



RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Travaux publics et Services gouvernementaux
Canada
Place Bonaventure,
800 rue de la Gauchetière Ouest
Voir aux présentes - See herein
Montréal
Québec
H5A 1L6
FAX pour soumissions: (514) 496-3822

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

**Proposal To: Public Works and Government
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet Env. Remediation, Mont-Joli Airport	
Solicitation No. - N° de l'invitation EF928-180123/A	Date 2017-07-25
Client Reference No. - N° de référence du client R.082515.001	
GETS Reference No. - N° de référence de SEAG PW-\$MTC-775-14447	
File No. - N° de dossier MTC-7-40020 (775)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2017-08-17	
Time Zone Fuseau horaire Heure Avancée de l'Est HAE	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Aguilera, Maria Pia	Buyer Id - Id de l'acheteur mtc775
Telephone No. - N° de téléphone (514) 496-3573 ()	FAX No. - N° de FAX (514) 496-3822
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: MINISTERE DES TRAVAUX PUBLICS ET SERVICES GOUVERNEMENTAUX CANADA PL.BONAVENTURE,PORTAIL S-E,BUR.7300 800 RUE DE LA GAUCHETIERE O. MONTREAL Québec H5A1L6 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Travaux publics et Services gouvernementaux Canada
Place Bonaventure,
800 rue de la Gauchetière Ouest
Voir aux présentes - See herein
Montréal
Québec
H5A 1L6

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

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PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There is no security requirement associated with this project.

1.2 Statement of Work

The Work to be performed is detailed under Annex C – Statement of work.

1.3 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.4 Trade Agreements

The requirement is subject to the provisions of the Canadian Free Trade Agreement (CFTA)."

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the *Standard Acquisition Clauses and Conditions Manual* (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2017-04-27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC will not be accepted.

2.3 Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPSs, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada

will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

Definitions

For the purposes of this clause, "former public servant" is any former member of a department as defined in the **Financial Administration Act**, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the **Public Service Superannuation Act** (PSSA), R.S., 1985, c. P-36, and any increases paid pursuant to the **Supplementary Retirement Benefits Act**, R.S., 1985, c. S-24 as it affects the PSSA. It does not include pensions payable pursuant to the **Canadian Forces Superannuation Act**, R.S., 1985, c. C-17, the **Defence Services Pension Continuation Act**, 1970, c. D-3, the **Royal Canadian Mounted Police Pension Continuation Act**, 1970, c. R-10, and the **Royal Canadian Mounted Police Superannuation Act**, R.S., 1985, c. R-11, the **Members of Parliament Retiring Allowances Act**, R.S. 1985, c. M-5, and that portion of pension payable to the **Canada Pension Plan Act**, R.S., 1985, c. C-8.

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes () No ()**

If so, the Bidder must provide the following information, for all FPSs in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with **Contracting Policy Notice: 2012-2** and the **Guidelines on the Proactive Disclosure of Contracts**.

Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes () No ()**

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;

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- e. rate of pay on which lump sum payment is based;
 - f. period of lump sum payment including start date, end date and number of weeks;
 - g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 10 (ten) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

2.5 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Quebec.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

Canada requests that Bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (2 hard copies)

Section II: Financial Bid (1 hard copy)

Section III: Certifications (1 hard copy)

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that Bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, Bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

Section III: Certifications

Bidders must submit the certifications and additional information required under Part 5.

3.2 Bid security requirements

1. The Bidder shall submit bid security with the bid in the form of a bid bond or a security deposit in an amount that is equal to not less than 10 percent of the bid amount. Applicable Taxes shall not be included when calculating the amount of any bid security that may be required. The maximum amount of bid security required with any bid is \$2,000,000.

2. A bid bond (form PWGSC-TPSGC 504) shall be in an approved form, properly completed, with original signatures and sealed by the approved bonding company whose bonds are acceptable to Canada either at the time of solicitation closing or as identified in Treasury Board Appendix L, Acceptable Bonding Companies.
3. A security deposit shall be an original, properly completed, signed where required and be either
 - a. a bill of exchange, bank draft or money order made payable to the Receiver General for Canada and certified by an approved financial institution or drawn by an approved financial institution on itself; or
 - b. bonds of, or unconditionally guaranteed as to principal and interest by, the Government of Canada.
4. For the purposes of subparagraph 3. a. of GI08
 - a. a bill of exchange is an unconditional order in writing signed by the Bidder and addressed to an approved financial institution, requiring the said institution to pay, on demand, at a fixed or determinable future time a sum certain of money to, or to the order of, the Receiver General for Canada;
 - b. if a bill of exchange, bank draft or money order is certified by or drawn on an institution or corporation other than a chartered bank, it must be accompanied by proof that the said institution or corporation meets at least one of the criteria described in subparagraph 4.c. of GI08, either by letter or by a stamped certification on the bill of exchange, bank draft or money; and
 - c. An approved financial institution is
 - i. a corporation or institution that is a member of the Canadian Payments Association as defined in the Canadian Payments Act;
 - ii. a corporation that accepts deposits that are insured, to the maximum permitted by law, by the Canada Deposit Insurance Corporation or the "Autorité des marchés financiers";
 - iii. a corporation that accepts deposits from the public if repayment of the deposit is guaranteed by Her Majesty the Queen in right of a province;
 - iv. a corporation, association or federation incorporated or organized as a credit union or co-operative credit society that conforms to the requirements of a credit union which are more particularly described in paragraph 137(6) of the Income Tax Act; or
 - v. Canada Post Corporation.
5. Bonds referred to in subparagraph 3. b. of GI08 shall be provided on the basis of their market value current at the date of solicitation closing, and shall be
 - a. payable to bearer;
 - b. accompanied by a duly executed instrument of transfer of the bonds to the Receiver General for Canada in the form prescribed by the Domestic Bonds of Canada Regulations; or
 - c. registered as to principal or as to principal and interest in the name of the Receiver General for Canada pursuant to the Domestic Bonds of Canada Regulations.
6. As an alternative to a security deposit an irrevocable standby letter of credit is acceptable to Canada and the amount shall be determined in the same manner as a security deposit referred to above.
7. An irrevocable standby letter of credit referred to in paragraph 6) of GI08 shall
 - a. be an arrangement, however named or described, whereby a financial institution (the "Issuer") acting at the request and on the instructions of a customer (the "Applicant") or on its own behalf,
 - i. is to make a payment to, or to the order of, the Receiver General for Canada as the beneficiary;
 - ii. is to accept and pay bills of exchange drawn by the Receiver General for Canada;
 - iii. authorizes another financial institution to effect such payment or accept and pay such bills of exchange; or

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- iv. authorizes another financial institution to negotiate against written demand(s) for payment provided that the terms and conditions of the letter of credit are complied with;
 - b. state the face amount which may be drawn against it;
 - c. state its expiry date;
 - d. provide for sight payment to the Receiver General for Canada by way of the financial institution's draft against presentation of a written demand for payment signed by the Departmental Representative identified in the letter of credit by his/her office;
 - e. provide that more than one written demand for payment may be presented subject to the sum of those demands not exceeding the face value of the letter of credit;
 - f. provide that it is subject to the International Chamber of Commerce (ICC) *Uniform Customs and Practice (UCP) for Documentary Credits, 2007 Revision*, ICC Publication No. 600, Pursuant to the ICCUCP, a credit is irrevocable even if there is no indication to that effect; and
 - g. be issued or confirmed, in either official language, by a financial institution which is a member of the Canadian Payments Association and is on the letterhead of the Issuer or Confirmer. The format is left to the discretion of the Issuer or Confirmer.
 8. Bid security shall lapse or be returned as soon as practical following
 - a. the solicitation closing date, for those Bidders submitting non-compliant bids; and
 - b. the administrative bid review, for those Bidders submitting compliant bids ranked fourth to last on the schedule of bids; and
 - c. the award of contract, for those Bidders submitting the second and third ranked bids; and
 - d. the receipt of contract security, for the successful Bidder; or
 - e. the cancellation of the solicitation, for all Bidders.
 9. Notwithstanding the provisions of paragraph 8 of GI08 and provided more than three compliant bids have been received, if one or more of the bids ranked third to first is withdrawn or rejected for whatever reason then Canada reserves the right to hold the security of the next highest ranked compliant bid in order to retain the bid security of at least three valid and compliant bids.

10. PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

- Execution of at least five (5) contaminated site remediation projects (soil and residual material) by excavation and off-site disposal delivered in the last five (5) years, of a minimum total cost of 500,000 \$ each (taxes excluded).
 - Please provide a project sheet for each project including a short description of the mandate, the total cost of the work executed and the coordinates of the person to contact for verification purposes.
- Execution of at least three (3) contaminated site remediation projects by excavation and off-site disposal that included excavation water management (pumping, storage and treatment or disposal) and the construction of a saturated soil storage platform equipped with a water collection system, delivered in the last five (5) years, of a minimum total cost of 100,000 \$ each (taxes excluded).
 - Please provide a project sheet for each project including a short description of the mandate, the total cost of the work executed and the coordinates of the person to contact for verification purposes.
- Execution of at least three (3) contaminated site remediation projects by excavation and off-site disposal that included remediation works in a waterway or a ditch, delivered in the last five (5) years, of a minimum total cost of 50,000 \$ each (taxes excluded).
 - Please provide a project sheet for each project including a short description of the mandate, the total cost of the work executed and the coordinates of the person to contact for verification purposes.
- Execution of at least two (2) contaminated site remediation projects that included remediation works in a wetland, delivered in the last five (5) years, of a minimum total cost of 50,000 \$ each (taxes excluded).
 - Please provide a project sheet for each project including a short description of the mandate, the total cost of the work executed and the coordinates of the person to contact for verification purposes.

Among the projects presented, execution of at least five (5) projects in the province of Quebec, to demonstrate that the Contractor has experience using Quebec regulations and applicable technical standards and guides.

- Project manager with at least five (5) years' experience in contaminated site remediation.
 - Please provide the résumé showing how the project manager fulfils the requirements (at least past employers and title, a list of projects executed, and the responsibilities in the execution of the projects).

- Project director with at least ten (10) years' experience in contaminated site remediation.
 - Please provide the résumé showing how the project director fulfils the requirements (at least past employers and title, a list of projects executed, and the responsibilities in the execution of the projects).

4.1.2 Financial Evaluation

SACC Manual Clause A0220T (2014-06-26), Evaluation of Price

4.2 Basis of Selection

4.2.1 Basis of Selection - Mandatory Technical Criteria

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the *Ineligibility and Suspension Policy* (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide with its bid the required documentation, as applicable, to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the *Ineligibility and Suspension Policy* (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's website](http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969) (http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list during the period of the Contract.

The Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

5.2.3 Compliance with applicable laws

By submission of a bid, the Bidder certifies that the Bidder has the legal capacity to enter into a contract and is in possession of all valid licences, permits, registrations, certificates, declarations, filings, or other authorizations necessary to comply with all federal, provincial and municipal laws and regulations applicable to the submission of the bid and entry into any ensuing contract for the performance of the work.

For the purpose of validating the certification in paragraph 1) of G14, a Bidder shall, if requested, provide a copy of every valid licence, permit, registration, certificate, declaration, filing or other authorization listed in the request, and shall provide such documentation within the time limit(s) set out in the request.

Failure to comply with the requirements of paragraph 2) of G14 shall result in disqualification of the bid.

5.2.4 Listing of Subcontractors and Suppliers

Notwithstanding any list of Subcontractors that the Bidder may be required to submit as part of the bid, the Bidder shall, within 48 hours of receipt of a notice to do so, submit all information requested in the said notice including the names of Subcontractors and Suppliers for the part or parts of the Work listed. Failure to do so shall result in the disqualification of its bid.

PART 6 - RESULTING CONTRACT CLAUSES

1. The following are the Contract Documents:
 - a. Contract Page when signed by Canada;
 - b. Duly completed Bid and Acceptance Form and any Appendices attached thereto;
 - c. Drawings and Specifications;
 - d. General Conditions and clauses

GC1	General Provisions – Construction Services	R2810D	(2016-04-04);
GC2	Administration of the Contract	R2820D	(2016-01-28);
GC3	Execution and Control of the Work	R2830D	(2015-02-25);
GC4	Protective Measures	R2840D	(2008-05-12);
GC5	Terms of Payment	R2850D	(2016-01-28);
GC6	Delays and Changes in the Work	R2860D	(2016-01-28);
GC7	Default, Suspension or Termination of Contract	R2870D	(2008-05-12);
GC8	Dispute Resolution	R2880D	(2016-01-28);
GC9	Contract Security	R2890D	(2014-06-26);
GC10	Insurance	R2900D	(2008-05-12);
	Allowable Costs for Contract Changes Under GC6.4.1	R2950D	(2015-02-25);
	Supplementary Conditions		
 - e. Any amendment issued or any allowable bid revision received before the date and time set for solicitation closing;
 - f. Any amendment incorporated by mutual agreement between Canada and the Contractor before acceptance of the bid; and
 - g. Any amendment or variation of the contract documents that is made in accordance with the General Conditions.
2. The documents identified by title, number and date above are incorporated by reference and are set out in the Standard Acquisition Clauses and Conditions (SACC) Manual, issued by Public Works and Government Services Canada (PWGSC). The SACC Manual is available on the PWGSC Web site: <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>
3. The language of the contract documents is the language of the Bid and Acceptance Form submitted.

BID AND ACCEPTANCE FORM (BA)

BA01 IDENTIFICATION

Environmental remediation work 2017- 2018
Mont-Joli Airport

BA02 BUSINESS NAME AND ADDRESS OF BIDDER

Name: _____

Address: _____

Telephone: _____ Fax: _____ PBN: _____

E-mail address: _____

Industrial Security Program Organisation Number (ISP ORG#) _____
(when required)

BA03 THE OFFER

The Bidder offers to Canada to perform and complete the Work for the above named project in accordance with the Bid Documents for the **TOTAL BID AMOUNT INDICATED IN APPENDIX 1**.

BA04 BID VALIDITY PERIOD

The bid must not be withdrawn for a period of thirty (30) days following the date of solicitation closing.

BA05 ACCEPTANCE AND CONTRACT

Upon acceptance of the Bidder's offer by Canada, a binding Contract will be formed between Canada and the Bidder. The documents forming the Contract will be the Contract Documents identified in "Contract Documents (CD)" section.

BA06 CONSTRUCTION TIME

The Contractor must perform and complete the Work on or before December 22nd 2017, from the date of notification of acceptance of the offer. The completion date is (date).

BA07 BID SECURITY

The Bidder must enclose bid security with its bid in accordance with GI08 - Bid Security Requirements of R2710T - General Instructions - Construction Services - Bid Security Requirements.

BA08 SIGNATURE

Name and title of person authorized to sign on behalf of Bidder (Type or print)

Signature

Date

APPENDIX 1 - COMBINED PRICE FORM

- 1) The prices per unit will govern in establishing the Total Extended Amount. Any arithmetical errors in this Appendix will be corrected by Canada.
- 2) Canada may reject the bid if any of the prices submitted do not reasonably reflect the cost of performing the part of the work to which that price applies.

LUMP SUM

The Lump Sum Amount designates Work to which a Lump Sum Arrangement applies.

- (a) Work included in the Lump Sum Amount represents all work not included in the unit price table.

Section 1.1 Firm Price – General Items (for all sectors)

Sections	Description	All-inclusive firm price (GST/HST not included) C\$
1.1.1	Worksite organization and project monitoring	\$ _____
1.1.2	Deliverables	\$ _____
Estimated total price of the work subject to firm prices – General items (excluding GST/HST)		\$ _____

Section 1.2 Firm Price – Specific Items for Each Sector

Sections	Description	All-inclusive firm price (GST/HST not included) C\$
FORMER BUILDING H-3 SECTOR		
1.2.1	Reinforcing, preserving, temporarily dismantling, securing and restoring of infrastructure (hydro pole, fence and underground pipes)	\$ _____
FORMER COAL STORAGE SECTOR		
1.2.2	Construction of roadways and access roads	\$ _____
TANKS SECTOR (FORMER SEPTIC TANKS)		
1.2.3	Construction of dewatering basin	\$ _____
1.2.4	Construction of saturated soil storage platform	\$ _____

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1.2.5	Pumping and temporary storage of pumped water and discharge into the sewer	\$ _____
1.2.6	Cleaning and camera inspection of the inflow pipe	\$ _____
DITCH SECTOR		
1.2.7	Ditch dewatering	\$ _____
FORMER RAILWAY LINE SECTOR		
1.2.8	Construction of roadways and access roads	\$ _____
1.2.9	Pumping of water from excavation and discharge in wooded area	\$ _____
LUMP SUM AMOUNT (LSA) (sections 1.1, 1.2) Excluding applicable tax(es)		\$ _____

UNIT PRICE TABLE

The Unit Price Table designates Work to which a Unit Price Arrangement applies.

- (a) Work included in each item is as described in the referenced specification section.
- (b) The Price per Unit shall not include any amounts for Work that is not included in that unit price Item.

Section 1.3. Firm Unit Prices

Sections	Description	Unit	Estimated Quantity (Note 1)	Firm Unit Price	Total Estimated Cost
FORMER BUILDING H-3 SECTOR					Sector
1.3.1	Test trenches (depth < 3 m, per trench)	trenches	5	\$ _____	\$ _____
1.3.2	Excavation, segregation, piling and backfilling of clean surface soil	m ³	225	\$ _____	\$ _____
1.3.3	Excavation, segregation, piling, loading, transportation and off-site disposal of contaminated soil PH C ₁₀ -C ₅₀ < B BTEX: < B PAHs: < C Metals: C-RESC	t	160	\$ _____	\$ _____
1.3.4	Excavation, segregation, piling, loading, transportation and off-site disposal of contaminated soil PH C ₁₀ -C ₅₀ : > RESC BTEX: > RESC PAHs: C-RESC Metals: C-RESC	t	80	\$ _____	\$ _____
1.3.5	Backfilling and compacting the excavation with Class B borrow materials	t	240	\$ _____	\$ _____
FORMER COAL STORAGE SECTOR					
1.3.6	Test trenches (depth < 3 m per trench)	trenches	10	\$ _____	\$ _____
1.3.7	Excavation, segregation, piling, loading, transportation and off-site disposal of non hazardous residual materials	t	520	\$ _____	\$ _____
1.3.8	Excavation, segregation, piling, loading, transportation and off-site disposal of contaminated soil Metals: C-RESC	t	130	\$ _____	\$ _____
1.3.9	Backfilling and compacting the excavation with Class B borrow materials	t	131	\$ _____	\$ _____
1.3.10	Backfilling of the excavation with topsoil	t	243	\$ _____	\$ _____
1.3.11	Hydraulic seeding	m ²	1,295	\$ _____	\$ _____

Sections	Description	Unit	Estimated Quantity (Note 1)	Firm Unit Price	Total Estimated Cost
FORMER DUMP SITE-1 AND FORMER DUMP SITE-2					
1.3.12	Backfilling of the excavation with topsoil	t	443	\$ _____	\$ _____
1.3.13	Hydraulic seeding	m ²	2,364	\$ _____	\$ _____
SEPTIC TANKS SECTOR					
1.3.14	Excavation, segregation, piling and backfilling of clean surface soil	m ³	1,306	\$ _____	\$ _____
1.3.15	Excavation, segregation, piling, loading, transportation and off-site disposal of non hazardous residual materials (not reclaimable)	t	1,850	\$ _____	\$ _____
1.3.16	Excavation, segregation, piling, loading, transportation and disposal of creosoted wood	t	90	\$ _____	\$ _____
1.3.17	Extracting contamination from oil-stained concrete using abrasive blasting	m ²	527	\$ _____	\$ _____
1.3.18	Extracting contamination from oil-stained concrete using mechanical methods	m ²	527	\$ _____	\$ _____
1.3.19	Dismantling, separating, fragmenting, temporary storage, loading, transportation and disposal of clean concrete (PH C ₁₀ -C ₅₀ < C)	t	379	\$ _____	\$ _____
1.3.20	Dismantling, separating, fragmenting, temporary storage, loading, transportation and disposal of contaminated concrete and cleaning residues (PH C ₁₀ -C ₅₀ > C but < 30 000 mg/kg)	t	190	\$ _____	\$ _____
1.3.21	Dismantling, separating, fragmenting, temporary storage, loading, transportation and disposal of contaminated concrete and cleaning residues (hazardous residual materials) (PH C ₁₀ -C ₅₀ > C and > 30 000 mg/kg)	t	190	\$ _____	\$ _____
1.3.22	Excavation, segregation, piling, loading, transportation and off-site disposal of contaminated soil Metals: C-RESC	t	206	\$ _____	\$ _____
1.3.23	Excavation, segregation, piling, loading, transportation and off-site disposal of contaminated soil Metals: C-RESC	t	286	\$ _____	\$ _____
1.3.24	Transportation and disposal of water at an authorized treatment site	L	50,000	\$ _____	\$ _____
1.3.25	Backfilling and compacting the excavation with Class B borrow materials	t	2,219	\$ _____	\$ _____

Sections	Description	Unit	Estimated Quantity (Note 1)	Firm Unit Price	Total Estimated Cost
1.3.26	Backfilling of the excavation with topsoil	t	221	\$ _____	\$ _____
1.3.27	Hydraulic seeding	m ²	1,178	\$ _____	\$ _____
DITCH SECTOR					
1.3.28	Testing trenches (depth < 3 m per trench)	trenches	10	\$ _____	\$ _____
1.3.29	Excavation, segregagtion, piling, loading, transportation and off-site disposal of contaminated soil PAHs: >RESC	t	120	\$ _____	\$ _____
1.3.30	Backfilling of the excavation with Class A MG-20 imported borrow materials, plus compacting	t	120	\$ _____	\$ _____
1.3.31	Backfilling of the excavation with topsoil	t	38	\$ _____	\$ _____
1.3.32	Hydraulic seeding	m ²	200	\$ _____	\$ _____
FORMER RAILWAY LINE SECTOR					
1.3.33	Tree clearing	m ²	250	\$ _____	\$ _____
1.3.34	Excavation, segregagtion, piling, loading, transportation and off-site disposal of non hazardous residual materials	t	766	\$ _____	\$ _____
1.3.35	Backfilling of the excavation with Class B imported borrow materials, plus compacting	t	412	\$ _____	\$ _____
1.3.36	Backfilling of the excavation with topsoil	t	221	\$ _____	\$ _____
1.3.37	Hydraulic seeding	m ²	1,180	\$ _____	\$ _____
FORMER GARAGES SECTOR					
1.3.38	Excavation, segregation, piling and backfilling of clean surface soil	m ³	71	\$ _____	\$ _____
1.3.39	Excavation, segregagtion, piling, loading, transportation and off-site disposal of non-hazardous residual materials (slag and coal)	t	266	\$ _____	\$ _____
1.3.40	Excavation, segregagtion, piling, loading, transportation and off-site disposal of non-hazardous residual materials (asphalt)	t	95	\$ _____	\$ _____
1.3.41	Backfilling of the excavation with Class B imported borrow materials, plus compacting	t	119	\$ _____	\$ _____

Sections	Description	Unit	Estimated Quantity (Note 1)	Firm Unit Price	Total Estimated Cost
1.3.42	Backfilling of the excavation with topsoil	t	151	\$ _____	\$ _____
1.3.43	Hydraulic seeding	m ²	807	\$ _____	\$ _____
FORMER BOILER HOUSE SECTOR					
1.3.44	Excavation, segregagtion, piling, loading, transportation and off-site disposal of non-hazardous residual materials	t	233	\$ _____	\$ _____
1.3.45	Backfilling of the excavation with Class B imported borrow materials, plus compacting	t	19	\$ _____	\$ _____
1.3.46	Backfilling of the excavation with topsoil	t	134	\$ _____	\$ _____
1.3.47	Hydraulic seeding	m ²	715	\$ _____	\$ _____
FORMER ASPHALT PLANT SECTOR					
1.3.48	Excavation, temporary storage, transportation and off-site disposal of non-hazardous residual materials (asphalt fragments)	t	36	\$ _____	\$ _____
1.3.49	Hydraulic seeding	m ²	1 117	\$ _____	\$ _____

TOTAL EXTENDED AMOUNT (TEA) Excluding applicable tax(e)s	\$ _____
--	----------

Note 1: Estimated quantity for bidding purposes. This quantity will be adjusted on the basis of the field observations. The quantities must be approved in advance by the project authority

TOTAL BID AMOUNT (LSA +TEA) Excluding applicable tax(e)s	\$ _____
--	----------

APPENDIX 3 - LISTING OF SUBCONTRACTORS

- 1) In accordance with GI07 - Listing of Subcontractors and Suppliers of R2710T- General Instructions - Construction Services - Bid Security Requirements, the Bidder should provide a list of Subcontractors with his Bid.
- 2) The Bidder should submit the list of Subcontractors and for any portion of the Work valued at 20% or greater of the submitted Bid Price.

	Subcontractor	Division	Estimated value of work
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

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APPENDIX 4 – DEPARTMENTAL REPRESENTATIVE'S AUTHORITY

Contracting Authority is:

Name: Maria Pia Aguilera

Title: Procurement Specialist

Department: Public Works and Government Services Canada

Telephone: 514-496-3573

Email: mariapia.aguilera@pwgsc-tpsgc.gc.ca

Technical Authority is:

Name: _____

Title: _____

Department: _____

Division: _____

Telephone: ____ - ____ - _____

Email: _____

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APPENDIX 5 – VOLUNTARY CERTIFICATION TO SUPPORT THE USE OF APPRENTICES

Note: The contractor will be asked to fill out a report every six months or at project completion as per sample "Voluntary Reports for Apprentices Employed during the Contract" provided at Annex C

Name: _____

Signature: _____

Company Name: _____

Company Legal Name: _____

Solicitation Number: _____

Number of company employees: _____

Number of apprentices planned to be working on this contract: _____

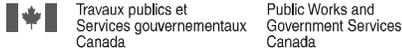
Trades of those apprentices:

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ANNEX A - CERTIFICATE OF INSURANCE (Not required at solicitation closing)
CERTIFICATE OF INSURANCE



Description and Location of Work Environmental Remediation Work 2017- 2018 Mont-Joli Airport	Contract No. EF928-180123
	Project No. R.082515.001

Name of Insurer, Broker or Agent	Address (No., Street)	City	Province	Postal Code
----------------------------------	-----------------------	------	----------	-------------

Name of Insured (Contractor)	Address (No., Street)	City	Province	Postal Code
------------------------------	-----------------------	------	----------	-------------

Additional Insured
Her Majesty the Queen in Right of Canada as represented by the Minister of Public Works and Government Services

Type of Insurance	Insurer Name and Policy Number	Inception Date D / M / Y	Expiry Date D / M / Y	Limits of Liability		
				Per Occurrence	Annual General Aggregate	Completed Operations Aggregate
Commercial General Liability Umbrella/Excess Liability				\$	\$	\$
Builder's Risk / Installation Floater				\$		
Insert other type of insurance as required				\$		

I certify that the above policies were issued by insurers in the course of their Insurance business in Canada, are currently in force and include the applicable insurance coverage's stated on page 2 of this Certificate of Insurance, including advance notice of cancellation / reduction in coverage.

Name of person authorized to sign on behalf of Insurer(s) (Officer, Agent, Broker) number	Telephone
Signature	Date D / M / Y

CERTIFICATE OF INSURANCE Page 2 of 2

General

The insurance policies required on page 1 of the Certificate of Insurance must be in force and must include the insurance coverage listed under the corresponding type of insurance on this page.

The policies must insure the Contractor and must include Her Majesty the Queen in Right of Canada as represented by the Minister of Public Works and Government Services as an additional Insured.

The Policy shall be endorsed to provide the Owner with not less than 30 days' notice in writing in advance of any cancellation or change or amendment restricting coverage.

Without increasing the limit of liability, the policies must protect all insured parties to the full extent of coverage provided. Further, the policies must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.

Commercial General Liability

The insurance coverage provided must not be substantially less than that provided by the latest edition of IBC Form 2100.

The policy must either include or be endorsed to include coverage for the following exposures or hazards if the Work is subject thereto:

- (a) Blasting.
- (b) Pile driving and caisson work.
- (c) Underpinning.
- (d) Removal or weakening of support of any structure or land whether such support be natural or otherwise if the work is performed by the insured contractor.

The policy must have the following minimum limits:

- (a) **\$5,000,000** Each Occurrence Limit;
- (b) **\$10,000,000** General Aggregate Limit per policy year if the policy contains a General Aggregate; and
- (c) **\$5,000,000** Products/Completed Operations Aggregate Limit.

Umbrella or excess liability insurance may be used to achieve the required limits.

Builder's Risk / Installation Floater

The insurance coverage provided must not be less than that provided by the latest edition of IBC Forms 4042 and 4047.

The policy must permit use and occupancy of any of the projects, or any part thereof, where such use and occupancy is for the purposes for which a project is intended upon completion.

The policy may exclude or be endorsed to exclude coverage for loss or damage caused by asbestos, fungi or spores, cyber and terrorism.

The policy must have a limit that is **not less than the sum of the contract value** plus the declared value (if any) set forth in the contract documents of all material and equipment supplied by Canada at the site of the project to be incorporated into and form part of the finished Work. If the value of the Work is changed, the policy must be changed to reflect the revised contract value.

The policy must provide that the proceeds thereof are payable to Canada or as Canada may direct in accordance with GC10.2, "Insurance Proceeds" (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/R/R2900D/2>).

Other types of Insurance

To be inserted below according to specifics of project.

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ANNEX C - STATEMENT OF WORK

REQUEST FOR PROPOSAL

Environmental Remediation work 2017 -2018

Mont-Joli Airport

Project No. R.082515.001

(see attached document)



Travaux publics et
Services gouvernementaux
Canada

Public Works and
Government Services
Canada

Canada



REQUEST FOR PROPOSAL

Environmental Remediation Work 2017-2018
Mont-Joli Airport

Requested by: **Environmental Services**
Public Works and Government Services Canada
Quebec Region

Project No.: R.082515.001
July 2017

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APPENDICES

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APPENDIX C: Environmental conditions in the former building H-3 sector following 2012 remediation work

APPENDIX D: Environmental conditions in the former dump site – 1 and former dump site – 2 sectors following 2016 remediation work

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APPENDIX F: Environmental monitoring weekly report form

1.0 BACKGROUND

Public Works and Government Services Canada (PWGSC), on behalf of Transport Canada (TC), wishes to obtain the services of an environmental contractor (“Contractor”) to carry out environmental remediation work on the site of the Mont-Joli Airport in Quebec.

On December 15, 2004, TC transferred the Mont-Joli Airport to the Régie intermunicipale de l’aéroport régional de Mont-Joli. Environmental characterization studies were conducted during the transfer process and certain contaminated areas were identified. TC has undertaken to clean up the site based on the applicable land use criteria. Since then, the Régie has transferred certain lands deemed surplus to the Municipality of Mont-Joli.

Since a change in use is planned for lands that were used for an activity listed in Schedule III of the *Quebec Land Protection and Rehabilitation Regulation* (LPRR) (NAICS Code 488119: Other Airport Operations), a characterization and remediation process was triggered pursuant to Division IV.2.1 of the *Quebec Environment Quality Act* (EQA). Attested Phase I and II environmental site assessment studies were therefore produced and a remediation plan was then submitted to the Department of Sustainable Development, the Environment and the Fight against Climate Change¹ (MDDELCC). Two MDDELCC approvals have been issued for this remediation plan, presented in various phases. First, the original remediation plan was approved by MDDELCC on January 20, 2012 (ref: 7610-01-01-0253704). Then, the amendment to the remediation plan was approved by MDDELCC on December 19, 2013 (ref: 7610-01-01-0253704). The remediation plan, the amendment to the remediation plan and the response documents to MDDELCC questions are provided in Appendix A. The MDDELCC approval documents for the remediation plan are provided in Appendix B.

The remediation work for which this call for tenders is being issued concerns 10 sectors at various locations within the site:

- Former building H-3;
- Former coal storage area;
- Former dump site - 1;
- Former dump site - 2;
- Tanks (former septic tanks);
- Ditch;
- Former rail line;
- Former garages;

¹ Formerly called the Quebec Department of Sustainable Development, the Environment, Wildlife and Parks (MDDEFP)

- Former boiler house;
- Former asphalt plant.

Please note that remediation work has already been carried out on former building H-3, former dump site - 1, former dump site - 2 and former asphalt plant sectors, in accordance with the remediation plan and the amendment to the remediation plan. However, additional remediation work will be carried out as part of this project to complete the remediation.

2.0 SITE DESCRIPTION

The site of the planned remediation work, which includes the ten sectors listed above, is included within the boundaries of lots 5 476 271, 5 476 272, 5 476 274, 5 476 275, 5 476 277, 5 476 278, 5 504 328 and 5 504 329 of the cadastre of Quebec.² The site is located on part of the former lands of the Mont-Joli Airport, which were sold to the Town of Mont-Joli in 2008. It is located on the south shore of the St. Lawrence River, to the north of the Municipality of Mont-Joli and to the south of the Municipality of Sainte-Flavie. More specifically, it is located north of Perreault Road and to the east of runway 15-33. It currently has no street address, but was formerly assigned the address of 875 Route de l'Aéroport, Mont-Joli, QC. The site is accessible from Perreault Road East, following Joseph-Pearson Road.

The airport receives its drinking water supply from the water supply system of the Municipality of Mont-Joli and is served by the sewer system of the same municipality.

Site location plans showing the site in its regional context are provided in the remediation plan and the response documents to MDDELCC questions for approval of the remediation plan in Appendix A.

2.1 Brief site history

The Mont-Joli Airport, which was initially used for military purposes, was built between 1940 and 1942. In 1946, it was transferred to the federal Department of Transport, but retained its military use until 1958. In the past, various buildings have been present on the site of the planned remediation work, including hangars, garages, an asphalt plant and a boiler house. The site also contained several petroleum product storage tanks, a coal storage area, a dump site as well as a rail line.

2.2 Environmental issues

The following sections present the environmental issues specific to each of the ten sectors involved in the remediation work. Location plans for the sectors involved in the work are provided in Appendix A.

2.2.1 *Former building H-3*

The former building H-3 sector is vacant. Environmental remediation work was carried out in the winter of 2012 in accordance with the remediation plan approved by the MDDELCC (Appendix A). During this work, some 222.10 MT of soils exhibiting concentrations exceeding the limit values set out in Schedule II of the *Land Protection and Rehabilitation*

² Please note that lot 4 804 509 of the cadastre of Quebec (formerly lot 4 746 167, which was subdivided in 2012) has been subdivided into lots 5 476 271 to 5 476 281 (inclusively), 5 479 227, 5 504 328 and 5 504 329 of the cadastre of Quebec.

Regulation (LPRR) as well as 10.32 MT of asphalt and 24.10 MT of concrete were disposed of off-site.

The analysis results obtained following the environmental remediation work indicate the residual presence of contaminated soils exceeding the values set out in Schedule II of the LPRR in the south wall of excavation EX1.1. Indeed, the western section of the south wall (sample EX1.1-P7-1 (0.50-0.70)) exhibits an arsenic concentration exceeding the limit value set out in Schedule II at a depth of 0.50 to 0.70 m below the soil surface, while the eastern section of the south wall (samples EX1.1-P3-2 (0.50-0.85) and EX1.1-P3-1 (1.85-2.20)) exhibits concentrations of arsenic, polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons C₁₀-C₅₀ (PH C₁₀-C₅₀) or monocyclic aromatic hydrocarbons (MAHs) exceeding the limit values set out in Schedule II at a depth of 0.50 to 2.2 m below the soil surface. These soils had to be left in place owing to physical limitations, namely the presence of a utility pole and a fence nearby.

The figure and the table excerpted from the environmental remediation report,³ presenting the environmental record of soil quality following the remediation work, are provided in Appendix C. The volume of contaminated soils left in place is estimated at 120 m³, i.e. 80 m³ in excess of Schedule II of the LPRR, but below Schedule I of the *Regulation Respecting the Burial of Contaminated Soils* (RRBCS) for metals, and 40 m³ in excess of Schedule I of the RRBCS for MAHs and PH C₁₀-C₅₀.

2.2.2 Former coal storage area

The former coal storage sector is vacant. This site was formerly used for the storage of coal. A ditch surrounded the storage area, and coal was supplied by a rail line located to the southwest. The coal-fired boiler house was located nearby.

According to the results of the characterization work carried out in this sector, a bituminous coal layer is present at the soil surface. Based on an analysis of the carbon content of the black particles, it was determined that this substance was coal and not anthracite. The waste (black particles of coal) present in the sector of the former coal storage area can therefore be considered non-hazardous within the meaning of paragraph 21 of section 1 of the *Environment Quality Act* (R.S.Q., c. Q-2).⁴

Three zones containing more than 50% waste (coal) were identified with a total area of 1,295 m² and representing an approximate volume of 260 m³. The area of 1,295 m² calculated represents an initial estimate, which was based on visual surface observations. It may be amended upward based on subsequent observations during the additional characterization work to be carried out prior to the remediation work in this sector.

³ Sanexen Services Environnementaux Inc., March 2012. *Réhabilitation environnementale, Secteur de l'ancien bâtiment H-3, Aéroport de Mont-Joli – Rapport final*. Ref. No.: RA12-112-1. 35 pages + appendices

⁴ Section 1 - Paragraph 21 "hazardous material": a material which, by reason of its properties, is a hazard to health or to the environment and which, within the meaning of a regulation under this Act, is explosive, gaseous, flammable, poisonous, radioactive, corrosive, oxidizing or leachable or is designated as a hazardous material, and any object classed by regulation as a hazardous material.

During the environmental characterization study conducted by LVM Technisol in 2007, arsenic contamination (value exceeding the limit values set out in Schedule II of the LPRR) was observed in an exploration trench (PE-22). A series of exploration trenches were subsequently drilled in this sector, and no other value exceeding Schedule II of the LPRR was observed. The volume of arsenic-contaminated soils in this zone (zone 2.4) is estimated at 65 m³, i.e. an area of 100 m² and an average depth of 65 cm under the waste (coal) layer.

Please note that the exceedances of the limit values set out in Schedule II of the LPRR were observed for sulphur. However, the acid generating potential is negative.

This sector is shown in the remediation plan and the response document to associated questions, included in Appendix A.

2.2.3 Former dump site - 1 and former dump site - 2

The former dump site - 1 and former dump site - 2 sectors are vacant. Remediation work involving excavation and off-site disposal of contaminated soils and waste was carried out in 2016 in these two sectors, in accordance with the remediation plan and the amendment to the remediation plan approved by MDDELCC (see Appendix A). During this work, some 288.54 MT of soils exhibiting concentrations exceeding the limit values set out in Schedule II of the LPRR, as well as 1,146.42 MT of waste, including 126.0 MT of concrete, 13.2 MT of metals and 6.01 MT of asphalt and asphalt shingles, were disposed of off-site.

Samples of excavation sidewalls and bottoms taken following the rehabilitation work all exhibited concentrations below the limit values set out in Schedule II of the LPRR. However, due to the winter conditions present upon completion of the remediation work, the excavated surfaces were not seeded. The sod layer piled during the excavation work was spread after the backfill materials had been graded to protect the backfill soil from erosion. The excavation area is estimated at 84 m² in the former dump site - 1 sector and at 2,280 m² in the former dump site - 2 sector.

The figure excerpted from the environmental remediation report,⁵ presenting the environmental record of soil quality following the remediation work and excavated area configuration, is provided in Appendix D.

2.2.4 Tanks (former septic tanks)

The tanks sector is located on property currently occupied by a company involved in the transshipment of waste. Former concrete septic tanks are buried in a vacant area of the property. In the past, the tanks received wastewater from the former military base, as well

⁵ TechnoRem Inc., March 2017. *Réhabilitation environnementale des secteurs de l'ancien dépotoir et de l'ancienne usine d'asphalte, aéroport de Mont-Joli, Québec – Rapport final*. Ref. No.: PR16-61. 44 pages + tables, figures and appendices

as potentially contaminated effluent by petroleum hydrocarbons. An inflow pipe is still connected to the tanks, but the nature of any water coming into the tanks is unknown.

Contaminated soils exhibiting concentrations exceeding Schedule II of the LPRR for metals (PE-62-11 and PO-F1-11) and PH C₁₀-C₅₀ (PE-63-11) were found in the tanks sector. The quantity of soils affected by contamination is estimated at:

- PE-62-11: 24 m³ of soils affected by As contamination encountered between 3.2 and 3.4 m below the soil surface;
- PO-F1-11: 79.2 m³ of soils affected by Mn contamination encountered between 2.2 and 3.1 m below the soil surface;
- PE-63-11: 142.8 m³ of soils affected by PHC C₁₀-C₅₀ contamination encountered between 2.0 and 3.2 m below the soil surface.

Waste was also observed in the following boreholes:

- PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11 and PE-89-11: clean cement concrete (quality presumed inferior to criterion C in the MDDELCC "*Guide d'intervention – Protection des sols et réhabilitation des terrains contaminés*" ("the Guide"), with an estimated volume of 158 m³);
- PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11 and PE-89-11: oil-stained cement concrete, which is a hazardous material under the *Regulation respecting hazardous materials* (RRHM), with an estimated volume of 158 m³;
- PE-62-11, PE-64-11 and PE-89-11: slag with an estimated volume of 925 m³;
- PE-37-11 and PE-88-11: creosote-treated wood with an estimated volume of 45 m³.

On November 3rd, 2011, the water level was 1.13 m below ground level in monitoring well PO-F2-11 and 1.84 m below ground level in monitoring well PO-F1-11. A permeability test was conducted on November 4th, 2011, in monitoring well PO-F2-11 and showed a hydraulic conductivity of 8.78×10^{-5} cm/s. Concentrations of PH C₁₀-C₅₀, PAHs, MAHs and metals in groundwater of both monitoring wells were below criteria « *résurgence dans les eaux de surface ou infiltration dans les égouts* » (RESIE) and applicable thresholds from the *Politique de protection des sols et de réhabilitation des terrains contaminés* of the MDDELCC. However, a water sample collected in trench PE-61-11, located within the limits of the former septic tanks, showed a concentration of PH C₁₀-C₅₀ above criteria RESIE (42 000 µg/L).

This sector is shown in the amendment to the remediation plan and the response document to associated questions, included in Appendix A.

2.2.5 Ditch

The ditch sector is located just to the west of the tanks sector. The nature of the contaminated matrix present in the ditch, i.e. whether it consists of sediments or soils, could not be determined clearly and unequivocally during the most recent characterization study. To resolve this issue, TC requested an opinion from the experts at Environment Canada (EC) and Fisheries and Oceans Canada (DFO). Since DFO determined that the ditch was not a fish habitat, EC strongly suggested using the criteria of the MDDELCC Policy (criteria henceforth presented in the MDDELCC Guide) for remediation of the ditch rather than the criteria for sediments. According to a written communication (April 30, 2013), the MDDELCC is of the same opinion, provided that it is established that there is no risk of migration of the contaminated sediments to a fish habitat or to a more sensitive site.

Only one sample was collected in the ditch during the most recent characterization study. The analysis results obtained for the Fosse-1-11 sample showed PH C₁₀-C₅₀ concentrations below criterion A of the MDDELCC Policy, but exceeding the limit values set out in Schedule I of the RRBCS for PAHs.

Given the lack of available information concerning the quality of the soils in the ditch, an additional characterization of the sector is planned before the remediation work is carried out in order to delimit the zone affected by PAH contamination, to determine the area to be excavated and to specify the source of the contamination. The volume of potentially contaminated soils was estimated at 60 m³ encountered between 0.0 and 0.3 m under the surface of the ditch.

This sector is shown in the amendment to the remediation plan and the response document to associated questions, included in Appendix A.

2.2.6 Former rail line

The former rail line sector is located in the southwestern section of the site of the planned remediation work. It is just to the south of the sector of the former coal storage area, but separated from it by the Thibeault waterway.

The work carried out during the most recent characterization study revealed the presence of waste composed of slag at the soil surface (matrix containing more than 50% waste). The analysis results indicate that this waste does not constitute hazardous materials within the meaning of the RRHM. The quality of the underlying soils meets limit values set out in Schedule II of the LPRR.

Considering the uncertainty concerning the presence or absence of a wetland in the former rail line sector, TC conducted a characterization of the wetlands in 2012. The results demonstrated that the former rail line sector is a peat bog. More specifically, this sector is composed of a forested peat bog and an herbaceous peat bog.

The wetland on the work site is a disturbed ecosystem of low ecological value. In fact, although organic matter is present to a depth of more than 30 cm, the other biophysical indicators of a peat bog were not always present on the site. Certain mitigation measures will have to be applied during the remediation work to minimize the environmental effects on this environment. It is important to note that the presence of the short-eared owl is suspected.

Two waste zones were identified:

- PE-CF-04-11 to PE-CF-08-11: estimated volume of 295.5 m³ of waste (slag) encountered between 0.0 and 0.3 m below the soil surface;
- PE-CF-09-11: estimated volume of 87.8 m³ of waste (slag) encountered between 0.0 and 0.45 m below the soil surface.

This sector is shown in the amendment to the remediation plan and the response document to associated questions, included in Appendix A.

2.2.7 Former garages

The former garages sector is located more or less in the centre of the site of the planned remediation work, i.e. between the former boiler house sector and the former coal storage area sector.

The work carried out during the most recent characterization study revealed the presence of waste composed of slag and coal in borehole PE-21-11 as well as a layer of asphalt in borehole PE-39-11. The quantities of waste present in the soils are estimated at:

- PE-21-11: 132.8 m³ of waste (slag and coal) encountered at the soil surface, i.e. 0.0 to 0.4 m below the soil surface;
- PE-39-11: 47.5 m³ of waste (asphalt) encountered between 0.15 and 0.25 m below the soil surface.

This sector is shown in the amendment to the remediation plan and the response document to associated questions, included in Appendix A.

2.2.8 Former boiler house

The former boiler house sector is located just to the north of the former garages sector. The work carried out during the most recent characterization study revealed the presence of waste composed of slag near the surface in exploration trenches PE-84-11 and PE-85-11:

- PE-84-11: 30.5 m³ of waste (slag) encountered between 0.1 and 0.2 m below the soil surface;

- PE-85-11: 86.1 m³ of waste (slag) encountered between 0.09 and 0.3 m below the soil surface.

This sector is shown in the amendment to the remediation plan and the response document to associated questions, included in Appendix A.

2.2.9 Former asphalt plant

Remediation work involving excavation and off-site disposal was carried out in 2016 in the former asphalt plant sector, in accordance with the amendment to the remediation plan approved by MDDELCC (see Appendix A). Additional characterization carried out prior to the work documented an environmental issue considerably more significant than that indicated in the remediation plan. In addition to the buried asphalt layer observed, the characterization work revealed the presence of buried tar and ash to the west of the sector where the asphalt was observed. Furthermore, pieces and piles of asphalt were observed on the surface, in the woods bordering the former asphalt plant sector to the south, near and partially in an intermittent stream.

The 2016 remediation work involved the off-site disposal of 342.02 MT of asphalt and 114.33 MT of tar and ash, for a total of 456.35 MT of waste. The excavated areas were backfilled and finished with a layer of topsoil, which was covered with a geotextile to protect the soil from erosion. However, the excavated areas, which correspond to approximately 711 m² for the asphalt subsector and 406 m² for the tar and ash subsector, were not seeded due to winter conditions. Furthermore, due to the snow cover, the pieces and piles of asphalt in the wooded area were not removed.

The work also documented the presence of wetlands in the former asphalt plant sector. The wetlands were defined and characterized in 2016. Three wetlands of low ecological value were identified: a forested peat bog in the north of the former asphalt plant sector, and a swamp and a shrub swamp in the south of the sector. Certain mitigation measures will have to be applied during the remediation work to minimize the environmental effects on the wetlands and the intermittent stream.

The figures excerpted from the environmental remediation report,⁶ presenting the environmental record of soil quality following the remediation work and the location of the pieces and piles of asphalt, are provided in Appendix E.

⁶ TechnoRem Inc., March 2017. *Réhabilitation environnementale des secteurs de l'ancien dépotoir et de l'ancienne usine d'asphalte, aéroport de Mont-Joli, Québec – Rapport final*. Ref. No.: PR16-61. 44 pages + tables, figures and appendices

3.0 MANDATE

The goal of the environmental remediation work is to dispose off-site of all contaminated soils that exceed the limit values set out in Schedule II of the LPRR as well as waste (metal, wood, glass, tiles, ash, concrete, slag, coal and asphalt) present in the soils in a proportion exceeding 50% (v/v). This work must be carried out in accordance with the remediation plan and the amendment to the remediation plan approved by the MDDELCC, and the response documents to the associated questions provided in Appendix A, as well as the MDDELCC approvals provided in Appendix B. In addition to the remediation work described in these documents, to be carried out or completed, the Contractor selected to carry out this work must perform the following duties:

- Obtain the permits or authorizations required for the remediation work from the relevant federal, provincial and municipal authorities, including deforestation, excavation and water disposal permits from the Town of Mont-Joli (please note that the MDDELCC has already approved the remediation work, see Appendix B);
- Locate underground utilities with the assistance of Info-Excavation and on the site in conjunction with the site users and a specialized firm if required;
- Secure work areas by means of temporary fences or other barriers and control access to work areas;
- Dig test trenches and assist the Consultant during the collection of soil, residual material and water samples for the purposes of environmental monitoring of the remediation work and additional characterization work, the scope of which is described in the documents provided in Appendix A and section 5.8;
- Support, preserve, secure and restore infrastructures that may be affected by the work;
- Prepare paths and access roads for machinery and trucks;
- Conduct deforestation to access the areas to be remediated;
- Drain and restore the ditch in the ditch sector for remediation work in this sector and in the tanks sector;
- Set up a sediment barrier along the Thibeault waterway;
- Excavate, separate, temporarily pile, load, transport and dispose of soils and waste in accordance with the documents in Appendix A and section 5.0;
- Carry out over-excavation if the results of chemical analyses of the excavation bottom and sidewall samples indicate values exceeding the remediation objectives, in accordance with the Consultant's instructions;
- Backfill the excavations with clean soil excavated, borrow materials and topsoil in accordance with the Consultant's instructions, and then compact;
- Build a dewatering basin and a storage platform for saturated soils in the tanks sector;
- Manage any water that accumulates in the excavations and seepage from saturated materials excavated, if required, by pumping and use of temporary

storage in tanks pending the analysis results, and obtain a permit to dispose of this water through the municipal sewer system if the results permit, or arrange recovery by a specialized firm;

- Conduct cleaning and camera inspection of the inflow pipe to the former septic tanks;
- Extract contamination by means of sandblasting and mechanical methods in the former septic tanks with oil-stained concrete, break up, transport and reuse or eliminate off site;
- Grade the ground at the locations affected by the work;
- Collect the pieces and piles of asphalt in the former asphalt plant sector, as shown in Appendix E;
- Seed the grassy areas and wetlands disturbed by the remediation work, including the sectors remediated in 2016;
- Collect all waste, materials and installations before leaving the site and dispose of waste in accordance with applicable standards. Restore the site upon completion of the work;
- Keep a record of quantities of contaminated soil and waste excavated and disposed of, and compile and provide weigh scale tickets for the waste and contaminated soil;
- Prepare and apply a worker health and safety plan for the full duration of the work at the site;
- Prepare and apply an environmental emergency plan, particularly in the event of an accidental spill;
- Apply the mitigation measures set out in Appendix F;
- Prepare a weekly report on the work, including work and quantities carried out, budget incurred, quantities excavated and eliminated, projected future budget, progress percentage and schedule update;
- Participate in the work site meetings with all the parties involved in carrying out the work. The meetings will generally be held weekly, but the frequency could vary depending on the particular challenges encountered during the work;
- Comply with the directions and requirements of the Consultant and collaborate with him or her to carry out the characterization and remediation work.

4.0 REFERENCES

The successful Contractor must perform the work in accordance with the applicable federal, provincial and municipal acts, regulations, codes, guides and standards, which include, but are not limited to, the following:

- *Canadian Environmental Protection Act*;
- *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*;
- *Canadian Environmental Assessment Act*;
- *Fisheries Act*;
- *Species at Risk Act*;
- Canadian Environmental Quality Guidelines (CCME);
- Guidelines for Canadian Drinking Water Quality (Health Canada);
- Guidance Document On Federal Interim Groundwater Quality Guidelines For Federal Contaminated Sites (FCSAP);
- Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil (CCME);
- Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil: Technical Supplement (CCME);
- Federal Approach to Contaminated Sites;
- Phase II Environmental Site Assessment : CAN/CSA-Z769-F00 (C2008)
- Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites, Volume I: Main Report (1993);
- Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites, Volume II: Analytical Method Summaries (1993);
- *Environment Quality Act*;
- *Land Protection and Remediation Regulation*;
- *Regulation Respecting the Burial of Contaminated Soils*;
- *Regulation respecting contaminated soil storage and contaminated soil transfer stations*;
- *Regulation respecting environmental impact assessment and review*;
- *Regulation respecting hazardous materials*;
- *Regulation respecting the landfilling and incineration of residual materials*;
- Règlement concernant la gestion des eaux de la ville de Mont-Joli [Regulation respecting water management in the Town of Mont-Joli] (2016-1347);
- Soil Protection and Contaminated Sites Remediation Policy (Quebec publications);

- Guide d'intervention - Protection des sols et réhabilitation des terrains contaminés (MDDELCC 2016);
- Guide de caractérisation des terrains (Les Publications du Québec);
- Guide d'échantillonnage à des fins d'analyses environnementales, Cahier 1 - Généralités (CEAEQ);
- Guide d'échantillonnage à des fins d'analyses environnementales, Cahier 3 - Échantillonnage des eaux souterraines (CEAEQ) mise à jour de 2011;
- Guide d'échantillonnage à des fins d'analyses environnementales, Cahier 5 - Échantillonnage des sols (CEAEQ);
- Guide d'échantillonnage à des fins d'analyses environnementales, Cahier 8 - Échantillonnage des matières dangereuses (CEAEQ);
- Mode de conservation pour l'échantillonnage des sols (Centre d'expertise en analyse environnementale du Québec);
- Mode de conservation pour l'échantillonnage des eaux souterraines (Centre d'expertise en analyse environnementale du Québec);
- Liste des méthodes suggérées pour la réalisation des analyses de laboratoire (CEAEQ);
- Lignes directrices sur l'évaluation des teneurs de fond naturelles dans les sols (MDDEFP);
- Lignes directrices pour le traitement des sols par biodégradation, bioventilation ou volatilisation (Ministère de l'Environnement);
- Liste des centres autorisés de traitement des sols contaminés (MDDELCC);
- Liste des lieux autorisés d'enfouissement de sols contaminés (MDDELCC);
- La gestion des matériaux de démantèlement – Guide de bonnes pratiques (MDDELCC);
- Guide de valorisation des matières résiduelles inorganiques non dangereuses de source industrielle comme matériaux de construction (MDDEP);
- Lignes directrices relatives à la gestion de béton, de brique et d'asphalte issus des travaux de construction et de démolition et des résidus du secteur de la pierre de taille (MDDEP);
- Fiche technique – Matériaux de démantèlement et contamination de surface (MDDELCC);
- Guide technique. Gestion environnementale des fossés (<http://www.mddelcc.gouv.qc.ca/eau/pluviales/publications-references.htm>)
- Workplace Hazardous Materials Information System (WHMIS);
- *Canada Occupational Health and Safety Regulations*, Parts X and XIV;
- *An Act Respecting Occupational Health and Safety*, R.S.Q., c. S-2.1;
- *Regulation respecting occupational health and safety*, c. S-2.1, r. 19.01;

- *Safety Code for the Construction Industry*, c. S-2.1, r. 6.;

In case of omissions or contradictions between these requirements, the most stringent requirements will apply.

5.0 METHOD

The Contractor will act as a representative of PWGSC. All decisions necessary to effectively carry out the work as well as all decisions that have an impact on the project budget or timetable must be made in close collaboration with PWGSC. In general, the work must be carried out in accordance with the remediation plan, the amendment to the remediation plan, the response documents to associated questions and MDDELCC approvals, as provided in Appendices A and B.

5.1 Start-up meeting

Following the awarding of the contract, a start-up meeting will be held at TC's offices in Quebec City. The purpose of this meeting will be to present the Contractor's work timetable and provide additional details or clarifications concerning the project requirements. The Consultant selected by PWGSC to monitor the work will also attend this meeting. The meeting may be held by telephone if the PWGSC representative determines that travel by the Contractor is not required.

5.2 Management plan, environmental emergency plan and health and safety plan

Before commencement of the work and as quickly as possible following the awarding of the contract, the Contractor shall prepare a soil and waste management plan and an emergency plan in case of an accidental spill. The work may begin following acceptance of the management plan by PWGSC, TC and MDDELCC. The Contractor shall also prepare an occupational health and safety plan for PWGSC review.

5.3 Site access

The site shall be accessible from Perreault Road East, following Joseph-Pearson Road. The route is used regularly by ecocentre users and other occupants of the work site.

The Contractor must have its own transportation, without support from PWGSC or Transport Canada, and pay all travel costs. PWGSC must be informed of the date of commencement of the work as soon as possible following the awarding of the contract in order to coordinate the work with the Consultant and so that a Transport Canada representative can inform the owner, but as a minimum two weeks before commencement of the work. Certain sectors involved in the remediation work are located on land currently occupied by companies that lease the land to the Town of Mont-Joli. Site access will be granted by a representative of the site owner. The Contractor must respect the authority of the person in charge of site access, and collaborate with the occupants and users of the sectors affected by the work to limit the impact on their

activities. The Contractor may not, at any time, approach the operational areas of the airport, unless escorted by a representative of the airport.

During the work, it will be the Contractor's responsibility to control access to the work areas and to ensure that no unauthorized persons or persons not wearing the required personal protective equipment have access to the work site.

5.4 Logistical considerations

The Contractor shall plan logistics so as to minimize disturbance of residents near the site and inconvenience to site users, optimize off-site transport of materials and minimize the cost and time associated with that transport. As necessary, the Contractor is responsible for obtaining all permits and authorizations required to transport materials and carry out its activities. Furthermore, work may be carried out only from Monday to Friday, between 7:00 a.m. and 5:00 p.m., unless otherwise agreed in advance with PWGSC, to minimize disturbance of residents near the site.

PWGSC and TC will provide a list of high-priority sectors to be remediated, as well as a list of lower-priority sectors to be remediated last. In accordance with the amendment to the remediation plan and the response document to associated questions (see Appendix A), the remediation of the ditch sector shall be carried out prior to the tanks sector. As the ditch must be drained for the work to be carried out, water running from the ditch to the tanks will be limited by proceeding in this order.

The Contractor shall also take into consideration that additional work shall be carried out prior to the start of remediation work in certain sectors. That work includes:

- Additional characterization in the former coal storage sector to better identify waste in a proportion exceeding 50%;
- Additional characterization in the ditch sector to identify and determine the depth of soils exceeding the criteria, and to identify the source of the contamination;
- Preparation of a detailed work procedure by the Consultant for remediation work in the ditch sector, to be submitted to MDDELCC for approval prior to performance of the work;
- Additional characterization in the former building H-3 sector.

Due to the delays that may result from the definition of this additional work by the Consultant, the Contractor shall plan for changes to the expected sequence of work.

5.5 Location of utilities

The Contractor will be responsible for locating underground utilities (Info-Excavation, municipality, private underground utilities, etc.). The Contractor must clearly identify these locations in order to prevent any interruption of services during performance of the work.

The Contractor will be responsible for obtaining all necessary information concerning the underground utilities from the site occupants. A sewage pumping station and a hydro pole have been observed in the remediation work area in the former building H-3 sector. This suggests that underground utilities will be located directly in the work area. The services of a private locator will be required to locate underground utilities, particularly in the former building H-3 sector.

The location of the underground utilities left in place, moved or abandoned must be noted.

5.6 Securing the work area

The work area must be secured for the full duration of the work using temporary fences or other types of barriers. The Contractor will be responsible for controlling site access during work periods and for completely securing site access during periods when work is not taking place. The appropriate signage must be set up around the work sites to indicate the potential presence of workers and machinery, as well as heavy truck traffic.

5.7 Material and equipment

The Contractor will provide all material and equipment necessary to carry out the work and will ensure that this equipment functions adequately. A prior inspection followed by regular inspections of equipment, machinery and trucks used must be done to ensure they are in good working order, clean and free of any petroleum product leaks. In the event of breakdowns, the equipment in question must be repaired or replaced without delay in appropriate locations.

5.8 Test trenches

Additional characterization work is planned in three areas:

- The former coal storage sector, to better delineate the edges of the area containing over 50% residual materials;
- The ditch sector to determine the width and depth of soil that exceeds the criteria, as well as the source of contamination;
- The former building H-3, to delineate the edges of the residual contamination left in place during the 2012 remediation work.

The additional characterization work will be carried out primarily by digging test trenches. The Contractor must provide the machinery and labour required to dig the trenches and assist the Consultant in taking measurements and collecting samples. The characterization plan will be determined by the Consultant in collaboration with PWGSC. For information purposes, approximately 25 test trenches with depths varying

from 0.5 m to 3.0 m will be dug in these three areas. Additional areas could also require further characterization work.

5.9 Supporting, preserving, securing and restoring infrastructure

Infrastructure is present in some sectors subject to the remediation work. The Contractor must take special precautions with this infrastructure.

In the former building H-3 sector, remediation work will take place in an area occupied by a utility pole (low-voltage line, medium-voltage line and telecommunications), a fence and two manholes. The Contractor will be responsible for requesting authorization and communicating with Hydro-Québec, participating in a site inspection with the latter's representative (if required), then providing any documents required by Hydro-Québec to carry out work near the pole (plans, specifications, etc.). The costs associated with the visit, preparation of documents required by Hydro-Québec (professional services) and any fees charged by Hydro-Québec to implement the protective measures and for processing the file will be the Contractor's responsibility. The Contractor will not be allowed to claim extra fees based on extra costs associated with Hydro-Québec demands that have not been planned by the Contractor during the preparation of his proposal. The fence present will also need to be dismantled temporarily and reinstalled following the work. The presence of manholes suggests the presence of underground infrastructure, including a sewer pumping station. Furthermore, a wire that is probably used to power the pumping station but the nature of which has not been confirmed runs down the pole to the ground. The Contractor will be responsible for implementing all underpinning and protective measures required to preserve the infrastructure.

There is also a fence in the former garages sector. Depending on the extent of the residual materials to be excavated, the fence may also have to be temporarily dismantled then reinstalled following the work.

5.10 Construction of access roads

Access roads must be built starting from existing access roads to allow trucks to drive around the site. The objectives are that trucks should be able to circulate at all times, regardless of weather conditions that could affect the soil's load-bearing capacity, and transportation of contaminated soil off the site by trucks' wheels should be limited. The Contractor will be responsible for building, maintaining and dismantling access roads and restoring these surfaces at the end of the work.

The access roads will be used to transport excavated material and backfill for work in the sectors of the former rail line (herbaceous peat bog), the former coal storage (grass cover), the former tanks (grass cover) and the ditch (grass cover). The materials used by the Contractor to build access roads must allow the Contractor's machinery to navigate the area. Furthermore, the materials used must meet criteria A of the MDDELCC Guide. These materials can be re-used in backfilling the excavations, if these materials meet the requirements for backfill. A geotextile must first be placed on the ground on which access roads are to be built to prevent granular material from contaminating areas containing

vegetation, and to avoid damaging the vegetation in place when removing the granular material used to build the access roads.

5.11 Tree and brush clearing

The former rail line sector is currently inaccessible to machinery because of trees and shrubs growing in the area to be remediated. Access to this site will require clearing an area of approximately 250 m². The method and location of tree, shrub and stump disposal must be indicated in the management plan the Contractor is to provide.

Limited brush clearing must also be done in the former asphalt plant sector. Bits and clusters of asphalt are still present in the wooded area in the south portion of the former asphalt plant sector, near the intermittent watercourse. To access these zones, small-scale tree removal (of the order of five trees) will be required.

The Contractor must obtain all of the permits and authorizations required for tree removal and pay the associated costs.

5.12 Ditch dewatering

Dewatering the ditch in the ditch sector must be completed before work begins in this sector (characterization and excavation), in accordance with the provisions in the amendment to the remediation plan and the associated questions and answers document (see Appendix A). For the purposes of bids, this includes in particular the construction of cofferdams upstream and downstream of the ditch to isolate the section of ditch to be worked on, a sediment barrier made up of straw bales, installation of an absorbent boom and pumping water from upstream to downstream. The downstream water discharge point must have riprap installed to prevent erosion at the discharge point. The structures and pumping must be maintained until work in the ditch and tanks sector is completed. The structures must then be dismantled after work is done and this must be done in accordance with MDDELCC regulations. The Contractor must consider that, in addition to water moving from upstream into the ditch, a pipe also discharges into the ditch, potentially in the section on which work will be done. Water from this pipe must also be pumped downstream. Additional measures may need to be implemented further to the MDDELCC developing and approving a working procedure for the remediation of the ditch.

5.13 Construction of a sediment barrier

Sediment barriers must be built on the banks of Thibeault Creek, in the former railway line sector, before work begins. These barriers must be maintained in place until the soil has stabilized, once the backfilling has been completed. The barriers will be made up of a geotextile, the base of which is buried in the ground and which is held in place by wooden stakes driven into the ground.

5.14 Excavation

The Contractor must carry out selective excavations of the materials in place according to the sectors, zones and depths determined in the remediation plan, the amendments to the remediation plan, and answers to questions of the MDDELCC (documents provided in Appendix A), based on the remediation objectives and in accordance with the Consultant's instructions. The Contractor must consider that the quantities of materials to be excavated may differ from the quantities stipulated in the bid form. Over-excavations may also be required in order to achieve remediation objectives.

The Contractor must consider that the Consultant will be present for the full duration of the excavation work and that the Consultant may, at any time, stop the work in a particular sector in order to carry out observations, sampling or analyses, and the Contractor shall not be entitled to charge additional expenses for this reason. The Contractor must assist the Consultant during the collection of samples as well as during the digging of exploration trenches. The excavations could need to remain open for a period of the order of three to five business days because of the time required to receive analysis reports from the walls and bases of the excavations.

The Contractor must provide the equipment required for the excavation and segregation of materials. The buckets used should allow for the segregation of contaminated materials and the creation of a smooth surface on excavation bottoms, in order to facilitate the collection of control samples.

In the event that excavations must be carried out on sloped surfaces, the areas affected must be stabilized as the work is completed. Erosion control measures must be applied by the Contractor for all sloped surfaces affected by earthwork in order to capture any eroded material.

Vestiges of former facilities may still be buried on the property. The mandate given to the Contractor does not include the removal of all such vestiges from the site. However, the expectation is that any vestiges found in the work area will be removed and transported to an off-site disposal facility. Consequently, the Contractor will need to have on hand equipment to saw, grind or break up such vestiges (e.g. wood, metal, concrete).

5.15 Extraction of contamination and management of the concrete tanks

The contamination (oil stains) present in certain sections of the former concrete septic tanks buried in the tanks sector must be extracted to reduce the quantity of concrete that must be disposed of (hazardous or non-hazardous waste) and maximize the quantity of concrete that can be reclaimed. Concrete surfaces stained with oil where the contamination is shallow in depth will be cleaned using an abrasive pressurized jet (sand or other). For concrete surfaces where the depth of contamination in the concrete is deeper, physical means (sawing, cutting, etc.) must be used. The contamination must be extracted in accordance with data sheet "Matériaux de démantèlement et contamination de surface" [dismantling/decommissioning materials and surface contamination] from the

MDDELCC. After the surface contamination is extracted, the concrete must be sampled by the Consultant to determine how to manage it. The tanks will then be demolished, separated according to the analytical results, fragmented then sent for disposal or reclamation off-site pursuant to the document in Appendix A. The cleaning residues (concrete, sand, etc.) must also be sampled by the Consultant to determine how to manage them. The Contractor must contain the sanding or sawing waste (concrete, sand, water or other) to avoid it coming into contact with uncontaminated materials or dispersing into the environment (airborne particles, contact with excavation water, etc.). The Contractor must also ensure that the workers have all of the skills and equipment required for their safety, the safety of other users and the safety of residents in the surrounding areas during the work. The Contractor must comply with the strictest applicable health and safety requirements, and must submit a detailed work procedure for review by PWGSC before beginning contamination extraction work.

5.16 Segregation

The Contractor must ensure that reasonable efforts are made to separate the soil and waste materials, when separation is technically possible. Separation must also aim to separate residual materials by type in order to divert residual materials that can be diverted from landfills, and in order to reduce the overall costs of excavated materials disposal. Among other things, the Contractor must ensure that the means employed to separate soil from waste materials do not cause, for example, the asphalt fragments to crumble, in order to prevent fine fraction contamination. Manual separation of surface and below-surface asphalt debris is therefore recommended

5.17 Temporary storage area

The areas used as temporary storage areas for soil and debris must be on the lot of origin of the excavated material. These must be restored to their original condition at the end of the work. When soil is stored, the Contractor must lay down an impermeable protective membrane over the entire storage area used. An impermeable membrane must also be used at the end of every work day to cover the piles of temporarily stored materials to prevent erosion. Appropriate weights must be used to secure the covering membranes. The Contractor must ensure that the piles are properly covered and provide the materials and labour necessary to install protective membranes. The Contractor shall consider that important wind conditions may occur on the site. Enough weights must be supplied in order to insure that covering membranes are kept in place. Efforts related to the installation of membranes could be more important because of the winds.

The Contractor must ensure that the piles are stable and that they do not present a risk of collapsing. The Contractor must also ensure that the piles are located more than 30 m from any water body and that access to the piles is limited to authorized persons only.

Furthermore, saturated or even muddy materials may be excavated. If so, in accordance with the amendment to the remediation plan (Annex A), the Contractor must temporarily store these materials on a storage platform that makes it possible to collect and control

the drainage water or in a dewatering basin (if too muddy to pile up) built on the site, if the amount of water in the materials justifies it.

In the event that muddy soil cannot be temporarily stored in a pile, the Contractor must build a dewatering basin on the site. The basin must include an impermeable geomembrane, built on a compacted granular foundation that preserves the integrity of the membrane. The Contractor must ensure that the dewatering basin is leak-proof. The dimensions and configuration of the basin are left to the Contractor's discretion, but must limit excavation delays and leave enough decantation time to remove the excess water and facilitate handling the sediment soil. Based on the volume of muddy soil to manage, the Contractor may also consider storage in "roll-off" type leak-proof containers or another leak-proof decantation solution.

In the case of piling up saturated soil, the Contractor must construct a storage platform that will reduce the water content of soil before transport. The platform must include, among other things, an impermeable geomembrane set up on a compacted foundation that will preserve the integrity of the membrane. The Contractor must then ensure the storage platform has no leaks. The geomembrane must also be covered with granular material to preserve its integrity when there is machinery traffic. The platform must be built in such a way as to contain the water inside the platform using a small dyke around the perimeter, and a slope must be constructed to direct the water towards a pumping station.

Management of the materials that are to be excavated for the construction of temporary storage areas (platform, basin) must be in compliance with the applicable provisions for the excavation of materials set out in all of section 5.0.

Temporary storage of residual materials must also be done in accordance with the provisions for soil set out earlier. However, particular measures must be taken for certain types of residual materials. In particular, creosoted wood must be stored in a leak-proof container covered with a waterproof tarp to limit water infiltration.

5.18 Transportation of materials

When trucks are being loaded, close attention must be paid to avoid dropping material on the sides of the trucks and on the ground nearby.

Each load of contaminated soil transported off-site must be inspected by the Consultant. These inspections include issuing transport manifests signed by the Consultant and the Contractor. No load of any kind will be allowed to leave the site until the Consultant has issued a transport manifest to the driver.

The soil must be transported in a closed container or a leak-proof dump body equipped with a tarp that completely covers the top of the dump body and the load. The trucks used must be sufficiently leak-proof to ensure that liquid from the soils does not leak out and leach into the surrounding environment. In addition, every truck leaving the site must be

inspected and cleaned, if necessary, to prevent the dispersal of contaminated materials off site.

The Contractor must follow the procedures for transporting contaminated soil set out in section 17 of the Transportation of Dangerous Substances Regulation (CQLR c C-24.2, r 43).

The Contractor is responsible for recovering the original transport manifests as well as the weight tickets, which must be submitted to PWGSC.

5.19 Reclamation and off-site disposal of contaminated soil and residual materials

All excavated soil and residual materials to be transported off site must be taken to reclamation sites (if possible), treatment sites or disposal sites authorized by the MDDELCC, in compliance with the documents in Appendix A. The Contractor must obtain from the MDDELCC any waiver required in connection with the disposal of metal-contaminated soil exceeding the maximum values established in Schedule I to the RRBCS.

The Contractor is solely responsible for any consequences resulting from the refusal of materials at residual material and soil disposal sites. PWGSC will not be responsible for any costs associated with a refusal to accept materials upon their arrival at the remediation, disposal and/or treatment centre.

5.20 Backfilling and compacting

The Contractor must backfill excavations in compliance with the provisions set out in the documents in Appendix A, and using soils from the temporary soil piles at the worksite that meet the remediation objectives. In addition, the Contractor must complete the excavation backfilling operations by using clean Class B borrow material (below MDDELCC criterion A). The Contractor will be responsible for demonstrating the environmental quality of material taken from borrow pits. Borrow pit analysis certificates may be used as supporting documents. In the absence of data on the environmental quality of the borrow material, the Contractor must, prior to the start of the backfilling work, take samples of the backfill and analyze them for metals, PAHs, MAHs and PH C₁₀-C₅₀. Borrow material must not be putrescible, nor can it contain more than 2% organic matter. In some areas, the Contractor must complete the excavation backfilling operations by installing a 0.15 m layer of clean topsoil (below MDDELCC criterion A). These areas are the following:

- Former coal storage area;
- Tanks (former septic tanks);
- Former rail line;
- Former garages;

- Former boiler house;
- Former dump site-1;
- Former dump site-2.

The soil used for the backfilling of the excavations must be compacted by 30 cm thick layers maximum, without compaction test. Previously excavated soils from the temporary soil piles that meet the remediation objectives will be placed on the bottom of the excavations and compacted prior to backfilling with clean imported material.

The Contractor must ensure that no depressions are formed during the backfilling of the excavations.

A special procedure will be used to backfill the ditch area. The lower third layer must be backfilled with clean Class A, MG 20-type granular material (see the above-mentioned environmental quality requirements for borrow material). The Contractor must complete the backfilling operations of the upper two thirds with a layer of topsoil, then sow grass seed over the area. The existing profile must be reproduced, except for the currently very steep sides, which will be made less steep to ensure their stability and encourage successful seeding. Please note that the Consultant will have to prepare a procedure for the remediation of the ditch sector after the completion of the characterization work, and that the MDDELCC will have to approve the procedure before the work in this sector can begin.

5.21 Water management

The Contractor must take all feasible measures, where applicable, to minimize the volume of water to be managed during the excavation work. Nonetheless, the excavation pits may have to be dried and kept dry.

In the tanks sector, the Contractor must recover, store in a settling tank and manage the water accumulated in the excavations based on the results of the chemical analyses obtained. The Contractor must ensure that pumping and storage systems are leak-proof and ensure the compatibility of materials with contaminants that may be present in the pumped water.

The Contractor will assist the Consultant, if required, in collecting water samples for analysis purposes in order to determine the most appropriate management methods (discharge into sewers, or off-site treatment). The period planned for water storage is three to five business days, but may vary depending on the turnaround time for chemical analysis results. Please note that the discharge location into the sewer will be located within the city of Mont-Joli limits (within 5 km), likely on-site, to be determined in cooperation with the City of Mont-Joli.

The Contractor must obtain written authorization from PWGSC before selecting one of these water management methods.

In the former rail line area, water in excavations may be pumped and discharged into the forest at a distance of more than 30 m from any water body.

In all cases, water management must comply with the provisions set out in Appendix F and in Section 6.0.

5.22 Grading

Following the backfilling work, the Contractor must grade the ground in the work areas to prevent the formation of depressions and reproduce the runoff water flow profile that existed prior to the work.

5.23 Collecting of asphalt pieces and chunks in the former asphalt plant area

Pieces and chunks of asphalt that are still present on the surface in the former asphalt plant area must be collected and disposed of off-site in accordance with the management plan submitted by the Contractor. The pieces and chunks of asphalt must be collected using small-scale equipment (small excavator or all-terrain vehicle [ATV] with a trailer, or the equivalent). The selected equipment must be used in such a way as to keep the required deforestation to a minimum and reduce the impact on vegetation and water bodies.

5.24 Grass seeding

Grass seeding will be required in some areas where rehabilitation work was done in the past or will be done as part of this project. Grass seeding will be required in the following areas:

- Former coal storage area;
- Former dump site-1;
- Former dump site-2;
- Tanks (former septic tanks);
- Ditch (upper two thirds);
- Former rail line;
- Former garages;
- Former boiler house;
- Former asphalt plant.

Excavation and backfilling work was carried out in the former dump site-1 and former dump site-2 sectors in 2016, and the areas were covered with layers of grass and topsoil, which had been piled during the excavation work. However, in order to maximize the chances of complete restoration of the plant cover, these areas must undergo grass seeding.

It should be noted that prior to the installation of the layer of topsoil in the former dump site-1 and former dump site-2 sectors as well as all the other sectors where the layer of grass and topsoil is piled to be put back in place after backfilling, the Contractor must loosen the soil by breaking up clumps of sod and earth in order to obtain a more homogeneous mix that is more conducive to grass seeding.

The grass seeding will be hydraulic type (“hydromulching”), using a mixture consisting of mulch, tackifier, fertilizer and a seed mix. The choice of seeds must be suited to the type of vegetation present in the work areas. The Contractor must propose a mix for each of the following groups for approval by PWGSC, TC and the MDDELCC:

Standard grass: For the area comprising the former coal storage area, former dump site 1, former dump site 2, the tanks, the ditch, the former garages and the former boiler house sectors, a standard grass seed mix will be appropriate. In the ditch sector, which has steep sides, an erosion control mat must be installed prior to the grass-seeding operation.

Wetland area (herbaceous peat bog): For the former rail line area, the Contractor must propose a seed mix specific to this type of habitat.

Intermittent waterway shore and wetland (marsh and shrub swamp): For the former asphalt plant sector, the Contractor must propose a seed mix specific to this type of habitat. It should be noted that the area to be seeded may be covered with water during certain times of the year, particularly during the spring freshet period. The grass seeding in this area must be carried out in combination with the installation of an erosion control mat. In addition, hydraulic seeding in the former asphalt plant area must be carried out without any machinery moving over the area to be seeded. The Contractor must bear in mind that the access road, where the machinery needed for the seeding operation will be parked, is about 110 linear metres from the furthest point to be seeded.

Where possible, the seed mixes must consist of grass species indigenous to the site, or otherwise grass species indigenous to the region for this type of habitat, and be free of undesirable, invasive or alien species.

5.25 Cleaning and camera inspection of inflow pipe

The Contractor must clean and carry out a camera inspection of the inflow pipe of the former septic tanks in the septic tanks area, between the septic tanks and the manhole below the street. The cleaning must be done with pressurized water. The water and solids resulting from the pressure cleaning of the pipe must be pumped using a vacuum truck and disposed of in accordance with applicable regulations. The pipe is presumably a 300-mm-diameter concrete pipe. Following the camera inspection, the Contractor must also produce an inspection report providing information on the condition of the pipe, leaks, obstructions and secondary connections.

5.26 Site cleaning

The Contractor must collect all waste and materials before leaving the site. Soil characterization studies must be conducted on the surface soils of the temporary storage

areas after the work is completed. Should there be any contamination caused by the Contractor's negligence during the work, the Contractor must remediate the areas at its own expense.

A representative of PWGSC or TC must approve the work before the Contractor removes its equipment from the site.

5.27 Environmental and technical monitoring of the work

PWGSC will implement an environmental and technical monitoring program while the rehabilitation work is carried out. The Consultant assigned by PWGSC will be in charge of implementing the program.

The Consultant will continually monitor the implementation of environmental measures. The Consultant will fill out a monitoring sheet provided by the PWGSC Representative (Appendix F) and submit it to the PWGSC Representative and the Contractor on a weekly basis.

If the Consultant feels that installations or work are hazardous to public safety, workers or the environment, or do not comply with environmental regulations or recommended mitigation measures, the Consultant will promptly inform the PWGSC Representative and the Contractor, who must take necessary corrective action to diligently resolve the problem at source, failing which the Consultant may be obliged to require that the installations concerned be closed or that the activities concerned be stopped immediately.

The environmental and technical monitoring program will include the following activities:

- Coordination and monitoring of all rehabilitation work, including checking compliance with the technical specifications and the rehabilitation plan;
- Collecting and analyzing samples from excavation walls and bottoms;
- Identification on the site of the locations of previous surveys, areas to be excavated based on soil quality and the presence of residual materials, as well as the projected locations of surveys to be carried out for additional characterization purposes;
- Surveying before, during and at the end of excavation work to determine payable quantities by volume;
- Sample gathering and analysis related to additional characterization activities;
- Collecting and analyzing water samples, if necessary.

In its bid, the Contractor will take into account the environmental and technical monitoring program and any delays it may generate when assessing and carrying out the work. In particular, the implementation of any environmental measure associated with a particular

situation or the carrying out of any monitoring or sample gathering deemed relevant by the PWGSC Representative or the Consultant may result, if necessary, in a temporary interruption of the excavation or rehabilitation work.

5.28 Monitoring of work progress

The Contractor must keep PWGSC informed of progress made in the field work by submitting a weekly report, at minimum. These reports will include the work and quantities completed, the expense budget incurred, projected quantities and budget for the remainder of the work, the percentage of progress made, and an update of the schedule. Daily worksite reports must also be prepared and submitted to PSPC on request. If necessary, brief weekly work monitoring teleconference meetings may be scheduled. Upon request, the Contractor must be able to provide up-to-date records of the quantities of soil and waste materials handled on and/or off site.

Once the work has been completed, the Contractor will compile and submit to PWGSC supporting documents that attest to the quantities handled. More detailed information on the bases of payment for unit-priced items is provided in Section 9.0.

6.0 PROTECTION OF THE ENVIRONMENT

The environmental work must be carried out with due regard for the surrounding environment. The Contractor must not, under any pretext, carry out work, operate machinery, or store or dispose of materials or liquids in a nearby watercourse.

An assessment of the environmental effects related to the implementation of the remediation work was carried out by TC in March 2015, then updated in 2017. This document describes measures to mitigate the environmental effects as well as best practices applicable to environmental remediation work. Several of these measures or practices are indicated in the preceding subsections, but the following is an additional, non-exhaustive list:

- Adopt work methods that minimize dust emissions;
- If applicable, the speed limit on unpaved roadways will be 10 km/h;
- If necessary, water or dust suppressants will be used on unpaved roads to limit the generation of dust by passing trucks. If dust suppressants are used, they must be certified as meeting the standards of the Bureau de normalisation du Québec (BNQ);
- Turn off the motors of equipment, machinery and vehicles when not in use;
- No excavation work is to be carried out near drainage ditches or watercourses during periods of heavy rain;
- Prior to their departure, trucks will be inspected, then cleaned if necessary, as will power shovels and all other machinery that are moved between areas. Manoeuvring areas will also be inspected and cleaned upon completion of the work;
- Carry out machinery maintenance and refueling on an impermeable surface more than 60 m from a water body, a wetland, banks of a river or stream, or any other aquatic environment;
- Do not store gasoline, oil or other contaminating substance less than 60 m from a water body, a wetland, the banks of a river or stream, or any other aquatic environment;
- All vehicles (as well as any temporary facilities, such as toilets, worksite trailers, etc.) must be parked more than 60 m from a water body, a wetland, the banks of a river or stream, or any other aquatic environment;
- The Contractor must comply with the applicable regulations concerning the handling, disposal and transportation of hazardous materials;
- The Contractor must prepare an environmental emergency response plan (EERP). The EERP must be available on site and communicated to all employees;

- Have on hand at all times a spill response kit to deal with any accidental spills of hazardous materials as well as leak-proof containers to contain leaks. Employees on the worksite must have required spill response training;
- Take all necessary actions to stop an accidental spill and quickly contain the substance spilled, then recover and dispose of the substance and contaminated soils, and restore the site;
- Water contaminated by an accidental spill must be contained and recovered or managed directly by a specialized environmental services company;
- All spills on the site must be reported. Report the incident as soon as possible to the responsible authorities as well as to a TC environmental officer responsible for the site. Contact Environment Canada emergency services (1-866-283-2333) and Quebec environmental emergency services (1-866-694-5454);
- Dispose of waste in compliance with the standards in effect. No burning is permitted.

In addition to the measures listed above that apply to all of the work, some specific measures must be taken in the former rail line area. Although the disturbance of the wetland caused by this work will be small-scale, it is important to minimize this project's impact on this type of fragile ecosystem as much as possible. The following mitigation measures will therefore be implemented to minimize the environmental impact on this area:

- Excavation and slag removal must be carried out from west to east. That way, the machinery will almost always be driving over slag fill, which will limit disturbance to adjacent sectors;
- Water inflows and the flow regime of Thibeault waterway (Thibeault Creek) must be maintained at all times. Work must not be carried out during periods of flooding. Sediment fences must be installed on the banks until the soils are stabilized, in order to minimize amounts of suspended solids in the creek and preserve the creek's flow;
- No work is to be done from late April to mid-July in the former rail line sector and the former coal storage site, so as not to disturb the breeding of the short-eared owl and of avian fauna in general. If work takes place in habitats frequented by the short-eared owl—dense grasslands and old fields—the same no-work period must be complied with in those habitats;
- The size of the machinery must be appropriate for the work to be performed. Whenever possible, tracked machinery should be used;
- No machinery will be permitted in the waterway, and no fording of the waterway by machinery will be authorized;
- Upon completion of the work, the soil must be replanted with obligate or facultative species that already grow in the wetland;
- If need be, the creek must be cleaned up and all debris removed upon completion of the work to ensure that its flow pattern is re-established.

The environmental monitoring form is appended in Appendix F. This form states in detail the environmental protection and mitigation measures that the Contractor must implement and that the Consultant must keep a record of.

7.0 HEALTH AND SAFETY

The Contractor must take existing information and data into account.

The Contractor is responsible for its personnel, its construction vehicles and its subcontractors participating in the project.

The successful Contractor must carry out the work in accordance with the applicable federal, provincial and municipal acts, regulations, codes, guides and standards.

To protect users and workers using the site, safety measures such as signs, tape and fences must be used to delineate the sector undergoing work.

By accepting this contract, the Contractor agrees to assume all responsibilities normally incumbent on a principal contractor and site supervisor. Before beginning the work, the Contractor must, in particular:

- Regardless of the number of workers assigned to the site, send to the PWGSC Representative a safe work plan (**health and safety plan specific to the work to be carried out**) and a mechanical inspection certificate for the machinery used at the site;
- Ensure that workers have received the training and information they need to perform the work safely, and that all necessary tools and protective equipment are available, comply with the applicable standards, statutes and regulations, and are used;
- Comply at all times with the *Quebec Act Respecting Occupational Health and Safety and Safety Code for the construction industry*;
- Inform workers that they have the right to refuse any work that poses a danger to their health or safety;
- Delineate and block off the work area and control access to the site.

In the event of an unforeseen incident, the Contractor must take all necessary measures, including stopping the work, to protect the health and safety of the workers and the public, and must immediately contact the PWGSC Representative.

A TC representative will notify site occupants of the work location before the start of the work.

8.0 DELIVERABLES

The Contractor must compile and submit to PWGSC supporting documents that attest to the quantities handled when submitting invoices and on request. Documents deemed to be acceptable include weight tickets for items billed by weight, and survey, grading or measuring records for items billed by volume. The Contractor must submit the following items with every properly prepared invoice:

- a duly completed request for progress payment form, which shows the invoiced quantities for each item in accordance with the basis of payment;
- a statutory declaration declaring that the Contractor has met all its obligations to its workers, suppliers and subcontractors.

8.1 Management plan

The management plan must include a description of the planned approach and methods, and an updated schedule. It must include the sites chosen for the treatment/disposal of contaminated soil, residual materials and contaminated water, the relating authorizations and the method to be used if water from excavations must be managed. The Contractor must also include specifications and the source of proposed seeds, and tree and shrub species. The management plan must include the environmental emergency plan. Sample transportation manifests must be appended to the management plan. The work may begin after PWGSC, TC and MDDELCC have approved the management plan.

8.2 Health and safety plan

One week before work begins, the Contractor must submit, for PWGSC's review, its health and safety plan specific to the activities to be carried out. The Contractor must also submit the supporting documents concerning the applicable accreditations and proof of training.

8.3 Environmental emergency plan

The environmental emergency plan must describe the procedures and equipment planned and available on-site in case of a petroleum product spill. It must also indicate the individuals responsible for implementing this emergency plan, and the steps taken to advise and train staff to ensure that the procedures and steps in the environmental emergency plan are implemented smoothly in response to an incident (spill or other).

9.0 CONTRACT TERMS AND CONDITIONS

9.1 Work schedule

The field work must begin as soon as possible (September 2017 at the latest) and be completed before December 22, 2017. The Contractor must take into account in its estimate that the work could be carried out when frost and winter condition is present. The Contractor must assume all additional costs incurred as a result of adapting work procedures and equipment to winter conditions. In addition, the Contractor will have to consider that work could have to be done simultaneously in more than one sector at a time to insure meeting the deadlines, without the possibility of claiming extra fees.

9.2 General conditions

The bidder must take into account all the duties, considerations and requirements listed in this document when completing the bid form. Work not specified in the bid form, but forming part of the duties, considerations and requirements listed in this document, must be allocated among the lump sum items of the bid form.

9.2.1 Lump-sum work (line items 1.1 and 1.2 of the basis of payment)

Work not listed in the unit price section of the bid form is subject to a lump-sum arrangement. The lump-sum price to be submitted is divided into two categories, general items applicable to all sectors (line item 1.1 of the basis of payment), and items specific to each sector (line item 1.2 of the basis of payment). All lump-sum line items are provided in the following sections.

9.2.1.1 Worksite organization and project monitoring (item 1.1.1)

This cost item includes all elements in the Request for Proposals for which payment is not provided for in another item. In particular, this item includes the following, without limitation:

- Site mobilization and demobilization (site trailer, washroom, generator, machinery, equipment, etc.) and the related work;
- All health and safety related matters, including ensuring the safety of the excavation site by installing fences;
- Fees and expenses related to worksite meetings;
- Fees and expenses related to project monitoring and management;
- Living expenses for the Contractor's personnel and subcontractors;
- The Contractor's communication expenses ;
- The location of underground utilities;

- The provision and operation of the tools required to cut up, dismantle or grind residual materials encountered during the remediation work (mainly in the sector of the septic tanks), if required;
- The costs associated with the machinery and personnel required for the collection of excavation bottom and sidewall samples and during characterizations of the soil in piles or in trenches;
- The equipment and personnel required to carry out surveying work;
- Snow clearing, watering to dampen dust and general maintenance of the site and access roads, if necessary;
- Drying of excavations and water management in all sectors, except for the tanks sector and the former railway line sector, for which separate items have been included in the bid form for water management;
- The costs associated with the application of mitigation measures presented in Appendix F and section 6.0, if not specified in other items;
- Expenses incurred to obtain the permits or authorizations required to carry out the work;
- Limited tree clearing in the former asphalt plant sector to access asphalt pieces and chunks in wooded area;
- Building a sediment barrier on the bank of Thibeault Creek in the former rail line sector;
- Temporarily dismantling and reinstalling the fence in the former garage sector;
- Final site clean-up.

9.2.1.2 *Deliverables (item 1.1.2)*

This item includes the production of the deliverables set out in section 8.0 of this document, namely the management plan, the health and safety plan, as well as the environmental emergency plan. The deliverables may be submitted in electronic format.

9.2.1.3 *Supporting, preserving, temporarily dismantling, securing and restoring infrastructures (item 1.2.1)*

This item includes all costs associated with supporting, preserving, temporarily dismantling and restoring the infrastructures present in the former building H-3 sector, and which could be affected by the remediation work. Among other things, this item includes:

- For the hydro pole:
 - The costs associated with applying for Hydro-Québec authorization, visiting the site with Hydro-Québec, preparing the documents required by Hydro-Québec (including engineering documents), and any fees Hydro-Québec charges to implement protective measures and process the file;

- The materials, equipment and labour required for underpinning, protecting, securing and restoring.
- For the fence:
 - The costs associated with the temporary dismantling and reinstallation, including the materials, equipment and labour.
- For underground lines and infrastructures:
 - The costs associated with clearing, underpinning, protecting and re-commissioning (if required), including materials, equipment and labour.

The Contractor must repair, at its expense, and to the satisfaction of PWGSC, any damage to existing premises or infrastructures. The Contractor will be responsible for assessing in advance the type of steps which should be taken or which Hydro-Quebec will require and ensure that these costs are included in its bid.

9.2.1.4 Construction of roadways and access roads (items 1.2.2 and 1.2.8)

This cost item includes all the costs associated with building and dismantling roadways and access roads, which will be required as part of the work, including materials, equipment, machinery and labour. Access roads are planned to be built in the former railway line sector and the former coal storage site. The basis of payment includes one cost item for each of these sectors.

9.2.1.5 Construction of a sludge dewatering basin (item 1.2.3)

This cost item includes all the costs associated with building and dismantling the sludge dewatering basin, which may be required for the work in the tanks sector. Among other things, this item includes all the materials, equipment, machinery, labour required to design, build and dismantle the structure, including disposing of the construction materials used in accordance with the applicable regulations.

9.2.1.6 Construction of a saturated soil storage platform (item 1.2.4)

This cost item includes all the costs associated with building and dismantling the saturated soil storage platform for the work in the tanks sector. Among other things, this item includes the materials, equipment, machinery and labour required to design, build and dismantle the structure, including disposing of the construction materials used in accordance with the applicable regulations.

9.2.1.7 Pumping, temporarily storing and discharging pumped water into sewers of in wooded areas (items 1.2.5 and 1.2.9)

This cost item includes the labour and all the equipment associated with managing water present in the tanks and the former railway line sectors. This includes water that accumulates in the excavations, water that comes from the platform where saturated soil

is stored temporarily and from the sludge dewatering basin as well as the water used to decontaminate the equipment used during the work. This item includes, but is not limited to:

- pumping;
- storage tanks;
- transport (if required) and discharge into sewers (tanks sector) or in wooded areas (former railway line sector);
- the cleaning of equipment used for water management; and
- the costs associated with obtaining the necessary permits and authorizations.

Costs associated with transportation and off-site disposal of water in an authorized treatment facility will be paid on a unit price basis and should not be included in the present item.

9.2.1.8 Ditch dewatering (item 1.2.7)

This cost item includes all the costs associated with dewatering the ditch, including the materials, equipment, machinery and labour to build cofferdams and sediment barriers, pump water from upstream to downstream, dismantle structures when work is completed and dispose of construction materials in accordance with the applicable regulations.

9.2.1.9 Cleaning and camera inspection of the inflow pipe (item 1.2.6)

This cost item includes the costs associated with finding manholes, cleaning lines, collecting and disposing of recovered water and solids, using a camera to conduct an inspection and preparing an inspection report. This item includes all the machinery, equipment, transportation and disposal costs as well as fees for preparing the inspection report.

9.2.2 Unit price work (line item 1.3 of the basis of payment)

The quantities indicated in the schedules were based on or derived from existing information, and are provided for bidding purposes. The quantities will be adjusted based on the work actually performed upon submission of supporting documents. PWGSC will pay only for the expenses actually incurred. Unit price work is divided into nine subgroups relating to each of the work sectors (former dump site – 1 and former dump site - 2 were combined). The cost items for each sector can be linked to the various cost items provided in the following sections.

9.2.2.1 *Test trenches (items 1.3.1, 1.3.6 and 1.3.28)*

This cost item includes the costs required to excavate trenches, including machinery and labour. The items will be paid per trench (firm price regardless of the actual depth). The payment will be based on trench data.

9.2.2.2 *Tree clearing (item 1.3.33)*

This cost item includes all the costs associated with clearing trees in order to access residual materials in the former railway line sector, including labour, equipment, permit application and the disposal of woody residues in accordance with the applicable regulations. This item will be paid per square metre based on surveys.

9.2.2.3 *Excavation, segregation, piling and backfilling of clean surface soil (items 1.3.2, 1.3.14 and 1.3.38)*

This cost item includes the costs associated with excavating clean surface soil (which meet remediation criteria), separating residual materials from soil (depending on the type of residual materials), piling soil and residual materials, loading of surface soils and transportation to the backfilling site (if required), backfilling, compaction and levelling. This item includes all machinery, equipment and labour, including supplying and installing impermeable membranes.

This item will be paid based on survey information obtained before and after excavation (unbulked volumes).

9.2.2.4 *Excavation, segregation, piling, loading, transportation and off-site disposal of contaminated soil (items 1.3.3, 1.3.4, 1.3.8, 1.3.22 and 1.3.29)*

This cost item includes the costs associated with excavating contaminated soil, separating residual materials from soil by type of residual material and the level of contamination of soil, piling, loading, transportation and disposal of contaminated soil at the authorized treatment or disposal site. The unit cost is in \$/t based on soil contamination level (MDDELCC ranges: C-RRBCS or > RRBCS). This item also includes all the machinery, equipment and labour, including supplying and installing impermeable membranes.

This item will be paid in \$/t based on supporting documentation (transport vouchers/weight tickets) submitted.

9.2.2.5 *Excavation, segregation, piling, transportation and off-site disposal of residual materials (items 1.3.8, 1.3.15, 1.1.16, 1.3.34, 1.3.39, 1.3.40, 1.3.44 and 1.3.48)*

This cost item includes the costs associated with excavating residual materials, separating residual materials from soil by type of residual material, piling, loading of temporarily piled residual materials, transportation and disposal of residual materials (hazardous or not) at an authorized disposal or reclamation site. The unit cost is in \$/t and

is based on the type of residual materials. This item includes all the machinery, equipment and labour, including supplying and installing impermeable membranes, containers or other temporary storage sites.

This item will be paid in \$/t based on the supporting documentation (transport vouchers/weigh tickets) submitted.

9.2.2.6 Extracting contamination from oil-stained concrete using abrasive blasting (item 1.3.17)

This cost item includes the costs associated with using abrasive blasting to extract contamination from oil-stained concrete, including all machinery, equipment and labour required to contain dust and water, ventilation and specific protection equipment, labour training and cleaning.

This item will be paid by square metre based on the measurement of treated surfaces.

9.2.2.7 Extracting contamination from oil-stained concrete using mechanical methods (item 1.3.18)

This cost item includes the costs associated with extracting contamination from oil-stained concrete using mechanical methods, including all machinery, equipment and labour required to saw, grind, cut or other methods selected to remove the contamination from the concrete.

This item will be paid per square metre based on the measurement of treated surfaces.

9.2.2.8 Dismantling, fragmenting, separating, temporarily storing, loading, transportation and disposal of concrete and cleaning residues (items 1.3.19, 1.3.20 and 1.3.21)

This cost item includes the costs associated with excavating, dismantling, fragmenting, separating, temporarily storing, loading, transportation and disposal to an authorized disposal or reclamation site of the concrete from the tanks sector and cleaning residues from the cleaning of the oil-stained concrete in the tanks sector. The unit cost is in \$/t and is based on the level of contamination of the concrete (PH C₁₀-C₅₀ < C, PH C₁₀-C₅₀ > C but < 30 000 mg/kg, PH C₁₀-C₅₀ > C and > 30 000 mg/kg). This item includes all the machinery, equipment and labour, including supplying and installing impermeable membranes, containers or other temporary storage sites.

This item will be paid in metric tonnes based on the transport vouchers/weigh tickets from the disposal or diversion sites.

9.2.2.9 Transportation and disposal of water at an authorized treatment site (item 1.3.24)

This cost item will be measured by litre, and includes transporting and disposal of water that does not meet criteria for the discharge into the sewer at an off-site authorized water treatment site. Note that this item will be used if needed. Note also that a high level of uncertainty exists as to the quantity of water that may have to be managed while the work is being done. The actual quantities could greatly differ from the amounts indicated on the base of payment.

This item will be paid in liters based on receipts from the treatment site.

9.2.2.10 Backfilling and compacting the excavation with borrow materials (Class A, Class B or topsoil) (items 1.3.5, 1.3.9, 1.3.10, 1.3.12, 1.3.25, 1.3.26, 1.3.30, 1.3.31, 1.3.35, 1.3.36, 1.3.41, 1.3.42, 1.3.45 and 1.3.46)

This cost item includes supplying and delivering borrow materials (Class A, Class B or topsoil), placing and compacting them, and grading the final surface. The unit price is in \$/t and will be based on the supporting documentation (transport vouchers/weigh tickets) submitted.

9.2.2.11 Hydraulic seeding (items 1.3.11, 1.3.13, 1.3.27, 1.3.32, 1.3.37, 1.3.43, 1.3.47 and 1.3.49)

This cost item includes supplying, delivering and applying hydraulic seeding. This item also includes the labour, equipment and machinery for preparing the sites for hydraulic seeding, including removing the geotextile from the former asphalt plant sector, and shredding divots in the former dump site -1 and -2 sectors. All the products (seeds, fertilizer, other), including the application, is required for successful seeding and must be included in the price. The unit rate is in \$/m² and will be based on the surveyed seeded zone.

10.0 DOCUMENTS PROVIDED

The remediation plan and the modified remediation plan approved by MDDELCC, as well as the documents containing answers to the related questions, are included in Appendix A. The MDDELCC's approval of the remediation plan and the modified remediation plan are in Annex B. After the contract is awarded, the following documents will also be submitted to the selected Contractor in electronic format.

- Biorex, October 2012. *Caractérisation d'un milieu humide présumé, situé en partie sur le lot 4 804 509 de la ville de Mont-Joli, Québec*. 12 pages + annexes
- Groupe-conseil Entraco inc., March 2009. *Aéroport de Mont-Joli – Ancien bâtiment H-3, ancien dépôt de charbon et ancien dépotoir – Caractérisation des sols*. File P0891. 64 pages + annexes
- LVM-Technisol, November 2007. *Caractérisation environnementale préliminaire – Projet de parc industriel / Aéroport de Mont-Joli*. Our file: P016127.0150. 6 pages + annexes
- LVM-Technisol, November 2009. *Ville de Mont-Joli – Propriété industrielle vacante 875, boulevard Jacques-Cartier, Mont-Joli (Québec) – Évaluation environnementale de site phase I*. Our file: 073-P016127-0153-EN-0001-00. 25 pages + annexes
- LVM, February 2010. *Addenda à l'évaluation environnementale de site phase I - Propriété industrielle vacante 875, boulevard Jacques-Cartier à Mont-Joli*. Our file: 073-P038375-140-EN-0001-00. 4 pages
- LVM, January 2012. *Évaluation environnementale de site phase I et Caractérisation environnementale de site phases II et III – Propriété industrielle Lots 4 395 754, 4 746 165, 4 747 166 et partie du lot 4 746 167, Mont-Joli – Rapport final*. Our file: 073-PO38375-0150-EN-0001-00. 58 pages + annexes
- LVM, May 2012. *Addenda et erratum concernant le rapport final de l'Évaluation environnementale de site phase I et Caractérisation environnementale de site phases II et III daté du 10 janvier 2012 et produit par LVM*, Our file: 073-P038375-0150-EN-0001-00. Our file: 073-P038375-0150-EN-0003-00, 3 pages
- LVM, May 2012. *Résumé de l'étude et Formulaire d'attestation - Évaluation environnementale de site phase I et Caractérisation environnementale de site phases II et III – Propriété industrielle Lots 4 395 754, 4 746 165, 4 747 166 et partie du lot 4 746 167, Mont-Joli – Rapport final*. Our file: 073-PO38375-0150-EN-0001-00. 7 pages
- LVM, December 2012. *Demande de renseignements supplémentaires – Réhabilitation d'un terrain contaminé, Aéroport de Mont-Joli*. Our file: 073-P0000419-0-01-200-01-EN-0003-00, 10 pages + attachments.

- Sanexen Services Environnementaux Inc., March 2012. *Réhabilitation environnementale, Secteur de l'ancien bâtiment H-3, Aéroport de Mont-Joli – Rapport final*. Our file: RA12-112-1. 35 pages + annexes
- TechnoRem Inc., March 2017. *Réhabilitation environnementale des secteurs de l'ancien dépotoir et de l'ancienne usine d'asphalte, aéroport de Mont-Joli, Québec – Rapport final*. Our file: PR16-61. 44 pages + tables, figures and annexes

11.0 CONFIDENTIALITY OF INFORMATION

All information received and documents produced under this project remain the sole property of TC and PWGSC. The Contractor may not transmit, disclose, reproduce or refer to the documents consulted or produced under this project without the explicit prior written consent of TC and PWGSC. This measure applies to all types of documents, including electronic formats. TC and PWGSC reserve the right to use the documents produced by the Contractor as they deem appropriate.

APPENDIX A

**REMEDICATION PLAN, AMENDMENT TO THE REMEDIATION PLAN AND
ASSOCIATED QUESTION AND ANSWER DOCUMENTS**



**Transport
Canada**

**Mont-Joli Airport, Quebec
Former Building H-3, Former Coal Depot and Former Landfill**

Remediation Plan

Final Version





**Mont-Joli Airport, Quebec
Former Building H-3, Former Coal Depot and Former Landfill**

Remediation Plan

Final Version

Normand Lalonde, CESA
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Montreal, March 2011
P0922

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Émilie Le Foll, Environmental Professional

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(1) CEA stands for Certified Environmental Auditor, and CESA stands for Certified Environmental Site Assessor (Association québécoise de vérification environnementale).

(2) Expert: Member of the list of experts of the Centre d'expertise en analyse environnementale du Québec (MDDEP).

LIST OF ABBREVIATIONS

AQVE	Association québécoise de vérification environnementale [Quebec association of environmental verification]
BTEX	Benzene, toluene, ethylbenzene and xylenes
CEA	Certified Environmental Auditor (AQVE)
CEAEQ	Centre d'expertise en analyse environnementale du Québec [Quebec centre of expertise in environmental analysis]
CESA	Certified Environmental Site Assessor (AQVE)
ELS	Engineered landfill site
Entraco	Groupe-conseil Entraco Inc.
Expert	Member of the list of experts of the CEAEQ (MDDEP)
LPRR	<i>Land Protection and Rehabilitation Regulation</i> (c. Q-2, r. 18.1.01)
MAH	Monocyclic aromatic hydrocarbon
MDDEP Policy	MDDEP Soil Protection and Contaminated Sites Rehabilitation Policy
MDDEP	Ministère du Développement durable, de l'Environnement et des Parcs du Québec [Quebec department of sustainable development, environment and parks]
PAH	Polycyclic aromatic hydrocarbon
PWGSC	Public Works and Government Services Canada
RRBCS	<i>Regulation Respecting the Burial of Contaminated Soils</i> (c. Q-2, r. 6.01)
SSWIS	MDDEP quality criteria for groundwater seepage into surface water or infiltration into sewers
TC	Transport Canada

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1. INTRODUCTION

1.1 BACKGROUND

Ownership of the Mont-Joli Airport was transferred, several years ago, to the of the Régie intermunicipale de l'aéroport de Mont-Joli (the Régie). The Régie plans to transfer certain surplus land parcels to the Municipality of Mont-Joli in the near future. As part of this planned transfer, remediation work must be performed on these sites. To that end, Groupe-conseil Entraco Inc. (Entraco) was commissioned by Transport Canada (TC) to prepare a remediation plan for the following three sectors:

- Former building H-3
- Former coal depot
- Former landfill

The remediation plan for these sites takes into account the requirements set out in section IV.2.1 of Quebec's *Environment Quality Act* (L.R.Q., c. Q-2), as well as the Manuel de l'expert (Expert Manual) on land protection and remediation (2008-05-01) and directives for experts produced by the Centre d'expertise en analyse environnementale du Québec (CEAEQ). The applicable MDDEP guidance documents were also taken into consideration.

In addition, in accordance with the recommendations of a recent addendum (February 2011) related to a Phase I environmental assessment conducted by LVM in 2009, a targeted soil and groundwater characterization program was incorporated into the remediation plan. The characterization program was for a lot that encompasses the sector of the former building H-3.

1.2 LIMITATION CLAUSES

The comments set out in this report are based solely on information provided by persons interviewed or contacted, the analysis of available documents, observations made during field work, and the interpretation data collected, as well as sampling and analytical results (see Appendix 1 for detailed limitation clauses).

1.3 CONFIDENTIALITY

All Entraco employees involved in this study were informed of their obligation to treat as confidential all information related to this mandate.

2. SITE LOCATIONS AND DESCRIPTIONS

Table 2.1 provides details on the locations of the sectors to be remediated (see figures 2.1 to 2.4).

Table 2.1 Characteristics of the sectors to be remediated

Sector	Former Building H-3	Former Coal Depot	Former Landfill
Owner	Régie intermunicipale de l'aéroport de Mont-Joli		
Address	875 Jacques Cartier Boulevard, Mont-Joli		
Geographic Coordinates (ScoPQ system, NAD83, Zone 6) Centre of Sites	N 5385353, E 253112	N 5385197, E 253295	N 5385729, E 253514
Lot Numbers – Land Register	4 015 674 in the Land Register of Quebec	Part of lot 706-1 of the parish of Sainte-Flavie	Part of lot 706-1 of the parish of Sainte-Flavie
Area to be Remediated	176 m ²	1,295 m ²	35 m ²
Current Occupancy	Vacant	Vacant	Vacant
Buildings/Infrastructure	Presence of concrete foundation walls from former building H-3	None	None

The boundaries of lot 4 015 674 in the Land Register of Quebec are indicated in Figure 1 of Appendix 3; this figure was taken from the LVM, 2011, study.

2. Location and Description of Sites

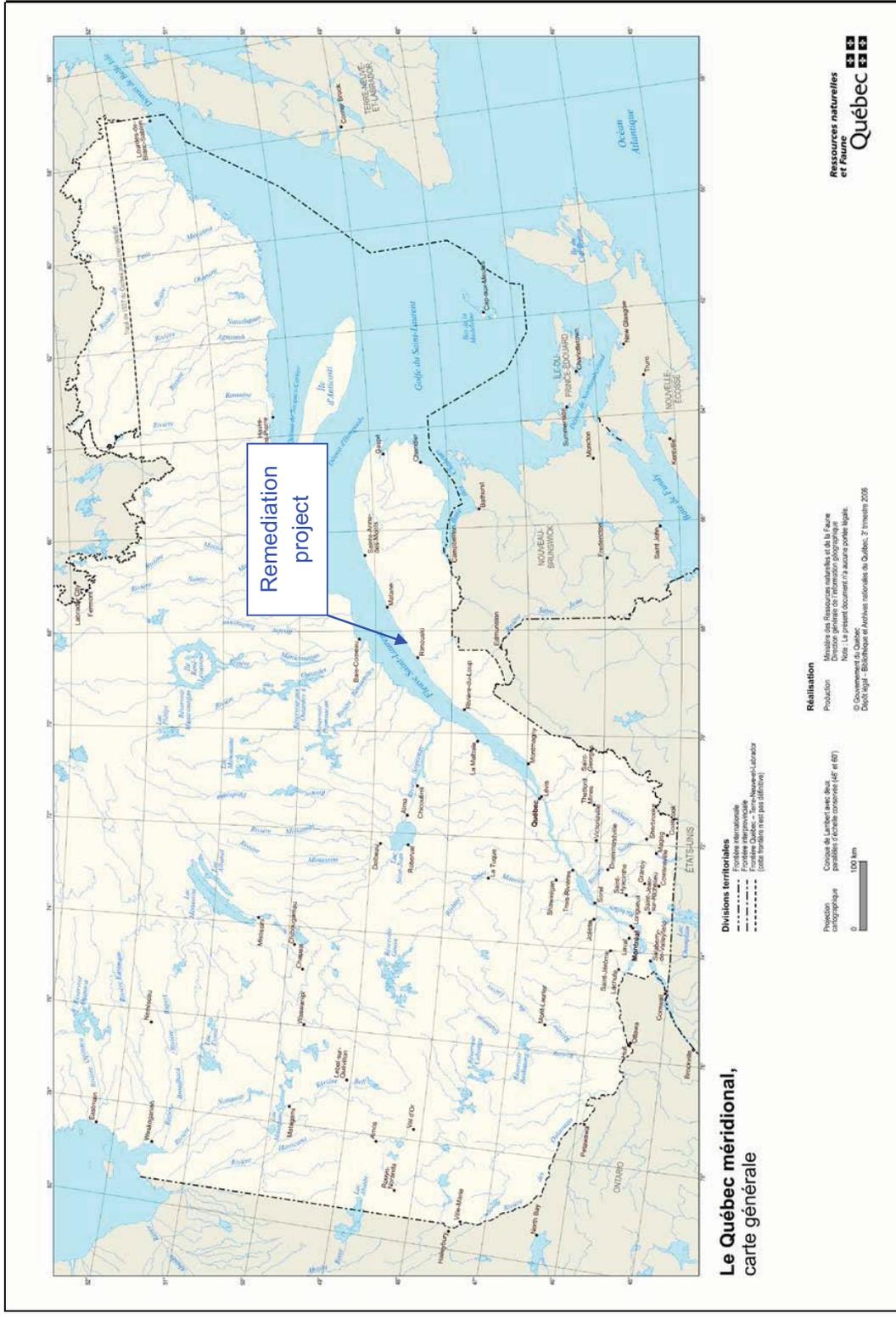


Figure 2.1 Location of remediation project – map of southern Quebec

2. Location and Description of Sites



Figure 2.2 Location of remediation project – 1:150 000 scale map

Figure 2.3 Global plan of the sectors the be remediated

SOURCE : Plan dessiné par l'IFSGC (C00pg01.dwg)

Rev.	Description	Par/By	Date



Dossier / File: AEROPORT DE MONT-JOLI

 Plan de réhabilitation

 Ancien bâtiment H-3, ancien dépôt de charbon

 et ancien dépotoir

Dessin / Drawing: FIGURE 2.3

 Plan d'ensemble des secteurs à réhabiliter

Conçu par / Designed by:	Date
N.L.	04-10-2010
Dessiné par / Drawn by:	Date
E.L./N.L.	10-10-2010
Vérifié par / Verified by:	Date
N.L.	09-02-2011
Approuvé par / Approved by:	Date

No. dossier / File no.:	Echelle / Scale:
P0522	Graphique
No. dessin / Drawing no.:	Page / Page:
	7

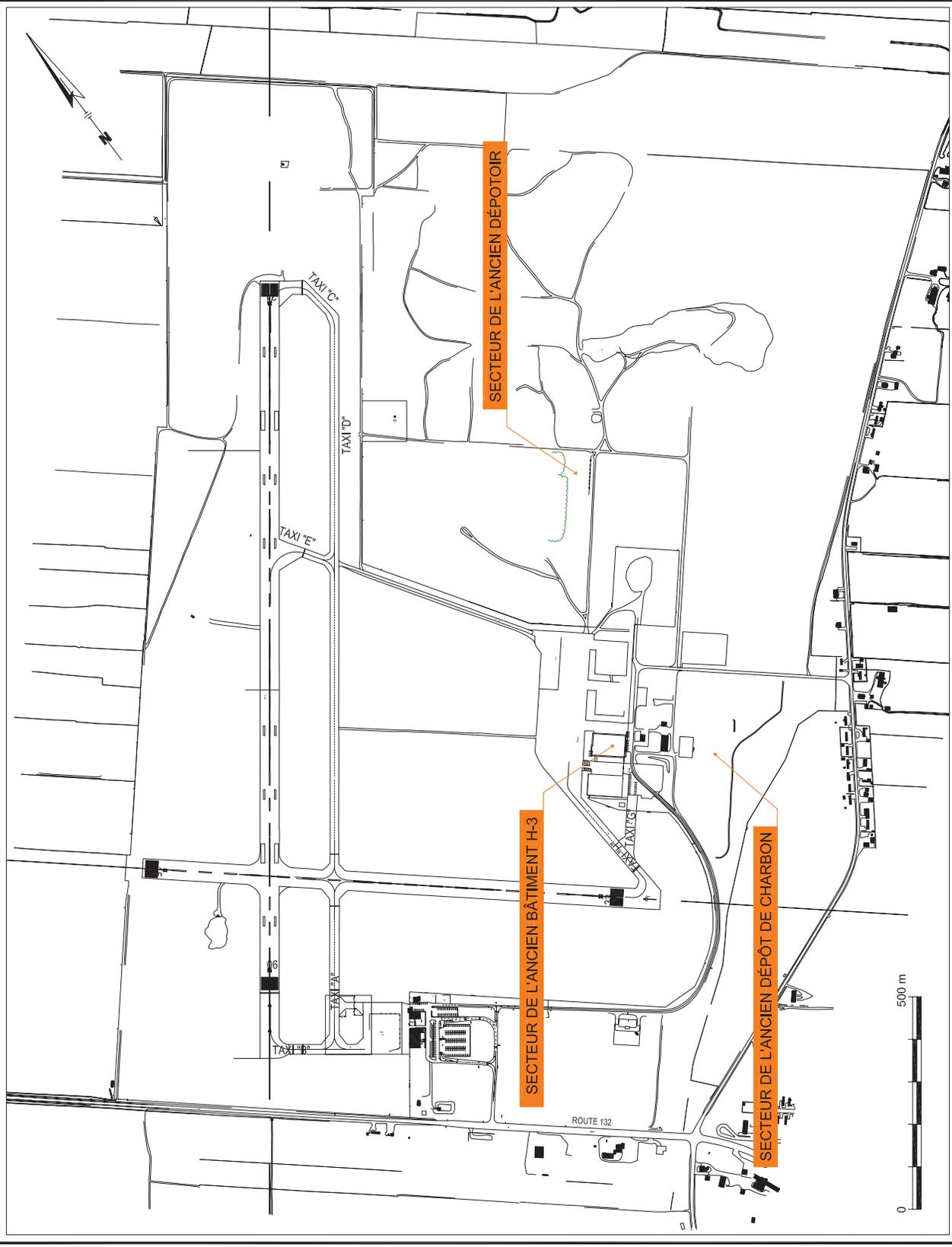
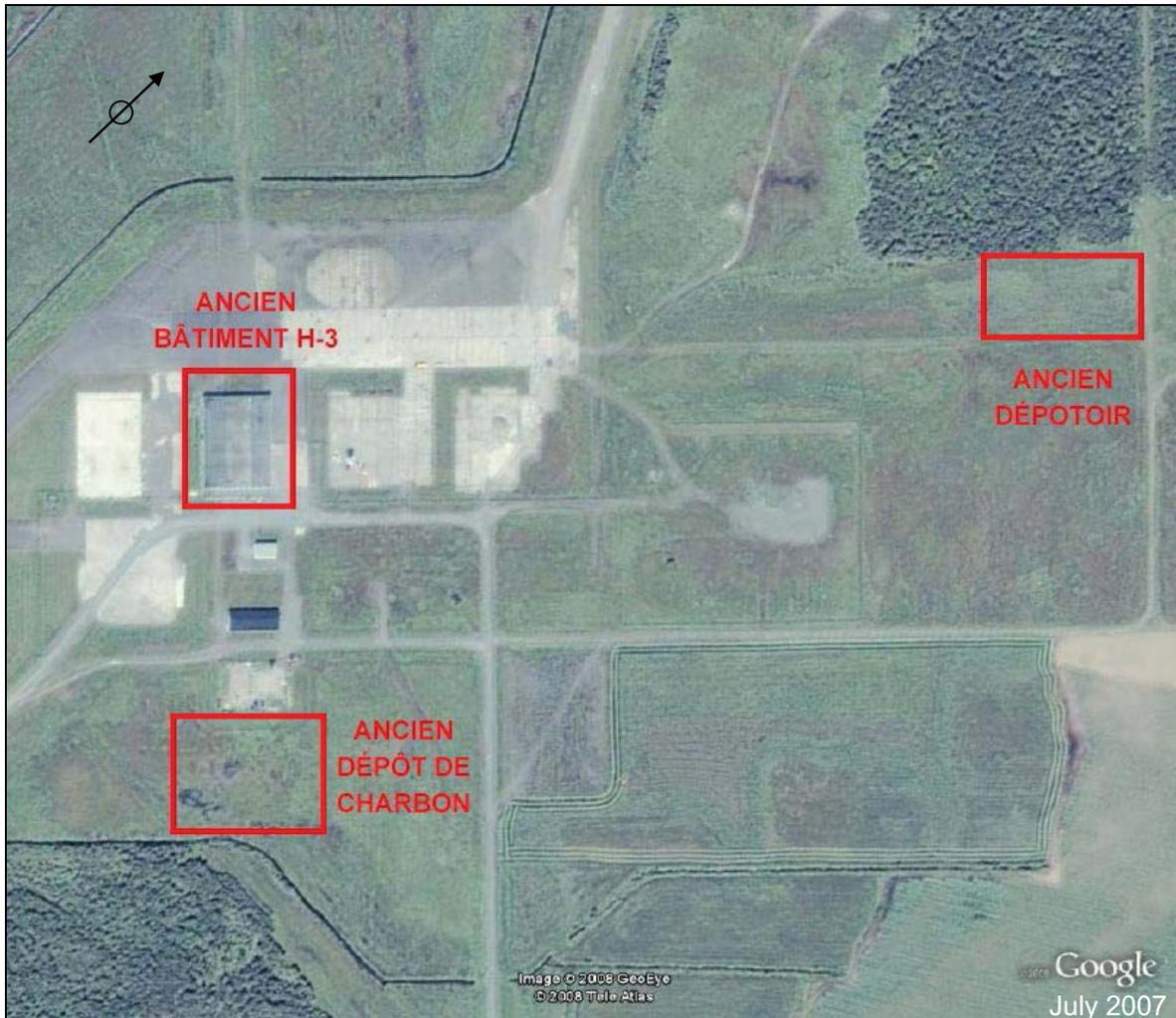


Figure 2.3 General layout of the sectors to be remediated



Note: Building H-3, visible in the photo, was demolished in 2008.

Figure 2.4 Aerial photograph of the area containing the sectors to be remediated

TRANSLATION KEY

Ancien bâtiment H-3 = Former building H-3

Ancien dépotoir = Former landfill

Ancien dépôt de charbon = Former coal depot

3. ENVIRONMENTAL ISSUES, REMEDIATION OBJECTIVES AND SUMMARY OF ACTIVITIES

The following information is presented for each of the three sectors to be remediated:

- A summary of previous studies, primarily taken from the study conducted by Entraco¹ in 2008-2009; the relevant information related to these studies is provided in figures 3.1 to 3.3.
- Environmental concerns, meaning issues related to the presence of contaminants at levels exceeding the regulatory limit values for the planned use of the site or issues related to the presence of residual materials.
- The remediation objective according to the planned use of the site and the municipal zoning.
- A brief description of the remediation work.

3.1 FORMER BUILDING H-3 SECTOR

3.1.1 Summary of previous studies and activities

The former building H-3 sector has been subject to a number of characterization studies and remediation initiatives for hydrocarbon-contaminated soil (see Figure 3.1). The contamination observed was primarily related to the presence of tanks near the southwest⁽²⁾ and southeast corners of the building, as well as near the south wall.

Residual hydrocarbon contamination (exceeding the C criteria established by MENV, former Quebec department of the environment) was detected along the foundation walls in two areas:

- near the southwest (P-15 and P-58) and southeast (P-10, P-52 and P-70) corners of the building: mineral oil and grease and/or BTEX contamination, following remediation work performed in 1995
- near the centre of the south wall (P-1, P-3 and P-5): PH C₁₀-C₅₀ and PAHs contamination following the removal of a waste oil tank in 2003

This residual contamination primarily affected the sides of the walls along the building. This soil had been left in place to preserve its bearing capacity near the foundation. In addition, in 2008,

(1) Groupe-conseil Entraco Inc., March 2009. Aéroport de Mont-Joli – Ancien bâtiment H-3, ancien dépôt de charbon et ancien dépotoir – Caractérisation des sols. File P0891. 64 p. + appendices.

(2) To make it easier to geographically locate the elements, north was assumed to be at the top of the figures.

following the demolition of the building, surface (0–50 cm) PAH contamination was detected in a trench near the former south wall of the foundation (MUR SUD PA-1).

In 2008, Entraco was commissioned to conduct a characterization study in order to provide a status update on the residual contamination. No contamination above the MDDEP soil criteria, level C, was detected near the southwest corner (area restored in 1995) or near the zone at the centre of the south wall (where a waste oil tank had been removed in 2003). Near the southeast corner, BTEX and PAH contamination exceeding the MDDEP soil criteria, level C was detected in a trench adjacent to the foundation of the east wall (T-6:260-280); specifically, a horizon approximately 20 to 30 cm thick located in a saturated zone at a depth of more than 2.6 m.

The residual contamination observed in 1995 during the remediation work near the southwest corner was not intercepted in 2008, despite the following precautions (taken during the site characterization):

- Placement of exploratory trenches along the sides where the contaminated soil had been detected in 1995. In most cases, the excavations were made larger than usual in an attempt to maximize interception of the contaminated horizons from 1995.
- Visual and olfactory examination of the excavated soil, of the remaining soil (walls and bottoms of the excavations) and of the samples collected.
- VOC measurements of the remaining soil on site and the samples using a MiniRAE 2000 photoionizer.

It is possible that this residual contamination was not intercepted in 2008 because it was confined to a very small band of soil along the foundation walls at a distance of more than 1 m (outside the exploratory trenches excavated in 2008) or because it degraded over time, following the removal of the source of the contamination (related to the former storage tanks) and with favorable in-situ conditions that promoted contaminant biodegradation (addition of clean soil with the contaminated soil, and natural oxygenation). Note that residual contamination by C₁₀-C₅₀ hydrocarbons in the B-C range was detected in trench T-2.

The residual contamination found in 1995 near the southeast corner of the building was intercepted in 2008 near the axis of the foundation. The contamination does not seem to cover a large surface area, as it was intercepted in only one trench and was not intercepted in the other trenches less than 10 m away.

The surface contamination found in 2008 by Inspec-Sol near the south wall of the former building was not detected during the characterization study conducted by Entraco in 2008. During the latter study, no organoleptic indicators were observed, and the VOC concentrations measured in two surface samples collected along the south wall were below 1 ppm. However, no surface samples were analyzed. Note that exploratory trench T-4 was excavated

perpendicular to the former site of the concrete wall in order to reach the backfill added following the removal of the underground storage tank.

3.1.2 Environmental issues

As noted above, the hydrocarbon contamination (exceeding the MDDEP C criteria) observed in 1995 by Écosite (BTEX and mineral oil and grease) and in 2008 by Entraco (BTEX and PAHs) near the southeast corner of the former building H-3 is confined to the area along the east foundation wall (see 3.1, zone 1.1). The estimated contaminated surface area is 140 m² (7 m by 20 m); most of this area (100 m²) is located within the foundations of the former building, but approximately 40 m² is located outside the foundations (to include the soil left in place along the foundation in 1995). It is a sand and gravel horizon approximately 30 cm thick located at a depth ranging from 1.8 m at the south end to 2.8 m at the north end. The estimated volume of contaminated soil is 42 m³, assuming an average thickness of 30 cm.

As for the surface PAH contamination detected by Inspec-Sol in 2008 along the south wall (zone 1.2), we have estimated a surface area of approximately 36 m² (12 m by 3 m); we estimate that the volume of soil contaminated by PAHs is 18 m³, assuming a thickness of 50 cm.

3.1.3 Remediation objective

Given the planned land use (commercial), the remediation objective is to attain the level C of the MDDEP Soil Protection and Contaminated Sites Rehabilitation Policy, i.e. the values set out in Schedule II to the *Land Protection and Rehabilitation Regulation* (LPRR).

3.1.4 Brief description of the remedial work

The contaminated soil (above of the MDDEP soil criteria, level C), located at the southeast corner of the former building, will be excavated and disposed of it at a treatment site authorized by MDDEP (see Table 3.1, zone 1.1).

As for the contaminated soil along the former south wall of the building (zone 1.2), it is recommended that it be excavated, placed in piles and characterized in order to determine the appropriate management method.

Table 3.1 Characteristics of the zones to be remediated in the former building H-3 sector

Zone	Issue	Area (m ²)	Depth (cm)	Average Thickness (cm)	Volume (m ³)	Selected Action
1.1	Soil contaminated by hydrocarbons	140	Between 180 and 280	30	42	Excavation and disposal
1.2	Soil potentially contaminated by hydrocarbons	36	Between 0 and 50	50	18	Excavation and characterization
Total		176			60	

3.2 FORMER COAL DEPOT SECTOR

3.2.1 Summary of previous studies

A former coal storage area was characterized as part of an environmental characterization study conducted by LVM Technisol in 2007. The soil was sampled in exploratory trenches at three locations where coal had been observed at the surface (see Figure 3.2). Arsenic contamination (above the MDDEP soil criteria, level C) was found in one excavation (PE-22). In the characterization study by Entraco in 2008, no exceedance of the MDDEP soil criteria level C, was observed in the 14 exploratory trenches. An arsenic concentration equal to level C was detected in one sample (T14:22-30), and arsenic concentrations in the B-C range were detected in seven exploratory trenches located in a coal accumulation zone.

An analysis of the carbon content of the black particles showed that the particles consisted of coal, not anthracite. These residual materials (black coal particles) present in the former coal depot sector are therefore not considered hazardous materials within the meaning of subsection 1(21) of the *Environment Quality Act*.⁽²⁾

² Section 1(21) (L.R.Q., c. Q-2): “hazardous material”: a material which, by reason of its properties, is a hazard to health or to the environment and which, within the meaning of a regulation under this Act, is explosive, gaseous, flammable, poisonous, radioactive, corrosive, oxidizing or leachable or is designated as a hazardous material, and any object classed by regulation as a hazardous material.”

The relatively high sulphur content (above the MDDEP soil criteria, level C) in a number of samples appears to be proportional to the percentage of coal observed during sampling. Analyses performed on backfill material containing varying proportions of coal showed that the acidogenic potential is negative. As a result, with regards to sulphur, it is not necessary to apply the recommendations of the MDDEP for the management of excavated contaminated soil.

3.2.2 Environmental issues

Under section 9.1 of the MDDEP Policy,⁽¹⁾ contaminated soil with a residual material content of more than 50% is considered residual material. In accordance with section 66 of the *Environment Quality Act*,⁽²⁾ areas where residual materials (coal) had accumulated were delineated (see Figure 3.2, zones 2.1, 2.2 and 2.3); this includes all of the surfaces and exploratory trenches where coal was observed at a percentage greater than 50% at the soil surface or along the trench walls.

The estimated total surface area residual materials containing coal at a percentage greater than 50% of the matrix was 1,295 m², and the estimated volume was 260 m³. This area is smaller than that estimated by Entraco (2009), which was calculated as 2,115 m² using the half-distance principle. The selected area of 1,295 m² represents an initial figure that could rise depending on observations made during the remediation work. The re-assessment of the area takes into account the results of observations and soundings conducted by Entraco with a GPS in the fall of 2010; the purpose of the survey was to calculate the area where coal was visible at the surface. The characteristics of each zone are described in detail in Table 3.2.

(1) Section 9.1 of the MDDEP Policy (excerpt): "Excavated contaminated soils mixed with residual materials that cannot be segregated shall be considered contaminated soils and managed using the policy grid if they contain more than 50% soil. They shall be managed as residual materials if they contain less than 50% soil."

(2) Section 66 (L.R.Q., c. Q-2): "No one may deposit or discharge residual materials or allow residual materials to be deposited or discharged at a place other than a site at which the storage, treatment or elimination of residual materials is authorized by the Minister or the Government pursuant to the provisions of this Act and the regulations."

A zone of materials that may contain coal, but below 50% of the total matrix, borders the previous zone to the north, east and south. Coal was observed in a few locations in that area, primarily at the surface. The area contains some coal-free zones, but it is possible that there are zones with higher coal content.

With regard to arsenic contamination (see Figure 3.2, zone 2.4), considering the results of the 2007 study (trench PE-22, C-D range), we estimate that the volume of contaminated soil is 65 m³, that is a surface area of 100 m² and an average thickness of 65 cm below the horizon of residual materials (coal).

3.2.3 Remediation objectives

Given the planned use (commercial), the contaminated soil remediation objective is to attain level C of the MDDEP Policy, i.e. the values set out in Schedule II to the LPRR.

Furthermore, owing to the presence of residual materials (coal) in the surface soil, a second remediation objective is presented for the areas where residual material (coal) content was observed above 50% in the soil: soil with a residual material (coal) content of 50% or more will have to be removed and disposed of at an authorized site.

3.2.4 Brief description of the work

The potentially contaminated soil (exceeding the MDDEP soil criteria, level C) around trench P-22 (LVM 2007) will be excavated and characterized in piles (zone 2.4).

The proposed work also includes excavating the horizons where the percentage of coal is above 50% (zones 2.1, 2.2 and 2.3) and disposing of it at a site authorized by MDDEP, i.e. an engineered landfill site (ELS). We do not recommend systematically removing materials from the areas where the coal percentage is below 50% (generally below 5%); rather, we suggest inspecting the entire zone to identify areas of major accumulation (coal content above 50%) and restoring them in the same manner as the main accumulation zone. The characteristics of each zone are described in detail in Table 3.2.

Table 3.2 Characteristics of the zones to be remediated in the former coal depot sector

Zone	Issue	Area (m ²)	Depth (cm)	Variation in Thickness (cm)	Average thickness (cm)	Volume (m ³)	Selected Action
2.1	Residual material content above 50%	850	Between 0 and 30	Between 1 and 20	20	170	Excavation and disposal
2.2	Residual material content above 50%	270	Between 0 and 30	Between 8 and 25	25	70	Excavation and disposal
2.3	Residual material content above 50%	175	Between 0 and 10	Between 3 and 10	10	20	Excavation and disposal
Subtotal		1295				260	
2.4	Soil potentially contaminated by arsenic	100	Between 16 and 80		65	65	Excavation and characterization
Subtotal		100				65	
Total		1395				325	

Note: The volumes for zones 2.2 and 2.3 are rounded.

3.3 FORMER LANDFILL SECTOR

3.3.1 Summary of previous studies

An environmental characterization study conducted by LVM Technisol in 2007 detected the presence of buried residual materials. Furthermore, metals contamination was detected in trenches PE-9 (above the MDDEP soil criteria, level C) and PE-14 (above the MDDEP soil criteria level "D", i.e. the values presented in Schedule I to the *Regulation Respecting the Burial of Contaminated Soils* (RRBCS)). In the study by Entraco (2009), no exceedances of the level C were observed in the 10 exploratory trenches, and all soil sample concentrations were below the level B, with the exception of one sample, (T-34:45-55) containing manganese (B-C range). Sampling was performed in a manner that made it possible to segregate the horizon with residual material from the soil horizons above and below it.

A residual material accumulation zone was delineated based on field observations; it coincides with the contaminated area identified by LVM Technisol (PE-9 and PE-14) and encompasses trenches T-32, T-33 and T-34.

This area was split in two for management purposes: one section where the percentage of residual materials is above 50% (sounding T-34), and one where the percentage is below 30% (soundings T-32, T-33, PE-9 and PE-14).

3.3.2 Environmental issue

In accordance with section 66 of the *Environment Quality Act*, a zone of residual material accumulation (more than 50% of the matrix) was delineated (see Figure 3.3, zone 3.1). This zone covers an area of 35 m² (5 m by 7 m). The estimated volume of waste is 7 m³, assuming

an average thickness of 20 cm. The depth of the waste accumulation horizon is variable and is located approximately 45 cm below the soil surface (between 45 and 55 cm in trench T-34).

When considering the heavy metal contamination (C-D and >D) detected in 2007 in excavations PE-9 and PE-14, the volume of potentially contaminated soil in these two areas has been estimated at 93 m³; that is 44 m³ near trench PE-9 (zone 3.2) and 49 m³ near trench PE-14 (zone 3.3). These volumes will have to be confirmed by characterizing the piles of excavated soil. The characteristics of each area are described in Table 3.3.

3.3.3 Remediation objectives

Given the planned land-use (commercial), the contaminated soil remediation objective is to attain the level C of the MDDEP Policy, i.e. the values set out in Schedule II to the LPRR.

Furthermore, due to the presence of residual materials in the surface soil, there is a second remediation objective for the areas where residual materials (coal) were observed in the soil above 50%. Consequently, soil containing residual materials at 50% or more will have to be removed and disposed of at an authorized site.

3.3.4 Brief description of the work

The horizon of buried residual materials in zone 3.1 (residual material above 50%), i.e. between 40 and 60 cm deep, will be excavated and disposed of the residual materials at an ELS.

Taking into account the heavy metal contamination detected in 2007 in trenches PE-9 and PE-14, the following work is planned (see Figure 3.3, zones 3.2 and 3.3):

- near trench PE-9 (zone 3.2): excavate the potentially contaminated soil, store it temporarily and characterize it to determine the appropriate management method.
- near trench PE-14 (zone 3.3): excavate the potentially contaminated soil, store it temporarily and characterize it to determine the appropriate management method.

Table 3.3 Characteristics of the zones to be remediated in the former landfill sector

Zone	Issue	Area (m ²)	Depth (cm)	Average Thickness (cm)	Volume (m ³)	Selected Action
3.1	Residual material content above 50%	35	Between 40 and 60	20	7	Excavation and disposal
Subtotal		35			7	
3.2	Soil potentially contaminated by metals	37	Between 0 and 100 to 130	120	44	Excavation and characterization
3.3	Soil potentially contaminated by metals	35	Between 0 and 130 to 150	140	49	Excavation and characterization
Subtotal		72			93	
Total		107			100	

Figure 3.1 Summary of data related to the former building H-3

LÉGENDE

- Tranchées d'exploration Entraco 2008
- Tranchées d'exploration allégées, Entraco 2008
- Zone contaminée à restaurer identifiée par Entraco
- Secteur potentiellement contaminé identifié par Inspec-Sol en 2008
- Zone restaurée antérieurement
- Contamination supérieure au critère C

SOURCE : Plan dessiné par l'IFSGC (C:\0\p\01.dwg)



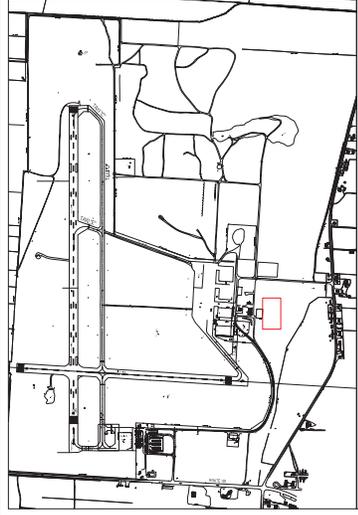
Dossier / File: **AEROPORT DE MONT-IOU**
 Plan de réhabilitation Ancien bâtiment H-3, ancien dépôt de charbon et ancien dépotoir

Desain / Drawing: **FIGURE 3.1**
Synthèse des données Secteur de l'ancien bâtiment H-3

Conçu par / Designed by:	Date
N.L.	04-10-2010
Dessiné par / Drawn by:	Date
E.L./N.L.	04-01-2011
Vérifié par / Verified by:	Date
N.L.	18-03-2011
Approuvé par / Approved by:	Date
No. dossier / File no.:	Echelle / Scale:
P0522	Graphique
No. dessin / Drawing no.:	Page / Page:
	21



Figure 3.2 Summary of data related to the former coal depot



ZONES 2.1.A 2.3 :
PRÉSENCE DE CHARBON (50-100 %)
 Surface : 1 235 m²
 Volume : 260 m³
 Profondeur variable : entre 0 et 30 cm
 Epaisseur variable : entre 1 et 25 cm
 Epaisseur moyenne : 2,0 cm

ZONE CONTENANT DU CHARBON (< 50 %)
 À VÉRIFIER
 Surface : 6 715 m²
 Volume : non applicable
 Profondeur : généralement en surface,
 mais pouvant atteindre 35 cm

ZONE 2.4 : SOLS À CARACTÉRISER EN PILES
 CONTAMINÉES PAR L'AMÉNIAGE (>C)
 (voir les données en 2007)
 Surface estimée : 100 m²
 Volume : 65 m³
 Profondeur : entre 16 et 80 cm
 Epaisseur moyenne : 65 cm

Tranchées	Prof. au charbon (cm)	Présence de charbon relative
T-1	0-10	0 %
T-2	0-10	0-25 %
T-3	0-10	0-25 %
T-4	0-10	0-25 %
T-5	0-10	0-25 %
T-6	0-10	0-25 %
T-7	0-10	0-25 %
T-8	0-10	0-25 %
T-9	0-10	0-25 %
T-10	0-10	0-25 %
T-11	0-10	0-25 %
T-12	0-10	0-25 %
T-13	0-10	0-25 %
T-14	0-10	0-25 %
T-15	0-10	0-25 %
T-16	0-10	0-25 %
T-17	0-10	0-25 %
T-18	0-10	0-25 %
T-19	0-10	0-25 %
T-20	0-10	0-25 %
T-21	0-10	0-25 %
T-22	0-10	0-25 %
T-23	0-10	0-25 %
T-24	0-10	0-25 %
T-25	0-10	0-25 %
T-26	0-10	0-25 %
T-27	0-10	0-25 %
T-28	0-10	0-25 %
T-29	0-10	0-25 %
T-30	0-10	0-25 %
T-31	0-10	0-25 %
T-32	0-10	0-25 %
T-33	0-10	0-25 %
T-34	0-10	0-25 %
T-35	0-10	0-25 %
T-36	0-10	0-25 %
T-37	0-10	0-25 %
T-38	0-10	0-25 %
T-39	0-10	0-25 %
T-40	0-10	0-25 %
T-41	0-10	0-25 %
T-42	0-10	0-25 %
T-43	0-10	0-25 %
T-44	0-10	0-25 %
T-45	0-10	0-25 %
T-46	0-10	0-25 %
T-47	0-10	0-25 %
T-48	0-10	0-25 %
T-49	0-10	0-25 %
T-50	0-10	0-25 %
T-51	0-10	0-25 %
T-52	0-10	0-25 %
T-53	0-10	0-25 %
T-54	0-10	0-25 %
T-55	0-10	0-25 %
T-56	0-10	0-25 %
T-57	0-10	0-25 %
T-58	0-10	0-25 %
T-59	0-10	0-25 %
T-60	0-10	0-25 %
T-61	0-10	0-25 %
T-62	0-10	0-25 %
T-63	0-10	0-25 %
T-64	0-10	0-25 %
T-65	0-10	0-25 %
T-66	0-10	0-25 %
T-67	0-10	0-25 %
T-68	0-10	0-25 %
T-69	0-10	0-25 %
T-70	0-10	0-25 %
T-71	0-10	0-25 %
T-72	0-10	0-25 %
T-73	0-10	0-25 %
T-74	0-10	0-25 %
T-75	0-10	0-25 %
T-76	0-10	0-25 %
T-77	0-10	0-25 %
T-78	0-10	0-25 %
T-79	0-10	0-25 %
T-80	0-10	0-25 %
T-81	0-10	0-25 %
T-82	0-10	0-25 %
T-83	0-10	0-25 %
T-84	0-10	0-25 %
T-85	0-10	0-25 %
T-86	0-10	0-25 %
T-87	0-10	0-25 %
T-88	0-10	0-25 %
T-89	0-10	0-25 %
T-90	0-10	0-25 %
T-91	0-10	0-25 %
T-92	0-10	0-25 %
T-93	0-10	0-25 %
T-94	0-10	0-25 %
T-95	0-10	0-25 %
T-96	0-10	0-25 %
T-97	0-10	0-25 %
T-98	0-10	0-25 %
T-99	0-10	0-25 %
T-100	0-10	0-25 %

LÉGENDE

- Tranchée d'exploration_LVM-Technival 2007 (localisation approximative)
- Tranchée d'exploration_Entinaco 2008
- Tranchée d'observation_Entinaco 2008
- Zone estimée des matières résiduelles (présence de charbon entre 50 et 100 %)
- Zone de présence potentielle de charbon (< 50 %)
- Zone potentiellement contaminée_LVM 2007

NOTE IMPORTANTE : La localisation des stations est approximative ; elle a été réalisée par chatoiage en utilisant la cote de l'aire d'entreposage située au nord. Les coordonnées relatives par GPS n'ont pas été utilisées parce que les points de référence ne concordent pas avec le plan.

SOURCE : Plan dessiné par TFSGC (C00p001.dwg)



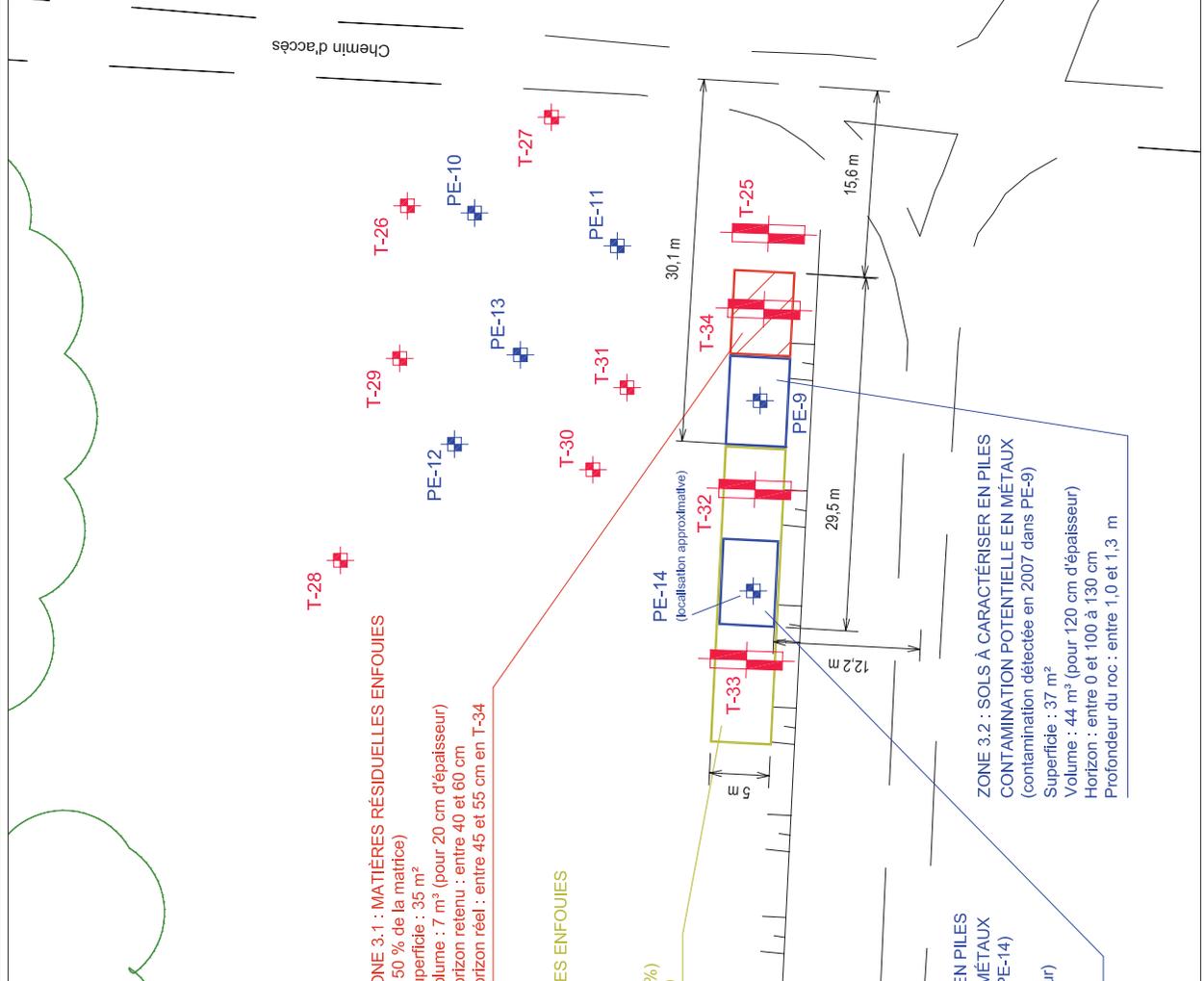
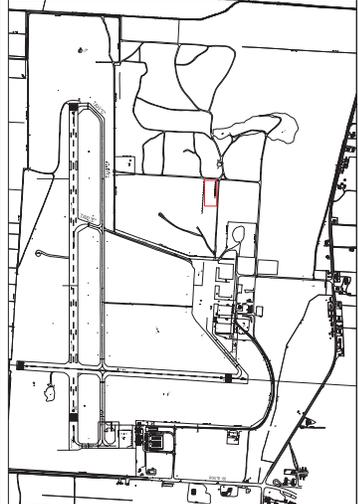
Plan de réhabilitation
 Ancien bâtiment H-3, ancien dépôt de charbon
 et ancien dépolloir

FIGURE 3.2
 Synthèse des données
 Secteur de l'ancien dépôt de charbon

Conçu par / Designed by:	Date
M.L.	4-10-2010
Dessiné par / Drawn by:	Date
E.L./M.L.	04-01-2011
Vérifié par / Verified by:	Date
M.L.	18-03-2011
Approuvé par / Approved by:	Date
No. dossier / File no.:	Echelle / Scale:
P0522	Graphique
No. dessin / Drawing no.:	Page / Page:
	23



Figure 3.3 Summary of data related to the former landfill



ZONE 3.1 : MATIÈRES RÉSIDUELLES ENFOUJES
 (> 50 % de la matrice)
 Superficie : 35 m²
 Volume : 7 m³ (pour 20 cm d'épaisseur)
 Horizon retenu : entre 40 et 60 cm
 Horizon réel : entre 45 et 55 cm en T-34

ZONE DE MATIÈRES RÉSIDUELLES ENFOUJES
 (< 30 % de la matrice)
 Superficie : 142 m²
 Volume : non applicable
 Profondeur : à 105 cm en T-33 (<1 %) et entre 70 et 90 cm en T-32 (30 %)

ZONE 3.3 : SOLS À CARACTÉRISER EN PILES
 CONTAMINATION POTENTIELLE EN MÉTAUX
 (contamination détectée en 2007 dans PE-14)
 Superficie : 35 m²
 Volume : 49 m³ (pour 140 cm d'épaisseur)
 Horizon : entre 0 et 130 à 150 cm
 Profondeur du roc : entre 1,3 et 1,5 m

ZONE 3.2 : SOLS À CARACTÉRISER EN PILES
 CONTAMINATION POTENTIELLE EN MÉTAUX
 (contamination détectée en 2007 dans PE-9)
 Superficie : 37 m²
 Volume : 44 m³ (pour 120 cm d'épaisseur)
 Horizon : entre 0 et 100 à 130 cm
 Profondeur du roc : entre 1,0 et 1,3 m



LÉGENDE

- Tranchées d'exploration LVM 2007 (localisation approximative)
- Tranchées d'exploration Entraco 2008
- Tranchées d'exploration allongées Entraco 2008
- Matières résiduelles (> 50 %)
- Matières résiduelles (< 30 %) (Aucun inventaire)
- Zones potentiellement contaminées (Carcasses d'air)

SOURCE : Plan dessiné par TFSGC (C:\0\p\01.dwg)



Dossier / File: AEROPORT DE MONT-JOLI
 Plan de réhabilitation
 Ancien bâtiment H-3, ancien dépôt de charbon
 et ancien dépotoir

Desain / Drawing: FIGURE 3.3
 Synthèse des données
 Secteur de l'ancien dépotoir

Conçu par / Designed by:	Date
N.L.	4-10-2010
Dessiné par / Drawn by:	Date
E.L./N.L.	04-01-2011
Vérifié par / Verified by:	Date
N.L.	18-03-2011
Approuvé par / Approved by:	Date

4. REMEDIATION WORK

4.1 EXCAVATION AND STORAGE

4.1.1 Former building H-3 sector

In zone 1.1 (see Figure 4.1), i.e. at the southeast corner of the former building, it is planned to excavate the contaminated soil (above the MDDEP soil criteria level C) and dispose of it at a treatment site authorized by MDDEP. The remediation work will have to include, but not be limited to, the following activities:

- Excavate the surface soil until the contaminated soil horizon is reached (start excavating at the south end, where the contaminated horizon is between 1.8 m to 2.1 m below grade, and follow the contaminated horizon, which descends to a depth of approximately 2.6 m to 2.8 m). Store the soil temporarily and characterize it to determine the appropriate management method (see section 4.2). During the excavation, use a VOC detector to confirm the absence of contaminants and to identify when the contaminated horizon is reached. The clean soil should be stored on a polyethylene tarp and covered with another of the same kind.
- Dismantle the concrete foundations and transport the concrete waste to an authorized site (see section 5.2).
- Excavate the contaminated soil horizon located between approximately 1.8 m and 2.1 m below grade at the south end and 2.6 m and 2.8 m below grade at the north end. Use a VOC detector to determine when the contaminated horizon is reached; the start of the contaminated horizon corresponds roughly to the start of the saturated horizon. The contaminated materials consist of gravel, pebbles and some sand and are resting on a dense layer of silt. The excavation of the contaminated soil must reach the dense silt layer; excavate 10 cm into the dense silt.
- Perform quality control sampling on the soil in place (see section 4.3).
- Following the quality control sampling, if the contaminant concentrations in samples taken from the walls and/or bottoms of the excavations exceed the level C, continue excavating and sampling the bottoms and sides of the excavations until the soil in place meets level C.
- Manage the impacted soil in accordance with the MDDEP Policy (see section 5.1).
- Once the remediation objectives have been met, backfill the excavation with the original surface soil set aside (provided that the soil quality is adequate—see section 5.3) and/or with clean backfill material. Compact this material in layers of approximately 30-cm thick.

In zone 1.2, i.e. along the former south wall of the building, the surface soil will be excavated and stored into piles. The remediation work will include, but not be limited to, the following activities:

- Excavate the surface soil to a depth of 50 cm, store it in piles, and characterize the piles to determine the appropriate management method (see section 4.2). The soil must be placed on a polyethylene tarp and covered with another of the same kind.
- Apply the quality control measures to the remaining soil (see section 4.3)
- Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavations exceed the MDDEP's C criteria, continue excavating the remaining soil and, subsequently verifying the soil quality until the criteria are met. .
- If applicable, manage the affected soil in accordance with the MDDEP Policy (see section 5.1).
- Once the remediation objectives have been achieved, backfill the excavation with the original material (provided that the soil quality is adequate—see section 5.3) and/or with clean borrow material; compact this material in approximately 30-cm layers.

4.1.2 Former coal depot sector

Residual materials

In areas which have accumulated residual material (coal content above 50%), that is in zones 2.1, 2.2 and 2.3 (see Figure 4.2), the remediation work will include, but not be limited to, the following activities:

- Excavate the affected materials (coal and soil with a coal content of more than 50%); the approximate depths to be excavated are indicated in Figure 4.2. As the materials are excavated, verify the percentage of residual materials in the soil from the walls and bottom to determine whether excavation should continue or cease. Note that in certain zones, the affected materials are covered by a thin layer of soil with a coal content of less than 50% that, for technical reasons, must also be excavated and managed with the underlying materials that have a coal content of more than 50%. If the horizon is more than 10 cm thick, excavate the soil, place it in temporary pile and characterize it to determine the appropriate management method. The soil must be stored on a polyethylene tarp and covered with another of the same kind.
- Perform quality control sampling on the remaining soil (see section 4.3).
- Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavations exceed level C, continue excavating the soil and verifying the soil quality until the target criteria is attained.
- If applicable, manage the impacted soil in accordance with the MDDEP Policy (see section 5).
- Once the remediation objectives have been attained, backfill the excavation with clean borrow material. Compact this material in approximately 30-cm layers.

In the area surrounding zones 2.1, 2.2 and 2.3 (observed quantity of coal below 50%), the work will should include, but not be limited to, the following activities:

- Conduct a visual inspection using exploratory trenches to identify coal accumulation zones.
- Where the percentage of coal in the matrix is above 50%, remediate the affected surface by performing the same activities as are applicable to zones 2.1 to 2.3.

Contaminated soil

In zone 2.4, the following activities are planned in order to take into consideration the arsenic contamination (in the C-D range) detected in 2007 in excavation PE-22:

- Following the removal of the residual materials, excavate the underlying soil to a depth of 80 cm, place it in piles and characterize it to determine the appropriate management method (see section 4.2); the soil must be stored on a polyethylene tarp and covered with another of the same kind.
- Perform quality control samples on the remaining soil (see section 4.3).
- Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavations exceed level C, continue excavating the soil and verifying the soil quality until the target criteria is attained.
- If applicable, manage the affected soil in accordance with the MDDEP Policy (see section 5.1).
- Once the remediation objectives have been achieved, backfill the excavation with the original material (if applicable and provided that the soil quality is adequate—see section 5.3) and/or with clean borrow material. Compact this material in approximately 30-cm layers.

4.1.3 Former landfill sector

Residual materials

In zone 3.1 (see Figure 4.3), excavate the horizon of buried residual materials around station T-34 (residual material content above 50%) and dispose of the materials at an ELS. The remediation work will should include, but not be limited to, the following activities:

- Excavate the surface soil within an area of 35 m² until the horizon of buried waste is reached (depth of approximately 45 cm at T-34) and store it temporarily). The soil must be stored on a polyethylene tarp and covered with another of the same kind.
- Excavate the buried residual materials and dispose them at an authorized site. If hazardous residual materials are detected, segregate these materials and dispose them at a site authorized by MDDEP.
- Perform quality control sampling on the remaining soil (see section 4.3), paying special attention to the western wall of the excavation (near excavation PE-9).

- Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavation exceed level C, continue excavating the soil and verifying the soil quality until the target criteria is attained.
- If applicable, manage the impacted soil in accordance with the MDDEP Policy (see section 5.1).
- Characterize the excavated surface soil to ensure that it does not contain contaminants concentrations above level C; if an exceedance is detected, manage the affected soil in accordance with the MDDEP Policy.
- Once the remediation objectives have been met, backfill the excavation with the original material (provided that the concentrations in the original material are below the MDDEP C criteria, as demonstrated by the soil characterization) or with clean borrow material (see section 5.3). Compact this material in approximately 30-cm layers.

Contaminated soil

The following activities are planned in order to take into account the heavy metal contamination detected in 2007 in excavations PE-9 and PE-14 (see Figure 4.3):

- In zone 3.2, around excavation PE-9:
 - Excavate the potentially contaminated soil, i.e. a surface area of 37 m² and an average thickness of 120 cm; store it in piles and characterize it to determine the appropriate management method (see section 4.2); the soil must be stored on a polyethylene tarp and covered with another of the same kind.
 - Perform quality control sampling on the remaining soil (see section 4.3).
 - Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavation exceed the MDDEP's level C, continue excavating the soil and verifying the soil quality until the target criteria is attained.
 - If applicable, manage the impacted soil in accordance with the MDDEP Policy (see section 5.1).
 - Once the remediation objectives have been met, backfill the excavation with the original material (provided that the concentrations in the original material are below the MDDEP level C, as demonstrated by the soil characterization) or with clean borrow material (see section 5.3). Compact this material in approximately 30-cm layers.
- In zone 3.3, around excavation PE-14:
 - Excavate the potentially contaminated soil, i.e. a surface area of 35 m² and an average thickness of 140 cm store it in piles and characterize it to determine the appropriate management method (see section 4.2). The soil must be stored on a polyethylene tarp and covered with another of the same kind.
 - Perform quality control sampling on the remaining soil (see section 4.3).
 - Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavation exceed the MDDEP level C, continue excavating the soil and verifying the soil quality until the target criteria is attained.

- If applicable, manage the affected soil in accordance with the MDDEP Policy (see section 5.1).
- Once the remediation objectives have been met, backfill the excavation with the original material (provided that the concentrations in the original material are below the MDDEP C criteria, as demonstrated by the soil characterization) or with clean backfill material (see section 5.3). Compact this material in approximately 30-cm layers.

4.2 SOIL PILE CHARACTERIZATION

The sampling of the soil piles must comply with the requirements of the *Cahier 5 – Échantillonnage des sols Guides d'échantillonnage à des fins d'analyses environnementales (Environmental Analysis Sampling Guide - Book 5 – Soil Sampling)*. Considering the characteristics of the areas to be remediated shown in figures 4.1 to 4.3, the components of the soil pile characterization program are presented in Table 4.1. This program will have to be adapted to the work realized on site, for example, in the event that additional excavations are conducted.

4.3 QUALITY CONTROL OF THE EXCAVATIONS

The walls and bottoms of all excavations will be characterized, regardless of whether contaminated soil or residual materials are being excavated. The sampling methods must comply with the requirements presented in *Cahier 5 – Échantillonnage des sols Guides d'échantillonnage à des fins d'analyses environnementales (Environmental Analysis Sampling Guide - Book 5 – Soil Sampling)*.

Considering the characteristics of the zones to be remediated shown in figures 4.1 to 4.3, as a reference, the components of the quality control program are indicated in Table 4.2. This program will have to be adapted to the work as it is performed, for example, in the event that additional excavations are required that what was previously planned.

The analyses should be conducted by a CEAEQ accredited laboratory. The selected parameters to be analysed are those which have exceeded the MDDEP level C criteria for soils, in previous studies.

Table 4.1 Soil pile characterization program

Site	Zone ⁽¹⁾	Issue	Estimated Volume (m ³)	Number of samples	Parameters			
					Metals ⁽²⁾	PH C ₁₀ -C ₅₀	BTEX ⁽³⁾	PAHs ⁽⁴⁾
Former building H-3	Zone 1.1	Surface soil (clean) - BTEX and PAHs contamination of underlying soil (exceedance of C criteria)	800 ⁽⁵⁾	8 ⁽⁶⁾			√	√
	Zone 1.2	PAHs soil contamination (exceedance of C criteria)	18	1		√		√
Former coal depot	Zone 2.4	Potential contamination (exceedance of C criteria) of soil by metals	65	3	√			
	Zone 3.1	Surface soil (clean) - underlying residual waste	14	1	√			
Former landfill	Zone 3.2	Potential contamination (exceedance of C criteria) of soil by metals	44	2	√			
	Zone 3.3	Potential contamination (exceedance of C criteria) of soil by metals	49	2	√			
TOTAL			990	15	n/a	n/a	n/a	n/a

NOTES

- (1) The locations of the zones are shown in figures 4.1 to 4.3.
(2) Metals: Arsenic, cadmium, chromium, copper, tin, manganese, nickel, lead, zinc.
(3) BTEX: Benzene, toluene, ethylbenzene and xylenes.
(4) PAHs: Polycyclic aromatic hydrocarbons.
(5) The estimated volume takes into account the need to enlarge the top of the excavation so that the walls slope at a ratio of 1 to 1.
(6) Samples from zone 1.1 collected for BTEX analysis must be grab samples.
n/a Not applicable.

Table 4.2 Quality control program for the excavations

Site	Zone ⁽¹⁾	Issue	Number of samples		Parameters			
			Walls	Bottom	Metals ⁽²⁾	PH C ₁₀ -C ₅₀	BTEX ⁽³⁾	PAHs ⁽⁴⁾
Former building H-3	Zone 1.1	BTEX and PAHs soil contamination (exceedance of C criteria)	4 ⁽⁶⁾	1 ⁽⁶⁾			√	√
	Zone 1.2	Potential contamination of soil by PAHs	4	1		√		√
	Zone 2.1	Presence of residual materials (above 50%) in soil; potential contamination of soil by metals	11	5				
Former coal depot	Zone 2.2	Presence of residual materials (above 50%) in soil; potential contamination of soil by metals	6	1			√	
	Zone 2.3	Presence of residual materials (above 50%) in soil; potential contamination of soil by metals	4	1			√	
	Zone 2.4	Potential contamination of soil by metals	4	1			√	
	Zone 3.1	Potential contamination of soil by metals	4	1			√	
Former landfill	Zone 3.2	Potential contamination of soil by metals	7 ⁽⁶⁾	1			√	
	Zone 3.3	Potential contamination of soil by metals	8 ⁽⁷⁾	1			√	
		TOTAL ⁽⁸⁾	52	13			n/a	n/a

NOTES

- The locations of the zones are shown in figures 4.1 to 4.3.
- (1) Metals: Arsenic, cadmium, chromium, copper, tin, manganese, nickel, lead, zinc.
- (2) BTEX: Benzene, toluene, ethylbenzene and xylenes.
- (3) PAHs: Polycyclic aromatic hydrocarbons.
- (4) In zone 1.1, samples collected for BTEX analysis from excavation walls and bottoms must be grab samples.
- (5) Two samples per wall of approximately 1.2 m high; only one sample from the eastern wall (between 60 and 120 cm, following the excavation of zone 3.1 between 0 and 60 cm in depth).
- (6) Two samples per wall of approximately 1.4 m high.
- (7) Does not include field duplicates (minimum of 10%).
- (8) n/a Not applicable.

4.4 FIELD QUALITY CONTROL AND ASSURANCE PROGRAM

During the sampling work (sides, bottoms and piles), the instruments used must be cleaned in accordance with the requirements of the *Site Characterization Guide* and the *Environmental Analysis Sampling Guide (Book 1 – General and Book 5 – Soil Sampling)*.

Field duplicates must be collected to represent a minimum of 10% of the total number of samples collected for each parameter analyzed. However, a minimum of one duplicate per batch of samples sent for analysis must be respected regardless of the total number of samples collected in a sampling campaign. The parameters analyzed must be the same as those selected for the original samples.

Figure 4.1 Location of zones to be remediated in the former building H-3 sector

LÉGENDE

- Tranchées d'épuration Entraco 2008
- Zones contaminées à restaurer Identifiées par Entraco
- Secteur potentiellement contaminé Identifié par Inspeco-Soil en 2008
- Zone restaurée antérieurement

SOURCE : Plan dessiné par l'IFSGC (C:\0\p\01.dwg)

Révis.	Description	Par/By	Date
-	-	-	-
-	-	-	-



Dossier / File: **AÉROPORT DE MONT-JOLI**
 Plan de réhabilitation
 Ancien bâtiment H-3, ancien dépôt de charbon
 et ancien dépotoir

Desain / Drawing: **FIGURE 4.1**
Localisation des zones d'intervention
Secteur de l'ancien bâtiment H-3

Conçu par / Designed by:	Date
N.L.	4-10-2010
Dessiné par / Drawn by:	Date
E.L./N.L.	15-12-2010
Vérifié par / Verified by:	Date
N.L.	18-03-2011
Approuvé par / Approved by:	Date
-	-



Figure 4.2 Location of zones to be remediated in the former coal depot sector

LÉGENDE

Tranchée d'exploration (LVM Technica) 2007 (localisation approximative)
 Tranchée d'exploration (Entraco) 2008
 Tranchée d'observation (Entraco) 2008
 Zone estimée des matières résiduelles (présence de charbon entre 50 et 100 %)
 Zone de présence potentielle de charbon (< 50 %)
 Zone potentiellement contaminée (Assenté) (selon LVM Technica) 2007

NOTE IMPORTANTE : La localisation des stations est approximative ; elle a été réalisée par chantage en utilisant la clôture de l'aire d'entreposage située au nord. Les coordonnées relatives par GPS n'ont pas été utilisées parce que les points de référence ne concordent pas avec le plan.

SOURCE : Plan dessiné par TFSGC (C00p001.dwg)

Réq.	Description	Par/By	Date
-	-	-	-
-	-	-	-

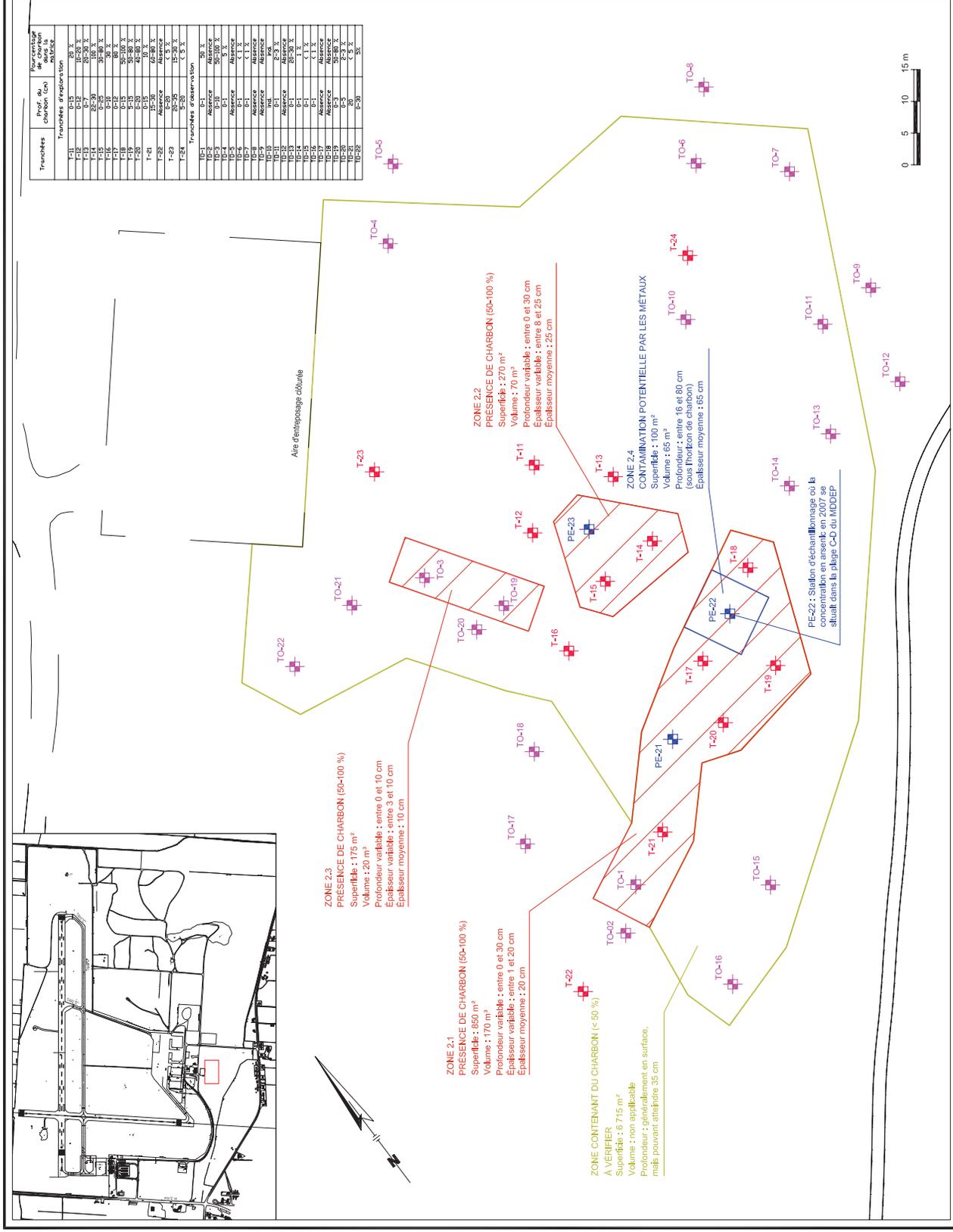


Dossier / File : AEROPORT DE MONT-JOLI
 Plan de réhabilitation Ancien bâtiment H-3, ancien dépôt de charbon et ancien dépoloir

Dessin / Drawing : FIGURE 4.2
 Localisation des zones d'intervention Secteur de l'ancien dépôt de charbon

Conçu par / Designed by : Date : 4-10-2010
 Dessiné par / Drawn by : E.L.F./N.L. Date : 15-12-2010
 Vérifié par / Verified by : N.L. Date : 18-03-2011
 Approuvé par / Approved by : Date : -

No. dossier / File no. : P0522
 No. dessin / Drawing no. : 37



Tranchées	Prof. au charbon (cm)	Présence de charbon relative
Tranchées d'exploration		
T-01	0-10	30 %
T-02	0-10	10-20 %
T-03	0-10	20-30 %
T-04	0-10	30-40 %
T-05	0-10	40-50 %
T-06	0-10	50-60 %
T-07	0-10	60-70 %
T-08	0-10	70-80 %
T-09	0-10	80 %
T-10	0-10	90-100 %
T-11	0-10	100 %
T-12	0-10	100 %
T-13	0-10	100 %
T-14	0-10	100 %
T-15	0-10	100 %
T-16	0-10	100 %
T-17	0-10	100 %
T-18	0-10	100 %
T-19	0-10	100 %
T-20	0-10	100 %
T-21	0-10	100 %
T-22	0-10	100 %
T-23	0-10	100 %
T-24	0-10	100 %
Tranchées d'observation		
TO-01	0-10	Absence
TO-02	0-10	Absence
TO-03	0-10	Absence
TO-04	0-10	Absence
TO-05	0-10	Absence
TO-06	0-10	Absence
TO-07	0-10	Absence
TO-08	0-10	Absence
TO-09	0-10	Absence
TO-10	0-10	Absence
TO-11	0-10	Absence
TO-12	0-10	Absence
TO-13	0-10	Absence
TO-14	0-10	Absence
TO-15	0-10	Absence
TO-16	0-10	Absence
TO-17	0-10	Absence
TO-18	0-10	Absence
TO-19	0-10	Absence
TO-20	0-10	Absence
TO-21	0-10	Absence
TO-22	0-10	Absence
TO-23	0-10	Absence
TO-24	0-10	Absence

ZONE 2.3
 PRÉSENCE DE CHARBON (50-100 %)
 Superficie : 175 m²
 Volume : 20 m³
 Profondeur variable : entre 0 et 10 cm
 Epaisseur moyenne : 10 cm

ZONE 2.1
 PRÉSENCE DE CHARBON (50-100 %)
 Superficie : 850 m²
 Volume : 170 m³
 Profondeur variable : entre 0 et 30 cm
 Epaisseur moyenne : 20 cm

ZONE 2.2
 PRÉSENCE DE CHARBON (50-100 %)
 Superficie : 270 m²
 Volume : 70 m³
 Profondeur variable : entre 0 et 30 cm
 Epaisseur moyenne : 25 cm

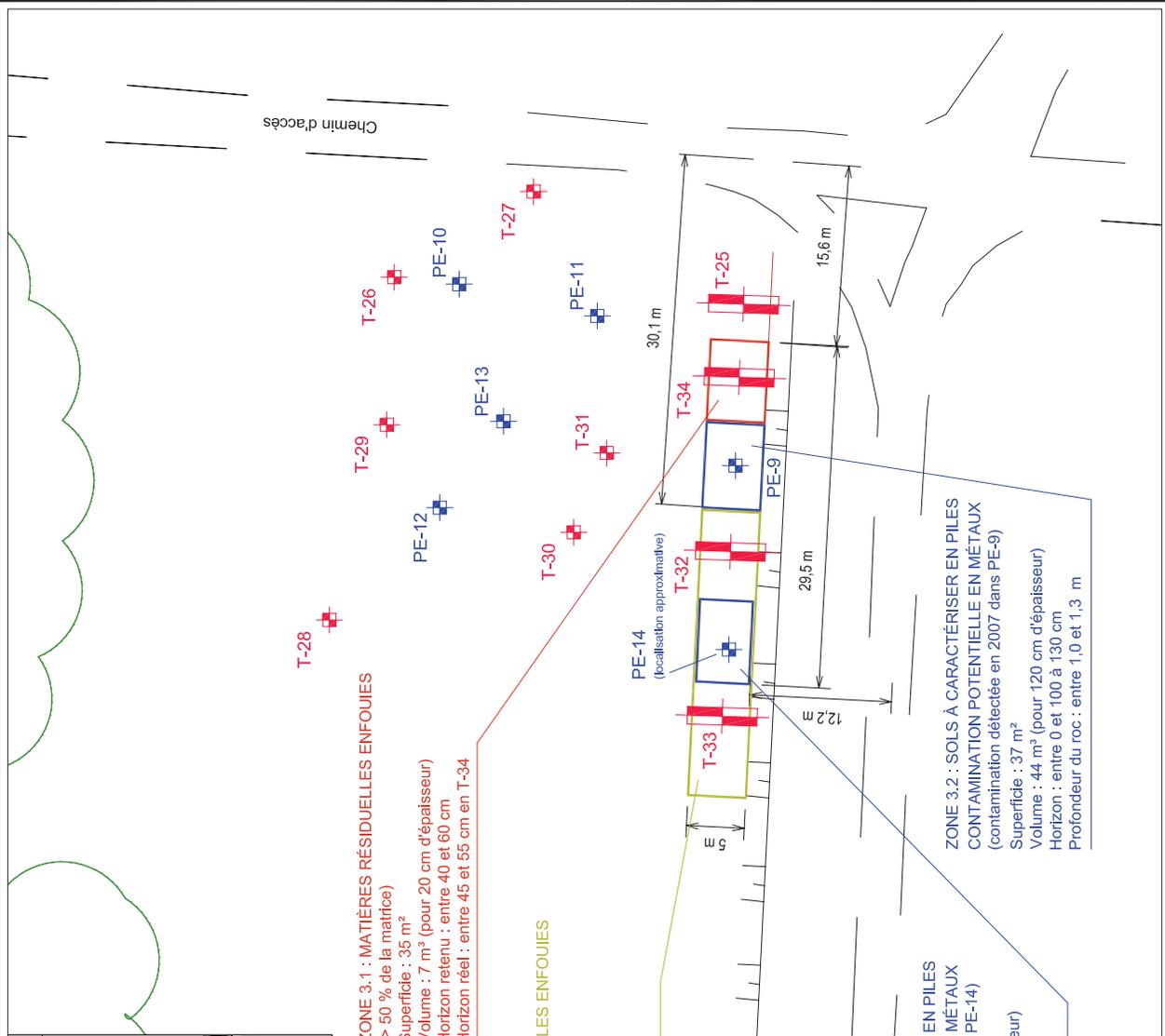
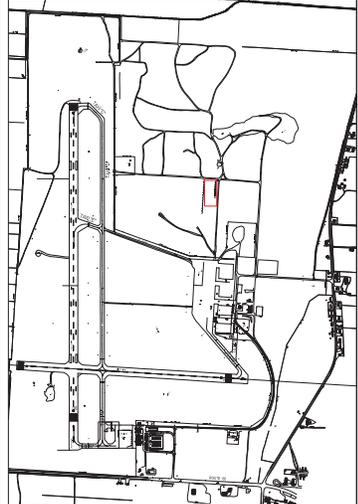
ZONE 2.4
 CONTAMINATION POTENTIELLE PAR LES MÉTAUX
 Superficie : 100 m²
 Volume : 65 m³
 Profondeur : entre 16 et 80 cm (sous l'horizon de charbon)
 Epaisseur moyenne : 65 cm

ZONE CONTENANT DU CHARBON (< 50 %)
 À VÉRIFIER
 Superficie : 6 715 m²
 Volume : non applicable
 Profondeur : généralement en surface, mais pouvant atteindre 35 cm

PE-22 : Station d'échantillonnage où la concentration en arsenic en 2007 se situait dans la plage C-D du MDDEP



Figure 4.3 Location of zones to be remediated in the former landfill sector



ZONE 3.1 : MATIÈRES RÉSIDUELLES ENFOUJES
 (> 50 % de la matrice)
 Superficie : 35 m²
 Volume : 7 m³ (pour 20 cm d'épaisseur)
 Horizon retenu : entre 40 et 60 cm
 Horizon réel : entre 45 et 55 cm en T-34

ZONE DE MATIÈRES RÉSIDUELLES ENFOUJES
 (< 30 % de la matrice)

ZONE 3.3 : SOLS À CARACTÉRISER EN PILES
 CONTAMINATION POTENTIELLE EN MÉTAUX
 (contamination détectée en 2007 dans PE-14)
 Superficie : 35 m²
 Volume : 49 m³ (pour 140 cm d'épaisseur)
 Horizon : entre 0 et 130 à 150 cm
 Profondeur du roc : entre 1,3 et 1,5 m

ZONE 3.2 : SOLS À CARACTÉRISER EN PILES
 CONTAMINATION POTENTIELLE EN MÉTAUX
 (contamination détectée en 2007 dans PE-9)
 Superficie : 37 m²
 Volume : 44 m³ (pour 120 cm d'épaisseur)
 Horizon : entre 0 et 100 à 130 cm
 Profondeur du roc : entre 1,0 et 1,3 m



Transports
Canada
Région du Québec
Canada

LÉGENDE

- PE-21
- T-11
- Matières résiduelles (> 50 %)
Zone à restaurer
- Matières résiduelles (< 30 %)
Aucune intervention
- Zones potentiellement contaminées
Caractérisation des sols

SOURCE : Plan dessiné par TFSGGC
(C:\00p01.dwg)

Rev.	Description	Par/By	Date

ENTRACO
CONSEILS EN ENVIRONNEMENT

Dossier / File: **AÉROPORT DE MONT-JOLI**
 Plan de réhabilitation
 Ancien bâtiment H-3, ancien dépôt de charbon
 et ancien dépotoir

Dessin / Drawing: **FIGURE 4.3**
 Localisation des zones d'intervention
 Secteur de l'ancien dépotoir

Conçu par / Designed by:	Date
N.L.	4-10-2010
Dessiné par / Drawn by:	Date
E.L./N.L.	05-01-2011
Vérifié par / Verified by:	Date
N.L.	18-03-2011
Approuvé par / Approved by:	Date

No. dossier / File no.:	P0622	Echelle / Scale:	Graphique
No. dessin / Drawing no.:		Page / Page:	39

5. MANAGEMENT OF SOIL, RESIDUAL MATERIALS AND BACKFILL

5.1 SOIL MANAGEMENT

Soil excavated as part of the remediation work must be managed in accordance with the *Interim Management Grid for Excavated Contaminated Soils* of the MDDEP Policy. The management procedures to be applied in each area are described in detail in Table 5.1. The off-site soil disposal facilities must be facilities authorized by MDDEP.

5.2 RESIDUAL MATERIALS MANAGEMENT

Three types of residual materials have been observed in the three sectors to be remediated:

- former building H-3 sector, specifically zone 1.1: concrete waste from the partial demolition of a concrete foundation wall (approximately 10 m³);
- former coal depot sector: presence of coal mixed with soil in varying proportions; materials with a coal content above 50% will be considered non-hazardous residual waste; note that Entraco (2009), demonstrated that these residual materials (black particles) consisted of coal and not anthracite; these materials are concentrated at the surface of the soil in a horizon varying from 1 to 30 cm thick;
- former landfill sector: various debris mixed with soil in varying proportions, primarily consisting of glass, metal and plastic; matrix with a debris content above 50% will be considered non-hazardous waste;⁽¹⁾ these materials are concentrated in a horizon approximately 10 cm thick located at a depth of approximately 45 cm.

The management procedures to be applied in each zone are described in detail in Table 5.1. The off-site soil disposal facilities must be sites authorized by MDDEP.

(1) If hazardous materials are detected during the work, they must be recovered by an authorized service provider.

5.3 MANAGEMENT OF BACKFILL MATERIAL

Backfill for the excavations must be material excavated at the site (surface soil, i.e. soil overlying a contaminated horizon, or soil to be characterized with concentrations below the MDDEP C criteria) and/or borrow material from known external sources (soil quality below the MDDEP A criteria). The origin and quantity of the fill material are specified in Table 5.1.

Table 5.1 Management procedures for soil, residual material and backfill material

Site	Zone ⁽¹⁾	Description of Materials	Soil Management			Residual Material Management			Origin of Fill Material	
			Estimated Volume (m ³)	To Be Characterized	Recommended Destination	Estimated Volume (m ³)	To Be Characterized	Recommended Destination	Estimated Volume (m ³)	Origin
Former building H-3		Soil contaminated with BTEX and PAHs (C-D range)	42	No	Authorized treatment site	n/a	n/a	n/a	42	Recognized borrow pit
	Zone 1.1	Surface soil (not contaminated)	800	Yes	If contaminated, treatment site or engineered landfill site	n/a	n/a	n/a	800	Surface soil (if uncontaminated) or recognized borrow pit
		Concrete waste from the foundation	n/a	n/a	n/a	10	No	Recycled aggregate producer	10	Recognized borrow pit
Former coal depot	Zone 1.2	Soil potentially contaminated by PAHs	18	Yes	If contaminated, treatment site or engineered landfill site	n/a	n/a	n/a	18	Excavated soil (if uncontaminated) or recognized borrow pit
	Zone 2.1	Presence of residual materials (above 50%) in the soil; potential contamination of the soil by metals	n/a	n/a	n/a	170	No	Engineered landfill site	170	Recognized borrow pit
	Zone 2.2	Presence of residual materials (above 50%) in the soil; potential contamination of the soil by metals	n/a	n/a	n/a	70	No	Engineered landfill site	70	Recognized borrow pit
	Zone 2.3	Presence of residual materials (above 50%) in the soil; potential contamination of the soil by metals	n/a	n/a	n/a	20	No	Engineered landfill site	20	Recognized borrow pit
	Zone 2.4	Soil potentially contaminated by metals	65	Yes	If contaminated, engineered landfill site or contaminated soil disposal facility	n/a	n/a	n/a	65	Excavated soil (if uncontaminated) or recognized borrow pit
Former landfill	Zone 3.1	Presence of residual materials (above 50%) in the soil; potential contamination of the soil by metals	n/a	n/a	n/a	7	No	Engineered landfill site	7	Recognized borrow pit
		Surface soil (not contaminated)	14	Yes	If contaminated, engineered landfill site or contaminated soil disposal facility	n/a	n/a	n/a	14	Surface soil (if uncontaminated) or recognized borrow pit
	Zone 3.2	Soil potentially contaminated by metals	44	Yes	If contaminated, engineered landfill site or contaminated soil disposal facility	n/a	n/a	n/a	44	Excavated soil (if uncontaminated) or recognized borrow pit
	Zone 3.3	Soil potentially contaminated by metals	49	Yes	If contaminated, engineered landfill site or contaminated soil disposal facility	n/a	n/a	n/a	49	Excavated soil (if uncontaminated) or recognized borrow pit

NOTE
n/a Not applicable

6. CHARACTERIZATION PROGRAM

6.1 BACKGROUND

Between 2009 and 2011, the following reports were produced by LVM for the City of Mont-Joli:

- LVM Technisol, November 2009. *Propriété industrielle vacante – 875, boulevard Jacques-Cartier, Mont-Joli (Québec) – Évaluation environnementale de site phase I.* (Ref.: 073-P016127-0153-EN-0001-00)
- LVM Technisol, February 2011. *Addenda à l'évaluation environnementale de site phase I – Propriété industrielle vacante – 875, boulevard Jacques-Cartier à Mont-Joli.* (Ref.: 073-P038375-0140-EN-0001-00)
- LVM Technisol, February 2011. *Résumé de l'étude – Ville de Mont-Joli – Évaluation environnementale de site phase I – 875, boulevard Jacques-Cartier, Mont-Joli (Québec).* (Ref.: 073-P038375-0140-EN-0002-00)

This Phase I environmental site assessment was carried out by LVM on lot 4 015 674 of the Land Registry of Quebec, as part of the transfer of the lot to the Municipality of Mont-Joli. It included a summary of the characterization studies carried out since 1995. In light of the observations regarding soil quality, it was recommended that a complementary soil characterization be conducted in the following two sectors (see Figure 1 in Appendix 3):

- a former pump island connected to two aboveground diesel tanks (approximately 30 m southeast of former building H-3)
- two former septic tanks (approximately 100 m northwest of former building H-3)

Regarding the groundwater quality, a contaminant plume (exceeding the MDDEP groundwater quality criteria for seepage into surface water or infiltration into sewers (SSWIS)) was detected northeast of former building H-3. However, its northern boundary is approximate as there are no monitoring wells in this part of the site.

In response to the conclusions and recommendations of this study and to address the needs of the Régie, and considering the transfer of lot 4 015 674 to the City of Mont-Joli, TC decided to include a soil and groundwater characterization program for the sectors identified by LVM in its remediation plan. Details on the recommended activities are provided below.

6.2 CHARACTERIZATION PROGRAM

6.2.1 Soil characterization

The soil characterization for each of the two sectors should include the following elements (see Table 6.1):

- excavation of two exploratory trenches to a depth of approximately 2.5 m or until bedrock is reached;
- soil sampling in accordance with the recommendations of the *Site Characterization Guide* and the *CEAEQ Sampling Guide for Environmental Analysis (Book 1 – General and Book 5 – Soil Sampling)*; and
- analysis of the soil samples by a CEAEQ accredited laboratory; the parameters to be analyzed are indicated in Table 6.1.

6.2.2 Groundwater characterization

The characterization of the groundwater in the area of the contaminant plume should include the following elements (see Table 6.1):

- Installation of three new monitoring wells in the northern portion of the plume. The placement of these wells will be specified in the field following the identification and inspection of the existing wells. Before the wells are installed, their placement will have to be approved by TC.
- Groundwater sampling in accordance with the recommendations of the *Site Characterization Guide* and the *CEAEQ Sampling Guide for Environmental Analysis (Book 1 – General and Book 3 – Groundwater Sampling)*; wells to be sampled, excluding the three new wells to be installed, include: F-11, F-12, F-13, F-14, F-15, F-16, F-18, F-26-2000, F-27-2000, F-28-2000, F-29-2000 and PO-4.

6.2.3 Field quality control and assurance program

For the purposes of quality control and assurance of the analytical program, field duplicates must be collected to represent a minimum of 10% of the total number of samples collected for each parameter analyzed. However, a minimum of one duplicate per batch of samples sent for analysis must be respected regardless of the total number of samples collected in a sampling campaign. The parameters analyzed must be the same as those selected for the original samples.

Table 6.1 Soil and groundwater characterization program

#	Site Description	Soil Characterization		Groundwater Characterization		Parameters				
		Exploratory Trenches	Samples ⁽¹⁾	Monitoring Wells to be Dug	Samples ⁽²⁾	Metals ⁽³⁾	PH C ₁₀ -C ₅₀	MAHs	PAHs	Phenols
1	Location of former septic tanks (including septic field)	2	10	n/a	n/a	√	√	√	√	√
2	Location of former aboveground storage tanks (including pump islands)	2	4	n/a	n/a		√		√	
3	Contaminant plume northeast of building H-3	n/a	n/a	3	14	√	√	√	√	
	Total	4	14	3	14	n/a	n/a	n/a	n/a	n/a

NOTES:

- (1) Estimated quantity of samples to be collected, taking into account the approximate depth of the trenches (in relation to the bedrock), i.e. 2.5 m at site 1 and 1.0 m at site 2.
- (2) 3 new wells and 11 existing wells will be sampled.
- (3) Metals: Cd, Cr, Cu, Ni, Pb and Zn.
- (4) Does not include field duplicates (10%minimum)

6.3 ADDITIONAL CHARACTERIZATION AND COMPLEMENTARY REMEDIATION PLAN

If contaminants are detected in the soil above the MDDEP level C, a complementary soil characterization will be performed to assess the extent of the contamination. The characterization plan will be developed based on the results of the initial characterization and in accordance with the CEAEQ characterization guides (see section 6.2.1).

A complementary remediation plan will be prepared based on the results of all of the characterization work and will be submitted to MDDEP for short term approval (during the remediation activities). Following the approval by MDDEP, the complementary remediation work will be incorporated into this existing remediation plan. The final remediation report will include all of the contaminated sectors, i.e. the sectors identified in the current remediation plan (see section 6) and any new sectors identified during the complementary characterization.

7. TIMELINE

The remediation work will begin in the spring of 2011. The start and end dates for the work have not yet been determined, but the duration is estimated at approximately two months. The remediation work will be conducted by a private contractor following a tendering process to be launched by Public Works and Government Services Canada (PWGSC). Environmental monitoring of the work will be carried out by a private consultant selected by PWGSC.

Appendix 1
Limitation Clauses

LIMITATION CLAUSES

This remediation plan, prepared by Entraco, is based solely on the available data, visual observations and relevant information provided by representatives of Transport Canada and Public Works and Government Services Canada. The data in this plan are not scientific certainties, but rather probabilities based on professional judgment. The data interpretations of, comments and recommendations in this remediation plan are based, to the best of our knowledge, on the regulations in force and on the applicable policies, codes, guides or other documents.

The descriptive data and observations on the site characteristics relate to the conditions observed during the preparation of this plan and therefore do not take into account site conditions or changes that could not have been observed or assessed. The recommendations, based on the available information, were developed by qualified professionals according to a recognized methodology. Entraco reserves the right to amend any recommendation that was based on information provided by a third party or client that is discovered to be incorrect or to have been incorrectly presented or if additional information that was not initially disclosed becomes available. Entraco accepts no responsibility for any deficiency, erroneous statement or inaccuracy contained in this remediation plan that is the result of erroneous statements, omissions or false statements made by personnel or other entities that provided information to Entraco during its preparation of this study.

Entraco prepared this remediation plan for use by Transport Canada and Public Works and Government Services Canada. Any use of this remediation plan by a third party, as well as any decision based on this remediation plan, is the sole responsibility of that third party. Entraco cannot be held responsible for any potential damages, losses, claims or damages suffered by a third party that directly or indirectly result from the use of this remediation plan or a decision made or based on this remediation plan.

Appendix 2

List of previous studies

LIST OF PREVIOUS STUDIES

- A/ LVM Technisol, February 2011. *Résumé de l'étude - Ville de Mont-Joli – Évaluation environnementale de site phase I – 875, boulevard Jacques-Cartier, Mont-Joli (Québec)*. (Ref.: 073-P038375-0140-EN-0002-00)
- B/ LVM Technisol, February 2011. *Addenda à l'évaluation environnementale de site phase I – Propriété industrielle vacante – 875, boulevard Jacques-Cartier à Mont-Joli*. (Ref.: 073-P038375-0140-EN-0001-00)
- C/ LVM Technisol, November 2009. *Propriété industrielle vacante – 875, boulevard Jacques-Cartier, Mont-Joli (Québec) – Évaluation environnementale de site phase I*. (Ref.: 073-P016127-0153-EN-0001-00)
- D/ Entraco, 2009. *Aéroport de Mont-Joli (Québec) – Ancien bâtiment H-3, ancien dépôt de charbon et ancien dépotoir – Caractérisation des sols*. (Ref.: P0891)
- E/ Inspec-Sol, March 20, 2008. *Aéroport de Mont-Joli – Travaux de déconstruction du hangar H3 – Échantillonnage environnemental des sols*. (Ref.: Q021051-E2)
- F/ LVM Technisol, November 23, 2007. *Projet de parc industriel – Aéroport de Mont-Joli – Caractérisation environnementale préliminaire*. (Ref.: P016127.0150)
- G/ Technisol Environnement, April 28, 2003. *Aéroport de Mont-Joli – Surveillance de travaux de décontamination*. (Ref.: TP34909-221)
- H/ Groupe Conseil TS, June 1999. *Aéroport de Mont-Joli – Suivi environnemental de réhabilitation – Hangars et aire d'entraînement des pompiers*. (Ref.: TP54707-163)
- I/ Groupe Conseil TS, October 22, 1998. *Aéroport de Mont-Joli – Caractérisation environnementale complémentaire*. (Ref.: TP74599-112)
- J/ Entraco, May 1995. *Aéroport de Mont-Joli – Projet de décontamination des sols*. (Ref.: P33 440.2 / 453)
- K/ Biogénie, March 1994. *Étude de caractérisation aux hangars H-2 et H-3 de l'aéroport de Mont-Joli*. (Ref.: 827)

Appendix 3

Figure 1 taken from the LVM study (February 2011)

**Mont-Joli Airport, Quebec
Former Building H-3, Former Coal Depot and Former Landfill**

Remediation Plan

**Responses to the Supplemental Information Request from MDDEP
dated July 20, 2011,
Concerning Remediation of the Former Hangar H-3 Sector**



**Responses to the Supplemental Information Request
from MDDEP dated July 20, 2011, concerning
remediation of the former hangar H-3 sector
at the Mont-Joli Airport**

Foreword

Since Transport Canada (TC) submitted the Remediation Plan (the Plan) to MDDEP, the Municipality of Mont-Joli has initiated a characterization study on lot 4 395 755. That study, which is currently being conducted by LVM, based in Rimouski, has revealed the presence of new elements that pose a risk to the environment and new areas of contamination. In light of this information, TC agreed that only the former hangar H-3 sector would be remediated in 2011. An amended remediation plan, which will include the results of the site characterization in-progress, will be prepared once the characterization report has been certified by an expert.

General

1. The owner of lot 4 395 755 is the Municipality of Mont-Joli. The contact information for the Municipality is as follows:
 - 40 Avenue Hôtel de ville, Mont-Joli, QC G5H 1W7;
 - Telephone: 418-775-7285;
 - Fax: 418-775-6320;
 - Email: mont-joli@ville.mont-joli.qc.ca
2. The site is located on part of lot 4 395 755 of the Land Register of Quebec. The boundaries of this lot are illustrated in Figure 2.3 of the Plan (see Annex 2).
3. Lots 4 015 682 and 4 015 683, which were created on July 28, 2008 by subdividing lot 706-1, are occupied by the Écocentre and the Centre de transfert de matières résiduelles. These lots are located within lot 4 395 755 and were included in the Phase I environmental assessment conducted by LVM in 2009 (Ref: 073-P016127-0153-EN-0001-00). Following a review of the land-use history of the lot (4 395 755), a Phase II environmental assessment was conducted in September 2011 by the Municipality of Mont-Joli (LVM was the consulting firm responsible for the assessment) on the part of the lot (former lot 706-1) that had not been covered by the 2009 assessment.

The results from previous characterization studies showed that contaminant concentrations in soil samples taken on or near lots 4 015 682 and 4 015 683 were all below the limits in Annex II of the Land Protection and Rehabilitation Regulation.

Four boreholes were drilled on these two lots: two in 2001 by Groupe Conseil TS (F27-2000 and F28-2000) and two in 2007 by LVM (F-1 and F-2). The results from the site characterizations revealed the following:

- Groupe Conseil TS, 2001: concentrations of total petroleum hydrocarbon (TPH) C₁₀-C₅₀, monocyclic aromatic hydrocarbons (MAHs), and metals in soil were below or equal level A;

- LVM, 2007: TPH C₁₀-C₅₀ concentrations were below level A for the two surface soil samples, and the hydrocarbon vapour measurements were equal to zero in all the underlying samples.

Results for groundwater demonstrated concentrations of MAHs and metals above the MDDEP's criteria for seepage into surface water or infiltration into sewers (RESIE) in monitoring well F-28-2000. Other exceedances were observed in monitoring wells F-13 and F-29-2000, located on either side of lot 4 015 682. Based on the results from all of the monitoring wells, a contaminant plume was delineated; it crosses lot 4 015 682.

No site remediation planned for these two lots. However, groundwater quality monitoring is planned for the contaminant plume sector, including well F-28-2000.

4. To meet the requirements set out in Section 31.48 of Quebec's *Environment Quality Act*, as soon as the site remediation is completed, including monitoring of groundwater quality, a report will be produced, and attested by an expert. The remediation report and the duly completed and signed attestation form will be submitted to the MDDEP.

Soil

5. For the two areas of residual contamination shown in Figure 3.1 in the Plan, the following information has been added (see Annex 2): "No exceedance of level C observed by Entraco (2009)." According to the Entraco study (2009), the TPH C₁₀-C₅₀ concentrations are in the B-C range in trenches T-2 and T-4, and in the A-B range in trench T-1. In 2008, during demolition of hangar H-3, no exceedances of level C were observed by Inspec-Sol in this sector.
6. The quantity of potentially contaminated soil along the southern wall of former hangar H-3 was estimated at 18 m³ within an area of 36 m². These figures, which have been used in the remediation plan, are based on the results of the Entraco study (2009).

The values used by LVM were taken from the Inspec-Sol study (2008) and are based on the results of a single sample from an excavation along the wall, where the northeastern limit was not determined. LVM will use the same values as those estimated by Entraco.

7. Tables 4.1 and 4.2 in the Plan will be modified (see Annex 1). For Zones 1.1 and 1.2, the parameters to be analyzed will be petroleum hydrocarbons (PHCs) C₁₀-C₅₀, MAHs, and polycyclic aromatic hydrocarbons (PAHs).
8. Based on the recommendations in the *Guide d'échantillonnage à des fins d'analyses environnementales*, the number of samples analyzed from the pile of clean surface soil taken from Zone 1.1 should be 10 (not 8, as shown in Table 4.1). That is, for a soil volume of 800 m³, the number of samples should be 4 (for 200 m³) + 1/100m³.
9. In Table 5.1 of the Plan, for Zones 1.1 and 1.2, the option for managing contaminated soils in an engineered landfill site will be removed (see Annex 1). Only the option of disposal in an MDDEP-authorized treatment centre will be retained.
10. Following the comprehensive Phase 1 environmental assessment, a soil and groundwater characterization was conducted by LVM in September 2011. This study (currently in progress) covers various risk areas identified within the boundaries of lot 4 395 755,

including two former septic tanks and the former aboveground storage tanks located southeast of former hangar H-3.

The results of this characterization study will be presented in a report that will be attested by an expert and submitted to MDDEP. Based on the results of this study, an amended remediation plan will be produced and submitted to MDDEP.

The remediation plan will include the former coal depot and the former landfill, which are excluded from the current Plan.

11. At this stage, it is impossible to specify the treatment centre(s) authorized for disposal of contaminated soil. The centre(s) will be chosen by the contractor that obtains the remediation contract following the bidding process to be posted by Public Works and Government Services Canada (PWGSC). Once the contractor has been selected, Transport Canada will send a notice to MDDEP specifying the treatment centre proposed by the contractor. The treatment centre will be selected from the MDDEP-authorized list.

It is likely that the soil will be transported to either the Centre de traitement BSL inc. in Saint-Anaclet or the Newalta site in Rimouski.

12. Contaminated soil will be stored temporarily within the boundaries of lot 4 395 755, near the former building H-3 site. The process for temporary storage will be as described in the Plan.

13. To prevent dispersion of contaminated soil on and off the site during the remediation work (including excavation, loading of trucks and transportation of contaminated soil), the following procedures will be applied:

- Contaminated soil must be transported in a closed container or a dump bed fitted with a tarpaulin that completely covers the top of the bed and the load.
- Given that water infiltration was observed in a trench at the level of the contaminated soil, the container or dump bed must be watertight.
- When trucks are being loaded, close attention must be paid to the backhoe operations in order to avoid dropping material on the sides of the trucks and in the surrounding area.
- Before departure, the trucks will be inspected and cleaned if necessary. Once the work is completed, the backhoe and the manoeuvring areas will also be inspected and cleaned, and the soil recovered through this process will be managed in the same way as the soil being transported.
- Soil stored in piles must be placed on an impermeable membrane and covered with an impermeable membrane weighted down so as to prevent water from infiltrating and percolating through the pile and contaminating underlying soil.
- The site being remediated will be accessed via Perrault Road, about 500 metres to the southeast, and the airport road. That is the route taken regularly by users of the Écocentre and the Centre de transfert de matières résiduelles. These roads are paved or covered with a mix of crushed asphalt and sand.
- If unpaved roads are used, the speed limit on them will be 10 km/h. Unpaved roads will be sprayed with water to control the dust.

Groundwater

14. If necessary, water which has infiltrated into the excavation will be pumped out by a specialized firm using a vacuum truck. The recovered water will be analyzed to determine the disposal options. If the water does not meet the standards for discharge to sewers, it will be recovered and treated by the specialized firm. Once the contractor has been selected for the remediation work, Transport Canada will inform MDDEP of the specialized firm proposed by the contractor.

15.

- a. As mentioned in paragraph 10, a soil and groundwater characterization is currently being conducted within the boundaries of lot 4 395 755. Several monitoring wells have been installed in the sectors identified as being at risk, based on the historical research done for this recent study.

The results of the groundwater characterization for the new monitoring wells will be used to plan the groundwater quality monitoring program for the entire lot. In addition to the existing wells (about 13 wells) and wells to be constructed (about 3 wells) northwest of the contaminant plume identified in the previous studies (see Figure 15.1 in Annex 2), other wells installed as part of the site characterization could be added to the monitoring program.

Before beginning the monitoring program, Transport Canada will inform MDDEP of the wells to be monitored and the parameters to be analyzed.

- b. In the aforementioned notice to MDDEP, Transport Canada will also specify the frequency and duration of monitoring. At this point, it is expected that the annual monitoring for will continue for two years following the remediation work.
- c. This program meets the requirements set out in the *Guide de caractérisation des terrains* and the *Sampling Guide for Environmental Analysis (Booklet 3 – Groundwater Sampling (Guide d'échantillonnage à des fins d'analyses environnementales Cahier 3 – Échantillonnage des eaux souterraines)* (Revised June 30, 2011).

16. Because of the scale used in the figures, the contaminant plume cannot be displayed on Figures 3.1 and 4.1 of the Plan. This contaminant plume, identified in the previous studies, is presented in Figure 15.1 (Annex 2), together with the existing wells and those to be constructed. Note that other wells could be added based on the results of the site characterization currently underway.

Sample analyses

17. All of the soil and water analyses called for in the Plan will be conducted by a laboratory that is accredited by the Centre d'expertise en analyse environnementale du Québec (CEAEQ). The analyses will be conducted by one of the following accredited laboratories:

- AGAT Laboratoires;
- Exova Canada inc.; or
- Maxxam Analytique.

Residual materials

18. The concrete debris from the partial dismantling of the foundation wall of Hangar H-3 will be disposed of through a recycled aggregate producer.

Once the contractor has been selected for the remediation work, Transport Canada will inform the MDDEP, and specify the recycled aggregate producer proposed by the contractor. For example, the producer might be "Entreprises Claveau Ltée" of Mont-Joli.

Approved and signed by:



Normand Lalonde, Project Leader

ANNEX 1

MODIFIED TABLES

Table 4.1 Characterization program for piled soil

Site	Zone ⁽¹⁾	Issues	Estimated volume (m ³)	Number of samples	Parameters to be analysed			
					Metals ⁽²⁾	PH C ₁₀ -C ₅₀	MAHs ⁽³⁾	MAPs ⁽⁴⁾
Former building H-3	Zone 1.1	Surface soil (clean) - BTEX and PAHs contamination (exceedance C criteria) in underlying soil	800 ⁽⁵⁾	10 ⁽⁶⁾		√	√	√
	Zone 1.2	PAHs contamination of soil (exceedance C criteria) by	18	1		√	√	√
	Zone 2.4	Potential metals contamination (exceedance of C criteria) in soil	65	3	√			
Former coal depot	Zone 3.1	Surface soil (clean) - underlying residual materials	14	1	√			
	Zone 3.2	Potential metals contamination (exceedance of C criteria) in soil	44	2	√			
	Zone 3.3	Potential metals contamination (exceedance of C criteria) in soil	49	2	√			
TOTAL			990	19	n.a.	n.a.	n.a.	n.a.

NOTES

- (1) Locations of the zones are shown in Figures 4.1 through 4.3.
- (2) Metals: Arsenic, cadmium, chrome, copper, tin, manganese, nickel, lead, zinc.
- (3) MAHs: monocyclic aromatic hydrocarbons.
- (4) PAHs: polycyclic aromatic hydrocarbons.
- (5) The estimated volume takes into account the need to enlarge the excavation at the top so that the slope of the sides are at a ratio of 1:1.
- (6) The samples from Zone 1.1 must be grab samples for MAH testing.

Table 4.2 Quality control program for excavations

Site	Zone ⁽¹⁾	Issues	Sample quantity		Parameters to be analysed			
			Walls	Bottom	Metals ⁽²⁾	PH C ₁₀ -C ₅₀	MAHs ⁽³⁾	PAHs ⁽⁴⁾
Former building H-3	Zone 1.1	BTEX and PAHs soil contamination (exceedance of C criteria)	4 ⁽⁵⁾	1 ⁽⁵⁾		√	√	√
	Zone 1.2	Potential PAH contamination in soil	4	1		√	√	√
	Zone 2.1	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	11	5	√			
Former coal depot	Zone 2.2	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	6	1	√			
	Zone 2.3	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	4	1	√			
	Zone 2.4	Potential metals contamination in soil	4	1	√			
	Zone 3.1	Potential metals contamination in soil	4	1	√			
Former landfill	Zone 3.2	Potential metals contamination in soil	7 ⁽⁶⁾	1	√			
	Zone 3.3	Potential metals contamination in soil	8 ⁽⁷⁾	1	√			
	TOTAL ⁽⁸⁾			52	13	n.a.	n.a.	n.a.

NOTES

- (1) Locations of the zones are shown in Figures 4.1 through 4.3.
 - (2) Metals: Arsenic, cadmium, chrome, copper, tin, manganese, nickel, lead, zinc.
 - (3) MAHs: monocyclic aromatic hydrocarbons.
 - (4) PAHs: polycyclic aromatic hydrocarbons.
 - (5) The samples from the walls and bottom of the excavation in Zone 1.1 analysed for BTEX must be grab samples.
 - (6) Two samples per side (height about 1.2 m); one sample from the east side (between 60 and 120 cm, following the excavation of Zone 3.1 from 0 to 60 cm).
 - (7) Two samples per side (height about 1.4 m).
 - (8) Does not include field duplicates (minimum of 10%).
- n.a. Not applicable.



Table 5.1 Management of soil, residual materials, and backfill materials

Site	Zone ⁽¹⁾	Description of materials	Soil management			Residual material management			Source of fill material	
			Estimated volume (m ³)	To be characterized	Recommended destination	Estimated volume (m ³)	To be characterized	Recommended destination	Estimated volume (m ³)	Source
Former building H-3		Soil contaminated by BTEX and PAHs (C-D range)	42	No	Authorized treatment site	n.a.	n.a.	n.a.	42	Recognized borrow pit
	Zone 1.1	Surface soil (not contaminated)	800	Yes	If contaminated: authorized treatment site	n.a.	n.a.	n.a.	800	Surface soil (if not contaminated) or recognized borrow pit
		Concrete debris from the foundation	n.a.	n.a.	n.a.	10	No	Recycled aggregate producer	10	Recognized borrow pit
	Zone 1.2	Soil potentially contaminated by PAHs	18	Yes	If contaminated: authorized treatment site	n.a.	n.a.	n.a.	18	Excavated soil (if not contaminated) or recognized borrow pit
Former coal depot	Zone 2.1	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	n.a.	n.a.	n.a.	170	No	Engineered landfill site	170	Recognized borrow pit
	Zone 2.2	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	n.a.	n.a.	n.a.	70	No	Engineered landfill site	70	Recognized borrow pit
	Zone 2.3	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	n.a.	n.a.	n.a.	20	No	Engineered landfill site	20	Recognized borrow pit
	Zone 2.4	Soil potentially contaminated by metals	65	Yes	If contaminated: engineered landfill site or landfill site for contaminated soil	n.a.	n.a.	n.a.	65	Excavated soil (if not contaminated) or recognized borrow pit
Former landfill	Zone 3.1	Presence of residual materials (above 50%) in soil; potential metals contamination in soil	n.a.	n.a.	n.a.	7	No	Engineered landfill site	7	Recognized borrow pit
		Surface soil (not contaminated)	14	Yes	If contaminated: engineered landfill site or landfill site for contaminated soil	n.a.	n.a.	n.a.	14	Surface soil (if not contaminated) or recognized borrow pit
	Zone 3.2	Potential metals contamination in soil	44	Yes	If contaminated: engineered landfill site or landfill site for contaminated soil	n.a.	n.a.	n.a.	44	Excavated soil (if not contaminated) or recognized borrow pit
	Zone 3.3	Potential metals contamination in soil	49	Yes	If contaminated: engineered landfill site or landfill site for contaminated soil	n.a.	n.a.	n.a.	49	Excavated soil (if not contaminated) or recognized borrow pit

NOTE
n.a. Not applicable.

ANNEX 2

MODIFIED FIGURES

SOURCE : Plan dessiné par l'IPSGC (C00jg01.dwg)

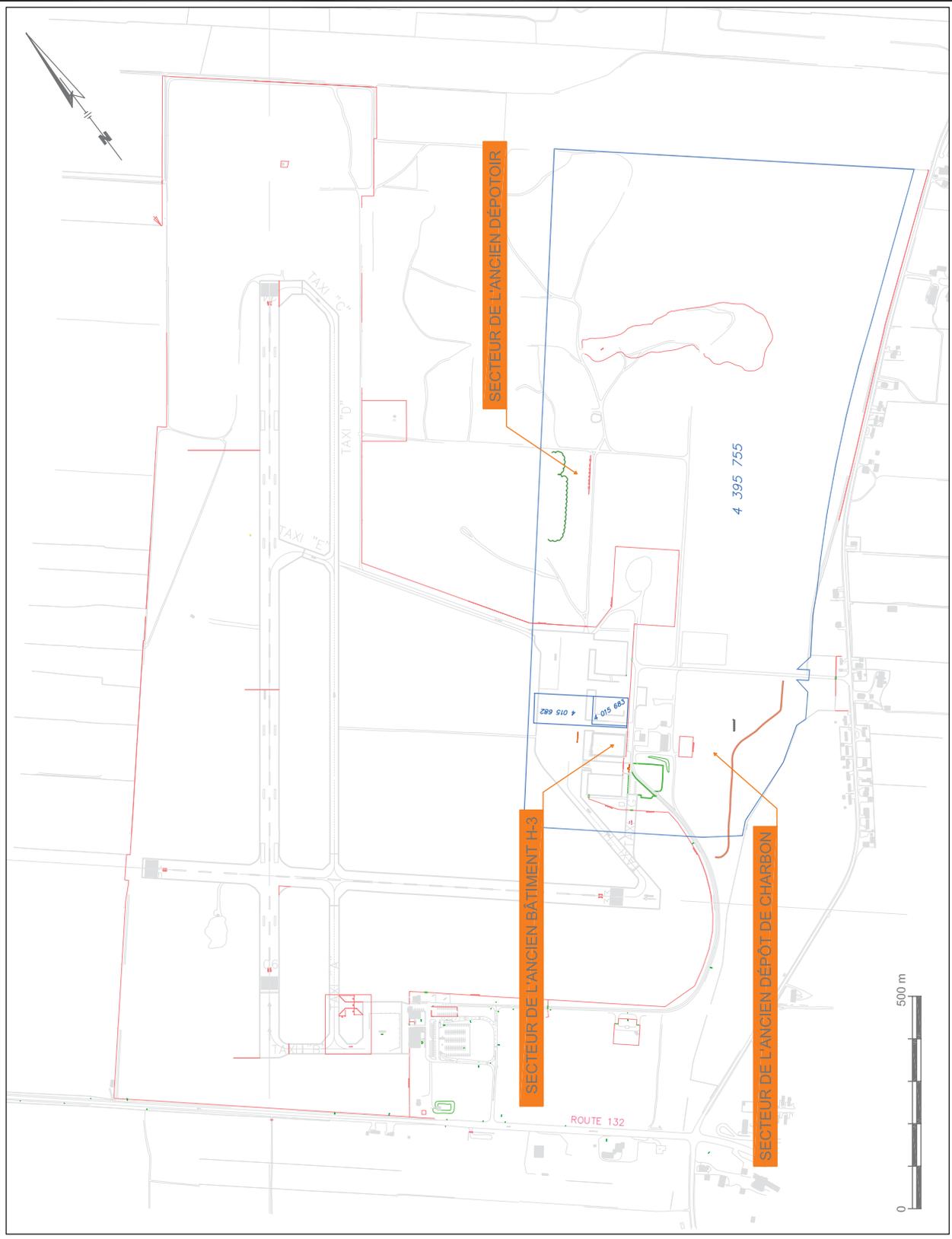
Révis.	Description	Par/By	Date
01	Modifications au plan de réhabilitation	N.L.	2011-10-27



Dossier / File: **AÉROPORT DE MONT-JOLI**
 Plan de réhabilitation
 Ancien bâtiment H-3, ancien dépôt de charbon
 et ancien dépotoir

Dessin / Drawing: **FIGURE 2.3**
 Plan d'ensemble des secteurs à réhabiliter

Conçu par / Designed by:	Date
N.L.	04-10-2010
Dessiné par / Drawn by:	Date
E.L.F./N.L.	10-10-2010
Vérifié par / Verified by:	Date
N.L.	24-10-2011
Approuvé par / Approved by:	Date
N.L.	24-10-2011
No. dossier / File no.:	Echelle / Scale:
P0639/P0922	Graphique
No. dessin / Drawing no.:	Page / Page:
	7



LÉGENDE

- Tranchées d'exploration Entraco 2008
- Tranchées d'exploration allongées, Entraco 2008
- Zone contaminée à restaurer identifiée par Entraco
- Secteur potentiellement contaminé identifié par Inspec-Sol en 2008
- Zone restaurée antérieurement
- Contamination supérieure au critère C
- Contamination inférieure au critère C

SOURCE : Plan dessiné par TPSSGC (C:\0\p01.dwg)



Ref.	Description	Par/Bi	Date
01	Modifications au plan de réhabilitation	N.L.	2011-10-21

Dossier / File:		AÉROPORT DE MONT-JOLI	
Plan de réhabilitation Ancien bâtiment H-3, ancien dépôt de charbon et ancien dépotoir			
Dessin / Drawing:			
FIGURE 3.1			
Synthèse des données			
Secteur de l'ancien bâtiment H-3			
Conçu par / Designed by:	Date	Dessiné par / Drawn by:	Date
N.L.	04-10-2010	E.L.F./N.L.	04-01-2011
Vérifié par / Verified by:	Date	Approuvé par / Approved by:	Date
N.L.	21-10-2011	<i>[Signature]</i>	21-10-2011
No. dossier / File no.:	Echelle / Scale:		
P05391P0922	Graphique		
No. dessin / Drawing no.:	Page / Page:		
	21		



LÉGENDE

- 
F-18
 Puits d'observation antérieur
 (localisation approximative)
- 
PO-2011-01
 Puits d'observation proposé
 (localisation approximative)
- 
 Panache de contamination
 de leur souterrain

SOURCE : Plan dessiné par LVM
 (073-P038375-0140-000-EN-F001-01)

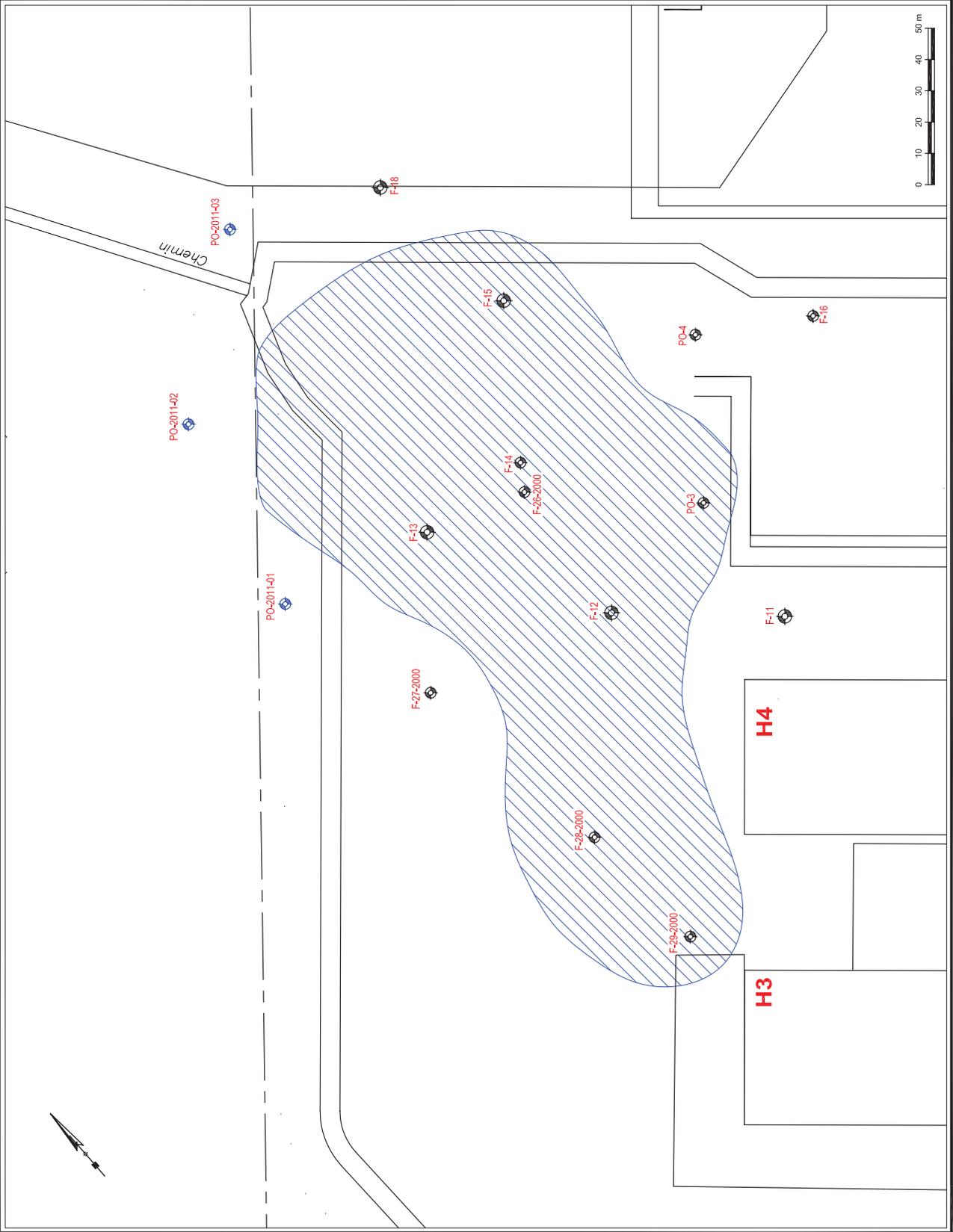
Rev.	Description	Par/By	Date
-	-	-	-
-	-	-	-



Dessiné / File
AÉROPORT DE MONT-JOLI
 Plan de réhabilitation
 Ancien bâtiment H-3, ancien dépôt de charbon
 et ancien dépotail

Dessin / Drawing
FIGURE 15.1
 Localisation des puits d'observation
 et du panache de contamination

Conçu par / Designed by:	Date
N.L.	21-10-2011
Dessiné par / Drawn by:	Date
N.L.	21-10-2011
Verifié par / Verified by:	Date
N.L.	21-10-2011
Approuvé par / Approved by:	Date
-	21-10-2011
No. dossier / File no.:	Echelle / Scale:
P038375/0922	Graphique
No. dessin / Drawing no.:	Page / Page:
-	-



**Mont-Joli Airport, Quebec
Former Building H-3, Former Coal Depot and Former Landfill**

Amendment to the Remediation Plan



Mont-Joli Airport, Quebec

Former Building H-3, Former Coal Depot and Former Landfill

Amendment to the Remediation Plan

[original signed by]

Normand Lalonde, CESA
Project Leader

WORK TEAM

Groupe-conseil Entraco Inc.

Jacques Lalancette, Project Director (CEA,⁽¹⁾ CESA⁽¹⁾ and Expert⁽²⁾)

Normand Lalonde, Project Leader (CESA⁽¹⁾ and Expert⁽²⁾)

Diane Dupuis, Environmental Technician

Lynda Tacherifet, Environmental Professional

Chantal Provost, Technical Assistant

(1) CEA stands for Certified Environmental Auditor, and CESA stands for Certified Environmental Site Assessor (Association québécoise de vérification environnementale).

(2) Expert: Member on the list of experts of the Centre d'expertise en analyse environnementale du Québec (MDDEP).

LIST OF ABBREVIATIONS

AQVE	Association québécoise de vérification environnementale [Quebec association of environmental verification]
CEA	Certified Environmental Auditor (AQVE)
CEAEQ	Centre d'expertise en analyse environnementale du Québec [Quebec centre of expertise in environmental analysis]
CESA	Certified Environmental Site Assessor (AQVE)
DFO	Fisheries and Oceans Canada
ELS	Engineered landfill site
Entraco	Groupe-conseil Entraco Inc.
Expert	Member of the list of experts of the CEAEQ (MDDEP)
LPRR	<i>Land Protection and Rehabilitation Regulation</i> (c. Q-2, r. 18.1.01)
MAH	Monocyclic aromatic hydrocarbon
MDDEP Policy	MDDEP Soil Protection and Contaminated Sites Rehabilitation Policy
MDDEP	Ministère du Développement durable, de l'Environnement et des Parcs du Québec [Quebec department of sustainable development, environment and parks]
PAH	Polycyclic aromatic hydrocarbon
Plan	Mont-Joli Airport Remediation Plan (Entraco, March 2011 – P0922)
PWGSC	Public Works and Government Services Canada
REIMR	<i>Regulation Respecting the Landfilling and Incineration of Residual Materials</i> (c. Q-2, r. 6.02)
RIARMJ	Régie intermunicipale de l'aéroport régional de Mont-Joli [Mont-Joli Regional Airport Intermunicipal Management Board]
RMD	<i>Regulation Respecting Hazardous Materials</i> (c. Q-2, r. 32)
RRBCS	<i>Regulation Respecting the Burial of Contaminated Soils</i> (c. Q-2, r. 6.01)
TC	Transport Canada

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1. INTRODUCTION

1.1 BACKGROUND

Ownership of the Mont-Joli Airport was transferred, several years ago, to the of the Régie intermunicipale de l'aéroport de Mont-Joli (RIARMJ), which then sold certain surplus land parcels to the Municipality of Mont-Joli. Since a change of land use is planned for these parcels, which were used for an activity (NAICS Code 488119: Other Airport Operations) listed in Schedule III to Quebec's *Land Protection and Rehabilitation Regulation* (LPRR), a characterization and remediation process was triggered pursuant to division IV.2.1 of Quebec's *Environment Quality Act* (EQA).

As part of this process, the following two characterization studies were carried out and certified by LVM for the City of Mont-Joli:

- LVM-Technisol Inc., November 2009. *Propriété industrielle vacante – 875, boulevard Jacques-Cartier, Mont-Joli (Québec) – Évaluation environnementale de site phase I*. (Ref.: 073-P016127-0153-EN-0001-00); this study examined lots 4 015 682, 4 015 683 and 4 746 164 and part of lot 4 746 167.
- LVM, January 2012. *Ville de Mont-Joli – Propriété industrielle – Lots 4 395 754, 4 746 165, 4 746 166 et partie du lot 4 746 167, Mont-Joli – Évaluation environnementale de site phase I et caractérisation environnementale de site phases II et III*. (Ref.: 073-PO38375-0150-EN-0001-00)

The land examined in these two studies consists of the following lots (Land Register of Quebec):

- 4 395 754 (property of Entreprises Claveau Itée)
- 4 015 682 (property of the RCM of Métis)
- 4 015 683 (property of the Régie intermunicipale de traitement des matières résiduelles de la Gaspésie)
- 4 746 164, 4 746 165, 4 746 166, and part of 4 746 167 (property of the City of Mont-Joli)

Following the first study, Groupe-conseil Entraco Inc. (Entraco) was commissioned by Transport Canada (TC) to prepare a remediation plan (the Plan) for the following three sectors:

- Former building H-3
- Former coal depot
- Former landfill

Since only the former building H-3 sector was located within the area targeted by the first certified characterization study, MDDEP approved only that sector in the remediation plan and postponed analyzing the other two sectors for approval until after the certification of the second characterization study. Since the latter study identified seven other sectors that were

contaminated (soil concentrations above the values set out in Schedule II of the LPRR, i.e. level C of the MDDEP Soil Protection and Contaminated Sites Rehabilitation Policy) or that contained residual materials, it was agreed with MDDEP that the seven sectors should be added to the Plan.

This document is an amendment to the Plan and is a follow-up to a second certified characterization study by LVM. The only sectors which will that require future approval by MDDEP are the two sectors from the initial Plan and the seven new sectors discussed in this amendment to the Plan.

This amendment takes into account the requirements set out in division IV.2.1 of Quebec's *Environment Quality Act* (L.R.Q., c. Q-2) as well as the Manuel de l'expert (Expert Manual) on land protection and remediation (2008-05-01) and directives for experts, produced by the Centre d'expertise en analyse environnementale du Québec (CEAEQ). The applicable MDDEP guides, including characterization and sampling guides as well as residual materials management directives, were also taken into consideration.

1.2 LIMITATION CLAUSES

The comments set out in this report are based solely on information provided by persons interviewed or contacted and the analysis of available documents (see Appendix 1 for detailed limitation clauses).

1.3 CONFIDENTIALITY

All Entraco employees involved in this study were informed of their obligation to treat as confidential all information related to this mandate.

2. LOCATION AND DESCRIPTION OF SECTORS TO BE REMEDIATED

The locations of the sectors and zones to be remediated are illustrated in figures 2.1 to 2.6 (see Appendix 2) and described in detail in Table 2.1. In its most recent certified characterization study,⁽¹⁾ LVM identified seven sectors where action is required owing to the presence of contaminated soil (concentrations exceeding the values set out in Schedule III to the LPRR, i.e. the C criteria of the MDDEP Policy) or residual materials. The sectors are as follows:

- former landfill (presence of contaminated soil and residual materials)
- former septic tanks (presence of contaminated soil and residual materials)
- ditch (presence of contaminated sediment)
- former railway track (presence of residual materials)
- former garages (presence of residual materials)
- former boiler room (presence of residual materials)
- former asphalt plant (presence of residual materials)

The land covered by the Plan is located within the boundaries of lot 4 746 167 in the Land Register of Quebec; the boundaries of this lot are indicated in Figure 2.1. This land, which is owned by the City of Mont-Joli, has no civic address; it was formerly located at 875 Route de l'Aéroport, Mont-Joli, Quebec, G5H 4A4. The address of the City is 40 Hôtel-de-Ville Avenue, Mont-Joli, Quebec, G5H 1W8.

Since the publication of the initial Plan (March 2011), the numbering of the lots has changed. Lot 4 395 755 (as a result of cadastral reforms to part of lot 706-1) was subdivided into four lots, namely lots 4 746 164, 4 746 165, 4 746 166 and 4 746 167.

⁽¹⁾ LVM, January 2012. *Ville de Mont-Joli – Propriété industrielle – Lots 4 395 754, 4 746 165, 4 746 166 et partie du lot 4 746 167, Mont-Joli – Évaluation environnementale de site phase I et caractérisation environnementale de site phases II et III.* (Ref.: 073-PO38375-0150-EN-0001-00)

Table 2.1 Characteristics of the sectors and zones to be remediated

Sector	Zone	Environmental Issues	Area (m ²)	MTM Coordinates NAD83, Zone 6	NAD83 Geographic Coordinates	Lot Number (Land Register of Quebec)	Municipal Zoning
Former landfill	PE-33-11, PE-47-11, PE-48-11, PE-50-11 and PE-51-11	Soil contaminated by metals or PH C ₁₀ - C ₅₀ (C-D range) Residual materials: metal, cement concrete, tile, ash	1800	N 5385846 E 253470	N 48,6090410513 W 68,1961399234	4 746 167	208 (ILD); Heavy Industry - Commerce and Industry
	PE-34-11		215				
Septic Tanks	PE-62-11	Soil contaminated by metals (C-D range)	100				
	PE-63-11	Soil contaminated by PH C ₁₀ -C ₅₀ (C-D range)	55				
	PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11 and PE-89-11	Residual materials: clean cement concrete (<C) Residual materials: oil-stained cement concrete	n/a	N 5385387 E 252938	N 48,6048694941 W 68,203297048	4 746 167	208 (ILD); Heavy Industry - Commerce and Industry
	PE-62-11, PE-64-11 and PE-89-11	Residual materials: slag	600				
	PE-37-11 and PE-88-11	Residual materials: creosoted wood	n/a				
	FOSSE-1-11	Contaminated sediment	200	N 5385400 E 252926	N 48,6049854074 W 68,20346139	4 746 167	208 (ILD); Heavy Industry - Commerce and Industry
Former railway track	PE-CF-04-11 to PE-CF-09-11	Residual materials: slag	1180	N 5385117 E 253379	N 48,602477835 W 68,1972837153	4 746 167	205 (ILD); Heavy Industry - Commerce and Industry
Former garages	PE-21-11	Residual materials: slag and coal	332	N 5385251 E 253260	N 48,6036730468 W 68,1989138917	4 746 167	205 (ILD); Heavy Industry - Commerce and Industry
	PE-39-11	Residual materials: asphalt in place	475				
Former boiler room	PE-84-11 and PE-85-11	Residual materials: slag	715	N 5385281 E 253247	N 48,6039417629 W 68,1990938894	4 746 167	208 (ILD); Heavy Industry - Commerce and Industry
Former asphalt plant	PE-25-11	Residual materials: asphalt in place	350	N 5386029 E 253521	N 48,6106909244 W 68,1954709123	4 746 167	204 (EX); Industrial Expansion - Recreation and Agriculture

3. ENVIRONMENTAL ISSUES, REMEDIATION OBJECTIVES AND SUMMARY OF ACTIVITIES

The following aspects are addressed for each of the seven sectors to be remediated (see Figure 2.1 in Appendix 2):

- environmental concerns, meaning issues related to the presence of contaminants at levels exceeding the regulatory limit values for the planned use of the site or issues related to the presence of residual materials;
- the remediation objective according to the planned use of the site and the municipal zoning; and
- a brief description of the remediation work.

3.1 FORMER BUILDING H-3 SECTOR

3.1.1 Environmental issue

The LVM study (January 2012) revealed the presence of contaminated soil (see Figure 2.2) with concentrations exceeding level C for metals in excavations PE-33-11, PE-47-11, PE-48-11, PE-50-11 and PE-51-11 and for PH C₁₀-C₅₀ in excavation PE-51-11. The analytical results showed metal and/or PAH and/or PH C₁₀-C₅₀ concentrations in the A-C range in soundings PE-30-11, PE-33-11, PE-34-11, PE-47-11, PE-48-11, PE-50-11 and PE-51-11. The MAH and VOC concentrations are below the B criteria.

Residual materials (more than 50% of the materials in place) were observed in excavation PE-34-11; they primarily consist of metal, cement concrete, tile and ash.

In two previous studies (LVM 2009 and Entraco 2009), contaminated soil and residual materials were also identified in an adjacent sector located several tens of metres to the east. This sector, also called the former landfill sector, was included in the initial Plan and is therefore not part of this amendment.

3.1.2 Remediation objective

Given the planned land use (commercial-industrial), the remediation objective for the contaminated soil is to attain the level C of the MDDEP Policy, i.e. the values set out in Schedule II to the LPRR.

The remediation objective for residual material is to remove the matrix with a residual material content above 50% (metal, cement concrete, tile, ash).

3.1.3 Brief description of the remedial activities

The contaminated soil (above of the MDDEP soil criteria, level C) in zones PE-33-11, PE-47-11, PE-48-11, PE-50-11 and PE-51-11 will be excavated and disposed of in a facility authorized by MDDEP. If applicable, the contaminated soil will be sent to an authorized treatment site instead of an authorized landfill site. Residual materials will also be excavated and disposed of at an authorized site.

Table 3.1 Characteristics of the zones to be remediated in the former landfill sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
PE-33-11	Soil contaminated by metals (C-D range): zinc	325.0	0.3 to 1.1	0.80	260.0	Excavation and disposal
PE-47-11	Soil contaminated by metals (C-D range): cadmium, zinc	375.0	0.6 to 1.2	0.60	225.0	Excavation and disposal
PE-48-11	Soil contaminated by metals (C-D range): cadmium, copper, manganese, lead, zinc	310.0	0.2 to 1.8	1.60	496.0	Excavation and disposal
PE-50-11	Soil contaminated by metals (C-D range; duplicates >D): cadmium, copper, lead, zinc	450.0	0.25 to 2.0	1.75	787.5	Excavation and disposal
PE-51-11	Soil contaminated by metals (C-D range): cadmium, copper, lead, zinc	340.0	0.4 to 1.5	1.10	374.0	Excavation and disposal
PE-51-11	Soil contaminated by PH C ₁₀ -C ₅₀ (C-D range)	340.0	1.5 to 2.5	1.00	340.0	Excavation and disposal (treatment)
Subtotal		1800⁽¹⁾			2482.5	
Residual materials						
PE-34-11	Metal, cement concrete, tile, ash	215.0	0.3 to 1.2	0.90	193.5	Excavation and disposal
Subtotal		215.0			193.5	

(1) Total surface area of the five zones (the area of zone PE-51-11 is counted only once).

3.2 FORMER SEPTICTANK SECTOR

3.2.1 Environmental issues

The LVM study (January 2012) revealed the presence of contaminated soil (see Figure 2.3) with concentrations exceeding level C for metals in excavation PE-62-11 and for PH C₁₀-C₅₀ in excavation PE-63-11. The analytical results showed metal and/or PAH and/or PH C₁₀-C₅₀ and/or MAH in the A-C range in excavations PE-37-11, PE-38-11, PE-58-11, PE-59-11, PE-61-11, PE-63-11 and PE-64-11.

Residual materials were observed in the following soundings:

- PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11 and PE-89-11: clean cement concrete (<C) or oil-stained concrete
- PE-62-11, PE-64-11 and PE-89-11: slag
- PE-37-11 and PE-88-11: creosoted wood

3.2.2 Remediation objective

Given the planned land use (commercial), the remediation objective for contaminated soil is to attain level C of the MDDEP Policy, i.e. the limit values set out in Schedule II to the LPRR.

The remediation objective for residual materials is to remove the matrix with a residual material content above 50% (concrete, creosoted wood and slag).

3.2.3 Brief description of the work

The plan is to excavate the contaminated soil (above of the MDDEP soil criteria, level C) in zones PE-62-11 and PE-63-11 and to dispose of them at a site authorized by MDDEP. If applicable, the contaminated soil will be sent to an authorized treatment site instead of an authorized landfill site. Residual materials will also be excavated or removed and disposed of at an authorized facility.

Table 3.2 Characteristics of the zones to be remediated in the septic tank sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
PE-62-11	Soil contaminated by metals (C-D range): arsenic	100	3.2 to 3.4	0.20	20.0	Excavation and disposal
PE-63-11	Soil contaminated by PH C ₁₀ -C ₅₀ (C-D range)	55	2.0 to 3.2	1.20	66.0	Excavation and disposal (treatment)
Subtotal		155.0			86.0	
Residual materials						
PE-37-11 to PE-89-11 ⁽¹⁾	Clean cement concrete	n/a	n/a	n/a	158.0	Excavation, crushing and reuse as fill material
PE-37-11 to PE-89-11 ⁽¹⁾	Oil-stained cement concrete	n/a	n/a	n/a	158.0	Excavation and disposal
PE-62-11, PE-64-11 and PE-89-11	Slag	600.0	n/a	n/a	925.0	Excavation and disposal
PE-37-11 and PE-88-11	Creosoted wood	n/a	n/a	n/a	45.0	Excavation and disposal
Subtotal		n/a			1286.0	

(1) PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11 and PE-89-11.

3.3 DITCH SECTOR

3.3.1 Environmental issues

The LVM study (January 2012) yielded the following observations (see Figure 2.3):

- PAH concentrations exceeding Environment Canada's and MDDEP's FEL (frequent effect level) (Class 3) from the *Criteria for the Assessment of Sediment Quality in Quebec* as well as above the limit values set out in Schedule I to the RRBCS (D criteria)
- PH C₁₀-C₅₀ concentrations below level A of the MDDEP Policy

Only one sample was collected from the ditch and analyzed. To determine the boundaries of the contaminated zone, a complementary characterization will have to be carried out before the remediation work.

The nature of the contaminated matrix present in the ditch (i.e. whether it is sediment or soil) could not be clearly and unequivocally determined in the certified LVM study (January 2012). To solve this problem, on February 17, 2012, TC requested advice from the experts of EC and Fisheries and Oceans Canada (DFO). Because DFO stated that the ditch was not fish habitat, EC strongly recommended using the MDDEP Policy criteria to remediate the ditch instead of the sediment criteria. In a written communication (March 21, 2012), MDDEP stated that it was of the same opinion, provided that it was established that there was no risk of contaminated sediment migrating towards a fish habitat or to a site with a more sensitive land use designation.

3.3.2 Remediation objectives

Given the planned land use (commercial and/or industrial), and once the affected materials have been excavated, the remediation objective is to attain level C of the MDDEP Policy, i.e. the limit values set out in Schedule II to the LPRR.

This approach will ensure that the contaminated matrix is removed and that the materials left in place meet the applicable soil criteria.

3.3.3 Brief description of the work

The horizon of the contaminated matrix (following a complementary characterization), that is, the surface materials to a depth of 30 cm across the entire width of the ditch, will be excavated and to be disposed at an authorized site.

Table 3.3 Characteristics of the zones to be remediated in the ditch sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
FOSSÉ-1-11	Materials contaminated by PAHs (>D)	200 ⁽¹⁾	0.0 to 0.3	0.30	60.0	Complementary characterization, excavation and disposal (treatment)
Subtotal		200.0			60.0	
Residual materials						
	No residual materials					
Subtotal		0.0			0.0	

(1) Approximate area; the exact area will be determined during the complementary characterization.

3.4 FORMER RAILWAY TRACK SECTOR

3.4.1 Environmental issues

The LVM study (January 2012) revealed that soil concentrations (see Figure 2.4) were below the C criteria for metals, PAHs and sulphur. The analytical results showed metal and/or PAH concentrations in the A-B range in excavations PE-CF-08-11 and PE-CF-11-11.

Residual materials consisting of slag were observed at the surface in excavations PE-CF-04-11 to PE-CF-09-11 to a depth of 30 to 45 cm. Part of this sector is located in a potential wetland.

3.4.2 Remediation objective

Given the planned land use (commercial and/or industrial), no contaminated soil remediation activities are planned.

The remedial objective for the residual material is to remove the matrix with a residual material content (slag) above 50%.

3.4.3 Brief description of the work

The residual materials will be excavated and disposed of at an authorized site.

Since the work will be carried out in a potential wetland, an assessment of this environment is underway. Once the results of this study are available, they will be incorporated into this amendment in the form of an addendum. This information will be used to determine the work approach and, if necessary, the compensation measures to be applied.

Table 3.4 Characteristics of the zones to be remediated in the former railway track sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
	No contaminated soil (concentrations < C)					
Subtotal		0.0			0.0	
Residual materials						
PE-CF-04-11	Slag	200.0	0.0 to 0.3	0.30	60.0	Excavation and disposal
PE-CF-05-11	Slag	200.0	0.0 to 0.3	0.30	60.0	Excavation and disposal
PE-CF-06-11	Slag	190.0	0.0 to 0.3	0.30	57.0	Excavation and disposal
PE-CF-07-11	Slag	195.0	0.0 to 0.3	0.30	58.5	Excavation and disposal
PE-CF-08-11	Slag	200.0	0.0 to 0.3	0.30	60.0	Excavation and disposal
PE-CF-09-11	Slag	195.0	0.0 to 0.45	0.45	87.8	Excavation and disposal
Subtotal		1180.0			383.3	

3.5 FORMER GARAGE SECTOR

3.5.1 Environmental issues

The LVM study (January 2012) revealed that soil concentrations (see Figure 2.5) are below the C criteria for metals, PAHs and PH C₁₀-C₅₀. However, sulphur concentrations exceed level C in sample PE-40-11-2. Based on the results of the Entraco study (2009), in which acid-generating potential (acidogenic potential) tests demonstrated negative potential, LVM applied this result to sample PE-40-11-2. Soil management for sulphur is therefore not subject to the application of the MDDEP Management Grid for Excavated Contaminated Soils. Other analytical results showed metal concentrations in the A-B range in excavation PE-23-11 and metal and/or PAH concentrations in the B-C range in excavation PE-22-11, PE-23-11, PE-40-11 and PE-41-11.

Residual materials consisting of slag and coal were observed at the surface in excavation PE-21-11; a layer of asphalt approximately 10 cm thick is present near the surface in excavation PE-39-11.

3.5.2 Remediation objective

Given the planned land use (commercial and/or industrial), no contaminated soil remediation activities are planned.

The remedial objective for the residual materials is to remove the matrix with a residual material content (slag, coal and asphalt) above 50%.

3.5.3 Brief description of the work

The residual materials will be excavated and disposed of at an authorized site.

Table 3.5 Characteristics of the zones to be remediated in the former garage sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
	No contaminated soil (concentrations < C)					
Subtotal		0.0			0.0	
Residual materials						
PE-21-11	Slag and coal	332.0	0.0 to 0.4	0.40	132.8	Excavation and disposal
PE-39-11	Asphalt in place	475.0	0.15 to 0.25	0.10	47.5	Excavation and disposal
Subtotal		807.0			180.3	

3.6 FORMER BOILER ROOM SECTOR

3.6.1 Environmental issues

The LVM study (January 2012) revealed that soil concentrations (see Figure 2.5) are below the C criteria for metals and PH C₁₀-C₅₀. The analytical results showed metal and PH C₁₀-C₅₀ concentrations in the B-C range in excavations PE-79-11, PE-84-11 and PE-85-11.

Residual materials consisting of slag were observed at the surface in excavations PE-84-11 and PE-85-11.

3.6.2 Remediation objective

Given the planned land use (commercial and/or industrial), no contaminated soil remediation activities are planned.

The remedial objective for the residual materials is to remove the matrix with a residual material content (slag) above 50%.

3.6.3 Brief description of the work

The residual materials will be excavated and disposed of at an authorized site.

Table 3.6 Characteristics of the zones to be remediated in the former boiler room sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
	No contaminated soil (concentrations < C)					
Subtotal		0.0			0.0	
Residual materials						
PE-84-11	Slag	305.0	0.1 to 0.2	0.10	30.5	Excavation and disposal
PE-85-11	Slag	410.0	0.09 to 0.3	0.21	86.1	Excavation and disposal
Subtotal		715.0			116.6	

3.7 FORMER ASPHALT PLANT SECTOR

3.7.1 Environmental issues

The LVM study (January 2012) revealed that soil concentrations (see Figure 2.6) are below level B for PAHs. The analytical results showed PAH concentrations in the A-B range in sample PE-29-11-3.

Residual materials consisting of asphalt were observed near the surface of excavation PE-25-11.

3.7.2 Remediation objective

According to the land use grid for the City of Mont-Joli's zoning by-law, the former asphalt plant sector is located in the northwest end of zone 204 EXI, which is an industrial expansion zone where the permitted uses include recreation (nature observation and interpretation) and agriculture (cultivation of land and plants). No agricultural or recreational activities are carried out in this sector of zone 204 EXI. The zones adjacent to the sector in question are heavy industry (208 ILD and 209 ILD). Given the most prominent permitted land use for the sector (recreational), no contaminated soil remediation activities are planned.

The objective for the residual material is to remove the matrix with a residual material content (asphalt) above 50%.

3.7.3 Brief description of the work

The residual materials will be excavated and disposed of in an authorized site.

Table 3.7 Characteristics of the zones to be remediated in the former asphalt plant sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
	No contaminated soil (concentrations < B)					
Subtotal		0.0			0.0	
Residual materials						
PE-25-11	Asphalt in place	350.0	0.15 to 0.30	0.15	52.5	Excavation and disposal
Subtotal		350.0			52.5	

4. REMEDIATION ACTIVITIES

4.1 EXCAVATION AND STORAGE

4.1.1 Former landfill sector

In the former landfill sector (see Figure 2.2), i.e. in zones PE-33-11, PE-47-11, PE-48-11, PE-50-11 and PE-51-11, contaminated soil (exceeding the MDDEP soil criteria, level C) will be excavated as well as the residual materials (metal, cement concrete, tile, ash) in zone PE-34-11. The excavated soil and residual materials will be disposed of at a site authorized by MDDEP (if applicable, the contaminated soil will be sent to an authorized treatment site instead of an authorized landfill site). The remediation work will include, but not be limited to, the following activities:

- Excavate the surface soil until the horizon of contaminated soil or hazardous materials is reached (more than 50% of the matrix) and temporarily store it in piles (within the boundaries of the site targeted by the amendment to the Plan); characterize it to determine the appropriate management method (see section 4.3); the clean soil should be stored on a polyethylene tarp and covered with another of the same kind.
- Excavate the contaminated soil to the depths indicated in Table 14 of the January 2012 LVM study (see Appendix 3).
- Excavate the residual materials to the depths indicated in Table 15 of the January 2012 LVM study (see Appendix 3). The residual materials must be excavated after the contaminated soil has been removed and quality control sampling has been performed on the walls and bottoms of the excavation. As the materials are being excavated, verify the percentage of residual materials in the soil from the walls and bottom to determine whether the excavation should continue or cease.
- Perform quality control sampling on the remaining soil (see section 4.4).
- Following the quality control, if the concentrations in samples taken from the walls and/or bottoms of the excavations exceed the level C, continue to excavate the soil and verify the quality of the remaining soil until the criteria has been met.
- Manage the impacted soil in accordance with the *Interim Management Grid for Excavated Contaminated Soils* of the MDDEP Policy (see section 5.1).
- Manage the residual materials in accordance with the applicable regulations (see section 5.2).
- Once the remediation objectives have been achieved, backfill the excavation with the original material (surface soil, provided that the soil quality is adequate—see section 5.3) and/or with clean borrow material; compact this material in approximately 30-cm layers.

4.1.2 Septic Tank sector (former septic tanks)

In the tank sector (see Figure 2.3), that is the areas represented by excavations PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11 and PE-89-11, contaminated soil (above the MDDEP soil criteria, level C) and residual materials (concrete, creosoted wood and slag) will be excavated and disposed of at a site authorized by MDDEP (if applicable, the contaminated soil will be sent to an authorized treatment site instead of an authorized landfill site).

The remediation work will include, but not be limited to, the following activities:

- Remediation of the ditch (see section 4.1.3) before beginning work in this sector; this will ensure that the ditch has time to dry out and will eliminate the risk of water infiltrating from the ditch into the excavations.
- Excavate the surface soil until the horizon of contaminated soil or hazardous materials (more than 50% of the matrix) is reached and temporarily store it in piles (within the boundaries of the site targeted by the amendment to the Plan). Characterize the soil to determine the appropriate management method (see section 4.3). The clean soil should be stored on a polyethylene tarp and covered with another of the same kind. For the former septic tanks, if the materials are muddy or too wet to place in piles, temporarily store the materials on a drying bed or in a dewatering basin. Collect the water from the basin and manage it in accordance with section 5.4.
- In zones PE-62-11 and PE-63-11, excavate the contaminated soil to the depths indicated in Table 14 of the January 2012 LVM study (see Appendix 3); the west and north boundaries of these two zones, respectively, are represented by the concrete walls of the former septic tanks.
- Excavate the residual materials to the depths indicated in Table 15 of the January 2012 LVM study (see Appendix 3), applying the following measures:
 - Where applicable, excavate the residual materials after the contaminated soil has been removed and the quality control sampling has been performed on the walls and bottoms of the excavations.
 - As the uncontaminated surface soil and contaminated soil is being excavated, remove the creosoted wood and place it in an impermeable container; cover the container with a waterproof tarp to prevent water infiltration.
 - Demolish the concrete structures (tanks) and place them in piles. Store the oil-stained structures separately and safely and characterize them in accordance with the MDDEP's *Lignes directrices relatives à la gestion de béton, de brique et d'asphalte issus des travaux de construction et de démolition et des résidus du secteur de la pierre de taille* (Guidelines for managing concrete, brick and asphalt from construction and demolition work and waste from the cut stone sector).
 - As the materials are being excavated, verify the percentage of residual materials in the soil from the walls and bottoms to determine whether the excavation should continue or cease.
- Perform quality control sampling on the remaining soil (see section 4.4).

- Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavations exceed level C, continue the excavation, verifying the quality of the remaining soil, until the criteria are met.
- Manage the impacted soil in accordance with the *Interim Management Grid for Excavated Contaminated Soils* of the MDDEP Policy (see section 5.1).
- Manage the residual materials in accordance with the applicable regulations (see section 5.2).
- Once the remediation objectives have been achieved, backfill the excavation with the original material (surface soil, provided that the soil quality is adequate—see section 5.3) and/or with clean crushed concrete (concentrations below the C criteria) and/or with clean borrow material. Compact this material in approximately 30-cm layers.
- The concrete may be crushed on site before being used to backfill the excavation or before being disposed of at an authorized site.

4.1.3 Ditch sector

In the ditch sector (see Figure 2.3), i.e. in zone FOSSÉ-1-11, the contaminated materials (above the MDDEP soil criteria, level C) will be excavated and disposed of at a site authorized by MDDEP (if applicable, the contaminated soil will be sent to an authorized treatment site instead of an authorized landfill site). The remediation work will include, but not be limited to, the following activities:

- To determine the extent of the contamination, conduct a complementary characterization of the bottom of the ditch, i.e. upstream and downstream of excavation FOSSÉ-1-11.
- Before beginning the work, dry out the ditch by installing a cofferdam upstream of the zone to be remediated. The water which accumulates upstream of the cofferdam must be pumped downstream of the zone being remediated. This area must also be delimited by a sediment barrier made from hay bales.
- Considering the results of this characterization and the LVM characterization (January 2012), excavate the contaminated materials to the depths indicated in Table 14 of the January 2012 LVM study (see Appendix 3) and, if applicable, to the depths obtained during complementary characterization.
- Perform quality control sampling on the bottom of the ditch (see section 4.4); no sampling of the sides is recommended.
- Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavations exceed level C, continue the excavation, verifying the quality of the remaining soil, until the criteria are met.
- Manage the excavated materials in accordance with the *Interim Management Grid for Excavated Contaminated Soils* of the MDDEP Policy (see section 5.1).
- Once the remediation objectives have been achieved, backfill the bottom of the ditch with MG-20 granular material to limit the suspension and downstream transport of sediment.

4.1.4 Former railway track sector

In the former railway track sector (see Figure 2.4), i.e. in the zones represented by excavations PE-CF-04-11 to PE-CF-09-11, the residual materials (slag) will be excavated and to disposed of at a site authorized by MDDEP.

The remediation work will have to include, but not be limited to, the following activities:

- Before work begins, the environment around the area to be remediated must be characterized to determine whether it is a wetland and whether specific measures apply to the planned activities. The results of this study will be submitted to MDDEP in the form of an addendum to this amendment to the Plan.
- After obtaining a tree removal permit (or a certificate of authorization, if necessary), clear the vegetation (trees and shrubs) within an area of approximately 250 m² (south of station PE-CF-07-11) and remove the wood residues in accordance with the applicable guidelines.
- Excavate the residual materials to the depths indicated in Table 15 of the January 2012 LVM study (see Appendix 3). As the materials are being excavated, verify the percentage of residual materials in the soil from the walls and bottom to determine whether excavation should continue or cease.
- Perform quality control sampling on the remaining soil (see section 4.4).
- Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavations exceed level C, continue the excavation, verifying the quality of the remaining soil, until the criteria are met.
- Manage the residual materials in accordance with the applicable regulations (see section 5.2).
- Once the remediation objectives have been achieved, no backfilling of the sector is planned; natural regrowth of the vegetation is preferred.

4.1.5 Former garage sector

In the former garage sector (see Figure 2.5), i.e. in the zones represented by excavations PE-21-11 and PE-39-11, the residual materials (slag and coal in the first zone and asphalt in the second) will be excavated and to dispose of at a site authorized by MDDEP.

The remediation work will have to include, but not be limited to, the following activities:

- In zone PE-39-11, excavate the surface soil until the horizon of hazardous materials (more than 50% of the matrix) is reached and temporarily store it in piles (within the boundaries of the site targeted by this amendment to the Plan). Characterize the soil to determine the appropriate management method (see section 4.3); the clean soil should be stored on a polyethylene tarp and covered with another of the same kind. In zone PE-21-11, the residual materials are present at the surface.
- Excavate the residual materials to the depths indicated in Table 15 of the January 2012 LVM study (see Appendix 3). As the materials are being excavated, verify the

percentage of residual materials in the soil from the walls and bottom to determine whether excavation should continue or cease.

- Perform quality control sampling on the soil in place (see section 4.4).
- Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavations exceed level C, continue the excavation, verifying the quality of the remaining soil, until the criteria are met.
- Manage the residual materials in accordance with the applicable regulations (see section 5.2).
- Once the remediation objectives are achieved, backfill the excavation with the original material (surface soil, provided that the soil quality is adequate—see section 5.3) and/or with clean borrow material; compact this material in approximately 30-cm layers.

4.1.6 Former boiler room sector

In the former boiler room sector (see Figure 2.5), i.e. in the zones represented by excavations PE-84-11 and PE-85-11, excavate the residual materials (slag) and to dispose them at a site authorized by MDDEP.

The remediation work will have to include, but not be limited to, the following activities:

- Excavate the surface soil until the horizon of hazardous materials (more than 50% of the matrix) is reached and temporarily store it in piles (within the boundaries of the site targeted by the amendment to the Plan).; Characterize the soil to determine the appropriate management method (see section 4.3); the clean soil should be stored on a polyethylene tarp and covered with another of the same kind.
- Excavate the residual materials to the depths indicated in Table 15 of the January 2012 LVM study (see Appendix 3). As the materials are being excavated, verify the percentage of residual materials in the soil from the walls and bottom to determine whether excavation should continue or cease.
- Perform quality control sampling on the soil in place (see section 4.4).
- Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavations exceed level C, continue the excavation, verifying the quality of the remaining soil, until the criteria are met.
- Manage the residual materials in accordance with the applicable regulations (see section 5.2).
- Once the remediation objectives have been achieved, backfill the excavation with the original material (surface soil, provided that the soil quality is adequate—see section 5.3) and/or with clean borrow material; compact this material in approximately 30-cm layers.

4.1.7 Former asphalt plant sector

In the former asphalt plant sector (see Figure 2.6), i.e. in the zone represented by excavations PE-25-11, excavate the residual materials (asphalt) and to dispose them at a site authorized by MDDEP.

The remediation work will have to include, but not be limited to, the following activities:

- Excavate the surface soil until the horizon of residual materials (more than 50% of the matrix) is reached and temporarily store it in piles (within the boundaries of the site targeted by the amendment to the Plan). Characterize it to determine the appropriate management method (see section 4.3); the clean soil should be stored on a polyethylene tarp and covered with another of the same kind.
- Excavate the residual materials to the depths indicated in Table 15 of the January 2012 LVM study (see Appendix 3). As the materials are being excavated, verify the percentage of residual materials in the soil from the walls and bottom to determine whether excavation should continue or cease.
- Perform quality control sampling on the remaining soil (see section 4.4).
- Following the quality control sampling, if the concentrations in samples taken from the sides and/or bottoms of the excavations exceed the MDDEP B criteria, continue the excavation, verifying the quality of the remaining soil, until the criteria are met.
- Manage the residual materials in accordance with the applicable regulations (see section 5.2).
- Once the remediation objectives are achieved, backfill the excavation with the original material (surface soil, provided that the soil quality is adequate—see section 5.3) and/or with clean borrow material; compact this material in approximately 30-cm layers.

4.2 MEASURES TO CONTROL THE SPREAD OF CONTAMINATED SOIL

To prevent the spread of contaminated soil, within and beyond the site boundaries, during the remediation activities (including soil excavation, truck loading and transportation of contaminated soil), the following conditions will be applied:

- The contaminated soil must be transported in a closed container or dump truck with a tarp completely covering the top of the truck bed and load.
- If the moisture levels in the materials to be transported are high, the container or truck bed must be impermeable.
- When loading the trucks, take special care in operating the excavator to minimize the loss of materials around and over the sides of the trucks.
- Before leaving, the trucks will be inspected and cleaned if necessary. At the end of the work, the excavator will be inspected and cleaned as well as the work areas. Soil collected during the clean-up will be managed using the same method as the contaminated soil.

- The soil piles must be placed on an impermeable membrane and covered with an impermeable membrane that is adequately weighed down to prevent water from percolating through and contaminating the underlying soil.
- The site being remediated will be accessed from the airport road and Perreault Street, approximately 500 m to the southeast. This is the route taken regularly by the users of the Écocentre and the residual material transfer centre. These roads are paved or surfaced with a mixture of milled asphalt and sand.
- If applicable, the speed limit on unpaved roads will be 10 km/h. The unpaved roads will be sprayed with water as a dust control measure.

4.3 SOIL PILE CHARACTERIZATION

The sampling of the soil piles must comply with the requirements of the *Sampling Guide for Environmental Analysis, Booklet 5 – Soil Sampling*. For information purposes, and taking into account the characteristics of the zones to be remediated shown in figures 2.2 to 2.6, the components of the soil pile characterization program are indicated in Table 4.1. The selected parameters are those for which the applicable MDDEP criteria were exceeded in previous studies. This program will have to be adapted to the work as it is performed, as in the event of additional excavations were necessary.

4.4 EXCAVATION QUALITY CONTROL

The walls and bottoms of all excavations will be characterized, regardless of whether contaminated soil or residual materials are being excavated. The sampling methods must comply with the requirements of the *Site Characterization Guide* and the *CEAEQ Sampling Guide for Environmental Analysis (Booklet 1 – General and Booklet 5 – Soil Sampling)*.

Following the quality control sampling, if the concentrations in samples taken from the walls and/or bottoms of the excavations exceed the applicable MDDEP soil criteria (level B or C, depending on the sector being remediated), further excavation and verification of soil quality must be conducted until the applicable criteria are met.

For information purposes, and taking into account the characteristics of the zones to be remediated shown in figures 2.2 to 2.6, the components of the quality control program are presented in tables 4.2 and 4.3. The selected parameters are those for which the applicable MDDEP soil criteria were exceeded in previous studies. This program will have to be adapted to the work as it is performed, in the event that additional excavations were necessary.

4.5 WATER RECOVERY

If necessary, water which infiltrates into the excavations and water from the drying bed/dewatering basin (former septic tank sector) will be pumped and recovered (for example,

by a specialized company using a vacuum truck). The recovered water will be analyzed to determine the management options (see section 5.4).

Table 4.1 Soil pile characterization program

Sector	Zone ⁽¹⁾	Issues	Estimated Volume (m ³)	Number of samples	Parameters			
					Metals ⁽²⁾	C ₁₀ -C ₅₀ ⁽³⁾	MAHs ⁽⁴⁾	PAHs ⁽⁵⁾
Former landfill	PE-33-11, PE-34-11, PE-47-11, PE-48-11, PE-50-11 and PE-51-11	Prior excavation of surface soil - underlying contaminated soil and residual materials - in this sector, maximum concentrations for metals, C ₁₀ -C ₅₀ and PAH in the C-D range	697.5	9	9		9	
Septic Tanks	PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11 and PE-89-11	Prior excavation of surface soil - underlying contaminated soil and residual materials - in this sector, maximum concentrations for metals and C ₁₀ -C ₅₀ in the C-D range; PAH concentrations in the B-C range	868.0	11	11		11	
Ditch	FOSSE-1-11	No prior excavation of surface soil - contaminated materials at the surface (bottom of the ditch)	-	-				
Former railway track	PE-CF-04-11 to PE-CF-09-11	No prior excavation of surface soil - residual materials at the surface	-	-				
Former garages	PE-21-11 and PE-39-11	Prior excavation of surface soil - underlying residual materials - in this sector, maximum metal and PAH concentrations in the B-C range	71.3	3	3		3	
Former boiler room	PE-84-11 and PE-85-11	Prior excavation of surface soil - underlying residual materials - in this sector, maximum metal and C ₁₀ -C ₅₀ concentrations in the B-C range	67.4	3	3		3	
Former asphalt plant	PE-25-11	Prior excavation of surface soil - underlying residual materials - in this sector, maximum PAH concentrations in the A-B range	52.5	2			2	
		TOTAL	1756.7	28	26	23	0	25

NOTES

- (1) The locations of the zones are shown in figures 2.2 to 2.6.
- (2) Metals: Arsenic, cadmium, chromium, copper, tin, manganese, nickel, lead, zinc.
- (3) C₁₀-C₅₀: Petroleum hydrocarbons C₁₀-C₅₀.
- (4) MAH: Monocyclic aromatic hydrocarbons.
- (5) PAH: Polycyclic aromatic hydrocarbons.

Table 4.2 Quality control program for excavations related to contaminated soil

Sector	Zone ⁽¹⁾	Area of Zone (m ²)	Affected Horizon (m)	Issues	Quantity of Samples to be Collected		Quantity of Samples to be Analyzed and Parameters			
					Walls	Bottom (0-30 cm)	Metals ⁽²⁾	C ₁₀ -C ₅₀ ⁽³⁾	MAHs ⁽⁴⁾	PAHs ⁽⁵⁾
Former landfill	PE-33-11	325	0.3 to 1.1	Zinc	3	1	4			
	PE-47-11	375	0.6 to 1.2	Cadmium, zinc	4	1	5			
	PE-48-11	310	0.2 to 1.8	Cadmium, copper, manganese, lead, zinc	5	1	6			
	PE-50-11	450	0.25 to 2.0	Cadmium, copper, lead, zinc	9	1	10			
	PE-51-11	340	0.4 to 1.5	Cadmium, copper, lead, zinc	7	0	7	7		
	PE-51-11	340	1.5 to 2.5	PH C ₁₀ -C ₅₀	5	0 ⁽⁶⁾	5	5		
Septic Tanks	PE-62-11	100	3.2 to 3.4	Arsenic	4	1	5	5		
	PE-63-11	55	2.0 to 3.2	PH C ₁₀ -C ₅₀	8	1	9	9		
Ditch	FOSSÉ-1-11	200	0.0 to 0.3	PAHs	0	4				4
				TOTAL ⁽⁷⁾	45	10	51	26	0	4

NOTES

- The locations of the zones are shown in figures 2.2 to 2.6.
- (1) Metals: Arsenic, cadmium, chromium, copper, tin, manganese, nickel, lead, zinc.
- (2) C₁₀-C₅₀: Petroleum hydrocarbons C₁₀-C₅₀.
- (3) MAHs: Monocyclic aromatic hydrocarbons.
- (4) PAHs: Polycyclic aromatic hydrocarbons.
- (5) Excavation ended at the bedrock.
- (6) Does not include field duplicates (minimum of 10%).
- (7)

Table 4.3 Quality control program for excavations related to residual materials

Sector	Zone ⁽¹⁾	Area of Zone (m ²)	Affected Horizon (m)	Issues	Quantity of Samples to be Collected		Quantity of Samples to be Analyzed and Parameters			
					Walls	Bottom	Metals ⁽²⁾	C ₁₀ -C ₅₀ ⁽³⁾	MAHs ⁽⁴⁾	PAHs ⁽⁵⁾
Former landfill	PE-34-11	215.0	0.3 to 1.2	Metal, cement concrete, tile, ash	2	1	3	3		3
Septic Tanks	PE-37-11, PE-38-11, PE-61-11, PE-63-11, and PE-88-11		0.8 to 3.5	Cement concrete (with or without oil stains)	20	6	26	26		26
	PE-37-11 and PE-88-11		0.8 to 3.2	Creosoted wood						
	PE-62-11	125.0	2.0 to 3.2	Slag						
	PE-64-11	275.0	1.2 to 3.0	Slag						
	PE-89-11	200.0	1.5 to 2.8	Slag						
Former railway track	PE-CF-04-11	200.0	0.0 to 0.3	Slag	3	1	4			
	PE-CF-05-11	200.0	0.0 to 0.3	Slag	2	1	3			
	PE-CF-06-11	190.0	0.0 to 0.3	Slag	2	1	3			
	PE-CF-07-11	195.0	0.0 to 0.3	Slag expected	2	1	3			
	PE-CF-08-11	200.0	0.0 to 0.3	Slag	2	1	3			
	PE-CF-09-11	195.0	0.0 to 0.45	Slag	3	1	4			
	PE-21-11	332.0	0.0 to 0.4	Slag and coal	4	1	5			5
Former garages	PE-39-11	475.0	0.15 to 0.25	Asphalt in place	4	1	5			5
	PE-84-11	305.0	0.1 to 0.2	Slag	4	1	5			5
Former boiler room	PE-85-11	410.0	0.09 to 0.3	Slag	4	1	5			5
	PE-25-11	350.0	0.15 to 0.30	Asphalt in place	4	1				5
TOTAL ⁽⁶⁾					34	11	40	10	0	15

NOTES

- (1) The locations of the zones are shown in figures 2.2 to 2.6.
- (2) Metals: Arsenic, cadmium, chromium, copper, tin, manganese, nickel, lead, zinc.
- (3) C₁₀-C₅₀: Petroleum hydrocarbons C₁₀-C₅₀.
- (4) MAH: Monocyclic aromatic hydrocarbons.
- (5) PAH: Polycyclic aromatic hydrocarbons.
- (6) Does not include field duplicates (minimum of 10%).

4.6 FIELD QUALITY CONTROL AND ASSURANCE PROGRAM

During sampling activities (walls, and bottoms of excavations and soil piles), the instruments used must be cleaned in accordance with the requirements of the *Site Characterization Guide* and the *Sampling Guide for Environmental Analysis (Booklet 1 – General and Booklet 5 – Soil Sampling)*.

Field duplicates must be collected to represent a minimum of 10% of the total number of samples collected for each parameter analysed. However, a minimum of one duplicate per batch of samples intended for analysis must be respected regardless of the total number of samples collected in a sampling campaign. The parameters analyzed must be the same as those selected for the original samples.

4.7 ACCREDITED LABORATORY

All chemical analyses identified in the Plan, i.e. the initial Plan and this amendment, must be conducted by a laboratory accredited by the CEAEQ. The analyses will therefore be performed by one of the following laboratories:

- AGAT Laboratoires
- Biolab
- Exova Canada Inc.
- Maxxam Analytics

Once a laboratory has been selected to perform the analyses, TC will send MDDEP a notice specifying the name of the laboratory.

5. MANAGEMENT OF SOIL, RESIDUAL MATERIALS AND BACKFILL

5.1 SOIL MANAGEMENT

Soil excavated as part of the remediation work must be managed in accordance with the *Interim Management Grid for Excavated Contaminated Soils* of the MDDEP Policy. The management procedures to be applied in each zone are described in detail in Table 5.1. The off-site destinations of the soil must be sites authorized by MDDEP (if applicable, the contaminated soil will be sent to an authorized treatment site instead of an authorized landfill site). Once a contractor has been selected to perform the remediation work, TC will send MDDEP a notice specifying the destinations proposed by the Contractor.

5.2 RESIDUAL MATERIAL MANAGEMENT

The following residual materials were observed in the sectors to be remediated:

- former landfill (zone PE-34-11): metal, cement concrete, tile, ash
- septic tanks:
 - zones PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11 and PE-89-11: cement concrete (with or without oil stains); oil-stained concrete may qualify as a hazardous material
 - zones PE-62-11, PE-64-11 and PE-89-11: slag
 - zones PE-37-11 and PE-88-11: creosoted wood
- ditch: no hazardous materials
- former railway track (zones PE-CF-04-11 to PE-CF-09-11): slag
- former garages:
 - zone PE-21-11: slag and coal
 - zone PE-39-11: asphalt
- former boiler room (zones PE-84-11 and PE-85-11): slag
- former asphalt plant (zone PE-25-11): asphalt

The management procedures to be applied in each zone are described in detail in 5.1. If the oil-stained concrete is a hazardous material within the context of the *Regulation Respecting Hazardous Materials* (based on results of a leaching test), it will have to be transported in accordance with the federal *Transportation of Dangerous Goods Regulations*.

The off-site destinations of the hazardous materials must be sites authorized by MDDEP. Once a contractor has been selected to perform the remediation work, TC will send MDDEP a notice specifying the destinations proposed by the Contractor.

5.3 FILL MATERIAL MANAGEMENT

The material to be used to backfill the excavations must be material excavated at the site (surface material, i.e. material overlying a contaminated horizon) or crushed clean concrete (in both cases, with concentrations below the MDDEP C criteria) and/or borrow material from known external sources (soil quality below the MDDEP A criteria). The origin and quantity of the fill material are specified in Table 5.1.

Once a contractor has been selected to perform the remediation work, TC will send a notice to the MDDEP specifying the source(s) proposed by the Contractor.

5.4 WATER MANAGEMENT

During the remediation activities, the water that is recovered (e.g. by a specialized company using a vacuum truck) will be analyzed to identify management options. If the water does not meet the standards for sewer disposal, it will be collected and treated by a specialized firm.

Once the contractor has been selected to perform the remediation work, TC will send a notice to the MDDEP specifying the specialized company proposed by the Contractor.

Table 5.1 Soil, residual material and fill material management procedures

Sector	Zone ⁽¹⁾	Description of Materials	Soil Management			Residual Materials Management			Source of Backfill Material	
			Estimated Volume (m ³)	To Be Characterized	Recommended Destination	Estimated Volume (m ³)	To Be Characterized	Recommended Destination	Estimated Volume (m ³)	Source
Former landfill	PE-33-11, PE-47-11, PE-48-11 and PE-51-11	Soil contaminated by metals (C-D range)	1355	No	Contaminated soil landfill site (e.g. Horizon Environnement)	n/a	n/a	n/a	1355	Excavated surface soil (if <C) or recognized borrow pit
	PE-50-11	Soil contaminated by metals (C-D range; duplicates > D)	787.5	No	Contaminated soil landfill site (e.g. Horizon Environnement)	n/a	n/a	n/a	787.5	Excavated surface soil (if <C) or recognized borrow pit
	PE-51-11	Soil contaminated by PH C ₁₀ -C ₅₀ (C-D range)	340	No	Authorized contaminated soil treatment facility (e.g. Newwalia, Recy-Chem or BSL)	n/a	n/a	n/a	340	Excavated surface soil (if <C) or recognized borrow pit
	PE-34-11	Metal, cement concrete, tile, ash	n/a	n/a	n/a	183.5	No	Engineered landfill site	193.5	Excavated surface soil (if <C) or recognized borrow pit
Septic Tanks	PE-62-11	Soil contaminated by metals (C-D range)	20	No	Contaminated soil landfill site (e.g. Horizon Environnement)	n/a	n/a	n/a	20	Excavated surface soil (if <C) or recognized borrow pit
	PE-63-11	Soil contaminated by PH C ₁₀ -C ₅₀ (C-D range)	66	No	Authorized contaminated soil treatment facility (e.g. Newwalia, Recy-Chem or BSL)	n/a	n/a	n/a	66	Excavated surface soil (if <C) or recognized borrow pit
	PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11 and PE-89-11	Clean cement concrete (<C)	n/a	n/a	n/a	158	No	Crushing and reuse on-site	0	Crushed concrete
	PE-62-11, PE-64-11 and PE-89-11	Oil-stained cement concrete	n/a	n/a	n/a	158	Yes	If contaminated (>C and <30,000 ppm); engineered landfill site	158	Excavated surface soil (if <C) or recognized borrow pit
	PE-37-11 and PE-88-11	Slag	n/a	n/a	n/a	925	No	Engineered landfill site	925	Excavated surface soil (if <C) or recognized borrow pit
	PE-62-11, PE-64-11 and PE-89-11	Creosoted wood	n/a	n/a	n/a	45	No	Energy conversion or engineered landfill site	45	Excavated surface soil (if <C) or recognized borrow pit
Ditch	FOSSÉ-1-11	Contaminated sediment (>D)	60	Yes	Authorized contaminated soil treatment facility (e.g. Newwalia, Recy-Chem or BSL)	n/a	n/a	n/a	60	Recognized borrow pit
Former railway track	PE-CF-04-11 to PE-CF-09-11	Slag	n/a	n/a	n/a	383.3	No	Engineered landfill site	0	No backfill
Former garages	PE-21-11	Slag and coal	n/a	n/a	n/a	132.8	No	Engineered landfill site	132.8	Recognized borrow pit
	PE-39-11	Asphalt in place	n/a	n/a	n/a	47.5	No	Recycled aggregate producer	47.5	Excavated surface soil (if <C) or recognized borrow pit
Former boiler room	PE-84-11 and PE-85-11	Slag	n/a	n/a	n/a	116.6	No	Engineered landfill site	116.6	Excavated surface soil (if <C) or recognized borrow pit
Former asphalt plant	PE-25-11	Asphalt in place	n/a	n/a	n/a	52.5	No	Recycled aggregate producer	52.5	Excavated surface soil (if <C) or recognized borrow pit
Total (m ³)			2628.5				2212.2	4299.4		

NOTE:

(1) The locations of the zones are shown in figures 2.2 to 2.6. Not applicable

6. GROUNDWATER QUALITY MONITORING PROGRAM

6.1 GROUNDWATER CHARACTERIZATION

The characterization of the groundwater in the area covered by the Plan, more specifically in the contaminated sectors, will include the following elements (see Figure 6.1 in Appendix 2):

- Installation of three new monitoring wells (PO-2011-01 to PO-2011-03)⁽¹⁾ in the northern portion of the plume. The final placement of these wells will be determined in the field following the identification and inspection of the existing wells. Before the wells are installed, their placement will have to be approved by TC.
- Groundwater sampling in accordance with the recommendations of the *Site Characterization Guide* and the *CEAEQ Sampling Guide for Environmental Analysis (Booklet 1 – General and Booklet 3 – Groundwater Sampling)*. The wells to be sampled are as follows:
 - three new wells to be installed: PO-2011-01 to PO-2011-03⁽¹⁾
 - thirteen wells identified in the initial Plan (Entraco – P0922, March 2011) and in the Answers to the MDDEP Request for Additional Information (Entraco – P0939, October 21, 2011): F-11, F-12, F-13, F-14, F-15, F-16, F-18, F-26-2000, F-27-2000, F-28-2000, F-29-2000, PO-3 and PO-4
 - three wells installed by LVM in 2011: PO-A2-11, PO-H1-11 and PO-F1-11

If one of the wells to be characterized is destroyed during the remediation work, it must be replaced by another well (existing or new). For all wells, parameters to be analyzed include: metals, petroleum hydrocarbons C₁₀-C₅₀, MAHs and PAHs. As recommended in the certified characterization study, the monitoring program will run for a period of two years, with two sampling campaigns per year (spring and fall).

6.2 FIELD QUALITY CONTROL AND ASSURANCE PROGRAM

For the purposes of quality control and assurance of the analytical program, field duplicates must be collected to represent a minimum of 10% of the total number of samples collected for each parameter analyzed. However, a minimum of one duplicate per batch of samples sent for analysis must be respected regardless of the total number of samples collected in a sampling campaign. The parameters analyzed must be the same as those selected for the original samples. All chemical analyses must be performed by a laboratory accredited by the CEAEQ. The analyses will therefore be performed by one of the following accredited laboratories:

- AGAT Laboratoires
- Biolab

⁽¹⁾ The identification numbers of the wells may change to reflect the year in which they are built, e.g. PO-2012-01 instead of PO-2011-01 if built in 2012.

- Exova Canada Inc.
- Maxxam Analytics

Once a laboratory has been selected to perform the analyses, TC will send a notice to the MDDEP specifying the name of the laboratory.

7. WORK SCHEDULE

The remediation work will begin in the fall of 2012. The start and end dates have not yet been determined. For administrative and financial reasons, TC is required to split the remedial work into two phases as follows:

1. In the fall of 2012, remediate the former landfill, former septic tanks, ditch, former mechanical garage, former boiler room and former asphalt plant sectors.
2. In 2013, remediate the former coal depot and former railway track sectors.

The remedial work will cover the seven sectors described in this amendment to the Plan as well as two non-remediated sectors described in the initial Plan.

The remediation work will be conducted by a private contractor following a tendering process to be launched by Public Works and Government Services Canada (PWGSC). Environmental monitoring of the work will be carried out by a private consultant selected by PWGSC.

In accordance with section 31.48 of the EQA, as soon as the work made necessary by the implementation of the amendment to the approved Plan have been completed, a remediation report accompanied by a certificate of an expert referred to in section 31.65 of the EQA will be submitted to MDDEP, stating that the work was conducted in accordance with the requirements of the amendment to the Plan.

Appendix 1
Limitation clauses

LIMITATION CLAUSES

This remediation plan, prepared by Entraco, is based solely on the available data, visual observations and relevant information provided by representatives of Transport Canada and Public Works and Government Services Canada. The data in this plan are not scientific certainties, but rather probabilities based on professional judgment. The data interpretations, comments and recommendations in this remediation plan are based, to the best of our knowledge, on the regulations in force and on the applicable policies, codes, guides or other documents.

The descriptive data and observations on the site characteristics relate to the conditions observed during the preparation of this plan and therefore do not take into account site conditions or changes that could not have been observed or assessed. The recommendations, based on the available information, were developed by qualified professionals according to a recognized methodology. Entraco reserves the right to amend any recommendation that was based on information provided by a third party or client that is discovered to be incorrect or to have been incorrectly presented or if additional information that was not initially disclosed becomes available. Entraco accepts no responsibility for any deficiency, erroneous statement or inaccuracy contained in this remediation plan that is the result of erroneous statements, omissions or false statements made by personnel or other entities that provided information to Entraco during its preparation of this study.

Entraco prepared this remediation plan for use by Transport Canada and Public Works and Government Services Canada. Any use of this remediation plan by a third party, as well as any decision based on this remediation plan, is the sole responsibility of that third party. Entraco cannot be held responsible for any potential damages, losses, claims or damages suffered by a third party that directly or indirectly result from the use of this remediation plan or a decision made or based on this remediation plan.

Appendix 2

Figures

Légende

- Limite du site à l'étude (partie de l'ancien lot 706-1)
- Limite du site à l'étude de REES phase 1 réalisée en 2009 par LVM (partie de l'ancien lot 706-1)
- Fossés de drainage
- Zone estimée des sols contaminés (>C)
- Zone estimée des matières résiduelles
- Zone estimée des sédiments (fossé)

NOTE:
 1. Les limites des zones estimées de sols contaminés ou de matières résiduelles ont été tirées de l'étude de LVM (janvier 2012) et ont été modifiées pour faciliter les travaux d'excavation.

SOURCE (fond de plan):
 LVM, Janvier 2012
 (073-P038375-0150454-000-000.dwg)

Réf.	Description	Par/By	Date

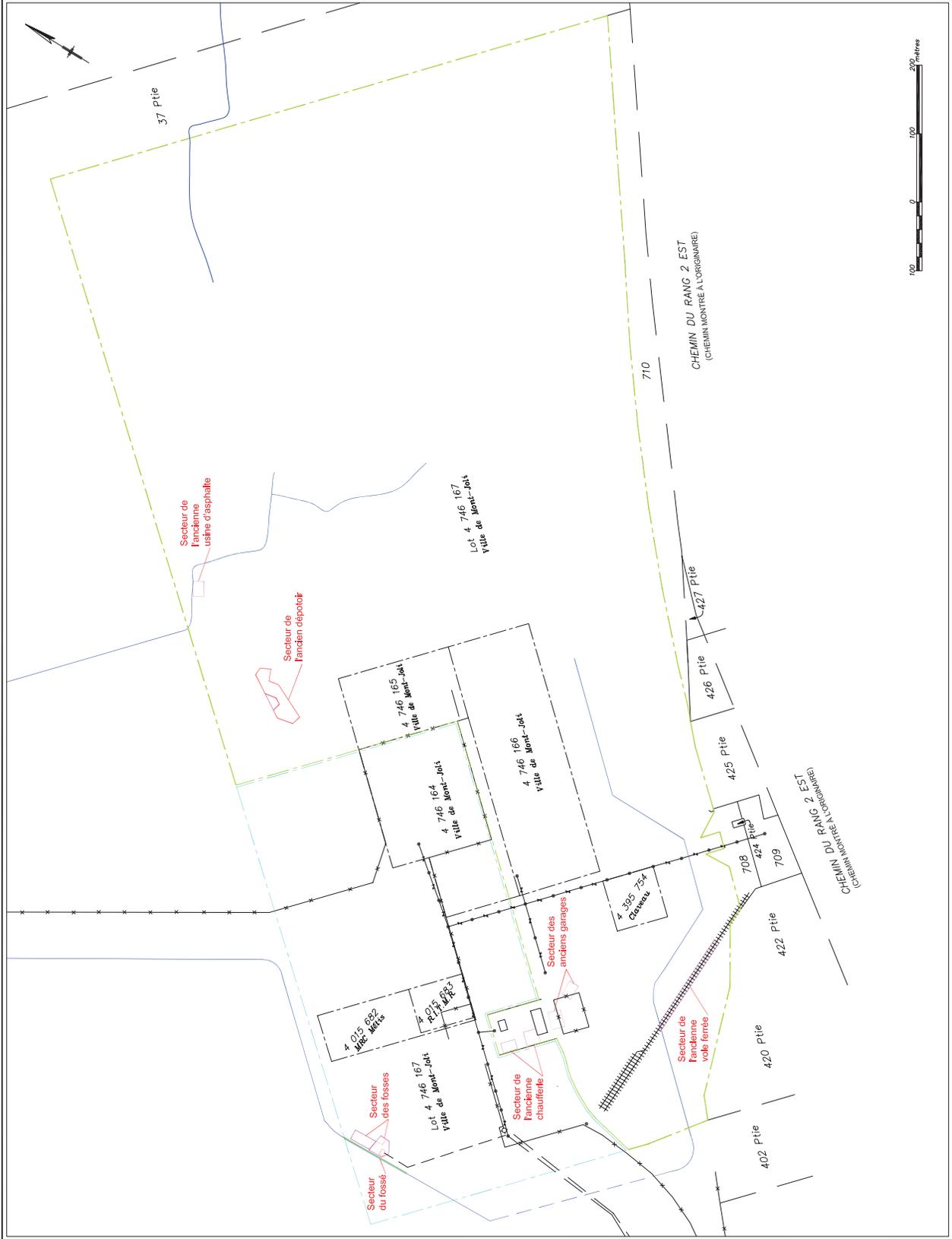


Dossier / File: Aéroport de Mont-Joli
 Lot 4 746 167
 Modification au plan de réhabilitation

Dessin / Drawing: Figure 2.1
 Localisation des secteurs d'intervention et des limites de lots

Conçu par / Designed by:	Date
N.L.L.	2012-02-20
Dessiné par / Drawn by:	Date
L.T.N.L.	2012-02-22
Vérifié par / Verified by:	Date
N.L.L.	2012-03-30
Approuvé par / Approved by:	Date

No. dossier / File no.:	Echelle / Scale:
P0542	Graphique
No. dessin / Drawing no.:	Feuille / Sheet:



Légende

- ✕ Tranchées d'exploration (LVM 2011)
- 🕒 Puits d'observation (LVM 2011)
- Zone estimée des sols contaminés (>C)
- Zone estimée des matières résiduelles

NOTE:

1. Les limites des zones estimées de sols contaminés ou de matières résiduelles ont été tirées de l'étude de LVM (janvier 2012) et ont été modifiées pour faciliter les travaux d'excavation, d'écoulement, et de traitement. Les zones 3.1 à 3.3 (Andon (dépot)) sont tirées dans le plan de réhabilitation initial (Entraco, mars 2011 - P0922)

2. Pour ce secteur, se référer au plan de réhabilitation initial (Entraco, mars 2011 - P0922)

SOURCE (fond de plan):
LVM, janvier 2012
(073-P09375-0190-EN-000-100.dwg)

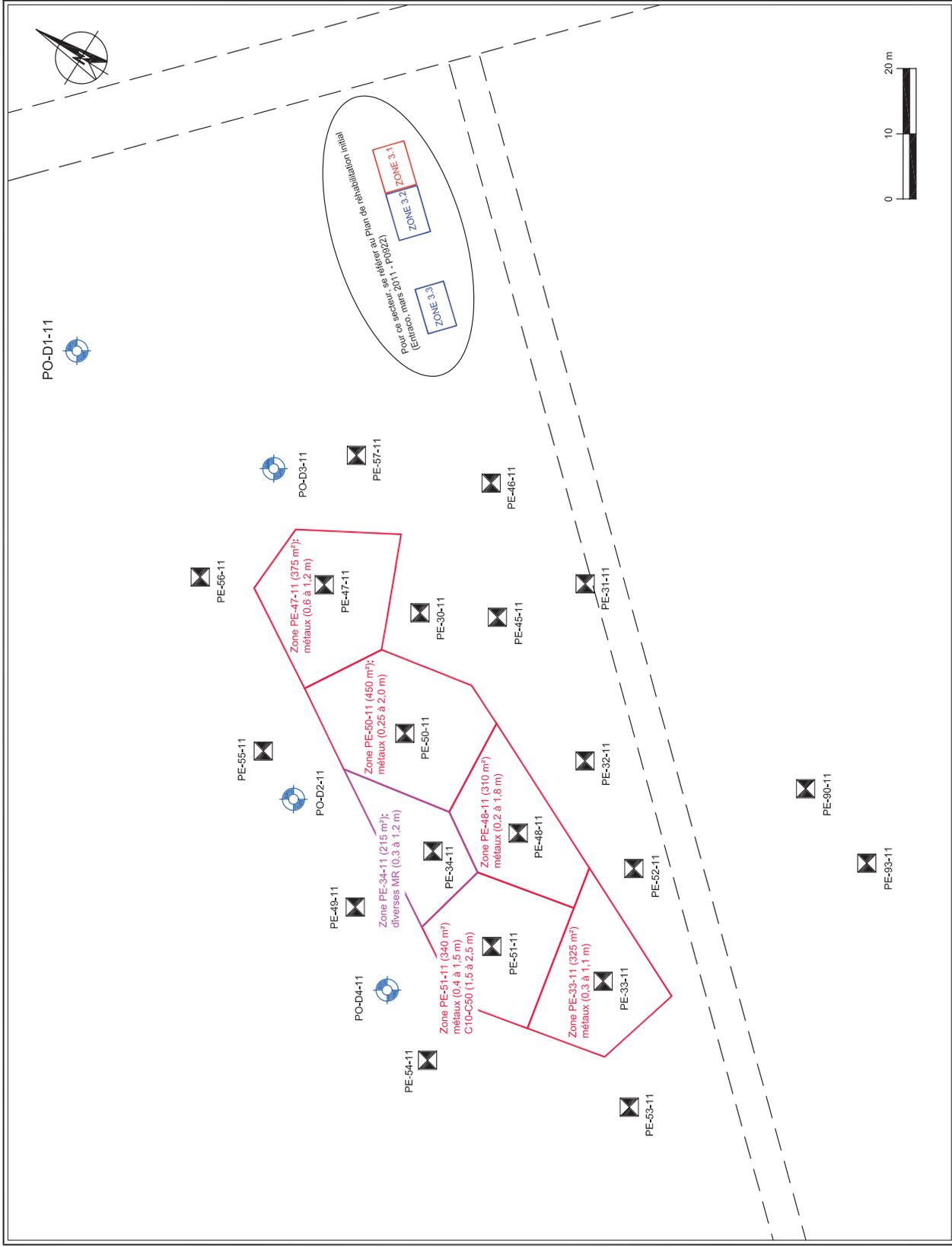
Révisé	Description	Par / By	Date

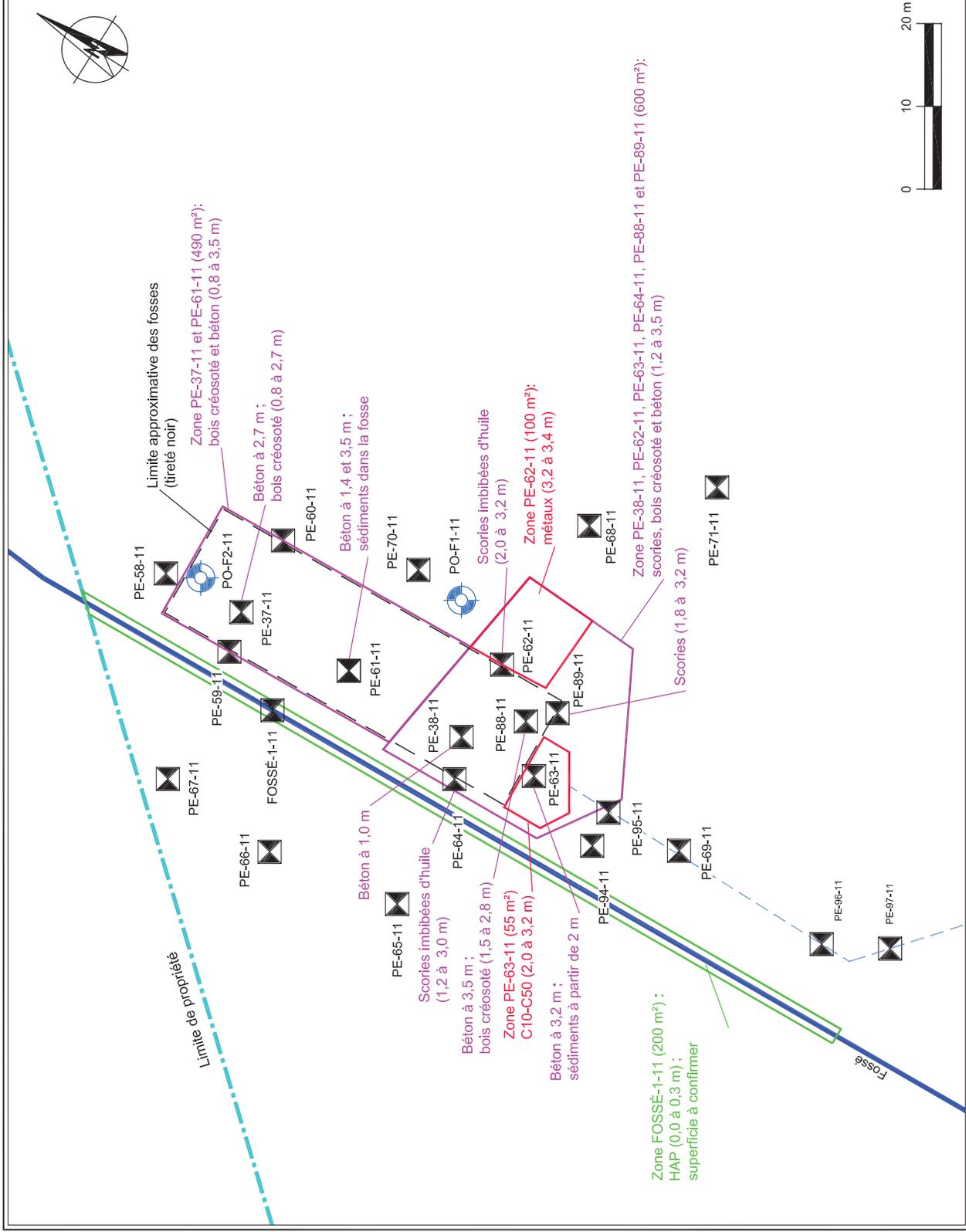
ENTRACO
CONSULTEUR EN RÉHABILITATION

Dossier / File: Aéroport de Mont-Joli
Lot 4 746 167
Modification au plan de réhabilitation

Dessin / Drawing: Figure 2.2
Localisation des zones d'intervention -
Secteur de l'ancien dépotoir

Conçu par / Designed by:	Date
N.L.	2012-02-20
Dessiné par / Drawn by:	Date
L.T./N.L.	2012-02-22
Vérifié par / Verified by:	Date
N.L.	2012-03-30
Approuvé par / Approved by:	Date
No. dossier / File no.:	Echelle / Scale:
P0932	Graphique
No. dessin / Drawing no.:	Feuille / Sheet:





Légende

- Fossé de drainage
- Tranchée d'exploration (LVM 2011)
- Puits d'observation (LVM 2011)
- Zone estimée des sols contaminés (>C)
- Zone estimée des matières résiduelles
- Zone estimée des sédiments (fosse)

NOTE:

- Les limites des zones estimées de sols contaminés, de matières résiduelles ou de sédiments (fosse) ont été tirées de l'étude de LVM (janvier 2012) et peuvent avoir été modifiées pour faciliter les travaux d'excavation.
- Les superficies des zones PE-62-11 (100 m²) et PE-63-11 (55 m²) ont été modifiées pour tenir compte des fosses en béton, dans l'étude de LVM (janvier 2012), elles étaient respectivement de 120 m² et 119 m².

SOURCE (fond de plan):
LVM, janvier 2012
(073-P038375-0150-EN-000-400.dwg)

Révisé	Description	Par/By	Date
-	-	-	-
-	-	-	-

Aéroport de Mont-Joli
 Lot 4 746 167
 Modification au plan de réhabilitation

Dessin / Drawing:
Figure 2.3
Localisation des zones d'intervention -
Secteur des fosses

Conçu par / Designed by:	Date
N.L.L.	2012-02-20
Dessiné par / Drawn by:	Date
L.T./N.L.L.	2012-02-22
Vérifié par / Verified by:	Date
N.L.L.	2012-03-30
Approuvé par / Approved by:	Date
No. dossier / File no.:	Echelle / Scale:
P0942	Graphique
No. dessin / Drawing no.:	Feuille / Sheet:

Légende

-  Fossés de drainage
-  Tranchée d'excoberation (LVM 2011)
-  Puits d'observation (LVM 2011)
-  Zone estimée des sols contaminés (>C)
-  Zone estimée des matières résiduelles

NOTE:

- Les limites des zones estimées de sols contaminés, de matières résiduelles ou de sédiments (zones) ont été tirées de l'étude de LVM (janvier 2012) et peuvent avoir été modifiées pour faciliter les travaux d'excavation.
- Les zones 2.1 à 2.4 (Andon dépôt de charbon) sont traitées dans le plan de réhabilitation initial (Entraco, mars 2011 - P0922).

SOURCE (fond de plan):
LVM, janvier 2012
(073-P09375-0150-EN-000-100.dwg)

Révisé	Description	Par / By	Date
-	-	-	-
-	-	-	-

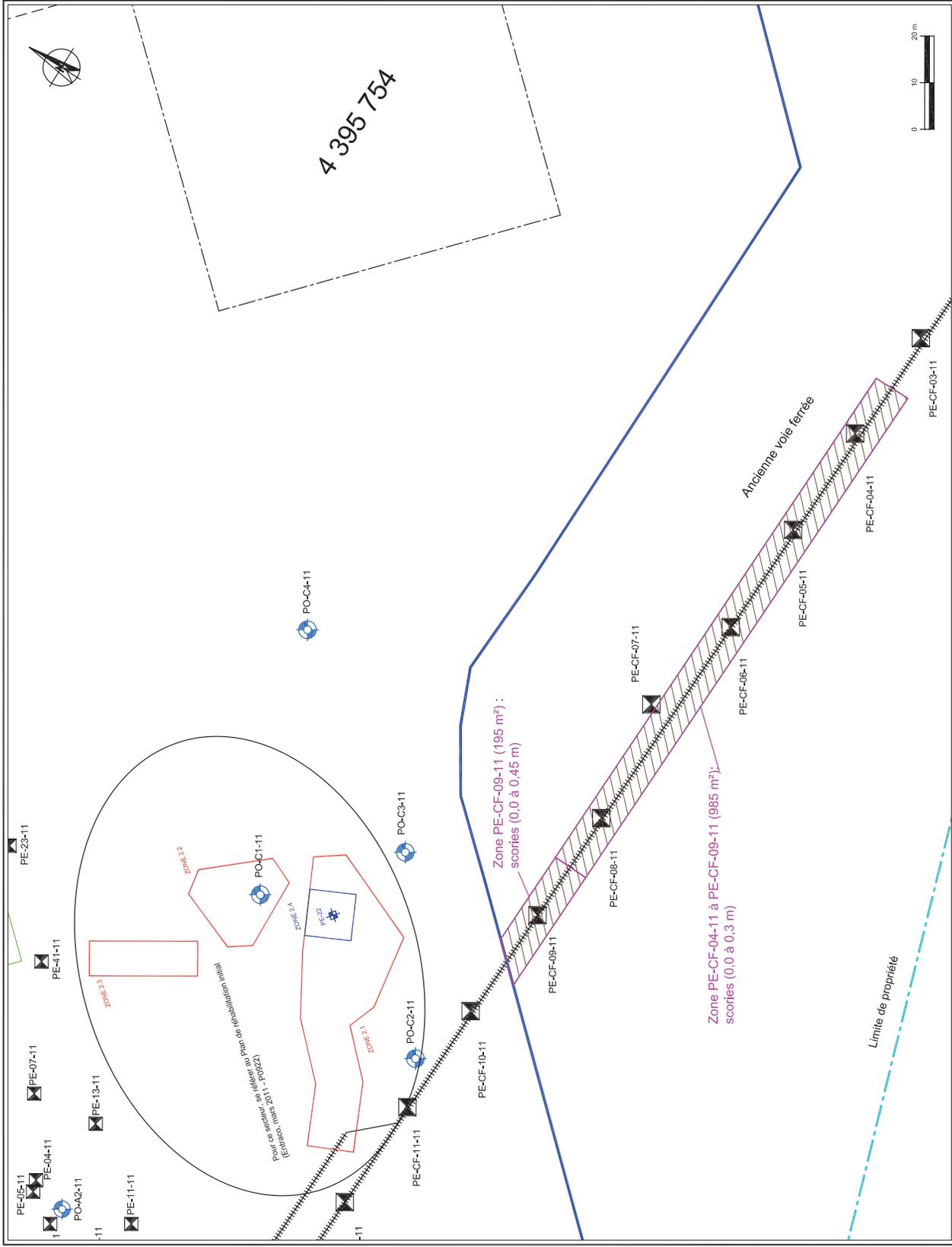


Dossier / File:
Aéroport de Mont-Joli
Lot 4 746 167
Modification au plan de réhabilitation

Dessin / Drawing:
Figure 2.4
Localisation des zones d'intervention - Ancienne voie ferrée

Conçu par / Designed by:	Date
N.L.	2012-02-20
Dessiné par / Drawn by:	Date
L.T./N.L.	2012-02-22
Vérifié par / Verified by:	Date
N.L.	2012-03-30
Approuvé par / Approved by:	Date

No. dossier / File no.:	P0932	Echelle / Scale:	Graphique
No. dessin / Drawing no.:		Feuille / Sheet:	



Légende

-  Tranchées d'exploration (LVM 2011)
-  Puits d'observation (LVM 2011)
-  Zone estimée des sols contaminés (p-C)
-  Zone estimée des matières résiduelles

NOTE: Les limites des zones estimées de sols contaminés, de matières résiduelles ou de sédiments (basses) ont été tirées de l'étude de LVM (janvier 2012) et peuvent avoir été modifiées pour faciliter les travaux d'excavation.

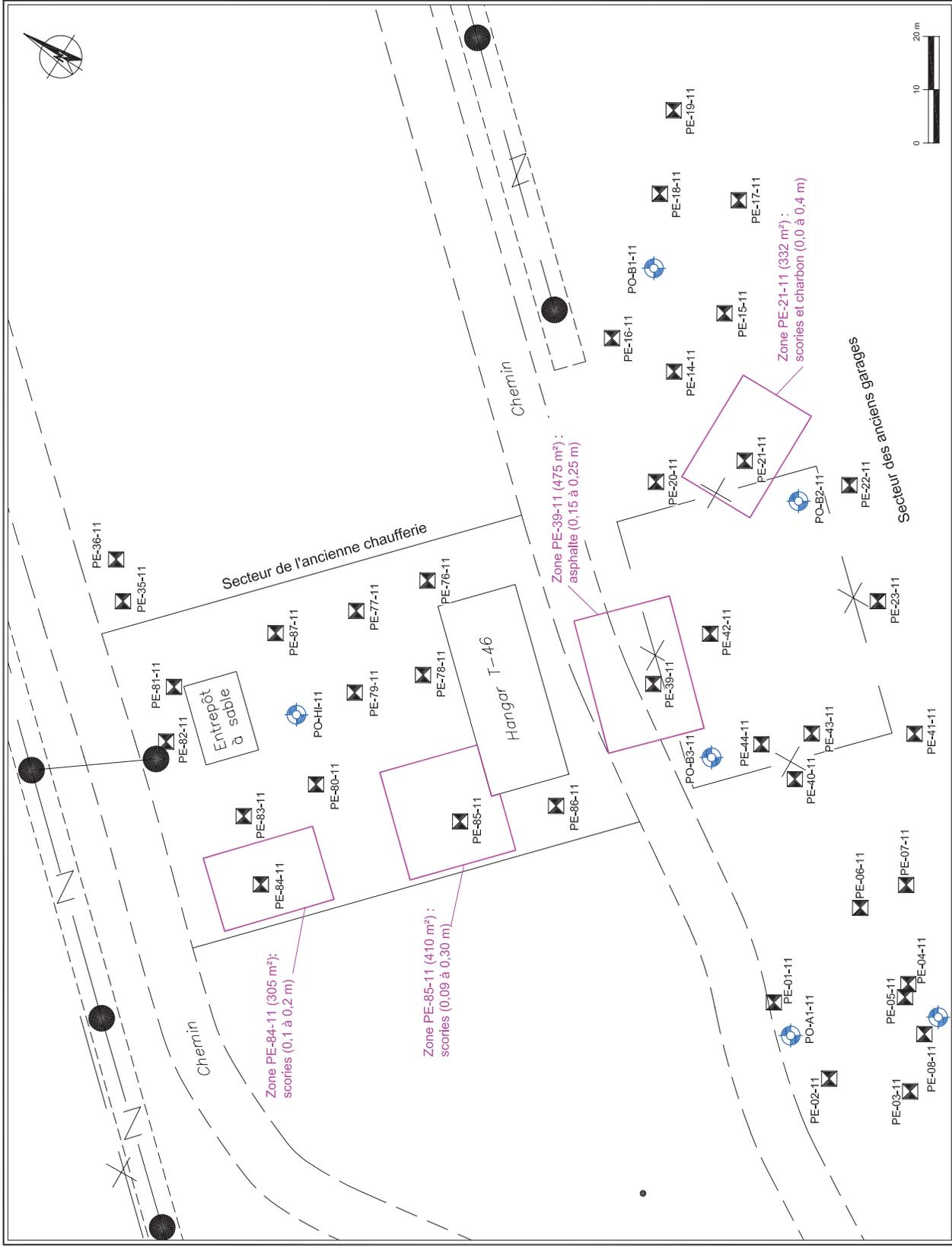
SOURCE (fond de plan):
 LVM, janvier 2012
 (073-P038375-01504-EN-000-100.dwg)



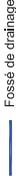
Dossier / File: Aéroport de Mont-Loïc
 Lot 4 746 167
 Modification au plan de réhabilitation

Dessin / Drawing: Figure 2.5
Localisation des zones d'intervention - Ancienne chaufferie et anciens garages

Conçu par / Designed by:	Date
N.L.	2012-02-20
Dessiné par / Drawn by:	Date
L.T./N.L.	2012-02-22
Vérifié par / Verified by:	Date
N.L.	2012-03-30
Approuvé par / Approved by:	Date
No. dossier / File no.: P0942	
Echelle / Scale: Graphique	
No. dessin / Drawing no.: Feuille / Sheet:	



Légende

-  Fossé de drainage
-  Tranchée d'exploration (LVM 2011)
-  Puits d'observation (LVM 2011)
-  Zone estimée des sols contaminés (>C)
-  Zone estimée des matières résiduelles

NOTE :
 1. Les limites des zones estimées de sols contaminés, de matières résiduelles ou de sédiments (fosse) ont été tirées de l'étude de LVM (janvier 2012) et peuvent avoir été modifiées pour faciliter les travaux d'excavation.

SOURCE (fond de plan) :
 LVM, janvier 2012
 (073-P098375-0150-EN-001-00.dwg)

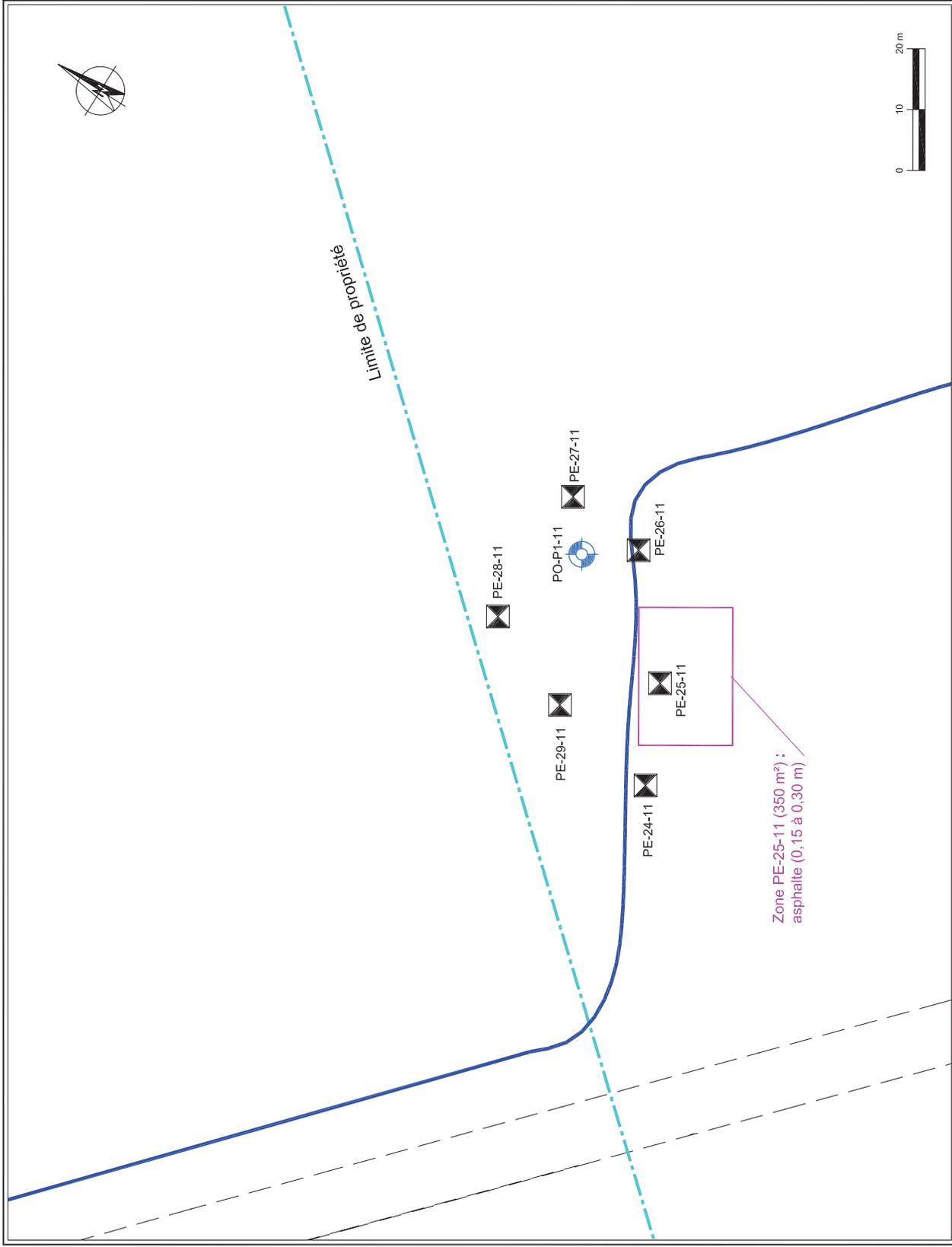


Dossier / File:
 Aéroport de Mont-Joli
 Lot 4 746 167
 Modification au plan de réhabilitation

Dessin / Drawing:
 Figure 2.6
 Localisation de la zone d'intervention - Ancienne usine d'asphalte

Conçu par / Designed by:	Date
N.L.L.	2012-02-20
Dessiné par / Drawn by:	Date
L.T./N.L.L.	2012-02-22
Vérifié par / Verified by:	Date
N.L.L.	2012-03-30
Approuvé par / Approved by:	Date

No. dossier / File no.:	Echelle / Scale:
P0982	Graphique
No. dessin / Drawing no.:	Feuille / Sheet:



Appendix 3

Tables 14 and 15 taken from the LVM characterization study (January 2012)



Tableau 14 : Sommaire des volumes de sols et sédiments non conformes
Site: Ancien terrain de l'aéroport de Mont-Joli

No. Projet: P038375-0150

Secteur	Sondage	Échantillon	Paramètres excédant les critères ⁽¹⁾ / normes applicables ⁽²⁾	Profondeur de l'échantillon (m)		Profondeur estimée (m)		Épaisseur estimée (m)	Aire (m ²)	Volume estimé de sols affectés (m ³ en place)		Volume estimé de sols non-affectés sus-jacents aux sols affectés (m ³ en place)
				de	à	de	à			>C	>RESC	
Plan de réhabilitation - Entraco 2011												
Charbon	----	----	Arsenic	---	---	---	---	---	---	---	65,0	0,0
Ancien Dépotoir	----	----	Métaux	---	---	---	---	---	---	---	93,0	22,5
Hangar H3 (Zone 1,1)	----	----	BTEX et HAP	---	---	---	---	---	---	---	42,0	800,0
Hangar H3 (Zone 1,2)	----	----	HAP	---	---	---	---	---	---	---	18,0	0,0
Étude de caractérisation - LVM 2011												
Ancien dépotoir	PE-33-11	2	Zinc	0,30	1,10	0,30	1,10	0,8	325,0	260,0	---	97,5
Ancien dépotoir	PE-47-11	2	Cadmium, Zinc	0,60	1,20	0,60	1,20	0,6	375,0	225,0	---	225,0
Ancien dépotoir	PE-48-11	3	Cadmium, Cuivre, Manganèse, Plomb, Zinc	0,70	1,80	0,20	1,80	1,6	310,0	496,0	---	62,0
Ancien dépotoir	PE-50-11	2	Cadmium, Cuivre, Plomb, Zinc	0,25	0,75	0,25	2,00	1,8	450,0	---	787,5	112,5
Ancien dépotoir	PE-51-11	3	Cadmium, Cuivre, Plomb, Zinc	1,00	1,50	0,40	1,50	1,1	340,0	374,0	---	136,0
Ancien dépotoir	PE-51-11	5	HP C ₁₀ -C ₅₀	2,00	2,50	1,50	2,50	1,0	340,0	340,0	---	N/A
Fosses	PE-62-11	4	Arsenic	3,20	3,40	3,20	3,40	0,2	120,0	24,0	---	N/A
Fosses	PE-63-10	2	HP C ₁₀ -C ₄₈	2,00	3,00	2,00	3,20	1,2	119,0	142,8	---	238,0
Fossé	FOSSÉ-1-11	FOSSÉ-1-11	HAP	0,00	0,15	0,00	0,30	0,3	200,0	---	60,0	0,0
TOTAL LVM 2011 :										1 862	848	871

⁽¹⁾ Réfère aux critères génériques de la Politique de protection des sols et de réhabilitation des terrains contaminés du MDDEP
⁽²⁾ Réfère au Règlement sur la protection et la réhabilitation des terrains du Gouvernement du Québec



Tableau 15 : Sommaire des volumes de matières résiduelles
Site: Ancien terrain de l'aéroport de Mont-Joli

No. Projet: P038375-0150

Secteur	Sondage	Échantillon	type de matières résiduelles	Profondeur de l'échantillon (m)		Profondeur estimée (m)		Épaisseur estimée (m)	Aire (m ²)	Volume estimé de matières résiduelles (m ³ en place)		Volume estimé de sols non-affectés sus-jacents aux matières résiduelles (m ³ en place)
				de	à	de	à			Matières résiduelles non dangereuses	Matières résiduelles dangereuses	
Plan de réhabilitation - Entraco 2011												
Charbon	—	—	Charbon	—	—	—	—	—	—	260,0	—	N/D
Ancien Dépotoir	—	—	Métal, bois, verre	—	—	—	—	—	—	7,0	—	14,0
Hangar H3	—	—	Béton de ciment	—	—	—	—	—	—	10,0	—	0,0
Étude de caractérisation - LVM 2011												
Ancienne voie ferrée	PE-CF-04-11	1	scories	0,00	0,30	0,00	0,30	0,3	200,0	60,0	—	0
Ancienne voie ferrée	PE-CF-05-11	1	scories	0,00	0,30	0,00	0,30	0,3	200,0	60,0	—	0
Ancienne voie ferrée	PE-CF-06-11	1	Scories	0,00	0,30	0,00	0,30	0,3	190,0	57,0	—	0
Ancienne voie ferrée	PE-CF-07-11	—	Scories anticipées	—	—	—	—	—	195,0	58,5	—	0
Ancienne voie ferrée	PE-CF-08-11	1	Scories	0,00	0,30	0,00	0,30	0,3	200,0	60,0	—	0
Ancienne voie ferrée	PE-CF-09-11	1	Scories	0,00	0,45	0,00	0,45	0,5	195,0	87,8	—	0
Anciens garages	PE-21-11	1	Scories et charbon	0,00	0,40	0,00	0,40	0,4	332,0	132,8	—	0
Ancienne usines d'asphalte	PE-39-11	1B	Asphalte en place	0,15	0,25	0,15	0,25	0,1	475,0	47,5	—	71,3
Ancienne usines d'asphalte	PE-25-11	B	Asphalte en place	0,15	0,30	0,15	0,30	0,2	350,0	52,5	—	52,5
Ancien dépotoir	PE-34-11	2A et 2B	Métal, béton de ciment, tuile, cendre	0,30	1,20	0,30	1,20	0,9	215,0	193,5	—	64,5
Fosses	PE-61-11, PE-62-11, PE-64-11, PE-88-11 et PE-89-11	N/A	Béton de ciment	N/A	N/A	N/A	N/A	N/A	N/A	158,0	—	630,0
Fosses	PE-37-11 et PE-88-11	N/A	Béton de ciment taché d'huile	N/A	N/A	N/A	N/A	N/A	N/A	—	158,0	N/A
Fosses	PE-62-11	3	Bois créosoté	N/A	N/A	N/A	N/A	N/A	N/A	45,0	—	N/A
Fosses	PE-64-11	3	Scories	2,00	3,20	2,00	3,20	1,2	125,0	150,0	—	N/A
Fosses	PE-89-11	1	Scories	1,80	3,20	1,80	3,20	1,4	200,0	495,0	—	N/A
Ancienne chaufferie	PE-84-11	1	Scories	0,10	0,20	0,10	0,20	0,1	305,0	30,5	—	30,5
Ancienne chaufferie	PE-85-11	1	Scories	0,09	0,30	0,09	0,30	0,2	410,0	86,1	—	36,9
TOTAL LVM 2011 :										2 054	158	886

(1) Réfère aux critères génériques de la Politique de protection des sols et de réhabilitation des terrains contaminés du MDDEP
(2) Réfère au Règlement sur la protection et la réhabilitation des terrains du Gouvernement du Québec

**Mont-Joli Airport, Quebec
Contaminated Site (MDDEFP File: 7610-01-01-0253704)**

Remediation Plan

**Answers to the MDDEFP Emails of
April 30, 2013 and May 30, 2013, and to the
Request for Additional Information of September 3, 2013**

Revision 01



Mont-Joli Airport, Quebec

Contaminated Site (MDDEFP File: 7610-01-01-0253704)

Remediation Plan

Answers to the MDDEFP Emails of April 30, 2013, and May 30, 2013, and to the Request for Additional Information of September 3, 2013

1. BACKGROUND

In March 2011, on behalf of Transport Canada (TC), Groupe-conseil Entraco Inc. (Entraco) prepared a remediation plan (the Plan) for three contaminated sectors—namely the former building H-3, the former coal depot, and the former landfill.—The Plan was based on characterization studies carried out by LVM (November 2007) and Entraco (March 2009).

On behalf of the City of Mont-Joli, LVM subsequently (January 2012) conducted an exhaustive site characterization that revealed the presence of additional contaminated sectors. TC then commissioned Entraco to prepare an amendment to the Plan (finalized in March 2012) in order to include the new contaminated sectors identified in the LVM study.

The site of the former hangar H-3 was remediated in the winter of 2012 following the approval of the remediation plan for this sector by MDDEFP. MDDEFP had issued a request for additional information (July 20, 2011), and Entraco had prepared a response for TC (October 2011).

The following answers are provided in response to the MDDEFP emails from April 30 and May 30, 2013, as well as to the request for additional information from September 3, 2013 (see copies of the documents in Appendix 1). They are divided into three sections, one for each document produced by MDDEFP.

This document is an addendum to the remediation Plan. The appended tables and figures have been updated and supersede those appearing in previous documents. For ease of understanding, the original documents pertaining to the initial Plan (Entraco, March 2011) is provided in Appendix 2 (table), and the documents pertaining to the amended Plan (Entraco, March 2012) are provided in appendices 3 (tables) and 4 (figures).

2. RESPONSES TO EMAILS

2.1 Email of April 30, 2013

Stream / drainage ditch

In this email, MDDEFP confirms that the remediation objective for the drainage ditch sector is to attain the level C of the soil criteria, i.e. the limit values set out in Schedule II to the LPRR.⁽¹⁾ Therefore, no amendment is made to the remediation objective in the Plan.

In section 4.1.3 of the amendment to the Plan (Entraco, March 2012), to prevent the migration of contaminants (water or sediment) into Saucier Stream, replace “*Once the remediation objectives have been achieved, backfill the bottom of the ditch with MG-20 granular material to limit the suspension and downstream transport of sediment.*” with the following:

“Once the remediation objectives have been achieved, if the residual contamination in the bottom and sides of the ditch is in the A-C range, restore the ditch so as to prevent the migration of contaminants; a notice will be sent to MDDEFP to specify the proposed terms of restoration.”

Wetland characterization report⁽²⁾

MDDEFP presented three questions and comments regarding the wetland characterization report. The questions were related to: (1) the use of vehicles near the wetland; (2) the origin and method of collecting the plant species that will be used for revegetation; and (3) the type of soil that will be put in place prior to the planting the selected vegetation.

With regard to the use of vehicles, all vehicles used will be parked at least 60 m away from the wetland and from any other aquatic environment. This distance will also be applied during refuelling and maintenance of the machinery. These requirements will be written into the project specifications.

With regard to the revegetation of the excavated areas, the plant species that will be used primarily consist of species already present in the wetland. Furthermore, using species from nurseries, rather than from other wetlands will be prioritized. If it is not possible to use plant species from a nursery, a methodology for the collection of plants as well as the location will be submitted to you for approval before the work begins. These requirements will be written into the project specifications.

With regard to the type of soil used, the excavated areas will be backfilled with clean soil. Furthermore, the soil will be selected to favor the growth of the plant species. These requirements will also be written into the project specifications.

(1) *Land Protection and Rehabilitation Regulation* (c. Q-2, r. 37).

(2) Answers provided by Jean-François Marsan of Transport Canada.

2.2 Email of May 30, 2013

Unexpected discovery of contamination or residual materials

In the event that contamination or residual materials, not previously identified in the site characterizations, are discovered during the remediation work, the affected sectors will be remediated and the additional work will be described in the remediation report.

Regarding item 7⁽³⁾

To take into account the manganese contamination present (C-D range) in sample PO-F1-11-CF4 (between 2.28 m and 3.05 m), an 88-m² contaminated zone with a total volume of 79.2 m³ has been added (see Table 3.1 and Figure 2.3 in Appendix 4). This zone, PO-F1-11, will be remediated according to the directives in section 4.1.2 of the amendment to the Plan (Entraco, March 2012) and tables 4.1, 4.2 and 5.1 (see Appendix 3).

Regarding item 9⁽³⁾

As noted in section 4.1.3 of the amended Plan (Entraco, March 2012), a complementary characterization of the ditch, upstream and downstream of excavation FOSSÉ-1-11, will be conducted prior to the remediation work. The purpose of this characterization is to precisely determine the extent and, if possible, the source of the contamination. Once the results of the characterization have been received, a notice will be sent to MDDEFP for approval presenting the remediation measures to be applied and, if applicable, to the source of the contamination.

The values presented in tables 2.1, 3.3 and 4.2 will be reviewed to take into account the results from the site characterization.

2.3 Request for additional information from September 3, 2013

1. The boundaries of the new lots 4 804 508 and 4 804 509 were added to the figures (see Appendix 4).
2. The surface areas and volumes presented in tables 2.1, 3.2, 4.2 and 5.1 (see Appendix 3) were amended to match those in the certified LVM characterization study. The values presented in the amendment to the Plan (Entraco, March 2012) were calculated considering the presence of concrete septic tanks. The new values are as follows:
 - PE-62-11: 100 m² and 20 m³ replaced with 120 m² and 24 m³
 - PE-63-11: 55 m² and 66 m³ replaced with 119 m² and 142.8 m³
3. As part of the quality control of the ditch area (area FOSSÉ-1-11), following the excavation of the contaminated soil, samples will be taken from the sides and bottom of the ditch and analyzed. The quantity of samples collected will comply with the requirements of the *Site Characterization Guide* and the *CEAEQ Sampling Guide for Environmental Analysis (Booklet 1 – General and Booklet 5 – Soil Sampling)*.

⁽³⁾ The numbering of these items refers to that used by MDDEFP in its request for additional information dated October 12, 2012, and in the certified characterization study of LVM (January 2012). The same numbering was used by LVM in its reply of December 6, 2012.

Note that the number of samples cannot be specified until the contaminated sector of the ditch is evaluated with a complementary characterization that will take place before the remediation activities.

4. Regarding zones 2.4, 3.1, 3.2 and 3.3 from the initial Plan (Entraco, March 2011), where the soil must be placed in piles and characterized, if the soil presents metals contamination in the C-D range and >D , it will be sent to a contaminated soil burial facility (see Table 5.1 in Appendix 2). This management method is acceptable as there are no treatment facilities authorized by MDDEFP for this type of contamination.
5. Soil contaminated by metals at concentrations equal to or greater than the values set out in Schedule I to the RRBCS⁽⁴⁾ will be sent to a contaminated soil burial facility, as there are no treatment facilities authorized by MDDEFP for this type of contamination.
6. In zone PE-25-11, where the municipal zoning is 204 EXI,⁽⁵⁾ the backfill materials from the site, if applicable, will not contain any contaminants above the B criteria, i.e. the limit values set out in Schedule I to the LPRR. Table 5.1 has been amended accordingly (see Appendix 3).

In its response to MDDEFP on December 6, 2012, LVM states in item 2 that the City of Mont-Joli intends to eventually change the zoning of this site, since the entire area is set to become an industrial park. If appropriate, the limit values of contamination for the fill material will be the C criteria, i.e. the values set out in Schedule II to the LPRR.

7. Since the Centre de traitement BSL in Saint-Anaclet is not authorized to treat PAHs with four or more rings at concentrations above the C criteria, excavated soil containing this type of contamination, such as that represented by sample FOSSÉ-01-11, may not be sent to this treatment centre.
8. Groundwater quality monitoring will begin after the remediation work has been completed. A notice will be sent to MDDEFP specifying the dates on which monitoring reports will be submitted to MDDEFP. Following a two-year monitoring period, depending on the concentrations measured, the consultant responsible for monitoring will determine whether monitoring should continue, and monitoring may then continue for another two-year period before being re-assessed. The monitoring period may therefore continue for more than two years.

⁽⁴⁾ *Regulation Respecting the Burial of Contaminated Soils* (c. Q-2, r. 6.01).

⁽⁵⁾ Under the municipal zoning by-law, it is an industrial expansion zone with recreational and agricultural uses.

9. Regarding the management of residual materials, regardless of whether they are hazardous or not, once the contractor responsible for the remediation work is selected, a notice specifying the authorized disposal sites proposed by the contractor will be sent to MDDEFP for approval.

The final paragraph in section 5.2 of the amendment to the Plan (Entraco, March 2012) is replaced by the following:

Off-site disposal sites for hazardous and non-hazardous residual materials must be sites authorized by MDDEFP. Once the contractor responsible for the remediation work is selected, TC will send the MDDEFP a notice for approval specifying the sites proposed by the contractor.

10. In relation to the concrete structures in the former septic tank sector, i.e. the septic tanks themselves and the intake pipe, the following activities will be conducted:
- Once the soil and residual materials in and around the tanks have been removed, the concrete tanks will be characterized to determine the appropriate management method in accordance with the MDDEFP guidelines for managing concrete, brick and asphalt from construction and demolition work and waste from the cut stone sector and, if applicable, with the RRHM⁽⁶⁾.
 - Depending on the results of the characterization (hydrocarbons C₁₀-C₅₀), the concrete will be broken up on-site and transported to one of the following facilities:
 - if below level C (3,500 mg/kg), to a recycled aggregate producer.
 - if above or equal to level C (3,500 mg/kg), but below 30,000 mg/kg, to an engineered landfill site (ELS).
 - if above or equal to 30,000 mg/kg, to a final disposal site for hazardous materials, such as Newalta.
11. The selected options for the management of treated wood include, recycling for energy conversion (the preferred option) or disposal at an ELS. Once the contractor responsible for the remediation work is selected, a notice specifying the authorized site proposed by the contractor will be sent to the MDDEFP for approval.
12. As part of the contaminated soil excavation work described in the Plan, if residual materials represent less than 50% of the soil, they will be segregated where technically feasible. Depending on their characteristics, they will then be sent to one or more disposal sites authorized by MDDEFP.

Approved and signed by: [original signed by]
Normand Lalonde, Project Leader

⁽⁶⁾ *Regulation Respecting Hazardous Materials* (c. Q-2, r. 32).

APPENDIX 1

DOCUMENTS SENT BY MDDEFP

From: Annie.Levesque@mddefp.gouv.qc.ca [mailto:Annie.Levesque@mddefp.gouv.qc.ca]

Sent: 30 April 2013 17:24

To: Ritvisay, Kannika

Cc: Marsan-Paquin, Jean-François

Subject: Ref. No. 7610-01-01-0253704

Ref. No.: 7610-01-01-0253704

Subject: Remediation of a contaminated site – Mont-Joli Airport (Phase 2 of the project)

Hello, Ms. Ritvisay,

We continue our analysis of the above-referenced file. Here are our comments regarding the presence of watercourses/ditches on the site, as well as the wetland characterization report:

Streams / drainage ditches

Regarding item 4 of LVM's document dated 2012-12-06, after a comprehensive analysis of the information provided and further research, we confirm that LVM's findings are accurate and that the channel beds on the site near the former septic tanks and close to the wetland can be considered and managed as drainage ditches. For your information, please find attached a document detailing our analysis of and findings on the current situation with respect to the watercourses in the airport sector.

Accordingly, the objective of remediating the sediment in the ditch near the former septic tanks can be set at the applicable soil quality criterion (criterion C), as long as there is no risk of the contaminated sediment migrating to a fish habitat or a more sensitive site. To this end, we request that the remediation work (excavation and treatment of the contaminated sediment and soil > criterion C) be carried out by closing the contaminated portion of the drainage ditch, by embankment or a similar method, to stop the release of contaminated water and sediment to the Saucier watercourse and neighbouring land. Please specify what work will be done to meet these requirements.

Wetland characterization report

Regarding the mitigation measures outlined in the letter signed by Jean-François Marsan and dated March 8, 2013:

- Please confirm that all unused vehicles will be parked at least 60 m of all wetlands, including any watercourses, lakes and shores. Also confirm that this distance will also be applied for machinery refuelling and maintenance;
- Please specify the origin of the plant species (wetland, nursery, etc.) to be used for revegetation, as well as the method for collecting them, as applicable; and
- Please specify the type of soil to be laid prior to revegetation.

We will submit to you our final comments on the soil characterization in a few days, i.e., by the weekend, provided there are no setbacks.

Thank you, and have a great day!

Annie Lévesque, Chemist

Analyst – Industrial Sector

Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs

Direction régionale de l'analyse et de l'expertise du Bas-Saint-Laurent et de la

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From: Annie.Levesque@mddefp.gouv.qc.ca [mailto:Annie.Levesque@mddefp.gouv.qc.ca]
Sent: 30 May 2013 08:44
To: Ritvisay, Kannika
Subject: MDDEFP Ref. No. 7610-01-01-0253704

Ref. No.: 7610-01-01-0253704

Subject: Remediation of a contaminated site – Mont-Joli Airport (Phase 2 of the project)

Hello, Ms. Ritvisay,

Further to my email message of April 30, and as indicated in the telephone message I left you this morning, we hereby submit to you our final position on the characterization study submitted and the additional information provided by LVM in December 2012. The following items refer to the numbering used in LVM's letter of December 6, 2012. **We do not require additional information on the characterization study, but focus here on the items that must be taken into account in the remediation plan.**

First, bear in mind that that the consultant who attested the characterization study is responsible for verifying compliance with all of the technical requirements set out in the *Site Characterization Guide*. The regional branch reviewed the documents attested by the consultant and submitted its comments to the latter in a letter dated October 12, 2012. In a letter dated December 6, 2012, the consultant provided additional details and rationale, and reiterated that it considers the study to be complete and in compliance with the *Site Characterization Guide*. We consider that the characterization carried out provides a relatively accurate picture of the site. However, given the site's history and complexity and the sampling and testing methods chosen by LVM, there remains the possibility of an accidental discovery of contamination or residual matter not revealed by the characterization study. We therefore must inform you that approval of the remediation plan will be based on the data provided in the characterization study. In the event of a discovery of contamination or residual matter not identified in the characterization study, additional remediation work will be required.

REGARDING ITEM 7

First, it should be pointed out that the *Cadre de gestion des teneurs naturelles en manganèse dans le sol* [framework for managing natural levels of manganese in soil], dated March 28, 2012, to which LVM refers applies to natural levels set in the current version of MDDEFP's guidelines for the assessment of natural background levels in soils. Currently, these guidelines are based on the pedagogical concept of soil, that is to say that soils displaced by non-natural processes (backfill) are not accounted for in the site's background levels. The guidelines will be adjusted so as to include backfill containing imported soils or natural rock; however, we must for now adhere to the current version of the guidelines.

Regarding the characterization study, note that duplicate DCS-23 of sample PE-50-11-2 did in fact show C-D Mn contamination (3,500 mg/kg), and sounding PE-50-11 is therefore deemed to be C-D Mn-contaminated. Since this sounding is also Cu-, Pb- and Zn-contaminated and excavation of the contaminated soil is already provided for in the remediation plan, no further discussion on the matter is required.

However, in the characterization study, out of 29 samples analyzed for manganese, only 6 revealed B-C contamination, and only 2 revealed C-D contamination (samples PO-F1-11-CF4, at 2,700 mg/kg, and DCS-23). More specifically, in the former septic tank sector, from which sample PO-F1-11-CF4 was taken, the samples collected in similar horizons (layers) of soil in a radius of approximately 20 m do not show as high a level of contamination (often below criterion A). It is therefore questionable to conclude that the contamination of sounding PO-F1-11 is associated with natural levels, bearing in mind that according to the current guidelines, backfill soil is excluded from background levels. Therefore, in absence of a clear indication of the natural origin of the contamination in accordance with the current guidelines, **MDDEFP maintains its position on the Mn contamination of sounding PO-F1-11. Management of these contaminated soils must be included in the remediation plan, including an update of the plans submitted and the estimated volumes and surface areas of the contaminated soils.**

REGARDING ITEM 9

LVM is of the view that the source of PAH contamination in the sediment in the ditch in the former septic tank sector is very likely related to the presence of the tanks, which contain contaminated soil. However, while the sediment in the ditch is PAH-contaminated above criterion D, the septic tank sector is PAH-contaminated below criterion C. We are of the view that another source of contamination, not identified in the study, could potentially be the reason for the ditch sediment contamination. We therefore warn Transport Canada that the extent of the contamination in the ditch could be greater than what was estimated in the characterization study. **The remediation plan must provide for work to identify the source of contamination of the ditch sediment and the measures required to eliminate that source.**

As indicated in the telephone message I left you this morning, we need your responses to the comments raised in order to ensure that the remediation plan is complete and does not contain any errors with regard to the issues brought up by the final characterization study. I will resume my analysis of the file on Tuesday.

Please feel free to contact me if you have any questions.

Thank you, and have a great day!

Annie Lévesque, Chemist
Analyst – Industrial Sector
Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs
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REQUEST FOR ADDITIONAL INFORMATION

RECIPIENT: Kannika Ritvisay
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SENDER: Annie Levesque, Chemist
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Email: annie.levesque@mddefp.gouv.qc.ca

DATE: 3 September 2013

SUBJECT: Remediation of a contaminated site,
Mont-Joli Airport

Ref. No.: 7610-01-01-0253704

Ms. Ritvisay:

As agreed, please find attached our comments regarding the amendment to the remediation plan approved on January 20, 2012. These comments are additional to those e-mailed to you on April 30 and May 30, 2013.

1. Remediation Plan: Provide updated plans to take into account the new divisions of the lots on the site in question (lots 4 804 508 and 4 804 509).
2. In tables 2.1, 3.2, 4.2 and 5.1 of the remediation plan, the areas and volumes of zones PE-62-11 and PE-63-11 do not match the areas and volumes established in the characterization study. To be corrected. Also, in Table 2.1, the location in the cadastral description needs to be updated.
3. The quality control program for excavations related to contaminated soil must include the characterization of the excavation walls of the ditch. To be corrected.
4. It is indicated that the contaminated soil in zones 2.4, 3.2 and 3.3, as well as the surface soil of zone 3.1, if contaminated, could be removed to an engineered landfill site. This management method is not acceptable. Please confirm that all excavated contaminated soil will be disposed of in an MDDEP-authorized treatment centre.
5. The contaminated soil in soundings PE-50-11 and PE-14, in the former landfill sector, is contaminated with metals in concentrations exceeding the limits set out in Schedule I to the

RRBCS.¹ Under section 4 of the RRBCS, its burial is therefore not permitted unless it is demonstrated by means of a detailed report that the metals present in the soil cannot be removed in a proportion of 90% following an authorized optimal treatment and there is no available technique for that purpose. To be verified and corrected.

6. In the area zoned municipal 204 (EXI), any backfill materials from the site must not contain contaminants in concentrations exceeding the limits set out in Schedule I of the LPRR.² Section 5.3 and table 5.1 are not clear to this effect. To be verified and corrected.
7. Note that the Centre de traitement BSL in Saint-Anaclet is not authorized to treat PAHs with four or more rings at concentrations that exceed criterion C of the Policy. The contaminated sediment from the ditch therefore cannot be treated there.
8. Regarding groundwater quality monitoring following remediation work, please specify the dates on which the monitoring reports will be submitted to MDDEFP. As well, please confirm that after two years, depending on the concentrations measured, the consultant responsible for monitoring will determine whether monitoring should continue and that, if needed, monitoring will continue. Such monitoring could be conducted over more than two years.
9. It is indicated that the off-site destinations of hazardous materials must be sites authorized by MDDEFP and that MDDEFP must be informed of the specific sites selected as soon as the selection is made. Please specify that this also applies to the off-site destinations of all residual materials, not only hazardous residual materials.
10. For the former septic tank sector, it is indicated that the clean cement concrete will not be characterized. How will it be determined that this concrete is not contaminated? Please provide all information demonstrating that the characterization, crushing and reuse of this concrete residue on the site will comply with the MDDEP guidelines for managing concrete, brick and asphalt from construction and demolition work and waste from the free stone sector (<http://www.mddep.gouv.qc.ca/matieres/valorisation/lignesdirectrices/beton-brique-asphalte.htm>).
11. In Table 5.1, it is indicated that wood-tar creosote residue could be recovered instead of being disposed of in an engineered landfill site. Please specify which authorized site is proposed for waste-to-energy conversion.
12. Residual matter that accounts for less than 50% of the soil must be excavated to areas that have contaminated soil and must be remediated. Please specify how these residual materials will be managed.

The information submitted (documents, plans, etc.) must be signed and dated.

Please feel free to contact me if you have any questions.

¹ RRBCS: Regulation respecting the burial of contaminated soils

² LPRR: Land Protection and Rehabilitation Regulation

[original signed by]

Annie Lévesque, Chemist

APPENDIX 2

**AMENDED TABLE TAKEN FROM THE
INITIAL REMEDIATION PLAN
(Entraco, March 2011)**

Table 5.1 Soil, residual material and fill material management procedures

Site	Zone ⁽¹⁾	Description of Materials	Soil Management			Residual Material Management			Source of Fill Material	
			Estimated Volume (m ³)	To Be Characterized	Recommended Destination	Estimated Volume (m ³)	To Be Characterized	Recommended Destination	Estimated Volume (m ³)	Source
Former building H-3	Zone 1.1	Soil contaminated by BTEX and PAHs (C-D range)	42	No	Authorized treatment site	n/a	n/a	n/a	42	Recognized borrow pit
		Surface soil (uncontaminated)	800	Yes	If contaminated: authorized treatment site	n/a	n/a	n/a	800	Surface soil (if uncontaminated) or recognized borrow pit
		Concrete debris from the foundation	n/a	n/a	n/a	10	No	Recycled aggregate producer	10	Recognized borrow pit
Former coal depot	Zone 1.2	Soil potentially contaminated by PAHs	18	Yes	If contaminated: authorized treatment site	n/a	n/a	n/a	18	Excavated soil (if uncontaminated) or recognized borrow pit
	Zone 2.1	Presence of residual materials (above 50%) in the soil; potential contamination of the soil by metals	n/a	n/a	n/a	170	No	Engineered landfill site	170	Recognized borrow pit
	Zone 2.2	Presence of residual materials (above 50%) in the soil; potential contamination of the soil by metals	n/a	n/a	n/a	70	No	Engineered landfill site	70	Recognized borrow pit
	Zone 2.3	Presence of residual materials (above 50%) in the soil; potential contamination of the soil by metals	n/a	n/a	n/a	20	No	Engineered landfill site	20	Recognized borrow pit
	Zone 2.4	Soil potentially contaminated by metals	65	Yes	If contaminated: contaminated soil burial site	n/a	n/a	n/a	65	Excavated soil (if uncontaminated) or recognized borrow pit
Former landfill	Zone 3.1	Presence of residual materials (above 50%) in the soil; potential contamination of the soil by metals	n/a	n/a	n/a	7	No	Engineered landfill site	7	Recognized borrow pit
		Surface soil (uncontaminated)	14	Yes	If contaminated: contaminated soil burial site	n/a	n/a	n/a	14	Surface soil (if uncontaminated) or recognized borrow pit
		Soil potentially contaminated by metals	44	Yes	If contaminated: contaminated soil burial site	n/a	n/a	n/a	44	Excavated soil (if uncontaminated) or recognized borrow pit
	Zone 3.3	Soil potentially contaminated by metals	49	Yes	If contaminated: contaminated soil burial site	n/a	n/a	n/a	49	Excavated soil (if uncontaminated) or recognized borrow pit

n/a: Not applicable

APPENDIX 3

**UPDATED TABLES TAKEN FROM THE
AMENDMENT TO THE REMEDIATION PLAN**

(Entraco, March 2012)

Table 2.1 Characteristics of the sectors and zones to be remediated

Sector	Zone	Environmental issues	Area (m ²)	MTM Coordinates NAD83, Zone 6	NAD83 Geographic Coordinates	Lot Number (Land Register of Quebec)	Municipal Zoning
Former landfill	PE-33-11, PE-47-11, PE-48-11, PE-50-11 and PE-51-11	Soil contaminated by metals or PH C ₁₀ ⁺ C ₅₀ (C-D range)	1800	N 5385846 E 253470	N 48,6090410513 W 68,1961399234	4 804 509	208 (LD); Heavy Industry - Commerce and Industry
	PE-34-11	Residual materials: metal, cement concrete, tile, ash	215				
	PE-62-11	Soil contaminated by metals (C-D range)	120				
Septic Tanks	PE-63-11	Soil contaminated by PH C ₁₀ -C ₅₀ (C-D range)	119	N 5385387 E 252938	N 48,6048694941 W 68,203297048	4 804 509	208 (LD); Heavy Industry - Commerce and Industry
	PO-F1-11	Soil contaminated by metals (C-D range)	88				
	PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11 and PE-89-11	Residual materials: clean cement concrete (<C) Residual materials: oil-stained cement concrete	n/a				
	PE-62-11, PE-64-11 and PE-89-11	Residual materials: slag	600				
	PE-37-11 and PE-88-11	Residual materials: creosoted wood	n/a				
	FOSSE-1-11	Contaminated sediment	200				
	PE-CF-04-11 to PE-CF-09-11	Residual materials: slag	1180				
Former garages	PE-21-11	Residual materials: slag and coal	332	N 5385251 E 253260	N 48,6036730468 W 68,1969138917	4 804 509	205 (LD); Heavy Industry - Commerce and Industry
	PE-39-11	Residual materials: asphalt in place	475				
Former boiler room	PE-84-11 and PE-85-11	Residual materials: slag	715	N 5386029 E 253521	N 48,6106909244 W 68,1954709123	4 804 509	208 (LD); Heavy Industry - Commerce and Industry
	PE-25-11	Residual materials: asphalt in place	350				
Former asphalt plant							

Table 3.1 Characteristics of the zones to be remediated in the former landfill sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
PE-33-11	Soil contaminated by metals (C-D range); zinc	325,0	0.3 to 1.1	0,80	260,0	Excavation and disposal
PE-47-11	Soil contaminated by metals (C-D range): cadmium, zinc	375,0	0.6 to 1.2	0,60	225,0	Excavation and disposal
PE-48-11	Soil contaminated by metals (C-D range): cadmium, copper, manganese, lead, zinc	310,0	0.2 to 1.8	1,60	496,0	Excavation and disposal
PE-50-11 ⁽¹⁾	Soil contaminated by metals (C-D range); duplicates >D); cadmium, copper, lead, zinc	450,0	0.25 to 2.0	1,75	787,5	Excavation and disposal
PE-51-11	Soil contaminated by metals (C-D range): cadmium, copper, lead, zinc	340,0	0.4 to 1.5	1,10	374,0	Excavation and disposal
PE-51-11	Soil contaminated by PH C ₁₀ -C ₅₀ (C-D range)	340,0	1.5 to 2.5	1,00	340,0	Excavation and disposal (treatment)
Subtotal		1800⁽²⁾			2482,5	
Residual materials						
PE-34-11	Metal, cement concrete, tile, ash	215,0	0.3 to 1.2	0,90	193,5	Excavation and disposal
Subtotal		215,0			193,5	

(1) This zone is considered to be contaminated >D.

(2) Total area of five zones (the area of zone PE-51-11 is counted only once in the sum of the areas).

Table 3.3 Characteristics of the zones to be remediated in the ditch sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
FOSSE-1-11	Materials contaminated by PAHs (>D)	200 ⁽¹⁾	0.0 to 0.3	0,30	60,0	Complementary characterization, excavation and disposal (treatment)
Subtotal		200,0			60,0	
Residual materials						
	No residual materials					
Subtotal		0,0			0,0	

(1) Approximate area and volume; the exact dimensions will be assessed in the complementary characterization.

Table 3.4. Characteristics of the zones to be remediated in the former railway track sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
	No contaminated soil (concentrations < C)					
Subtotal		0,0			0,0	
Residual materials						
PE-CF-04-11	Slag	200,0	0.0 to 0.3	0,30	60,0	Excavation and disposal
PE-CF-05-11	Slag	200,0	0.0 to 0.3	0,30	60,0	Excavation and disposal
PE-CF-06-11	Slag	190,0	0.0 to 0.3	0,30	57,0	Excavation and disposal
PE-CF-07-11	Slag	195,0	0.0 to 0.3	0,30	58,5	Excavation and disposal
PE-CF-08-11	Slag	200,0	0.0 to 0.3	0,30	60,0	Excavation and disposal
PE-CF-09-11	Slag	195,0	0.0 to 0.45	0,45	87,8	Excavation and disposal
Subtotal		1180,0			383,3	

Table 3.5 Characteristics of the zones to be remediated in the former garage sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
	No contaminated soil (concentrations < C)					
Subtotal		0,0			0,0	
Residual materials						
PE-21-11	Slag and coal	332,0	0.0 to 0.4	0,40	132,8	Excavation and disposal
PE-39-11	Asphalt in place	475,0	0.15 to 0.25	0,10	47,5	Excavation and disposal
Subtotal		807,0			180,3	

Table 3.6 Characteristics of the zones to be remediated in the former boiler room sector

Zone	Issues	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
	No contaminated soil (concentrations < C)					
Subtotal		0,0			0,0	
Residual materials						
PE-84-11	Slag	305,0	0.1 to 0.2	0,10	30,5	Excavation and disposal
PE-85-11	Slag	410,0	0.09 to 0.3	0,21	86,1	Excavation and disposal
Subtotal		715,0			116,6	

Table 3.7 Characteristics of the zones to be remediated in the former asphalt plant sector

Issues	Issue	Area (m ²)	Variation in Thickness (m)	Thickness (m)	Volume (m ³)	Selected Action
Contaminated soil						
	No contaminated soil (concentrations < B)					
Subtotal		0,0			0,0	
Residual materials						
PE-25-11	Asphalt in place	350,0	0.15 to 0.30	0,15	52,5	Excavation and disposal
Subtotal		350,0			52,5	

Table 4.1 Soil pile characterization program

Sector	Zone ⁽¹⁾	Issues	Estimated Volume (m ³)	Number of samples	Parameters			
					Metals ⁽²⁾	C ₁₀ -C ₅₀ ⁽³⁾	MAHs ⁽⁴⁾	PAHs ⁽⁵⁾
Former landfill	PE-33-11, PE-34-11, PE-47-11, PE-48-11, PE-50-11 and PE-51-11	Prior excavation of surface soil - underlying contaminated soil and residual materials - in the sector, maximum concentrations for metals, C ₁₀ -C ₅₀ and PAH in the C-D range	697,5	9	9			9
Septic Tanks	PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11, PE-89-11 and PO-F1-11	Prior excavation of surface soil - underlying contaminated soil and residual materials - in the sector, maximum concentrations for metals and C ₁₀ -C ₅₀ in the C-D range and PAH concentrations in the B-C range	947,2	12	12			12
Ditch	FOSSE-1-11	No prior excavation of surface soil - contaminated materials at the surface (bottom of ditch)	-	-				
Former railway track	PE-CF-04+11 to PE-CF-09-11	No prior excavation of surface soil - residual materials at the surface	-	-				
Former garages	PE-21-11 and PE-39-11	Prior excavation of surface soil - underlying residual materials - in the sector, maximum metal and PAH concentrations in the B-C range	71,3	3	3			3
Former boiler room	PE-84-11 and PE-85-11	Prior excavation of surface soil - underlying residual materials - in the sector, maximum metal and C ₁₀ -C ₅₀ concentrations in the B-C range	67,4	3	3			3
Former asphalt plant	PE-25-11	Prior excavation of surface soil - underlying residual materials - in the sector, maximum PAH concentrations in the A-B range	52,5	2				2
TOTAL			1835,9	29	27	24	0	26

NOTES

- (1) The locations of the zones are shown in figures 2.2 to 2.6.
- (2) Metals: Arsenic, cadmium, chromium, copper, tin, manganese, nickel, lead, zinc.
- (3) C₁₀-C₅₀: Petroleum hydrocarbons C₁₀-C₅₀
- (4) MAHs: Monocyclic aromatic hydrocarbons
- (5) PAHs: Polycyclic aromatic hydrocarbons

Table 4.2 Quality control program for excavations related to contaminated soil

Sector	Zone ⁽¹⁾	Area of Zone (m ²)	Affected Horizon (m)	Issues	Quantity of Samples to be Collected		Quantity of Samples to be Analyzed and Parameters			
					Walls	Bottom (0-30 cm)	Metals ⁽²⁾	C ₁₀ -C ₅₀ ⁽³⁾	MAHs ⁽⁴⁾	PAHs ⁽⁵⁾
Former landfill	PE-33-11	325	0.3 to 1.1	Zinc	3	1	4			
	PE-47-11	375	0.6 to 1.2	Cadmium, zinc	4	1	5			
	PE-48-11	310	0.2 to 1.8	Cadmium, copper, manganese, lead, zinc	5	1	6			
	PE-50-11	450	0.25 to 2.0	Cadmium, copper, lead, zinc	9	1	10			
	PE-51-11	340	0.4 to 1.5	Cadmium, copper, lead, zinc	7	0	7	7		
	PE-51-11	340	1.5 to 2.5	PH C ₁₀ -C ₅₀	5	0 ⁽⁶⁾	5	5		
Septic Tanks	PE-62-11	120	3.2 to 3.4	Arsenic	4	1	5	5		
	PE-63-11	119	2.0 to 3.2	PH C ₁₀ -C ₅₀	8	1	9	9		
	PO-F1-11	88	2.2 to 3.1	Manganese	4	1	5	5		
Ditch	FOSSÉ-1-11	200 ⁽⁷⁾	0.0 to 0.3	PAHs	10	4				14
	TOTAL ⁽⁸⁾					59	11	56	31	0

NOTES

- (1) The locations of the zones are shown in figures 2.2 to 2.6.
- (2) Metals: Arsenic, cadmium, chromium, copper, tin, manganese, nickel, lead, zinc.
- (3) C₁₀-C₅₀: Petroleum hydrocarbons C₁₀-C₅₀.
- (4) MAHs: Monocyclic aromatic hydrocarbons.
- (5) PAHs: Polycyclic aromatic hydrocarbons.
- (6) Excavation ended at bedrock.
- (7) Approximate area; the exact area will be assessed in the complementary characterization; the quality control program will then be reviewed.
- (8) Does not include field duplicates (minimum of 10%).

Table 4.3 Quality control program for excavations related to residual materials

Sector	Zone ⁽¹⁾	Area of Zone (m ²)	Affected Horizon (m)	Issues	Quantity of Samples to be Collected		Quantity of Samples to be Analyzed and Parameters			
					Walls	Bottom	Metals ⁽²⁾	C ₁₀ -C ₅₀ ⁽³⁾	MAHs ⁽⁴⁾	PAHs ⁽⁵⁾
Former landfill	PE-34-11	215.0	0.3 to 1.2	Metal, cement concrete, tile, ash	2	1	3	3		3
Septic Tanks	PE-37-11, PE-38-11, PE-61-11, PE-63-11, and PE-88-11		0.8 to 3.5	Cement concrete (with or without oil stains)	20	6	26	26		26
	PE-37-11 and PE-88-11		0.8 to 3.2	Creosoted wood						
	PE-62-11	125.0	2.0 to 3.2	Slag						
	PE-64-11	275.0	1.2 to 3.0	Slag						
Former railway track	PE-89-11	200.0	1.5 to 2.8	Slag	3	1	4			
	PE-CF-04-11	200.0	0.0 to 0.3	Slag						
	PE-CF-05-11	200.0	0.0 to 0.3	Slag						
	PE-CF-06-11	190.0	0.0 to 0.3	Slag						
	PE-CF-07-11	195.0	0.0 to 0.3	Slag expected						
	PE-CF-08-11	200.0	0.0 to 0.3	Slag						
	PE-CF-09-11	195.0	0.0 to 0.45	Slag						
	PE-21-11	332.0	0.0 to 0.4	Slag and coal						
	PE-39-11	475.0	0.15 to 0.25	Asphalt in place						
	PE-84-11	305.0	0.1 to 0.2	Slag						
Former boiler room	PE-85-11	410.0	0.09 to 0.3	Slag	4	1	5	5		5
	PE-25-11	350.0	0.15 to 0.30	Asphalt in place	4	1				5
TOTAL ⁽⁶⁾					34	11	40	10	0	15

NOTES

- (1) The locations of the zones are shown in figures 2.2 to 2.6.
- (2) Metals: Arsenic, cadmium, chromium, copper, tin, manganese, nickel, lead, zinc.
- (3) C₁₀-C₅₀: Petroleum hydrocarbons C₁₀-C₅₀.
- (4) MAHs: Monocyclic aromatic hydrocarbons.
- (5) PAHs: Polycyclic aromatic hydrocarbons.
- (6) Does not include field duplicates (minimum rate of 10%).

Table 5.1 Management of excavated materials

Secteur	Zone ⁽¹⁾	Description of Materials	Soil Management			Residual Material Management			Source of Fill Material	
			Estimated Volume (m ³)	To Be Characterized	Recommended Destination	Estimated Volume (m ³)	To Be Characterized	Recommended Destination	Estimated Volume (m ³)	Source
Former landfill	PE-33-11, PE-47-11, PE-48-11 and PE-51-11	Soil contaminated by metals (C-D range)	1355	No	Contaminated soil burial site (e.g. Horizon Environment or Enfouir Bec)	n/a	n/a	n/a	1355	Excavated surface soil (f < C) or recognized borrow pit
	PE-50-11	Soil contaminated by metals (C-D range; duplicates >D)	787,5	No	Contaminated soil burial site (e.g. Horizon Environment or Enfouir Bec)	n/a	n/a	n/a	787,5	Excavated surface soil (f < C) or recognized borrow pit
	PE-51-11	Soil contaminated by PH C ₁₇ -C ₂₀ (C-D range)	340	No	Authorized contaminated soil treatment site (e.g. Newalta, Recy-Chem or BSL)	n/a	n/a	n/a	340	Excavated surface soil (f < C) or recognized borrow pit
	PE-34-11	Metal, cement concrete, tile, ash	n/a	n/a	n/a	193,5	No	Engineered landfill site	193,5	Excavated surface soil (f < C) or recognized borrow pit
Septic Tanks	PE-62-11	Soil contaminated by metals (C-D range)	24	No	Contaminated soil burial site (e.g. Horizon Environment or Enfouir Bec)	n/a	n/a	n/a	24	Excavated surface soil (f < C) or recognized borrow pit
	PE-63-11	Soil contaminated by PH C ₁₇ -C ₂₀ (C-D range)	142,8	No	Authorized contaminated soil treatment site (e.g. Newalta, Recy-Chem or BSL)	n/a	n/a	n/a	142,8	Excavated surface soil (f < C) or recognized borrow pit
	PO-F1-11	Soil contaminated by metals (C-D range)	79,2	No	Contaminated soil burial site (e.g. Horizon Environment or Enfouir Bec)	n/a	n/a	n/a	79,2	Excavated surface soil (f < C) or recognized borrow pit
Former railway track	PE-37-11, PE-38-11, PE-61-11, PE-62-11, PE-63-11, PE-64-11, PE-88-11 and PE-89-11	Cement concrete	n/a	n/a	n/a	158	Yes	If < C: recycled aggregate producer If > = C and < 30 000 ppm: engineered landfill site	158	Excavated surface soil (f < C) or recognized borrow pit
	PE-62-11, PE-64-11 and PE-89-11	Slag	n/a	n/a	n/a	158	Yes	If residual hazardous material (> or = 30,000 ppm): final disposal site (e.g. Newalta)	158	Excavated surface soil (f < C) or recognized borrow pit
	PE-92-11, PE-94-11 and PE-89-11	Slag	n/a	n/a	n/a	925	No	Engineered landfill site	925	Excavated surface soil (f < C) or recognized borrow pit
	PE-92-11 and PE-88-11	Creosoted wood	n/a	n/a	n/a	45	No	Energy conversion or engineered landfill site	45	Excavated surface soil (f < C) or recognized borrow pit
Ditch	FOSSÉ-1-11	Contaminated sediment (>D)	60	Yes	Authorized contaminated soil treatment site (e.g. Newalta or Recy-Chem)	n/a	n/a	n/a	60	Recognized borrow pit
Former garages	PE-CF-04-11 to PE-CF-09-11	Slag	n/a	n/a	n/a	383,3	No	Engineered landfill site	0	No backfill
	PE-21-11	Slag and coal	n/a	n/a	n/a	132,8	No	Engineered landfill site	132,8	Recognized borrow pit
Former boiler room	PE-39-11	Asphalt in place	n/a	n/a	n/a	47,5	No	Recycled aggregate producer	47,5	Excavated surface soil (f < C) or recognized borrow pit
	PE-64-11 and PE-86-11	Slag	n/a	n/a	n/a	116,6	No	Engineered landfill site	116,6	Excavated surface soil (f < C) or recognized borrow pit
Former asphalt plant	PE-25-11	Asphalt in place	n/a	n/a	n/a	52,5	No	Recycled aggregate producer	52,5	Excavated surface soil (f < B) or recognized borrow pit
Total (m ³)			2788,5			2212,2			4617,4	

NOTES
 (1) The locations of the zones are shown in figures 2.2 to 2.6.
 n/a Not applicable

APPENDIX 4

UPDATED FIGURES

Légende

- Limite du site à l'étude (partie de l'ancien lot 706-1)
- Limite du site à l'étude de l'EEES phase 1 (partie de l'ancien lot 706-1)
- Fossés de drainage
- Zone estimée des sols contaminés (>C)
- Zone estimée des matières résiduelles
- Zone estimée des sédiments (fossé)

NOTE:
1. Les limites des zones estimées de sols contaminés ou de matières résiduelles ont été tirées de l'étude de LVM (janvier 2012) et ont été modifiées pour faciliter les travaux d'excavation.

SOURCE (fond de plan):
LVM, janvier 2012
(073-P088375-01504EN400-100.dwg)

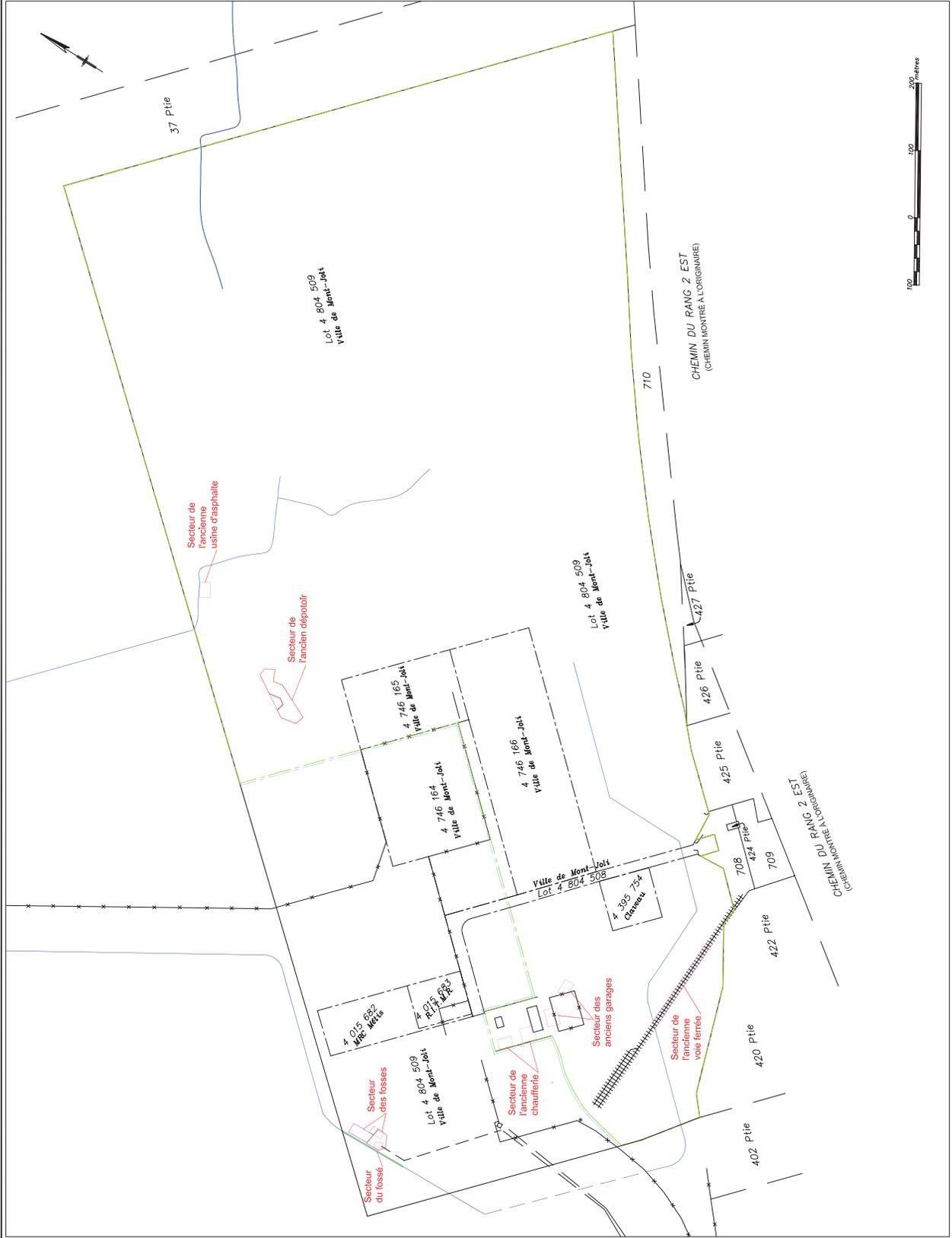
Révis.	Description	Par/By	Date



Dossier / File: Aéroport de Mont-Joli
Lot 4 804 509
Réponses aux commentaires
et demandes du MDDEFP
(dossier MDDEFP : 7610-01-01-0253704)

Desin / Drawing:
Figure 2.1
Localisation des secteurs d'intervention
et des limites de lots

Conçu par / Designed by:	Date
N.L.	2012-02-20
Dessiné par / Drawn by:	Date
LT (N.L.)	2013-09-17
Vérifié par / Verified by:	Date
N.L.	2013-09-17
Approuvé par / Approved by:	Date
<i>[Signature]</i>	2013-09-17
No. dossier / File no.:	Echelle / Scale:
P0680	Graphique
No. dessin / Drawing no.:	Feuille / Sheet:



Légende

-  Tranchée d'exploration (LVM 2011)
-  Puits d'observation (LVM 2011)
-  Zone estimée des sols contaminés (>C)
-  Zone estimée des matières résiduelles

NOTE :

- Les limites des zones estimées de sols contaminés ou de matières résiduelles ont été tirées de l'étude de L.V. (janvier 2012) et ont été modifiées pour faciliter les travaux.
- Les zones 3.1, 3.2, 3.3 (Anden dépollé) sont tracées dans le plan d'installation initial (Entraco, mars 2011 - P0922)

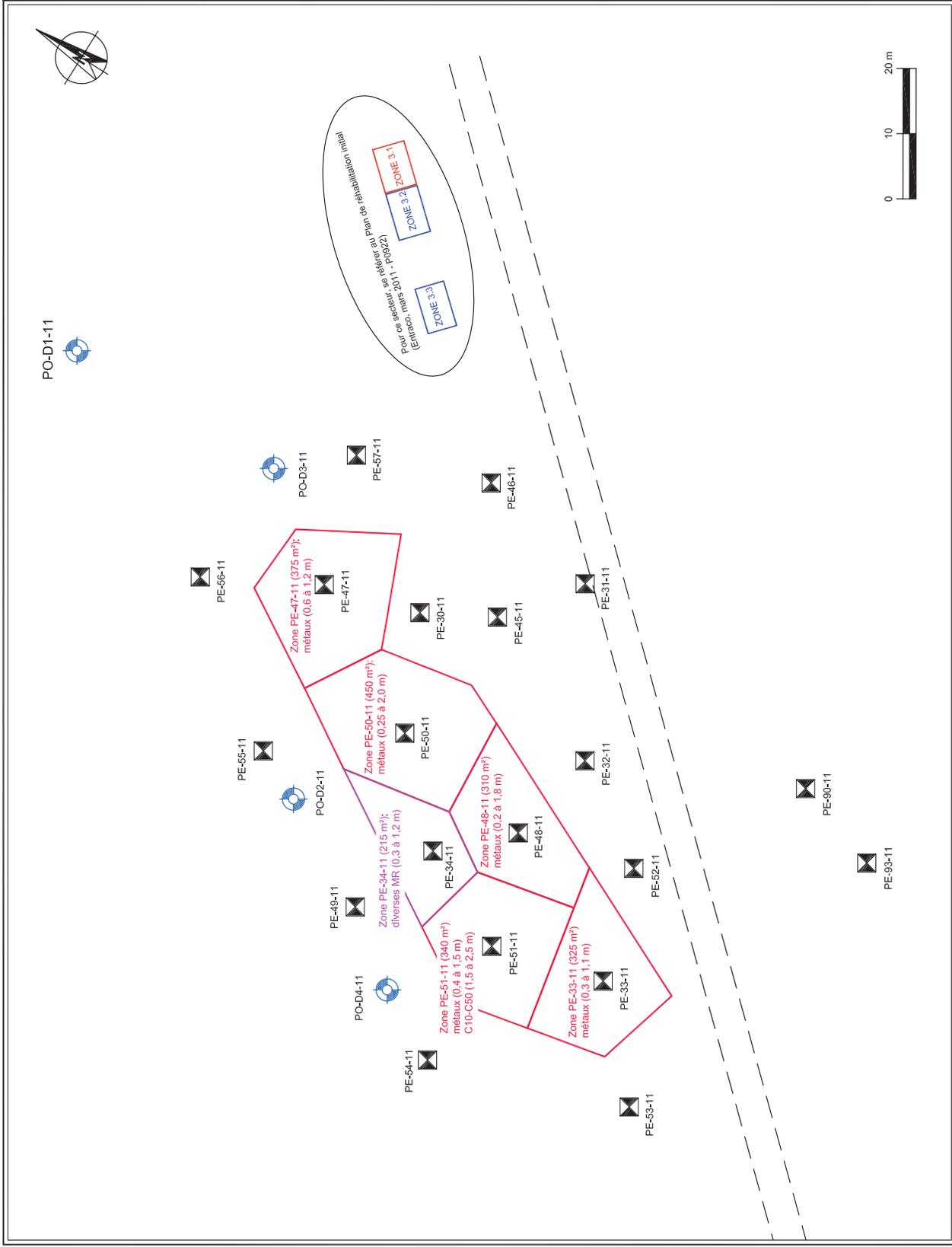
SOURCE (fond de plan) :
LVM, janvier 2012
(073-P098375-0150-EN-001-00.dwg)

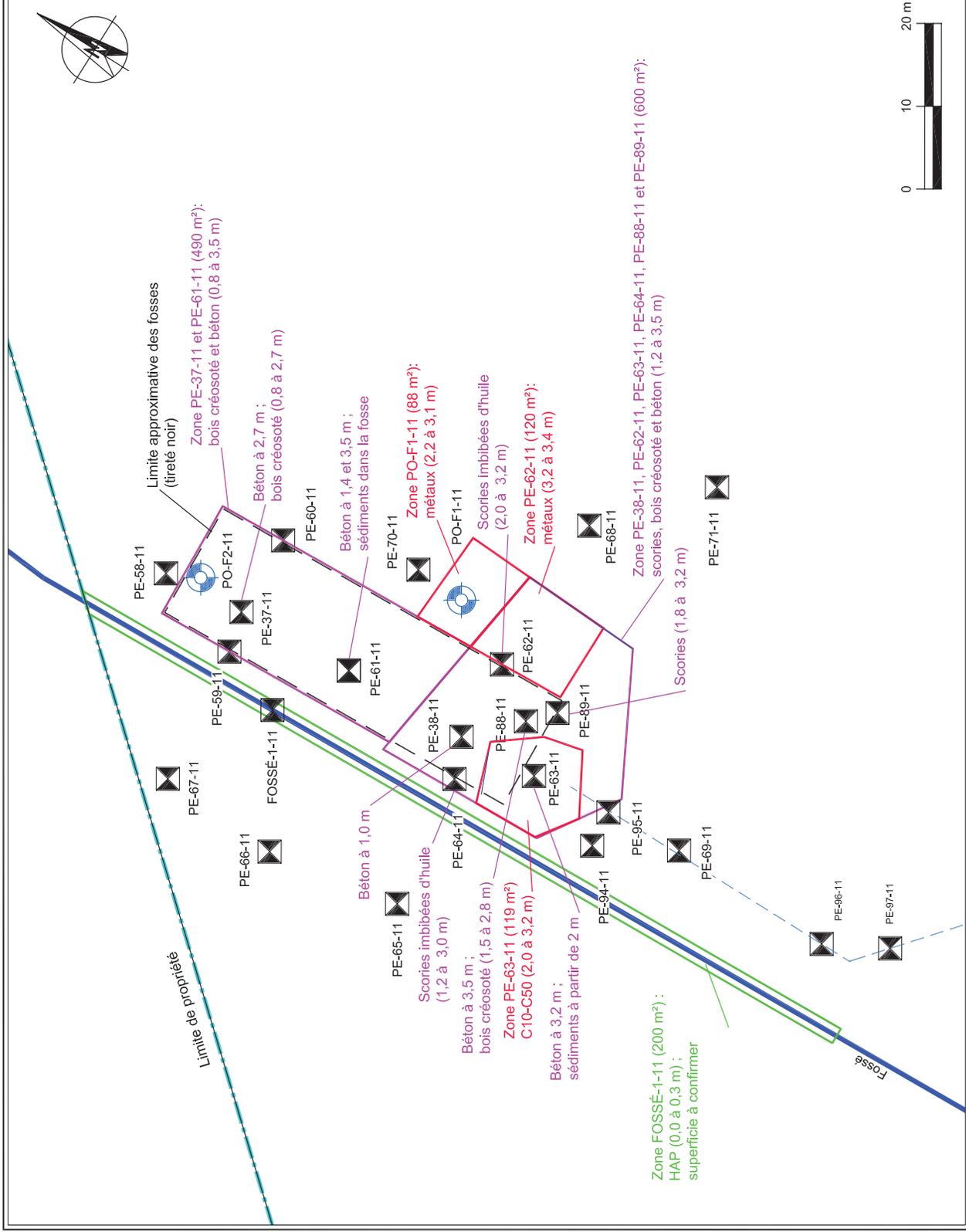


Dossier / File : Aéroport de Mont-Joli
Lot 4 804 509
Réponses aux commentaires
et demandes du MDDEFP
(dossier MDDEFP : 761-0-01-0263704)

Dessin / Drawing :
Figure 2.2
Localisation des zones d'intervention -
Secteur de l'anden dépollé

Conçu par / Designed by:	Date
N.L.	2012-02-20
Dessiné par / Drawn by:	Date
L.T./N.L.	2013-09-17
Vérifié par / Verified by:	Date
N.L.	2013-09-17
Approuvé par / Approved by:	Date
	
No. dossier / File no.:	Echelle / Scale:
P0960	Graphique
No. dessin / Drawing no.:	Feuille / Sheet:





Légende

- Fossé de drainage
- Tranchée d'exploration (LVM 2011)
- Puits d'observation (LVM 2011)
- Zone estimée des sols contaminés (>C)
- Zone estimée des matières résiduelles
- Zone estimée des sédiments (fossé)

NOTE :
 1. Les limites des zones estimées de sols contaminés, de matières résiduelles ou de sédiments (fossé) ont été tirées de l'étude de LVM (janvier 2012) et peuvent avoir été modifiées pour faciliter les travaux d'excavation.

SOURCE (fond de plan) :
 LVM, janvier 2012
 (073-P098375-0150-EN-001-00.dwg)

Réq.	Description	Prep/By	Date
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ENTRACO
 CONSULTING ET TRAVAUX
 Dossier / File: Aéroport de Mont-Joli
 Lot 4 804 509
 Réponses aux commentaires
 et demandes du MDDEFP
 (dossier MDDEFP : 7610-01-0253704)

Dessin / Drawing:
 Figure 2.3
 Localisation des zones d'intervention -
 Secteur des fosses

Conçu par / Designed by:	Date
N.L.L.	2012-02-20
Dessiné par / Drawn by:	Date
L.T./N.L.L.	2013-09-17
Vérifié par / Verified by:	Date
N.L.L.	2013-09-17
Approuvé par / Approved by:	Date
No. dossier / File no.:	Echelle / Scale:
P0980	Graphique
No. dessin / Drawing no.:	Feuille / Sheet:

Légende

-  Fossé de drainage
-  Tranchée d'exploration (LVM 2011)
-  Puits d'observation (LVM 2011)
-  Zone estimée des sols contaminés (>C)
-  Zone estimée des matières résiduelles

NOTE :

- Les limites des zones estimées de sols contaminés, de matières résiduelles ou de sédiments (P099) ont été tirées de l'étude de LVM (janvier 2012) et peuvent avoir été modifiées pour faciliter les travaux d'excavation 2.1 à 2.4. (Andrien d'après le client) Les travaux effectués dans le plan de stabilisation initial (Entraco, mars 2011 - P0922).

SOURCE (fond de plan) :
 LVM, janvier 2012
 (073-P098375-0150-EN-001-00.dwg)

Révisé	Description	Par / By	Date
-	-	-	-
-	-	-	-



ENTRACO

 CONSULTING EN ENVIRONNEMENT

Dossier / File: Aéroport de Mont-Joli
 Lot 4 804 509
 Réponses aux commentaires
 et demandes du MDDEFP
 (dossier MDDEFP : 7610-01-0263704)

Dessin / Drawing: Figure 2.4
 Localisation des zones d'intervention -
 Ancienne voie ferrée

Conçu par / Designed by:	Date
N.L.	2012-02-20

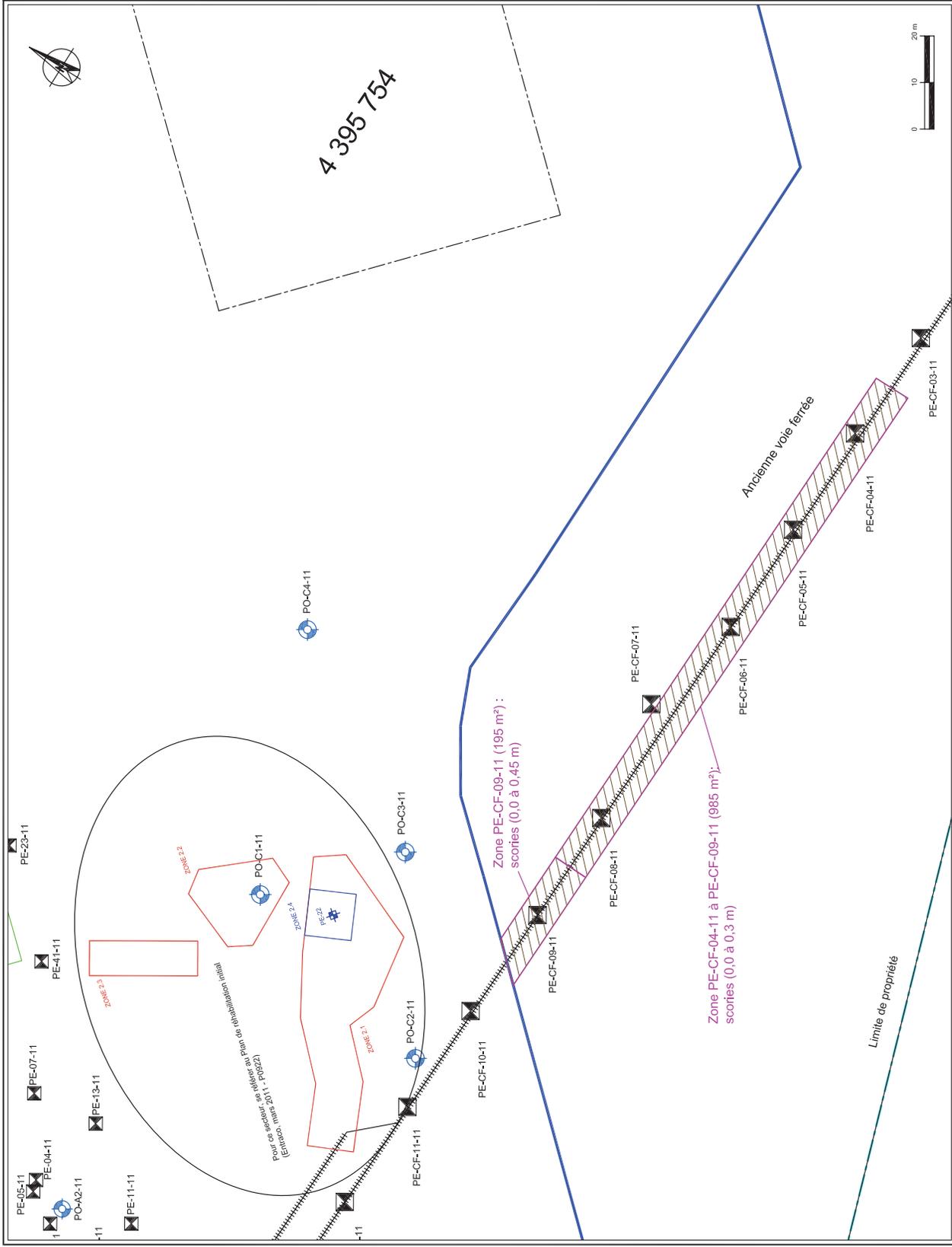
Dessiné par / Drawn by:	Date
L.T./N.L.	2013-09-17

Vérifié par / Verified by:	Date
N.L.	2013-09-17

Approuvé par / Approved by:	Date
	

No. dossier / File no.:	Echelle / Scale:
P0960	Graphique

No. dessin / Drawing no.:	Feuille / Sheet:





Légende

-  Tranchée d'exploration (LVM 2011)
-  Puits d'observation (LVM 2011)
-  Zone estimée des sols contaminés (>C)
-  Zone estimée des matières résiduelles

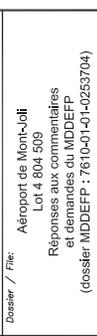
NOTE :

- Les limites des zones estimées de sols contaminés, de matières résiduelles ou de sédiments (basse) ont été tirées de l'étude de LVM (janvier 2012) et peuvent avoir été modifiées pour faciliter les travaux d'excavation.

SOURCE (fond de plan) :

LVM, janvier 2012
 (073-P08375-0150-EN-001-00.dwg)

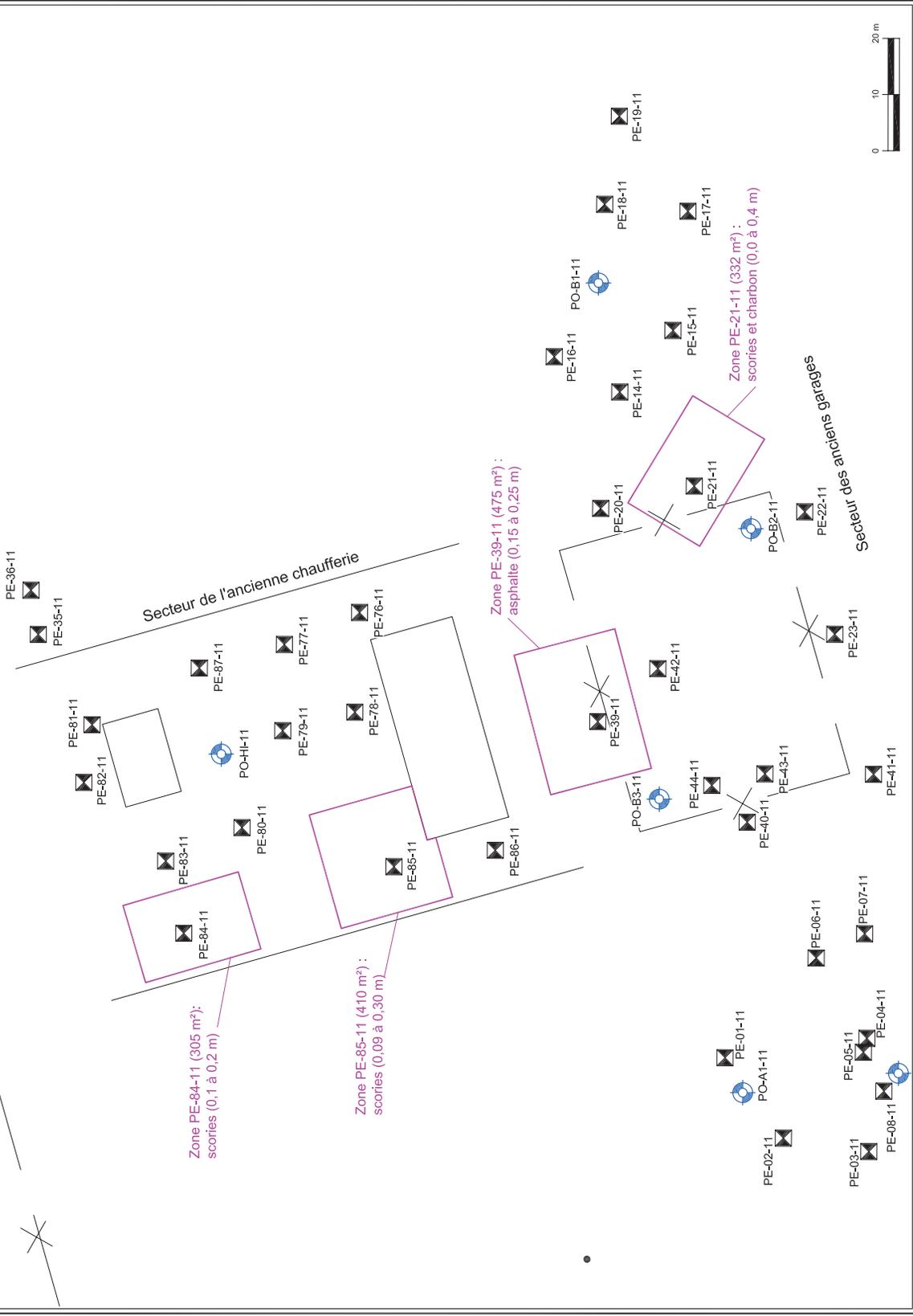
Réf.	Description	Proj/By	Date
-	-	-	-
-	-	-	-



Dossier / File : Aéroport de Mont-Joli
 Lot 4 804 509
 Réponses aux commentaires et demandes du MDDEFP (dossier MDDEFP : 7610-01-0263704)

Figure 2.5
 Localisation des zones d'intervention - Ancienne chaufferie et anciens garages

Conçu par / Designed by:	Date
N.L.	2012-02-20
Dessiné par / Drawn by:	Date
L.T./N.L.	2013-09-17
Vérifié par / Verified by:	Date
N.L.	2013-09-17
Approuvé par / Approved by:	Date
	
No. dossier / File no.:	Echelle / Scale:
P0960	Géométrique
No. dessin / Drawing no.:	Feuille / Sheet:



Légende

-  Fossé de drainage
-  Tranchée d'exploration (LVM 2011)
-  Puits d'observation (LVM 2011)
-  Zone estimée des sols contaminés (>C)
-  Zone estimée des matières résiduelles

NOTE :

1. Les limites des zones estimées de sols contaminés, de matières résiduelles ou de sédiments (fosse) ont été tirées de l'étude de LVM (janvier 2012) et peuvent avoir été modifiées pour faciliter les travaux d'excavation.

SOURCE (fond de plan) :

LVM, janvier 2012
 (073-P098375-0150-EN-001-00.dwg)

Réq.	Description	Par / By	Date
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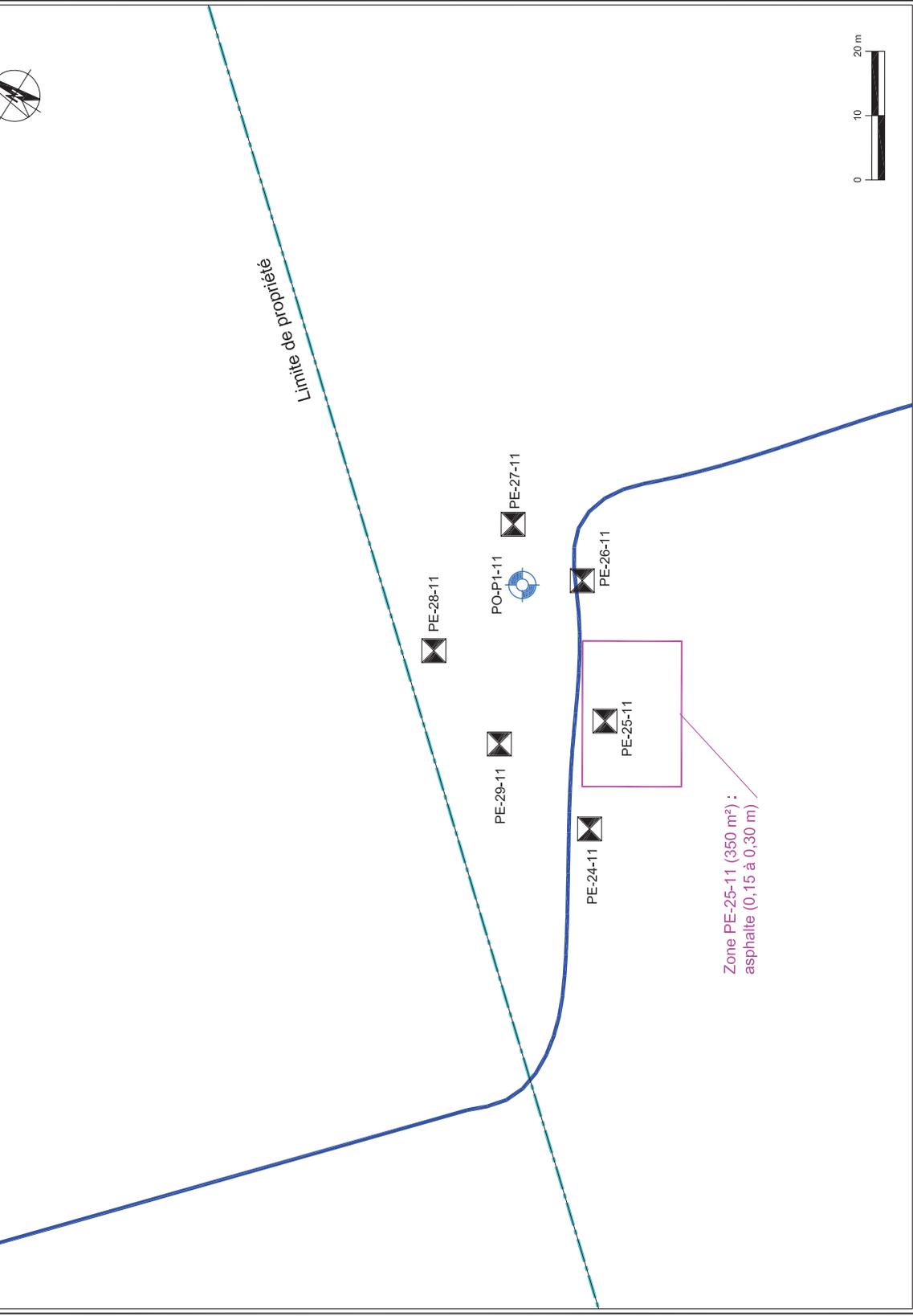


ENTRACO
 CONSULTING ET SERVICES
 Dossier / File: Aéroport de Mont-Joli
 Lot 4 804 509
 Réponses aux commentaires
 et demandes du MDDEFP
 (dossier MDDEFP : 7610-01-0253704)

Dessin / Drawing:

Figure 2.6
 Localisation de la zone d'intervention -
 Ancienne usine d'asphalte

Conçu par / Designed by:	Date
N.L.	2012-02-20
Dessiné par / Drawn by:	Date
L.T./N.L.	2013-09-17
Vérifié par / Verified by:	Date
N.L.	2013-09-17
Approuvé par / Approved by:	Date
	
No. dossier / File no.:	Echelle / Scale:
P0960	Graphique
No. dessin / Drawing no.:	Feuille / Sheet:



Légende

- Limite du site à l'étude (partie de l'ancien lot 706-1)
- Limite du site à l'étude de l'EES phase 1 réalisée en 2009 par LVM (partie de l'ancien lot 706-1)
- Fossé de drainage
- Puits d'observation (LVM 2011)
- Puits d'observation (LVM 2011) proposé pour le suivi de la qualité
- Puits d'observation antérieur (divers consultants en environnement)
- Puits d'observation à construire proposé par Entraco en 2011 pour le suivi de la qualité
- Étendue présumée de l'eau contaminée (LVM, janvier 2012)
- Étendue présumée de l'eau contaminée (LVM, 18 février 2010 - addenda)

NOTE:
 1. Les limites des zones estimées d'eau souterraine contaminée ont été tirées des études de LVM (février 2010 et janvier 2012).
 SOURCE (fond de plan):
 LVM, janvier 2012 (073-P038375-0150-EN-0001-00.dwg)
 LVM, février 2011 (073-P038375-0140-F002-01_rév16.dwg)

Rev.	Description	Par/Bp	Date
-	-	-	-
-	-	-	-
-	-	-	-

ENTRACO
CONSEILS EN ENVIRONNEMENT

Dossier / File: Aéroport de Mont-Joli
 Lot 4 804 509
 Réponses aux commentaires et demandes du MDDEFP (dossier MDDEFP-1761001-01-P0253704)

Dessin / Drawing:

Figures 6.1
 Localisation des puits d'observation et des limites des zones contaminées d'eau souterraine

Conçu par / Designed by:	Date
N.L.L.	2012-02-20

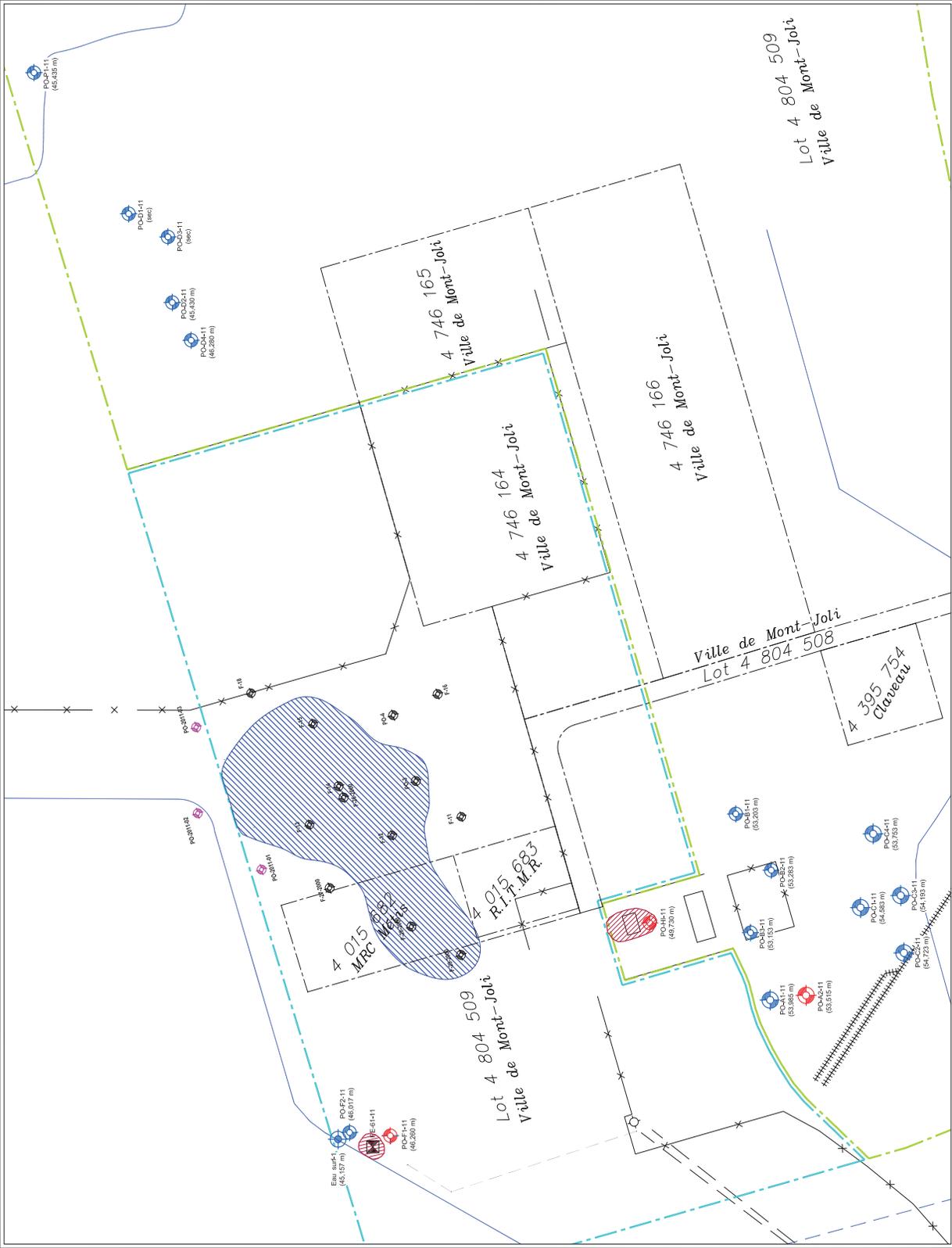
Dessiné par / Drawn by:	Date
L.T.N.L.L.	2013-09-17

Vérifié par / Verified by:	Date
N.L.L.	2013-09-17

Approuvé par / Approved by:	Date

No. dossier / File no.:	Echelle / Scale:
P0360	Graphique

No. dessin / Drawing no.:	Feuille / Sheet:



Lot 4 804 509
 Ville de Mont-Joli

From: Ritvisay, Kannika [mailto:Kannika.Ritvisay@tc.gc.ca]
Sent: November 29, 2013 12:02 PM
To: 'Annie.Levesque@mddefp.gouv.qc.ca'
Cc: Alarie, Louise; 'aermjolidg@globetrotter.net'
Subject: RE: Remediation of a contaminated site, Mont-Joli Airport REF: 7610-01-01-0253704

Hello Ms. Lévesque,

I am writing to confirm the four items you asked about in your email from November 22, 2013.

2.1 Email of April 30, 2013

Stream / drainage ditch

With regard to the notice that will be sent to MDDEFP to specify the terms of the work that will be carried out on the ditch to prevent contaminant migration, we confirm that this work will not begin until MDDEFP has confirmed that it accepts the proposed activities.

Wetland characterization report

With regard to the 60-m distance to the parking, refuelling and maintenance of vehicles and machinery, we confirm that this distance will be in relation to the shoreline and will be applied to the wetland and to all other aquatic environments.

2.3 Request for additional information dated September 3, 2013

In item 2, the volumes and areas to be excavated PE-62-11 and PE-63-11 have been corrected in Table 4.2 in Appendix 3. Please find attached the corrected document.

In item 10, we can confirm that concrete waste will not be reused on the remediated site. We have corrected Table 3.2 in Appendix 3 accordingly. The corrected document is attached.

I trust all of the above is satisfactory.

Kannika Ritvisay, Eng.

Agent en environnement / Environmental officer
Transports Canada / Transport Canada
700 Leigh Capreol, pièce / room 3125
Dorval, Québec, H4Y 1G7
Tel ; 514-633-3264, Fax ; 514 633-3250
kannika.ritvisay@tc.gc.ca

From: Annie.Levesque@mddefp.gouv.qc.ca [mailto:Annie.Levesque@mddefp.gouv.qc.ca]
Sent: November 22, 2013 4:03 PM
To: Ritvisay, Kannika
Subject: RE: Remediation of a contaminated site, Mont-Joli Airport REF: 7610-01-01-0253704

Hello Ms. Ritvisay,

I have finished analyzing the Entraco document dated September 29, 2013. The file seems to be complete; however, I would like you to confirm the following items (please refer to the sections of the Entraco document dated September 29, 2013):

2.1 Email of April 30, 2013

Stream / drainage ditch

With regard to the notice that will be sent to MDDEFP to specify the terms of the work that will be carried out in the ditch to prevent contaminant migration, please confirm that this work will not begin until MDDEFP has confirmed that it accepts the proposed activities.

Wetland characterization report

With regard to the 60-m distance to the parking, refuelling and maintenance of vehicles and machinery, please confirm that this distance will also be applied in relation to the shoreline.

2.3 Request for additional information dated September 3, 2013

In item 2, the volumes and areas for excavations PE-62-11 and PE-63-11 have been corrected, but Table 4.2 in Appendix 3 still contains an error in this regard. Please confirm that Table 4.2 is incorrect and that the volumes and areas to be used are those stated in item 2.

In item 10, we understand that concrete waste will not be reused at the remediation site, but Table 3.2 in Appendix 3 indicates the opposite. Please confirm that Table 3.2 is incorrect and that concrete waste will not be reused at the remediation site.

I still have to finish the analysis report and associated documents that are to be submitted to the regional director for the approval of the file; I expect to finish everything in the next two weeks. Once I receive your reply to this email, I will be able to submit the file for approval. It will then take about five business days for the file to be

processed by the deputy minister's office. I am therefore confident that the amendment to the remediation plan approved in 2012 will be issued before the holidays.

If you have any questions, feel free to contact me.

Thank you!

Annie Lévesque, chimiste

Conseillère en contrôle environnemental et

Chef du contrôle hydrique

Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs

Direction régionale du Centre de contrôle environnemental du Bas-Saint-Laurent et de la Gaspésie-Îles-de-la-Madeleine

212, avenue Belzile, Rimouski (Québec) G5L 3C3

Tél. : 418.727.3511 poste 229 | Téléc. : 418.727.3849

Courriel : annie.levesque@mddefp.gouv.qc.ca

-----Original Message-----

From: Ritvisay, Kannika [<mailto:Kannika.Ritvisay@tc.gc.ca>]

Sent: September 30, 2013 10:58 AM

To: Lévesque, Annie

Cc: Alarie, Louise; Lagueux, Dominique; 'aermjolidg@globetrotter.net'; Joudar, Mohamed

Subject: Remediation of a contaminated site, Mont-Joli Airport REF: 7610-01-01-0253704

Hello Ms. Lévesque,

Please find attached the answers to your emails of April 30, 2013, and May 30, 2013, and to your request for additional information of September 3, 2013. We have commissioned Entraco to produce this document of responses, which will be considered an addendum to the Amendment to the Remediation Plan (March 2012) prepared by Entraco.

An original signed copy will be sent to you by mail.

Sincerely,

Kannika Ritvisay, Eng.

Agent en environnement / Environmental officer

Transports Canada / Transport Canada

700 Leigh Capreol, pièce / room 3125

Dorval, Québec, H4Y 1G7

Tel ; 514-633-3264, Fax ; 514 633-3250

kannika.ritvisay@tc.gc.ca

APPENDIX B

**MDDELCC APPROVAL OF THE REMEDIATION PLAN AND THE AMENDMENT
TO THE REMEDIATION PLAN**

[letterhead]

Ministère du Développement durable, de l'Environnement, de la Faune et
des Parcs du Québec

January 20, 2012

APPROVAL OF A REMEDIATION PLAN
Environment Quality Act
(L.R.Q., c. Q-2, section 31.54)

Transport Canada
401-1550 D'Estimauville Avenue
Quebec City, Quebec G1J 0C8

Ref. No: 7610-01-01-0253704
400888420

**Re: Remediation of the site located at 875 Route de l'Aéroport in
Mont-Joli**

Dear Sir or Madam:

In response to your request for approval of a remediation plan dated March 25, 2011, and completed January 12, 2012, I approve, in accordance with section 31.54 of the *Loi sur la qualité de l'environnement (Environmental Quality Act)* (L.R.Q., c. Q-2), the implementation of said plan, as described in the document entitled "Mont-Joli Airport, Quebec – Former Building H-3, Former Coal Depot and Former Landfill – Remediation Plan" and the documents associated with it and forming part of it, all of which can be summarized as follows:

- Excavation of soil with contaminant concentrations exceeding the limit values set out in the [*Le Règlement sur la protection et la réhabilitation des terrains \(Land Protection and Rehabilitation Regulation\)*](#) for the municipal zoning of the site. The excavated soil will be treated at an authorized facility.

The project is located on lot 4 746 167 in the Land Register of Quebec in the city of Mont-Joli, in the regional county municipality of La Mitis.

January 20, 2012

The remediation plan is accompanied by the following documents:

- Request for approval of a remediation plan, dated and signed March 25, 2011, by Marie-Claude Aquin, BSc, MSc, 1 page.
- Remediation plan entitled “Mont-Joli Airport, Quebec – Former Building H-3, Former Coal Depot and Former Landfill – Remediation Plan,” dated and signed March 2011 by Normand Lalonde, 49 pages and appendices.
- Characterization study report entitled “Ville de Mont-Joli – Propriété industrielle vacante, 875, boulevard Jacques-Cartier, Mont-Joli (Québec) – Évaluation environnementale de site phase I – N/Réf. : 073-P016127-0153-EN-0001-00,” dated and signed November 20, 2009, by Sandra Fournier, BSc, MSc, and Louis Moisan, MEnv, 25 pages and appendices.
- Summary of the characterization study, ref.: 073-P038375-0140-EN-0002-01, dated and signed February 18, 2011, by Julie Gagnon, biologist, MSc, 4 pages.
- Addendum to the Phase I environmental site assessment, ref.: 073-P038375-140-EN-0001-01, dated and signed February 18, 2011, by Julie Gagnon, biologist, MSc, 3 pages and appendix.
- Attestation for the characterization study, dated and signed November 30, 2009, by Alain Casimir, 1 page and appendix (certification grid).
- Attestation for the summary of the characterization study, dated and signed February 18, 2011, by Sylvain Dion, 1 page.
- Attestation for the addendum to the characterization study, dated and signed February 18, 2011, by Sylvain Dion, 1 page.
- Notice of contamination published with the certified statement of registration in the Land Register of Quebec, dated December 20, 2011.
- Additional information dated and signed October 24, 2011, by Normand Lalonde, 5 pages and appendices.
- Additional information dated and signed November 4, 2011, by Régis Lamy, BSc, and Sylvain Dion, 3 pages and appendices.
- Additional information dated and signed November 4, 2011, by Régis Lamy, BSc, 2 pages and appendix.
- Additional information sent on November 18, 2011, by email by Régis Lamy, BSc.
- Additional information dated and signed November 22, 2011, by Marie-Claude Aquin, BSc, MSc., 2 pages.
- Additional information sent on December 16, 2011, by email by Régis Lamy, BSc.

January 20, 2012

- Additional information sent on January 11, 2012, by email by Régis Lamy, BSc.
- Additional information sent on January 12, 2012, by email by Marie-Claude Aquin, BSc, MSc.

In the event of a discrepancy among these documents, the information in the most recent document will prevail.

The Plan must be implemented in accordance with these documents.

This approval does not absolve the holder from taking any necessary corrective measures, where applicable, in accordance with any act or regulations, to remedy any contamination that may be discovered during or after the remediation work.

Furthermore, this approval does not absolve the holder from obtaining any other authorization required by any act or regulations, where applicable.

[original signed by]

Diane Jean
Deputy Minister
On behalf of the Minister

[letterhead]

Ministère du Développement durable, de l'Environnement, de la Faune et
des Parcs du Québec

December 19, 2013

AMENDMENT TO AN APPROVAL OF A REMEDIATION PLAN
Environment Quality Act
(R.L.R.Q., c. Q-2, section 31.60)

Transport Canada
401-1550 D'Estimauville Avenue
Quebec City, Quebec G1J 0C8

Ref. No: 7610-01-01-0253704
401096036

Dear Sir or Madam:

**Re: Remediation of the site located at 875 Route de l'Aéroport in
Mont-Joli**

This amendment concerns the approval of a remediation plan issued under section 31.54 of the *Environment Quality Act* (R.L.R.Q., c. Q-2) to Transport Canada on January 20, 2012 (our file: 7610-01-01-0253704), with regard to the following project:

Excavation of soil with contaminant concentrations exceeding the limit values set out in the *Land Protection and Rehabilitation Regulation* for the municipal zoning of the site. The excavated soil will be treated at an authorized site.

The project is located on lot 4 746 167 in the Land Register of Quebec in the city of Mont-Joli, in the regional county municipality of La Mitis.

In response to your request for an amendment, dated April 12, 2012, received April 13, 2012, and completed November 29, 2013, I authorize, under section 31.60 of said Act, the following amendments:

Excavation of additional areas and volumes of soil with contaminant concentrations exceeding the limit values set out in the *Land Protection and Rehabilitation Regulation* for the municipal zoning of the site. The excavated soil will be treated or disposed of at an authorized site.

December 19, 2013

Excavation of additional surface area and volumes of residual materials. The residual materials will be treated or disposed of at an authorized site.

The project is now located on lot 4 804 509 in the Land Register of Quebec in the city of Mont-Joli, in the regional county municipality of La Mitis.

The following documents are part of this amendment:

- Request for an amendment to a remediation plan, dated and signed April 12, 2012, by Marie-Claude Aquin, 1 page.
- Remediation plan entitled “Mont-Joli Airport, Quebec – Former Building H-3, Former Coal Depot and Former Landfill – Remediation Plan,” dated and signed March 2011 by Normand Lalonde, 49 pages and appendices.
- Site Characterization report entitled “Ville de Mont-Joli – Propriété industrielle, Lots 4 395 754, 4 746 165, 4 746 166 et partie du lot 4 746 167, Mont-Joli – Évaluation environnementale de site phase I et Caractérisation environnementale de site phases II et III — Rapport final – Volume 1 et Volume 2 – N/Réf. : 073-P038375-0150-EN-0001-00,” dated and signed January 10, 2012, by Régis Lamy, BSc, and Sylvain Dion, MEnv, CESA, 58 pages and appendices.
- Attestation for the site characterization, dated and signed March 5, 2012, by Sylvain Dion, 1 page and appendix (certification grid).
- Amendment to the remediation plan entitled “Mont-Joli Airport, Quebec – Former Building H-3, Former Coal Depot and Former Landfill – Amendment to the Remediation Plan,” dated and signed March 2012 by Normand Lalonde, 33 pages and appendices.
- Summary of the site characterization , ref.: 073-P-0000419-0-01-200-01-EN-0001-00, dated and signed May 4, 2012, by Régis Lamy, BSc, and Carole Dubai, 5 pages and appendix.
- Attestation for the summary of the site characterization, dated and signed May 9, 2012, by Sylvain Dion, 2 pages.
- Notice of contamination published under number 19 061 226 with the certified statement of registration in the Land Register of Quebec, dated May 16, 2012.
- Additional information dated and signed December 6, 2012, by Régis Lamy, BSc, and Sylvain Dion, MEnv, CESA, 10 pages and appendices.
- Additional information dated and prepared March 8, 2013, by Jean-François Marsan, 3 pages and appendix.
- Additional information sent on November 29, 2013, by email by Kannika Ritvisay, Eng., 1 page and appendices.

December 19, 2013

In the event of a discrepancy among these documents, the information in the most recent document will prevail.

The amendment must be implemented in accordance with these documents.

Furthermore, this amendment does not absolve the holder from obtaining any other authorization required by any act or regulations, where applicable.

[original signed by]

Clément D'Astous
Deputy Minister
On behalf of the Minister

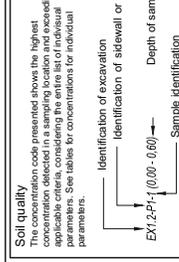
APPENDIX C

**ENVIRONMENTAL CONDITIONS IN THE FORMER BUILDING H-3 SECTOR
FOLLOWING 2012 REMEDIATION WORK**

Legend

- Excavation limit (Sanexen, février 2012)
- Exploration trench (Sanexen, février 2012)
- Exploration trench (Entraco, 2008)
- Excavations limits
- Hydro pole (approximate location)
- Fence (approximate location)

Soil quality
 The concentration code presented shows the highest concentration detected in a sampling location and exceeding the applicable criteria, considering the entire list of individual parameters. See tables for concentrations for individual parameters.



Concentration code

- EX1.1-P1-1 Concentration below Schedule I of LPRR
- EX1.1-P1-2 Concentration between Schedule I and Schedule II of LPRR
- EX1.1-P1-3 Concentration above Schedule II of LPRR and below Schedule I of RRCS
- EX1.1-P1-4 Concentration above Schedule I of RRCS
- EX1.1-P1-5 Concentration above Schedule I of RRCS
- EX1.1-P1-6 Concentration above Schedule I of RRCS
- EX1.1-P1-7 Concentration above Schedule I of RRCS
- EX1.1-P1-8 Concentration above Schedule I of RRCS
- EX1.1-P1-9 Concentration above Schedule I of RRCS

HP: Parameter exceeding criteria
 L9-2.3: Sampling interval (m)

LPRR: Land Protection and Rehabilitation Regulation, 2003
 RRCS: Regulation Respecting the Burial of Contaminated Soils, 2001

Note: * Sample collected at different depths at the north and south to follow the same soil layer.
 Note: PH: Petroleum hydrocarbons (C to Co)



Source:

- Sanexen, les ouvrages ont été localisés à partir de données géométriques (GIS), février 2012
- Transport Canada, dossier n° P-000000, page 36, 16-03-2011

Figure 4

Environmental conditions

REHABILITATION ENVIRONNEMENTALE

Projet n° 3 :

Former Building H-3 Sector
 Mont-Joli Airport

Travaux publics et Services gouvernementaux Canada

Projet n° 3 :

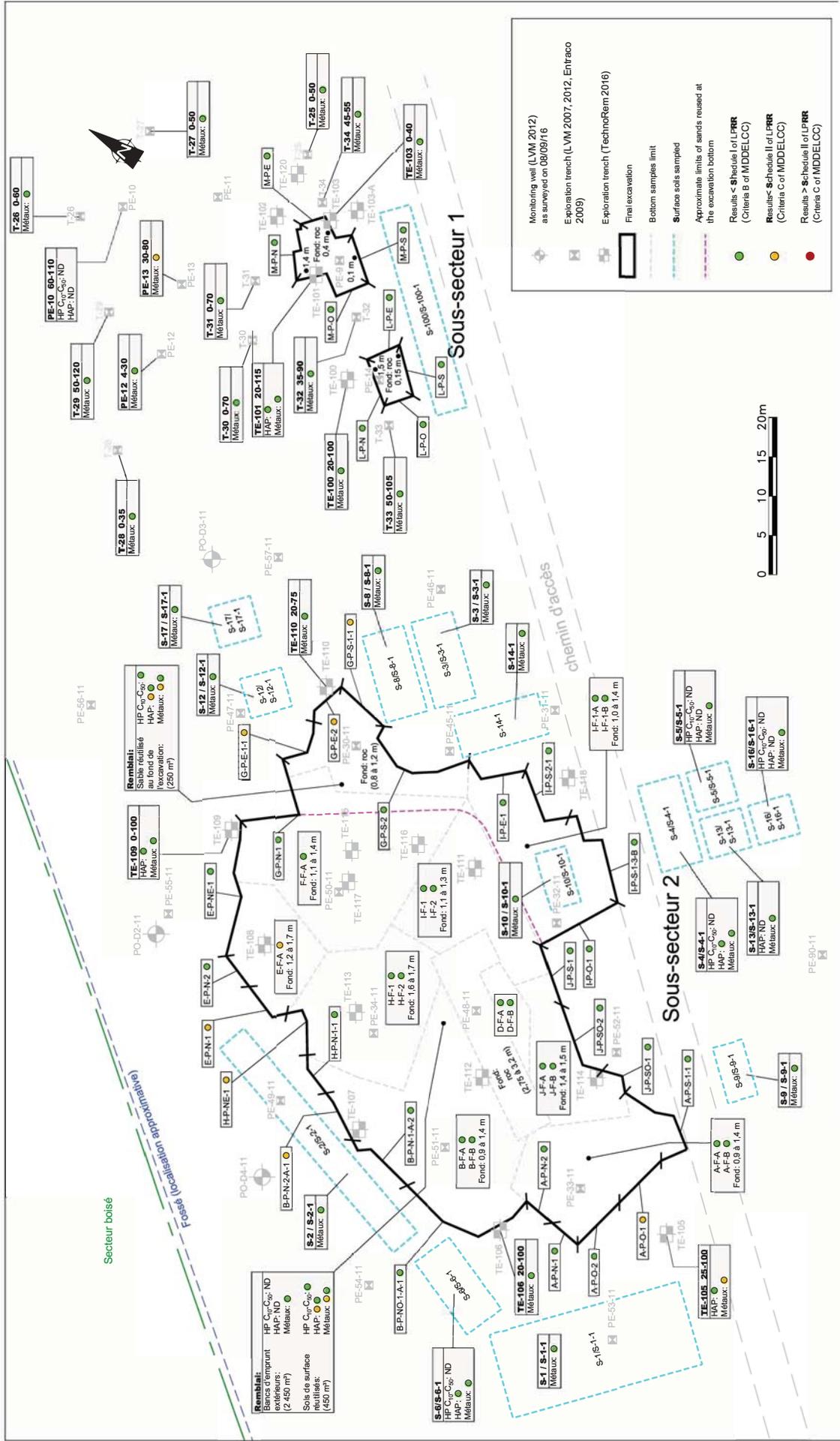
Former Building H-3 Sector
 Mont-Joli Airport

Échelle :
 Date de conception : 2012-03-15
 Date de révision : 2012-03-29
 Dessiné par : J. Colquhoun
 Approuvé par : J. Colquhoun
 Projet n° : 000000
 Date de conception : 2012-03-15
 Date de révision : 2012-03-29
 Zone : 6



APPENDIX D

**ENVIRONMENTAL CONDITIONS IN THE FORMER DUMP SITE-1 AND THE
FORMER DUMP SITE-2 SECTORS FOLLOWING 2016 REMEDIATION
WORK**



Date: 2017-03-29
 Approuvé par: J.M. Lauzon, Ing.
 No. de projet: PR16-61

Projeté par: D. Morin
 Echelle: 1:450
 No. de dessin: 1661_FS-4

TechnoRem Inc.

TechnoRem
 1000 Avenue de l'Industrie
 Québec, Québec G1M 2P5
 Canada

TechnoRem
 1000 Avenue de l'Industrie
 Québec, Québec G1M 2P5
 Canada

Réhabilitation environnementale des secteurs de l'ancien dépôtier et de l'ancienne usine d'asphalte, Aéroport de Mont-Joli, Québec
 Environmental Conditions Following Remediation Works
 Former Dump Site-1 and Former Dump Site-2 Sectors

Figure: 5-4

CONFIDENTIAL ET PRIVILÉGIÉ

APPENDIX E

ENVIRONMENTAL CONDITIONS IN THE FORMER ASPHALT PLANT SECTOR FOLLOWING 2016 REMEDIATION WORK

APPENDIX F

ENVIRONMENTAL MONITORING WEEKLY REPORT FORM



Weekly Environmental Monitoring Report 2017 (Version 0)

Project title	Mont-Joli Airport – 2017-2018 environmental site remediation (Phase 2, Part 2)
PWGSC / TC file number	PWGSC: R.082515.001 TC: 7075-Q140-37
Name of proponent	Transport Canada
Monitoring lead	
Timeframe planned for completing the work	September to December 2017
Weekly period covered in this report	

Notes: This environmental monitoring form (or an equivalent report) must be completed by the site supervisor and sent weekly to Public Works and Government Services Canada (hereinafter “PWGSC”), which will forward it upon receipt to Transport Canada (hereinafter “TC”). The Contractor must also immediately notify PWGSC, which will notify TC, of any change considered or made to work methods, the scope of the work and/or the schedule.

Mitigation measures	Measure taken (yes /no)	Verification dates	Comments ¹	Items To provide ²	
				Photos	Documents
General measures					
The Contractor must perform the work in accordance with the applicable federal, provincial or municipal acts, regulations, codes, guides and standards.					
Inform the authorities concerned of any changes in project implementation and operating methods or conditions (schedule, equipment layout, technical aspects, etc.).					
Photographs must be taken to document all stages of the project.				X	
Stop all earthmoving or excavation work during heavy rainfall or periods of flooding. If necessary, the various sites and temporary structures at the site must be protected from erosion.					
Use of heavy machinery					
All vehicles moving on the site must observe a 10 km/h speed limit on unpaved roads (within the construction area) and the Highway Safety Code.					
If dust suppressants are used, they must be certified as meeting the standards of the Bureau de normalisation du Québec (BNQ).					X
When vehicles, equipment and machinery are not in use, turn off their engines.					

¹ Any relevant comments, including explanations if the measure was not applied, verbal or written notices of non-compliance, additional explanations, a diagram or a sketch, etc. If needed, cite by number and complete explanations at the bottom of the form in the space provided.

² Photos (with a title to indicate what is being shown, the date, and if applicable, the bearing,) and documents (e.g. specifications, minutes of worksite meetings, notices of non-compliance, sketches, etc.) must be provided for at least the items requested in the table.



Do an initial inspection of the machinery and trucks used, followed by regular inspections, in order to ensure that they are in good condition and clean and free of hydrocarbon leaks. In case of breakdown, diligently repair or replace the equipment at the appropriate locations.					
Park more than 60 m from the banks of a stream, a water body or any other aquatic environment or from the edge of any wetland, machinery, construction vehicles and any temporary facilities (washrooms, site trailer, generators, etc.).					
Carry out machinery maintenance and refuelling on an impermeable surface located more than 60 m from the banks of a stream, a water body or any other aquatic environment and from the edge of any wetland.					
Do not store gasoline, oil or hazardous material at less than 60 m from the banks of a stream or a water body, a wetland or any other aquatic environment.					
Near banks of streams, water bodies or any other aquatic environment and at the edge of any wetland, adapt work to the size of machinery. Whenever possible, tracked machinery should be used.					
Excavation and backfilling					
If excavation work must be done on sloped surfaces, stabilize all reworked areas as the work is being completed.				X	
Use appropriate, recognized erosion-control measures on slopes that have been reworked.					
Before backfilling the excavated areas, ensure that quality control is performed on the sides and bottom of each excavated area by a specialized contractor.					X
Backfill the excavated areas with excavated soils that meet the remediation criteria, and, if needed, with imported, clean soil (< criterion A) to blend into the natural contours. When selecting the soil, take into consideration the favourable development of the plant species used as part of revegetation work. The Contractor is responsible for demonstrating the environmental quality (< criterion A) of the backfill materials.					X
Do not create depressed areas during the backfilling.					
Management of stockpiled soil					
Ideally, soil that is temporarily left on the site is piled in the excavation area or placed in a pile on top of an impermeable membrane. To prevent piles of soil from being washed, an impermeable membrane must cover the top of the pile and be weighted down.				X	
Piles should be located over 30 m from any water body or stream and beyond the edge of any wetland.					
Ensure that piles are stable and not in danger of collapsing.				X	



Ensure that only authorized persons have access to the piles.				X	
Managing water at the bottom of an excavated area					
The Contractor must perform the work in accordance with the applicable federal, provincial or municipal acts, regulations, codes, guides and standards, including, but not limited to, municipal bylaw 2016 -1347 concerning water management.					
If water accumulates at the bottom of an excavated area, the water should be managed in accordance with existing regulations and sound environmental practices.					
To limit water discharges into the environment, control runoff and, if possible, discharge water into sewers and establish appropriate attenuation measures to properly manage water pumped out to keep excavated areas dry. To the extent possible, direct infiltration of water into excavated areas (for example, by creating a soaking pit).					
In all cases, when water at the bottom of an excavated area is pumped out, use a system that avoids suction of sediments when drying out excavated areas.					
When water is discharged into the environment, move pumped water into a sedimentation pond or a vegetation area. In the vegetation area, the end of the discharge hose must be located at least 30 m from a lake, a stream or any wetland, without causing any erosion (for example, ensure the water is released into a rocky area) and ensuring that there is infiltration into the soil. Pumped water running into a water body or a stream must not contain suspended solids, apart from background levels, that are visible to the naked eye. If the vegetative cover is not effective, additional mitigation measures must be considered, such as adding a sedimentation pouch or an infiltration basin. A sedimentation basin can also be installed at least 30 m from a lake, stream or any wetland, and water discharged from the sedimentation basis outlet must not contain suspended solids, beyond background levels, that are visible to the naked eye.					
When contamination of surface water (including water seeping into excavated areas) by petroleum hydrocarbons is observed [i.e. when there is a film discolouring the surface of the water (an oil sheen) or a petroleum products odour], release, if possible, the water into sewers or pump the water into a tank truck for off-site treatment.					
Work near aquatic environments or wetlands					
Before starting work near an aquatic environment (stream or water body) or wetland, delineate on the site (using clearly visible stakes attached with rope) the edges of the wetlands and on the banks of streams or water bodies.				X	X ³
Near wetlands or an aquatic environment (stream or water body), delineate on the site (use clearly visible stakes attached with rope) the access route to the areas to be excavated.					X ³

³ An appropriately scaled map showing the delimited areas (wetlands, banks of the Thibeault stream and access road) and where excavation will take place before work begins.



Do not enter wetlands or travel along the shores of any aquatic environment unless required to remove residual materials or contaminated soil as part of remediation work. If applicable, advise PWGSC and TC of the situation to determine what additional steps will be required. In all cases, restrict access in order to keep encroachment to an absolute minimum in wetlands, streams or water bodies.				X	X
In cases where excavation work is planned within 15 m of an aquatic environment, install sediment fences ⁴ on the banks of the aquatic environment to preserve the quality of water in the latter. These fences are installed before work begins and are left in place until the soil has stabilized.				X	
Carry out excavation work and a residual material removal from the area closest to the wetlands or aquatic environment to the terrestrial environment (i.e. going far away from the wetlands or aquatic environment). This should limit disturbance to the wetlands, the shores of the aquatic environment and bordering areas.					
In the former railway sector, carry out excavation and slag removal from west to east. In this way, the movement of machinery will occur almost exclusively on slag fill, which will limit disturbance to bordering areas.					
Near an aquatic area, a wetland or a drainage ditch, do not undertake any excavation or earthwork during periods of flooding or heavy rain.					
Maintain at all times inflow of water for any water body.					
No machinery should be located in an aquatic environment. No fording of a water body will be allowed.					
Do not discharge debris, garbage, waste, materials, etc. into the aquatic environment, and take any measures required to avoid any contamination of this environment. If required, clean up the aquatic environment without delay and make sure the flow pattern of any stream is not changed.					
Erosion control					
Any temporary piling-up on non-consolidated materials (e.g. topsoil and underlying soil) located within 30 m of the shore of a lake, a stream or a wetland must be protected to avoid sediment from being transported into these environments.					
In channel beds and on shores of streams or water bodies, in wetlands and with slopes steeper than 1.5 H: 1 V, a coconut fibre, wood mulch or straw mattress must be placed on all land where soil has been laid bare, disturbed or reworked to protect the soil from erosion. At any other location, when there has been significant surface erosion with soil laid bare, disturbed or reworked, a mattress or loose straw mulch must be applied with a minimum application rate of 400 g/m ² . If straw mulch (in the form of a mattress or loose straw) is put in place, make sure that the mulch used is free of invasive alien species.					

⁴ Fence consisting of a geotextile held up by wooden posts driven into the ground (e.g.: https://www.ville.quebec.qc.ca/gens_affaires/developpement_residentiel/docs/fiches_gestion_sediments/2_barriere_a_sediments.pdf).



Transportation and disposal of materials					
Dump trucks must be fitted with tarpaulins that cover the entire load.				X	
The trucks used must be sufficiently watertight that liquid from the soil being carried cannot be released into the environment					
Before leaving the site, inspect and clean the trucks, if required. Upon completion of the work, the shovel will also be inspected and cleaned and the soil thereby recovered will be managed in the same way as excavated soil.					
Contaminated soil must be properly disposed of at an authorized site, based on the soil's characteristics. Transport manifests must be provided to PWGSC / TC.					X
Comply with all existing regulations concerning the storage, disposal and transportation of hazardous materials.					
In the former railway sector, do not drive beyond Perreault Avenue East and Airport Road to avoid harming the wetlands located there. However, an access road to the excavation areas could be built.					
Revegetation					
Proceed with the final recovery of disturbed areas (excavated, striped, backfilled and/or in areas where vegetation has been disturbed by the passage of machinery) by a layer of at least 15 cm of topsoil prior to revegetation. In the former dump sector, the grass patties recovered during the excavation of areas to rehabilitate was replaced in December 2016 on soils reworked without adding the topsoil (to avoid erosion). Loosen the ground (i.e., by shredding the grass and earth clumps) before adding the layer of topsoil.				X	
Proceed with the revegetation of disturbed areas by hydroseeding. The use of a mixture of seeds from a nursery will be required. Use a mixture of seeds of plant species observed in the surrounding environment and free from unwanted or exotic invasive species. The mixture of seeds being considered for the revegetation will be submitted to PWGSC / TC prior to revegetation work. Approval of the revegetation plan by the MDDELCC is required.				X	X
Unless hydromulching is the method used to revegetate, install a mulch on the disturbed areas to be planted by following best practices listed in the Sheet 2 - Planting and mulch - (or Sheet 3 - Seeding and anti-erosion mattresses) of the <i>Guide technique – Gestion environnementale des fossés</i> (http://www.mdDELCC.gouv.qc.ca/eau/pluviales/publications-references.htm). Note that installing a mulch in the ditch sector will be required, regardless of the method used for the revegetation.					X
Accidental spills					
The Contractor must draw up an Environmental Emergency Response Plan (EERP). The EERP must be available on site and communicated to all employees. The players in the implementation of this EERP (stakeholders) must be aware of their respective roles and have been trained beforehand. Alternates must be indicated in the EERP in case stakeholders are absent.					X



The Contractor must have on hand at all times and know how to use a petroleum-product or other substance spill-response kit.				X	
In the event of an accidental spill, take all necessary action to stop the spill and contain the product spilled, then recover the product and the contaminated soil, dispose of them, and restore the site.					
The water contaminated by an accidental spill must be contained and recovered or managed directly by a specialized environmental services company.					
All spills on the site must be reported. Report the incident as soon as possible to the responsible authorities and to PWGSC / TC as well. Contact the Environment Canada emergency services (1-866-283-2333) and the Quebec environmental emergency services (1-866-694-5454).					
Recover soil contaminated as a result of a spill and manage the situation in accordance with existing regulations and sound environmental practices.					
Closure of project site					
Ensure that all waste and materials are removed before the site is closed.				X	
Dispose of waste in accordance with the existing standards. Do not burn waste.					

Additional comments (use another page if need be)

COMPLETION OF MONITORING

Prepared by: _____

Date: _____

Title: _____

Organization: _____

Tel. No.: _____

I certify that the above information is accurate and complete and corresponds with my interpretation of the work.

Signature: _____ Date: _____

Il est à noter que la version française de ce rapport hebdomadaire de surveillance environnementale prévaut sur la version anglaise en cas de divergence.
It should be noted that the French version of this weekly environmental surveillance report prevails over the English version in case of any discrepancy.