

APPENDIX E

COMPENSATORY MITIGATION PLAN

**GULF INTRACOASTAL WATERWAY (GIWW) O&M
CUTS M-4, M-5, M-7, M-8, M-9, M-12, M-13, AND
M-14, & LONGBOAT PASS CUTS 2 AND 3
MANATEE COUNTY, FLORIDA**

**ANCLOTE RIVER, FL PROJECT CUT-1
CHANNEL ALIGNMENT, O&M AND
MATERIAL PLACEMENT
PINELLAS & PASCO COUNTIES, FLORIDA**



**U.S. Army Corps of Engineers
JACKSONVILLE DISTRICT**

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List of Enclosures

- Enclosure 1: Mitigation Plan, GIWW-Longboat Pass Cuts M-5 and M-14
- Enclosure 2: GIWW Mitigation Assessment Methodology (UMAM) Analyses
- Enclosure 3: Anclote River Project, FL UMAM

GIWW O&M Cuts M-4 and M-5; Anclote River, FL Project O&M Cut-1 Compensatory Mitigation Plan

The following mitigation plan complies with the requirements of Section 2036 of the Water Resources Development Act of 2007 (WRDA 2007) and complies with the mitigation standards and policies established pursuant to the regulatory programs. Implementation guidance requires that a specific mitigation plan must include certain components: 1) monitoring until successful, 2) criteria for determining ecological success, 3) a description of available lands for mitigation and the basis for the determination of availability, 4) the development of contingency plans (i.e. adaptive management), 5) identification of the entity responsible for monitoring, and 6) establishment of a consultation process with appropriate Federal and State agencies in determining the success of mitigation.

Previously, a compensatory mitigation plan for the GIWW O&M project area was approved, though mitigation was never completed due to economic unfeasibility. It is the goal of this mitigation plan to incorporate the seagrass impact assessed in that plan with the additional impacts identified in cuts not previously considered. In addition, seagrass impacts are anticipated for the Anclote River, FL Project and the Corps has exhausted onsite mitigation options. A combined compensatory mitigation effort for the O&M of the GIWW and the Anclote River, FL projects is being considered within this plan.

1. Monitoring

Seagrass recruitment and colonization will be characterized by species composition and quantified through determination of aerial coverage and vegetative characterization. The assessment of this will be accomplished via the measures described herein.

- a. Aerial mapping will be acquired to provide a general overview of the restoration area. The mapping will be acquired through aerial flight by the Corps-owned unmanned aerial vehicle (UAV) equipped with a high-resolution camera. The UAV will be flown at an elevation of approximately 50 feet above the water surface in transects that overlap by 60%. The aerial data will be calibrated as needed and orthorectified (geometrically corrected) to create a seamless mosaic with coverage of the entire restoration area. Aerial photointerpretation will be used to confirm new growth of seagrass species in contrast to exposed sediment within the restored area.
- b. In-water manual diver-based surveys will be conducted to ground truth aerial data collected. These in-water surveys will include reconnaissance of the restored area for qualitative sampling along transects. Transects will

cross the restoration area in either a north-to-south or east-to-west orientation to ensure appropriate transect coverage of the area. GPS positions will be collected at the beginning and end of the features observed. A diver will swim the transect lines noting the linear extent of substrate within a 1-meter-wide area. The assessment of bed density and species composition will be performed through line-intercept and point quadrat samples along each transect. In addition to the assessment of density and coverage by colonizing vegetation, the dredge hole will be evaluated for evidence of scouring or other significant problems that may potentially prohibit the growth of seagrass shoots within the interior of the restoration site.

- c. Along each transect, the in-water survey will be conducted to document the linear extent (recorded to the nearest 0.1 meter) of benthic cover categories within a 1-meter wide belt centered on the transect line. The vegetation observed along the transect will be recorded and each taxon (i.e., species of seagrass and genera of rhizophytic algae) present along each transect, including segments along the transect where multiple seagrass species overlap will be noted. Bare (unvegetated) areas and areas containing only drift algae will also be reported.
- d. The data collected along transects will be used to calculate the net-acreage of SAV coverage at each of the sites; net-acreage of SAV = (total acres of site) X (percentage of site covered by SAV). For this purpose, the total length of each transect will be reported along with the percentage of that transect covered by each category of cover, which are defined as follows: 1) seagrass, 2) rhizophytic macroalgae, including both calcareous and non-calcareous genera, 3) only drift algae (no SAV), and 4) bare substrate. Reports will include calculations for: 1) net-acreage of each seagrass species 2) net-acreage for all seagrass taxa, and 3) net-acreage of all SAV (i.e., all seagrasses and rhizophytic macroalgae; does not include areas with only drift algae).
- e. Reference sites will be established adjacent to the restoration site for the purposes of direct comparison. Reference sites will assist in establishing success criteria (coverage and density) that can reasonably be expected for this mitigation event. Reference sites include undisturbed sites with established seagrass beds for determination of a success criteria goal. Through direct comparison in this way, reference sites can determine if background impacts exist that are not related to the failure of the mitigation event, such as a degradation in water quality or disease affecting the natural re-colonization of sprouting of seeded plants.

2. Criteria for Ecological Success

Success criteria provides the basis of established plant growth that is documented to have unassisted persistence for at least two (2) consecutive years of during at least three (3) annual surveys within the restoration site. The criteria for a successful basis of comparison include:

- Areal coverage of seagrass colonies within 15% of that in reference site within the first 6 months of re-establishment.
- After 12 months of post-construction, 45% of vegetative coverage overall will be expected within the restoration site.
- At the end of the second year, a total of 85% coverage will be expected at the restoration site for success determination.

Success determination will be accomplished by comparison of percent coverage within the restoration area along the identified and surveyed transects to determine density and percent coverage in contrast to bare areas. The success criteria for vegetation establishment within restored areas include:

- Comparison of percent coverage in restoration site versus reference site(s)
- Contingency measures as part of the Adaptive Management Plan will be implemented if indicators determine that success criteria are not being met, and the restoration is determined to be failing.

Other items for inclusion of success criteria include:

- Substrate material (including benthic assessment)
- Light penetration
- Depth of water at MLW
- Wave action
- Temperature
- Salinity
- Wildlife Utilization
- Proximity of restoration site within seagrass-dense habitat for recruitment/colonization

3. Lands and Interests

No additional lands will be acquired by the U.S. Army Corps of Engineers (USACE) or Non-Federal Sponsor as a component of this mitigation plan.

4. Description of Mitigation

GIWW O&M Project

Submerged aquatic seagrass colonies occur within and around federal channels of the proposed GIWW project area where dredging will occur, as shown in Figures 1, 2, and 3.

In the previous mitigation plan, a search for available candidate restoration sites was conducted in coordination with the Sarasota Bay Estuary Program, University of South Florida, Mote Marine Research Laboratory, and Hillsborough County ELAPP Conservation Services. The previous restoration site was the Big Pass area prop scar and blow-out injuries within dense seagrass beds, brought forward by Hillsborough County. For the purposes of this compensatory mitigation plan, the Non-Federal Sponsor provided the candidate restoration site. The Non-Federal Sponsor has previously received a permit from the USACE regulatory division and Florida Department of Environmental Protection (FDEP), specifically for the purposes of mitigation and the site has not yet been utilized.

Anclote River, FL Project

Cut 1 of the Anclote River, FL project is expected to have direct impacts to seagrass. Candidate on-site restoration sites was extensively coordinated with FDEP and the National Marine Fisheries (NMFS) Habitat Conservation Division. Restoration site exploration included the Anclote Dredge Hole, Three Rookers Island East and West, Fred Howard Park North and South, and Sunset Beach (Figure 4). The Anclote Dredge hole was allocated by Pasco County for a local dredging and mitigation project. The remaining sites were all determined to be unsuitable for mitigation due to an abundance of resources within the selected sites. In a meeting with FDEP and NMFS on 4 February 2026, FDEP determined that USACE had completed an exhaustive search for on-site mitigation options and could now explore off-site mitigation options.

Restoration Site

The candidate restoration site is a dredge hole located in close proximity to the GIWW maintenance areas within the South Coastal watershed and is within the Outstanding Florida Waters (OFW) of the Sarasota Bay Estuarine System (See Figure 5).

The candidate restoration site is located within marine seagrass beds having similar substrate of silty-sand composition and elevation, light penetration, and salinity. Dredge holes are depressions caused by removal of sediments to provide fill for construction projects or to create or maintain navigation channels. Typically, these pits have poorer water and sediment quality compared to their surroundings. These conditions lead to reduced quality of benthic communities,

including seagrass beds. Due to these reduced qualities, dredge holes provide an opportunity for restoration efforts by repairing the substrate to an elevation with similar material that is more suitable for seagrass recruitment and colonization. Natural recruitment of native seagrasses is possible with these restoration efforts.

a. Types and Amount

GIWW O&M Project

The previous assessment of direct/indirect permanent impact requiring compensatory mitigation for the GIWW Manatee County maintenance dredging project encompassed 0.34 acres for cut M-5. The Uniform Mitigation Assessment Methodology (UMAM) completed in the previous mitigation plan determined the Functional Loss from direct and indirect impacts to be 0.159 credits and a Relative Functional Gain of 0.244 credits. This UMAM therefore determined 0.65 acres of mitigation, an approximately 2:1 ratio, in order to adequately compensate for the loss of seagrass colonies within the proposed dredging areas. (See *Enclosure 1*).

The assessment of direct/indirect permanent impact requiring compensatory mitigation for the GIWW Manatee County maintenance dredging project encompasses 0.02 acres for cut M-4. The UMAM completed for this cut determined the Functional Loss from direct and indirect impacts to be 0.005 credits and a Relative Functional Gain of 0.284 credits. This therefore determined that 0.016 acres of mitigation would be required to compensate for the loss of seagrass colonies within the proposed dredging areas. (See *Enclosure 2*).

Incorporating the previous compensatory mitigation for cut M-5 into the current mitigation plan for cut M-4, provides a total compensatory mitigation acreage of 0.666 acres required to adequately compensate for the loss of seagrass colonies with the proposed dredging areas in both cuts M-4 and M-5.

Anclote River, FL

The assessment of direct/indirect permanent impact requiring compensatory mitigation for the Anclote River project encompasses 8.574 acres for Cut 1. The UMAM completed for this cut determined the Functional Loss from direct impacts to be 0.5716. This therefore determined that 2.95 acres of mitigation would be required to compensate

for the loss of seagrass colonies within the proposed dredging areas (See *Enclosure 2*).

b. Physical Action Undertaken

The following includes a description of the general region where impacts are expected to occur, as well as the candidate site where restoration will occur.

Description of Project Site

GIWW O&M Project

The Federal channels associated with the project site (GIWW Cuts M-4, M-5, M-7, M-8, M-9, M-12, M-13, M-14, and Longboat Pass Cuts 2 and 3) are actively utilized by small to large motorized and non-motorized vessel traffic. Adjacent land use consists of moderate to heavily residential, commercial, and recreational park development. The aquatic environment of the Sarasota Bay Estuary that includes the proposed channel cuts to be dredged and their immediate surrounding buffer area contain 0.666 acres collectively of turtle grass (*Thalassia testudinum*), shoal grass (*Halodule wrightii*), and manatee grass (*Syringodium filiforme*) among disturbed areas of the substrate. Concentration of seagrasses occurs in Cuts M-4 and M-5, as shown in Figures 1 and 2. Most of the seagrass beds are located outside of the Federal channel where no disturbance is proposed by the maintenance activities.

Water clarity in the project area averages around 5.8ft using the Secchi disk depth method and is therefore considered moderately high due to the shallow conditions. This has allowed extensive colonies of seagrass to grow in areas undisturbed by boat traffic or other actions. Salinity and tidal action in the project area is considered moderate, with an average salinity of 32.48ppt and an average tidal difference of 1.46ft. The project area is considered to be within an impaired waterbody due to the contribution of non-point source pollution from nitrogen, mercury, and other nutrients or bacteria associated with development and stormwater runoff.

Anclote River, FL

The Anclote River federal channel is also an active channel with small to large vessel traffic. The outer channel is within the Pinellas Coast Aquatic Preserve, and the outer cuts are adjacent to open water and pristine

island habitats. While the inner cuts are located with the Naure Coast Aquatic Preserve and are adjacent to residential communities and commercial developments. The outer cuts have water depths between 6 to 12 feet and are tidally influenced. Seagrass within the inner cuts is concentrated outside the channel. The only outer cut to be dredged is 8.57 acres of Cut 1 and has 5% seagrass coverage within the entire cut. While there is existing seagrass in other areas of the outer cuts, there are no plans to dredge these areas within the near future.

Description of Mitigation Site

The candidate restoration site dredge hole lies within the Sarasota Bay Estuary within the immediate vicinity of the maintenance area, approximately 0.5 miles from GIWW cut M-5. Due to proximity to the project area, the dredge hole consists of substantially similar conditions to the project area.

Description of Construction Technique

Material will be removed from the necessary GIWW cuts via hydraulic dredging and will be placed into the dredge hole candidate site via pipeline. Turbidity curtains will be employed to ensure sediment deposition is limited to the restoration site and turbidity outside of the placement area is maintained at appropriate levels. Spudding and/or anchoring of pipeline(s) for placement will be limited to bare substrate areas so as to not cause damage to existing seagrass patches surrounding the restoration site.

c. Purpose, Functions, and Values

Impacts to seagrass beds are expected to occur as a result of the maintenance dredging activity. Due to the long-term interval since the last dredging of some of the cuts requiring removal of shoaled material, the USACE is proactively pursuing onetime mitigation to compensate for O&M dredging impacts to seagrasses within the Federal channels, and temporal loss for those within the buffer that occur from side-slope slumping during dredging.

Seagrass beds provide unique marine habitat which are extremely productive and a major contributor to the nearshore ecology of the ocean and estuaries. Seagrass provides a variety of benefits to the marine environment via sediment stabilization, decreasing wave energy, improvement to water quality, and creation of habitat and substrate

diversity. These beds also provide feeding grounds for marine life such as fish and invertebrates, which in turn provide resources for wading and diving birds. Seagrass beds are also a necessary resource for the West Indian Manatee (*Trichechus manatus*).

The compensatory mitigation project will be an “in-kind” restoration of seagrass. Restoration of the candidate site will replace the function and value that has been lost by the presence of the dredge hole, as well as that of the impact sites within the project area. Therefore, no loss of function or value provided by seagrass in a subaquatic habitat will occur. This is further supported by the completed UMAM analyses.



Figure 3: Benthic Habitat in GIWW Cuts M-12, M-13, and M-14

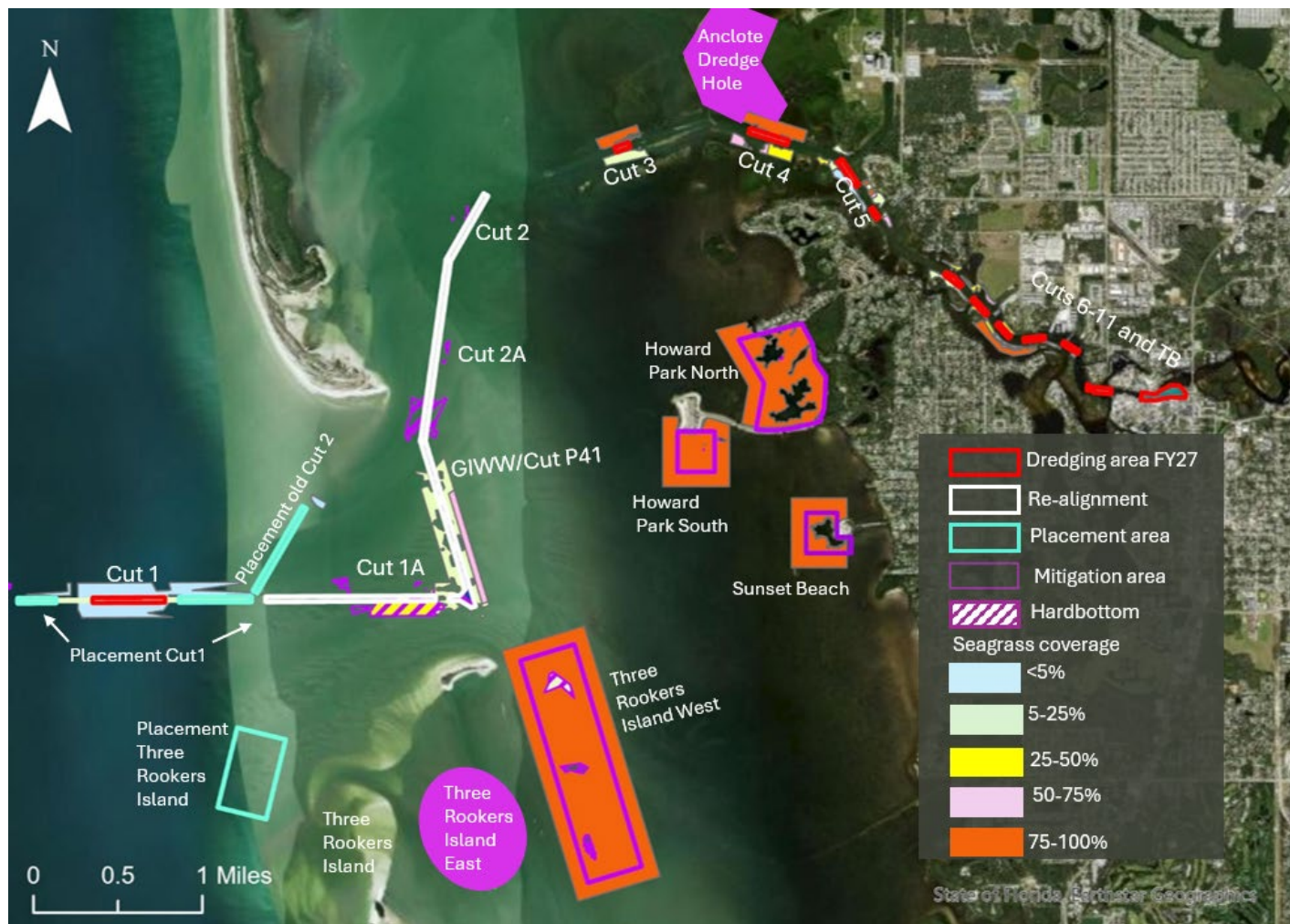


Figure 4. Map of the Anclote project area and mitigation areas considered. The seagrass coverage is identified on a color scale from warm (being the highest density) to cool (being the lowest density). ***Three Rookers Island East and the Anclote Dredge Hole mitigation sites do not have available seagrass survey data.

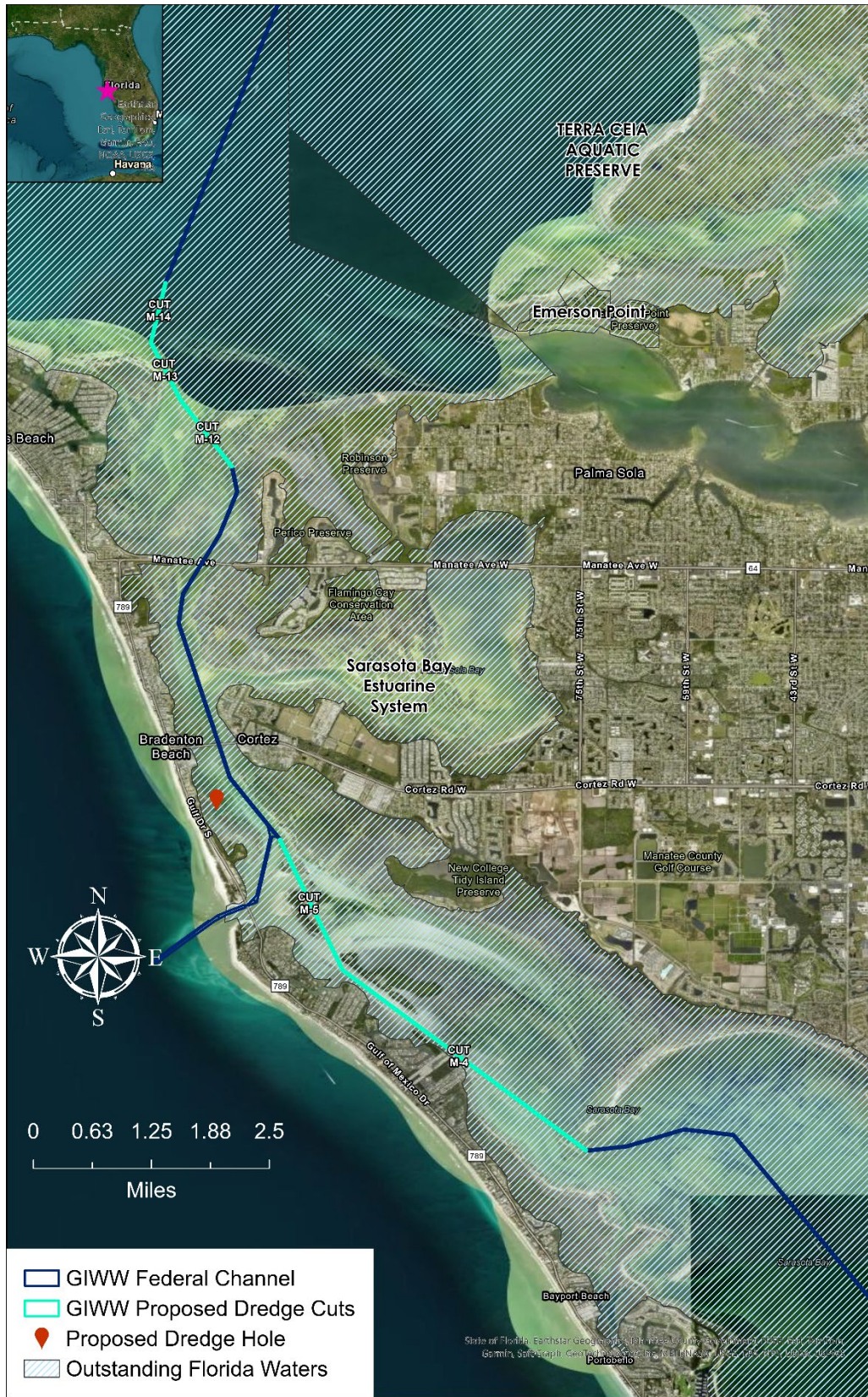


Figure 5: Outstanding Florida Waters in the GIWW O&M Project Vicinity

5. Adaptive Management Plan

In the event that restoration measures fail to meet the goals established by the success criteria as documented by monitoring event data, adaptive management measures will be enacted and include:

- a. Replanting of seagrass species by shoot transplanting or re-seeding
- b. Additional monitoring events or prolonged schedule until success criteria is documented as accomplished

6. Entity Responsible for Monitoring

All monitoring associated with this mitigation plan will be completed by or under the direction of the USACE; if the monitoring event is completed by a third party, this activity will be conducted under the direction and on behalf of the USACE. Therefore, the USACE will retain total responsibility of all activities related to the monitoring of this mitigation.

7. Monitoring and Consultation with Federal and State/Commonwealth Agencies

a. Monitoring Frequency and Schedule

Once Constructed, the mitigation effort will be monitored until it is considered a success in consultation with appropriate Federal and state agencies, and is released from further monitoring requirements.

Monitoring Schedule

- The duration of monitoring is expected to span three (3) years, unless failure determines the need for activation of the adaptive management plan, consisting of replanting or extended monitoring. A baseline event will be conducted immediately upon completion of restoration activities. The first- and second-year events will occur semi-annually at 6 and 12-months. The third-year event will occur one year after the second semi-annual event.
- Should the system fail to reestablish seagrass colonization at the expected rate, it likely will be evident by the end of the second year. If the adaptive management measure of replanting is deemed necessary, the monitoring event schedule will start over to a semi-annual survey for a period of at least one year. If additional annual monitoring events are required, these could be conducted for up to five years as necessary.

b. List of Federal and State Agencies to be Consulted

The fish and wildlife resource agencies listed below will be consulted annually for their input on the success of the mitigation, the likelihood of achieving the mitigation goal, the projected timeline for success, and any recommendations for improving the likelihood of success.

- U.S. Fish and Wildlife Service Vero Beach Jacksonville, Florida Field Office
- NOAA Fisheries, Southeast Regional Office, St. Petersburg, Florida
- Florida Department of Environmental Protection, Southwest District

8. References

- a. Karlen, David, et al. *McKay Bay Dredge Hole Restoration Monitoring Final Report*. Environmental Protection Commission of Hillsborough County, June 2015.
- b. Manatee County Water Atlas. "Sarasota Bay - Manatee County Water Atlas." *Sarasota Bay*, 2026, manatee.wateratlas.usf.edu/waterbodies/bays/14147/#impaired-waters. Accessed 5 Feb. 2026.
- c. NOAA. "Station Home Page - NOAA Tides & Currents." *Tidesandcurrents.noaa.gov*, NOAA, 2026, tidesandcurrents.noaa.gov/stationhome.html?id=8726217#info. Accessed 5 Feb. 2026.
- d. Office of Resilience and Coastal Protection. *Guidance on Surveys for Submerged Aquatic Vegetation Compensatory Mitigation Projects*. Florida Department of Environmental Protection, 8 Dec. 2020.
- e. U.S. Army Corps of Engineers Jacksonville District. *Environmental Assessment Gulf Intracoastal Waterway Cuts M-5, M-12, and M-14, & Longboat Pass Cuts LP-2 and LP-3 - Appendix H*. 23 Nov. 2011.

Enclosure 1
Mitigation Plan
GIWW-Longboat Pass Cuts M-5 and M-14

APPENDIX H – MITIGATION PLAN

GIWW-Longboat Pass Cuts M-5 and M-14

The following mitigation plan complies with the requirements of Section 2036 of the Water Resources Development Act of 2007 (WRDA 2007) and “complies with the mitigation standards and policies established pursuant to the regulatory programs”.

1.00 Monitoring

Seagrass development will be characterized by species composition and quantified through determination of aerial coverage and vegetative characterization. This assessment will be accomplished through the following measures described below.

- o Aerial mapping will be acquired to provide a general overview of the restoration area. The mapping will be acquired by aerial flight by the Corps- owned unmanned aerial vehicle (UAV) equipped with high-resolution (Olympus 10-megapixel digital single lens reflex camera). The UAV will be flown at an elevation of around 50-feet above the water in transects that overlap by 60%. The aerial will be calibrated as needed and ortho-rectified to compose a seamless mosaic with coverage of the entire study area including all the individual restored injury sites. Aerial photo-interpretation will be used to confirm new growth of seagrass species in contrast to exposed sediment tubes within the restored injury sites. See attached brochure regarding the UAV specifications.
- o Ground-truthing activities will be conducted in addition to aerial data collection. In-water manual dived surveys will include reconnaissance of restored injury sites for qualitative sampling through transects. As most injury sites are linear features that are narrow in width, transects will be along the axis of the feature instead of perpendicular across the width. DGPS positions will be collected at the beginning and end of the features. A diver will swim the centerline of the axis noting the linear extent of substrate within a 1-meter wide area. The assessment of bed density and species composition will be performed through line-intercept and point quadrat samples for each survey. In addition to assessment of the density and coverage by establishing vegetation, the restoration areas will be evaluated for evidence of scour, additional injury or significant problems that could prohibit the growth of seagrass shoots within the interior of the

sites. The modified Braun-Blanquet method will be employed as described below. Qualitative evaluation includes seagrass species composition of either single or mixed species. Also, determination of the substrate material and exposure will be calculated along with the seagrass categories assigned for percent total coverage from <25%, 25 – 50%, 50 – 75%, and >75%.

- o Modified Braun-Blanquet visual assessment method

This method is often used to monitor seagrass beds in south Florida (Dunankl et al, 2002; Fourquaran et al, 2002). To accurately describe seagrass coverage, as well as document changes in the density coverage, a quantitative assessment will be performed. A number of point-intercept quadrat samples will be evaluated in selected locations within the restoration area that fully represent the restored injury sites. This will be determined by the number of 50 cm x 50 cm standard quadrats that are required to comprise 5% of the restoration area for each restored injury site. Divide the injury site into the same number of sections as quadrats required to obtain the 5% coverage. For each section, the survey will generate a random point (via GIS). Each point will become the location for placement of the Braun-Blanquet quadrat. Photograph and/or video of each location will document the current condition at each site. New random sites will be generated prior to each monitoring event.

- o Density of aerial coverage by developing shoot growth will be evaluated within the restoration site(s) as well as adjacent reference site(s). Density is based on the fraction of the quadrat dominated by a particular species when viewed directly from above. Density is used as an indicator of seagrass health and establishment. Density composition is determined by counts of shoots within a sub-plot, (25 cm by 25 cm), placed within the 50 cm x 50 cm standard quadrat.

- o Reference sites are established adjacent to restored injury sites for comparison purpose. Reference sites will assist in establishing success criteria (coverage and density) that can reasonably be expected for this restoration project. Reference sites include undisturbed sites with established seagrass beds for determination of a success criteria goal. Through comparison, reference sites can determine if background impacts exist that are not related to the injury or failure of the restoration activity, such as degraded water quality or disease affecting natural re-colonization or sprouting of seeded plants.

2.00 Criteria for Ecological Success

Success Criteria provides the basis of established plant growth that is documented to have unassisted persistence for at least two consecutive years within the restored injury site(s) (Fonseca et al, 1998). The criteria for a successful basis of comparison include:

- o Areal coverage of seagrass colonies within 15% of that in reference site within the first 6 months of reestablishment.
- o After 12 months of post-construction, 45% of vegetative coverage overall will be expected within the restoration site.
- o At the end of the second year, a total of 85 % coverage will be expected at the restoration site for success determination.

Success determination will be accomplished by counts of plant shoots and estimation of percent coverage within sample quadrat and sub-quadrat to determine density and percent coverage (in contrast to bare areas). The success criteria for vegetation establishment within restored areas include:

- o Braun-Blanquet score within 1 unit of reference site; and
- o Contingency measures as part of the Adaptive Management Plan will be implemented if indicators determine that success criteria are not being met, and that the restoration is determined to be failing.

Other items for inclusion of success criteria include:

- o Substrate material (including benthic assessment)
- o Light penetration
- o Depth of water at MLW
- o Wave action
- o Temperature/ Salinity
- o Proximity of restoration site within seagrass-dense habitat for recruitment resource
- o Wildlife utilization

3.00 Lands and Interests

No additional lands will be acquired by the US Army Corps of Engineers or Co-sponsor as a component of this mitigation plan.

4.00 Description of Mitigation

Submerged aquatic seagrass colonies occur within federal channels of the proposed project area where dredging will occur and on the immediately adjacent buffer, see Figures 1, 2, and 3.

The search for available candidate sites was researched by contacting Sarasota Bay Estuary Program, University of South Florida, Mote Marine Research Laboratory, and Hillsborough County ELAPP Conservation Services. The Big Pass site was offered by Hillsborough County as a candidate site as it contains sufficient prop scar and blow-out injuries located in a dense seagrass bed sub-aquatic community. The site has significant need of restoration; thus, the US Army Corps of Engineers has the opportunity to contribute to the community as well as compensate for impact to seagrass within the Tampa Bay Watershed.

Both the GIWW-Longboat Pass Maintenance and Big Pass Seagrass Restoration project sites are within the Tampa Bay Watershed. The impact site is within both a designated Outstanding Florida Waters and Sarasota Bay Aquatic Preserve; the restoration site is within a designated Outstanding Florida Water, as well as Cockroach Bay Aquatic Preserve.

The proposed mitigation site is located in a habitat of marine seagrass beds having similar substrate of silty-sand composition and elevation, light penetration, and salinity, but contains numerous injury sites of prop scars and blow-out from vessel groundings. Prop scars are formed in seagrass beds that have been stripped of plant life as a result of a motored vessel propeller coming into contact with the estuary substrate. This collision with the bottom not only removes the topical plant material, but also slashes underground rhizomes and roots. A blow-out occurs when the hydraulic action of a propeller wash forms a large divot in the substrate, consequently removing vegetation. These types of injuries provide opportunity for sub-aquatic restoration by repairing the substrate to the correct elevation with similar material and allowing natural recruitment of native seagrass species to occur. Signage should be placed around the perimeter where the restoration beds occur collectively, which will protect a larger zone of seagrass, including the restoration sites.

4.01 Types and Amount

Direct/Indirect permanent impact requiring compensation for the GIWW – Longboat Pass maintenance dredging project will encompass a total 0.34 acre. Seagrass within the Federal channel will be permanently impacted through

removal during the dredging process. Side slope areas containing seagrass colonies immediately adjacent to the Federal channel will be evaluated post-dredging to determine if temporal impact has occurred.

The Uniform Mitigation Assessment Methodology (UMAM), attached, was used to determine the credits needed to compensate this impact within the project area. The UMAM analysis determined the Functional Loss from direct and indirect impact to be 0.159 credits. A Relative Functional Gain was found to be 0.244 credits.

The completed UMAM determined 0.65 acre of mitigation, (approximately 2:1 ratio), will be required to fully compensate for the direct loss of seagrass colonies within the proposed dredging area. Please see attached data for UMAM calculation.

The proposed mitigation site is in the Big Pass estuary of Cockroach Bay and was chosen to restore seagrass colonies due to extensive opportunity from injury sites. According to the Hillsborough County Conservation Service, this area contains over 600 injury sites within a matrix comprised of like-species as those found in the impact zone. The site will be able to replicate existing conditions as found at the impact site.

4.02 Physical Action Undertaken

The following includes a description of the general region where impacts are expected to occur, and site where restoration will be conducted.

Description of Project site

The Federal channels associated with the project site (GIWW Cuts M-5, M-12 and M-14, Longboat Pass Cuts 2 and 3, and Sunshine Skyway Cuts 2 and 3) are actively utilized by small to large motorized and non-motorized vessel traffic. Adjacent land use consists of moderate to heavily residential, commercial and recreational park development. The aquatic environment that includes the proposed channel cuts to be dredged and their immediate buffer contain 0.34 acre collectively of turtle grass (*Thalassia testudinum*), shoalgrass (*Halodule wrightii*), and manatee grass (*Syngodium filiforme*) among disturbed areas of the substrate. Concentration of seagrass occurs in GIWW-Cut M-5, Figures 1 and 2. Most of the seagrass beds are located outside of the Federal channel where no disturbance is proposed by the maintenance activities. A minimal amount of seagrass (1020 sq ft) occurs in the channel of GIWW Cut M-14, Figure 3.

Light penetration is considered moderately high which allows extensive colonies of seagrass to grow in areas undisturbed by boat traffic. Sand and silty sand comprise the substrate in and near the channel which is conducive to healthy seagrass habitat (Fonseca *et al*, 1998). Tidal action is moderate, with an average difference of 1.5 feet from mean low to mean high water level. Salinity is moderate. The GIWW – Longboat Pass is considered to be within a designated water impairment area due to the contribution of non-point pollution from nitrogen, phosphorus and bacteria associated development and untreated stormwater runoff.



Figure 1. Seagrass beds occurring at the north end of GIWW Cut M-5 of Project Area. Note that the majority of seagrass occurs outside of the proposed dredge area in the buffer which will not be disturbed.



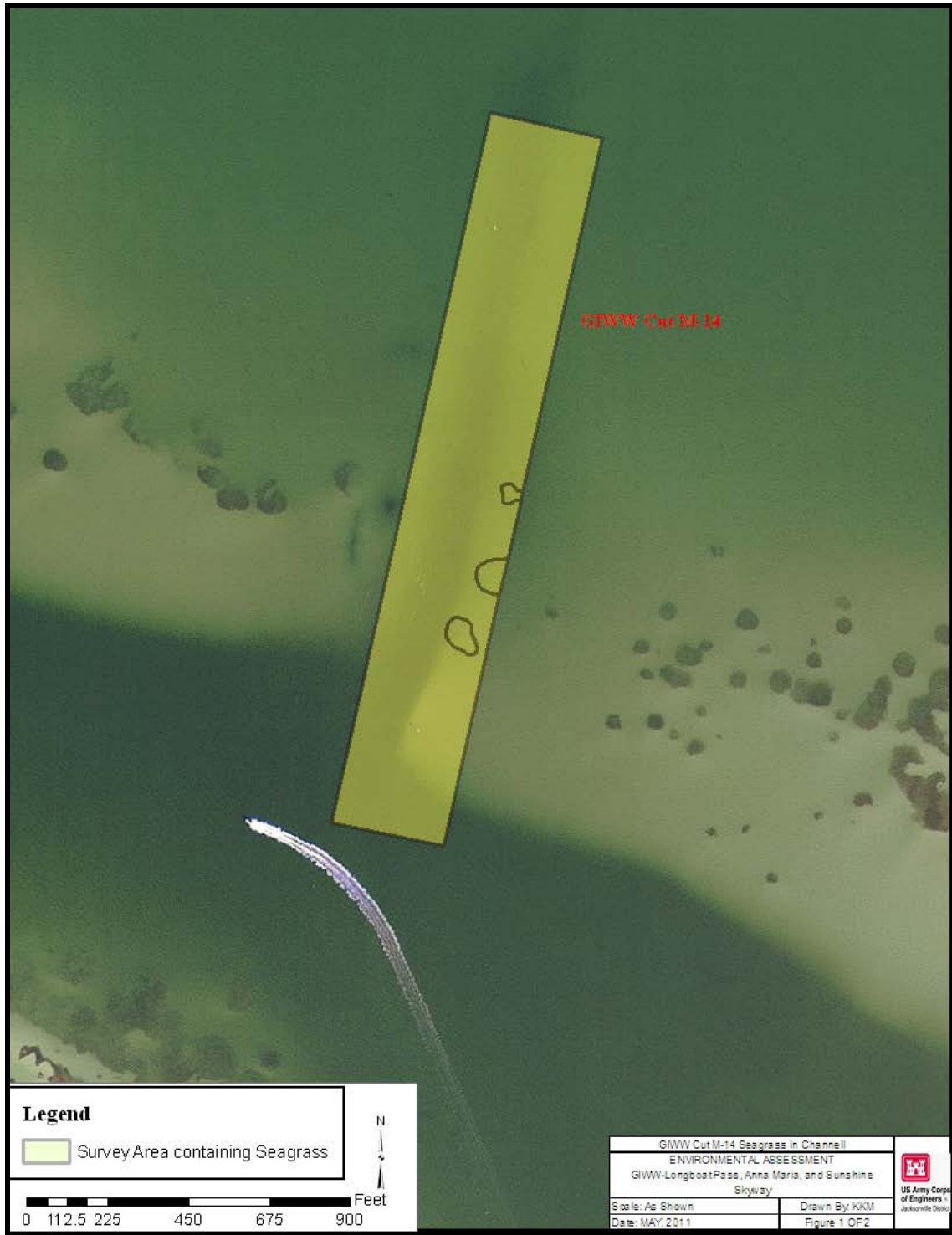


Figure 3. Seagrass beds occurring in GIWW Cut M-14 and immediate buffer. The amount of seagrass that occurs within the proposed dredging of the Federal channel is 1020 sq ft.

Description of Mitigation Site

Big Pass is located in Tampa Bay, immediately south of Little Cockroach Bay, in Hillsborough County. This site is in a still-water environment, surrounded by mangrove, with protection from severe tidal wave action. The pass is isolated from shoreline urban development, and has unmaintained direct access to Tampa Bay and ultimately, the Gulf of Mexico. It is used for recreational boating and fishing. No change in the site's use is expected to occur as a result of the mitigation action. The site is located approximately 12 miles from the GIWW – Longboat Pass project site. Tidal action is similar to the project site. Water quality is moderate to high; the site is not included in a designated water impairment zone.

Big Pass has a seagrass-dominated substrate that contains approximately 600 injury locations from vessel prop scars; see Figure 4, (personal communication, Hillsborough County Conservation Services). Injury sites vary in configuration, size and spatial extent. Typically, prop scars are linear features that can range less from than 10 feet in length to several hundred feet and average about 2-ft in width, see Figure 5. Blow-out injury features are typically round features that also vary by size and configuration. The matrix surrounding the injury sites are comprised of moderate to dense seagrass bed. Collectively, these sites will provide restoration sites spatially in excess of the 0.25 acre needed to adequately compensate for impact loss from the project area, according to James R. Sullivan, Hillsborough County Conservation Services. The expected seagrass that occur in Big Pass includes turtle grass (*Thalassia testudium*), shoal grass (*Halodule wrightii*), manatee grass (*Syngodium filiforme*), widgeon grass (*Ruppia maritima*), and Engelman's seagrass (*Halophila engelmannii*) (US Army Corps of Engineers, 2002). No dredged channel exists within Big Pass for unobstructed access by large or medium motorized boat access, although a public boat ramp and channel access to Tampa Bay is located about 0.5 mile south near Camp Key.

Currently, the Big Pass area is a designated manatee protection zone, with a boating "no-wake" zone posting. Enforcement of this mandate is not fully practical. Although a protection zone for seagrass restoration sites will be addressed through signage for safe navigation, no change to the use of Big Pass for recreation is expected to occur as a result of restoration of seagrass in this location.



Figure 4. Big Pass proposed mitigation area for seagrass bed restoration within injury sites



Photo courtesy of Hillsborough County Conservation Services

Figure 5. Detail of area within Big Pass depicting a typical zone of prop scar injury sites

Description of Construction Technique

Sediment replacement will be used to restore seagrass injury sites, which are characterized as below-grade unconsolidated bottom depressions. This sediment will provide stabilization to the restoration area and also topographic relief needed to achieve conditions to promote growth of shoots. The expected performance criteria for proposed substrate material will consist primarily of sand (approximately 60%), and to a lesser extent (up to 40%), silty-sand containing shell fragments or small pebbles. An upland source of acceptable material will be sought, which would include material having a similar composition from a local quarry.

Sediment Tube® technology will be employed to securely place the material into the injury locations (Seagrass Recovery, Inc website). The use of biodegradable sediment-filled mesh fabric tubes placed inside the prop scar trench is an efficient method for reducing erosion rates in injury sites while reducing turbidity

during construction operation (RS Environmental Consulting, Inc, 2010). The Sediment Tube® provides the conditions needed to encourage natural re-colonization of the injured areas by neighboring seagrass. The tubes are versatile in size and configuration, and can conform to the shape of the injury site. They may be stacked to achieve the desired elevation, and can also be laid end-to-end in order to expedite recovery (Seagrass Recovery, Inc website). In order to give a head start to seedling germination, the tubes will also be pre-seeded with desirable species that will promote rapid colonization. As sprouts become reestablished, the tubes simply breakdown under natural conditions. This process typically takes 12 months for the sediment tube material to breakdown (Seagrass Recovery website). Fully restored seagrass can be expected between 12 to 18 months after seeded Sediment Tube® placement (RS Environmental Consulting, Inc, 2010).

Bird stakes may also be used to facilitate the re-growth of seagrass shoots within the injury areas by boosting nutrient from feces, a natural fertilizer. Cross-barred stakes of ¾-in PVC and wood will be placed in water less than 3 feet of depth and will prevent dilution of the feces; thus, keeping the concentration of nutrient at the site where vegetation development is occurring. This method has been shown to be effective for both seeded and naturally recruiting injury sites (J.W. Kenworthy, *et al*, 2000). Placement configuration and interval is dependent upon the width and length of the injury site, and depth of water. Typical duration for the stake placement at the injury site is 18 to 24 months. The stakes can also be used for signage designating navigational hazards to prevent further impact from boat grounding.

4.03 Purpose, Functions, and Values

Purpose and Goal of the action:

Impact to seagrass beds are expected to occur as a result of the dredging maintenance activity. Due to the long-term interval since the last maintenance event, estimated to be more than 30 years ago, the Corps is proactively pursuing a mitigation measure to compensate for the permanent loss to seagrass within the Federal channels, and temporal loss for those within the buffer that occur from side-slope slumping during dredging.

Functions and Values to be transferred from the impact site to the restoration site are several. Seagrass beds provide unique marine habitat which are extremely productive and a major contributor to the nearshore ecology of the ocean. Seagrass provide a variety of benefits to the marine environment by enhancing sediment stability, decreasing wave energy, improving water clarity, and creating habitat and substrate diversity. They also provide feeding grounds for fish and

invertebrates species, which in turn, provide resources for wading and diving birds, as well as food resource for the West Indian Manatee (*Trichechus manatus*).

The mitigation project will occur several miles from the impact site, within the same watershed, and also within a Florida designated Aquatic Preserve (Cockroach Bay Aquatic Preserve). The mitigation will be an “in-kind” restoration of seagrass at a 2:1 ratio in a location of seagrass habitat receiving previous injury. Restoration of the injury sites will replace the function and value that was lost by the injury, as well as that of the impact site.

Therefore, no loss of function or value provided by seagrass in a sub-aquatic habitat will occur. This is further supported by the completed UMAM analysis.

5.00 Adaptive Management Plan

In the event that restoration measures fail to meet the goals as established by the success criteria as documented by monitoring event data, Adaptive management measures will be enacted and include:

- o Replace sediment tubes that have not stabilized the injury site(s), as indicated by the lack of seagrass seedling sprout or shoot growth, loss of areal coverage by target species, subsidence, or subsequent injury to sediment tubes or substrate.
- o Replant seagrass species by shoot transplanting or re-seeding.
- o Replacement of bird stakes that may be missing or damaged
- o Utilize additional injury sites that show more promise of successful establishment than those currently in use
- o Additional monitoring events or prolonged schedule until success criteria is documented as accomplished

6.00 Entity Responsible for Monitoring

All monitoring associated with this mitigation plan will be completed by or under the direction of the US Army Corps of Engineers; if the monitoring event is completed by a third party, this activity will be conducted under the direction and on behalf of the US Army Corps of Engineers. Therefore, the US Army Corps of Engineers will retain total responsibility of all activities related to the monitoring of this mitigation.

7.00 Monitoring and Consultation with Federal and State/Commonwealth Agencies

7.01 Monitoring Frequency and Schedule

Once constructed, the mitigation effort will be monitored until it is considered a success in consultation with appropriate Federal and state agencies, and is released from further monitoring requirement.

Monitoring Schedule

- o The duration of monitoring is expected to span three years, unless failure determines the need for activation of the adaptive management plan, consisting of replanting or repair of injury sites. A baseline event will be conducted immediately upon completion of restoration activities. The first and second year events will occur semi-annually at 6 and 12 months. The third year event will occur one year after the second semi-annual event.
- o Should the system fail to reestablish seagrass colonization at the expected rate, it likely will be evident by the end of the second year. If adaptive management measures of replacing sediment tube or re-planting are deemed necessary, the monitoring event schedule will start over to a semi-annual survey for a period of at least one year for those sites requiring additional attention. If additional annual monitoring events are required, these could be conducted for up to five years as necessary.

7.02 List of Federal and State Agencies to be consulted

The fish and wildlife resource agencies listed below will be consulted annually for their views on the success of the mitigation, the likelihood of achieving the mitigation goal, the projected timeline for success, and any recommendations for improving the likelihood of success.

Appropriate Federal and state/commonwealth agencies:

1. US Fish and Wildlife Service Vero Beach Jacksonville, Florida Field Office.
2. NOAA Fisheries, Southeast Regional Office, St. Petersburg, Florida
3. Florida Department of Environmental Protection, Tampa Field Office

8.00 Use of Mitigation Bank

Research through internet and personal contact of local governments and other entities have determined no seagrass mitigation banks or in-lieu fee areas exist within the immediate region or same watershed as the project site. A mitigation bank located near Cockroach Bay does not contain sub-aquatic vegetation community, only freshwater and estuarine marine wetland, and minor mangrove habitat. The closest mitigation option offering a seagrass plant community is located the Keys near Lignum Vitae State Park, some 150 miles from the site.

REFERENCES

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Kenworthy, W.J., M.S. Fonseca, P.W. Whitfield, K.K. Hammerstrom, and Schwartzschild, 2000. *A Comparison of Two Methods for Enhancing the Recovery of Seagrass into Propeller Scare: Mechanical Injection of a Nutrient and Growth Hormone Solution vs. Defecation by Roosting Seabirds*. Final Report. Center for Coastal Fisheries and Habitat Research, NCCOS, NOAA, NOS, Beaufort, SC and the Dept. of Environmental Sciences, University of Virginia, Charlottesville, VA.

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RS Environmental Consulting, Inc for FPL, 2010. Revised Mitigation FPL Plan South Channel Relocation Project Seagrass Restoration in Biscayne Bay Aquatic Preserve (FDEP Permit no 13-0205980-002), Miami, FL

Seagrass Recovery, Inc, website 2011, <http://www.seagrassrecovery.com/index.htm>
St Petersburg, FL

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PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name GIWW - Longboat Pass Dredging Maintenance		Application Number Dep File No. 0305363-001 JC		Assessment Area Name or Number GIWW Cuts M-5 and M-14	
FLUCCs code 541 - Bays and Estuaries directly opening to the Gulf of Mexico		Further classification (optional) Outstanding Florida Water, Aquatic Preserve		Impact or Mitigation Site? Impact	
				Assessment Area Size 0.34	
Basin/Watershed Name/Number Tampa Bay Watershed		Affected Waterbody (Class) Class 2		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) Within Outstanding Florida Waters, Sarasota Bay Estuary Preserve Aquatic Preserve	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands GIWW Channel Cut M-5 and M-14 are within an existing Federal channel and as such, the assessment area is in a sub-aquatic ecological community directly connected to waters within Sarasota Bay, Tampa Bay, and the Gulf of Mexico					
Assessment area description GIWW Cut M-5 and M-14 are located within the northern portion of Sarasota Bay. The channel is heavily utilized by small to large vessel traffic for recreation and limited commercial boating. The channel has been dredged in past events, but has experienced build up of shoal from sediment, which in turn, has colonized with seagrass, specifically <i>Thalassia testudinum</i> , <i>Syringodium filiforme</i> , and <i>Halodule wrightii</i> .					
Significant nearby features Manatee County Park, boat launch, Jewfish Key, Anna Maria Island			Uniqueness (considering the relative rarity in relation to the regional landscape.) Not unique within the surrounding regional landscape		
Functions Small seagrass colonies scattered within the assessment area provide limited food resource for Florida manatee, cover for fish and invertebrate species, shelter and substrate for benthic species.			Mitigation for previous permit/other historic use NONE		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Green and loggerhead sea turtle and manatee foraging, fish forage and cover, invertebrate and benthic organisms cover and burrowing within the substrate, fly-over foraging by osprey, bald eagle, shorebirds, and wading birds			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Foraging by green and loggerhead turtle, Florida manatee		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Fish, blue crab, shrimp, osprey, wading and shore birds. No sea turtle usage has been directly observed, although FWS and FWC data exists that show nesting on the shoreline adjacent to the assessment area.					
Additional relevant factors: The maintenance of the Federal channel of GIWW cuts M-5 and M-14 are within the authority of the US Army Corps of Engineers. Although maintenance activities have occurred over the past 60 years, no documented recent dredging has occurred within the past 10 years, which in turn, has allowed shoal material to build-up and become reestablished by seagrass. Extensive seagrass beds are present outside of the federal channel, which will not be affected by the proposed dredging action.					
Assessment conducted by: Kat McConnell			Assessment date(s): 29-Jun-11		

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name GIWW - Longboat Pass Maintenance Dredging	Application Number DEP File No. 0305363-001 JC	Assessment Area Name or Number GIWW Cuts M-5 and M-14
Impact or Mitigation Mitigation	Assessment conducted by: Kat McConnell	Assessment date: 10-Jun-11

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate(7) Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support w/o pres or current 3 with 8	Current conditions: Location of Assessment Area limits opportunity to perform beneficial functions to 50% of the optimal Ecological value. Habitat availability outside Assessment Area is moderate for most but not all species of wildlife identified in Part 1. Assessment Area is located within the sub-aquatic zone of a shallow water environment that receives routine vessel groundings. These result in prop scars and vessel blow-outs that have a high impact on wildlife utilization by fragmentation and substrate disturbance. With Mitigation: Restoration of seagrass will improve the overall quality of the assessment area by providing an unfragmented and stable landscape. Fish, birds, sea turtles, benthic organisms, and mantee will increase usage of the restored injury sites from increased availability for food and shelter resources.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current 7 with 8	Current Conditions: Hydrology and moderate water quality support the function of this system and provides benefits to benthic organisms, fish and wildlife at the expected capacity for Assessment Area. Hydrology environment is moderate for the assessment area; disturbance from vessel groundings causes sediment turbidity in the water column and redistribution of fine-grained sediment on surrounding vegetation. Loss of vegetation within the injury sites diminishes functions of the system for improving water quality. Presence of use by wildlife as described in Part 1 is disrupted by disturbance to the system. Benthic community has limited usage due to injury to the substrate for this type of system. Although water depth is optimal for the assessment area, wave energy and current can restrict the prolonged growth of seagrass within the site. Light penetration needed for species growth is moderate due to fluctating turbidity. With Mitigation: The proposed restoration activity will stabilize the substrate through elevation correction and seagrass colonies reestablishment. The reduction in vessel groundings by posting navigation hazard signage in the protection zone will decrease grounding incidents that cause turbidity and sediment settling on vegetation.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current 0 with 8	Current conditions: Level of function to benefit fish and wildlife provided by Vegetation Community and Physical Structure is non-existant within the injury sites as all of plant cover has been removed through collision with vessels. Limited habitat for benthic organisms is available. No evidence of recruitment by natural means has occurred within the prop scars or vessel blow-out holes. Topographic features are unstable due to deep gouging to the substrate which degrades the benthic habitat. Silty sediment covers the vegetation surrounding the injury sites which causes additional stress to the assessment area. Undesireable algal growth is present from sediment instability that could impede submerged aquatic plant growth. With Mitigation: The restoration activity will reestablish seagrass colonies within the injury sites through corrected substrate elevation. Benthic habitat will be improved by stabilized substrate from seagrass colony establishment. Post construction monitoring will ensure a continued trend of success for vegetation growth within the restored injury sites and surrounding protection zone.

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.33	0.8

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres =

Delta = [with-current]
0.47

If mitigation
Time lag (t-factor) = 1.1 (4-yr)
Risk factor = 1.75 (within like habitat)

For mitigation assessment areas
RFG= delta/(t factor x risk) = 0.244

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name GIWW - Longboat Pass Dredging Maintenance		Application Number Dep File No. 0305363-001 JC		Assessment Area Name or Number GIWW Cuts M-5 and M-14	
FLUCCs code 541 - Bays and Estuaries directly opening to the Gulf of Mexico		Further classification (optional) Outstanding Florida Water, Aquatic Preserve		Impact or Mitigation Site? Mitigation	
Assessment Area Size 0.65 ac					
Basin/Watershed Name/Number Tampa Bay Watershed		Affected Waterbody (Class) Class 2		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) Within Outstanding Florida Waters, Cockroach Bay Aquatic Preserve	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands Big Pass is a non-dredged marine waterway that extends between Big Pass Key and Camp Key offshore of Ruskin, FL. Big Pass connects Cockroach Bay to Tampa Bay and also includes numerous smaller islands of mangrove habitat. Also, extensive mangrove habitat is present along the shoreline of the mainland.					
Assessment area description Big Pass is located on the southeast side of Tampa Bay and provides limited access into Cockroach Bay. The non-maintained waterway is utilized by small to medium boat traffic for recreation. A public boat ramp is located some 0.5 mile south of Camp Key. No dredge channel is present but access by shallow draft vessels occur regularly. The substrate is heavily colonized with seagrass, specifically <i>Thalassia testudinum</i>, <i>Syringodium filiforme</i>, and <i>Halodule wrightii</i>, although numerous injury sites are present from collision by recreational boats .					
Significant nearby features Camp Key boat launch, Little Cockroach Bay		Uniqueness (considering the relative rarity in relation to the regional landscape.) Not unique within the surrounding regional landscape			
Functions Seagrass colonies scattered within the assessment area provide food resource for Florida manatee, cover for fish and invertebrate species, shelter and substrate for benthic species.		Mitigation for previous permit/other historic use NONE			
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Green and loggerhead turtle and manatee foraging, fish forage and cover, invertebrate and benthic organisms cover and burrowing within the substrate, fly-over foraging by osprey, bald eagle, shorebirds, and wading birds		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Foraging by green and loggerhead turtle, Florida manatee			
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Fish, blue crab, shrimp, osprey, wading and shore birds. No sea turtle usage has been directly observed, although FWS and FWC data exists that show nesting on the shoreline adjacent to the assessment area.					
Additional relevant factors: Mitigation efforts are focused on the prop scar and blow-out holes from vessel groundings that collectively comprise "injury sites". Disturbances within the injury sites include total loss of seagrass shoots, severed root and rhizome systems, and deep gouging of the substrate which prohibits the sites from recovering without corrective measures. The restoration will include include correcting the substrate elevation to that of pre-disturbance level, seeding, and fertilizing through the use of bird-roosting stakes. Also, protective measures will include signage for boating navigation hazard to prevent any subsequent vessel groundings.					
Assessment conducted by: Kat McConnell		Assessment date(s): 29-Jun-11			

PART II – Quantification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name GIWW - Longboat Pass Maintenance Dredging	Application Number DEP File No. 0305363-001 JC	Assessment Area Name or Number GIWW Cuts M-5 and M-14
Impact or Mitigation Impact	Assessment conducted by: Kat McConnell	Assessment date: 10-Jun-11

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

.500(6)(a) Location and Landscape Support w/o pres or current with 6 0	Current conditions: Location of Assessment Area limits the opportunity to perform beneficial functions to 60% of the optimal ecological value. Habitat availability outside the assessment area is optimal for most but not all species within wildlife identified in Part 1. The assessment area is located within the sub-aquatic environment of a Federal channel having heavy vessel traffic from motorized and non-motorized small to large pleasure craft and commercial fishing boats. Current usage of the assessment area has moderate impact to wildlife utilization. With Impact: Loss of a minor amount of seagrass from dredging will have impact on the location and landscape for the assessment area. Fish, birds, sea turtles and manatee will continue to migrate through the area although the loss of foraging and cover habitat will occur. Loss of foraging habitat to manatee in heavy traffic area may have minimal benefit by lowering possibility of collision with vessels.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current with 8 7	Current Conditions: Hydrology and water quality mostly support the function of this system and provides benefits to fish and wildlife at high capacity for the assessment area. Hydrology environment is optimal for the assessment area, sub-aquatic plant community of seagrass. Vegetation is not hydrologically stressed. Presence of use by wildlife as described in Part 1 is as expected for this type of system. Benthic community is appropriate for this type of system. Sub-aquatic plant community composition is characterized by species not tolerant of or associated with water quality degradation or alterations in frequency, depth, and duration in inundation or saturation. Although water depth is optimal for the assessment area, wave energy and current can restrict the prolonged growth of seagrass within the Federal channel. Light penetration needed for species growth is moderate to high, although the area falls within a DEP-designated water quality impairment zone due to fluctuating turbidity. With Impact: The proposed maintenance activity will cause temporary impacts to water quality.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current with 7 0	Current conditions: Level of function to benefit fish and wildlife provided by Vegetation Community and Physical Structure is limited to 70% of optimal. All of the plant cover is by desirable plant species; no invasive species are present. Evidence of normal but limited recruitment by natural means has scattered age and size distribution. Topographic features are scattered in the channel and dependent upon encroachment by the build-up of shoal material consisting of sand and silty-sand sediment which degrades the benthic habitat. Although silty sediment has occurred in the assessment area, no evidence of algal growth was observed that could impede submerged aquatic plant growth. With Impact: The dredging activity will remove the seagrass beds within the channel in their entirety, and up to 5% of adjacent plant community along the buffer to the channel from side-slope slumping.

Score = sum of above scores/30 (if uplands, divide by 20)
current or w/o pres with
0.7 0.37

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas
FL = delta x acres = 0.159

Delta = [with-current]
-0.467

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas

Mitigation Determination Formulas
(See Section 62-345.600(3), F.A.C.)

For each impact assessment area:

(FL) Functional Loss = Impact Delta X Impact acres

For each mitigation assessment area:

(RFG) Relative Functional Gain = Mitigation Delta (adjusted for preservation, if applicable)/((t-factor)(risk))

If the acreage of mitigation proposed is known:

(FG) Functional Gain = Relative Functional Gain X Mitigation acres

(a) Mitigation Bank Credit Determination

The total potential credits for a mitigation bank is the sum of the credits for each assessment area where assessment area credits equal the RFG times the acres of the assessment area scored

Bank Assessment Areas	RFG	X	Acres	= Credits
example				
a.a.1				
a.a.2				
total				

(b) Mitigation needed to offset impacts, when using a mitigation bank

The number of mitigation bank credits needed, when the bank or regional offsite mitigation area is assessed in accordance with this rule, is equal to the summation of the calculated functional loss for each impact assessment area.

Impact Assessment Area	FL	=	Credits needed
example			
a.a.1			
a.a.2			
total			

(c) Mitigation needed to offset impacts, when not using a bank

To determine the acres of mitigation needed to offset impacts when not using a bank or a regional offsite mitigation area as mitigation, divide functional loss (FL) by relative functional gain (RFG).

	FL	/	RFG	=	Acres of Mitigation
example					
a.a.1	0.159		0.244		0.65

If there are multiple impact assessment areas and/or multiple mitigation assessment areas to offset those impacts, or if the proposed mitigation acreage is a given, then the summation of the appropriate functional gain (FG) must be equal to or greater than the summation of respective functional losses (FL)

	example	FL	<	FG
impact	a.a.1			
	a.a.2			
	a.a.3			
mitigation	a.a.4			
	a.a.5			
summation				

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Enclosure 2

**Uniform Mitigation Assessment Methodology
(UMAM) Analyses**

Uniform Mitigation Assessment Method (UMAM) Summary
62-345, F.A.C.

[illegible]

GIWW Dredge Hole Mitigation Site - Overall Accounting Sheet				
	Consultation Date	Construction (Impact) Date	Impact Areas	Mitigation Acres Used
Initial Creation				
GIWW Cut M-5 & M-14	2011	2013	0.34	0.03
GIWW Cut M-4	2026	2026	0.02	0.59
Anclote River O&M	2026	2026	8.574	2.95
TOTALS			8.934	3.57
			Total Acres Remaining	3.93

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name Gulf Intracoastal Waterway (GIWW) Cuts M-5 & M-14 (2014)		Application Number Dep File No. 0305363-001 JC		Assessment Area Name or Number M-5 and M-14 (OLD)	
FLUCCs code 911		Further classification (optional) Outstanding Florida Water, Sarasota Bay Aquatic Preserve		Impact or Mitigation Site? IMPACT	
				Assessment Area Size 0.340 acres	
Basin/Watershed Name/Number Tampa Bay Watershed		Affected Waterbody (Class) Class 2		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) OFW, Sarasota Bay Aquatic Preserve	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands GIWW Channel Cut M-5 and M-14 are within an existing Federal channel and as such, the assessment area is in a sub-aquatic ecological community directly connected to waters within Sarasota Bay, Tampa Bay, and the Gulf of Mexico					
Assessment area description GIWW Cut M-5 and M-14 are located within the northern portion of Sarasota Bay. The channel is heavily utilized by small to large vessel traffic for recreation and limited commercial boating. The channel has been dredged in past events, but has experienced build up of shoal from sediment, which in turn, has colonized with seagrass, specifically <i>Thalassia testudinum</i> , <i>Syringodium filiforme</i> , and <i>Halodule wrightii</i> .					
Significant nearby features Manatee County Park, boat launch, Jewfish Key, Anna Maria Island			Uniqueness (considering the relative rarity in relation to the regional landscape.) Not unique within the surrounding regional landscape		
Functions Small seagrass colonies scattered within the assessment area provide limited food resource for Florida manatee, cover for fish and invertebrate species, shelter and substrate for benthic species.			Mitigation for previous permit/other historic use NONE		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Green and loggerhead sea turtle and manatee foraging, fish forage and cover, invertebrate and benthic organisms cover and burrowing within the substrate, fly-over foraging by osprey, bald eagle, shorebirds, and wading birds.			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Foraging by green and loggerhead turtle, Florida manatee		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Fish, blue crab, shrimp, osprey, wading and shore birds. No sea turtle usage has been directly observed, although FWS and FWC data exists that show nesting on the shoreline adjacent to the assessment area.					
Additional relevant factors: The maintenance of the Federal channel of GIWW cuts M-5 and M-14 are within the authority of the US Army Corps of Engineers. Although maintenance activities have occurred over the past 60 years, no documented recent dredging has occurred within the past 10 years, which in turn, has allowed shoal material to build-up and become reestablished by seagrass. Extensive seagrass beds are present outside of the federal channel, which will not be affected by the proposed dredging action.					
Assessment conducted by: Kat McConnell			Assessment date(s): 29-Jun-11		

PART II – Qualification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name Gulf Intracoastal Waterway (GIWW) Cuts M-5 and M-14 (2014)	Application Number DEP File #0305363-001JC	Assessment Area Name or Number M-5 and M-14 (OLD)
Impact or Mitigation IMPACT	Assessment conducted by: Kat McConnell	Assessment date: 10-Jun-11

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10) Condition is optimal and fully supports wetlands/surface water functions	Moderate (7) Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal (4) Minimal level of support of wetland /surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support w/o pres or current 6 with 0	Current Conditions: Location of Assessment Area limits the opportunity to perform beneficial functions to 60% of the optimal ecological value. Habitat availability outside the assessment area is optimal for most but not all species within wildlife identified in Part 1. The assessment area is located within the sub-aquatic environment of a Federal channel having heavy vessel traffic from motorized and non-motorized small to large pleasure craft and commercial fishing boats. Current usage of the assessment area has moderate impact to wildlife utilization. With Impact: Loss of a minor amount of seagrass from dredging will have impact on the location and landscape for the assessment area. Fish, birds, sea turtles and manatee will continue to migrate through the area although the loss of foraging and cover habitat will occur. Loss of foraging habitat to manatee in heavy traffic area may have minimal benefit by lowering possibility of collision with vessels.
.500(6)(b) Water Environment (n/a for uplands) w/o pres or current 8 with 7	Current Conditions: Hydrology and water quality mostly support the function of this system and provides benefits to fish and wildlife at high capacity for the assessment area. Hydrology environment is optimal for the assessment area, sub-aquatic plant community of seagrass. Vegetation is not hydrologically stressed. Presence of use by wildlife as described in Part 1 is as expected for this type of system. Benthic community is appropriate for this type of system. Sub-aquatic plant community composition is characterized by species not tolerant of or associated with water quality degradation or alterations in frequency, depth, and duration in inundation or saturation. Although water depth is optimal for the assessment area, wave energy and current can restrict the prolonged growth of seagrass within the Federal channel. Light penetration needed for species growth is moderate to high, although the area falls within a DEP-designated water quality impairment zone due to fluctuating turbidity. With Impact: The proposed maintenance activity will cause temporary impacts to water quality.
.500(6)(c) Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current 7 with 0	Current Conditions: Level of function to benefit fish and wildlife provided by Vegetation Community and Physical Structure is limited to 70% of optimal. All of the plant cover is by desirable plant species; no invasive species are present. Evidence of normal but limited recruitment by natural means has scattered age and size distribution. Topographic features are scattered in the channel and dependent upon encroachment by the build-up of shoal material consisting of sand and silty-sand sediment which degrades the benthic habitat. Although silty sediment has occurred in the assessment area, no evidence of algal growth was observed that could impede submerged aquatic plant growth. With Impact: The dredging activity will remove the seagrass beds within the channel in their entirety, and up to 5% of adjacent plant community along the buffer to the channel from side-slope slumping.

Score = sum of above scores/30 (if uplands, divide by 20) current or w/o pres 0.700 with 0.233	If preservation as mitigation, Preservation adjustment factor = Adjusted mitigation delta =	For impact assessment areas FL=delta x acres= 0.1587
Delta = [with - current] 0.467	If mitigation Time lag (t-factor) = Risk factor =	For mitigation assessment areas RFG=delta/(t-factor x risk)=

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name Gulf Intracoastal Waterway (GIWW) Cuts M-4 (2026)		Application Number	Assessment Area Name or Number M-4 (New)
FLUCCs code 911	Further classification (optional) OFW, Aquatic Preserve	Impact or Mitigation Site? IMPACT	Assessment Area Size 0.020 acres
Basin/Watershed Name/Number Tampa Bay Watershed	Affected Waterbody (Class) Class 2	Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) Outstanding Florida Water, Sarasota Bay Aquatic Preserve	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands GIWW Channel Cut M-4 is within an existing Federal channel and as such, the assessment area is in a sub-aquatic ecological community directly connected to waters within Sarasota Bay, Tampa Bay, and the Gulf of Mexico			
Assessment area description GIWW Cut M-4 is located within the northern portion of Sarasota Bay. The channel is heavily utilized by small to large vessel traffic for recreation and limited commercial boating. The channel has been dredged in past events, but has experienced shoaling of sediment that has colonized with seagrass, specifically <i>Thalassia testudinum</i> , <i>Syringodium filiforme</i> , and <i>Halodule wrightii</i> .			
Significant nearby features Manatee County Park boat launch, Jewfish Key, Anna Maria Island		Uniqueness (considering the relative rarity in relation to the regional landscape.) Not unique within the surrounding regional landscape	
Functions Small seagrass colonies scattered within the assessment area provide limited food resource for Florida manatee, cover for fish and invertebrate species, and shelter and substrate for benthic species.		Mitigation for previous permit/other historic use NONE	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Green and loggerhead sea turtle and manatee foraging, fish forage and cover, invertebrate and benthic organisms cover and burrowing within the substrate, fly-over foraging by osprey, bald eagle, shorebirds, and wading birds.		Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) Foraging by green and loggerhead turtle, Florida manatee	
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Fish, blue crab, shrimp, osprey, wading and shore birds. No sea turtle usage has been directly observed, although FWS and FWC data exists that show nesting on the shoreline adjacent to the assessment area.			
Additional relevant factors: The maintenance of the Federal channel of GIWW Cut M-4 is within the authority of the US Army Corps of Engineers. Although maintenance activities have occurred over the past 60 years, no documented recent dredging has occurred within the past 10 years, which in turn has allowed shoal material to build-up and become reestablished by seagrass. Extensive seagrass beds are present outside of the federal channel, which will not be affected by the proposed dredging action.			
Assessment conducted by: Katie Lebow		Assessment date(s): 24-Feb-26	

PART II – Qualification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name Gulf Intracoastal Waterway (GIWW) Cuts M-4 (2026)	Application Number	Assessment Area Name or Number M-4 (New)
Impact or Mitigation IMPACT	Assessment conducted by: Katie Lebow	Assessment date: 24-Feb-26

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10) Condition is optimal and fully supports wetlands/surface water functions	Moderate (7) Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal (4) Minimal level of support of wetland /surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support	Current conditions: Location of Assessment Area limits the opportunity to perform beneficial functions to 60% of the optimal ecological value. Habitat availability outside the assessment area is optimal for most but not all species within wildlife identified in Part 1. The assessment area is located within the sub-aquatic environment of a Federal channel having heavy vessel traffic from motorized and non-motorized small to large pleasure craft and commercial fishing boats. Current usage of the assessment area has moderate impact to wildlife utilization.	
	With Impact: Loss of a minor amount of seagrass from dredging will have impact on the location and landscape for the assessment area. Fish, birds, sea turtles and manatee will continue to migrate through the area although the loss of foraging and cover habitat will occur. Loss of foraging habitat to manatee in heavy traffic area may have minimal benefit by lowering possibility of collision with vessels.	
current	with	
6	4	
.500(6)(b) Water Environment (n/a for uplands)	Current Conditions: Hydrology and water quality mostly support the function of this system and provides benefits to fish and wildlife at high capacity for the assessment area. Hydrology environment is optimal for the assessment area, sub-aquatic plant community of seagrass. Vegetation is not hydrologically stressed. Presence of use by wildlife as described in Part 1 is as expected for this type of system. Benthic community is appropriate for this type of system. Sub-aquatic plant community composition is characterized by species not tolerant of or associated with water quality degradation or alterations in frequency, depth, and duration in inundation or saturation. Although water depth is optimal for the assessment area, wave energy and current can restrict the prolonged growth of seagrass within the Federal channel. Light penetration needed for species growth is moderate to high, although the area falls within a DEP-designated water quality impairment zone due to fluctuating turbidity.	
	With Impact: The proposed maintenance activity will cause temporary impacts to water quality.	
current	with	
7	7	
.500(6)(c) Community structure 1. Vegetation and/or 2. Benthic Community	Current conditions: Level of function to benefit fish and wildlife provided by Vegetation Community and Physical Structure is limited to 70% of optimal. All of the plant cover is by desirable plant species; no invasive species are present. Evidence of normal but limited recruitment by natural means has scattered age and size distribution. Topographic features are scattered in the channel and dependent upon encroachment by the build-up of shoal material consisting of sand and silty-sand sediment which degrades the benthic habitat. Although silty sediment has occurred in the assessment area, no evidence of algal growth was observed that could impede submerged aquatic plant growth.	
	With Impact: The dredging activity will remove the seagrass beds within the channel in their entirety, and up to 5% of adjacent plant community along the buffer to the channel from side-slope slumping.	
w/o pres or current	with	
7	0	

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres	with
0.667	0.367

If preservation as mitigation,
Preservation adjustment factor =
Adjusted mitigation delta =

For impact assessment areas	
FL=delta x acres=	0.0060

Delta = [with - current]
0.300

If mitigation
Time lag (t-factor) =
Risk factor =

For mitigation assessment areas	
RFG=delta/(t-factor x risk)=	

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name Anclote River, FL Federal Navigation Channel		Application Number Not yet assigned.		Assessment Area Name or Number Anclote River, FL	
FLUCFCs code 911		Further classification (optional) Seagrass		Impact or Mitigation Site? IMPACT	
				Assessment Area Size (Acres) 8.574	
Basin/Watershed Name/Number		Affected Waterbody (Class)		Special Classification (i.e.OFW, AP, other local/state/federal designation of importance) None.	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands This is within a federal channel					
Assessment area description Cut 1 is located within the active nagivation channel and depth ranges from 8 to 10 ft. The surroundng landscape consists of open water and is not likely utilized as habitat. Vessel traffic prevent the establishment of stable benthic communities. The area is primarily sandy substrate and there is discontinuous Halodile wrightii with less than 5% coerage theroughout the area.					
Significant nearby features None.				Uniqueness (considering the relative rarity in relation to the regional landscape.) Not unique.	
Functions surrounded by open water, no likely used as habitat. Within a federal channel, heavy in vessel traffic preventing stable benthic communities. Minimal support ot estuarine fauna other then transient fish and invertebrates.				Mitigation for previous permit/other historic use None.	
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Transient fish species and invertebrate species. Sport fish species within the area may include drum, grouper, gag grouper, spotted seatrout, snook, redfish, tarpon, cobia, and snapper . Other fish that have been found in the area include stingrays, menhaden, catfish, pinfish, spadefish, pinfish, lizardfish, porcupinefish, sea robin, angel fish, striped mullet, goby, and perch. Benthic species include species such as crabs, oysterscrabs, oysters, whelk, isopods, and starfish. Invasive species found within the area include Asian green mussel and red lionfish, and non-native species include blue tilapia, killifish, oyster leech, island apple snail, acorn barnacle, isopod, rough sea squirt, and Mayan cichlid				Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) The following T&E species may be found in the Area Florida Manatee (T), Green Sea turtle (T), Hawksbill sea turtle(E), Leatherback sea turtle (E), Loggerhead sea turtle (T), Kemp's Ridley sea turtle (E), Smalltooth Sawfish (E), Gulf Sturgeon (T), Giant Manta Ray (T). However this is a high traffic ara and intensity of use is likely to be low	
Functions					
Additional relevant factors:					
Assessment conducted by: Rachel Case				Assessment date(s): 24-Feb-26	

PART II – Quantification of Assessment Area
(See Sections 62-345.500 and .600, F.A.C.)

IMPACT

Site/Project Name Anclote River, FL Federal Navigation Channel	Application Number Not yet assigned.	Assessment Area Name or Number Anclote River, FL
Impact or Mitigation IMPACT	Assessment conducted by: Rachel Case	Assessment date: 24-Feb-26

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10) Condition is optimal and fully supports wetland/surface water functions	Moderate(7) Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal (4) Minimal level of support of wetland/surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support w/o pres or current 3 with 3	Cut 1 is located within the active navigation channel with Anclote Key State Preserve to the north. The surrounding landscape consists of open-water and is likely not utilized as habitat. Vessel traffic prevent the establishment of stable benthic communities. The area provides minimal support to estuarine fauna other than transient fish and invertebrates such as whelks and conchs.
.500(6)(b)Water Environment (n/a for uplands) w/o pres or current 4 with 3	Water depths range from approximately 8 to 10 feet with sandy substrate and intermittent detritus. The area is tidally influenced with moderate currents. Water clarity is dependent on tidal stages where outgoing tides bring high levels of suspended particles in the water column. Hydrologic conditions are consistent with adjacent channel environments and minimally support seagrass habitat.
.500(6)(c)Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current 3 with 2	The benthic community is sparse, consisting of discontinuous Halodule wrightii (<5% cover) throughout. No hardbottom, corals, or sponges were observed. Biological diversity is low and dominated by mobile invertebrates typical of sandy substrates including urchins, snails and sand dollars. The area currently provides limited habitat function. Dredging will result in a small decline in the ability of the area to support benthic resources due to the increased channel depth.

Score = sum of above scores/30 (if uplands/20)
current 0.33333 or w/o pres 0.26667

If preservation as mitigation,	
Preservation adjustment factor =	
Adjusted mitigation delta =	

For impact assessment areas	
FL = delta x acres =	0.5716

Delta = [with-current]
0.066666667

If mitigation	
Time lag (t-factor) =	
Risk factor =	

For mitigation assessment areas	
RFG = delta/(t-factor x risk) =	

PART I – Qualitative Description
(See Section 62-345.400, F.A.C.)

Site/Project Name GIWW Dredge Hole Restoration		Application Number		Assessment Area Name or Number DH-MIT 1, 2, & 3	
FLUCCs code 911		Further classification (optional) OFW, Aquatic Preserve		Impact or Mitigation Site? MITIGATION	
				Assessment Area Size 7.500 acres	
Basin/Watershed Name/Number Tampa Bay Watershed		Affected Waterbody (Class) Class 2		Special Classification (i.e. OFW, AP, other local/state/federal designation of importance) Outstanding Florida Water, Sarasota Bay Aquatic Preserve	
Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands The dredge hole is located adjacent to Cut M-6, approximately 0.5 miles from the edge of Cut M-5 of the GIWW. Therefore, conditions are expected to be largely the same as the adjacent channel. The assessment area is in a sub-aquatic ecological community directly connected to waters within Sarasota Bay, Tampa Bay, and the Gulf of Mexico					
Assessment area description The dredge hole is located within the northern portion of Sarasota Bay Estuary. Due to proximity to the federal channel, the area is likely heavily utilized by small to large vessel traffic for recreation. Based on the proximity of the dredge hole to the federal channel, and existing data, the conditions surrounding the dredge hole are expected to be substantially similar to those within and surrounding the channel. Therefore, the dredge hole is expected to be surrounded by a mixture of patchy and continuous seagrasses, and macroalgae. Seagrasses are predominantly turtle grass (<i>Thalassia testudinum</i>), with brown macroalgae presence.					
Significant nearby features Significant nearby features include Manatee County Park, boat launch, Jewfish Key, Anna Maria Island			Uniqueness (considering the relative rarity in relation to the regional landscape.) The dredge hole is likely a unique site as it is deeper than most surrounding waters at approximately 12 feet deep MLLW. Due to the depth, this dredge hole is likely often utilized for recreational fishing, boating, etc.		
Functions Seagrass colonies surrounding the assessment area provide limited food resource for Florida manatee, cover for fish and invertebrate species, as well as shelter and substrate for benthic species.			Mitigation for previous permit/other historic use Mitigation for Cuts M-5 and M-14 is incorporated into this assessment area as the mitigation associated with those impacts was not completed prior to permit expiration.		
Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found) Based on existing survey information, sightings, and literature review, it is expected that manatee, stingrays, various corals, various crabs, spiny lobster, various mollusks, sea stars, sponges, fishes of various species, and dolphins are likely to utilize the area.			Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area) T&E Species expected to be found within the assessment area include the threatened Florida manatee, and foraging sea turtles. Dolphins protected by the marine mammal protection act are also common around the assessment area.		
Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.): Based on existing survey information, including sightings, it is expected that manatee, stingrays, various corals, various crabs, spiny lobster, various mollusks, sea stars, sponges, fishes of various species, and dolphins are likely to utilize the area.					
Additional relevant factors: N/A					
Assessment conducted by: Katie Lebow			Assessment date(s): 24-Feb-26		

PART II – Qualification of Assessment Area (impact or mitigation)
(See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name GIWW Dredged Hole Restoration	Application Number	Assessment Area Name or Number DH-MIT 1, 2, & 3
Impact or Mitigation MITIGATION	Assessment conducted by: Katie Lebow	Assessment date: 24-Feb-26

Scoring Guidance The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Optimal (10) Condition is optimal and fully supports wetlands/surface water functions	Moderate (7) Condition is less than optimal, but sufficient to maintain most wetland/surface water functions	Minimal (4) Minimal level of support of wetland /surface water functions	Not Present (0) Condition is insufficient to provide wetland/surface water functions
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.500(6)(a) Location and Landscape Support w/o pres or current 3 with 7	Current conditions: Location of Assessment Area limits opportunity to perform beneficial functions to 30% of the optimal ecological value. The mitigation area is a dredged hole that was created (likely in the mid-1900s) as a source for fill material to develop the nearby Ana Maria Island. Habitat availability adjacent to the Mitigation Area is moderate for most but not all species of wildlife identified in Part 1. The Mitigation Area is a dredged hole that does not provide the same landscape support that is found in adjacent seagrass habitat due to increased depths. With Mitigation: Restoration of seagrass will improve the overall quality of the assessment area by providing an unfragmented and stable landscape. Fish, birds, sea turtles, benthic organisms, and mantee will increase usage of the site due to increased availability of foraging habitat.			
.500(6)(b) Water Environment (n/a for uplands) w/o pres or current 7 with 7	Current Conditions: Hydrology and moderate water quality support the function of this system and provides benefits to benthic organisms, fish and wildlife at the expected capacity for Assessment Area. Hydrology environment is moderate for the assessment area; disturbance from vessel groundings causes sediment turbidity in the water column and redistribution of fine-grained sediment on surrounding vegetation. Loss of vegetation within the injury sites diminishes functions of the system for improving water quality. Presence of use by wildlife as described in Part 1 is disrupted by disturbance to the system. Benthic community has limited usage due to injury to the substrate for this type of system. Although water depth is optimal for the assessment area, wave energy and current can restrict the prolonged growth of seagrass within the site. Light penetration needed for species growth is moderate due to fluctating turbidity. With Mitigation: The proposed restoration activity will expand seagrass communities through the establishment of appropriate depths that allow adequate light penetration for seagrass growth.			
.500(6)(c) Community structure 1. Vegetation and/or 2. Benthic Community w/o pres or current 2 with 8	Current conditions: Level of function to benefit fish and wildlife within the injury sites is approximately 20% of the optimal ecological level due to the depths of the dredged hole. Limited habitat for benthic organisms is available; however, some utilization of the dredged hole as a refugium for juvenile fish may occur. Seagrasses are not present in the dredged hole. With Mitigation: The restoration activity will reestablish seagrass colonies within the injury sites through corrected substrate elevation. Benthic habitat will be improved by stabilized substrate from seagrass colony establishment. Post construction monitoring will ensure a continued trend of success for vegetation growth within the restored dredged hole consistent with adjacent seagrass communities.			

Score = sum of above scores/30 (if uplands, divide by 20)	
current or w/o pres 0.400	with 0.733

If preservation as mitigation,	
Preservation adjustment factor =	1
Adjusted mitigation delta =	

For impact assessment areas	
FL=delta x acres=	See Summary Sheet

Delta = [with - current]
0.333

If mitigation	
Time lag (t-factor) =	1.14
Risk factor =	1.50

For mitigation assessment areas	
RFG=delta/(t-factor x risk)=	0.1949

Mitigation Determination Formulas
(See Section 62-345.600(3), F.A.C.)

For each impact assessment area:

(FL) Functional Loss = Impact Delta X Impact acres

For each mitigation assessment area:

(RFG) Relative Functional Gain = Mitigation Delta (adjusted for preservation, if applicable)/((t-factor)(risk))

(a) Mitigation Bank Credit Determination

The total potential credits for a mitigation bank is the sum of the credits for each assessment area where assessment area credits equal the RFG times the acres of the assessment area scored

Bank Assessment Area	RFG	X	Acres	=	Credits
example					
a.a.1					
a.a.2					
total					

(b) Mitigation needed to offset impacts, when using a mitigation bank

The number of mitigation bank credits needed, when the bank or regional offsite mitigation area is assessed in accordance with this rule, is equal to the summation of the calculated functional loss for each impact assessment area.

Impact Assessment Area	FL	=	Credits needed
example			
a.a.1			
a.a.2			
total			

(c) Mitigation needed to offset impacts, when not using a bank

To determine the acres of mitigation needed to offset impacts when not using a bank or a regional offsite mitigation area as mitigation, divide functional loss (FL) by relative functional gain (RFG). If there are more than one impact assessment area or more than one mitigation assessment area, the total functional loss and the total relative functional gain is determined by summation of the functional loss (FL) and relative functional gain (RFG) for each assessment area.

	FL	/	RFG	=	Acres of Mitigation
DH-MIT 1	0.1133		0.1949		0.5813
DH-MIT 2	0.006		0.1949		0.0308
DH-MIT 3	0.5716		0.1949		2.9328
TOTAL					2.964