

BEAR POINT MITIGATION BANK PROJECT SITE

St. Lucie County, Florida

FDEP Permit #0175246-001

**Semi-annual Status Report
In Support of Specific Conditions #26 & 29**

January through June, 2020



Prepared for:

**Glenn Henderson, Director
St. Lucie County Mosquito Control District
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Prepared by:

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NOTE: This Report, together with the concepts and design presented herein, as an instrument of service, is intended only for the specific purpose and Client for which it was prepared. Reuse of and improper reliance on this Report without written authorization and adaptation by Hobe Sound Environmental Consultants, Inc. shall be without liability to Hobe Sound Environmental Consultants, Inc.

**BEAR POINT MITIGATION BANK
FDEP Permit #0175246-001**

**Semi-annual Status Report In Support of Specific Conditions #26 & 29
January through June, 2020**

**Submitted by Hobe Sound Environmental Consultants, Inc.
On behalf of: St. Lucie County
c/o Glenn Henderson, Director
St. Lucie County Mosquito Control District – Permittee**

1.0 Introduction

Bear Point Mitigation Bank (BPMB) was originally permitted on 17 November 2003 and a perpetual modification was issued on 29 January 2010. The BPMB was determined to be in compliance with its original permitted conditions, including the installation of 24 culverts, five years of monitoring, establishment of a financial assurance reserve account, a credit assessment, and acceptance of a Long Term Management Plan. Water quality data, water level data, and wildlife utilization will continue to be monitored in perpetuity and results included in the semi-annual status reports.

2.0 Authorizations

Please refer to **Exhibit A** for authorized signatures, as required. The permittee for BPMB is:

St. Lucie County
c/o Mr. Glenn Henderson, Director
Mosquito Control & Coastal Management Services
3150 Will Fee Road
Ft. Pierce, FL. 34982

Authorized representative:

Mr. Glenn Henderson, Director

Phone: 772 462-2818
Fax: 772 462-1565
E-mail: Hendersong@stlucieco.org

The authorized agent is:

Hobe Sound Environmental Consultants, Inc.
9512 SE Duncan Street

Hobe Sound, FL. 33455

Authorized representative:

Freda R. Posin, Senior Project Manager

Phone: 772 545-3676

E-mail: fredahsenv@gmail.com

The approved QMS is:

Hobe Sound Environmental Consultants, Inc.
9512 SE Duncan Street
Hobe Sound, FL. 33455

Authorized representative:

Freda R. Posin, Senior Project Manager

Phone: 772 545-3676

E-mail: fredahsenv@gmail.com

3.0 Submittals/Correspondence/Meetings

The following correspondence and submittals were made from January through June 2020:

6 January 2020 - SLCMCD receives an inquiry as to whether duck hunting is permissible in the Bank.

16 January 2020 - SLCMCD sends a letter to FDEP requesting they deduct 0.04 state credits for the Debraski project.

17 January 2020 - SLCMCD receives a letter from FDEP approving the debit request listed above.

21 January 2020 - QMS receives confirmation from SLCMCD regarding the current cost of credits and the Bank.

27 January 2020 - Semi-annual Status Report submitted to SLCMCD for comment.

29 January 2020 - QMS receives email from SLCMCD re no comments on status report. Report submitted to FDEP.

31 January 2020 - QMS receives confirmation from FDEP that report has been received.

6 March 2020 - SLCMCD receives annual Bear Point Mitigation Bank Appraisal and sends to Board, along with Semi-annual Status Report.

11 March 2020- SLCMCD sent QMS information and agenda for BPMB Management Committee quarterly meeting to take place on 25 March 2020.

19 March 2020- HSE received copy of letter from SLCMCD to FDEP requesting they debit the ledger for 0.1 state credits for John Rufolo.

14 April 2020 - SLCMCD send inquiry to Southeast Soil & Environmental Service, Inc. re: first annual maintenance event.

20 April 2020 - QMS sent e-mail to SLCMCD re seagrass survey for installation of new culverts.

24 April 2020 - Report for first annual maintenance event received by SLCMCD and QMS.

11 May 2020 - SLCMCD and QMS received copy of Federal ledger showing debit for Rufolo permit.

26 May 2020 - HSE received PO for SAV Survey for installation of 2 new culverts.

10 June 2020 - SLCMCD and HSE received letter from FDEP approving request to debit the State ledger for 0.1 credits for the Rodriquez permit.

17 June 2020 - Seagrass (SAV) Survey of area of new culvert installation sent by HSE to SLCMCD.

4.0 Inspection/Monitoring

Monthly inspections for wildlife usage, security issues, construction conditions, exotic vegetation, water levels, and trash pick-up were conducted and the results tabulated. The January through June 2020 inspections and reports were completed by Andrew Eiseman, Marvin Brown, Brett Koskan and Brian Randle. A synopsis of the monthly inspections (January - June 2020) can be found in **Exhibit B**.

Biologists observed and recorded all wildlife utilization. Wildlife utilization was determined by sighting, scat, calls, nests, burrows, tracks, etc. Current conditions within the mitigation bank are conducive to the life cycle productivity for various wildlife species. Species composition within the BPMB is indicative of a healthy, productive system, and observed fauna indicates a diverse and abundant wildlife usage within the

bank. The vegetation within the BPMB appears healthy, with no outward signs of disease or insect infestation. Natural recruitment of desirable native vegetation is evident throughout the area. Exotic and invasive species are being treated and maintained on a regular basis not to exceed the 1% cover per acre in accordance with the Long Term Management Plan, Attachment D of FDEP Permit modification Number: 0175246-014. Exotic vegetation was minimal during this six-month period.

Inspections of docks, culverts, levee, trash receptacles, gates and signage were performed and status recorded in the monthly inspection reports. A new gate was installed at the entrance to the Bank to keep out people and bicycles from entering the mitigation bank area. This was predicated by a robbery of one of the houses at the north end of the Bank. Additional details about the culverts and levee can be found in **Exhibit B**.

Condition of submerged aquatic vegetation (SAV) at the culverts is also observed monthly and noted only in case of deterioration. It is natural for SAV to move around and disappear from one area and re-appear in another. Currently, SAV populations appear healthy.

5.0 Activities

Activities that occurred from January 2020 through June 2020 include:

Monthly water quality testing, including dissolved oxygen (DO), temperature, salinity, pH and Eh data collection. Dates of collection were 15 January, 12 February, 30 March, 16 April, 12 May and 10 June. Water quality graphs can be found as **Exhibit C**.

Semi-annual exotic vegetation management occurred over a two week period in April 2020 (**Exhibit D**).

Please refer to **Exhibit E** for BPMB maintenance and monitoring activities and costs for January through June 2020..

Weekly general dike maintenance continues, which includes trash pick-up and mowing, as necessary. The dike, levee, culverts, road and rip-rap are in prime condition (**Exhibit B**).

Water level data were collected every 15 minutes (**Exhibit F**) and rainfall was collected daily (**Exhibit G**).

Monthly monitoring for wildlife and general inspections continued (**Exhibit B**).

6.0 Maps/Figures

The following maps and figures depict the location of various structures and particular areas of interest in the Bank:

Exhibit H: Figure 1 of 2 depicts the Bank itself and the locations for data collection, including water level and water quality data, as well as areas that were maintained.

Exhibit H: Figure 2 of 2 is the May 2020 aerial photograph of the Bank.

7.0 Data/Ledgers

Water quality, water level, & rainfall

Rainfall data from January to June 2020 is depicted in graph form in **Exhibit G**. May exhibited the greatest accumulation of rain with a total of 11.51 inches, well above the average rainfall of 4.16 inches for that month. March was exactly the opposite, as 0.02 inches of rain fell, less than 1% of the monthly average of 3.18 inches. June was about average, with 7.52 inches actual rainfall vs 7.23 average rainfall. April was slightly above average (5.09" vs 2.91"), while January and February were both about one inch below average. January recorded 1.53" of rain with an average of 2.39" while February recorded 1.34" with an average of 2.28".

All water level data loggers were working for the entire six months, as can be seen in **Exhibit F**. However, the water level data loggers are new and appear to be more sensitive than the older equipment. Due to Covid-19 and the lack of available places to stay, they have not yet been fine tuned. The availability of hotel space will govern when that will take place. The impoundment sometimes lags behind the lagoon, but the impoundment lines are in sync with each other. It is obvious in May that the pumps were turned on and the impoundment was closed. From 07 June to the drawdown that began on 19 June, both impoundment data loggers show the water levels being held fairly steadily between 1.8-2.0 feet NGVD. According to the permit, the impoundment is to be maintained at +1.8 feet NGVD (± 0.2 feet) during the summer and have at least one drawdown (Specific condition 21c, Permit Modification Number: 0175246-014).

Water quality parameters (i.e. water temperature, dissolved oxygen (DO), salinity, pH, Eh) from January to May 2020 were all within the success criteria of Permit Modification No.0175246-014. The June 2020 were almost entirely within the success criteria, with the only exception being DO, which fell below 2.0 ppm in both impoundment stations. This can largely be explained by activities that closed off the impoundment during the time at which the readings were taken. In fact, the data displayed in **Exhibit C** shows that most of the parameters were relatively synchronous for the entire six-month period. Only DO levels appear asynchronous, with the lagoon having consistently greater DO than the impoundment. The only critical inverse occurs between the May and June readings (at which time the impoundment began to close) where both DO and pH increased in the

lagoon while significantly decreasing in the impoundment. This implies that DO and pH are qualities that depend greatly on the impoundment's connection to the lagoon, despite pumps and aerators being activated before the readings were taken.

Ledger

Three debits to the State ledger were made within this six-month period. A purchase of 0.04 credits was made on 17 January 2020 by Robert Dubraski (50-0232972-007-EI), a purchase of 0.10 credits was made on 24 March 2020 by John N. Rufolo (50-0282260-003) and a purchase of 0.10 credits was made on 10 June 2020 by Rodriguez's - Palm Cove Golf & Yacht Club Comm. Assoc., Inc. (OCG File No. 19-1475). John N. Rufolo (SAJ-2012-02253) also purchased 0.07 Federal credits on 11 May 2020. Credits have been deducted from the ledger, and the ledger balances are 37.406 Federal credits and 41.27 State credits.

8.0 Photos & Assessment

Monthly inspections conducted from January through June 2020 verify that Specific Condition 24a-e of Permit Modification Number 0175246-014 are being met regarding security, construction condition, exotic vegetation, water levels, and wildlife. Issues observed and noted during monthly inspections were addressed immediately following monthly inspection report submittal. Please refer to **Exhibit B**. No permit modifications are anticipated for the upcoming status report period. Continued maintenance of levee, pumps and culverts, water level, and water quality equipment are expected as needed, along with exotic/nuisance species maintenance, treatment, and removal. Representative photographs of Bear Point Mitigation Bank are provided in **Exhibit I**.

9.0 Compliance & Planning

Compliance with FDEP Permit Modification No. 0175246-014 and future planning is noted below.

For the past six months water level (WL1 & WL3 impoundment and WL4 & WL5 lagoon **Exhibit F**) has been recorded and plotted.. Water quality data (WQ2 & WQ3 impoundment and WQ9 & WQ10 lagoon) was also gathered from January through June (**Exhibit C**).

Water quality data showed that both the impoundment and lagoon are currently in compliance with FDEP Permit Modification No. 0175246-014. Water level data loggers appear to be functioning correctly with only a few minor glitches, which were explained above in Section 7.0 of this report.

Monthly monitoring of wildlife and inspection of the general condition of the Bank has continued (**Exhibit B**). Species diversity is excellent and new species continue to be observed on the Bank site.

The semi-annual exotic removal and maintenance program was conducted in April 2020. Brazilian pepper, Australian pine seedlings, and carrot wood, as well as other exotic and nuisance pest plants were eradicated. Southeast Soils and Environmental Service, Inc. conducted their initial treatment followed by a check to re-spray. (**Exhibit D**).

The impoundment was maintained according to Specific Condition #13 of Permit Modification #0175246-014. The following is a list of activities and dates of permitted operating procedures that occurred during the January through June 2020 time period:

1 Jan. - 30 April	All culverts are fully open and flushing, pumps and aerators off.
1-10 May	Culvert 3 half open, Culverts A, B, 4 & 5 closed, 7 pumps running, 2 aerators running.
11-18 May	Culvert 3 fully open, Culverts A, B, 4 & 5 closed, 7 pumps running, 2 aerators running.
19-24 May	Culvert 3 fully open, Culvert A half open, Culverts, B, 4 & 5 closed, 7 pumps running, 2 aerators running.
25-30 May	Culvert 3 fully open, Culverts A, B, 4 & 5 closed, 7 pumps running, 2 aerators running.
31 May - 2 June	Culvert 3 fully open, Culverts A, B, 4 & 5 closed, 7 pumps running, 2 aerators running.
3-4 June	Culverts 3 & A fully open, Culverts B, 4 & 5 closed, 7 pumps running, 2 aerators running.
5-6 June	Culvert 3 fully open, Culvert A half open, Culverts B, 4 & 5 closed, 7 pumps running, 2 aerators running.
7 June	Culvert 3 fully open, Culverts A, B, 4 & 5 closed, 7 pumps running, 2 aerators running.
8-17 June	Culvert 3 half open, Culverts A, B, 4 & 5 closed, 7 pumps running, 2 aerators running.
18 June	Culvert 3 fully open, Culvert A half open, Culverts B, 4 & 5 closed, 7 pumps running, 2 aerators running.
19 June	Culvert 3 fully open, Culverts A, B, 4 & 5 closed, 7 pumps running, 2 aerators running, start drawdown for birds.
20 June	Culverts 3 & A fully open, Culverts B, 4 & 5 closed, 7 pumps running, 2 aerators running.
21 June	Culverts 3, A, & 4 fully open, Culverts B & 5 closed, 7 pumps running, 2 aerators running.
22 June	Culverts 3, A, 4 & 5 fully open, Culvert B closed, 7 pumps running, 2 aerators running.
23-30 June	Culvert 3 half open, Culverts A, B, 4 & 5 closed, 7 pumps running, 2 aerators running, start pumping back up.

Culverts, generators and telemetry equipment continue to be maintained throughout the Bank on a regular basis. Pumps are removed for maintenance at the end of the drawdown each year (December) to be cleaned and the bearings replaced. They are then re-installed

in April prior to the pump-up event. This year, as mentioned previously, the riprap around the pimp area was replaced with a sheet pile wall to more efficiently protect the levee during storm events. An area was also added for the public to fish and/or picnic and bird watch. Picnic tables will be added soon, Please refer to **Exhibit E** for yearly maintenance activities and associated costs.

In the next six months, typical site management, including debris removal, monthly wildlife monitoring, exotic vegetation removal, water level and rainfall data collection, the annual drawdown and monthly water quality data collection will continue.

Dike and interior exotic vegetation control and debris collection efforts are ongoing on a weekly basis. Pier replacement/repair will be on-going until complete.

10.0 Certification

This report represents a true, accurate, and representative description of the activities and site conditions at the time of this report.

Freda R. Posin

Freda R. Posin
Senior Project Manager , QMS
Hobe Sound Environmental Consultants, Inc.

Date: 16 July 2020

EXHIBIT A:
AUTHORIZATIONS

2.0 Authorizations July 2020

Please refer to Exhibit A for authorized signatures, as required. The permittee for BPMB is:

St. Lucie County
c/o Mr. Glenn Henderson, Director
St. Lucie County Mosquito Control District
3150 Will Fee Road
Ft. Pierce, FL. 34982

Authorized representative:


Mr. Glenn Henderson, Director: 

Phone: 772 462-2818
Fax: 772 462-1565
E-mail: hendersong@stlucieco.org

The authorized agent:

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The approved QMS is:

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Freda R. Posin, Senior Project Manager 

Phone: 772 545-3676
E-mail: fredahsenv@gmail.com

EXHIBIT B:
SYNOPSIS OF MONTHLY INSPECTION SHEETS

**SPECIES OBSERVED AT BEAR POINT MITIGATION BANK
FROM JANUARY THROUGH JUNE 2020**

BIRDS

Common Name	<i>Scientific Name</i>	Number Observed	Activity
Mottled duck	<i>Anas fulvigula</i>	3	FY, S
Anhinga	<i>Anhinga anhinga</i>	2	R, S
Great egret	<i>Ardea alba</i>	5	F, FY, R, W
Great blue heron	<i>Ardea herodias</i>	18	F, FY, R, W
Cattle egret	<i>Bubulcus ibis</i>	2	FY
Green heron	<i>Butorides virescens</i>	6	FY, R
Sanderling	<i>Calidris alba</i>	10	F, FY, W
Least sandpiper	<i>Calidris minutilla</i>	4	F, FY, W
Northern cardinal	<i>Cardinalis cardinalis</i>	12	FY, M, R
Turkey vulture	<i>Cathartes aura</i>	27	FY
Mangrove cuckoo	<i>Coccyzus minor</i>	2	FY, R
Common ground-dove	<i>Columbina passerina</i>	13	F, FY, R, W
Black vulture	<i>Coragyps atratus</i>	9	D, FY
Fish crow	<i>Corvus ossifragus</i>	6	F, FY
Blue-jay	<i>Cyanocitta cristata</i>	2	FY, R
Black-bellied whistling duck	<i>Dendrocygna autumnalis</i>	2	FY
Little blue heron	<i>Egretta caerulea</i>	8	F, FY, R
Tricolored heron	<i>Egretta tricolor</i>	2	F, FY, R
White ibis	<i>Eudocimus albus</i>	7	F, FY, R, W
Ring-billed gull	<i>Larus delawarensis</i>	1	FY
Belted kingfisher	<i>Megaceryle alcyon</i>	3	FY

Red-bellied woodpecker	<i>Melanerpes carolinus</i>	2	F, FY, R
Wood stork	<i>Mycteria americana</i>	1	FY
Yellow-crowned night heron	<i>Nyctanassa violacea</i>	3	F, R
Black-crowned night-heron	<i>Nycticorax nycticorax</i>	1	R
Osprey	<i>Pandion haliaetus</i>	31	F, FY, R
White pelican	<i>Pelecanus erythrorhynchos</i>	1	R
Brown pelican	<i>Pelecanus occidentalis</i>	25	F, FY, R, S
Double-crested cormorant	<i>Phalacrocorax auritus</i>	17	FY, R
Roseate spoonbill	<i>Platalea ajaja</i>	2	FY
Pie-billed grebe	<i>Podilymbus podiceps</i>	3	S
Blue-gray gnatcatcher	<i>Polioptila caerulea</i>	4	F, FY, R
Boat-tailed grackle	<i>Quiscalus major</i>	1	FY
Eastern phoebe	<i>Sayornis phoebe</i>	1	FY, R
Ovenbird	<i>Seiurus aurocapilla</i>	1	FY, R, W
Prairie warbler	<i>Setophaga discolor</i>	4	F, FY, R
Palm warbler	<i>Setophaga palmarum</i>	27	F, FY, R, W
American redstart	<i>Setophaga ruticilla</i>	2	FY, R
European starling	<i>Sturnus vulgaris</i>	2	FY, R
Brown thrasher	<i>Toxostoma rufum</i>	1	FY
Western kingbird	<i>Tyrannus verticalis</i>	1	FY, R
White-eyed vireo	<i>Vireo griseus</i>	2	F, FY, R
Mourning dove	<i>Zenaida macroura</i>	9	F, FY, R

MAMMALS

Common Name	Scientific Name	Number Observed	Activity
Raccoon	<i>Procyon lotor</i>	3	W, SC

FISH

Common Name	<i>Scientific Name</i>	Number Observed	Activity
Bay anchovy	<i>Anchoa mitchilli</i>	TNTC	S
Common snook	<i>Centropomus undecimalis</i>	1	S
Threadfin shad	<i>Dorosoma petenense</i>	TNTC	S
Eastern mosquitofish	<i>Gambusia holbrooki</i>	TNTC	S
Mangrove snapper	<i>Lutjanus griseus</i>	1	F, S
Atlantic croaker	<i>Micropogonias undulatus</i>	1	S
Striped mullet	<i>Mugil cephalus</i>	TNTC	F, S
Sailfin molly	<i>Poecilia latipinna</i>	TNTC	F, S
Redfish	<i>Sciaenops ocellatus</i>	1	F, S
Atlantic needlefish	<i>Strongylura marina</i>	TNTC	S

CRUSTACEANS & OTHER MACROINVERTEBRATES

Common Name	<i>Scientific Name</i>	Number Observed	Activity
Mangrove tree crab	<i>Aratus pisonii</i>	TNTC	C, F
Blue crab	<i>Callinectes sapidus</i>	2	M, S
Land crab	<i>Cardisoma guanhumi</i>	TNTC	F, W
Eastern oyster	<i>Crassostrea virginica</i>	TNTC	F
Sea butterfly	<i>Cymbulia peronii</i>	1	S
Mangrove crab	<i>Goniopsis cruentata</i>	TNTC	C, F, W
Comb jelly	<i>Mnemiopsis leidyi</i>	TNTC	S
Fiddler crab	<i>Uca spp.</i>	TNTC	F, W

REPTILES

Common Name	Scientific Name	Number Observed	Activity
Agama	<i>Agama agama</i>	12	C, W
Cottonmouth	<i>Agkistrodon piscivorus</i>	1	S, W
Green anole	<i>Anolis carolinensis</i>	2	C, W
Brown anole	<i>Anolis sagrei</i>	TNTC	C, W
Curly-tailed lizard	<i>Leiocephalus carinatus</i>	TNTC	C, W

R-Roosting, FY- Flying, F-Feeding, S-Swimming, W-Walking, M - Mating, C- Climbing, SC-Scat, D- Dead

SYNOPSIS OF BANK CONDITIONS JANUARY THROUGH JUNE 2020

- Security:** The levees, gates and barriers are in good condition and functioning properly. The levee has remained stable since its restoration. All piers have been repaired with the exception of the main fishing pier. A new gate was installed at the entrance to the Bank with an extended fence to keep bicycles off of the levee due to an incident that took place at the north end of the Bank.
- Construction Condition:** The pumps were removed for maintenance as they are every year. The pump outfall pipes were replaced and the riprap south of and adjacent to the pump station was replaced with a sheet pile wall for further protection of the Bank from hurricane damage. At the same time, an area behind the new sheet pile wall was graded and picnic tables will be added for fishing and wildlife viewing. The pumps have now been re-installed and are functioning properly, and the levees are in good condition.
- Exotic Vegetation:** Very little exotic vegetation was observed along the trail these past six months. A maintenance event occurred in April 2020 to further reduce the amount of exotic/nuisance species within the mitigation bank.
- Water Levels:** Water levels ranged from roughly 0.5 to 2.0 feet within the impoundment during the six month time period.

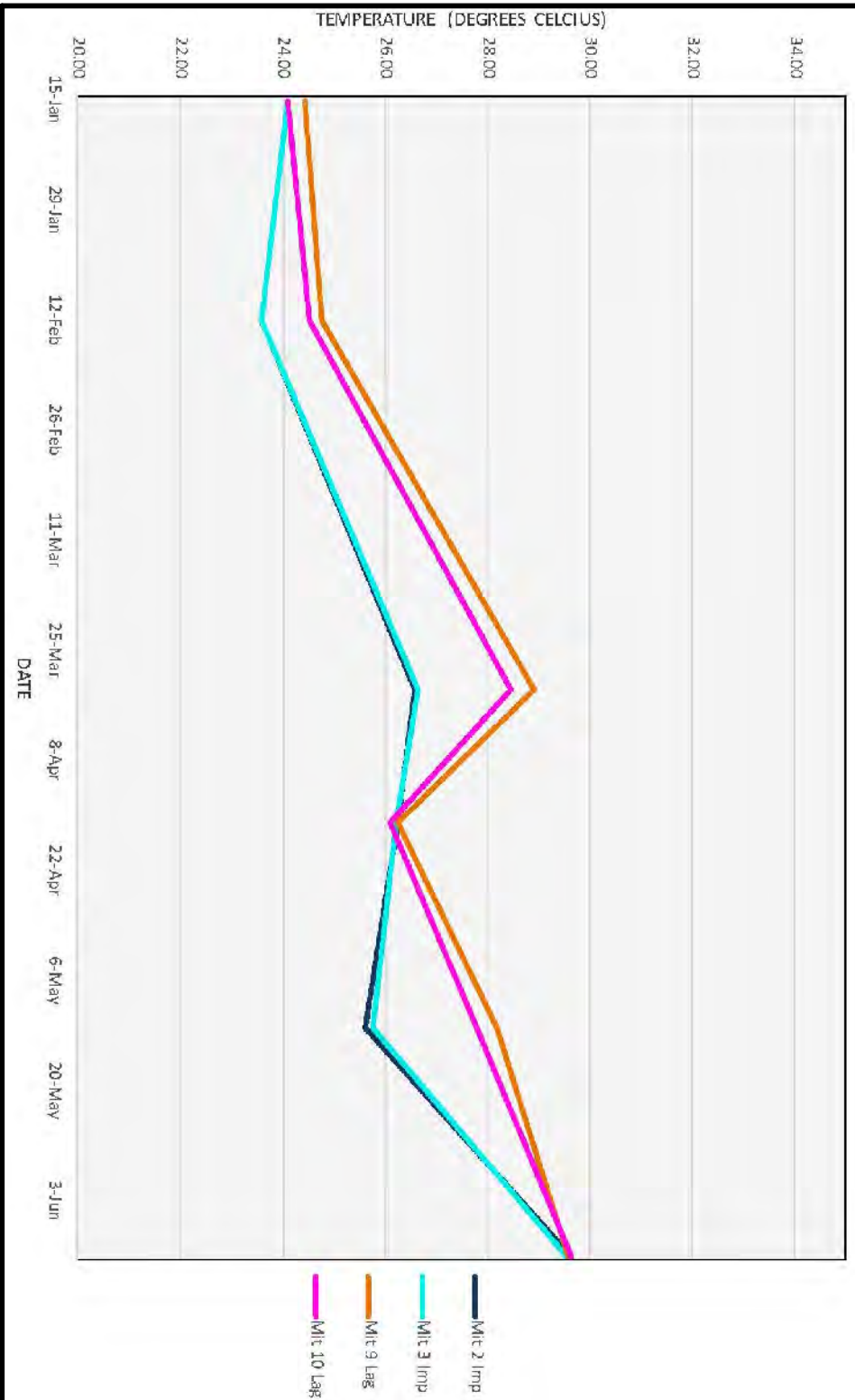
Trash Pick-up:

Trash observed along the levee was minimal, although there will always be some trash floating in from the river and getting caught in the mangroves. Maintenance has been on-going and has kept this flotsam to a minimum.

EXHIBIT C:
WATER QUALITY GRAPHS

THIS DRAWING, TOGETHER WITH THE CONCEPTS AND DESIGN PRESENTED HEREIN, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OR IMPROPER RELIANCE ON THIS DRAWING WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY HOBE SOUND ENVIRONMENTAL CONSULTANTS, INC. SHALL BE WITHOUT LIABILITY TO HOBE SOUND ENVIRONMENTAL CONSULTANTS, INC.

TEMPERATURE JANUARY - JUNE 2020 (35 DEGREES CELCIUS MAXIMUM)



SOURCE: ECOLOGICAL ASSOCIATES, INC.

LATITUDE: N27° 26.250'

LONGITUDE: W080° 17.495'

DESIGNED BY: FRP

DRAWN BY: ACE

CHECKED BY: RLW

BEAR POINT MITIGATION BANK

ST. LUCIE COUNTY
FLORIDA

SEC.	TWP.	R.
12, 13	3SS	40E

HSE JOB NO.:
12-005,26

SEMI-ANNUAL STATUS REPORT: JULY 2020
WATER QUALITY GRAPHS: TEMPERATURE

DRAWING NAME:
EX C 01 WQ TEMP.DWG

DATE:
15 JULY 2020

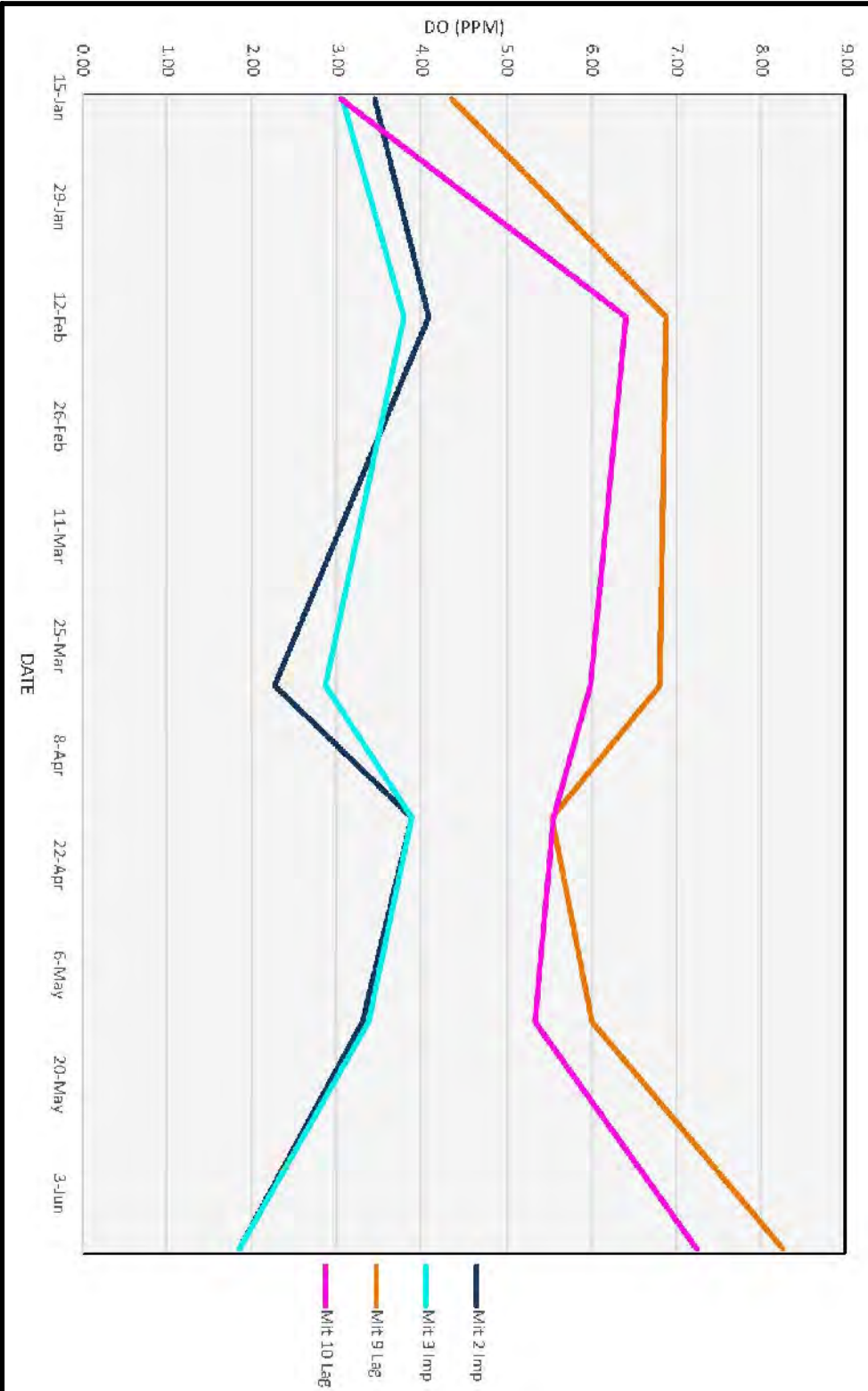
EXHIBIT C
FIGURE:
1 OF 5

HSE

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THIS DRAWING, TOGETHER WITH THE CONCEPTS AND DESIGN PRESENTED HEREIN, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OR IMPROPER RELIANCE ON THIS DRAWING WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY HOBE SOUND ENVIRONMENTAL CONSULTANTS, INC. SHALL BE WITHOUT LIABILITY TO HOBE SOUND ENVIRONMENTAL CONSULTANTS, INC.

**DISSOLVED OXYGEN (DO)
JANUARY - JUNE 2020
(2.0 PPM MINIMUM)**



SOURCE: ECOLOGICAL ASSOCIATES, INC.

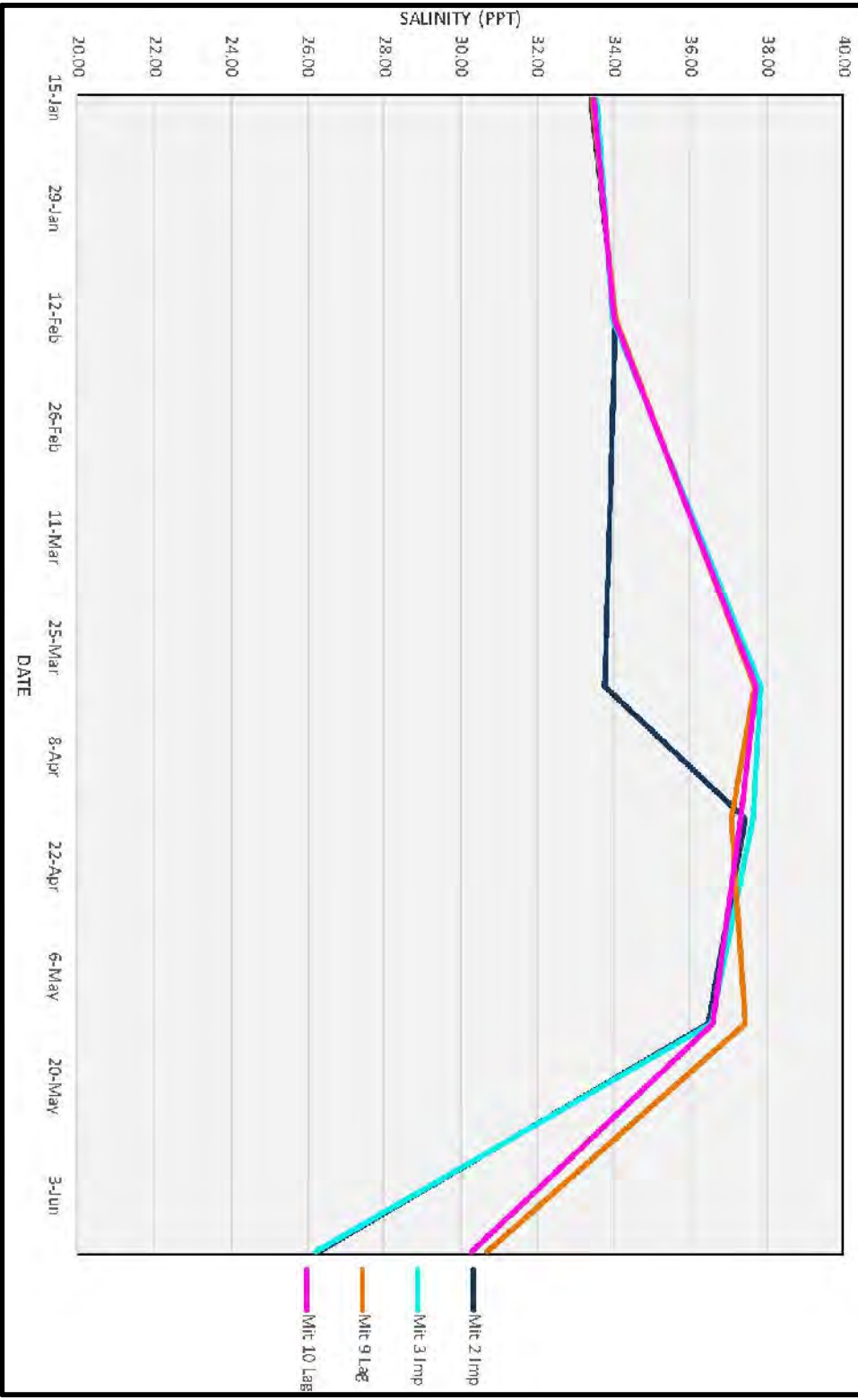
LATITUDE: N27° 26.250'	LONGITUDE: W080° 17.495'	DESIGNED BY: FRP	DRAWN BY: ACE	CHECKED BY: RLW
BEAR POINT MITIGATION BANK		ST. LUCIE COUNTY		
		FLORIDA		
SEMI-ANNUAL STATUS REPORT: JULY 2020		SEC. 12, 13	TWP. 35S	R. 40E
WATER QUALITY GRAPHS: DISSOLVED OXYGEN		DRAWING NAME: EX C 02 WQ DO.DWG		DATE: 15 JULY 2020
		HSE JOB NO.: 12-005,26		EXHIBIT C FIGURE: 2 OF 5

H S E

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SALINITY JANUARY - JUNE 2020 (40 PPT MAXIMUM)

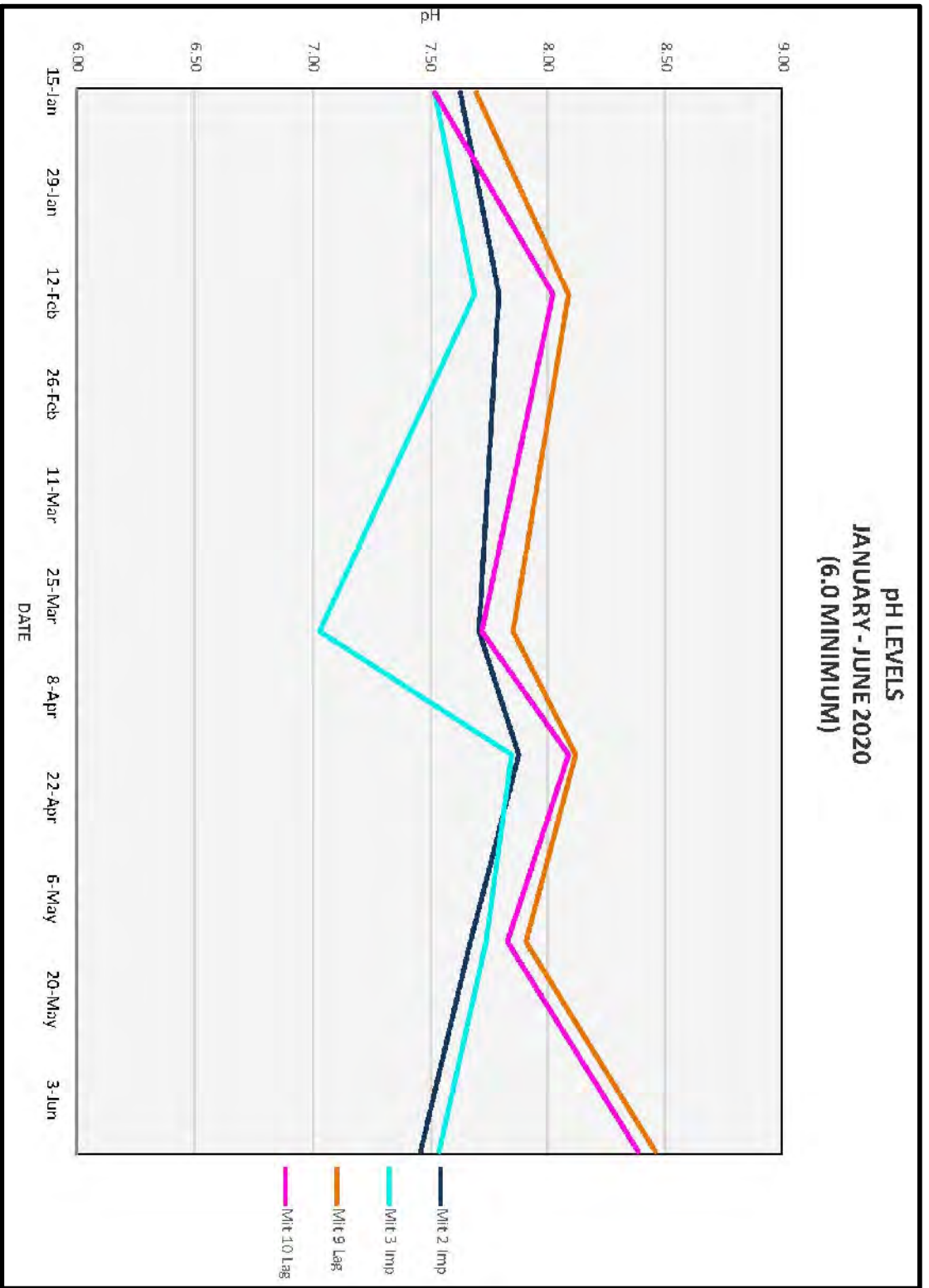


SOURCE: ECOLOGICAL ASSOCIATES, INC.

LATITUDE: N27° 26.250' BEAR POINT MITIGATION BANK SEMI-ANNUAL STATUS REPORT: JULY 2020 WATER QUALITY GRAPHS: SALINITY	LONGITUDE: W080° 17.495' DESIGNED BY: FRP DRAWING NAME: EX C 03 WQ SAL.DWG	DRAWN BY: ACE <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">SEC.</td> <td style="width: 33%;">TWP.</td> <td style="width: 33%;">R.</td> </tr> <tr> <td>12, 13</td> <td>35S</td> <td>40E</td> </tr> </table> DATE: 15 JULY 2020	SEC.	TWP.	R.	12, 13	35S	40E	CHECKED BY: RLW HSE JOB NO.: 12-005.26 EXHIBIT C FIGURE: 3 OF 5
SEC.	TWP.	R.							
12, 13	35S	40E							
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="font-size: 2em; font-weight: bold; letter-spacing: 0.5em;">H S E</div> <div style="text-align: center;"> Hobe Sound Environmental Consultants Inc. 9512 SE Duncan Street Hobe Sound, FL 33455 (772)545-3676, E-mail: hobsenvy@gmail.com </div> </div>									

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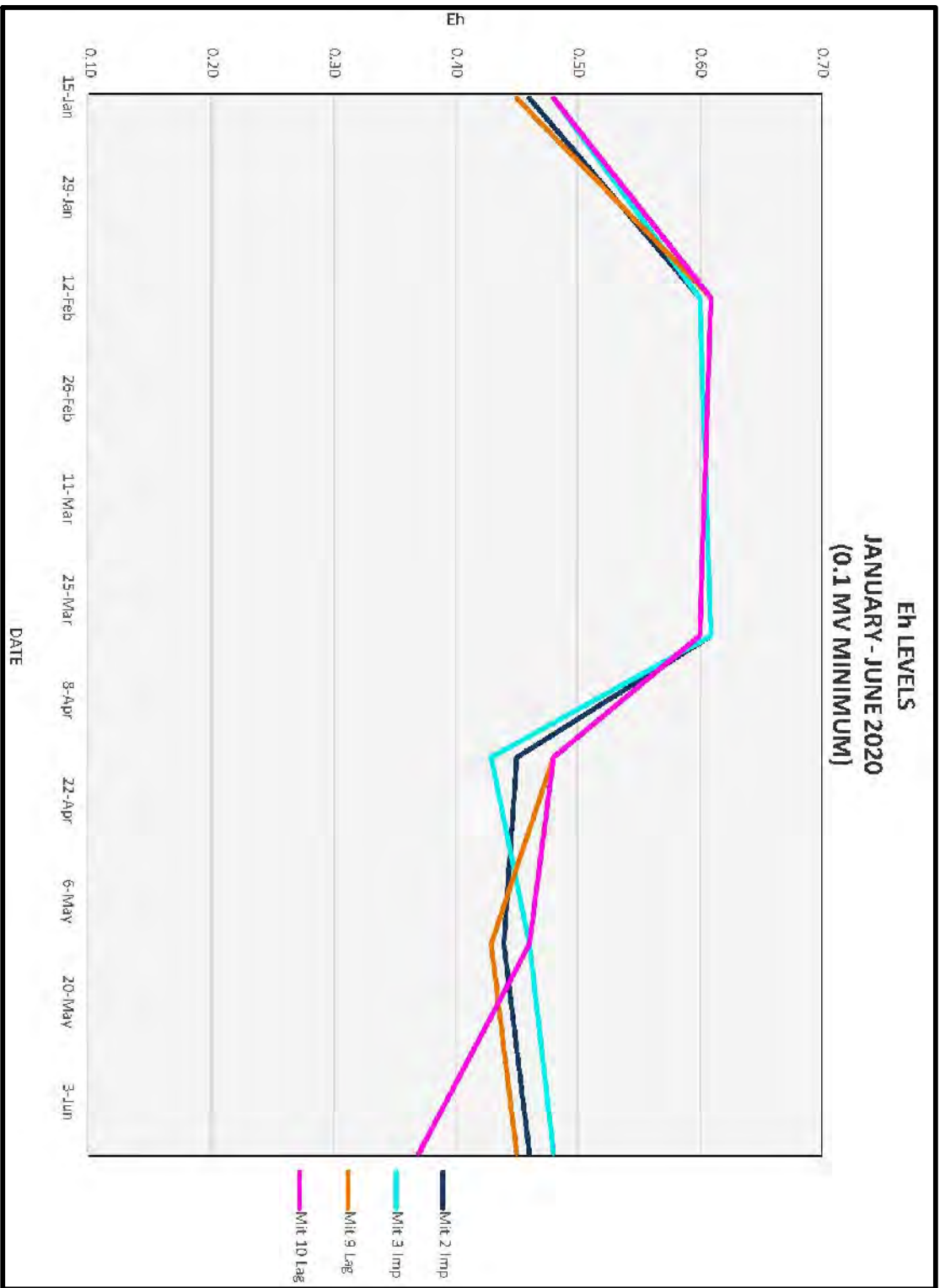
PH LEVELS JANUARY - JUNE 2020 (6.0 MINIMUM)



SOURCE: ECOLOGICAL ASSOCIATES, INC.

LATTITUDE: N27° 26.250'	LONGITUDE: W080° 17.495'	DESIGNED BY: FRP	DRAWN BY: ACE	CHECKED BY: RLW
BEAR POINT MITIGATION BANK		ST. LUCIE COUNTY FLORIDA		
		SEC. 12, 13	TWP. 35S	R. 40E
SEMI-ANNUAL STATUS REPORT: JULY 2020		DRAWING NAME: EX C 04 WQ PH.DWG		DATE: 15 JULY 2020
WATER QUALITY GRAPHS: PH LEVEL		HSE JOB NO.: 12-005.26		EXHIBIT C FIGURE: 4 OF 5
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="font-size: 2em; font-weight: bold; letter-spacing: 0.5em;">H S E</div> <div style="text-align: right;"> <p>Hobe Sound Environmental Consultants Inc. 9512 SE Duncan Street Hobe Sound, FL 33455 (772)545-3676, E-mail: hobsenvy@gmail.com</p> </div> </div>				

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SOURCE: ECOLOGICAL ASSOCIATES, INC.

LATITUDE: N27° 26.250'		LONGITUDE: W080° 17.495'		DESIGNED BY: FRP		DRAWN BY: ACE		CHECKED BY: RLW		
BEAR POINT MITIGATION BANK SEMI-ANNUAL STATUS REPORT: JULY 2020 WATER QUALITY GRAPHS: eH LEVEL				ST. LUCIE COUNTY FLORIDA		SEC. 12, 13	TWP. 3SS	R. 40E	HSE JOB NO.: 12-005.26	
				DRAWING NAME: EX C 05 WQ EHDWG		DATE: 15 JULY 2020		EXHIBIT C FIGURE: 5 OF 5		

HSE

Hobe Sound Environmental Consultants Inc.
9512 SE Duncan Street
Hobe Sound, FL 33455
(772)545-3676, E-mail: hobsenv@gmail.com

EXHIBIT D:
EXOTIC VEGETATION MANAGEMENT

Southeast Soil & Environmental Service, inc.

4511 S. Indian River Dr., Ft. Pierce, FL 34982

April 24, 2020

TO: Lauri Heisterman
St. Lucie County Mosquito Control & Coastal Management Services
3150 Will Fee Road
Ft. Pierce, FL 34982

FROM: Gregory J. Sawka, CPSS

PROJECT: Bear Point - Purchase Order #
Exotic removal / Maintenance- APRIL.2020

Southeast Soil & Environmental Service is please to complete exotic removal & maintenance- April, 2020 at Bear Point.

Dominate species included Brazilian pepper, carrot wood, young Australian pines. Numerous small plants were sprouting closer to the berm found on the northern end of the parcel. A few scattered Australian pine along the southern portion of the property were eradicated. The +317 - acre property was surveyed from the southern perimeter trail north to the upper sand flats.

CHEMICAL USAGE:

Bear Point Mitigation- APRIL 2020			Personnel	(ml)
Day 1	Bear Point-	04/19/20	GJS-DMS-DM	1300
Day 2	Bear Point-	04/24/20	GJS-DMS	900
APRIL TOTAL				2200
Total Chemicals		Garlon 4 & Impel	2.2 L	


Gregory J. Sawka, CPSS No. 02625

Bear Point

MITIGATION BANK

The Bear Point Mitigation Bank includes 317 acres of salt-water marsh wetlands adjacent to the Indian River Lagoon. It is owned by St. Lucie County and operated by the St. Lucie Mosquito Control District. The Bank is located within the Bear Point Sanctuary and is part of Mosquito Control District Impoundment 1, designed and operated to reduce mosquito populations. It was permitted by the Florida Department of Environmental Protection and the U.S. Army Corps of Engineers and is used to mitigate development impacts to mangrove wetlands at other locations within the service area, from Sebastian Inlet to St. Lucie Inlet along the Indian River Lagoon.

WHAT ARE THE BENEFITS?

Mitigation activities include enhancing water quality and wildlife habitat by increasing water exchange through a series of culverts and pumps, removing exotic plants, and protecting the fragile shoreline. The sale of Mitigation Bank credits, offsetting estuarine impacts elsewhere, funds the maintenance of the Bank both now and in perpetuity.

WILDLIFE ABOUNDS

Numerous species of wildlife thrive within the Bear Point Mitigation Bank, which serves as the nursery, home or landing place for many avian and fish species on long migrations. Annual wildlife surveys are conducted in the Impoundment to aid in evaluating its success. Some of these species include great blue heron, white ibis, river otter, blue crab and snook.





NORTHERN SALT FLATS





NORTHERN INTERIOR





SOUTHERN TRAIL





BRAZILIAN PEPPER / AUSTRALIAN PINE



EXHIBIT E:
ACTIVITIES & COSTS



GLENN HENDERSON

Mosquito Control & Coastal Management Services Director

ST. LUCIE COUNTY BOARD OF COUNTY COMMISSIONERS

CATHY TOWNSEND CHAIR DISTRICT 5

CHRIS DZADOVSKY VICE-CHAIR DISTRICT 1

SEAN MITCHELL DISTRICT 2

LINDA BARTZ DISTRICT 3

FRANNIE HUTCHINSON DISTRICT 4

HOWARD N. TIPTON COUNTY ADMINISTRATOR

DAN MCINTYRE COUNTY ATTORNEY

MAILING ADDRESS 2300 VIRGINIA AVENUE FORT PIERCE, FL 34982

PHONE (772) 462-2818

TDD (772) 462-1428

FAX (772) 462-1565

E-MAIL HENDERSONG@STLUCIECO.ORG

WEBSITE WWW.STLUCIECO.GOV

June 25, 2020

Freda Posin Hobe Sound Environmental 9512 SE Duncan St. Hobe Sound, FL 33455

RE: Bear Point Mitigation Bank Maintenance Activities

Dear Ms. Posin,

Outlined below, please find the maintenance activities for Bear Point Mitigation Bank, from January through June 2020.

Table with 3 columns: Account, Activity, Cost. Includes items like Salaries and Benefits, Contracted Services, etc., with a total of \$15,910.01.

If you have any questions or require any additional information, please feel free to contact me.

Sincerely,

Handwritten signature of Glenn Henderson

Glenn Henderson, Mosquito Control Director

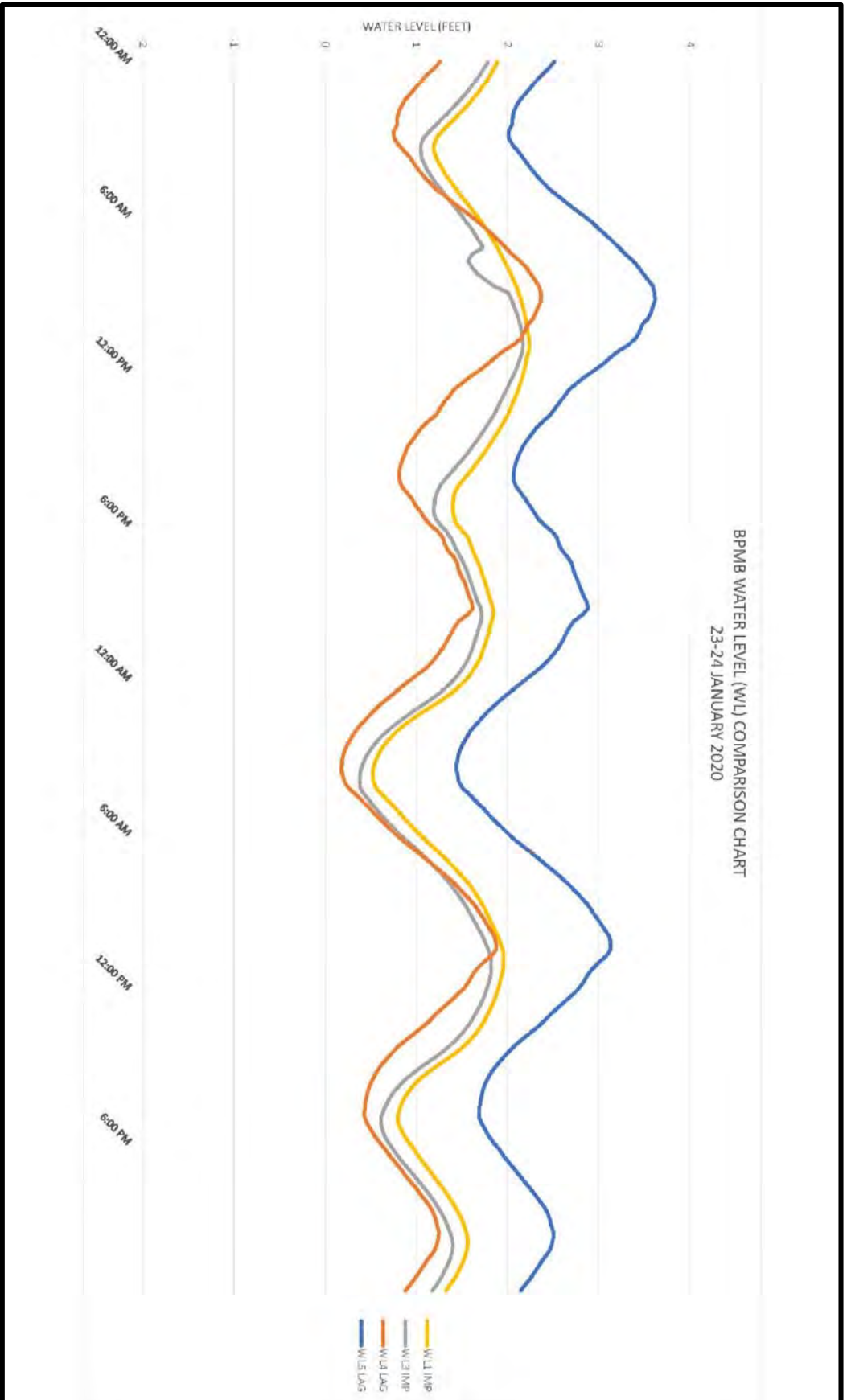
GH/llh

EXHIBIT F:
WATER LEVEL GRAPHS

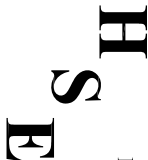
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NOT A SURVEY

BPM/B WATER LEVEL (W/L) COMPARISON CHART
23-24 JANUARY 2020



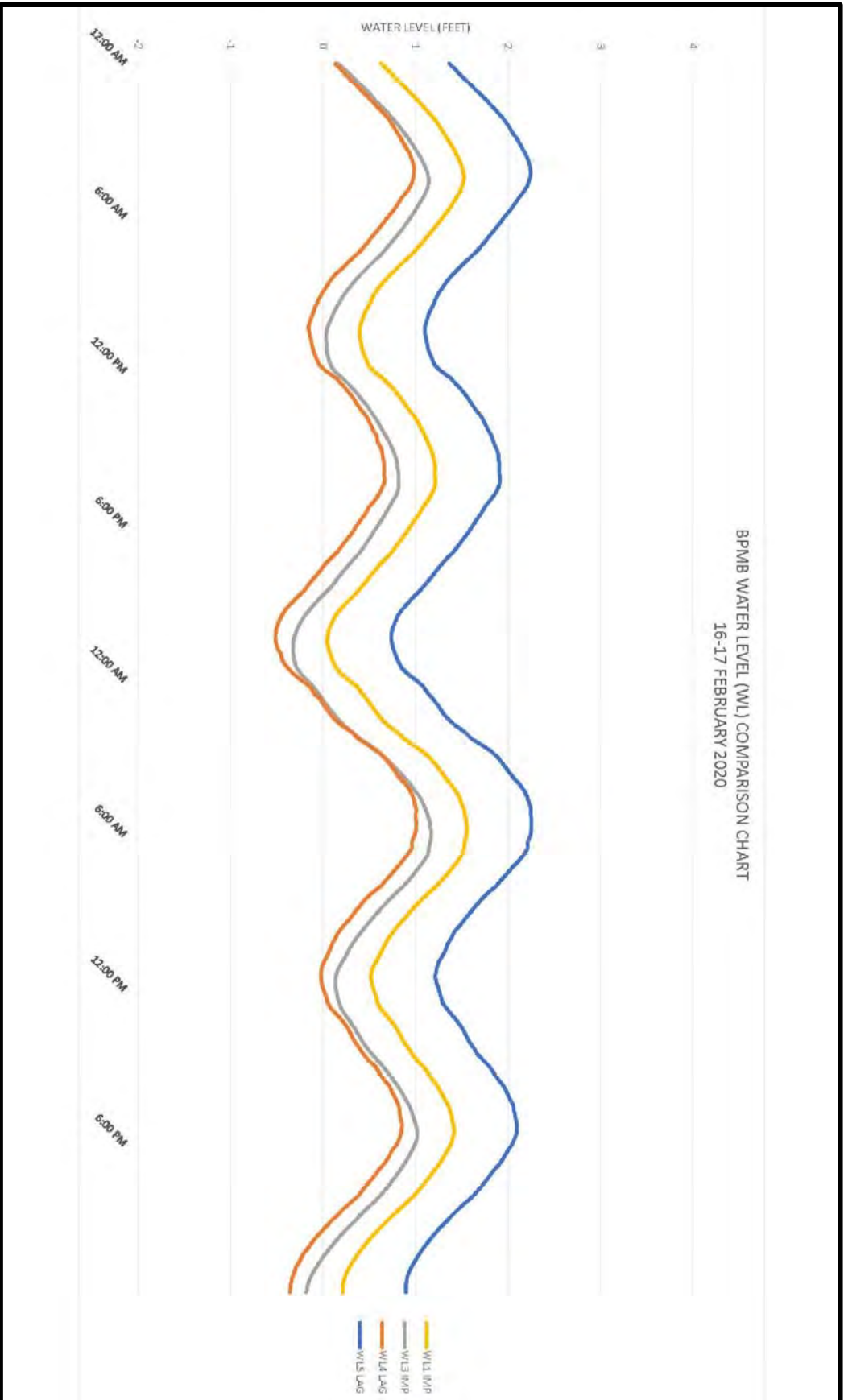
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BEAR POINT MITIGATION BANK SEMI-ANNUAL STATUS REPORT: JULY 2020 23-24 JANUARY WATER LEVEL DATA				ST. LUCIE COUNTY FLORIDA		SEC.	TWP.	R.	HSE JOB NO.: 12-005.26	
						12, 13	35S	40E		
DRAWING NAME: EX F WL DATADWG				DATE: 15 JULY 2020		EXHIBIT F FIGURE: 1 OF 6		<div style="text-align: center;">  <p>Hobe Sound Environmental Consultants Inc. 9512 SE Duncan Street Hobe Sound, FL 33455 (772)545-3676, E-mail: hbhsewv@gmail.com</p> </div>		

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NOT A SURVEY

BPMB WATER LEVEL (WL) COMPARISON CHART
16-17 FEBRUARY 2020



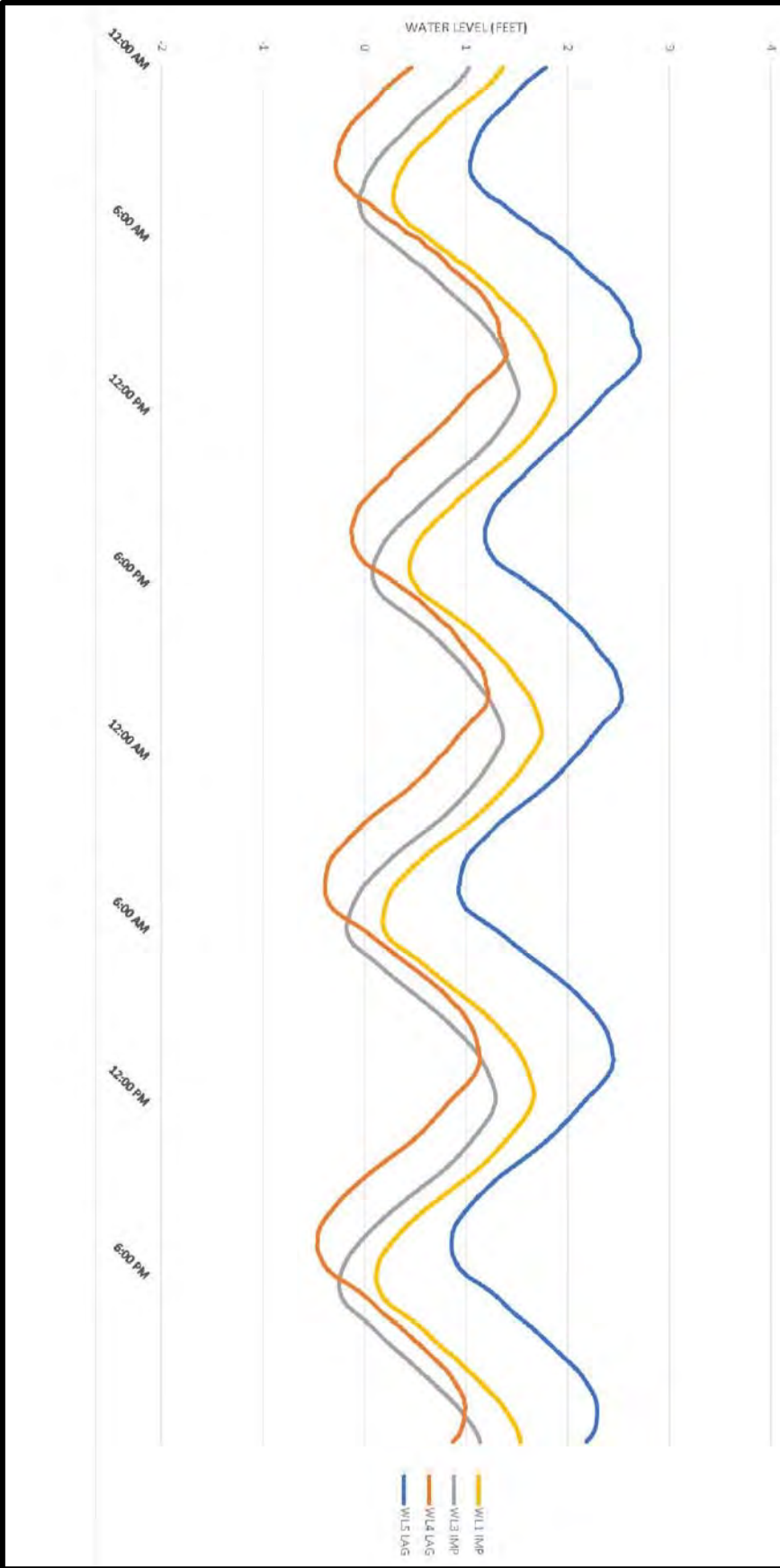
SOURCE: HSE AND LOCHER ENVIRONMENTAL

LATITUDE: N27°26.250'		LONGITUDE: W80°17.495'		DESIGNED BY: FRP		DRAWN BY: ACE		CHECKED BY: RLW		
BEAR POINT MITIGATION BANK SEMI-ANNUAL STATUS REPORT: JULY 2020 16-17 FEBRUARY 2020 WATER LEVEL DATA				ST. LUCIE COUNTY FLORIDA		SEC.	TWP.	R.	HSE JOB NO.: 12-005.26	
						12, 13	3SS	40E		
DRAWING NAME: EX F WL DATADWG				DATE: 15 JULY 2020		EXHIBIT F FIGURE: 2 OF 6		<p>Hobe Sound Environmental Consultants Inc. 9512 SE Duncan Street Hobe Sound, FL 33455 (772)545-3676, E-mail: bobhsenv@gmail.com</p>		

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BPMB WATER LEVEL (WL) COMPARISON CHART
9-10 MARCH 2020



SOURCE: HSE AND LOCHER ENVIRONMENTAL

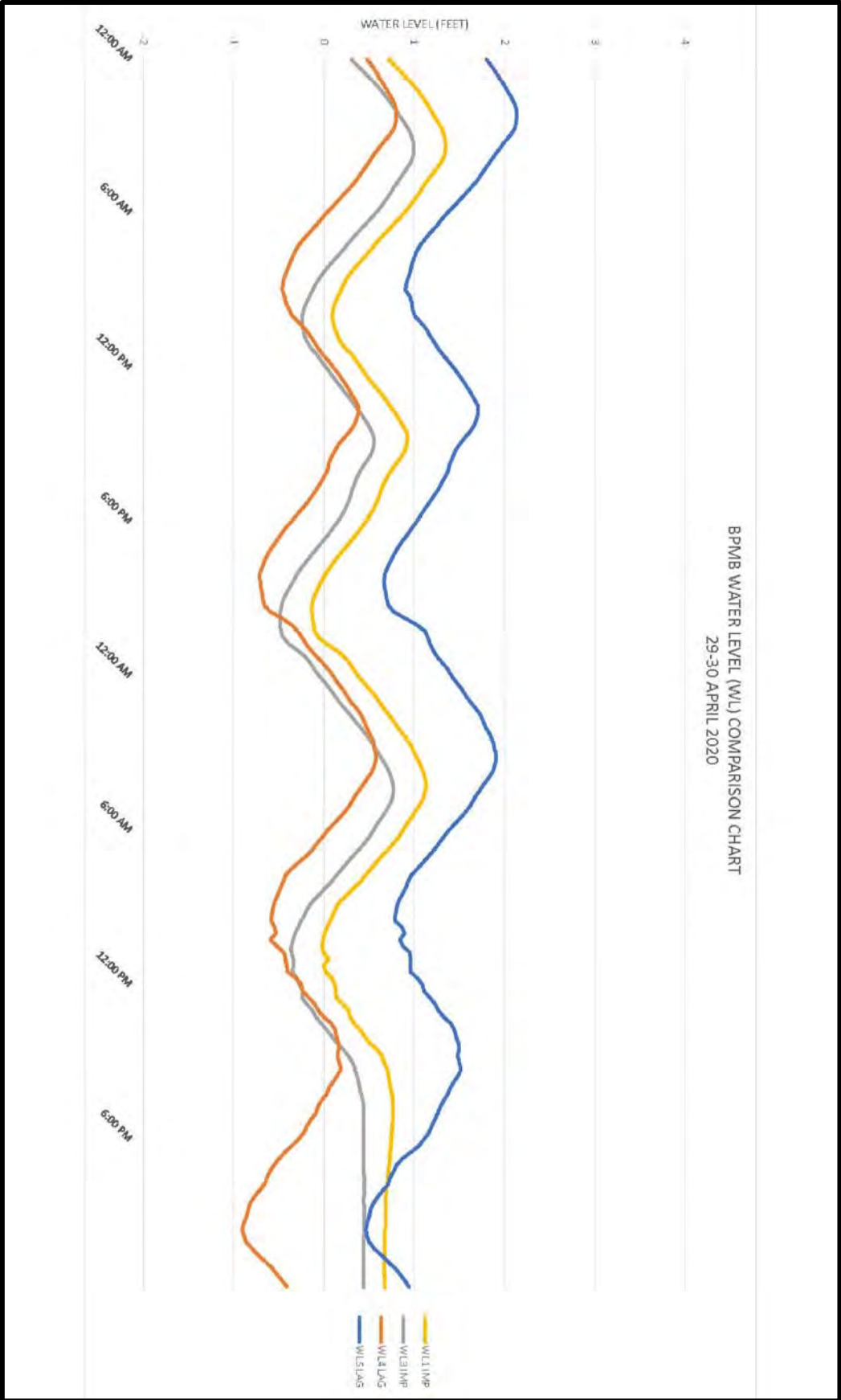
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				DRAWING NAME: EX F WL DATADWG		DATE: 15 JULY 2020		EXHIBIT F FIGURE: 3 OF 6		

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NOT A SURVEY

BPM/B WATER LEVEL (W/L) COMPARISON CHART
29-30 APRIL 2020



SOURCE: HSE AND LOCHER ENVIRONMENTAL

LATITUDE: N27°26.250'		LONGITUDE: W80°17.495'	
BEAR POINT MITIGATION BANK			
SEMI-ANNUAL STATUS REPORT: JULY 2020			
29-30 APRIL WATER LEVEL DATA			
DESIGNED BY: FRP ST. LUCIE COUNTY FLORIDA	DRAWN BY: ACE		CHECKED BY: RLW
	SEC. 12, 13	TWP. 3SS	R. 40E
DRAWING NAME: EX F WL DATADWG	DATE: 15 JULY 2020	HSE JOB NO.: 12-005.26	
		EXHIBIT F FIGURE: 4 OF 6	

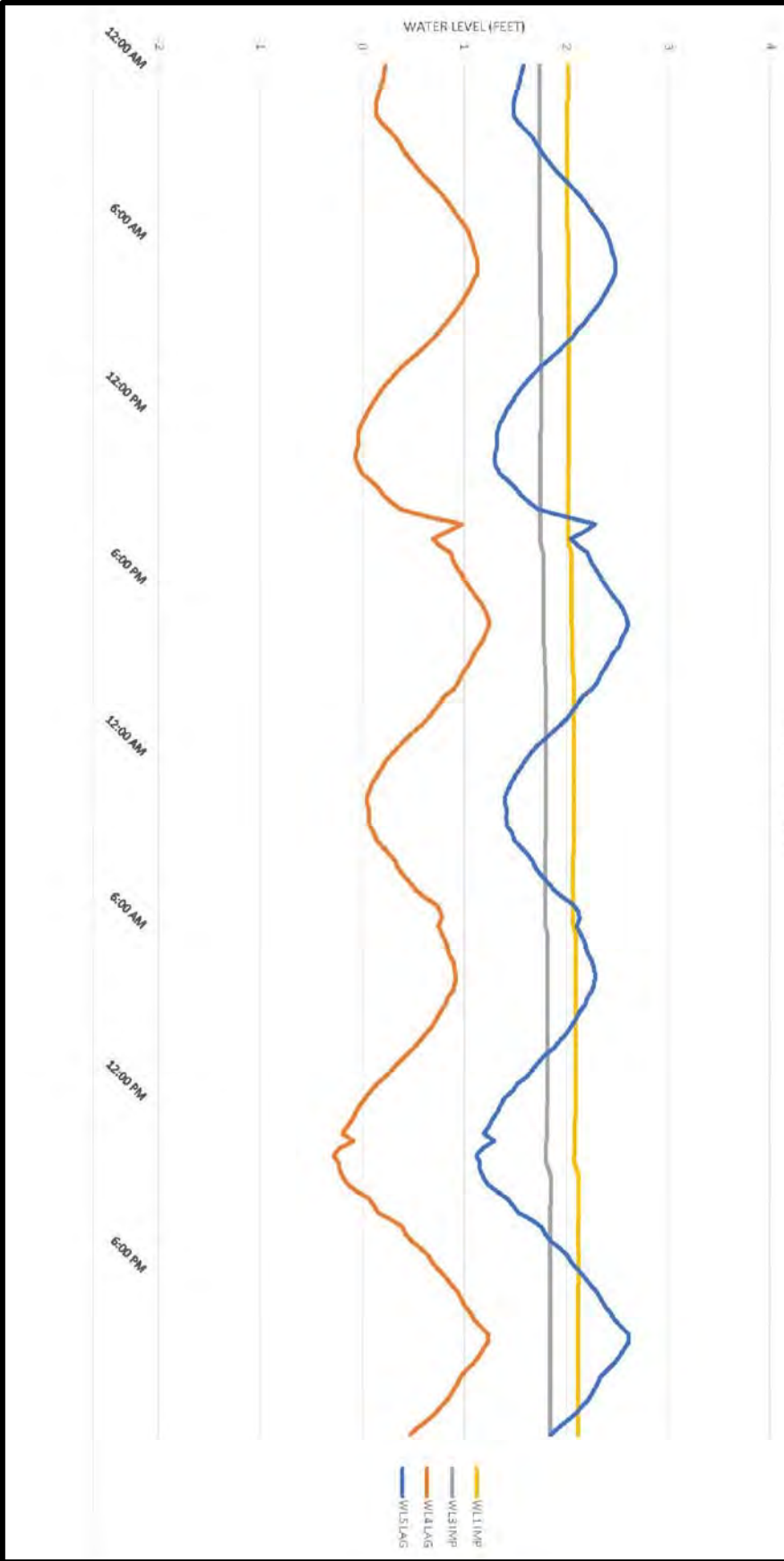
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NOT A SURVEY

BPMB WATER LEVEL (W/L) COMPARISON CHART
18-19 MAY 2020



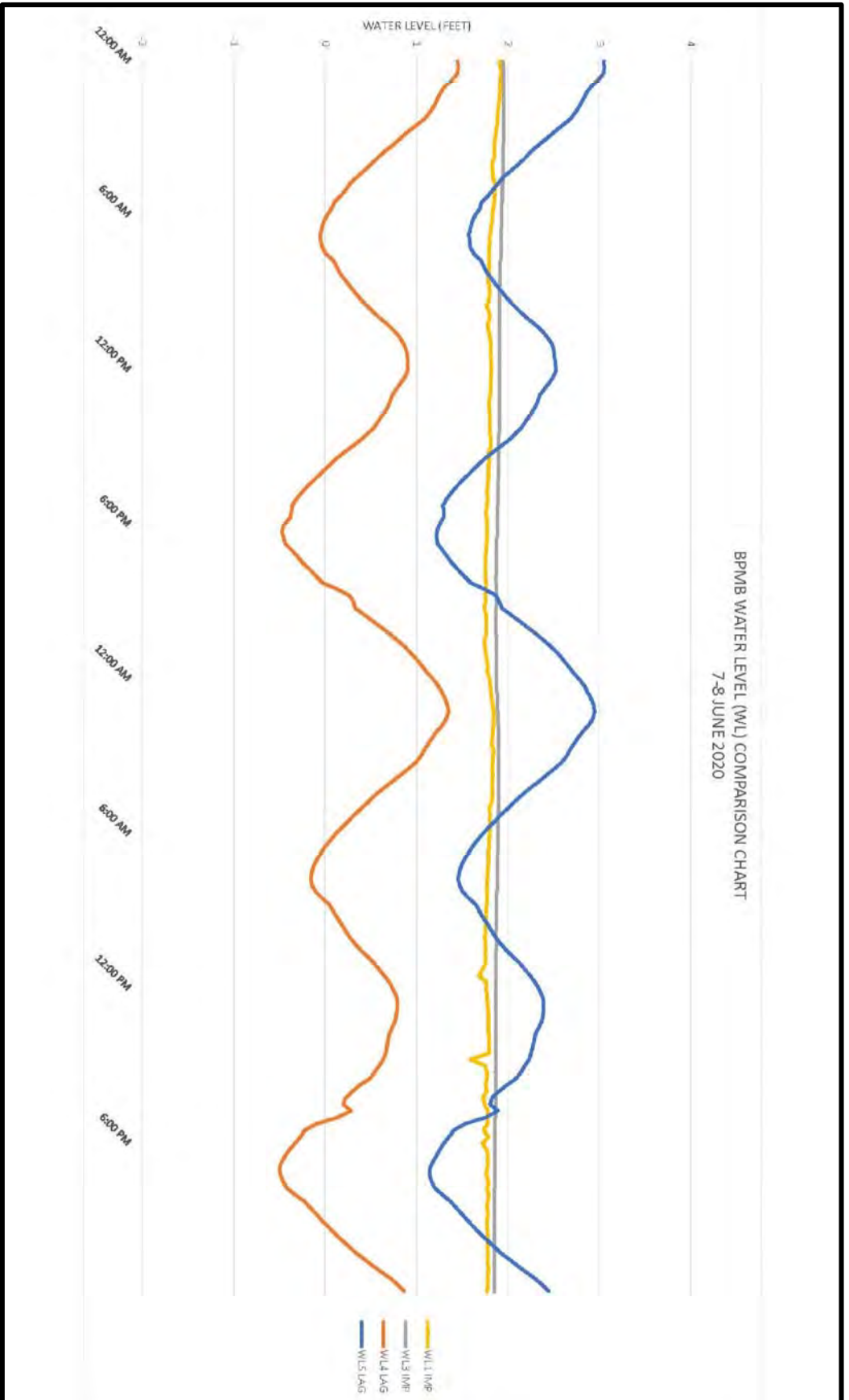
SOURCE: HSE AND LOCHER ENVIRONMENTAL

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BEAR POINT MITIGATION BANK SEMI-ANNUAL STATUS REPORT: JULY 2020 18-19 MAY WATER LEVEL DATA				ST. LUCIE COUNTY FLORIDA		SEC. 12, 13	TWP. 3SS	R. 40E	HSE JOB NO.: 12-005.26	
				DRAWING NAME: EX F WL DATADWG		DATE: 15 JULY 2020		EXHIBIT F FIGURE: 5 OF 6		

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 9512 SE Duncan Street
 Hobe Sound, FL 33455
 (772)545-3676, E-mail: bobhsenv@gmail.com

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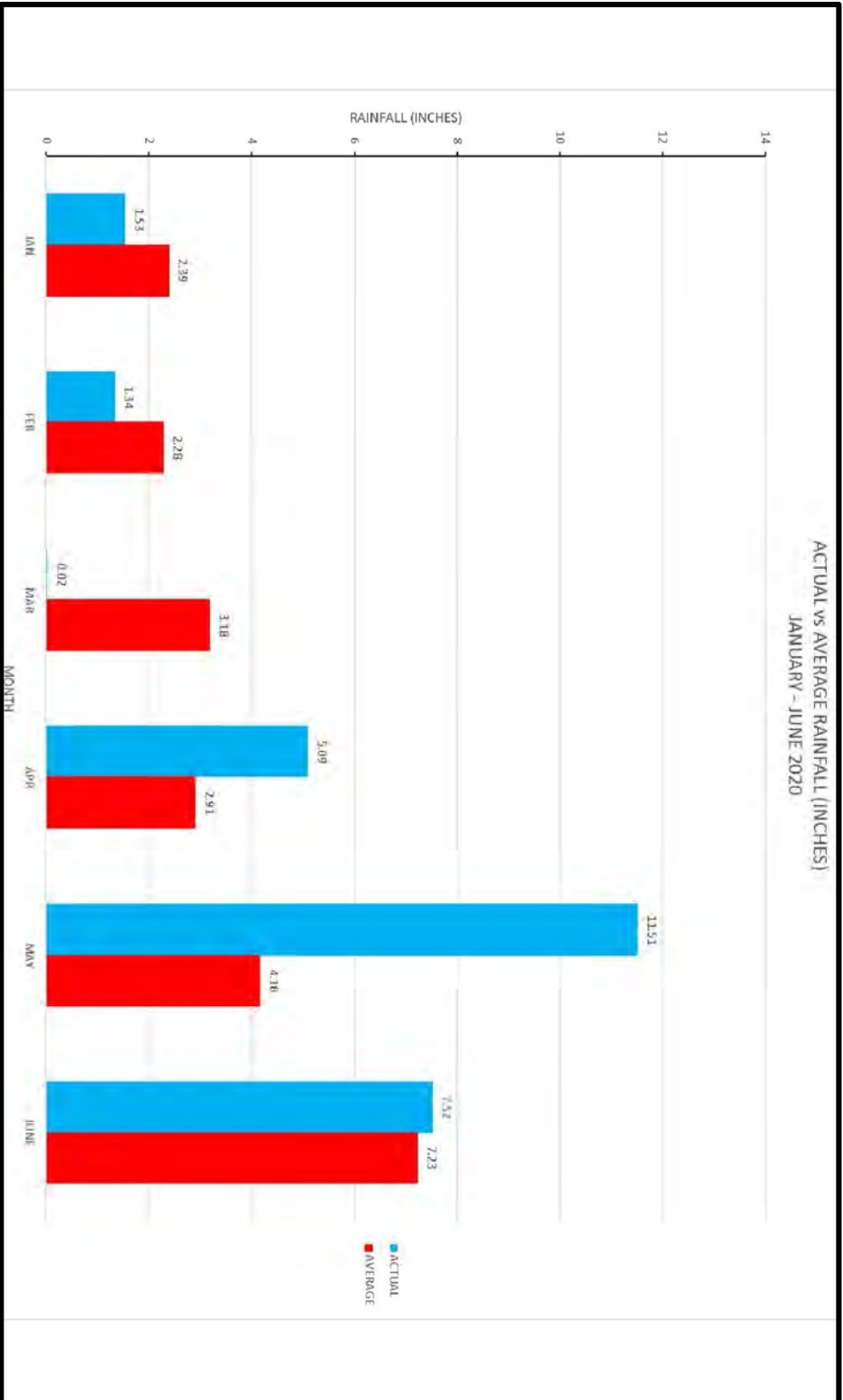
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		DRAWING NAME: EX F WL DATADWG	SEC. TWP. R. 12, 13 35S 40E	DATE: 15 JULY 2020
Hobe Sound Environmental Consultants Inc. 9512 SE Duncan Street Hobe Sound, FL 33455 (772)545-3676, E-mail: bobhsenv@gmail.com				

EXHIBIT G:
RAINFALL GRAPHS

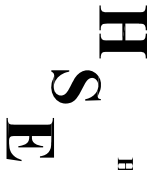
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SOURCE: HSE AND LOCHER ENVIRONMENTAL

LATITUDE: N27°26.250'	LONGITUDE: W80°17.495'	DESIGNED BY: FRP	DRAWN BY: ACE			CHECKED BY: RLW
BEAR POINT MITIGATION BANK SEMI-ANNUAL STATUS REPORT: JULY 2020 ACTUAL vs AVERAGE (JANUARY-JUNE 2020) RAINFALL		ST. LUCIE COUNTY FLORIDA		SEC. 12, 13	TWP. 3SS	R. 40E
		DRAWING NAME: EX G - RAINFALL.DWG		DATE: 15 JULY 2020		HSE JOB NO.: 12-005.26
				EXHIBIT G FIGURE: 1 OF 1		



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S
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 Hobe Sound, Fl. 33455
 (772)545-3676, E-mail: bobhsenv@gmail.com

EXHIBIT H:

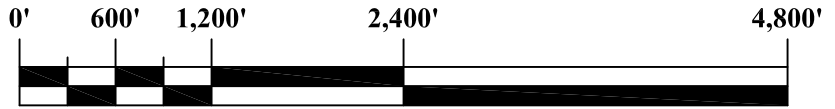
MAPS

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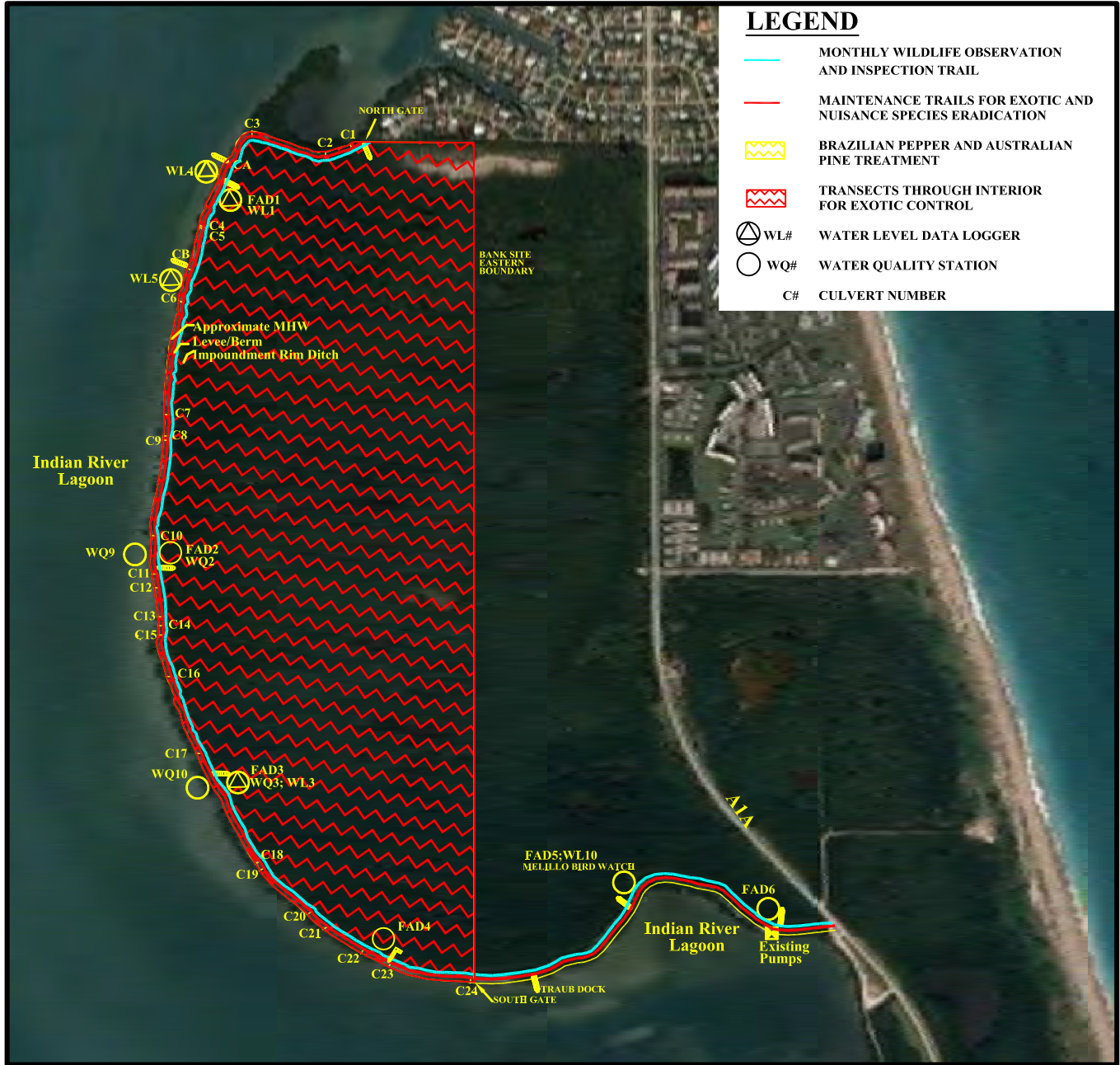
NOT A SURVEY



NORTH



SCALE: 1" = 1,200'



LEGEND

- MONTHLY WILDLIFE OBSERVATION AND INSPECTION TRAIL
- MAINTENANCE TRAILS FOR EXOTIC AND NUISANCE SPECIES ERADICATION
- BRAZILIAN PEPPER AND AUSTRALIAN PINE TREATMENT
- TRANSECTS THROUGH INTERIOR FOR EXOTIC CONTROL
- WL# WATER LEVEL DATA LOGGER
- WQ# WATER QUALITY STATION
- C# CULVERT NUMBER

SOURCE: GOOGLE EARTH 2020 AERIAL IMAGE

ST. LUCIE COUNTY FLORIDA	SEC. 12,13	TWP. 35S	R. 40E	HSE JOB NO.: 12-005.26	DRAWING NAME: 01 - MAINT & MON.DWG	DATE: 15 JULY 2020	EXHIBIT H FIGURE: 1 OF 2
LATITUDE: N27° 26.250'		LONGITUDE: W080°17.495'		DESIGNED BY: RLW	DRAWN BY: ACE	CHECKED BY: RLW	

BEAR POINT MITIGATION BANK
SEMI-ANNUAL STATUS REPORT: JULY 2020
MAINTENANCE AND MONITORING SITES

H
S
E

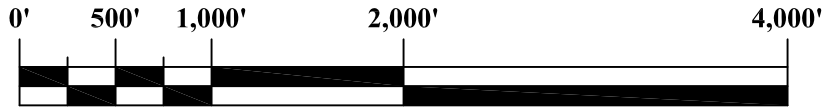
Hobe Sound Environmental Consultants Inc.
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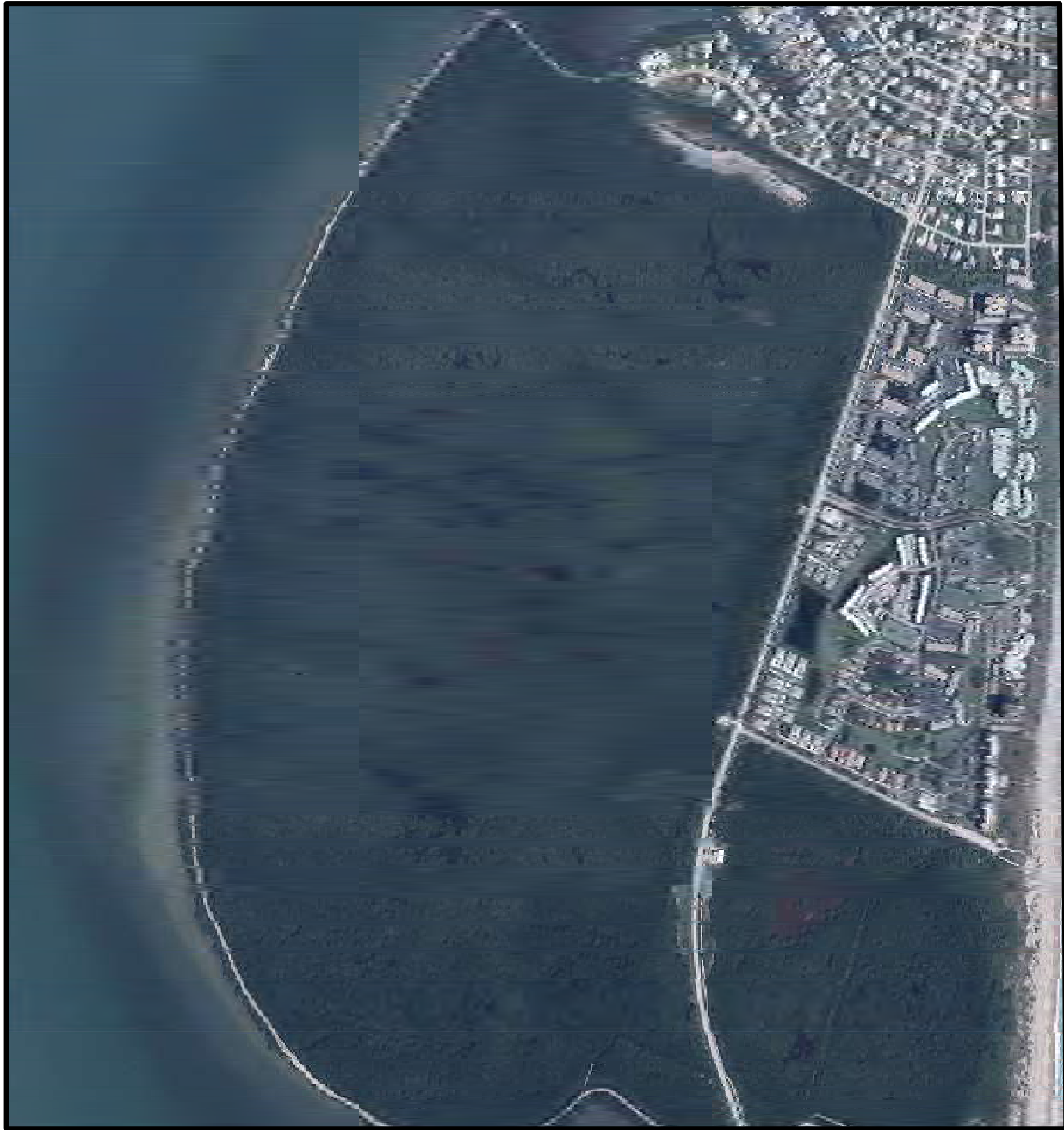
NOT A SURVEY



NORTH



SCALE: 1" = 1,000'



SOURCE: SLCMCD AERIAL IMAGE, 05 MAY 2020

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 12-005.26	DRAWING NAME: 02 - AERIAL PHOTO.DWG	DATE: 15 JULY 2020	EXHIBIT H FIGURE: 2 OF 2
	12,13	35S	40E				
LATITUDE: N27°26.250'		LONGITUDE: W80°17.495'		DESIGNED BY: RLW	DRAWN BY: ACE	CHECKED BY: RLW	

**BEAR POINT MITIGATION BANK
SEMI-ANNUAL STATUS REPORT: JULY 2020
2020 AERIAL PHOTOGRAPH**

H S E	Hobe Sound Environmental Consultants Inc.
	9512 SE Duncan Street Hobe Sound, FL. 33455
	(772) 545-3676, E-mail: bobhsenv@gmail.com

EXHIBIT I:
SITE PHOTOGRAPHS

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PHOTOGRAPHS BY HSE



PHOTOGRAPH #01: NEW SHEET PILE WALL TO REPLACE OLD RIP-RAP, UNDER CONSTRUCTION IN JANUARY 2020



PHOTOGRAPH #02: NEW SHEET PILE WALL AFTER CONSTRUCTION, JUNE 2020

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 12-005.26	DRAWING NAME: 01 - PHOTOS.DWG	DATE: 15 JULY 2020	EXHIBIT I FIGURE: 1 OF 6
	12,13	35S	40E				
LATITUDE: N27°26.250"		LONGITUDE: W080°17.495"		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: RLW	

**BEAR POINT MITIGATION BANK
SEMI-ANNUAL STATUS REPORT: JULY 2020
SITE PHOTOGRAPHS 1-2**

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9512 SE Duncan Street
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PHOTOGRAPHS BY HSE



PHOTOGRAPH #03: GREAT BLUE HERON FORAGING IN ROCKS, FEBRUARY 2020



PHOTOGRAPH #04: OSPREY HUNTING FROM A WHITE MANGROVE, JUNE 2020

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 12-005.26	DRAWING NAME: 02 - PHOTOS.DWG	DATE: 15 JULY 2020	EXHIBIT I FIGURE: 2 OF 6
	12,13	35S	40E				
LATITUDE: N27°26.250"		LONGITUDE: W080°17.495"		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: RLW	

**BEAR POINT MITIGATION BANK
SEMI-ANNUAL STATUS REPORT: JULY 2020
SITE PHOTOGRAPHS 3-4**



Hobe Sound Environmental Consultants Inc.
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THIS DRAWING, TOGETHER WITH THE CONCEPTS AND DESIGN PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DRAWING WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY HOBE SOUND ENVIRONMENTAL CONSULTANTS, INC. SHALL BE WITHOUT LIABILITY TO HOBE SOUND ENVIRONMENTAL CONSULTANTS, INC.

PHOTOGRAPHS BY HSE



PHOTOGRAPH #05: THE MELILLO BIRD OBSERVATORY IS NOW BEING UTILIZED BY FISHERMEN, BIRD-WATCHERS, AND HIKERS. JANUARY 2020



PHOTOGRAPH #06: THE TRAUB DOCK CONTINUES TO PROVIDE VALUABLE ROOSTING HABITAT TO SEVERAL AVIAN SPECIES. FEBRUARY 2020

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 12-005.26	DRAWING NAME: 03 - PHOTOS.DWG	DATE: 15 JULY 2020	EXHIBIT I FIGURE: 3 OF 6
	12,13	35S	40E				
LATITUDE: N27°26.250"		LONGITUDE: W080°17.495"		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: RLW	

**BEAR POINT MITIGATION BANK
SEMI-ANNUAL STATUS REPORT: JULY 2020
SITE PHOTOGRAPHS 5-6**

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PHOTOGRAPH #07: NORTHERN CARDINAL UTILIZING INVALUABLE FORAGING AND ROOSTING HABITAT PROVIDED BY RED MANGROVES, MARCH 2020



PHOTOGRAPH #08: NATIVE GREEN ANOLE SUNNING ON A RED MANGROVE, JUNE 2020

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 12-005.26	DRAWING NAME: 04 - PHOTOS.DWG	DATE: 15 JULY 2020	EXHIBIT I FIGURE: 4 OF 6
	12,13	35S	40E				
LATITUDE: N27°26.250"		LONGITUDE: W080°17.495"		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: RLW	

**BEAR POINT MITIGATION BANK
SEMI-ANNUAL STATUS REPORT: JULY 2020
SITE PHOTOGRAPHS 7-8**

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PHOTOGRAPHS BY HSE



PHOTOGRAPH #09: SANDERLING BATHING IN THE LAGOON, APRIL 2020



PHOTOGRAPH #10: THE NEW GATE EXTENDS OFF THE ROAD INTO THE ROCKS, KEEPING CYCLISTS AND PEDESTRIANS OUT OF THE MITIGATION BANK.

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 12-005.26	DRAWING NAME: 05 - PHOTOS.DWG	DATE: 15 JULY 2020	EXHIBIT I FIGURE: 5 OF 6
	12,13	35S	40E				
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SEMI-ANNUAL STATUS REPORT: JULY 2020
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PHOTOGRAPHS BY HSE



PHOTOGRAPH #09: LOCALS FISHING NEAR THE PUMPS, MAY 2020



PHOTOGRAPH #10: THE PUBLIC CONTINUES TO ACTIVELY USE THE PRESERVE FOR FISHING AND RECREATION, MAY 2020

ST. LUCIE COUNTY FLORIDA	SEC.	TWP.	R.	HSE JOB NO.: 12-005.26	DRAWING NAME: 06 - PHOTOS.DWG	DATE: 15 JULY 2020	EXHIBIT I FIGURE: 6 OF 6
	12,13	35S	40E				
LATITUDE: N27°26.250"		LONGITUDE: W080°17.495"		DESIGNED BY: RLW	DRAWN BY: BAR	CHECKED BY: RLW	

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