Project/Site: Sudbury-Hudson	City/County: Hudson/ Middlesex Sampling Date: 10-16-17
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Wet DW-476
Investigator(s): K. Kinsella, J. Vieira	Section, Township, Range:
	relief (concave, convex, none): None Slope %: 0
Subregion (LRR or MLRA): LRR R Lat: 42'23'35.992 N	Long: 71'30'49.0263 W Datum: NAD83
Soil Map Unit Name:	NWI classification: PFO
Are climatic / hydrologic conditions on the site typical for this time of year?	
	<del></del>
Are Vegetation, Soil, or Hydrologysignificantly disturb	
Are Vegetation, Soil, or Hydrology naturally problems  SUMMARY OF FINDINGS – Attach site map showing sam	
Commant of Thebrood - Attach site map showing same	Times point locations, transects, important leatures, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes X No	within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
Disturbance	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required) Surface Soil Cracks (B6)
Surface Water (A1)  X Water-Stained Leaves (E	
High Water Table (A2)  Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3)  Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1)  Water Marks (B1)  Hydrogen Sulfide Odor (	
Sediment Deposits (B2)  Oxidized Rhizospheres of	<u> </u>
Drift Deposits (B3)  Presence of Reduced Iro	
Algal Mat or Crust (B4)  Recent Iron Reduction in	<u> </u>
Iron Deposits (B5)  Thin Muck Surface (C7)	
Inundation Visible on Aerial Imagery (B7)  Other (Explain in Remark	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
	PAC-Neutral Test (D3)
Field Observations:	
Surface Water Present? Yes No X Depth (inches):	
Water Table Present? Yes No _X Depth (inches):	
Saturation Present? Yes No X Depth (inches):	Wetland Hydrology Present? Yes X No
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	vious inspections), if available:
Remarks:	
Nemans.	

% Cover			
70 COVEI	Species?	Status	Dominance Test worksheet:
45	Yes	FAC	Number of Dominant Species
20	Yes	FACU	That Are OBL, FACW, or FAC:3 (A)
			Total Number of Dominant
_			Species Across All Strata: 4 (B)
			Percent of Dominant Species
			That Are OBL, FACW, or FAC: 75.0% (A/E
_			Prevalence Index worksheet:
65	=Total Cover		Total % Cover of: Multiply by:
)			OBL species0 x 1 =0
5	Yes	FAC	FACW species 2 x 2 = 4
5	Yes	FAC	FAC species 55 x 3 = 165
_			FACU species 20 x 4 = 80
			UPL species 0 x 5 = 0
			Column Totals: 77 (A) 249 (E
			Prevalence Index = B/A = 3.23
			Hydrophytic Vegetation Indicators:
10	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
			X 2 - Dominance Test is >50%
2	No	FACW	3 - Prevalence Index is ≤3.0 <sup>1</sup>
			4 - Morphological Adaptations <sup>1</sup> (Provide supporti
			data in Remarks or on a separate sheet)
			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
			<u> </u>
			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
			Definitions of Vegetation Strata:
-			<b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of heigh
_			diameter at breast height (DBH), regardless of height
			Sapling/shrub – Woody plants less than 3 in. DBH
			and greater than or equal to 3.28 ft (1 m) tall.
	-Tatal Cause		Herb – All herbaceous (non-woody) plants, regardles
	= rotal Cover		of size, and woody plants less than 3.28 ft tall.
)			<b>Woody vines</b> – All woody vines greater than 3.28 ft
			height.
			Hydrophytic
			Vegetation
			Present? Yes X No No
	=Total Cover		
parate sheet.)			
		20 Yes	20 Yes FACU  65 =Total Cover  7 Yes FAC  5 Yes FAC  10 =Total Cover  2 No FACW  2 =Total Cover  2 =Total Cover

SOIL Sampling Point Wet DW-476

		to the de	=			tor or co	onfirm the absence of i	ndicators.)
Depth	Matrix			Featur		. 2	<b>-</b> .	Б
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-2	10YR 2/1	100					Sandy	Coarse frag
2-11	10YR 5/2	75	10YR 5/8	25		M	Sandy	Fine sand/ massive
								_
								_
								_
1 <sub>Type:</sub> C=C	oncentration, D=Depl	otion DN	4-Paduaad Matrix M		kod Sana	Croins	<sup>2</sup> Logotion: DL-	Pore Lining, M=Matrix.
Hydric Soil		ellon, Ki	i-Reduced Matrix, iv	IS-IVIAS	keu Sand	Grains.		Problematic Hydric Soils <sup>3</sup> :
Histosol			Polyvalue Belo	w Surfa	ce (S8) (I	RR R		(A10) (LRR K, L, MLRA 149B)
	pipedon (A2)		MLRA 149B)		00 (00) (1			rie Redox (A16) ( <b>LRR K, L, R</b> )
	stic (A3)		Thin Dark Surfa		) (LRR R	MLRA 1		xy Peat or Peat (S3) ( <b>LRR K, L, R</b> )
	n Sulfide (A4)		High Chroma S					Below Surface (S8) (LRR K, L)
	l Layers (A5)		Loamy Mucky I			-		Surface (S9) (LRR K, L)
	Below Dark Surface	(A11)	Loamy Gleyed					anese Masses (F12) (LRR K, L, R)
Thick Da	ark Surface (A12)		Depleted Matrix	(F3)				Floodplain Soils (F19) ( <b>MLRA 149B</b> )
Sandy M	lucky Mineral (S1)		Redox Dark Su	rface (F	<del>-</del> 6)		Mesic Spo	dic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
Sandy G	leyed Matrix (S4)		Depleted Dark	Surface	(F7)		Red Paren	t Material (F21)
Sandy R	edox (S5)		Redox Depress	ions (F	8)			ow Dark Surface (F22)
	Matrix (S6)		Marl (F10) ( <b>LR</b> l	R K, L)			Other (Exp	olain in Remarks)
Dark Su	rface (S7)							
3								
			etland hydrology mu	st be pr	esent, ur	iless dist	urbed or problematic.	
	Layer (if observed):							
Type:								
Depth (ir	nches):						Hydric Soil Present	? Yes X No
Remarks:								
Common gra	avel, rock, gravel							

Project/Site: Sudbury-Hudson	City/County: Hudson/ Middlesex Sampling Date: 10-16-17					
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Up DW-476					
Investigator(s): K. Kinsella, J. Vieira	Section, Township, Range:					
	relief (concave, convex, none): None Slope %: 25					
Subregion (LRR or MLRA): LRR R Lat:	Long: Datum: NAD83					
Soil Map Unit Name:	NWI classification: UPL					
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 Hydrologysignificantly distur						
Are Vegetation, Soil, or Hydrology naturally problems						
SUMMARY OF FINDINGS – Attach site map showing sam						
Hydrophytic Vegetation Present? Yes No X	Is the Sampled Area					
Hydric Soil Present? Yes No X	within a Wetland? Yes No X					
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:					
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)					
Surface Water (A1) Water-Stained Leaves (I						
High Water Table (A2)  Aquatic Fauna (B13)  And Barracite (B45)	Moss Trim Lines (B16)					
Saturation (A3)  Marl Deposits (B15)  Headrange Outside Odes	Dry-Season Water Table (C2)					
Water Marks (B1)  — Hydrogen Sulfide Odor (						
Sediment Deposits (B2)  Oxidized Rhizospheres  Oxidized Rhizospheres						
Drift Deposits (B3) Presence of Reduced In						
Algal Mat or Crust (B4)  Recent Iron Reduction in  This Music Surface (C7)						
Iron Deposits (B5)  Thin Muck Surface (C7)  Other (Fxylain in Remove the Control of the Control						
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar	rks) Microtopographic Relief (D4) FAC-Neutral Test (D5)					
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)					
Field Observations:						
Surface Water Present? Yes No X Depth (inches):						
Water Table Present? Yes No X Depth (inches):						
Saturation Present? Yes No X Depth (inches):	:   Wetland Hydrology Present? Yes No _X					
(includes capillary fringe)						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:					
Remarks:						
Tremains.						

	Absolute	Dominant	Indicator	
Free Stratum (Plot size:)	% Cover	Species?	Status	Dominance Test worksheet:
. Quercus rubra	45	Yes	FACU	Number of Dominant Species
. Quercus alba	15	No	FACU	That Are OBL, FACW, or FAC: 2 (A)
Pinus strobus	10	No	FACU	Total Number of Dominant
. Acer rubrum	30	Yes	FAC	Species Across All Strata: 6 (B)
i				Percent of Dominant Species
S				That Are OBL, FACW, or FAC: 33.3% (A/B
·				Prevalence Index worksheet:
	100	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size:15)	)			OBL species0 x 1 =0
. Pinus strobus	30	Yes	FACU	FACW species 10 x 2 = 20
Vaccinium corymbosum	10	Yes	FACW	FAC species 35 x 3 = 105
3. Acer rubrum	5	No	FAC	FACU species105 x 4 =420
				UPL species 5 x 5 = 25
i				Column Totals: 155 (A) 570 (B
				Prevalence Index = B/A = 3.68
				Hydrophytic Vegetation Indicators:
	45	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
<u>lerb Stratum</u> (Plot size: 5 )				2 - Dominance Test is >50%
. Pinus strobus	5	Yes	FACU	3 - Prevalence Index is ≤3.0 <sup>1</sup>
2. Dennstaedtia punctilobula	5	Yes	UPL	4 - Morphological Adaptations <sup>1</sup> (Provide supportin
3.				data in Remarks or on a separate sheet)
4.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5.				<del>-</del>
3.				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
:				Definitions of Vegetation Strata:
i.	•			Too Manda planta 2 in /7 C and an mana in
<u> </u>				Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
0.				
1.				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
2.				, , ,
	10	=Total Cover		<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Voody Vine Stratum (Plot size: 30	· · · · · · · · · · · · · · · · · · ·			
	,			<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
·				noight.
				Hydrophytic
	-			Vegetation Present? Yes No X_
· -		=Total Cover		Tresent: resNo
		- Fotal Cover		

SOIL Sampling Point Up DW-476

		to the de	-			tor or co	onfirm the absence of	indicators.)
Depth	Matrix			x Featur		1 2	<b>+</b> .	Б
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-2	10YR 4/3	100						Fine sandy loam
2-18	10YR 5/4	100					Sandy	Some gravel
		-						
		-						
<sup>1</sup> Type: C=Ce	oncentration, D=Depl	etion, RN	/=Reduced Matrix, N	/IS=Mas	ked Sand	Grains.	<sup>2</sup> Location: PL	=Pore Lining, M=Matrix.
Hydric Soil			·					r Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)		Polyvalue Belo	w Surfa	ce (S8) ( <b>I</b>	RR R,	2 cm Muc	k (A10) ( <b>LRR K, L, MLRA 149B</b> )
Histic Ep	oipedon (A2)		MLRA 149B	)			Coast Pra	irie Redox (A16) ( <b>LRR K, L, R</b> )
	stic (A3)		Thin Dark Surf				<b>49B</b> )5 cm Muc	ky Peat or Peat (S3) ( <b>LRR K, L, R</b> )
	n Sulfide (A4)		High Chroma S			-		Below Surface (S8) (LRR K, L)
	Layers (A5)	(* 4 4)	Loamy Mucky			R K, L)		Surface (S9) (LRR K, L)
	Below Dark Surface	e (A11)	Loamy Gleyed		F2)			ganese Masses (F12) (LRR K, L, R)
	ark Surface (A12) lucky Mineral (S1)		Depleted Matri Redox Dark St		.e)			Floodplain Soils (F19) ( <b>MLRA 149B</b> ) odic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
	sleyed Matrix (S4)		Depleted Dark		-			nt Material (F21)
	ledox (S5)		Redox Depress					low Dark Surface (F22)
	Matrix (S6)		Marl (F10) ( <b>LR</b>		-,			plain in Remarks)
	rface (S7)			. ,				,
		ion and v	vetland hydrology mu	ust be pr	resent, ur	less dist	urbed or problematic.	
	_ayer (if observed):							
Type:	None within	20 inche	<u> </u>					
Depth (ii	nches):						Hydric Soil Present	? Yes No X
Remarks:								
Fill/ disturba	nce							

# Sudbury: Wetland 4

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Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/7/17					
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Wet CW-1					
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:					
	relief (concave, convex, none): Slight Concave Slope %: 0-1					
	Long: Datum:					
Soil Map Unit Name: Windosr Loamy Sand, 0-3% slopes	NWI classification: PSS					
Are climatic / hydrologic conditions on the site typical for this time of year?						
Are Vegetation, Soil, or Hydrology significantly distur						
Are Vegetation, Soil, or Hydrology naturally problems						
	npling point locations, transects, important features, etc.					
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes X No  Yes X No	Is the Sampled Area within a Wetland?  If yes, optional Wetland Site ID:					
Remarks: (Explain alternative procedures here or in a separate report.)	ii yes, optional wetiand Site ID.					
This wetland is a small depression that is approximately four to five feet lo historically present that provided a hydrologic connection to the wetland condentified and as such, it is no longer present/functioning.						
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)					
Surface Water (A1) X Water-Stained Leaves (						
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)					
Saturation (A3)Marl Deposits (B15)	Dry-Season Water Table (C2)					
Water Marks (B1) Hydrogen Sulfide Odor						
<del>-</del>	Saturation Visible on Aerial Imagery (C9)					
Drift Deposits (B3) Presence of Reduced Ir						
Algal Mat or Crust (B4) Recent Iron Reduction i						
Iron Deposits (B5) Thin Muck Surface (C7)						
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remai						
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)					
Field Observations:						
Surface Water Present? Yes No X Depth (inches)						
Water Table Present? Yes No X Depth (inches)						
Saturation Present? Yes No X Depth (inches)	: Wetland Hydrology Present? Yes X No					
(includes capillary fringe)						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections), if available:					
Remarks:						
1						

<b>VEGETATION</b> – Use scientific names of pl	ants.			Sampling Point: Wet CW-1
Tree Stratum (Plot size: 30 )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. Acer saccharum	35	Yes	FACU	Number of Dominant Species
2. Juglans nigra	20	Yes	FACU	That Are OBL, FACW, or FAC: 3 (A)
1				Total Number of Dominant Species Across All Strata: 5 (B)
				Species Across Air Strata.
5				Percent of Dominant Species
6	-			That Are OBL, FACW, or FAC: 60.0% (A/B)
7				Prevalence Index worksheet:
	55	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size:)				OBL species 0 x 1 = 0
1. Cornus amomum	15	Yes	FACW	FACW species 35 x 2 = 70
2. Frangula alnus	15	Yes	FAC	FAC species 15 x 3 = 45
3. Lonicera morrowii	1	No	FACU	FACU species 56 x 4 = 224
4.	-			UPL species 0 x 5 = 0
5.				Column Totals: 106 (A) 339 (B)
	·			Prevalence Index = B/A = 3.20
7				Hydrophytic Vegetation Indicators:
	31	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size:5				X 2 - Dominance Test is >50%
Onoclea sensibilis	20	Yes	FACW	3 - Prevalence Index is ≤3.0 <sup>1</sup>
2				4 - Morphological Adaptations (Provide supporting
3.				data in Remarks or on a separate sheet)
4				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5.				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
7.				Definitions of Vegetation Strata:
8.				
				<b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
· -				diameter at breast neight (DBH), regardless of height.
10.				Sapling/shrub – Woody plants less than 3 in. DBH
11				and greater than or equal to 3.28 ft (1 m) tall.
12				<b>Herb</b> – All herbaceous (non-woody) plants, regardless
	20	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:)				Woody vines – All woody vines greater than 3.28 ft in
1.				height.
2				
3.				Hydrophytic Vegetation
4.				Present? Yes X No
		=Total Cover		<del></del>
Demonstrate (Include whate mumbers have an expense				
Remarks: (Include photo numbers here or on a sepa	arate sneet.)			

SOIL Sampling Point Wet CW-1

		the de				ator or c	confirm the absence of indicators.)
Depth	Matrix	0/		Featur	- 1	1.22	Tartura
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type '	Loc <sup>2</sup>	Texture Remarks
0-4	10YR 2/2						Loamy/Clayey Fine sandy loam. Few fine roots.
4-14	10YR 4/2		10YR 4/4	5	С	М	Loamy/Clayey Fine sandy loam.
<sup>1</sup> Type: C=Co	ncentration, D=Deple	tion, RN	1=Reduced Matrix, M	IS=Masl	ked Sand	d Grains.	s. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soil II	ndicators:						Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol (	•		Polyvalue Belo		ce (S8) (	LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	pedon (A2)		MLRA 149B)				? Coast Prairie Redox (A16) (LRR K, L, R)
Black His			Thin Dark Surfa				
	Sulfide (A4)		High Chroma S	-		-	Polyvalue Below Surface (S8) (LRR K, L)
	Layers (A5)	(4.4.4)	Loamy Mucky I			R K, L)	Thin Dark Surface (S9) (LRR K, L)
	Below Dark Surface	(A11)	Loamy Gleyed		F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	k Surface (A12)		Depleted Matrix		0)		Piedmont Floodplain Soils (F19) (MLRA 149B)
	ucky Mineral (S1)		Redox Dark Su				Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	eyed Matrix (S4)		Depleted Dark				Red Parent Material (F21)
Sandy Re			X Redox Depress		P)		Very Shallow Dark Surface (F22)
	Matrix (S6)		Marl (F10) ( <b>LR</b> l	K K, L)			Other (Explain in Remarks)
Dark Surf	ace (S7)						
<sup>3</sup> Indicators of	hydrophytic vegetatic	n and w	etland hydrology mu	ıst be pr	esent, ui	nless dis	sturbed or problematic.
	ayer (if observed):						
Type:							
Depth (in	ches):						Hydric Soil Present? Yes X No
Remarks:							
	n is revised from Nort 2015 Errata. (http://wv						n 2.0 to include the NRCS Field Indicators of Hydric Soils,
version 7.0, 2	2015 Effata. (fittp://wv	w.mcs.	usua.gov/internet/F3	SE_DOC	OIVIENT	S/111CS 14	42p2_051293.docx)

Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/7/17					
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Up CW-1					
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:					
·	relief (concave, convex, none): Slope %:					
· · · · · · · · · · · · · · · · · · ·	Long: Datum:					
Soil Map Unit Name: Windsor Loamy Sand, 3-8% slopes	NWI classification: UPL					
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 distur	<del></del>					
Are Vegetation, Soil, or Hydrologynaturally problems						
SUMMARY OF FINDINGS – Attach site map showing sam						
Hydrophytic Vegetation Present?         Yes X         No           Hydric Soil Present?         Yes No X           Wetland Hydrology Present?         Yes No X	Is the Sampled Area within a Wetland? Yes No X If yes, optional Wetland Site ID:					
Remarks: (Explain alternative procedures here or in a separate report.) Although the vegetation met the hydrophytic vegetation criteria, there were not meet wetland criteria.	e no signs of hydrology and the soils were not hydric. Therefore, this plot did					
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)					
Surface Water (A1) Water-Stained Leaves (						
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)					
Saturation (A3)Marl Deposits (B15)	Dry-Season Water Table (C2)					
Water Marks (B1)  Hydrogen Sulfide Odor (						
Sediment Deposits (B2)  Oxidized Rhizospheres						
Drift Deposits (B3) Presence of Reduced In	<u> </u>					
<del></del>	n in Tilled Soils (C6) Geomorphic Position (D2)					
Iron Deposits (B5)Thin Muck Surface (C7)	· · · · · · · · · · · · · · · · · · ·					
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar						
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)					
Field Observations:						
Surface Water Present? Yes No Depth (inches):						
Water Table Present? Yes X No Depth (inches):						
Saturation Present? Yes No Depth (inches):	: Wetland Hydrology Present? Yes No _X					
(includes capillary fringe)						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:					
Domesto						
Remarks:						

<u>Free Stratum</u> (Plot size: 30 )	Absolute	Dominant	Indicator	
( ist size:)	% Cover	Species?	Status	Dominance Test worksheet:
Acer rubrum	40	Yes	FAC	Number of Dominant Species
Prunus serotina	25	Yes	FACU	That Are OBL, FACW, or FAC:3 (A)
i				Total Number of Dominant
·	-			Species Across All Strata: 4 (B)
i				Percent of Dominant Species
i				That Are OBL, FACW, or FAC: 75.0% (A/B)
				Prevalence Index worksheet:
	65	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15		•		OBL species 0 x 1 = 0
. Frangula alnus	40	Yes	FAC	FACW species 5 x 2 = 10
. Lonicera morrowii	5	No	FACU	FAC species 126 x 3 = 378
Rhamnus cathartica	5	No	FAC	FACU species 30 x 4 = 120
- Iviannus cananica		110	170	UPL species 10 x 5 = 50
·				<u> </u>
). 				Prevalence Index = B/A = 3.26
· -				Hydrophytic Vegetation Indicators:
	50	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5 )				X 2 - Dominance Test is >50%
. Frangula alnus	35	Yes	FAC	3 - Prevalence Index is ≤3.0 <sup>1</sup>
Celastrus orbiculatus	10	<u>No</u>	UPL	4 - Morphological Adaptations¹ (Provide supportin
Rhamnus cathartica	5	No	FAC	data in Remarks or on a separate sheet)
Thelypteris palustris	5	No	FACW	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. Solidago rugosa	1	No	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
S				be present, unless disturbed or problematic.
7				Definitions of Vegetation Strata:
3				Tree – Woody plants 3 in. (7.6 cm) or more in
).				diameter at breast height (DBH), regardless of height.
0.				Sanling/shrub Woody plants loss than 2 in DPH
1.				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
2.				
	56	=Total Cover		<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Voody Vine Stratum (Plot size:		' Total Gover		
(. 151 5.25)				<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
				noight.
				Hydrophytic
2.				
2		·		Vegetation
2.		=Total Cover		

SOIL Sampling Point Up CW-1

	ription: (Describe t	to the dep				ator or c	onfirm the absence	e of indicators.)		
Depth (inches)	Color (moist)	%	Color (moist)	x Featur %	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
0-3	10YR 2/2		( /				Loamy/Clayey	Fine sandy loam. Many fine roots.		
3-9	10YR 3/3						Loamy/Clayey	Fine sandy loam. Few med roots. Abrupt boundary		
9-13	10YR 5/8		7.5YR 5/6	2	С	M	Loamy/Clayey	Fine sandy loam		
13-17	2.5Y 5/6		2.5Y 5/4	5	D	M	Loamy/Clayey	Fine Sandy loam		
17-21	2.5Y 5/3		2.5Y 5/6	5	С	<u>M</u>	Loamy/Clayey	Loamy fine sand		
			2.5Y 6/2	2	D	M				
			7.5YR 4/4	2	С	<u>M</u>				
								-		
								-		
	ncentration, D=Depl	etion, RM	=Reduced Matrix, M	/IS=Mas	ked Sand	d Grains.		PL=Pore Lining, M=Matrix.		
Hydric Soil I			Daharaha Dah	Of-	(00) (			s for Problematic Hydric Soils <sup>3</sup> :		
Histosol (	,		Polyvalue Belo		ce (58) (I	LKK K,		Muck (A10) (LRR K, L, MLRA 149B)		
	ipedon (A2)		MLRA 149B	,	\	MIDA		Prairie Redox (A16) (LRR K, L, R)		
Black His		•	Thin Dark Surfa					Mucky Peat or Peat (S3) (LRR K, L, R)		
	Sulfide (A4)		High Chroma S	-		-		alue Below Surface (S8) (LRR K, L)		
	Layers (A5)		Loamy Mucky I			R K, L)		Dark Surface (S9) ( <b>LRR K, L</b> )		
	Below Dark Surface	(A11)	Loamy Gleyed	Matrix (	F2)			Manganese Masses (F12) ( <b>LRR K, L, R</b> )		
	rk Surface (A12)		Depleted Matrix				Piedm	nont Floodplain Soils (F19) ( <b>MLRA 149B</b> )		
Sandy M	ucky Mineral (S1)		Redox Dark Su	ırface (F	6)		Mesic	Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> )		
Sandy GI	eyed Matrix (S4)		Depleted Dark	Surface	(F7)		Red P	Parent Material (F21)		
Sandy Re	edox (S5)		Redox Depress	sions (F	8)		Very Shallow Dark Surface (F22)			
Stripped	Stripped Matrix (S6) Marl (F10) (LRR K, L)						Other (Explain in Remarks)			
Dark Sur	face (S7)									
<sup>3</sup> Indicators of	hydrophytic vegetat	ion and we	etland hydrology mu	ıst be pı	resent, ur	nless dist	turbed or problemati	c.		
Restrictive L Type:	.ayer (if observed):									
Depth (in	ches):						Hydric Soil Pres	sent? Yes No X		
Remarks:	· -						<u> </u>			
								IRCS Field Indicators of Hydric Soils,		
Version 7.0, 2	2015 Errata. (http://w	ww.nrcs.u	sda.gov/Internet/F	SE_DOO	CUMENT	S/nrcs14	2p2_051293.docx)			

# **Sudbury: Wetland 12**

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Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/8/17					
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Wet CW-14					
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:					
Landform (hillside, terrace, etc.): Terrace Local	relief (concave, convex, none): Slope %: 2					
Subregion (LRR or MLRA): LRR R Lat:	Long: Datum: NAD83					
Soil Map Unit Name: Scarboro Mucky Fine Sandy Loam, 0-3% slopes	NWI classification: PFO					
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 distur						
Are Vegetation, Soil, or Hydrologynaturally problems						
SUMMARY OF FINDINGS – Attach site map showing sam						
Hadron latin Variation Brancost 2	Latha Commission Area					
Hydrophytic Vegetation Present?  Hydric Soil Present?  Yes X No Yes X No	Is the Sampled Area within a Wetland? Yes X No					
Wetland Hydrology Present?  Yes X No	If yes, optional Wetland Site ID:					
Remarks: (Explain alternative procedures here or in a separate report.)						
Remarks. (Explain alternative procedures here of in a separate report.)						
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)					
Surface Water (A1) Water-Stained Leaves (	· · ·					
X High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)					
X Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)					
Water Marks (B1) Hydrogen Sulfide Odor (						
Sediment Deposits (B2)  Oxidized Rhizospheres	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)					
Drift Deposits (B3) Presence of Reduced In	ron (C4) Stunted or Stressed Plants (D1)					
Algal Mat or Crust (B4)Recent Iron Reduction in	n in Tilled Soils (C6) X Geomorphic Position (D2)					
Iron Deposits (B5) Thin Muck Surface (C7)	,					
Inundation Visible on Aerial Imagery (B7)Other (Explain in Remar						
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)					
Field Observations:						
Surface Water Present? Yes No X Depth (inches):						
Water Table Present? Yes X No Depth (inches):						
Saturation Present? Yes X No Depth (inches):	:3 Wetland Hydrology Present? Yes X No					
(includes capillary fringe)						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	avious inspections), if available:					
Remarks:						
Nemarks.						

	Absolute	Dominant	Indicator	
<u>Tree Stratum</u> (Plot size:)	% Cover	Species?	Status	Dominance Test worksheet:
1. Acer rubrum	40	Yes	FAC	Number of Dominant Species
2. Pinus strobus	10	No	FACU	That Are OBL, FACW, or FAC:5 (A)
3. Quercus rubra	10	No	FACU	Total Number of Dominant
4.				Species Across All Strata: 5 (B)
5.				
0				Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)
<u> </u>				Prevalence Index worksheet:
7		<del></del>		
	60	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size:15)				OBL species65 x 1 =65
1. Frangula alnus	50	Yes	FAC	FACW species 35 x 2 = 70
2. Vaccinium corymbosum	10	No	FACW	FAC species 95 x 3 = 285
3. Ilex verticillata	5	No	FACW	FACU species 20 x 4 = 80
4. Quercus bicolor	5	No	FACW	UPL species0 x 5 =0
5.				Column Totals: 215 (A) 500 (B)
6.				Prevalence Index = B/A = 2.33
7				Hydrophytic Vegetation Indicators:
1.	70	=Total Cover		
Harb Chatture (Distaine)		- Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5 )				X 2 - Dominance Test is >50%
Osmunda spectabilis	40	Yes	OBL	X 3 - Prevalence Index is ≤3.0¹
2. Thelypteris palustris	15	Yes	FACW	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
3. Leersia oryzoides	15	Yes	OBL	data in Remarks or on a separate sheet)
4. Symplocarpus foetidus	5	No	OBL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. Frangula alnus	5	No	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology must
6. Typha latifolia	5	No	OBL	be present, unless disturbed or problematic.
7.				Definitions of Vegetation Strata:
8.				
0				<b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
10.				
·				Sapling/shrub – Woody plants less than 3 in. DBH
11				and greater than or equal to 3.28 ft (1 m) tall.
12				<b>Herb</b> – All herbaceous (non-woody) plants, regardless
	85	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:)				Woody vines – All woody vines greater than 3.28 ft in
1				height.
2.				
3				Hydrophytic Vegetation
4.				Present? Yes X No
		=Total Cover		
Remarks: (Include photo numbers here or on a separ	ate sheet )			
Tromand. (molade priote nambers fiere of on a separ	ato oricot.)			

Sampling Point: Wet CW-14

SOIL Sampling Point Wet CW-14

	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (in all as)	Matrix	0/		x Feature	-	1 2	Tardina	Damanka	
(inches)	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type '	Loc <sup>2</sup>	Texture	Remarks	
0-15	10YR 2/1						Muck		
15-18	10YR 2/1						Mucky Loam/Clay	Mucky sandy loam	
								_	
	_								
	_								
<sup>1</sup> Type: C=Cor	ocentration D=Denle	tion RM	/=Reduced Matrix, M	MS=Mas	ked Sand	d Grains	<sup>2</sup> I ocation: PI	.=Pore Lining, M=Matrix.	
Hydric Soil In		tion, raiv	-reduced Matrix, M	- Wasi	ica Garic	ı Oranis.		r Problematic Hydric Soils <sup>3</sup> :	
Histosol (A			Polyvalue Belov	w Surfa	ce (S8) (	LRR R.		ck (A10) (LRR K, L, MLRA 149B)	
X Histic Epip			MLRA 149B)		( - / (	,		airie Redox (A16) (LRR K, L, R)	
X Black Hist			Thin Dark Surfa	•	(LRR R	, MLRA		cky Peat or Peat (S3) (LRR K, L, R)	
Hydrogen	Sulfide (A4)		High Chroma S					Below Surface (S8) (LRR K, L)	
Stratified I	_ayers (A5)		Loamy Mucky N	Mineral /	(F1) ( <b>LRI</b>	R K, L)	Thin Dark	Surface (S9) (LRR K, L)	
Depleted I	Below Dark Surface (	(A11)	Loamy Gleyed I	Matrix (	F2)		Iron-Mang	ganese Masses (F12) (LRR K, L, R)	
Thick Darl	k Surface (A12)		Depleted Matrix	۲ (F3)			Piedmont	Floodplain Soils (F19) (MLRA 149B)	
	cky Mineral (S1)		Redox Dark Su	rface (F	6)		Mesic Spo	odic (TA6) ( <b>MLRA 144A, 145, 149B</b> )	
	eyed Matrix (S4)		Depleted Dark S					nt Material (F21)	
Sandy Re			Redox Depress		3)			llow Dark Surface (F22)	
Stripped N			Marl (F10) ( <b>LRF</b>	₹ K, L)			Other (Ex	plain in Remarks)	
Dark Surfa	ace (S7)								
<sup>3</sup> Indicators of I	avdronhytic vegetatio	n and w	vetland hydrology mu	ist he nr	resent III	nleee die	turbed or problematic.		
	yer (if observed):	iii aiiu w	etiana nyarology ma	st be pr	esent, ui	iless dis	turbed of problematic.		
Type:	iyer (ii obber ved).								
Depth (inc	hes):						Hydric Soil Present	t? Yes X No	
Remarks:							1 -		
	is revised from Nort	hcentral	and Northeast Regi	onal Su	pplemen	t Versior	2.0 to include the NRC	S Field Indicators of Hydric Soils,	
Version 7.0, 2	015 Errata. (http://ww	w.nrcs.	usda.gov/Internet/FS	3E_DOC	CUMENT	S/nrcs14	12p2_051293.docx)	·	

Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/8/17
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Up CW-14
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Slope %:
Subregion (LRR or MLRA): LRR R Lat:	Long: Datum:
Soil Map Unit Name: Hinkley Loamy Sand, 8-15% slopes	NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation , Soil , or Hydrology significantly distur	
<del></del>	
Are Vegetation, Soil, or Hydrologynaturally problems	
SUMMARY OF FINDINGS – Attach site map showing sam	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes No X	within a Wetland? Yes No X
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
LIVEROLOGY	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1) Water-Stained Leaves (	(B9) Surface Soil Cracks (B6) Drainage Patterns (B10)
High Water Table (A2)  Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3)  Advantage (A2)  Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1)  Water Marks (B1)  Hydrogen Sulfide Odor	
Sediment Deposits (B2)  Oxidized Rhizospheres	
Drift Deposits (B3)  Presence of Reduced Ir	
Algal Mat or Crust (B4)  Recent Iron Reduction is	
Iron Deposits (B5)  Thin Muck Surface (C7)	
Inundation Visible on Aerial Imagery (B7)  Other (Explain in Remai	• • • • • • • • • • • • • • • • • • • •
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	<del>_</del>
Surface Water Present? Yes No Depth (inches)	:
Water Table Present? Yes No Depth (inches)	
Saturation Present? Yes No Depth (inches)	: Wetland Hydrology Present? Yes No X
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

<u> </u>	Absolute	Dominant	Indicator	
<u>Tree Stratum</u> (Plot size:30)	% Cover	Species?	Status	Dominance Test worksheet:
1. Acer rubrum	40	Yes	FAC	Number of Dominant Species
2. Pinus strobus	30	Yes	FACU	That Are OBL, FACW, or FAC:4 (A)
3. Quercus rubra	25	Yes	FACU	Total Number of Dominant
4.	-	· .		Species Across All Strata: 6 (B)
5.				Percent of Dominant Species
6.		· <u></u>		That Are OBL, FACW, or FAC: 66.7% (A/B)
7.				Prevalence Index worksheet:
	95	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15	)	•		OBL species 0 x 1 = 0
1. Frangula alnus	10	Yes	FAC	FACW species 10 x 2 = 20
Vaccinium corymbosum	10	Yes	FACW	FAC species 67 x 3 = 201
Betula populifolia	1	No	FAC	FACU species 65 x 4 = 260
4.	·			UPL species $0 \times 5 = 0$
5.		·		Column Totals: 142 (A) 481 (B)
6				Prevalence Index = B/A = 3.39
7				
7		-Tatal Cavan		Hydrophytic Vegetation Indicators:
Hark Christian (Blat sine)	21	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5 )			<b>5.0</b>	X 2 - Dominance Test is >50%
1. Frangula alnus	15	Yes	FAC	3 - Prevalence Index is ≤3.0¹
2. Quercus rubra	5	<u>No</u>	FACU	<ul> <li>4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</li> </ul>
3. Pinus strobus	5	No	FACU	
4. Toxicodendron radicans	1	No	FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5	-			<sup>1</sup> Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.
7				Definitions of Vegetation Strata:
8	_			Tree – Woody plants 3 in. (7.6 cm) or more in
9	_			diameter at breast height (DBH), regardless of height.
10				Sapling/shrub – Woody plants less than 3 in. DBH
11				and greater than or equal to 3.28 ft (1 m) tall.
12				Herb – All herbaceous (non-woody) plants, regardless
	26	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:	)			Woody vines – All woody vines greater than 3.28 ft in
1				height.
2				
3				Hydrophytic Vegetation
4.		· .		Present? Yes X No
	-	=Total Cover		
Remarks: (Include photo numbers here or on a sep	parate sheet.)	1		
Tremains. (include proto numbers here of on a sep	Jarate Sheet.)			

SOIL Sampling Point Up CW-14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth	Matrix			Featur	- 1	. 2	
(inches)	Color (moist)	%	Color (moist)	%	Type '	Loc <sup>2</sup>	Texture Remarks
0-7	10YR 2/2						Loamy/Clayey Sandy loam. Many fine roots.
7-9	10YR 3/3						Loamy/Clayey Sandy loam. Many fine roots.
9-16	10YR 4/4						Loamy/Clayey Sandy loam. Common coarse roots.
							·
1Turner C=Cox	 ncentration, D=Deple	tion DM	I-Doduced Metrix N		Lod Con	Crains	. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soil Ir		uon, Kiv	i-Reduced Matrix, iv	IS-IVIASI	keu Sand	i Grains.	Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol (			Polyvalue Belo	w Surfac	ce (S8) (	RRR	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	pedon (A2)		MLRA 149B)		Je (30) (I	LIXIX IX,	Coast Prairie Redox (A16) (LRR K, L, R)
Black His			Thin Dark Surfa		(I RR R	MIRA	
	Sulfide (A4)		High Chroma S		-		Polyvalue Below Surface (S8) (LRR K, L)
	Layers (A5)		Loamy Mucky I	-		-	Thin Dark Surface (S9) (LRR K, L)
	Below Dark Surface	(Δ11)	Loamy Gleyed			· · · · · · · · · · · · · · · · · · ·	Iron-Manganese Masses (F12) (LRR K, L, R)
	k Surface (A12)	(/////	Depleted Matrix		<i>( ( )</i>		Piedmont Floodplain Soils (F19) (MLRA 149B)
	icky Mineral (S1)		Redox Dark Su		6)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	eyed Matrix (S4)		Depleted Dark		-		Red Parent Material (F21)
Sandy Re							Very Shallow Dark Surface (F22)
	` '		Redox Depress		o)		
	Matrix (S6)		Marl (F10) ( <b>LR</b> l	K K, L)			Other (Explain in Remarks)
Dark Surf	ace (S7)						
		n and w	etland hydrology mu	st be pr	esent, ui	nless dis	sturbed or problematic.
Restrictive La	ayer (if observed):						
Depth (inc	ches):						Hydric Soil Present? Yes No X
Remarks:	-						
This data form	is revised from Nort	hcentral	and Northeast Regi	onal Su	pplemen	t Version	n 2.0 to include the NRCS Field Indicators of Hydric Soils,
Version 7.0, 2	015 Errata. (http://wv	vw.nrcs.	usda.gov/Internet/FS	SE_DOC	UMENT	S/nrcs14	42p2_051293.docx)

# **Sudbury: Wetland 13**

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Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/8/17					
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Wet DW-79					
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:					
- ' ' '	I relief (concave, convex, none): Slope %:					
Subregion (LRR or MLRA): LRR R Lat:	Long: Datum:					
Soil Map Unit Name: Hollis-Rock Outcrop-Charlton Complex, 15-25% slop	<u></u>					
Are climatic / hydrologic conditions on the site typical for this time of year?						
Are Vegetation, Soil, or Hydrology significantly distur	<del></del>					
Are Vegetation, Soil, or Hydrology naturally problem						
<del></del>	npling point locations, transects, important features, etc.					
Hydrophytic Vegetation Present?         Yes X         No           Hydric Soil Present?         Yes X         No           Wetland Hydrology Present?         Yes X         No	Is the Sampled Area within a Wetland?  Yes X No If yes, optional Wetland Site ID:					
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)					
Surface Water (A1) X Water-Stained Leaves (						
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)					
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)					
Water Marks (B1) Hydrogen Sulfide Odor						
X Sediment Deposits (B2) Oxidized Rhizospheres						
Drift Deposits (B3) Presence of Reduced Ir						
Algal Mat or Crust (B4)  Recent Iron Reduction i						
Iron Deposits (B5)  Thin Muck Surface (C7)  Other (Explaining Research	,					
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rema						
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)					
Field Observations:						
Surface Water Present? Yes No X Depth (inches)						
Water Table Present? Yes No X Depth (inches) Saturation Present? Yes No X Depth (inches)						
Saturation Present? Yes No X Depth (inches) (includes capillary fringe)	): Wetland Hydrology Present? Yes X No					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr						
Bosonibe recorded Bala (stream gauge, mormoring won, derial priotes, pr	evicus inspections), il available.					
Remarks:						
Nemara.						

Tree Otrations (Districts 200	Absolute	Dominant	Indicator	Barriana Tarturadahari
Tree Stratum (Plot size: 30 )	% Cover	Species?	Status	Dominance Test worksheet:
1. Acer rubrum	60	Yes	FAC	Number of Dominant Species
2. Betula populifolia	10	<u>No</u>	FAC	That Are OBL, FACW, or FAC:4 (A)
<ul><li>3. Juglans nigra</li><li>4.</li></ul>	10	No	FACU	Total Number of Dominant Species Across All Strata: 4 (B)
<ul><li>5.</li><li>6.</li></ul>				Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)
7.				Prevalence Index worksheet:
	80	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15 )		•		OBL species 15 x 1 = 15
Vaccinium corymbosum	10	Yes	FACW	FACW species 10 x 2 = 20
Betula populifolia	10	Yes	FAC	FAC species 80 x 3 = 240
3.				FACU species 10 x 4 = 40
4.				UPL species 0 x 5 = 0
5.				Column Totals: 115 (A) 315 (B)
6				Prevalence Index = B/A = 2.74
7.				Hydrophytic Vegetation Indicators:
	20	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5 )		•		X 2 - Dominance Test is >50%
1. Osmunda regalis	15	Yes	OBL	X 3 - Prevalence Index is ≤3.0 <sup>1</sup>
2.				4 - Morphological Adaptations <sup>1</sup> (Provide supporting
3.				data in Remarks or on a separate sheet)
4				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5.				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
6.				be present, unless disturbed or problematic.
7.				Definitions of Vegetation Strata:
8.				Tree – Woody plants 3 in. (7.6 cm) or more in
9.				diameter at breast height (DBH), regardless of height.
11.				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
12				Herb – All herbaceous (non-woody) plants, regardless
	15	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:) 1				Woody vines – All woody vines greater than 3.28 ft in height.
				g.m
2				Hydrophytic
4.				Vegetation   Present?   Yes X No
··		=Total Cover		100 <u>X</u> 100 <u>—</u>
Remarks: (Include photo numbers here or on a separ The wetland indicator status for Osmunda regalis was indicator status on the NRCS Plants Database websit	taken from	•	Wild Flower S	Society's Go Botany website because it did not have an

Sampling Point: Wet DW-79

SOIL Sampling Point Wet DW-79

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth	Matrix	0/		Featur	- 1	12	To down
(inches) 0-7	Color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type'	Loc <sup>2</sup>	Texture Remarks
	10YR 2/1		7.5YR 4/4	10	<u> </u>	PL	Loamy/Clayey Sandy loam
7-9	5Y 5/3		7.5YR 4/6	10	<u>C</u>	<u>M</u>	Loamy/Clayey Loam
9-13	2.5Y 5/2		7.5YR 4/4	5	<u>C</u>	PL/M	Loamy/Clayey Silt loam
13-17	2.5Y 2.5/1		7.5YR 4/4	10	<u>C</u>	<u>PL</u>	Loamy/Clayey Loam
	ncentration, D=Deple	etion, RM	=Reduced Matrix, M	IS=Masl	ked Sand	d Grains.	
Hydric Soil I					(00) (		Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol (			Polyvalue Belov		ce (S8) (I	LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
	ipedon (A2)		MLRA 149B)		/LDD D	MIDA	? Coast Prairie Redox (A16) (LRR K, L, R)
Black His	มเต (A3) า Sulfide (A4)		Thin Dark Surfa High Chroma S				149B) 5 cm Mucky Peat or Peat (S3) (LRR K, L, R) Polyvalue Below Surface (S8) (LRR K, L)
	Layers (A5)		Loamy Mucky N			-	Thin Dark Surface (S9) (LRR K, L)
	Below Dark Surface	(Δ11)	Loamy Gleyed			K K, L)	Iron-Manganese Masses (F12) (LRR K, L, R)
	rk Surface (A12)	(\(\alpha\)	Depleted Matrix	-	۷)		Piedmont Floodplain Soils (F19) (MLRA 149B)
	ucky Mineral (S1)		X Redox Dark Su		6)		Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
	leyed Matrix (S4)		Depleted Dark	•	,		Red Parent Material (F21)
Sandy Re			Redox Depress				Very Shallow Dark Surface (F22)
	Matrix (S6)		Marl (F10) (LRI	•	,,		Other (Explain in Remarks)
Dark Sur			Warr (i 10) (ER	ι <b>τ ιτ, ∟</b> )			Other (Explain in Remarks)
Baik Gui	iace (Gr)						
		on and w	etland hydrology mu	ıst be pr	esent, ur	nless dis	sturbed or problematic.
Type:	.ayer (if observed):						
Depth (in	ches):						Hydric Soil Present? Yes X No
Remarks:	<u> </u>						<del></del>
							n 2.0 to include the NRCS Field Indicators of Hydric Soils,
Version 7.0, 2	2015 Errata. (http://w	ww.nrcs.	usda.gov/Internet/FS	SE_DOC	UMENT	S/nrcs14	42p2_051293.docx)

Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/8/17
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Up DW-79
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:
Landform (hillside, terrace, etc.): Hillslope Local	relief (concave, convex, none): None Slope %: 5-10
Subregion (LRR or MLRA): LRR R Lat:	Long: Datum: NAD83
Soil Map Unit Name: Hollis-Rock Outcrop-Charlton Complex, 15-25% slop	
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 distur	
Are Vegetation, Soil, or Hydrology naturally problems	<del></del>
SUMMARY OF FINDINGS – Attach site map showing sam	
Hydrophytic Vogetation Present?	Is the Sampled Area
Hydrophytic Vegetation Present?  Hydric Soil Present?  Yes No X  Yes No X	Is the Sampled Area within a Wetland? Yes No _X_
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (	<u> </u>
High Water Table (A2)  Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor (	(C1) Crayfish Burrows (C8)
Sediment Deposits (B2)  Oxidized Rhizospheres	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced In	ron (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction in	n Tilled Soils (C6) Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remar	rks) Microtopographic Relief (D4)
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No Depth (inches):	: <u></u>
Saturation Present? Yes No Depth (inches):	: Wetland Hydrology Present? Yes No _X
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:
Remarks:	

<b>VEGETATION</b> – Use scientific names of plants	ants.			Sampling Point: Up DW-79
Tree Stratum (Plot size: 30 )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. Quercus rubra	30	Yes	FACU	Number of Dominant Species
2. Acer saccharinum	25	Yes	FACW	That Are OBL, FACW, or FAC:3 (A)
3. Acer rubrum	40	Yes	FAC	Total Number of Dominant
4.				Species Across All Strata: 8 (B)
5				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 37.5% (A/B)
7				Prevalence Index worksheet:
	95	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15 )				OBL species0 x 1 =0
1. Pinus strobus	5	Yes	FACU	FACW species 25 x 2 = 50
2. Prunus serotina	5	Yes	FACU	FAC species 45 x 3 = 135
3. Frangula alnus	5	Yes	FAC	FACU species 45 x 4 = 180
4				UPL species 10 x 5 = 50
5.				Column Totals: 125 (A) 415 (B)
6.				Prevalence Index = B/A = 3.32
7				Hydrophytic Vegetation Indicators:
	15	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5 )				2 - Dominance Test is >50%
1. Celastrus orbiculatus	10	Yes	UPL	3 - Prevalence Index is ≤3.0 <sup>1</sup>
2. Quercus rubra	5	Yes	FACU	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
3.				
4				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5.				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
6.				be present, unless disturbed or problematic.
7.		·		Definitions of Vegetation Strata:
8.				Tree – Woody plants 3 in. (7.6 cm) or more in
9		·		diameter at breast height (DBH), regardless of height.
11				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
12	15	=Total Cover		<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: )		,		
1.				<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.
2.				
3.				Hydrophytic
4.	-			Vegetation Present? Yes No X
		=Total Cover		
Remarks: (Include photo numbers here or on a sepa	arate sheet )	•		
	,			

SOIL Sampling Point Up DW-79

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth Matrix		Feature	- 1	. 2			
(inches) Color (moist) %	Color (moist)	%	Type '	Loc <sup>2</sup>	Texture Remarks		
0-6 10YR 2/2					Loamy/Clayey Fine sandy loam		
6-9 10YR 3/3					Loamy/Clayey Fine sandy loam		
9-15 10YR 4/4					Loamy/Clayey Fine sandy loam		
17 O Community of D. Dominity of D.	M. Dadas ad Matrice Mi				21 and the Discount of the Marketine		
<sup>1</sup> Type: C=Concentration, D=Depletion, RI	VI=Reduced Matrix, M	S=Mask	ed Sand	Grains.			
Hydric Soil Indicators: Histosol (A1)	Polyvalue Below	v Surfac	o (SS) (I	I DD D	Indicators for Problematic Hydric Soils <sup>3</sup> : 2 cm Muck (A10) (LRR K, L, MLRA 149B)		
Histic Epipedon (A2)	MLRA 149B)	v Suriac	e (36) (I	LKK K,	Coast Prairie Redox (A16) (LRR K, L, MLRA 149B)		
Black Histic (A3)	Thin Dark Surfa	ce (SQ)	(I RR R	MIRA.			
Hydrogen Sulfide (A4)	High Chroma Sa				Polyvalue Below Surface (S8) (LRR K, L)		
Stratified Layers (A5)	Loamy Mucky M	-		-	Thin Dark Surface (S9) (LRR K, L)		
Depleted Below Dark Surface (A11)	Loamy Gleyed N			Χ <b>Κ</b> , <b>L</b> )	Iron-Manganese Masses (F12) (LRR K, L, R)		
			2)				
Thick Dark Surface (A12)	Depleted Matrix		2)		Piedmont Floodplain Soils (F19) (MLRA 149B)		
Sandy Mucky Mineral (S1)	Redox Dark Sur				Mesic Spodic (TA6) (MLRA 144A, 145, 149B)		
Sandy Gleyed Matrix (S4)	Depleted Dark S				Red Parent Material (F21)		
Sandy Redox (S5)	Redox Depressi		)		Very Shallow Dark Surface (F22)		
Stripped Matrix (S6)	Marl (F10) ( <b>LRR</b>	R K, L)			Other (Explain in Remarks)		
Dark Surface (S7)							
<sup>3</sup> Indicators of hydrophytic vegetation and v	wetland hydrology mus	st be pre	esent, ur	nless dis	sturbed or problematic.		
Restrictive Layer (if observed):							
Type:							
Depth (inches):	<u> </u>				Hydric Soil Present? Yes No _X		
Remarks:	al and Northaget Pagic	anal Cun	nlomon	t Varaian	n 2.0 to include the NRCS Field Indicators of Hydric Soils,		
Version 7.0, 2015 Errata. (http://www.nrcs							
version 7.0, 2015 Errata. (http://www.nics	.usua.gov/internet/1 of	L_DOC	OWILINI	0/11/03 14	+2β2_031233.d00λ)		

# **Sudbury: Wetland 14**

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Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/8/17						
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Wet DW-92						
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:						
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Slope %:						
Subregion (LRR or MLRA): LRR R Lat:	Long: Datum: NAD83						
Soil Map Unit Name: Scarboro Mucky Fine Sandy Loam, 0-3% slopes	NWI classification: PEM						
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 distur							
Are Vegetation, Soil, or Hydrology naturally problems	<del></del> -						
SUMMARY OF FINDINGS – Attach site map showing sam							
Hydrophytic Vegetation Present? Veg. V. No.	Is the Sampled Area						
Hydrophytic Vegetation Present?  Hydric Soil Present?  Yes X No Yes X No	Is the Sampled Area within a Wetland? Yes X No						
Wetland Hydrology Present?  Yes X No	If yes, optional Wetland Site ID:						
Remarks: (Explain alternative procedures here or in a separate report.)							
HYDROLOGY							
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)						
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)						
X Surface Water (A1) Water-Stained Leaves (	(B9) Drainage Patterns (B10)						
X High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)						
X Saturation (A3)Marl Deposits (B15)	Dry-Season Water Table (C2)						
Water Marks (B1) Hydrogen Sulfide Odor (							
Sediment Deposits (B2)  Drift Deposits (B3)  Oxidized Rhizospheres  Presence of Reduced In							
Drift Deposits (B3) Presence of Reduced In Algal Mat or Crust (B4) Recent Iron Reduction in							
Iron Deposits (B5)  Thin Muck Surface (C7)							
Inundation Visible on Aerial Imagery (B7)  Other (Explain in Remark)	• • • • • • • • • • • • • • • • • • • •						
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)						
Field Observations:	<del></del>						
Surface Water Present? Yes X No Depth (inches):	: 3						
Water Table Present? Yes X No Depth (inches):	: 0						
Saturation Present? Yes X No Depth (inches):	: 0 Wetland Hydrology Present? Yes X No						
(includes capillary fringe)							
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections), if available:						
Remarks:							
Tromano.							

Absolute	Dominant	Indicator				
% Cover	Species?	Status	Dominance Test worksheet:			
			Number of Dominant Species			
			That Are OBL, FACW, or FAC: 3 (A)			
· ·						
			Total Number of Dominant Species Across All Strata: 3 (B)			
·						
·			Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)			
			Prevalence Index worksheet:			
	-Total Cover					
	= rotai Covei		Total % Cover of: Multiply by:			
_			OBL species 90 x 1 = 90			
5	Yes	FAC	FACW species 0 x 2 = 0			
			FAC species10 x 3 =30			
			FACU species 0 x 4 = 0			
			UPL species 0 x 5 = 0			
			Column Totals: 100 (A) 120 (B)			
			Prevalence Index = B/A = 1.20			
			Hydrophytic Vegetation Indicators:			
	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation			
			X 2 - Dominance Test is >50%			
50	Yes	OBI	X 3 - Prevalence Index is ≤3.0 <sup>1</sup>			
			4 - Morphological Adaptations <sup>1</sup> (Provide supportin data in Remarks or on a separate sheet)			
5	INO	FAC	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)			
			<sup>1</sup> Indicators of hydric soil and wetland hydrology must			
			be present, unless disturbed or problematic.			
			Definitions of Vegetation Strata:			
			Tree – Woody plants 3 in. (7.6 cm) or more in			
			diameter at breast height (DBH), regardless of height.			
			Sapling/shrub – Woody plants less than 3 in. DBH			
		-	and greater than or equal to 3.28 ft (1 m) tall.			
<u> </u>			Herb – All herbaceous (non-woody) plants, regardless			
95	=Total Cover		of size, and woody plants less than 3.28 ft tall.			
)						
			<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.			
			113.5			
			Hydrophytic			
			Vegetation Present? Yes X No			
			Flesciit: 165 A 110			
· · ·	=Total Cover		I			
	5 5 50 30 10 5	=Total Cover  5 Yes  5 =Total Cover  50 Yes  30 Yes  10 No  5 No  95 =Total Cover	=Total Cover  5 Yes FAC  5 Yes OBL  30 Yes OBL  10 No OBL  5 No FAC			

SOIL Sampling Point Wet DW-92

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth Matrix		Redox Featu	1	2			
(inches) Color (moist) %	Color (mois	st) %	Type' L	_oc²	Texture	Remarks	
0-6 10YR 2/1					Muck		
			· <u></u> -				
	_					_	
	_					_	
		' '					
	_	<u> </u>	· — –			_	
	_						
	_		· — –				
	_						
	_						
	_		· —— –				
<sup>1</sup> Type: C=Concentration, D=Depletion,	RM=Reduced Ma	trix, MS=Mas	sked Sand G	Grains.	<sup>2</sup> Location: PL=Po	ore Lining, M=Matrix.	
Hydric Soil Indicators:						oblematic Hydric Soils <sup>3</sup> :	
X Histosol (A1)		Below Surfa	ice (S8) ( <b>LR</b>	RR,	2 cm Muck (A	10) (LRR K, L, MLRA 149B)	
Histic Epipedon (A2)	MLRA	•				Redox (A16) ( <b>LRR K, L, R</b> )	
Black Histic (A3)		Surface (S9				Peat or Peat (S3) (LRR K, L, R)	
Hydrogen Sulfide (A4)		oma Sands (		-		ow Surface (S8) (LRR K, L)	
Stratified Layers (A5)	X Loamy M	-		<b>(</b> , L)		face (S9) (LRR K, L)	
Depleted Below Dark Surface (A11)		eyed Matrix	(F2)			ese Masses (F12) (LRR K, L, R)	
Thick Dark Surface (A12)		Matrix (F3)				odplain Soils (F19) (MLRA 149B)	
Sandy Mucky Mineral (S1)		rk Surface (F	•			(TA6) ( <b>MLRA 144A, 145, 149B</b> )	
Sandy Gleyed Matrix (S4)		Dark Surface			Red Parent M		
Sandy Redox (S5)		pressions (F	·8)			Dark Surface (F22)	
Stripped Matrix (S6)	Mari (F10	) (LRR K, L)			Other (Explain	n in Remarks)	
Dark Surface (S7)							
<sup>3</sup> Indicators of hydrophytic vegetation and	d wetland hydrolo	nv must he n	resent unle	ee dietu	rhed or problematic		
Restrictive Layer (if observed):	a wettaria riyarete	gy muot bo p	reserit, ariie	oo diota	rbed of problematic.		
Type: Gravel							
					Ukuduia Cail Duanaut?	Vaa V Na	
Depth (inches): 6	_				Hydric Soil Present?	Yes <u>X</u> No	
Remarks:							
Soil was muck down to 6-inches and the	en there was refus	sal					

# **Sudbury: Wetland 15**

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Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/29/17					
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Wet CW-192					
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:					
Landform (hillside, terrace, etc.):	al relief (concave, convex, none):Slope %:					
<u> </u>	Long: Datum: NAD83					
Soil Map Unit Name: Deerfield Loamy Sand, 3-8% slopes	NWI classification: PEM					
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 dist	turbed? Are "Normal Circumstances" present? Yes X No					
Are Vegetation, Soil, or Hydrology naturally problem	matic? (If needed, explain any answers in Remarks.)					
	impling point locations, transects, important features, etc.					
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes X No Yes X No	Is the Sampled Area within a Wetland?  If yes, optional Wetland Site ID:					
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)					
X Surface Water (A1) Water-Stained Leaves	s (B9) Drainage Patterns (B10)					
X High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)					
X Saturation (A3)Marl Deposits (B15)	Dry-Season Water Table (C2)					
Water Marks (B1) Hydrogen Sulfide Odd						
<del></del> -	s on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)					
Drift Deposits (B3) Presence of Reduced Algal Mat or Crust (B4) Recent Iron Reduction						
Iron Deposits (B5)  Thin Muck Surface (C	• • • • • • • • • • • • • • • • • • • •					
Inundation Visible on Aerial Imagery (B7)  Other (Explain in Rem						
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)					
Field Observations:						
Surface Water Present? Yes X No Depth (inches	s): 1					
Water Table Present? Yes X No Depth (inches	·					
Saturation Present? Yes X No Depth (inches	s): 0 Wetland Hydrology Present? Yes X No					
(includes capillary fringe)						
Describe Recorded Data (stream gauge, monitoring well, aerial photos, p	previous inspections), if available:					
Remarks: No upland plot collected - all fill/railroad						

<u>Tree Stratum</u> (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. 2.				Number of Dominant Species That Are OBL, FACW, or FAC: (A)
3. 4.				Total Number of Dominant Species Across All Strata: 2 (B)
5				Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)
7.				Prevalence Index worksheet:
		=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15 )				OBL species 90 x 1 = 90
1				FACW species 0 x 2 = 0
2.				FAC species 0 x3 = 0
3.				FACU species 0 x 4 = 0
4.				UPL species 0 x 5 = 0
5.				Column Totals: 90 (A) 90 (B)
6.				Prevalence Index = B/A = 1.00
7				Hydrophytic Vegetation Indicators:
		=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5 )		10000		X 2 - Dominance Test is >50%
Sparganium americanum	35	Yes	OBL	X 3 - Prevalence Index is ≤3.0 <sup>1</sup>
Lemna minor	25	Yes	OBL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
Peltandra virginica	15	No	OBL	data in Remarks or on a separate sheet)
Leersia oryzoides	15	No No	OBL	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5.		110		
6.				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7				Definitions of Vegetation Strata:
8.				
9.				<b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
10.				
11.				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
12.				
	90	=Total Cover		<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: )		Total Gover		
1				Woody vines – All woody vines greater than 3.28 ft in height.
2				no.gr
2				Hydrophytic
4.				Vegetation Present? Yes X No
		=Total Cover		
Remarks: (Include photo numbers here or on a separ				<u> </u>
Tromano. (morado prioto namboro necesio en	ato once.,			

Sampling Point: Wet CW-192

**SOIL** Sampling Point Wet CW-192

Profile Desc Depth	ription: (Describe to Matrix	the de	-	u <mark>ment t</mark> x Featur		ator or co	nfirm the absence o	f indicators.)
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
					- 71			
0-14	10YR 2/1						Muck	
							<del></del> -	
							<del></del> -	
1 <sub>Tupo:</sub> C=Co	ncentration, D=Deple	tion DM	4-Doduced Matrix N	48-Mac		- Croine	21 ocation: D	L=Pore Lining, M=Matrix.
Hydric Soil I		llon, raivi	=Reduced Iviality, ivi	IS-IVIAS	Keu Sanc	J Glailis.		or Problematic Hydric Soils <sup>3</sup> :
X Histosol			Polyvalue Belov	w Surfa	ace (S8) (	LRR R.		ick (A10) (LRR K, L, MLRA 149B)
	ipedon (A2)		MLRA 149B)		.00 (00) (.			rairie Redox (A16) (LRR K, L, R)
Black His	. , ,		Thin Dark Surfa	,	) (LRR R	, MLRA 14		icky Peat or Peat (S3) (LRR K, L, R)
	n Sulfide (A4)		High Chroma S					e Below Surface (S8) (LRR K, L)
	Layers (A5)		Loamy Mucky N			-		k Surface (S9) (LRR K, L)
Depleted	Below Dark Surface	(A11)	Loamy Gleyed	Matrix (	(F2)		Iron-Mar	nganese Masses (F12) ( <b>LRR K, L, R</b> )
Thick Da	rk Surface (A12)		Depleted Matrix	x (F3)			Piedmon	nt Floodplain Soils (F19) ( <b>MLRA 149B</b> )
	ucky Mineral (S1)		Redox Dark Su		-			podic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
	leyed Matrix (S4)		Depleted Dark					ent Material (F21)
	edox (S5)		Redox Depress		-			allow Dark Surface (F22)
	Matrix (S6)		Marl (F10) ( <b>LRF</b>	RK, L)			Other (E	xplain in Remarks)
Dark Sui	face (S7)							
<sup>3</sup> Indicators of	hydrophytic vegetation	nn and w	etland hydrology mu	ıst be p	resent. u	nless distu	irhed or problematic.	
	ayer (if observed):	ni cara.	oliuna njaren-aj i	0.2.	1000,	11000 5	1100d 01 p. 02	_
Type:	,							
Depth (in	ches):						Hydric Soil Preser	nt? Yes X No
Remarks:			<del></del>					
	m is revised from Nort	thcentral	and Northeast Regi	ional Sı	Joplemen	t Version 2	2.0 to include the NR0	CS Field Indicators of Hydric Soils,
	2015 Errata. (http://wv							,

# **Sudbury: Wetland 16**

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Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/29/17					
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Wet DW-260					
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:					
·	I relief (concave, convex, none): None Slope %:					
· ————————————————————————————————————	Long: Datum:					
Soil Map Unit Name: Scarboro Mucky Fine Sandy Loam, 0-3% slopes	NWI classification: PEM					
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 distu						
Are Vegetation, Soil, or Hydrology naturally problem						
	mpling point locations, transects, important features, etc.					
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Yes X No  Yes X No	Is the Sampled Area within a Wetland? Yes X No If yes, optional Wetland Site ID:					
Remarks: (Explain alternative procedures here or in a separate report.)						
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)					
Surface Water (A1)  X Water-Stained Leaves (	(B9) Drainage Patterns (B10)					
X High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)					
X Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)					
Water Marks (B1) Hydrogen Sulfide Odor						
	s on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)					
Drift Deposits (B3)Presence of Reduced In	<u> </u>					
Algal Mat or Crust (B4)  Iron Deposits (B5)  Recent Iron Reduction i  Thin Muck Surface (C7)	in Tilled Soils (C6)  X Geomorphic Position (D2)  Shallow Aguitard (D3)					
Inundation Visible on Aerial Imagery (B7)  Other (Explain in Rema						
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)					
Field Observations:	<b>)</b> .					
Surface Water Present? Yes No X Depth (inches) Water Table Present? Yes X No Depth (inches)						
Saturation Present? Yes X No Depth (inches)						
(includes capillary fringe)	romana nyarotegy nosonin nos <u>x</u> no					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pr	revious inspections), if available:					
Remarks: Although surface water was not present at the data plot, surface water ran	nging from 1-6 inches was present throughout the wetland.					

<b>VEGETATION</b> – Use scientific names of բ	olants.			Sampling Point: Wet DW-260
Tree Stratum (Plot size: 30 )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. Acer rubrum	30	Yes	FAC	Number of Deminent Species
2. Pinus strobus	25	Yes	FACU	Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
3. Quercus rubra	25	Yes	FACU	Total Number of Dominant
4.				Species Across All Strata: 6 (B)
5.				Descent of Deminent Species
6.				Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)
7.				Prevalence Index worksheet:
	80	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15	)	1		OBL species 0 x 1 = 0
1. Frangula alnus	10	Yes	FAC	FACW species 25 x 2 = 50
2.				FAC species 50 x 3 = 150
3.				FACU species 50 x 4 = 200
4.				UPL species 0 x 5 = 0
5.				Column Totals: 125 (A) 400 (B)
6.				Prevalence Index = B/A = 3.20
7.				Hydrophytic Vegetation Indicators:
	10	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5 )				X 2 - Dominance Test is >50%
1. Osmunda cinnamomea	25	Yes	FACW	3 - Prevalence Index is ≤3.0 <sup>1</sup>
2. Frangula alnus	10	Yes	FAC	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
3.				data in Remarks or on a separate sheet)
4.				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5.				1 <u></u>
6.	_			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7.				Definitions of Vegetation Strata:
8.				
9.	_			Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
10.				
11.				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
12.				Horb. All horboscopy (non-yearth) plants are morelless
	35	=Total Cover		<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:		1		Woody vines – All woody vines greater than 3.28 ft in
1.	•			height.
2.				
3.				Hydrophytic
4.				Vegetation Present? Yes X No
		=Total Cover		— — —
Demonstrate (Include wheth mount are been an an an		10141 00101		
Remarks: (Include photo numbers here or on a se Pinus strobus and Quercus rubra were rooted outs		in uplands		
	•	•		

SOIL Sampling Point Wet DW-260

		the depth r				tor or co	onfirm the absence of	f indicators.)
Depth	Matrix	% C		x Featur	- 1	Loc <sup>2</sup>	Texture	Damanka
(inches)	Color (moist)	<del>70</del> C	color (moist)	<u>%</u>	Type '	LOC	rexture	Remarks
0-18	N 2.5/						Muck	
	_							
<sup>1</sup> Type: C=Cor	ncentration, D=Deple	tion, RM=Re	duced Matrix, N	MS=Masl	ked Sand	Grains.	<sup>2</sup> Location: Pl	L=Pore Lining, M=Matrix.
Hydric Soil In		,	,					or Problematic Hydric Soils <sup>3</sup> :
X Histosol (			Polyvalue Belo	w Surfac	ce (S8) ( <b>L</b>	RR R.		ck (A10) ( <b>LRR K, L, MLRA 149B</b> )
	pedon (A2)		MLRA 149B		( ) (	,		airie Redox (A16) ( <b>LRR K, L, R</b> )
Black Hist			Thin Dark Surf	•	(LRR R,	MLRA 1		cky Peat or Peat (S3) ( <b>LRR K, L, R</b> )
	Sulfide (A4)		High Chroma S		-		· ·	e Below Surface (S8) (LRR K, L)
	_ayers (A5)		Loamy Mucky	-		-		k Surface (S9) ( <b>LRR K, L</b> )
	Below Dark Surface	(A11)	Loamy Gleyed			, ,		ganese Masses (F12) (LRR K, L, R)
	k Surface (A12)	` /	Depleted Matri		,			t Floodplain Soils (F19) (MLRA 149B)
	cky Mineral (S1)		Redox Dark Su		6)			podic (TA6) (MLRA 144A, 145, 149B)
	eyed Matrix (S4)		Depleted Dark		-			ent Material (F21)
Sandy Re			Redox Depress					allow Dark Surface (F22)
	//atrix (S6)		Marl (F10) (LR	•	- /			xplain in Remarks)
Dark Surfa			( ) (=	, _,				, p
	200 (0.)							
<sup>3</sup> Indicators of	nvdrophytic vegetatio	on and wetlar	nd hvdrologv mi	ıst be pr	esent. un	less dist	urbed or problematic.	
	ayer (if observed):		, ,,		,		'	
Type:	, , , , , , , , , , , , , , , , , , , ,							
- · · · -	shoo):						Hydric Soil Preser	st2 Vac V Na
Depth (inc							nyunc 3011 Freser	nt? Yes X No
Remarks:								
	i is revised from Nori 015 Errata. (http://wv							CS Field Indicators of Hydric Soils,
version 7.0, 2	015 Eliala. (IIIIp.//ww	vw.iiics.usua	.gov/internet/i-	JL_DOC	OWILINIA	5/11105 14.	2p2_031293.d0cx)	

Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/29/17					
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Up DW-260					
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:					
- ' ' '	I relief (concave, convex, none): Slope %:					
<u></u>	Long: Datum: NAD83					
Soil Map Unit Name: Scarboro Mucky Fine Sandy Loam	NWI classification: UPL					
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 distur						
Are Vegetation, Soil, or Hydrologynaturally problems	atic? (If needed, explain any answers in Remarks.)					
	npling point locations, transects, important features, etc.					
Hydrophytic Vegetation Present? Yes No X	Is the Sampled Area					
Hydric Soil Present? Yes No X	within a Wetland? Yes No _X_					
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:					
HYDROLOGY						
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)					
Primary Indicators (minimum of one is required; check all that apply)  Surface Water (A1)  Water Steinad Legyer (A2)	Surface Soil Cracks (B6)					
Surface Water (A1) Water-Stained Leaves ( High Water Table (A2) Aquatic Fauna (B13)	(B9) Drainage Patterns (B10) Moss Trim Lines (B16)					
Saturation (A3)  Marl Deposits (B15)	Dry-Season Water Table (C2)					
Water Marks (B1)  Hydrogen Sulfide Odor						
Sediment Deposits (B2)  Oxidized Rhizospheres						
Drift Deposits (B3)  Presence of Reduced Ir						
Algal Mat or Crust (B4) Recent Iron Reduction i	n Tilled Soils (C6) Geomorphic Position (D2)					
Iron Deposits (B5) Thin Muck Surface (C7)	Shallow Aquitard (D3)					
Inundation Visible on Aerial Imagery (B7) Other (Explain in Rema						
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)					
Field Observations:						
Surface Water Present? Yes No Depth (inches)						
Water Table Present? Yes No Depth (inches)						
Saturation Present? Yes No Depth (inches)	:   Wetland Hydrology Present? Yes No _X					
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro						
Describe recorded Data (stream gauge, monitoring well, acrial priotes, pri	evious inspections), il available.					
Remarks:						
Tolliano.						

VEGETATION – Use scientific names of pla	Absolute	Dominant	Indicator	Sampling Point: Up DW-260
<u>Tree Stratum</u> (Plot size:)	% Cover	Species?	Status	Dominance Test worksheet:
1. Acer saccharum	35	Yes	FACU	Number of Dominant Species
2. Quercus rubra	25	Yes	FACU	That Are OBL, FACW, or FAC: 2 (A)
3. Pinus strobus	20	Yes	FACU	Total Number of Dominant
4. Acer rubrum	10	No	FAC	Species Across All Strata: 6 (B)
5.				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 33.3% (A/B)
7.		·		Prevalence Index worksheet:
	90	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15 )	,	•		OBL species 0 x 1 = 0
1. Acer saccharum	15	Yes	FACU	FACW species 0 x 2 = 0
2.				FAC species 20 x 3 = 60
3.				FACU species 95 x 4 = 380
4.				UPL species 0 x 5 = 0
5.		•		Column Totals: 115 (A) 440 (B)
6				Prevalence Index = B/A = 3.83
7.				Hydrophytic Vegetation Indicators:
	15	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5 )		_ Total 00v0.		2 - Dominance Test is >50%
Viburnum dentatum	5	Yes	FAC	3 - Prevalence Index is ≤3.0 <sup>1</sup>
	5			4 - Morphological Adaptations¹ (Provide supporting
2. Acer rubrum		Yes	FAC	data in Remarks or on a separate sheet)
3		- —		
··· ———		- —		Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5.		- —		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
6.				be present, unless disturbed or problematic.
7				Definitions of Vegetation Strata:
8.		- ——		Tree – Woody plants 3 in. (7.6 cm) or more in
9.		- ——		diameter at breast height (DBH), regardless of height.
10.		- ——		Sapling/shrub – Woody plants less than 3 in. DBH
11				and greater than or equal to 3.28 ft (1 m) tall.
12		- ——		Herb – All herbaceous (non-woody) plants, regardless
	10	_=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:)				Woody vines - All woody vines greater than 3.28 ft in
1		. ——		height.
2				Hydrophytic
3				Vegetation
4				Present?
		=Total Cover		
Remarks: (Include photo numbers here or on a sepa	arate sheet.)	·	-	
•				

SOIL Sampling Point Up DW-260

-	-	the de				tor or c	confirm the absence of indicators.)
Depth	Matrix			Feature	- 1	. 2	
	olor (moist)	%	Color (moist)	<u>%</u>	Type '	Loc <sup>2</sup>	Texture Remarks
0-2	10YR 3/2						Loamy/Clayey Fine sandy loam
2-3	2.5Y 4/3						Sandy Loamy fine sand
3-18	2.5Y 5/4						Sandy Loamy fine sand
							<del></del>
<sup>1</sup> Type: C=Concent	ration, D=Deple	tion, RM	=Reduced Matrix, M	IS=Masl	ced Sand	Grains.	. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.
Hydric Soil Indicat							Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol (A1)			Polyvalue Belov	w Surfac	ce (S8) (I	LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 149B)
Histic Epipedor	n (A2)		MLRA 149B)				Coast Prairie Redox (A16) (LRR K, L, R)
Black Histic (A	•		Thin Dark Surfa				
Hydrogen Sulfice			High Chroma S	-		-	Polyvalue Below Surface (S8) (LRR K, L)
Stratified Layer			Loamy Mucky N			R K, L)	Thin Dark Surface (S9) ( <b>LRR K, L</b> )
	v Dark Surface (	A11)	Loamy Gleyed		=2)		Iron-Manganese Masses (F12) (LRR K, L, R)
Thick Dark Sur			Depleted Matrix				Piedmont Floodplain Soils (F19) (MLRA 149B)
Sandy Mucky N			Redox Dark Su	rface (F	6)		Mesic Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> )
Sandy Gleyed	Matrix (S4)		Depleted Dark	Surface	(F7)		Red Parent Material (F21)
Sandy Redox (	•		Redox Depress	ions (F	3)		Very Shallow Dark Surface (F22)
Stripped Matrix	(S6)		Marl (F10) ( <b>LRI</b>	R K, L)			Other (Explain in Remarks)
Dark Surface (\$	S7)						
<sup>3</sup> Indicators of hydro	onhytic vegetatio	n and w	etland hydrology mu	st he pr	esent ur	nless dist	sturbed or problematic.
Restrictive Layer (		ir and iv	oliana nyarology ma	ot bo pi	000111, 41	noce area	The state of problemation
Туре:							
Depth (inches):	:						Hydric Soil Present? Yes No X
Remarks:							•
			and Northeast Regi usda.gov/Internet/FS				n 2.0 to include the NRCS Field Indicators of Hydric Soils,
version 7.0, 2015 E	Errata. (nttp.//ww	/w.nrcs.u	usua.gov/internet/F3	SE_DOC	OIVIENT	S/IIICS 14	42P2_051293.docx)

# **Sudbury: Wetland 18**

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Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/29/17				
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Wet CW-169				
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:				
	I relief (concave, convex, none): Concave Slope %:				
	Long: Datum:				
Soil Map Unit Name: Scarboro Mucky Fine Sandy Loam, 0-3% slopes	NWI classification: PSS				
Are climatic / hydrologic conditions on the site typical for this time of year?					
Are Vegetation, Soil, or Hydrology significantly distur					
Are Vegetation, Soil, or Hydrology naturally problems					
	npling point locations, transects, important features, etc.				
Hydrophytic Vegetation Present?         Yes X         No           Hydric Soil Present?         Yes X         No           Wetland Hydrology Present?         Yes X         No	Is the Sampled Area within a Wetland?  If yes, optional Wetland Site ID:				
HYDROLOGY					
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)				
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)				
Surface Water (A1)  X Water-Stained Leaves (					
High Water Table (A2)  Aquatic Fauna (B13)	Moss Trim Lines (B16)				
Saturation (A3)  Marl Deposits (B15)	Dry-Season Water Table (C2)				
Water Marks (B1)  Hydrogen Sulfide Odor					
Sediment Deposits (B2)  X Oxidized Rhizospheres					
Drift Deposits (B3) Presence of Reduced Ir					
Algal Mat or Crust (B4)  Recent Iron Reduction i					
Iron Deposits (B5)  Thin Muck Surface (C7)					
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remainder)					
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)				
Field Observations:					
Surface Water Present? Yes No Depth (inches)					
Water Table Present? Yes No Depth (inches)					
Saturation Present? Yes No Depth (inches)	: Wetland Hydrology Present? Yes X No				
(includes capillary fringe)					
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections), if available:				
Remarks:					
Reliains.					

	Absolute	Dominant	Indicator	
Tree Stratum (Plot size:)	% Cover	Species?	Status	Dominance Test worksheet:
1. Acer rubrum	45	Yes	FAC	Number of Dominant Species
2. Acer saccharum	25	Yes	FACU	That Are OBL, FACW, or FAC: 4 (A)
3				Total Number of Dominant
4				Species Across All Strata: 5 (B)
5				Percent of Dominant Species
6.				That Are OBL, FACW, or FAC: 80.0% (A/B)
7				Prevalence Index worksheet:
	70	=Total Cover		Total % Cover of: Multiply by:
Sapling/Shrub Stratum (Plot size: 15 )				OBL species 0 x 1 = 0
1. Frangula alnus	35	Yes	FAC	FACW species 7 x 2 = 14
2. Prunus serotina	5	No	FACU	FAC species 150 x 3 = 450
3. Acer saccharum	5	No	FACU	FACU species 40 x 4 = 160
4. Cercis canadensis	5	No	FACU	UPL species 0 x 5 = 0
5. Ilex verticillata	2	No	FACW	Column Totals: 197 (A) 624 (B)
6.				Prevalence Index = B/A = 3.17
7				Hydrophytic Vegetation Indicators:
1.	52	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5 )		Total Gover		X 2 - Dominance Test is >50%
	45	Yes	FAC	3 - Prevalence Index is ≤3.0 <sup>1</sup>
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				<del></del>
2. Toxicodendron radicans	<u>25</u>	Yes	FAC FAC	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
3. Fraxinus pennsylvanica	5	No	FACW	
4				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5				<sup>1</sup> Indicators of hydric soil and wetland hydrology must
6.				be present, unless disturbed or problematic.
7				Definitions of Vegetation Strata:
8				Tree – Woody plants 3 in. (7.6 cm) or more in
9				diameter at breast height (DBH), regardless of height.
10				Sapling/shrub – Woody plants less than 3 in. DBH
11				and greater than or equal to 3.28 ft (1 m) tall.
12				<b>Herb</b> – All herbaceous (non-woody) plants, regardless
	75	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size: )				Woody vines – All woody vines greater than 3.28 ft in
1.				height.
2.				
2				Hydrophytic
4.				Vegetation Present? Yes X No
·· -		=Total Cover		100 <u>×</u> 10 <u>—                                    </u>
Remarks: (Include photo numbers here or on a separ	ata abaat \	- Total Cover		
remarks. (include prioto numbers here of our a separ	ale sileel.)			

Sampling Point: Wet CW-169

SOIL Sampling Point Wet CW-169

		o the dep				tor or co	onfirm the absence o	f indicators.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	Feature %	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-5	10YR 2/2		10YR 4/4	3	С	PL	Loamy/Clayey	Fine sandy loam
5-16	10YR 5/3		10YR 4/4	15	С	PL/M	Loamy/Clayey	Sandy loam
			10YR 4/2	15	С	М		Faint redox concentrations
16-18	10YR 4/2		10YR 4/4	25	<u>C</u>	<u>M</u>	Loamy/Clayey	Sandy loam
					<u> </u>		·	
					<u>_</u>			
<sup>1</sup> Type: C=Co	oncentration, D=Depl	etion, RM=	Reduced Matrix, M	1S=Masl	ked Sand	d Grains.	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix.
Black His Hydrogel Stratified Depleted Thick Da Sandy M Sandy G Sandy R Stripped Dark Sur	(A1) ipedon (A2) stic (A3) n Sulfide (A4) Layers (A5) Below Dark Surface rk Surface (A12) ucky Mineral (S1) leyed Matrix (S4) edox (S5) Matrix (S6) face (S7)	- - -	Polyvalue Belo MLRA 149B Thin Dark Surfa High Chroma S Loamy Mucky I Loamy Gleyed Depleted Matrix Redox Dark Su Depleted Dark X Redox Depress Marl (F10) (LRI	) ace (S9) ace (S9) ands (S Mineral ( Matrix (I x (F3) arface (F Surface sions (FE R K, L)	(LRR R 11) (LRI F1) (LRI -2) 6) (F7)	, MLRA 1 R K, L) R K, L)	2 cm Mu Coast Pr 5 cm Mu Polyvalue Thin Dar Iron-Man Piedmon Mesic Sp Red Pare Very Sha	or Problematic Hydric Soils <sup>3</sup> : ck (A10) (LRR K, L, MLRA 149B) rairie Redox (A16) (LRR K, L, R) cky Peat or Peat (S3) (LRR K, L, R) e Below Surface (S8) (LRR K, L) k Surface (S9) (LRR K, L) riganese Masses (F12) (LRR K, L, R) at Floodplain Soils (F19) (MLRA 149B) codic (TA6) (MLRA 144A, 145, 149B) ent Material (F21) allow Dark Surface (F22) xplain in Remarks)
Type: _ Depth (ir							Hydric Soil Preser	nt? Yes X No
	m is revised from Noi 2015 Errata. (http://w							CS Field Indicators of Hydric Soils,

Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/29/17
Applicant/Owner: Eversource Energy	State: ME Sampling Point: Up CW-169
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:
Landform (hillside, terrace, etc.): Slight Slope Local	relief (concave, convex, none): Slope %: 2-5
Subregion (LRR or MLRA): LRR R Lat:	Long: Datum: NAD83
Soil Map Unit Name: Scarboro Mucky Fine Sandy Loam, 0-3% slopes	NWI classification: UPL
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 distur	
Are Vegetation, Soil, or Hydrology naturally problems	<del></del> -
	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No X	Is the Sampled Area
Hydrophytic Vegetation Present?         Yes No _ X           Hydric Soil Present?         Yes No _ X	within a Wetland? Yes No X
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
LIVERALOSV	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (	
High Water Table (A2) Saturation (A3) Aquatic Fauna (B13) Marl Deposits (B15)	Moss Trim Lines (B16)
<del></del> -	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor	
Sediment Deposits (B2)  Oxidized Rhizospheres  Description of Participation (B2)	
Drift Deposits (B3) Presence of Reduced Ir	
Algal Mat or Crust (B4)Recent Iron Reduction i	• • • • • • • • • • • • • • • • • • • •
Iron Deposits (B5) Thin Muck Surface (C7)	• • • •
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remai	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No X Depth (inches)	
Water Table Present? Yes No X Depth (inches)	
Saturation Present? Yes No X Depth (inches)	Wetland Hydrology Present? Yes No _X
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections), if available:
Remarks:	
Nemarks.	

VEGETATION – Use scientific names of p	Absolute	Dominant	Indicator	Sampling Point: Up CW-169
<u>Tree Stratum</u> (Plot size:)	% Cover	Species?	Status	Dominance Test worksheet:
<ol> <li>Acer saccharum</li> </ol>	40	Yes	FACU	Number of Dominant Species
	_	· -		That Are OBL, FACW, or FAC: 2 (A)
3. 4.				Total Number of Dominant Species Across All Strata: 4 (B)
				Species Across Air Strata4 (b)
5 6.				Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)
7				Prevalence Index worksheet:
1.		-Tatal Causa		
Sapling/Shrub Stratum (Plot size: 15	40	=Total Cover		Total % Cover of: Multiply by:  OBL species 0 x 1 = 0
<del></del>	.)	V	E40	
1. Frangula alnus	25	Yes	FAC	FACW species 5 x 2 = 10
2. Prunus serotina	5	No	FACU	FAC species 50 x 3 = 150
3. Fraxinus pennsylvanica	5	<u>No</u>	FACW	FACU species 90 x 4 = 360
4.				UPL species0 x 5 =0
5.				Column Totals: 145 (A) 520 (B)
6.	_			Prevalence Index = B/A = 3.59
7			-	Hydrophytic Vegetation Indicators:
	35	=Total Cover		1 - Rapid Test for Hydrophytic Vegetation
Herb Stratum (Plot size: 5 )				2 - Dominance Test is >50%
Toxicodendron radicans	25	Yes	FAC	3 - Prevalence Index is ≤3.0 <sup>1</sup>
2. Prunus serotina	25	Yes	FACU	4 - Morphological Adaptations <sup>1</sup> (Provide supporting
3. Parthenocissus quinquefolia	10	No	FACU	data in Remarks or on a separate sheet)
4. Rubus allegheniensis	10	No	FACU	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5.		. <u></u>		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
6				be present, unless disturbed or problematic.  Definitions of Vegetation Strata:
8.				Definitions of Vegetation Strata.
9.				Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
10.				Continuo (abrush - Woods, planta loss than 2 in DDI
11.				Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
12.				Herb – All herbaceous (non-woody) plants, regardless
	70	=Total Cover		of size, and woody plants less than 3.28 ft tall.
Woody Vine Stratum (Plot size:	)			Woody vines – All woody vines greater than 3.28 ft in
1.				height.
2.				
3.				Hydrophytic
4.				Vegetation Present? Yes No X
		=Total Cover		
Demonstrate (Include the Account to				
Remarks: (Include photo numbers here or on a se	parate sheet.)			

SOIL Sampling Point Up CW-169

Profile Desc	ription: (Describe t	o the de		ument t		ator or co	onfirm the absence of indicators.)	
(inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks	
0-6	10YR 3/2	97					Loamy/Clayey Fine sandy loam	
	10YR 5/1	3					Masses of fine sand	
6-11	7.5YR 4/4	100					Loamy/Clayey Sandy loam	
11-16	7.5YR 4/4	85	7.5YR 4/3	15	С	<u>M</u>	Loamy/Clayey Sandy loam	
	-							
<sup>1</sup> Type: C=Co	ncentration, D=Depl	etion. RM	=Reduced Matrix. M	 IS=Mas	ked Sand	Grains.	<sup>2</sup> Location: PL=Pore Lining, M=Matrix.	
Hydric Soil I			. rougest manny n				Indicators for Problematic Hydric Soils <sup>3</sup>	3:
Histosol (	(A1)		Polyvalue Belo	w Surfa	ce (S8) (I	LRR R,	2 cm Muck (A10) (LRR K, L, MLRA 14	49B)
Histic Ep	ipedon (A2)		MLRA 149B)	)			Coast Prairie Redox (A16) (LRR K, L,	R)
Black His	stic (A3)		Thin Dark Surfa	ace (S9)	(LRR R	, MLRA 1	5 cm Mucky Peat or Peat (S3) (LRR K	(, L, R)
	n Sulfide (A4)		High Chroma S				Polyvalue Below Surface (S8) (LRR K	-
	Layers (A5)		Loamy Mucky I	-		-	Thin Dark Surface (S9) (LRR K, L)	, ,
	Below Dark Surface	(Δ11)	Loamy Gleyed			· · · · · , — /	Iron-Manganese Masses (F12) (LRR I	K I R)
	rk Surface (A12)	(/ (/ / / /	Depleted Matrix		)		Piedmont Floodplain Soils (F19) (MLR	-
	, ,				-0\			-
	ucky Mineral (S1)		Redox Dark Su	•	,		Mesic Spodic (TA6) (MLRA 144A, 145	o, 149B)
	eyed Matrix (S4)		Depleted Dark				Red Parent Material (F21)	
	edox (S5)		Redox Depress	`	8)		Very Shallow Dark Surface (F22)	
Stripped	Matrix (S6)		Marl (F10) ( <b>LR</b>	<b>R K, L</b> )			Other (Explain in Remarks)	
Dark Sur	face (S7)							
		on and w	etland hydrology mu	ıst be pı	resent, ur	nless dist	turbed or problematic.	
Restrictive L Type:	.ayer (if observed):							
Depth (in	ches):						Hydric Soil Present? Yes No	Χ
Remarks:								
							2.0 to include the NRCS Field Indicators of Hydric S	Soils,
Version 7.0, 2	2015 Errata. (http://w	ww.nrcs.	usda.gov/Internet/FS	SE_DOO	CUMENT	S/nrcs14	·2p2_051293.docx)	

# **Sudbury: Wetland 19**

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Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/29/17
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Wet DW-248
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:
Landform (hillside, terrace, etc.):	relief (concave, convex, none): Slope %:
Subregion (LRR or MLRA): LRR R Lat:	Long: Datum:
Soil Map Unit Name: Scarboro Mucky Fine Sandy Loam, 0-3% slopes	NWI classification: PSS
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 distur	
Are Vegetation, Soil, or Hydrology naturally problems	<del></del> -
SUMMARY OF FINDINGS – Attach site map showing sam	ipling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes X No	within a Wetland? Yes X No
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.)	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (	· · ·
High Water Table (A2)  Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor	(C1) Crayfish Burrows (C8)
X Sediment Deposits (B2) Oxidized Rhizospheres	on Living Roots (C3) Saturation Visible on Aerial Imagery (C9)
Drift Deposits (B3) Presence of Reduced Ir	ron (C4) Stunted or Stressed Plants (D1)
Algal Mat or Crust (B4) Recent Iron Reduction i	n Tilled Soils (C6) X Geomorphic Position (D2)
Iron Deposits (B5) Thin Muck Surface (C7)	• • • • • • • • • • • • • • • • • • • •
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remai	
Sparsely Vegetated Concave Surface (B8)	X FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches)	
Water Table Present? Yes No Depth (inches)	
Saturation Present? Yes No Depth (inches)	Wetland Hydrology Present? Yes X No
(includes capillary fringe)  Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections) if available:
Bosonibe (1886) and Batta (61864) in gauge, membering work, and a priotoe, pri	svicus inopositorio), il uvuliusio.
Remarks:	

Dominant Species? Yes Yes Yes No Total Cover Yes  Yes  Yes	FAC FACU FACU FACU FACU OBL	Number of Dominant Species That Are OBL, FACW, or FAC:4(A)  Total Number of Dominant Species Across All Strata:5(B)  Percent of Dominant Species That Are OBL, FACW, or FAC:80.0%(A/B)  Prevalence Index worksheet: Total % Cover of:
Yes Yes No Total Cover Yes Total Cover Yes	FACU FACU FACU	That Are OBL, FACW, or FAC: 4 (A)  Total Number of Dominant Species Across All Strata: 5 (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)  Prevalence Index worksheet:  Total % Cover of: Multiply by:  OBL species 65 x 1 = 65  FACW species 15 x 2 = 30  FAC species 40 x 3 = 120  FACU species 25 x 4 = 100  UPL species 0 x 5 = 0  Column Totals: 145 (A) 315 (B)  Prevalence Index = B/A = 2.17  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  X 2 - Dominance Test is >50%  X 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
Yes No Total Cover Yes Total Cover	FACU	That Are OBL, FACW, or FAC: 4 (A)  Total Number of Dominant Species Across All Strata: 5 (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)  Prevalence Index worksheet:  Total % Cover of: Multiply by:  OBL species 65 x 1 = 65  FACW species 15 x 2 = 30  FAC species 40 x 3 = 120  FACU species 25 x 4 = 100  UPL species 0 x 5 = 0  Column Totals: 145 (A) 315 (B)  Prevalence Index = B/A = 2.17  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  X 2 - Dominance Test is >50%  X 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
No Total Cover Yes Total Cover	FAC	Species Across All Strata: 5 (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)  Prevalence Index worksheet:  Total % Cover of: Multiply by:  OBL species 65 x 1 = 65  FACW species 15 x 2 = 30  FAC species 40 x 3 = 120  FACU species 25 x 4 = 100  UPL species 0 x 5 = 0  Column Totals: 145 (A) 315 (B)  Prevalence Index = B/A = 2.17  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  X 2 - Dominance Test is >50%  X 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
Yes  Total Cover	FAC	Species Across All Strata: 5 (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)  Prevalence Index worksheet:  Total % Cover of: Multiply by:  OBL species 65 x 1 = 65  FACW species 15 x 2 = 30  FAC species 40 x 3 = 120  FACU species 25 x 4 = 100  UPL species 0 x 5 = 0  Column Totals: 145 (A) 315 (B)  Prevalence Index = B/A = 2.17  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  X 2 - Dominance Test is >50%  X 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
Yes  Total Cover  Yes  Total Cover		That Are OBL, FACW, or FAC:
Yes  Total Cover  Yes  Total Cover		That Are OBL, FACW, or FAC:
Yes  Total Cover  Yes  Total Cover		Total % Cover of: $OBL \text{ species}$ $OBL  s$
Yes  Total Cover		OBL species 65 $\times$ 1 = 65  FACW species 15 $\times$ 2 = 30  FAC species 40 $\times$ 3 = 120  FACU species 25 $\times$ 4 = 100  UPL species 0 $\times$ 5 = 0  Column Totals: 145 (A) 315 (B)  Prevalence Index = B/A = 2.17  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  X 2 - Dominance Test is >50%  X 3 - Prevalence Index is $\leq$ 3.01  4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
otal Cover		OBL species 65 $\times$ 1 = 65  FACW species 15 $\times$ 2 = 30  FAC species 40 $\times$ 3 = 120  FACU species 25 $\times$ 4 = 100  UPL species 0 $\times$ 5 = 0  Column Totals: 145 $\times$ (A) 315 $\times$ (B)  Prevalence Index = B/A = 2.17  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation $\times$ 2 - Dominance Test is >50% $\times$ 3 - Prevalence Index is $\leq$ 3.01  4 - Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
otal Cover		FACW species 15
otal Cover		FAC species $40$ $\times 3 = 120$ FACU species $25$ $\times 4 = 100$ UPL species $0$ $\times 5 = 0$ Column Totals: $145$ (A) $315$ (B)  Prevalence Index = B/A = $2.17$ Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation $\times 2$ - Dominance Test is >50% $\times 3$ - Prevalence Index is $\le 3.0^1$ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
otal Cover	OBL	FACU species $25$ $\times 4 = 100$ UPL species $0$ $\times 5 = 0$ Column Totals: $145$ $(A)$ $315$ $(B)$ Prevalence Index = B/A = $2.17$ Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation $\times 2$ - Dominance Test is >50% $\times 3$ - Prevalence Index is $\leq 3.0^1$ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
otal Cover	OBL	UPL species 0 x 5 = 0  Column Totals: 145 (A) 315 (B)  Prevalence Index = B/A = 2.17  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  X 2 - Dominance Test is >50%  X 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
Yes	OBL	Column Totals: 145 (A) 315 (B)  Prevalence Index = B/A = 2.17  Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  X 2 - Dominance Test is >50%  X 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
Yes	OBL	Prevalence Index = B/A = 2.17  Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation  X 2 - Dominance Test is >50%  X 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
Yes	OBL	Hydrophytic Vegetation Indicators:  1 - Rapid Test for Hydrophytic Vegetation  X 2 - Dominance Test is >50%  X 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
Yes	OBL	1 - Rapid Test for Hydrophytic Vegetation  X 2 - Dominance Test is >50%  X 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
Yes	OBL	<ul> <li>X 2 - Dominance Test is &gt;50%</li> <li>X 3 - Prevalence Index is ≤3.0¹</li> <li>4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)</li> </ul>
	OBL	X 3 - Prevalence Index is ≤3.0¹  4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
	OBL	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
		data in Remarks or on a separate sheet)
		Problematic Hydrophytic vegetation (Explain)
		<sup>1</sup> Indicators of hydric soil and wetland hydrology must
		be present, unless disturbed or problematic.
		Definitions of Vegetation Strata:
		Tree – Woody plants 3 in. (7.6 cm) or more in
		diameter at breast height (DBH), regardless of height.
		Sapling/shrub – Woody plants less than 3 in. DBH
		and greater than or equal to 3.28 ft (1 m) tall.
		Herb – All herbaceous (non-woody) plants, regardless
otal Cover		of size, and woody plants less than 3.28 ft tall.
		Woody vines - All woody vines greater than 3.28 ft in
		height.
		Hydrophytic
		Vegetation
		Present? Yes X No No
otal Cover		

SOIL Sampling Point Wet DW-248

		the de				tor or c	confirm the absence of indicators.)
Depth (inches)	Matrix Color (moist)	%	Color (moist)	Featur %	es Type <sup>1</sup>	Loc <sup>2</sup>	Texture Remarks
0-7	10YR 5/3	70	10YR 5/4	10	C	M	Sandy Fine sand
7-17	N 2.5/						Mucky Loam/Clay Mucky silt loam
17-20	10YR 4/2						Sandy Fine sand
							· ———
1- 0.0							2
'Type: C=Co Hydric Soil II	ncentration, D=Deple	tion, RN	/I=Reduced Matrix, M	IS=Mas	ked Sand	Grains	s. <sup>2</sup> Location: PL=Pore Lining, M=Matrix.  Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol (			Polyvalue Belov	w Surfa	ce (S8) (I	LRR R,	•
	pedon (A2)		MLRA 149B)		( -/(	,	Coast Prairie Redox (A16) (LRR K, L, R)
Black His	tic (A3)		Thin Dark Surfa	ace (S9)	(LRR R	, MLRA	5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
	Sulfide (A4)		High Chroma S	-		-	Polyvalue Below Surface (S8) (LRR K, L)
	Layers (A5)		X Loamy Mucky M			R K, L)	
	Below Dark Surface (	(A11)	Loamy Gleyed		F2)		Iron-Manganese Masses (F12) (LRR K, L, R)
	rk Surface (A12)		Depleted Matrix		·C)		Piedmont Floodplain Soils (F19) (MLRA 149B)
	ucky Mineral (S1) eyed Matrix (S4)		Redox Dark Su  Depleted Dark	•	,		Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Red Parent Material (F21)
Sandy Re			Redox Depress				Very Shallow Dark Surface (F22)
	Matrix (S6)		Marl (F10) (LRI		3)		Other (Explain in Remarks)
Dark Surf				, ,			
31,-11,-11,-1	h		and and burdening our				ativities de la constitución
	ayer (if observed):	n and v	vetiand nydrology mu	st be pr	esent, ur	iless dis	sturbed or problematic.
Type:							
Depth (in	ches):						Hydric Soil Present? Yes X No
Remarks:							
	n is revised from Nort 2015 Errata. (http://wv						on 2.0 to include the NRCS Field Indicators of Hydric Soils,
V 6131011 7.0, 2	1015 Ellata. (IIIIp.//ww	vw.iiics.	.usua.gov/internet/1 c	L_DOC	OWLINI	0/111031-	142p2_001290.d00x)

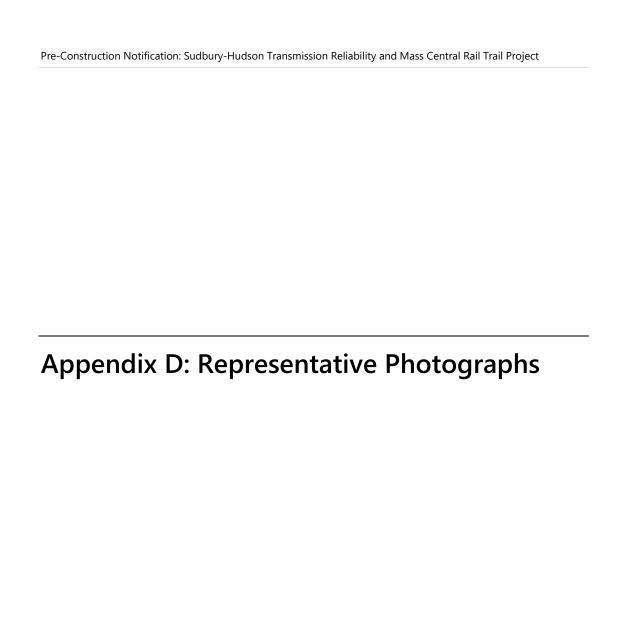
Project/Site: Sudbury-Hudson	City/County: Sudbury/Middlesex Sampling Date: 9/29/17
Applicant/Owner: Eversource Energy	State: MA Sampling Point: Up DW-248
Investigator(s): K. Kinsella, J. Peterson	Section, Township, Range:
Landform (hillside, terrace, etc.):	I relief (concave, convex, none): Slope %:
Subregion (LRR or MLRA): LRR R Lat:	Long: Datum: NAD83
Soil Map Unit Name: Scarboro Mucky Fine Sandy Loam, 0-3% slopes	NWI classification: UPL
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil, or Hydrology significantly distur	
Are Vegetation, Soil, or Hydrologynaturally problems	
	npling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes X No	Is the Sampled Area
Hydric Soil Present? Yes No X	within a Wetland? Yes No X
Wetland Hydrology Present? Yes No X	If yes, optional Wetland Site ID:
Remarks: (Explain alternative procedures here or in a separate report.) Please see the remarks for hydrophytic vegetation.	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)	Surface Soil Cracks (B6)
Surface Water (A1) Water-Stained Leaves (	<u> </u>
High Water Table (A2) Aquatic Fauna (B13)	Moss Trim Lines (B16)
Saturation (A3) Marl Deposits (B15)	Dry-Season Water Table (C2)
Water Marks (B1) Hydrogen Sulfide Odor	
Sediment Deposits (B2) Oxidized Rhizospheres	
Drift Deposits (B3) Presence of Reduced Ir	
Algal Mat or Crust (B4)Recent Iron Reduction i	• • • • • • • • • • • • • • • • • • • •
Iron Deposits (B5) Thin Muck Surface (C7)	, , , , ,
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remai	
Sparsely Vegetated Concave Surface (B8)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches)	
Water Table Present? Yes No Depth (inches)	
Saturation Present? Yes No Depth (inches)	: Wetland Hydrology Present? Yes No _X
(includes capillary fringe)	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pro	evious inspections), if available:
Remarks:	
inclinates.	

Dominance Test worl	rksheet:		
Number of Dominant S	Species		
That Are OBL, FACW,	, or FAC:	4	(A)
Total Number of Domir	inant		
Species Across All Stra	rata:	7	(B)
Percent of Dominant S	Species		
That Are OBL, FACW,		57.1%	(A/B)
Prevalence Index wo	rksheet:		
Total % Cover of:	f:	Multiply by:	
OBL species 0	0 x1:	= 0	
FACW species 0	0 x 2	= 0	
FAC species 10	00 x 3	= 300	
FACU species 80	0 x 4 :	= 320	
UPL species 5	<del></del> 5 x 5 :	= 25	
Column Totals: 18	85 (A)	645	— (B)
Prevalence Inde		3.49	` ′
Hydrophytic Vegetation			
1 - Rapid Test for			
X 2 - Dominance Tes	, , ,	vegetation	
3 - Prevalence Ind			
		(Dravida au	nnartina
4 - Morphological / data in Remarks	•	•	
	•	ŕ	
Problematic Hydro	ophytic Veget	ation (Expla	ain)
<sup>1</sup> Indicators of hydric so be present, unless dist			must
Definitions of Vegeta	ation Strata:		
Tree – Woody plants 3	3 in (7.6 cm)	or more in	
diameter at breast heig	,		height.
Sapling/shrub – Woo	ndv nlants les	s than 3 in 1	DRH
and greater than or equ			ווטט
<b>Herb</b> – All herbaceous of size, and woody plan		,	ardless
• •			
Woody vines – All wo height.	oody vines gre	eater than 3.	.28 ft in
noight.			
Hydrophytic			
Vegetation	V .	l-	
Present? Yes	<u> </u>		
۱ اد	Vegetation Present? Yes a alnus and Toxicode	Present? Yes X N	/egetation

Sampling Point: Up DW-248

SOIL Sampling Point Up DW-248

Depth   Matrix   Redox Features
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.
6-15 10YR 5/4 Sandy Gravelly fine sand  Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Hydric Soil Indicators: Histosol (A1) Polyvalue Below Surface (S8) (LRR R, L) Histosol (A2) MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Hydrogen Sulffide (A4) High Chroma Sands (S11) (LRR K, L) Polyvalue Below Surface (S8) (LRR R, L) Polyvalue Below Surface (S9) (LRR R, MLRA 149B) Stratified Layers (A5) Loamy Mucky Mineral (F1) (LRR K, L) Thin Dark Surface (S8) (LRR K, L) Depleted Below Dark Surface (A11) Loamy Gleyed Matrix (F2) Iron-Manganese Masses (F12) (LRR K, L, R) Thick Dark Surface (A12) Depleted Matrix (F3) Piedmont Floodplain Soils (F19) (MLRA 149B) Sandy Mucky Mineral (S1) Redox Depressions (F8) Very Shallow Dark Surface (F22)
Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.  Hydric Soil Indicators:  Histosol (A1)  Histic Epipedon (A2)  Black Histic (A3)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Hydrogen Sulfide (A4)  Hydrogen Sulfide (A4)  Strateffed Layers (A5)  Depleted Below Dark Surface (A11)  Depleted Below Dark Surface (A11)  Depleted Below Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Redox Depressions (F8)  Paccation: PL=Pore Lining, M=Matrix.  Location: PL=Pore Lining, M=Matrix.  Indicators for Problematic Hydric Soils <sup>3</sup> :  Location: PL=Pore Lining, M=Matrix.  Location: PL=Portel (S1)  Location: PL=Portel (S2)  Locati
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydric Soil Indicators:  Histosol (A1)  Polyvalue Below Surface (S8) (LRR R, Histic Epipedon (A2)  MLRA 149B)  Black Histic (A3)  High Chroma Sands (S11) (LRR K, L)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Histosol (A1)  Polyvalue Below Surface (S9) (LRR R, MLRA 149B)  Coast Prairie Redox (A16) (LRR K, L, R)  Coast Prairie Redox (A16) (LRR K, L, R)  For Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S8) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Histosol (A1) Polyvalue Below Surface (S8) (LRR R, 2 cm Muck (A10) (LRR K, L, MLRA 149B) Histic Epipedon (A2) Black Histic (A3) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Polyvalue Below Surface (S9) (LRR K, L) Polyvalue Below Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Redox Dark Surface (F7) Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Histic Epipedon (A2)  Black Histic (A3)  Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Below Dark Surface (A12)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  MLRA 149B)  Thin Dark Surface (S9) (LRR R, MLRA 149B)  Loamy Mucky Mineral (F1) (LRR K, L)  Depleted R, L)  Tom-Manganese Masses (F12) (LRR K, L, R)  Polyvalue Below Surface (S9) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Redox Depressions (F8)  Coast Prairie Redox (A16) (LRR K, L, R)  5 cm Mucky Peat or Peat (S3) (LRR K, L, R)  Polyvalue Below Surface (S9) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)
Black Histic (A3) Thin Dark Surface (S9) (LRR R, MLRA 149B) Hydrogen Sulfide (A4) Stratified Layers (A5) Depleted Below Dark Surface (A11) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Sandy Gleyed Matrix (S4) Sandy Redox (S5)  Thin Dark Surface (S9) (LRR K, L) Polyvalue Below Surface (S8) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Thin Dark Surface (S9) (LRR K, L) Iron-Manganese Masses (F12) (LRR K, L, R) Piedmont Floodplain Soils (F19) (MLRA 149B) Mesic Spodic (TA6) (MLRA 144A, 145, 149B) Redox Dark Surface (F7) Redox Depressions (F8)  Very Shallow Dark Surface (F22)
Hydrogen Sulfide (A4)  Stratified Layers (A5)  Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (F3)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  High Chroma Sands (S11) (LRR K, L)  Loamy Mucky Mineral (F1) (LRR K, L)  Loamy Gleyed Matrix (F2)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  High Chroma Sands (S11) (LRR K, L)  Thin Dark Surface (S9) (LRR K, L)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (F22)
Depleted Below Dark Surface (A11)  Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (F2)  Depleted Matrix (F3)  Redox Dark Surface (F6)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Iron-Manganese Masses (F12) (LRR K, L, R)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (F22)
Thick Dark Surface (A12)  Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Depleted Matrix (F3)  Piedmont Floodplain Soils (F19) (MLRA 149B)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Redox Dark Surface (F7)  Red Parent Material (F21)  Very Shallow Dark Surface (F22)
Sandy Mucky Mineral (S1)  Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Redox Dark Surface (F6)  Depleted Dark Surface (F7)  Redox Depressions (F8)  Mesic Spodic (TA6) (MLRA 144A, 145, 149B)  Red Parent Material (F21)  Very Shallow Dark Surface (F22)
Sandy Gleyed Matrix (S4)  Sandy Redox (S5)  Depleted Dark Surface (F7)  Red Parent Material (F21)  Very Shallow Dark Surface (F22)
Sandy Redox (S5) Redox Depressions (F8) Very Shallow Dark Surface (F22)
Stripped Matrix (S6) Marl (F10) (LRR K, L) Other (Explain in Remarks)
Dark Surface (S7)
Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
Restrictive Layer (if observed):
Type:
Depth (inches):         Hydric Soil Present?         Yes         No         X
Remarks: This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to include the NRCS Field Indicators of Hydric Soils,
Version 7.0, 2015 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)



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# **Hudson**



**Photo 1** View of emergent Wetland 3 on the south side of the existing rail bed.



**Photo 2** View of emergent marsh and aquatic bed component of Wetland 6 on the south side of the existing rail bed.



#### Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Wetland Delineation Photographs





**Photo 3** Emergent marsh part of Wetland 7 on the north side of the existing rail bed.



**Photo 4** View of Fort Meadow Brook at the existing rail bed crossing.



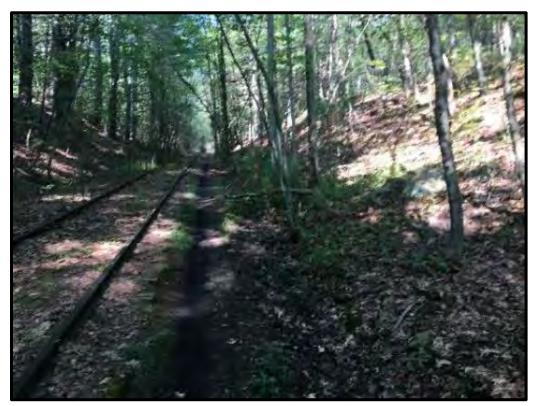
# Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Wetland Delineation Photographs





Photo 5 View of Bridge 130 across Fort Meadow Brook.



**Photo 6** View of Wetland 12, a narrow feature in a slight rail ditch depression between the rail bed and a steep slope.



#### Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

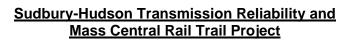
Wetland Delineation Photographs





**Photo 7** View of Wetland 21 with standing water.







# **Sudbury**



Photo 8 View of Wetland 4 located on the south side of the rail bed near flag CW-2.



**Photo 9** View of Wetland 12 associated with the Hop Brook marsh system to the south of the rail bed near flag CW-23.



EVERS URCE

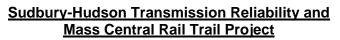


**Photo 10** View of Wetland 13 to the north of the rail bed near flag DW-73.



**Photo 11** View of the PFO portion of Wetland 14 to the north of the rail bed near flag DW-86.





EVERS URCE ENERGY

graphs

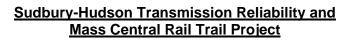


**Photo 12** View of the PEM portion of Wetland 14 to the north of the rail bed near flag DW-89.



**Photo 13** View of Hop Brook (Bridge 127) to the north of the railroad bridge near flags DW-94/DB-13.





EVERS URCE ENERGY



Photo 14 View of Bridge 127 over Hop Brook.



**Photo 15** View of Wetland 15 to the north of the rail bed near flag CW-190.



EVERS URCE



Photo 16 View of Wetland 16 to the south of the rail bed near flag DW-264.



**Photo 17** View of Wetland 18 to the north of the rail bed near flag CW-163.



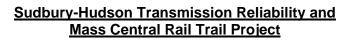






Photo 18 View of Wetland 19 to the south of the rail bed near flag DW-244.



**Photo 19** View of Hop Brook (Bridge 128) to the south of the rail bed near flag AB-34.



### Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

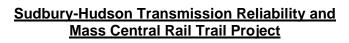
Wetland Delineation Photographs





**Photo 20** View of Bridge 127 over Hop Brook.







Wetland	Function	s & Values	
	Wetland	: Wetland Function	: Wetland Functions & Values

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Based on the ACOE Highway Methodology Workbook Supplement, Wetland Functions, and Values: A Descriptive Approach

Total area of wetlands: 630 sf Human made? Yes Is wetland part of a wildlife corridor or a "habitat island"? No

Adjacent land use: Railroad ROW

Dominant wetland systems present: PEM

Distance to nearest roadway or other development: 40 ft to orchard

Is the wetland a separate hydraulic system? Yes

How many tributaries contribute to the wetland? 0

If not, where does the wetland lie in the drainage basin?

Contiguous undeveloped buffer zone present? No

Prepared by: VK
Wetland Impact:

**Type:** Grading **Area:** 312 sf

Project Name: Sudbury-Hudson/MCRT

**Evaluation based on:** 

VHB Job No.: 12970.00

Wetland ID: Hudson Wetland 3

Office: X Field:

Corps manual wetland delineation completed?

**Date:** 4/22/2020

Y

	Suita	bility	Rationale	Principal	
Function/Value	Y	N	(Reference #)*	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration	X		9, 18		
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X		1, 2		
Nutrient Removal	X		8, 9		
Production Export	X		7		
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X		13		
Recreation		х			
Educational Scientific Value		х			
Uniqueness/Heritage	X		17, 22		
Visual Quality/Aesthetics		X			
Other					

Notes:

\*Refer to list of numbered considerations in ACOE Descriptive Approach Publications

Based on the ACOE Highway Methodology Workbook Supplement, Wetland Functions, and Values: A Descriptive Approach

Total area of wetlands: 7.4 ac Human made? No Is wetland part of a wildlife corridor or a "habitat island"? No

Adjacent land use: Railroad ROW, construction materials company

**Dominant wetland systems present:** PEM

Distance to nearest roadway or other development: 25 ft to industrial

Is the wetland a separate hydraulic system? No

How many tributaries contribute to the wetland? 1

Contiguous undeveloped buffer zone present? No

If not, where does the wetland lie in the drainage basin? Lower

Project Name: Sudbury-Hudson/MCRT

VHB Job No.: 12970.00

**Wetland ID:** Hudson Wetlands 6 & 7

Prepared by: VK

**Date:** 4/22/2020

Wetland Impact:

Type: Crane mats

Area: 1936 sf

**Evaluation based on:** 

Office: X Field:

Corps manual wetland delineation completed?

Y

	Suita	bility	Rationale	Principal	
Function/Value	Y	N	(Reference #)*	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Х		1, 4, 7, 12	х	
Floodflow Alteration	Х		1, 5, 6, 8, 10, 13, 18	X	
Fish and Shellfish Habitat	X		4, 5, 14, 15, 16	Х	
Sediment/Toxicant Retention	X		2, 3, 4, 5, 6, 7, 9, 10, 14, 15, 16	X	
Nutrient Removal	X		1, 2, 5, 6, 7, 8, 9, 12, 14	X	
Production Export	X		1, 4, 7, 10, 12	X	Small amount of <i>Cirsium muticum</i> is present as well as beaver activity
Sediment/Shoreline Stabilization	X		3, 5, 7, 15	X	
Wildlife Habitat	X		2, 6, 7, 8, 9, 11, 13, 17	X	
Recreation	X		5		
Educational Scientific Value	Х		2, 5		
Uniqueness/Heritage	X		5, 6, 13, 18, 19, 22, 27	X	
Visual Quality/Aesthetics	х		2, 12		
Other					

Based on the ACOE Highway Methodology Workbook Supplement, Wetland Functions, and Values: A Descriptive Approach

Total area of wetlands: 310 sf 

Adjacent land use: Railroad ROW

Dominant wetland systems present: PFO

Distance to nearest roadway or other development: 285 ft to industrial

Is the wetland a separate hydraulic system? Yes

Contiguous undeveloped buffer zone present? No

If not, where does the wetland lie in the drainage basin?

How many tributaries contribute to the wetland? 0

Project Name: Sudbury-Hudson/MCRT

VHB Job No.: 12970.00

Wetland ID: Hudson Wetland 12

Prepared by: VK **Date:** 4/22/2020

Wetland Impact:

Type: Grading **Area:** 310 sf

**Evaluation based on:** 

Office: X Field:

Corps manual wetland delineation completed?

	Suita	ability	Rationale	Principal	
Function/Value	Y	N	(Reference #)*	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	х		4		
Floodflow Alteration	x		9		
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention		X			
Nutrient Removal		X			
Production Export	X		1		Vaccinium corymbosum present
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	x		5, 8		
Recreation		X			
Educational Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
Other					

Based on the ACOE Highway Methodology Workbook Supplement, Wetland Functions, and Values: A Descriptive Approach

Total area of wetlands: 1060 sf Human made? No Is wetland part of a wildlife corridor or a "habitat island"? No

Adjacent land use: Railroad ROW to north, residential to south

Dominant wetland systems present: PFO

Distance to nearest roadway or other development: 25 ft to backyard

Is the wetland a separate hydraulic system? Yes

How many tributaries contribute to the wetland? 0

Contiguous undeveloped buffer zone present? No

If not, where does the wetland lie in the drainage basin?

Project Name: Sudbury-Hudson/MCRT

VHB Job No.: 12970.00

Wetland ID: Hudson Wetland 21

Prepared by: VK D

**Date:** 4/22/2020

Wetland Impact:

**Type:** Cut in grade A

de **Area:** 27 sf

**Evaluation based on:** 

Office: X Field:

Corps manual wetland delineation completed?

Y

	Suita	bility	Rationale	Principal	
Function/Value	Y	N	(Reference #)*	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration	x		9		
Fish and Shellfish Habitat		х			
Sediment/Toxicant Retention	x		1, 2, 9	x	
Nutrient Removal	x		4		
Production Export	X		1		
Sediment/Shoreline Stabilization	X		3		
Wildlife Habitat	x		7, 8		
Recreation		X			
Educational Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
Other					

Based on the ACOE Highway Methodology Workbook Supplement, Wetland Functions, and Values: A Descriptive Approach

Total area of wetlands: 286 sf 

Adjacent land use: Railroad ROW

Dominant wetland systems present: PSS

Distance to nearest roadway or other development: 150 ft to apartments

Is the wetland a separate hydraulic system? No

Contiguous undeveloped buffer zone present? No

If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 1

Project Name: Sudbury-Hudson/MCRT

VHB Job No.: 12970.00

Wetland ID: Sudbury Wetland 4

Prepared by: VK

**Date:** 4/22/2020

Wetland Impact:

Type: Grading Area: 286 sf

**Evaluation based on:** 

Office: X Field:

Corps manual wetland delineation completed?

	Suita	bility	Rationale	Principal	
Function/Value	Y	N	(Reference #)*	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration	X		2, 5		
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention		X			
Nutrient Removal	X		5		
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X		7, 8		
Recreation		X			
Educational Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
Other					

Notes:

\*Refer to list of numbered considerations in ACOE Descriptive Approach Publications

Based on the ACOE Highway Methodology Workbook Supplement, Wetland Functions, and Values: A Descriptive Approach

Total area of wetlands: 12.5 ac Human made? No Is wetland part of a wildlife corridor or a "habitat island"? No

Adjacent land use: Railroad ROW

Dominant wetland systems present: PFO/PEM

Distance to nearest roadway or other development: 185 ft to lawn

Is the wetland a separate hydraulic system? No

How many tributaries contribute to the wetland? 1

Contiguous undeveloped buffer zone present? No

If not, where does the wetland lie in the drainage basin? Lower

Project Name: Sudbury-Hudson/MCRT

VHB Job No.: 12970.00

Wetland ID: Sudbury Wetlands 12, 14, 15, 16

Prepared by: VK

Date: 4/22/2020

Wetland Impact:

Type: Crane mats

Area: 296 sf

**Evaluation based on:** 

Office: X Field:

Corps manual wetland delineation completed?

Y

	Suita	bility	Rationale	Principal	
Function/Value	Y	N	(Reference #)*	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	х		2,7		Associated with Hop Brook
Floodflow Alteration	х		1, 5, 6, 8, 9, 10, 13, 14, 18	х	Wetland system also includes wetlands 8, 7, and 6
Fish and Shellfish Habitat	х		4, 14, 15	х	
Sediment/Toxicant Retention	х		1, 2, 3, 5, 9, 10, 12, 14, 15	х	
Nutrient Removal	х		1, 2, 4, 5, 7, 9, 12, 14	х	
Production Export	х		1, 2, 7, 10	х	
Sediment/Shoreline Stabilization	х		4, 5, 7, 9, 12, 13, 14, 15	х	
Wildlife Habitat	х		2, 6, 7, 8, 9, 11, 13	х	
Recreation	х		5, 9		
Educational Scientific Value	х		5		
Uniqueness/Heritage	Х		5, 6, 13, 16, 19, 22, 28	x	
Visual Quality/Aesthetics	х		2, 8, 10	Х	
Other					

Based on the ACOE Highway Methodology Workbook Supplement, Wetland Functions, and Values: A Descriptive Approach

Total area of wetlands: 316 sf 

Adjacent land use: Railroad ROW

Dominant wetland systems present: PFO

**Distance to nearest roadway or other development:** 362 ft to office bldg

Contiguous undeveloped buffer zone present? No

If not, where does the wetland lie in the drainage basin?

Is the wetland a separate hydraulic system? Yes How many tributaries contribute to the wetland? 0 Project Name: Sudbury-Hudson/MCRT

VHB Job No.: 12970.00

Wetland ID: Sudbury Wetland 13

**Date:** 4/22/2020 Prepared by: VK

Wetland Impact:

**Type:** Grading (fill) Area: 303 sf

**Evaluation based on:** 

Office: X Field:

Corps manual wetland delineation completed?

	Suita	bility	Rationale	Principal	
Function/Value	Y	N	(Reference #)*	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration	х		5, 9		
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention		X			
Nutrient Removal		X			
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat	X		4, 5, 7, 8	x	
Recreation		X			
Educational Scientific Value		X			
Uniqueness/Heritage	Х		17, 19, 22	X	
Visual Quality/Aesthetics	X		10		
Other					

Based on the ACOE Highway Methodology Workbook Supplement, Wetland Functions, and Values: A Descriptive Approach

Total area of wetland: 3837 sf Human made? No Is wetland part of a wildlife corridor or a "habitat island"? No

Adjacent land use: Railroad ROW

**Dominant wetland systems present:** PSS

Distance to nearest roadway or other development: 100 ft to parking lot

Contiguous undeveloped buffer zone present? No

If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0

Is the wetland a separate hydraulic system? No

Project Name: Sudbury-Hudson/MCRT

VHB Job No.: 12970.00

Wetland ID: Sudbury Wetland 18

Prepared by: VK Date: 4/22/2020

Wetland Impact:

**Type:** Headwall + cut in grade **Area:** 27 sf

**Evaluation based on:** 

Office: X Field:

Corps manual wetland delineation completed?

Y

	Suita	bility	Rationale	Principal	
Function/Value	Y	N	(Reference #)*	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		X			
Floodflow Alteration	X		4, 5		Impervious surfaces from residential development to south and commercial development to the north
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X		1, 2, 4		
Nutrient Removal	X		4		
Production Export		X			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat		X			
Recreation		X			
Educational Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		х			
Endangered Species Habitat		х			
Other					

Notes:

\*Refer to list of numbered considerations in ACOE Descriptive Approach Publications

Based on the ACOE Highway Methodology Workbook Supplement, Wetland Functions, and Values: A Descriptive Approach

Total area of wetland: 7973 sf Human made? No Is wetland part of a wildlife corridor or a "habitat island"? No

Adjacent land use: Railroad ROW

Dominant wetland systems present: PSS

**Distance to nearest roadway or other development:** 120 ft to residence

Contiguous undeveloped buffer zone present? No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Upper

How many tributaries contribute to the wetland? 0

Project Name: Sudbury-Hudson/MCRT

VHB Job No.: 12970.00

Wetland ID: Sudbury Wetland 19

Prepared by: VK Date: 4/22/2020

Wetland Impact:

**Type:** Cut in grade **Area:** 4 sf

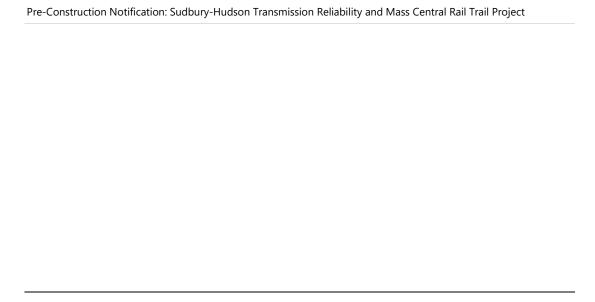
**Evaluation based on:** 

Office: X Field:

Corps manual wetland delineation completed?

Y

	Suita	bility	Rationale	Principal	
Function/Value	Y	N	(Reference #)*	Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge		x			
Floodflow Alteration	х		4, 5		Impervious surfaces from residential development to south and commercial development to the north
Fish and Shellfish Habitat		X			
Sediment/Toxicant Retention	X		1, 2, 4		Sediment deposits present
Nutrient Removal	X		3, 4		
Production Export		х			
Sediment/Shoreline Stabilization		X			
Wildlife Habitat		X			
Recreation		Х			
Educational Scientific Value		X			
Uniqueness/Heritage		X			
Visual Quality/Aesthetics		X			
Endangered Species Habitat		x			
Other					



# Appendix F: Historic and Archaeological Resources Documentation

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# Mashpee Wampanoag Tribe Section 106 Review Consultation Response Form

Project Docket Number:	Sudbury Hudson Transmission Reliability Project
Consultant/Environmental Firm:	US ACOE/Eversource/VHB
Address or Location Description:	Various location
City, State:	Sudbury, Malborough, Stow & Hudson, MA
Point of Contact	Denise Bartone Project Manager w/ Eversource

Res	non	se:
100		De.

	We have no concerns related to the proposed project. MWT anticipates no adverse affects to our sites of cultural significance, by you or your client.
	The MWT considers this project in compliance with the MWT's section 106 review process with agreed upon mitigations.
	This site will require the on-site presence of a Tribal Cultural Resource Monitor during ground disturbing activities. Contact the Compliance Review Supervisor with construction schedule.
$\boxtimes$	The Mashpee Wampanoag Tribe has reviewed this project and offers these comments in regard to the above mentioned project. This project has the potential to affect historic or cultural resources important to our tribe.

After conducting a review of the documents received we have determined there is a potential to "adversely effect" cultural resources and find the proposed project areas to be culturally significant to the Mashpee Wampanoag Tribe.

We will require a Tribal CRM to access/monitor ground disturbing activities associated with Archaeology and or construction. We request contact information for the general contractor/project manager in charge of scheduling. The proponent will be responsible for all reasonable cost associated with our monitoring at a rate of \$75.00/hr. plus mileage, which is expected to be paid within 30 days of invoicing.

All information obtained through our participation will inform and advise our attempts to avoid, minimize, or mitigate adverse effects to culturally sensitive assemblages related to the undertaking.

This consultation process initiates your compliance to the National Historic Preservation Act of 1966 and all relevant amendments including but not limited to section 106 and 36 CFR 800.

construction, you must immediately stop construction and notify us.

Exception: In the case that archeological resources or human remains are found during

David Weeden, Compliance Review Tribal Historic Preservation Department 7/20/18 Date



#### The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth Massachusetts Historical Commission

April 3, 2019

Barbara Newman
Chief, Permits and Enforcement Branch
Regulatory Division
US Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742-2751

RE: Sudbury-Hudson Transmission Reliability Project, Sudbury, Marlborough, Stow and Hudson, MA. MHC #RC.62384. EEA #15703.

Dear Ms. Newman:

Staff of the Massachusetts Historical Commission (MHC), have reviewed the archaeological report, *Archaeological Intensive (Locational) Survey for the Sudbury-Hudson Transmission Reliability Project, Towns of Sudbury, Hudson, Marlborough and Stow, Middlesex County, Massachusetts*, prepared and submitted by Commonwealth Heritage Group (CHG) for the project referenced above. The MHC has also received updated design drawings for four bridge crossings in the project area, including the Chestnut Street culvert, and Bridge 130 on Fort Meadow Brook in Hudson; and Bridge 128 and Bridge 127 on Hop Brook in Sudbury. The MHC previously reviewed the 2018 CHG report *Sudbury-Hudson Transmission Reliability Project Reconnaissance-Level Historic Properties Survey*.

The MHC looks forward to reviewing the Corps' findings and determinations for the project pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800).

The MHC received comments from the Sudbury Historical Commission regarding Massachusetts Central Railroad Bridges #127 (MHC #SUD.901) and #128 (SUD.900). The bridges are rare extant examples of the plate girder construction method that date circa 1881, suggesting that the bridges meet the Criteria of Evaluation (36 CFR 60) for listing in the National Register of Historic Places for their architectural significance.

The bridges referenced above, as well as the Fort Meadow Brook Railroad Bridge/ Bridge 130 (MHC #HUD.908), and Boston and Maine Railroad Section Tool House (SUD.282), are included by CHG in a potential Central Massachusetts Railroad Historic District. The Central Massachusetts Railroad historic district includes extant railroad-related architectural and archaeological resources within the former Massachusetts Central Railroad corridor extending from Wilkins Street in Hudson to the Sudbury Substation east of Landham Road in Sudbury.

Current bridge design drawings indicate that modification, including abutment changes, and addition of exterior duct banks to bridges #128 and #130 referenced above are proposed. Plate girder style Bridge #127 is proposed to be demolished and replaced with a new truss design. The proposed modification and/or demolition of the bridges do not appear to be developed in accordance with the Secretary of the Interior's Standards and Guidelines for Rehabilitation (36 CFR 67), as previously requested in the MHC's June 30, 2017 comments on the ENF.

The modification of abutments and demolition constitute an adverse effect (36 CFR 800.5(a(2)(i); 950 CMR 71.05) to the bridges within the potential Central Massachusetts Railroad Historic District. Alternatives to avoid, minimize or mitigate the adverse effects to the railroad related features and historic bridges should be considered further in consultation with the Sudbury and Hudson Historical Commissions.

The project includes excavation for a potential wetland mitigation area and vegetation removal within the George Pitt Tavern Historic District (SUD.P) in proximity to the Boston and Maine Railroad Section Tool House (SUD.282). The historic district is listed in the State Register of Historic Places and is a local historic district. Alternatives to avoid, minimize or mitigate project impacts to the historic district setting should be considered in consultation with the Sudbury Historic District Commission. The development and implementation of a historic properties avoidance and protection plan for railroad related architecture, including the Tool House, is also recommended during project construction.

If consultation is unable to resolve adverse effects through consideration of project design alternatives, then the MHC recommends that the Corps should make an adverse effect finding, notify the Advisory Council on Historic Preservation (ACHP) (36 CFR 800.6 (a)(1)) and provide the documentation specified in 36 CFR 800.11(e).

Project impacts associated with vegetation removal will not, in the MHC's staff's opinion, adversely effect the significant historic characteristics of the Goodnow/Ransom House (SUD.330), Sudbury First Industrial Area (SUD.D), 1767 Milestone #24 (SUD.922), Hall House (SUD.320), the Oviatt/Hunt House (SUD.12) in South Sudbury (SUD.B), Wayside Inn Historic District (SUD.F), Natick Research and Development Laboratories (SUD.C), Ordway Farm (HUD.108) or Goodale Homestead (HUD.F).

The Sudbury-Hudson-Marlborough granite boundary marker is proposed for avoidance and protection during project construction.

The archaeological survey identified eight ancient Native American and eight historical period archaeological sites. The sites indicated by CHG to be potentially significant archaeological resources include the Ordway Locus 2 and Ordway Locus 3 in Hudson and the Hop Brook Site in Sudbury ancient Native American archaeological sites; and the Gleasondale Station Site (MHC #HUD.HA.8), Ordway Station Site (HUD.HA.9), Memorial Forest Cellar Hole Site (SUD.HA.36), Walker Garrison House (SUD.HA.30), Wayside Inn Station Site (SUD.HA.38), South Sudbury Station (SUD.HA.26), Boston & Maine Railroad Section Tool House (SUD.HA.37/SUD.282) and East Sudbury Station (SUD.HA.39) historical archaeological sites in Hudson and Sudbury. The Ordway Locus 1, Ordway Find Spot 1, Ordway Find Spot 2, White Pond Site and Gleasondale ancient Native American sites in Hudson are not considered by CHG to be potentially significant archaeological resources.

The sites referenced above are within and /or immediately adjacent to proposed project impact areas. The sites appear to be avoidable through the development and implementation of an archaeological site avoidance and protection plan during construction. A draft written archaeological site avoidance and protection plan, including stipulations for fencing, signage and contractor briefings, should be prepared by CHG and submitted to the MHC for review and comment.

If site avoidance and protection plan implementation and/or project redesign to avoid the identified archaeological sites is not feasible, then updated project information and the CHG's recommendations regarding project impacts to intact, significant archaeological resources associated with these sites should be provided to the Corps and MHC for review and comment. Limited archaeological site examination (950 CMR 70), to define site size, boundaries and data contents, may be required.

The MHC looks forward reviewing the information requested above and to consultation to avoid, minimize and mitigate adverse effects to significant historic and archaeological resources.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), Massachusetts General Laws, Chapter 9, Section 26-27C (950 CMR 70-71) and MEPA (301 CMR 11). If you have questions, please contact Jonathan K. Patton at this office.

Sincerely,

Brona Simon

State Historic Preservation Officer

**Executive Director** 

State Archaeologist

Massachusetts Historical Commission

xc:

Denise Bartone, Eversource

Kate Atwood, USACOE-NED

Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)

David Weeden, Mashpee Wampanoag Tribe

Secretary Matthew A. Beaton, EEA. Attn: Page Czepiga, MEPA Unit

Ellen Berkland, DCR

Patrice Kish, DCR

Local Historical Commissions; Towns of Sudbury, Marlborough, Stow and Hudson

Sudbury Historic District Commission

Vivian Kimball, VHB, Inc.

Marty Dudek, Commonwealth Heritage Group



#### The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth Massachusetts Historical Commission

December 18, 2019

Barbara Newman Chief, Permits and Enforcement Branch Regulatory Division US Army Corps of Engineers New England District 696 Virginia Road Concord, MA 01742-2751

RE: Sudbury-Hudson Transmission Reliability Project, Sudbury, Marlborough, Stow and Hudson, MA. MHC #RC.62384. EEA #15703.

Dear Ms. Newman:

Staff of the Massachusetts Historical Commission (MHC), have reviewed additional information that was prepared and submitted by VHB, Inc., for the project referenced above.

The additional information indicates that the project has incorporated measures to avoid and minimize adverse effects to historic and archaeological resources to the extent feasible. Consultation with the Hudson and Sudbury Historical Commission has been conducted by the project proponent. The MHC looks forward to reviewing the Corps' findings and determinations for the project pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800). Copies of any comments from other consulting parties on the project as currently proposed should be submitted to the MHC.

The project as currently proposed continues to include modification of abutments and demolition of architectural elements of the Massachusetts Central Railroad Bridges #127 (MHC #SUD.901) in Sudbury and the Fort Meadow Brook Railroad Bridge/ Bridge 130 (MHC #HUD.908) in Hudson. Project impacts to the two bridges referenced above constitute an adverse effect (36 CFR 800.5(a(2)(i); 950 CMR 71.05) to the bridges within the potential Central Massachusetts Railroad Historic District.

The MHC recommends that the Corps make an adverse effect finding, notify the Advisory Council on Historic Preservation (ACHP) (36 CFR 800.6 (a)(1)), and provide the documentation specified in 36 CFR 800.11(e). The draft Memorandum of Agreement (MOA) for the project should specify measures agreed to in consultation and adopted by the project proponent to avoid, minimize and mitigate adverse effects to significant historic and archaeological resources. The draft MOA should include the most current project plans as an appendix, including design changes referenced in the VHB memorandum dated October 23, 2019 specifying individual site avoidance and protection measures.

The MHC suggests that the draft MOA include the following stipulations:

The development and implementation of the archaeological site avoidance and protection plan for significant
historic and archaeological resources, including the George Pitt Tavern Historic District (SUD.P), the Boston and
Maine Railroad Section Tool House (SUD.282) and significant archaeological resources. The draft written
archaeological site avoidance and protection plan, including stipulations for fencing, signage and contractor

briefings, should be prepared by CHG using the most current project plans and submitted to the consulting parties for review and comment. Plans should reflect feasible integration of rest stops at the Gleasondale Station Site (MHC #HUD.HA.8), Ordway Station Site (HUD.HA.9), as requested by the Hudson Historical Commission.

- The development and implementation of design specifications and details for the proposed removal and resetting of railroad features, including whistle posts, rail rests, auto highway flashers, block signals, and mile markers, etc., consistent with Secretary of the Interior's Standards and Guidelines for Rehabilitation (36 CFR 67), to avoid adverse effects to the historic railroad features. Current project plans should include specifications and details for railroad feature removal and re-setting, including protection during removal and short term storage, if required.
- Mitigation measures for the Central Massachusetts Railroad historic district, including Bridge 130 on Fort Meadow Brook in Hudson; and Bridge 128 and Bridge 127 on Hop Brook in Sudbury. The MHC suggests that mitigation measures for bridges include photodocumentation to HABS/HAER standards, the production of updated MHC Inventory forms, and the development and installation of interpretive panels at each bridge that describe the history of the bridges and Massachusetts Central Railroad. Draft interpretive panel layout and content should be provided to the consulting parties for review and comment. The development and implementation of a mobile app/web-based platform for rail trail users to access railroad history is also recommended in consultation with the Hudson and Sudbury Historical Commissions.

The MHC looks forward reviewing the information requested above and to continued consultation to avoid, minimize and mitigate adverse effects to significant historic and archaeological resources.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), Massachusetts General Laws, Chapter 9, Section 26-27C (950 CMR 70-71) and MEPA (301 CMR 11). If you have questions, please contact Jonathan K. Patton at this office.

Sincerely,

Brona Simon

State Historic Preservation Officer

Executive Director State Archaeologist

Massachusetts Historical Commission

xc: Denise Bartone, Eversource

Brooke Kenline-Nyman, Eversource

Kate Atwood, USACOE-NED

Anthony Guy Lopez, ACHP

Bettina Washington, Wampanoag Tribe of Gay Head (Aquinnah)

David Weeden, Mashpee Wampanoag Tribe

Secretary Kathleen A. Theoharides, EEA. Attn: Page Czepiga, MEPA Unit

Patrice Kish, DCR

Local Historical Commissions: Towns of Sudbury, Marlborough, Stow and Hudson

Sudbury Historic District Commission

Vivian Kimball, VHB, Inc.

Marty Dudek, Commonwealth Heritage Group



Appendix G: Rare, Threatened, and Endangered Species Documentation

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# United States Department of the Interior

#### FISH AND WILDLIFE SERVICE

New England Ecological Services Field Office 70 Commercial Street, Suite 300 Concord, NH 03301-5094 Phone: (603) 223-2541 Fax: (603) 223-0104

http://www.fws.gov/newengland



In Reply Refer To: July 26, 2020

Consultation Code: 05E1NE00-2020-SLI-3451

Event Code: 05E1NE00-2020-E-10507

Project Name: Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Subject: List of threatened and endangered species that may occur in your proposed project

location, and/or may be affected by your proposed project

#### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle\_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

#### Attachment(s):

Official Species List

# **Official Species List**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office 70 Commercial Street, Suite 300 Concord, NH 03301-5094 (603) 223-2541

# **Project Summary**

Consultation Code: 05E1NE00-2020-SLI-3451

Event Code: 05E1NE00-2020-E-10507

Project Name: Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail

**Project** 

Project Type: \*\* OTHER \*\*

Project Description: New underground electric transmission line and rail trail within the same

inactive railroad corridor.

#### **Project Location:**

Approximate location of the project can be viewed in Google Maps: <a href="https://www.google.com/maps/place/42.37721942601634N71.46529266326996W">https://www.google.com/maps/place/42.37721942601634N71.46529266326996W</a>



Counties: Middlesex, MA

## **Endangered Species Act Species**

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

#### **Mammals**

NAME STATUS

Northern Long-eared Bat Myotis septentrionalis

Threatened

No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>

#### **Critical habitats**

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.



# United States Department of the Interior

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http://www.fws.gov/newengland



In Reply Refer To: July 26, 2020

Consultation Code: 05E1NE00-2020-TA-3451

Event Code: 05E1NE00-2020-E-10508

Project Name: Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

Subject: Verification letter for the 'Sudbury-Hudson Transmission Reliability and Mass Central

Rail Trail Project' project under the January 5, 2016, Programmatic Biological

Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted

from Take Prohibitions.

#### Dear Vivian Kimball:

The U.S. Fish and Wildlife Service (Service) received on July 26, 2020 your effects determination for the 'Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take" prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

[1] Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

#### **Action Description**

You provided to IPaC the following name and description for the subject Action.

#### 1. Name

Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project

#### 2. Description

The following description was provided for the project 'Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project':

New underground electric transmission line and rail trail within the same inactive railroad corridor.

Approximate location of the project can be viewed in Google Maps: <a href="https://www.google.com/maps/place/42.37721942601634N71.46529266326996W">https://www.google.com/maps/place/42.37721942601634N71.46529266326996W</a>



#### **Determination Key Result**

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

#### Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

# **Determination Key Result**

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

# **Qualification Interview**

- 1. Is the action authorized, funded, or being carried out by a Federal agency? *Yes*
- 2. Have you determined that the proposed action will have "no effect" on the northern long-eared bat? (If you are unsure select "No")

  No
- 3. Will your activity purposefully **Take** northern long-eared bats? *No*
- 4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

Automatically answered No

5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases — the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern long-eared bat roost trees and hibernacula is available at <a href="www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html">www.fws.gov/midwest/endangered/mammals/nleb/nhisites.html</a>.

Yes

6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum?

No

7. Will the action involve Tree Removal?

Yes

- 8. Will the action only remove hazardous trees for the protection of human life or property? *No*
- 9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year?

No

10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

## **Project Questionnaire**

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

- 1. Estimated total acres of forest conversion:
- 24.21
- 2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31  $\,$ 

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

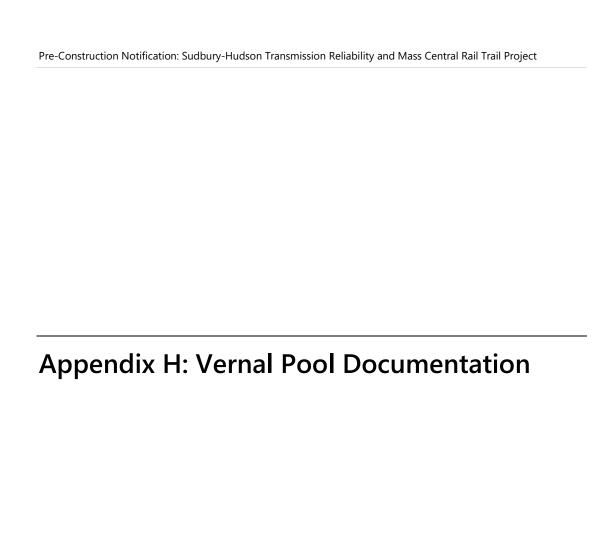
8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31 *0* 

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?  $\theta$ 



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# Vernal Pools Identified on and Adjacent to the MBTA ROW

Vernal	Vernal Pool Flag Sequence	Associated Wetland	General Location Description	Plan Set Page(s)	Observations by Year				NHESP	Photo	Comments
Pool ID					2015	2016	2017	CVP	Certifiable	ID	
VP-1	HVP1-1 - HVP1-12	16	On north side of MBTA rail line, approximately 80' east of White Pond Road.	22	2+ egg masses	5/11/16, 2 Spotted Salamander ( <i>Ambystoma</i> <i>maculatum</i> ) egg masses	4/24/2017, Spotted salamander egg mass (4), fairy shrimp, (thousands) cadisfly larvae, amphipods, 2 young bull frogs (Lithobates catesbeianus)	Yes	N/A	1 - 4	Mostly located on DOD's land. Observed dry August, September and October 2017
VP-2	HVP2-8 - HVP2-14	17	On south side of MBTA rail line, approximately 850' east of White Pond Road.	22	No data	5/11/16, 3 Wood frog tadpoles (3) (Lithobates sylvaticus), 2 small green frogs ( <i>Lithobates clamitan</i> ), gray tree frog ( <i>Hyla</i> versicolor) vocalizations, isopods, Dyticid beetle larvae, water mites, few green frog vocalizations	One small green frog	No	Yes	5 and 6	Observed dry August, September and October 2017
VP-3	HVP15- HVP23	19	On North side of MBTA rail line, approximately 450' west of Hudson/Sudbury town line.	23	Wood frog tadpoles present, 2+ <i>Ambystoma sp.</i> salamander egg masses	5/12/16, Wood frog tadpoles abundant	4/24/2017, Spotted salamander egg mass (4), fairy shrimp, spring peeper ( <i>Pseudacris crucifer</i> ) calls	Yes	N/A	7 - 10	Mostly located on USFWS' land. Observed dry August, September and October 2017
VP-1	DW1-DW19	3	Approximately 150" West of Sudbury Substation access road, north side of MBTA ROW	39-40	No organisms found	No organisms found	Snails ( <i>Lymnaeidae</i> ) and amphipods	N	?	1-5	Limited access from MBTA ROW to fully evaluate wetland. Sudbury Conservation Commission agent appears to have identified this basin as a vernal pool in EFSB written testimony.
VP-2	DSVP1- DSVP12	5	Approximately 1300' west of Landham Road, north of MBTA ROW	36-37	Wood frog tadpoles	5/18/16 Green Frog adult and invertebrates	5/2/17, Green frog, amphipods, annelids	N	Y	6-9	
VP-3	DSVP13- DSVP19	8	Approximately 1000' west of Landham Road, north of MBTA ROW	36	Lots of algae and leaves on surface, No tadpoles	5/18/16 Green Frog adult and invertebrates	5/2/17 Green frog, leopard frog adult, isopods, pleurobid snail, beetle larvae, caddis fly larvae, isopods	N	N	10-13	
VP-4	CSVP1- CSVP6	9	Approximately 1100' west of Landham Road, north of MBTA ROW	36	Green frog	5/18/16 Ambystoma sp. Larva	5/2/17, Green frog, amphipods, mosquito larvae, caddisfly larvae	N	Y	14-17	
VP-5	DW214- DW216	24A	Approximately 300 feet west of Union Avenue, north side of MBTA ROW	27-28				N	?	18-19	No access from ROW to evaluate wetland. Sudbury Conservation Commission agent appears to have identified this basin as a vernal pool in EFSB written testimony.

Vernal	Vernal Pool Flag Sequence	Associated Wetland	General Location Description	Plan Set Page(s)	Observations by Year				NHESP	Photo	Comments
Pool ID					2015	2016	2017	CVP	Certifiable	ID	
VP-6	CSVP24- CSVP29	27	Approximately 400' east of Horse Pond Road, south side of ROW	21	Hundreds of wood frog tadpoles	5/19/16 Wood Frog tadpoles	Wood frog tadpoles (hundreds), amphipods, ostricods, caddid fly larvae	N	Y	20-24	
VP-7	DSVP40- DSVP45	34	Approximately 150 west of Peakham Road, north side of ROW	16	Fairy shrimp, Hundreds of wood frog tadpoles, caddisfly larvae	5/12/16 Wood Frog tadpoles	5/2/17, no vertebrates, mosquito larvae	N	Y	25-27	
VP-8	DSVP34- DSVP39	35	Approximately 550 west of Peakham Road, north side of ROW	15	Thousands of wood frog tadpoles, caddisfly larvae	5/12/16 Green Frog adult and mosquito larvae	5/2/17, no vertebrates, mosquito larvae, chironomid midge larvae	N	Y	28-29	
VP-9	DW117- DW121	39	Approximately 150' west of Dutton Road, north of MBTA ROW	11	n/a	n/a	n/a	Y	Y	30	No access from ROW to evaluate wetland. Sudbury Conservation Commission agent appears to have identified this basin as a vernal pool in EFSB written testimony.
VP-10	DSVP30- DSVP33	40	Approximately 300 feet west of Dutton Road, north side of ROW	11	n/a	n/a	4-24-17 Ambystoma egg mass and fairy shrimp	N	Y	31-33	Limited access from MBTA ROW, mostly off site on Sudbury town land
VP-11	CSVP7- CSVP23	42	Approximately 450 feet west of Dutton Road, north side of ROW	10	n/a	5/12/16 Green Frog adult and caddisflies	4/24/17, Green frog, mosquito larvae	N	N	34-35	
VP-12	DW105- DW111	41	Approximately 550 feet west of Dutton Road, north side of ROW	10				N	?		No access from ROW to evaluate wetland. Sudbury Conservation Commission agent appears to have identified this basin as a vernal pool in EFSB written testimony.
VP-13	DSVP20- DSVP29	43	Approximately 750 feet west of Dutton Road, south side of ROW	10	n/a	6/1/16 Wood Frog tadpoles	4-24-17 Wood frog egg masses (few)	N	Y	36-39	Gray tree frog vocalizations heard in area

# **Hudson**



Photo 1 Vernal Pool 1, 2017



Photo 2 Vernal Pool 1, 2017. Ambystoma egg mass and fairy shrimp.







Photo 3 Vernal Pool 1, 2017. Fairy shrimp.



Photo 4 Vernal Pool 1, 2017. Caddis fly cases.







Photo 5 Vernal Pool 2, 2017



Photo 6 Vernal Pool 2, 2016. Wood frog tadpole.







Photo 7 Vernal Pool 3, 2017



Photo 8 Vernal Pool 3, 2016







Photo 9 Vernal Pool 3, 2017. Ambystoma egg mass and fairy shrimp.



Photo 10 Vernal Pool 3,2016. Wood frog tadpoles.





# **Sudbury**



**Photo 11** *Vernal Pool 1, 2015* 



**Photo 17** *Vernal Pool 1, 2016* 



## Sudbury-Hudson Transmission Reliability and Mass Central Rail Trail Project





Photo 18 Vernal Pool 1, 2017



Photo 19 Vernal Pool 1, 2017. Snail (Lymnaeidae)





Photo 110 Vernal Pool 1, 2017. Amphipod.



**Photo 111** *Vernal Pool 2, 2015* 







**Photo 112** *Vernal Pool 2, 2016* 



**Photo 113** *Vernal Pool 2, 2017* 







Photo 114 Vernal Pool 2, 2017. Green Frog.



Photo 15 Vernal Pool 3, 2015







Photo 16 Vernal Pool 3, 2016



Photo 17 Vernal Pool 3, 2017. Caddis fly larvae.







Photo 23 Vernal Pool 3, 2017. Isopod.



**Photo 18** *Vernal Pool 4, 2015* 







**Photo 19** *Vernal Pool 4, 2016* 



Photo 20 Vernal Pool 4, 2016. Ambystoma sp. larvae.







Photo 21 Vernal Pool 4, 2017



**Photo 22** *Vernal Pool 5, 2015* 







Photo 23 Vernal Pool 5, 2016



**Photo 24** *Vernal Pool 6, 2016* 







**Photo 25** *Vernal Pool 6, 2016* 



**Photo 26** *Vernal Pool 6, 2017* 







Photo 33 Vernal Pool 6, 2017. Caddis fly larvae and ostracods.



Photo 27 Vernal Pool 6, 2017. Wood frog tadpoles and ostracods.







Photo 28 Vernal Pool 7, 2016



Photo 29 Vernal Pool 7, 2016. Wood frog tadpoles.







Photo 30 Vernal Pool 7, 2017



Photo 31 Vernal Pool 8, 2016







Photo 32 Vernal Pool 8, 2017



Photo 40 Vernal Pool 9, 2016







**Photo 41** *Vernal Pool 10, 2016* 



Photo 33 Vernal Pool 10, 2017







Photo 34 Vernal Pool 10, 2017. Ambystoma egg mass and fairy shrimp.



**Photo 44** *Vernal Pool 11, 2016* 





**Photo 35** *Vernal Pool 11, 2017* 



**Photo 46** *Vernal Pool 13, 2016* 







Photo 36 Vernal Pool 13, 2017. Wood frog tadpoles.



**Photo 37** *Vernal Pool 13, 2017* 







Photo 38 Vernal Pool 13, 2017. Wood frog egg mass.



