



# **Appendix G7. Water Resources Technical Report (Part 2 of 2)**



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## **Appendix C. Photographs of Wetland Investigation Areas**



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West Lake Corridor

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		<b>PHOTOGRAPHIC LOG</b>	
<b>Project:</b> NICTD West Lake Corridor		<b>Site Location:</b> Just south of I-80	
<b>Photo No.</b> <b>1</b>	<b>Date:</b> 10/22/14		
<b>Direction of Photo:</b> Not recorded			
<b>Description:</b> <b>Little Calumet River</b>  <i>Note: these photos were taken by AECOM and are included in the DEIS. HDR formatted the photos to be consistent with the other water resources pictured in this photo log.</i>			

<b>Project:</b> NICTD West Lake Corridor		<b>Site Location:</b> Just south of I-80	
<b>Photo No.</b> <b>2</b>	<b>Date:</b> 10/22/14		
<b>Direction of Photo:</b> Not recorded			
<b>Description:</b> <b>Little Calumet River</b>  <i>Note: these photos were taken by AECOM and are included in the DEIS. HDR formatted the photos to be consistent with the other water resources pictured in this photo log.</i>			



West Lake Corridor

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		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor		Site Location: Hammond, IN	
Photo No. <b>3</b>	Date: 06/19/17		
Direction of Photo: Northwest			
Description: Grand Calumet River Left bank			

Project: NICTD West Lake Corridor		Site Location: Hammond, IN	
Photo No. <b>4</b>	Date: 06/19/17		
Direction of Photo: Northwest			
Description: Grand Calumet River Right bank			



<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Dyer, IN	Project No. 60321036
Photo No. <b>5</b>	Date: 09/16/15		
Direction Photo Taken:  Southwest			
Description:  Wetland 9			

Photo No. <b>6</b>	Date: 09/16/15	
Direction Photo Taken:  north		
Description:  Wetland 9  Soil Sample		





West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>7</b>	Date: 10/27/15		
Direction Photo Taken:  West			
Description:  Wetland 40			

Photo No. <b>8</b>	Date: 10/27/15	
Direction Photo Taken:  Northeast		
Description:  Wetland 40		



West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>9</b>	Date: 10/27/15		
Direction Photo Taken:  East			
Description:  Wetland 39			

Photo No. <b>10</b>	Date: 10/27/15	
Direction Photo Taken:  North		
Description:  Wetland 39		





West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>11</b>	Date: 10/27/15		
Direction Photo Taken:  South			
Description:  Wetland 38			

Photo No. <b>12</b>	Date: 10/27/15	
Direction Photo Taken:  East		
Description:  Wetland 38  Soil Sample		






West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>
<b>Project: NICTD West Lake Corridor Project</b>		<b>Site Location: Dyer, IN</b>
		<b>Project No.</b> 60321036
<b>Photo No.</b> <b>13</b>	<b>Date:</b> 09/17/15	
<b>Direction Photo Taken:</b>  South		
<b>Description:</b>  Wetland 11		

<b>Photo No.</b> <b>14</b>	<b>Date:</b> 09/17/15	
<b>Direction Photo Taken:</b>  West		
<b>Description:</b>  Wetland 11		



West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>15</b>	Date: 09/17/15		
Direction Photo Taken:  South			
Description:  Wetland 12			

Photo No. <b>16</b>	Date: 09/17/15	
Direction Photo Taken:  north		
Description:  Wetland 12  Soil Sample		





West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>17</b>	Date: 09/28/15		
Direction Photo Taken:  South			
Description:  Wetland 17			

Photo No. <b>18</b>	Date: 09/28/15	
Direction Photo Taken:  north		
Description:  Wetland 17		



West Lake Corridor

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**AECOM**

## PHOTOGRAPHIC LOG

**Project: NICTD West Lake Corridor Project**

**Site Location: Munster, IN**

**Project No.**

60321036

**Photo No.**  
**19**

**Date:**  
09/30/15

**Direction Photo Taken:**

Southwest

**Description:**

**Wetland 36**



**Photo No.**  
**20**

**Date:**  
09/30/15

**Direction Photo Taken:**

Northeast

**Description:**

**Wetland 36**







West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>21</b>	Date: 09/30/15		
Direction Photo Taken:  Northeast			
Description:  Wetland 37			

Photo No. <b>22</b>	Date: 09/30/15	
Direction Photo Taken:  Southwest		
Description:  Wetland 37		



West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>23</b>	Date: 09/30/15		
Direction Photo Taken:  Northeast			
Description:  Wetland 35			

Photo No. <b>24</b>	Date: 09/30/15	
Direction Photo Taken:  North		
Description:  Wetland 35		





West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>25</b>	Date: 09/30/15		
Direction Photo Taken:  West			
Description:  Wetland 32			

Photo No. <b>26</b>	Date: 09/30/15	
Direction Photo Taken:  West		
Description:  Wetland 32		



West Lake Corridor

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**AECOM**

## PHOTOGRAPHIC LOG

**Project: NICTD West Lake Corridor Project**

**Site Location: Munster, IN**

**Project No.**

60321036

**Photo No.**  
**27**

**Date:**  
09/30/15

**Direction Photo Taken:**

Southwest

**Description:**

**Wetland 33**



**Photo No.**  
**28**

**Date:**  
09/30/15

**Direction Photo Taken:**

West

**Description:**

**Wetland 33**









West Lake Corridor

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		<b>PHOTOGRAPHIC LOG</b>	
<b>Project:</b> NICTD West Lake Corridor		<b>Site Location:</b> Munster, IN	
<b>Photo No.</b> <b>29</b>	<b>Date:</b> 06/04/17		
<b>Direction of Photo:</b> Southwest			
<b>Description:</b> Wetland 34			

<b>Project:</b> NICTD West Lake Corridor		<b>Site Location:</b> Munster, IN	
<b>Photo No.</b> <b>30</b>	<b>Date:</b> 06/04/17		
<b>Direction of Photo:</b> Southwest			
<b>Description:</b> Wetland 34 Soil sample			

<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>31</b>	Date: 09/30/15		
Direction Photo Taken:  Southwest			
Description:  <b>Wetland 34</b>			

Photo No. <b>32</b>	Date: 09/30/15	
Direction Photo Taken:  Northeast		
Description:  <b>Wetland 34</b>  Soil Sample		




<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>33</b>	Date: 09/14/15		
Direction Photo Taken:  East			
Description:  Wetland 2			

Photo No. <b>34</b>	Date: 09/14/15	
Direction Photo Taken:		
Description:  Wetland 2  Wetland Soil Sample		



**AECOM**

## PHOTOGRAPHIC LOG

**Project: NICTD West Lake Corridor Project**

**Site Location: Munster, IN**

**Project No.**

60321036

**Photo No.**  
**35**

**Date:**  
09/14/15

**Direction Photo Taken:**

North

**Description:**

**Wetland 1**



**Photo No.**  
**36**

**Date:**  
09/14/15

**Direction Photo Taken:**

**Description:**

**Wetland 1**

Wetland Soil sample





West Lake Corridor

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## PHOTOGRAPHIC LOG

Project: NICTD West Lake Corridor

Site Location: Munster, IN

Photo No.  
**37**

Date: 8/11/17

Direction of Photo:  
North

Description:  
Wetland 4



Project: NICTD West Lake Corridor

Site Location: Munster, IN

Photo No.  
**38**

Date: 8/11/17

Direction of Photo:  
Southwest

Description:  
Wetland 4







West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>39</b>	Date: 09/15/15		
Direction Photo Taken:  East			
Description:  Wetland 4			

Photo No. <b>40</b>	Date: 09/15/15	
Direction Photo Taken:  north		
Description:  Wetland 4  Soil Sample		



West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Munster, IN	Project No. 60321036
Photo No. <b>41</b>	Date: 09/14/15		
Direction Photo Taken:  West			
Description:  Wetland 3			

Photo No. <b>42</b>	Date: 09/14/15	
Direction Photo Taken:		
Description:  Wetland 3  Soil Sample		





West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Hammond, IN	Project No. 60321036
Photo No. <b>43</b>	Date: 09/15/15		
Direction Photo Taken:  South			
Description:  <b>Wetland 5</b>			

Photo No. <b>44</b>	Date: 09/15/15	
Direction Photo Taken:  north		
Description:  <b>Wetland 5</b>  Soils Sample		



<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Hammond, IN	Project No. 60321036
Photo No. <b>45</b>	Date: 09/15/15		
Direction Photo Taken:  South			
Description:  Wetland 6			

Photo No. <b>46</b>	Date: 09/15/15	
Direction Photo Taken:  north		
Description:  Wetland 6  Soils Sample		





West Lake Corridor

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**AECOM**

## PHOTOGRAPHIC LOG

**Project: NICTD West Lake Corridor Project**

**Site Location: Munster, IN**

**Project No.**

60321036

**Photo No.**  
**39**

**Date:**  
09/15/15

**Direction Photo Taken:**

East

**Description:**

**Wetland 4**



**Photo No.**  
**40**

**Date:**  
09/15/15

**Direction Photo Taken:**

north

**Description:**

**Wetland 4**

Soil Sample







West Lake Corridor

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<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Hammond, IN	Project No. 60321036
Photo No. <b>49</b>	Date: 09/16/15		
Direction Photo Taken:  South			
Description:  Wetland 10			

Photo No. <b>50</b>	Date: 09/16/15	
Direction Photo Taken:  north		
Description:  Wetland 10		



<b>AECOM</b>		<b>PHOTOGRAPHIC LOG</b>	
Project: NICTD West Lake Corridor Project		Site Location: Hammond, IN	Project No. 60321036
Photo No. <b>51</b>	Date: 09/17/15		
Direction Photo Taken:  North			
Description:  Wetland 8			

Photo No. <b>52</b>	Date: 09/17/15	
Direction Photo Taken:  north		
Description:  Wetland 8		



## **Appendix D. Floristic Quality Inventory Reports**



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**SITE:** Wetland 9  
**LOCALE:** Sheffield Avenue  
**BY:** Anna Hochhalter & Rusty Yeager  
**Date:** Sept. 16, 2015 & May 9, 2017  
**NOTES:** Excludes: Bromus rididus, Carex sp., Carex X subimpressa

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	3.53	SPECIES RICHNESS (ALL)	53
MEAN C (ALL SPECIES)	2.00	SPECIES RICHNESS (NATIVE)	30
MEAN C (NATIVE TREES)	0.50	% NON-NATIVE	0.43
MEAN C (NATIVE SHRUBS)	6.14	WET INDICATOR (ALL)	-0.09
MEAN C (NATIVE HERBACEOUS)	3.05	WET INDICATOR (NATIVE)	-0.60
FQAI (NATIVE SPECIES)	19.35	% HYDROPHYTE (MIDWEST)	0.62
FQAI (ALL SPECIES)	14.56	% NATIVE PERENNIAL	0.53
ADJUSTED FQAI	26.58	% NATIVE ANNUAL	0.02
% C VALUE 0	0.55	% ANNUAL	0.06
% C VALUE 1-3	0.19	% PERENNIAL	0.83
% C VALUE 4-6	0.15		
% C VALUE 7-10	0.11		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
ACESAI	Acer saccharinum	saccharinum	Silver Maple		0 FACW	FACW	-1 Tree	Perennial	Native	
AGRPAR	Agrimonia parviflora	Agrimonia parviflora	Harvestlice		7 FACW	FAC	-1 Forb	Perennial	Native	
ARCLAP	Arctium lappa	ARCTIUM LAPPA	Great Burdock		0 UPL	UPL	2 Forb	Biennial	Adventive	
ARTBIE	Artemisia biennis	ARTEMISIA BIENNIS	Biennial Wormwood		0 FACW	FACW	-1 Forb	Annual	Adventive	
ASCSYR	Asclepias syriaca	Asclepias syriaca	Common Milkweed		0 FACU	UPL	1 Forb	Perennial	Native	
BARVUL	Barbarea vulgaris	BARBAREA VULGARIS	Garden Yellow-Rocket		0 FAC	FAC	0 Forb	Biennial	Adventive	
CXSTRI	Carex stricta	Carex stricta	Uptight Sedge		5 OBL	OBL	-2 Sedge	Perennial	Native	
CATSPE	Catalpa speciosa	CATALPA SPECIOSA	Northern Catalpa		0 FACU	FACU	1 Tree	Perennial	Adventive	
CIRARV	Cirsium arvense	CIRSIIUM ARVENSE	Canadian Thistle		0 FACU	FACU	1 Forb	Perennial	Adventive	
CONMAC	Conium maculatum	MACULATUM	Poison-Hemlock		0 FACW	FACW	-1 Forb	Biennial	Adventive	
CORSTO	Cornus alba	Cornus stolonifera	Red Osier		6 FACW	FACW	-1 Shrub	Perennial	Native	
CRAMON	Crataegus monogyna	CRATAEGUS MONOGYNA	English Hawthorn		0 FACU	FACU	1 Tree	Perennial	Adventive	
DAUCAR	Daucus carota	CAROTA	Queen Anne's Lace		0 UPL	UPL	2 Forb	Biennial	Adventive	
EPICOL	Epilobium coloratum	Epilobium coloratum	Purple-Leaf Willowherb		3 OBL	OBL	-2 Forb	Perennial	Native	
EQUARV	Equisetum arvense	arvense	Field Horsetail		0 FAC	FAC	0 Fern	Perennial	Native	
EUPSER	Eupatorium serotinum	Eupatorium serotinum	Late-Flowering Thoroughwort		0 FAC	FAC	0 Forb	Perennial	Native	
FESPAR	Festuca paradoxa		0 Clustered Fescue		6 FAC	FAC	0 Grass	Perennial	Native	
FRAVIR	Fragaria virginiana	FRAGARIA VIRGINIANA	Virginia Strawberry		1 FACU	FACU	1 Forb	Perennial	Native	
RHAFRA	Frangula alnus	FRANGULA ALNUS	Glossy False Buckthorn		0 FACW	FAC	-1 Shrub	Perennial	Adventive	
FRAPENS	Fraxinus pennsylvanica	FRAXINUS PENNSYLVANICA	Green Ash		1 FACW	FACW	-1 Tree	Perennial	Native	
GEULACT	Geum laciniatum var. trichocarpum	GEUM LACINIATUM TRICHOCARPUM	Rough Avens		2 FACW	FACW	-1 Forb	Perennial	Native	

LEPCAM	Lepidium campestre	LEPIDIUM CAMPESTRE	Field Pepperwort	0 UPL	UPL	2 Forb	Biennial	Adventive
LONMOR	Lonicera morrowii	LONICERA MORROWII	Morrow's Honeysuckle	0 FACU	FACU	1 Shrub	Perennial	Adventive
LYTSAL	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0 OBL	OBL	-2 Forb	Perennial	Adventive
NEPCAT	Nepeta cataria	NEPETA CATARIA	Catnip	0 FACU	FACU	1 Forb	Perennial	Adventive
OENBIE	Oenothera biennis	Oenothera biennis	King's-Cureall	0 FACU	FACU	1 Forb	Biennial	Native
PARQUI	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	2 FACU	FACU	1 Vine	Perennial	Native
POLCOC	Persicaria amphibia	stipulaceum	Water Smartweed	4 OBL	OBL	-2 Forb	Perennial	Native
POLSCB	Persicaria lapathifolia	POLYGONUM SCABRUM	Dock-Leaf Smartweed	0 FACW	FACW	-1 Forb	Annual	Native
PHAARU	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0 FACW	FACW	-1 Grass	Perennial	Adventive
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed	1 FACW	FACW	-1 Grass	Perennial	Native
POTREC	Potentilla recta	POTENTILLA RECTA	Sulfur Cinquefoil	0 UPL	UPL	2 Forb	Perennial	Adventive
PYCVIR	Pycnanthemum virginianum	Pycnanthemum virginianum	Virginia Mountain- Mint	5 FACW	FACW	-1 Forb	Perennial	Native
PYRCAL	Pyrus calleryana	PYRUS CALLERYANA	Ornamental Pear	0 UPL	UPL	2 Tree	Perennial	Adventive
PYRCOM	Pyrus communis	PYRUS COMMUNIS	Pear	0 UPL	UPL	2 Tree	Perennial	Adventive
RIBAME	Ribes americanum	Ribes americanum	Wild Black Currant	7 FACW	FACW	-1 Shrub	Perennial	Native
ROSMUL	Rosa multiflora	ROSA MULTIFLORA	Rambler Rose	0 FACU	FACU	1 Shrub	Perennial	Adventive
ROSPAL	Rosa palustris	Rosa palustris	Swamp Rose	7 OBL	OBL	-2 Shrub	Perennial	Native
RUBOCC	Rubus occidentalis	Rubus occidentalis	Black Raspberry Wheeler's	2 UPL	UPL	2 Shrub	Perennial	Native
RUBWHE	Rubus wheeleri		0 Blackberry	10 FAC	FAC	0 Shrub	Perennial	Native
SAMNIG	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder	1 FACW	FACW	-1 Shrub	Perennial	Native
SETFAB	Setaria faberi	SETARIA FABERI	Japanese Bristle Grass	0 FACU	FACU	1 Grass	Annual	Adventive
SOLDUL	Solanum dulcamara	SOLANUM DULCAMARA	Climbing Nightshade	0 FAC	FAC	0 Vine	Perennial	Adventive
SOLALT	Solidago altissima	Solidago altissima	Tall Goldenrod	1 FACU	FACU	1 Forb	Perennial	Native
SPAPEC	Spartina pectinata	Spartina pectinata	Freshwater Cord Grass	4 FACW	FACW	-1 Grass	Perennial	Native
SYMRAC	Symphyotrichum racemosum	Aster vimineus	Fragile-Stem American-Aste	5 FACW	FACW	-1 Forb	Perennial	Native
TORPAL	Torreyochloa pallida	Glyceria pallida	Pale False Manna Grass	10 OBL	OBL	-2 Grass	Perennial	Native
TYPANG	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat- Tail	0 OBL	OBL	-2 Forb	Perennial	Adventive
ULMPUM	Ulmus pumila	ULMUS PUMILA	Siberian Elm	0 UPL	FACU	2 Tree	Perennial	Adventive
VERHAS	Verbena hastata	Verbena hastata	Simpler's-Joy	4 FACW	FACW	-1 Forb	Perennial	Native
VIBDEN	Viburnum dentatum	VIBURNUM DENTATUM	Southern Arrow- Wood	0 FAC	FAC	0 Shrub	Perennial	Adventive
VIBNUD	Viburnum nudum var. cassinoides	Viburnum cassinoides	Possumhaw	10 FACW	FACW	-1 Shrub	Perennial	Native
VITRIP	Vitis riparia	Vitis riparia	River-Bank Grape	2 FACW	FAC	-1 Vine	Perennial	Native

SITE: NICTD  
LOCALE: Wetland 40  
BY: Anna Hochhalter  
NOTES:

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.33	SPECIES RICHNESS (ALL)	7
MEAN C (ALL SPECIES)	2.00	SPECIES RICHNESS (NATIVE)	6
MEAN C (NATIVE TREES)	n/a	% NON-NATIVE WET INDICATOR (ALL)	0.14
MEAN C (NATIVE SHRUBS)	1.00		-0.71
MEAN C (NATIVE HERBACEOUS)	2.60	WET INDICATOR (NATIVE)	-0.50
FQAI (NATIVE SPECIES)	5.72	% HYDROPHYTE (MIDWEST)	0.71
FQAI (ALL SPECIES)	5.29	% NATIVE PERENNIAL	0.71
ADJUSTED FQAI	21.60	% NATIVE ANNUAL	0.00
% C VALUE 0	0.29	% ANNUAL	0.00
% C VALUE 1-3	0.43	% PERENNIAL	0.86
% C VALUE 4-6	0.29		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
CXSTRI	Carex stricta	Carex stricta	Uptight Sedge		5 OBL	OBL		-2 Sedge	Perennial	Native
epicil	Epilobium ciliatum	Epilobium ciliatum	Fringed Willowherb		3 FACW	FACW		-1 Forb	Perennial	Native
fravir	Fragaria virginiana	virginiana	Virginia Strawberry		1 FACU	FACU		1 Forb	Perennial	Native
jundud	Juncus dudleyi	dudleyi	Dudley's Rush		4 FACW	FACW		-1 Forb	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife		0 OBL	OBL		-2 Forb	Perennial	Adventive
oenbie	Oenothera biennis	biennis	King's-Cureall		0 FACU	FACU		1 Forb	Biennial	Native
salint	Salix interior	Salix interior	Sandbar Willow		1 FACW	FACW		-1 Shrub	Perennial	Native

**SITE:** Wetland 39  
**LOCALE:** west of CSX railroad  
**BY:** Anna Hochhalter & Rusty Yeager  
**DATE:** Oct. 27, 2015 & May 9, 2017  
**NOTES:** Excludes: Carex sp., Cornum amomum

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	1.83	SPECIES RICHNESS (ALL)	48
MEAN C (ALL SPECIES)	0.92	SPECIES RICHNESS (NATIVE)	24
MEAN C (NATIVE TREES)	1.88	% NON-NATIVE	0.50
MEAN C (NATIVE SHRUBS)	4.00	WET INDICATOR (ALL)	0.50
MEAN C (NATIVE HERBACEOUS)	0.90	WET INDICATOR (NATIVE)	0.17
FQAI (NATIVE SPECIES)	8.98	% HYDROPHYTE (MIDWEST)	0.44
FQAI (ALL SPECIES)	6.35	% NATIVE PERENNIAL	0.42
ADJUSTED FQAI	12.96	% NATIVE ANNUAL	0.04
% C VALUE 0	0.63	% ANNUAL	0.10
% C VALUE 1-3	0.29	% PERENNIAL	0.73
% C VALUE 4-6	0.06		
% C VALUE 7-10	0.02		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
		Acer negundo var.								
ACENEGV	Acer negundo	violaceum	Ash-Leaf Maple		0 FAC	FAC		0 Tree	Perennial	Native
ACESAI	Acer saccharinum	Acer saccharinum	Silver Maple		0 FACW	FACW		-1 Tree	Perennial	Native
ALLPET	Alliaria petiolata	ALLIARIA PETIOLATA	Garlic-Mustard		0 FAC	FACU		0 Forb	Biennial	Adventive
ARCLAP	Arctium lappa	ARCTIUM LAPPA	Great Burdock		0 UPL	UPL		2 Forb	Biennial	Adventive
ARTANN	Artemisia annua	ARTEMISIA ANNUA	Annual Wormwood		0 FACU	FACU		1 Forb	Annual	Adventive
ASCSYR	Asclepias syriaca	Asclepias syriaca	Common Milkweed		0 FACU	UPL		1 Forb	Perennial	Native
BARVUL	Barbarea vulgaris	BARBAREA VULGARIS	Garden Yellow-Rocket		0 FAC	FAC		0 Forb	Biennial	Adventive
CIRARV	Cirsium arvense	CIRSIIUM ARVENSE	Canadian Thistle		0 FACU	FACU		1 Forb	Perennial	Adventive
CIRDIS	Cirsium discolor	CIRSIIUM DISCOLOR	Field Thistle		2 FACU	UPL		1 Forb	Biennial	Native
CONMAC	Conium maculatum	MACULATUM	Poison-Hemlock		0 FACW	FACW		-1 Forb	Biennial	Adventive
CORSTO	Cornus alba	Cornus stolonifera	Red Osier		6 FACW	FACW		-1 Shrub	Perennial	Native
DAUCAR	Daucus carota	DAUCUS CAROTA	Queen Anne's Lace		0 UPL	UPL		2 Forb	Biennial	Adventive
EQUARV	Equisetum arvense	Equisetum arvense	Field Horsetail		0 FAC	FAC		0 Fern	Perennial	Native
FRAVIR	Fragaria virginiana	Fragaria virginiana	Virginia Strawberry		1 FACU	FACU		1 Forb	Perennial	Native
GALAPA	Galium aparine	Galium aparine	Sticky-Willy		1 FACU	FACU		1 Forb	Annual	Native
JUNVIRC	Juniperus virginiana	Juniperus virginiana	Eastern Red-Cedar		2 FACU	FACU		1 Tree	Perennial	Native
LAMAMP	Lamium amplexicaule	LAMIUM AMPLEXICAULE	Henbit		0 UPL	UPL		2 Forb	Annual	Adventive
LEPCAM	Lepidium campestre	LEPIDIIUM CAMPESTRE	Field Pepperwort		0 UPL	UPL		2 Forb	Biennial	Adventive
LONMAA	Lonicera maackii	LONICERA MAACKII	Amur Honeysuckle		0 UPL	UPL		2 Shrub	Perennial	Adventive
LYTSAL	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife		0 OBL	OBL		-2 Forb	Perennial	Adventive



MALBAC	Malus baccata	MALUS BACCATA	Siberian Crab Apple	0 UPL	UPL	2 Tree	Perennial	Adventive
MORALB	Morus alba	MORUS ALBA NEPETA	White Mulberry	0 FAC	FACU	0 Tree	Perennial	Adventive
NEPCAT	Nepeta cataria	CATARIA Oenothera	Catnip	0 FACU	FACU	1 Forb	Perennial	Adventive
OENBIE	Oenothera biennis	biennis Parthenocissu	King's-Cureall	0 FACU	FACU	1 Forb	Biennial	Native
PARQUI	Parthenocissus quinquefolia	quinquefolia PHALARIS	Virginia-Creeper	2 FACU	FACU	1 Vine	Perennial	Native
PHAARU	Phalaris arundinacea	ARUNDINACEA	Reed Canary Grass	0 FACW	FACW	-1 Grass	Perennial	Adventive
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed	1 FACW	FACW	-1 Grass	Perennial	Native
POPDEL	Populus deltoides	Populus deltoides	Eastern Cottonwood	2 FAC	FAC	0 Tree	Perennial	Native
PRUPEN	Prunus pennsylvanica	Prunus pennsylvanica	Fire Cherry	5 FACU	FACU	1 Tree	Perennial	Native
PRUSER	Prunus serotina	Prunus serotina PYRUS	Black Cherry	1 FACU	FACU	1 Tree	Perennial	Native
PYRCAL	Pyrus calleryana	CALLERYANA	Ornamental Pear	0 UPL	UPL	2 Tree	Perennial	Adventive
RANABO	Ranunculus abortivus	Ranunculus abortivus	Kidney-Leaf Buttercup	0 FACW	FAC	-1 Forb	Annual	Native
RHUTYP	Rhus hirta	Rhus typhina Rosa	Staghorn Sumac	1 UPL	UPL	2 Tree	Perennial	Native
ROSPAL	Rosa palustris	Rosa palustris Rubus	Swamp Rose	7 OBL	OBL	-2 Shrub	Perennial	Native
RUBOCC	Rubus occidentalis	Rubus occidentalis RUMEX	Black Raspberry	2 UPL	UPL	2 Shrub	Perennial	Native
RUMCRI	Rumex crispus	RUMEX CRISPUS SALIX	Curly Dock	0 FAC	FAC	0 Forb	Perennial	Adventive
SALFRA	Salix fragilis	FRAGILIS	Crack Willow	0 UPL	UPL	2 Tree	Perennial	Adventive
SALINT	Salix interior	Salix interior	Sandbar Willow	1 FACW	FACW	-1 Shrub	Perennial	Native
SALNIG	Salix nigra	Salix nigra SAPONARIA	Black Willow	4 OBL	OBL	-2 Tree	Perennial	Native
SAPOFF	Saponaria officinalis	OFFICINALIS SOLANUM	Bouncing-Bett Climbing	0 FACU	FACU	1 Forb	Perennial	Adventive
SOLDUL	Solanum dulcamara	DULCAMARA Solidago	Nightshade	0 FAC	FAC	0 Vine	Perennial	Adventive
SOLALT	Solidago altissima	Solidago altissima TARAXACUM	Tall Goldenrod	1 FACU	FACU	1 Forb	Perennial	Native
TAROFF	Taraxacum officinale	TARAXACUM OFFICINALE THLASPI	Common Dandelion	0 FACU	FACU	1 Forb	Perennial	Adventive
THLARV	Thlaspi arvense	ARVENSE ULMUS	Field Pennycress	0 FACU	UPL	1 Forb	Annual	Adventive
ULMPUM	Ulmus pumila	ULMUS PUMILA VIBURNUM	Siberian Elm Southern Arrow- Wood	0 UPL	FACU	2 Tree	Perennial	Adventive
VIBDEN	Viburnum dentatum	DENTATUM	Wood	0 FAC	FAC	0 Shrub	Perennial	Adventive
VIOSOR	Viola sororia	Viola sororia	Hooded Blue Violet	3 FAC	FAC	0 Forb	Perennial	Native
VITRIP	Vitis riparia	Vitis riparia	River-Bank Grape	2 FACW	FAC	-1 Vine	Perennial	Native

**SITE:** Wetland 38  
**LOCALE:** west side of CSX  
**BY:** Anna Hochhalter & Rusty Yeager  
**DATE:** Oct. 27, 2015 & May 9, 2017  
**NOTES:** Excludes: *Cornus baileyi*, *Rubus* sp.

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	3.03	SPECIES RICHNESS (ALL)	55
MEAN C (ALL SPECIES)	1.82	SPECIES RICHNESS (NATIVE)	33
MEAN C (NATIVE TREES)	1.75	% NON-NATIVE	0.40
MEAN C (NATIVE SHRUBS)	4.50	WET INDICATOR (ALL)	0.07
MEAN C (NATIVE HERBACEOUS)	3.07	WET INDICATOR (NATIVE)	-0.21
FQAI (NATIVE SPECIES)	17.41	% HYDROPHYTE (MIDWEST)	0.53
FQAI (ALL SPECIES)	13.48	% NATIVE PERENNIAL	0.51
ADJUSTED FQAI	23.47	% NATIVE ANNUAL	0.05
% C VALUE 0	0.51	% ANNUAL	0.09
% C VALUE 1-3	0.29	% PERENNIAL	0.85
% C VALUE 4-6	0.09		
% C VALUE 7-10	0.11		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
		<i>Acer negundo</i> var. <i>violaceum</i>	Ash-Leaf Maple							
ACENEGV	<i>Acer negundo</i>	<i>Acer saccharinum</i>	Silver Maple		0 FAC	FAC		0 Tree	Perennial	Native
ACESAI	<i>Acer saccharinum</i>	ARTEMISIA			0 FACW	FACW		-1 Tree	Perennial	Native
ARTANN	<i>Artemisia annua</i>	ANNUA	Annual Wormwood		0 FACU	FACU		1 Forb	Annual	Adventive
ASCSYR	<i>Asclepias syriaca</i>	Asclepias	Common Milkweed		0 FACU	UPL		1 Forb	Perennial	Native
CXBEBB	<i>Carex bebbii</i>	<i>Carex bebbii</i>	Bebb's Sedge		6 OBL	OBL		-2 Sedge	Perennial	Native
CIRARV	<i>Cirsium arvense</i>	ARVENSE	Canadian Thistle		0 FACU	FACU		1 Forb	Perennial	Adventive
CIRDIS	<i>Cirsium discolor</i>	Cirsium	Field Thistle		2 FACU	UPL		1 Forb	Biennial	Native
CONMAC	<i>Conium maculatum</i>	CONIUM	Poison-Hemlock		0 FACW	FACW		-1 Forb	Biennial	Adventive
CORSTO	<i>Cornus alba</i>	MACULATUM	Cornus		6 FACW	FACW		-1 Shrub	Perennial	Native
CRAMON	<i>Crataegus monogyna</i>	stolonifera	Red Osier		0 FACU	FACU		1 Tree	Perennial	Adventive
ECHCRU	<i>Echinochloa crus-galli</i>	CRATAEGUS	English Hawthorn		0 FACU	FACU		1 Tree	Perennial	Adventive
		MONOGYNA	Large Barnyard Grass		0 FACW	FAC		-1 Grass	Annual	Native
		<i>Echinochloa crusgalli</i>								
ELAANG	<i>Elaeagnus angustifolia</i>	ELAEAGNUS	Russian-Olive		0 FACU	FACU		1 Shrub	Perennial	Adventive
		ANGUSTIFOLI								
EQUARV	<i>Equisetum arvense</i>	A	Field Horsetail		0 FAC	FAC		0 Fern	Perennial	Native
EQUFLU	<i>Equisetum fluviatile</i>	arvense	Water Horsetail		7 OBL	OBL		-2 Fern	Perennial	Native
EQUHYE	<i>Equisetum hyemale</i>	Equisetum	Tall Scouring-Rush		3 FACW	FAC		-1 Fern	Perennial	Native
FESPAR	<i>Festuca paradoxa</i>	hyemale	0 Clustered Fescue		6 FAC	FAC		0 Grass	Perennial	Native
		paradoxa								
FRAVIR	<i>Fragaria virginiana</i>	Fragaria	Virginia Strawberry		1 FACU	FACU		1 Forb	Perennial	Native
RHAFRA	<i>Frangula alnus</i>	virginiana	Glossy False Buckthorn		0 FACW	FAC		-1 Shrub	Perennial	Adventive
		RHAMNUS								
GALAPA	<i>Galium aparine</i>	FRANGULA	Sticky-Willy		1 FACU	FACU		1 Forb	Annual	Native
		Galium	Stiff Marsh Bedstraw		8 OBL	OBL		-2 Forb	Perennial	Native
GALTIN	<i>Galium tinctorium</i>	aparine								
GLEHED	<i>Glechoma hederacea</i>	tinctorium	Groundivy		0 FACU	FACU		1 Forb	Perennial	Adventive
		GLECHOMA								
		hederacea								

HYPCAN	Hypericum canadense	Hypericum canadense Juniperus virginiana	Lesser Canadian St. John's-Wort	10 FACW	FACW	-1 Forb	Annual	Native
JUNVIRC	Juniperus virginiana	crebra	Eastern Red-Cedar	2 FACU	FACU	1 Tree	Perennial	Native
LONMOR	Lonicera morrowii	LONICERA MORROWII	Morrow's Honeysuckle	0 FACU	FACU	1 Shrub	Perennial	Adventive
LONTAT	Lonicera tatarica	LONICERA LYTHRUM	Twinsisters	0 FACU	FACU	1 Shrub	Perennial	Adventive
LYTSAL	Lythrum salicaria	SALICARIA	Purple Loosestrife	0 OBL	OBL	-2 Forb	Perennial	Adventive
MALCOR	Malus coronaria	Malus coronaria	Wild Sweet Crab Apple	4 UPL	UPL	2 Tree	Perennial	Native
MALPUM	Malus pumila	MALUS PUMILA	Apple	0 UPL	UPL	2 Tree	Perennial	Adventive
MORALB	Morus alba	MORUS ALBA	White Mulberry	0 FAC	FACU	0 Tree	Perennial	Adventive
NEPCAT	Nepeta cataria	NEPETA CATARIA	Catnip	0 FACU	FACU	1 Forb	Perennial	Adventive
OENBIE	Oenothera biennis	Oenothera biennis	King's-Cureall	0 FACU	FACU	1 Forb	Biennial	Native
SENGLA	Packera glabella	SENECIO GLABELLUS	Cress-Leaf Groundsel	0 FACW	FACW	-1 Forb	Annual	Adventive
PARQUI	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper	2 FACU	FACU	1 Vine	Perennial	Native
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed	1 FACW	FACW	-1 Grass	Perennial	Native
POPDEL	Populus deltoides	Populus deltoides	Eastern Cottonwood	2 FAC	FAC	0 Tree	Perennial	Native
PRUSER	Prunus serotina	Prunus serotina	Black Cherry	1 FACU	FACU	1 Tree	Perennial	Native
PYRCAL	Pyrus calleryana	PYRUS CALLERYANA	Ornamental Pear	0 UPL	UPL	2 Tree	Perennial	Adventive
RHUTYP	Rhus hirta	Rhus typhina	Staghorn Sumac	1 UPL	UPL	2 Tree	Perennial	Native
ROSMUL	Rosa multiflora	ROSA MULTIFLORA	Rambler Rose	0 FACU	FACU	1 Shrub	Perennial	Adventive
RUBOCC	Rubus occidentalis	Rubus occidentalis	Black Raspberry	2 UPL	UPL	2 Shrub	Perennial	Native
RUMCRI	Rumex crispus	RUMEX CRISPUS	Curly Dock	0 FAC	FAC	0 Forb	Perennial	Adventive
SALDIS	Salix discolor	Salix discolor	Pussy Willow	2 FACW	FACW	-1 Shrub	Perennial	Native
SALFRA	Salix fragilis	SALIX FRAGILIS	Crack Willow	0 UPL	UPL	2 Tree	Perennial	Adventive
SALINT	Salix interior	Salix interior	Sandbar Willow	1 FACW	FACW	-1 Shrub	Perennial	Native
SALMYR	Salix myricoides	Salix myricoides	Bayberry Willow	7 FACW	FACW	-1 Shrub	Perennial	Native
SALNIG	Salix nigra	Salix nigra	Black Willow	4 OBL	OBL	-2 Tree	Perennial	Native
SALPET	Salix petiolaris	Salix petiolaris	Meadow Willow	7 OBL	FACW	-2 Shrub	Perennial	Native
SAMNIG	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder	1 FACW	FACW	-1 Shrub	Perennial	Native
SOLALT	Solidago altissima	Solidago altissima	Tall Goldenrod	1 FACU	FACU	1 Forb	Perennial	Native
TAROFF	Taraxacum officinale	TARAXACUM OFFICINALE	Common Dandelion	0 FACU	FACU	1 Forb	Perennial	Adventive
TYPANG	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0 OBL	OBL	-2 Forb	Perennial	Adventive
ULMPUM	Ulmus pumila	ULMUS PUMILA	Siberian Elm	0 UPL	FACU	2 Tree	Perennial	Adventive
VIBDEN	Viburnum dentatum	VIBURNUM DENTATUM	Southern Arrow-Wood	0 FAC	FAC	0 Shrub	Perennial	Adventive
VIBNUD	Viburnum nudum var. cassinoides	Viburnum cassinoides	Possumhaw	10 FACW	FACW	-1 Shrub	Perennial	Native
VITRIP	Vitis riparia	Vitis riparia	River-Bank Grape	2 FACW	FAC	-1 Vine	Perennial	Native

**SITE:** Wetland 11  
**LOCALE:** subdivision east of fence  
**BY:** Rusty Yeager  
**DATE:** 5-May-17  
**NOTES:**

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.33	SPECIES RICHNESS (ALL)	11
MEAN C (ALL SPECIES)	1.91	SPECIES RICHNESS (NATIVE)	9
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.18
MEAN C (NATIVE SHRUBS)	2.67	WET INDICATOR (ALL)	-0.36
MEAN C (NATIVE HERBACEOUS)	2.33	WET INDICATOR (NATIVE)	-0.44
FQAI (NATIVE SPECIES)	7.00	% HYDROPHYTE (MIDWEST)	0.82
FQAI (ALL SPECIES)	6.33	% NATIVE PERENNIAL	0.82
ADJUSTED FQAI	21.11	% NATIVE ANNUAL	0.00
% C VALUE 0	0.27	% ANNUAL	0.00
% C VALUE 1-3	0.55	% PERENNIAL	1.00
% C VALUE 4-6	0.18		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
CORSTO	Cornus alba	stolonifera	Red Osier		6 FACW	FACW		-1 Shrub	Perennial	Native
ELAANG	Elaeagnus angustifolia	ANGUSTIFOLIA	Russian-Olive		0 FACU	FACU		1 Shrub	Perennial	Adventive
EQUARV	Equisetum arvense	arvense	Field Horsetail		0 FAC	FAC		0 Fern	Perennial	Native
FESPAR	Festuca paradoxa		0 Clustered Fescue		6 FAC	FAC		0 Grass	Perennial	Native
RHAFRA	Frangula alnus	RHAMNUS FRANGULA	Glossy False Buckthorn		0 FACW	FAC		-1 Shrub	Perennial	Adventive
PARQUI	Parthenocissus quinquefolia	Parthenocissus	Virginia-Creeper		2 FACU	FACU		1 Vine	Perennial	Native
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
POPDEL	Populus deltoides	deltoides	Eastern Cottonwood		2 FAC	FAC		0 Tree	Perennial	Native
SALINT	Salix interior	Salix interior	Sandbar Willow		1 FACW	FACW		-1 Shrub	Perennial	Native
SAMNIG	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder		1 FACW	FACW		-1 Shrub	Perennial	Native
VITRIP	Vitis riparia	Vitis riparia	River-Bank Grape		2 FACW	FAC		-1 Vine	Perennial	Native

**SITE:** Wetland 12  
**LOCALE:** Progress Avenue east of CSX  
**BY:** Anna Hochhalter & Rusty Yeager  
**DATE:** Sept. 17, 2015 & May 9, 2017  
**NOTES:** Excludes: Eleocharis sp.

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.81	SPECIES RICHNESS (ALL)	29
MEAN C (ALL SPECIES)	2.03	SPECIES RICHNESS (NATIVE)	21
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.28
MEAN C (NATIVE SHRUBS)	4.50	WET INDICATOR (ALL)	-0.72
MEAN C (NATIVE HERBACEOUS)	2.44	WET INDICATOR (NATIVE)	-0.81
FQAI (NATIVE SPECIES)	12.87	% HYDROPHYTE (MIDWEST)	0.79
FQAI (ALL SPECIES)	10.96	% NATIVE PERENNIAL	0.55
ADJUSTED FQAI	23.91	% NATIVE ANNUAL	0.14
% C VALUE 0	0.41	% ANNUAL	0.17
% C VALUE 1-3	0.28	% PERENNIAL	0.72
% C VALUE 4-6	0.28		
% C VALUE 7-10	0.03		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM) ARTEMISIA	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
ARTANN	Artemisia annua	ANNUA	Annual Wormwood		0 FACU	FACU		1 Forb	Annual	Adventive
BIDCER	Bidens cernua	Bidens cernua	Nodding Burr-Marigold		5 OBL	OBL		-2 Forb	Annual	Native
CIRARV	Cirsium arvense	ARVENSE	Canadian Thistle		0 FACU	FACU		1 Forb	Perennial	Adventive
CIRDIS	Cirsium discolor	discolor	Field Thistle		2 FACU	UPL		1 Forb	Biennial	Native
CONMAC	Conium maculatum	MACULATUM	Poison-Hemlock		0 FACW	FACW		-1 Forb	Biennial	Adventive
CORSTO	Cornus alba	stolonifera	Red Osier		6 FACW	FACW		-1 Shrub	Perennial	Native
CYPESC	Cyperus esculentus	esculentus	Chufa		0 FACW	FACW		-1 Sedge	Perennial	Native
DIPSYL	Dipsacus fullonum	SYLVESTRIS	Fuller's Teasel		0 FACU	FACU		1 Forb	Biennial	Adventive
EUPSER	Eupatorium serotinum	Eupatorium serotinum	Late-Flowering Thoroughwort		0 FAC	FAC		0 Forb	Perennial	Native
RHAFRA	Frangula alnus	RHAMNUS FRANGULA	Glossy False Buckthorn		0 FACW	FAC		-1 Shrub	Perennial	Adventive
GEULACT	Geum laciniatum var. trichocarpum	laciniatum trichocarpum	Rough Avens		2 FACW	FACW		-1 Forb	Perennial	Native
HYPPUN	Hypericum punctatum	Hypericum punctatum	Spotted St. John's-Wort		4 FAC	FAC		0 Forb	Perennial	Native
LYTSAL	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife		0 OBL	OBL		-2 Forb	Perennial	Adventive
POLSCB	Persicaria lapathifolia	POLYGONUM SCABRUM	Dock-Leaf Smartweed		0 FACW	FACW		-1 Forb	Annual	Native
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
POPDEL	Populus deltoides	Populus deltoides	Eastern Cottonwood		2 FAC	FAC		0 Tree	Perennial	Native
RANSCE	Ranunculus sceleratus	Ranunculus sceleratus	Cursed Buttercup		6 OBL	OBL		-2 Forb	Annual	Native
SALINT	Salix interior	Salix interior	Sandbar Willow		1 FACW	FACW		-1 Shrub	Perennial	Native
SALPUR	Salix purpurea	PURPUREA	Purple Willow		0 FACW	FACW		-1 Shrub	Perennial	Adventive
SAMNIG	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder		1 FACW	FACW		-1 Shrub	Perennial	Native
SCIVAL	Schoenoplectus tabernaemontani	Scirpus validus creber	Soft-Stem Club-Rush		5 OBL	OBL		-2 Sedge	Perennial	Native

SCIATV	Scirpus atrovirens	Scirpus atrovirens	Dark-Green Bulrush	4 OBL	OBL	-2 Sedge	Perennial	Native
SOLAME	Solanum americanum	Solanum americanum	American Black Nightshade	0 FACU	FACU	1 Forb	Annual	Native
SOLALT	Solidago altissima	Solidago altissima	Tall Goldenrod	1 FACU	FACU	1 Forb	Perennial	Native
SYMNOV	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster	4 FACW	FACW	-1 Forb	Perennial	Native
TYPANG	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0 OBL	OBL	-2 Forb	Perennial	Adventive
TYPLAT	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail	1 OBL	OBL	-2 Forb	Perennial	Native
VERHAS	Verbena hastata	Verbena hastata	Simpler's-Joy	4 FACW	FACW	-1 Forb	Perennial	Native
VIBNUD	Viburnum nudum var. cassinoides	Viburnum cassinoides	Possumhaw	10 FACW	FACW	-1 Shrub	Perennial	Native

**SITE:** Wetland 17  
**LOCALE:** south of 45th Street east of CSX  
**BY:** Anna Hochhalter & Rusty Yeager  
**DATE:** Sept. 28, 2015 & May 5, 2017  
**NOTES:** Excludes: Carex sp., Juncus sp. Eleocharis sp.

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.22	SPECIES RICHNESS (ALL)	13
MEAN C (ALL SPECIES)	1.54	SPECIES RICHNESS (NATIVE)	9
MEAN C (NATIVE TREES)	1.50	% NON-NATIVE	0.31
MEAN C (NATIVE SHRUBS)	3.50	WET INDICATOR (ALL)	-0.85
MEAN C (NATIVE HERBACEOUS)	2.00	WET INDICATOR (NATIVE)	-1.00
FQAI (NATIVE SPECIES)	6.67	% HYDROPHYTE (MIDWEST)	0.77
FQAI (ALL SPECIES)	5.55	% NATIVE PERENNIAL	0.54
ADJUSTED FQAI	18.49	% NATIVE ANNUAL	0.15
% C VALUE 0	0.38	% ANNUAL	0.15
% C VALUE 1-3	0.46	% PERENNIAL	0.77
% C VALUE 4-6	0.15		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
AMBARTE	Ambrosia artemisiifolia	artemisiifolia elatior	Annual Ragweed		0 FACU	FACU		1 Forb	Annual	Native
CORSTO	Cornus alba	Cornus stolonifera	Red Osier		6 FACW	FACW		-1 Shrub	Perennial	Native
DIPSYL	Dipsacus fullonum	DIPSACUS SYLVESTRIS	Fuller's Teasel		0 FACU	FACU		1 Forb	Biennial	Adventive
ELESMA	Eleocharis palustris	Eleocharis erythropoda; Eleocharis palustris major; Eleocharis smallii	Common Spike-Rush		2 OBL	OBL		-2 Sedge	Perennial	Native
FRAPENS	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima	Green Ash		1 FACW	FACW		-1 Tree	Perennial	Native
LONTAT	Lonicera tatarica	LONICERA TATARICA	Twinsisters		0 FACU	FACU		1 Shrub	Perennial	Adventive
LYTSAL	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife		0 OBL	OBL		-2 Forb	Perennial	Adventive
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
POPDEL	Populus deltoides	Populus deltoides	Eastern Cottonwood		2 FAC	FAC		0 Tree	Perennial	Native
RANSCE	Ranunculus sceleratus	Ranunculus sceleratus	Cursed Buttercup		6 OBL	OBL		-2 Forb	Annual	Native
SALINT	Salix interior	Salix interior	Sandbar Willow		1 FACW	FACW		-1 Shrub	Perennial	Native
TYPANG	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail		0 OBL	OBL		-2 Forb	Perennial	Adventive
TYPLAT	Typha latifolia	Typha latifolia	Broad-Leaf Cat-Tail		1 OBL	OBL		-2 Forb	Perennial	Native

SITE: NICTD  
LOCALE: Wetland 36  
BY: Anna Hochhalter  
NOTES:

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	3.00	SPECIES RICHNESS (ALL)	11
MEAN C (ALL SPECIES)	2.45	SPECIES RICHNESS (NATIVE)	9
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE WET INDICATOR (ALL)	0.18
MEAN C (NATIVE SHRUBS)	n/a		-1.18
MEAN C (NATIVE HERBACEOUS)	3.13	WET INDICATOR (NATIVE)	-1.00
FQAI (NATIVE SPECIES)	9.00	% HYDROPHYTE (MIDWEST)	1.00
FQAI (ALL SPECIES)	8.14	% NATIVE PERENNIAL	0.64
ADJUSTED FQAI	27.14	% NATIVE ANNUAL	0.18
% C VALUE 0	0.36	% ANNUAL	0.18
% C VALUE 1-3	0.18	% PERENNIAL	0.82
% C VALUE 4-6	0.36		
% C VALUE 7-10	0.09		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
bidcer	Bidens cernua	cernua	Nodding Burr-Marigold	5	OBL	OBL	-2	Forb	Annual	Native
eupser	Eupatorium serotinum	serotinum	Late-Flowering Thoroughwort	0	FAC	FAC	0	Forb	Perennial	Native
jundud	Juncus dudleyi	dudleyi	Dudley's Rush	4	FACW	FACW	-1	Forb	Perennial	Native
juntor	Juncus torreyi	torreyi	Torrey's Rush	4	FACW	FACW	-1	Forb	Perennial	Native
lycuni	Lycopus uniflorus	uniflorus	Northern Water-Horehound	7	OBL	OBL	-2	Forb	Perennial	Native
lytsal	Lythrum salicaria	SALICARIA	Purple Loosestrife	0	OBL	OBL	-2	Forb	Perennial	Adventive
		Polygonum lapathifolium								
pollap	Persicaria lapathifolia	POLYGONUM SCABRUM	Dock-Leaf Smartweed	0	FACW	FACW	-1	Forb	Annual	Native
phrausm	Phragmites australis ssp. americanus	Phragmites australis	Common Reed	1	FACW	FACW	-1	Grass	Perennial	Native
popdel	Populus deltoides	deltoides	Eastern Cottonwood	2	FAC	FAC	0	Tree	Perennial	Native
astnov	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster	4	FACW	FACW	-1	Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0	OBL	OBL	-2	Forb	Perennial	Adventive



**SITE:** Wetland 37R  
**LOCALE:** south of CSX east of Monon  
**BY:** Rusty Yeager  
**DATE:** 5-May-17  
**NOTES:** Excludes: Carex sp., Eleocharis sp.

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	1.67	SPECIES RICHNESS (ALL)	13
MEAN C (ALL SPECIES)	1.15	SPECIES RICHNESS (NATIVE)	9
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.31
MEAN C (NATIVE SHRUBS)	2.67	WET INDICATOR (ALL)	-0.38
MEAN C (NATIVE HERBACEOUS)	0.33	WET INDICATOR (NATIVE)	-0.33
FQAI (NATIVE SPECIES)	5.00	% HYDROPHYTE (MIDWEST)	0.77
FQAI (ALL SPECIES)	4.16	% NATIVE PERENNIAL	0.62
ADJUSTED FQAI	13.87	% NATIVE ANNUAL	0.08
% C VALUE 0	0.46	% ANNUAL	0.08
% C VALUE 1-3	0.46	% PERENNIAL	0.85
% C VALUE 4-6	0.08		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
AMBARTE	Ambrosia artemisiifolia	artemisiifolia elatior	Annual Ragweed		0 FACU	FACU		1 Forb	Annual	Native
BARVUL	Barbarea vulgaris	BARBAREA VULGARIS	Garden Yellow-Rocket		0 FAC	FAC		0 Forb	Biennial	Adventive
CORSTO	Cornus alba	stolonifera	Red Osier		6 FACW	FACW		-1 Shrub	Perennial	Native
EQUARV	Equisetum arvense	arvense	Field Horsetail		0 FAC	FAC		0 Fern	Perennial	Native
RHAFRA	Frangula alnus	RHAMNUS FRANGULA	Glossy False Buckthorn		0 FACW	FAC		-1 Shrub	Perennial	Adventive
LONMOR	Lonicera morrowii	LONICERA MORROWII	Morrow's Honeysuckle		0 FACU	FACU		1 Shrub	Perennial	Adventive
LYTSAL	Lythrum salicaria	SALICARIA LYTHRUM	Purple Loosestrife		0 OBL	OBL		-2 Forb	Perennial	Adventive
PARQUI	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper		2 FACU	FACU		1 Vine	Perennial	Native
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
POPDEL	Populus deltoides	deltoides	Eastern Cottonwood		2 FAC	FAC		0 Tree	Perennial	Native
SALINT	Salix interior	Salix interior	Sandbar Willow		1 FACW	FACW		-1 Shrub	Perennial	Native
SAMNIG	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder		1 FACW	FACW		-1 Shrub	Perennial	Native
VITRIP	Vitis riparia	Vitis riparia	River-Bank Grape		2 FACW	FAC		-1 Vine	Perennial	Native

**SITE:** Wetland 37L  
**LOCALE:** south of CSX west  
**BY:** Rusty Yeager  
**DATE:** 5-May-17  
**NOTES:**

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.23	SPECIES RICHNESS (ALL)	19
MEAN C (ALL SPECIES)	1.53	SPECIES RICHNESS (NATIVE)	13
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.32
MEAN C (NATIVE SHRUBS)	5.67	WET INDICATOR (ALL)	-0.37
MEAN C (NATIVE HERBACEOUS)	1.00	WET INDICATOR (NATIVE)	-0.38
FQAI (NATIVE SPECIES)	8.04	% HYDROPHYTE (MIDWEST)	0.68
FQAI (ALL SPECIES)	6.65	% NATIVE PERENNIAL	0.47
ADJUSTED FQAI	18.45	% NATIVE ANNUAL	0.21
% C VALUE 0	0.53	% ANNUAL	0.26
% C VALUE 1-3	0.32	% PERENNIAL	0.68
% C VALUE 4-6	0.11		
% C VALUE 7-10	0.05		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
AMBARTE	Ambrosia artemisiifolia	artemisiifolia elatior	Annual Ragweed		0 FACU	FACU		1 Forb	Annual	Native
AMMROB	Ammannia robusta	robusta	Grand Redstem		4 OBL	OBL		-2 Forb	Annual	Native
APOSIB	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp		2 FAC	FAC		0 Forb	Perennial	Native
ARTANN	Artemisia annua	ANNUA	Annual Wormwood		0 FACU	FACU		1 Forb	Annual	Adventive
ASCSYR	Asclepias syriaca	Asclepias syriaca	Common Milkweed		0 FACU	UPL		1 Forb	Perennial	Native
CIRARV	Cirsium arvense	ARVENSE	Canadian Thistle		0 FACU	FACU		1 Forb	Perennial	Adventive
CORSTO	Cornus alba	Cornus stolonifera	Red Osier		6 FACW	FACW		-1 Shrub	Perennial	Native
DIPSYL	Dipsacus fullonum	SYLVESTRIS	Fuller's Teasel		0 FACU	FACU		1 Forb	Biennial	Adventive
EQUARV	Equisetum arvense	arvense	Field Horsetail		0 FAC	FAC		0 Fern	Perennial	Native
RHAFRA	Frangula alnus	RHAMNUS FRANGULA	Glossy False Buckthorn		0 FACW	FAC		-1 Shrub	Perennial	Adventive
GALAPA	Galium aparine	aparine	Sticky-Willy		1 FACU	FACU		1 Forb	Annual	Native
LYTSAL	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife		0 OBL	OBL		-2 Forb	Perennial	Adventive
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
POPDEL	Populus deltoides	Populus deltoides	Eastern Cottonwood		2 FAC	FAC		0 Tree	Perennial	Native
RANABO	Ranunculus abortivus	Ranunculus abortivus	Kidney-Leaf Buttercup		0 FACW	FAC		-1 Forb	Annual	Native
SALINT	Salix interior	Salix interior	Sandbar Willow		1 FACW	FACW		-1 Shrub	Perennial	Native
TYPANG	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail		0 OBL	OBL		-2 Forb	Perennial	Adventive
VIBNUD	Viburnum nudum var. cassinoides	Viburnum cassinoides	Possumhaw		10 FACW	FACW		-1 Shrub	Perennial	Native
VITRIP	Vitis riparia	Vitis riparia	River-Bank Grape		2 FACW	FAC		-1 Vine	Perennial	Native

**SITE:** Wetland 35  
**LOCALE:** south of railroad east of CSX  
**BY:** Rusty Yeager  
**DATE:** 5-May-17  
**NOTES:**

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	1.56	SPECIES RICHNESS (ALL)	17
MEAN C (ALL SPECIES)	0.82	SPECIES RICHNESS (NATIVE)	9
MEAN C (NATIVE TREES)	1.00	% NON-NATIVE	0.47
MEAN C (NATIVE SHRUBS)	2.67	WET INDICATOR (ALL)	0.00
MEAN C (NATIVE HERBACEOUS)	0.67	WET INDICATOR (NATIVE)	-0.44
FOAI (NATIVE SPECIES)	4.67	% HYDROPHYTE (MIDWEST)	0.65
FOAI (ALL SPECIES)	3.40	% NATIVE PERENNIAL	0.41
ADJUSTED FOAI	11.32	% NATIVE ANNUAL	0.12
% C VALUE 0	0.59	% ANNUAL	0.12
% C VALUE 1-3	0.35	% PERENNIAL	0.82
% C VALUE 4-6	0.06		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
ACESAI	Acer saccharinum	Acer saccharinum	Silver Maple		0 FACW	FACW	-1	Tree	Perennial	Native
BARVUL	Barbarea vulgaris	BARBAREA VULGARIS	Garden Yellow-Rocket		0 FAC	FAC	0	Forb	Biennial	Adventive
CORSTO	Cornus alba	Cornus stolonifera	Red Osier		6 FACW	FACW	-1	Shrub	Perennial	Native
GALAPA	Galium aparine	Galium aparine	Sticky-Willy		1 FACU	FACU	1	Forb	Annual	Native
GLEHED	Glechoma hederacea	GLECHOMA HEDERACEA	Groundivy		0 FACU	FACU	1	Forb	Perennial	Adventive
LEUVUL	Leucanthemum vulgare	CHRYSANTHEMUM LEUCANTHEMUM	Ox-Eye Daisy		0 UPL	UPL	2	Forb	Perennial	Adventive
LONMOR	Lonicera morrowii	PINNATIFIDUM LONICERA MORROWII	Morrow's Honeysuckle		0 FACU	FACU	1	Shrub	Perennial	Adventive
LYTSAL	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife		0 OBL	OBL	-2	Forb	Perennial	Adventive
MORALB	Morus alba	MORUS ALBA	White Mulberry		0 FAC	FACU	0	Tree	Perennial	Adventive
PARQUI	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper		2 FACU	FACU	1	Vine	Perennial	Native
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed		1 FACW	FACW	-1	Grass	Perennial	Native
POPDEL	Populus deltoides	Populus deltoides	Eastern Cottonwood		2 FAC	FAC	0	Tree	Perennial	Native
RANABO	Ranunculus abortivus	Ranunculus abortivus	Kidney-Leaf Buttercup		0 FACW	FAC	-1	Forb	Annual	Native
SALFRA	Salix fragilis	FRAGILIS	Crack Willow		0 UPL	UPL	2	Tree	Perennial	Adventive
SALINT	Salix interior	Salix interior	Sandbar Willow		1 FACW	FACW	-1	Shrub	Perennial	Native
SAMNIG	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder		1 FACW	FACW	-1	Shrub	Perennial	Native
VIBDEN	Viburnum dentatum	VIBURNUM DENTATUM	Southern Arrow-Wood		0 FAC	FAC	0	Shrub	Perennial	Adventive



**SITE:** Wetland 32  
**LOCALE:** between CSX and haul road  
**BY:** Rusty Yeager  
**DATE:** 4-May-17  
**NOTES:**

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	1.00	SPECIES RICHNESS (ALL)	3
MEAN C (ALL SPECIES)	1.00	SPECIES RICHNESS (NATIVE)	3
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.00
MEAN C (NATIVE SHRUBS) n/a		WET INDICATOR (ALL)	-0.33
MEAN C (NATIVE HERBACEOUS)	0.50	WET INDICATOR (NATIVE)	-0.33
FQAI (NATIVE SPECIES)	1.73	% HYDROPHYTE (MIDWEST)	1.00
FQAI (ALL SPECIES)	1.73	% NATIVE PERENNIAL	1.00
ADJUSTED FQAI	10.00	% NATIVE ANNUAL	0.00
% C VALUE 0	0.33	% ANNUAL	0.00
% C VALUE 1-3	0.67	% PERENNIAL	1.00
% C VALUE 4-6	0.00		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
EQUARV	Equisetum arvense	arvense	Field Horsetail		0 FAC	FAC		0 Fern	Perennial	Native
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
POPDEL	Populus deltoides	Populus deltoides	Eastern Cottonwood		2 FAC	FAC		0 Tree	Perennial	Native

**SITE:** Wetland 33  
**LOCALE:** south of Fishers St east of Monon  
**BY:** Rusty Yeager  
**DATE:** 4-May-17  
**NOTES:**

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.09	SPECIES RICHNESS (ALL)	18
MEAN C (ALL SPECIES)	1.28	SPECIES RICHNESS (NATIVE)	11
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE	0.39
MEAN C (NATIVE SHRUBS)	2.67	WET INDICATOR (ALL)	-0.33
MEAN C (NATIVE HERBACEOUS)	1.83	WET INDICATOR (NATIVE)	-0.73
FQAI (NATIVE SPECIES)	6.93	% HYDROPHYTE (MIDWEST)	0.78
FQAI (ALL SPECIES)	5.42	% NATIVE PERENNIAL	0.61
ADJUSTED FQAI	16.35	% NATIVE ANNUAL	0.00
% C VALUE 0	0.50	% ANNUAL	0.00
% C VALUE 1-3	0.39	% PERENNIAL	1.00
% C VALUE 4-6	0.11		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
ASPOFF	Asparagus officinalis	OFFICINALIS	Asparagus		0 FACU	FACU		1 Forb	Perennial	Adventive
CORSTO	Cornus alba	stolonifera	Red Osier		6 FACW	FACW		-1 Shrub	Perennial	Native
ELAANG	Elaeagnus angustifolia	ANGUSTIFOLIA	Russian-Olive		0 FACU	FACU		1 Shrub	Perennial	Adventive
EQUARV	Equisetum arvense	arvense	Field Horsetail		0 FAC	FAC		0 Fern	Perennial	Native
EQUHYE	Equisetum hyemale	hyemale	Tall Scouring-Rush		3 FACW	FAC		-1 Fern	Perennial	Native
EUPSER	Eupatorium serotinum	Eupatorium serotinum	Late-Flowering Thoroughwort		0 FAC	FAC		0 Forb	Perennial	Native
RHAFRA	Frangula alnus	FRANGULA	Glossy False Buckthorn		0 FACW	FAC		-1 Shrub	Perennial	Adventive
LONTAT	Lonicera tatarica	LONICERA	Twinsisters		0 FACU	FACU		1 Shrub	Perennial	Adventive
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
POPDEL	Populus deltoides	deltoides	Eastern Cottonwood		2 FAC	FAC		0 Tree	Perennial	Native
RHACAT	Rhamnus cathartica	CATHARTICA	European Buckthorn		0 FAC	FAC		0 Shrub	Perennial	Adventive
SALFRA	Salix fragilis	FRAGILIS	Crack Willow		0 UPL	UPL		2 Tree	Perennial	Adventive
SALINT	Salix interior	Salix interior	Sandbar Willow		1 FACW	FACW		-1 Shrub	Perennial	Native
SAMNIG	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder		1 FACW	FACW		-1 Shrub	Perennial	Native
SOLRUG	Solidago rugosa	rugosa	Wrinkle-Leaf Goldenrod		6 FAC	FAC		0 Forb	Perennial	Native
TYPANG	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail		0 OBL	OBL		-2 Forb	Perennial	Adventive
TYPLAT	Typha latifolia	latifolia	Broad-Leaf Cat-Tail		1 OBL	OBL		-2 Forb	Perennial	Native
VITRIP	Vitis riparia	Vitis riparia	River-Bank Grape		2 FACW	FAC		-1 Vine	Perennial	Native

**SITE:** Wetland 34  
**LOCALE:** south of Fisher St  
**BY:** Rusty Yeager  
**DATE:** 4-May-17  
**NOTES:**

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.87	SPECIES RICHNESS (ALL)	19
MEAN C (ALL SPECIES)	2.26	SPECIES RICHNESS (NATIVE)	15
MEAN C (NATIVE TREES)	1.50	% NON-NATIVE	0.21
MEAN C (NATIVE SHRUBS)	6.00	WET INDICATOR (ALL)	-1.11
MEAN C (NATIVE HERBACEOUS)	2.91	WET INDICATOR (NATIVE)	-1.07
FQAI (NATIVE SPECIES)	11.10	% HYDROPHYTE (MIDWEST)	1.00
FQAI (ALL SPECIES)	9.86	% NATIVE PERENNIAL	0.68
ADJUSTED FQAI	25.47	% NATIVE ANNUAL	0.11
% C VALUE 0	0.37	% ANNUAL	0.11
% C VALUE 1-3	0.32	% PERENNIAL	0.89
% C VALUE 4-6	0.21		
% C VALUE 7-10	0.11		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
CORSTO	Cornus alba	stolonifera	Red Osier		6 FACW	FACW		-1 Shrub	Perennial	Native
CYPESC	Cyperus esculentus	esculentus	Chufa		0 FACW	FACW		-1 Sedge	Perennial	Native
ECHCRU	Echinochloa crus-galli	Echinochloa crusgalli	Large Barnyard Grass		0 FACW	FAC		-1 Grass	Annual	Native
EQUARV	Equisetum arvense	arvense	Field Horsetail		0 FAC	FAC		0 Fern	Perennial	Native
RHAFRA	Frangula alnus	RHAMNUS FRANGULA Fraxinus pennsylvanica	Glossy False Buckthorn		0 FACW	FAC		-1 Shrub	Perennial	Adventive
FRAPENS	Fraxinus pennsylvanica	subintegerrima	Green Ash		1 FACW	FACW		-1 Tree	Perennial	Native
GEULACT	Geum laciniatum var. trichocarpum	laciniatum trichocarpum	Rough Avens		2 FACW	FACW		-1 Forb	Perennial	Native
JUNDUD	Juncus dudleyi	dudleyi	Dudley's Rush		4 FACW	FACW		-1 Forb	Perennial	Native
JUNTOR	Juncus torreyi	torreyi	Torrey's Rush		4 FACW	FACW		-1 Forb	Perennial	Native
LYCUNI	Lycopus uniflorus	uniflorus	Northern Water-Horehound		7 OBL	OBL		-2 Forb	Perennial	Native
LYTSAL	Lythrum salicaria	SALICARIA Onoclea	Purple Loosestrife		0 OBL	OBL		-2 Forb	Perennial	Adventive
ONosen	Onoclea sensibilis	sensibilis	Sensitive Fern		8 FACW	FACW		-1 Fern	Perennial	Native
POLHYD	Persicaria hydropiper	Polygonum hydropiper	Mild Water-Pepper		2 OBL	OBL		-2 Forb	Annual	Native
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
POPDEL	Populus deltoides	deltoides	Eastern Cottonwood		2 FAC	FAC		0 Tree	Perennial	Native
SCIATV	Scirpus atrovirens	atrovirens	Dark-Green Bulrush		4 OBL	OBL		-2 Sedge	Perennial	Native
TYPANG	Typha angustifolia	angustifolia	Narrow-Leaf Cat-Tail		0 OBL	OBL		-2 Forb	Perennial	Adventive
VIBDEN	Viburnum dentatum	VIBURNUM DENTATUM	Southern Arrow-Wood		0 FAC	FAC		0 Shrub	Perennial	Adventive
VITRIP	Vitis riparia	Vitis riparia	River-Bank Grape		2 FACW	FAC		-1 Vine	Perennial	Native



**SITE:** NICTD  
**LOCALE:** Wetland 2  
**BY:** Anna Hochhalter  
**NOTES:**

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	3.13	SPECIES RICHNESS (ALL)	18
MEAN C (ALL SPECIES)	2.61	SPECIES RICHNESS (NATIVE)	15
MEAN C (NATIVE TREES)	2.83	% NON-NATIVE WET INDICATOR (ALL)	0.17
MEAN C (NATIVE SHRUBS)	n/a		-0.44
MEAN C (NATIVE HERBACEOUS)	4.00	WET INDICATOR (NATIVE)	-0.40
FQAI (NATIVE SPECIES)	12.14	% HYDROPHYTE (MIDWEST)	0.78
FQAI (ALL SPECIES)	11.08	% NATIVE PERENNIAL	0.67
ADJUSTED FQAI	28.60	% NATIVE ANNUAL	0.17
% C VALUE 0	0.22	% ANNUAL	0.17
% C VALUE 1-3	0.50	% PERENNIAL	0.78
% C VALUE 4-6	0.22		
% C VALUE 7-10	0.06		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
		Acer negundo var.								
aceneg	Acer negundo	violaceum	Ash-Leaf Maple		0 FAC	FAC		0 Tree	Perennial	Native
bidcer	Bidens cernua	Bidens cernua	Nodding Burr-Marigold		5 OBL	OBL		-2 Forb	Annual	Native
cirvul	Cirsium vulgare	CIRSIIUM VULGARE	Bull Thistle		0 FACU	FACU		1 Forb	Biennial	Adventive
cramol	Crataegus mollis	Crataegus mollis	Downy Hawthorn		2 FAC	FAC		0 Tree	Perennial	Native
cypfla	Cyperus flavescens	Cyperus flavescens poaeiformis	Yellow Flat Sedge		9 OBL	OBL		-2 Sedge	Annual	Native
		Fraxinus pennsylvanic a								
frapen	Fraxinus pennsylvanica	subintegerrima	Green Ash		1 FACW	FACW		-1 Tree	Perennial	Native
geulac	Geum laciniatum	Geum laciniatum	Rough Avena		2 FACW	FACW		-1 Forb	Perennial	Native
heltub	Helianthus tuberosus	Helianthus tuberosus	Jerusalem-Artichoke		3 FACU	FACU		1 Forb	Perennial	Native
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia	Virginia-Creeper		2 FACU	FACU		1 Vine	Perennial	Native
polhyd	Persicaria hydropiper	Polygonum hydropiper	Mild Water-Pepper		2 OBL	OBL		-2 Forb	Annual	Native
		PHALARIS ARUNDINACEA								
phaaru	Phalaris arundinacea	A	Reed Canary Grass		0 FACW	FACW		-1 Grass	Perennial	Adventive
quealb	Quercus alba	Quercus alba	Northern White Oak		5 FACU	FACU		1 Tree	Perennial	Native
quemac	Quercus macrocarpa	Quercus macrocarpa	Burr Oak		5 FAC	FACU		0 Tree	Perennial	Native
astsim	Symphyotrichum lanceolatum	Symphyotrichum lanceolatum	White Panicked American-Aster		3 FAC	FACW		0 Forb	Perennial	Native
rhurad	Toxicodendron radicans	Aster simplex Rhus radicans	Eastern Poison-Ivy		2 FAC	FAC		0 Vine	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail		0 OBL	OBL		-2 Forb	Perennial	Adventive
ulmrub	Ulmus rubra	Ulmus rubra	Slippery Elm		4 FAC	FAC		0 Tree	Perennial	Native
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape		2 FACW	FAC		-1 Vine	Perennial	Native

**SITE:** NICTD  
**LOCALE:** Wetland 1  
**BY:** Anna Hochhalter  
**NOTES:**

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.15	SPECIES RICHNESS (ALL)	22
MEAN C (ALL SPECIES)	1.27	SPECIES RICHNESS (NATIVE)	13
MEAN C (NATIVE TREES)	n/a	% NON-NATIVE WET INDICATOR (ALL)	0.41
MEAN C (NATIVE SHRUBS)	7.00	WET INDICATOR (NATIVE)	-0.41
MEAN C (NATIVE HERBACEOUS)	1.75	% HYDROPHYTE (MIDWEST)	0.68
FQAI (NATIVE SPECIES)	7.77	% NATIVE PERENNIAL	0.36
FQAI (ALL SPECIES)	5.97	% NATIVE ANNUAL	0.18
ADJUSTED FQAI	16.56	% ANNUAL	0.32
% C VALUE 0	0.64	% PERENNIAL	0.59
% C VALUE 1-3	0.18		
% C VALUE 4-6	0.14		
% C VALUE 7-10	0.05		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
agralb	Agrostis gigantea	ALBA ARCTIUM	Black Bent		0 FACW	FACW	-1	Grass	Perennial	Adventive
arclap	Arctium lappa	LAPPA	Great Burdock		0 UPL	UPL	2	Forb	Biennial	Adventive
bidcer	Bidens cernua	Bidens cernua	Nodding Burr-Marigold		5 OBL	OBL	-2	Forb	Annual	Native
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle		0 FACU	FACU	1	Forb	Perennial	Adventive
cypesc	Cyperus esculentus	esculentus	Chufa		0 FACW	FACW	-1	Sedge	Perennial	Native
echcru	Echinochloa crus-galli	Echinochloa crus-galli	Large Barnyard Grass		0 FACW	FAC	-1	Grass	Annual	Native
eupser	Eupatorium serotinum	Eupatorium serotinum	Late-Flowering Thoroughwort		0 FAC	FAC	0	Forb	Perennial	Native
glehed	Glechoma hederacea	GLECHOMA	Groundivy		0 FACU	FACU	1	Forb	Perennial	Adventive
heltub	Helianthus tuberosus	HELIANTHUS TUBEROSUS	Jerusalem-Artichoke		3 FACU	FACU	1	Forb	Perennial	Native
ipohed	Ipomoea hederacea	IPOMOEA	Ivy-Leaf Morning-Glory		0 FAC	FAC	0	Forb	Annual	Adventive
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife		0 OBL	OBL	-2	Forb	Perennial	Adventive
oenbie	Oenothera biennis	OENOTHERA BIENNIS	King's-Cureall		0 FACU	FACU	1	Forb	Biennial	Native
polamp	Persicaria amphibia	Polygonum stipulaceum	Water Smartweed		4 OBL	OBL	-2	Forb	Perennial	Native
polhyd	Persicaria hydropiper	Polygonum hydropiper	Mild Water-Pepper		2 OBL	OBL	-2	Forb	Annual	Native
pollap	Persicaria lapathifolia	Polygonum lapathifolium	Dock-Leaf Smartweed		0 FACW	FACW	-1	Forb	Annual	Native
phaaru	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass		0 FACW	FACW	-1	Grass	Perennial	Adventive
salpet	Salix petiolaris	Salix petiolaris	Meadow Willow		7 OBL	FACW	-2	Shrub	Perennial	Native
setgla	Setaria pumila	SETARIA GLAUCA	Yellow Bristle Grass		0 FAC	FAC	0	Grass	Annual	Adventive
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod		1 FACU	FACU	1	Forb	Perennial	Native

solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod	4 FACW	FACW	-1 Forb	Perennial	Native
sonole	Sonchus oleraceus	SONCHUS OLERACEUS	Common Sow- Thistle	0 FACU	FACU	1 Forb	Annual	Adventive
urtdio	Urtica dioica ssp. gracilis	Urtica procera	Tall Nettle	2 FACW	FAC	-1 Forb	Perennial	Native



SITE: NICTD  
LOCALE: Wetland 4  
BY: Anna Hochhalter  
NOTES:

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	1.50	SPECIES RICHNESS (ALL)	15
MEAN C (ALL SPECIES)	1.00	SPECIES RICHNESS (NATIVE)	10
MEAN C (NATIVE TREES)	1.25	% NON-NATIVE WET INDICATOR (ALL)	0.33
MEAN C (NATIVE SHRUBS)	n/a		-0.27
MEAN C (NATIVE HERBACEOUS)	1.50	WET INDICATOR (NATIVE)	-0.20
FQAI (NATIVE SPECIES)	4.74	% HYDROPHYTE (MIDWEST)	0.73
FQAI (ALL SPECIES)	3.87	% NATIVE PERENNIAL	0.67
ADJUSTED FQAI	12.25	% NATIVE ANNUAL	0.00
% C VALUE 0	0.53	% ANNUAL	0.00
% C VALUE 1-3	0.33	% PERENNIAL	1.00
% C VALUE 4-6	0.13		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple		0 FAC	FAC		0 Tree	Perennial	Native
acesai	Acer saccharinum	Acer saccharinum Fraxinus pennsylvanic a	Silver Maple		0 FACW	FACW		-1 Tree	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus subintegerrima	Green Ash		1 FACW	FACW		-1 Tree	Perennial	Native
lysnum	Lysimachia nummularia	LYSIMACHIA NUMMULARIA	Creeping-Jenny		0 FACW	FACW		-1 Forb	Perennial	Adventive
moralb	Morus alba	MORUS ALBA	White Mulberry		0 FAC	FACU		0 Tree	Perennial	Adventive
parqui	Parthenocissus quinquefolia	Parthenocissus quinquefolia PHALARIS	Virginia-Creeper		2 FACU	FACU		1 Vine	Perennial	Native
phaaru	Phalaris arundinacea	ARUNDINACEA	Reed Canary Grass		0 FACW	FACW		-1 Grass	Perennial	Adventive
phrausm	Phragmites australis ssp. americanus	Phragmites australis SALIX	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
salfra	Salix fragilis	FRAGILIS	Crack Willow		0 UPL	UPL		2 Tree	Perennial	Adventive
solalt	Solidago altissima	Solidago altissima	Tall Goldenrod		1 FACU	FACU		1 Forb	Perennial	Native
solgig	Solidago gigantea	Solidago gigantea	Late Goldenrod		4 FACW	FACW		-1 Forb	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus Typha	American-Aster		0 FACU	FACU		1 Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail		0 OBL	OBL		-2 Forb	Perennial	Adventive
ulmrub	Ulmus rubra	Ulmus rubra	Slippery Elm		4 FAC	FAC		0 Tree	Perennial	Native
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape		2 FACW	FAC		-1 Vine	Perennial	Native

SITE: NICTD  
LOCALE: Wetland 3  
BY: Anna Hochhalter  
NOTES:

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	1.59	SPECIES RICHNESS (ALL)	24
MEAN C (ALL SPECIES)	1.13	SPECIES RICHNESS (NATIVE)	17
MEAN C (NATIVE TREES)	2.00	% NON-NATIVE WET INDICATOR (ALL)	0.29
MEAN C (NATIVE SHRUBS)	1.00		-0.13
MEAN C (NATIVE HERBACEOUS)	1.54	WET INDICATOR (NATIVE)	-0.24
FQAI (NATIVE SPECIES)	6.55	% HYDROPHYTE (MIDWEST)	0.63
FQAI (ALL SPECIES)	5.51	% NATIVE PERENNIAL	0.50
ADJUSTED FQAI	13.37	% NATIVE ANNUAL	0.21
% C VALUE 0	0.50	% ANNUAL	0.25
% C VALUE 1-3	0.42	% PERENNIAL	0.71
% C VALUE 4-6	0.08		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
acesau	Acer saccharum	saccharum	Sugar Maple		3 FACU	FACU		1 Tree	Perennial	Native
ambtri	Ambrosia trifida	trifida	Great Ragweed		0 FAC	FAC		0 Forb	Annual	Native
arclap	Arctium lappa	ARCTIUM LAPPA	Great Burdock		0 UPL	UPL		2 Forb	Biennial	Adventive
bidcer	Bidens cernua	Bidens cernua	Nodding Burr-Marigold		5 OBL	OBL		-2 Forb	Annual	Native
catspe	Catalpa speciosa	SPECIOSA CATALPA	Northern Catalpa		0 FACU	FACU		1 Tree	Perennial	Adventive
cirarv	Cirsium arvense	CIRSIUM ARVENSE	Canadian Thistle		0 FACU	FACU		1 Forb	Perennial	Adventive
elyvir	Elymus virginicus	ELYMUS VIRGINICUS	Virginia Wild Rye		4 FACW	FACW		-1 Grass	Perennial	Native
eupser	Eupatorium serotinum	serotinum	Late-Flowering Thoroughwort		0 FAC	FAC		0 Forb	Perennial	Native
		Fraxinus pennsylvanic a								
frapen	Fraxinus pennsylvanica	subintegerrima	Green Ash		1 FACW	FACW		-1 Tree	Perennial	Native
heltub	Helianthus tuberosus	Helianthus tuberosus	Jerusalem-Artichoke		3 FACU	FACU		1 Forb	Perennial	Native
impcap	Impatiens capensis	Impatiens capensis	Spotted Touch-Me-Not		3 FACW	FACW		-1 Forb	Annual	Native
ipohed	Ipomoea hederacea	IPOMOEA HEDERACEA	Ivy-Leaf Morning-Glory		0 FAC	FAC		0 Forb	Annual	Adventive
moralb	Morus alba	MORUS ALBA	White Mulberry		0 FAC	FACU		0 Tree	Perennial	Adventive
		Polygonum lapathifolium								
		;								
pollap	Persicaria lapathifolia	POLYGONUM SCABRUM	Dock-Leaf Smartweed		0 FACW	FACW		-1 Forb	Annual	Native
		PHALARIS ARUNDINACEA								
phaaru	Phalaris arundinacea	A	Reed Canary Grass		0 FACW	FACW		-1 Grass	Perennial	Adventive
	Phragmites australis ssp. americanus	Phragmites australis								
phrausm	Phragmites australis	Phragmites australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
phyame	Phytolacca americana	PHYTOLACCA AMERICANA	American Pokeweed		1 FACU	FACU		1 Forb	Perennial	Native
samcan	Sambucus nigra ssp. canadensis	Sambucus canadensis	Black Elder		1 FACW	FACW		-1 Shrub	Perennial	Native
solame	Solanum americanum	Solanum americanum	American Black Nightshade		0 FACU	FACU		1 Forb	Annual	Native

solalt	Solidago altissima	Solidago altissima	Tall Goldenrod	1 FACU	FACU	1 Forb	Perennial	Native
astpil	Symphyotrichum pilosum	Aster pilosus	White Oldfield American-Aster	0 FACU	FACU	1 Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0 OBL	OBL	-2 Forb	Perennial	Adventive
urtdio	Urtica dioica ssp. gracilis	Urtica procera	Tall Nettle	2 FACW	FAC	-1 Forb	Perennial	Native
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2 FACW	FAC	-1 Vine	Perennial	Native



**SITE:** NICTD  
**LOCALE:** Wetland 5  
**BY:** Anna Hochhalter  
**NOTES:**

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.22	SPECIES RICHNESS (ALL)	21
MEAN C (ALL SPECIES)	1.90	SPECIES RICHNESS (NATIVE)	18
MEAN C (NATIVE TREES)	1.00	% NON-NATIVE WET INDICATOR (ALL)	0.14
MEAN C (NATIVE SHRUBS)	5.00		-0.71
MEAN C (NATIVE HERBACEOUS)	2.31	WET INDICATOR (NATIVE)	-0.78
FQAI (NATIVE SPECIES)	9.43	% HYDROPHYTE (MIDWEST)	0.90
FQAI (ALL SPECIES)	8.73	% NATIVE PERENNIAL	0.67
ADJUSTED FQAI	20.57	% NATIVE ANNUAL	0.19
% C VALUE 0	0.43	% ANNUAL	0.24
% C VALUE 1-3	0.24	% PERENNIAL	0.76
% C VALUE 4-6	0.33		
% C VALUE 7-10	0.00		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
		Acer negundo var.								
aceneg	Acer negundo	violaceum	Ash-Leaf Maple		0 FAC	FAC		0 Tree	Perennial	Native
bidcer	Bidens cernua	Bidens cernua	Nodding Burr-Marigold		5 OBL	OBL		-2 Forb	Annual	Native
cypesc	Cyperus esculentus	Cyperus esculentus	Chufa		0 FACW	FACW		-1 Sedge	Perennial	Native
desili	Desmanthus illinoensis	Desmanthus illinoensis	Prairie Bundle-Flower		3 FACU	FACU		1 Forb	Perennial	Native
echcru	Echinochloa crus-galli	Echinochloa crusgalli	Large Barnyard Grass		0 FACW	FAC		-1 Grass	Annual	Native
elyvir	Elymus virginicus	Elymus virginicus	Virginia Wild Rye		4 FACW	FACW		-1 Grass	Perennial	Native
eupser	Eupatorium serotinum	Eupatorium serotinum	Late-Flowering Thoroughwort		0 FAC	FAC		0 Forb	Perennial	Native
		Solidago graminifolia;								
solgra	Euthamia graminifolia	Solidago graminifolia nuttallii	Flat-Top Goldentop		4 FACW	FAC		-1 Forb	Perennial	Native
		Fraxinus pennsylvanica								
frapen	Fraxinus pennsylvanica	subintegerrima	Green Ash		1 FACW	FACW		-1 Tree	Perennial	Native
glehed	Glechoma hederacea	GLECHOMA	Groundivy		0 FACU	FACU		1 Forb	Perennial	Adventive
jundud	Juncus dudleyi	Juncus dudleyi	Dudley's Rush		4 FACW	FACW		-1 Forb	Perennial	Native
juntor	Juncus torreyi	Juncus torreyi	Torrey's Rush		4 FACW	FACW		-1 Forb	Perennial	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife		0 OBL	OBL		-2 Forb	Perennial	Adventive
		Polygonum lapathifolium								
pollap	Persicaria lapathifolia	POLYGONUM SCABRUM	Dock-Leaf Smartweed		0 FACW	FACW		-1 Forb	Annual	Native
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
plarug	Plantago rugelii	Plantago rugelii	Black-Seed Plantain		0 FAC	FAC		0 Forb	Annual	Native
popdel	Populus deltoides	Populus deltoides	Eastern Cottonwood		2 FAC	FAC		0 Tree	Perennial	Native

saleri	Salix eriocephala	Salix eriocephala	Missouri Willow	5 FACW	FACW	-1 Shrub	Perennial	Native
scival	Schoenoplectus tabernaemontani	Scirpus validus creber SETARIA	Soft-Stem Club- Rush	5 OBL	OBL	-2 Sedge	Perennial	Native
setgla	Setaria pumila	GLAUCA	Yellow Bristle Grass	0 FAC	FAC	0 Grass	Annual	Adventive
vitrip	Vitis riparia	Vitis riparia	River-Bank Grape	2 FACW	FAC	-1 Vine	Perennial	Native

**SITE:** NICTD  
**LOCALE:** Wetland 6  
**BY:** Anna Hochhalter  
**NOTES:**

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.29	SPECIES RICHNESS (ALL)	21
MEAN C (ALL SPECIES)	1.86	SPECIES RICHNESS (NATIVE)	17
MEAN C (NATIVE TREES)	1.33	% NON-NATIVE WET INDICATOR (ALL)	0.19
MEAN C (NATIVE SHRUBS)	7.00		-0.90
MEAN C (NATIVE HERBACEOUS)	2.40	WET INDICATOR (NATIVE)	-0.94
FQAI (NATIVE SPECIES)	9.46	% HYDROPHYTE (MIDWEST)	0.95
FQAI (ALL SPECIES)	8.51	% NATIVE PERENNIAL	0.62
ADJUSTED FQAI	20.64	% NATIVE ANNUAL	0.19
% C VALUE 0	0.38	% ANNUAL	0.19
% C VALUE 1-3	0.48	% PERENNIAL	0.81
% C VALUE 4-6	0.10		
% C VALUE 7-10	0.05		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
aceneg	Acer negundo	Acer negundo var. violaceum	Ash-Leaf Maple		0 FAC	FAC		0 Tree	Perennial	Native
acesai	Acer saccharinum	Acer saccharinum	Silver Maple		0 FACW	FACW		-1 Tree	Perennial	Native
ailalt	Ailanthus altissima	AILANTHUS ALTISSIMA	Tree-of-Heaven		0 FACU	UPL		1 Tree	Perennial	Adventive
bidcer	Bidens cernua	Bidens cernua	Nodding Burr-Marigold		5 OBL	OBL		-2 Forb	Annual	Native
cramol	Crataegus mollis	Crataegus mollis	Downy Hawthorn		2 FAC	FAC		0 Tree	Perennial	Native
epicol	Epilobium coloratum	Epilobium coloratum	Purple-Leaf Willowherb		3 OBL	OBL		-2 Forb	Perennial	Native
eupser	Eupatorium serotinum	Eupatorium serotinum	Late-Flowering Thoroughwort		0 FAC	FAC		0 Forb	Perennial	Native
frapen	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima	Green Ash		1 FACW	FACW		-1 Tree	Perennial	Native
geulact	Geum laciniatum var. trichocarpum	Geum laciniatum trichocarpum	Rough Avens		2 FACW	FACW		-1 Forb	Perennial	Native
impcap	Impatiens capensis	Impatiens capensis	Spotted Touch-Me-Not		3 FACW	FACW		-1 Forb	Annual	Native
lytsal	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife		0 OBL	OBL		-2 Forb	Perennial	Adventive
polhyd	Persicaria hydropiper	Polygonum hydropiper	Mild Water-Pepper		2 OBL	OBL		-2 Forb	Annual	Native
pollap	Persicaria lapathifolia	Polygonum lapathifolium ; SCABRUM	Dock-Leaf Smartweed		0 FACW	FACW		-1 Forb	Annual	Native
PHRAUSM	Phragmites australis ssp. americanus	Phragmites australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
popdel	Populus deltoides	Populus deltoides RHAMNUS	Eastern Cottonwood		2 FAC	FAC		0 Tree	Perennial	Native
rhacat	Rhamnus cathartica	CATHARTICA RIBES	European Buckthorn		0 FAC	FAC		0 Shrub	Perennial	Adventive
ribame	Ribes americanum	Ribes americanum	Wild Black Currant		7 FACW	FACW		-1 Shrub	Perennial	Native
sculat	Scutellaria lateriflora	Scutellaria lateriflora	Mad Dog Skullcap		5 OBL	OBL		-2 Forb	Perennial	Native

astsim	Symphiotrichum lanceolatum	Aster simplex	White Panicked American-Aster	3 FAC	FACW	0 Forb	Perennial	Native
typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0 OBL	OBL	-2 Forb	Perennial	Adventive
ulmame	Ulmus americana	Ulmus americana	American Elm	3 FACW	FACW	-1 Tree	Perennial	Native



**SITE:** NICTD  
**LOCALE:** Wetland 7  
**BY:** Anna Hochhalter  
**NOTES:**

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.26	SPECIES RICHNESS (ALL)	22
MEAN C (ALL SPECIES)	1.95	SPECIES RICHNESS (NATIVE)	19
MEAN C (NATIVE TREES)	1.00	% NON-NATIVE WET INDICATOR (ALL)	0.14
MEAN C (NATIVE SHRUBS)	1.00		-0.73
MEAN C (NATIVE HERBACEOUS)	2.71	WET INDICATOR (NATIVE)	-0.63
FQAI (NATIVE SPECIES)	9.86	% HYDROPHYTE (MIDWEST)	0.91
FQAI (ALL SPECIES)	9.17	% NATIVE PERENNIAL	0.73
ADJUSTED FQAI	21.03	% NATIVE ANNUAL	0.14
% C VALUE 0	0.32	% ANNUAL	0.14
% C VALUE 1-3	0.41	% PERENNIAL	0.86
% C VALUE 4-6	0.23		
% C VALUE 7-10	0.05		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
acesai	Acer saccharinum	saccharinum	Silver Maple		0 FACW	FACW		-1 Tree	Perennial	Native
alitri	Alisma triviale	triviale	Northern Water-Plantain		4 OBL	OBL		-2 Forb	Perennial	Native
bidcer	Bidens cernua	Bidens cernua	Nodding Burr-Marigold		5 OBL	OBL		-2 Forb	Annual	Native
bidfro	Bidens frondosa	frondosa	Devil's-Pitchfork		1 FACW	FACW		-1 Forb	Annual	Native
cypesc	Cyperus esculentus	esculentus	Chufa		0 FACW	FACW		-1 Sedge	Perennial	Native
equarv	Equisetum arvense	arvense	Field Horsetail		0 FAC	FAC		0 Fern	Perennial	Native
frapen	Fraxinus pennsylvanica	pennsylvanica	Green Ash		1 FACW	FACW		-1 Tree	Perennial	Native
geucan	Geum canadense	canadense	White Avens		1 FAC	FAC		0 Forb	Perennial	Native
helgig	Helianthus giganteus	giganteus	Giant Sunflower		9 FACW	FACW		-1 Forb	Perennial	Native
lapcan	Laportea canadensis	canadensis	Canadian Wood-Nettle		3 FACW	FACW		-1 Forb	Perennial	Native
lytsal	Lythrum salicaria	SALICARIA	Purple Loosestrife		0 OBL	OBL		-2 Forb	Perennial	Adventive
moralb	Morus alba	MORUS ALBA	White Mulberry		0 FAC	FACU		0 Tree	Perennial	Adventive
panvir	Panicum virgatum	virgatum	Wand Panic Grass		5 FAC	FAC		0 Grass	Perennial	Native
pollap	Persicaria lapathifolia	lapathifolia	Dock-Leaf Smartweed		0 FACW	FACW		-1 Forb	Annual	Native
PHRAUSM	Phragmites australis ssp. americanus	australis	Common Reed		1 FACW	FACW		-1 Grass	Perennial	Native
popdel	Populus deltoides	deltoides	Eastern Cottonwood		2 FAC	FAC		0 Tree	Perennial	Native
rhuir	Rhus hirta	Rhus typhina	Staghorn Sumac		1 UPL	UPL		2 Tree	Perennial	Native
salint	Salix interior	interior	Sandbar Willow		1 FACW	FACW		-1 Shrub	Perennial	Native
solalt	Solidago altissima	altissima	Tall Goldenrod		1 FACU	FACU		1 Forb	Perennial	Native
solgig	Solidago gigantea	gigantea	Late Goldenrod		4 FACW	FACW		-1 Forb	Perennial	Native
astnov	Symphyotrichum novae-angliae	Aster novae-angliae	New England American-Aster		4 FACW	FACW		-1 Forb	Perennial	Native

typang	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0 OBL	OBL	-2 Forb	Perennial	Adventive
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**SITE:** Wetland 8 and 10  
**LOCALE:** north of 173rd St  
**BY:** Anna Hochhalter & Rusty Yeager  
**DATE:** Sept. 17, 2015 & May 1, 2017  
**NOTES:** Excludes: Allium porrum, Carex sp., Chaenomeles japonica,

CONSERVATISM-BASED METRICS		ADDITIONAL METRICS	
MEAN C (NATIVE SPECIES)	2.48	SPECIES RICHNESS (ALL)	67
MEAN C (ALL SPECIES)	1.55	SPECIES RICHNESS (NATIVE)	42
MEAN C (NATIVE TREES)	2.11	% NON-NATIVE	0.37
MEAN C (NATIVE SHRUBS)	2.75	WET INDICATOR (ALL)	0.13
MEAN C (NATIVE HERBACEOUS)	2.59	WET INDICATOR (NATIVE)	-0.24
FQAI (NATIVE SPECIES)	16.05	% HYDROPHYTE (MIDWEST)	0.57
FQAI (ALL SPECIES)	12.71	% NATIVE PERENNIAL	0.54
ADJUSTED FQAI	19.61	% NATIVE ANNUAL	0.07
% C VALUE 0	0.49	% ANNUAL	0.12
% C VALUE 1-3	0.33	% PERENNIAL	0.78
% C VALUE 4-6	0.13		
% C VALUE 7-10	0.04		

SPECIES ACRONYM	SPECIES NAME (NWPL/ MOHLENBROCK)	SPECIES (SYNONYM)	COMMON NAME	C VALUE	MIDWEST WET INDICATOR	NC-NE WET INDICATOR	WET INDICATOR (NUMERIC)	HABIT	DURATION	NATIVITY
		Acer negundo var.								
ACENEGV	Acer negundo	violaceum	Ash-Leaf Maple		0 FAC	FAC		0 Tree	Perennial	Native
ACESAI	Acer saccharinum	Acer saccharinum	Silver Maple		0 FACW	FACW		-1 Tree	Perennial	Native
AILALT	Ailanthus altissima	ALTISSIMA	Tree-of-Heaven		0 FACU	UPL		1 Tree	Perennial	Adventive
ALISUB	Alisma subcordatum	Alisma subcordatum	American Water-Plantain		4 OBL	OBL		-2 Forb	Perennial	Native
ALLPET	Alliaria petiolata	PETIOLATA	Garlic-Mustard		0 FAC	FACU		0 Forb	Biennial	Adventive
ALLCER	Allium cernuum	Allium cernuum	Nodding Onion		7 FACU	FACU		1 Forb	Perennial	Native
AMBTRI	Ambrosia trifida	Ambrosia trifida	Great Ragweed		0 FAC	FAC		0 Forb	Annual	Native
AMPBRE	Ampelopsis brevipedunculata	AMPELOPSIS BREVIPEDUN CULATA	Turquoise-Berry		0 UPL	UPL		2 Vine	Perennial	Adventive
APOSIB	Apocynum cannabinum	Apocynum sibiricum	Indian-Hemp		2 FAC	FAC		0 Forb	Perennial	Native
ARCLAP	Arctium lappa	ARCTIUM LAPPA	Great Burdock		0 UPL	UPL		2 Forb	Biennial	Adventive
ASCSYR	Asclepias syriaca	Asclepias syriaca	Common Milkweed		0 FACU	UPL		1 Forb	Perennial	Native
BARVUL	Barbarea vulgaris	BARBAREA VULGARIS	Garden Yellow-Rocket		0 FAC	FAC		0 Forb	Biennial	Adventive
BIDCER	Bidens cernua	Bidens cernua	Nodding Burr-Marigold		5 OBL	OBL		-2 Forb	Annual	Native
BIDFRO	Bidens frondosa	Bidens frondosa	Devil's-Pitchfork		1 FACW	FACW		-1 Forb	Annual	Native
		Boehmeria cylindrica								
BOECYL	Boehmeria cylindrica	drummondiana	Small-Spike False Nettle		2 OBL	OBL		-2 Forb	Perennial	Native
CXBLAN	Carex blanda	Carex blanda	Eastern Woodland Sedge		1 FAC	FAC		0 Sedge	Perennial	Native
CXVULP	Carex vulpinoidea	Carex vulpinoidea	Common Fox Sedge		2 FACW	OBL		-1 Sedge	Perennial	Native
CIRDIS	Cirsium discolor	Cirsium discolor	Field Thistle		2 FACU	UPL		1 Forb	Biennial	Native
CORSTO	Cornus alba	Cornus stolonifera	Red Osier		6 FACW	FACW		-1 Shrub	Perennial	Native

CYPESC	Cyperus esculentus	Cyperus esculentus	Chufa	0 FACW	FACW	-1 Sedge	Perennial	Native
DAUCAR	Daucus carota	DAUCUS	Queen Anne's Lace	0 UPL	UPL	2 Forb	Biennial	Adventive
DIPSYL	Dipsacus fullonum	DIPSACUS	Fuller's Teasel	0 FACU	FACU	1 Forb	Biennial	Adventive
ELAANG	Elaeagnus angustifolia	SYLVESTRIS ELAEAGNUS ANGUSTIFOLIA	Russian-Olive	0 FACU	FACU	1 Shrub	Perennial	Adventive
EQUARV	Equisetum arvense	Equisetum arvense	Field Horsetail	0 FAC	FAC	0 Fern	Perennial	Native
EUPSER	Eupatorium serotinum	Eupatorium serotinum	Late-Flowering Thoroughwort	0 FAC	FAC	0 Forb	Perennial	Native
FESPAR	Festuca paradoxa	0 Clustered Fescue		6 FAC	FAC	0 Grass	Perennial	Native
FRAPENS	Fraxinus pennsylvanica	Fraxinus pennsylvanica subintegerrima	Green Ash	1 FACW	FACW	-1 Tree	Perennial	Native
GALAPA	Galium aparine	Galium aparine	Sticky-Willy	1 FACU	FACU	1 Forb	Annual	Native
GEUCAN	Geum canadense	Geum canadense	White Avens	1 FAC	FAC	0 Forb	Perennial	Native
GEULACT	Geum laciniatum var. trichocarpum	Geum laciniatum trichocarpum	Rough Avens	2 FACW	FACW	-1 Forb	Perennial	Native
GLEHED	Glechoma hederacea	GLECHOMA HEDERACEA	Groundivy	0 FACU	FACU	1 Forb	Perennial	Adventive
GLETRI	Gleditsia triacanthos	Gleditsia triacanthos	Honey-Locust	2 FACU	FAC	1 Tree	Perennial	Native
IPOHED	Ipomoea hederacea	IPOMOEA	Ivy-Leaf Morning-Glory	0 FAC	FAC	0 Forb	Annual	Adventive
JUGNIG	Juglans nigra	GLYPTOSTERIS JUGLANS NIGRA	Black Walnut	5 FACU	FACU	1 Tree	Perennial	Native
JUNTOR	Juncus torreyi	Juncus torreyi	Torrey's Rush	4 FACW	FACW	-1 Forb	Perennial	Native
LACSER	Lactuca serriola	LACTUCA SERRIOLA	Prickly Lettuce	0 FACU	FACU	1 Forb	Biennial	Adventive
LAMPUR	Lamium purpureum	LAMIUM PURPUREUM	Purple Dead Nettle	0 UPL	UPL	2 Forb	Annual	Adventive
LEOCAR	Leonurus cardiaca	LEONURUS CARDIACA	Motherwort	0 UPL	UPL	2 Forb	Perennial	Adventive
LONTAT	Lonicera tatarica	LONICERA TATARICA	Twinsisters	0 FACU	FACU	1 Shrub	Perennial	Adventive
LYTSAL	Lythrum salicaria	LYTHRUM SALICARIA	Purple Loosestrife	0 OBL	OBL	-2 Forb	Perennial	Adventive
MORALB	Morus alba	MORUS ALBA	White Mulberry	0 FAC	FACU	0 Tree	Perennial	Adventive
ORYRAC	Oryzopsis racemosa	ORYZOPSIS RACEMOSA	Black-Seed Rice Grass	10 UPL	UPL	2 Grass	Perennial	Native
PARQUI	Parthenocissus quinquefolia	PARthenocissus quinquefolia	Virginia-Creeper	2 FACU	FACU	1 Vine	Perennial	Native
POLSCB	Persicaria lapathifolia	POLYGONUM SCABRUM	Dock-Leaf Smartweed	0 FACW	FACW	-1 Forb	Annual	Native
PHAARU	Phalaris arundinacea	PHALARIS ARUNDINACEA	Reed Canary Grass	0 FACW	FACW	-1 Grass	Perennial	Adventive
PHRAUSM	Phragmites australis ssp. americanus	PHragmites australis	Common Reed	1 FACW	FACW	-1 Grass	Perennial	Native
PHYAME	Phytolacca americana	PHYTOLACCA AMERICANA	American Pokeweed	1 FACU	FACU	1 Forb	Perennial	Native
POAANN	Poa annua	POA ANNUA	Annual Blue Grass	0 FACU	FACU	1 Grass	Annual	Adventive
POPDEL	Populus deltoides	POPULUS DELTOIDES	Eastern Cottonwood	2 FAC	FAC	0 Tree	Perennial	Native
POPTRE	Populus tremuloides	POPULUS TREMULOIDES	Quaking Aspen	4 FAC	FAC	0 Tree	Perennial	Native
PRUVIR	Prunus virginiana	PRUNUS VIRGINIANA	Choke Cherry	3 FACU	FACU	1 Shrub	Perennial	Native
PYRCAL	Pyrus calleryana	PYRUS CALLERYANA	Ornamental Pear	0 UPL	UPL	2 Tree	Perennial	Adventive
REYJAP	Reynoutria japonica	POLYGONUM CUSPIDATUM	Japanese-Knotweed	0 FACU	FACU	1 Shrub	Perennial	Adventive
RHUTYP	Rhus hirta	Rhus typhina	Staghorn Sumac	1 UPL	UPL	2 Tree	Perennial	Native
ROBPSE	Robinia pseudoacacia	ROBINIA PSEUDOACACIA	Black Locust	0 FACU	FACU	1 Tree	Perennial	Adventive
RUMCRI	Rumex crispus	RUMEX CRISPUS	Curly Dock	0 FAC	FAC	0 Forb	Perennial	Adventive
SALINT	Salix interior	SALIX INTERIOR	Sandbar Willow	1 FACW	FACW	-1 Shrub	Perennial	Native
SALNIG	Salix nigra	SALIX NIGRA	Black Willow	4 OBL	OBL	-2 Tree	Perennial	Native
SAMNIG	Sambucus nigra ssp. canadensis	SAMBUCUS CANADENSIS	Black Elder	1 FACW	FACW	-1 Shrub	Perennial	Native
SAPOFF	Saponaria officinalis	SAPONARIA OFFICINALIS	Bouncing-Bett	0 FACU	FACU	1 Forb	Perennial	Adventive



SOLALT	Solidago altissima	Solidago altissima	Tall Goldenrod	1 FACU	FACU	1 Forb	Perennial	Native
SYMLAN	Symphytotrichum lanceolatum	Aster simplex	White Panicked American-Aster	3 FAC	FACW	0 Forb	Perennial	Native
TORPAL	Torreyochloa pallida	Glyceria pallida	Pale False Manna Grass	10 OBL	OBL	-2 Grass	Perennial	Native
TYPANG	Typha angustifolia	Typha angustifolia	Narrow-Leaf Cat-Tail	0 OBL	OBL	-2 Forb	Perennial	Adventive
ULMPUM	Ulmus pumila	ULMUS PUMILA	Siberian Elm	0 UPL	FACU	2 Tree	Perennial	Adventive
VERHAS	Verbena hastata	Verbena hastata	Simpler's-Joy	4 FACW	FACW	-1 Forb	Perennial	Native
VITRIP	Vitis riparia	Vitis riparia	River-Bank Grape	2 FACW	FAC	-1 Vine	Perennial	Native



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# Appendix E. Agricultural Land Assessment



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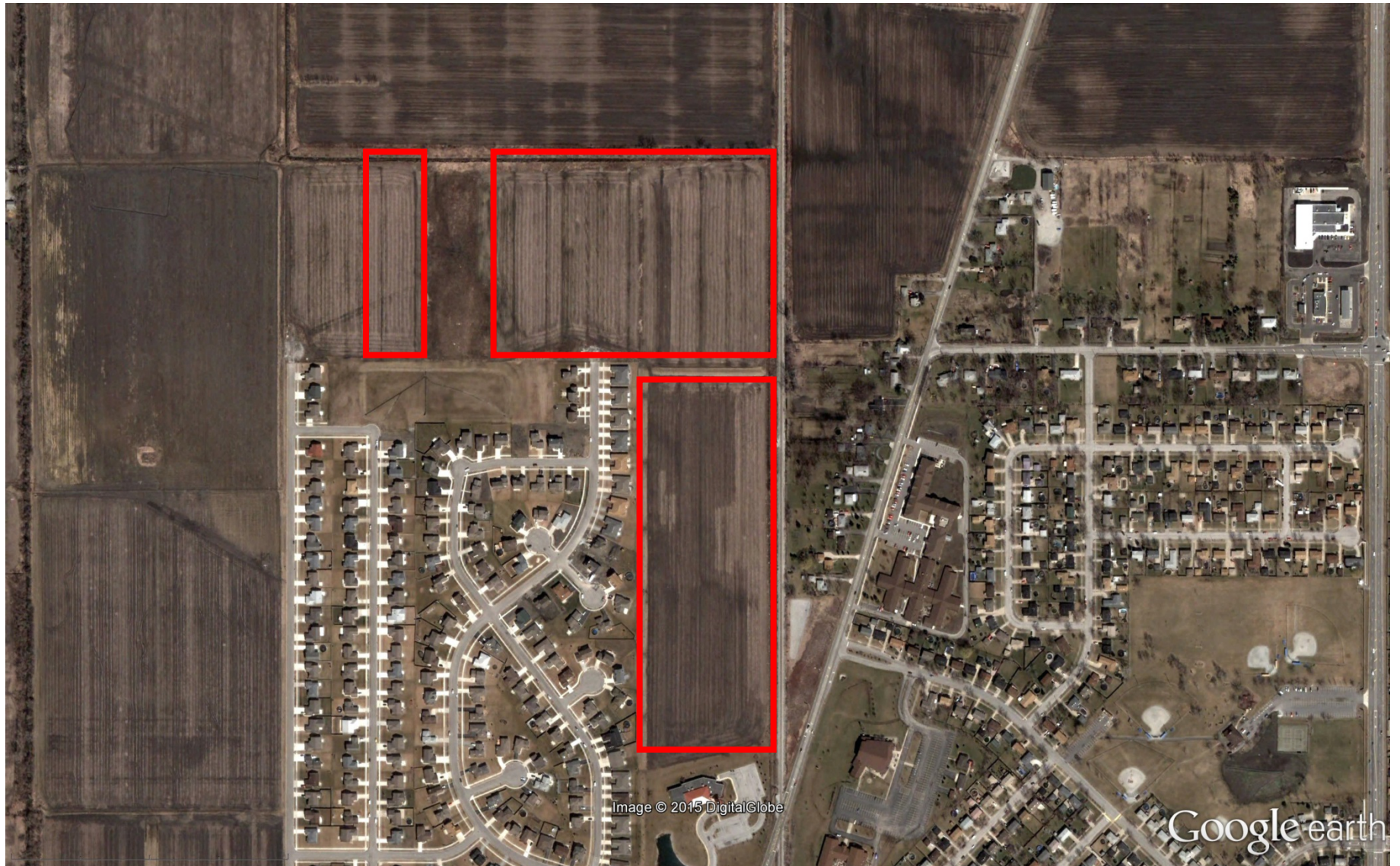




**April 1998 – Normal Rainfall Year for Munster, IN**

Image Source: Google Earth Pro





April 2002 – Wet Rainfall Year for Munster, IN

Image Source: Google Earth Pro

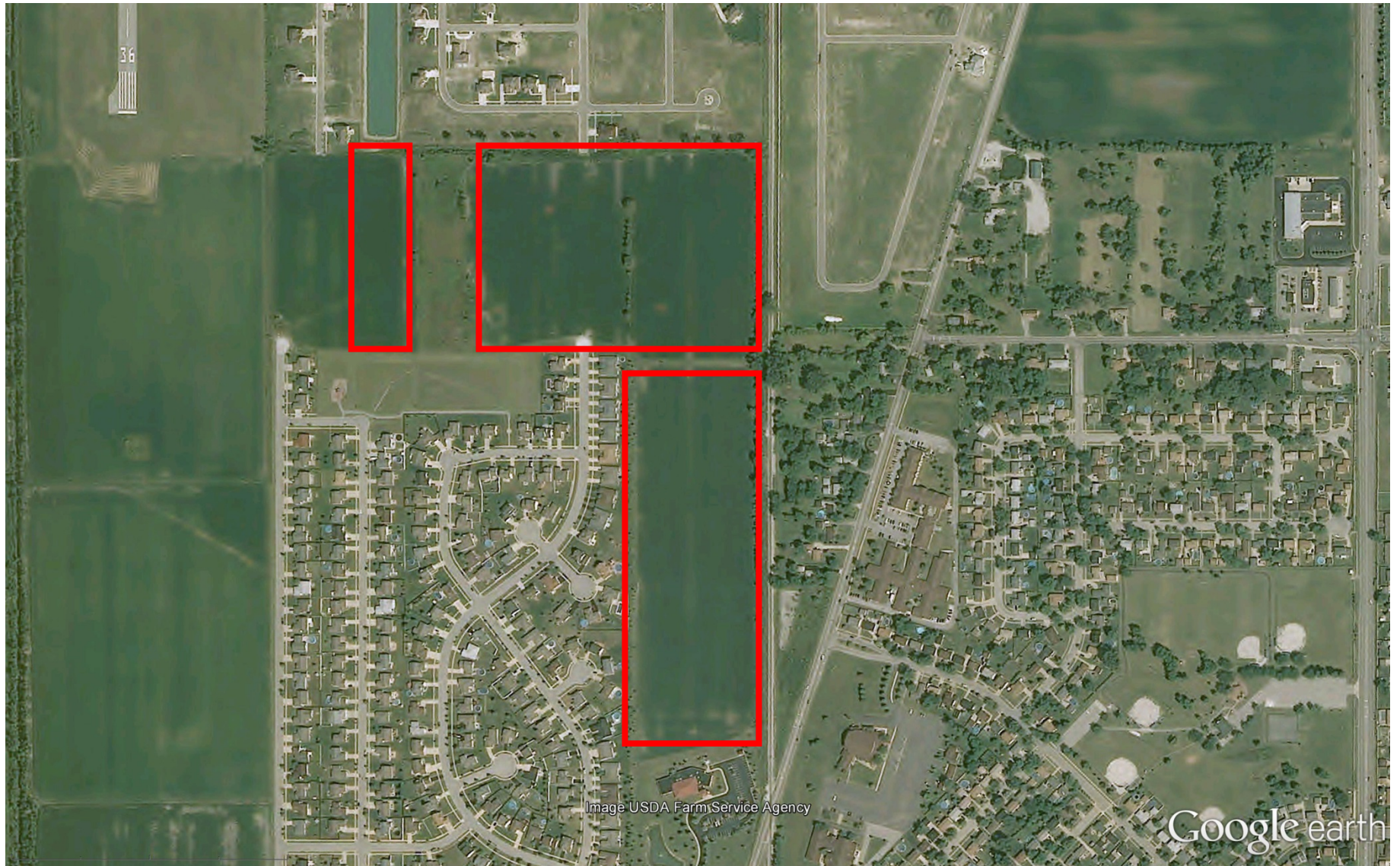




July 2007 – Normal Rainfall Year for Munster, IN

Image Source: NAIP

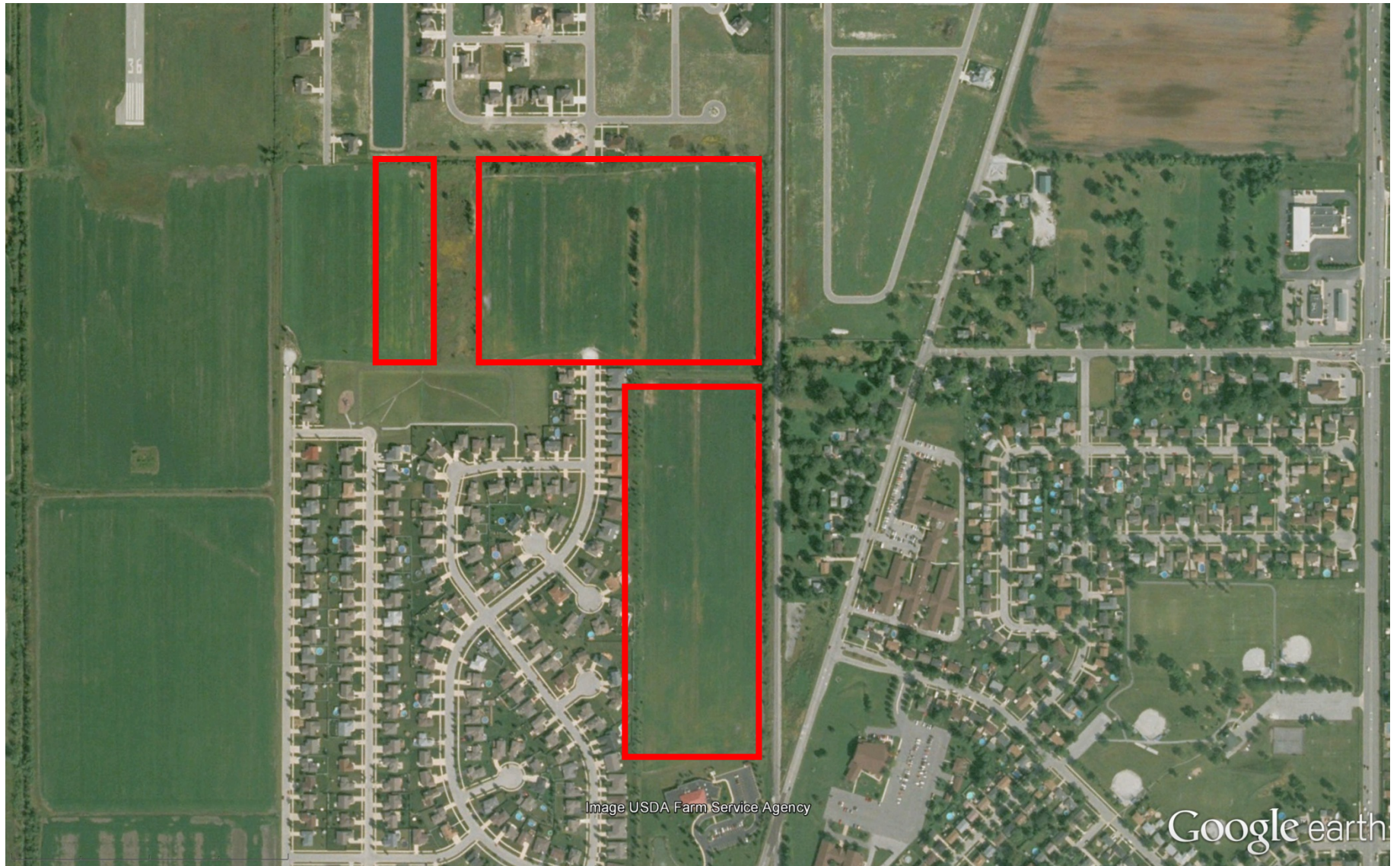




June 2008 – Normal Rainfall Year for Munster, IN

Image Source: Google Earth Pro

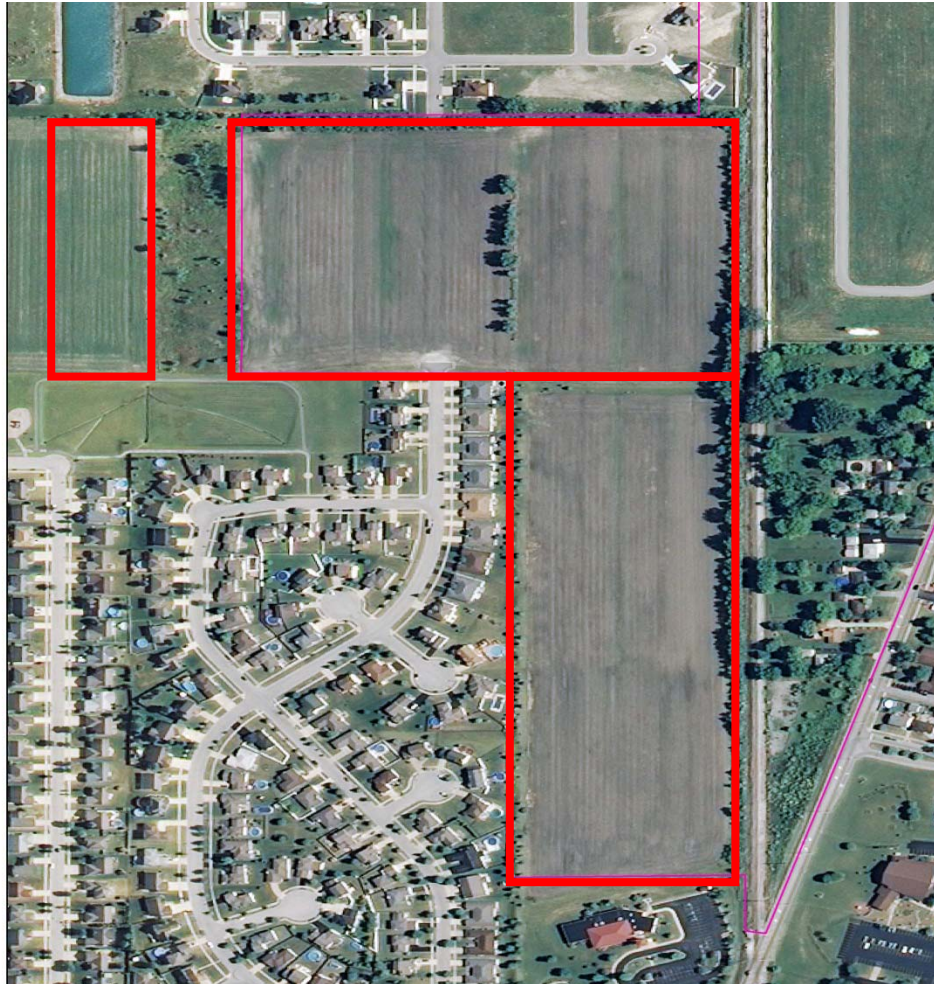




**June 2009 – Normal Rainfall Year for Munster, IN**

Image Source: Google Earth Pro





June 2012 – Normal Rainfall Year for Munster, IN

Image Source: NAIP

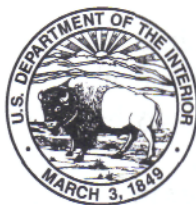


## Appendix F. Agency Coordination



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## United States Department of the Interior Fish and Wildlife Service



Bloomington Field Office (ES)  
620 South Walker Street  
Bloomington, IN 47403-2121  
Phone: (812) 334-4261 Fax: (812) 334-4273

November 4, 2014

NICTD

West Lake Corridor Project  
33 East U.S. Highway 12  
Chesterton, Indiana 46304

Dear Sir:

This is in reference to the September 30, 2014 Federal Register Notice of Intent to Prepare an Environmental Impact Statement for development of a commuter rail line within an approximate 9-mile corridor between Dyer and Hammond, with a possible extension southeast to St. John, all in Lake County, Indiana. The U.S. Fish and Wildlife Service (FWS) offers the following comments.

A coalition of the Northern Indiana Commuter Transportation District (NICTD), Town of Munster, and City of Hammond owns the abandoned right-of-way of the Monon Railroad between the 45<sup>th</sup>/Fisher Streets area in Munster and Sibley Street in Hammond and proposes using this corridor, in conjunction with the active CSX track, currently utilized by Amtrak and freight trains, south of 45<sup>th</sup> Street, as the primary route of the proposed commuter rail line. New tracks will be required beyond Sibley Street. Use of a portion of the existing South Shore Line (SSL) and Metra Electric District (MED) facilities or alternative existing rail lines between Hammond and Chicago will also be addressed. Several alternatives for a rail yard/maintenance facility will be considered, including near US 41 at St. John, near Main Street in Dyer, and at the site of the former Monon rail yard in southern Hammond.

There may be wetlands in the Fisher/45<sup>th</sup> Streets area in southern Munster because numerous other proposed developments in that area have encountered wetlands. However, we do not know what specific parcel has already been purchased by the NICTD/Munster/Hammond coalition in anticipation of a passenger station in that area, so we do not know if wetlands are involved or not. Wetland delineations will therefore be necessary in this area.

There may also be wetlands associated with the proposed crossings of the West Branch Little Calumet River, West Branch Grand Calumet River, and/or Calumet River/Calumet Sag Channel, depending upon the route chosen. The crossing of the West Branch Little Calumet will likely be at the site of the existing abandoned bridge, and a crossing of the Calumet River/Cal Sag Channel would be in the vicinity of the existing Indiana Harbor Belt (IHB) Railroad bridge in Burnham. The IHB route bisects Beaubien Woods Forest Preserve in Illinois, which contains numerous wetlands, including adjacent to the existing single railroad track; in Burnham, the IHB is also adjacent to wetlands, plus the Burnham Prairie Nature Preserve. Since entirely new tracks will be required in the downtown Hammond area to connect the old Monon right-of-way with the existing SSL tracks north of the West Branch Grand Calumet River, it is currently unknown where there may be a new crossing of the West Branch Grand Calumet.

The existing bridge over the West Branch Little Calumet River includes several piers within the river channel which are known to collect debris and contribute to flooding problems during high water events. Therefore, the DEIS needs to evaluate the impacts of leaving this bridge in place to serve the commuter line versus removing it and replacing it at the same site with a clear span bridge with no in-channel piers.

The FWS will request mitigation for wetland losses; the mitigation ratio for the loss of forested wetland is 4:1, with 2: or 3:1 for emergent and scrub-shrub wetlands. The U.S. Army Corps of Engineers, Chicago District, will have to determine whether or not a Section 404 permit would be required for the filling of wetlands due to the rail project. However, the Federal Transit Administration has an obligation to minimize the destruction, loss, or degradation of wetlands pursuant to Executive Order 11990, as amended by Executive Order 12608, concerning protection of wetlands, regardless of the need for a wetland fill permit.

Of particular concern to the FWS is the possibility of a new crossing of the West Branch Grand Calumet River in Hammond. The FWS, in conjunction with the other Natural Resources Trustees (Indiana Departments of Natural Resources and Environmental Management) has been working with the U.S. Environmental Protection Agency (EPA) to remediate the severely polluted sediments within both the West and East Branches of the Grand Calumet River in Indiana utilizing Great Lakes Legacy Act and the Great Lakes Restoration Initiative funding. This multi-year project has been proceeding along various distinct segments of the river, with the westernmost portion, Reaches 6 and 7 between Hohman Avenue and the State Line, being the last segment to be remediated within the West Branch Grand Calumet; permits have been received and work will begin shortly. The work involves dredging of some of the contaminated sediments and capping of the remaining sediments with a geosynthetic grid, organoclay, and/or granulated activated carbon a minimum of 2 feet deep, topped with several feet of clean sand. Because of the dredging and capping, the Trustees are opposed to any construction activities that could compromise the integrity of the cap, including the placement of piers and abutments for a new railroad bridge. If it is determined by the FTA that a new bridge will be necessary to cross the West Branch Grand Calumet within Hammond, this bridge must be a clear span, with no



piers or abutments within the river channel. We are not aware of similar constraints to the construction of a new bridge over the river in Illinois, because to our knowledge the State of Illinois has not proposed to dredge and cap the river in that state.

Executive Order 13186, issued on January 10, 2001, directs each Federal agency taking actions having or likely to have a negative impact on migratory bird populations to work with the FWS to develop an agreement to conserve those birds under the Migratory Bird Treaty Act (MBTA). In addition to avoiding or minimizing impacts to migratory bird populations, agencies will be expected to take reasonable steps that include restoring and enhancing habitat and incorporating migratory bird conservation into agency planning processes whenever possible. Therefore, the DEIS you are preparing will need to address this issue. Included in the migratory bird issue is the presence of bald eagles nesting/attempting to nest within wetland and woodland habitats in the Grand Calumet/Cal-Sag Channel/Lake Calumet area in Illinois during the past 4-5 years. An adult eagle pair has attempted to nest at several locations in this area, but we do not have information about the success of the most recent nesting attempt, although the first several attempts were not successful. Bald eagles are protected by the MBTA and also by the Bald and Golden Eagle Protection Act; please refer to the National Bald Eagle Management Guidelines available on the U.S. Fish and Wildlife Service's Website.

As discussed in the Federal Transit Administration's October 1, 2014 letter to the U.S. Fish and Wildlife Service, our agency agrees to be a Participating Agency during the EIS process. Staff at our Northern Indiana Suboffice is available to attend the interagency meetings and/or field reviews and to provide early coordination comments on the proposal. Please address correspondence to Mrs. Elizabeth McCloskey, U.S. Fish and Wildlife Service, Northern Indiana Suboffice, P.O. Box 2616, Chesterton, Indiana 46304, phone (219) 983-9753, [elizabeth\\_mccloskey@fws.gov](mailto:elizabeth_mccloskey@fws.gov).

## ENDANGERED SPECIES

Lake County, Indiana is within the range of the Federally endangered Indiana bat (Myotis sodalis) and Karner blue butterfly (Lycaeides melissa samuelis), the proposed endangered northern long-eared bat (Myotis septentrionalis), and the threatened Pitcher's thistle (Cirsium pitcheri) and Mead's milkweed (Asclepias meadii). Cook County, Illinois is within the range of the Federally endangered piping plover (Charadrius melodus), Hine's emerald dragonfly (Somatochlora hineana), and leafy-prairie clover (Dalea foliosa), the proposed endangered northern long-eared bat, the threatened prairie bush clover (Lespedeza leptostachya), eastern prairie fringed orchid (Platanthera leucophaea), and Mead's milkweed, and the candidate eastern massasauga rattlesnake (Sistrurus catenatus) and rattlesnake-master borer moth (Papaipema eryngii). Also in Cook County there is designated Critical Habitat for the Hine's emerald dragonfly.

None of the Lake County listed species are known within the West Lake Corridor Project Study Area. Most of the Cook County listed species are also not known within the Corridor, including the Hine's emerald dragonfly and its Critical Habitat. However, we do not know the status of some of the species within the Forest Preserves, Nature Preserves, and other protected habitats within the Corridor.

We appreciate the opportunity to provide input during this environmental scoping process. If you have any questions about our comments, please contact Elizabeth McCloskey at (219) 983-9753 or [elizabeth\\_mccloskey@fws.gov](mailto:elizabeth_mccloskey@fws.gov).

Sincerely yours,

*Elizabeth S. McCloskey*  
*Acting for* Scott E. Pruitt  
Supervisor

cc: Regional Director, FWS, Ft. Snelling, MN (HC/EC/NWI) (ER 14/0622)  
USDI, Office of Environmental Policy and Compliance, Washington, DC. (PEP/NRM)  
Shawn Cirton, USFWS, Chicago Field Office, Barrington, IL  
Carl Wodrich, IDNR, Land Acquisition, Indianapolis, IN  
Lori White, IDNR, Regional Environmental Biologist, West Lafayette, IN  
Christie Stanifer, IDNR, Environmental Coordinator, Indianapolis, IN  
Marty Maupin, IDEM, Office of Water Quality, Indianapolis, IN  
Paul Leffler, USACE, Regulatory Branch, Chicago, IL  
Kenneth Westlake, USEPA, NEPA Implementation Section, Chicago, IL



**State of Indiana**  
**DEPARTMENT OF NATURAL RESOURCES**  
**Division of Fish and Wildlife**  
**Early Coordination/Environmental Assessment**

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**DNR #:** ER-17897

**Request Received:** October 6, 2014

**Requestor:** US Department of Transportation  
Mark Assam  
Federal Transit Administration  
200 West Adams Street, Suite 320  
Chicago, IL 60606-5253

**Project:** West Lake Corridor Project, Lake Co., IN and Cook Co., IL EIS: new track improvements, four (4) new stations, and a maintenance facility along a 9 mile southern extension along the Northern Indiana Commuter Transportation District (NICTD) existing South Shore Line (SSL) between Dyer and Hammond, IN

**County/Site info:** Lake

The Indiana Department of Natural Resources has reviewed the above referenced project per your request. Our agency offers the following comments for your information and in accordance with the National Environmental Policy Act of 1969.

If our agency has regulatory jurisdiction over the project, the recommendations contained in this letter may become requirements of any permit issued. If we do not have permitting authority, all recommendations are voluntary.

**Regulatory Assessment:** This proposal may require the formal approval of our agency pursuant to the Flood Control Act (IC 14-28-1) for any proposal to construct, excavate, or fill in or on the floodway of a stream or other flowing waterbody which has a drainage area greater than one square mile, or the Lake Preservation Act (IC 14-26-2) for any construction that will take place at or lakeward of the legal shoreline of a public freshwater lake. Please submit more detailed plans to the Division of Water's Technical Services Section if you are unsure whether or not a permit will be required.

**Natural Heritage Database:** The Natural Heritage Program's data have been checked. This project does not impact any DNR owned nature preserves. Also, no plant or animal species listed as state or federally threatened, endangered, or rare have been reported to occur within the proposed corridor. However, a historical record of the northern leopard frog (*Lithobates pipiens*), a state species of special concern, and a wet-mesic sand prairie "between EJE Railroad and Conrail Railroad tracks" near Dyer about 0.4 mile east of project, have been documented with 1/2 mile of the proposed corridor.

This review is based on the current proposed alignment. Once stations and maintenance sites are determined, or if the proposed alignment is changed, further review and comments may be needed.

**Fish & Wildlife Comments:** We do not foresee any impacts to the Northern leopard frog as a result of this project.

Avoid and minimize impacts to fish, wildlife, and botanical resources to the greatest extent possible, and compensate for impacts. The following are recommendations that address potential impacts identified in the proposed project area:

**1) Stream Crossings:**

Utilizing existing structures will produce fewer impacts to streams, wetlands, and surrounding habitats. If the rehabilitation of an existing structure is not feasible, consider the following:

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Using a three span structure without piers within the Little Calumet River could provide benefits to the river by removing the existing structure and piers and allowing the river to flow unobstructed. Locating a new structure within the footprint of the existing structure and minimizing impacts to surrounding habitat will aid to further minimize impacts to the river, wetlands, and surrounding habitat.

For purposes of maintaining fish passage through a crossing structure, the Environmental Unit recommends bridges rather than culverts and bottomless culverts rather than box or pipe culverts. Wide culverts are better than narrow culverts, and culverts with shorter through lengths are better than culverts with longer through lengths. If box or pipe culverts are used, the bottoms should be buried a minimum of 6" (or 20% of the culvert height/pipe diameter, whichever is greater up to a maximum of 2') below the stream bed elevation to allow a natural streambed to form within or under the crossing structure. Crossings should: span the entire channel width (a minimum of 1.2 times the bankfull width); maintain the natural stream substrate within the structure; have a minimum openness ratio (height x width / length) of 0.25; and have stream depth and water velocities during low-flow conditions that are approximate to those in the natural stream channel.

**2) Bank Stabilization:**

Establishing vegetation along the banks is critical for stabilization and erosion control. In addition to vegetation, some other form of bank stabilization may be needed. While hard armoring alone (e.g. riprap or glacial stone) may be needed in certain instances, soft armoring and bioengineering techniques should be considered first. In many instances, one or more methods are necessary to increase the likelihood of vegetation establishment. Combining vegetation with most bank stabilization methods can provide additional bank protection while not compromising the benefits to fish and wildlife. Information about bioengineering techniques can be found at <http://www.in.gov/legislative/iac/20120404-IR-312120154NRA.xml.pdf>. Also, the following is a USDA/NRCS document that outlines many different bioengineering techniques for streambank stabilization: <http://directives.sc.egov.usda.gov/17553.wba>.

The new, replacement, or rehabbed structure, and any bank stabilization under or around the structure, should not create conditions that are less favorable for wildlife passage under the structure compared to the current conditions. A level area of natural ground under the structure is ideal for wildlife passage. If hard armoring is needed, we recommend a smooth-surfaced material such as articulated concrete mats (or riprap at the toe and turf reinforcement mats above the riprap toe protection) be placed on the side-slopes instead of riprap. Such materials will not impair wildlife movement along the banks under the bridge.

Riprap must not be placed in the active thalweg channel or placed in the streambed in a manner that precludes fish or aquatic organism passage (riprap must not be placed above the existing streambed elevation). Riprap may be used only at the toe of the sideslopes up to the ordinary high water mark (OHWM). The banks above the OHWM must be restored, stabilized, and revegetated using geotextiles and a mixture of grasses, sedges, wildflowers, shrubs, and trees native to Northern Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion.

**3) Riparian Habitat:**

We recommend a mitigation plan be developed (and submitted with the permit application, if required) if habitat impacts will occur. The DNR's Floodway Habitat Mitigation guidelines (and plant lists) can be found online at: <http://www.in.gov/legislative/iac/20140806-IR-312140295NRA.xml.pdf>.

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Impacts to non-wetland forest over one (1) acre should be mitigated at a minimum 2:1 ratio. If less than one acre of non-wetland forest is removed in a rural setting, replacement should be at a 1:1 ratio based on area. Impacts to non-wetland forest under one (1) acre in an urban setting should be mitigated by planting five trees, at least 2 inches in diameter-at-breast height (dbh), for each tree which is removed that is 10" dbh or greater (5:1 mitigation based on the number of large trees).

Remediation efforts along the west and east branches of the Grand Calumet River under the Great Lakes Legacy Act and Great Lakes Restoration Initiative have been on-going, and the last segment of remediation work along the Grand Calumet River from Hohman Avenue to the state line will begin soon. Any work proposed within the Grand Calumet River floodway for this project should avoid impacts to any mitigation planting areas from the remediation project.

**4) Wetlands:**

A formal wetland delineation should be conducted in order to determine the presence of and extent of any wetland habitat within the project corridor. Impacts should be avoided and minimized to the greatest extent possible.

Due to the presence or potential presence of wetlands on site, we recommend contacting and coordinating with the Indiana Department of Environmental Management (IDEM) 401 program and also the US Army Corps of Engineers (USACE) 404 program. Impacts to wetlands should be mitigated at the appropriate ratio (see guidelines above).

**5) Exposed Soils:**

All exposed soil areas must be stabilized with temporary or permanent vegetation by November 1. Between November 1 and April 1, all exposed soils idle for longer than 7 days must be stabilized with erosion control blankets or with a bonded fiber matrix hydro-mulch. Sites must be protected from seasonal flooding by keeping traffic areas covered with stone and soil stockpiles seeded, stable and contained with silt fencing.

The additional measures listed below should be implemented to avoid, minimize, or compensate for impacts to fish, wildlife, and botanical resources:

1. Revegetate all bare and disturbed areas with a mixture of grasses (excluding all varieties of tall fescue), legumes, and native shrub and hardwood tree species as soon as possible upon completion.
2. Minimize and contain within the project limits inchannel disturbance and the clearing of trees and brush.
3. Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife.
4. Do not cut any trees suitable for Indiana bat roosting (greater than 3 inches dbh, living or dead, with loose hanging bark) from April 1 through September 30.
5. Do not excavate in the low flow area except for the placement of piers, foundations, and riprap, or removal of the old structure.
6. Do not construct any temporary runarounds, causeways, or cofferdams.
7. Use minimum average 6 inch graded riprap stone extended below the normal water level to provide habitat for aquatic organisms in the voids.
8. Do not use broken concrete as riprap.
9. Minimize the movement of resuspended bottom sediment from the immediate project area.
10. Do not deposit or allow demolition materials or debris to fall or otherwise enter the waterway.
11. Appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the stream or leaving the construction site; maintain these measures until construction is complete and all disturbed areas are stabilized.
12. Seed and protect all disturbed streambanks and slopes that are 3:1 or steeper with

**THIS IS NOT A PERMIT**

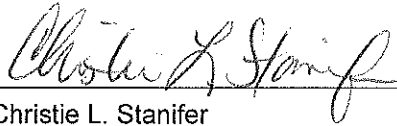
**State of Indiana**  
**DEPARTMENT OF NATURAL RESOURCES**  
**Division of Fish and Wildlife**  
**Early Coordination/Environmental Assessment**

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erosion control blankets (follow manufacturer's recommendations for selection and installation); seed and apply mulch on all other disturbed areas.

**Contact Staff:**

Christie L. Stanifer, Environ. Coordinator, Fish & Wildlife  
Our agency appreciates this opportunity to be of service. Please contact the above staff member at (317) 232-4080 if we can be of further assistance.



Christie L. Stanifer  
Environ. Coordinator  
Division of Fish and Wildlife

**Date:** November 7, 2014





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

NOV 26 2014

REPLY TO THE ATTENTION OF:

E-19J

Marisol R. Simon  
Regional Administrator  
Federal Transit Administration  
200 West Adams Street, Suite 320  
Chicago, Illinois 60606

John Parsons  
Project Manager  
Northern Indiana Commuter Transportation District  
33 East U.S. Highway 12  
Chesterton, Indiana 46304

Re: Scoping Comments – Federal Transit Administration (FTA) Notice of Intent (NOI) to Prepare an Environmental Impact Statement (EIS) for the West Lake Corridor Project in Lake County, Indiana and Cook County, Illinois.

Dear Ms. Simon and Mr. Parsons:

The U.S. Environmental Protection Agency (EPA) reviewed the Federal Transit Administration's (FTA) September 30, 2014, Federal Register Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) in cooperation with the Northern Indiana Commuter Transportation District (NICTD) for the West Lake Corridor Project (Project). EPA also reviewed NICTD's West Lake Corridor Project Scoping Booklet (dated October 2014) (Scoping Booklet). EPA accepted participating agency status in FTA's environmental review process for the Project (per October 27, 2014 5:09 PM email from V. Laszewski, EPA to M. Assam, FTA). In accordance with EPA's responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA), and Section 309 of the Clean Air Act (CAA), we are providing scoping comments regarding issues that we believe should be considered during the preparation of the EIS for this transit project.

The NOI and Scoping Booklet identify that the purpose of the Project is to expand NICTD's transit service coverage in high-growth areas of Lake County, Indiana in order to improve mobility and accessibility, and stimulate local job creation and economic development opportunities for Lake County. Alternatives to be considered in the DEIS include a No-build alternative and a Commuter Rail alternative. The Commuter Rail alternative has several alignment design options for route alignments, station locations, maintenance facility sites, and vehicle mode (i.e., electric heavy rail, diesel heavy rail, and combined electric/diesel rail).

### Sediment remediation

In an effort to clean up the most polluted areas in the Great Lakes, the United States and Canada committed to working with State and Provincial governments to develop Remedial Action Plans for designated Areas of Concern (AOC) in the Great Lakes Basin. The northern portion of the Project study area in Indiana is located within a designated AOC. This portion of the study area includes the West Branch Grand Calumet River. On-going remediation efforts by EPA and the Indiana Department of Natural Resources (IDNR) to address polluted sediments in the West Branch Grand Calumet River in Indiana have been and continue to take place up to the Indiana/Illinois state line. Remediation work involves dredging of some of the polluted sediments and capping the remaining sediments. EPA and IDNR are particularly concerned that the integrity of the cap is maintained and that remediation efforts are not disturbed and/or disrupted.

The DEIS will need to address these concerns. The West Lake Corridor Project should be located, designed, constructed and operated to avoid impacts to past, present and future remediation efforts on the West Branch of the Grand Calumet River. If a new bridge crossing is necessary in this area, then we recommend the bridge be designed to span the river without piers or abutments placed in the river channel that would compromise the integrity of the cap. For additional information, contact Diana Mally, EPA Great Lakes National Program Office at 312/886-7275 or [mally.diana@epa.gov](mailto:mally.diana@epa.gov).

### Air quality

Lake County, Indiana and Cook County, Illinois are designated non-attainment for the 2008 8-hour ozone standard. EPA plans to propose a revised ozone standard December 1, 2014 and finalize October 2015. For information regarding the ozone standard, you may contact Edward Doty of our Air and Radiation Division at 312/886-6057 or at [doty.edward@epa.gov](mailto:doty.edward@epa.gov).

### Other issues

EPA concurs with the 21 general categories of environmental resources and potential impacts identified in the Scoping Booklet (page 5) and NOI (V. Probable Effects/Potential Impacts for Analysis) for proposed detailed examination in the EIS. The enclosure to this letter provides additional comments for FTA and NICTD consideration while preparing the DEIS. Our comments, in part, regard identification and assessment of alternatives/alternative options, and subjects to be evaluated, including transit-dependent populations, populations with environmental justice concerns, air quality, water resources, vegetation and wildlife habitat, induced development, and mitigation. We also recommend the project proponents consider incorporating green building strategies into the West Lake Corridor Project. By adopting green building strategies, the project proponents can maximize economic and environmental performance. Green building methods can be integrated into buildings (e.g., transit stations) at any stage, from design and construction, to renovation and deconstruction.

EPA understands that the FTA environmental review will culminate in a combined Final EIS (FEIS)/Record of Decision (ROD). We recommend FTA convene a meeting of the participating resources agencies to present and discuss FTA's proposed draft written responses to DEIS comments prior to FTA issuing an FEIS/ROD. This will provide the resources agencies an

opportunity to react to the proposed responses to the agencies' DEIS comments and for resolution of these issues to be pursued prior to release of the FEIS/ROD.

Virginia Laszewski, of my staff, is EPA's lead NEPA reviewer for this project. She may be reached by calling 312/886-7501 or by email at [laszewski.virginia@epa.gov](mailto:laszewski.virginia@epa.gov). As a participating agency, EPA will attend project meetings/conference calls and review project materials as staff time and resources allow. EPA requests at least a two-week advance notice prior to our receipt of project materials for review and prior to project meetings/conference calls.

Sincerely,



Kenneth A. Westlake  
Chief, NEPA Implementation Section  
Office of Enforcement and Compliance Assurance

Enclosure: EPA Scoping Comments - FTA West Lake Corridor Project EIS

Cc: Scott Pruitt, U.S. Fish and Wildlife Service, Bloomington Field Office (ES),  
620 South Walker Street, Bloomington, Indiana 47403-2121  
Elizabeth McCloskey, U.S. Fish and Wildlife Service, Northern Indiana Suboffice,  
P.O. Box 2616, Chesterton, Indiana 46304  
Shawn Cirton, U. S. Fish and Wildlife Service, Chicago Ecological Field Office,  
1250 South Grove Avenue, Suite 103, Barrington, Illinois 60010  
Paul Leffler, U.S. Army Corps of Engineers, Regulatory Branch, 231 South LaSalle  
Street, Suite 1500, Chicago, Illinois 60604  
Carl Wodrich, Indiana Department of Natural Resources, Land Acquisition, 402 W.  
Washington, Rm W261, Indianapolis, Indiana 46204  
Christie Stanifer, Environmental Coordinator, Indiana Department of Natural Resources,  
Division of Fish and Wildlife, 402 W. Washington Street, Rm W273,  
Indianapolis, Indiana 46204-2748  
Marty Maupin, Indiana Department of Environmental Management, Office of Water  
Quality, 100 N. Senate Avenue, MC 65-42 IGCN 1255, Indianapolis, Indiana  
46204-2251

**EPA Scoping Comments - Federal Transit Administration (FTA) Notice of Intent (NOI) to Prepare an Environmental Impact Statement (EIS) for the West Lake Corridor Project Lake County, Indiana and Cook County, Illinois.**

Project Description: The NOI and the West Lake Corridor Project (Project) Scoping Booklet (dated October 2014) describe the Project as an approximately 9-mile southern extension of the Northern Indiana Commuter Transportation District's (NICTD) existing South Shore Line (SSL) between Dyer and Hammond, Indiana. In addition, the Project would operate on about 15 miles of existing SSL and Metra Electric District's (MED) line to the Millennium Station in downtown Chicago. The Project would involve new track improvements along the existing CSX Transportation and former Monon railroad corridors, with a flyover to the existing SSL in Hammond. Four potential stations would be included at the Munster/Dyer Main Street, Munster Fisher/45<sup>th</sup> Streets, South Hammond, and Downtown Hammond. A maintenance facility would also be needed to store and maintain the vehicles. Two alignment design options are also being considered for the Project, including a possible extension to St. John, Indiana on the southern end, and another along the Indiana Harbor Belt Kensington Branch through Calumet City, Burnham and Chicago, Illinois on the north end. To facilitate this Project, core capacity improvements to the existing MED line and Millennium Station may be required to accommodate the Project.

The project overlaps the study area for the Federal Railroad Administration's (FRA) Chicago-Detroit/Pontiac Passenger Rail Improvement Project, whose DEIS is currently available for public comment. That project is evaluating multiple rail corridor alternatives between Downtown Chicago and Porter, Indiana, in the heavily congested "South of the Lake" area.

**Recommendation:** In addition to the Project's 9-mile extension with its associated facilities and the two alignment design options, EPA recommends the DEIS evaluate and identify the specific capacity improvements to the existing MED line and Millennium Station that may be required for the Project. Impacts associated with any needed improvements and extensions should be disclosed and potential mitigation measures identified in the DEIS. FTA and NICTD should coordinate closely with FRA and the Illinois, Indiana, and Michigan Departments of Transportation to ensure that the West Lake Corridor Project and the Chicago-Detroit/Pontiac Passenger Rail Project are integrated and do not conflict in infrastructure and operations.

Purpose and Need: According to the documents "[t]he Project would expand NICTD's service coverage, improve mobility and accessibility, and stimulate local job creation and economic development opportunities for Lake County." "Specifically the Project is intended to: 1) Serve high-growth areas in central, southern, and western Lake County, Indiana, 2) Conveniently connect more Northwest Indian residents to downtown Chicago jobs and major activity centers, 3) Establish a solid modal alternative between the two metropolitan regions other than driving, 4) Lower commuting travel times and costs, 5) Increase NICTD system ridership, 6) Promote economic development opportunities, 7) Create local jobs in Northwest Indian, 8) Attract and retain families and younger residents, and 9) Provide a valued transportation asset for us by all northwest Indiana residents."



**Recommendation:** We recommend NICTD and FTA consider prioritizing the Project's goals based on substantiated need/s. Identify objectives for each goal and then identify the evaluation measures that will be used to assess how well various alternatives/options meet each goal's objective/s.

For example, one of the goals of the Project is to: *"Provide a valued transportation asset for use by all Northwest Indiana Residents."* One of the objectives under this goal might be: *"Help address unmet transit needs of people who depend on transit."* Evaluation measures to assess, disclose and compare how well proposed station locations and alternative alignment options specifically meet the transit needs of transit dependent populations might be: *"The ease (number of times/day and amount of time it takes) for identified transit dependent populations to get to and from a potential transit station location via existing and/or proposed connecting bus service route/s and/or pedestrian/bike routes."*

**Recommendation:** The DEIS should identify and discuss the specific needs of transit-dependent populations in and near the transit corridor/s, and the region.

Alternatives: Alternatives to be considered in the DEIS include a No-build alternative and a Commuter Rail alternative. The Commuter Rail alternative has several alignment and design options in terms of route alignment, station locations, maintenance facility sites, and vehicle mode (i.e., electric heavy rail, diesel heavy rail, and combined electric/diesel rail).

**Recommendation:** The DEIS alternative route alignments should be assessed for their potential to impact past, present and future ongoing remediation efforts of contaminated sediments in the West Branch Grand Calumet River in Indiana. (See our detailed comments regarding this issue later under "Water Resources" and the cover letter to this enclosure.)

**Recommendation:** We recommend the build alternatives also include connecting pedestrian/bikeway routes.

**Recommendation:** To help enhance the environment for communities in the project area, we recommend that brownfield sites in the corridor be identified and assessed for their potential as transit station locations, park-and-ride lots, and/or other supporting transit facilities.

Environmental Justice (EJ): Communities with environmental justice concerns may constitute one portion of the potential ridership along this corridor.

**Recommendation:** We recommend communities that may experience disproportionate impacts or barriers to participation ("EJ communities") be identified, including through use of demographic mapping, in the region and along the proposed corridor. We recommend considering the potential for disproportionate impacts at a local scale (census block levels), especially in the denser urban areas related to the project. All potential and applicable impacts to these communities, such as air quality, noise, health, fare pricing, station locations, impacts to businesses, and related changes should be assessed in the DEIS.

**Recommendation:** We recommend the DEIS include specific information that substantiates that representatives from affected communities and transit-dependent populations have been actively involved in the development of NICTD's 2011 West Lake Corridor Study. The DEIS should document ongoing efforts to engage EJ communities and transit-dependent populations through the remainder of the NEPA process.

Air Quality/National Ambient Air Quality Standards (NAAQS)/Transportation Conformity/Air Toxics: Lake County, Indiana and Cook County, Illinois are designated non-attainment for the 2008 8-hour ozone standard. EPA plans to propose a revised ozone standard December 1, 2014 and finalize October 2015. For information regarding the ozone standard you may contact Edward Doty of our Air and Radiation Division at 312/886-6057 or at [doty.edward@epa.gov](mailto:doty.edward@epa.gov).

**Recommendation:** The DEIS should discuss local and regional air quality, the project's impacts on air quality and transportation conformity with the State Air Quality Implementation Plan.

While a transit project may be anticipated to maintain or reduce emissions from private vehicles, the system may add bus or train diesel exhaust and/or electric generation emissions for trains.

**Recommendation:** We recommend the DEIS quantify these emissions, including emissions of greenhouse gases, and identify possible measures to reduce these emissions. Best management practices (BMPs) that will be followed to reduce emissions, particularly of diesel-related air toxics during construction and operation, should be identified. Such measures may include, but should not be limited to, strategies to reduce diesel emissions, such as project construction contracts that require the use of equipment with clean diesel engines and the use of clean diesel fuels, and limits on the length of time equipment is allowed to idle when not in active use (EPA recommends idling not exceed 5 minutes).

Climate Change/Green House Gases GHG)/Increased Frequency and Intensity of Precipitation Events: Increased frequency and intensity of precipitation events can be anticipated due to climate change.

**Recommendation:** We recommend the DEIS identify and discuss how such precipitation events might impact the proposed project and its associated facilities during construction and operation. We recommend that the DEIS identify and discuss any anticipated effects of climate change on the project and possible adaptation measures. For example, discuss any effects that predicted increases in the number and/or intensity of precipitation events associated with climate change may have on sizing bridge spans, culvert openings, and stormwater management measures in order to accommodate such events and ensure project longevity, public health, and safety.

Water Resources: The wetlands, lakes, rivers and streams and their associated floodplains in the project area could be directly and/or indirectly impacted by construction and/or operation of the proposed transit project.

A portion of the project study area includes the West Branch Grand Calumet River. On-going remediation efforts to address polluted sediments in the West Branch Grand Calumet River in

Indiana have been and continue to take place up to the Indiana/Illinois state line. Remediation work involves dredging of some of the polluted sediments and capping the remaining sediments. Of particular concern is making sure that the integrity of the cap is maintained and remediation efforts are not disrupted. The DEIS will need to address these concerns.

**Recommendation:** The Project should be located, designed, constructed and operated to avoid any impacts to past, present and future remediation efforts on the West Branch of the Grand Calumet River. If a new bridge crossing is necessary, then the bridge should be designed to span the river without piers or abutments in the river channel that would compromise the integrity of the cap.

**Recommendation:** The DEIS should identify and assess floodplain impacts and potential mitigation measures to avoid and reduce impacts.

We expect a Clean Water Act (CWA) Section 404 permit will be required from the U.S. Army Corps of Engineers (Corps) for proposed discharges of dredged or fill materials to Waters of the United States. The Section 404 approval is contingent upon the project complying with the Section 404(b)(1) guidelines under the CWA. These guidelines are summarized as follows:

- **Least Environmentally Damaging Practicable Alternative (LEDPA)** – There must be no practicable alternative to the proposed discharge (impacts) which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences;
- **No Violation of Other Laws** – The proposed project must not cause or contribute to the violation of state water quality standards or toxic effluent standards, and must not jeopardize the continued existence of federally-listed endangered or threatened species of their critical habitat(s);
- **No Significant Degradation** – The project must not cause or contribute to significant degradation of Waters of the United States; and
- **Minimization and Mitigation of Adverse Impacts** – The project must include appropriate and practicable steps to avoid impacts to regulated Waters of the United States; where impacts are unavoidable, demonstration of how impacts have been minimized; and must provide compensatory mitigation to offset unavoidable, minimized impacts to the aquatic ecosystem.

#### **Recommendations:**

- We recommend the DEIS identify the various water resources in the project area, disclose their existing conditions, and quantify impacts associated with each alternative.
- We recommend the water resources information and discussion in the DEIS demonstrate that the rail rights-of-way, potential park-and-ride lots, stations and

other ancillary project facilities avoid wetland, lake and stream impacts, to the extent feasible. Where water resources cannot be avoided, the DEIS should discuss how impacts to water resources will be minimized.

- The rationale and justification for recommending or selecting one component/option over others should be presented in the DEIS.
- We recommend that wetland delineations, and wetland and stream assessments be included in the DEIS.
- We recommend the DEIS include draft wetland and stream mitigation plans, for those impacts that cannot be avoided or minimized.
- We recommend the DEIS discuss how project alternatives will address stormwater management in order to protect and, if feasible, enhance water resources in the watershed. For information regarding stormwater management and stormwater management best practices see EPA's website: [http://www.epa.gov/greeningepa/stormwater/best\\_practices.htm](http://www.epa.gov/greeningepa/stormwater/best_practices.htm).

**Federal and State Listed Species:** The U.S. Fish and Wildlife Service (USFWS) in its scoping letter for this project, dated November 4, 2014, noted multiple species, including endangered and proposed-as-endangered species, as being located in Lake County, Indiana and Cook County, Illinois. Additionally, many state-listed, threatened, endangered, and special concerns species are found in these counties.

**Recommendation:** EPA recommends that FTA/NICTD continue to coordinate with USFWS and the Indiana Department of Natural Resources (IDNR) to determine if any of the proposed activities would or could detrimentally affect any Federally- or state-listed species, species proposed for listing, or their critical habitat. The DEIS should include the results to-date of the coordination with USFWS and IDNR regarding the proposals potential to affect any Federally- or state-listed threatened or endangered species, including the northern-long eared bat.

**Vegetation and Wildlife Habitat:** According to the above referenced USFWS letter, the project corridor includes Forest Preserves, Nature Preserves and other protected habitats. These areas contain, in part, wetlands, prairie and forests that provide valuable wildlife habitat. These areas also protect water quality and quantity in their watersheds, and the soil and vegetation provide carbon sinks to help ameliorate climate change.

**Recommendation:** Impacts to these resources should be avoided. The DEIS will need to assess the various Project components for potential impacts to these resources. If impacts cannot be avoided mitigation measures should be identified in coordination with the USFWS and IDNR.

**Noxious Weeds/Invasive Species:** Noxious weeds/invasive species may occur within or near the existing right-of-way (ROW). Early recognition and control of new infestations is essential to



stopping the spread of infestation and avoiding future widespread use of herbicides, which could correspondingly have more adverse impacts on biodiversity and nearby water quality.

**Recommendations:** We recommend the DEIS include a vegetative management plan that addresses the identification and control of noxious weed/invasive species in and near the project ROW and associated facilities during project construction and operation. The plan should list the noxious weeds and exotic plants that occur in the resource area. In cases where noxious weeds are a threat, EPA recommends the document detail a strategy for prevention, early detection of invasion, and control procedures for each species.

Induced Development: The project is intended to serve and draw ridership, in part, from rapidly developing areas in Lake County. Transit stations and associated transit park-and-ride lots may induce and accelerate development such as convenience stores, gas stations, restaurants. Induced development could have adverse impacts. For example, increases in impervious surfaces due to induced development may have the potential to cause or increase flooding, and/or impact surface and ground water quality. The project also has the potential to spur energy-efficient transit-oriented development in the vicinity of its stations.

**Recommendation:** We recommend the project's potential for causing induced/accelerated development be assessed and disclosed in the DEIS. Impacts associated with induce/accelerated development should be identified in the DEIS and potential mitigation measures to avoid and reduce potential impacts identified. Of particular concern are increases noise, vibration and air quality impacts for residents and other sensitive receptors, and impacts to water resources and wildlife.

Sustainability and Greening: By adopting green building strategies, the project proponents can maximize economic and environmental performance. Green building methods can be integrated into buildings such as the transit stations at any stage, from design and construction, to renovation and deconstruction. For additional information on green building, we recommend you visit our website at [www.epa.gov/greenbuilding/](http://www.epa.gov/greenbuilding/).

**Recommendation:** We recommend project proponents consider using green building strategies for this transit proposal.



REPLY TO  
ATTENTION OF:

**DEPARTMENT OF THE ARMY**  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
231 SOUTH LASALLE STREET  
CHICAGO, ILLINOIS 60604-1437

July 29, 2016

Technical Services Division  
Regulatory Branch  
LRC-2016-529

SUBJECT: Preliminary Jurisdictional Determination for the Indiana portion of the NICTD West Lake Corridor Rail Project located in an existing rail corridor along the state line from Hammond to Dyer in Lake County, Indiana

Northwest Indiana Commuter Transportation District  
Attn: Mr. John Parsons  
33 E. US Highway 12  
Chesterton, IN 46304

Dear Mr. Parsons:

This is in response to your request that the U.S. Army Corps of Engineers complete a jurisdictional determination for the above-referenced site submitted on your behalf by AECOM. The Indiana portion of the project has been assigned number LRC-2016-529, the Illinois portion of the project has been assigned number LRC-2016-409. Separate files and permit reviews are necessary because each state will have different mitigation requirements, local reviews and 401 permit processes. Please reference these numbers in all future correspondence concerning this project.


Following a review of the information you submitted, this office has determined that the Indiana project corridor contains "waters of the United States". The wetlands and waters referenced in your delineation report as 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42 and 44 are adjacent to the Little Calumet River, a navigable water. The wetlands and waters referenced in your delineation report as 49, 50, 51, and 52 are adjacent to the Grand Calumet River, a navigable water. Therefore these wetlands are under the jurisdiction of this office and impacts to these areas will require a permit from our office. However the wetlands referenced in your report as 12, 17, 18, 19, 20, 21, and 43 were created as stormwater detention facilities and are exempt from our regulations.

This determination covers only your project as depicted in the Wetland Delineation Technical Report dated March 2016, prepared by AECOM. Although this determination provides a notification of the presence of waters of the U.S., this determination does not finalize the wetland boundary. Based on our field visit the wetland boundaries represented in your report appear to be accurate, however in the event an application is submitted for work within jurisdictional areas data points using the 1987 Wetland Delineation Manual methodology will need to be completed for all wetland areas.

This is a preliminary determination and does not constitute an Approved Jurisdictional Determination (AJD) by the Chicago District. If you would like an AJD you may submit a request however this is not necessary to apply for a permit. As we have discussed it appears that this project will require an Individual Permit (IP) under Section 404 of the Clean Water Act (33 U.S.C. 1344) due to proposed wetland impacts exceeding one acre. Once a complete application is received a 30-day public notice describing your proposed project will be issued giving other agencies and the general public the opportunity to provide written comments on the project. This process is usually completed within 90 to 120 days, if no objections are received. Delays may result however if significant issues need to be resolved.

To initiate the permit process, please submit a permit application form along with detailed plans of the proposed work. Information concerning our program, including the application form and an application checklist, can be found at and downloaded from our website: <http://www.lrc.usace.army.mil/Missions/Regulatory.aspx>. If you have any questions, please contact Mr. Paul Leffler of my staff by telephone at 312-846-5529 or email at [Paul.M.Leffler@usace.army.mil](mailto:Paul.M.Leffler@usace.army.mil).

Sincerely,

A handwritten signature in blue ink, appearing to read "Diedra L. Willis".

Diedra Willis  
Indiana Team Leader  
Regulatory Branch

Copies Furnished:

Congressman Visclosky's Office (Ms. Johnson)  
USDOT, Federal Transportation Administration (Mr. Assam)  
Army Corps of Engineers (Mr. Murphy)  
IDEM (Mr. Maupin)  
AECOM (Ms. Vander Kamp)  
AECOM (Ms. Nash)  
AECOM (Ms. Haven)

**THIS IS NOT A PERMIT**

**State of Indiana**  
**DEPARTMENT OF NATURAL RESOURCES**  
**Division of Fish and Wildlife**  
**Early Coordination/Environmental Assessment**

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**DNR #:** ER-17897-1

**Request Received:** December 14, 2016

**Requestor:** Northern Indiana Commuter Transportation  
District  
Nicole Barker  
33 East US Highway 12  
Chesterton, IN 46304-3521

**Project:** West Lake Corridor Project, Lake Co., IN and Cook Co., IL DEIS: new track improvements, four (4) new stations, and a maintenance facility along a 9 mile southern extension along the Northern Indiana Commuter Transportation District (NICTD) existing South Shore Line (SSL) between Dyer and Hammond, IN

**County/Site info:** Lake

The Indiana Department of Natural Resources has reviewed the above referenced project per your request. Our agency offers the following comments for your information and in accordance with the National Environmental Policy Act of 1969.

If our agency has regulatory jurisdiction over the project, the recommendations contained in this letter may become requirements of any permit issued. If we do not have permitting authority, all recommendations are voluntary.

**Fish & Wildlife Comments:** All of the recommendations in our previous letter dated November 7, 2014, still apply; however, we offer the following additional comments:

The alternatives that were evaluated had varying levels of environmental impact. Of the proposals that were evaluated, the selected proposal seems to be the alternative that will minimize impacts to fish, wildlife, and botanical resources, while still achieving the stated goals of the project.

**Contact Staff:** Christie L. Stanifer, Environ. Coordinator, Fish & Wildlife  
Our agency appreciates this opportunity to be of service. Please contact the above staff member at (317) 232-4080 if we can be of further assistance.



Christie L. Stanifer  
Environ. Coordinator  
Division of Fish and Wildlife

**Date:** February 3, 2017





REPLY TO  
ATTENTION OF:

**DEPARTMENT OF THE ARMY**  
CHICAGO DISTRICT, CORPS OF ENGINEERS  
231 SOUTH LASALLE STREET  
CHICAGO, ILLINOIS 60604-1437

August 25, 2017

Technical Services Division  
Regulatory Branch  
LRC-2016-529

SUBJECT: Jurisdictional Determination and wetland boundary concurrence for the NICTD West Lake Corridor Rail Project located in an existing rail corridor along the state line from Hammond to Dyer in Lake County, Indiana

Northwest Indiana Commuter Transportation District  
Attn: Mr. John Parsons  
33 E. US Highway 12  
Chesterton, IN 46304

Dear Mr. Parsons:

This is in response to your request that the U.S. Army Corps of Engineers complete a jurisdictional determination for the above-referenced site submitted on your behalf by HDR Engineering.

Following a review of the information you submitted, this office has determined that the Indiana project corridor contains "waters of the United States". The wetlands and waters referenced in your delineation report as 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42 and 44 are adjacent to the Little Calumet River, a navigable water. The wetlands and waters referenced in your delineation report as 49, 50, 51, and 52 are adjacent to the Grand Calumet River, a navigable water. Therefore these wetlands are under the jurisdiction of this office and impacts to these areas will require a permit from our office. However the wetlands referenced in your report as 12, 17, 18, 19, 20, 21, and 43 were created as stormwater detention facilities and are exempt from our regulations.

This determination covers only your project as depicted in the Formal Boundary Concurrence Request dated June 23, 2017 and the "Addendum to Formal Boundary Concurrence Request" dated August 17, 2017 prepared by HDR Engineering. This office concurs with the submitted wetland delineation, and wetland boundaries at the subject site including the expanded boundary for Wetland 4 as represented in the addendum. This confirmation of is valid for a period of five years from the date of this letter unless new information warrants revision of the delineation prior to the expiration date.

To initiate the permit process, please submit a permit application form along with detailed plans of the proposed work. Information concerning our program, including the application form and an application checklist, can be found at and downloaded from our website:

<http://www.lrc.usace.army.mil/Missions/Regulatory.aspx>. If you have any questions, please contact Mr. Paul Leffler of my staff by telephone at 312-846-5529 or email at [Paul.M.Leffler@usace.army.mil](mailto:Paul.M.Leffler@usace.army.mil).

Sincerely,

MCLAURIN.DIEDRA.L.1230340362  
DRA.L.1230340362  
362

Digitally signed by  
MCLAURIN.DIEDRA.L.1230340362  
DN: c=US, o=U.S. Government,  
ou=DoD, ou=PKI, ou=USA,  
cn=MCLAURIN.DIEDRA.L.1230340362  
2  
Date: 2017.08.29 10:08:17 -05'00'

Diedra McLaurin  
Indiana Team Leader  
Regulatory Branch

Copies Furnished:

Federal Transportation Administration (Mr. Assam)  
Federal Transportation Administration (Ms. Weber)  
IDEM (Mr. Maupin)  
NICTD (Ms. Barker)  
HDR Engineering (Ms. Primer)

**Merchan Paniagua, Sara**

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**From:** Leffler, Paul M CIV USARMY CELRC (US) <Paul.M.Leffler@usace.army.mil>  
**Sent:** Wednesday, September 13, 2017 12:07 PM  
**To:** Primer, Samantha  
**Cc:** Armstrong, Roben; Jean, Melissa  
**Subject:** RE: West Lake Corridor wetland mitigation ratios

Yes that is appropriate. Keep in mind those ratios could be higher if they are forested or scrub shrub or if we receive comments recommending higher ratios.

Sincerely,

Paul M. Leffler  
U.S. Army Corps of Engineers  
Chicago District, Regulatory Branch  
(312)846-5529  
<http://www.lrc.usace.army.mil/missions/regulatory>

-----Original Message-----

From: Primer, Samantha [mailto:Samantha.Primer@hdrinc.com]  
Sent: Monday, September 11, 2017 4:51 PM  
To: Leffler, Paul M CIV USARMY CELRC (US) <Paul.M.Leffler@usace.army.mil>  
Cc: Armstrong, Roben <Roben.Armstrong@hdrinc.com>; Jean, Melissa <Melissa.Jean@hdrinc.com>  
Subject: [EXTERNAL] West Lake Corridor wetland mitigation ratios

Hi Paul,

I realized that I don't think we've confirmed mitigation ratios for the West Lake Corridor Project. I've been working under the assumption that the mitigation ratios for West Lake and Double Track would be the same. For Double Track we are using a mitigation ratio of 1.5:1 for wetlands that are not considered a high quality aquatic resource. I wanted to confirm that we can use this same ratio for West Lake as well.

Thanks,

Samantha Primer

Environmental Scientist

HDR

8550 W. Bryn Mawr Ave., Suite 900  
Chicago, IL 60631  
D 773-867-7247 M 847-902-4957  
samantha.primer@hdrinc.com <mailto:samantha.primer@hdrinc.com>

hdrinc.com/follow-us <Blockedhttp://hdrinc.com/follow-us>