

**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**

STRATEGIC MONITORING PLAN Field Sheet

July 2022

Meter
Passed End
of Day CCV
Yes / No

WIN Station Name:	Hickey Creek At SR80				Sample Date:	12/6/2022	
WIN / Field ID:	G3SD0231	ORG ID:	21FLFTM	ENR:			
County:	Lee	WBID:	3235H1	STREAM		Latitude:	26.7149893
Receiving Body of Water:	Caloosahatchee River				Longitude:	-81.6726049	
					RQ-	2022-11-28-24	

Sampling Team Members	WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Nicole Reistad			x		
Monica Jaeger		x			
William Mullen	x			x	x

Sampling Equipment			
x	Sample Container		Carboy
	Dipper		Van Dorn
x	Syringe		Pole
Syringe Lot# 1363442		Filter Lot# 17347262	
Secchi Equipment ID:		3312A	
Collection Method			
	Wading		Canoe/Kayak
	From Shore		Electric Motor
		x	Gasoline Motor
Depth Measured With		Secchi	

Water Level:	Normal
Flow:	Flowing
Matrix:	Fresh
Tide Stage:	
High Tide:	
Low Tide:	
Photos:	Yes
Meter ID:	President Camacho
Depth Gauge ID:	depth_gauge

Time Zone	Time	Total Depth (m)	Sample Depth (m)	DO (mg/L)	DO (%SAT)	Temp. (°C)	pH	Secchi Disk (m)	Sp COND (µmhos/cm)	Salinity (PPTth)
EST	855	2.6	0.3	5.48	63.1	22.3	7.54	2.1	645	0.31
	857		2.1	5.43	62.5	22.3	7.65		644	0.31

Biological Samples Collected:

HA LVS RPS

SBIO Visit ID:

HA ID:

RPS ID:

Macrophyte ID:

LIMS Sample ID Entered
Into The Macrophyte Module:

Parameter Suite	Parameter Methods (LIMS Test Codes)			Preservation				
				Type	Lot#	Expiration Date	pH Check	
Microbiology								
Chlorophyll	CHLSUITE-W			ICE				
Physical/Aggregate Nutrients	ALKALINITY, TURBIDITY, W-F, W-TSS W-CL-IC, W-COLOR, W-SO4-IC, W-TDS			ICE				
Filtered Nutrients	W-PO4-F	Field Filtered 0.45 µm Filter		ICE	Syring Lot#:1363442; Filter Lot#:17347262			
Acid Preserved Nutrients	W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP			ICE	H2SO4*	SA2229010	08/30/23	H2SO4 pH<2
Metals	W-ICPMS	W-ICP	W-HARD	ICE	HNO3**	NA1286110	11/16/23	HNO3 pH<2
Organics (LC)	W-E8321-DI	W-E8321-MS		Ice				
Macroinvertebrates								
Organics (GC)	W-PSNP-TQ	W-TR-SQ-R		Ice	*2.0 ml of H2SO4 Used Unless Noted Otherwise **2.0 ml of HNO3 Used Unless Noted Otherwise			
Molecular								
Periphyton								
Phytoplankton								
BOD								
DOC								
Other(s)					SyringLot#		FilterLot#	
Field Comments:								
Comments on COC:								
Relinquish Date:	12/06/2022	Signature:						

LIMS EVENT ID: _____ WIN Import ID: _____

Enter Field Parameters, Verify Station ID In LIMS DMT: _____

(Initials/Date)

QC Station ID, Field Parameters In LIMS DMT: _____

(Initials/Date)

Save Field Sheets on Network: _____

(Initials/Date)

Migrate Data to WIN: _____

(Initials/Date)

DEP Form FD 9000-3 Physical/Chemical Characterization Field Sheet

SAMPLE ID Hickey Creek 51280 ORG ID _____ LATITUDE 26.71427
 COUNTY Lee STORET # 63SD0231 LONGITUDE 81.67280
 DATE 12/6/22 TIME _____ SAMPLING AGENCY DEP-DEAR-SORO
 SITE NAME _____
 FIELD ID/NAME _____ RECEIVING BODY OF WATER Galooahatchee River

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural <u>30</u> Silviculture _____ Field/Pasture <u>20</u> Agricultural _____ Residential <u>50</u> Commercial _____ Industry _____ Other (Specify) _____								Landscape Development Intensity Index (LDI) _____
Local Watershed Erosion (select one): ☐ None ☒ Slight ☐ Moderate ☐ Heavy Local Watershed NPS Pollution: ☒ No evidence ☐ Slight ☐ Moderate ☐ Heavy				Typical Width (m) Depth (m)/Velocity (m/sec) Transect _____ m wide _____ m/s <u>0.01</u> m/s _____ m/s _____ m deep <u>2.6</u> m deep _____ m deep				
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>14.0</u> Right Bank: <u>2.0</u>				Hydrologic Modification Score (per FT 3101) <u>3-4</u>				
High Water Mark: <u>1.0</u> + <u>2.6</u> = <u>3.6</u> (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☐ Yes ☒ No				
Artificially Channelized: ☐ No ☒ Mostly recovered, more sinuous ☐ Recent, severe				Canopy Cover % ☐ Open ☒ Lightly Shaded (11-45%) ☐ Heavily Shaded ☐ Moderate Shaded (46-80%)				

SEDIMENT / SUBSTRATE

Sediment Oils ☒ Absent ☐ Slight ☐ Moderate ☐ Profuse	Sediment Odors ☒ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ Other (Specify): _____	Smothering of Substrates Sand Smothering: None ☒ Slight ☐ Moderate ☐ Severe ☐ Silt Smothering: None ☐ Slight ☐ Moderate ☐ Severe ☒ Algae Smothering: None ☒ Slight ☐ Moderate ☐ Severe ☐
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SUBSTRATE TYPE

Assessment Tool: ☐ SCI ☒ RPS ☒ LVS
☐ LCI ☐ BioRecon

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	<u>39.5%</u>		
Undercut Banks / Roots	<u>2.875%</u>		
Leaf Packs or Mat	<u>—</u>		
Aquatic Vegetation	<u>2.925%</u>		
Rock or Shell Rubble	<u>—</u>		
Sand	<u>—</u>		
Mud / Muck / Silt	<u>9.5%</u>		
Other	<u>—</u>		
Other	<u>—</u>		

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. Sat (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top	<u>0.3</u>	<u>22.3</u>	<u>7.54</u>	<u>5.48</u>	<u>63.1</u>	<u>645</u>	<u>0.31</u>	<u>2.1</u>
Mid								
Bottom	<u>2.1</u>	<u>22.3</u>	<u>7.65</u>	<u>5.43</u>	<u>62.5</u>	<u>644</u>	<u>0.31</u>	
Meter ID:								TOTAL DEPTH <u>2.6</u>

Water Odors Normal ☒ Petroleum ☐
 Sewage ☐ Chemical ☐ Other ☐

Water Sample Taken? ☒ Yes ☐ No
 Sample Preserved? ☒ Yes ☐ No
 Lot Number: _____ Exp: _____

Algae Sample Taken? ☐ Yes ☒ No
 Sample Preserved? ☐ Yes ☐ No
 Lot Number: _____ Exp: _____

Water Surface Oils Normal ☒ Sheen ☐
 Globbs ☐ Slick ☐ Other ☐

Color Tannic ☐ Green (Algae) ☐
 Clear ☒ Other (Specify) ☐

Clarity Clear ☐ Slightly Turbid ☒
 Turbid ☐ Opaque ☐

System Type: Stream ☒ Lake ☐ Wetland ☐ Estuary ☐ Other(Specify) ☐

AMBIENT FIELD CONDITIONS / NOTES:

☒ The antecedent hydrologic conditions have been met to my best knowledge.

ABUNDANCE

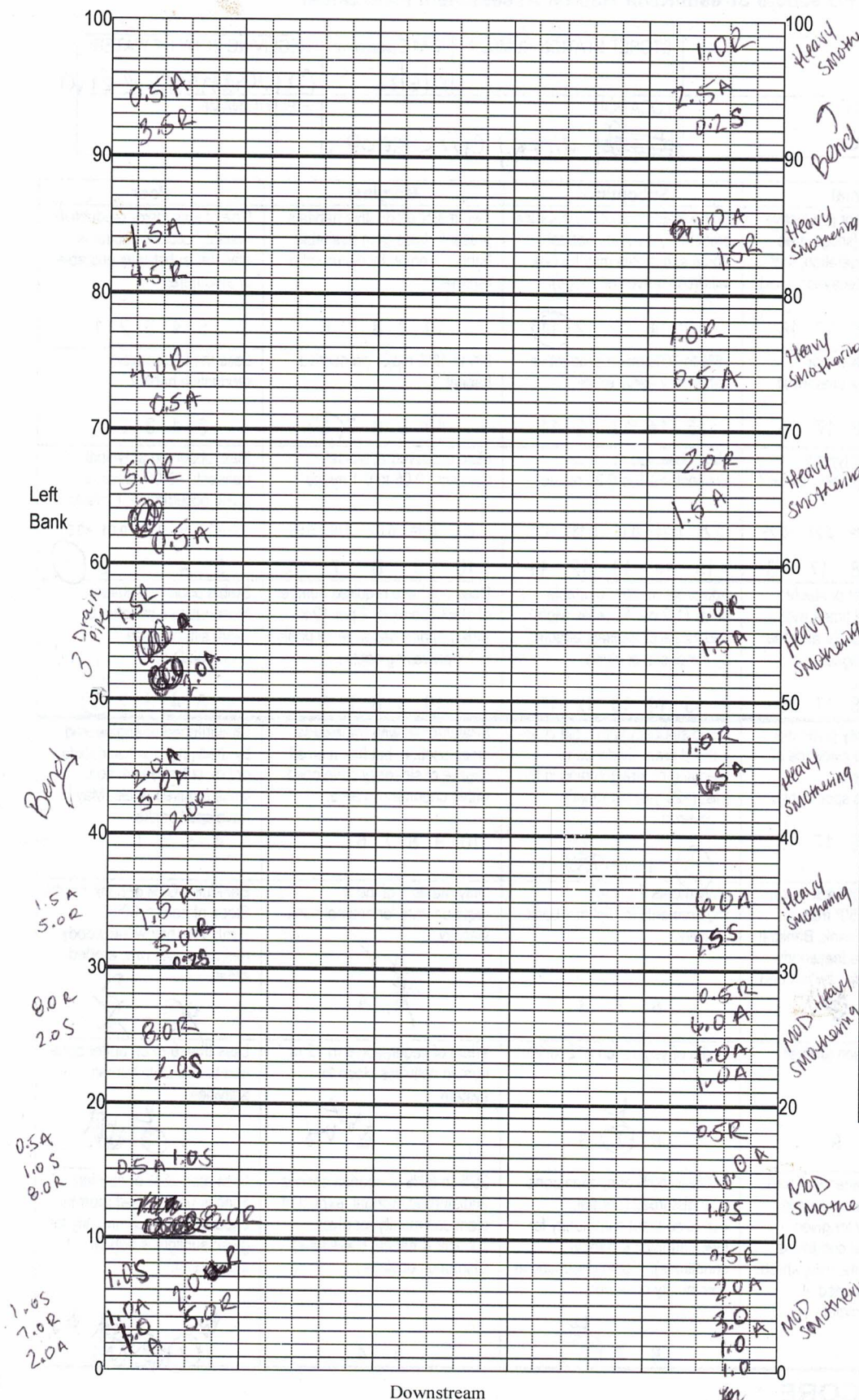
	Not Obs.	Rare	Common	Abundant
Periphyton:	☒	☐	☐	☐
Fish:	☐	☐	☒	☐
Aquatic Plants:	☐	☐	☒	☐
Iron/Sulfur Bacteria:	☒	☐	☐	☐

SAMPLING TEAM Nicole Reistad William Mullen
 Monica Jaeger

SIGNATURE: _____

DATE: 12/6/22

DEP Form FD 9000-4 Stream/River Habitat Assessment Sketch Sheet



Location: Hickey Creek SE80
 Date: 12/6/22
 Sampler: William Mullen
Monica Jaeger, Nicole Reistad

100 m: Latitude 26.71410
 Longitude -81.67427
 0 m: Latitude 26.71427
 Longitude 81.67280
 Substrates: Code key, draw proportionate habitat abundance. %

<u>S</u>	Snags	<u>39.5%</u>
<u>R</u>	Roots/ <u>undercut</u> banks	<u>2.875</u>
<u>L</u>	Leaf Packs (or mats)	<u>0%</u>
<u>MA</u>	Aquatic Macrophytes	<u>2.875</u> <u>2.125</u>
<u>H</u>	<u>undercut</u>	
<u>P</u>	Pools	total # observed = <u>0</u> # range expected = <u></u>

Average width 20.0 m
 Average depth 2.0 m
 Velocity measured at 100 meter mark.
 WQ & chemistry taken at 0 meter mark.
 Habitat Smothering:
 Note areas (on map) where sand or silt is smothering substrates, limiting habitability.
 Bank Stability:
 Note areas (on map) with unstable, eroding banks.
 Riparian Buffer Width:
 Note areas (on map) where natural vegetation is altered or eliminated.

Plants observed / other notes:
Next to NO flow

Length of grid represents 100 m of stream (not linear meters).
 (Horizontal scale is double vertical scale, draw proportionately).

A 10.0
 R 48.5
 S 4.2

A 40.5
 R 9.0
 S 3.7

0.8 A = 56.5
 0.9 R = 57.5
 9.4 S = 7.9

HA ID: 85908
18067
DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY: <u>DEAR-DEP-SORO</u>		STORET STATION NUMBER:	DATE (MM/DD/YY): <u>12/6/22</u>	RECEIVING BODY OF WATER: <u>Caloosahatchee River</u>
REMARKS:	COUNTY: <u>Lee</u>	LOCATION: <u>Hickory Creek SE80</u>		FIELD ID/NAME:

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components Substrate Diversity <u>11</u>	Four or more major productive habitats present (snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock) 20 19 18 17 16	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags) 15 14 13 12 <u>11</u>	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed 10 9 8 7 6	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered 5 4 3 2 1
Substrate Availability <u>10</u>	Greater than 30% major productive habitat present at site 20 19 18 17 16	16% to 30% major productive habitat, by aerial extent 15 14 13 12 11	6% to 15% major productive habitat 10 9 8 7 <u>6</u>	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity <u>1</u>	Max. observed at typical transect: > 0.25 m/sec. But < 1 m/sec ≥0.33 0.31 0.29 0.27 >0.25 20 19 18 17 16	Max. observed at typical transect: >0.1 to 0.25 m/sec 0.25 0.21 0.17 0.13 >0.1 15 14 13 12 11	Max. observed at typical transect: 0.05 to 0.1 m/sec 0.1 0.09 0.07 0.06 0.05 10 9 8 7 6	Max. observed at typical transect: <0.05 m/sec; or spate occurring: > 1 m/sec <0.05 0.04 0.03 0.01 <0.01 5 4 3 2 <u>1</u>
Habitat Smothering <u>1</u> ----- Primary Score <u>19</u>	Adequate number of stable pools (1-2 per 12 times width) and <25% of habitats affected by sand, silt, or algae. 20 19 18 17 16	Adequate number of stable pools (1-2 per 12 times width) and >25% of habitats affected by sand, silt, or algae. 15 14 13 12 11	Does not have required number of stable pools (1-2 per 12 x width) and/or has shallow pools (<2 x prevailing depth). 10 9 8 7 6	Stable pools are absent. Most habitats affected by sand, silt, or algae accumulation. 5 4 3 2 <u>1</u>
Secondary Habitat Components Artificial Channelization <u>15</u>	Expected sinuosity given the stream width. No evidence of dredging or artificial straightening. No spoil banks. 20 19 18 17 16	Good sinuosity within old channelized area. Evidence of dredging or straightening in the past (>25 yrs) but mostly recovered. <u>15</u> 14 13 <u>12</u> 11	Straightened with trapezoidal cross section, but has a small degree of sinuosity developed within channelized area. 10 9 8 7 6	Straightened or engineered by dredging, has trapezoidal or box cut cross section, lacks required pools. May have spoil banks. 5 4 3 2 1
Bank Stability Right Bank <u>9</u> Left Bank <u>10</u>	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull to top of bank. Bankfull is within or above the woody root zone with few raw, eroded areas. ✓ 10 9 2	Only meets 2 of the 3 requirements for optimal bank stability. 8 7 6	Only meets 1 of the 3 requirements for optimal bank stability. 5 4	Bankfull < 60% of bank height. Slope of bank > 60°. Bankfull is below the woody root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank <u>2</u> Left Bank <u>1</u>	Width of vegetation greater than 18 m 10 9	Width of vegetation >12 to 18m 8 <u>7</u> 6	Width of vegetation 6 to 12 m. human activities close to system 5 4	Less than 6 m of buffer zone due to intensive human activities 3 2 1
Riparian Zone Vegetation Quality Right Bank <u>3</u> Left Bank <u>10</u> ----- Secondary Score <u>52</u>	Over 80% of riparian surfaces consist of normal, expected plant community for given sunlight & habitat conditions (e.g., native plants; tree, shrub, and forbs represented, if appropriate). Minimal disturbance. 10 9	>50% to 80% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Some disruption in community observed. 8 7 <u>6</u>	25% to 50% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). Disruption obvious. 5 4	Less than 25% of riparian zone is undisturbed (normal, expected plant community for given sunlight & habitat conditions). <u>3</u> 2 1

71 TOTAL SCORE

Date: <u>12/6/22</u>	Analyst: <u>Monica Jaeger, Nicole Reistad</u> <u>Will Mullen</u>	Signature: <u>[Signature]</u>
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DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: G3SD0231 HICKEY CREEK AT SR80 County: LEE Date: 12/06/22 Investigators: WILLIAM MULLEN, NICOLE REISTAD, MONICA JAEGER

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover	
0	1	N	Y		60	1	N	N		
	2					2				
	3					3				
	4					4				
	5					5				0
	6					6				
	7					7				
	8					8				
	9	N	X	N		9	N	N		
10	1	N	Y		70	1	N	N		
	2					2				
	3					3				
	4					4				
	5					5				0
	6					6				
	7					7				
	8					8				
	9	N	X	N		9	N	N		
20	1	N	Y		80	1	N	N		
	2					2				
	3					3				
	4					4				
	5					5				0
	6					6				
	7					7				
	8					8				
	9	N	N			9	N	N		
30	1	N	Y		90	1	N	N		
	2					2				
	3					3				
	4					4				
	5					5				0
	6					6				
	7					7				
	8					8				
	9	N	N			9	N	N		
40	1	N	Y		100	1	N	N		
	2					2				
	3					3				
	4					4				
	5					5				0
	6					6				
	7					7				
	8					8				
	9	N	N			9	N	N		
50	1	N	N		Record "N" and check "Estimated" for points deeper than the Secchi depth; algae are presumed absent. Check "Estimated" if thickness estimated for deep points which can be seen but not reached. Record "X" for points shallower than Secchi depth for which substrate cannot be seen or reached with the hand. No estimated rank. Record canopy cover as the number of small densiometer quadrants (out of 96) that HAVE canopy cover. Measure facing upstream at point 4, 5, or 6. Collect algal mat sample following DEP SOP FS 7240 if the percentage of total sampled points with a thickness rank of 4, 5, or 6 is >20%.					
	2									
	3									
	4									
	5			24						
	6									
	7									
	8									
	9	N	N							

STORET Station Number:

G3SD0231

Secchi depth 2.1
Estimated? ☐

points ranked 4-6 0
total points assessed 99
% points ranked 4-6 0

Check accompanying data collected at same site/date.

Algal mat sample	
Linear Veg Survey	✓
Habitat Assessment	✓
SCI/Biorecon	
Water sample	✓

RQ-2022-11-28-24

Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

MAC ID: 12343

DEP FORM FD 9000-32: LINEAR VEGETATION SURVEY FIELD SHEET

Waterbody: Hickey Creek @ SR80Date: 12/06/22County: LEEStoret Number: G3500231Analyst: William HikenSignature: [Signature]

Comments:

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1m² of taxa present). Note in the boxes below if no dominant are selected, and note total macrophyte abundance rank for each section. Only the most common taxa are listed, so use blank spaces for additional taxa names.

HERBACEOUS SPECIES	Meter Mark										Specimen collected (check)	HERBACEOUS SPECIES	Meter Mark										Specimen collected (check)
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100			0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	
Alternanthera philoxeroides	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Micranthemum glomeratum											
Bacopa caroliniana												Micranthemum umbrosum											
Bacopa monnieri												Myriophyllum aquaticum											
Bidens mitis												Najas guadelupensis											
Boehmeria cylindrica												Nuphar luteum	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Centella asiatica												Orontium aquaticum											
Ceratophyllum demersum												Panicum hemitomon											
Chara												Panicum repens				✓	✓	✓	✓	✓	✓	✓	
Cicuta maculata												Panicum rigidulum											
Cladium jamaicense					✓	✓	✓	✓	✓	✓		Pistia stratioides	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Colocasia esculenta	✓											Polygonum glabra											
Commelina diffusa												Polygonum hydropiperoides											
Commelina virginica												Polygonum punctatum											
Crinum americanum	✓											Pontedaria cordata											
Diodia virginiana												Potamogeton illinoensis											
Eichhornia crassipes	✓	✓	✓							✓		Ruellia simplex											
Eleocharis (wispy viviparous)												Sacciolepis striata											
Hydrilla verticillata												Sagittaria kurziana											
Hydrocotyle	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Sagittaria lancifolia				✓							
Hygrophila polysperma												Sagittaria latifolia											
Hymenocallis												Salvinia minima	✓	✓	✓	✓		✓			✓		
Lachnanthes caroliniana												Samolus parviflora											
Landoltia punctata												Saururus cernuus											
Lemna												Sparganium americanum											
Limnophila sessiflora												Typha											
Ludwigia leptocarpa		✓	✓	✓	✓							Vallisneria americana											
Ludwigia palustris												Zizania aquatica	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Ludwigia peruviana			✓					✓	✓	✓		Taxodium sp.	✓	✓									
Ludwigia repens								✓	✓	✓		Sabal Palm	✓	✓		✓							
Luziola fluitans												Mitella scandens	✓										
Anona glabra			✓			✓	✓	✓	✓	✓		oak Quercus virginiana	✓	✓									
Eupatorium cap						✓	✓	✓	✓	✓		loblolly Palm					✓						
Arrostichum danacifolium						✓	✓	✓	✓	✓		Peltandra virginica					✓						
Eleocharis Intostriata						✓	✓	✓	✓	✓													
If no Dominant or Co-Dominant were selected, indicate with "X"																							
Indicate % cover macrophytes per section																							
0-5% Macrophyte Coverage												✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
>5 and ≤10% Macrophyte Coverage																							
>10 and ≤25% Macrophyte Coverage																							
>25 and ≤50% Macrophyte Coverage																							
> 50% Macrophyte Coverage																							

LIMS ID: 2373567