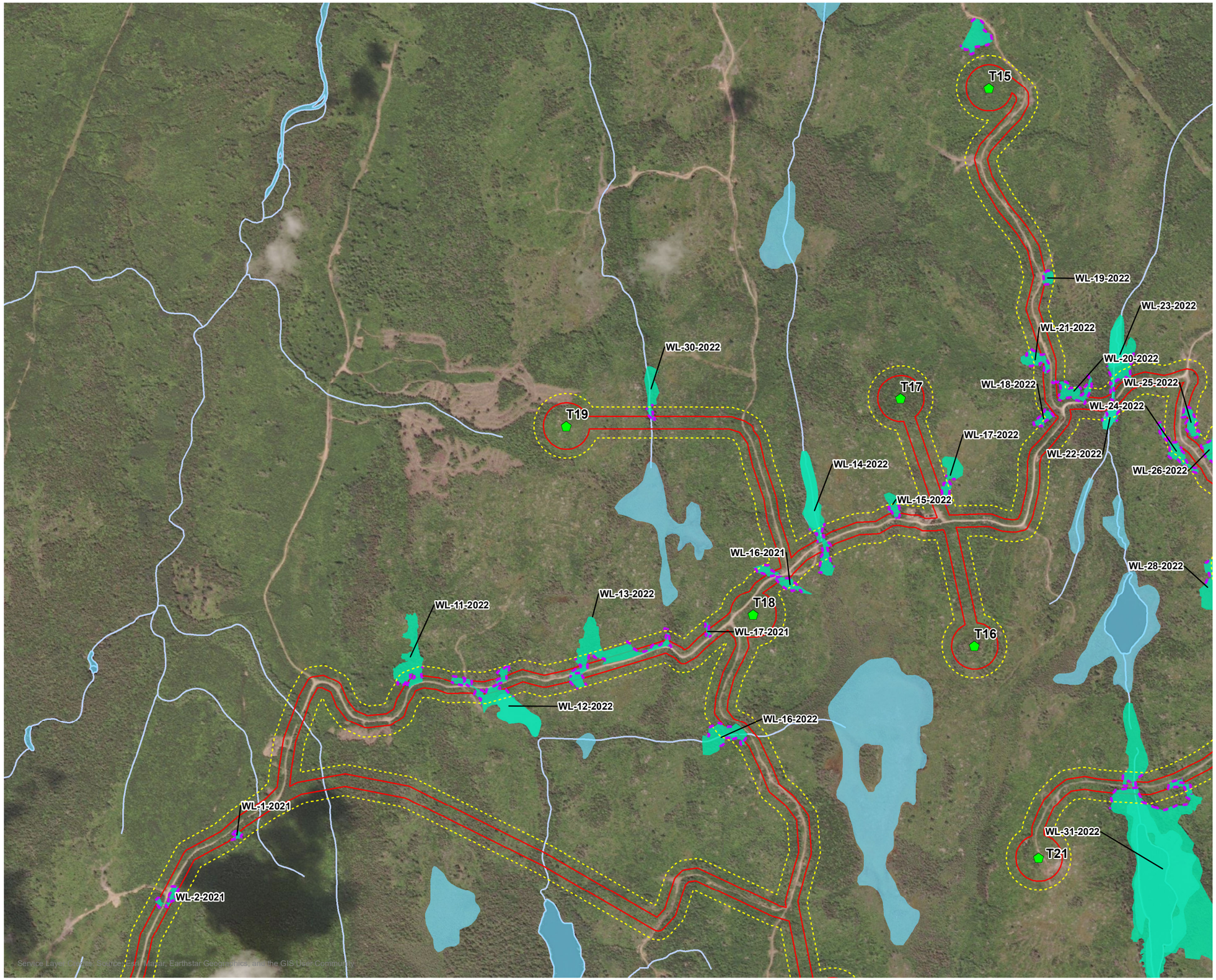


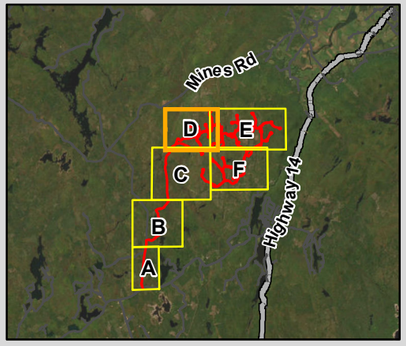
Natural Forces

BENJAMINS MILL WIND PROJECT

WETLANDS WITHIN THE STUDY AREA

FIGURE 8 D

- Proposed Turbine Location
- Proposed Substation Location
- Potential Development Area (PDA)
- Field Delineated Wetland Boundary
- Study Area
- Watercourse
- Waterbodies
- Model Interpreted Wetland Boundary



0 0.25 0.5 km

N W E S

SCALE 1:12,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY DILLON CONSULTING, GEONB, NATURAL FORCES

MAP CREATED BY: DU
MAP CHECKED BY: KB
MAP PROJECTION: NAD 1983 UTM ZONE 20N

DILLON CONSULTING

PROJECT: 21-1329
STATUS: DRAFT
DATE: 2022-12-14

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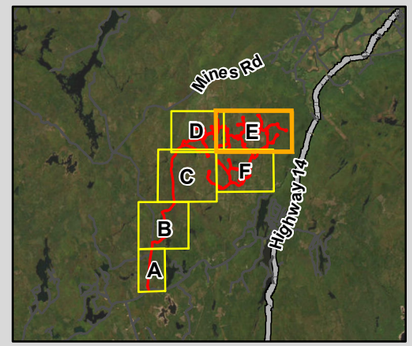
Natural Forces

BENJAMINS MILL WIND PROJECT

WETLANDS WITHIN THE STUDY AREA

FIGURE 8 E

- Proposed Turbine Location
- Proposed Substation Location
- Potential Development Area (PDA)
- Field Delineated Wetland Boundary
- Study Area
- Watercourse
- Waterbodies
- Model Interpreted Wetland Boundary



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PROJECT: 21-1329
STATUS: DRAFT
DATE: 2022-12-14

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FILE LOCATION: K:\2021\211329\Product\Internal\Benjamin_Mills_Figures_2022\Wetlands Figures 2022\BM_F03_Wetland_WithinSAandLAA_2022.mxd

T21
T20
WL-31-2022
WL-38-2022
WL-39-2022
WL-40-2022
WL-55-2022
T7
WL-54-2022
WL-41-2022
WL-57-2022
T24
WL-62-2022
T23
WL-59-2022
WL-56-2022
T25
WL-63-2022
WL-58-2022
WL-61-2022
T27
WL-1-2022
WL-60-2022
WL-2-2022
T28

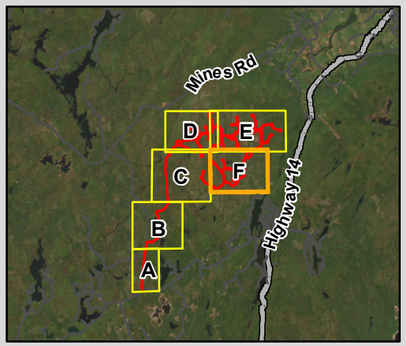
Natural Forces

BENJAMINS MILL WIND PROJECT

WETLANDS WITHIN THE STUDY AREA

FIGURE 8 F

- Proposed Turbine Location
- Proposed Substation Location
- Potential Development Area (PDA)
- Field Delineated Wetland Boundary
- Study Area
- Watercourse
- Waterbodies
- Model Interpreted Wetland Boundary



0 0.25 0.5 km

N W E S

SCALE 1:12,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY DILLON CONSULTING, GEONB, NATURAL FORCES

MAP CREATED BY: DU
MAP CHECKED BY: KB
MAP PROJECTION: NAD 1983 UTM ZONE 20N

DILLON CONSULTING

PROJECT: 21-1329
STATUS: DRAFT
DATE: 2022-12-14

FILE LOCATION: K:\2021\211329\Product\Internal\Benjamin_Mills_Figures_2022\Wetlands Figures 2022\BM_F03_Wetland_WithinSAandLAA_2022.mxd

TABLE 11: SUMMARY OF CHARACTERISTICS AND PROPOSED ALTERATIONS OF WETLANDS WITHIN 30 M OF THE PDA

Wetland ID	Wetland Type	Approx. Area (ha)	Water Flow Path	Landscape Position	Landform	Wetland Within PDA			Potential Alterations
						Area (ha)	%	Max. Area to be Altered (ha)	
WL-1-2021	Treed Swamp	0.07	Outflow (ephemeral/subsurface)	Terrene	Basin	0.02	29	0.004	Potential infilling to upgrade an existing access road
WL-2-2021	Treed Swamp	0.17	Outflow (ephemeral/subsurface)	Terrene	Basin	0.15	88	0.058	Potential infilling to upgrade an existing access road
WL-3-2021	Shrub Swamp	0.30	Outflow (ephemeral/subsurface)	Terrene	Basin	0.18	60	0.105	Potential infilling to upgrade an existing access road
WL-4-2021	Shrub Swamp	2.20	Outflow	Terrene	Basin	1.01	46	0.543	Potential infilling to upgrade an existing access road
WL-5-2021	Treed Swamp	0.36	Throughflow (WC-23-2022)	Lotic Stream	Basin	0.02	6	0	None, wetland located adjacent to PDA for existing access road upgrades
WL-6/7-2021	Treed Swamp	0.46	Outflow (intermittent flow via WC-21-2021)	Terrene	Basin	0.19	41	0.128	Potential infilling to upgrade an existing access road
WL-8-2021	Treed Swamp	1.01	Throughflow (intermittent flow via WC-20-2021)	Lotic Stream	Basin	0.01	1	0	None, wetland located adjacent to PDA for existing access road upgrades
WL-9/10-2021	Fen and Shrub Swamp Complex	6.07	Throughflow (permanent flow via WC-19-2021)	Lotic Stream	Basin	0.04	1	0.013	Potential infilling to upgrade an existing access road
WL-11-2021	Shrub Swamp	3.09	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.07	2	0.01	Potential infilling to upgrade an existing access road
WL-12-2021	Shrub Swamp	4.03	Outflow (ephemeral/subsurface)	Terrene	Basin	0.00	0	0	None, wetland located adjacent to PDA for existing access road upgrades
WL-13-2021	Treed	1.15	Outflow	Terrene	Basin	0.02	2	0	None, wetland located adjacent to PDA for

Wetland	Wetland	Approx.	Water Flow Path	Landscape	Landform	Wetland Within PDA			Potential Alterations
	Swamp		(ephemeral/subsurface)						existing access road upgrades
WL-14-2021	Treed Swamp	2.55	Throughflow (permanent flow via WC-16-2021)	Lotic Stream	Basin	0.07	3	0.023	Potential infilling to upgrade an existing access road
WL-15-2021	Shrub Swamp	1.31	Outflow (ephemeral/subsurface)	Terrene	Basin	0.17	13	0.076	Potential infilling to upgrade an existing access road
WL-16-2021	Bog	0.42	Outflow (ephemeral/subsurface)	Terrene	Basin	0.09	21	0.031	Potential infilling to upgrade an existing access road.
WL-17-2021	Bog	0.05	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.03	60	0.018	Potential infilling to upgrade an existing access road
WL-1-2022*	Bog	0.70	Outflow (ephemeral/subsurface)	Terrene	Basin	0.05	7	0.023	Infilling to create access road with collector line.
WL-2-2022	Disturbed Swamp	0.23	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.14	61	0	None – Wetland to be spanned by a collector line. Adjacent proposed access road will not encroach within the wetland.
WL-3-2022	Treed Swamp	0.13	Outflow (ephemeral/subsurface)	Terrene	Basin	0.07	54	0.04	Infilling to create access road with collector line.
WL-4-2022*	Treed Swamp	2.56	Outflow (ephemeral/subsurface)	Terrene	Basin	0.15	6	0.074	Infilling to create access road with collector line.
WL-5-2022*	Disturbed Swamp	0.26	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.09	35	0.055	Infilling to create an access road
WL-6-2022	Bog	0.40	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.03	8	0	None - Wetland to be spanned by a collector line. Adjacent proposed access road will not encroach within the wetland.
WL-7-2022*	Disturbed Swamp	0.29	Outflow (ephemeral/subsurface)	Terrene	Slope	0.05	17	0.018	Potential infilling to upgrade an existing access road
WL-8-2022	Bog	0.02	Outflow	Terrene	Basin	0.02	100	0.008	Potential infilling to upgrade an existing

Wetland	Wetland	Approx.	Water Flow Path	Landscape	Landform	Wetland Within PDA			Potential Alterations
			(ephemeral/subsurface)						access road
WL-9-2022	Shrub Swamp	0.35	Outflow (ephemeral/subsurface)	Terrene	Basin	0.13	37	0.05	Potential infilling to upgrade an existing access road
WL-10-2022	Treed Swamp	0.19	Outflow (intermittent flow via 'WC-15-2021')	Terrene	Basin	0.04	21	0.009	Potential infilling to upgrade an existing access road
WL-11-2022	Treed Swamp	1.18	Outflow (intermittent flow via WC-12-2021)	Terrene	Slope	0.10	8	0.056	Potential infilling to upgrade an existing access road
WL-12-2022*	Complex: Bog and Treed Swamp	1.76	Throughflow (permanent flow via WC-11-2021)	Lotic Stream w/pond	Basin	0.27	15	0.101	Potential infilling to upgrade an existing access road
WL-13-2022	Bog	1.69	Outflow (ephemeral/subsurface)	Terrene	Basin	0.51	30	0.302	Potential infilling to upgrade an existing access road
WL-14-2022	Shrub Swamp	1.53	Throughflow (ephemeral/subsurface)	Lotic Stream	Basin	0.09	6	0.038	Potential infilling to upgrade an existing access road
WL-15-2022	Treed Swamp	0.26	Outflow (ephemeral/subsurface)	Terrene	Basin	0.03	12	0.009	Potential infilling to upgrade an existing access road
WL-16-2022	Treed Swamp	0.85	Throughflow (intermittent flow via WC-10-2021)	Lotic Stream	Basin	0.15	18	0.078	Potential infilling to upgrade an existing access road
WL-17-2022	Bog	0.56	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.01	2	0	None – An adjacent proposed access road will not encroach within the wetland.
WL-18-2022	Treed Swamp	0.16	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.00	0	0	None – Wetland to be spanned by a collector line. Adjacent proposed access road will not encroach within the wetland.
WL-19-2022	Bog	0.13	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.03	23	0	None – Adjacent access road upgrades will not encroach within the wetland.

Wetland	Wetland	Approx.	Water Flow Path	Landscape	Landform	Wetland Within PDA			Potential Alterations
WL-20-2022	Treed Swamp	0.47	Outflow (ephemeral/subsurface)	Terrene	Slope	0.07	15	0.012	Potential infilling to upgrade an existing access road.
WL-21-2022	Shrub Swamp	0.36	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.08	22	0.033	Potential infilling to upgrade an existing access road
WL-22-2022*	Shrub Swamp	0.25	Throughflow (permanent flow via WC-9-2021)	Lotic Stream	Basin	0.02	8	0.002	Potential infilling to upgrade an existing access road
WL-23-2022*	Treed Swamp	1.34	Throughflow (permanent flow via WC-9-2021)	Lotic Stream	Floodplain (Stillwater)	0.05	4	0.02	Potential infilling to upgrade an existing access road
WL-24-2022	Bog	0.42	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.00	0	0	None – Wetland to be spanned by a collector line
WL-25-2022	Bog	0.30	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.05	17	0.013	Potential infilling to upgrade an existing access road
WL-26-2022	Bog	0.35	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.19	54	0.068	Infilling to create access road with collector line
WL-27-2022*	Bog	0.13	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.05	38	0.013	Potential infilling to upgrade an existing access road
WL-28-2022*	Bog	0.81	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.05	6	0.012	Potential infilling to upgrade an existing access road
WL-29-2022	Bog	1.07	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.02	2	0.009	Potential infilling to upgrade an existing access road
WL-30-2022*	Treed Swamp	0.50	Throughflow (ephemeral/subsurface)	Lotic Stream	Basin	0.02	4	0.004	Infilling to create access road with collector line

Wetland	Wetland	Approx.	Water Flow Path	Landscape	Landform	Wetland Within PDA			Potential Alterations
WL-31-2022*	Complex: Fen and Treed Swamp	16.78	Throughflow (ephemeral/subsurface)	Lentic (Bennett Lake)	Basin	0.23	1	0.076	Potential infilling to upgrade an existing access road with collector lines
WL-32-2022*	Bog	0.08	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.06	75	0.04	Potential infilling to upgrade an existing access road with collector lines
WL-33-2022*	Treed Swamp	4.39	Throughflow (permanent flow via WC-8-2021)	Lotic Stream	Floodplain (Stillwater)	0.16	4	0.073	Potential infilling to upgrade an existing access road with collector lines
WL-34-2022	Bog	0.39	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.01	3	0	None – Adjacent access road upgrades will not encroach within the wetland
WL-35-2022	Bog	0.93	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.05	5	0.018	Potential infilling to upgrade an existing access road
WL-36-2022	Bog	0.65	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.35	54	0.14	Potential infilling to upgrade an existing access road
WL-37-2022	Disturbed Swamp	0.06	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.01	17	0.001	Potential infilling to upgrade an existing access road
WL-38-2022	Bog	0.10	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.06	60	0.013	Potential infilling to upgrade an existing access road
WL-39-2022	Shrub Swamp	0.10	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.02	20	0.003	Potential infilling to upgrade an existing access road
WL-40-2022	Treed Swamp	0.21	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.07	33	0.038	Potential infilling to upgrade an existing access road
WL-41-2022*	Treed Swamp	3.37	Throughflow (ephemeral/subsurface)	Lotic Stream	Basin	0.34	10	0.202	Potential infilling to upgrade an existing

Wetland	Wetland	Approx.	Water Flow Path	Landscape	Landform	Wetland Within PDA			Potential Alterations
									access road
WL-42-2022	Bog	2.15	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.18	8	0.099	Potential infilling to upgrade an existing access road
WL-43-2022	Bog	7.40	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.25	3	0.094	Potential infilling to upgrade an existing access road
WL-44-2022	Bog	2.47	Outflow (ephemeral/subsurface)	Terrene	Basin	0.00	0	0	None, wetland located adjacent to PDA for existing access road upgrades
WL-45-2022	Treed Swamp	0.54	Outflow (ephemeral/ subsurface)	Terrene	Basin	0.06	11	0.023	Potential infilling to upgrade an existing access road
WL-46-2022	Treed Swamp	2.58	Outflow (intermittent flow via WC-7-2021)	Terrene	Basin	0.05	2	0.021	Potential infilling to upgrade an existing access road
WL-47-2022	Disturbed Swamp	0.35	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.08	23	0.04	Potential infilling to upgrade an existing access road
WL-48-2022	Treed Swamp	0.02	Throughflow (intermittent flow via WC-6-2021)	Lotic Stream	Basin	0.00	0	0	None, wetland located adjacent to PDA for existing access road upgrades
WL-49-2022	Bog	0.41	Outflow (ephemeral/subsurface)	Terrene	Basin	0.11	27	0.048	Potential infilling to upgrade an existing access road and infilling to create a new access road
WL-50/51-2022*	Treed Swamp	2.86	Throughflow (permanent flow via WC-2-2022)	Lotic Stream w/pond	Floodplain (Stillwater)	0.12	4	0.058	Infilling to create an access road with collector lines.
WL-52-2022*	Treed Swamp	0.06	Outflow (ephemeral/subsurface)	Terrene	Basin	0.06	100	0.046	Potential infilling of a portion of the wetland in the PDA for an access road and collector line.
WL-53-	Treed	0.09	Isolated (likely some	Terrene	Basin	0.00	0	0	None – Wetland to be spanned by a

Wetland	Wetland	Approx.	Water Flow Path	Landscape	Landform	Wetland Within PDA			Potential Alterations
2022	Swamp		subsurface/vertical flow)						collector line
WL-54-2022	Bog	0.31	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.13	42	0.068	Potential infilling to upgrade an existing access road
WL-55-2022	Bog	12.99	Outflow (ephemeral/subsurface)	Terrene	Basin	0.00	0	0	None – Wetland to be spanned by a collector line
WL-56-2022*	Disturbed Swamp	0.23	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.10	43	0.043	Potential infilling to upgrade an existing access road
WL-57-2022*	Treed Swamp	0.28	Outflow (ephemeral/subsurface)	Terrene	Basin	0.12	43	0.063	Potential infilling to upgrade an existing access road
WL-58-2022	Bog	1.13	Isolated (likely some subsurface/vertical flow)	Terrene	Basin	0.28	25	0.098	Potential infilling to upgrade an existing access roads
WL-59-2022	Treed Swamp	6.28	Throughflow (permanent flow via WC-4-2021)	Lotic Stream	Floodplain (Stillwater)	0.00	0	0	None – Adjacent access road upgrades will not encroach within the wetland
WL-60-2022*	Shrub Swamp	0.65	Outflow (ephemeral/subsurface)	Terrene	Basin	0.11	17	0.04	Potential infilling to upgrade an existing access roads
WL-61-2022	Shrub Swamp	1.83	Throughflow (permanent flow via WC-3-2021)	Lotic Stream	Basin	0.08	4	0.047	Potential infilling to upgrade an existing access road
WL-62-2022*	Shrub Swamp	3.87	Throughflow (permanent flow via WC-1a-2021) (Stream 1a)	Lotic Stream	Basin	0.12	3	0.048	Infilling to create an access road with collector lines, a bridge or culvert may be required to span the watercourse that is likely to provide habitat for fish
WL-63/64-2022*	Treed Swamp	8.63	Throughflow (permanent flow via WC-1-2021)	Lotic Stream	Floodplain	0.31	4	0.14	Potential infilling to upgrade an existing access road with collector lines. Bridges/culverts may require upgrades to maintain the watercourses within this

Wetland	Wetland	Approx.	Water Flow Path	Landscape	Landform	Wetland Within PDA			Potential Alterations
									wetland that are likely to provide habitat for fish
Total		**124.7**	**--**	**--**	**--**	**8.14**	**7%**	**3.63**	

Notes:

1. Approximate total area includes the delineated area of wetlands within the Study Area, including predicted areas that extend beyond the Study Area, where applicable.
2. * Indicates wetlands with the potential to be classified as Wetland of Special Significance by NSECC.
3. For the purposes of this assessment, a conservative assumed width of 20 m was applied to the Project roads to estimate the maximum wetland area to be altered for these wetlands. Wetlands associated with collector lines will be spanned by poles.

3.1.3.3 Wetland Functional Assessment

Approach and Methodology

Wetland functional assessments were also completed at the 77 delineated wetlands within the study area (**Figure 8**). The assessments followed a standardized method for assessing natural wetland functions and benefits called the Wetland Ecosystems Services Protocol for Atlantic Canada (WESP-AC) protocol. WESP-AC represents a standardized approach to the way data is collected and interpreted to indirectly yield relative estimates of a wide variety of important wetland functions and their associated benefits. The functional assessments were completed in August and September 2022, consistent with protocol requirements of assessments occurring prior to site construction and within the growing season (approximately June 1 – September 30). Results of the WESP-AC functional assessment provided a classification for assessed wetlands based on their functionality as well as the identification of wetlands of special significance (WSS).

The WESP-AC generates scores (i.e., 0 to 10) and ratings (i.e., “Lower”, “Moderate”, or “Higher”) to a variety of wetland functions based on visual assessments of weighted ecological indicators (Adamus 2018). The number of ecological indicators applied to estimate a particular wetland function depends on which functions were being assessed as part of the field surveys. The indicators are then combined in a spreadsheet using logic-based, mathematical models to generate the score and rating for each wetland function and benefit (NSDNRR 2021). Together, this information provided a profile of functions and benefits provided by each assessed wetland.

Wetland functions are summarized as grouped functions in the WESP-AC calculator. For each wetland function, scores and ratings represent a particular wetland’s standing relative to those in a statistical sample of non-tidal wetlands previously assessed in the province (98 calibration wetlands in NB; NBDELG 2018).

A WESP-AC functional assessment was completed on wetlands within 30 m of the Project footprint in July 2022. This included wetlands delineated in both 2021 and 2022 that have the potential to be impacted by the proposed development.

The following wetland functions, summarized by group, were included in the assessment:

- Hydrologic group
  - Water storage and delay
- Water quality support group
  - Sediment retention and stabilization
  - Phosphorus retention
  - Nitrate removal and retention
  - Carbon sequestration
- Aquatic support group
  - Stream flow support
  - Aquatic invertebrate habitat
  - Organic nutrient transport
  - Water cooling
- Aquatic habitat group
  - Anadromous fish habitat
  - Resident fish habitat
  - Amphibian and turtle habitat
  - Waterbird feeding habitat
  - Waterbird nesting habitat
- Transition habitat group
  - Songbird, raptor and mammal habitat
  - Pollinator habitat
  - Native plant habitat

Further descriptions of the wetlands functions and benefits are provided in **Appendix D**.

Wetlands of Special Significance

Wetlands within the study area were evaluated for their potential for meeting the criteria of a Wetlands of Special Significance (WSS). WSS are defined within Nova Scotia's Wetland Conservation Policy as wetlands that play particularly important roles in providing ecosystem services or functions (NSECC 2019). Based on the Policy, this includes the following wetland types:

- Salt marshes;
- Wetlands that are within or partially within a designated protected or managed area (as defined in the Policy);
- Intact or restored wetlands that are project sites under the North American Waterfowl Management Plan and secured for conservation;
- Wetlands known to support SAR;
- Wetlands in designated protected water areas.

Additionally, the following characteristics, functions and services were considered in the evaluation of WSS within the study area:

- Wetlands that support a significant species or species assemblages (e.g., coastal plain flora);
- Wetlands that support high wildlife biodiversity;
- Wetlands that have high hydrologic value; and
- Wetlands that have high social or cultural importance.

The wetlands were evaluated for the potential of being WSS in addition to functional assessment using the WESP-AC. Although the excel model used for the WESP-AC assessments includes an interpretation tool to classify WSS based on wetland functionality, it is recognized that the tool currently does not consider all aspects of WSS that are

considered under the provincial Wetland Conservation Policy. As such, following completion of WESP-AC assessment wetlands were reviewed to see if they fall under the definition of WSS per the provincial Wetland Conservation Policy.

Results

The WESP-AC datasheets summary scores for the assessed wetlands are included in **Appendix D** and include a numerically weighted score for functions and benefits of 21 wetland functions and other attributes. WESP-AC functional assessment applies a three-level categorical rating (i.e., Lower, Moderate or Higher) and is based on natural breaks in the statistical distribution of scores among the calibration wetlands for each function or benefit, determined objectively using a statistical procedure known as Jenks Optimisation (Jenks 1967).

WESP-AC guidance states that the primary focus should be on the normalized function scores of the WESP-AC. However, normalized benefit scores are included as they include data associated with the context within which the associated function is being performed currently (e.g., they are influenced by current land uses). The following discussion includes a summary of the five grouped wetland functions considered by WESP-AC in the non-tidal calculator for wetland functional assessment. The ratings for grouped wetland functions in the study area study area are summarized in **Table 12**. A summary report of the functional assessment results, including normalized benefit ratings for individual wetlands, are provided in **Appendix D**.

TABLE 12: SUMMARY OF NORMALIZED FUNCTION SCORES AND RATINGS FOR GROUPED WETLAND FUNCTIONS BASED ON WESP-AC ANALYSIS

Wetland ID	Hydrologic Group	Water Quality Support	Aquatic Support	Aquatic Habitat	Transition Habitat
WL-1-2021	3.78	3.49	7.43	3.29	8.37
WL-2-2021	2.85	3.97	6.80	3.64*	6.46
WL-3-2021	2.66*	4.48	7.35	3.86	7.44
WL-4-2021	9.38	8.34	5.66	1.90	7.11
WL-5-2021	2.94	3.37*	6.38	3.54*	6.52
WL-6-7-2021	3.72*	3.51	6.70	2.65	6.90
WL-8-2021	2.97*	3.56	7.06	4.01	7.50
WL-9/10-2021	4.27	4.33	6.98	1.36	5.81
WL-11-2021	4.86	5.41	8.05	3.35	8.02
WL-12-2021	3.21	3.72	7.22	3.14	7.84
WL-13-2021	3.62	4.07	7.90*	3.85	8.72*
WL-14-2021	3.15	3.52	7.43	3.27	9.02
WL-15-2021	3.52	4.03	5.99	3.01	7.10
WL-16-2021	8.80	8.11	3.91	0.33	6.28*
WL-17-2021	2.76	4.33	6.45	4.55*	7.76
WL-1-2022	6.48*	9.60	3.98	4.62*	7.29*

Wetland ID	Hydrologic Group	Water Quality Support	Aquatic Support	Aquatic Habitat	Transition Habitat
WL-2-2022	6.64	9.49	4.21	4.09*	7.36*
WL-3-2022	1.48	3.19	6.65	3.88*	7.12
WL-4-2022	1.89	3.58*	7.30	3.89*	8.32*
WL-5-2022	3.39	2.83	6.14	4.68*	6.83*
WL-6-2022	6.71	8.65	5.90	4.39*	7.68*
WL-7-2022	6.64*	9.54	4.89	4.51*	7.41*
WL-8-2022	5.30	4.50	5.64	0.10	5.21
WL-9-2022	4.75	3.93	6.86	2.07	6.50
WL-10-2022	3.46*	4.62	7.86	3.77	7.94
WL-11-2022	2.45*	2.36	4.93	4.08	7.26
WL-12-2022	8.71*	8.03	4.19	0.42	7.50
WL-13-2022	5.03*	6.37	4.04	0.38	7.17
WL-14-2022	6.96	9.11	6.89	3.77	8.48
WL-15-2022	6.15	6.58	4.60	1.87	6.60
WL-16-2022	2.98	3.82*	8.31	4.21	8.52
WL-17-2022	9.36	8.46	6.16	0.61	5.76
WL-18-2022	3.78	4.29	6.42	3.48	7.64
WL-19-2022	6.24	9.40	4.30	5.90	7.85
WL-20-2022	3.34	4.32	5.65	4.14	7.45
WL-21-2022	9.93	8.61	5.27	1.74	6.83
WL-22-2022	0.03*	3.67*	7.12*	6.10	8.07
WL-23-2022	0.85*	2.43*	8.71*	6.18	8.82
WL-24-2022	9.93	8.96	5.43	0.60	7.82*
WL-25-2022	9.68	8.67	5.46	0.59	6.74*
WL-26-2022	9.93	8.65	4.86	0.59	6.46*
WL-27-2022	9.68	8.58	5.43	0.56	6.91*
WL-28-2022	6.93	8.58	6.85	5.23*	8.54*
WL-29-2022	9.93	8.58	5.15	0.68	6.72*
WL-30-2022	8.52*	8.25	6.38	1.95	6.95
WL-31-2022	1.16	3.84*	7.76*	7.03*	8.43*
WL-32-2022	9.93	8.74	5.16	0.61	7.82*
WL-33-2022	1.58*	2.20*	8.04	5.19*	8.41*
WL-34-2022	9.65	8.55	4.74	0.57	5.81*
WL-35-2022	9.40	8.59	5.01	0.39	6.36*
WL-36-2022	9.65	8.61	4.77	0.17	6.68*
WL-37-2022	9.40	8.66	4.94	0.07	6.21*
WL-38-2022	9.65	8.55	5.00	0.51	5.94*
WL-39-2022	9.40	8.48	5.26	0.43	5.87*
WL-40-2022	9.40	8.28	5.55	1.74	5.90*

Wetland ID	Hydrologic Group	Water Quality Support	Aquatic Support	Aquatic Habitat	Transition Habitat
WL-41-2022	9.82	8.26	4.98	1.82	7.44*
WL-42-2022	9.65	8.59	4.61	0.42	6.45*
WL-43-2022	9.65	8.37	4.46	0.07	6.20*
WL-44-2022	9.65	8.64	4.66	0.47	6.67*
WL-45-2022	2.70	3.64*	7.95	5.09	8.59
WL-46-2022	1.28*	2.19*	8.07	5.45*	7.90
WL-47-2022	9.40	8.08	5.22	1.30	6.32
WL-48-2022	0.85*	3.39*	7.42	5.03*	7.88
WL-49-2022	9.38	8.45	4.37	0.00	6.28*
WL-50/51-2022	0.06	3.34*	8.51*	5.59	8.41
WL-52-2022	1.69	3.35*	8.07	4.58	7.97*
WL-53-2022	8.12	7.70	5.93	1.63	5.63
WL-54-2022	9.38	8.60	4.36	0.30	5.50*
WL-55-2022	9.65	8.59	5.25	0.50	7.35*
WL-56-2022	6.93	9.21	6.92	5.94*	7.74*
WL-57-2022	8.44	7.84	6.53	1.53	7.67*
WL-58-2022	9.35	8.43	4.46	0.41	6.40*
WL-59-2022	1.48	3.68*	8.83*	6.82*	9.27*
WL-60-2022	6.59*	9.24*	6.31	3.93*	8.11*
WL-61-2022	6.66	8.44	8.04	6.18	8.97
WL-62-2022	1.22	3.24*	8.43*	6.54	8.88
WL-63-2022	1.14*	3.64*	8.60*	6.67	9.01

Notes:

Lower‡ | Moderate‡ | Higher‡

*Normalized Benefits Rating of "Higher"

Bold indicates Wetlands of Special Significance.

‡Based on WESP-AC scoring (i.e., 0 to 10) and ratings using weighted ecological indicators and using logic-based, mathematical models (indicators (Adamus 2018).

Grouped functions with values in orange and bold in **Table 12** have a "higher" wetland normalized function and benefit scores based on the WESP-AC functional assessment conducted in 2022. Based on the data in **Table 12**, the following can be summarized:

- Two wetlands (WL-12-2022 and WL-30-2022) were assessed a higher function for the Hydrologic Function group;
- One wetland (WL-60-2022) was assessed as having a higher function for the Water Quality Support function group;
- Seven wetlands (WL-22-2022, WL-23-2022, WL-31-2022, WL-50/51-2022 WL-59-2022, WL-62-2022 and WL-63/64-2022) were assessed as having a higher function for the Aquatic Support function group;

- Two wetlands (WL-31-2022 and WL-59-2022) were assessed as having a higher function for the Aquatic Habitat function group; and
- 19 wetlands (WL-1-2022, WL-2-2022, WL-4-2022, WL-5-2022, WL-6-2022, WL-7-2022, WL-24-2022, WL-27-2022, WL-28-2022, WL-31-2022, WL-32-2022, WL-33-2022, WL-41-2022, WL-52-2022, WL-55-2022, WL-56-2022, WL-57-2022, WL-59-2022 and WL-60-2022) were assessed as having a higher function for the Transition Habitat function group.

Hydrologic Functions

The hydrologic function of a wetland is defined by a wetland's contribution to ground and surface water resources. Although many non-tidal wetlands in Atlantic Canada perform important function for water storage and delay, WESP-AC assessment gives higher scores to wetlands with the capability to store or delay the downslope movement of surface water (e.g., wetlands that do not have surface water outlets) (NBDELG 2018).

Two wetlands within the LAA have a function and benefits ranking of "higher" based on their normalized scores (i.e., WL-12-2022 and WL-30-2022). WL-12-2022 is a bog and mixed-wood treed swamp complex that is adjacent to an existing access road that may require upgrades and infilling. WL-30-2022 is a mixedwood treed swamp located adjacent to a proposed access road and collector line.

Water Quality Support Group

The water quality support group is defined as a wetland's contribution to the quality of surface and groundwater of an area. This group considers the following four functions:

- Sediment retention and stabilization;
- Phosphorus retention;
- Nitrate removal; and
- Carbon sequestration.

Similar to the hydrologic group, wetlands with higher function scores typically do not have a surface water outlet and instead are isolated from flowing surface water. One wetland within the LAA had a function and benefits ranking of "higher" based on the normalized scores (i.e., WL-60-2022). WL-60-2022 is a shrub swamp with several lobes that were partially separated by the existing access road. The access road that partially divides the lobes of WL-60-2022 may require upgrades and infilling to be used as access road with a collector line.

Of the functions that are considered for the water quality support group, WL-60-2022 had the high function and benefits rankings for nitrate removal and retention. The wetland also had higher scores for both sedimentation retention and stabilization, as well as phosphorous retention; however, the benefits were ranked as moderate. In addition to water quality support functions, WL-60-2022 also had high function and benefits scores for functions related to transition habitats, discussed below.

Aquatic Support Group

The aquatic support function of a wetland determines a wetland's ability to support ecological stream functions that promote habitat health. This group considers the following four functions:

- Stream flow support (SFS);
- Aquatic invertebrate habitat (INV);
- Organic nutrient export (OE); and
- Water cooling (WC).

Overall, the wetlands within the LAA generally scored higher in functions related to aquatic support. WESP-AC rankings of "higher" for both the function and benefits in this group of functions were given to seven wetlands. Following a review and revisions of the Project layout, WL-59-2022 is not located within the PDA, the remaining six out of the seven wetlands have the potential to require alterations for the full development of the Project. These six wetlands (WL-22-2022, WL-23-2022, WL-31-2022, WL-50/51-2022, WL-62-2022 and WL-63/64-2022) all are considered to function highly for organic nutrient export, and one wetland (WL-23-2022) had "higher" function and benefits ratings for all functions within the aquatic support group of functions. Additionally, two wetlands (i.e., WL-62-2022 and WL-63/34-2022) had "higher" function and benefits rankings for providing aquatic invertebrate habitat and preforming water-cooling functions; and one wetland (i.e., WL-22-2022) had "higher" function and benefits rankings for providing stream flow support.

Aquatic Habitat Group

The aquatic habitat group is considers the following five different functions:

- Anadromous fish habitat;
- Resident fish habitat;
- Amphibian and turtle habitat;
- Waterbird feeding habitat; and
- Waterbird nesting habitat.

Wetlands with the highest functions within this group include those that are adjacent to or contain flowing water, including many of the assessed wetlands within the study area. Two wetlands within the LAA had a function and benefits ranking of "higher" based on the normalized scores (i.e., WL-31-2022 and WL-59-2022). In addition to aquatic habitat support functions, WL-31-2022 and WL-59-2022 also had "higher" function and benefits scores for functions related to aquatic support (discussed above) and transition habitats (discussed below).

No alterations will be required for WL-59-2022 and mitigation measures will be in place when working within 30 m of this wetland to prevent negative impacts as a result of Project activities.

WL-31-2022 is a complex with treed swamp and fen components and is divided by an existing access road. The wetland is a treed swamp to the north of the access road and a fen with swamp components to the south of the access road. The wetland becomes a fringe wetland in the vicinity of Bennett Lake, located further south of the PDA. The access road that divides the lobes of WL-31-2022 may require upgrades and infilling to be used as access road with a collector line.

Of the functions that are considered for the Aquatic Habitat group, WL-31-2022 had the "higher" function and benefits rankings for both feeding and nesting habitat for waterbirds. The wetland also had "higher" scores for both anadromous and resident fish habitat; however, the benefits were ranked as "moderate". A "lower" functional score was calculated for this wetland for providing amphibian and turtle habitat; however, it is noted that the scores are representative of habitat within the study area, which was predominately a shrub swamp. Potential suitable habitat for amphibians and turtles may be present farther south of the PDA where this wetland surrounds Bennet Lake (which was outside of the LAA).

Transition Habitat Group

The main function of the collective group is to evaluate the wetland's ability to support healthy habitat for birds, mammals, and native plants. The transition habitat group comprises three different functions:

- Songbird, raptor, and mammal habitat (SBM);
- Native plant habitat (PH); and
- Pollinator habitat (POL).

Overall, the wetlands within the LAA generally scored "higher" in functions related to transitional habitats. WESP-AC rankings of "higher" for both the function and benefits in this group of functions were given to 19 wetlands. Two of these wetlands (i.e., WL-2-2022 and WL-59-2022) are fully outside of the PDA. The following 17 wetlands have area within the PDA and have rankings of "higher" for performing function and benefits as transition habitats:

- WL-1-2022
- WL-4-2022
- WL-5-2022
- WL-6-2022
- WL-7-2022
- WL-24-2022
- WL-27-2022
- WL-28-2022
- WL-31-2022
- WL-32-2022
- WL-33-2022
- WL-41-2022
- WL-52-2022
- WL-55-2022
- WL-56-2022
- WL-57-2022
- WL-60-2022

Wetlands of Special Significance

Wetlands within the Study Area were evaluated for their potential for meeting the NSECC criteria of a WSS. The wetlands were evaluated for their potential of being considered a WSS in addition to functional assessment using the WESP-AC. Although the WESP-AC assessment includes an interpretation tool to classify WSS based on wetland functionality, it is recognized that the tool currently does not consider all aspects of WSS that are considered

under the provincial Wetland Conservation Policy. The results of the WESP-AC WSS interpretation tool are included in **Appendix D** with the WESP-AC functional assessment summary for wetlands within the study area. Only one of the wetlands within the Study Area (i.e., WL-59-2022) was flagged as a WSS by the interpretation tool. WL-59-2022 is not within the PDA and will not be directly impacted by the Project.

Wetlands within the Study Area that received both a function and benefits score of higher for a function group or wetlands where a SAR or SoCC was observed during the biophysical assessments between 2021 and 2022 were flagged as potential WSS. Following the functional assessment of wetlands within the study area, the road layout for the project was reviewed and, where feasible, minor adjustments were made within the studied PDA to avoid wetlands. Following the review and minor revisions to the Project road layout, wetlands with the potential to be considered WSS that extend within areas proposed for alterations are identified below in **Table 13**. A summary of the potential alterations and estimated maximum area for direct impacts is also provided in **Table 13**. for those wetlands. It is worth noting that several of the wetlands are adjacent to existing forestry roads, with areas having been historically cleared or impacted by historical and ongoing site activities. WESP-AC data are available for regulatory and permitting authorities for consideration during the wetland alteration permitting process. NSECC will determine if the findings below deem any of these wetlands as WSS during the wetland alteration permitting process.

There are 21 wetlands with the potential to be classified as WSS that extend into the proposed footprint of the project. For the purposes of this assessment, a conservative assumed width of 20 m was applied to the Project roads to estimate the maximum wetland area to be altered for these wetlands. Up to 1.1 ha is the total area of the wetlands considered to be potential WSS that could be altered based on the current proposed layout for the Project. The maximum potential area to be altered of the wetlands discussed in **Table 13** represents 2.3% of their total area (i.e., 50 ha). Where feasible, small alterations to the layout will be implemented during the civil design stage to avoid infilling wetlands. Collector lines will be spanned to the fullest extent possible by poles with approximate spans of 50 m to avoid wetlands. When feasible, the collector lines will also be run immediately parallel to access road to minimize road clearing. Further review by NSECC during the wetland alteration approval permitting process will determine if the following wetlands will be considered WSS, and the Project layout may be updated accordingly.

TABLE 13: POTENTIAL WSS, RATIONALE AND PROPOSED ALTERATIONS WITHIN THE PDA

Wetland ID	Rationale for being potentially classified as a WSS	Potential Alterations or Effects of the PDA
WL-1-2022	High Transition Group Scores	Infilling to create access road with collector line
WL-4-2022	High Transition Group Scores A Chimney Swift was observed foraging over wetland July 7, 2022 at 1 pm. Observation made during the nesting season; however, wetland is	Infilling to create access road with collector line

Wetland ID	Rationale for being potentially classified as a WSS	Potential Alterations or Effects of the PDA
	unlikely to provide nesting habitat.	
WL-5-2022	High Transition Group Scores Common Nighthawk booming displays and calls 50 m from wetland July 8, 2022 at 9am (within nesting season).	Infilling to create an access road
WL-7-2022	High Transition Group Scores	Potential infilling to upgrade existing access road
WL-12-2022	High Hydrologic Group Score	Potential infilling to upgrade an existing access road
WL-22-2022	High Aquatic Support Scores SoCC birds, Canada Jay and Purple Finch, Observed Sept. 1, 2022 9am	Potential infilling to upgrade an existing access road
WL-23-2022	High Aquatic Support Scores	Potential infilling to upgrade an existing access road
WL-27-2022	High Transition Group Scores	Potential infilling to upgrade an existing access road
WL-28-2022	High Transition Group Scores	Potential infilling to upgrade an existing access road
WL-30-2022	High Hydrologic Group Scores	Infilling to create an access road
WL-31-2022	High Group Scores for Aquatic Support, Aquatic Habitat, Transition Habitat	Potential infilling to upgrade an existing access road
WL-32-2022	High Transition Group Scores	Potential infilling to upgrade an existing access road
WL-33-2022	High Transition Group Scores	Potential infilling to upgrade an existing access road
WL-41-2022	High Transition Group Scores	Potential infilling to upgrade an existing access road
WL-50-2022	High Aquatic Support Scores	Infilling to create an access road with collector lines
WL-52-2022	High Transition Group Scores	Infilling to create an access road and collector line.
WL-56-2022	High Transition Group Scores	Potential infilling to upgrade an existing access road
WL-57-2022	High Transition Group Scores	Potential infilling to upgrade an existing access road
WL-60-2022	High Group Scores: Water Quality Transition Habitat	Potential infilling to upgrade an existing access road

Wetland ID	Rationale for being potentially classified as a WSS	Potential Alterations or Effects of the PDA
WL-62-2022	High Aquatic Support Scores	Infilling to create an access road with collector lines, a bridge or culvert may be required to span the watercourse that is likely to provide habitat for fish.
WL-63-2022	High Aquatic Support Scores	Potential infilling to upgrade an existing access road with collector lines. Bridges/culverts may require upgrades to maintain the watercourses within this wetland that are likely to provide habitat for fish.

3.1.3.4 Assessment Conclusions

Within the PDA, 8.1 ha of wetlands were delineated, noting that the estimated maximum total area of alteration to wetlands is 3.6 ha. These wetlands included treed and shrub swamps with lesser areas of fens and wet meadows. For the wetlands that extend within the PDA, the use of mitigation measures and consideration of wetland locations in the final design will further reduce the area and number of wetlands with the potential to require alterations.

The WESP-AC wetland analysis indicated that, on average, wetlands within the study area have highest rankings for functions related to aquatic support (i.e., stream flow support, aquatic invertebrate habitat and organic nutrient export and water-cooling functions) and as transition habitats (i.e., songbird, raptor, and mammal habitat; native plant habitat; and pollinator habitat functions). Wetlands within the study area were evaluated for their potential for meeting the criteria of a WSS as defined within Nova Scotia's Wetland Conservation Policy (NSECC 2019). Further consultation and discussions with NSECC and NSDNRR will be requested for assessment of WSS status, permitting requests, and compensation measures.

The region of Nova Scotia where the Project is located has an abundance of wetlands. Based on the functional assessment, none of the wetlands with potential to be classified as WSS have unique functional and benefit roles. The wetlands delineated and assessed during this study have similar functions to one another and to other wetlands within the Hants County area. Because of previous anthropogenic activity on site, particularly from forestry, there is historical disturbance from roads and clearing practices. As it stands, this has not severely hindered the functions and benefits of wetlands in the Study Area.

3.1.4 Watercourses and Fish Habitat

Scope of VEC

For the purpose of this report, watercourses are defined as, *"the bed and shore of every river, stream, lake, creek, pond, spring, lagoon, or other natural body of water, whether it contains water or not, and the water therein, within the jurisdiction of the province*" (NSEAB 2021).

The watercourse and fish habitat valued environmental component (VEC) includes aquatic life such as freshwater fish, benthic invertebrate species, and the habitat that supports them, as well as aquatic species at risk (SAR). Watercourses and fish habitat are considered a VEC because of their importance in supporting aquatic life; as a fisheries resource; as a food source for humans, other fish, and wildlife; for providing recreational opportunities; and because they are of importance to the public, stakeholders, and Indigenous communities.

The scope of work for the watercourse and fish habitat assessment is based on the recommended approach outlined in the "Guide to Preparing an EA Registration Document for Wind Power Projects in Nova Scotia" (NSECC 2021). Additionally, the information obtained from the watercourse and fish habitat surveys will be available for inclusion in a Nova Scotia Department of Environment and Climate Change (NSECC) Watercourse Alteration Permit, a Department of Fisheries and Oceans (DFO) Request for Review and, if required, a *Fisheries Act* Authorization

The scope of work for the watercourse and fish habitat assessment included:

- An initial desktop assessment of watercourses and waterbodies within the secondary watersheds of the PDA;
- A desktop assessment of fish species and risk (SAR) and species of conservation concern (SoCC) with the potential to occur within the PDA; and
- Field surveys of watercourses within the PDA to collect information on water quality and their potential for aquatic habitat.

For the purpose of the watercourse and fish habitat surveys conducted as part of the biophysical baseline assessment for the Project, the LAA is defined as watercourse crossings within 30 m of the PDA and their associated tributaries or distributaries. A buffer of 30 m was selected to include watercourses that are adjacent to the PDA and could be impacted by Project activities within their riparian zone. The area that was assessed in the field (the Study Area) is 50 m upstream to 100 m downstream of watercourse crossings within 30 m of the PDA. The PDA and LAA are shown on **Figure 9**.

For more detailed methodology and results, refer to the full watercourse and fish habitat assessment (**Appendix E)**.

Additionally, a preliminary surface water management plan has been compiled in consultation with ECC Water Resource Management Unit. It can be found in **Appendix R.**