

Lyons Road Bridges (BRs 1463 & 5783) over Interstate 95 Wetland and Watercourse Delineation and Monarch Butterfly Habitat Assessment Report

Sidney, Maine
WIN 25465.00



Prepared for:
Maine Department of Transportation

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Prepared by:
Stantec Consulting Services Inc.

Project/File:
195603436

Table of Contents

1	Introduction	1
2	Methodology	1
2.1	Wetland and Watercourse Delineation	1
2.2	Monarch Habitat Assessment	2
3	Results	3
3.1	Wetland and Watercourse Delineation	3
3.2	Monarch Habitat Assessment	5

List of Tables

Table 1. Summary of Delineated Wetlands	4
Table 2. Summary of Delineated Streams	4

List of Figures

Figure 1. Wetland and Watercourse Delineation Map	7
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List of Appendices

Appendix A	Representative Photographs
Appendix B	MaineDOT Wetland Data Forms
Appendix C	MaineDOT Stream Assessment Forms



1 Introduction

The Maine Department of Transportation (MaineDOT) is proposing replacement of the Lyons Road Bridges over Interstate 95 (I-95) in Sidney, Maine (BRs 1463 & 5783; hereafter, Project). Wetland and watercourse delineations as well as a habitat assessment for monarch (*Danaus plexippus*) was conducted by Stantec Consulting Services Inc. on January 10, 2025, in support of design planning as well as state and federal permitting requirements. This report summarizes the methodology and results of the field investigations.

2 Methodology

The delineations and habitat assessments were conducted within approximately 100 feet of the existing bridge locations, including the bridge superstructure and approaches that were safely accessible at the time of the field work (Figure 1).

2.1 Wetland and Watercourse Delineation

Wetland boundaries under potential federal and state jurisdiction were determined using the technical criteria described in the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual*¹ and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Regional Supplement (Version 2.0)*.² Wetland boundaries were flagged with pink “WETLAND DELINEATION” flagging and labeled with a unique alpha-numeric code in accordance with MaineDOT nomenclatural conventions. Wetland flags were located using a Global Positioning System (GPS) receiver capable of achieving submeter horizontal accuracy. The GPS data were attributed in accordance with MaineDOT spatial data requirements. Field data were collected on dominant vegetation, evidence of wetland hydrology, hydric soil criteria (where possible), and wetland functions using MaineDOT’s “Standard MaineDOT Information / F&V Form.” The observed wetland functions and values were based on the USACE *Highway Methodology Workbook Supplement: Wetland Functions and Values - A Descriptive Approach*.³ Wetland classification was assigned based on the *Classification of Wetlands and Deepwater Habitats of the United States*.⁴ Wetlands of Special Significance (WoSS) were identified based on criteria in

¹ Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.

² U.S. Army Corps of Engineers. 2012. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)*, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

³ US Army Corps of Engineers. 1999. *Highway Methodology Workbook Supplement: Wetland Functions and Values - A Descriptive Approach*. New England Division. Publication no. NAEEP-360-1-30a. November 1995. 32 pp

⁴ Federal Geographic Data Committee. 2013. *Classification of Wetlands and Deepwater Habitats of the United States*. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.



Lyons Road Bridges (BRs 1462 & 5783) over Interstate 95 Wetland and Watercourse Delineation and Monarch Butterfly Habitat Report

Chapter 310 of the Natural Resources Protection Act⁵ and Chapter 335 Significant Wildlife Habitat.⁶ Identification of WoSS was limited to observable conditions within the Project site. Representative photographs were taken as appropriate.

Concurrent with the wetland delineation, streams and other potential Waters of the United States were delineated, if observed. These resources were identified using the regulatory criteria established by the Maine Department of Environmental Protection⁷ and the USACE.⁸ For streams less than approximately 5 feet wide (from the top of the bank) were flagged with blue flagging along their approximate centerline; streams over approximately 5 feet wide were flagged at the observed top of bank or ordinary high water mark, whichever was more conservative. Each flag was labeled with a unique alpha-numeric code in accordance with MaineDOT's nomenclatural convention and located with the GPS receiver. Data were recorded on apparent flow regime, substrate, bankfull widths, ordinary high water mark widths, water depths, and presence of aquatic organisms and vegetation. Delineated streams were assessed using the "MaineDOT Stream Assessment Form." Representative photographs were taken as appropriate.

Stantec identified potential vernal pools (PVP) within the Project area. As the delineation was conducted outside of the appropriate vernal pool survey season, PVPs were identified based on physical characteristics such as the presence of standing water or water marks within a confined basin. If identified, PVPs were located as an approximate center point with the GPS receiver and general data on their approximate size, origin, hydroperiod, and physical characteristics were collected.

2.2 Monarch Habitat Assessment

During the delineation, Stantec assessed the existing habitats within the Project area relative to their potential to support monarch butterfly. The habitat assessment consisted primarily of a survey for milkweed (*Asclepias* spp.), the host plants for monarch larvae (caterpillars). Because the assessment was conducted outside of the growing season, observations of milkweed was limited to persistent remnants that remained identifiable at the time of the field assessment. Data were collected on approximate abundance and the spatial extent of the observed milkweed specimens was located with the GPS receiver. In addition, habitats within the Project area were characterized relative to their potential to support milkweed during normal growing season conditions based on observable associated vegetation, canopy cover, hydrology, and the type and approximate frequency of habitat disturbances (e.g., mowing). Representative photographs were taken to document existing conditions.

⁵ Maine Department of Environmental Protection. 26 January 2009. Natural Resources Protection Act Chapter 310: Wetlands and Waterbodies Protection Rules. Bureau of Land and Water Quality, DEPLW0297-D2009.

⁶ Maine Department of Environmental Protection. 7 January 2014. Natural Resources Protection Act Chapter 335: Significant Wildlife Habitat.

⁷ Danielson, T. J. 2018. *Natural Resource Protection Act (NRPA) Streams, Rivers, and Brooks*. Maine Department of Environmental Protection, Augusta, ME.

⁸ U.S. Army Corps of Engineers. 2025. National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Final Version. ERDC/CRREL TR-25-1, Vicksburg, MS: U.S. Army Corps of Engineers Engineer Research and Development Center.



3 Results

3.1 Wetland and Watercourse Delineation

The wetland and watercourse delineation was conducted on January 10, 2025. The ground was free of snow; however, the soil was frozen throughout most of the Project area. Accordingly, a verification of the wetland boundaries identified during this effort is recommended to be conducted during appropriate seasonal conditions in order to assess hydric soil characteristics in accordance with USACE wetland delineation methodology.

A total of 2 wetlands and portions of 2 stream reaches were delineated within the Project area (Figure 1). No other potential Waters of the United States or PVPs were observed. Representative photographs are provided in Appendix A and Standard MaineDOT Information / F&V Forms are provided in Appendix B. MaineDOT Stream Assessment Forms are provided in Appendix C. Table 1 summarizes the delineated wetlands and Table 2 summarizes the delineated streams.



Table 1. Summary of Delineated Wetlands

Wetland Identifier	Wetland Classification ¹	Dominant and Characteristic Vegetation Type	Hydric Soil Criteria	WoSS Notes	Evidence of Hydrology	Comments
VH-01I	PSS	Shrubs: speckled alder (<i>Alnus incana</i>), highbush-cranberry (<i>Viburnum opulus</i>), red osier (<i>Cornus alba</i>), willows (<i>Salix</i> spp.) Herbs: narrow-leaf cat-tail (<i>Typha angustifolia</i>), sensitive fern (<i>Onoclea sensibilis</i>), purple loosestrife (<i>Lythrum salicaria</i>)	Frozen – not assessed	No	Surface Water, Water Marks, High Water Table	Large wetland system bounded by Lyons Road and I-95 interchanges
VH-01J	PSS	Shrubs: red osier, nanny-berry (<i>Viburnum lentago</i>) Herbs: sensitive fern, bluejoint (<i>Calamagrostis canadensis</i>), cottongrass bulrush (<i>Scirpus cyperinus</i>)	Frozen – not assessed	No	Surface Water, Geomorphic Position, FAC-Neutral Test	Herbaceous depression along edge of Lyons Road.

¹ Wetland classification follows Federal Geographic Data Committee (2013): PSS = Palustrine Scrub-Shrub

Table 2. Summary of Delineated Streams

Stream Identifier	Flow Type	Bankfull Width (ft)	Ordinary High Water Mark Width (ft)	Dominant Substrates	Jurisdiction	Additional notes
VR-01K	Intermittent	2.5	2.5	Cobble-silt	MDEP / USACE	Linear channel in median with culvert inlet and outlet, centerline delineated; historic anthropogenic channelization of streambanks.
VR-01L	Intermittent	3	3	Silt	MDEP / USACE	Downstream continuation of VR-01K on east side of I-95, flows into wetland VH-01I and continues off site



3.2 Monarch Habitat Assessment

The Project area includes potentially suitable monarch habitat along the open roadway embankments along Lyons Road and I-95. The road embankments of Lyons Road are dominated by shrubs such as Morrow's honeysuckle (*Lonicera morrowii*), European buckthorn (*Rhamnus cathartica*), common juniper (*Juniperus communis*), and autumn-olive (*Elaeagnus umbellata*) along with Norway maple (*Acer platanoides*) and quaking aspen (*Populus tremuloides*) trees and saplings. Associated herbaceous plants include Kentucky blue grass (*Poa pratensis*), false rye grass (*Schedonorus* spp.), smooth brome (*Bromus inermis*), and eastern poison ivy (*Toxicodendron radicans*). A population of approximately 20 common milkweed (*Asclepias syriaca*) plants was observed within the open upland habitats along the Lyons Road embankment to the west of the bridges. The associated habitat consists of a steep graminoid-dominated area that is periodically mowed. Small additional occurrences of common milkweed (1–3 plants) were observed elsewhere in the Project area along Lyons Road and I-95.

The road shoulders and median of I-95 include open field and meadow habitat areas beyond the edge of the pavement that are maintained periodically through mowing by MaineDOT. Frequent mowing largely limits the potential for common milkweed establishment and for monarch larvae to complete their life cycle.

Small forest fragments are located in the Project area. These areas have overstory vegetation including red pine (*Pinus resinosa*), eastern white pine (*Pinus strobus*), Norway maple, quaking aspen, and red maple (*Acer rubrum*). The edges of these forest fragments may provide habitat for milkweed, but the shaded understory is unlikely to support milkweed species.

Representative habitat photographs are provided in Appendix A and the locations of observed milkweed are indicated on Figure 1.



Figures



Appendices



Appendix A Representative Photographs



**Lyons Road Bridges (BRs 1462 & 5783) over Interstate 95 Wetland and Watercourse Delineation
and Monarch Butterfly Habitat Report**
Appendix A Representative Photographs



Photo 1. Wetland VH-01I. Stantec. January 10, 2025.



Photo 2. Wetland VH-01J Stantec. January 10, 2025.



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Appendix A Representative Photographs



Photo 3. Stream VR-01K. Stantec. January 10, 2025.

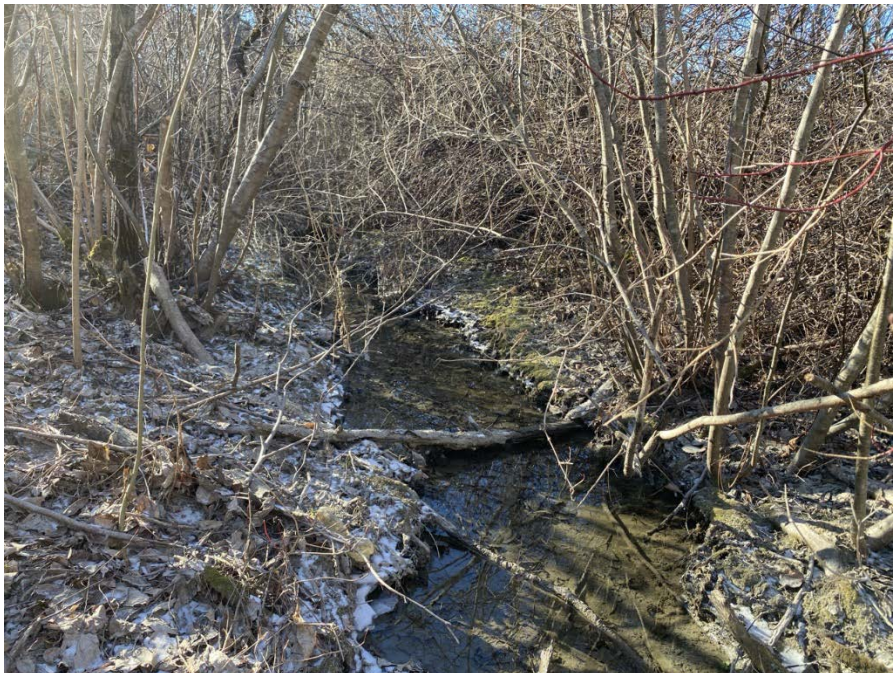


Photo 4. Stream VR-01L. Stantec. January 10, 2025.



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Appendix A Representative Photographs



Photo 5. I-95 median north of Lyons Road. Stantec. January 10, 2025.



Photo 6. I-95 median south of Lyons Road. Stantec. January 10, 2025.



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Appendix A Representative Photographs



Photo 7. Lyons Road bridge and I-95 road shoulder, view to the north. Stantec. January 10, 2025.



Photo 8. Lyons Road shoulder habitat on eastern approach. Stantec. January 10, 2025.



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Appendix A Representative Photographs



Photo 9. Common milkweed habitat along Lyons Road shoulder west of bridges. Stantec.
January 10, 2025.



Photo 10. Common milkweed plants along Lyons Road embankment west of bridges. Stantec.
January 10, 2025.



Appendix B MaineDOT Wetland Data Forms



Standard MaineDOT Information/F&V Form

MaineDOT Functional Assessment:													
1. Town: Sidney			2. Lyons Road BRs 1462 & 5783			3. WIN: 25465.00							
4. Wetland ID/ Line ID: VH-011			5. Cowardin Class: PSS			6. Stationing/Location							
7. Dominant Vegetation: <i>Alnus incana</i> , <i>Cornus alba</i> , <i>Salix</i> spp., <i>Typha angustifolia</i> , <i>Lythrum salicaria</i> , <i>Onoclea sensibilis</i>						8. Wetland Morphology HGM Type: Depressional wetland							
9. Wetland description including a soil description: Shrub wetland bounded by Lyons Rd and I-95 interchange; permanently saturated Soil: Frozen– not assessed at time of delineation. USDA NRCS soil mapped as Scantic silt loam													
10. FVA Table:													
Whole Wetland:													
F/V	GRD	FFA	FSH	STR	NRRT	PE	SSS	WH	REC	ESV	U/H	VQA	ES
Occurs						X		X					
Principal		X		X	X								
Impacted area: TBD													
11. Is this wetland part of larger complex? No.													
12. Impact Notes/Photos: Impacts TBD, see report photos													
Attach applicable ACOE Form													

Directions and Guidance

1. Town where project is located.
2. Route.
3. Work Identification Number (WIN).
4. Unique Identifier code for each wetland area.
5. Cowardin Classification Codes.
6. Approximated stationing location.
7. List the typical vegetation found within this wetland type. List any vegetation that may support a function of that wetland.
8. This should describe the morphology of the wetland. Need to describe if the wetland is in a basin or on a sloped area, whether it has a definite inlet or outlet and whether a stream is present in the wetland.
9. Notes any soils information, stream descriptions, habitat descriptions such as vernal pools or open aquatic areas.
10. This is the wetland function discussion block.
11. Is this wetland in a complex associated with other streams or wetlands?
12. Also any include more detailed description of area to be affected by the project as opposed to notes of the entire wetland, if known. Photos if applicable.

Standard MaineDOT Information/F&V Form

MaineDOT Functional Assessment:													
1. Town: Sidney			2. Lyons Road BRs 1462 & 5783			3. WIN: 25465.00							
4. Wetland ID/ Line ID: VH-01J			5. Cowardin Class: PSS			6. Stationing/Location							
7. Dominant Vegetation: <i>Viburnum lentago</i> , <i>Cornus alba</i> , <i>Calamagrostis canadensis</i> , <i>Scirpus cyperinus</i> , <i>Onoclea sensibilis</i>						8. Wetland Morphology HGM Type: Depressional wetland							
9. Wetland description including a soil description: Wetland depression along Lyons Road shoulder; surface water present Soil: Frozen– not assessed at time of delineation. USDA NRCS soil mapped as Scantic silt loam													
10. FVA Table:													
Whole Wetland:													
F/V	GRD	FFA	FSH	STR	NRRT	PE	SSS	WH	REC	ESV	U/H	VQA	ES
Occurs		X			X								
Principal				X									
Impacted area: TBD													
11. Is this wetland part of larger complex? No.													
12. Impact Notes/Photos: Impacts TBD, see report photos													
Attach applicable ACOE Form													

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11. Is this wetland in a complex associated with other streams or wetlands?
12. Also any include more detailed description of area to be affected by the project as opposed to notes of the entire wetland, if known. Photos if applicable.

Appendix C MaineDOT Stream Assessment Forms



MaineDOT Stream Assessment Form

GENERAL INFORMATION:

Flow Conditions: ☒ Low ☐ High ☐ Moderate ☐ None

Water Temperature: 32 ☐ °C or ☒ °F

Water Appearance:

☒ Clear ☐ Light Brown ☐ Orange ☐ Milky ☐ Dark Brown/Tea ☐ Greenish ☐ Oily Sheen ☐ Foamy ☐ Turbid
☐ Other _____

Stream Velocity: Upstream 0.3 feet/second Downstream 0.3 feet/second Estimated/Measured?

Tidal Site? ☐ Yes ☒ No ☐ Unsure If yes, what is the expected water level in the structure at high tide? _____ Low tide? _____

Is this defined as a stream per MaineDEP? ☒ Yes ☐ No

Does the flow have defined banks? ☒ Yes ☐ No

☒ Mineral Bottom ☐ Flow 6 months or more ☒ Aquatic Insects ☐ Aquatic Vegetation
☐ Mapped on USGS 7.5 topo map

Is the stream intermittent or perennial? **Why?** Small watershed, hydrology principally provided by stormwater runoff from roadways; small stream with shallow flow

Measured bankfull widths (upstream and downstream, water depths): BFW: 2.5 feet (median); 3 feet downstream. Avg. estimated flow depth = 1 inch (median and downstream)

FISH AND WILDLIFE:

Wildlife and wildlife signs in and around the stream? (Check all that apply)

☐ Amphibians ☐ Waterfowl ☐ Reptiles ☐ Mammals ☐ Other _____

Wildlife Barriers: ☐ None ☒ High Traffic Volume ☐ Steep Embankments ☐ Retaining Wall(s) ☐ Jersey Barriers
☐ Fencing ☐ Other:

Are fish present in the stream? (Check all that apply)

☒ No ☐ Yes, but rare ☐ Yes, abundant
☐ Small (1-2 in.) ☐ Medium (3-6 in.) ☐ Large (>6 in.)

Species if identified _____

Fish passage present through the bridge/culvert? ☐ Yes ☐ No ☐ At all flows ☒ At certain flows

Potential barriers to fish movement in area:

☐ Beaver dams ☐ Waterfalls >1 ft. ☐ Dams ☒ Road ☒ Culverts ☐ None ☐ Other _____

Location in reference to project (i.e. upstream or downstream; distances from culvert): _____

Are Macroinvertebrates present? ☐ Not observed ☒ Yes

If present, describe the types of macroinvertebrates found: (check all that apply)

Wormlike	<input type="checkbox"/> Occasional	<input type="checkbox"/> Plentiful
Snails/clamlike	<input type="checkbox"/> Occasional	<input type="checkbox"/> Plentiful
Insects	<input checked="" type="checkbox"/> Occasional	<input type="checkbox"/> Plentiful
Crayfish	<input type="checkbox"/> Occasional	<input type="checkbox"/> Plentiful

☐ Mayfly ☒ Caddisfly ☐ Stonefly ☐ Dragonfly/Damselfly ☐ Other _____

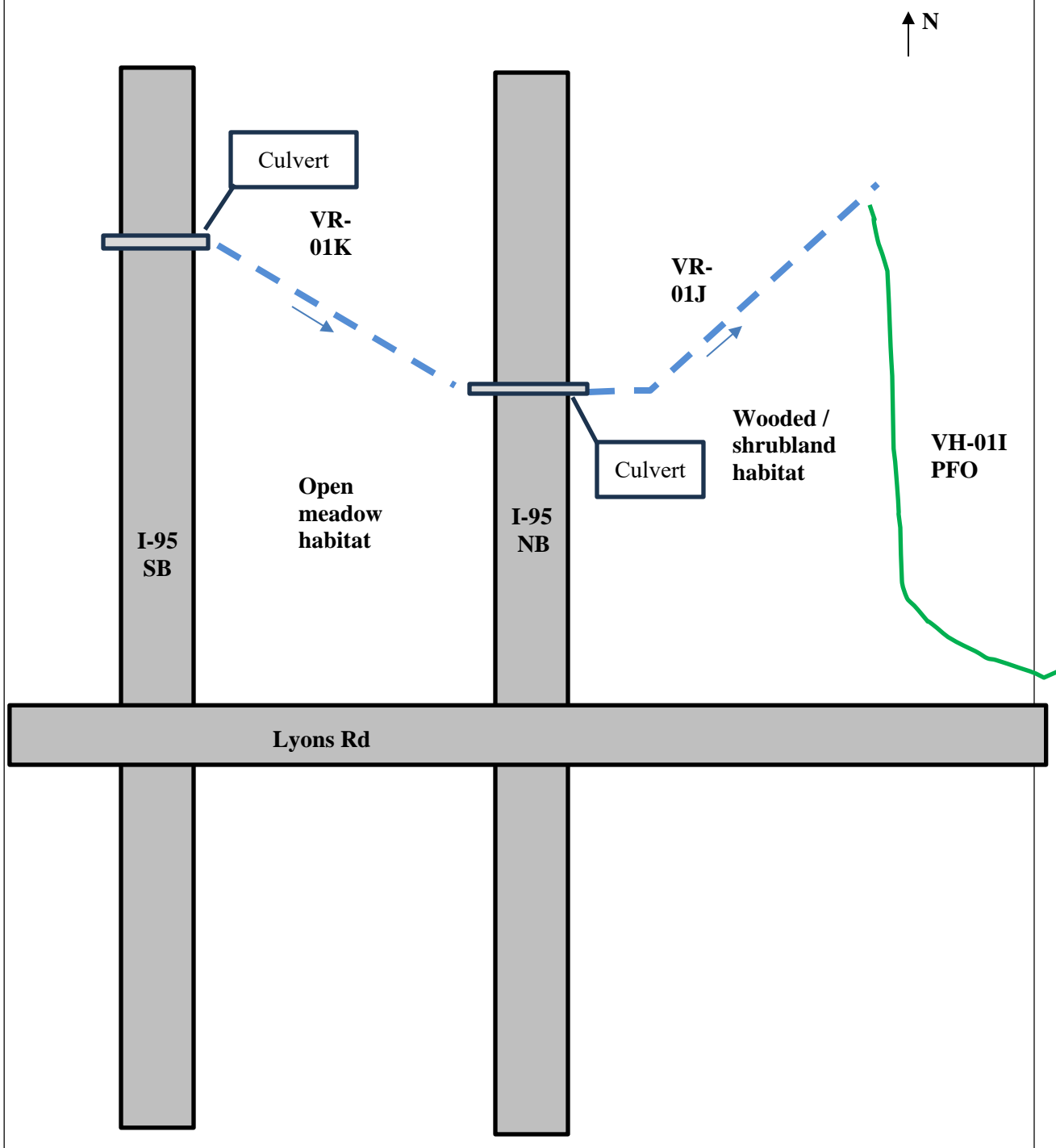
Aquatic organism passage present through the bridge/culvert? ☐ Yes ☐ No ☐ At all flows ☒ At certain flows

Recommendations on project scope and fish passage needs: Stream is too small to provide measurable fish habitat

UPSTREAM	DOWNSTREAM																																																																																										
Nature of stream substrate in an unaltered stream reach:																																																																																											
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	0%	1-10%	11-49%	>50%																																																																																							
Silt/Clay/Mud	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>																																																																																							
Sand (up to 0.3" diam.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																							
Pea Gravel (.3-.6" diam.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																							
Gravel (0.6-2.5" diam.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																							
Cobble (2.5-10" diam.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																							
Rubble (10-20" diam.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																							
Boulder (over 20" diam.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																							
Bedrock (solid)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																							
Pick the box that best describes the extent to which gravel, cobbles, and boulders on the stream bottom are embedded in silt, sand, or mud:																																																																																											
<input type="checkbox"/> Not embedded (0-5%) <input checked="" type="checkbox"/> Somewhat (5-25%) <input type="checkbox"/> Halfway (+/- 50%) <input type="checkbox"/> Mostly embedded (+/- 75%) <input type="checkbox"/> Completely (100%)	<input checked="" type="checkbox"/> Not embedded (0-5%) <input type="checkbox"/> Somewhat (5-25%) <input type="checkbox"/> Halfway (+/- 50%) <input type="checkbox"/> Mostly embedded (+/- 75%) <input type="checkbox"/> Completely (100%)																																																																																										
Streamside Cover: Write "0" if absent, "1" if present, "2" if common:																																																																																											
<p>a) <u>Along water's edge and stream bank only:</u></p> <p>Logs, large woody debris 0 _____</p> <p>Root wads 0 _____</p> <p>Overhanging vegetation 1 _____</p> <p>Small woody debris 1 _____</p> <p>Boulders/rocks 1 _____</p> <p>Undercut banks 0 _____</p> <p>Manmade structures 2 _____</p> <p>Deep water, turbulence, or foam 0 _____</p> <p>Lawn 0 _____</p> <p>Bare soil 0 _____</p> <p>b) <u>From the top of the stream banks out to 75 feet</u></p> <p>Trees, woodland 0 _____</p> <p>Bushes/shrubs 1 _____</p> <p>Tall grasses, ferns, etc 2 _____</p> <p>Wetland 0 _____</p> <p>Lawn 0 _____</p> <p>Boulders/rocks 0 _____</p> <p>Gravel/sand 0 _____</p> <p>Bare soil 0 _____</p> <p>Pavement structures 2 _____</p> <p>Agricultural land 0 _____</p>	<p>a) <u>Along water's edge and stream bank only:</u></p> <p>Logs, large woody debris 1 _____</p> <p>Root wads 1 _____</p> <p>Overhanging vegetation 2 _____</p> <p>Small woody debris 2 _____</p> <p>Boulders/rocks 0 _____</p> <p>Undercut banks 0 _____</p> <p>Manmade structures 1 _____</p> <p>Deep water, turbulence, or foam 0 _____</p> <p>Lawn 0 _____</p> <p>Bare soil 0 _____</p> <p>b) <u>From the top of the stream banks out to 75 feet</u></p> <p>Trees, woodland 2 _____</p> <p>Bushes/shrubs 2 _____</p> <p>Tall grasses, ferns, etc 2 _____</p> <p>Wetland 2 _____</p> <p>Lawn 0 _____</p> <p>Boulders/rocks 0 _____</p> <p>Gravel/sand 0 _____</p> <p>Bare soil 0 _____</p> <p>Pavement structures 1 _____</p> <p>Agricultural land 0 _____</p>																																																																																										
Pick the category that best describes the extent to which vegetation shades the stream at your site.																																																																																											
<input checked="" type="checkbox"/> 0-5% <input type="checkbox"/> 6-25% <input type="checkbox"/> 26-50% <input type="checkbox"/> 51- 75% <input type="checkbox"/> 76-100%	<input type="checkbox"/> 0-5% <input type="checkbox"/> 6-25% <input type="checkbox"/> 26-50% <input type="checkbox"/> 51- 75% <input checked="" type="checkbox"/> 76-100%																																																																																										

UPSTREAM (cont'd)	DOWNSTREAM (cont'd)
Note General Conditions: "0" if absent, "1" if present, "2" if problem is clearly severe	
Stream banks Natural streamside plant cover degraded 1 _____ Banks collapsed/eroded 0 _____ Garbage/junk adjacent to the stream 1 _____ Foam or sheen on bank 0 _____ Stream Mud, silt, or sand in or entering the stream 0 _____ Garbage/junk in the stream 1 _____ Other Yard waste on bank (grass, clippings, etc) 0 _____ Livestock in or with unrestricted access to stream 0 _____ Actively discharging pipe(s) 1 _____ Other pipe(s) entering the stream 0 _____ Ditches entering the stream 2 _____ Other _____	Stream banks Natural streamside plant cover degraded 1 _____ Banks collapsed/eroded 0 _____ Garbage/junk adjacent to the stream 1 _____ Foam or sheen on bank 0 _____ Stream Mud, silt, or sand in or entering the stream 0 _____ Garbage/junk in the stream 1 _____ Other Yard waste on bank (grass, clippings, etc) 0 _____ Livestock in or with unrestricted access to stream 0 _____ Actively discharging pipe(s) 0 _____ Other pipe(s) entering the stream 1 _____ Ditches entering the stream 2 _____ Other _____
In-Stream: Check which stream habitats are present (check all that apply):	
<input type="checkbox"/> Pool(s) <input type="checkbox"/> Riffle(s) <input checked="" type="checkbox"/> Run(s) <input type="checkbox"/> Cascade(s) <input type="checkbox"/> Rapid(s) <input type="checkbox"/> Deadwater(s) <input type="checkbox"/> Other _____	<input type="checkbox"/> Pool(s) <input type="checkbox"/> Riffle(s) <input checked="" type="checkbox"/> Run(s) <input type="checkbox"/> Cascade(s) <input type="checkbox"/> Rapid(s) <input type="checkbox"/> Deadwater(s) <input type="checkbox"/> Other _____
(a) Average Depth of run(s) <input checked="" type="checkbox"/> < 1 ft <input type="checkbox"/> 1-2 ft <input type="checkbox"/> > 2 ft (b) Average Depth of pool(s) <input checked="" type="checkbox"/> < 1 ft <input type="checkbox"/> 1-2 ft. <input type="checkbox"/> > 2 ft (c) Number of pool(s) > 2 ft deep/100 ft 0 _____ (d) Average Distance between pools <u>NA</u> _____ ft (e) Scour Pool dimensions (ft): N/A	(a) Average Depth of run(s) <input checked="" type="checkbox"/> < 1 ft <input type="checkbox"/> 1-2 ft <input type="checkbox"/> > 2 ft (b) Average Depth of pool(s) <input checked="" type="checkbox"/> < 1 ft <input type="checkbox"/> 1-2 ft. <input type="checkbox"/> > 2 ft (c) Number of pool(s) > 2 ft deep/100 ft 0 _____ (d) Average Distance between pools <u>N/A</u> _____ ft (e) Scour Pool dimensions: 7x15'; 1' deep
Presence of logs or large woody debris in stream:	
<input checked="" type="checkbox"/> None <input type="checkbox"/> Few <input type="checkbox"/> Common <input type="checkbox"/> Very common	<input type="checkbox"/> None <input checked="" type="checkbox"/> Few <input type="checkbox"/> Common <input type="checkbox"/> Very common
Presence of naturally-occurring organic material (i.e., leaves and twigs, etc.) in stream:	
<input checked="" type="checkbox"/> None <input type="checkbox"/> Occasional <input type="checkbox"/> Plentiful	<input type="checkbox"/> None <input type="checkbox"/> Occasional <input checked="" type="checkbox"/> Plentiful
Pick the description that best fits the shape of the stream banks and the channel:	
(a) Stream bank: <input checked="" type="checkbox"/> Vertical/undercut <input type="checkbox"/> Steeply sloping (>30°) <input type="checkbox"/> Gradual/no slope (<30°) (b) Approximate width/depth ratio of the channel (ft/ft): 2.5 ' : 0.2' (c) Does the channel appear to be man-made? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	(a) Stream bank: <input type="checkbox"/> Vertical/undercut <input type="checkbox"/> Steeply sloping (>30°) <input checked="" type="checkbox"/> Gradual/no slope (<30°) (b) Approximate width/depth ratio of the channel (ft/ft): 3' : 0.2' (c) Does the channel appear to be man-made? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes

Site Sketch – Include approximate locations of BFW measurements, approximate north arrow, upstream and downstream features such as pools, riffles and gravel habitats.



Notes: Small stream, highly altered by past land use. Primary function is conveyance of stormwater