Wetland Border Report

Site Locus: 1393 Grafton Street/0 McAvey Way, Worcester MA
Prepared for: McAvey Realty LLC
Prepared by: Goddard Consulting LLC, 291 Main St, Suite 8, Northborough MA 01532
Date: 11/22/2023

INTRODUCTION

On November 21, 2023, wetland resources were delineated for McAvey Realty LLC on land located on or near 1393 Grafton Street and 0 McAvey Way, Worcester MA (refer to enclosed locus maps). The wetland border was flagged using the criteria in the most recent edition of MA Wetland Protection Act (WPA) and Regulations 310 CMR 10.00 et al. Hydric soil indicators, vegetation changes, hydrological indicators, and topography were all considered for delineation purposes. At the time of writing, this site is currently under an enforcement order issued by the Worcester Conservation Commission (CC-EO-2023-003).

The titles of attached documents are as follows:

- DEP Bordering Vegetated Wetland Determination Form
- Orthophoto of Locus Site, Goddard Consulting LLC, 11/13/2023
- 2019 Orthophoto of Locus Site, Goddard Consulting LLC, 11/22/2023
- Orthophoto with NRCS Soil Survey, Goddard Consulting LLC, 11/13/2023
- Orthophoto with DEP Mapped Wetlands, Goddard Consulting LLC, 11/13/2023
- Orthophoto with NHESP Mapping, Goddard Consulting LLC, 11/13/2023
- USGS of Locus Site, Goddard Consulting LLC, 11/13/2023

SUMMARY OF FINDINGS

The boundary of the Bordering Vegetated Wetland (BVW) onsite was delineated with flag series GCA1-GCA14. The sampling point for the BVW determination took place near flag GCA7. Vegetation upgradient of the BVW consists of red oak, eastern cottonwood, shagbark hickory, common buckthorn, garlic mustard, wood aster, whorled yellow loosestrife and poison ivy. Vegetation downgradient of the BVW consists of eastern cottonwood, buttonbush, common buckthorn, silky dogwood and river grape.

Soils identified on the property include sandy loams. In the wetland soil sample, muck with matrix color 10YR2/1 was found from 0-3", and sandy loam (10YR4/1) was found from 3-12". In the upland soil sample, fine sandy loam (10YR2/2) was found from 0-3", and sandy loam (10YR4/4) was found from 3-12". A restrictive layer of rock was encountered at 12" in both sample locations. More detailed information about soils is included in the attached NRCS Soil Map and the DEP Bordering Vegetated Wetland Determination Forms.

According to the MassGIS data layers for the Natural Heritage & Endangered Species Program (NHESP), the locus site is not located within Estimated and/or Priority Habitat of Rare Wildlife or an Area of Critical Environmental Concern (ACEC). The site is not located in an Outstanding Resource Waters Area (ORW). The site does not fall within a jurisdictional FEMA Flood Zone. A potential vernal pool is mapped just offsite to the east.

The MA Wetlands Protection Act and the City of Worcester take jurisdiction over Bordering Vegetated Wetlands (BVW). The BVW onsite has a jurisdictional 100-foot Buffer Zone that casts onto the locus site. The City of Worcester also regulates a 15-foot "No Touch" Buffer Zone and a 30-foot "No Build" Buffer Zone.

Any work within these resource areas including the 100-foot Buffer Zones requires a Request for Determination (RDA) or Notice of Intent (NOI) to be filed with the Worcester Conservation Commission.

DESCRIPTION OF REGULATED INLAND RESOURCE AREA

The table below provides the regulatory jurisdiction, flag numbers/colors, and wetland types and locations for the resource areas delineated.

Resource Area	Regulatory Jurisdiction	Flag Numbers and Color	Wetland Types and Locations
Bordering Vegetated Wetland (BVW)	BVW & 100-foot Buffer Zone	GCA1-GCA14 (Blue flags)	The boundary of BVW at the rear of the landscape yard on the locus site.

SUMMARY OF IMPACTS

Unpermitted work conducted in the 100-foot Buffer Zone (jurisdictional under the MA Wetlands Protection Act and the Worcester Wetlands Protection Ordinance) consists of excavation and removal of vegetation. The landscape yard currently in use at 0 McAvey Way has been created by clearing most of the site of vegetation and substantial grading. Grading activities appear to have consisted of almost entirely cut, which has resulted in the creation of a 3-6' berm at the rear of the landscape yard, between the cleared area and the wetland resource.

SITE PHOTOS

Photo 1. View of impacted buffer zone (facing southwest). Landscape yard visible at right, and wetland visible at left.

Photo 2. View of impacted buffer zone (facing northeast). Berm between landscape yard and wetland visible at center.

Photo 3. View of wetland edge.

Photo 4. Wetland soil pulled downgradient of flag GCA7.

Sincerely,
Goddard Consulting, LLC

Chris Frattaroli
Wetland Scientist

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site:	1393 Grafton St/0 McAvey Way	City/Town: Worcester	Sampling Date: 11/21/23
Applicant/Owner:	McAvey Realty, LLC	Sampling Point or Zone:	GCA7
Investigator(s):	Chris Frattaroli	Latitude/Longitude:	42.23504854061336, -71.74616147957015
Soil Map Unit Name:	Udorthents smoothed, Freetown muck	NWI or DEP Classification:	Deep marsh

UPGRADIENT

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)

Are Vegetation X , Soil _____ , or Hydrology _____ significantly disturbed? (If yes, explain in Remarks)

Are Vegetation _____ , Soil _____ , or Hydrology _____ naturally problematic? (If yes, explain in Remarks)

SUMMARY OF FINDINGS – Attach site map and photograph log showing sampling locations, transects, etc

Wetland vegetation criterion met?	Yes _____	No X	Is the Sampled Area within a Wetland?	Yes _____	No X
Hydric Soils criterion met?	Yes _____	No X			
Wetlands hydrology present?	Yes _____	No X			

Remarks, Photo Details, Flagging, etc.:

Partial clearing of upland areas, however most vegetation still identifiable

HYDROLOGY

Field Observations:				
Surface Water Present?	Yes	No	X	Depth (in)
Water Table Present?	Yes	No	X	Depth (in)
Saturation Present (including capillary fringe)?	Yes	No	X	Depth (in)

Wetland Hydrology Indicators

Reliable Indicators of Wetlands Hydrology	Indicators that can be Reliable with Proper Interpretation	Indicators of the Influence of Water
___ Water-stained leaves	___ Hydrological records	___ Direct observation of inundation
___ Evidence of aquatic fauna	___ Free water in a soil test hole	___ Drainage patterns
___ Iron deposits	___ Saturated soil	___ Drift lines
___ Algal mats or crusts	___ Water marks	___ Scoured areas
___ Oxidized rhizospheres/pore linings	___ Moss trim lines	___ Sediment deposits
___ Thin muck surfaces	___ Presence of reduced iron	___ Surface soil cracks
___ Plants with air-filled tissue (aerenchyma)	___ Woody plants with adventitious roots	___ Sparsely vegetated concave surface
___ Plants with polymorphic leaves	___ Trees with shallow root systems	___ Microtopographic relief
___ Plants with floating leaves	___ Woody plants with enlarged lenticels	___ Geographic position (depression, toe of slope, fringing lowland)
___ Hydrogen sulfide odor		

Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available):

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

Sampling Point GCA7

VEGETATION – Use both common and scientific names of plants.

Tree Stratum Plot size 30'

	Common Name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)	% Dominant
1	Red Oak	Quercus rubra	FACU	38.0%	X		48.1%
2	Eastern Cottonwood	Populus deltoides	FAC	20.5%	X	X	25.9%
3	Shagbark Hickory	Carya ovata	FACU	20.5%	X		25.9%
4							
5							
6							
7							
8							
9							

79.0% =Total Cover

Shrub/Sapling Stratum Plot size 15'

	Common Name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)	% Dominant
1	Common Buckthorn	Rhamnus cathartica	FAC	10.5%	X	X	100.0%
2							
3							
4							
5							
6							
7							
8							
9							

10.5% =Total Cover

Herb Stratum Plot size 5'

	Common Name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)	% Dominant
1	Garlic-Mustard	Alliaria petiolata	FACU	20.5%	X		43.6%
2	White Wood Aster	Aster divaricatus	UPL	20.5%	X		43.6%
3	Whorled Yellow-Loosestrife	Lysimachia quadrifolia	FACU	3.0%			6.4%
4	Green brier	Smilax rotundifolia	FAC	3.0%		X	6.4%
5							
6							
7							
8							
9							
10							
11							
12							

47.0% =Total Cover

VEGETATION – continued.

Woody Vine Stratum Plot size 30'

	Common Name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)	% Dominant
1	Eastern Poison Ivy	Toxicodendron radicans	FAC	20.5%	X	X	100.0%
2							
3							
4							
				20.5%	=Total Cover		

Rapid Test:	Do all dominant species have an indicator status of OBL or FACW?			Yes		No	X
Dominance Test:	Number of dominant species	Number of dominant species that are wetland indicator plants		Do wetland indicator plants make up ≥ 50% of dominant plant species?			
	7	3		Yes		No	X
Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result			
	OBL species	0%	x1	=	0%		
	FACW species	0%	x2	=	0%		
	FAC species	55%	x3	=	164%		
	FACU species	82%	x4	=	328%		
	UPL species	21%	x5	=	103%		
	Column Totals (A)	157%		(B)	594%		
	Prevalence Index	B/A=	3.78	Is the Prevalence Index ≤ 3.0?			
				Yes		No	X
Wetland vegetation criterion met?	**Yes**	**No** X					

Definitions of Vegetation Strata

Tree	Woody plants 3 in. (7.62 cm) or more in diameter at breast height (DBH), regardless of height
Shrub/Sapling	Woody plants less than 3 in. (7.62 cm) DBH and greater than or equal to 3.3 ft. (1 m) tall
Herb	All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.3 ft. (1 m) tall
Woody vines	All woody vines greater than 3.3 ft. (1 m) in height

Cover Ranges	
Range	Midpoint
1-5 %	3.00%
6-15 %	10.50%
15-25 %	20.50%
26-50 %	38.00%
51-75 %	63.00%
76-95 %	85.50%
96-100 %	98.00%

Sampling Point GCA7

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Location[2]	Texture	Remarks
0-3	10YR2/2	100					FSL	
3-12	10YR4/4	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators (Check all that apply)		**Indicators for Problematic Hydric Soils**
___ Histosol (A1)	___ Sandy Redox (S5)	___ 2 cm Muck (A10)
___ Histic Epipedon (A2)	___ Stripped Matrix (S6)	___ 5 cm Mucky Peat or Peat (S3)
___ Black Histic (A3)	___ Polyvalue Below Surface (S8)	___ Dark Surface (S7)
___ Hydrogen Sulfide (A4)	___ Thin Dark Surface (S9)	___ Polyvalue Below Surface (S8)
___ Stratified Layers (A5)	___ Loamy Mucky Mineral (F1)	___ Thin Dark Surface (S9)
___ Depleted Below Dark Surface (A11)	___ Loamy Gleyed Matrix (F2)	___ Iron-Manganese Masses (F12)
___ Thick Dark Surface (A12)	___ Depleted Matrix (F3)	___ Mesic Spodic (A17)
___ Sandy Mucky Mineral (S1)	___ Redox Dark Surface (F7)	___ Red Parent Material (F21)
___ Sandy Gleyed Matrix (S4)	___ Depleted Dark Surface (F8)	___ Very Shallow Dark Surface (TF12)
___ Dark Surface (S7)		___ Other (Include Explanation in Remarks)

Restrictive Layer (if observed) Type: rock Depth (inches): 12

Remarks

Hydric Soils criterion met? **Yes** **No** X

DOWNGRADIENT

Are climatic/hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks)
Are Vegetation _____ , Soil _____ , or Hydrology _____ significantly disturbed? (If yes, explain in Remarks)
Are Vegetation _____ , Soil _____ , or Hydrology _____ naturally problematic? (If yes, explain in Remarks)

SUMMARY OF FINDINGS – Attach site map and photograph log showing sampling locations, transects, etc

Wetland vegetation criterion met?	Yes X	No _____	Is the Sampled Area within a Wetland?	Yes X	No ____
Hydric Soils criterion met?	Yes X	No _____			
Wetlands hydrology present?	Yes X	No _____			

Remarks, Photo Details, Flagging, etc.:

HYDROLOGY

Field Observations:					
Surface Water Present?	Yes	X	No	Depth (in)	0
Water Table Present?	Yes	X	No	Depth (in)	6
Saturation Present (including capillary fringe)?	Yes	X	No	Depth (in)	0

Wetland Hydrology Indicators

Reliable Indicators of Wetlands	Indicators that can be Reliable with	Indicators of the Influence of Water
X Water-stained leaves	Hydrological records	X Direct observation of inundation
Evidence of aquatic fauna	X Free water in a soil test hole	Drainage patterns
Iron deposits	X Saturated soil	Drift lines
Algal mats or crusts	Water marks	Scoured areas
Oxidized rhizospheres/pore linings	Moss trim lines	Sediment deposits
Thin muck surfaces	Presence of reduced iron	Surface soil cracks
Plants with air-filled tissue (aerenchyma)	Woody plants with adventitious roots	X Sparsely vegetated concave surface
Plants with polymorphic leaves	X Trees with shallow root systems	Microtopographic relief
Plants with floating leaves	Woody plants with enlarged lenticels	X Geographic position (depression, toe of slope, fringing lowland)
Hydrogen sulfide odor		

Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available):

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

Sampling Point GCA7

VEGETATION – Use both common and scientific names of plants.

Tree Stratum Plot size 30'

	Common Name	Scientific name	Indicator	Absolute %	Dominant?	Wetland Indictor?	% Dominant
1	Eastern Cottonwood	Populus deltoides	FAC	20.5%	X	X	100.0%
2							
3							
4							
5							
6							
7							
8							
9							

20.5% =Total Cover

Shrub/Sapling Stratum Plot size 15'

	Common Name	Scientific name	Indicator	Absolute %	Dominant?	Wetland Indictor?	% Dominant
1	Buttonbush	Cephalanthus occidentalis	OBL	20.5%	X	X	39.8%
2	Common Buckthorn	Rhamnus cathartica	FAC	20.5%	X	X	39.8%
3	Silky Dogwood	Cornus amomum	FACW	10.5%	X	X	20.4%
4							
5							
6							
7							
8							
9							

51.5% =Total Cover

Herb Stratum Plot size 5'

	Common Name	Scientific name	Indicator	Absolute %	Dominant?	Wetland Indictor?	% Dominant
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

0.0% =Total Cover

VEGETATION – continued.

Woody Vine Stratum Plot size 30'

	Common Name	Scientific name	Indicator	Absolute %	Dominant?	Wetland Indictor?	% Dominant
1	River Bank Grape	Vitis riparia	FACW	38.0%	X	X	100.0%
2							
3							
4							
				38.0%	=Total Cover		

Rapid Test:	Do all dominant species have an indicator status of OBL or FACW?			Yes X	No	
Dominance Test:	Number of dominant species	Number of dominant species that are		Do wetland indicator plants make		
	5	5		Yes X	No	
Prevalence Index:		Total % Cover	Multiply by:	Result		
	OBL species	21%	x1	=	21%	
	FACW species	49%	x2	=	97%	
	FAC species	41%	x3	=	123%	
	FACU species	0%	x4	=	0%	
	UPL species	0%	x5	=	0%	
	Column Totals (A)	110%		(B)	241%	
	Prevalence Index	B/A=	2.19	Is the Prevalence Index ≤ 3.0?		
				Yes X	No	
Wetland vegetation criterion met?	**Yes X**	**No**				

Definitions of Vegetation Strata

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Shrub/Sapling	Woody plants less than 3 in. (7.62 cm) DBH and greater than or equal to 3.3 ft. (1 m) tall
Herb	All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.3 ft. (1 m) tall
Woody vines	All woody vines greater than 3.3 ft. (1 m) in height

Cover Ranges	
Range	Midpoint
1-5 %	3.00%
6-15 %	10.50%
15-25 %	20.50%
26-50 %	38.00%
51-75 %	63.00%
76-95 %	85.50%
96-100 %	98.00%

Sampling Point GCA7

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Location[2]	Texture	Remarks
0-3	10YR2/1	100					Muck	
3-12	10YR4/1	100					SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators (Check all that apply)		**Indicators for Problematic Hydric Soils**
___ Histosol (A1)	___ Sandy Redox (S5)	___ 2 cm Muck (A10)
___ Histic Epipedon (A2)	___ Stripped Matrix (S6)	___ 5 cm Mucky Peat or Peat (S3)
___ Black Histic (A3)	___ Polyvalue Below Surface (S8)	___ Dark Surface (S7)
___ Hydrogen Sulfide (A4)	___ Thin Dark Surface (S9)	___ Polyvalue Below Surface (S8)
___ Stratified Layers (A5)	___ Loamy Mucky Mineral (F1)	___ Thin Dark Surface (S9)
___ Depleted Below Dark Surface (A11)	___ Loamy Gleyed Matrix (F2)	___ Iron-Manganese Masses (F12)
___ Thick Dark Surface (A12)	X Depleted Matrix (F3)	___ Mesic Spodic (A17)
___ Sandy Mucky Mineral (S1)	___ Redox Dark Surface (F7)	___ Red Parent Material (F21)
___ Sandy Gleyed Matrix (S4)	___ Depleted Dark Surface (F8)	___ Very Shallow Dark Surface (TF12)
___ Dark Surface (S7)		___ Other (Include Explanation in Remarks)

Restrictive Layer (if observed) Type: Depth (inches):

Remarks

Hydric Soils criterion met? **Yes** X **No**

Date: 11/13/2023	GC Job Number: 348-042	Wetland Border Report Orthophoto of Locus Site	0 30 60 Feet
GODDARD CONSULTING Strategic Ecological Consulting		0 McAvey Way & 1393 Grafton Street Worcester, MA	1 in = 60 ft Parcel IDs: 41-028-00002 41-028-53-55

N
W E
S

Date: 11/22/2023	GC Job Number: 348-042	Wetland Border Report 2019 Orthophoto of Locus Site	0 30 60 Feet
GODDARD CONSULTING Strategic Ecological Consulting		0 McAvey Way & 1393 Grafton Street Worcester, MA	1 in = 60 ft Parcel IDs: 41-028-00002 41-028-53-55

N
W E
S

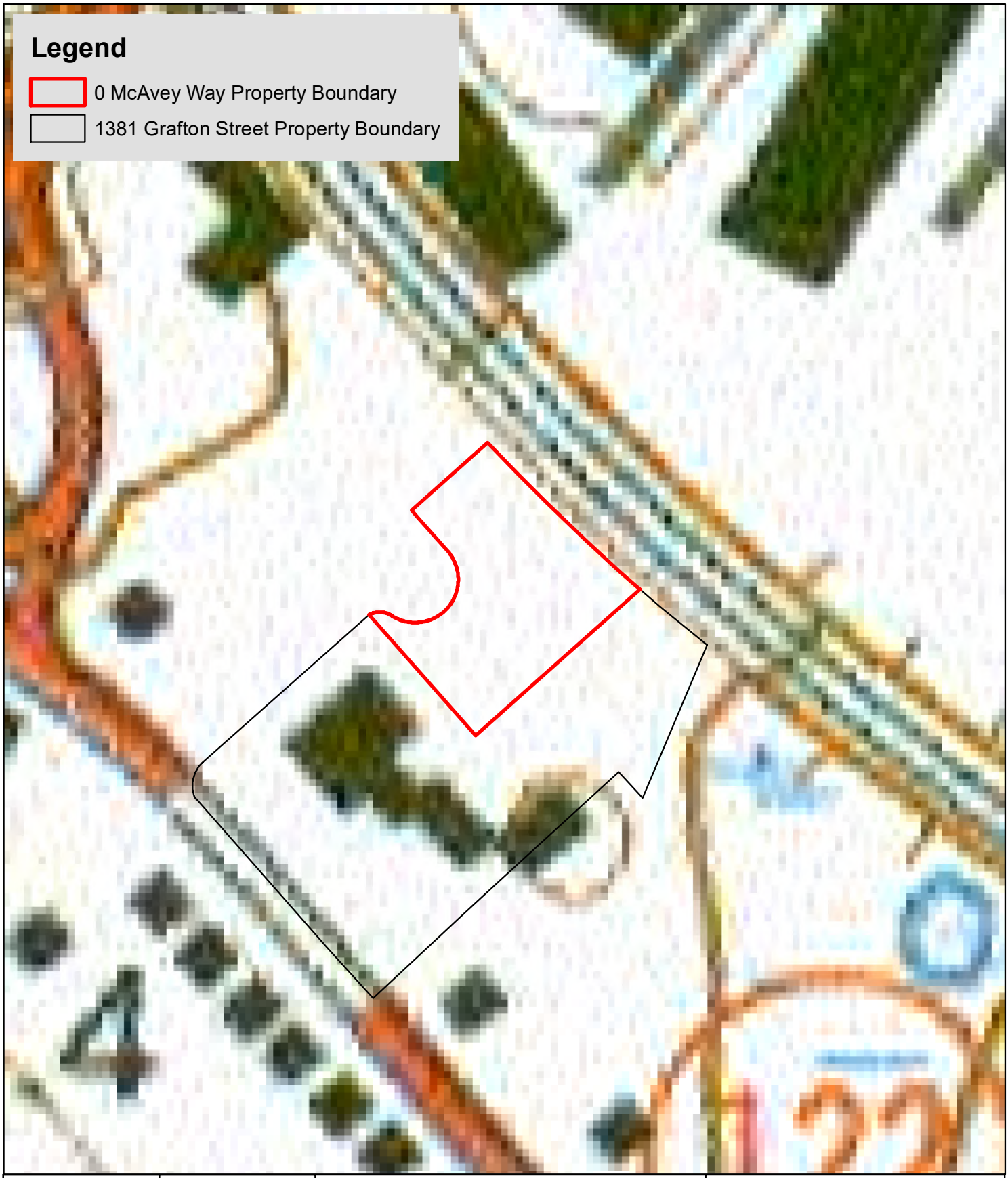
Date: 11/13/2023	GC Job Number: 348-042	Wetland Border Report Orthophoto with NRCS Soil Survey	0 30 60 Feet 1 in = 60 ft
GODDARD CONSULTING Strategic Ecological Consulting		0 McAvey Way & 1393 Grafton Street Worcester, MA	Parcel IDs: 41-028-00002 41-028-53-55

N
W E
S

Date: 11/13/2023	GC Job Number: 348-042	Wetland Border Report Orthophoto with DEP Mapped Wetlands	0 30 60 Feet
GODDARD CONSULTING Strategic Ecological Consulting		0 McAvey Way & 1393 Grafton Street Worcester, MA	1 in = 60 ft Parcel IDs: 41-028-00002 41-028-53-55

N W E S

Date: 11/22/2023	GC Job Number: 348-042	Wetland Border Report Orthophoto with NHESP Mapping	0 60 120 Feet	
GODDARD CONSULTING Strategic Ecological Consulting			1 in = 120 ft	N W E S
		0 McAvey Way & 1393 Grafton Street Worcester, MA	Parcel IDs: 41-028-00002 41-028-53-55	



Date: 11/13/2023

GC Job Number: 348-042

GODDARD CONSULTING
Strategic Ecological Consulting

Wetland Border Report
USGS of Locus Site

0 Mcavey Way & 1393 Grafton Street
Worcester, MA

0 60 120 Feet

1 in = 120 ft

Parcel IDs:
41-028-00002
41-028-53-55

N
W E
S

PLAN SHOWING EXISTING CONDITIONS
PREPARED FOR
MCAVEY REALTY LLC
MCAVEY WAY
WORCESTER, MASSACHUSETTS
DECEMBER 20, 2024
SCALE: 1 INCH = 50 FEET

JARVIS LAND SURVEY, INC
29 GRAFTON CIRCLE
SHREWSBURY, MA 01545
TEL. (508) 842-8087
FAX. (508) 842-0661
KEVIN@JARVISLANDSURVEY.COM

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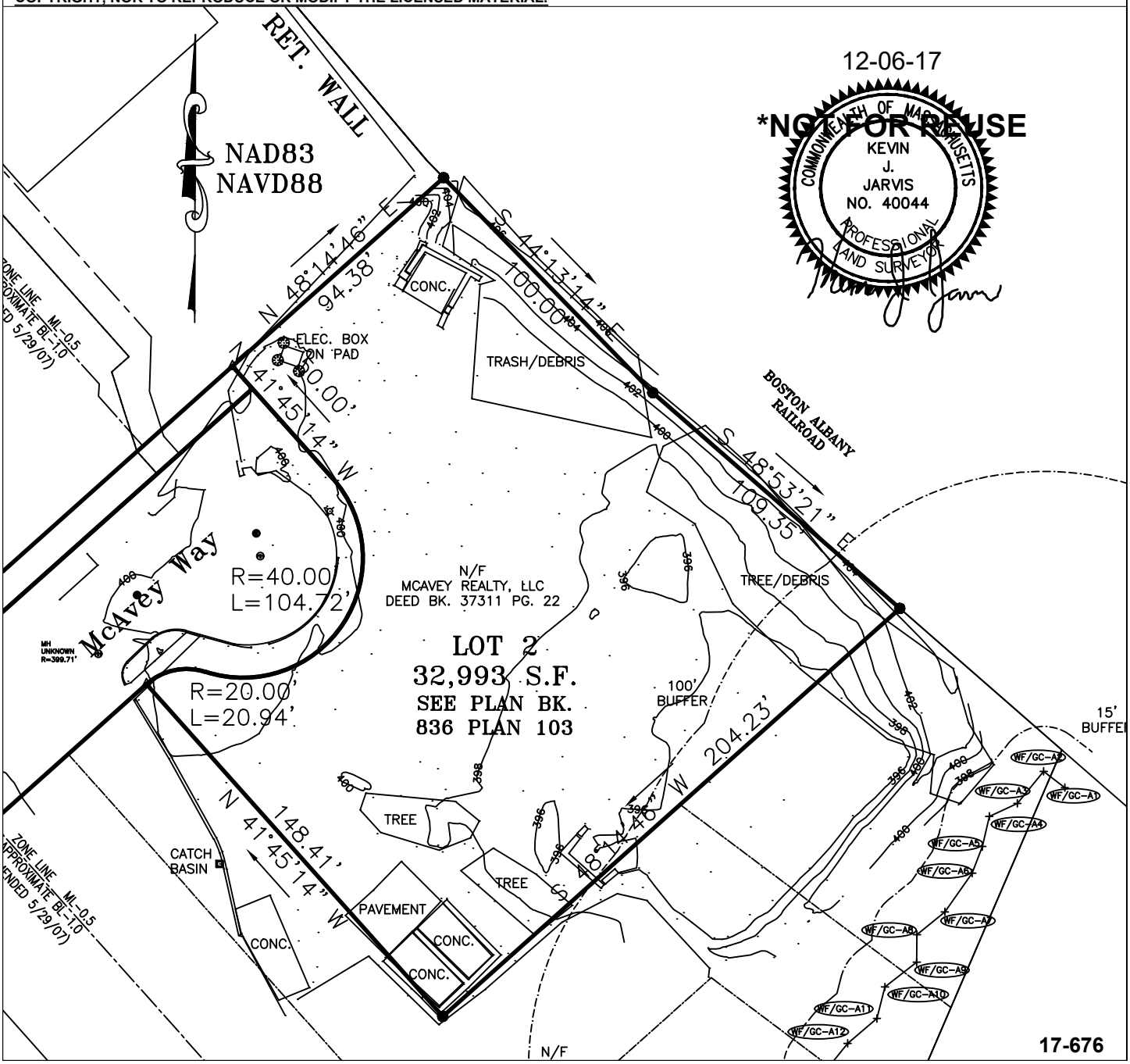
ASSESSORS MAP 41
BLOCK 28 LOT 2



12-06-17

*NOT FOR REUSE

COMMONWEALTH OF MASSACHUSETTS
KEVIN J. JARVIS
NO. 40044
PROFESSIONAL LAND SURVEYOR

17-676