

9.2 Land Survey

9.2.1 Purpose

A site survey is prepared by a surveyor, showing the legal boundaries of the site, underground utilities, grading, roadways, fire hydrants, vegetation, adjacent structures, light poles etc. Surveys are required for all new buildings, major renovations, additions and some landscape modification projects.

The purpose of this section is to enable Campus Architecture to create and maintain composite master files which are accurate. As the campus is ever changing, the need for the consistent base surveys is critical for future planning.

The survey requirements in this section shall act as the minimum requirements for all survey work prepared for UCalgary. As each project will have its own specific needs, a project briefing shall be performed and, if possible, a site meeting between the surveyor and appropriate project team member prior to preparing a proposal for the work. The surveyor shall develop a scope after the project briefing and shall provide recommendations for survey items, including ones not listed in this section.

9.2.2 Survey Datums

UCalgary adopts the City of Calgary “3TM NAD83 Alberta 114W” coordinate system for its GIS and AutoCAD data. A single coordinate system would make transferring data between the University business units, to/from the city and external organizations seamless. All survey work must be performed in this system.

9.2.3 Survey Drawing Contents

1. Property lines
 - Show all monumentation used to retrace the property.
 - Note the discrepancies between record and calculated dimensions.
 - Note any encroachments protruding from or onto the surveyed property.
 - Show any easements for in ground and above ground services.
 - The property lines shall be a closed polyline when applicable.
 - Label the northing and easting values for at least 2 property corners of the retraced parcel to the nearest 5mm and any additional monuments set.
2. Topographic site map with 0.5m elevation interval contour lines
3. Spot elevation:
 - threshold elevations at all building entrances
 - adjacent building floor elevations
 - all building corner elevations
 - top and bottom of risers on exterior stairs
 - top and bottom of curbs
 - top of roof parapets



4. Underground utilities including but not limited to water, sewer, drain, gas, fiber, electric, telecom, steam, and tunnels.
 - Compile underground utilities as obtained from UCalgary and various utility providers
 - Obtain invert information on sewer and drain structures.
 - Note the source for underground utility information.
5. Locate major features such as:
 - roadways, walkways, lanes
 - sidewalks, curb, gutter, wells
 - ramps, steps, stairs
 - retaining walls (top and bottom of wall), fences
 - buildings
 - bus stops, transit bridge, platforms
 - fire hydrants, lights, manholes, catch basins, service boxes, transformers
 - water bodies (standing water, permanent and seasonal streams)
 - landscaped area, trees over 50mm in diameter, individual and tree and shrub groupings, caliper and height of trees over 100mm in diameter
 - furniture
 - public art

9.2.4 General Drawing Requirements

Each survey plan shall show the following:

- Title block including company logo.
- North arrow.
- Reference to the NAD83 datum.
- Graphic scale.
- UCalgary project number and name.
- Survey date.
- Issue date of the drawing.
- Roll number (roll x of y).
- Benchmarks used and set.
- All features shall be labeled or shown as a symbol, which is part of a legend.
- Note the drawing type, e.g. as-built conditions, control plan.

CAD requirements:

- Follow the Design Standards section 8.3 - *CAD Standards*.
- Apply layer name format as Design Standards 8.4.2. Use “V” as level 1 discipline designator for survey drawings. No specific surveying layer naming convention has been defined. Reference other discipline layer lists.

9.2.5 Survey Deliverables

1. Two stamped and signed, hardcopy plans.
2. The digital files in DWG format, LAS format, TIF and PDF format.
3. For laser scanning survey, provide Autodesk Recap files in RCS and RCP format.

Revision History

Revision Date	Version	Description
March 18, 2024	1.0	First publication of this standard.