Wetland Delineation Report



Proposed Good Harvest Market Outlot Site

City of Waukesha, Waukesha County, Wisconsin

RASN Project No. 1130220

May 27th, 2014

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Proposed Good Harvest Market Outlot City of Waukesha, Waukesha County, Wisconsin

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Prepared for:

Good Harvest Market 1850 Meadow Lane Pewaukee, WI 53072

May 27th, 2014

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May 27th, 2014

INTRODUCTION

R.A. Smith National, Inc. (RASN) is pleased to provide this Wetland Delineation Report for an approximately 0.71-acre outlot in between Silvernail Road and Meadow Lane of in the City of Waukesha, Waukesha County, Wisconsin (Appendix 1, Figure 1). The wetland delineation was requested by Good Harvest Market, Inc.

The vacant 0.71-acre outlot is specifically located at the end of Meadow Lane where it meets Silvernail Rd in the NW ¼ of Section 28, Township 7 North, Range 19 East (Appendix A, Figure 1). The property is bordered by vacant lands (wetland) to the south and west, Silvernail Road and commercial development to the north and residential & commercial development to the east.

The purpose of the wetland delineation was to identify the proximity and extent of wetlands within the outlot in association with a commercial development project. One wetland, hereby referred to as "W-1", was identified within the project area. The delineation is presented here in terms of qualifications, methodology, results, and conclusions.

STATEMENT OF QUALIFICATIONS

RASN provides wetland and ecological services including wetland delineation, assessment, permitting, and restoration. RASN ecologists offer a wide variety of technical experience in the natural resource field, and have successfully completed projects throughout the Midwestern and Northeastern United States.

Ms. Heather Patti, PWS and Ecologist with RASN, earned a Masters Degree in Botany and a minor in Ecology from North Carolina State University. Ms. Patti is experienced with a variety of aspects of ecological restoration, including wetland, mixed hardwood, and prairie restoration. She provides over 15 years of experience in wetland delineation, assessment, and mitigation. Ms. Patti attended the Basic & Advanced Wetland Delineation course offered by UW-LaCrosse in 2005 & 2013, became a WDNR Assured Wetland Delineator in 2009, attends the annual Critical Methods in Wetland Delineation refresher course in Madison, and recently attended the Hydric Soil Identification Course offered by UW-LaCrosse in 2011.

METHODOLOGY

The wetland delineation consisted of a map review followed by fieldwork to delineate the on-site wetlands. The fieldwork documented the presence and absence of hydrophytic vegetation, wetland hydrology, and hydric soil indicators outlined in the *U.S. Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual*, Technical Report Y-87-1 (1987) and subsequent guidance documents (USACE 1991, 1992), Guidelines for Submitting Wetland Delineations in Wisconsin to the St. Paul District Corps of Engineers (USACE 1996), the *Basic Guide to Wisconsin's Wetlands and Their Boundaries* (Wisconsin Department of Administration Coastal Management Program, 2005), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral & Northeast Region, Version 2.0*, the guide for the USDA Natural Resources Conservation Services (NRCS) Field Indicators of Hydric Soils (version 7.0) in the United States, and in general accordance with Wisconsin Department of Natural Resources (WDNR) guidelines. The Northcentral & Northeast Regional USACE supplement was recently drafted for the purpose of bringing the existing 1987 Manual up to date for wetland delineations. This supplement is intended to be used as an additional guidance to the 1987 Manual, and is not its replacement.

Prior to conducting fieldwork, RASN reviewed several maps for the property, including the United States Geological Survey (USGS) 7.5-minute quadrangle topographic map (Appendix 1, Figure 1), the NRCS Soil Survey Report for Waukesha County (Appendix 1, Figure 3), the Southeastern Wisconsin Regional Planning Commission (SEWRPC) historical aerial photographs dated 2000, 2005, and 2010 (Appendix 1, Figures 4A-C), the Wisconsin Wetland Inventory Map (Appendix 1, Figure 5), and NOAA's Advanced Hydrologic Prediction Service Map (Appendix 1, Figure 6).

Areas having wetland field indicators were evaluated in the field by RASN wetland scientist Ms. Heather Patti during a site visit on April 22nd, 2014 and photo documented (Appendix 2). According to guidance described in the 1987 Manual and Northcentral & Northeast Regional Supplement, areas that under normal circumstances reflect a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology are considered wetlands. RASN collected field data at four (4) sample points, using a transect and data point approach following the USACE Northcentral/Northeast Supplement wetland determination forms (Appendix 3). A sharpshooter shovel was used to dig the soil pits and to refine the wetland boundary. The delineated wetland areas were flagged and then surveyed by McClure Engineering, Inc. surveyors. Pink wire flags with the words "Wetland Delineation" were used to stake the wetland boundaries and data point locations. The wetland boundaries and data point locations are depicted on Appendix 1, Figure 2. Observations were made at representative sample points along transects extending through upland and wetland areas.

RESULTS

The USGS topographic map (Appendix 1, Figure 1) depicts the location of the property and the Wetland Boundary Map (Appendix 1, Figure 2) depicts the delineated wetland boundaries overlaid onto a recent aerial photo. In general, the site is depressional but drainage is northwesterly towards an un-named tributary to the Upper Fox River.

According to the NRCS Soil Survey Report of Waukesha County, Wisconsin (Appendix 1, Figure 3), mapped soils within the outlot consist of Hochheim loam with 2-6% slopes (HmB2), Hochheim loam with 12-20% slopes (HoD3) and Ogdon muck (Oc). Of these soil types, the NRCS hydric soil list classifies Ogdon muck as a very poorly drained, hydric soil.

A review of aerial photographs from the years 2000, 2005, and 2010 (Appendix 1, Figures 4-C) was completed by RASN prior to the site visit. During this timeframe, there were essentially no changes to the land use within the outlot. The un-named tributary to the Upper Fox River just west of the outlot is evident on each of the aerials; at the time of the site visit it appeared to be approximately 5 feet wide with a defined bed and bank.

The Wisconsin Wetland Inventory (WWI) Map (Appendix 1, Figure 5) depicts the E2K cover type within the vicinity of W-1, symbolized by E2K, Emergent (E), narrow-leaved persistent (2), palustrine (K). The wetland cover types depicted on the WWI are in the same approximate location as W-1.

Recent precipitation data are used to assess the current season's hydrology. Precipitation data can help make determinations as to whether or not the wetland hydrology criterion has been met at recorded data points. Rainfall data recorded by the local WETS table and the National Weather Service's Advanced Hydrologic Prediction Service (AHPS) were used to evaluate the hydrology of the site prior to the April 22nd site visit (Appendix 1, Figure 6). According to the local WETS table (Waukesha, WI 8937), average precipitation in the Waukesha County area for the three months prior to the April site visit (January through March) is 5.07 inches. Average rainfall for the month of April is typically 3.53 inches. According to the AHPS map (Appendix 1, Figure 6), the late winter – early spring precipitation in the City of Waukesha was approximately 1-2 inches above the normal range. This suggests that the surface or near-surface hydrology at the time of the April 22nd site visit was normal for this time of year. The normal conditions were noted on the datasheets in Appendix 3.

Field Investigation

All areas on the above-mentioned maps as being wetland or having wetland characteristics were evaluated in the field. A total of four (4) data points were examined and one (1) wetland totaling 0.08 acres (3,321 square feet) was delineated and surveyed (Appendix 1, Figure 2). Data points in both upland and wetland areas were sampled in the field to determine the wetland boundaries. The data sheets were compiled and are included in Appendix 3. The following is a description of the delineated wetland.

Wetland 1 – Shrub-carr / Fresh (wet) Meadow Drainageway

Wetland 1 (W-1) is an approximately 0.08 acre (3,321 square feet) shrub-carr/fresh (wet) meadow depression (Appendix 1, Figure 2). Dominant plant species include box elder (*Acer negundo*), common buckthorn (*Rhamnus cathartica*), reed canary grass (*Phalaris arundinacea*), garlic mustard (*Alliaria petiolata*), and black willow (*Salix nigra*). The immediate adjacent upland consists mostly of disturbed shrub thicket and old field dominated by young box elder, Kentucky blue grass (*Poa pratensis*), Canada goldenrod (*Solidago canadensis*), Queen Anne's lace (*Daucus carota*), and other old-field weeds.

Hydrology in W-1 is sustained by surfacewater runoff from the surrounding landscape as this is a depressional area. Water is conveyed into the area from the Silvernail Road road shoulder and the commercial development to the east. There is not a discernible surfacewater connection between W-1 and the larger wetland associated with the tributary to the west (see Site Photographs in Appendix 2), but it is likely that water flows in that direction after heavy storm events. Physical on-site evidence of wetland hydrology within W-1 included high water table, saturation in the upper 12 inches, geomorphic position, and a positive FAC-Neutral test (see DP-2 and DP-4 in Appendix 3).

In general, there was a subtle to moderate topographic break between the upland and wetland along most of the delineated boundary. Topography sloped away from the wetland in all directions, and the transition in vegetation was visible as the reed canary grass and garlic mustard transitioned towards shrub thicket and old-field weeds.

According to the NRCS Soil Survey of Waukesha County, Ogdon muck (Oc) is the dominant mapped soil type within W-1. As mentioned earlier, the NRCS hydric soil list classifies Ogdon muck as a very poorly drained, hydric soil. Two wetland data points were taken within W-1 (Appendix 3) within representative shrub-carr and fresh (wet) meadow plant communities. The wetland soil samples resembled the typical profile descriptions of Ogdon muck; all contained hydric soil characteristics that met the A1 (Histosol) or F6 (Redox dark Surface) NRCS Hydric Soil Indicators.

CONCLUSION

Based on the wetland assessment completed by RASN, one (1) wetland was identified and surveyed within the outlot. A total of 0.08 acres (3,321 square feet) of wetland was delineated and surveyed by McClure Engineering, Inc. surveyors.

This report is limited to the delineation of state and/or federally regulated wetlands on the property. However, there may be other regulated environmental features within the property (e.g., historical, archaeological, threatened or endangered species). Federal, state and/or local units of government may have regulatory authority to restrict land use within or close in proximity to other environmental features. For example, Wisconsin Adm. Code NR 151.12 requires buffers or a "protective area" from the top of the channel of streams, rivers and lakes, or at the delineated boundary of wetlands. The jurisdictional decision on the width of wetland buffers rests with the WDNR. The local unit(s) of government may also have protective area buffers from wetlands than that imposed under NR 151.

The U.S. Army Corps of Engineers has regulatory authority over waters of the U.S. including adjacent wetlands, and the WDNR has regulatory authority over wetlands, navigable waters, and adjacent lands under Ch. 30 Wisconsin State Statues, Act 6, and NR 103 Wisconsin Administrative Code. Local jurisdictions may also have regulations through zoning ordinances. Our client, Good Harvest Market, respectfully requests verification of the delineated wetlands by the USACE.

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Appendices

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Appendix 1: Figures

Figure 1: USGS Map/Site Location Map

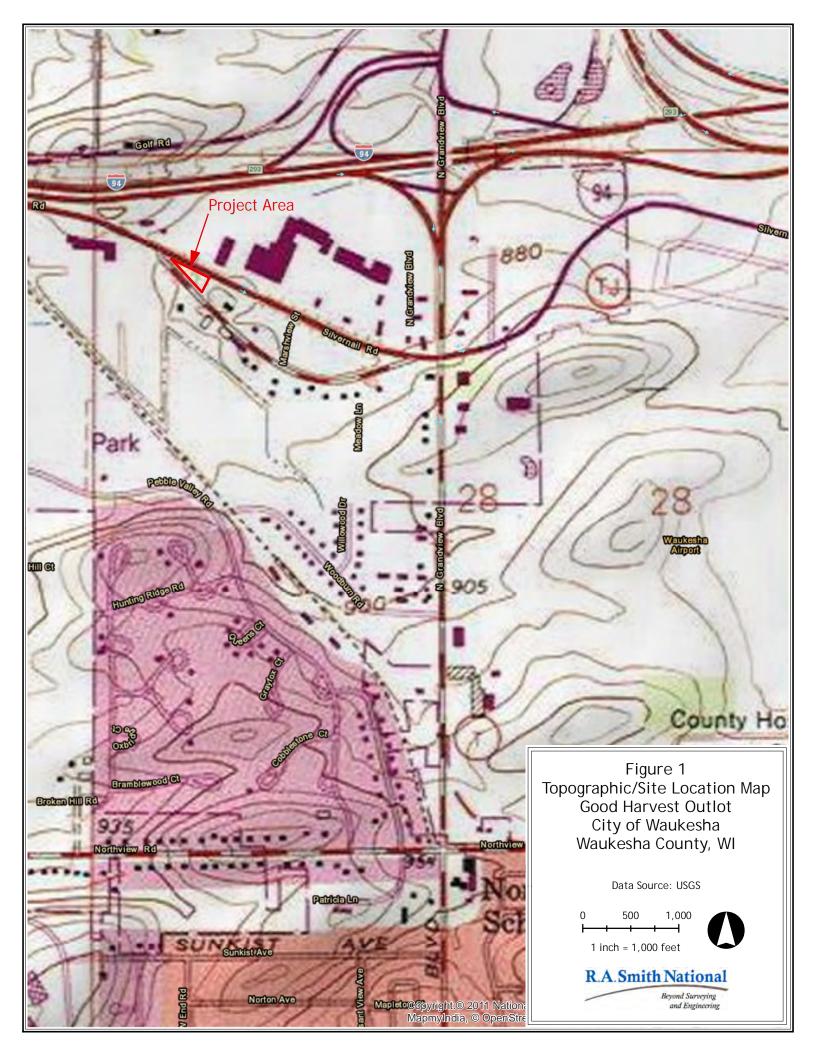
Figure 2: Wetland Boundary Map (McClure Engineering, Inc.)

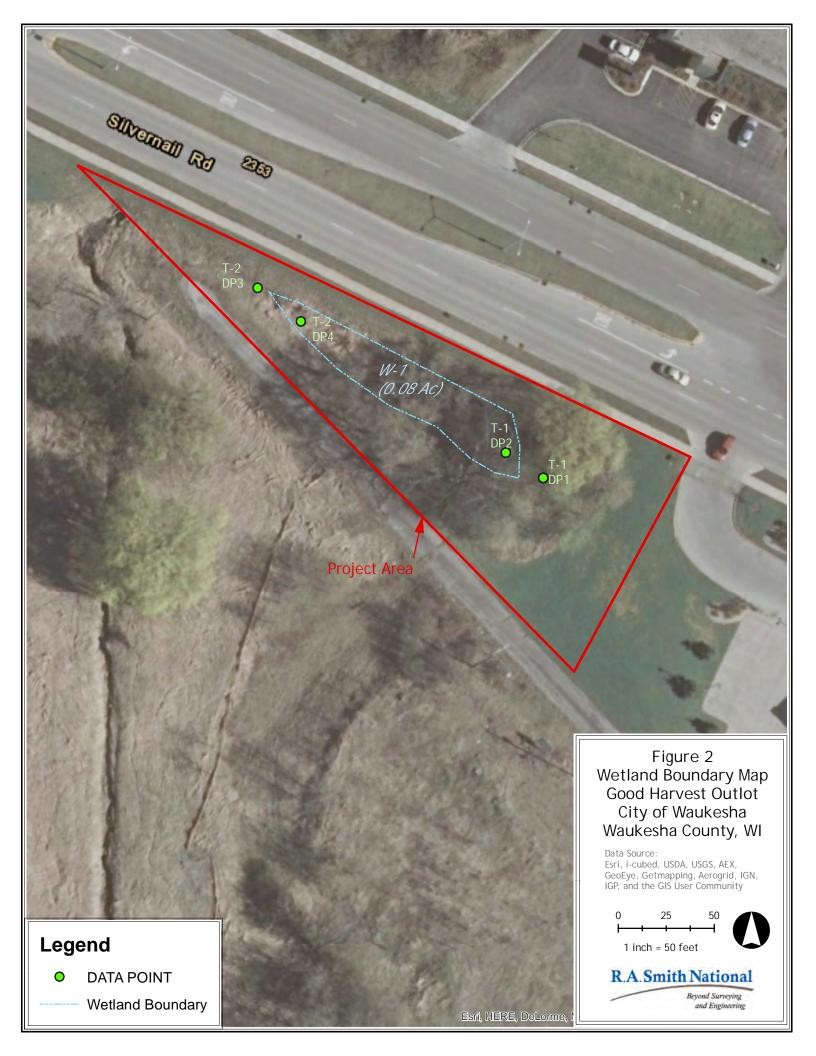
Figure 3: NRCS Soil Survey of Waukesha County

Figures 4A-C: Aerial Photographs (2000, 2005, 2010)

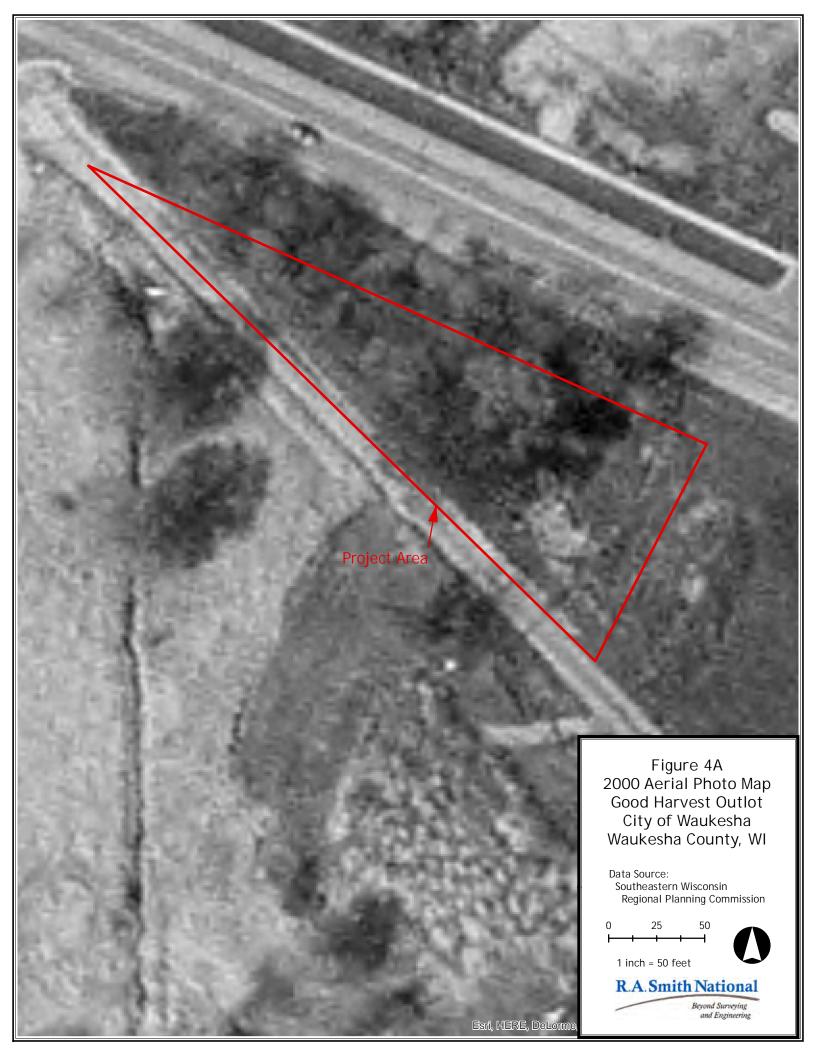
Figure 5: Wisconsin Wetland Inventory Map

Figure 6: 90-day Departure from Normal Precipitation Map



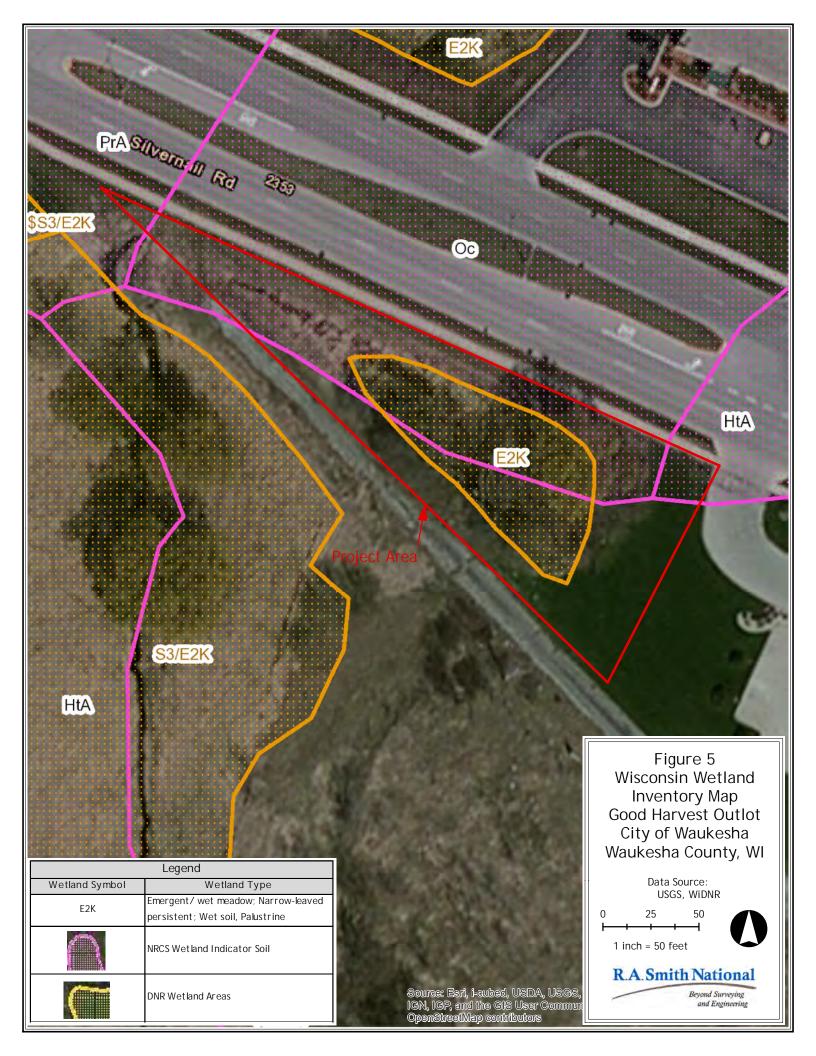




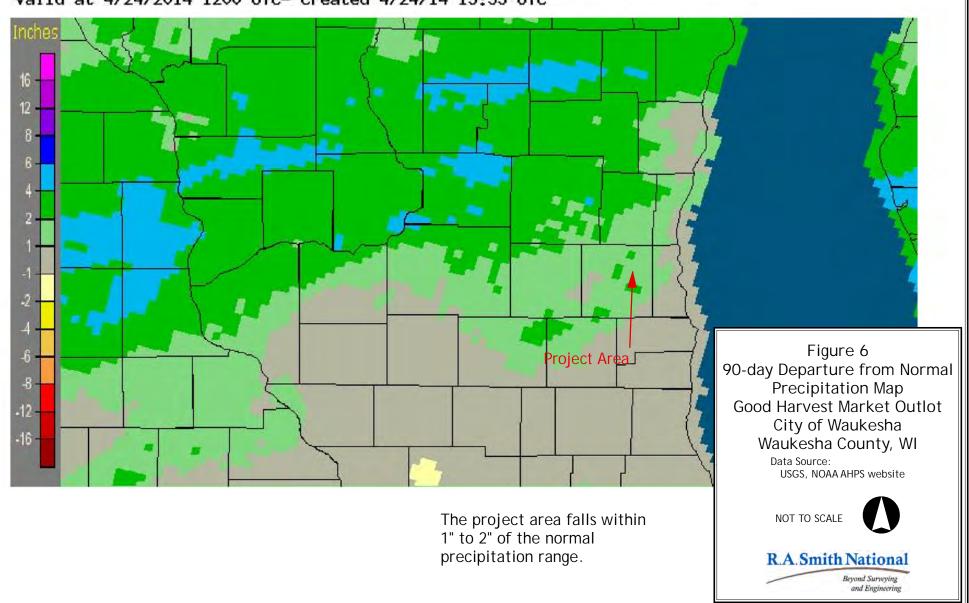








Milwaukee/Sullivan, WI (MKX): Current 90-Day Departure from Normal Precipitation Valid at 4/24/2014 1200 UTC- Created 4/24/14 15:55 UTC



Appendix 2:

Site Photographs

Appendix 3:

Wetland Determination Data Forms – Northcentral/Northeast Region

Project/Site:	Waukesha Go	od Harvest Market Outlot		City/County: Waukesha/Wau	esha	Sampling Date: April 22, 2014
Applicant/Owner:	Good Harvest	Market, Inc		State:	WI	Sampling Point: T-1 DP-1 upl
Investigator(s):	Heather Patti,	PWS		Section, Townsh	ip, Range:	NW 1/4 Sec 28, T7N R19E
Landform (hillslope, t	terrace, etc.):	slight hillslope		Local relief (concave, convex, none	e):	slightly convex
Slope % <u>5%</u>		Lat:	Long:		Datum:	
Soil Map Unit Name:	·	Hochheim soils (Ho	D2), 2-6% slopes, non-hydric		WWI Clas	ssification: E2K
Are climatic / hydrolo	ogic conditions on	the site typical for this time of	of year?	Yes X No		(if no, explain in Remarks)
Are Vegetation	Y* Soil	N or Hydrology	N significantly disturbed?	Are "Normal Circum	stances" pres	ent? Yes No X
Are Vegetation	N Soil	N or Hydrology	N naturally problematic?	(if needed, explain a	ny answers ii	n Remarks)
SUMMARY OF I	FINDINGS	Attach site map show	wing sampling point loc	ations, transects, importa	nt feature:	s, etc.
Hydrophytic Vegetati	ion Present?	Yes X	No	Is the Sampled Area		·
Hydric Soil Present?		Yes	No X	within a Wetland?		Yes No X
Wetland Hydrology P		Yes	No X	If yes, optional wetla	nd site ID:	100 <u>X</u>
vvctiana riyarology r				nds to due soil boring and su		
HYDROLOGY						
Wetland Hydrology	Indicators:				Secondar	y Indicators (minimum of two required)
Primary Indicators (m	ninimum of one is	required; check all that apply	y)			Surface Soil Cracks (B6)
Surface Water (A	(A1)	Wa	ter-Stained Leaves (B9)			Drainage Patterns (B10)
High Water Tabl	le (A2)	Aqu	atic Fauna (B13)			Moss Trim Lines (B16)
Saturation (A3)			l Deposits (B15)			Dry-Season Water Table (C2)
Water Marks (B	•		drogen Sulfide Odor (C1)			Crayfish Burrows (C8)
Sediment Depos	. ,		dized Rhizospheres on Living Ro	oots (C3)		Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B Algal Mat or Cru	•		sence of Reduced Iron (C4) cent Iron Reduction in Tilled Soils	c (C6)		Stunted or Stressed Plants (D1) Geomorphic Position (D2)
Iron Deposits (B			n Muck Surface (C7)	3 (00)		Shallow Aquitard (D3)
	ole on Aerial Imag		er (Explain in Remarks)			Microtopographic Relief (D4)
	ated Concave Sui		. ()			FAC-Neutral Test (D5)
Field Observations:						
Surface Water Prese		s No X D	Pepth (inches):			
Water Table Present			Depth (inches):			
Saturation Present?	Ye		Pepth (inches):	Indicat	ors of Wetla	nd Hydrology Present? Yes No X
(includes capillary frin	inge)			l .		
USGS Topograph	nic Map (Figure			ailable: 2010 aerial photographs (Figu	res 4A-C), \	Visconsin
Remarks: No w	etland hydrolo	gy indicators are prese	nt.			

VEGETATION - Use scientific name	nes for plants.			Sampling Point: T-1 DP-1 upl
Tree Stratum (Plot size: 30'R)		Dominant Species	Indicator Status	Dominance Test Worksheet:
1. Acer negundo	70	Υ	FAC	Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
2				Total Number of Dominant Species Across All Strata:
6	70 = To	tal Cover		Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)
Sapling/Shrub Stratum (Plot size: 15'R		V	EAC	Prevalence Index Worksheet:
1. <u>Acer negundo</u> 2. <u>Rhamnus cathartica</u> 3 4 5	5	Y	FAC FAC	FAC species
6				Prevalence Index B/A =
Herb Stratum (Plot size: 5'R	15 = To	tal Cover		Hydrophytic Vegetation Indicators: Rapid Test for Hydrophytic Vegetation X Dominance Test is >50% Prevalence Index is ≤ 3.0¹ Morphological Adaptations¹ (Provide supporting
1. Alliaria petiolata 2	60	Y	FAC	data in Remarks or on separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. 9.				Definitions of Vegetation Strata:
10				Tree - Woody plants 3 in. (7.6 cm) or more in diameter at brest height (DBH), regardless of height.
14.	60 = To	tal Cover		Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.
				Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.
Woody Vine Stratum (Plot size: n/a 1	<u> </u>			Woody vines - All woody vines greater than 3.28 ft. in height.
3		otal Cover		Hydrophytic Vegetation Present? Yes X No
Remarks: (Include photo numbers here or on The hydrophytic vegetation criterion community upslope of the wetland	is met due to the do	ominance of	f disturbance-lov	ring FAC species. This is a disturbed shrub thicket

SOIL T-1 DP-1 upl Sampling Point:

e: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. e: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. e: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. e: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. e: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. e: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. e: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. e: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. e: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. e: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Indicators for Problematic Hydric Soils*: Indicators for Problematic Hydric Soils*: Cast Prairie Reduced (A10) (ILRR K, L, MLRA 149B)	14-22+ 10 YR 5/2 90 10 YR 5/6 10 C M silty clay Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Ployaria Soll Indicators: Indicators for Problematic Hyo Histo Epipedon (A2) Histo Epipedon (A2) Histo Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Stratified Layers (A5) Depleted Below Dark Surface (A11) Depleted Matrix (F2) Depleted Below Dark Surface (A12) Redox Dark Surface (F7) Redox Dark Surface (F7) Piedmont Floodplain So Sandy Mucky Mineral (S1) Sandy Redox (A5) Redox Dark Surface (F7) Piedmont Floodplain So Sandy Gleyed Matrix (S4) Redox Dark Surface (F7) Piedmont Floodplain So Sandy Redox (S5) Red Parent Material (F1 Stripped Matrix (S4) Dark Surface (S7) (LRR R, MLRA 149B) Dark Surface (F7) Dark Surface (F7) Piedmont Floodplain So Mesic Spodic (TA6) (MR Red Parent Material (F1 Stripped Matrix (S6) Dark Surface (S7) (LRR R, MLRA 149B) Dark Surface (F7) (F1) Redox Dark Surface (F7) Piedmont Floodplain So Mesic Spodic (TA6) (MR Red Parent Material (F1 Stripped Matrix (S6) Dark SURface (F7) (LRR R, MLRA 149B) Dark SURface (F7) (LRR R, MLRA 149B) Other (Explain in Remail	ng, M=Matrix Problematic Hydric Soils ³ : uck (A10) (LRR K, L, MLRA 149B) Prairie Redox (A16) (LRR K, L, R) ucky Peat or Peat (S3) (LRR K, L, R) urface (S7) (LRR K, L) slue Below Surface (S8) (LRR K L) ark Surface (S9) (LRR K, L) anganese Masses (F12) (LRR K, L, R) ont Floodplain Soils (F19) (MLRA 149B) Spodic (TA6) (MLRA 144A, 145, 149B)
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However, no redoximorphic concentrations were observed, and the topography and lack of wetland hydrology indicators		
		3,

Project/Site:	Waukesha	Good Har	rvest Market Ou	utlot			City/C	County: Waukesh	na/Wauke	sha	Sampling	Date: April 22	, 2014	
Applicant/Owner:	Good Har	vest Marke	t, Inc				_	State:		WI		Sampling F	oint: T-1 D	P-2 wtd
Investigator(s):	Heather P	atti, PWS						Section,	Township	o, Range:	NW 1/4	Sec 28, T7N R1	19E	
Landform (hillslope, te	errace, etc.):	to	oeslope				Local relief (concave, conve	x, none):		slightly	concave		
Slope % n/a			Lat:			Long:				Datum:	,			
Soil Map Unit Name:			Og	don muc	k (Oc), hydric					WWI Clas	ssification:		E2K	
Are climatic / hydrolog	gic conditions	on the site	typical for this ti	ime of yea	ar?		Yes	No	*X		(if no, ex	plain in Remark	(s)	
Are Vegetation	Y*	Soil	N or Hydro	ology	N significan	tly disturbed?	?	Are "Normal C	Circumsta	nces" prese	ent?		Yes	No X
Are Vegetation	N	Soil	N or Hydro	logy	Y naturally	problematic?		(if needed, ex	plain any	answers in	Remarks)			
SUMMARY OF I	FINDING	3 Atta	ch site map	showii	ng samplin	g point lo	cations, t	ransects, in	nporta	nt featur	es, etc.			
Hydrophytic Vegetation	on Present?		Yes	Х	No			Is the Sample	d Area					
Hydric Soil Present?			Yes_	Х	No			within a Wetla	ınd?			Yes X	No	
Wetland Hydrology Pr	resent?		Yes_	Х	No _			If yes, optiona	l wetland	site ID:		W-1		
	All three	wetland o	criteria have b	oeen me	t.									
HYDROLOGY														
Wetland Hydrology Primary Indicators (mi Surface Water (A High Water Table Saturation (A3) Water Marks (B1 Sediment Depos Drift Deposits (B: Algal Mat or Crus Iron Deposits (B: Inundation Visible Sparsely Vegeta Field Observations: Surface Water Present	inimum of or A1) e (A2) I) iits (B2) 3) st (B4) 5) e on Aerial II ted Concave	nagery (B7)	- - - - - - - - - 38)	Wati Aqu Mar Hyd Oxid Pres Rec Thin Othe	ter-Stained Lea latic Fauna (B1: I Deposits (B15 Irogen Sulfide C dized Rhizosphi sence of Reduct ent Iron Reduct in Muck Surface er (Explain in Ri	3) Odor (C1) eres on Living ed Iron (C4) tion in Tilled S (C7)				X	Surface Drainage Moss Tr Dry-Sea Crayfish Saturatic Stunted Geomor Shallow Microtop	(minimum of two Soil Cracks (B6 e Patterns (B10) im Lines (B16) son Water Table Burrows (C8) on Visible on Ae or Stressed Pla phic Position (D Aquitard (D3) oographic Relief utral Test (D5)	e (C2) erial Imagery nts (D1)	· (C9)
Saturation Present? (includes capillary frin		Yes	X No		epth (inches):	18"		ı	ndicator	s of Wetlar	nd Hydrolo	gy Present?	Yes X	No
Describe Recorded D USGS Topograph Wetland Inventory	ic Map (Fi	aure 1). N	IRCS Soil Sur	vev (Fig	ure 3), 2000.			photographs	s (Figur	es 4A-C),	Wisconsi	in		
Remarks: Wetla	and hydrol	ogy criter	rion has been	ı met du	e to the pres	ene of seco	ondary indi	cators.						

VEGETATION - Use scientific names f	for plants.			Sampling Point: T-1 DP-2 wtd
Tree Stratum (Plot size: 30'R)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet:
1. Salix nigra	20	v	OBL	Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)
2. Acer nedundo	10	<u>_</u>	FAC	That Ale OBL, FACW, 01 FAC.
3. <i>Ulmus americana</i> 4.	10	Y	FACW	Total Number of Dominant Species Across All Strata: 6 (B)
5.				(5)
6.				Percent of Dominant Species
7	40 =	Total Cover		That Are OBL, FACW, or FAC:(A/B)
				Prevalence Index Worksheet:
				Total % Cover of: Multiply by:
0 I' (0) 1 0: . (D) 4FID	,			OBL species x 1 =
Sapling/Shrub Stratum (Plot size: 15'R 1. Rhamnus cathartica	<u>)</u> _	v	FAC	FACW species x 2 =
1. Anamnus camaruca		Y		FAC species
2. 3.				UPL species
4.				Column Totals: (A) (B)
5.				(//
6.				Prevalence Index B/A =
7	=	Total Cover		Hydrophytic Vegetation Indicators:
		Total Cover		Rapid Test for Hydrophytic Vegetation
				X Dominance Test is >50%
				Prevalence Index is ≤ 3.0 ¹
Herb Stratum (Plot size: 5'R)			Morphological Adaptations ¹ (Provide supporting
1. Phalaris arundinacea		Y	FACW	data in Remarks or on separate sheet)
2. Alliaria petiolata	5		FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
3.				
4.				
5.				¹ Indicators of hydric soil and wetland hydrology must
6.				be present, unless disturbed or problematic.
7.				
8.				
9				Definitions of Vegetation Strata:
10				
11				Tree - Woody plants 3 in. (7.6 cm) or more in diameter
12				at brest height (DBH), regardless of height.
13				2 11 12 13 13 13 13 13 13 13 13 13 13 13 13 13
14	10 =	Total Cover		Sapling/shrub - Woody plants less than 3 in. DBH
		Total Cover		and greater than 3.28 ft (1m) tall.
				Herb - All herbaceous (non-woody) plants, regardless
				of size, and woody plants less than 3.28 ft. tall.
Woody Vine Stratum (Plot size: n/a	1			or size, and woody plants less than 3.20 ft. tall.
vvoday vine otratam (i lot size. iiia	<u></u>			Woody vines - All woody vines greater than 3.28 ft. in
1.				height.
2.				
3.				Hydrophytic
4.				Vegetation
	0	= Total Cover		Present? Yes X No
Remarks: (Include photo numbers here or on a sep				
The hydrophytic vegetation criterion is m			n in this area was r	ecently disturbed from
the soil boring and survey activities. This is a	shrub-carr comn	nunity.		

SOIL Sampling Point: T-1 DP-2 wtd Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features (inches) Color (moist) Color (moist) Type¹ Loc2 Texture Remarks 8-0 10YR 2/1 100 _* silt loam 10YR 5/6 8-18 10 YR 2/1 90 10 С М silt loam 18-24+ 10YR 5/1 90 10YR 5/6 М 10 С silty clay loam ² Location: PL=Pore Lining, M=Matrix Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Hydric Soil Indicators: Indicators for Problematic Hydric Soils3: Histosol (A1) Plolyvalue Below Surface (S8) (LRR R 2cm Muck (A10) (LRR K, L, MLRA 149B) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5cm Mucky Peat or Peat (S3) (LRR K, L, R) Black Histic (A3) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L) Plolyvalue Below Surface (S8) (LRR K L) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Iron-Manganese Masses (F12) (LRR K, L, R) X Thick Dark Surface (A12) X Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Redox (S5) Red Parent Material (TF2) Stripped Matrix (S6) Very Shallow Dark Surface (TF12) Dark SURface (S7) (LRR R, MLRA 149B) Other (Explain in Remarks) 3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): n/a Type: Hydric Soil Present? Depth (inches): n/a Yes X No Remarks: The hydric soil criterion is met.

Project/Site:	Waukesha Go	ood Harvest Market Out	tlot		City/C	County: Waukesha/Wauke	esha	Sampling Da	ate: April 22, 20	14	
Applicant/Owner:	Good Harvest	t Market, Inc				State: V	VI		Sampling Poin	t: T-2 DP-3	upl
Investigator(s):	Heather Patti,				ı	Section, Townshi	p, Range:	NW 1/4 Sec	c 28, T7N R19E		
Landform (hillslope, t	terrace, etc.):	toeslope (base of roa	d ROW)		Local relief (concave, convex, none		concave			
Slope % 15%		Lat:		Long:			Datum:				
Soil Map Unit Name:			den muck (Oc), hydric				WWI Clas			E2K	
		n the site typical for this t			Yes	X No			nin in Remarks)	v	NI.
Are Vegetation Are Vegetation	N Soil		N significantly dis			Are "Normal Circums" (if needed, explain an	•		re	es <u>X</u>	No
Ale vegetation	IN Jon	OF FINAL CHOOSE	IN Haturally proble	emanc:		(II rieeueu, expiairi air	ly allowers in	Remains			
SUMMARY OF	FINDINGS	- Attach site map s	showing sampling	j point lo	cations, tr	ansects, importa	nt feature	s, etc.			
Hydrophytic Vegetati	ion Present?	Yes	No	Х		Is the Sampled Area					
Hydric Soil Present?	,	Yes X	No			within a Wetland?		Υ	res	No	Х
Wetland Hydrology F	Present?	Yes	No	X		If yes, optional wetlar	nd site ID:				
	prome com	aneu gravei iii iikeiy	y from the constructi	ION OI SHV	/email Ivau	and adjacent row					
HYDROLOGY											
Wetland Hydrology	Indicators:						Secondary	/ Indicators (m	inimum of two re	equired)	
Primary Indicators (m	ninimum of one is	s required; check all that	apply)					Surface Soi	il Cracks (B6)		
Surface Water (` '		Water-Stained Leaves (E	B9)				_	atterns (B10)		
High Water Tab			Aquatic Fauna (B13)						Lines (B16)	20)	
Saturation (A3)			Marl Deposits (B15)	(01)				-	n Water Table (C	:2)	
Water Marks (B) Sediment Depos			Hydrogen Sulfide Odor (Oxidized Rhizospheres of		note (C3)			Crayfish Bu Saturation \	irrows (C8) Visible on Aerial	Imageny (C	ומי
Drift Deposits (E			Presence of Reduced Iro	-	J013 (UU)				Stressed Plants		,3,
Algal Mat or Cru			Recent Iron Reduction in		s (C6)				c Position (D2)	(- ,	
Iron Deposits (B	35)		Thin Muck Surface (C7)					Shallow Aq	uitard (D3)		
	ole on Aerial Imag		Other (Explain in Remark	rks)					raphic Relief (D4	4)	
Sparsely Vegeta	ated Concave Su	irface (B8)						FAC-Neutra	al Test (D5)		
Field Observations:											
Surface Water Prese		s No X	Depth (inches):			I					
Water Table Present	t? Yes	s <u>No X</u>	Depth (inches):			I					
Saturation Present?		s X No	Depth (inches):	16"		Indicato	rs of Wetlan	d Hydrology	Present? Ye	s	No X
(includes capillary fri											
Describe Recorded DUSGS Topograph Wetland Inventor	Data (stream gau nic Map (Figur y (Figure 5), a	ge, monitoring well, aeria e 1), NRCS Soil Surv and AHPS precipitation	ial photos, previous inspe vey (Figure 3), 2000, 2 on map (Figure 6)	ections), if a 2005, and	ıvailable: 2010 aerial	photographs (Figu	res 4A-C),	Wisconsin			
Remarks: No w	vetland hydrol	ogy indicators are p	resent. Saturation in	n the profi	ile is due to	recent rain events.					
	•			•							

VEGETATION - Use scientific name	nes for plants.		Sampling Point: T-2 DP-3 upl
Tree Stratum (Plot size: 30'R)	Absolute % Dominar Cover Species		Dominance Test Worksheet:
1. 2.		FAC	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
3. 4. 5.			Total Number of Dominant Species Across All Strata:1(B)
6	0 = Total Cove	er	Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)
Sapling/Shrub Stratum (Plot size: n/a 1. 2. 3.			Prevalence Index Worksheet:
4			Column Totals: (A) (B) Prevalence Index B/A =
Herb Stratum (Plot size: 5'R 1. Poa pratensis	= Total Cove	FACU	Hydrophytic Vegetation Indicators:
2. Bromus inermis 3. Pastinaca sativa 4. Daucus carota 5. 6	15 N 10 N 10 N	UPL UPL	Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8 9 10			Definitions of Vegetation Strata:
11 12 13			Tree - Woody plants 3 in. (7.6 cm) or more in diameter at brest height (DBH), regardless of height.
14	120 = Total Cove	er	Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.
Woody Vine Stratum (Plot size: n/a	<u>)</u>		Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.
1			Woody vines - All woody vines greater than 3.28 ft. in height.
4.	0 = Total Co	ver	Hydrophytic Vegetation Present? Yes No _X
Remarks: (Include photo numbers here or on The hydrophytic vegetation criterion		turbed old field plant comn	nunity.

SOIL T-2 DP-3 upl Sampling Point: Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Matrix Redox Features Color (moist) Color (moist) Remarks 0-6 10YR 3/2 100 silt loam small gravel fill throughout profile С 10 6-13* 10YR 3/2 10YR 5/6 С 90 10 М silty clay ² Location: PL=Pore Lining, M=Matrix Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: Indicators for Problematic Hydric Soils³: Histosol (A1) Plolyvalue Below Surface (S8) (LRR R 2cm Muck (A10) (LRR K, L, MLRA 149B) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Histic Epipedon (A2) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) 5cm Mucky Peat or Peat (S3) (LRR K, L, R) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L) Plolyvalue Below Surface (S8) (LRR K L) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Thin Dark Surface (S9) (LRR K, L)

Thick Dark Surface (A12) Redox Dark Surface (F6) Iron-Manganese Masses (F12) (LRR K, L, R) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Sandy Gleyed Matrix (S4) Redox Depressions (F8) Sandy Redox (S5) Red Parent Material (TF2) Stripped Matrix (S6) Very Shallow Dark Surface (TF12) Dark SURface (S7) (LRR R, MLRA 149B) Other (Explain in Remarks) 3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): *small gravel fill Type: Depth (inches): 13" Hydric Soil Present? Yes X No___

Remarks: Hydric soil criterion has been met. Profile contains gravel fill from years of road runoff and/or grading activities during the construction os Silvernail Road. Lack of hydrology and hydrophytic vegetation indicators indicate uplands at this data point.

Project/Site:	Waukesha	Good Har	vest Market	Outlot		City/C	ounty: Waukesha/Wa	ukesha	Sampling	Date: April 22, 201	14
Applicant/Owner:	cant/Owner: Good Harvest Market, Inc						State:	WI	Sampling Point: T-2 DP-4 wtd		
Investigator(s):	Heather Pa	tti, PWS				-	Section, Town	ship, Range:	NW 1/4 S	Sec 28, T7N R19E	
Landform (hillslope, te	errace, etc.):	dı	rainage swa	ale		Local relief (d	concave, convex, nor	ie):	concave	1	
Slope % 0%			Lat:		Long:			Datum:			
Soil Map Unit Name:				Ogdon mu	uck (Oc), hydric			WWI Cla	ssification:	E	2K
Are climatic / hydrolog	gic conditions	on the site	typical for th	nis time of y	ear?	Yes	X No		(if no, exp	olain in Remarks)	
Are Vegetation	<u>N</u>	Soil	N or Hy		N significantly disturbed		Are "Normal Circum	•		Yes	s_X_ No
Are Vegetation	<u>N</u>	Soil	N or Hy	drology	Y naturally problematic	?	(if needed, explain	any answers in	Remarks)		
SUMMARY OF	FINDINGS	Atta	ch site m	ap show	ing sampling point l	ocations, ti	ansects, impo	tant featur	es, etc.		
Hydrophytic Vegetation	on Present?		Ye	es <u>X</u>	No	•	Is the Sampled Are	3			
Hydric Soil Present?			Ye		No		within a Wetland?			Yes X	No
Wetland Hydrology P	resent?		Ye	es X	No		If yes, optional wetla	and site ID:		W-1	
	All 3 wetla	and criter	ria are met	.							
HYDROLOGY											
Wetland Hydrology Primary Indicators (m Surface Water (i X High Water Tabl X Saturation (A3) Water Marks (B Sediment Depos Drift Deposits (B Algal Mat or Cru	inimum of one A1) e (A2) 1) sits (B2) 3) st (B4)	e is required	d; check all t	W	fater-Stained Leaves (B9) quatic Fauna (B13) arl Deposits (B15) ydrogen Sulfide Odor (C1) xidized Rhizospheres on Livi resence of Reduced Iron (C4 ecent Iron Reduction in Tilled)		Secondar	Surface S Drainage Moss Trir Dry-Seas Crayfish I Saturation Stunted of Geomorp	minimum of two rec Soil Cracks (B6) Patterns (B10) m Lines (B16) son Water Table (C: Burrows (C8) n Visible on Aerial I or Stressed Plants (2) magery (C9)
Iron Deposits (B: Inundation Visibl Sparsely Vegeta	e on Aerial Im ted Concave				nin Muck Surface (C7) ther (Explain in Remarks)			X	Microtopo	Aquitard (D3) ographic Relief (D4) utral Test (D5))
Field Observations: Surface Water Prese Water Table Present' Saturation Present? (includes capillary frin	nt? ?	Yes Yes Yes	X	lo X	Depth (inches): Depth (inches): Depth (inches): Surface		Indica	tors of Wetla	nd Hydrolog	ıy Present? Yes	s_X_ No
	ic Map (Fig	ure 1). N	RCS Soil S	Survey (Fi	os, previous inspections), if avigure 3), 2000, 2005, and ap (Figure 6)		photographs (Fig	jures 4A-C),	Wisconsir	n	
Remarks: The v	wetland hyd	Irology c	riterion ha	s been m	et.						

VEGETATION - Use scientific names	s for plants.			Sampling Point: T-2 DP-4 wtd
Tree Stratum (Plot size: 30'R)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet:
1. <i>Ulmus americana</i>	5	Y	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
2. 3. 4.				Total Number of Dominant Species Across All Strata: 3 (B)
5. 6. 7.		Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC:(A/B)
		- Total Cover		Prevalence Index Worksheet:
Sapling/Shrub Stratum (Plot size: 15'R 1. 2.				Total % Cover of: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 3 = FACU species x 4 =
3 4				UPL species
5. 6.				Prevalence Index B/A =
7	0 =	Total Cover		Hydrophytic Vegetation Indicators:
Herb Stratum (Plot size: 5'R	<u> </u>	v		Rapid Test for Hydrophytic Vegetation Dominance Test is >50% Prevalence Index is ≤ 3.0¹ Morphological Adaptations¹ (Provide supporting
Typha x glauca Phalaris arundinacea	70 70	Y	FACW	data in Remarks or on separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
4				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. 9. 10.				Definitions of Vegetation Strata:
11 12 13				Tree - Woody plants 3 in. (7.6 cm) or more in diameter at brest height (DBH), regardless of height.
14	140 =	Total Cover		Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.
Woody Vine Stratum (Plot size: n/a	`			Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft. tall.
1				Woody vines - All woody vines greater than 3.28 ft. in height.
3. 4.	0	= Total Cover		Hydrophytic Vegetation Present? Yes X No
Remarks: (Include photo numbers here or on a s		isturbed shall	low moreh ewele	
The hydrophytic vegetation criterion is	met. Inis is a di	sturbed snai	iow marsn swaie.	

SOIL Sampling Point: T-2 DP-4 wtd Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Depth Redox Features (inches) Color (moist) Color (moist) Type¹ Loc2 Texture Remarks 0-6 10YR 2/1 100 silt loam 6-13 10YR 2/1 90 10YR 5/6 10 С М silty clay loam 13-20+ 10YR 5/2 80 10YR 5/6 М 20 С clay loam ² Location: PL=Pore Lining, M=Matrix Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains Hydric Soil Indicators: Indicators for Problematic Hydric Soils3: Histosol (A1) Plolyvalue Below Surface (S8) (LRR R 2cm Muck (A10) (LRR K, L, MLRA 149B) Histic Epipedon (A2) MLRA 149B) Coast Prairie Redox (A16) (LRR K, L, R) Thin Dark Surface (S9) (LRR R, MLRA 149B) Black Histic (A3) 5cm Mucky Peat or Peat (S3) (LRR K, L, R) Hydrogen Sulfide (A4) Loamy Mucky Mineral (F1) (LRR K, L) Dark Surface (S7) (LRR K, L) Plolyvalue Below Surface (S8) (LRR K L) Stratified Layers (A5) Loamy Gleyed Matrix (F2) Thin Dark Surface (S9) (LRR K, L) Depleted Below Dark Surface (A11) Depleted Matrix (F3) Iron-Manganese Masses (F12) (LRR K, L, R) X Thick Dark Surface (A12) Redox Dark Surface (F6) Sandy Mucky Mineral (S1) Depleted Dark Surface (F7) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Gleyed Matrix (S4) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Redox Depressions (F8) Sandy Redox (S5) Red Parent Material (TF2) Stripped Matrix (S6) Very Shallow Dark Surface (TF12) Dark SURface (S7) (LRR R, MLRA 149B) Other (Explain in Remarks) 3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. Restrictive Layer (if observed): n/a Type: Hydric Soil Present? No_ Depth (inches): n/a Yes X Remarks: The hydric soil criterion is met. *Redox features may be partially masked by the very dark matrix color.



Photograph 1 (4/22/2014): General view of the western portion of W-1, facing east.



Photograph 2 (4/22/2014): General view of the eastern portion of W-1, facing northwest. The vegetation in this portion of the wetland was disturbed from the soil borings.



Photograph 3 (4/22/2014): View of wetland data point T-1 DP-2, facing west.



Photograph 4 (4/22/2014): View of T-2 DP-4 within W-1.



Photograph 5 (4/22/2014): View of upland data point T-2 DP-3, facing east towards W-1.



Photograph 6 (4/22/2014): View of the upland area between W-1 and the larger wetland/ Upper Fox River tributary area to the west.