SECTION 926

CONSTRUCTION LAYOUT AND SURVEYING REQUIREMENTS

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926.01 SCOPE

This work consists of furnishing, placing and preserving construction layout stakes, reference marks and other controls in accordance with the Contract Documents for the construction of various elements of the Project by an independent Surveying sub-contractor. The surveyor is to reproduce and submit field notes of all layout work to the Owner's Representative as the work progresses as described below.

926.02 GENERAL

The Contractor is responsible for having the finished Work conform to the lines, grades, elevations, and dimensions shown on the plans.

Unless noted otherwise in the contract documents all dimensional tolerances shall be +/- 5mm. The Department reserves the right to reject the work if this is exceeded, and the Contractor will be responsible for replacing the rejected item and any associated work. The Department reserves the right to hold back any monies that would be required for the

Contractor to return to site and complete the replacement of the rejected work. This applies for all items of the work and is not limited to the items noted for surveying below.

The Surveyor is to use competent personnel and suitable equipment for the layout work required and is to provide a Registered Surveyor in Newfoundland to supervise the operation. The Surveyor is to be specified under Appendix B "Declaration of Sub-Contractors" in the Tender Documents.

The Department will furnish the Contractor with a benchmark from which all site dimensions shall be derived.

The Department may check the control of the work, as established by the Contractor and verified by the Surveyor, at any time as the work progresses. The Contractor will be informed of the results of these checks, but the Department by so doing in no way relieves the Contractor of responsibility for the accuracy of the layout work.

The Contractor shall correct or replace, at the Contractor's own expense, any deficient layout and construction work which may be the result of the inaccuracies in the construction layout operations or the failure to report inaccuracies in the original conditions of the site that would lead to a layout that would not comply with the Contract Documents. If, as a result of these inaccuracies, the Department is required to make further studies, redesign, demolition, reconstruction or any combination of such, all expenses incurred by the Department due to such inaccuracies will be deducted from any monies due to the Contractor.

The Surveyor is to verify the location of the construction elements noted under section 926.03 and any others noted in the Contract Documents and provide copies of field notes and data used in the setting and referencing of stakes and other layout markings; data shall be provided in .csv files in PENZD format. Such provision of information shall be adequate for the Owner's Representative to review the location and elevation of the reference marks. The Surveyor is required to notify the Department and the Contractor in writing or electronic communication within 24 hours discovery of the existence and the magnitude of any discrepancies, greater than what is allowed in the Contract Documents.

926.03 LAYOUT

Layout Marks, Reference Points and Dimensions to confirm any of the following elements that are part of the contract: Line and Grade, Substructure, Bearings, Superstructure, Walls, Bridge Decks.

926.03.01 Line and Grade

The Contractor shall be solely and completely responsible for the accuracy of the line and grade of all features of the work. Any errors or apparent discrepancies found in previous surveys, plans, specifications or supplementary general conditions shall be called to the Owner's Representative's attention immediately for correction or interpretation prior to proceeding with the work.

926.03.02 Substructure

Stake, reference or otherwise identify locations, orientations, and elevations necessary for placement of substructure components, including but not limited to cofferdams, pilings (including batter), drilled shafts, footings, columns, abutments, caps, cross beams, bearing devices, temporary supports or falsework, and excavations and embankments associated with the construction. Verify and document the locations, elevations and spatial relationships with adjacent substructure components. Supply a copy of such documentation to the Owner's Representative for review before the next stage of construction.

926.03.03 Bearings

Verify and document the location, elevations and spatial relationships with adjacent sub- and super-structure. On bridges where prefabricated beams will be used, measure and document span lengths between bearing devices at each beam location as soon as practical. Supply a copy of such documentation to the Owner's Representative for review before the next stage of construction.

926.03.04 Superstructure

Stake, reference or otherwise identify locations, orientations, and elevations necessary for placement of superstructure components including but not limited to beams, girders, diaphragms, earthquake restraints, deck, rails, structure mounted traffic control and illumination devices, and concrete forms, temporary supports and falsework associated with any of the above. Stake grades at each stage of construction. Apply corrections to design grades based on the dynamics of the evolving structure within the tolerance specified by the Engineer of Record. Corrections that may be required depend upon the design of the bridge and the construction methods employed. Contractor is to provide proposed correction details to the Owner's Representative for approval by the Engineer of Record.

926.03.05 Walls

Stake, reference or otherwise identify locations, orientations, and elevations necessary for placement of the wingwalls, MSE walls, or any adjacent walls included in the Project. Walls are to be verified every 3 m in vertical height, and 3 m in the horizontal plane. A copy of such documentation is to be supplied to the Owner's Representative for review before continuation of the wall construction.

926.03.06 Bridge Decks

Bridge Decks shall be surveyed twice. The first survey shall be when the concrete deck is exposed, and all concrete repairs have been complete. The second survey shall be after the surface course of asphalt has been completed and is ready for traffic. The survey shall be on a 1 m by 1 m grid pattern, along the whole width of the bridge, and is to extend 20 m past the bridge in both directions. The survey shall include points along the joints, curbs, wheel paths, and drains.

926.04 UNASSIGNED

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926.06 MEASUREMENT FOR PAYMENT

No measurement for payment will be made.

926.07 BASIS OF PAYMENT

The work described above shall be included in the general cost of the work and no direct payment for "Construction Layout and Surveying Requirements" will be made.

The first 30% of any unit prices associated within the following specification sections within Table 1 will be withheld until the Surveyor has submitted the following field notes showing verification of their respective elements, the magnitude of any differences with the Contract Documents, and the Owner's Representative is satisfied that the layout is correct:

Table 1

Element described above	Specification Section
1. Line and Grade	157 "Mobilization and Demobilization"
2. Substructure	904 "Concrete Structures" and 903 "Piling"
3. Bearings	912 "Bearings"
4. Superstructure	904 "Concrete Structures"
5. Walls	925 "Inextensible Mechanically Stabilized Earth (MSE) Structures" and 904 "Concrete Structures"
6. Bridge Decks	922 "Asphaltic Paving of Bridge Deck and Approaches"