DEP-SOP-001/01: Form FD 9000-3 (9/19/12)

PHYSICAL/CHEMICAL CHARACTERIZATION FIELD SHEET

SAMPLE ID _____ ORG ID _____ LATITUDE 28°09'2.65"

COUNTY HILLSBOROUGH STORET # 21030044 LONGITUDE 82°13'45.15"

DATE 4-21-15 TIME 12:15 SAMPLING AGENCY FDEP

SITE NAME HILLSBOROUGH RIVER REF. SITE, HILLSTPSREF

FIELD ID/NAME G25WD0010 RECEIVING BODY OF WATER TAMPA BAY

RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category) :

Forest/Natural	Silviculture	Field/Pasture	Agricultural	Residential	Commercial	Industry	Other (Specify)
X							

Landscape Development Intensity Index (LDI): _____

Local Watershed Erosion (select one) : ☐ None ☒ Slight ☐ Moderate ☐ Heavy

Local Watershed NPS Pollution : ☒ No evidence ☐ Slight ☐ Moderate ☐ Heavy

Width of Riparian Vegetation (m) on Each Buffer Side
Left Bank : 718 Right Bank : 718

Hydrologic Modification Score (per FT 3101) : 1

Typical Width (m) Depth (m)/Velocity (m/sec) Transect
_____ m wide

.20 m/s .33 m/s .50 m/s

1.0 m deep 1.0 m deep 1.0 m deep

High Water Mark: (m) + (above present water level) = (present depth) (above bed)

Artificially Impounded ☐ Yes ☐ No

Artificially Channelized : ☒ No ☐ Some recovery ☐ 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 ☐

SUBSTRATE TYPE

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

	% Coverage	INVERT # Times Sampled	PERI # Times Sampled
Woody Debris (Snags)	2,3	5	
Undercut Banks / Roots	1	4	
Leaf Packs or Mat			
Aquatic Vegetation	1	5	
Rock or Shell Rubble..	47	5	
Sand.....		1	
Mud / Muck / Silt			
Other			
Other			

ABUNDANCE

	Absent	Rare	Common	Abundant
Periphyton:	☐	☒	☐	☐
Fish:	☐	☐	☒	☐
Aquatic Plants:	☐	☐	☒	☐
Iron/Sulfur Bacteria:	☒	☐	☐	☐

WATER QUALITY

	Depth (M)	Temp. (°C)	pH (SU)	D.O. (MG/L)	D.O. (%)	Cond. (UMHO/CM)	Salinity (PPT)	SECCHI (M)
Top :	0.3	23.3	7.8	6.6	77	395.	0.19	1.0
Mid:	—	—	—	—	—	—	—	☒ VOB
Bottom	—	—	—	—	—	—	—	SITE DEPTH
								1.0

Meter ID: LITTLE BIT

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

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

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

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

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

Clarity Clear ☒ Slightly Turbid ☐ Turbid ☐ Opaque ☐

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

WEATHER CONDITIONS / NOTES:

OVERCAST - 80°

Contains 1:1 Sulfuric Acid SA-50/2030 EXP: 02/11/16 Warning! See MSDS

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

SAMPLING TEAM JUAN ASHTON, SALLY LINSTROM IN TRAINING

SIGNATURE : _____

DATE : 4-21-15

Form FD 9000-32 **FDEP Linear Stream Vegetation Survey (DEP SOP FS 7320)** Revised 6/12/12

Waterbody: HILLS. RIVER | Date: 4-21-15 | County: HILLS. Co. | Storet Number: 2403044

Analyst: JUDY ASHTON | Signature: Judy Ashton

Comments:

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m^2 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 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Alternanthera philoxeroides				X	X		X	X	X		
Bacopa caroliniana				X							
Bacopa monneri											
Bidens mitis											
Boehmeria cylindrica											
Centella asiatica							X				
Cephalanthus occidentalis			X		X						
Ceratophyllum demersum											
Chara											
Cicuta maculata											
Cladium jamaicense											
Colocasia esculenta				X	X		X	X	X	X	
Crinum americanum	X	X	X	X	X	X	X	X	X	X	
Diodia virginiana											
Eichhornia crassipes				X							
Eleocharis (wispy viviparous)											
Hydrilla verticillata				X					X	X	
Hydrocotle		X	X	X	X		X				
Hygrophila polysperma											
Hymenocallis											
Itea virginica											
Lachnanthes caroliniana											
Landoltia punctata											
Lemna											
Limnophila sessiflora											
Ludwigia leptocarpa											
Ludwigia palustris											
Ludwigia peruviana											
Ludwigia repens											
Luziola fluitans											
ORONTIUM				X							
GOLDEN ASTER											
SALIX					X						
SMILAX								X			
ACER									X	X	
If no Dominant or Co-Dominant were selected, indicate with an "X"											
Indicate % cover macrophytes per section											
0-5% Macrophyte Coverage	X	X	X	X	X	X	X	X			
>5 and ≤10% Macrophyte Coverage									X		
>10 and ≤25% Macrophyte Coverage											
>25 and ≤50% Macrophyte Coverage										X	
> 50% Macrophyte Coverage											

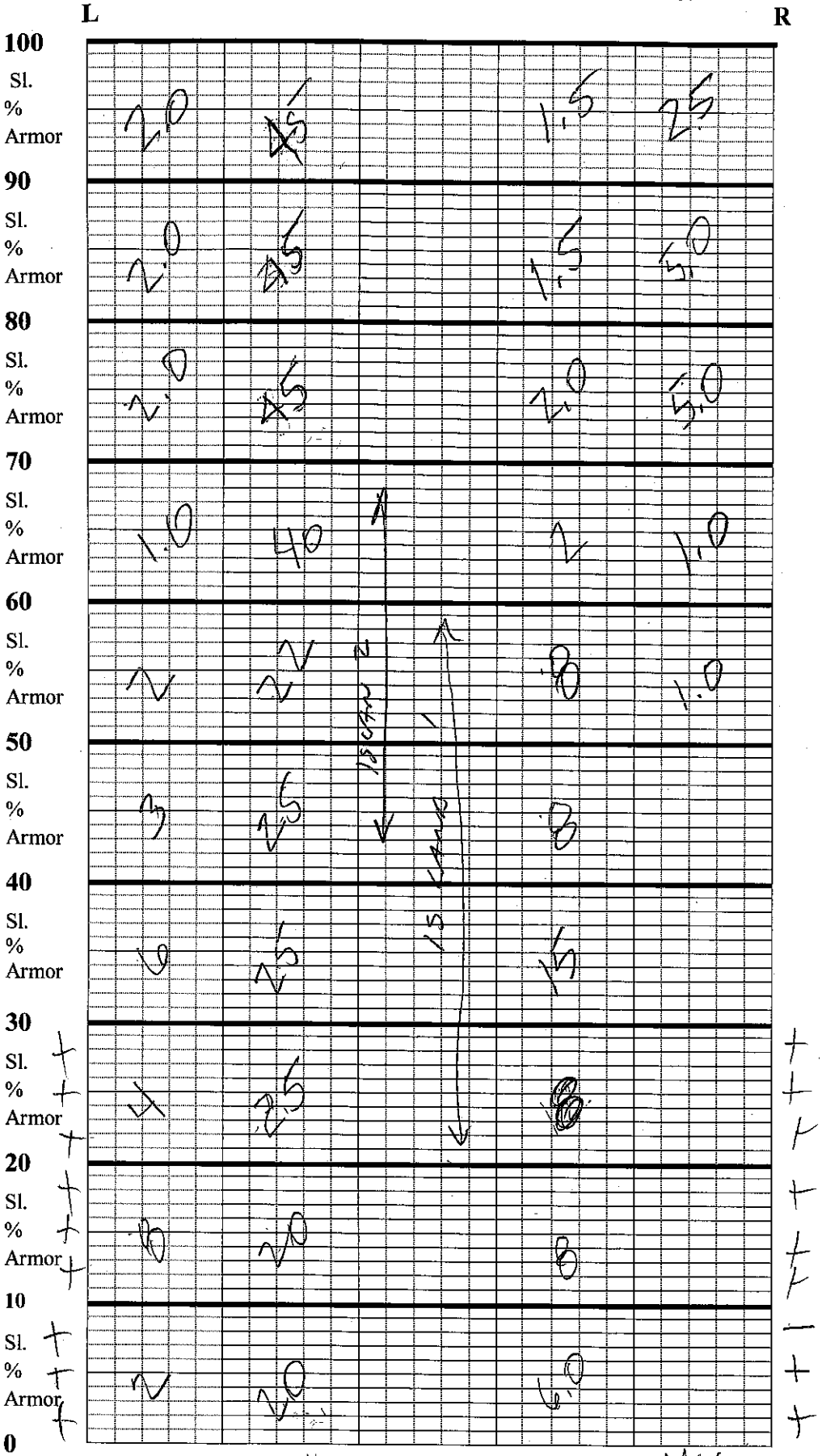
HERBACEOUS SPECIES	Meter Mark 0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	Specimen collected (check)
Micranthemum glomeratum											
Micranthemum umbrosum											
Myriophyllum aquaticum											
Najas guadelupensis											
Nasturtium officinalis											
Nuphar luteum						X	X				
Orontium aquaticum											
Panicum hemitomon											
Panicum repens											
Panicum rigidulum											
Pistia stratioides											
Polygonum glabra											
Polygonum hydropiperoides											
Polygonum punctatum											
Pontederia cordata											
Potamogeton illinoensis					X	X	X		C	D	
Ruellia simplex											
Rumex verticilatus											
Sabal palmeto											
Sacciolepis striata											
Sagittaria kurziana											
Sagittaria lancifolia											
Sagittaria latifolia											
Salix caroliniana											
Salvinia minima											
Samolus parviflora											
Saururus cernuus											
Schoenoplectus											
Typha											
Vallisneria americana						X	X	X	C	X	
Zizania aquatica											
FRAXINUS	X	X	X	X	X	X	X	X			
OSMUNDA regalis	X	X	X	X	X		X				
CAMPSIS	X	X	X	X	X	X	X	X			
TAXODIUM		X	X	X	X	X		X			
SAMBUCUS				X							
[illegible]											
ITEA VIRGINICA	X	X	X		X	X	X	X	X	X	
[illegible]											

Guidelines for Hydrological Disturbance Scoring

This gradient rating is for human disturbances, not natural events (e.g., hurricanes, extreme droughts).

Best 1-2 points	Flow regime as naturally occurs (slow and fairly continual release of water after rains), few impervious surfaces in watershed; high connectivity with ground water and surface features delivering water (e.g., sandhills, wetlands; no ditches, berms, etc.)
Slight disturbance 3-4 points	Flow regime minimally changed; some water withdrawals; some wetland drainage, some impervious surfaces in watershed, some ditching
Moderately altered 5-6 points	Flow regime moderately altered; hydrograph moderately flashy (scouring after rain events with subsequent reductions in flow), groundwater pumping evident; much wetland drainage, topographic alterations reduce natural water input; more impervious surfaces throughout watershed, dams/control structures change normal water delivery schedule
Poor 7-8 points	Flow regime highly altered; hydrograph very flashy (scouring after rain events with subsequent reductions in flow, leading to stagnant or dry conditions, related to large amounts of impervious surfaces and/or ditching throughout watershed); water withdrawals & impoundments/control structures severely alter flows, large amounts of impervious surfaces
Very poor 9-10 points	Flow regime entirely human controlled; hydrograph very flashy (scouring after rain events with subsequent reductions in flow, leading to stagnant or dry conditions, related to impervious surfaces and ditching throughout watershed); water withdrawals & impoundments fundamentally alter the nature of the ecosystem

Stream/River Habitat Sketch Sheet, Form FD 9000-4 (March07, 2013)
Length of grid represents 100 m of stream (not linear meters).
(Horizontal scale is double vertical scale, draw proportionately).



Location: Hillsborough R. Ref. Site
Date: 4-21-15
Samplers: Judy Ashton, Sally Linstrom

Substrates: Code key, draw proportionate habitat abundance. %

X	Snags	2.3
X	Roots/undercut banks	1
	Leaf Packs (or mats)	
X	Macrophytes	1
X	Rocks	47
	Total observed	51
	Pools Range expected	Yes

Velocity measured at 10 **meter mark.**

WQ & chemistry taken at 20 **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.

35 W

1 sec per 1 m	1m/s	sec	m/s
2	0.5	12	0.08
3	0.33	13	0.076
4	0.25	14	0.071
5	0.2	15	0.066
6	0.16	16	0.062
7	0.14	17	0.058
8	0.12	18	0.055
9	0.11	19	0.052
10	0.1	20	0.052
11	0.09	21	0.047
22	0.045	NO	FLOW

Prod. hab	1	2	3	4	5
Sweeps (Maj)	10	7	5	4	3
Sweeps (Min)	10	6	5	4	5

Roots 32
Rocks 202 X5
Snags 68
Veg 37
.33, .20, .25
0.5 m/s Hi @ Rapids
3000m²

DEP-SOP-001/01: Form FD 9000-5
STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION
STREAM/RIVER HABITAT ASSESSMENT FIELD SHEET

SUBMITTING AGENCY CODE: / SUBMITTING AGENCY NAME:	STORET STATION NUMBER:	DATE (MM/DD/YY):	RECEIVING BODY OF WATER:
	24030044	4-21-15	TAMPA BAY

REMARKS:	COUNTY:	LOCATION:	FIELD ID/NAME:
REF. SITE	HILLS.	HILLSBOROUGH R. D STATE PARK	HILSTPSREF

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components **Substrate Diversity** 20	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 11	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 20	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 6	Less than 5% major productive habitat 5 4 3 2 1
Water Velocity 20	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 1
Habitat Smothering 19 Primary Score 79	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 1
Secondary Habitat Components **Artificial Channelization** 18	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 in the past (>25 yrs) but mostly recovered. 15 14 13 12 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 9 Left Bank 10	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankful to top of bank. Bankfull is within or above the root zone with few raw, eroded areas. 10 9	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 root zone with raw, eroded areas. 3 2 1
Riparian Buffer Zone Width Right Bank 10 Left Bank 5	Width of vegetation greater than 18 m 10 9	Width of vegetation >12 to 18m 8 7 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 9 Left Bank 10 Secondary Score 70	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 6	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). 3 2 1

150 **TOTAL SCORE**

Date:	Analyst:	Signature:
4-21-15	JUDY ASTON SALLY LINSTROM - IN TRAINING	

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site:	County:	Date:	Investigators:
HILLS. R. Ref. - HILSTP5REF	HILLS. Co	4-21-15	JUAY ASHTON, SALLY LINSTROM

STORET Station Number: 21030044

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
0	1	N		
	2			
	3			
	4		X	
	5		X	
	6		X	50
	7			
	8			
	9			
10	1	N		
	2			
	3			
	4		X	
	5		X	
	6		X	95
	7			
	8			
	9			
20	1	N		
	2			
	3			
	4		X	
	5			
	6			94
	7			
	8			
	9			
30	1	N		
	2			
	3			
	4			
	5			
	6			90
	7			
	8			
	9			
40	1	N		
	2			
	3			
	4			
	5			
	6			95
	7			
	8			
	9			
50	1	N		
	2			
	3			
	4			
	5			
	6			75
	7			
	8			
	9			

Transect (m)	Point 1=right 9=left	Algal Thickness Rank (N-6, X)	Estimated	Canopy Cover
60	1	N		
	2			
	3			
	4			
	5			
	6			90
	7			
	8			
	9			
70	1	N		
	2			
	3			
	4			
	5			
	6			90
	7			
	8			
	9			
80	1	N		
	2			
	3			
	4			
	5			
	6			95
	7			
	8			
	9			
90	1	N		
	2			
	3			
	4			
	5			
	6			80
	7			
	8			
	9			
100	1	N		
	2			
	3			
	4			
	5			
	6			60
	7			
	8			
	9			

Secchi depth	1.0
Estimated? NO	

# 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	X
Habitat Assessment	X
SCI/Biorecon	X
Water sample	X
RQ- 2015-04-20-48	

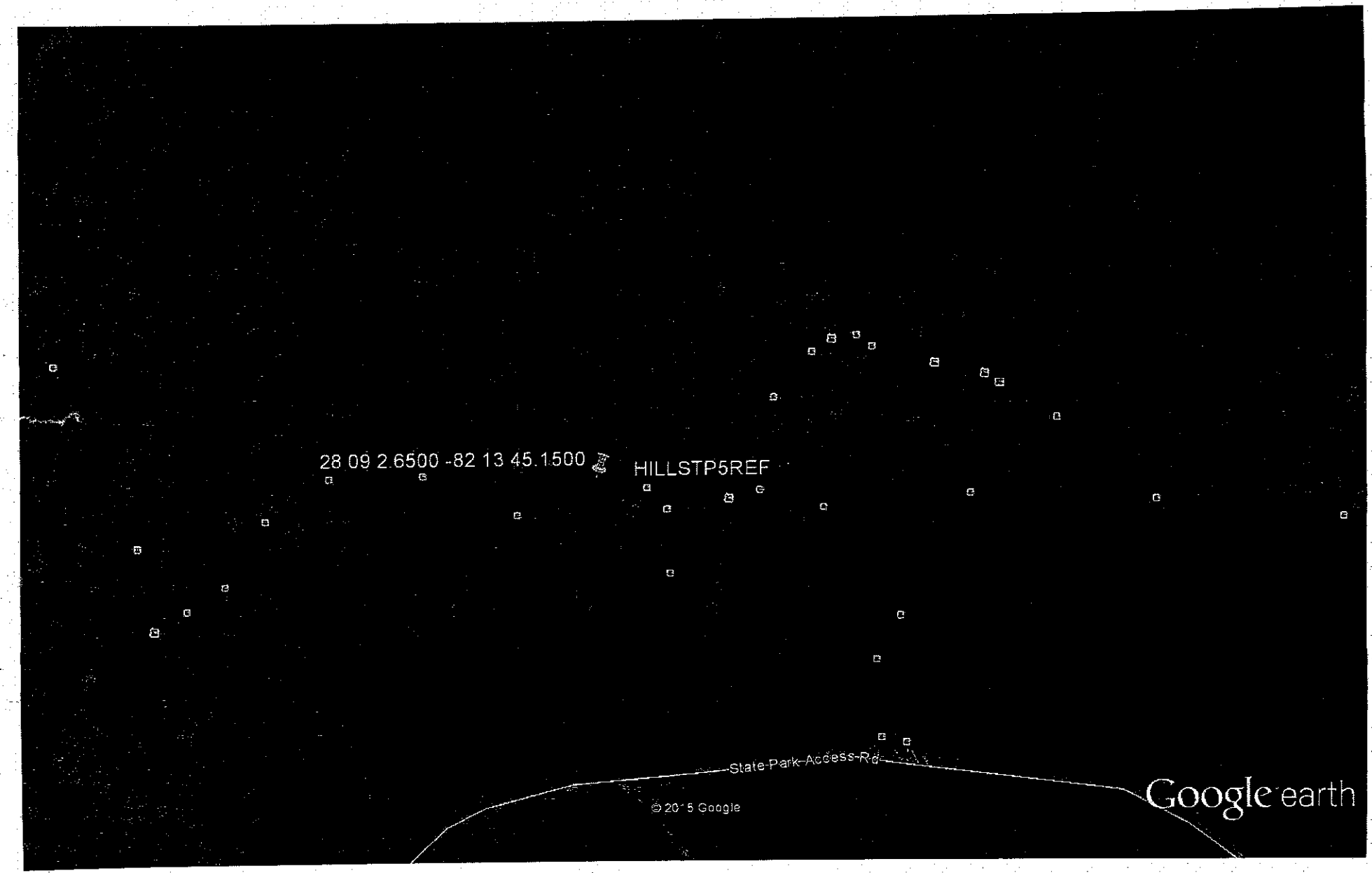
Algal Thickness Rank	
N	rough, no algae, slimy, algae up to 1mm
3	>1mm - 6mm
4	>6mm - 20mm
5	>20mm - 10 cm
6	>10 cm

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%.



Google earth

feet 1000

meters 500

Request Number: RQ-2015-04-20-48 **Florida Department of Environmental Protection** TMDL test ver. MkIh

WBID: **Central Laboratory Sample Submittal Form** last revised Dec. 8, 2014

Customer: SW-DIST Requester: SARAH ERNST Field Report Prepared By: JUDY ASHTON

Project ID: REF. STREAMS Collected By: JUDY ASHTON, SALLY LINSTROM Sampling Agency: FDEP-SWROC

Location: HILLSBOROUGH RIVER REF. SITE	☐ Comp. ☒ Grab	Collection (comp begin or grab) Date 4-21-15 Time 12:15 (Eastern) Central	Composite end Date	Time Total	Eastern Central	Matrix (type, e.g. Salt, Fresh, etc): WATER	Diss. Oxygen 6.6 ☒ (mg/L) ☐ (%sat.)	Res. Chlorine (mg/L)	Bottle Group(s) (See pg. 2 for groups.): B
RQ 2015-04-20-48 G2SW0010 24030044 Date: 04/21/2015 Time: 12:15						Temp (C.) 23.30	pH 7.8	Sample Depth 0.3 ☐ ft. ☐ m	Sp. Conductance (umho/cm) 395
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms					Salinity (ppt) 0.19	Comments		
Location	☐ Comp. ☒ Grab	Collection (comp begin or grab) Date 4-21-15 Time 12:15 (Eastern) Central	Composite end Date	Time Total	Eastern Central	Matrix (type, e.g. Salt, Fresh, etc): BIOLOGY	Diss. Oxygen ☐ (mg/L) ☐ (%sat.)	Res. Chlorine (mg/L)	Bottle Group(s): A
Field ID						Temp (C.)	pH	Sample Depth ☐ ft. ☐ m	Sp. Conductance (umho/cm)
STORET no.						Salinity (ppt)	Comments		
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms								
Location	☐ Comp. ☐ Grab	Collection (comp begin or grab) Date Time Eastern Central	Composite end Date	Time Total	Eastern Central	Matrix (type, e.g. Salt, Fresh, etc)	Diss. Oxygen ☐ (mg/L) ☐ (%sat.)	Res. Chlorine (mg/L)	Bottle Group(s)
Field ID						Temp (C.)	pH	Sample Depth ☐ ft. ☐ m	Sp. Conductance (umho/cm)
STORET no.						Salinity (ppt)	Comments		
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms								
Location	☐ Comp. ☐ Grab	Collection (comp begin or grab) Date Time Eastern Central	Composite end Date	Time Total	Eastern Central	Matrix (type, e.g. Salt, Fresh, etc)	Diss. Oxygen ☐ (mg/L) ☐ (%sat.)	Res. Chlorine (mg/L)	Bottle Group(s)
Field ID						Temp (C.)	pH	Sample Depth ☐ ft. ☐ m	Sp. Conductance (umho/cm)
STORET no.						Salinity (ppt)	Comments		
Latitude ☐ dd ☐ dms	Longitude ☐ dd ☐ dms								

Relinquished By:	Date/Time	Shipping Method:	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	1600 4-21-15	FED EX						

Group: A	Bottle Type:	PT-50ML	# of Bottles: 1	Preservative:	Formalin	Enter Number of Bottles Sent to Lab	1
	DTM-QL-C PRN-QL-C						
Group: A	Bottle Type:	PJ-2L	# of Bottles: 2	Preservative:	Formalin	Enter Number of Bottles Sent to Lab	2
	MI-FW-QLDC						
Group: B	Bottle Type:	P-1L	# of Bottles: 1	Preservative:	ICE	Enter Number of Bottles Sent to Lab	1
	BOD-UNIN						
Group: B	Bottle Type:	BP-1L	# of Bottles: 1	Preservative:	ICE	Enter Number of Bottles Sent to Lab	1
	CHL-CORR-W						
Group: B	Bottle Type:	P-1L	# of Bottles: 1	Preservative:	ICE	Enter Number of Bottles Sent to Lab	1
	TURBIDITY W-ALK W-CL-IC W-COLOR W-F W-SO4-IC W-TDS W-TSS						
Group: B	Bottle Type:	P-500ML	# of Bottles: 1	Preservative:	ICE And H2SO4	Enter Number of Bottles Sent to Lab	1
	W-NH3 W-NO2NO3 W-S-A-TP W-TKN W-TOC						
Group: B	Bottle Type:	P-125ML	# of Bottles: 1	Preservative:	ICE-FLTR	Enter Number of Bottles Sent to Lab	1
	W-PO4-F						