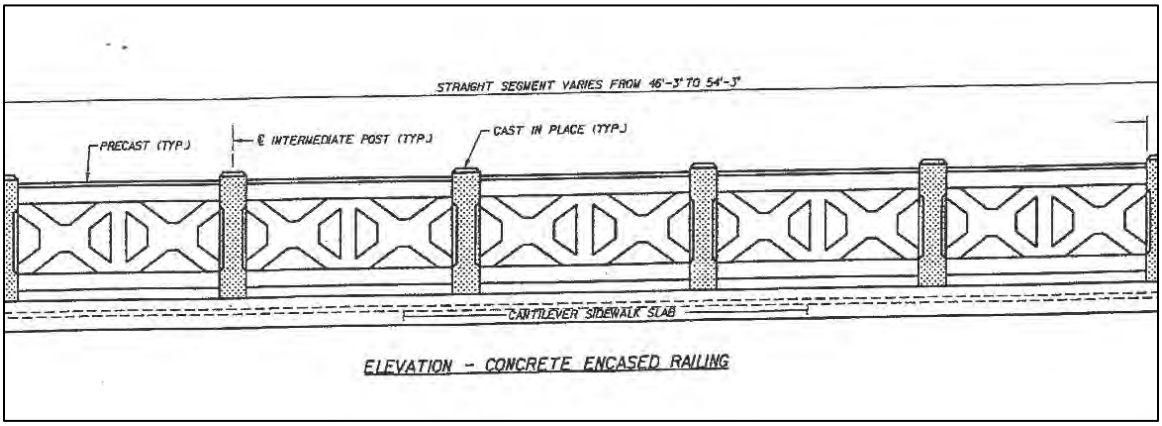

Figure 20: Guardrail Decorative Detail

Figure 21: 1930s Postcard Depicting the Venetian Causeway Bridge 12 (8DA14384)
Courtesy Belle Isle Residents Association

A total of five man-made earthen causeway landings are located between sections of fixed-span bridges (Figure 22). These small islands are constructed of residual dredge material and serve to connect fixed-span sections. The resulting configuration creates a combination of bridge and earthen causeway between large expanses of water. The landings allowed for shorter spans to be constructed between the large islands. The small islands were also intended to create small channels, which added to the "Venetian" feel of the islands.

Figure 22: View from Earthen Causeway Landing between Rivo Alto Island and Di Lido Island, Facing East

Figure 23: Venetian Causeway Bridge 1 (8DA14373), Facing Northwest

8DA14373 Venetian Causeway Bridge 1

The Venetian Causeway Bridge 1 (8DA14373) is 2,005 feet long with 41 spans including a movable bascule span over the navigation channel, 28 fixed approach spans to the west and 12 fixed approach spans to the east of the movable span. It connects Biscayne Island to the mainland (NE 15th Street). The deck carries two lanes of vehicular traffic, one in each direction, as well as one bicycle lane in each direction with an alignment in the east/west direction. There are 2-foot curb and gutters and 6-foot sidewalks on either side of the roadway. The double-leaf bascule span measures 104 feet across and 35 feet across. It is constructed of steel and reinforced-concrete. A 14 feet by 21 feet multi-story control house is located on the bascule pier west of the navigation channel on the south side of the roadway. The fixed tee-beam approach spans are constructed of reinforced concrete. The western terminus contains a pair of tapering octagonal concrete entrance towers topped by lights resembling miniature lighthouses. Inscribed in bas-relief on the towers are the words "Short Way" on the north tower, and "Venetian Way" on the south tower. At the eastern terminus is a modern toll booth stretching the full width of the road.

In 1999, a 1,274 feet length of bridge - including the bascule-leaf span and the 12 fixed approach spans on each side of the movable span - were replaced during a rehabilitation project. Following a localized bridge deck failure in April of 2014, it became necessary to

demolish and replace a 730-foot section of the bridge. This work, completed in 2015, included 16 approach spans located west of the bascule-leaf span. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 24: Venetian Causeway Bridge 2 (8DA14374), Facing Northeast

8DA14374 Venetian Causeway Bridge 2

The Venetian Causeway Bridge 2 (8DA14374) is 200 feet long with three fixed, tee-beam spans of concrete. It connects Biscayne Island to San Marco Island. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot wide travel lanes with 4-foot wide shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side. The fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center. The arched girders provide limited clearance above the mean high water. The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 25: Venetian Causeway Bridge 3 (8DA14375), Facing Southwest

8DA14375 Venetian Causeway Bridge 3

The Venetian Causeway Bridge 3 (8DA14375) is 160 feet long with three fixed, tee-beam spans of concrete. It connects San Marco Island to a small man-made landing to the east. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot wide travel lanes with 4-foot wide shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side. The fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center. The arched girders provide limited clearance above the mean high water. The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 26: Venetian Causeway Bridge 4 (8DA14376), Facing East

8DA14376 Venetian Causeway Bridge 4

The Venetian Causeway Bridge 4 (8DA14376) is 160 feet long with three fixed, tee-beam spans of concrete. It connects San Marino Island to a small man-made landing to the west. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot wide travel lanes with 4-foot wide shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side. The fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center. The arched girders provide limited clearance above the mean high water. The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 27: Venetian Causeway Bridge 5 (8DA14377), Facing Southwest

8DA14377 Venetian Causeway Bridge 5

The Venetian Causeway Bridge 5 (8DA14377) is 160 feet long with three fixed, tee-beam spans of concrete. It connects San Marino Island to a small man-made landing to the east. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot wide travel lanes with 4-foot wide shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side. The fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center. The arched girders provide limited clearance above the mean high water. The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 28: Venetian Causeway Bridge 6 (8DA14378), Facing Northeast

8DA14378 Venetian Causeway Bridge 6

The Venetian Causeway Bridge 6 (8DA14378) is 160 feet long with three fixed, tee-beam spans of concrete. It connects Di Lido Island to a small man-made landing to the west. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot wide travel lanes with 4-foot wide shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side. The fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center. The arched girders provide limited clearance above the mean high water. The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 29: Venetian Causeway Bridge 7 (8DA14379), Facing Northwest

8DA14379 Venetian Causeway Bridge 7

The Venetian Causeway Bridge 7 (8DA14379) is 160 feet long with three fixed, tee-beam spans of concrete. It connects Di Lido Island to a small man-made landing to the east. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot wide travel lanes with 4-foot wide shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side. The fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center. The arched girders provide limited clearance above the mean high water. The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 30: Venetian Causeway Bridge 8 (8DA14380), Facing Northeast

8DA14380 Venetian Causeway Bridge 8

The Venetian Causeway Bridge 8 (8DA14380) is 160 feet long with three fixed, tee-beam spans of concrete. It connects Rivo Alto Island to a small man-made landing to the west. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot wide travel lanes with 4-foot wide shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side. The fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center. The arched girders provide limited clearance above the mean high water. The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 31: Venetian Causeway Bridge 9 (8DA14381), Facing Southwest

8DA14381 Venetian Causeway Bridge 9

The Venetian Causeway Bridge 9 (8DA14381) is 154 feet long with three fixed, tee-beam spans of concrete. It connects Rivo Alto Island to a small man-made landing to the east. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot wide travel lanes with 4-foot wide shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side. The fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center. The arched girders provide limited clearance above the mean high water. The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 32: Venetian Causeway Bridge 10 (8DA14382), Facing East

8DA14382 Venetian Causeway Bridge 10

The Venetian Causeway Bridge 10 (8DA14382) is 302 feet long with five spans including a movable bascule span over the navigation channel and four fixed approach spans. It connects two small man-made landings located between Belle Isle and Rivo Alto Island. The deck carries two lanes of vehicular traffic, one in each direction, as well as one bicycle lane in each direction with an alignment in the east/west direction. There are 2-foot curb and gutters and 6-foot sidewalks on either side of the roadway. The double-leaf bascule span measures 72 feet across and 35 feet wide. It is constructed of steel and reinforced-concrete. A 10 feet wide by 11 feet long, single-story control house is located on the bascule pier west of the navigation channel on the south side of the roadway. The fixed tee-beam approach spans are constructed of reinforced concrete.

In 1999, the bascule span superstructure and operating equipment were replaced during a rehabilitation project. Although numerous alterations and repairs have been made to the bridge, a significant amount of the original bridge remains in service. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 33: Venetian Causeway Bridge 11 (8DA14383), Facing Southeast

8DA14383 Venetian Causeway Bridge 11

The Venetian Causeway Bridge 11 (8DA14383) is 154 feet long with three fixed, tee-beam spans of concrete. It connects Belle Isle to a small man-made landing to the west. The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot wide travel lanes with 4-foot wide shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side. The fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center. The arched girders provide limited clearance above the mean high water. The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 34: Venetian Causeway Bridge 12 (8DA14384), Facing Northwest

8DA14384 Venetian Causeway Bridge 12

The Venetian Causeway Bridge 12 (8DA14384) is 460 feet long with nine fixed, tee-beam spans. It connects Belle Isle to Miami Beach (Dade Boulevard). The deck carries two lanes of vehicular traffic, one in each direction. Each bridge section is comprised of two 12-foot wide travel lanes with 4-foot wide shoulders that are used as bicycle lanes, and 4-foot wide sidewalks on each side. The fixed tee-beam spans are constructed of reinforced concrete. Decking is concrete and is carried on shallow arched girders resting on square concrete piers anchored to the bay bottom. The spans are continuous and are seated on fixed bearings at each pier. The variable depth tee beams are cast-in-place concrete and are framed into large end diaphragms which act as integral piers. These diaphragms are supported on square pier columns which rest on concrete pile caps. There are five tee beams in the cross-section spaced at 8 feet 6 inches on center. The arched girders provide limited clearance above the mean high water. The guardrails, one of the main decorative features of the bridge, are constructed of reinforced concrete in a pierced, ornamental geometric design that have square units with radiating diagonals forming an "x" pattern. Despite the rehabilitation and replacement of various bridge elements, the bridge is considered a National Register-eligible contributing resource to the overall Resource Group.

Figure 35: Collins Canal (8DA11375), Facing Southeast

8DA11375 Collins Canal

The Collins Canal is located in Section 33 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. The majority of the canal is approximately 40 feet wide, although the westernmost portion opens up to more than 100 feet at Biscayne Bay. From the bay, Collins Canal extends to the northeast running parallel to Dade Boulevard and eventually joining Lake Pancoast at Collins Avenue. The canal as viewed from the APE is characterized by concrete seawalls with some surrounding fencing and vegetation.

The Collins Canal (8DA11375) was determined eligible for listing in the National Register by the SHPO. The canal was found to be National Register–eligible on May 4, 2012. The portion of Collins Canal that is located within the current historic APE was documented as a result of the *Cultural Resource Assessment Survey for the West Avenue Bridge PD&E Study* (FMSF Manuscript No. 19005) conducted by Janus Research in 2012. It is considered eligible for listing in the National Register under Criteria A and C in the categories of Transportation, Engineering, and Community Planning and Development. Outside of the APE for the project, the Collins Canal is also considered a contributing resource within the City of Miami Beach's Palm View and Collins Waterfront historic districts.

Figure 36: Terrace Towers (8DA11754), Facing Southwest

8DA11754 Terrace Towers

The Terrace Towers are located at 3 Island Way in Section 33 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This fourteen-story, Mid-Century Modern building was designed by Morris Lapidus and built circa 1962. The concrete block building rests on concrete-slab foundation. The exterior is clad in stucco. The flat roof with parapet is covered with built-up roofing and contains a rooftop penthouse. Windows include one-over-one and two-over-two, metal single hung arranged in ribbons of three and five. The north and south elevations contain stairwells. The property contains a parking garage and pool area. The building currently serves as apartments.

The building was designed by Morris Lapidus and constructed by the Island Venetian Construction Company. Lapidus and Bea, his wife, chose the building as their personal residence and lived in a two-story, 2, 500 square-foot unit in the building until 2001 (City of Miami Beach Planning Department 2009). During the 1950s and 1960s, Lapidus designed some of the most prominent and influential buildings in the MiMo-style. While the sweeping curved walls, woggles, bean poles, cheese holes and bow ties, for which Morris became famous, shaped Post-War hotel interior architecture on the Beach, his passion to design the "complete structure" inspired him (City of Miami Beach Planning Department 2009). His Miami Beach buildings, now protected within Miami Beach's Morris Lapidus / Mid-20th Century Historic District, include the Fontainebleau (circa 1954), the Eden Roc Hotel (circa 1955), the Crystal House (circa 1960), Seacoast Towers South (circa 1964), and Seacoast

Towers East (circa 1966). A 1962 photo of Belle Isle shows Terrace Towers on the west side just after its construction (Figure 37).

Figure 37: 1962 Aerial Photograph of Bell Isle Showing Terrace Towers (8DA11754)
Courtesy Belle Isle Residents Association

The Terrace Towers (8DA11754) was documented as a result of the *FCC Form 621 Collocation ("CO") Submission Packet: SFL-012, SW6-455/Tower Terrace, Miami-Dade County, Florida* (FMSF Manuscript No. 17942) conducted by Florida History, LLC in 2010. The building was determined National Register–eligible on January 5, 2011.

Historic Resources Considered Ineligible for Listing in the National Register

Figure 38: Venetian Isles Apartments (8DA11740) in background with two historic outbuilding in foreground, Facing Southwest

8DA11740 Venetian Isles Apartments

The Venetian Isles Apartments are located at 1198 Venetian Way in Section 31 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This four-story, Mid-Century Modern building was constructed circa 1954. The concrete block building rests on concrete-slab foundation. The exterior is clad in stucco. The flat roof with parapet is covered with built-up roofing. Windows include two-by-two and three-by-three metal sliding types. The building currently serves as apartments.

According to the FMSF, the Venetian Isles Apartments (8DA11740) have not been evaluated by the SHPO. The building was documented as a result of the *FCC Form 621 Collocation ("CO") Submission Packet: Venetian Isles Apartments Tower, Miami-Dade County, Florida* (FMSF Manuscript No. 18139) conducted by Florida History, LLC in 2010. The previous surveyor noted that the building was National Register-ineligible. This resource does not appear to be associated with any known historic events or trends in the area, nor is it related to any persons important or significant in local, state or national events. Although over fifty years old, this resource exhibits a common design type found throughout Florida. There does not exist a concentrated visual sense of historic significance, nor is there an obvious shared interrelationship between this resource and the surrounding built environment. Therefore, given its common design and lack of historic significance, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

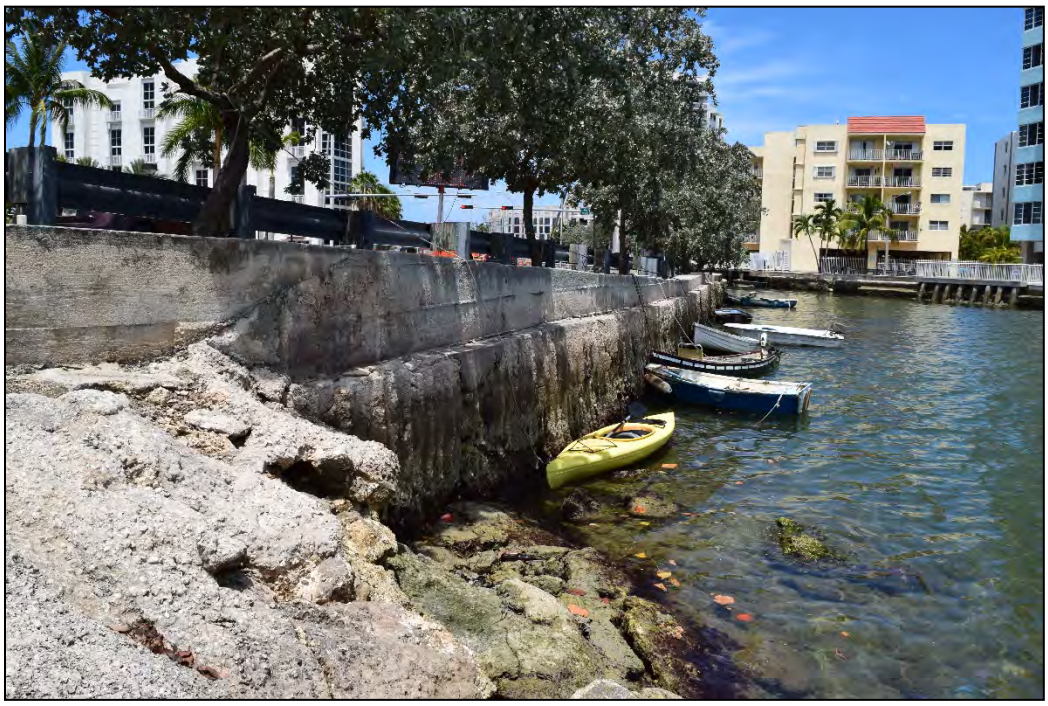

Figure 39: Collins Canal Seawall (8DA12366), Facing East

8DA12366 Collins Canal Seawall

The Collins Canal Seawall is located in Section 33 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This concrete seawall runs parallel with Dade Boulevard and is tied to the Collins Canal (8DA1137). The reinforced concrete section of seawall within the project APE appears to be of fairly modern construction design and materials, including metal guardrails.

The Collins Canal Seawall (8DA12366) was determined to be National Register-ineligible by the SHPO on May 4, 2012. The resource was documented as a result of the *Cultural Resource Assessment Survey for the West Avenue Bridge PD&E Study, Miami Beach, Miami-Dade County, Florida* (FMSF Manuscript No. 19005) conducted by Janus Research in 2012. New seawall construction and deterioration of the existing historic wall has diminished the resource's historic integrity of materials, design, and workmanship. Therefore, given its loss of integrity, this resource is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 40: 1132 N Venetian Drive (8DA14385), Facing Northwest

8DA14385 1132 N Venetian Drive

This two-story, Masonry Vernacular building is located at 1132 N Venetian Drive in Section 31 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1955 residence contains a gable-roof main body with an attached garage and a two-story, gable-roof rear addition. The concrete-block building rests on a concrete-slab foundation. The exterior is clad in stucco. Windows include single-pane, metal casement and one-by-one, metal sliding. Roofing consists of flat tile. A large hedge row obscures the façade and elevations. The building currently serves as a private residence.

Although over fifty years old, this resource does not retain sufficient integrity of design, materials, workmanship, and feeling. Modifications include the replacement of windows and doors, as well as alterations to the fenestration pattern and unsympathetic additions. There does not exist a concentrated visual sense of historic significance, nor is there an obvious shared interrelationship between this resource and the surrounding built environment. Therefore, given its loss of integrity and lack of historic significance, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 41: 230 W San Marino Drive (8DA14386), Facing Northwest

8DA14386 230 W San Marino Drive

This two-story, Masonry Vernacular building is located at 230 W San Marino Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1955 residence contains a flat-roof main body, an attached garage with second-story, and a two-story rear addition with rooftop access. The garage and two-story addition were completed in the 1980s. The concrete-block building rests on a concrete-slab foundation. The exterior is clad in stucco. Windows include paired, single-pane, metal casement; triple, single-pane, metal casement; and four-pane fixed metal. The home has extensive renovations and loss of integrity. The building currently serves as a private residence.

Although over fifty years old, this resource does not retain sufficient integrity of design, materials, workmanship, and feeling. Modifications include the replacement of windows, doors, and exterior fabric, as well as alterations to the fenestration pattern and unsympathetic additions. Therefore, given its loss of integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 42: 226 W San Marino Drive (8DA14387), Facing Northwest

8DA14387 226 W San Marino Drive

This two-story, Masonry Vernacular building is located at 226 W San Marino Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1947 residence contains a gable-roof main body, an attached gable-roof garage, and a two-story hip-roof addition. The concrete-block building rests on a continuous concrete-block foundation. The exterior is clad in stucco. Windows include paired, single-pane, metal casement and one-by-one metal sliding. Roofing consists of Spanish tile. A garage addition obscures the historic façade. The building currently serves as a private residence.

Although over fifty years old, this resource exhibits a common design type found throughout Florida. Modifications include the replacement of windows and exterior fabric, as well as unsympathetic additions. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 43: 227 E San Marino Drive (8DA14388), Facing Southeast

8DA14388 227 E San Marino Drive

This two-story, Masonry Vernacular building is located at 227 E San Marino Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1939 residence contains a two-story hip-roof main body, an attached Florida room and hip-roof garage, and a rear shed-roof addition. The concrete-block building rests on a continuous concrete-block foundation. The exterior is clad in stucco. Windows include paired, six-over-six, metal single-hung; eight-by-eight, metal sliding; single-pane, metal bay; and both vertical and horizontal glass block. The windows have been replaced, some of them multiple times, likely in the 1960s and 1980s. Roofing consists of flat tile. A concrete wall with decorative metal gates surrounds the exterior. The main entry is obscured by a wall and landscaping. The building currently serves as a private residence.

Although over fifty years old, this resource exhibits a common design type found throughout Florida. Modifications include the replacement of windows and unsympathetic additions. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 44: 433 E Di Lido Drive (8DA14390), Facing East

8DA14390 433 E Di Lido Drive

This two-story, Masonry Vernacular building is located at 433 E Di Lido Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1932 residence contains a gable-roof main body, a garage addition, and a two-story gable-roof addition. The concrete-block building rests on a continuous concrete-block foundation. The exterior is clad in stucco. Windows include one-by-one, metal horizontal sliding and paired, single-pane metal fixed. Roofing consists of Spanish tile. A garage addition and hedge row obscure much of the façade and south elevation. The building currently serves as a private residence.

Although over fifty years old, this resource exhibits a common design type found throughout Florida. Modifications include the replacement of windows and unsympathetic additions. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 45: 425 E Di Lido Drive (8DA14391), Facing East

8DA14391 425 E Di Lido Drive

This one-story, Masonry Vernacular building is located at 425 E Di Lido Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1949 residence contains a Miami Modern-style shed-roof with clerestory main body, flat-roof enclosed garage/carport, and a flat-roof rear extension. The concrete-block building rests on a concrete-slab foundation. The exterior is clad in stucco. Windows include single-pane, metal fixed; paired, single-pane, metal casement; and triple, single-pane, metal casement. Roofing consists of composition shingles. The entryway has been altered and a garage/carport enclosed. The residence may have been constructed in the Miami Modern style originally, the alterations and additions have detracted from the integrity of the style. The building currently serves as a private residence.

Although over fifty years old, this resource does not retain sufficient integrity of design, materials, workmanship, and feeling. Modifications include the replacement of windows and doors, as well as unsympathetic additions. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 46: 226 W Rivo Alto Drive (8DA14392), Facing East

8DA14392 226 W Rivo Alto Drive

This two-story, Masonry Vernacular building is located at 226 W Rivo Alto Drive in Section 33 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1939 residence contains a hip-roof main body and a two-story gable-roof rear addition. The concrete-block building rests on a continuous concrete-block foundation. The exterior is clad in stucco. Replacement windows include one-by-one, metal horizontal sliding and paired, single-pane, metal casement. Roofing consists of Spanish tile. A hedge row with gate obscures the façade and north elevation. The building currently serves as a private residence.

Although over fifty years old, this resource exhibits a common design type found throughout Florida. Modifications include the replacement of windows and an unsympathetic addition. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 47: 227 E Rivo Alto Drive (8DA14393), Facing East

8DA14393 227 E Rivo Alto Drive

This two-story, Mediterranean Revival building is located at 227 E Rivo Alto Drive in Section 33 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1932 residence contains a gable-roof main body, central two-story rotunda entry, a gable-roof ell, and flat-roof rear addition. The concrete-block building rests on a continuous concrete-block foundation. The exterior is clad in stucco. Windows include six-by-six, metal horizontal sliding; three-light, metal casement; and six-light, metal casement. Roofing consists of Spanish tile. The home contains a two-story rotunda entry with a metal-balustrade balcony and decorative medallion. Ground-floor windows have decorative security bars on the windows. A concrete wall with metal gates surrounds the home. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone renovations including the replacement of windows and doors, as well as an unsympathetic rear addition. There does not exist a concentrated visual sense of historic significance, nor is there an obvious shared interrelationship between this resource and the surrounding built environment. Therefore, given its common design and lack of historic significance, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 48: Sandpiper Villas Co-Op/1100-1140 Venetian Way (8DA15805), historic resource group, Facing Southeast

8DA15805 Sandpiper Villas Co-Op

This apartment co-operative complex consists of five Masonry Vernacular buildings located at 1100-1140 Venetian Way in Section 31 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami, Miami-Dade County, Florida. This circa 1949 apartment complex contains five nearly identical buildings (8DA15806-8DA15810). These Masonry Vernacular buildings are rectangular and constructed of concrete block. The buildings are covered in stucco and in some areas a faux stone material. The buildings are two stories tall, with their main entrances facing east and west. There are balconies and porches for each unit. The buildings at 1110 and 1120 are connected through a one-story addition. Buildings 1130 and 1140 are connected through a similar addition. The buildings feature wide eaves, concrete sills, and large awnings.

This resource does not retain sufficient integrity of design, materials, and workmanship. The buildings have undergone renovations including the replacement of windows and doors, as well as two additions that connected the once separate buildings. Therefore, given its common design and lack of historic integrity, this building complex is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 49: Sandpiper Villas Co-Op Building 1100 (8DA15806), Facing Southwest

8DA15806 Sandpiper Villas Co-Op Building 1100

This Masonry Vernacular apartment co-operative building is located at 1100 Venetian Way in Section 31 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami, Miami-Dade County, Florida. This circa 1949 apartment building was constructed of concrete block covered in stucco. The northwest corner of the building also features a faux stone material. The building is two stories tall, with main entrances facing east. There are balconies and porches for each unit. The metal and vinyl windows consist of one-over-one single-hung-sash, three- and four-light awning, and two-light sliding. The buildings featured wide eaves, concrete sills, and large awnings on the north side windows.

This resource does not retain sufficient integrity of design, materials, and workmanship. The building has undergone renovations including the replacement of windows and doors, as well as the additions of the window awnings and the faux stone material on the north side of the building. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district. The building is part of the historic resource group Sandpiper Villas Co-Op (8DA15805), which is considered National Register–ineligible.

Figure 50: Sandpiper Villas Co-Op Building 1110 (8DA15807), Facing South

8DA15807 Sandpiper Villas Co-Op Building 1110

This Masonry Vernacular apartment co-operative building is located at 1110 Venetian Way in Section 31 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami, Miami-Dade County, Florida. This circa 1949 apartment building was constructed of concrete block covered in stucco. There is a one-story 1980s addition at the northeast corner of the building that connects it to the building at 1120 Venetian Way (8DA15808). This addition is covered in a faux stone material. The building is two stories tall, with main entrances facing east. There are balconies and porches for each unit. The metal and vinyl windows consist of one-over-one single-hung-sash, three- and four-light awning, and two-light sliding. The buildings featured wide eaves, concrete sills, and large awnings on the north side windows.

This resource does not retain sufficient integrity of design, materials, and workmanship. The building has undergone renovations including the replacement of windows and doors, as well as the non-historic addition at the northeast corner that connects it to the building at 1120 Venetian Way (8DA15808). Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district. The building is part of the historic resource group Sandpiper Villas Co-Op (8DA15805), which is considered National Register–ineligible.

Figure 51: Sandpiper Villas Co-Op Building 1120 (8DA15808), Facing South

8DA15808 Sandpiper Villas Co-Op Building 1120

This Masonry Vernacular apartment co-operative building is located at 1120 Venetian Way in Section 31 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami, Miami-Dade County, Florida. This circa 1949 apartment building was constructed of concrete block covered in stucco. There is a one-story 1980s addition at the northwest corner of the building that connects it to the building at 1110 Venetian Way (8DA15807). This addition is covered in a faux stone material. The building is two stories tall, with main entrances facing west. There are balconies and porches for each unit. The metal and vinyl windows consist of one-over-one single-hung-sash, three- and four-light awning, two-light sliding, one-light circular fixed, and tripartite with a fixed center and flanking four-light awning. The buildings featured wide eaves, concrete sills, and large awnings on the north side windows.

This resource does not retain sufficient integrity of design, materials, and workmanship. The building has undergone renovations including the replacement of windows and doors, as well as the non-historic addition at the northwest corner that connects it to the building at 1110 Venetian Way (8DA15807). Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district. The building is part of the historic resource group Sandpiper Villas Co-Op (8DA15805), which is considered National Register–ineligible.

Figure 52: Sandpiper Villas Co-Op Building 1130 (8DA15809), Facing Southeast

8DA15809 Sandpiper Villas Co-Op Building 1130

This Masonry Vernacular apartment co-operative building is located at 1110 Venetian Way in Section 31 of Township 53 South, Range 41 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami, Miami-Dade County, Florida. This circa 1949 apartment building was constructed of concrete block covered in stucco. There is a one-story 1980s addition at the northeast corner of the building that connects it to the building at 1140 Venetian Way (8DA15810). This addition is covered in a faux stone material. The building is two stories tall, with main entrances facing east. There are balconies and porches for each unit. The metal and vinyl windows consist of one-over-one single-hung-sash, three- and four-light awning, and two-light sliding. The buildings featured wide eaves, concrete sills, and large awnings on the north side windows.

This resource does not retain sufficient integrity of design, materials, and workmanship. The building has undergone renovations including the replacement of windows and doors, as well as the non-historic addition at the northeast corner that connects it to the building at 1140 Venetian Way (8DA15810). Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district. The building is part of the historic resource group Sandpiper Villas Co-Op (8DA15805), which is considered National Register–ineligible.

Figure 53: Sandpiper Villas Co-Op Building 1140 (8DA15810), Facing South

8DA15810 Sandpiper Villas Co-Op Building 1140

This Masonry Vernacular apartment co-operative building is located at 1120 Venetian Way in Section 31 of Township 53 South, Range 41 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami, Miami-Dade County, Florida. This circa 1949 apartment building was constructed of concrete block covered in stucco. There is a one-story 1980s addition at the northwest corner of the building that connects it to the building at 1130 Venetian Way (8DA15809). This addition is covered in a faux stone material. The building is two stories tall, with main entrances facing west. There are balconies and porches for each unit. The metal and vinyl windows consist of one-over-one single-hung-sash, three- and four-light awning, and two-light sliding. The buildings featured wide eaves, concrete sills, and large awnings on the north side windows.

This resource does not retain sufficient integrity of design, materials, and workmanship. The building has undergone renovations including the replacement of windows and doors, as well as the non-historic addition at the northwest corner that connects it to the building at 1130 Venetian Way (8DA15809). Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district. The building is part of the historic resource group Sandpiper Villas Co-Op (8DA15805), which is considered National Register–ineligible.

Figure 54: 235 W San Marino Drive (8DA15811), Facing Northeast

8DA15811 235 W San Marino Drive

This two-story, Masonry Vernacular building is located at 235 W San Marino Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1935 residence contains two-story central portion flanked by two one-story portions. Each portion of the building has a gabled roof covered in composition shingles. The brick building is covered with stucco. Windows include two-light, vinyl horizontal sliding and one-light, vinyl fixed. The west-facing main entrance consists of a single panel door with a thick stucco surround and a canvas awning. There is a large canvas awning on the north side of the building that is used as a carport. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone renovations including the replacement of windows and doors. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 55: 238 E San Marino Drive (8DA15812), Facing West

8DA15812 238 E San Marino Drive

This Masonry Vernacular building is located at 238 W San Marino Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1936 residence contains a gable-roof main body, a flat roof east side portion, and flat-roof rear addition. The brick building is covered with stucco. The exterior is clad in stucco. Windows include three-, four-, and five-light, metal casement. Roofing consists of barrel tile. The east side flat roof portion of the house was originally an entry porch. It was enclosed in the 1980s and the main entrance now consists of a panel door with an inset fanlight under a canvas awning. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone renovations including the replacement of windows and doors, as well as the enclosure of the original entry porch and a rear addition. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 56: 221 W San Marino Drive (8DA15813), Facing Northeast

8DA15813 221 W San Marino Drive

This two-story, Masonry Vernacular building is located at 221 W San Marino Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1937 residence contains a gable-roof main body, a north side one-story addition, and a one-story southwest corner addition. The brick building is covered with stucco. The exterior is clad in stucco. Windows include eight- and ten-light, metal casement and three- and four-light, metal awning. Roofing consists of barrel tile. The main west-facing entrance consists of a wood door with enclosed sidelights and a thick door surround. The entry porch is distinguished by rounded tiled steps and two Tuscan columns. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone renovations including the replacement of windows and doors, as well as two additions. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 57: 210 E San Marino Drive (8DA15814), Facing Northwest

8DA15814 210 E San Marino Drive

This Masonry Vernacular building is located at 210 E San Marino Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1954 residence contains a flat roof southern half and a shed roof northern half. The concrete-block building rests on a continuous concrete-block foundation. The exterior is clad in stucco and a faux stone material. Windows include metal jalousie, two of which are at the southeast corner of the building. Some of the windows have decorative security bars. The main entrance consists of a panel door with an oval light. The entry porch is recessed on the east side and enclosed with a decorative iron screen. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone renovations including the replacement of windows and doors, as well as the addition of decorative security bars. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 58: 435 W Di Lido Drive (8DA15815), Facing East

8DA15815 435 W Di Lido Drive

This Masonry Vernacular building is located at 435 W Di Lido Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1948 is constructed of concrete block resting on a continuous concrete-block foundation. The exterior is clad in stucco. Windows include six -light, metal fixed, some of which are paired and tripled. Roofing consists of flat tile. The main entrance consists of a west-facing panel door with an inset fanlight under a small entry porch distinguished by two square columns. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone renovations including the replacement of windows and doors, as well as the reconstruction of the entry porch. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 59: 440 E Di Lido Drive (8DA15816), Facing Southwest

8DA15816 440 E Di Lido Drive

This Masonry Vernacular building is located at 440 E Di Lido Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1946 residence contains several hipped roof portions including a garage at the southeast corner. The concrete-block building rests on a continuous concrete-block foundation. The exterior is clad in stucco. Windows include two-light, metal horizontal sliding and one-light, metal fixed. Roofing consists of flat tile. The main entrance consists of an east-facing wood door with a small rectangular light and flanking glass block sidelights. The east side raised tiled porch has two large stucco columns and metal railings. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone renovations including the replacement of windows and doors, the enclosure of the carport into a garage, as well as a non-historic rear addition. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 60: 424 E Di Lido Drive (8DA15817), Facing Southwest

8DA15817 424 E Di Lido Drive

This Masonry Vernacular building is located at 424 E Di Lido Drive in Section 32 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1944 residence contains a hip-on-hip-roof main body, and two flat-roof rear additions. The concrete-block building rests on a continuous concrete-block foundation. The exterior is clad in stucco. Windows include one-light, metal fixed. Roofing consists of flat tile. The main entrance consists of east-facing double doors with large rectangular lights at the east side raised entry porch. There is a large awning on the north side that serves as a carport. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone renovations including the replacement of windows and doors, as well as two rear addition. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 61: 241 W Rivo Alto Drive (8DA15818), Facing Southeast

8DA15818 241 W Rivo Alto Drive

This Masonry Vernacular building is located at 241 E Rivo Alto Drive in Section 33 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1954 residence contains a gable-roof main body and flat-roof carport on the north side. The concrete-block building rests on a continuous concrete-block foundation. The exterior is clad in stucco. Windows include two- and three-light, metal horizontal sliding and one-light, metal fixed. Roofing consists of flat tile. The main entrance consists of an east-facing door with a wide sidelight to the right of the door and a small concrete stoop. There is a secondary entry under the carport. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone renovations including the replacement of windows and doors. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 62: 230 E Rivo Alto Drive (8DA15819), Facing Southwest

8DA15819 230 E Rivo Alto Drive

This three-story, Mediterranean Revival building is located at 230 E Rivo Alto Drive in Section 33 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1924 residence contains a hip-roof main body, central two-story hip-roof entry, and flat-roof additions. The wood-frame building rests on a pier foundation that has been filled with stucco. The exterior is clad in stucco. Windows include three-light, wood fixed and replacement three-light, metal fixed. Roofing consists of barrel tile. The two-story east side entrance was added circa 1980 and includes arched double doors with large lights. The flat roof additions on the north and south sides were constructed circa 2011, when the property was completely renovated. The north side addition connected the main building to the once detached garage. The building features scuppers, door surrounds, concrete sills, parapets, decorative iron work, arches molded around third-story windows, and Ionic columns on the entry porch. An iron fence with gates and tall hedges line the edge of the property. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone a complete renovation including the replacement of windows and doors, a new stucco treatment, and several additions. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 63: 225 W Rivo Alto Drive (8DA15820), Facing Northeast

8DA15820 225 W Rivo Alto Drive

This two-story, Masonry Vernacular building is located at 225 W Rivo Alto Drive in Section 33 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1940 residence contains a hip-roof main body, a circa 1949 porch, and a detached one-story garage. The brick building is covered with stucco. The exterior is clad in stucco. Windows include one-light, metal casement, some of which are paired and tripled. At the southwest corner of the second floor, there are two sets of triple windows that meet in the corner under a large awning. Roofing consists of flat tile. The detached garage is topped with a modern red dog statue. Tall hedges and a fence surround the home. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone renovations including the replacement of windows and doors, as well as aa porch addition. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

Figure 64: 222 E Rivo Alto Drive (8DA15821), Facing Southwest

8DA15821 222 E Rivo Alto Drive

This two-story, Masonry Vernacular building is located at 222 E Rivo Alto Drive in Section 33 of Township 53 South, Range 42 East (Miami, FL 1994 USGS 7.5-mi. Topographic Quadrangle), in the City of Miami Beach, Miami-Dade County, Florida. This circa 1957 residence contains a cross-gable-roof main body and a two-story south addition. The concrete-block building rests on a continuous concrete-block foundation. The exterior is clad in stucco. Windows include one-light, metal fixed picture, and one-, three-, and four-light, metal casement. Roofing consists of flat tile. The building features vents, molded stucco "stone," vertical stucco banding, and a garage at the northeast corner that was originally a carport. The building currently serves as a private residence.

This resource does not retain sufficient integrity of design, materials, workmanship, and feeling. The building has undergone renovations including the replacement of windows and doors, a non-historic stucco treatment, and enclosing the carport as a garage, as well as an unsympathetic two-story rear addition. Therefore, given its common design and lack of historic integrity, this building is considered ineligible for listing in the National Register individually or as part of a historic district.

CONCLUSIONS

At the request of the FDOT, District 6, Janus Research conducted a CRAS for the Venetian Causeway Bridge from North Bayshore Drive in the City of Miami to Purdy Avenue in the City of Miami Beach, Miami-Dade County, Florida (FPID No. 422713-2-22-01). The objective of the survey was to identify cultural resources within the project APE and assess the resources in terms of their eligibility for listing in the National Register according to the criteria set forth in 36 CFR Section 60.4.

The archaeological APE consists of bridges and associated abutments located on man-made land. The substructural features associated with the bridges are also in an area of Biscayne Bay that has been subjected to dredging and disturbance resulting from installation of underwater cables and pipelines. Based on this, subsurface testing for archaeological sites was not conducted and the archaeological portions of the investigation focused on providing relevant documentation to support the low potential for archaeological sites.

The historic resources survey identified a total of 42 historic resources. There were two previously recorded buildings (8DA11740 and 8DA11754), two previously recorded linear resources (8DA11375 and 8DA12366), two newly recorded resource groups (8DA14395 and 8DA15805), twelve newly identified bridges (8DA14373-8DA14384) and twenty-four newly identified buildings (8DA14385-8DA14393, 8DA15806-8DA15821). The National Register-listed resource, Venetian Causeway (8DA4736), was converted to the Venetian Islands Resource Group (8DA14395) and includes the twelve individual bridges (8DA14373-8DA14384) that make up the Causeway, as well as six man-made islands and five earthen causeway landings that are contributing features within the historic designed landscape.

Two previously recorded resources are considered or determined to be National Register-ineligible. The previously recorded building, Venetian Isles Apartment (8DA11740), has not been evaluated by the SHPO, however the previous surveyor determined that the building was National Register-ineligible. Given its common design and lack of historic significance, this building is considered ineligible for listing in the National Register individually or as part of a historic district. The previously recorded linear resource, Collins Canal Seawall (8DA12366), was determined to be National Register-ineligible by the SHPO on May 4, 2012. New seawall construction and deterioration of the existing historic wall has diminished the resources historic integrity of materials, design, and workmanship. Therefore, given its loss of integrity, this resource is still considered ineligible for listing in the National Register individually or as part of a historic district.

Two previously recorded resources have been determined to be National Register-eligible. The previously recorded building, Terrace Towers (8DA11754), was determined to be National Register–eligible by the SHPO on January 5, 2011. It is considered eligible for listing in the National Register as the work of a master under Criterion C. The previously recorded linear resource, Collins Canal (8DA11375), was determined to be National Register–eligible by the SHPO on May 4, 2012. It is considered eligible for listing in the National Register under Criteria A and C in the categories of Transportation, Engineering, and Community Planning and Development.

As a result of the current project, the Venetian Islands Resource Group (8DA14395) was documented. This resource group subsumes the National Register-listed Venetian Causeway (8DA4736). As documented in the 1989 National Register nomination, the Causeway consists of "twelve bridges containing two bascule spans connected by a two lane road" (Welcher 1989). Due to severe deterioration, the bridges are in need of rehabilitation or replacement, and spans of the westernmost bridge were recently replaced following consultation with SHPO. Each of the twelve bridges were given individual FMSF numbers and were included within the newly identified Venetian Islands Resource Group (8DA14395). In consultation with the SHPO/FMSF, the FMSF site file for the Venetian Causeway (8DA4736) will be converted from its current classification as a historic bridge to a resource group. The resource group classification serves as a comprehensive tool for documenting the entire landscape of the Venetian Islands, including the bridges.

While the Venetian Causeway remains National Register-listed, the individual bridges (8DA14373-8DA14384) were evaluated as part of the current project and are considered contributing resources within the Venetian Islands Resource Group (8DA14395). Additionally, the six islands and five earthen causeway landings of the Venetian Islands were included within this historic designed landscape. The resource group encompasses a designed landscape of man-made islands, bridges, and earthen causeways that resulted from developers' ambitious plans to create a residential development on Biscayne Bay. Between 1915 and 1926, the location and layout of the islands were carefully planned and arranged by real estate developers, particularly the Bay Biscayne Improvement Company, to create a "Venetian" landscape across Biscayne Bay. Employing the most advanced dredging and construction methods of the time, crews shaped islands and connected them using a series of earthen causeways and concrete bridges. Despite the replacement of spans of the westernmost bridge in 2015, the Venetian Islands Resource Group (8DA14395) is considered National Register-eligible under Criteria A and C in the categories of Community Planning and Development, Transportation, Architecture, and Engineering.

The twenty-four newly identified historic buildings (8DA14385-8DA14393, 8DA15806-8DA15821) and one newly identified historic resource group (8DA15805) are considered National Register-ineligible, individually or as part of a historic district. These resources represent residential buildings that do not appear to be associated with any known historic events or trends in the area, nor are they related to any persons important or significant in local, state or national events. Furthermore, these resources have experienced extensive alterations and additions resulting in the loss of historic integrity of design, materials, workmanship, and feeling. Therefore, due to the common architecture, loss of integrity, and lack of historic significance, resources 8DA14385-8DA14393, 8DA15805-8DA15821 are considered ineligible for listing in the National Register individually or as part of a historic district.

Unanticipated Finds

Although unlikely, should construction activities uncover any archaeological remains, it is recommended that activity in the immediate area of the remains be stopped while a professional archaeologist evaluates the remains. In the event that human remains are found during construction or maintenance activities, Chapter 872.05 of the *Florida Statutes* will apply and FDOT's Standard Specifications for Road and Bridge Construction require that all construction cease. Chapter 872.05 states that, when human remains are encountered, all activity that might disturb the remains shall cease and may not resume until authorized by the District Medical Examiner or the State Archaeologist. The District Medical Examiner has jurisdiction if the remains are less than 75 years old or if the remains are involved in a criminal investigation. The State Archaeologist has jurisdiction if the remains are 75 years of age or more.

Curation

Updated and newly prepared FMSF forms (Appendix C) and photographs are curated at the FMSF, along with a copy of this report. A survey log sheet is included in Appendix D. Field notes and other pertinent project records are temporarily stored at Janus Research until their transfer to the FDOT storage facilities.

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APPENDIX A:

Florida Master Site File Forms for Newly Recorded Historic Resources

APPENDIX B:

Survey Log