

**WETLANDS DELINEATION & STREAM
ASSESSMENT REPORT**

**55 ACRES
N. ELM ST. & MO ROUTE CC
MARSHFIELD, MISSOURI**

Prepared for:

City of Marshfield
798 S. Marshall
Marshfield, MO 65706

Prepared by:



Springfield, MO

4168 W. Kearney Springfield, MO 65803
Call 417.864.6000 Fax 417.864.6004
www.ppimo.com

Project Number: 235292

May 23, 2016

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	DOCUMENT REVIEW	1
3.0	SITE RECONNAISSANCE	1
4.0	FINDINGS	1
4.1	Wetlands	1
4.1	Streams	1
5.0	LIST OF PREPARERS	
 2	

APPENDICES

APPENDIX I	–	FIGURES
APPENDIX II	–	WEB SOIL SURVEY OUTPUT
APPENDIX II	–	PHOTOGRAPHS

FIGURES

FIGURE 1	–	SUBJECT PROPERTY LOCATION ON TOPOGRAPHIC MAP
FIGURE 2	–	WETLAND & INTERMITTENT STREAM LOCATIONS
FIGURE 3	–	USFWS NATIONAL WETLANDS INVENTORY MAP

1.0 INTRODUCTION

This Wetlands Delineation & Stream Assessment Report was performed to identify potential jurisdictional waters on the subject property. It is intended for this report to satisfy the due diligence required for a Clean Water Act 401/404 certification.

2.0 DOCUMENT REVIEW

The following publicly available documents were reviewed for the indication of wetlands and streams:

- U.S. Department of Agriculture, Natural Resource Conservation Service, *Web Soil Survey*, <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>
- U.S. Fish & Wildlife Service, National Wetlands Inventory, *Wetlands Mapper*, <http://www.fws.gov/wetlands/Data/Mapper.html>
- U. S. Geological Survey (USGS), 1983, *7.5-Minute Topographic Quadrangle Map of the Marshfield, Missouri Quadrangle*

The *Wetlands Mapper* identified one (1) wetlands feature, a freshwater pond, on the subject property. The topographic map shows two (2) intermittent streams crossing the subject property. These intermittent streams flow into the East Fork of the Niangua River. The *Web Soil Survey* gave no indication of wetlands or soil types that include hydric soils. See Appendix II for the output from the *Web Soil Survey*.

3.0 SITE RECONNAISSANCE

A site reconnaissance was performed on May 4, 2016. The purpose of the site reconnaissance was to make observations useful in evaluating the presence of wetlands and streams. The site reconnaissance was performed by driving over all of the cleared portions of the subject property and walking through portions of the woodland areas on the subject property. The entire length of intermittent streams crossing the subject property was viewed by the environmental professional.

4.0 FINDINGS 4.1 Wetlands

The only wetlands observed on the subject property is the man-made freshwater pond located on the western boundary of the subject property. The wetlands flora *Typha* (cattail) was observed growing within and on the banks of the pond. See the figures in Appendix I for maps showing the location of the freshwater pond wetland and the output from the *Wetlands Mapper*. See Appendix III for photographs of the freshwater pond.

4.1 Streams

The intermittent streams that are depicted on the USGS topographic map were observed on the subject property. The western intermittent stream originates from the freshwater pond, flows onto the west adjacent property, and then flows back onto the subject property in the northwest corner before flowing off of the subject property to the north. The eastern intermittent stream originates on the southeast adjacent property and flows across the

southeast corner of the subject property. During the site reconnaissance the western intermittent stream was observed to be flowing steadily with depths of 0.5 to 1.0 feet and the eastern intermittent stream was dry. Neither of these streams are identified by the Missouri Department of Natural Resources as losing or gaining. Additionally, no springs are identified by the Missouri Department of Natural Resources as being on the subject property and were not observed during the site reconnaissance. See the figures in Appendix I for maps showing the location of the intermittent streams. See Appendix III for photographs of the west intermittent stream.

During the site reconnaissance, no wetland features or obvious signs of hydric soils were observed in the intermittent streams. It is likely that the sections of the intermittent streams that cross the subject property are dry the majority of the year.

5.0 LIST OF PREPARERS

The following environmental professional was responsible for preparing this report.



5/23/15

Donald C. Nowack, P.E., R.G.

Date

APPENDIX I
FIGURES



May 23, 2016
PPI No. 235292





Project: 55 Acres, N. Elm St. & MO Route CC, Marshfield, MO
 Client: City of Marshfield

Wetland & Intermittent Stream Locations

DATE: May 18, 2016

Project Number: 235292



SCALE: 1" = 350'



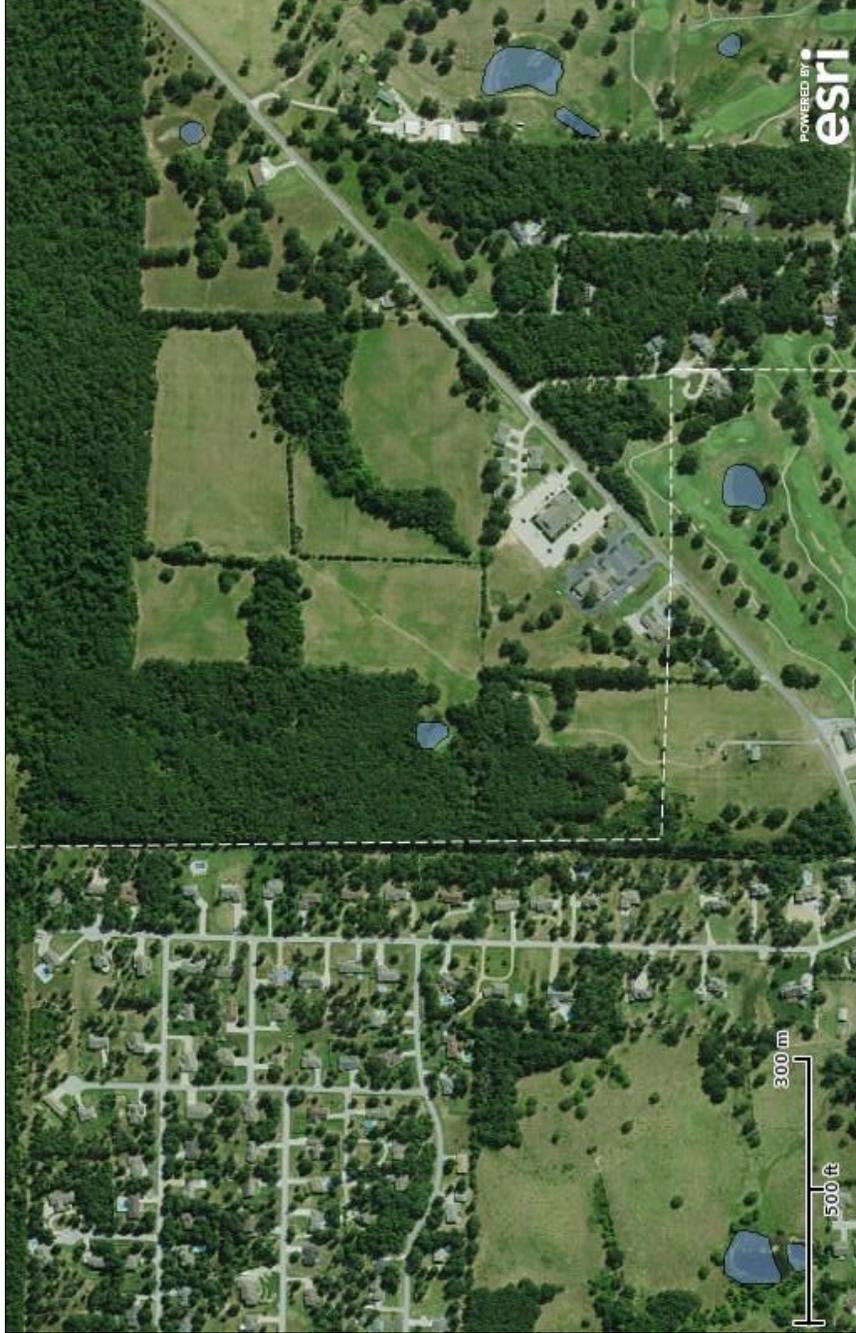
U.S. Fish and Wildlife Service

National Wetlands Inventory

55

Acres,
Marshfield, MO

May 5, 2016



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

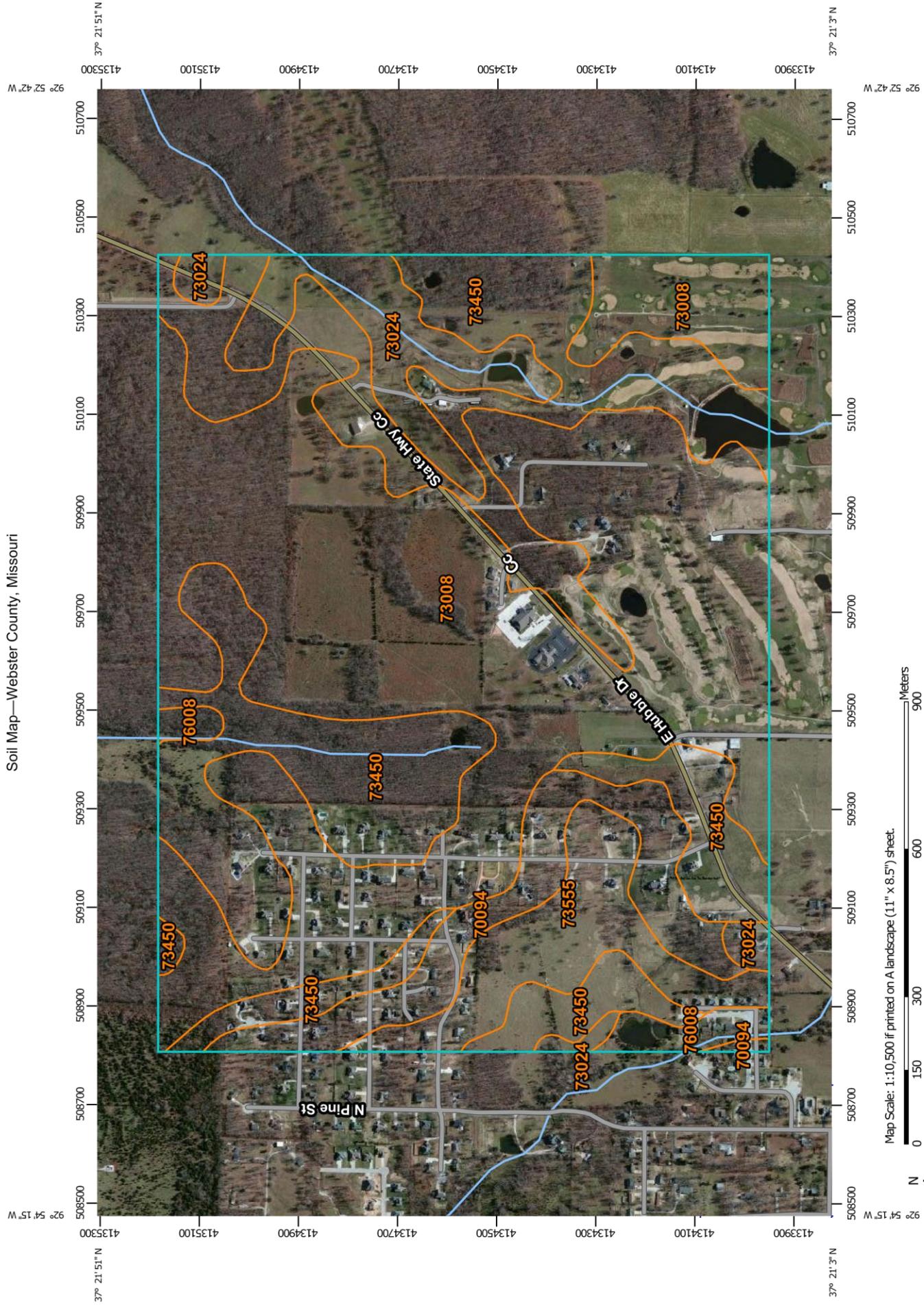
This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

APPENDIX II
WEB SOIL SURVEY
OUTPUT

May 23, 2016
PPI No. 235292

Soil Map—Webster County, Missouri



Map Scale: 1:10,500 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

- Area of Interest (AOI)**
 - Area of Interest (AOI)
- Soils**
 - Soil Map Unit Polygons
 - Soil Map Unit Lines
 - Soil Map Unit Points
- Special Point Features**
 - Blowout
 - Borrow Pit
 - Clay Spot
 - Closed Depression
 - Gravel Pit
 - Gravelly Spot
 - Landfill
 - Lava Flow
 - Marsh or swamp
 - Mine or Quarry
 - Miscellaneous Water
 - Perennial Water
 - Rock Outcrop
 - Saline Spot
 - Sandy Spot
 - Severely Eroded Spot
 - Sinkhole
 - Slide or Slip
 - Sodic Spot
- Water Features**
 - Streams and Canals
- Transportation**
 - Rails
 - Interstate Highways
 - US Routes
 - Major Roads
 - Local Roads
- Background**
 - Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Webster County, Missouri
 Survey Area Data: Version 19, Feb 11, 2016

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 10, 2010—Dec 8, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Webster County, Missouri (MO225)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
70094	Basehor fine sandy loam, 8 to 35 percent slopes, rocky, very stony	31.1	6.3%
73008	Viraton silt loam, 2 to 5 percent slopes	241.9	48.9%
73024	Mano-Ocie complex, 8 to 15 percent slopes, stony	30.6	6.2%
73450	Goss-Wilderness complex, 3 to 8 percent slopes	154.0	31.1%
73555	Hobson loam, 3 to 8 percent slopes	29.6	6.0%
76008	Cedargap gravelly silt loam, 1 to 3 percent slopes, frequently flooded	7.5	1.5%
Totals for Area of Interest		494.7	100.0%

5/18/2016
 Page 3 of 3
 Map Unit
 Description:
 Viraton silt
 loam, 2 to 5
 percent
 slopes---
 Webster
 County,
 Missouri

Webster County, Missouri

73008—Viraton silt loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2qpf6

Elevation: 800 to 1,500 feet

Mean annual precipitation: 39 to 49 inches

Mean annual air temperature: 54 to 59 degrees F

Frost-free period: 172 to 232 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Viraton and similar soils: 95 percent

Minor components: 4 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Viraton

Setting

Landform: Ridges

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Crest

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loess over pedisidiment over residuum weathered from limestone

Typical profile

Ap - 0 to 6 inches: silt loam

Bt - 6 to 21 inches: silt loam

2Btx - 21 to 30 inches: very gravelly silty clay loam

3Bt - 30 to 80 inches: gravelly clay

Properties and qualities

Slope: 2 to 5 percent

Depth to restrictive feature: 18 to 33 inches to fragipan

Natural drainage class: Moderately well drained

Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: About 18 to 30 inches

Frequency of flooding: None

Frequency of ponding: None

Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

5/18/2016
Page 1 of 2
Map Unit
Description:
Viraton silt
loam, 2 to 5
percent
slopes---
Webster
County,
Missouri

Hydrologic Soil Group: D

Ecological site: Fragipan Upland Woodland (F116AY004MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Minor Components

Bado

Percent of map unit: 2 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Trees/Timber (Woody Vegetation)

Lowassie

Percent of map unit: 2 percent
Landform: Sinkholes
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Other vegetative classification: Trees/Timber (Woody Vegetation)

Data Source Information

Soil Survey Area: Webster County, Missouri
Survey Area Data: Version 19, Feb 11, 2016

Webster County, Missouri

73450—Goss-Wilderness complex, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2qpyf
Elevation: 800 to 1,200 feet
Mean annual precipitation: 39 to 49 inches
Mean annual air temperature: 54 to 59 degrees F
Frost-free period: 172 to 232 days
Farmland classification: Not prime farmland

Map Unit Composition

Goss and similar soils: 50 percent
Wilderness and similar soils: 35 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Goss

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Slope alluvium over residuum weathered from dolomite

Typical profile

A - 0 to 8 inches: gravelly silt loam
Bt1 - 8 to 20 inches: very gravelly silty clay loam
2Bt2 - 20 to 80 inches: very gravelly clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat):
Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B

5/18/201
6 Page 1
of 2 Map
Unit
Description
: Goss-
Wilderness
complex, 3
to 8
percent
slopes---
Webster
County,
Missouri

Ecological site: Chert Upland Woodland (F116AY011MO)
Other vegetative classification: Trees/Timber (Woody Vegetation)

Description of Wilderness

Setting

Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
*Parent material: Slope alluvium over pedisediment over residuum
weathered from limestone*

Typical profile

A - 0 to 8 inches: gravelly silt loam
Bt - 8 to 18 inches: very gravelly silty clay loam
2Btx - 18 to 40 inches: extremely gravelly silty clay loam
3Bt - 40 to 80 inches: very gravelly clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 14 to 22 inches to fragipan
Natural drainage class: Moderately well drained
Runoff class: Very high
*Capacity of the most limiting layer to transmit water (Ksat):
Moderately low to moderately high (0.06 to 0.20 in/hr)*
Depth to water table: About 10 to 14 inches
Frequency of flooding: None
Frequency of ponding: None
*Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to
2.0 mmhos/cm)*
Available water storage in profile: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: D

Ecological site: Low-Base Chert Upland Woodland (F116AY012MO)

Other vegetative classification: Trees/Timber (Woody Vegetation)

Data Source Information

Soil Survey Area: Webster County, Missouri

Survey Area Data: Version 19, Feb 11, 2016

5/18/201
6 Page 2
of 2

APPENDIX III PHOTOGRAPHS

May 23, 2016
PPI No. 235292



55 Acres, Elm Street & MO Route CC, Marshfield, MO

Photograph #1
Taken By: D. Nowack
Date: 5/4/16

View looking west at
the freshwater pond
and wetlands
partially on the
subject property.

Photograph #2
Taken By: D. Nowack
Date: 5/4/16

View looking east at
the freshwater pond
and wetlands
partially on the
subject property.



55 Acres, Elm Street & MO Route CC, Marshfield, MO

Photograph #3
Taken By: D. Nowack
Date: 5/4/16

View looking north at
the stream
originating from the
freshwater pond
partially on the
subject property.

Photograph #4
Taken By: D. Nowack
Date: 5/4/16

Intermittent stream
flowing across the
northwest corner of
the subject property.



