**Memo via Electronic Mail**

To: Mark Crosley, Executive Director, FIND

From: Jerry Scarborough, P.E.

Date: Friday, July 27, 2021

Re: Lake Okeechobee Route 1 Cross Lake Channel Aids to Navigation Coordination  
(Work Order Number 20-11)

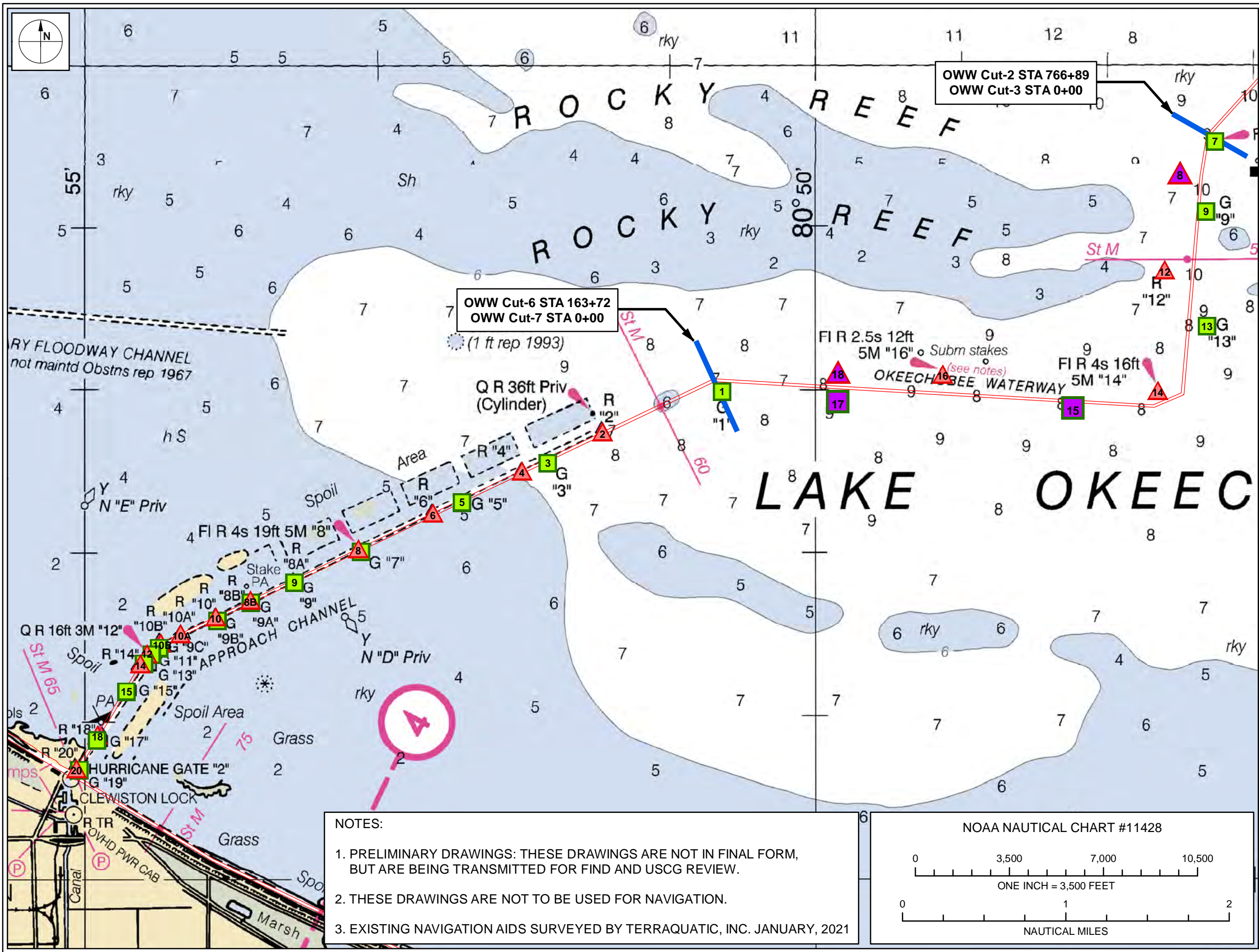
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Taylor Engineering is contracted by the Florida Inland Navigation District (FIND) to locate and review existing Aids to Navigation (ATONs) on the Okeechobee Route 1 Cross Lake Channel and coordinate potential modifications with FIND and the US Coast Guard (USCG). On January 13–14, 2021, Taylor Engineering’s subcontractor, Terraquatic, Inc. located and photographed existing ATONs along Route 1 Cross Lake Channel and Clewiston Channel Route 1B. Attachment A – ATON Location Maps provides the surveyed locations over NOAA Nautical Chart (#11428) and photographs are provided Attachment B – ATON Photographs.

Taylor Engineering reviewed the ATON photographs and cataloged the type and observed condition of each ATON. This review excludes structural assessment or review of navigation lights. An overlay of ATON locations over NOAA Nautical charts, available bathymetric data, and side scan data provided tools for assessing the navigable channel conditions. Attachment C – ATON Summary, provides these observations and potential corrective actions as recommendations. Notably, these observations are limited and do not include structural inspection.

Taylor Engineering initiated coordination with the USCG and the US Army Corps of Engineers at Port Mayaca to gather known navigation issues along Route 1. The USCG reported that there are no documented navigation issues or marine incidents along Route 1. However, based on onsite observations and brief discussion with Port Mayaca staff, Taylor identified some potential for navigation issues along the “Rocky Reef” identified in the Nautical Chart. Distance between beacons and channel orientation changes, particularly where OWW Cut-6 ends and OWW Cut-7 begins near the reef, create potential for navigation error. Vessels traveling northeast, toward the OWW Cut-6 and Cut-7 connection, have potential for grounding if realignment of the channel is bypassed and a northeasterly course is maintained. Similarly, there is a lesser potential for navigation issues approaching the rocky reef traveling southwesterly at the Route 1 Cross Lake channel realignment near Beacon #7, where OWW Cut-2 ends and Cut 3 begins. To support future discussions with the USCG and FIND, Attachment A provides potential additional ATON locations to reduce possibility of navigation error around Rocky Reef.

**Attachment A**  
**ATON Location Maps**



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CERTIFICATE OF AUTHORIZATION # 4815

FLORIDA INLAND  
NAVIGATION DISTRICT  
LAKE OKEECHOBEE  
ROUTE 1 CHANNEL  
AIDS TO NAVIGATION  
LOCATIONS

SHEET 1 OF 4

**Legend**

USACE Channel

Existing Aids to Navigation

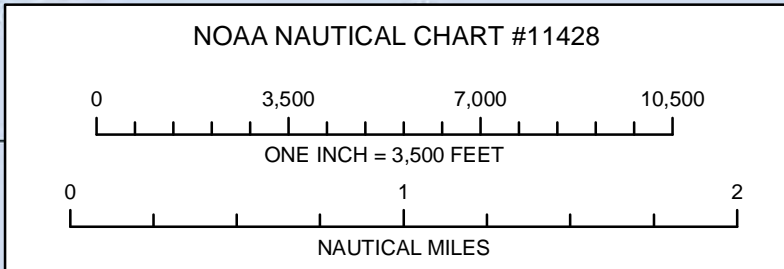
- Beacon
- Beacon
- Other

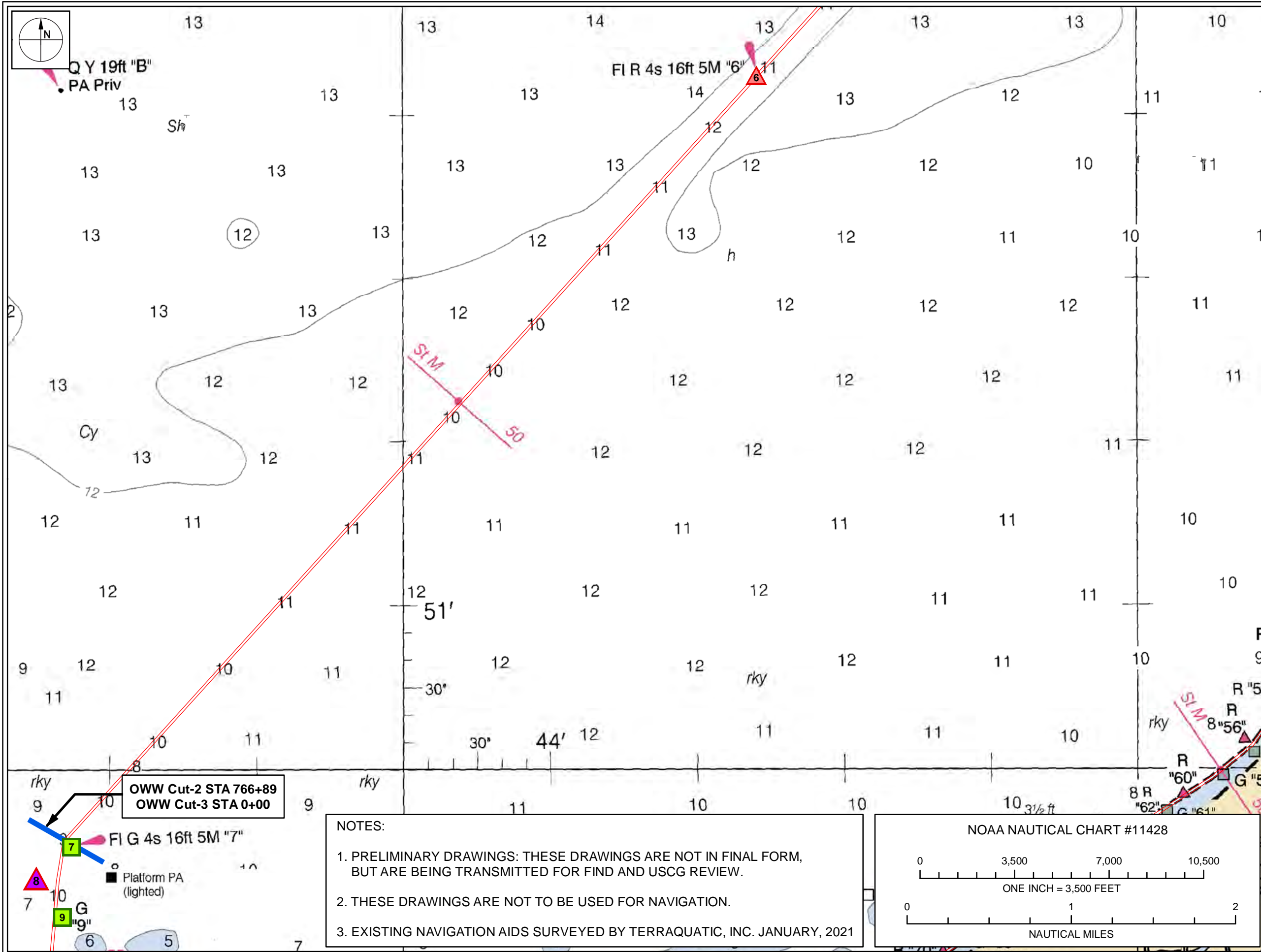
Potential Aids to Navigation

- Beacon
- Beacon

ATLANTIC  
FLORIDA INLAND  
NAVIGATION DISTRICT  
INTRACOASTAL

- NOTES:
1. PRELIMINARY DRAWINGS: THESE DRAWINGS ARE NOT IN FINAL FORM, BUT ARE BEING TRANSMITTED FOR FIND AND USCG REVIEW.
  2. THESE DRAWINGS ARE NOT TO BE USED FOR NAVIGATION.
  3. EXISTING NAVIGATION AIDS SURVEYED BY TERRAQUATIC, INC. JANUARY, 2021





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**FLORIDA INLAND  
NAVIGATION DISTRICT  
LAKE OKEECHOBEE  
ROUTE 1 CHANNEL  
AIDS TO NAVIGATION  
LOCATIONS**

SHEET 2 OF 4

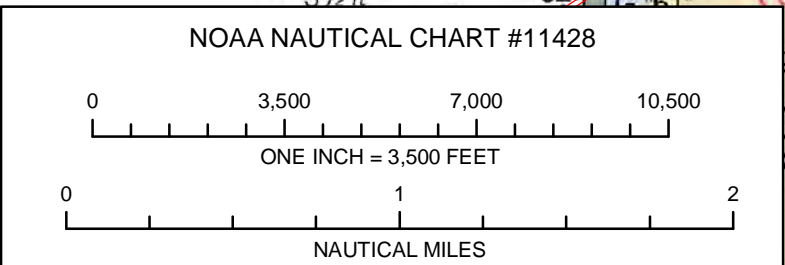
**Legend**

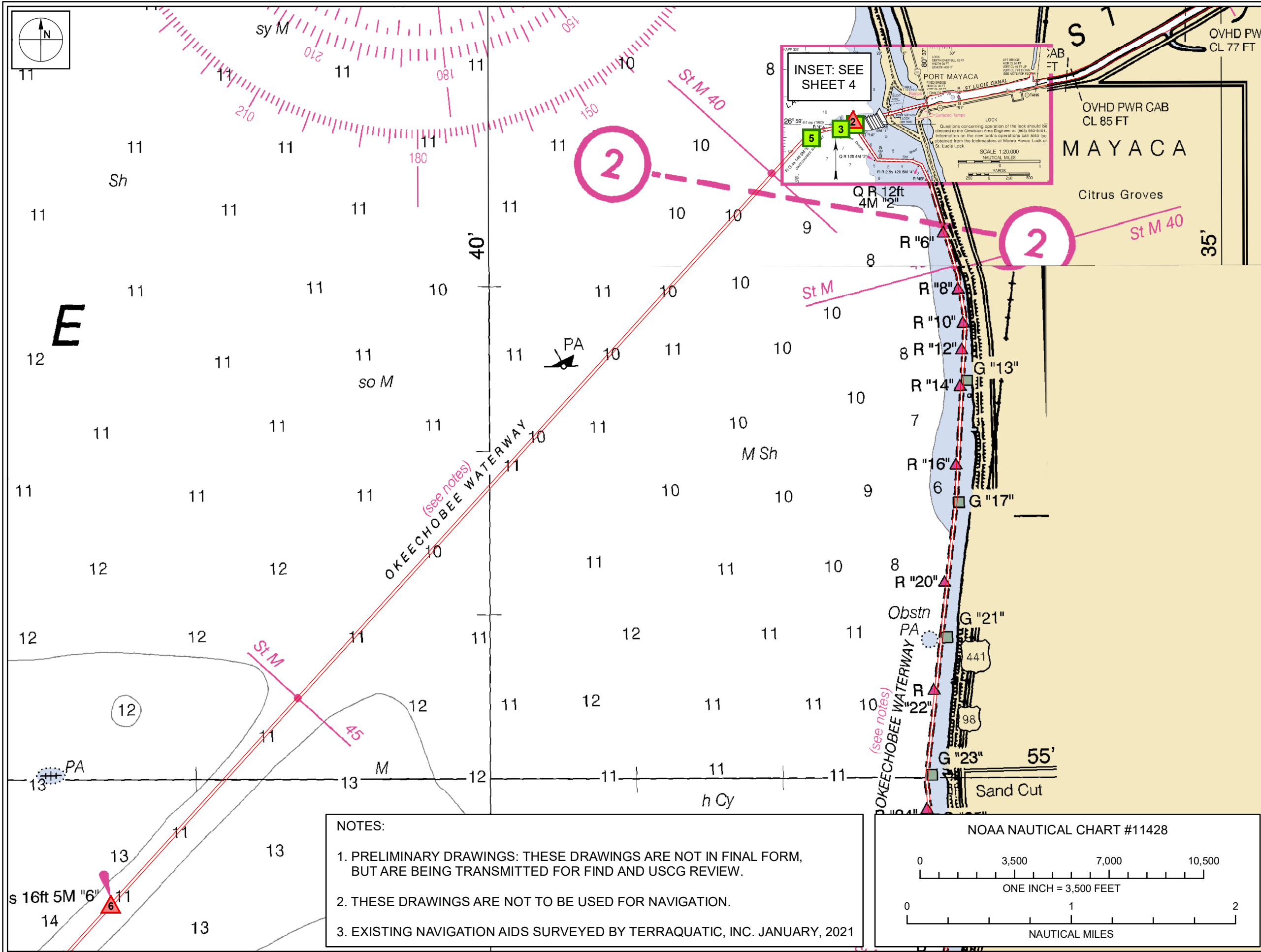
- USACE Channel
- Existing Aids to Navigation
  - Beacon
  - Beacon
  - Other
- Potential Aids to Navigation
  - Beacon
  - Beacon



NOTES:

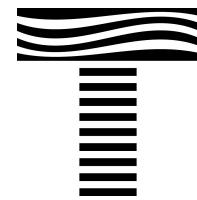
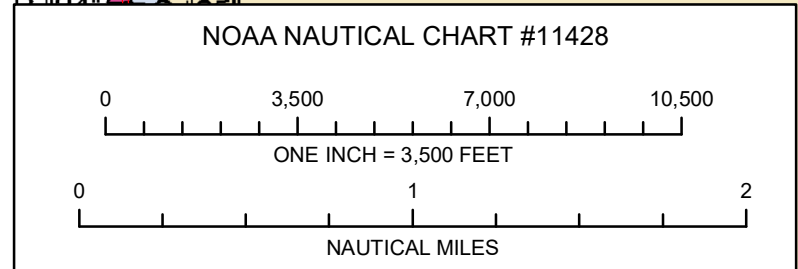
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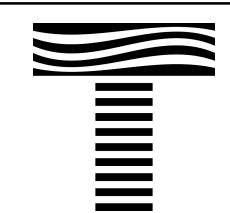
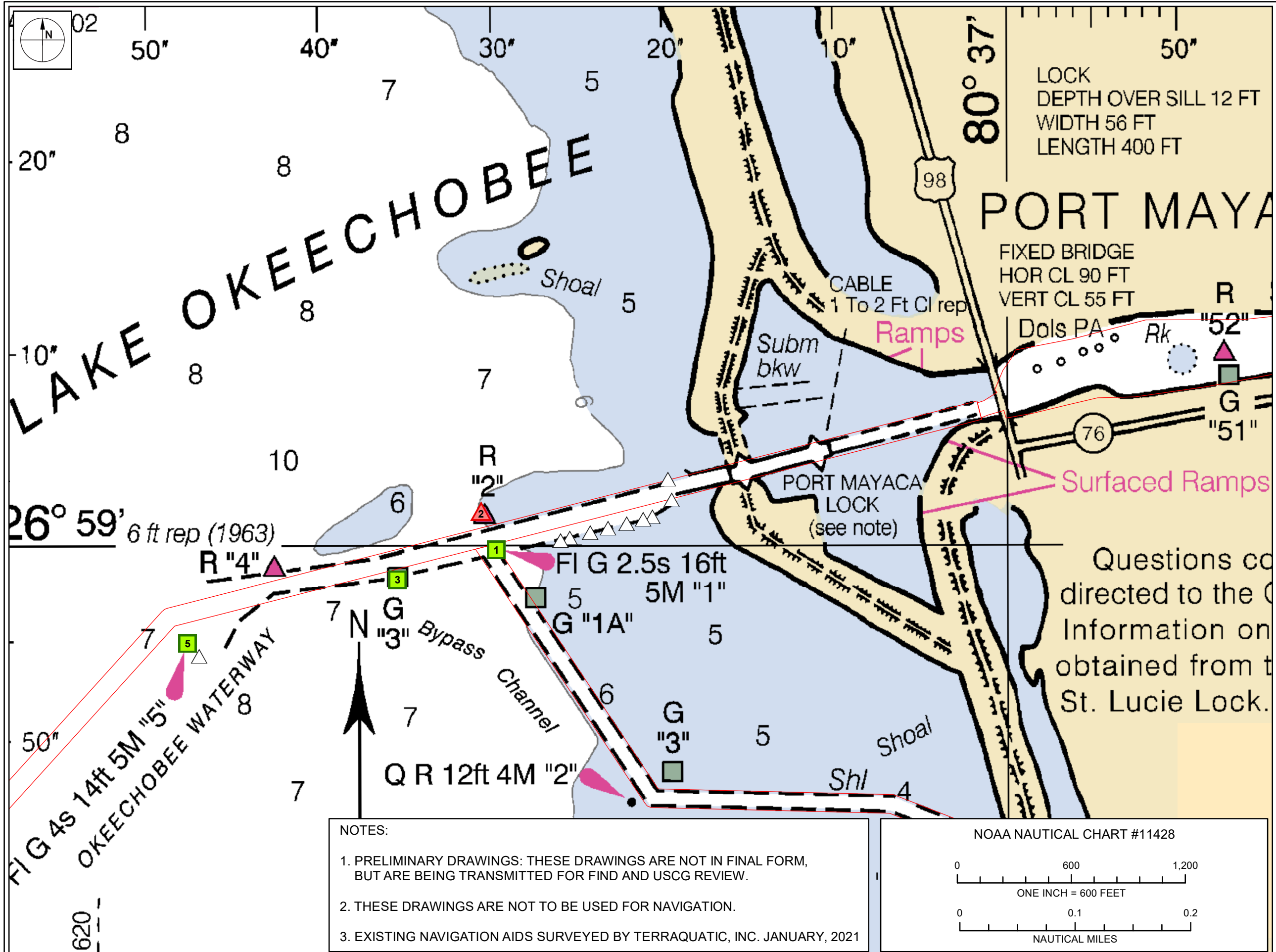
**FLORIDA INLAND  
NAVIGATION DISTRICT  
LAKE OKEECHOBEE  
ROUTE 1 CHANNEL  
AIDS TO NAVIGATION  
LOCATIONS**

SHEET 3 OF 4

**Legend**

- USACE Channel
- Existing Aids to Navigation
  - Beacon
  - Beacon
  - Other
- Potential Aids to Navigation
  - Beacon
  - Beacon





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ROUTE 1 CHANNEL  
AIDS TO NAVIGATION  
LOCATIONS

SHEET 4 OF 4

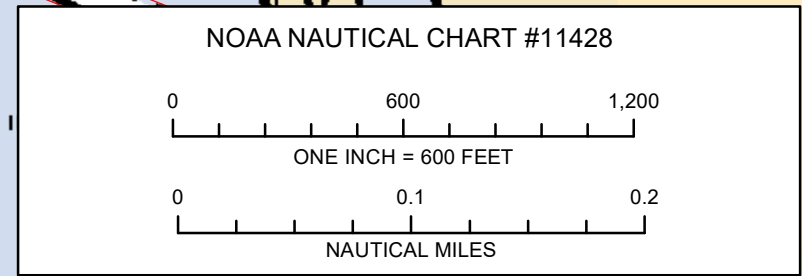
Legend

- USACE Channel
- Existing Aids to Navigation
  - Beacon
  - Beacon
  - Other
- Potential Aids to Navigation
  - Beacon
  - Beacon



NOTES:

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**Attachment B**  
**ATON Photographs**

## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



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## ***Okeechobee Route 1 Navigation Aid Location***



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## ***Okeechobee Route 1 Navigation Aid Location***



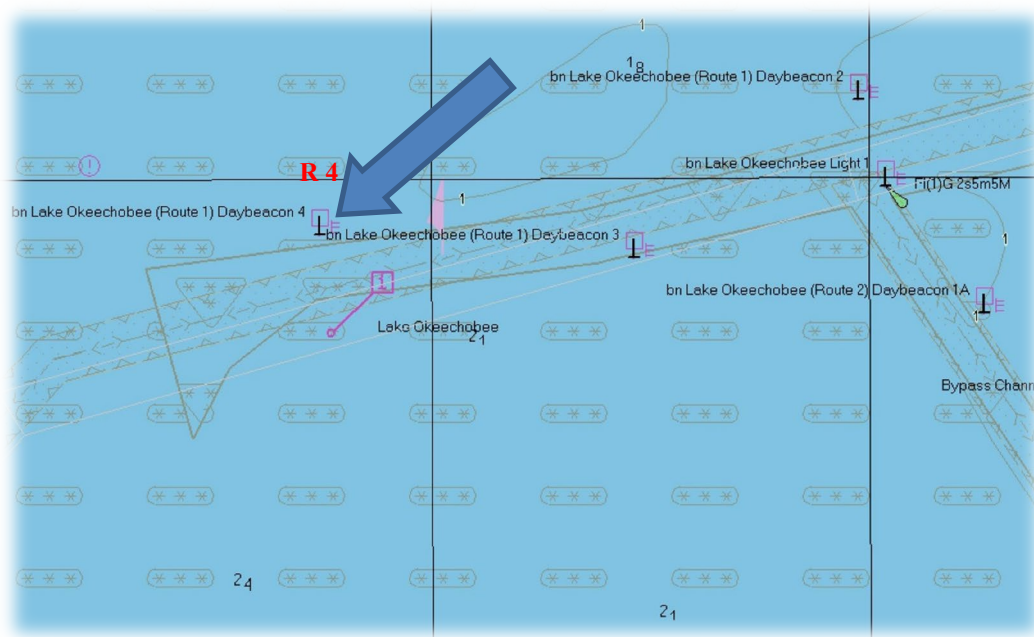
## ***Okeechobee Route 1 Navigation Aid Location***



## **Okeechobee Route 1 Navigation Aid Location**

**4**

**Not Found  
Missing / Destroyed**



## ***Okeechobee Route 1 Navigation Aid Location***



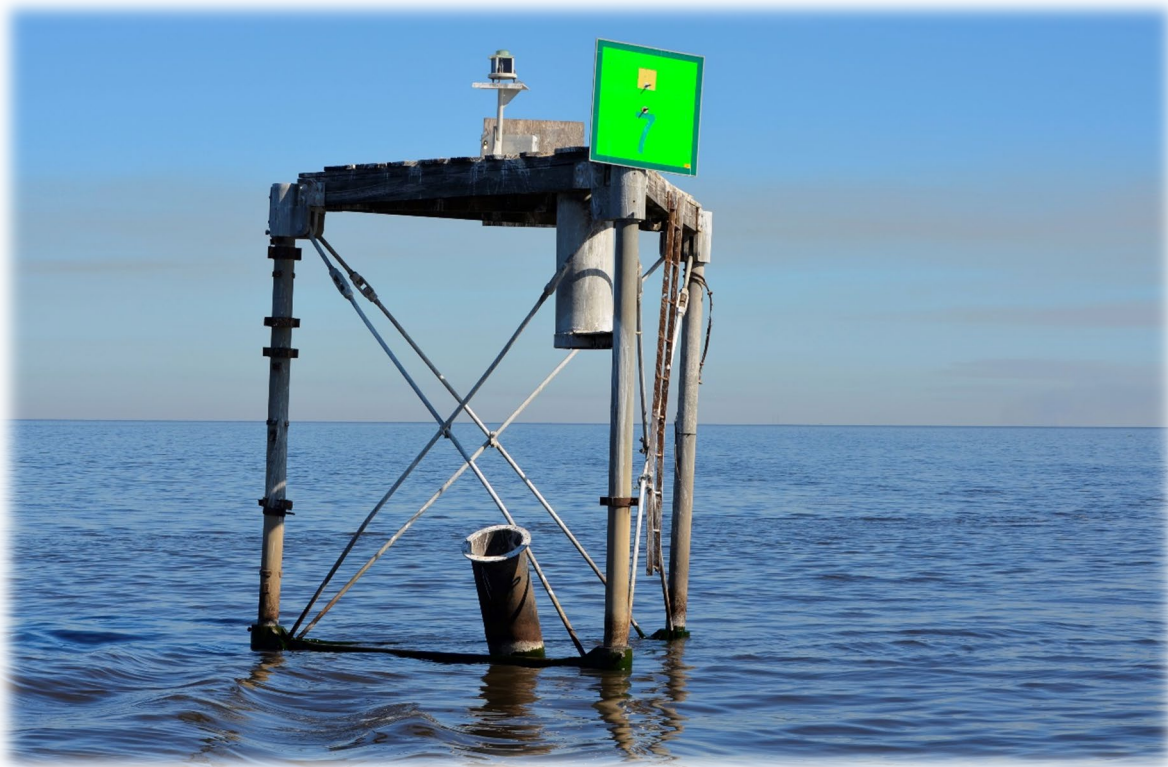
## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



## ***Okeechobee Route 1 Navigation Aid Location***



**Okeechobee Route 1**  
**Navigation Aid Location**  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



**Okeechobee Route 1**  
**Navigation Aid Location**  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



**Okeechobee Route 1**  
**Navigation Aid Location**  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



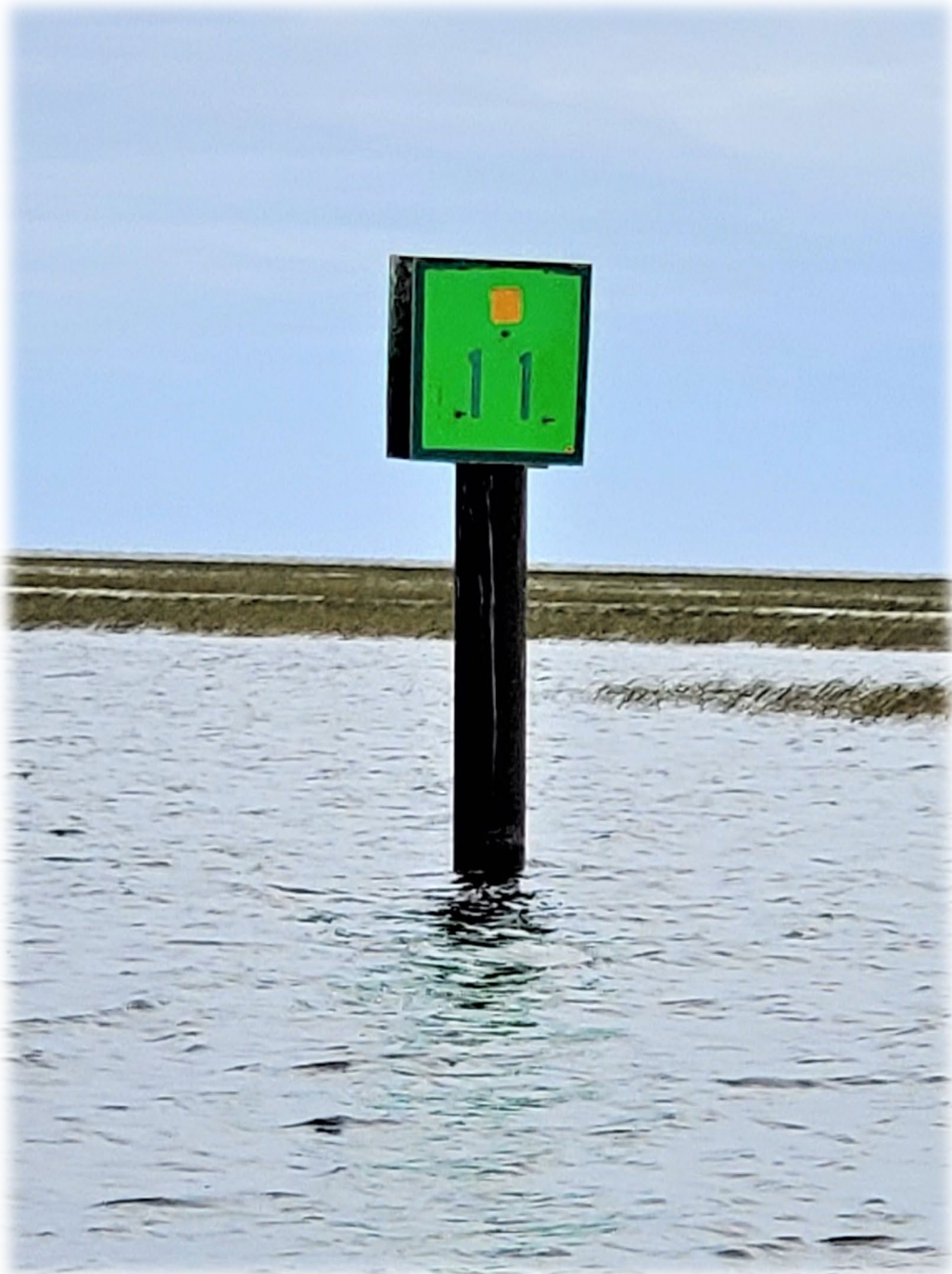
***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



**Okeechobee Route 1**  
**Navigation Aid Location**  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



***Okeechobee Route 1***  
***Navigation Aid Location***  
**Clewiston Channel Route 1B**



## **Okeechobee Route 1 Navigation Aid Location**



## ***Okeechobee Route 1 Navigation Aid Location***



**Attachment C**  
**ATON Summary**

Lake Okeechobee Route 1 Cross Lake Channel Existing Aids to Navigation Summary

| Photograph<br>(Attachment B) | Aid to Navigation  | Type                             | Material            | Observation  | Recommendation   |
|------------------------------|--|----------------------------------|---------------------|--|--|
| Page 1                       | Port Mayaca Lock Entrance South Side; Pt. Mayaca Lock & Dam<br>Open 6:00 AM<br>Closed 9:00 PM      | Daybeacon                        | Timber Dolphin Pile | Daymark damaged and faded  | Replace Daymark  |
| Page 2                       | Port Mayaca Lock Entrance North Side Sign; Pt. Mayaca Lock & Dam<br>Open 6:00 AM<br>Closed 9:00 PM | Daybeacon                        | Timber Dolphin Pile | Daymark missing / Destroyed  | Replace Daymark  |
| Page 3                       | Dolphin pile (non-ATON)  | Dolphin                          | Timber Dolphin Pile | Loose cable wrap, pile deterioration, pile configuration atypical              | Structural inspection  |
| Page 4                       | Dolphin pile (non-ATON)  | Dolphin                          | Timber Dolphin Pile | Broken pile, pile deterioration  | Structural inspection  |
| Page 5                       | Dolphin pile; Idle Speed, No Wake  | Daybeacon                        | Timber Dolphin Pile |  | Structural inspection  |
| Page 6                       | Dolphin pile (non-ATON)  | Dolphin                          | Timber Dolphin Pile | Pile deterioration   | Structural inspection  |
| Page 7                       | Dolphin pile (non-ATON)  | Dolphin                          | Timber Dolphin Pile | Pile deterioration   | Structural inspection  |
| Page 8                       | Dolphin pile (non-ATON)  | Dolphin                          | Timber Dolphin Pile | Pile deterioration   | Structural inspection  |
| Page 9                       | Dolphin pile (non-ATON)  | Dolphin                          | Timber Dolphin Pile | Pile deterioration   | Structural inspection  |
| Page 10                      | G 1 LIGHT (Route 1 & Route 2)  | Daybeacon with Light; 3 Daymarks | Steel H-Pile        | Out of plumb, faded daymark, light function unknown                            | Structural inspection  |
| Page 11                      | R 2  | Daybeacon; 2 Daymarks            | Steel H-Pile        | Out of plumb   | Structural inspection  |
| Page 12                      | G 3  | Daybeacon; 2 Daymarks            | Steel H-Pile        | Out of plumb   | Structural inspection  |
| Page 13                      | R 4  | N/A; 2 Daymarks                  | N/A                 | Missing / Destroyed  | Replace ATON   |
| Page 14                      | G 5 LIGHT  | Daybeacon with Light; 2 Daymarks | Steel H-Pile        | Out of plumb, light function unknown   | Structural inspection;   |
| Page 15                      | Arival Point;<br>Locks Monitor Channel 13;<br>Lock Hours 7AM to 5PM Daily                          | Daybeacon                        | Steel Round-Pile    | Detoriated Daymark,<br>Operation hours differ from N Entrance Sign             | Replace Sign; Update information   |
| Page 16                      | R 6 LIGHT  | Daybeacon; 2 Daymarks            | Steel Round-Pile    | Out of plumb, light function unknown   | Structural and light function inspection   |
| Page 17                      | G 7 LIGHT STRUCTURE  | Daybeacon with Light; 2 Daymarks | Steel Frame         | Broken central round steel pile,<br>light function unknown                     | Structural inspection;<br>Replace or Repair ATON   |
| Page 18                      | G 9  | Daybeacon; 2 Daymarks            | Timber Pile         | Out of plumb   | Structural inspection  |
| Page 19                      | R 12   | Daybeacon; 2 Daymarks            | Steel H-Pile        |  |  |
| Page 20                      | G 13   | Daybeacon; 2 Daymarks            | Timber Pile         |  |  |
| Page 21                      | R 14 LIGHT STRUCTURE   | Daybeacon with Light; 2 Daymarks | Steel Frame         | Light function unknown   | Light function inspection  |
| Page 22                      | R 16 LIGHT   | Daybeacon with Light; 2 Daymarks | Steel H-Pile        |  |  |
| Page 23                      | G 1  | Daybeacon; 2 Daymarks            | Timber Pile         | Out of Plumb   | Structural inspection  |
| Page 24                      | R 2  | Daybeacon; 2 Daymarks            | Steel H-Pile        | Out of Plumb   | Structural inspection  |
| Page 25                      | G 3  | Daybeacon; 2 Daymarks            | Steel H-Pile        | Out of Plumb   | Structural inspection  |
| Page 26                      | R 4  | Daybeacon; 2 Daymarks            | Steel Round-Pile    |  |  |
| Page 27                      | G 5  | Daybeacon; 2 Daymarks            | Steel H-Pile        | Damaged (Significantly out of plumb)   | Structural inspection; Replace or Repair ATON  |
| Page 27                      | WR 5 (LIGHT BUOY)  | Buoy with Light                  | Steel               | Light function unknown   | Light function inspection  |
| Page 28                      | R 6  | Daybeacon; 2 Daymarks            | Steel H-Pile        | Faded daymark  |  |
| Page 29                      | G 7  | Daybeacon; 2 Daymarks            | Steel Round-Pile    |  |  |
| Page 30                      | R 8 LIGHT STRUCTURE  | Daybeacon with Light; 2 Daymarks | Steel Frame         | Light function unknown   | Light function inspection  |
| Page 31                      | G 9  | Daybeacon; 2 Daymarks            | Steel H-Pile        |  |  |
| Page 32                      | R 8B   | Daybeacon; 2 Daymarks            | Steel H-Pile        | Damaged (Significantly out of plumb)   | Structural inspection; Replace or Repair ATON;<br>Remove potential obstruction in channel limits |
| Page 33                      | G 9A   | Daybeacon; 2 Daymarks            | Steel H-Pile        |  |  |
| Page 34                      | G 9B   | Daybeacon; 2 Daymarks            | Steel H-Pile        | Out of Plumb   | Structural inspection  |
| Page 35                      | R 10   | Daybeacon; 2 Daymarks            | Steel H-Pile        |  |  |
| Page 36                      | R 10A  | Daybeacon; 2 Daymarks            | Timber Pile         |  |  |
| Page 37                      | R 10B  | Daybeacon; 2 Daymarks            | Timber Pile         |  |  |
| Page 38                      | G 9C   | Daybeacon; 2 Daymarks            | Timber Pile         | Damaged (Significantly out of plumb)   | Structural inspection  |
| Page 39                      | G 11   | Daybeacon; 2 Daymarks            | Steel H-Pile        |  |  |
| Page 40                      | R 12 LIGHT   | Daybeacon with Light; 2 Daymarks | Steel H-Pile        | Damaged (Significantly out of plumb),<br>Faded Daymark, Light function unknown | Structural and light function inspection   |
| Page 41                      | G 13   | Daybeacon; 2 Daymarks            | Timber Pile         |  |  |
| Page 42                      | R 14   | Daybeacon; 2 Daymarks            | Timber Pile         | Faded daymark  |  |
| Page 43                      | G 15   | Daybeacon; 2 Daymarks            | Steel H-Pile        |  |  |
| Page 44                      | R 18   | Daybeacon; 2 Daymarks            | Timber Pile         |  |  |
| Page 45                      | G 17   | Daybeacon; 2 Daymarks            | Timber Pile         | Faded Daymark  |  |
| Page 46                      | G 19   | Daybeacon; 2 Daymarks            | Timber Pile         | Out of Plumb   | Structural inspection  |
| Page 46                      | Slow Speed Minimum Wake;<br>Resume Normal Safe Operation   | Daybeacon; 2 Daymarks            | Timber Pile         |  |  |
| Page 47                      | R 20   | Daybeacon; 2 Daymarks            | Timber Pile         |  |  |