Wetland Rapid Assessment Procedure

and

Floristic Quality Index Assessment

D'Olive Creek Watershed

December 2017

Prepared for

Mobile Bay National Estuary Program

By

Wetland Resources
ENVIRONMENTAL CONSULTING

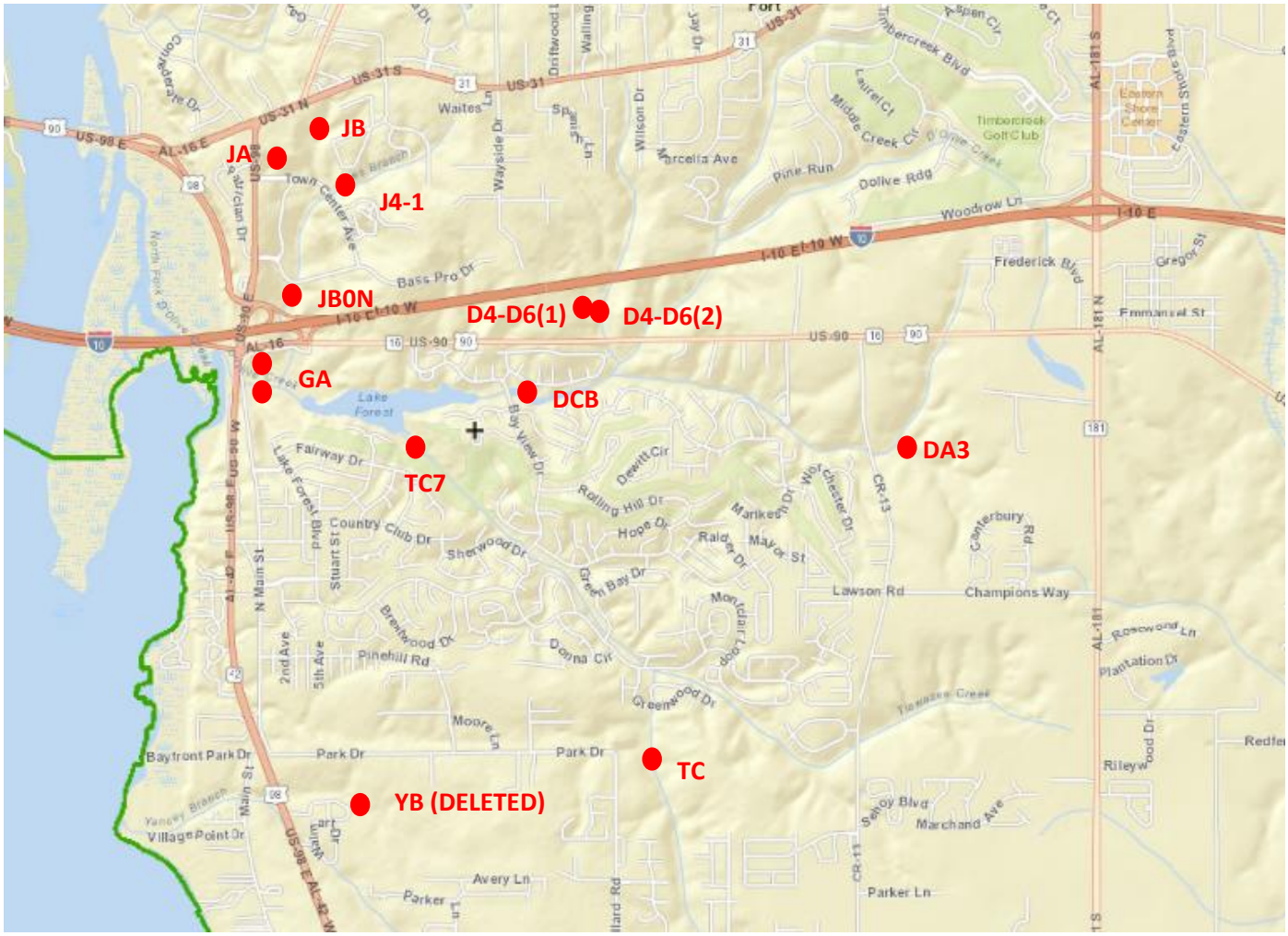
Post Office Box 2694 * Daphne, Alabama 36526 * (251) 928-6157

Wetland Rapid Assessment Procedure
and
Floristic Quality Index Assessment
D'Olive Creek Watershed

Introduction

The Mobile Bay National Estuary Program (MBNEP) has contracted with Wetland Resources Environmental Consulting to conduct functional assessment of wetlands using Wetland Rapid Assessment Procedure (WRAP) and floristic assessments within those same wetlands using a Floristic Quality Index (FQI).

Assessments have been conducted within 11 areas pre-selected by MBNEP Science Advisory Committee, with input from the city of Daphne and Wetland Resources, that occur in the D'Olive Creek watershed. One high-quality reference site along the North Fork of Yancey Branch was also included the first year, but was deleted from this and last years' assessments. Assessment areas are 50 meters in length along selected stream corridor segments and extend laterally to the approximate wetland/upland boundary where feasible. Assessments were conducted during the month of November 2017.



Wetland Rapid Assessment Procedure

WRAP is a functional assessment procedure developed by the South Florida Water Management District for use in south Florida, but this procedure is used extensively in south Alabama by the U.S. Army Corps of Engineers and the Alabama Dept. of Environmental Management for wetland regulatory purposes, and by environmental consultants and scientists who work within the wetland regulatory realm. (Technical Publication REG-001, Wetland Rapid Assessment Procedure (WRAP); by Raymond E. Miller Jr. and Boyd E. Gunsalus; September 1997; last updated August 1999.) WRAP includes six variables that are assessed and scored independently of each other in order to come up with an overall score. A variable score of 3 is considered the best a system can function and a 0 is for a system that is severely impacted and is exhibiting negligible attributes. An evaluator has the option of scoring each variable in half (0.5) increments. The overall score is expressed as a percentage, ranging from 0% - 100%. Within the Mobile District wetland regulatory realm, WRAP scores of 0-50% are considered low quality wetlands; 51-75% are medium quality; and greater than 75% are high quality. WRAP variables include the following:

- Wildlife Utilization
- Wetland Overstory/Shrub Canopy
- Wetland Vegetative Groundcover
- Adjacent Upland Support/Wetland Buffer
- Field Indicators of Wetland Hydrology
- Water Quality Input and Treatment Systems

Floristic Quality Index

The Southeast Wetlands Workgroup (SEWWG) consists of participants representing state and federal personnel and scientists from Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee. This membership focuses on both users and developers of wetland monitoring and assessment tools (https://sewwg.rti.org/Default.aspx). The SEWWG website includes the following background information concerning FQI and Coefficients of Conservatism:

This workgroup is funded by an EPA Region 4 Wetland Program Development Grant issued to the North Carolina Department of Environment and Natural Resources. One of the objectives on this grant is to gather expert botanists from across the Southeast Region for the purposes of developing a database of wetland plant quality ratings, called Coefficients of Conservatism. Coefficient of Conservatism values (C values) are used in the calculation of Floristic Quality Index as indicators of habitat quality. Average C value of a study site is also a useful indicator.

This rating system was originated by Gerould Wilhelm in the 1970s in response to NEPA regulations as a way of measuring the degree to which impact to an area is irreversible or irretrievable. Guidance for the application of this rating system was published in 1997 by Taft et al., and it is becoming widely adopted across the country as a means of facilitating site quality assessments. These Coefficients vary from 0-10, and indicate the degree to which a species is found growing in unique environmental conditions. Plants are given a low rating if they are able to tolerate a very wide range of conditions and are found in a variety of habitats/locations. A high rating is given to species which have very specific requirements and cannot exist outside of those conditions. Non-native species are generally given a rating of zero.

A Floristic Quality Index Calculator tool is also found at this website and was used to determine FQI for each of the eleven plots included in this assessment. Once plant species found in each assessment area have been entered into the calculator, a table with the following information is generated:

Metric	Explanation
Total number of species with assigned C-values (N)	The total number of species with a C-value assigned to that species. Note: Upland species and 1% of wetland species were not assigned C-values.
Mean Coefficient of Conservatism (C)	The mean C-value for all species. (Calculation includes only species with assigned C-values).
Mean C (native species only)	The mean C-value for native species. (Calculation includes only species with assigned C-values).
Floristic Quality Index (FQI) (all species)	Sum of C-values of all species divided by the square root of N. (Calculation includes only species with assigned C-values).
Adjusted FQI (native species only)	Sum of C-values of native species divided by the square root of the number of native species. (Calculation includes only species with assigned C-values).
Total Number of Species	The total number of species (includes species with and without assigned C-values).
Total Number of Native Species	The total number of native species (includes species with and without assigned C-values).
Percent Tolerant Species	Percentage of species with C-value <= 3. (Calculation includes only species with assigned C-values).
Percent Intolerant Species	Percentage of species with C-value >=7. (Calculation includes only species with assigned C-values).
Percent Wetness	Percent of species classified as obligate (OBL), facultative wet (FACW), or facultative (FAC). (Calculation includes only species with assigned C-values). Classification of wetland status based on the 2013 **Wetland Plant List**.

Note: Species not found in the database are not included in the calculations. Plants that could not be identified to species due to lack of reproductive material are also not included.

The calculator tool also generates a plant list that includes C value, duration (i.e., perennial), growth habitat (i.e., tree), native status, and indicator status (i.e., FACW).

Assessment Methods

Prior to site visits, a review was made of recent aerial photography, USGS topographic mapping, and USDA-NRCS soil mapping for each assessment area.

Next, a site visit was made to each assessment area. The previously established plot center point was marked with a new survey flag. A measuring tape was used to relocate the upstream and downstream limits (25 meters in each direction), which were also marked with a new survey flag. The lateral limits, in most cases, were the upland/wetland boundaries.

A list of plant species occurring within each assessment area was compiled. Any species not recognized was collected and later identified to species where possible. Some plants (mostly sedges and other graminoids) did not have

reproductive material present and could not be identified. These species were not included in the plant list.

WRAP variables were assigned scores based on field observations and aerial photography.

WRAP assessment forms have been completed and the FQI has been calculated for each area.

The table below provides a summary of **2017** assessment plot locations and scores:

Assessment Plot	Location (Center Point)	WRAP Score	FQI
GA – Gator Alley (assessed separately north and south of the creek, then the data was combined)	N-30.6529 / -87.9110 S-30.6523 / -87.9110	47.64	37.17
TC – Tiawasee Creek	30.6303 / -87.8839	63.61	39.61
TC7 – Tiawasee Creek at Lake Forest	30.6492 / -87.9005	52.50	31.88
DCB – D'Olive Creek at Lake Forest	30.6524 / -87.8925	46.53	24.51
JB0N – Joe's Branch at I-10 interchange	30.6576 / -87.9085	56.60	32.04
J4-1 – Joe's Branch east of Town Center Ave.	30.6638 / -87.9034	71.94	32.57
JA – UT to Joe's Branch north of Town Center Ave.	30.6655 / -87.9091	44.44	17.32
JB – UT to Joe's Branch northeast of Town Center Ave.	30.6690 / -87.9059	41.94	23.89
D4-D6(1) – D'Olive Creek restoration btwn I-10 & US 90	30.6571 / -87.8825	52.78	26.41
D4-D6(2) – D'Olive Creek undisturbed btwn I-10 & US 90	30.6576 / -87.8823	76.39	28.78
DA3 – UT to D'Olive Creek east of CR 13	30.6485 / -87.8638	60.28	29.80

For comparison, the table below shows a side by side listing of WRAP and FQI scores for the three years of monitoring:

Assessment Plot	2015 WRAP	2015 FQI	2016 WRAP	2016 FQI	2017 WRAP	2017 FQI
YB	86.81	32.17	-	-	-	-
GA	47.64	33.14	47.64	40.07	47.64	37.17
TC	74.72	29.34	60.83	40.25	63.61	39.61
TC7	52.50	23.04	52.50	29.53	52.50	31.88
DCB	46.53	18.90	46.53	23.22	46.53	24.51
JB0N	56.60	31.96	56.60	33.00	56.60	32.04
J4-1	77.50	30.92	71.94	33.09	71.94	32.57
JA	44.44	12.61	44.44	17.92	44.44	17.32
JB	-	-	39.17	20.83	41.94	23.89
D4-D6(1)	-	-	41.67	12.70	52.78	26.41
D4-D6(2)	-	-	79.17	28.47	76.39	28.78
DA3	-	-	65.83	23.95	60.28	29.80

WRAP Forms and FQI Data

The following pages contain WRAP forms, plant lists, and FQI tables for each assessment plot.

GA – Gator Alley just Upstream of the Main St. D'Olive Creek Channel, North and South of the Creek

☐ PROPOSED
☑ EXISTING CONDITIONS

WETLAND RAPID ASSESSMENT PROCEDURE

COUNTY:	PROJECT	DATE	REVIEWER	FLUCCS CODE	
Baldwin	MBNEP D'Olive Creek	11/7&14/17	Gena Todia		
APP. #: GA				WETLAND TYPE: ☑ FORESTED ☐ Non-Forested	

LAND USE CATEGORY	WETLAND AREA	SECONDARY IMPACTS	MELALEUCA INVASION >50%
Natural	50 M ACRES	☐ NO ☑ YES %=	☐ NO ☐ YES
	ACRES OF IMPACT	ACRES	

WILD LIFE UTILIZATION 1.5

WETLAND CANOPY 2

WETLAND GROUND COVER 2

HABITAT SUPPORT / BUFFER 0.075

BUFFER TYPE	SCORE	% AREA	SUB TOTAL
N &S	0	90	0
W-D'Olive Creek corridor	1	5	0.05
E-Lake Forest/Dam	0.5	5	0.025
			0
			0

FIELD HYDROLOGY 2

WATER QUALITY INPUT & TREATMENT 1

LAND USE CATEGORY

LAND USE CATEGORY	SCORE	% AREA	SUB TOTAL
Single-fam Res/Golf Crs	1.5	60	0.9
Commercial/Hwy.	1	40	0.4
			0
			0
			0
		LU TOTAL	1.3

PRETREATMENT CATEGORY

PRETREATMENT CATEGORY	SCORE	% AREA	SUB TOTAL
Wet Detention (lake)	1	60	0.6
Underground Detention	0	30	0
Vegetated Buffer	1	10	0.1
			0
			0
		PT TOTAL	0.7

WRAP SCORE
47.64%

WILDLIFE UTILIZATION

(Wildlife utilization should be in consideration of the suite of species that would inhabit and are endemic to the mature target wetland system and not just any wildlife.) Wildlife habitat is degraded, limited in size, essentially isolated and surrounded by development. Adequate upland food and cover are lacking. There are freqent human disturbances associated with Main St. traffic, pedestrians along the trail, commercial development to the north, and the sewage treatment plant to the south. These wetlands do offer limited habitat for birds, small mammals, reptiles, amphibians. It should also be noted that the rusty gravedigger crayfish is known to occur.

WETLAND CANOPY

(Canopy is defined as woody vegetation with greater than 4 inch dbh.) The canopy is composed of a diversity of mostly appropriate species. Chinese tallow tree (Triadica sebifera) is present. Greater than 25% of the shrub canopy is composed of Chinese privet (Ligustrum sinense). Few snags are present. There are few signs of natural recruitment.

WETLAND GROUND COVER

(Groundcover should be in consideration of endemic species of target wetland community.) Groundcover includes a diversity of appropriate herbaceous and woody species; however,several invasive exotics, including a few coral ardisia (Ardisia crenata), Japanese climbing fern (Lygodium japonicum), air potato (Dioscorea bulbifera), which is now covering a much greater area than previously, and scattered downy maiden fern (Thelypteris dentata) are also present.

HABITAT SUPPORT/BUFFER

(This is based upon habitats OUTSIDE the perimeter of the polygon.)This wetland system is completely surrounded by development with essentially no suitable upland buffer. The lake is to the east and D'Olive Creek continues under Main St. and Hwy. 98 bridges to the west.

FIELD HYDROLOGY

(Site specific based on conditions inside and outside the polygon.) The hydrology is adequate to maintain a wetland system, but it has been altered by upstream impoundment (the lake), sediment input from upstream, and surrounding development. Runoff from adjacent and upstream development has also altered the natural hydrology of the creek and these adjacent wetlands.

WQ INPUT & TREATMENT

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Water that enters the wetlands comes primarily from overflow from Lake Forest, discharge from underground detention ponds associated with the hotels to the north (no pretreatment), and from a narrow vegetated buffer on the south side.

GA – Gator Alley just Upstream of the Main St. D'Olive Creek Channel, North and South of the Creek
Region: Coastal Plain

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Acer rubrum	3	Perennial	Tree	Native	FAC
Alnus serrulata	5	Perennial	Tree, Shrub	Native	FACW
Alternanthera philoxeroides	0	Perennial	Forb/herb	Introduced	OBL
Berchemia scandens	6	Perennial	Vine	Native	FAC
Bidens alba		Annual, Perennial	Forb/herb	Native	
Bignonia capreolata	4	Perennial	Vine	Native	FAC
Campsis radicans	2	Perennial	Vine	Native	FAC
Chasmanthium laxum	5	Perennial	Graminoid	Native	FACW
Cicuta maculata	5	Biennial, Perennial	Forb/herb	Native	OBL
Cinnamomum camphora	0	Perennial	Tree	Introduced	UPL
Cliftonia monophylla	6	Perennial	Tree, Shrub	Native	OBL
Colocasia esculenta	0	Perennial	Forb/herb	Introduced	FACW
Commelina virginica	5	Perennial	Forb/herb	Native	FACW
Crinum americanum	7	Perennial	Forb/herb	Native	OBL
Cyrilla racemiflora	6	Perennial	Tree, Shrub	Native	FACW
Galium tinctorium	5	Perennial	Forb/herb	Native	FACW
Gelsemium rankinii	7	Perennial	Vine	Native	FACW
Ilex cassine	7	Perennial	Tree, Shrub	Native	FACW
Ilex vomitoria	5	Perennial	Tree, Shrub	Native	FAC
Itea virginica	7	Perennial	Shrub	Native	FACW
Juniperus virginiana		Perennial	Tree	Native	FACU
Leersia oryzoides	4	Perennial	Graminoid	Native	OBL
Ligustrum sinense	0	Perennial	Tree, Shrub	Introduced	FAC
Liquidambar styraciflua	3	Perennial	Tree	Native	FAC
Liriodendron tulipifera		Perennial	Tree	Native	FACU
Lobelia cardinalis	5	Perennial	Forb/herb	Native	FACW
Lonicera japonica	0	Perennial	Vine	Introduced	FAC
Lygodium japonicum	0	Perennial	Vine, Forb/herb	Introduced	FAC
Lyonia lucida	7	Perennial	Shrub	Native	FACW
Magnolia virginiana	6	Perennial	Tree, Shrub	Native	FACW
Morella cerifera	4	Perennial	Tree, Subshrub, Shrub	Native	FAC
Nyssa biflora	7	Perennial	Tree	Native	OBL
Onoclea sensibilis	5	Perennial	Forb/herb	Native	FACW
Orontium aquaticum	7	Perennial	Forb/herb	Native	OBL
Osmunda regalis	7	Perennial	Forb/herb	Native	OBL
Peltandra sagittifolia	8	Perennial	Forb/herb	Native	OBL
Peltandra virginica	7	Perennial	Forb/herb	Native	OBL
Persea palustris	7	Perennial	Tree, Shrub	Native	FACW
Pinus elliottii	5	Perennial	Tree	Native	FACW
Pinus taeda	2	Perennial	Tree	Native	FAC
Quercus nigra	3	Perennial	Tree	Native	FAC

GA (cont'd.) –

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Rhododendron viscosum	7	Perennial	Shrub	Native	OBL
Rhynchospora miliacea	6	Perennial	Graminoid	Native	OBL
Rhynchospora odorata	8	Perennial	Graminoid	Native	OBL
Rubus argutus	2	Perennial	Subshrub	Native	FAC
Sabal minor	7	Perennial	Tree, Shrub	Native	FACW
Sabal palmetto	7	Perennial	Tree	Native	FAC
Sagittaria latifolia	5	Perennial	Forb/herb	Native	OBL
Salix nigra	3	Perennial	Tree	Native	OBL
Sambucus canadensis	3	Perennial	Tree, Shrub	Native	FACW
Saururus cernuus	6	Perennial	Forb/herb	Native	OBL
Smilax bona-nox	4	Perennial	Shrub, Vine	Native	FAC
Smilax laurifolia	5	Perennial	Shrub, Vine	Native	FACW
Smilax walteri	7	Perennial	Shrub, Vine	Native	OBL
Stachys floridana	2	Perennial	Forb/herb	Native	FAC
Symphyotrichum lateriflorum	5	Perennial	Forb/herb	Native	FAC
Taxodium ascendens	8	Perennial	Tree	Native	OBL
Thelypteris dentata	0	Perennial	Forb/herb	Native	FACW
Thelypteris kunthii	4	Perennial	Forb/herb	Native	FACW
Thelypteris palustris	7	Perennial	Forb/herb	Native	OBL
Toxicodendron radicans	3	Perennial	Shrub, Forb/herb, Subshrub, Vine	Native	FAC
Triadica sebifera	0	Perennial	Tree	Introduced	FAC
Viburnum nudum	7	Perennial	Tree, Shrub	Native	FACW
Vitis rotundifolia	4	Perennial	Vine	Native	FAC
Woodwardia areolata	6	Perennial	Forb/herb	Native	OBL
Woodwardia virginica	7	Perennial	Forb/herb	Native	OBL

Site: GA – Gator Alley just Upstream of the Main St. D'Olive Creek Channel, North and South of the Creek

Region: Coastal Plain

Metric Name	Calculated Value
Total Number of Species with Assigned C-values (N)	63
Mean Coefficient of Conservatism (C)	4.68
Mean C (native species only)	5.27
Floristic Quality Index (FQI) (all species)	37.17
Adjusted FQI (native species only)	39.42
Total Number of Species	66
Total Number of Native Species	59
Percent Tolerant Species	28.57
Percent Intolerant Species	31.75
Percent Wetness	95.38

TC – Tiawasee Creek East of Park Avenue and Pollard Road

WETLAND RAPID ASSESSMENT PROCEDURE

☐ PROPOSED
☑ EXISTING CONDITIONS

COUNTY:	PROJECT	DATE	REVIEWER	FLUCCS CODE	
APP. #:				WETLAND TYPE:	☑ FORESTED ☐ Non-Forested
Baldwin	MBNEP D'Olive Creek	11/28/2017	Gena Todia		
TC					

LAND USE CATEGORY	WETLAND AREA	SECONDARY IMPACTS	MELALEUCA INVASION >50%
Natural/Post-Restoration	50 M ACRES	☐ NO ☐ YES % =	☐ NO ☐ YES
	ACRES OF IMPACT	ACRES	

WRAP SCORE
63.61%

WILD LIFE UTILIZATION	1.5
WETLAND CANOPY	0.5
WETLAND GROUND COVER	2.5
HABITAT SUPPORT / BUFFER	2.375
FIELD HYDROLOGY	3
WATER QUALITY INPUT & TREATMENT	1.575

HABITAT SUPPORT / BUFFER

BUFFER TYPE	SCORE	% AREA	SUB TOTAL
N,S,E-natural	2.5	75	1.875
W-semi-natural	2	25	0.5
			0
			0
			0

WATER QUALITY INPUT & TREATMENT

LAND USE CATEGORY

LAND USE CATEGORY	SCORE	% AREA	SUB TOTAL
Single-family Residential	1.5	70	1.05
Natural Area	3	20	0.6
Row Crop/Ag Land	1	10	0.1
			0
			0
		LU TOTAL	1.75

PRETREATMENT CATEGORY

PRETREATMENT CATEGORY	SCORE	% AREA	SUB TOTAL
Veg Buffer/Dry Det	1	80	0.8
Natural Area	3	20	0.6
			0
			0
			0
		PT TOTAL	1.4

WILDLIFE UTILIZATION

(Wildlife utilization should be in consideration of the suite of species that would inhabit and are endemic to the mature target wetland system and not just any wildlife.) About 1.5 yr. ago, part of the forested corridor along the stream channel was cleared and the failing channel was rebuilt/restored. Much of the previous cover has been removed. Somewhat extensive upland areas that offer food and cover surround the wetlands. There is minimal human disturbance. It is expected that large mammals, such as deer, as well as a variety of reptiles and amphibians would utilize this area. It is also good habitat for songbirds.

WETLAND CANOPY

(Canopy is defined as woody vegetation with greater than 4 inch dbh.) Much of the canopy has been removed to facilitate stream channel restoration. Of the remaining canopy, it is diverse and composed primarily of appropriate native species. A low percentage of Chinese tallow tree (Triadica sebifera) is present. Few snags are present. There are signs of natural recruitment and native trees have been planted as part of the restoration project.

WETLAND GROUND COVER

(Groundcover should be in consideration of endemic species of target wetland community.) Groundcover species diversity has increased significantly in response to removal of the canopy. Most species are appropriate, however, several invasive exotic species are present, including Petersen's spleenwort (Deparia petersenii), Japanese climbing fern (Lygodium japonicum), Chinese privet (Ligustrum sinense) seedlings, Chinese tallow tree (Triadica sebifera) seedlings, camphor tree (Cinnamomum camphora) seedlings, and sessile joyweed (Alternanthera sessilis). These species are being controlled as part of the project.

HABITAT SUPPORT/BUFFER

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Surrounding the assessment area to the north, south, and east is somewhat extensive natural forest. However, the surrounding area is not optimal habitat due to past land management practices and fire suppression. To the west is a narrower strip of disturbed habitat (partially cleared), then a road and low density residential development. Wildlife corridors are present and the surrounding area is large enough to provide habitat for large mammals and reptiles.

FIELD HYDROLOGY

(Site specific based on conditions inside and outside the polygon.) A natural hydrologic regime has been restored to the wetlands with restoration of the stream channel.

WQ INPUT & TREATMENT

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Water that enters the wetlands comes from adjacent forested uplands to the east and west in the form of runoff and rainfall. There is also groundwater discharge from upland areas. Runoff from upstream residential development presumably is directed into detention ponds before discharging into natural areas, including Tiawasee Creek and its adjacent wetlands.

Site: TC - Tiawasee Creek East of Park Avenue and Pollard Road
Region: Coastal Plain

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Acer rubrum	3	Perennial	Tree	Native	FAC
Alnus serrulata	5	Perennial	Tree, Shrub	Native	FACW
Alternanthera sessilis	1	Annual, Perennial	Forb/herb	Introduced	OBL
Andropogon glomeratus	3	Perennial	Graminoid	Native	FACW
Arundinaria gigantea	5	Perennial	Subshrub, Shrub, Graminoid	Native	FACW
Baccharis halimifolia	3	Perennial	Tree, Shrub	Native	FAC
Bacopa monnieri	3	Perennial	Forb/herb	Native	OBL
Betula nigra	4	Perennial	Tree	Native	FACW
Bidens alba		Annual, Perennial	Forb/herb	Native	
Bidens mitis	6	Annual	Forb/herb	Native	OBL
Boehmeria cylindrica	4	Perennial	Forb/herb	Native	FACW
Bulbostylis capillaris	4	Annual, Perennial	Graminoid	Native	FAC
Callicarpa americana		Perennial	Shrub	Native	FACU
Cardamine flexuosa	0	Annual, Biennial, Perennial	Forb/herb	Introduced	FACU
Centella erecta	4	Perennial	Forb/herb	Native	FACW
Chamaecrista fasciculata		Annual	Forb/herb	Native	FACU
Chamaesyce hyssopifolia	2	Annual, Perennial	Forb/herb	Native	FAC
Chasmanthium laxum	5	Perennial	Graminoid	Native	FACW
Cinnamomum camphora	0	Perennial	Tree	Introduced	UPL
Conoclinium coelestinum	4	Perennial	Forb/herb	Native	FAC
Cyperus virens	4	Perennial	Graminoid	Native	FACW
Cyrilla racemiflora	6	Perennial	Tree, Shrub	Native	FACW
Decumaria barbara	6	Perennial	Vine	Native	FACW
Eleocharis rostellata	8	Perennial	Graminoid	Native	OBL
Eleocharis tortilis	7	Perennial	Graminoid	Native	FACW
Erianthus giganteus	4	Perennial	Graminoid	Native	FACW
Eupatorium capillifolium		Perennial	Forb/herb	Native	FACU
Eupatorium perfoliatum	4	Perennial	Forb/herb	Native	FACW
Habenaria repens	5	Perennial	Forb/herb	Native	OBL
Hamamelis virginiana		Perennial	Tree, Shrub	Native	FACU
Hedyotis uniflora	4	Annual	Subshrub, Forb/herb	Native	FACW
Helianthus angustifolius	5	Perennial	Forb/herb	Native	FACW
Ilex coriacea	7	Perennial	Tree, Shrub	Native	FACW
Ilex glabra	5	Perennial	Shrub	Native	FACW
Ilex opaca	5	Perennial	Tree, Shrub	Native	FAC
Ilex vomitoria	5	Perennial	Tree, Shrub	Native	FAC
Illicium floridanum	7	Perennial	Tree, Shrub	Native	FACW
Itea virginica	7	Perennial	Shrub	Native	FACW
Juncus effusus	3	Perennial	Graminoid	Native	OBL
Juncus trigonocarpus	6	Perennial	Graminoid	Native	OBL
Juniperus virginiana		Perennial	Tree	Native	FACU
Lachnanthes caroliana	5	Perennial	Forb/herb	Native	OBL

TC (cont'd) –

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Leersia virginica	5	Perennial	Graminoid	Native	FACW
Ligustrum sinense	0	Perennial	Tree, Shrub	Introduced	FAC
Liquidambar styraciflua	3	Perennial	Tree	Native	FAC
Liriodendron tulipifera		Perennial	Tree	Native	FACU
Lobelia puberula	5	Perennial	Forb/herb	Native	FACW
Lonicera japonica	0	Perennial	Vine	Introduced	FAC
Ludwigia alternifolia	4	Perennial	Forb/herb	Native	OBL
Ludwigia leptocarpa	5	Annual, Perennial	Subshrub, Forb/herb	Native	OBL
Lycopus americanus	5	Perennial	Forb/herb	Native	OBL
Lygodium japonicum	0	Perennial	Vine, Forb/herb	Introduced	FAC
Magnolia virginiana	6	Perennial	Tree, Shrub	Native	FACW
Mayaca fluviatilis	6	Perennial	Forb/herb	Native	OBL
Mikania scandens	4	Perennial	Vine, Forb/herb	Native	FACW
Morella cerifera	4	Perennial	Tree, Subshrub, Shrub	Native	FAC
Nyssa biflora	7	Perennial	Tree	Native	OBL
Orontium aquaticum	7	Perennial	Forb/herb	Native	OBL
Osmunda cinnamomea	7	Perennial	Forb/herb	Native	FACW
Osmunda regalis	7	Perennial	Forb/herb	Native	OBL
Panicum longifolium	7	Perennial	Graminoid	Native	
Panicum repens	0	Perennial	Graminoid	Introduced	FACW
Paspalum urvillei	0	Perennial	Graminoid	Introduced	FAC
Peltandra virginica	7	Perennial	Forb/herb	Native	OBL
Persea palustris	7	Perennial	Tree, Shrub	Native	FACW
Phyllanthus urinaria	0	Annual	Forb/herb	Introduced	FAC
Pinus elliottii	5	Perennial	Tree	Native	FACW
Pluchea camphorata	5	Annual, Perennial	Forb/herb	Native	FACW
Polygonum punctatum	4	Annual, Perennial	Forb/herb	Native	
Rhynchospora capitellata	6	Perennial	Graminoid	Native	OBL
Rhynchospora glomerata	5	Perennial	Graminoid	Native	OBL
Rubus argutus	2	Perennial	Subshrub	Native	FAC
Rubus trivialis		Perennial	Subshrub, Vine	Native	FACU
Sagittaria latifolia	5	Perennial	Forb/herb	Native	OBL
Salix nigra	3	Perennial	Tree	Native	OBL
Saururus cernuus	6	Perennial	Forb/herb	Native	OBL
Scirpus cyperinus	3	Perennial	Graminoid	Native	OBL
Smilax laurifolia	5	Perennial	Shrub, Vine	Native	FACW
Solidago rugosa	4	Perennial	Forb/herb	Native	FAC
Sparganium americanum	6	Perennial	Forb/herb	Native	OBL
Symphyotrichum lateriflorum	5	Perennial	Forb/herb	Native	FAC
Taxodium distichum	6	Perennial	Tree	Native	OBL
Thelypteris palustris	7	Perennial	Forb/herb	Native	OBL
Toxicodendron radicans	3	Perennial	Shrub, Forb/herb, Subshrub, Vine	Native	FAC
Triadenum walteri	7	Perennial	Forb/herb	Native	OBL
Triadica sebifera	0	Perennial	Tree	Introduced	FAC

TC (cont'd) –

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Typha latifolia	2	Perennial	Forb/herb	Native	OBL
Verbena brasiliensis	0	Annual	Subshrub, Forb/herb	Introduced	
Viburnum nudum	7	Perennial	Tree, Shrub	Native	FACW
Vigna luteola	2	Perennial	Vine, Forb/herb	Native	FACW
Viola primulifolia				Not Available	
Vitis rotundifolia	4	Perennial	Vine	Native	FAC
Woodwardia areolata	6	Perennial	Forb/herb	Native	OBL

Site: TC - Tiawassee Creek East of Park Avenue and Pollard Road
Region: Coastal Plain

Metric Name	Calculated Value
Total Number of Species with Assigned C-values (N)	84
Mean Coefficient of Conservatism (C)	4.32
Mean C (native species only)	4.96
Floristic Quality Index (FQI) (all species)	39.61
Adjusted FQI (native species only)	42.37
Total Number of Species	93
Total Number of Native Species	82
Percent Tolerant Species	28.57
Percent Intolerant Species	17.86
Percent Wetness	89.77

TC7 – Tiawasee Creek Wetlands just Upstream of the Lake Forest Impoundment

☐ PROPOSED
☑ EXISTING CONDITIONS

WETLAND RAPID ASSESSMENT PROCEDURE

COUNTY:	PROJECT	DATE	REVIEWER	FLUCCS CODE	
APP. #:				WETLAND TYPE:	☑ FORESTED ☐ Non-Forested
Baldwin	MBNEP D'Olive Creek	11/7/2017	Gena Todia		
TC7					

LAND USE CATEGORY	WETLAND AREA	SECONDARY IMPACTS	MELALEUCA INVASION >50%
Natural	50 M ACRES	☐ NO ☐ YES %=	☐ NO ☐ YES
	ACRES OF IMPACT	ACRES	

WILD LIFE UTILIZATION	1	WRAP SCORE
WETLAND CANOPY	1.5	52.50%
WETLAND GROUND COVER	1.5	
HABITAT SUPPORT / BUFFER	1.5	

BUFFER TYPE	SCORE	% AREA	SUB TOTAL
S-natural, golf course	1.5	60	0.9
N-natural, residential	1.5	40	0.6
			0
			0
			0

FIELD HYDROLOGY	2
WATER QUALITY INPUT & TREATMENT	1.95

LAND USE CATEGORY

LAND USE CATEGORY	SCORE	% AREA	SUB TOTAL
Single-fam Res/Golf Crs	1.5	60	0.9
Natural Area	3	40	1.2
			0
			0
			0
		LU TOTAL	2.1

PRETREATMENT CATEGORY

PRETREATMENT CATEGORY	SCORE	% AREA	SUB TOTAL
Veg Buffer/Dry Det	1	60	0.6
Natural Area	3	40	1.2
			0
			0
			0
		PT TOTAL	1.8

WILDLIFE UTILIZATION

(Wildlife utilization should be in consideration of the suite of species that would inhabit and are endemic to the mature target wetland system and not just any wildlife.) Wildlife habitat is degraded, limited in size, fragmented, and surrounded by development. Adequate upland food and cover are lacking. There are freqent human disturbances associated with the adjacent golf course and residential development.

WETLAND CANOPY

(Canopy is defined as woody vegetation with greater than 4 inch dbh.) The canopy is lacking diversity and maturity. Several species that should be present are not there. Chinese tallow tree (Triadica sebifera) and Chinese privet (Ligustrum sinense) are prevalent. Few snags are present. There are few signs of natural recruitment.

WETLAND GROUND COVER

(Groundcover should be in consideration of endemic species of target wetland community.) Groundcover includes a diversity of appropriate herbaceous and woody species; however, there is also a high percentage of invasive exotics, including alligatorweed (Alternanthera philoxeroides), a few coral ardisia (Ardisia crenata), Japanese climbing fern (Lygodium japonicum), and torpedo grass (Panicum repens).

HABITAT SUPPORT/BUFFER

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Surrounding the assessment area to the north, south, and east is a narrow strip of forested uplands, then a golf course and/or single-family residential development. The lake is to the west. Wildlife corridors are present, but limited and surrounded by development.

FIELD HYDROLOGY

(Site specific based on conditions inside and outside the polygon.) The hydrology is adequate to maintain a wetland system, but it has been altered by downstream impoundment (the lake) and sediment input from upstream. Runoff from adjacent and upstream development has also altered the natural hydrology of the creek and these adjacent wetlands. Generally, the assessment area was wetter than during previous assessment visits.

WQ INPUT & TREATMENT

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Water that enters the wetlands comes from adjacent and upstream forested uplands in the form of runoff and rainfall. There is also groundwater discharge from upland areas. Runoff from upstream and adjacent residential development and the golf course flows through vegetated areas before entering natural areas.

Site: TC7 - Tiawasee Creek Wetlands just Upstream of the Lake Forest Impoundment
Region: Coastal Plain

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Acer rubrum	3	Perennial	Tree	Native	FAC
Alnus serrulata	5	Perennial	Tree, Shrub	Native	FACW
Alternanthera philoxeroides	0	Perennial	Forb/herb	Introduced	OBL
Bidens laevis	6	Annual, Perennial	Forb/herb	Native	OBL
Bidens mitis	6	Annual	Forb/herb	Native	OBL
Boehmeria cylindrica	4	Perennial	Forb/herb	Native	FACW
Campsis radicans	2	Perennial	Vine	Native	FAC
Carex glaucescens	7	Perennial	Graminoid	Native	OBL
Centella erecta	4	Perennial	Forb/herb	Native	FACW
Cephalanthus occidentalis	5	Perennial	Tree, Shrub	Native	OBL
Chasmanthium laxum	5	Perennial	Graminoid	Native	FACW
Colocasia esculenta	0	Perennial	Forb/herb	Introduced	FACW
Conoclinium coelestinum	4	Perennial	Forb/herb	Native	FAC
Cuscuta gronovii		Perennial	Vine, Forb/herb	Native	
Cyrilla racemiflora	6	Perennial	Tree, Shrub	Native	FACW
Dichanthelium scabriusculum	4	Perennial	Graminoid	Native	OBL
Erianthus giganteus	4	Perennial	Graminoid	Native	FACW
Gelsemium sempervirens	4	Perennial	Vine, Shrub	Native	FAC
Habenaria repens	5	Perennial	Forb/herb	Native	OBL
Hypericum mutilum	3	Annual, Perennial	Forb/herb	Native	FACW
Ilex vomitoria	5	Perennial	Tree, Shrub	Native	FAC
Itea virginica	7	Perennial	Shrub	Native	FACW
Juncus effusus	3	Perennial	Graminoid	Native	OBL
Ligustrum sinense	0	Perennial	Tree, Shrub	Introduced	FAC
Liriodendron tulipifera		Perennial	Tree	Native	FACU
Lobelia siphilitica	6	Perennial	Forb/herb	Native	OBL
Lonicera japonica	0	Perennial	Vine	Introduced	FAC
Ludwigia peruviana	0	Perennial	Subshrub, Shrub, Forb/herb	Introduced	OBL
Lycopus virginicus	5	Perennial	Forb/herb	Native	OBL
Lygodium japonicum	0	Perennial	Vine, Forb/herb	Introduced	FAC
Mikania scandens	4	Perennial	Vine, Forb/herb	Native	FACW
Morella cerifera	4	Perennial	Tree, Subshrub, Shrub	Native	FAC
Osmunda regalis	7	Perennial	Forb/herb	Native	OBL
Panicum repens	0	Perennial	Graminoid	Introduced	FACW
Panicum verrucosum	5	Annual	Graminoid	Native	FACW
Parthenocissus quinquefolia		Perennial	Vine	Native	FACU
Pinus taeda	2	Perennial	Tree	Native	FAC
Pluchea foetida	5	Perennial	Forb/herb	Native	OBL
Polygonum hydropiperoides	4	Perennial	Forb/herb	Native	OBL
Quercus nigra	3	Perennial	Tree	Native	FAC
Rhynchospora caduca	6	Perennial	Graminoid	Native	OBL
Rhynchospora corniculata	5	Perennial	Graminoid	Native	OBL

TC7 (cont'd) –

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Rubus argutus	2	Perennial	Subshrub	Native	FAC
Sagittaria latifolia	5	Perennial	Forb/herb	Native	OBL
Salix nigra	3	Perennial	Tree	Native	OBL
Sambucus canadensis	3	Perennial	Tree, Shrub	Native	FACW
Saururus cernuus	6	Perennial	Forb/herb	Native	OBL
Scirpus cyperinus	3	Perennial	Graminoid	Native	OBL
Smilax bona-nox	4	Perennial	Shrub, Vine	Native	FAC
Smilax glauca	4	Perennial	Shrub, Vine	Native	FAC
Smilax laurifolia	5	Perennial	Shrub, Vine	Native	FACW
Solidago sempervirens	6	Perennial	Forb/herb	Native	FACW
Spiranthes odorata	7	Perennial	Forb/herb	Native	OBL
Stachys floridana	2	Perennial	Forb/herb	Native	FAC
Symphyotrichum lateriflorum	5	Perennial	Forb/herb	Native	FAC
Thelypteris dentata	0	Perennial	Forb/herb	Native	FACW
Thelypteris palustris	7	Perennial	Forb/herb	Native	OBL
Toxicodendron radicans	3	Perennial	Shrub, Forb/herb, Subshrub, Vine	Native	FAC
Triadenum walteri	7	Perennial	Forb/herb	Native	OBL
Triadica sebifera	0	Perennial	Tree	Introduced	FAC
Vaccinium elliottii	7	Perennial	Shrub	Native	FACW
Vigna luteola	2	Perennial	Vine, Forb/herb	Native	FACW
Viola primulifolia				Not Available	
Vitis rotundifolia	4	Perennial	Vine	Native	FAC
Wisteria frutescens	6	Perennial	Vine	Native	FACW
Woodwardia areolata	6	Perennial	Forb/herb	Native	OBL
Xyris ambigua	8	Perennial	Forb/herb	Native	OBL

Site: TC7 - Tiawasee Creek Wetlands just Upstream of the Lake Forest Impoundment
Region: Coastal Plain

Metric Name	Calculated Value
Total Number of Species with Assigned C-values (N)	63
Mean Coefficient of Conservatism (C)	4.02
Mean C (native species only)	4.6
Floristic Quality Index (FQI) (all species)	31.88
Adjusted FQI (native species only)	34.11
Total Number of Species	67
Total Number of Native Species	59
Percent Tolerant Species	34.92
Percent Intolerant Species	12.70
Percent Wetness	96.92

DCB – D'Olive Creek Wetlands just Upstream of the Lake Forest Impoundment

WETLAND RAPID ASSESSMENT PROCEDURE

☐ PROPOSED
☑ EXISTING CONDITIONS

COUNTY:	PROJECT	DATE	REVIEWER	FLUCCS CODE	
APP. #:				WETLAND TYPE:	☑ FORESTED ☐ Non-Forested
Baldwin	MBNEP D'Olive Creek	11/7/2017	Gena Todia		
DCB					

LAND USE CATEGORY	WETLAND AREA	SECONDARY IMPACTS	MELALEUCA INVASION >50%
Natural	50 M ACRES	☐ NO ☐ YES %=	☐ NO ☐ YES
	ACRES OF IMPACT	ACRES	

WRAP SCORE
46.53%

WILD LIFE UTILIZATION	1
WETLAND CANOPY	1.5
WETLAND GROUND COVER	1.5
HABITAT SUPPORT / BUFFER	1.125
FIELD HYDROLOGY	2
WATER QUALITY INPUT & TREATMENT	1.25

HABITAT SUPPORT / BUFFER

BUFFER TYPE	SCORE	% AREA	SUB TOTAL
N-residential	0.5	25	0.125
S-natural	2	25	0.5
E-natural	2	25	0.5
W-residential/road	0	25	0
			0

WATER QUALITY INPUT & TREATMENT

LAND USE CATEGORY

LAND USE CATEGORY	SCORE	% AREA	SUB TOTAL
Single-family residential	1.5	80	1.2
Natural area	3	10	0.3
			0
			0
			0
		LU TOTAL	1.5

PRETREATMENT CATEGORY

PRETREATMENT CATEGORY	SCORE	% AREA	SUB TOTAL
Vegetated Buffer	1	100	1
			0
			0
			0
			0
		PT TOTAL	1

WILDLIFE UTILIZATION

(Wildlife utilization should be in consideration of the suite of species that would inhabit and are endemic to the mature target wetland system and not just any wildlife.) The limited habitat present is degraded by sedimentation and invasion by exotic plant species. The wetlands are adjacent to residential property and a high-volume road, so any wildlife present is subject to frequent human disturbance. Adjacent upland food sources are limited.

WETLAND CANOPY

(Canopy is defined as woody vegetation with greater than 4 inch dbh.) The canopy lacks diversity and includes a high percentage of Chinese tallow tree (Triadica sebifera). Few snags are present. There are minimal signs of natural recruitment.

WETLAND GROUND COVER

(Groundcover should be in consideration of endemic species of target wetland community.) Groundcover includes a diversity of herbaceous species; however, a high percentage is invasive exotic species, including Japanese climbing fern (Lygodium japonicum), iris sp., Peruvian primrose-willow (Ludwigia peruviana), parrot feather (Myriophyllum aquaticum), sessile joyweed (Alternanthera sessilis), torpedo grass (Panicum repens), and cogongrass (Imperata cylindrica).

HABITAT SUPPORT/BUFFER

(This is based upon habitats OUTSIDE the perimeter of the polygon.) To the immediate north are residential yards; to the south is the creek, then a narrow forested area, and beyond that are residential areas; to the east is a forested corridor along the creek; and to the west is a residential lawn, then a heavily-traveled road, and then the lake. The natural areas to the south and east are degraded to some degree and are not very wide.

FIELD HYDROLOGY

(Site specific based on conditions inside and outside the polygon.) The hydrology is adequate to maintain a wetland system, except in areas where sediment has accumulated to unnaturally high elevations, but it has been altered by downstream impoundment and sediment input from upstream. Runoff from adjacent and upstream development has also altered the natural hydrology of the creek and these adjacent wetlands. A levee has formed along the creekbanks, which disconnects the wetlands from the creek except in high water flow events. Beaver activity has raised the water level in wetlands in this area. This site was wetter than previously.

WQ INPUT & TREATMENT

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Water that enters the wetlands comes from adjacent uplands to the north and east in the form of runoff and rainfall, and from creek overflow events during high rainfall occurrences. D'Olive Creek receives runoff from residential and commercial development, roadways, and natural forested areas.

Site: DCB - D"Olive Creek at Lake Forest
Region: Coastal Plain

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Acer rubrum	3	Perennial	Tree	Native	FAC
Alternanthera sessilis	1	Annual, Perennial	Forb/herb	Introduced	OBL
Ampelopsis arborea	4	Perennial	Vine, Shrub	Native	FAC
Arundinaria gigantea	5	Perennial	Subshrub, Shrub, Graminoid	Native	FACW
Bidens alba		Annual, Perennial	Forb/herb	Native	
Bidens laevis	6	Annual, Perennial	Forb/herb	Native	OBL
Bidens mitis	6	Annual	Forb/herb	Native	OBL
Boehmeria cylindrica	4	Perennial	Forb/herb	Native	FACW
Cephalanthus occidentalis	5	Perennial	Tree, Shrub	Native	OBL
Conoclinium coelestinum	4	Perennial	Forb/herb	Native	FAC
Cyperus retrorsus	2	Perennial	Graminoid	Native	FACU
Cyrilla racemiflora	6	Perennial	Tree, Shrub	Native	FACW
Dichanthelium scabriusculum	4	Perennial	Graminoid	Native	OBL
Erianthus giganteus	4	Perennial	Graminoid	Native	FACW
Galium tinctorium	5	Perennial	Forb/herb	Native	FACW
Itea virginica	7	Perennial	Shrub	Native	FACW
Juncus effusus	3	Perennial	Graminoid	Native	OBL
Leersia oryzoides	4	Perennial	Graminoid	Native	OBL
Ligustrum sinense	0	Perennial	Tree, Shrub	Introduced	FAC
Ludwigia octovalvis	2	Perennial	Subshrub, Forb/herb	Native	OBL
Lygodium japonicum	0	Perennial	Vine, Forb/herb	Introduced	FAC
Mikania scandens	4	Perennial	Vine, Forb/herb	Native	FACW
Morella cerifera	4	Perennial	Tree, Subshrub, Shrub	Native	FAC
Myriophyllum aquaticum	0	Perennial	Forb/herb	Introduced	OBL
Nyssa biflora	7	Perennial	Tree	Native	OBL
Orontium aquaticum	7	Perennial	Forb/herb	Native	OBL
Osmunda regalis	7	Perennial	Forb/herb	Native	OBL
Panicum gymnocarpon	5	Perennial	Graminoid	Native	OBL
Panicum repens	0	Perennial	Graminoid	Introduced	FACW
Polygonum punctatum	4	Annual, Perennial	Forb/herb	Native	
Quercus nigra	3	Perennial	Tree	Native	FAC
Rhynchospora macrostachya	6	Perennial	Graminoid	Native	OBL
Rubus trivialis		Perennial	Subshrub, Vine	Native	FACU
Sagittaria latifolia	5	Perennial	Forb/herb	Native	OBL
Sambucus canadensis	3	Perennial	Tree, Shrub	Native	FACW
Saururus cernuus	6	Perennial	Forb/herb	Native	OBL
Scirpus cyperinus	3	Perennial	Graminoid	Native	OBL
Smilax laurifolia	5	Perennial	Shrub, Vine	Native	FACW
Thelypteris palustris	7	Perennial	Forb/herb	Native	OBL
Triadica sebifera	0	Perennial	Tree	Introduced	FAC
Typha latifolia	2	Perennial	Forb/herb	Native	OBL
Vigna luteola	2	Perennial	Vine, Forb/herb	Native	FACW

Site: DCB - D"Olive Creek at Lake Forest
Region: Coastal Plain

Metric Name	Calculated Value
Total Number of Species with Assigned C-values (N)	40
Mean Coefficient of Conservatism (C)	3.88
Mean C (native species only)	4.53
Floristic Quality Index (FQI) (all species)	24.51
Adjusted FQI (native species only)	26.41
Total Number of Species	42
Total Number of Native Species	36
Percent Tolerant Species	37.5
Percent Intolerant Species	12.5
Percent Wetness	95

JB0N – Joe's Branch just North of the I-10 Interchange

☐ PROPOSED
☑ EXISTING CONDITIONS

WETLAND RAPID ASSESSMENT PROCEDURE

COUNTY:	PROJECT	DATE	REVIEWER	FLUCCS CODE	
APP. #:	JB0N	MBNEP D'Olive Creek	11/7/2017	Gena Todia	WETLAND TYPE: ☑ FORESTED ☐ Non-Forested

LAND USE CATEGORY	WETLAND AREA	SECONDARY IMPACTS	MELALEUCA INVASION >50%
Natural	50 M ACRES	☐ NO ☐ YES %=	☐ NO ☐ YES
	ACRES OF IMPACT	ACRES	

WILD LIFE UTILIZATION	1
WETLAND CANOPY	2
WETLAND GROUND COVER	2
HABITAT SUPPORT / BUFFER	0.6

WRAP SCORE
56.60%

BUFFER TYPE	SCORE	% AREA	SUB TOTAL
E&W-Detention Ponds	0.5	60	0.3
Joe's Br. creek corridor	2	15	0.3
S-Interstate exchange	0	25	0
			0
			0

FIELD HYDROLOGY	2.5
WATER QUALITY INPUT & TREATMENT	2.0875

LAND USE CATEGORY

LAND USE CATEGORY	SCORE	% AREA	SUB TOTAL
Mod Intensive Commercial	1.5	60	0.9
High Volume Hwy	1	25	0.25
Natural	2.5	15	0.375
			0
			0
		LU TOTAL	1.525

PRETREATMENT CATEGORY

PRETREATMENT CATEGORY	SCORE	% AREA	SUB TOTAL
Wet Detention	2.5	30	0.75
Vegetated Buffers	1	10	0.1
Natural	3	60	1.8
			0
			0
		PT TOTAL	2.65

WILDLIFE UTILIZATION

(Wildlife utilization should be in consideration of the suite of species that would inhabit and are endemic to the mature target wetland system and not just any wildlife.) Wildlife habitat is degraded, limited in size, essentially isolated and surrounded by development. Adequate upland food and cover are lacking. There are freqent human disturbances associated with traffic on surrounding roads, including an I-10 off ramp. These wetlands do offer limited habitat for birds, small mammals, reptiles, amphibians. A corridor is present upstream, but at it's upper end (Hwy. 31) is surrounded by dense development.

WETLAND CANOPY

(Canopy is defined as woody vegetation with greater than 4 inch dbh.) The canopy is composed of mostly appropriate species. Chinese tallow tree (Triadica sebifera) and Chinese privet (Ligustrum sinense) are present, but comprise less than 25% of the canopy. Few snags are present. There are few signs of natural recruitment.

WETLAND GROUND COVER

(Groundcover should be in consideration of endemic species of target wetland community.) Groundcover includes a diversity of appropriate herbaceous and woody species; however,several invasive exotics, including a few coral ardisia (Ardisia crenata), Japanese climbing fern (Lygodium japonicum), scattered downy maiden fern (Thelypteris dentata), Chinese privet (Ligustrum sinense), Chinese tallow tree (Triadica sebifera), and a few Oriental false hawksbeard (Youngia japonica) are also present.

HABITAT SUPPORT/BUFFER

(This is based upon habitats OUTSIDE the perimeter of the polygon.) To the east and west are stormwater detention ponds with no surrounding natural habitat. To the south is a narrow strip of forested uplands and then interstate exchange. To the north is an elevated bridge and then the upstream segment of the Joe's Branch stream and wetland corridor that extends north to Hwy. 31. This corridor is surrounded by cleared land and commercial development.

FIELD HYDROLOGY

(Site specific based on conditions inside and outside the polygon.) The hydrology is adequate to maintain a wetland system, but it has been altered by surrounding development. Runoff from adjacent and upstream development has also altered the natural hydrology of the creek and these adjacent wetlands. Recent beaver activity has made wetlands on the site wetter.

WQ INPUT & TREATMENT

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Water that enters the wetlands comes from upstream forested wetlands, surrounding cleared land, and discharge from the adjacent detention ponds.

Site: JBON - Joe's Branch just North of the I-10 Interchange
Region: Coastal Plain

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Alnus serrulata	5	Perennial	Tree, Shrub	Native	FACW
Andropogon glomeratus	3	Perennial	Graminoid	Native	FACW
Arnoglossum ovatum	9	Perennial	Forb/herb	Native	FACW
Bidens alba		Annual, Perennial	Forb/herb	Native	
Bidens laevis	6	Annual, Perennial	Forb/herb	Native	OBL
Bidens mitis	6	Annual	Forb/herb	Native	OBL
Bignonia capreolata	4	Perennial	Vine	Native	FAC
Boehmeria cylindrica	4	Perennial	Forb/herb	Native	FACW
Campsis radicans	2	Perennial	Vine	Native	FAC
Carex scabrata		Perennial	Graminoid	Native	OBL
Chasmanthium laxum	5	Perennial	Graminoid	Native	FACW
Commelina virginica	5	Perennial	Forb/herb	Native	FACW
Conoclinium coelestinum	4	Perennial	Forb/herb	Native	FAC
Dichanthelium scabriusculum	4	Perennial	Graminoid	Native	OBL
Eupatorium perfoliatum	4	Perennial	Forb/herb	Native	FACW
Gelsemium sempervirens	4	Perennial	Vine, Shrub	Native	FAC
Ilex coriacea	7	Perennial	Tree, Shrub	Native	FACW
Ilex vomitoria	5	Perennial	Tree, Shrub	Native	FAC
Ipomoea lacunosa	3	Annual	Vine, Forb/herb	Native	FAC
Juncus effusus	3	Perennial	Graminoid	Native	OBL
Juniperus virginiana		Perennial	Tree	Native	FACU
Liquidambar styraciflua	3	Perennial	Tree	Native	FAC
Lobelia siphilitica	6	Perennial	Forb/herb	Native	OBL
Lonicera japonica	0	Perennial	Vine	Introduced	FAC
Ludwigia peruviana	0	Perennial	Subshrub, Shrub, Forb/herb	Introduced	OBL
Lygodium japonicum	0	Perennial	Vine, Forb/herb	Introduced	FAC
Mikania scandens	4	Perennial	Vine, Forb/herb	Native	FACW
Onoclea sensibilis	5	Perennial	Forb/herb	Native	FACW
Orontium aquaticum	7	Perennial	Forb/herb	Native	OBL
Osmanthus americanus	7	Perennial	Tree, Shrub	Native	FAC
Osmunda cinnamomea	7	Perennial	Forb/herb	Native	FACW
Osmunda regalis	7	Perennial	Forb/herb	Native	OBL
Panicum gymnocarpon	5	Perennial	Graminoid	Native	OBL
Parthenocissus quinquefolia		Perennial	Vine	Native	FACU
Pinus taeda	2	Perennial	Tree	Native	FAC
Polygonum punctatum	4	Annual, Perennial	Forb/herb	Native	
Rhynchospora fascicularis	6	Perennial	Graminoid	Native	FACW
Rhynchospora odorata	8	Perennial	Graminoid	Native	OBL
Rubus trivialis		Perennial	Subshrub, Vine	Native	FACU
Sagittaria graminea	6	Perennial	Forb/herb	Native	OBL
Sagittaria latifolia	5	Perennial	Forb/herb	Native	OBL
Saururus cernuus	6	Perennial	Forb/herb	Native	OBL

JBON (cont'd):

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Smilax bona-nox	4	Perennial	Shrub, Vine	Native	FAC
Smilax laurifolia	5	Perennial	Shrub, Vine	Native	FACW
Symphyotrichum lateriflorum	5	Perennial	Forb/herb	Native	FAC
Taxodium distichum	6	Perennial	Tree	Native	OBL
Thelypteris dentata	0	Perennial	Forb/herb	Native	FACW
Thelypteris kunthii	4	Perennial	Forb/herb	Native	FACW
Toxicodendron radicans	3	Perennial	Shrub, Forb/herb, Subshrub, Vine	Native	FAC
Triadenum walteri	7	Perennial	Forb/herb	Native	OBL
Vitis rotundifolia	4	Perennial	Vine	Native	FAC
Woodwardia areolata	6	Perennial	Forb/herb	Native	OBL
Woodwardia virginica	7	Perennial	Forb/herb	Native	OBL

Site: JBON - Joe's Branch just North of the I-10 Interchange
Region: Coastal Plain

Metric Name	Calculated Value
Total Number of Species with Assigned C-values (N)	48
Mean Coefficient of Conservatism (C)	4.62
Mean C (native species only)	4.93
Floristic Quality Index (FQI) (all species)	32.04
Adjusted FQI (native species only)	33.09
Total Number of Species	53
Total Number of Native Species	50
Percent Tolerant Species	22.92
Percent Intolerant Species	18.75
Percent Wetness	94.12

J4-1 – Joe's Branch East of Town Center Avenue

☐ PROPOSED
☑ EXISTING CONDITIONS

WETLAND RAPID ASSESSMENT PROCEDURE

COUNTY:	PROJECT	DATE	REVIEWER	FLUCCS CODE	
APP. #:	J4-1	MBNEP D'Olive Creek	11/6/2017	Gena Todia	WETLAND TYPE: ☑ FORESTED ☐ Non-Forested

LAND USE CATEGORY	WETLAND AREA	SECONDARY IMPACTS	MELALEUCA INVASION >50%
Natural	50 M ACRES	☐ NO ☐ YES %=	☐ NO ☐ YES
	ACRES OF IMPACT	ACRES	

WILD LIFE UTILIZATION	2
WETLAND CANOPY	2
WETLAND GROUND COVER	2
HABITAT SUPPORT / BUFFER	2.15

WRAP SCORE
71.94%

BUFFER TYPE	SCORE	% AREA	SUB TOTAL
N&E-Natural	2.5	80	2
S-Detention Pond	1	15	0.15
West-Road	0	5	0
			0
			0

FIELD HYDROLOGY	2
WATER QUALITY INPUT & TREATMENT	2.8

LAND USE CATEGORY

LAND USE CATEGORY	SCORE	% AREA	SUB TOTAL
N&E-Natural	3	80	2.4
S-Low Int Commercial	1	15	0.15
W-High Vol Highway	1	5	0.05
			0
			0
		LU TOTAL	2.6

PRETREATMENT CATEGORY

PRETREATMENT CATEGORY	SCORE	% AREA	SUB TOTAL
Natural	3	100	3
			0
			0
			0
			0
		PT TOTAL	3

WILDLIFE UTILIZATION

(Wildlife utilization should be in consideration of the suite of species that would inhabit and are endemic to the mature target wetland system and not just any wildlife.) Wildlife habitat is limited in size, but generally good. Limited upland and wetland habitat is present to the north and east. There is some amount of human disturbances associated with traffic to the west. These wetlands offer limited habitat for birds, small mammals, reptiles, amphibians.

WETLAND CANOPY

(Canopy is defined as woody vegetation with greater than 4 inch dbh.) The canopy is composed primarily of appropriate native species. Chinese tallow tree (Triadica sebifera), Japanese privet (Ligustrum japonicum), and Chinese privet (L. sinense) are minor components. Few snags are present. There is some evidence of natural recruitment.

WETLAND GROUND COVER

(Groundcover should be in consideration of endemic species of target wetland community.) Groundcover includes a diversity of appropriate herbaceous and woody species. Invasive exotic species, including downy maiden fern (Thelypteris dentata) and coral ardisia (Ardisia crenata), are very minor components. Lots of Chinese privet and Chinese tallow tree seedlings have appeared in the wetlands since last year.

HABITAT SUPPORT/BUFFER

(This is based upon habitats OUTSIDE the perimeter of the polygon.) To the north and east is natural forested uplands and wetlands that are limited in size and with limited connection to wildlife corridors. To the south is a dentention pond. To the west is a road.

FIELD HYDROLOGY

(Site specific based on conditions inside and outside the polygon.) The hydrology is adequate to maintain a wetland system, but it has been altered by surrounding development. Runoff from adjacent and upstream development has also altered the natural hydrology of the stream and these adjacent wetlands. New sandy sediment was observed in the stream channel and there are signs of head-cutting at the downstream end of the assessment area.

WQ INPUT & TREATMENT

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Water that enters the wetlands comes from adjacent forested uplands and other primarily natural, undeveloped areas.

Site: J4-1 - Joe's Branch East of Town Center Avenue
Region: Coastal Plain

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Acer rubrum	3	Perennial	Tree	Native	FAC
Arnoglossum ovatum	9	Perennial	Forb/herb	Native	FACW
Arundinaria gigantea	5	Perennial	Subshrub, Shrub, Graminoid	Native	FACW
Bidens mitis	6	Annual	Forb/herb	Native	OBL
Bignonia capreolata	4	Perennial	Vine	Native	FAC
Carex glaucescens	7	Perennial	Graminoid	Native	OBL
Carex granularis	5	Perennial	Graminoid	Native	FACW
Chasmanthium laxum	5	Perennial	Graminoid	Native	FACW
Chionanthus virginicus	7	Perennial	Tree, Shrub	Native	FACU
Cinnamomum camphora	0	Perennial	Tree	Introduced	UPL
Clethra alnifolia	6	Perennial	Shrub	Native	FACW
Conoclinium coelestinum	4	Perennial	Forb/herb	Native	FAC
Cyperus pseudovegetus	3	Perennial	Graminoid	Native	FACW
Cyrilla racemiflora	6	Perennial	Tree, Shrub	Native	FACW
Decumaria barbara	6	Perennial	Vine	Native	FACW
Dichanthelium scabriusculum	4	Perennial	Graminoid	Native	OBL
Ilex cassine	7	Perennial	Tree, Shrub	Native	FACW
Ilex coriacea	7	Perennial	Tree, Shrub	Native	FACW
Ilex opaca	5	Perennial	Tree, Shrub	Native	FAC
Ilex verticillata	7	Perennial	Tree, Shrub	Native	FACW
Ilex vomitoria	5	Perennial	Tree, Shrub	Native	FAC
Itea virginica	7	Perennial	Shrub	Native	FACW
Juncus effusus	3	Perennial	Graminoid	Native	OBL
Juniperus virginiana		Perennial	Tree	Native	FACU
Ligustrum sinense	0	Perennial	Tree, Shrub	Introduced	FAC
Liquidambar styraciflua	3	Perennial	Tree	Native	FAC
Liriodendron tulipifera		Perennial	Tree	Native	FACU
Lonicera japonica	0	Perennial	Vine	Introduced	FAC
Lygodium japonicum	0	Perennial	Vine, Forb/herb	Introduced	FAC
Magnolia virginiana	6	Perennial	Tree, Shrub	Native	FACW
Mikania scandens	4	Perennial	Vine, Forb/herb	Native	FACW
Mitchella repens		Perennial	Subshrub, Forb/herb	Native	FACU
Morella caroliniensis	7	Perennial	Tree, Shrub	Native	FACW
Morella cerifera	4	Perennial	Tree, Subshrub, Shrub	Native	FAC
Nyssa biflora	7	Perennial	Tree	Native	OBL
Osmunda cinnamomea	7	Perennial	Forb/herb	Native	FACW
Osmunda regalis	7	Perennial	Forb/herb	Native	OBL
Persea palustris	7	Perennial	Tree, Shrub	Native	FACW
Pinus taeda	2	Perennial	Tree	Native	FAC
Prunus serotina		Perennial	Tree, Shrub	Native	FACU
Quercus nigra	3	Perennial	Tree	Native	FAC
Rhynchospora capitellata	6	Perennial	Graminoid	Native	OBL

J4-1 (cont'd):

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Rhynchospora glomerata	5	Perennial	Graminoid	Native	OBL
Rubus argutus	2	Perennial	Subshrub	Native	FAC
Sagittaria latifolia	5	Perennial	Forb/herb	Native	OBL
Sida rhombifolia		Annual, Perennial	Subshrub, Forb/herb	Native	FACU
Smilax laurifolia	5	Perennial	Shrub, Vine	Native	FACW
Symphyotrichum lateriflorum	5	Perennial	Forb/herb	Native	FAC
Taxodium distichum	6	Perennial	Tree	Native	OBL
Thelypteris dentata	0	Perennial	Forb/herb	Native	FACW
Toxicodendron radicans	3	Perennial	Shrub, Forb/herb, Subshrub, Vine	Native	FAC
Triadica sebifera	0	Perennial	Tree	Introduced	FAC
Viburnum nudum	7	Perennial	Tree, Shrub	Native	FACW
Viola primulifolia				Not Available	
Woodwardia areolata	6	Perennial	Forb/herb	Native	OBL

Site: J4-1 - Joe's Branch East of Town Center Avenue
Region: Coastal Plain

Metric Name	Calculated Value
Total Number of Species with Assigned C-values (N)	49
Mean Coefficient of Conservatism (C)	4.65
Mean C (native species only)	5.18
Floristic Quality Index (FQI) (all species)	32.57
Adjusted FQI (native species only)	34.37
Total Number of Species	55
Total Number of Native Species	50
Percent Tolerant Species	28.57
Percent Intolerant Species	26.53
Percent Wetness	87.04

JA – Unnamed Tributary to Joe's Branch North of Town Center Avenue

☐ PROPOSED
☑ EXISTING CONDITIONS

WETLAND RAPID ASSESSMENT PROCEDURE

COUNTY:	PROJECT	DATE	REVIEWER	FLUCCS CODE	
Baldwin	MBNEP D'Olive Creek	11/6/2017	Gena Todia	WETLAND TYPE:	☑ FORESTED ☐ Non-Forested
APP. #: JA					

LAND USE CATEGORY	WETLAND AREA	SECONDARY IMPACTS	MELALEUCA INVASION >50%
Natural	50 M ACRES	☐ NO ☐ YES %=	☐ NO ☐ YES
	ACRES OF IMPACT	ACRES	

WRAP SCORE
44.44%

WILD LIFE UTILIZATION	1
WETLAND CANOPY	0
WETLAND GROUND COVER	1.5
HABITAT SUPPORT / BUFFER	1.75

BUFFER TYPE	SCORE	% AREA	SUB TOTAL
N-Natural	2.5	50	1.25
S-Road/Commercial	1	50	0.5
			0
			0
			0

FIELD HYDROLOGY	2
WATER QUALITY INPUT & TREATMENT	1.75

LAND USE CATEGORY

LAND USE CATEGORY	SCORE	% AREA	SUB TOTAL
N-Natural	3	50	1.5
S-Road/Commerical	1	50	0.5
			0
			0
			0
		LU TOTAL	2

PRETREATMENT CATEGORY

PRETREATMENT CATEGORY	SCORE	% AREA	SUB TOTAL
Natural	3	50	1.5
No Treatment	0	50	0
			0
			0
			0
		PT TOTAL	1.5

WILDLIFE UTILIZATION
(Wildlife utilization should be in consideration of the suite of species that would inhabit and are endemic to the mature target wetland system and not just any wildlife.) Wildlife habitat is degraded and limited in size. Limited upland and wetland habitat is present to the north, northeast, and east. There is some amount of human disturbances associated with traffic on surrounding roads and commercial development. These wetlands do offer very limited habitat for birds, small mammals, reptiles, amphibians.

WETLAND CANOPY
(Canopy is defined as woody vegetation with greater than 4 inch dbh.) The canopy that should be present has been removed at some time in the past and is completely lacking. Young trees, including sweetgum (Liquidambar styraciflua) and black willow (Salix nigra) are present, but it will be years before a canopy develops.

WETLAND GROUND COVER
(Groundcover should be in consideration of endemic species of target wetland community.) Groundcover includes a diversity of appropriate, mostly common, herbaceous and woody species; however,several invasive exotics, including downy maiden fern (Thelypteris dentata), torpedo grass (Panicum repens), and Vasey grass (Paspalum urvillei), are also present. Common cat-tail (Typha latifolia) is also present.

HABITAT SUPPORT/BUFFER
(This is based upon habitats OUTSIDE the perimeter of the polygon.) To the north is natural forested uplands that are limited in size and with limited connection to wildlife corridors. To the south is a narrow (~70 ft.) of dense, young loblolly pine (Pinus taeda), then Town Center Avenue. To the south of the road is commercial development with no connection to wildlife corridors.

FIELD HYDROLOGY
(Site specific based on conditions inside and outside the polygon.) The hydrology is adequate to maintain a wetland system, but it has been altered by surrounding development. Runoff from adjacent and upstream development has also altered the natural hydrology of the stream and these adjacent wetlands.

WQ INPUT & TREATMENT
(This is based upon habitats OUTSIDE the perimeter of the polygon.) Water that enters the wetlands comes from adjacent forested uplands and runoff from the commercial development to the north.

Site: JA - Unnamed Tributary to Joe's Branch North of Town Center Avenue
Region: Coastal Plain

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Andropogon glomeratus	3	Perennial	Graminoid	Native	FACW
Baccharis halimifolia	3	Perennial	Tree, Shrub	Native	FAC
Bacopa monnieri	3	Perennial	Forb/herb	Native	OBL
Bidens alba		Annual, Perennial	Forb/herb	Native	
Callicarpa americana		Perennial	Shrub	Native	FACU
Cinnamomum camphora	0	Perennial	Tree	Introduced	UPL
Conoclinium coelestinum	4	Perennial	Forb/herb	Native	FAC
Dichondra carolinensis	2	Perennial	Forb/herb	Native	FAC
Diospyros virginiana	4	Perennial	Tree	Native	FAC
Eupatorium capillifolium		Perennial	Forb/herb	Native	FACU
Eupatorium perfoliatum	4	Perennial	Forb/herb	Native	FACW
Helenium autumnale	4	Perennial	Forb/herb	Native	FACW
Juncus effusus	3	Perennial	Graminoid	Native	OBL
Ligustrum sinense	0	Perennial	Tree, Shrub	Introduced	FAC
Liquidambar styraciflua	3	Perennial	Tree	Native	FAC
Liriodendron tulipifera		Perennial	Tree	Native	FACU
Lonicera japonica	0	Perennial	Vine	Introduced	FAC
Ludwigia octovalvis	2	Perennial	Subshrub, Forb/herb	Native	OBL
Magnolia grandiflora	4	Perennial	Tree	Native	FAC
Mikania scandens	4	Perennial	Vine, Forb/herb	Native	FACW
Morella cerifera	4	Perennial	Tree, Subshrub, Shrub	Native	FAC
Panicum repens	0	Perennial	Graminoid	Introduced	FACW
Paspalum urvillei	0	Perennial	Graminoid	Introduced	FAC
Phyllanthus urinaria	0	Annual	Forb/herb	Introduced	FAC
Polygonum punctatum	4	Annual, Perennial	Forb/herb	Native	
Rhynchospora capitellata	6	Perennial	Graminoid	Native	OBL
Rubus argutus	2	Perennial	Subshrub	Native	FAC
Rubus trivialis		Perennial	Subshrub, Vine	Native	FACU
Sagittaria latifolia	5	Perennial	Forb/herb	Native	OBL
Salix nigra	3	Perennial	Tree	Native	OBL
Scirpus cyperinus	3	Perennial	Graminoid	Native	OBL
Solidago altissima		Perennial	Forb/herb	Native	FACU
Symphyotrichum lateriflorum	5	Perennial	Forb/herb	Native	FAC
Taxodium distichum	6	Perennial	Tree	Native	OBL
Thelypteris dentata	0	Perennial	Forb/herb	Native	FACW
Thelypteris kunthii	4	Perennial	Forb/herb	Native	FACW
Thelypteris palustris	7	Perennial	Forb/herb	Native	OBL
Triadica sebifera	0	Perennial	Tree	Introduced	FAC
Typha latifolia	2	Perennial	Forb/herb	Native	OBL
Woodwardia virginica	7	Perennial	Forb/herb	Native	OBL

Site: JA - Unnamed Tributary to Joe's Branch North of Town Center Avenue
Region: Coastal Plain

Metric Name	Calculated Value
Total Number of Species with Assigned C-values (N)	34
Mean Coefficient of Conservatism (C)	2.97
Mean C (native species only)	3.74
Floristic Quality Index (FQI) (all species)	17.32
Adjusted FQI (native species only)	19.44
Total Number of Species	40
Total Number of Native Species	33
Percent Tolerant Species	55.88
Percent Intolerant Species	5.88
Percent Wetness	84.21

JB – UT to Joe's Branch Northeast of Town Center Avenue

WETLAND RAPID ASSESSMENT PROCEDURE

☐ PROPOSED
☑ EXISTING CONDITIONS

COUNTY:	PROJECT	DATE	REVIEWER	FLUCCS CODE	
Baldwin					
APP. #: JB	MBNEP D'Olive Creek	11/6/2017	Gena Todia	WETLAND TYPE: ☐ FORESTED ☑ Non-Forested	

LAND USE CATEGORY	WETLAND AREA	SECONDARY IMPACTS	MELALEUCA INVASION >50%
Semi-Natural	50 M ACRES	☐ NO ☐ YES %=	☐ NO ☐ YES
	ACRES OF IMPACT	ACRES	

WILD LIFE UTILIZATION 1

WETLAND CANOPY 0

WETLAND GROUND COVER 2

WRAP SCORE
41.94%

HABITAT SUPPORT / BUFFER 2

BUFFER TYPE	SCORE	% AREA	SUB TOTAL
Semi-Natural	2	100	2
			0
			0
			0
			0

FIELD HYDROLOGY 1

WATER QUALITY INPUT & TREATMENT 1.55

LAND USE CATEGORY

LAND USE CATEGORY	SCORE	% AREA	SUB TOTAL
E,W,S-Natural	3	90	2.7
N-Road/Commerical	1	10	0.1
			0
			0
			0
		LU TOTAL	2.8

PRETREATMENT CATEGORY

PRETREATMENT CATEGORY	SCORE	% AREA	SUB TOTAL
Natural	3	10	0.3
No Treatment	0	90	0
			0
			0
			0
		PT TOTAL	0.3

WILDLIFE UTILIZATION

(Wildlife utilization should be in consideration of the suite of species that would inhabit and are endemic to the mature target wetland system and not just any wildlife.) Wildlife habitat is degraded and limited in size. Limited upland habitat is present to the south, east, and west. A busy highway is to the north. There is some amount of human disturbances associated with traffic and nearby development. These wetlands do offer very limited habitat for birds, small mammals, reptiles, amphibians.

WETLAND CANOPY

(Canopy is defined as woody vegetation with greater than 4 inch dbh.) The canopy that should be present has been removed and is completely lacking.

WETLAND GROUND COVER

(Groundcover should be in consideration of endemic species of target wetland community.) Groundcover includes a diversity of appropriate, mostly common, herbaceous and woody species; however,several invasive exotics, including Vasey grass (Paspalum urvillei), Chinese tallow tree (Triadica sebifera), kudzu (Pueraria montana), Japanese climbing fern (Lygodium japonicum), cogongrass (Imperata cylindrica), and gripeweed (Phyllanthus urinaria) are present. There has been somewhat good recruitment of native species and spread of species planted as part of the restoration.

HABITAT SUPPORT/BUFFER

(This is based upon habitats OUTSIDE the perimeter of the polygon.) The assessment area is surrounded by forested uplands that are greater than 30 ft. but less than 300 ft. in width. The quality of the buffer is low to medium, but does provide some habitat support. Surrounding the forested areas are commercial and residential development and roads. A somewhat intact wildlife corridor exists to the south and southeast.

FIELD HYDROLOGY

(Site specific based on conditions inside and outside the polygon.) It is questionable that wetland hydrology exists within the flood plain adjacent to the new rip-rap-lined stream channel. Runoff from adjacent and upstream development has also altered the natural hydrology of the stream and any remaining adjacent wetlands.

WQ INPUT & TREATMENT

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Water that enters this area comes primarily from highway runoff that is to the north. Some water enters from adjacent forested land.

Site: JB - UT to Joe's Branch Northeast of Town Center Avenue
Region: Coastal Plain

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Acer rubrum	3	Perennial	Tree	Native	FAC
Andropogon glomeratus	3	Perennial	Graminoid	Native	FACW
Andropogon virginicus	3	Perennial	Graminoid	Native	FAC
Bacopa monnieri	3	Perennial	Forb/herb	Native	OBL
Betula nigra	4	Perennial	Tree	Native	FACW
Bidens alba		Annual, Perennial	Forb/herb	Native	
Campsis radicans	2	Perennial	Vine	Native	FAC
Carex glaucescens	7	Perennial	Graminoid	Native	OBL
Centella erecta	4	Perennial	Forb/herb	Native	FACW
Cephalanthus occidentalis	5	Perennial	Tree, Shrub	Native	OBL
Chamaecrista fasciculata		Annual	Forb/herb	Native	FACU
Cinnamomum camphora	0	Perennial	Tree	Introduced	UPL
Conoclinium coelestinum	4	Perennial	Forb/herb	Native	FAC
Dichanthelium scabriusculum	4	Perennial	Graminoid	Native	OBL
Eleocharis elliottii	6	Perennial	Graminoid	Native	OBL
Erigeron vernus	7	Perennial	Forb/herb	Native	OBL
Eupatorium perfoliatum	4	Perennial	Forb/herb	Native	FACW
Gelsemium sempervirens	4	Perennial	Vine, Shrub	Native	FAC
Helenium amarum		Annual	Forb/herb	Native	FACU
Helianthus angustifolius	5	Perennial	Forb/herb	Native	FACW
Ipomoea lacunosa	3	Annual	Vine, Forb/herb	Native	FAC
Juncus effusus	3	Perennial	Graminoid	Native	OBL
Juncus validus	5	Perennial	Graminoid	Native	FACW
Ligustrum sinense	0	Perennial	Tree, Shrub	Introduced	FAC
Liquidambar styraciflua	3	Perennial	Tree	Native	FAC
Liriodendron tulipifera		Perennial	Tree	Native	FACU
Ludwigia octovalvis	2	Perennial	Subshrub, Forb/herb	Native	OBL
Lygodium japonicum	0	Perennial	Vine, Forb/herb	Introduced	FAC
Magnolia virginiana	6	Perennial	Tree, Shrub	Native	FACW
Mikania scandens	4	Perennial	Vine, Forb/herb	Native	FACW
Morella cerifera	4	Perennial	Tree, Subshrub, Shrub	Native	FAC
Nyssa aquatica	7	Perennial	Tree	Native	OBL
Nyssa biflora	7	Perennial	Tree	Native	OBL
Panicum rigidulum	4	Perennial	Graminoid	Native	FACW
Paspalum urvillei	0	Perennial	Graminoid	Introduced	FAC
Phyllanthus urinaria	0	Annual	Forb/herb	Introduced	FAC
Pinus taeda	2	Perennial	Tree	Native	FAC
Pluchea camphorata	5	Annual, Perennial	Forb/herb	Native	FACW
Polypremum procumbens		Annual, Perennial	Forb/herb	Native	FACU
Pontederia cordata	6	Perennial	Forb/herb	Native	OBL
Rhynchospora glomerata	5	Perennial	Graminoid	Native	OBL
Rubus trivialis		Perennial	Subshrub, Vine	Native	FACU

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Sagittaria latifolia	5	Perennial	Forb/herb	Native	OBL
Salix nigra	3	Perennial	Tree	Native	OBL
Scoparia dulcis	3	Annual, Perennial	Forb/herb, Subshrub	Native	FAC
Sesbania vesicaria	2	Annual	Forb/herb, Subshrub	Native	FAC
Solidago altissima		Perennial	Forb/herb	Native	FACU
Sorghastrum nutans		Perennial	Graminoid	Native	FACU
Symphyotrichum lateriflorum	5	Perennial	Forb/herb	Native	FAC
Taxodium distichum	6	Perennial	Tree	Native	OBL
Triadica sebifera	0	Perennial	Tree	Introduced	FAC
Typha latifolia	2	Perennial	Forb/herb	Native	OBL
Verbena brasiliensis	0	Annual	Subshrub, Forb/herb	Introduced	
Vigna luteola	2	Perennial	Vine, Forb/herb	Native	FACW

Site: JB - UT to Joe's Branch Northeast of Town Center Avenue
Region: Coastal Plain

Metric Name	Calculated Value
Total Number of Species with Assigned C-values (N)	46
Mean Coefficient of Conservatism (C)	3.52
Mean C (native species only)	4.15
Floristic Quality Index (FQI) (all species)	23.89
Adjusted FQI (native species only)	25.94
Total Number of Species	54
Total Number of Native Species	47
Percent Tolerant Species	47.83
Percent Intolerant Species	8.70
Percent Wetness	84.62

D4-D6(1) – D'Olive Creek Restoration Area Between I-10 & US 90

☐ PROPOSED
☑ EXISTING CONDITIONS

WETLAND RAPID ASSESSMENT PROCEDURE

COUNTY:	PROJECT	DATE	REVIEWER	FLUCCS CODE	
APP. #: D4-D6(1)	MBNEP D'Olive Creek	11/7/2017	Gena Todia	WETLAND TYPE: ☐ FORESTED ☑ Non-Forested	

LAND USE CATEGORY	WETLAND AREA	SECONDARY IMPACTS	MELALEUCA INVASION >50%
Restored Corridor	50 M ACRES	☐ NO ☐ YES %=	☐ NO ☐ YES
	ACRES OF IMPACT	ACRES	

WILD LIFE UTILIZATION 1

WETLAND CANOPY 0

WETLAND GROUND COVER 2

WRAP SCORE 52.78%

HABITAT SUPPORT / BUFFER 1.5

BUFFER TYPE	SCORE	% AREA	SUB TOTAL
Natural	2.5	50	1.25
Restoration Area	0.5	50	0.25
			0
			0
			0

FIELD HYDROLOGY 3

WATER QUALITY INPUT & TREATMENT 2

LAND USE CATEGORY

LAND USE CATEGORY	SCORE	% AREA	SUB TOTAL
E,W-Natural	3	50	1.5
N-Interstate 10	1	50	0.5
			0
			0
			0
		LU TOTAL	2

PRETREATMENT CATEGORY

PRETREATMENT CATEGORY	SCORE	% AREA	SUB TOTAL
Natural	3	50	1.5
Grass Swale	1	50	0.5
			0
			0
			0
		PT TOTAL	2

WILDLIFE UTILIZATION

(Wildlife utilization should be in consideration of the suite of species that would inhabit and are endemic to the mature target wetland system and not just any wildlife.) The stream channel and adjacent flood plain wetlands were rebuilt/restored over a year ago and was recently replanted. Lots of herbaceous plants have colonized the open area. Herbaceous cover is providing some limited wildlife habitat.

WETLAND CANOPY

(Canopy is defined as woody vegetation with greater than 4 inch dbh.) The canopy that should be present has been lost to erosion or removed and is completely lacking.

WETLAND GROUND COVER

(Groundcover should be in consideration of endemic species of target wetland community.) Groundcover has improved significantly in the past year. The restoration area was seeded and planted and lots of natural recruitment of native (primarily herbaceous) species has occurred. A few exotic species are also present. Bare areas remain.

HABITAT SUPPORT/BUFFER

(This is based upon habitats OUTSIDE the perimeter of the polygon.) To the east and west of the assessment area is fairly extensive natural forestland, the quality of which has been impacted to some extent by human activities. To the north and south is restoration area that has essentially no habitat yet present. Upland and wetland habitat is present outside of the assessment area, but is ultimately surrounded by major highways and other development.

FIELD HYDROLOGY

(Site specific based on conditions inside and outside the polygon.) It appears that the restoration project has fully restored wetland hydrology to the wetlands adjacent to the stream channel.

WQ INPUT & TREATMENT

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Water that enters this area comes primarily from highway runoff that is to the north. Some water enters from adjacent forested land.

Site: D4-D6(1) - D'Olive Creek Restoration Area Between I-10 & US 90
Region: Coastal Plain

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Andropogon glomeratus	3	Perennial	Graminoid	Native	FACW
Andropogon virginicus	3	Perennial	Graminoid	Native	FAC
Arnoglossum ovatum	9	Perennial	Forb/herb	Native	FACW
Betula nigra	4	Perennial	Tree	Native	FACW
Bidens alba		Annual, Perennial	Forb/herb	Native	
Bidens mitis	6	Annual	Forb/herb	Native	OBL
Callicarpa americana		Perennial	Shrub	Native	FACU
Centella erecta	4	Perennial	Forb/herb	Native	FACW
Chamaesyce hyssopifolia	2	Annual, Perennial	Forb/herb	Native	FAC
Conoclinium coelestinum	4	Perennial	Forb/herb	Native	FAC
Cornus foemina	6	Perennial	Tree, Shrub	Native	FACW
Cyperus polystachyos	4	Annual, Perennial	Graminoid	Native	FACW
Dichanthelium scabriusculum	4	Perennial	Graminoid	Native	OBL
Echinochloa colona	0	Annual	Graminoid	Introduced	FACW
Eleocharis flavescens	5	Perennial	Graminoid	Native	OBL
Eleocharis microcarpa	5	Annual	Graminoid	Native	OBL
Eupatorium capillifolium		Perennial	Forb/herb	Native	FACU
Eupatorium perfoliatum	4	Perennial	Forb/herb	Native	FACW
Fuirena squarrosa	5	Perennial	Graminoid	Native	OBL
Hyptis mutabilis	0	Perennial	Forb/herb	Introduced	FAC
Juncus effusus	3	Perennial	Graminoid	Native	OBL
Juncus marginatus	5	Perennial	Graminoid	Native	FACW
Juncus trigonocarpus	6	Perennial	Graminoid	Native	OBL
Juncus validus	5	Perennial	Graminoid	Native	FACW
Liriodendron tulipifera		Perennial	Tree	Native	FACU
Ludwigia alternifolia	4	Perennial	Forb/herb	Native	OBL
Ludwigia erecta		Annual, Perennial	Forb/herb	Native	OBL
Ludwigia octovalvis	2	Perennial	Subshrub, Forb/herb	Native	OBL
Ludwigia palustris	4	Perennial	Forb/herb	Native	OBL
Magnolia virginiana	6	Perennial	Tree, Shrub	Native	FACW
Mayaca fluviatilis	6	Perennial	Forb/herb	Native	OBL
Panicum rigidulum	4	Perennial	Graminoid	Native	FACW
Paspalum urvillei	0	Perennial	Graminoid	Introduced	FAC
Rhynchospora glomerata	5	Perennial	Graminoid	Native	OBL
Rhynchospora macrostachya	6	Perennial	Graminoid	Native	OBL
Sagittaria latifolia	5	Perennial	Forb/herb	Native	OBL
Salix caroliniana	4	Perennial	Tree	Native	OBL
Scirpus cyperinus	3	Perennial	Graminoid	Native	OBL
Symphyotrichum lateriflorum	5	Perennial	Forb/herb	Native	FAC
Taxodium distichum	6	Perennial	Tree	Native	OBL
Triadica sebifera	0	Perennial	Tree	Introduced	FAC
Viola primulifolia				Not Available	

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Vitis rotundifolia	4	Perennial	Vine	Native	FAC
Xyris ambigua	8	Perennial	Forb/herb	Native	OBL
Xyris serotina	8	Perennial	Forb/herb	Native	OBL
Youngia japonica	0	Annual	Forb/herb	Introduced	FACU

Site: D4-D6(1) - D'Olive Creek Restoration Area Between I-10 & US 90
Region: Coastal Plain

Metric Name	Calculated Value
Total Number of Species with Assigned C-values (N)	40
Mean Coefficient of Conservatism (C)	4.18
Mean C (native species only)	4.77
Floristic Quality Index (FQI) (all species)	26.41
Adjusted FQI (native species only)	28.23
Total Number of Species	46
Total Number of Native Species	41
Percent Tolerant Species	27.5
Percent Intolerant Species	7.5
Percent Wetness	90.91

D4-D6(2) – D'Olive Creek Undisturbed Forested Wetland Between I-10 & US 90

☐ PROPOSED
☑ EXISTING CONDITIONS

WETLAND RAPID ASSESSMENT PROCEDURE

COUNTY:	PROJECT	DATE	REVIEWER	FLUCCS CODE	
APP. #:	D4-D6(2)	MBNEP D'Olive Creek	11/7/2017	Gena Todia	WETLAND TYPE: ☐ FORESTED ☑ Non-Forested

LAND USE CATEGORY	WETLAND AREA		SECONDARY IMPACTS		MELALEUCA INVASION >50%
Natural	50 M	ACRES	☐ NO ☐ YES	%=	☐ NO ☐ YES
	ACRES OF IMPACT			ACRES	

WILD LIFE UTILIZATION 2

WETLAND CANOPY 2.5

WETLAND GROUND COVER 2.5

WRAP SCORE 76.39%

HABITAT SUPPORT / BUFFER 1.5

BUFFER TYPE	SCORE	% AREA	SUB TOTAL
Natural	2.5	50	1.25
Restoration Area	0.5	50	0.25
			0
			0
			0

FIELD HYDROLOGY 2.5

WATER QUALITY INPUT & TREATMENT 2.75

LAND USE CATEGORY

LAND USE CATEGORY	SCORE	% AREA	SUB TOTAL
Natural	2.75	100	2.75
			0
			0
			0
			0
		LU TOTAL	2.75

PRETREATMENT CATEGORY

PRETREATMENT CATEGORY	SCORE	% AREA	SUB TOTAL
Natural	2.75	100	2.75
			0
			0
			0
			0
		PT TOTAL	2.75

WILDLIFE UTILIZATION

(Wildlife utilization should be in consideration of the suite of species that would inhabit and are endemic to the mature target wetland system and not just any wildlife.) Habitat quality is pretty good, but has suffered some degree of degradation associated with past human disturbance. It is expected that songbirds, mammals, reptiles, and amphibians utilize the habitat that is present. Adequate upland food sources and cover are present for some distance to the west.

WETLAND CANOPY

(Canopy is defined as woody vegetation with greater than 4 inch dbh.) The canopy is primarily composed of native, appropriate species, with the exception of Chinese tallow tree (Triadica sebifera), which is a minor component. There is evidence of natural recruitment and the canopy appears generally healthy.

WETLAND GROUND COVER

(Groundcover should be in consideration of endemic species of target wetland community.) Groundcover is diverse and composed primarily of appropriate native species. Petersen's-spleenwort (Deparia petersenii), an invasive exotic fern, is a minor component.

HABITAT SUPPORT/BUFFER

(This is based upon habitats OUTSIDE the perimeter of the polygon.) To the west of the assessment area is fairly extensive natural forestland, the quality of which has been impacted to some extent by human activities. To the east is restoration area that has essentially no habitat yet present. Upland and wetland habitat is present outside of the assessment area, but is ultimately surrounded by major highways and other development.

FIELD HYDROLOGY

(Site specific based on conditions inside and outside the polygon.) It appears that the restoration project has fully restored wetland hydrology to the wetlands adjacent to the stream channel; however, this forested area is beginning to shows signs of impaired wetland hydrology in the form of exposed roots and scouring.

WQ INPUT & TREATMENT

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Water that enters this area comes primarily from rainfall and possibly some runoff from natural upland area. Water that flows through the flood plain adjacent to the stream channel does not reach this area, or if it does, it's only during extreme rainfall events.

Site: D4-D6(2) - D'Olive Creek Undisturbed Forested Wetland Between I-10 & US 9(
Region: Coastal Plain

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Acer rubrum	3	Perennial	Tree	Native	FAC
Callicarpa americana		Perennial	Shrub	Native	FACU
Carex cherokeensis	6	Perennial	Graminoid	Native	FACW
Carex glaucescens	7	Perennial	Graminoid	Native	OBL
Cinnamomum camphora	0	Perennial	Tree	Introduced	UPL
Cliftonia monophylla	6	Perennial	Tree, Shrub	Native	OBL
Cyrilla racemiflora	6	Perennial	Tree, Shrub	Native	FACW
Eupatorium perfoliatum	4	Perennial	Forb/herb	Native	FACW
Ilex cassine	7	Perennial	Tree, Shrub	Native	FACW
Ilex coriacea	7	Perennial	Tree, Shrub	Native	FACW
Ilex opaca	5	Perennial	Tree, Shrub	Native	FAC
Ilex vomitoria	5	Perennial	Tree, Shrub	Native	FAC
Itea virginica	7	Perennial	Shrub	Native	FACW
Juniperus virginiana		Perennial	Tree	Native	FACU
Ligustrum sinense	0	Perennial	Tree, Shrub	Introduced	FAC
Liriodendron tulipifera		Perennial	Tree	Native	FACU
Lobelia siphilitica	6	Perennial	Forb/herb	Native	OBL
Lonicera japonica	0	Perennial	Vine	Introduced	FAC
Lygodium japonicum	0	Perennial	Vine, Forb/herb	Introduced	FAC
Lyonia lucida	7	Perennial	Shrub	Native	FACW
Magnolia virginiana	6	Perennial	Tree, Shrub	Native	FACW
Mitchella repens		Perennial	Subshrub, Forb/herb	Native	FACU
Morella caroliniensis	7	Perennial	Tree, Shrub	Native	FACW
Morella inodora	8	Perennial	Tree, Shrub	Native	OBL
Nyssa biflora	7	Perennial	Tree	Native	OBL
Osmanthus americanus	7	Perennial	Tree, Shrub	Native	FAC
Osmunda cinnamomea	7	Perennial	Forb/herb	Native	FACW
Osmunda regalis	7	Perennial	Forb/herb	Native	OBL
Panicum verrucosum	5	Annual	Graminoid	Native	FACW
Persea palustris	7	Perennial	Tree, Shrub	Native	FACW
Phyllanthus urinaria	0	Annual	Forb/herb	Introduced	FAC
Pinus taeda	2	Perennial	Tree	Native	FAC
Quercus nigra	3	Perennial	Tree	Native	FAC
Rubus argutus	2	Perennial	Subshrub	Native	FAC
Scoparia dulcis	3	Annual, Perennial	Forb/herb, Subshrub	Native	FAC
Smilax laurifolia	5	Perennial	Shrub, Vine	Native	FACW
Thelypteris dentata	0	Perennial	Forb/herb	Native	FACW
Thelypteris kunthii	4	Perennial	Forb/herb	Native	FACW
Toxicodendron radicans	3	Perennial	Shrub, Forb/herb, Subshrub, Vine	Native	FAC
Triadica sebifera	0	Perennial	Tree	Introduced	FAC
Vaccinium corymbosum	6	Perennial	Shrub	Native	FACW
Viburnum nudum	7	Perennial	Tree, Shrub	Native	FACW

D4-D6(2) (cont'd.):

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Viola primulifolia				Not Available	
Vitis rotundifolia	4	Perennial	Vine	Native	FAC
Woodwardia areolata	6	Perennial	Forb/herb	Native	OBL

Site: D4-D6(2) - D'Olive Creek Undisturbed Forested Wetland Between I-10 & US 90
Region: Coastal Plain

Metric Name	Calculated Value
Total Number of Species with Assigned C-values (N)	40
Mean Coefficient of Conservatism (C)	4.55
Mean C (native species only)	5.35
Floristic Quality Index (FQI) (all species)	28.78
Adjusted FQI (native species only)	31.21
Total Number of Species	45
Total Number of Native Species	39
Percent Tolerant Species	32.5
Percent Intolerant Species	32.5
Percent Wetness	88.64

DA3 – UT to D'Olive Creek East of CR 13

☐ PROPOSED
☑ EXISTING CONDITIONS

WETLAND RAPID ASSESSMENT PROCEDURE

COUNTY:	PROJECT	DATE	REVIEWER	FLUCCS CODE	
APP. #: DA3	MBNEP D'Olive Creek	11/14/2017	Gena Todia	WETLAND TYPE: ☐ FORESTED ☑ Non-Forested	

LAND USE CATEGORY	WETLAND AREA	SECONDARY IMPACTS	MELALEUCA INVASION >50%
natural	50 M ACRES	☐ NO ☐ YES %=	☐ NO ☐ YES
	ACRES OF IMPACT	ACRES	

WILD LIFE UTILIZATION	1
WETLAND CANOPY	0.5
WETLAND GROUND COVER	1.5
HABITAT SUPPORT / BUFFER	2.5

WRAP SCORE
60.28%

HABITAT SUPPORT / BUFFER

BUFFER TYPE	SCORE	% AREA	SUB TOTAL
Natural	2.5	100	2.5
			0
			0
			0
			0

FIELD HYDROLOGY	3
WATER QUALITY INPUT & TREATMENT	2.35

LAND USE CATEGORY

LAND USE CATEGORY	SCORE	% AREA	SUB TOTAL
Natural	3	80	2.4
Single-Family Res	1.5	20	0.3
			0
			0
			0
		LU TOTAL	2.7

PRETREATMENT CATEGORY

PRETREATMENT CATEGORY	SCORE	% AREA	SUB TOTAL
Natural	3	50	1.5
Dry Detention	1	50	0.5
			0
			0
			0
		PT TOTAL	2

WILDLIFE UTILIZATION

(Wildlife utilization should be in consideration of the suite of species that would inhabit and are endemic to the mature target wetland system and not just any wildlife.) Habitat has been severely altered by clearing associated with the stream reconstruction work done less than a year ago. Adjacent natural areas remain and provide habitat support for a variety of species. The restoration area has been planted and recruitment of primarily herbaceous species is occurring, but habitat support is very limited currently.

WETLAND CANOPY

(Canopy is defined as woody vegetation with greater than 4 inch dbh.) The canopy has been completely removed except along the edges of the assessment area.

WETLAND GROUND COVER

(Groundcover should be in consideration of endemic species of target wetland community.) The restoration area has been seeded and planted with native species and there is good natural recruitment of native herbaceous species; however, several invasive exotic species are also present, including Japanese climbing fern (Lygodium japonicum), torpedo grass (Panicum repens), tropical bush mint (Hyptis mutabilis), and showy rattlebox (Crotalaria spectabilis). Lots of bare soil area is present.

HABITAT SUPPORT/BUFFER

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Natural forestland surrounds the assessment area, the quality of which has been degraded to some extent by human activities and fire supression. Habitat is present outside of the area, but ultimately is surrounded by highways and other development.

FIELD HYDROLOGY

(Site specific based on conditions inside and outside the polygon.) It appears that wetland hydrology has been restored. Soils are saturated to or near the surface in most areas and depressions are holding water. Water was flowing through the rebuilt stream channel at the time of the assessment.

WQ INPUT & TREATMENT

(This is based upon habitats OUTSIDE the perimeter of the polygon.) Water that enters this area comes from adjacent natural areas and from a detention pond associated with a single-family residential subdivision.

Site: DA3 - UT to D'Olive Creek East of CR 13
Region: Coastal Plain

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Acalypha gracilens	3	Annual	Forb/herb	Native	FAC
Acer rubrum	3	Perennial	Tree	Native	FAC
Andropogon virginicus	3	Perennial	Graminoid	Native	FAC
Bidens alba		Annual, Perennial	Forb/herb	Native	
Callicarpa americana		Perennial	Shrub	Native	FACU
Carex glaucescens	7	Perennial	Graminoid	Native	OBL
Chasmanthium laxum	5	Perennial	Graminoid	Native	FACW
Cinnamomum camphora	0	Perennial	Tree	Introduced	UPL
Conoclinium coelestinum	4	Perennial	Forb/herb	Native	FAC
Cyrilla racemiflora	6	Perennial	Tree, Shrub	Native	FACW
Decumaria barbara	6	Perennial	Vine	Native	FACW
Echinochloa crus-galli	0	Annual	Graminoid	Introduced	FACW
Eupatorium capillifolium		Perennial	Forb/herb	Native	FACU
Eupatorium compositifolium	2	Perennial	Forb/herb	Native	FAC
Eupatorium perfoliatum	4	Perennial	Forb/herb	Native	FACW
Euthamia tenuifolia	4	Perennial	Forb/herb	Native	FAC
Fuirena squarrosa	5	Perennial	Graminoid	Native	OBL
Gordonia lasianthus	8	Perennial	Tree, Shrub	Native	FACW
Hamamelis virginiana		Perennial	Tree, Shrub	Native	FACU
Hyptis mutabilis	0	Perennial	Forb/herb	Introduced	FAC
Ilex cassine	7	Perennial	Tree, Shrub	Native	FACW
Ilex coriacea	7	Perennial	Tree, Shrub	Native	FACW
Ilex glabra	5	Perennial	Shrub	Native	FACW
Ilex opaca	5	Perennial	Tree, Shrub	Native	FAC
Ilex vomitoria	5	Perennial	Tree, Shrub	Native	FAC
Illicium floridanum	7	Perennial	Tree, Shrub	Native	FACW
Itea virginica	7	Perennial	Shrub	Native	FACW
Jacquemontia tamnifolia		Annual	Vine, Forb/herb	Native	FACU
Juncus effusus	3	Perennial	Graminoid	Native	OBL
Juncus trigonocarpus	6	Perennial	Graminoid	Native	OBL
Leucothoe axillaris	7	Perennial	Shrub	Native	FACW
Ligustrum sinense	0	Perennial	Tree, Shrub	Introduced	FAC
Liriodendron tulipifera		Perennial	Tree	Native	FACU
Ludwigia alternifolia	4	Perennial	Forb/herb	Native	OBL
Ludwigia decurrens	5	Annual, Perennial	Forb/herb	Native	OBL
Ludwigia peruviana	0	Perennial	Subshrub, Shrub, Forb/herb	Introduced	OBL
Lygodium japonicum	0	Perennial	Vine, Forb/herb	Introduced	FAC
Magnolia virginiana	6	Perennial	Tree, Shrub	Native	FACW
Muhlenbergia capillaris	7	Perennial	Graminoid	Native	FAC
Nyssa biflora	7	Perennial	Tree	Native	OBL
Orontium aquaticum	7	Perennial	Forb/herb	Native	OBL
Panicum repens	0	Perennial	Graminoid	Introduced	FACW

DA3 (cont'd.):

USDA Scientific Name	C Value	Duration	Growth Habitat	Native Status	Indicator Status
Panicum verrucosum	5	Annual	Graminoid	Native	FACW
Paspalum urvillei	0	Perennial	Graminoid	Introduced	FAC
Pinus taeda	2	Perennial	Tree	Native	FAC
Platanus occidentalis	5	Perennial	Tree	Native	FACW
Polypremum procumbens		Annual, Perennial	Forb/herb	Native	FACU
Rhynchospora glomerata	5	Perennial	Graminoid	Native	OBL
Rhynchospora inexpansa	4	Perennial	Graminoid	Native	FACW
Rubus argutus	2	Perennial	Subshrub	Native	FAC
Rubus trivialis		Perennial	Subshrub, Vine	Native	FACU
Sagittaria lancifolia	5	Perennial	Forb/herb	Native	OBL
Sagittaria latifolia	5	Perennial	Forb/herb	Native	OBL
Scoparia dulcis	3	Annual, Perennial	Forb/herb, Subshrub	Native	FAC
Sida rhombifolia		Annual, Perennial	Subshrub, Forb/herb	Native	FACU
Smilax laurifolia	5	Perennial	Shrub, Vine	Native	FACW
Sparganium americanum	6	Perennial	Forb/herb	Native	OBL
Thelypteris dentata	0	Perennial	Forb/herb	Native	FACW
Triadica sebifera	0	Perennial	Tree	Introduced	FAC
Verbena brasiliensis	0	Annual	Subshrub, Forb/herb	Introduced	
Viola primulifolia				Not Available	
Vitis rotundifolia	4	Perennial	Vine	Native	FAC
Woodwardia areolata	6	Perennial	Forb/herb	Native	OBL
Xyris difformis	7	Perennial	Forb/herb	Native	OBL

Site: DA3 - UT to D'Olive Creek East of CR 13
Region: Coastal Plain

Metric Name	Calculated Value
Total Number of Species with Assigned C-values (N)	54
Mean Coefficient of Conservatism (C)	4.06
Mean C (native species only)	4.98
Floristic Quality Index (FQI) (all species)	29.80
Adjusted FQI (native species only)	33.02
Total Number of Species	64
Total Number of Native Species	54
Percent Tolerant Species	35.19
Percent Intolerant Species	20.37
Percent Wetness	85.25