

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Travaux publics et Services gouvernementaux
Canada
Place Bonaventure, portail Sud-Est
800, rue de La Gauchetière Ouest
7^{ème} étage
Montréal
Québec
H5A 1L6

SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

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, portail Sud-Est
800, rue de La Gauchetière Ouest
7^{ème} étage
Montréal
Québec
H5A 1L6

Title - Sujet Travaux pavage stationnement	
Solicitation No. - N° de l'invitation EE520-161225/A	Amendment No. - N° modif. 002
Client Reference No. - N° de référence du client R.076824.100	Date 2015-10-07
GETS Reference No. - N° de référence de SEAG PW-\$MTC-255-13455	
File No. - N° de dossier MTC-5-38175 (255)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2015-10-16	
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: Desforges, Julie	Buyer Id - Id de l'acheteur mtc255
Telephone No. - N° de téléphone (514) 496-3413 ()	FAX No. - N° de FAX (514) 496-3822
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

Instructions: See Herein

Instructions: Voir aux présentes

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

Solicitation No. - N° de l'invitation

EE520-161225/A

Client Ref. No. - N° de réf. du client

R.076824.100

Amd. No. - N° de la modif.

002

File No. - N° du dossier

MTC-5-38175

Buyer ID - Id de l'acheteur

mtc255

CCC No./N° CCC - FMS No/ N° VME

**ENLARGEMENT OF CAR PARK, CANMET ENERGY GROUP, VARENNES,
QUEBEC**

The invitation to tender is modified as mentioned below.

These documents are an integral part of the invitation to tender:

-Addendum #01

-Drawing E001

All other terms, clauses and conditions remain unchanged.

ADDENDA N° 1 – october 7, 2015

1.1 BID FORM

- The bid form is **re issued**

1.2 SPECIFICATIONS

- Section 00 01 10.01 : The document is **re issued**;
- Section 26 05 00: the article 4 “method of payment” is **added**;
- Section 31 22 13 : The page 1 is **replaced** by the page 1A;
- Section 31 23 33.01 : The page 4 is **replaced** by the page 4A.

1.3 DRAWINGS

DRAWING E-001 :

- The note for the run of the conduit is revised on the key plan;
- The note 3 is modified;
- The detail 4 is added;
- The plan view is revised;
- The cut “C” is revised;
- For charging station, the size of feed conductors is modified.

End of the ADDENDA

COMPAGNIE : _____

SIGNATURE : _____

ADDRESS : _____

PREPARED BY: _____

Francis Bourdua, ing.
Civil

	WORK DESCRIPTION	QUANTITY	UNIT	PRICE	TOTAL
1.0	<u>Lump sum</u>		Global		_____
	SUBTOTAL : 1.0)				<input type="text"/>
2.0	<u>Site work</u>				
.1	Cutting and removal of the existing paving the connecting joint	100	l.m.	_____	_____
.2	Excavation and disposal of excavation	900	cu.m.	_____	_____
.3	curbs and gutters	130	l.m.	_____	_____
.4	Sodding including 150 mm of top soil	600	sq.m.	_____	_____
.5	Type geotextile 7609 as provided by or approved equivalent Texel	1 550	sq.m.	_____	_____
.6	Subgrade MG- 56, 300 mm thick , including surfaces backfilling trenches above electrical	1 100	m t	_____	_____
.7	aggregate base course MG-20, 150 mm thick, including surfaces backfilling trenches above electrical	750	m t	_____	_____
.8	Shaping and compaction work of the infrastructure	1 550	sq.m.	_____	_____
.9	Asphalt , single layer types ESG -10, PG- 58-28 , 60 mm thick, including surfaces backfilling trenches above electrical	350	m t	_____	_____
.10	Paving correction	25	m t	_____	_____
.11	Pavement marking		Global		_____
.12	35 MPa concrete slab 200 mm thick charging station including crushed stone foundation 20mm 150mm thick, sawing and removal of the existing pavement and formwork.	4	sq.m.	_____	_____
	SUBTOTAL : 2.0)				<input type="text"/>

3.0 Piping work

.1	HDPE pipe, corrugated smooth interior, 450 mm dia.	35	l.m.	_____	_____
.2	Ditch digging including hydroseeding and riprap	85	l.m.	_____	_____
SUBTOTAL : 3.0)					_____

4.0 Lighting work and charging station

4.1 Lighting:

4.1.1	Pole of 9.1m for single lamppost	3	unit	_____	_____
4.1.2	« L1 » luminaire type	3	unit	_____	_____
4.1.3	Concrete base	4	unit	_____	_____
4.1.4	Natural soil trench	60	l.m.	_____	_____
4.1.5	Under pavement trench	20	l.m.	_____	_____
4.1.6	Rigid PVC conduit: - 53 mm Ø	90	l.m.	_____	_____
4.1.7	Conductors: - #8 RWU	340	l.m.	_____	_____
	- #8 RWU Green	170	l.m.	_____	_____
4.1.8	Grounding (MALT) - Lamppost	2	unit	_____	_____
4.1.9	Single lamppost to be removed and to be reinstalled	1	unit	_____	_____
4.1.10	Concrete base to be removed	1	unit	_____	_____
4.1.11	Conductors to be remove	60	l.m.	_____	_____
4.1.12	Temporary supply	1	Global	_____	_____

4.1.13 Conduit connection 1 unit _____

4.2 Charging stations for electric vehicles

4.2.1 Charging stations 1 Global _____

4.2.2 Modification to distribution panel 1 Global _____

4.2.3 Works inside the building 110 l.m. _____

4.2.4 Natural soil trench 30 unit _____

4.2.5 Under pavement trench 15 l.m. _____

4.2.6 Rigid PVC conduit
- 53 mm Ø 45 l.m. _____

4.2.7 Conductors:
- #2 RWU 620 l.m. _____
- #8 RWU Green 155 l.m. _____

SUBTOTAL : 4.0)

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TOTAL (1 to 4): _____ \$ (Excluding applicable taxes)

PUBLIC WORKS AND GOVERNMENT SERVICES CANADA ENLARGEMENT OF THE CAR PARK CAMMÉTÉNERGIE - VARENNES R.076824.100		SECTION 00 01 10.01 CIVIL LIST OF SECTIONS Page 1		Drawings and Specs issued (50%) for approval	Issued for Tender							
SECTION N°	TITRE			2015-08-12	2015-08-20							
00 01 10.01	List of sections			A	B							
01 11 00	Summary of works				B							
01 33 00	Submittal procedures				B							
01 35 29 06	Health and safety requirements				B							
01 35 43	Environmental procedures			A	B							
01 35 29 06	Health and safety requirement				B							
01 74 11	Cleaning				B							
03 30 00.01	Cast-in-place concrete (short form)			A	B							
26 05 00	Common Work Results for Electrical			A	B							
26 05 20	Wire and Box Connectors 0 – 1,000 V			A	B							
26 05 21	Wires and Cables (0 – 1,000 V)			A	B							
26 05 28	Grounding - Secondary			A	B							
26 05 29	Hangers and Supports for Electrical Systems			A	B							
26 05 31	Splitlers, Junction, Pull Boxes and Cabinets			A	B							
26 05 34	Conduits, Conduit Fastenings and Fittings			A	B							
26 05 43.01	Installation of Cables in Trenches and in Ducts			A	B							

SECTION N°	TITRE	Drawings and Specs issued (50%) for approval	Issued for Tender							
26 28 16.02	Moulded Case Circuit Breakers	A	B							
26 56 19	Roadway Lighting	A	B							
31 00 99	Earthwork for minor works	A	B							
31 05 16	Aggregate materials	A	B							
31 14 13	Soil stripping and stockpiling	A	B							
31 22 13	Rough grading	A	B							
31 23 33.01	Excavating, trenching and backfilling	A	B							
31 24 13	Roadway embankments	A	B							
31 32 19.01	Geotextiles	A	B							
31 37 00	Rip rap		B							
32 11 16.01	Granular sub-base	A	B							
32 11 23	Aggregate base courses	A	B							
32 12 16	sphalt paving (short form)	A	B							
32 16 15	Concrete walks, curbs and gutters	A	B							
32 17 23	Pavement markings	A	B							
32 92 23	Sodding		B							

**PUBLIC WORKS AND
GOVERNMENT SERVICES CANADA**
ENLARGEMENT OF THE CAR PARK
CAMMÉTÉNERGIE - VARENNES
R.076824.100

SECTION 00 01 10.01

CIVIL
LIST OF SECTIONS

Page 3

SECTION N°	TITRE	Drawings and Specs issued (50%) for approval	Issued for Tender							
33 41 00	Storm utility drainage piping	2015-08-12	A B							
33 65 76	Direct Buried Underground Cable Ducts	2015-08-12	A B							



1. General

- .1 RELATED REQUIREMENTS
 - .1 Section 01 33 00 - Submittal Procedures.
 - .2 Section 01 74 11 - Cleaning.
- .2 REFERENCES
 - .1 Definitions:
 - .1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.
 - .2 Reference Standards:
 - .1 CSA Group
 - .1 CSA C22.1, Canadian Electrical Code, Part 1 (last Edition), Safety Standard for Electrical Installations.
 - .2 CSA C22.10, Quebec construction code, Chapter V, Electricity Canadian electrical code, Part 1 (21st edition) with Quebec amendments.
 - .3 CAN/CSA-C22.3 No.1, Overhead Systems.
 - .4 CAN3-C235, Preferred Voltage Levels for AC Systems, 0 to 50,000 V.
 - .2 Institute of Electrical and Electronics (IEEE)/National Electrical Safety Code Product Line (NESC)
 - .1 IEEE SP1122-2000, The Authoritative Dictionary of IEEE Standards Terms, 7th Edition.
- .3 ACTION AND INFORMATIONAL SUBMITTALS
 - .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for charging station, lampposts, conduits and wiring as well as protective devices and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Quebec, Canada.
 - .2 Submit four (4) copies of drawings and product data.
 - .3 If changes are required, notify Departmental Representative of these changes before they are made.
- .4 Certificates:
 - .1 Provide CSA certified material.
 - .2 Where CSA certified material is not available, submit such material to inspection authorities for approval before delivery to site.
 - .3 Submit test results of installed electrical systems and instrumentation.
 - .4 Permits and fees: in accordance with General Conditions of contract.
- .4 CLOSEOUT SUBMITTALS
 - .1 Submit in accordance with Section 01 78 00 - Closeout Submittals.
 - .2 Operation and Maintenance Data: submit operation and maintenance data .
 - .1 Provide for each system and principal item of equipment as specified in technical sections for use by operation and maintenance personnel.

2. Products

.1 DESIGN REQUIREMENTS

- .1 Operating voltages: to CAN3-C235.
- .2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.
 - .1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.
- .3 Language operating requirements: provide identification nameplates for control items in English and in French.
- .4 Use one nameplate for both languages.

.2 WIRING TERMINATIONS

- .1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

.3 EQUIPMENT IDENTIFICATION

- .1 Identify electrical equipment with nameplates as follows:
 - .1 Nameplates: Lamicoid 3 mm thick plastic engraving sheet, blackface, white core, mechanically attached with self tapping screws.
 - .2 Sizes as follows:

NAMEPLATE SIZES			
Size 4	20 x 90 mm	1 line	8 mm high letters
Size 5	20 x 90 mm	2 lines	5 mm high letters

- .2 Wording on nameplates to be approved by Departmental Representative prior to manufacture.
- .3 Allow for minimum of twenty-five (25) letters per nameplate.

.4 Disconnects, starters and contactors: indicate equipment being controlled and voltage.

.5 Terminal cabinets and pull boxes: indicate system and voltage.

.4 WIRING IDENTIFICATION

.1 Identify wiring with permanent indelible identifying markings, numbered, on both ends of phase conductors of feeders and branch circuit wiring.

.2 Maintain phase sequence and colour coding throughout.

.3 Colour coding: to CSA C22.1.

.4 Use colour coded wires in communication cables, matched throughout system.

.5 CONDUIT AND CABLE IDENTIFICATION

.1 Colour code conduits, boxes and metallic sheathed cables.

.2 Code with plastic tape or paint at points where conduit or cable enters wall, ceiling, or floor, and at 15 m intervals.

.3 Colours: 25 mm wide prime colour and 20 mm wide auxiliary colour.

Prime	Auxiliary	
up to 250 V	Yellow	
up to 600 V	Yellow	Green

3. Execution

.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for cables installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

- .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
- .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

.2 INSTALLATION

- .1 Do complete installation in accordance with CSA C22.1 except where specified otherwise.
- .2 Do overhead and underground systems in accordance with CAN/CSA-C22.3 No.1 except where specified otherwise.

.3 NAMEPLATES AND LABELS

- .1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

.4 CONDUIT AND CABLE INSTALLATION

- .1 If plastic sleeves are used in fire rated walls or floors, remove before conduit installation.
- .2 Install cables, conduits and fittings embedded or plastered over, close to building structure so furring can be kept to minimum.

.5 CO-ORDINATION OF PROTECTIVE DEVICES

- .1 Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

.6 FIELD QUALITY CONTROL

- .1 Load Balance:
 - .1 Measure phase current to panelboards with normal loads (lighting) operating at time of acceptance; adjust branch circuit connections as required to obtain best balance of current between phases and record changes.
 - .2 Measure phase voltages at loads and adjust transformer taps to within 2% of rated voltage of equipment.

- .3 Provide upon completion of work, load balance report as directed in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS, phase and neutral currents on panelboards, dry-core transformers and motor control centres, operating under normal load, as well as hour and date on which each load was measured, and voltage at time of test.
- .2 Conduct following tests in accordance:
 - .1 Power distribution system including phasing, voltage, grounding and load balancing.
 - .2 Circuits originating from branch distribution panels.
 - .3 Lighting and its control.
- .7 SYSTEM STARTUP
 - .1 Instruct operating personnel in operation, care and maintenance of systems, system equipment and components.
 - .2 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with aspects of its care and operation.
- .8 CLEANING
 - .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

4. Method of payment

.1 LIGHTING

.1 Pole of 9.1m for single lamppost

- .1 **The article entitled “Pole of 9.1m for single lamppost” is charged according to unit price.**



.2 The price includes, without being limited to, supply and installation of pole including all required accessories, identification label, wiring inside pole for luminaire, splicing, fuse holder and fuses, final adjustment of pole and any incidental expenses.

.2 L1 luminaire type

.1 The article entitled “L1 luminaire type” is charged according to unit price.

.2 The price includes, without being limited to, supply and installation luminaire, connection of luminaire on the circuit, cleaning, registration the date of installation and any incidental expenses.

.3 Concrete base

.1 The article entitled “Concrete base” is charged according to unit price.

.2 The price includes, without being limited to, excavation, preparation of the basis, in-situ concrete base construction (including anchor bolts, conduits and rebar) or precast concrete base, transportation, handling, backfilling, compacting, removal of surplus excavation materials or unusable, leveling and final adjustment of concrete base and any incidental expenses.

.4 Natural soil trench

.1 The article entitled “Natural soil trench” is measured and charged according to linear meter.

.2 The price includes, without being limited to, excavation, backfilling and compacting (see detail on the drawing) following installation of conduits, identification tape, removal of surplus excavation materials or unusable from the site and any incidental expenses.

.5 Under pavement trench

.1 The article entitled “Under pavement trench” is measured and charged according to linear meter.





- .2 The price includes, without being limited to, cutting of pavement, excavation, backfilling until infrastructure and compacting (see detail on the drawing) following installation of conduits, identification tape, removal of surplus excavation materials or unusable from the site and any incidental expenses.
- .6 **Rigid PVC conduits**
 - .1 The article entitled “Rigid PVC conduit” is measured and charged according to linear meter.
 - .2 The price includes, without being limited to, supply and installation of conduit, brackets, installation materials within trench, conduit cleaning, pull through conduit steel mandrel, the pull rope and any incidental expenses. The price also includes accessories such as elbows, adaptors, reducers, caps, etc., for a complete installation; the cost of these accessories must be established as part of the conduit price.
 - .3 Conduits are measured parallel of trench, between the center of concrete bases.
- .7 **Conductors**
 - .1 The article entitled “Conductors” is measured and charged according to linear meter.
 - .2 The unit price includes, without being limited to, supply, installation, and connection of the copper conductor, size as indicated, identification of each conductor to each extremity (in each box, each lamppost and in the distribution panel), including any incidental expenses. The price also includes electrical tests.
 - .3 Conductors are measured parallel to conduit, between the center of concrete bases, plus 2m of length for ascent at each base.
- .8 **Grounding**
 - .1 The article entitled “Grounding” is charged according to unit price.

.12 Temporary supply

- .1 The article entitled “Temporary supply” is charged according to lump sum price and consists to maintaining lighting circuit to lampposts, not affected by the works, and to keep the functional lighting any time.**
- .2 The price includes, without being limited to, materials, installation, connections and all necessary temporary works (overhead feeders) to maintain lighting circuit, the coordination with supervisor, the dismantlement of the temporary installation and any incidental expenses.**

.13 Conduit connection

- .1 The article entitled “Conduit connection” consist to connected a new conduit to an existing conduit is charged according to unit price.**
- .2 The price includes, without being limited to, identification of the exact positioning of conduit to be intercepted, straight line conduit cutting using the appropriate tool, cleaning of existing conduit, connection to new conduit using appropriate adaptor, and any incidental expenses.**



.2 CHARGING STATIONS

.1 Charging stations

- .1 The article entitled “Charging stations” is charged according to lump sum price.**
- .2 The price includes, without being limited to, supply, installation and connection of all required equipments to configure a double charging station on double pedestal including pedestal anchor kit, indications on drawing (note 3), tests, commissioning, the coordination with manufacturer representative and any incidental expenses. The price also includes the call to the manufacturer representative for integration of the new double charging station to the local network by the existing communication gateway.**



.2 Modification to distribution panel

.1 The article entitled “modification to distribution panel” is charged according to lump sum price.

.2 The price includes, without being limited to, supply, installation and connection of breakers, work described on drawings, all hardware necessary for installation of breakers within panel, client coordination, and any incidental expenses.

.3 Works inside the building

.1 The article entitled “Works inside the building” is measured and charged according to linear meter according to length of course.

.2 The price includes, without being limited to, supply, installation and connection of EMT conduit to the distribution panel, aluminium conduit up to PVC conduit, all mounting brackets and cantrust all along the run, all required pulling boxes, drilling of the exterior wall of the sprinkler room and 2 hrs fire rated sealing, drilling of three interior walls and 2 hrs fire rated sealing, all required accessories and any incidental expenses.

.4 Natural soil trench

.1 See the 4.1.4.

.5 Under pavement trench

.1 See the article 4.2.5.

.6 Rigid PVC conduits

.1 See the article 4.1.6.

.7 Conductors

.1 See the article 4.2.7.

END OF SECTION

1. General

.1 RELATED REQUIREMENTS

- .1 Section 31 14 13 – Soil stripping and stockpiling
- .2 Section 31 24 13 – Roadway embankments
- .3 Section 32 92 23 - Sodding

.2 REFERENCES

- .1 ASTM International
 - .1 ASTM D698-07e1, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (600 kN-m/m³).
- .2 Underwriters' Laboratories of Canada (ULC)

.3 EXISTING CONDITIONS

- .1 Known underground and surface utility lines and buried objects are as indicated on site plan.
- .2 Refer to dewatering in Section 31 23 33.01 - Excavating, Trenching and Backfilling.

2. Products

.1 MATERIALS

- .1 Excavated or graded material existing on site suitable to use as fill for grading work if approved by Departmental Representative.

3. Execution

.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for rough grading installation in accordance with manufacturer's written instructions.
 - .1 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

- .4 At least 4 weeks prior to beginning Work, inform Departmental Representative source of fly ash and submit samples to Departmental Representative.
 - .1 Do not change source of Fly Ash without written approval of Departmental Representative.

.5 GEOTECHNICAL STUDY

- .1 **Geotechnical and environmental characterization study report will be provided to the successful bidder at the presentation of documents issued for construction.**



.6 QUALITY ASSURANCE

- .1 Qualification Statement: submit proof of insurance coverage for professional liability.
- .2 Submit design and supporting data at least 2 weeks prior to beginning Work.
- .3 Design and supporting data submitted to bear stamp and signature of qualified professional engineer registered or licensed in Province of Quebec, Canada.
- .4 Keep design and supporting data on site.
- .5 Do not use soil material until written report of soil test results are reviewed and approved by Departmental Representative.
- .6 Health and Safety Requirements:
 - .1 Do construction occupational health and safety in accordance with Section 01 41 00 – Regulatory Requirements.

.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Divert excess aggregate materials from landfill to local quarry facility for reuse as directed by Departmental Representative.

.8 EXISTING CONDITIONS

- .1 Examine soil report available at quotation.
- .2 Buried services:
 - .1 Before commencing work have verify location of buried services on and adjacent to site.
 - .2 Arrange with appropriate authority for relocation of buried services that interfere with execution of work: pay costs of relocating services.



Executive summary

Golder Associés Ltée (Golder) was mandated in June 2015 by Public Works and Government Services Canada to perform a geotechnical and environmental characterization study on a property located at 1615, boulevard Lionel-Boulet in Varennes, Québec (figure 1).

The objective of the environmental characterization work was to verify the quality of the excavated soils to be generated during construction. The objective of the geotechnical work was to assess the overall stratigraphy of soils and the position of the groundwater table from a limited number of boreholes and laboratory tests in order to provide preliminary recommendations for the design of foundations of future structures, including considerations related to construction which could influence the design.

Four boreholes were completed as part of this investigation (F-15-01, F-15-02, F-15-03 and F-15-04), two of which were transformed into Casagrande type piezometers (F-15-01 and F-15-03). Rock was cored over a length of approximately 3 m in boreholes F-15-01 and F-15-02.

Geotechnical aspects

The stratigraphy encountered corresponds to surficial organics or asphalt layer, followed by a layer of fill material, mainly comprising sand and silt, followed by poor to average quality friable schist. Bedrock was found at shallow depth (between 0.89 m and 1.63 m) in all boreholes. The stabilized groundwater level was identified at a depth of approximately 1.5 m. It should be noted that these underground conditions are only valid at the borehole locations. Underground conditions could be different at other portions of the site.

At the time of writing this report, only conceptual details of the proposed structures were available. The conditions encountered during this study allow for the use of shallow foundations (strip and/or spread footings) founded on bedrock for the building extension. Similar footings or piles resting onto the bedrock can be used for the exterior walls of the warehouse. The objective of these options for the warehouse is to preserve the current asphalt surface without installing a slab on grade.

Environmental aspects

Selected soil samples collected during field work were analyzed for the following parameters: petroleum hydrocarbons C₁₀-C₅₀ (HP C₁₀-C₅₀), polycyclic aromatic hydrocarbons (PAH) and/or metals. The results of the analyses indicated concentrations inferior to criteria A of the MDDELCC² for all parameters analyzed. Based on the *Grille de gestion des sols contaminés excavés intérimaire* de la Politique (MDDELCC, 1999), soils whose contamination level is inferior to criteria A can be excavated and used without restriction.

² MDDELCC : ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques du Québec, formerly known as the ministère du Développement durable, de l'Environnement, de la Faune et des Parcs (MDDEFP), le ministère du Développement durable, de l'Environnement et des Parcs du Québec (MDDEP), le ministère de l'Environnement du Québec (MENV) or the ministère de l'Environnement et de la Faune du Québec (MEF).