

## Building Grades Survey Standards

Surveys should be completed by a qualified & experienced surveyor. Surveys certified by a B.C.L.S. will generally be reviewed in a shorter time period. An example survey plan with commentary can be found in Appendix A.

### Topographic survey standards to be met:

- The survey must be in ground metric coordinates based on the current City Survey Monument Network and clearly indicate the Monuments used.
- The horizontal accuracy of the survey shall be at least 1 in 20,000.
- The vertical accuracy must be plus or minus 0.01 meters.

### Required for submission:

- The finished survey must be submitted in an AutoCAD DWG format showing all the property lines and using the city of Vancouver layers and standards as supplied by the City's Mapping and CAD department. See Appendix B.
- Unedited digital raw survey files showing all ties and checks. Acceptable raw survey data file types:
  - Raw or rw5
  - Fbk file
- A point file is required.
- Clearly identify monuments used in the field.
- If City codes are used it will reduce review time. See Appendix C.
- Line/point connectivity must be provided. Use survey figures or 3D polylines only.
- Clearly identify all features and include a legend of all survey codes used.
- Title block including surveyor name, organization, date of survey and B.C.L.S.

### Extents of the Survey:

- The survey shall extend at least 30m either side of the job site along all property abutting city property.
- If the street is improved (has curb and gutter), the survey will extend from one meter inside the property line to  $\pm 3$  meters into the road from the gutter line.
- In lanes, the survey must extend across both sides of the lane.

### Survey Methodology:

- It is the responsibility of the surveyor to assess which survey method or combination of survey methods must be used for a particular survey
- Survey traverses and networks must consist of closed figures or be confirmed by sufficient redundant measurements to verify the survey standards required by the COV Streets and Electrical Design Department
- The unedited digital survey raw data file must show:

- Agreement between ties to a minimum of two different COV Survey Monuments
- Enough redundant measurements to verify that the survey meets the COV survey accuracy standards
- A backsight check recorded at the beginning and end of each setup
- All checks and measurements recorded
- If level loops are used, the field notes must be supplied (.PDF of field notes are accepted).
- Two point solutions are not acceptable under any circumstances
- Pick up cross sections approximately every 10 meters. If the street is flat or in a curve, the cross sections should be approximately every 7 meters to ensure proper terrain representation.
- Pick up the back of the curb just beside the gutter shot.
- Pick up high/low points. Do not worry about lifted up sidewalks from tree roots
- Pick up the drops of the curb in all let downs (wheelchair ramps and driveways).
- Do not cross survey lines in the drawing.
- Do not offset, extend, trim or stop randomly the 3D polylines. All 3D polylines should be connected to surveyed points

Details required on the topographic survey:

- The survey will include
  - Survey monument ties
  - Lead plugs
  - Iron pins
  - Gutter line
  - Back of curb
  - Front of walk
  - Back of walk
  - Catch basins
  - Approx. center line of lanes
  - Garages
  - Concrete pads
  - Points of intersection on the gutter line returns
  - Entrance walks (walk ways, doorways, stairs)
  - Top and bottom of retaining walls
  - Street fixed furniture (lamp standards, traffic lights, power poles, parking meters...)
  - Fire hydrants
  - Bus shelters
  - Traffic signs (do not specified which type of sign)
  - Valves (water and gas)
  - Manholes (specify type. i.e. Sewer, Telecommunications, Hydro, GVRD...)
  - Trees (located to the road side face and diameter noted) and hedges
  - Shots along the property line
  - Ground points at first lane line or a car width from the gutter
  - Any permanent structure, pad or utility

Once the survey is received, the City will input the survey in its design base and check it for accuracy and completeness.

Data that closely meets the City standards will help us review and approve the survey in a shorter period of time.

If the data submitted does not meet the minimum COV survey standards, the field work could be rejected and the surveyor may be asked to complete the missing information.

If you have questions, please contact our Building Grades Technician by email at [building.grades@vancouver.ca](mailto:building.grades@vancouver.ca) or by phone at 604-873-7316