



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
STRATEGIC MONITORING PROGRAM FIELD SHEET

PAGE 1 OF 1

February 2016

Data Qualified?
Yes / No

STORET Station Name: Sand Creek @ Unnamed Drain Rd 0.5mi W of Tomoka Farms Rd Date: 12/27/16
(mm/dd/yyyy)

STORET Station ID: 27010092 Latitude: 29.0734167
(Decimal Degrees)

WBID: 2675 RQ - 2016-12-26-12 ORG ID: 21FLCEN Longitude: -81.0751667
(Decimal Degrees)

Receiving Body of Water: _____ Field ID: G5CE0076 County: Orange Volusia

Sampling Team Members		WQ Measurements	Sample Collection	Documentation	Preservation	Preservation Check
Natalie Ayala		X	X	X	X	X
Terry Rindin		X				

Sampling Equipment		
☒ Sample Container	☐ Van Dorn	☐ Pole
☐ Carboy	☐ Syringe	
☐ Dipper	☐ Other	
Equipment ID		

Collection Method		
☐ Wading	Via Boat	
☒ From Shore	☐ Canoe/Kayak	
☐ Other (note below)	☐ Electric Motor	
	☐ Gasoline Motor	

Water Level: Dry / Low / Normal / High / Flooded Matrix: Fresh / Marine / DI

Meter ID# _____ Photos: Yes / No Tide Falling: Yes / No / NA

Time Zone	Time	Sample Depth (m)	Total Depth (m)	DO (mg/L)	DO (%SAT)	pH	Salinity (ppt)	Secchi Disk (m)	Sp COND (µmhos/cm)	Temp. (C°)
<u>EST</u>	<u>1218</u>	<u>0.1</u>	<u>0.2</u>	<u>3.3</u>	<u>36</u>	<u>6.2</u>	<u>0.32</u> <u>NA</u>	<u>0.2</u> <u>VUB</u>	<u>430</u>	<u>19.8</u>
CEN										

Biological Samples Collected: None HA SCI LVS RPS LVI Other

Parameter Suite	Parameter Methods	Preservation	Acid Lot#	Expiration	pH Check
Preserved Nutrients	☒ W-NH3 / W-NO2NO3 / W-TKN / W-TOC / W-S-A-TP	☒ Ice ☒ H2SO4			☒ <2
Metals	☐ W-ICPMS ☐ W-ICP	☐ Ice ☐ HNO2			☐ <2
Filtered Nutrients	☒ W-PO4-F ☒ Field Filtered 0.45 µm Filter	☒ Ice			
Chlorophyll	☒ CHLSUITE-W	☒ Ice			
BOD	☐ BOD-UNIN	☒ Ice			
Physical/Aggregate (Kit A/C)	☒ Alkalinity / W-F / W-TSS / TURBIDITY / W-CL-IC / W-COLOR / W-SO4-IC / W-TDS	☒ Ice			
Physical/Aggregate (Kit B/D)	☐ Alkalinity / W-F / W-TSS / TURBIDITY	☐ Ice			
Macroinvertebrates	☐ MI-FW-QLDC	☐ Formalin			
Microbiology	☐ E Coli ☐ F Coli ☐ Enterococcus ☐ QPCR	☐ Ice			
Periphyton	☐ ALGAE-ID	☐ Ice			
Pesticides	☐ W-PSNP-TQ ☐ W-AHERB-AA ☐ W-PYR-AA-R ☐ W-PC-AA-SF ☐ W-UHERB-AA ☐ W-GLYPH	☐ Ice ☐ Other			

Notes:

Sand Creek @ Unnamed Rd 0.5mi W of Tomoka Farms Rd
Date: 12/27/16
RQ-2016-12-26-12

G5CE0076
Field ID ↑↓
STORET
27010092

Signature: _____ Date: _____

Field Parameters Entered into LIMS: _____ (Initials/Date) Field Parameters QC in LIMS: GMD 12/29/16 (Initials/Date)

Date Migrated to STORET: _____ (Initials/Date) Field Sheets Scanned/Saved: _____ (Initials/Date)

SAMPLE ID 77304 ORG ID 21FLCEN LATITUDE 29.0734167
 COUNTY Volusia STORET # 27010092 LONGITUDE -81.0757667
 DATE 12/27/2016 TIME _____ SAMPLING AGENCY _____
 SITE NAME Sand Creek @ Unnamed Drain 0.5mi W of Tomoka Farms Rd
 FIELD ID/NAME C5CE0076 RECEIVING BODY OF WATER Volusia

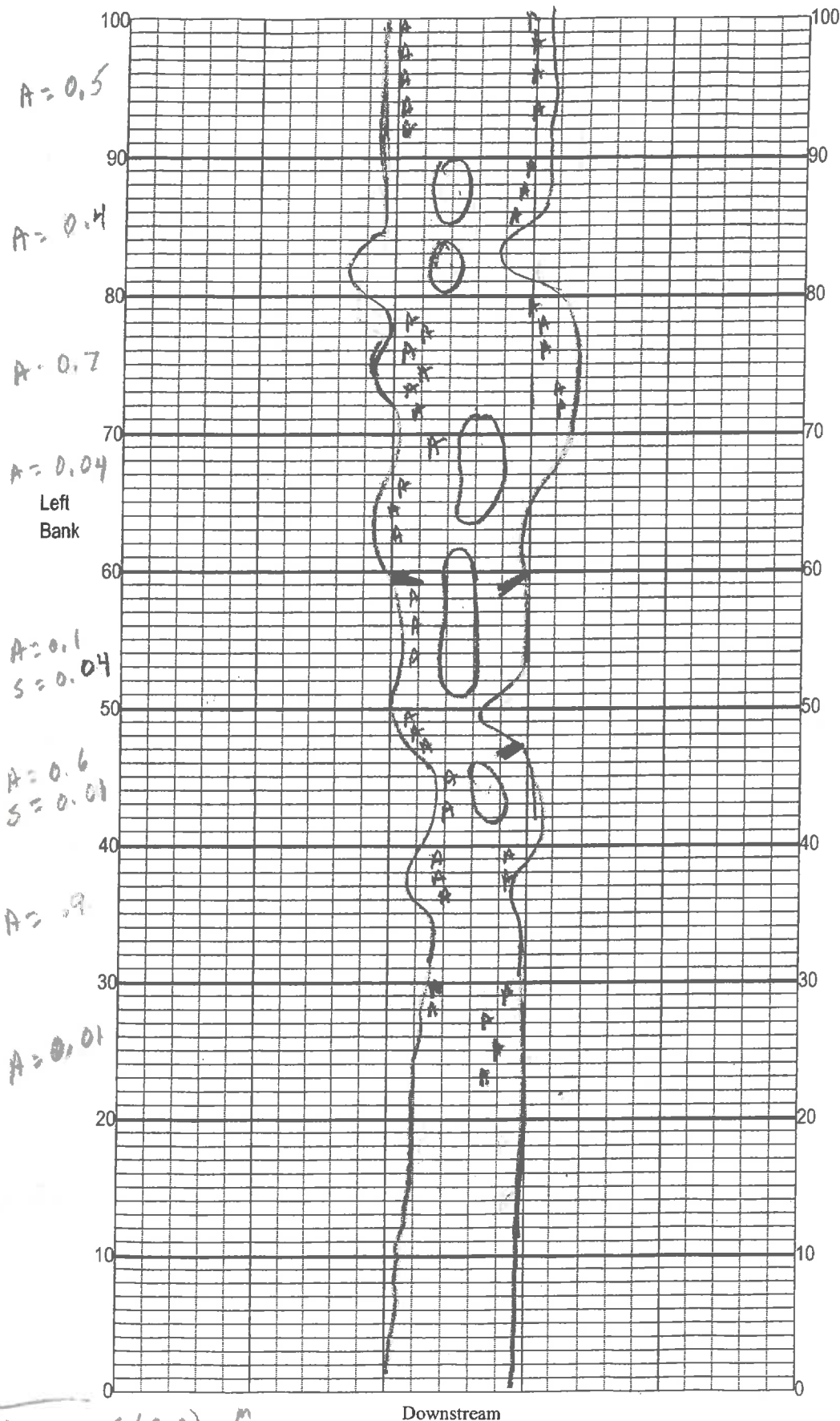
RIPARIAN ZONE / STREAM FEATURES

PREDOMINANT LAND-USE IN WATERSHED (specify relative percent in each category): Forest/Natural <u>25</u> Silviculture _____ Field/Pasture _____ Agricultural _____ Residential <u>75</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>0.09</u> m/s _____ m/s _____ m deep <u>0.2</u> m deep _____ m deep			
Width of Riparian Vegetation (m) on Each Buffer Side Left Bank: <u>15</u> Right Bank: <u>15</u>				Hydrologic Modification Score (per FT 3101) _____			
High Water Mark: <u>0.5</u> + <u>0.2</u> = <u>0.7</u> (m) (above present water level) (present depth) (above bed)				Artificially Impounded ☐ Yes ☒ No			
Artificially ☐ No ☐ Mostly recovered, more sinuous Channelized: ☒ Some recovery ☐ 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			WATER QUALITY Depth (M) Temp. (°C) pH (SU) D.O. (MG/L) D.O. Sat (%) Cond. (UMHO/CM) Salinity (PPT) SECCHI (M) Top: <u>0.1</u> <u>19.8</u> <u>6.2</u> <u>3.3</u> <u>36</u> <u>430</u> <u>0.2</u> <u>0.2</u> Mid: _____ Bottom: _____ Meter ID: _____		
Woody Debris (Snags) _____ Undercut Banks / Roots _____ Leaf Packs or Mats _____ Aquatic Vegetation <u>2%</u> _____ Rock or Shell Rubble _____ Sand _____ Mud / Muck / Silt _____ Other _____ Other _____			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: _____		
ABUNDANCE Not Obs. Rare Common Abundant Periphyton: ☒ ☐ ☐ ☐ Fish: ☒ ☐ ☐ ☐ Aquatic Plants: ☐ ☐ ☒ ☐ Iron/Sulfur Bacteria: ☐ ☐ ☐ ☒			Water Surface Oils Normal ☐ Sheen ☒ Globbs ☐ Slick ☐ Other ☐ Color Tannic ☐ Green (Algae) ☐ Clear ☐ Other (Specify) ☒ <u>Orange from iron</u> Clarity Clear ☐ Slightly Turbid ☐ Turbid ☒ Opaque ☐		
System Type: Stream ☐ Lake ☐ Wetland ☐ Estuary ☐ Other (Specify) ☒ <u>Canal</u>			AMBIENT FIELD CONDITIONS / NOTES: ☒ The antecedent hydrologic conditions have been met to my best knowledge.		
SAMPLING TEAM <u>Natalie Ayala/Terry Jordan</u>			SIGNATURE <u>Natalie Ayala</u>		
DATE: <u>12/27/2016</u>			DATE: <u>12/27/2016</u>		

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



Location: Sand Creek

Date: 12-27-16

Sampler: Terry Riordan

100 m: Latitude 29.07341385
Longitude -81.07516856

0 m: Latitude 29.07417307
Longitude -81.07575803

Substrates: Code key, draw proportionate habitat abundance. %

	Snags	<u>0.0</u>
	Roots/undercut banks	_____
	Leaf Packs (or mats)	_____
	Aquatic Macrophytes	<u>2.0</u>
	_____	_____
	_____	_____
	Pools	total # observed = <u>5</u> # range expected = <u>6-10</u>

Average width 1.5 m
Average depth 0.2 m

Velocity measured at 50 meter mark.

WQ & chemistry taken at 30 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:

Limnobium spongia
Commelina diffusa
Andwigia peruviana
P. hemitomon
Salvinia minima
Juncus effusus
Alternanthera phil.
Hydrocotyle
Luzula fluitans
Cyperus
Eleocharis

Revision Date: March 1, 2014

pinus needle leaf mats
Iron bacteria smothered
All substrates

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

DEP FORM FD 9000-25 Rapid Periphyton Survey Field Sheet

Site: Sand Creek County: Volusia Date: 12/27/16 Investigators: Terry Riordan
Natalie Ayala

Transect (m) Point 1=right 9=left Algal Thickness Rank (N-6, X) Estimated Canopy Cover

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STORET Station Number:

Secchi depth 0.2
 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- 2016-12-

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%.

Waterbody: Sand Creek

Date: 12/27/14 County: Volusia

Storet Number: 2701009Z

Analyst: Natalie Ayala / Terry Rorden

Signature: Natalie Ayala

Comments:

Instructions: Note taxa growing in the water with a checkmark if present, "D" if dominant, and "C" if codominant (dominance only if 1 m² 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	
<i>Alternanthera philoxeroides</i>		X			X			X	X	X		<i>Micranthemum glomeratum</i>				X	X	X	X	X			
<i>Bacopa caroliniana</i>												<i>Micranthemum umbrosum</i>											
<i>Bacopa monnieri</i>												<i>Myriophyllum aquaticum</i>											
<i>Bidens mitis</i>												<i>Najas guadelupensis</i>											
<i>Boehmeria cylindrica</i>												<i>Nuphar luteum</i>											
<i>Centella asiatica</i>							XX					<i>Orontium aquaticum</i>											
<i>Cephalanthus occidentalis</i>												<i>Panicum hemitomon</i>											
<i>Ceratophyllum demersum</i>												<i>Panicum repens</i>											
<i>Chara</i>												<i>Panicum rigidulum</i>											
<i>Cicuta maculata</i>												<i>Pistia stratioides</i>											
<i>Cladium jamaicense</i>												<i>Polygonum glabra</i>											
<i>Colocasia esculenta</i>												<i>Polygonum hydropiperoides</i>											
<i>Crinum americanum</i>												<i>Polygonum punctatum</i>	X										
<i>Diodia virginiana</i>												<i>Pontederia cordata</i>											
<i>Eichhornia crassipes</i>												<i>Potamogeton illinoensis</i>											
<i>Eleocharis (wispy viviparous)</i>												<i>Ruellia simplex</i>											
<i>Hydrilla verticillata</i>												<i>Sacciolepis striata</i>				X							
<i>Hydrocotyle</i>						XX						<i>Sagittaria kurziana</i>											
<i>Hygrophila polysperma</i>												<i>Sagittaria lancifolia</i>											
<i>Hymenocallis</i>												<i>Sagittaria latifolia</i>											
<i>Itea virginica</i>												<i>Salix caroliniana</i>											
<i>Lachnanthes caroliniana</i>												<i>Salvinia minima</i>	X	X	X	X	X	X	X	X	X		
<i>Landoltia punctata</i>												<i>Samolus parviflora</i>											
<i>Lemna</i>												<i>Saururus cernuus</i>											
<i>Limnophila sessiflora</i>												<i>Typha</i>											
<i>Ludwigia leptocarpa</i>												<i>Vallisneria americana</i>											
<i>Ludwigia palustris</i>												<i>Zizania aquatica</i>											
<i>Ludwigia peruviana</i>		XX		XX			XX	X				<i>Urochloa mutica</i>				X				X			
<i>Ludwigia repens</i>		XX	C	XX	XX		XX	X				<i>Juncus effusus</i>				XX				X			
<i>Luziola fluitans</i>		X			D	XX	XX	DD				<i>Eleocharis sp.</i>				X							
<i>Limnium spangia</i>		DD	C	XX	XX		XX	XX															
<i>Commelina diffusa</i>		XX	XX	XX	XX	XX	XX	XX															
If no Dominant or Co-Dominant were selected, indicate with an "X"																							
Indicate % cover macrophytes per section																							
0-5% Macrophyte Coverage	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX													
>5 and ≤10% Macrophyte Coverage											X												
>10 and ≤25% Macrophyte Coverage											XX												
>25 and ≤50% Macrophyte Coverage																							
> 50% Macrophyte Coverage																							

* sections with no dominance assigned intentional.

v. m.

DEP Form FD 9000-5 Stream/River Habitat Assessment Field Sheet

SAMPLING AGENCY: 21FLCN		STORET STATION NUMBER: 27010092	DATE (MM/DD/YY): 12/27/16	RECEIVING BODY OF WATER:
REMARKS:	COUNTY: Volusia	LOCATION: SAND CREEK @ Tomoka Farms RD	FIELD ID/NAME: C5LE0076	

Habitat Parameter	Optimal	Suboptimal	Marginal	Poor
Primary Habitat Components	Four or more major productive habitats present [snags, tree roots, aquatic vegetation, leaf packs (partially decayed), rock]	Three major productive habitats present. Adequate habitat. Some substrates may be new fall (fresh leaves or snags)	Two major productive habitats present. Less than desirable habitat, frequently disturbed or removed	One or less major productive habitat. Lack of habitat is obvious, substrates unstable or smothered
Substrate Diversity 2	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1
Substrate Availability 2	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 10 9 NA	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 11 ----- Primary Score 84 2	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 6	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 4 Left Bank 3	Bankfull > 60% of bank height. Slope of bank ≤ 60° from bankfull 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 7 Left Bank 8	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 9 ----- Secondary Score 46	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

70 ~~100~~ ¹⁰⁰ ~~60~~ **TOTAL SCORE**

Date: 12/27/16	Analyst: Natalie Ayala	Signature: <i>Natalie Ayala</i>
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ENTERED
MAY 1 2017