

PROJECT NO.: 211-06686-00

PEATLAND NO. 6 DEVELOPMENT PROJECT ENVIRONMENTAL IMPACT ASSESSMENT

FEBRUARY 2022





PEATLAND NO. 6 DEVELOPMENT PROJECT ENVIRONMENTAL IMPACT ASSESSMENT

THERIAULT & HACHEY PEAT MOSS LTD.

TYPE OF DOCUMENT (VERSION)
CONFIDENTIEL

PROJECT NO.: 211-06686-00
DATE: FEBRUARY 2022

WSP CANADA INC.
1135 LEBOURGNEUF BOULEVARD
QUÉBEC, QUEBEC G2K 0M5
CANADA

TELEPHONE: +1-418-623-2254
FAX: +1-418-624-1857
WSP.COM

SIGNATURES

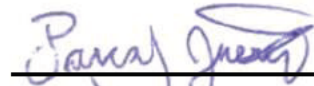
PREPARED BY



Sabiha Hafdi, CEP, M.Sc. Water Sciences
Hydrologist

2022-02-15

Date

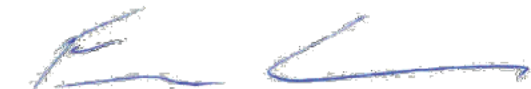


Pascal Guérin, M.Sc. Biology
Biologist

2022-02-15

Date

REVIEWED BY



2022-02-16

François Quinty, M.Sc. Geography
Project Director

2022-02-15

Date

EXECUTIVE SUMMARY

Theriault & Hachey Peat Moss Inc. (Theriault & Hachey) is a locally owned New Brunswick family business that has been processing and shipping quality peat products from their Baie-Sainte-Anne facilities to customers worldwide since 1963, with the addition of value-added, professional horticultural growing mixes in 2007. In 2015, facing adverse conditions, Theriault & Hachey entered into a strategic partnership agreement with Les Tourbières Berger Ltée (Berger) that involved transferring its lease rights on peatlands Nos. 324W and 302A to Berger. In exchange Theriault & Hachey can continue to harvest a base amount of peat. In March 2018, the Theriault & Hachey processing and packaging plant burned down, and it was rapidly replaced by a newly constructed \$10M facility that was completed in 2019, but additional volumes of raw peat are required to maximize the Theriault & Hachey investment in this facility.

In February 2021, the New Brunswick Department of Natural Resources and Energy Development (DNRED) launched a Call for Tenders for a peat exploration licence for Peatland No. 6 (PEL 2021-01). Theriault & Hachey Peat Moss Ltd. submitted a proposal and was awarded the Peat Exploration Licence 2021-1. Developing Peatland No. 6 will allow the company to replace and rebuild its own production capacity and have a better control over its supply.

As required by subsection 5(1) of the *Environmental Impact Assessment Regulation* (Regulation 87-83) for peat harvesting projects, Theriault & Hachey must submit a registration document to receive approval from the Department of Environment and Local Government (DELG) for its Peatland No. 6 Project. The company appointed WSP Canada Inc. (WSP) to prepare the registration document in accordance with the *Guide to Environmental Impact Assessment in New Brunswick* and the *Sector-specific Guidelines for Peat Development Projects* of the DELG.

Peatland No. 6 is located on Crown land 20 km southeast of Miramichi and it covers 301 ha including 206 ha with over 1 m of peat depth. It lies in a remote location accessible through Weldfield-Collette Road. Theriault & Hachey intends to develop 176 ha for peat harvesting over a 9-year period and the life expectancy of the operation is estimated to be 50 years. The project does not include the construction of a peat processing plant since the harvested peat will be processed at the Theriault & Hachey Baie-Sainte-Anne plant located besides the company headquarters, which is producing compressed horticultural peat and mix. The project will create 23 seasonal jobs at the harvesting site and 19 fulltime jobs at the Baie-Sainte-Anne facilities once the peatland is in full operation.

The project comprises the development of peat fields using standard methods and the construction of drainage network of secondary drainage ditches, main ditches, and sedimentation ponds. Infrastructures will also include a 4.07-km access road, bog roads (2.71 km) and a service area.

The project is to be completed in three phases: construction, operation, and reclamation. The construction phase includes digging the sedimentation ponds and the main drainage ditches, building access and bog roads, and preparing fields for harvest in conjunction with digging the secondary drainage ditches.

The proposed drainage network will capture all the water flowing from the harvested fields and infrastructure and the water will be directed into the sedimentation ponds or over low vegetated land areas to filter water before it reaches receiving watercourses in accordance with current requirements. The construction will proceed progressively over a period of at least nine (9) years.

The operation phase involves harrowing, harvesting, stockpiling, and transportation of peat. It also includes maintenance of fields and infrastructure that will be carried out annually or as needed. During this phase, the drainage network will remove water from the fields to create the necessary conditions for drying and harvesting peat without affecting the flow rate or quality of water in the receiving watercourses. The Peatland No. 6 Project will allow peat production of 450,000 bales (0.17 m³ or 6 cubic feet) per year once the harvest area is fully developed by 2031. The production will slowly decrease afterward. The life expectancy of the bog is estimated at about 50 years and the total production at 14,500,000 bales.

The reclamation phase involves returning the site to wetlands, either through Sphagnum Revegetation or Forest Habitat. Bog ponds will also be created among the Sphagnum Revegetation and Forest Habitat areas. The site reclamation phase will proceed progressively as fields will be closed to harvest.

Peatland No. 6 is located in the Kouchibouguac Ecodistrict that encompasses the eastern coastline of New Brunswick. The bedrock is composed entirely of sandstone, mudstone, and conglomerate covered by moraine sediments. Organic deposits overlie moraine sediments in and around Peatland No. 6. The peatland has two domes with peat depth reaching 5 m separated by a shallow peat zone. It straddles the watersheds of Black River and Bay du Vin River, both located within the Miramichi River Basin. Rosaireville Lake occupies a large portion of the peatland to the north.

The vegetation of the peatland is typical of domed raised bog of the Kouchibouguac Ecodistrict dominated by a Sphagnum carpet along with low-shrubs and herbaceous species. Three rare plant species, Cloudberry, Russet Cottongrass and White-fringed Orchid were observed but no species listed under provincial or federal Species at Risk (SAR) legislation were found. Three provincially rare bird species – Bufflehead, Sandhill Crane, and Wilson’s Snipe, were observed near or at the margin of the peatland during breeding bird surveys.

The Goodfellow Brook Protected Natural Area (PNA) is located 3.5 km northwest of Peatland No. 6 and Candidate Conservation Area No. 0683 covers the northern part of the peatland including Rosaireville Lake and is adjacent to the northern limit of the proposed development.

The closest First Nations communities are the Natoaganeg (Eel Ground) and Metepenagiag (Red Bank) Mi’kmaq communities with population of 1,036 and 702 respectively. The Natoaganeg community is located near the city of Miramichi and 25 km to the northwest of Peatland No. 6 while the Metepenagiag community is located 38 km to the northwest of proposed project. Elsipogtog (Big Cove), L’nui Menikuk (Indian River), and Esgenoôpetitj (Burnt Church) are other Mi’kmaq communities located within a radius of 50km from the Project.

The area surrounding Peatland No. 6, which lies in Northumberland County, is sparsely populated. The drivers of the local economy are mostly based on primary and secondary activities using a resource base and it is expected that the Project will have a positive impact by providing additional jobs.

Due to proposed mitigation measures, the development of Peatland No. 6 is expected to have little impact on the environmental components. Diffuse overland flow and its combination with sedimentation ponds at drainage network outlets will capture suspended peat particles in an efficient manner and prevent impact on downstream water quality. The preservation of 125 ha out of the 301 ha covered by the peatland will provide plant and wildlife habitat throughout the duration of the project. The implementation of the reclamation plan will ensure re-establishment of Sphagnum dominated plant communities and the return of the ecosystem’s functions such as carbon sequestration, hydrologic regime, and species and habitat diversity. Forest habitat may also be created where conditions will not be suitable for Sphagnum revegetation. Specific mitigation measures also address other components such as air and soil quality, workers health and safety and fire. As the area is relatively undeveloped, except for another harvested peatland 7 km to the northwest, no cumulative impacts are expected.

PRODUCTION TEAM

THERIAULT & HACHEY PEAT MOSS LTD

Vice-President Sales & Logistics	Jody Williston
Vice-President Operations	Matthew Theriault
Advisor	Andreas Avenriep

WSP CANADA INC. (WSP)

Project Director	François Quinty
Hydrologist	Sabiha Hafdhi
Biologist	Cody Pytlak
Biologist	Pascal Guérin
Geomatic	Emmanuel Rémillard
Editing	Cathia Gamache

BOREAL ENVIRONMENT

Biologist	Derrick Mitchell
-----------	------------------

Reference to be cited:

WSP. 2022. *PEATLAND NO. 6 DEVELOPMENT PROJECT. ENVIRONMENTAL IMPACT ASSESSMENT. REPORT PREPARED FOR THERIAULT & HACHEY PEAT MOSS LTD. 89 PAGES AND APPENDICES.*



TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1 INTRODUCTION.....	1
2 THE PROPONENT	3
2.1 THERIAULT & HACHEY PEAT MOSS LTD.....	3
2.2 CONTACT INFORMATION	3
3 THE PROJECT	5
3.1 PROJECT OVERVIEW	5
3.2 PURPOSE AND RATIONALE FOR THE PROJECT	5
3.3 PROJECT LOCATION.....	6
3.4 PHYSICAL COMPONENTS AND DIMENSIONS OF THE PROJECT.....	6
3.5 DEVELOPMENT PLAN	7
3.5.1 CONSTRUCTION PHASE	7
3.5.2 OPERATION PHASE	15
3.5.3 WATER MANAGEMENT DURING CONSTRUCTION AND OPERATION	16
3.5.4 DEVELOPMENT SCHEDULE	20
3.5.5 DECOMMISSIONING PLAN	22
4 DESCRIPTION OF EXISTING ENVIRONMENT	27
4.1 PHYSICAL ENVIRONMENT.....	27
4.1.1 GEOLOGICAL AND GEOMORPHOLOGICAL SETTING.....	27
4.1.2 CLIMATE.....	27
4.1.3 HYDROGEOLOGY.....	29
4.1.4 SURFACE WATER REGIME	30
4.1.5 PEAT AND STREAM WATER QUALITY.....	30
4.1.6 PEAT CHARACTERISTICS	32
4.2 BIOLOGICAL ENVIRONMENT	33
4.2.1 WETLANDS AND VEGETATION	33
4.2.2 TERRESTRIAL WILDLIFE	34
4.2.3 AQUATIC WILDLIFE	39



TABLE OF CONTENTS (continued)

4.2.4	SPECIAL STATUS AREAS	39
4.3	HUMAN ENVIRONMENT	39
4.3.1	COMMUNITIES.....	39
4.3.2	FIRST NATIONS.....	40
4.3.3	POPULATION	40
4.3.4	SERVICES	41
4.3.5	LAND USE	41
4.3.6	ECONOMY.....	41
4.3.7	AREAS OF INTEREST	42
4.3.8	HISTORIC LAND USE	42
4.3.9	ARCHEOLOGICAL CONSIDERATIONS	42
5	SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	43
5.1.1	HYDROLOGY	43
5.1.2	HYDROGEOLOGY	47
5.1.3	FLORA	48
5.1.4	TERRESTRIAL WILDLIFE	49
5.1.5	AQUATIC WILDLIFE.....	51
5.1.6	AIR QUALITY	51
5.1.7	OTHER IMPACTS.....	52
5.2	CUMULATIVE IMPACT	55
5.3	REVERSIBILITY OF IMPACTS	57
5.4	MONITORING PROGRAM	57
6	PUBLIC INVOLVEMENT	59
6.1	PUBLIC CONSULTATION	59
6.2	ENGAGEMENT WITH FIRST NATION	67
7	APPROVAL OF UNDERTAKING.....	69
8	BIBLIOGRAPHY	71



TABLE OF CONTENTS (continued)

TABLES

TABLE 3-1	SEDIMENTATION PONDS SPECIFICATION FOR EACH DRAINAGE SUBNETWORK	12
TABLE 3-2	HYDRAULIC PROPERTIES DEFINED FOR EACH LAYER OF PEAT	18
TABLE 3-3	PEATLAND NO. 6 DEVELOPMENT SCHEDULE	21
TABLE 3-4	THERIAULT & HACHEY RECLAMATION PAST RECLAMATION WORKS ON PEATLAND NOS. 324W AND 302A	25
TABLE 4-1	AVERAGE MONTHLY TEMPERATURES AND PRECIPITATION AT MIRAMICHI A STATION	28
TABLE 4-2	ANTICIPATED CHANGE IN TEMPERATURE AND PRECIPITATION FOR TWO GLOBAL WARMING SCENARIOS FOR KOUCHIBOUGUAC.....	29
TABLE 4-3	WATER SAMPLES ANALYSIS RESULTS	31
TABLE 4-4	RARE PLANT SPECIES PRESENT IN PEATLAND NO. 6	34
TABLE 4-5	MAMMALS PRESENT IN THE KOUCHIBOUGUAC NATIONAL PARK AND THE TABUSINTAC RIVER WATERSHED.....	35
TABLE 4-6	REPTILE AND AMPHIBIAN PRESENT IN KOUCHIBOUGUAC NATIONAL PARK AND THE TABUSINTAC RIVER WATERSHED.....	37
TABLE 4-7	CANADIAN CENSUS STATISTICS FOR THE NORTHUMBERLAND COUNTY	40
TABLE 6-1	COMMENTS RECEIVED DURING THE PUBLIC CONSULTATION.....	61
TABLE 6-2	SUMMARY OF COMMUNICATIONS WITH THE FIRST NATIONS	67

TABLE OF CONTENTS (continued)

FIGURES

FIGURE 3-1	ACCESS ROAD SCHEMATIC CROSS-SECTION	8
FIGURE 3-2	SEDIMENTATION SCHEMATIC POND CROSS-SECTION	10
FIGURE 3-3	PRELIMINARY LAYOUT OF THE SERVICE AREA	14
FIGURE 3-4	EXPECTED PEATLAND DRAINAGE DISCHARGE DURING A DITCHING SEASON	19
FIGURE 3-5	POND AT THERIAULT & HACHEY PEATLAND 324W WHEN IT WAS CREATED IN 2006 (LEFT) AND 15 YEARS LATER IN 2021 (RIGHT).....	26
FIGURE 5-1	ESTIMATED MONTHLY RUNOFF IN HARVEST AREAS FOR PEATLAND NO. 6	44

MAPS

MAP 1	PROJECT LOCATION.....	79
MAP 2	DEVELOPMENT PLAN	81
MAP 3	PEATH DEPTH PROJECTION	83
MAP 4	PHYSICAL ENVIRONMENT	85
MAP 5	BIOLOGICAL ENVIRONMENT	87
MAP 6	HUMAN ENVIRONMENT	89



TABLE OF CONTENTS (continued)

APPENDICES

- A CLIMATE ATLAS REPORT – REGION OF KOUCHIBOUGUAC
- B CERTIFICATES OF ANALYSIS
- C PEATLAND #6 - RARE PLANT AND SOUTHERN TWAYBLADE SURVEYS (WSP, 2021)
- D DATA REPORT 6992: NORTH OF ROSAIREVILLE, NB (ACCDC, 2021)
- E MARITIME BREEDING BIRD ATLAS 2006 - 2010
- F LIST OF BIRDS OBSERVED IN THE KENT REGION
- G PEATLAND #6 - BREEDING BIRD AND NIGHTJAR SURVEYS (WSP, 2021)
- H ARCHEOLOGY
- I ENVIRONMENTAL PROTECTION PLAN (EPP)
- J PUBLIC CONSULTATIONS
- K FIRST NATION ENGAGEMENT

