

**Department of Environment and Local Government
Source and Surface Water Management Branch**

Protocol for Wetland Delineation in New Brunswick

Wetland delineation is the process of confirming the location and boundaries of a wetland on the ground. Identification of a wetland is based on a three-parameter approach involving indicators of hydrophytic vegetation, hydric soil and wetland hydrology.

A WAWA permit is required for any proposed alteration in or within 30 metres of a wetland or watercourse under the *Watercourse and Wetland Regulation* (Reg 90-80) of the *Clean Water Act*. An alteration is defined as a temporary or permanent change and includes, but is not limited to: vegetation removal, grubbing, excavation, grading, the addition of fill, the construction of any structure, patio or boardwalk, septic tank and field installation, road or driveway construction and landscaping. Alterations that affect wetlands greater than two hectares may be subject to an Environmental Impact Assessment Registration per Trigger 'V' of Schedule A of the *Environmental Impact Assessment Regulation* (Reg 87-83) of the *Clean Environment Act*. A consultation with the Environmental Impact Assessment Branch is required prior to any alterations within 30 metres of the wetlands to determine regulatory requirements for the project.

All delineations must be submitted to the Source and Surface Water Management (SSWM) Branch at the Department of Environment and Local Government (DELG) for review and approval and may be subject to an audit.

Approaches to Delineating a Wetland

The Province of New Brunswick has made available a public map to assist property owners with determining whether they have a wetland on their property (<https://geonb.snb.ca/wawa/index.html>). The WAWA Reference Map identifies wetlands throughout the province and will be updated annually by incorporating the latest information (e.g. revised mapping (LiDAR) and site-specific wetland delineations). Please note that the wetland boundaries identified on the WAWA reference map are only approximate and wetlands not shown on the map may be present on the ground. Since wetlands are dynamic and can change over time, the map is to be used as a guide. The precise location of a wetland and the delineation of its boundary must be determined using field work.

The SSWM Branch at DELG will assist property owners/proponents in determining if they have a wetland on their property and if a delineation is required. For properties where it

is determined that a ground delineation is required, only wetlands greater than 100 square metres require delineation. In the wetland delineation report, these small features should be identified as a point, and a rationale given for their exclusion.

Property owners of a single residential property can request assistance from DELG and have a Wetland Biologist determine wetland presence and/or boundary of a wetland by using a desktop analysis or a site visit if deemed necessary.

Proponents of residential developments, as well as commercial and industrial projects will be required to obtain the services of a wetland consultant for wetland identification and delineation.

Please see contact information below for DELG Wetland Biologists or contact wawa@gnb.ca or by phone at (506) 457-4850.

Qualifications of a Wetland Consultant

Wetland identification and delineation must be completed by a Wetland Consultant. A Wetland Consultant is a person having a combination of:

- Training in wetland identification and delineation based on the *Northcentral and Northeast Regional Supplement of the U.S. Army Corps of Engineers Wetlands Delineation Manual (1987)* or an equivalent pending review from the SSWM Branch and;
- Education and/or demonstrated experience in wetland hydrology, soils, botany and/or related sciences.

An appendix should be added to each report to demonstrate qualifications of the wetland consultant. Additional requirements may be imposed pending review and/or audit by DELG.

Timing of Delineations

The recognized period, or “season”, for conducting wetland delineations in New Brunswick is June 1st through September 30th. Although, due to annual variations in weather patterns and ground conditions, the wetland delineation season may be extended. Consultants may submit a delineation report outside of the recognized period provided the three wetland parameters are evident and they are confident the delineation can be accurately completed (i.e. vegetation is present, there is no snow cover and the ground is not frozen, early spring/late fall).

Delineations are valid for a period of 5 years, however a proponent may arrange to re-delineate a wetland at any time, provided the delineation protocol is followed.

Protocol for Wetland Delineation Report Submissions

The following protocol is required for wetland delineation report submissions. Any submissions that do not meet these minimum requirements will be returned to the applicant or wetland consultant as incomplete. This protocol is based upon the *Corps of Engineers Wetlands Delineation Manual - Technical Report Y-87-1*, U.S. Army Corps of Engineers (1987), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, U.S. Army Corps of Engineers (2012).

A minimum of one “paired” – 3 parameter data point, per identified wetland type is required. This “paired point” shall consist of one wetland and one adjacent upland point, with unique identifiers. For large sites, complex wetland boundaries, or complex transition zones, more data points may be required to be evaluated and presented.

Recording of delineated wetland boundary and data point locations:

The location of the wetland boundary and data points must be recorded by the wetland consultant with a Global Positioning System (GPS) receiver. It is not required that GPS coordinates be recorded at all boundary markers. A selection of the boundary markers (i.e. flagging tape, survey stakes, etc.) should be chosen that accurately represents the wetland boundary. It is pertinent that the coordinates of wetland boundaries be recorded in case the boundary markers are physically moved after the delineation is completed. DELG requires that GPS receivers, used for the purpose of recording boundary and data point locations, are Wide Area Augmentation System (WAAS) or Global Navigation Satellite System (GLONASS) capable and have an advertised accuracy of 5 metres or better. All locations are to be submitted in NAD 83 datum, latitude and longitude (decimal degrees).

Required contents of a delineation submission

A full colour, hard copy of the wetland delineation must be submitted to the Source and Surface Water Management Branch for provincial records, review, and potential audit. Delineated wetland boundaries may be utilized to update DELG’s wetland mapping products. Digital copies of the report must be submitted in PDF or Word format with accompanying GPS data (*.shp, *.kmz or *.gpx) and associated metadata/ attribute data including the wetland type.

The following must also be included in a wetland delineation submission:

- Property identification number (PID) of all properties on which the wetland delineation was conducted;
- Applicant’s contact information;
- Date of report and date of delineation;
- Wetland consultant's name, company and contact information;
- Signature of wetland consultant;

- Site description including the following information:
 - a legible site location drawing or map clearly showing the location of the delineated wetland on the property (use map legends as appropriate);
 - weather conditions at the time of the site visit;
 - current and historical land use of study area;
 - all watercourses observed on site;
 - data point and rationale for exclusion of any identified wetland areas less than 100 square metres;
 - wetland type and size;
 - observed dominant wetland indicator vegetation species (Nova Scotia Wetland Indicator Plant list or Northcentral and Northeast 2016 Regional Wetland Plant List);
 - observed wetland hydrology indicators; and
 - soil characteristics (i.e., texture, Munsell matrix and redox colour, field indicators of hydric soils or lack of indicators).
- Wetland delineation data sheets using the attached template must be included as an appendix to the report.
- Site photographs must be included as an appendix to the report. Photographs of upland and wetland habitat as well as soil test pits are to be integrated into the report.

The report is to also include a written statement describing how wetland boundaries were determined for each wetland identified on the project site. Wetland information should be contrasted to adjacent upland characteristics in the boundary determination description.

Protocol for Large and Linear Projects Wetland Delineation Report Submissions

The following protocol is required for large or linear project (i.e. roads, highways, pipelines, transmission lines etc.) wetland delineation report submissions. Any submissions that do not meet these minimum requirements will be returned to the applicant or wetland consultant as incomplete.

The “Project Footprint” is considered to be the study area for large projects or for linear projects the linear ROW plus: permanent or temporary access roads; any associated disturbed areas including, but not limited to, temporary work areas, lay-down areas, storage areas, etc.; temporary and permanent infrastructure (i.e.: sedimentation basins, pump stations, transformer sub-stations, sewage treatment facilities, etc.); etc. The “Potential ROW Area of Influence” for a Project is considered to be the linear ROW plus 100 metres on either side of the ROW corridor.

The report is to be divided into a comprehensive desktop delineation and field delineation.

Comprehensive Desktop Delineation

When determining the placement of infrastructure or “Right of Way” (ROW) locations, complete an initial comprehensive desktop review to identify the presence, location and

ecological extent of all potential wetlands in the study area to generate a constraint mapping. This wetland constraint map is to be based on a review of the best available aerial imagery or other remotely sensed images (i.e. LiDAR, etc.), topographic maps, as well as other available pertinent data layers (i.e. DELG wetland mapping, depth-to-water table mapping, etc.). The wetland interpreter should have a strong background in photo interpretation, vegetation identification, wetland delineation and GIS skills for digitizing wetland boundaries.

Field Delineation

Once the Project Footprint has been finalized the following information will be required:

- All wetlands in, or within 30 metres, of the Project Footprint are to be identified, delineated on the ground by a Wetland Delineator consultant, and mapped.
- The Proponent must submit to DELG a Wetland Delineation Report following the Protocol for Wetland Delineation Report Submissions requirements with the following variation:
- Wetlands of the same class/type/association may be grouped in the report, provided that soil conditions do not change. If soil conditions change within the Project Footprint, then it is necessary to divide the Project Footprint into segments based on soil conditions (i.e. similar wetlands that are in “like soil” segments can be grouped). The following wetland classifications are used in the DNR Wetland Inventory.
 - Fen
 - Bog
 - Shrub Wetland
 - Freshwater Marsh
 - Forested Wetlands
 - Aquatic Bed
 - Coastal Marsh
- For each type of wetland or wetland complex, only one Standard Wetland Delineation Data Form (ie: examining all three parameters - hydrology, vegetation and soils) is required to be submitted. This wetland is known as the “Control Wetland”. Data sheets and paired points for the Control Wetland are to be submitted as per the Protocol for Wetland Delineation Report Submissions requirements.
- The remaining wetlands that are considered same class/type/association as the Control Wetlands can be delineated using one, two or three parameters (i.e. vegetation only, vegetation and hydrology, vegetation and soils, etc.) at the discretion of the Wetland Delineator.

Contact Information

Web Site

DELG's **Wetlands** web page can be accessed by visiting www.gnb.ca and following the links to "Departments" > "Environment and Local Government" > "Environment" > "Wetlands"

DELG's **Wetland Policy** can be accessed via the following web link:

<https://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/Wetlands-TerreHumides/WetlandsTerresHumides.pdf>

Activities within Provincially Significant Wetlands (PSW's) and their 30 metre buffer zones are highly restricted. For more information regarding permissible activities in and within 30 metres of a PSW please refer to the Wetland Guidelines which can be accessed via the following web link:

<https://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/Wetlands-TerreHumides/WetlandGuidelines.pdf>

The **online WAWA application** can be accessed via the following web link:

<https://www.elgegl.gnb.ca/WAWAG/en/Home/Site>

DELG's **EIA** web page can be accessed via the following web link:

https://www2.gnb.ca/content/gnb/en/departments/elg/environment/content/environmental_impactassessment.html.

Address

Department of Environment and Local Government

Source and Surface Water Management

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Regional Offices

Regional Services – Region 1

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Bathurst, NB E2A 3Z9

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Fredericton, NB E3A 5T8

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Moncton, NB E1A 8L5

Phone: (506) 856-2374

Regional Services – Region 6

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Grand Falls, NB E3Z 1G1

65 Broadway Blvd.,

Grand Falls, NB E3Z 2J6

Phone: (506) 473-7744

Map of Department of Environment and Local Government Regions



WETLAND DELINEATION DATA FORM – NEW BRUNSWICK

Project/Site: _____ Municipality/County: _____ Sampling Date: _____

Applicant/Owner: _____ Sampling Point: _____

Investigator(s): _____ Affiliation: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____

Slope (%): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name/Type: _____ Wetland Type: _____

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	Is the Sampled Area within a Wetland? Yes _____ No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____) Absolute % Cover Dominant Species? Indicator Status		Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____	_____	
3. _____	_____	
4. _____	_____	
5. _____	_____ = Total Cover	
<u>Sapling/Shrub Stratum</u> (Plot size: _____)		Hydrophytic Vegetation Indicators: ___ Rapid Test for Hydrophytic Vegetation ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
1. _____	_____	
2. _____	_____	
3. _____	_____	
4. _____	_____	
<u>Herb Stratum</u> (Plot size: _____)		Hydrophytic Vegetation Present? Yes _____ No _____
1. _____	_____	
2. _____	_____	
3. _____	_____	
4. _____	_____	
<u>Woody Vine Stratum</u> (Plot size: _____)		_____ = Total Cover
1. _____	_____	
2. _____	_____	_____ = Total Cover
Remarks: (Include photo numbers here or on a separate sheet.)		

Adapted from U.S. Army Corps of Engineers form for North Central and North East Region (Version 2.0), and Field Indicators for Identifying Hydric Soils in New England (Version 4.0) Supplement for use in New Brunswick (2019)

SOIL

Sampling Point: _____

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

Depth (cm)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- 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)

- Stripped Matrix (S6)
- Dark Surfaces (S7)
- Polyvalue Below Surface (S8)
- Thin Dark Surface (S9)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

Indicators for Problematic Hydric Soils³:

- Coast Prairie Redox (A16)
- 5 c Mucky Peat or Peat (S3)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (F21)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (cm): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres on Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry-Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (cm): _____
 Water Table Present? Yes _____ No _____ Depth (cm): _____
 Saturation Present? Yes _____ No _____ Depth (cm): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: