



## 1.0 Location of Existing Underground Services

1. Architect or Engineer must review all available drawings and information on existing underground services and verify the location of these services prior to completion of design.
2. Architect or Engineer must show on the tender drawings the location of existing underground services and depths where possible if the design requires any trenching of BCIT property.
3. The Architect or Engineer shall require the contractor to verify existing underground services prior to digging by calling the appropriate authorities (ie. FortisBC, BC Hydro, Telus, etc).
4. The following shall be located on the drawings where applicable:
  - a. Water Lines: All water lines, size of pipe, invert elevations to be given at each junction, change of direction horizontally and vertically and at every 30m run and type of material used.
  - b. Sanitary Sewers: All sanitary sewers, size of pipe, invert elevations and locations to be given at each manhole or clean-out and type of material used.
  - c. Storm Drains and Sewers: All storm drains and sewers except tile drains under landscaped areas, invert elevations to be given at each manhole, clean out, change of direction, junctions, both ends of culverts. Every 30m run and type of materials used.
  - d. Gas Lines: All gas lines, size of pipe, invert elevations to be given at each junction, at entry to building, change of direction and high and low points.
  - e. Steam, Condensate and Hot Water Lines: All such lines, size of pipe, invert elevations to be given at each junction, at the entry to each building, changes of direction of high and low points
  - f. All services located below ground level and in or below a building slab.
  - g. All valve stations, trap stations, coils, dampers and ductwork not easily accessible.
  - h. All conduit or duct work located below ground level and in or below a building slab
  - i. All service, sub-service and main risers conduits, all spare conduits stubbed in concealed spaces and locations of all electrical equipment essential for safe system operation (such as end of line resistors, etc.)
  - j. All service ducts and cables for voltages above 110/208 volts and for main communications cables.
  - k. Electrical lines, duct sizes including telephone, sound radio, TV systems, fire alarms and other signal systems.

## 2.0 As Built Drawings

1. The Contractor shall be responsible for and keep one complete set of white prints including revision drawings at the job site at all times.
2. The Contractor shall deliver to the Consultant at "Substantial Performance" one complete set of white prints showing by coloured lines and suitable notation all work as installed together with sizes and routes of mechanical and electrical services installed, relocated or adapted
3. The Contractor shall maintain a current record as the job progresses of any deviations from the Contract Documents.
4. The Contractor is responsible to locate manholes, pull pits, etc. at the centre lines by coordinates on a grid system shown on the Site Plan. Location and elevations shown on plans must be accurate to within 12mm.
5. Approval for back filling of underground services will not be given before BCIT and the consultant are satisfied that the exact location of the underground service has been surveyed and recorded.
6. The Contractor must employ a qualified surveyor or instrument man to record the horizontal and vertical locations of all underground services. This survey information is to be shown on the "As-Built" drawings and must indicate the location of all buried services as well as those capped or exposed by the work of this contract.

## 3.0 Scanning

1. There are two general types: X-Ray and Ground Penetrating Radar.
2. If X-Ray, BCIT Safety and Security will need to be notified and their Radiation Safety Officer will need to review the work and approve. Please fill out the X-ray Application form for this review to occur.
3. Project Services will require a copy of the scan results in either case.