



Parks Canada Parcs
Canada Canada

Canada

LACHINE CANAL LIGHTING NETWORK REHABILITATION

ELECTRICAL SPECIFICATIONS ISSUED FOR ADDENDUM No. 4

*This document should not
be used for purposes of
construction*

SNC-Lavalin Ref. : 645791

SNC-LAVALIN INC.

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(Electrical)

This addendum becomes part of the tender documents as originally specified. Its content prevails over tender documents issued to date.

All specifications issued with this **ADDENDUM No. 4** shall be considered part of the bidding documents. Modifications to sections of the tender documents are listed below and included hereafter.

1. ELECTRICAL

1.1 SECTIONS LIST

On each revised page of a given section, the revisions connected to present addendum are identified by a revision number located at the bottom of the page. The revision number appears inside a triangle to indicate a partial revision, whereas it is located next to the section title if an entire page was added or revised in the scope of the addendum.

The following sections are issued with this Addendum:

Section n°	Number of pages
00 01 10.01	3 pages
01 29 00	17 pages

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SECTION N°	TITRE	2017-07-21	2017-08-21	2017-08-24	2017-08-30	2017-09-01									
4	00 01 10.01 Electrical – List of Sections	0	1	2	3	4									
	01 11 01 Work Related General Information	0	1												
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	01 31 19 Project Meetings	0													
	01 32 16.07 Construction Progress Schedule – Bar Chart (GANNT)	0													
	01 33 00 Submittal Procedures	0													
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	01 35 43 Environmental Procedures	0	1												
	01 41 00 Regulatory Requirements	0													
	01 45 00 Quality Control	0													
	01 52 00 Construction Facilities	0													
	01 56 00 Temporary barriers and enclosures		0												
	01 61 00 Common Product Requirements	0													
	01 73 00 Execution		0												
	01 74 11 Cleaning	0													
	01 74 21 Construction/Demolition – Waste Management and Disposal	0													

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01 77 00	Closeout Procedures	0														
01 78 00	Closeout Submittals	0														
01 91 13	General Commissioning (CX) Requirements	0														
26 05 00	Common Work Results for Electrical	0														
26 05 20	Wire and Box Connectors 0 – 1,000 V	0														
26 05 21	Wires and Cables (0 – 1,000 V)	0														
26 05 31	Splitters, Junction, Pull Boxes and Cabinets	0														
26 05 34	Conduits, Conduit Fastenings and Fittings	0														
26 05 43 01	Installation of Cables in Trenches and in Ducts	0														
26 28 16 02	Moulded Case Circuit Breakers	0														
26 56 19	Roadway Lighting	0														
31 05 16	Aggregate Materials			0												
31 11 00	Clearing and Grubbing	0														
31 23 33.01	Excavating, Trenching and Backfilling			0												
32 01 90 33	Tree and Shrub Preservation	0														
32 11 16.01	Granular Sub-Base			0												
32 11 23	Aggregate Base Course			0												

PARKS CANADA LIGHTING NETWORK REHABILITATION LACHINE CANAL		SECTION 00 01 10.01 ELECTRICAL – LIST OF SECTIONS					Issued for Tender	Issued for Addendum No. 1	Issued for Addendum No. 2	Issued for Addendum No.3	Issued for Addendum No.4					
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SECTION N°	TITRE	2017-07-21	2017-08-21	2017-08-24	2017-08-30	2017-09-01										
32 12 16	Asphalt Paving			0												
32 17 23	Pavement Marking			0												
32 91 19.13	Topsoil Placement and Grading			0												
32 92 23	Sodding			0												
33 65 76	Direct Buried Underground Cable Ducts	0														



1. GENERAL

1.1 Unit or Lump Sum Prices

- .1 The total amount of the contract is broken down according to a description of work paid on a flat-rate basis (flat-rate prices) and paid work on a unitary basis (unit prices).
- .2 Each of the unit or lump sum prices to be broken down shall include all expenditures, work, disbursements, payments, direct or indirect costs, mobilizations, demobilizations and acts, all facts, and all responsibilities, obligations, omissions and errors of The Contractor in connection with the completion of this work. These prices also include the transportation and use of materials, the cost of labor, materials, tools and equipment required for the performance of the contract, and all costs Corporate, administration, insurance, contributions, interest, rents, taxes and other incidental expenses. It must include losses and damages that may result from the nature of the work, fluctuations in prices and wages, business risks, strikes, delays not attributable to the Departmental Representative, transportation restrictions, Accidents and the action of the elements of nature.

1.2 Definitions

- .1 Fixed price: where the work is determined in a precise and detailed manner and a price is agreed and accepted by both parties for the whole.
- .2 Unit price: where the specifications for the work are determined in a precise and detailed manner and all quantities on the schedule are provided as an estimate.

2. PRICE SCHEDULE LINE ITEM DESCRIPTIONS

- .1 Site organization
 - .1 This section includes the organization of the site and all elements described in this Part. It is paid on a flat-rate basis and includes all the requirements outlined in Division 1 (General Requirements) of this Specification as well as all other work that is not part of other Schedule items but is necessary for the full the work.

- .2 It also includes the costs of mobilization and demobilization, the cost of purchasing, depreciating or leasing machinery, tools and equipment, personnel, materials, site facilities and any mobilization As may be required to meet the schedule of work.
- .3 Maintenance and operating costs for the maintenance of machinery, equipment and tools included in the worksite facilities during the course of the work and the personnel supporting these facilities are also included.
- .4 This price includes, but is not limited to:
 - .1 Land
 - .1 Expenses for the acquisition, lease, compensation and use of land other than those which may be made available to the Contractor, either for the construction site or for temporary deposits.
 - .2 The costs of use and maintenance of the lands made available to the Contractor.
 - .2 Arrangements of Site Site Areas
 - .1 Land development required for development of site facilities.
 - .2 Site drainage.
 - .3 Site and personnel offices.
 - .4 Office of Parks Canada Representative.
 - .5 Premises for storage of equipment.
 - .6 External Storage for Equipment and Equipment.
 - .7 Barriers and fencing required throughout the duration of the work, including any movement and all temporary safety devices.
 - .8 The costs of guarding.

- .3 Machinery, Equipment and Tools
 - .1 All machinery and equipment required to maintain site operations including operation (eg for receiving and managing materials).
 - .2 Light trucks.
 - .3 Scaffolding.
 - .4 Generators and temporary lighting.
 - .5 tools.
 - .6 Compressors.
 - .7 Etc.
- .4 Networks
 - .1 Toilets on site.
 - .2 Water supply to existing site facilities from existing hydrants.
 - .3 Fire protection.
 - .4 Water for compaction of materials and dust suppressant.
 - .5 Power Supply.
 - .6 Lighting on site.
 - .7 Telephone and Internet links for use and use of Parks Canada Representative.
- .5 Health and Safety
 - .1 All equipment and supplies required to ensure health and safety in accordance with Section 01 35 29.06 of the Construction Specification and applicable laws and regulations.

.6 Services

- .1 This lump sum price includes the total remuneration including the salaries and bonuses of the contractor's site staff and clerical staff who will provide the services of site organization during the duration of the work, including but not limited to:
 - .2 Superintendency and project management.
 - .3 Topographic survey services.
 - .4 Studies of construction methods.
 - .5 Quality control.
 - .6 Health and Safety.
 - .7 Work planning and subcontractor management.
 - .8 Supply and Logistics.
 - .9 Preparation and management of documentation (in accordance with Section 01 33 00 of the construction specifications, including shop drawings, final plans, operating manuals and suppliers).
 - .10 Commissioning.
 - .11 Transportation, accommodation and subsistence costs of (indirect) support staff and all workers throughout the duration of the work.

.7 Miscellaneous

- .1 Licenses
- .2 Supply and installation of 1220 mm x 2440 mm works identification sign, corresponding to a 3.0 m² for each worksite access.
- .3 All other related costs for completion of work not included in unit and or lump sum prices.

- .4 Provision of timetable of work in two formats: (*.mpp & *.pdf) including all the updates and other information required.

- .8 **Environment**

- .1 **Action Plan for the Protection of the Environment**
- .2 **Temporary sediment barrier**
- .3 **Berm and temporary sediment trap**

- .2 Electrical

- .1 Lighting Units

- .1 For the price schedule's line item entitled "Lighting Units", the bidder shall list a price per unit that includes the supply and installation of each lamp. The price shall include, without being limited to:
 - .1 Supplying and installing a street lamp including accessories such as the pole, footing, base cover, lug, etc.
 - .2 Supplying, installing and wiring connections inside the lamp post, fuse holders, fuses, and splices.
 - .3 Supplying and installing the door banners
 - .4 Final adjustments to ensure pole verticality.
 - .5 Connecting the street lamp to the circuit.
 - .6 All other related works required to complete the work as specified in the plans and specifications.
- .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.

- .2 Trenches Without Paving



- .1 For the price schedule's line item entitled "Trenches Without Paving", the bidder shall list a price per linear metre for the construction of trenches. The price shall include, without being limited to:
 - .1 Retaining and protecting work areas.
 - .2 Supporting and protecting public utilities.
 - .3 Protecting trees, shrubs and fences.
 - .4 Excavating and drying of trench, disposing of excavated materials and/or waste, encasing and backfilling.
 - .5 Compacting and installing signalling tape.
 - .6 Backfilling, final levelling and final adjustments.
 - .7 Site rehabilitation.
 - .8 All other related works required to complete the work as specified in the plans and specifications.
- .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.
- .3 Trenches Under Paving
 - .1 For the price schedule's line item entitled "Trenches Under Paving", the bidder shall list a unit price per linear metre for the construction of trenches. The price shall include, without being limited to:
 - .1 Cutting the pavement, excavating, backfilling to infrastructure, and compacting (see details on plan) after the installation of ducts, signalling tape, removal of extra/unusable excavated material and all incidental expenses;
 - .2 All other related works required to complete the work as specified in the plans and specifications.

- .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.
- .4 Concrete Bases
 - .1 For the price schedule's line item entitled "Concrete Bases", the bidder shall list a unit price for the construction of concrete bases. The price shall include, without being limited to:
 - .1 Excavating.
 - .2 Shoring trench, controlling water and supporting nearby structures.
 - .3 Preparing the bed.
 - .4 Constructing of the mound around the concrete base, if required.
 - .5 Supplying and installing the concrete bases, poured on site (including the anchor bolts, encased ducts and reinforcements) or the prefabricated base.
 - .6 Backfilling and compacting.
 - .7 Disposing of extra excavated material and/or waste.
 - .8 Final levelling and adjustments to the concrete base.
 - .9 All other related works required to complete the work as specified in the plans and specifications.
 - .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.
- .5 PVC Ducts
 - .1 For the price schedule's line item entitled "PVC Ducts", the bidder shall list a unit price per linear metre for supplying and installing PVC ducts, with ducts being measured parallel to the trench, from the centre of one concrete base to the centre of the next. The price shall include, without being limited to:

- .1 Supplying and installing rigid PVC ducts with the diameter indicated on the schedule.
- .2 Cleaning of the duct, passing a mandrel and stiff bristle brush, and installing a 6 mm nylon cable for pulling conductors or cables.
- .3 All other related works required to complete the work as specified in the plans and specifications.
- .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.
- .6 Conductors
 - .1 For the price schedule's line item entitled "Conductors", the bidder shall list a unit price per linear metre for supplying and installing conductors. The price shall include, without being limited to:
 - .1 Supplying and installing RWU-90 conductors in ducts, with caliber as indicated on plans.
 - .2 Measuring to be from one base centre to another.
 - .3 An additional 3 metres per rise for each cable in a concrete base.
 - .4 An additional 3.5 metres per rise for the power supply and distribution.
 - .5 An overall additional 4 metres for each cable passing through a pull block.
 - .6 An additional 1 metre for each cable passing through a pull box or junction box.
 - .7 All other related works required to complete the work as specified in the plans and specifications.
 - .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.
- .7 Ground-Level Pull Box

- .1 For the price schedule's line item entitled "Ground-Level Pull Box", the bidder shall list a unit price for supplying and installing pull boxes. The price shall include, without being limited to:
 - .1 Excavating.
 - .2 Supplying and installing the pull box duct.
 - .3 Backfilling.
 - .4 All other related works required to complete the work as specified in the plans and specifications.
- .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.
- .8 Modification of Power Supply and Control Panel
 - .1 For the price schedule's line item entitled "Modification of Power Supply and Control Panel", the bidder shall list a lump-sum price for supplying and installing the equipment indicated on the plans and specifications. The price shall include, without being limited to:
 - .1 Supplying, installing and connecting all electrical equipment indicated on the plans and specifications.
 - .2 Installing, modifying and connecting the distribution components, breakers, contactors, terminal blocks, fuse holders, protective covers, astronomical timer, electric eye, selector switches, bushings and labelling stickers.
 - .3 Modifying the existing electrical distribution, connecting, relocating and pivoting of power supply and control panels.
 - .4 All other related works required to complete the work as specified in the plans and specifications.
 - .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.

.9 Simple Street Lamp Disassembly

- .1 For the price schedule's line item entitled "Simple Street Lamp Disassembly", the bidder shall list a unit price for dismantling simple street lamps. The price shall include, without being limited to:
 - .1 Disconnecting power conductors.
 - .2 Removing the street lamp and dismantling it into its various parts (post, davit, light fixture).
 - .3 Removing conductors inside the post.
 - .4 Removing the various components (lamp, fuse holder, fuses).
 - .5 Storing the street lamp (post, davit, light fixture) at the location determined by Parks Canada.
 - .6 **Recover 30 existing street lamps in good shape (post, davit, light fixture), round base model, to be deliver to the Lachine workshop. The contractor should disposed of the other street lamps.**
 - .7 All other related works required to complete the work as specified in the plans and specifications.
- .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.

.10 Concrete Base Dismantling

- .1 For the price schedule's line item entitled "Concrete Base Dismantling", the bidder shall list a unit price for dismantling concrete bases. The price shall include, without being limited to:
 - .1 Excavating.
 - .2 Sectioning ducts.



- .3 **Removing the concrete base and transporting it off site by the contractor. It's not Parks Canada intention to recover the concrete bases.**
- .4 Backfilling the hole resulting from its removal and compacting.
- .5 All other related works required to complete the work as specified in the plans and specifications.
- .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.
- .11 Electrotechnical Testing
 - .1 For the price schedule's line item entitled "Electrotechnical Testing", the bidder shall list a lump-sum price. The price shall include, without being limited to:
 - .1 Ensuring verifications are performed by an independent firm, as required in the specifications, including the necessary equipment.
 - .2 Issuing a report and performing additional inspections.
 - .3 All other related works required to complete the work as specified in the plans and specifications.
 - .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.
- .12 Anti-Theft Device
 - .1 For the price schedule's line item entitled "Anti-Theft Device", the bidder shall list a unit price for installing an anti-theft device within lamp posts. The price shall include, without being limited to:
 - .1 Supplying and installing a steel plate and neoprene protection.
 - .2 Supplying and installing nuts and bolts.

- .3 All other related works required to complete the work as specified in the plans and specifications.
- .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.
- .13 Lighting Units and concrete bases:
 - .1 For the price schedule's line item entitled "Lighting Units and concrete bases", the bidder shall list a price per unit that includes the supply and transportation of each lamp and concrete bases. The price shall include, without being limited to:
 - .1 Supplying a street lamp including accessories such as the pole, footing, base cover, lug, etc.
 - .2 Transportation of the concrete bases and the street lamp (post, davit, light fixture) at the location determined by Parks Canada.
 - .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.
- .3 Civil works
 - .1 Cycling path demolition
 - .1 This item is per square metre and includes all necessary measures, actions and supplies, including, but not limited to, management, labor, machinery and equipment, materials, surveys, licences, professional services and construction engineering for the supply of the following materials and works:
 - .1 Saw lines at locations indicated by Parks Canada representative
 - .2 Dismantling the existing cycling path at the locations indicated by Parks Canada representative by removing the asphalt in accordance with specifications including loading, transport and disposal in an authorized site

- .3 Preparing the foundation soil by scarifying and excavating the granular material in accordance with the specification;
 - .4 The installation of topsoil to a thickness of 150mm, the finishing leveling and the disposition of the waste materials according to the requirements of the specification;
 - .5 Placing of the sod tiles according to the specification;
 - .6 Cleaning in accordance with the requirements of the specification and any repair or reconstruction to complete the restoration work to the satisfaction of the Departmental Representative.
- .2 Payment of this item will be made based on the progress of the work, as approved by Parks Canada Representative.
- .2 Temporary cycling path construction
 - .1 This item is per square metre and includes all necessary measures, actions and supplies, including, but not limited to, management, labor, machinery and equipment, materials, surveys, licences, professional services and construction engineering for backfill work and asphalt paving of the temporary bicycle path construction at the locations shown on the plans or indicated by Parks Canada representative and according to the typical section shown in Annex A and to the specification and for the supply of the following materials and works :
 - .2 Excavation and backfill for the cycling path infrastructure. It is necessary to excavate and / or backfill to the level indicated on site by Parks Canada representative.
 - .3 Installation of the MG 20 granular foundation layer to a thickness of 150mm
 - .4 Installation of the MG 112 granular foundation layer to a thickness of 400mm
 - .5 Installation of asphalt EB-10C to a thickness of 50 mm

- .6 Installation of pavement marking
- .7 Cleaning in accordance with the requirements of the specification and any repair or reconstruction to complete the restoration work to the satisfaction of the Departmental Representative
- .3 **Excavation 1st class and backfilling for trenches (provisional)**
 - .1 **This price shall compensate all necessary measures, actions and supplies per linear meter , including, but not limited to, management, labor, machinery and equipment, equipment, materials, Surveys, permits, professional services and construction engineering for controlled backfill work for the trenches, with approved granular materials approved by the Departmental Representative, and from the cut material characterised from the site, as outlined in the specifications and specifications:**
 - .2 **All costs necessary to complete and supply this item, including, but not limited to, coordination with the Laboratory and the Departmental Representative for the approval of fill materials shall be included.**
 - .3 **Payment of this item will be made based on the progress of the work, as approved by the Departmental Representative.**
- .4 **Excavation 1st class and backfilling for concrete bases (provisional)**
 - .1 **This price shall compensate all necessary measures, actions and supplies per cubic meter (m³), including, but not limited to, management, labor, machinery and equipment, equipment, materials, Surveys, permits, professional services and construction engineering for controlled backfill work for concrete bases, with approved granular materials approved by the Departmental Representative, and from the cut material characterised from the site, as outlined in the specifications and specifications:**

- .2 All costs necessary to complete and supply this item, including, but not limited to, coordination with the Laboratory and the Departmental Representative for the approval of fill materials shall be included.
- .3 Payment of this item will be made based on the progress of the work, as approved by the Departmental Representative.

.4 Contaminated soil management work (provisional)

- .1 This price is paying the metric tonne (mt) for all characterization, transportation, disposal and off-site disposal of contaminated materials from cut, excavation or demolition to disposal or treatment sites holding a certificate of authorization from the MDDELCC in the following categories:

- .1 Supplement for disposal/elimination of excavated material, the concentration of contaminants, after characterization, is in range A-B (paid per t.m.)
- .2 Supplement for disposal/elimination of cut materials with concentration of contaminants, after characterization, in the B-C Range (paid per t.m.)
- .3 Supplement for disposal/elimination of excavated material, the concentration of contaminants, after characterization, is in range C+ (paid per t.m.)
- .4 Supplement for disposal/elimination of excavated material with contaminant concentration, after characterization, above criterion C and below the limit value of RESC (paid per t.m.)

- .2 These prices include all materials, transportation, rental, installation of equipment, equipment, machinery, tools, labor and expenditures to perform the work of disposition Off-site "of contaminated excavated material, even if they are not specifically described, either in the drawings or in the specifications or other tender documents, but deemed necessary to bring them into line with best practices.
- .3 All costs necessary to complete and provide this item, such as, but not limited to, soil management, stockpiling, soil drainage, supply and installation of protective membranes, marking of zones, coordination with the Laboratory and the Departmental Representative for soil characterization, if required before disposal, and rehabilitation of temporary repository areas should be included.
- .4 Measurement for Payment Purposes shall be the determination of the tonnage of excavated material indicated on the weigh tickets of each authorized load and compiled in a register approved by the Departmental Representative. All costs of excavation materials elimination and work carried out, including excavation and demolition carried out without the approval of the Departmental Representative, shall be at the expense of the Contractor.
- .5 Provide access to a scale at all times even when the disposal site does not have access to it.
- .6 Payment of this item will be made based on the progress of the work, as approved by the Departmental Representative

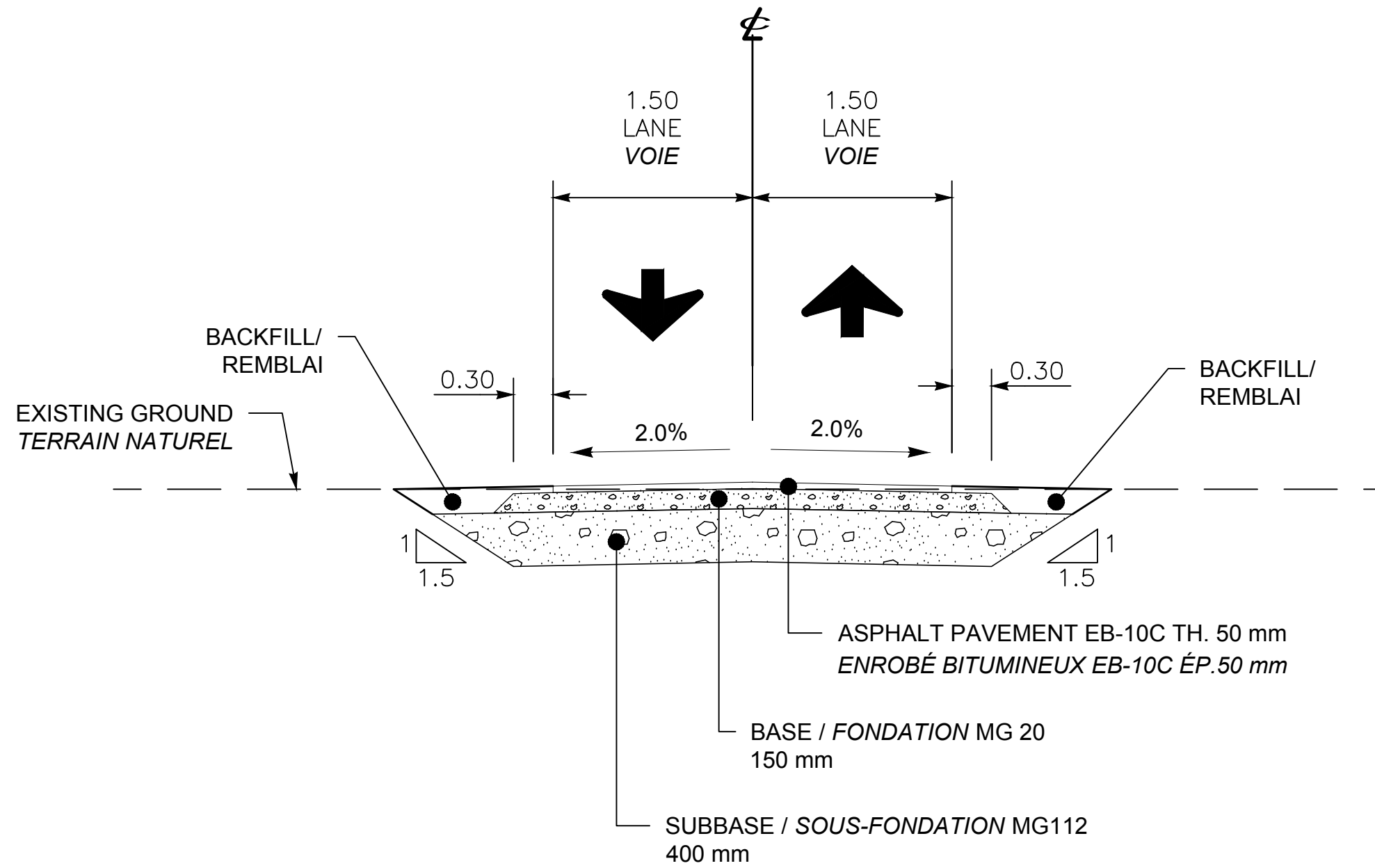
3. PRODUCTS

- .1 Not Applicable.

4. EXECUTION

- .1 Not Applicable.

PROPOSED CYCLING PATH DEVIATION
DÉVIATION PROPOSÉE DE LA PISTE CYCLABLE



TYPICAL CROSS SECTION - ANNEX A
COUPE TYPE PROPOSÉE - ANNEXE A
1:50