# GEneral

## Scope

### This Item includes the following:

#### Field engineering survey services to measure and stake the Site.

#### Survey services to establish and confirm elevations for the Work.

#### Recording of subsurface conditions found.

## Related Sections

### Section 01010 – Summary of Work

### Section 01040 – Coordination

### Section 01300 – Submittals

### Section 01501 – Construction Sequencing

### Section 01710 – Pre-Construction Structural Survey

## References

### The following is a list of standards which may be referenced in this Section:

#### The Region's identification of existing survey control points and property limits.

#### Ontario Underground Infrastructure Notification System Act, 2012 S.O.2012, c.4

#### Ontario Provincial Standards for Roads and Public Works

##### OPSS 491 Preservation, Protection, And Reconstruction of Existing Facilities (Nov 2009)

## Measurement and Payment

### The work outlined in this Section will not be measured separately for payment. The work of this Section shall be included in the Contract Price.

## Qualifications of Surveyor

### Qualified registered land surveyor, licensed to practise in the Province of Ontario.

## Submittals

### Submit name and address of Surveyor to the Consultant

### On request of Consultant, submit documentation to verify accuracy of field engineering work.

### Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents.

## Survey Reference Points

### Existing base horizontal and vertical control points will be provided by the Region at the commencement of the Work.

### Locate, confirm and protect all control points prior to starting any Site work. Preserve permanent reference points during the performance of the Work.

### Make no changes or relocations without providing prior written notice to the Consultant.

### Report to the Consultant when a reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

### The Region will replace control points in accordance with the original survey control. The cost of resetting or replacing control points disturbed by the Contractor shall be at the Contractor’s expense.

### All elevations indicated on the Contract Drawings or Specifications are referred to datum of the Geodetic Survey of Canada and to a benchmark established at or near the Site.

### All general layout required by the Contractor for the purposes of construction shall be carried out by the Contractor. The Contractor shall provide such masts, scaffolds, batter boards, slope stakes, straight edges, templates and any other devices as may be necessary in order to facilitate the layout out, inspection and construction of the Work for the Contract Price.

### The Consultant will inspect and approve the Contractor’s layout however the Contractor shall be solely responsible for the accuracy of the layout.

# PRODUCTS (Not used)

# execution

## Survey Requirements

### Record locations, with horizontal and vertical data in the As-Built Documents.

### Establish lines and levels, locate and lay out the Work using the appropriate instrumentation.

### Stake for grading, fill and topsoil placement and landscaping features.

### Stake slopes and berms.

### Establish pipe invert elevations.

### Stake batter boards for foundations.

### Establish foundation column locations and floor elevations.

### Establish lines and levels for mechanical and electrical Work.

## Layout for Line and Grade for all New Watermains and Sewers

### The coordinate values shown on the Contract Drawings shall be checked by the Contractor and any errors brought to the Consultant’s attention for correction.

### The Contractor’s surveyor shall utilize published Universal Transverse Mercator (UTM) North American Datum (NAD) 83 control points to establish the horizontal control on the project Work area. The Consultant will provide a list of relevant bench marks for layout Work . The Contractor’s surveyor shall check all horizontal control points and benchmarks to confirm that they are correct. Watermain pipe shall be installed according to northing/easting coordinates provided on the Contract Drawings, and not by using the chainage stations.

### The Contractor shall be responsible for the true and proper setting out of the Work and for the correctness of the position, levels, dimensions and alignment of all parts of the Work and for the provision of all necessary instruments, equipment and labour for the construction layout.

### If at any time during the progress of the Work any error shall appear or arise in the positions, levels, dimensions or alignment of any part of the Work, the Contractor shall, at its own expense, rectify such error to the satisfaction of the Consultant, unless such error is based on incorrect data supplied in writing by the Consultant or the Region.

### Where the shop drawings place bends at locations which differ from the coordinate values shown on the design Drawings, the Contractor’s surveyor shall make necessary adjustments and calculations for pipe layout purposes. The Consultant shall be informed of such adjustments in order to ensure compatibility with the original design intent.

### The Contractor shall supply the Consultant with copies of all necessary information to enable the Consultant to review the Contractor’s field layout. All information, both on work sheets and on stakes, shall be neat and legible. Allow the Consultant two (2) Working Days to review layout and grade sheets prior to construction. The checking of the setting out of any line or level by the Consultant shall not in any way relieve the Contractor of the responsibility for the correctness of the Work.

### The Contractor shall provide notice to the Consultant of any control points removed and/or new points set up.

## Existing Services

### The Contractor shall be deemed an “excavator” under the Ontario Underground Infrastructure Notification System Act, 2012, and shall comply with all applicable requirements of the Act.  The Contractor shall obtain locates of underground infrastructure from Ontario One Call prior to commencing an excavation or dig.

### Before commencing the Work, contact Ontario One Call (ON1Call) to request locates. Locators will establish the locations and extent of service lines in the vicinity of the Work. Contractor to notify the Consultant of all findings.

### Where Work involves breaking into or connecting to existing services, carry out work at times directed by authorities having jurisdiction, with minimum of disturbance to pedestrian and vehicular traffic.

### Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by the Consultant.

## Location of Equipment and Fixtures

### The location of equipment, fixtures and outlets indicated or specified in the Contract Documents are to be considered as approximate only.

### Locate all equipment, fixtures and distribution systems so as to minimize interference and maximize usable space and in accordance with the manufacturers’ recommendations for safety, access and maintenance.

### Inform the Consultant prior to installation of the Work and obtain approval for actual locations.

### Submit field drawings to indicate the relative position of various services and equipment as required by the Consultant.

## Records

### Maintain a complete, accurate log of all control and survey Work as it progresses.

### Record the locations of any maintained, rerouted and abandoned service lines.

## Subsurface Conditions

### Promptly notify the Consultant in writing if subsurface conditions differ materially from those indicated in the Contract Documents or if the Contractor has a reasonable assumption that the subsurface conditions will differ materially from those indicated in the Contract Documents.

### The Consultant or other agents of the Region will promptly investigate the conditions and the Consultant will advise the Contractor in writing of any necessary changes to the Work.

**END OF SECTION**