UESI Canada

Recommended Language for Subsurface Utility Engineering (SUE) Investigations

Short Version

The successful proponent shall apply procedures that assure the design, report, or other output of engineering work complies with the latest version of applicable standard guidelines:

Standard Guideline for Investigating and Documenting Existing Utilities, ASCE/UESI/CI 38-22, (2022).

Subsurface Utility Engineering (SUE)

The successful proponent shall complete a SUE Investigation in accordance with the ***ASCE-38 Standard Guideline for Investigating and Documenting Existing Utilities (ASCE-38)***. The objective of the investigation will be to map the alignment of the mainline utilities based on information collected from the utility owners and field investigations within the project limits.

The scope of the SUE investigation (**up to Quality Level B**) shall include the following:

- Request existing utility information from utility owners within the project limit.
- Obtain road occupancy permits, as required to complete the field work.
- Visual verification of utility related surface features within the project limit.
- Field investigations using electromagnetic locating equipment to confirm horizontal alignment of known buried utilities, including passive 'sweeping' for unknown conductive signals.
- Visual inspection at sewer lids to measure pipe inverts from the surface to confirm the alignment of the mainline sewers.
- Mainline utilities to include: water, sewer, electrical, natural gas, oil & gas pipelines, telecommunications.
- Collection of field observations using appropriate survey grade equipment referenced to the project geodic datum.
- Review using professional judgment to resolve discrepancies that may exist with the information to indicate the alignment of utilities depicted at the highest achievable quality level, up to Quality Level B (QLB).
- Provide a drawing describing the appropriate utility information and quality levels assigned to each segment over the project area.
- Provide a report including objective, methodology and results for the SUE investigation.
- All documents to bear a professional engineer's stamp responsible for the collection, review and authentication of the work in compliance with applicable standards.

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The scope of the SUE investigation (**up to Quality Level A**) shall include the following:

- Locations of test holes to be determined through consultation with the project owner.
- Obtain required road occupancy and road cut permits, including necessary traffic control plans.
- Obtain sanctioned utility locate clearances and inspections with utility companies, as required.
- Provide labour, equipment, disposal and restoration materials for vacuum excavation at critical locations within the project limit.
- Visual verification and measurements of the exposed utility to include: depth from surface, size (width, depth), material and photographs.
- Collection of horizontal and vertical position using appropriate survey grade equipment referenced to the project geodic datum. Conventional accuracy shall be 30mm vertical and 60mm horizontal.
- Review using professional judgment to resolve discrepancies that may exist with the information to indicate the precise location of the exposed utilities depicted at the highest quality level, up to Quality Level A.
- Provide an updated CAD drawing describing the appropriate utility information and quality levels over the project area.
- Provide an updated SUE report including objective, methodology and results for the SUE investigation.
- All documents to bear a professional engineer's stamp responsible for the collection, review and authentication of the work in compliance with applicable standards.

Description	Cost	
	Soft Surface	Hard Surface
Test Hole (up to 2m depth)	$	$
Test Hole (up to 3m depth)	$	$
Test Hole (up to 4m depth)	$	$
Test Hole Additional Cost (beyond 4m)	$/m	$/m

Table 1: Test Hole Unit Rate Cost Table

Optional Scope and Additional Fees may be considered and included as an allowance or unit rate.

- Services to individual properties within project limits will be included for water, gas and electrical to be investigated (up to Quality Level B).
- Ground Penetrating Radar (GPR) to detect buried non-conductive utilities (up to Quality Level B).
- Conductive Sonde within sewer pipes to confirm alignment of buried non-conductive pipelines (up to Quality Level B).
- Traffic control for lane closures *(per day)*.
- Paid duty officers, where required by the permit *(per day)*.
- Disposal fees for contaminated fill *(per tonne)*.
- Confined space entry at deep/offset chambers *(per chamber)*.

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It is recommended that the following information is provided by the Project Owner:

- A detailed image and description showing the exact limits of the investigation.
- Project geodic datum including horizontal and vertical positions of temporary project control points for referencing survey information.
- An accurate up to date base drawing that include sufficient topographic detail and above ground utility related features.
- Information regarding the required schedule for completion of the work.
- Information regarding any required permits to complete the work.
- CAD software requirements (i.e. AutoCAD or Microstation with Version), and CAD standards.

Note: A companion document has been developed by ASCE-UESI that may provide additional detail for the project owner.

Subsurface Utility Engineering for Municipalities: Prequalification Criteria and Scope of Work Guide. ASCE/UESI (2019).

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