

CIRCULAR LETTER NO. 465C

(This letter updates Circular Letter No. 465B issued August 28, 2019)

Amended April 1, 2026

TO ALL BRITISH COLUMBIA LAND SURVEYORS

Re: Official Vertical Datum for Legal Surveys in British Columbia

The purpose of this Circular Letter is to specify the approved vertical datum and associated geoid models for legal surveys in British Columbia.

The *Survey and Plan Rules* definition of "British Columbia Geo-Spatial Reference" (BCGSR) requires that a vertical datum be specified by the Surveyor General for use in legal surveys. Rule 10-2(1) further requires the Surveyor General to specify the vertical datum and geoid model for surveys completed under the *Energy Resource Activities Act*. The *Land Title Act* (Part 9 – Air Space Titles - Section 138) also defines the term "geodetic elevation" as an elevation derived from a source approved by the Surveyor General.

Land surveyors are responsible for ensuring that the approved vertical datum and geoid model are used for all legal surveys requiring elevations within British Columbia. This Circular Letter sets out those requirements.

In November 2013, Natural Resources Canada (NRCan) introduced a new vertical datum known as the Canadian Geodetic Vertical Datum of 2013 (CGVD2013). While adopted federally, the previous datum known as Canadian Geodetic Vertical Datum of 1928 (CGVD28) remains the official vertical datum for all legal surveys within British Columbia.

CGVD28 elevations for Geodetic Control Monuments (GCMs) are published in the official provincial geodetic database. As of March 30, 2026 [GeoNetBC](https://geonetbc.gov.bc.ca/geonetbc)¹ is the official provincial geodetic database, replacing MASCOT.

GeoBC is undertaking a datum modernization project to allow the publication of CGVD2013 elevations for most GCMs, together with estimated accuracy, while maintaining access to historic CGVD28 elevations for compatibility. Until this project is complete and updated data is published, the **CGVD2013 elevation values currently shown in GeoNetBC have unknown accuracy and must not be used for legal surveys.**

¹ <https://geonetbc.gov.bc.ca/geonetbc>

At this time, and until the datum modernization project is complete and an updated Circular Letter is issued, **CGVD28 remains the approved vertical datum**, and the following **hybrid geoid models** (also known as height transformation models) are acceptable for use to derive CGVD28 elevations:

- **HTv2.0 (1997.0)** – Approved for all areas of British Columbia outside the Metro Vancouver Regional District.
- **HTGVRDBC00** – Approved for use when working within the Metro Vancouver Regional District, ensuring compatibility with published GCMs and the Metro Vancouver Real Time Network system.

Where elevations are derived from passive control points, such as Integrated Survey Area (ISA) monuments, provincial control points, or federal vertical benchmarks, the published CGVD28 elevations from the GeoNetBC database must be used.

GNSS observations can be used to determine ellipsoidal heights anywhere in British Columbia. To derive CGVD28 elevations, use HTv2.0 (1997.0) or HTGVRDBC00, as appropriate for the survey location. For non-legal surveys where CGVD2013 is required, the geoid model CGG2013a may be used.

The HTv2.0(1997.0) and CGG2013a geoid models are available for download on [NRCan's Geoid Models webpage](#)²(sign-in required). The HTGVRDBC00 geoid model is available from [GeoBC's Height Transformations Webpage](#)³.

It is important to note that while several epochs of HTv2.0 are available from NRCan, BC Land Surveyors are to only use the HTv2.0 (1997.0) model. This ensures compatibility with two decades of prior datasets, where that model has been used.

When using the HTGVRDBC00 hybrid geoid model, there is no choice of epoch offered for download. This model is referenced to the 1997 epoch and therefore compatible with HTv2.0 (1997.0).

When using NRCan's Canadian Spatial Reference System - Precise Point Positioning (CSRS-PPP) service to process GNSS observations, there are two choices under the 'Vertical Datum' menu: CGVD28(HT2_0) and CGVD2013. Select the CGVD28(HT2_0) option to output elevations in the approved vertical datum and geoid model. When the CGVD28 option is selected, elevations are propagated from the epoch of observation to epoch 1997.0 and then the HTv2.0(1997.0) model is used to derive a CGVD28 elevation. The availability of HTv2.0 in epochs 2002.0, 2010.0 and 2020.0 does not affect this process.

² <https://webapp.csrscs-nrcan-rncan.gc.ca/geod/data-donnees/geoid.php>

³ <https://www2.gov.bc.ca/gov/content/data/geographic-data-services/geo-spatial-referencing/height-transformations>

Survey plans must clearly label the vertical datum, the control points used (with published elevations) and, where GNSS is used to derive the elevations, the geoid model applied (HTv2.0 (1997.0) or HTGVRDBC00).

For further technical information on vertical datums, BC Land Surveyors should review the ABCLS Practice Advisory "Vertical Datums" (Best Practices for working with Vertical Datums) available under [Practice Guidelines](#)⁴ on the ABCLS website.

Yours sincerely,

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⁴ <https://www.abcls.ca/page/practice-guidelines>