

CIRCULAR LETTER NO. 463B

(This letter updates Circular Letter No. 463A issued December 16, 2019)

Amended April 1, 2026

TO ALL BRITISH COLUMBIA LAND SURVEYORS

Re: Official Horizontal Datums for Georeferencing Legal Surveys in British Columbia

BC Land Surveyors are responsible for ensuring that they are using an approved horizontal datum for georeferencing of legal surveys conducted within British Columbia. The purpose of this Circular Letter is to specify the approved horizontal datums for those surveys.

The *Survey and Plan Rules* require that all legal surveys in British Columbia are georeferenced. The definition of "British Columbia Geo-Spatial Reference" (BCGSR) requires that a horizontal datum be specified by the Surveyor General for use in legal surveys. Rule 2-2 requires that all surveys must have at least two points georeferenced, referred to a framework (datum) required by the Surveyor General. Stated coordinates must be expressed in the UTM map projection with the appropriate UTM Zone.

GeoBC publishes the official coordinates of BC Active Control System (BCACS) and passive Geodetic Control Monuments (GCMs) within British Columbia on the [GeoNetBC](https://geonetbc.gov.bc.ca/geonetbc)¹ website. NRCAN publishes the official coordinates of Canadian Active Control System (CACS) stations on the [Canadian Active Control System](https://webapp.csrscs-nrcan-rncan.gc.ca/geod/data-donnees/cacs-scca.php)² website. In GeoNetBC each datasheet listing states the datum of the GCM, which can be found in the "Observed Values" section, specifically in the "Datum" field under the "Horizontal" sub-section. Most GCMs are georeferenced to one of the following acceptable versions of NAD83(CSRs) listed below. An explanation of the version numbering scheme is included for convenience in Appendix A.

GeoNetBC also provides a "Coordinate Transformations" section on the datasheet listing for every GCM, which allows the user to transform coordinates to other datums and other versions of datums. Users must exercise caution when using this section. The accuracy of transformed values depends on the accuracy of the original NAD83(CSRs) coordinates and the transformation models used.

Until further notice, transformed coordinates for other datums are not official and may not be used for legal surveys.

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

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

Depending on the location of the survey and the method used for georeferencing, **the acceptable horizontal datum versions are:**

- **NAD83(CSRs) 4.0.0.BC.1** Mainland BC (not within the MVRD)
- **NAD83(CSRs) 4.0.0.BC.1.MVRD** Metro Vancouver Regional District (MVRD)³
- **NAD83(CSRs) 3.0.0.BC.1.NVI** Vancouver Island (not within the CRD)
- **NAD83(CSRs) 3.0.0.BC.1.CRD** Capital Regional District (CRD)

In most cases, the closest GCMs will determine the appropriate horizontal datum version to be used at your project location. However, some GCMs remain published in older versions of NAD83 or have approximate coordinates that are not georeferenced to any of the acceptable versions of NAD83(CSRs) listed above. In such a scenario, BC Land Surveyors should search for additional GCMs in GeoNetBC, until suitable monuments georeferenced to one of the approved versions are found, and the published coordinates are found to have a reasonable fit with at least one other adjacent GCM.

When using active control stations, BC Land Surveyors should only be connecting their project to ACS stations georeferenced to the horizontal datum version applicable to their project location. For example, surveys on Vancouver Island must not connect to mainland ACS stations, and vice versa. Mixing datum versions will result in distortions to the resultant coordinate solutions.

When using NRCan's Canadian Spatial Reference System - Precise Point Positioning (CSRS-PPP) service to derive individual georeferenced coordinates, the selected epoch must correspond to the official datum version applicable to the project area:

- **NAD83(CSRs) 2002.0** Mainland BC
- **NAD83(CSRs) 1997.0** Vancouver Island

Survey plans must clearly state the full horizontal datum version used (e.g. NAD83 (CSRS) 3.0.0.BC.1.CRD or NAD83 (CSRS) 2002.0 etc.).

Yours sincerely,

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Surveyor General of British Columbia

³ Revised GVRD to MVRD December 2019 to match updated datum tag in GeoNetBC.

Appendix A:

The information below is adapted from what was originally published on GeoBC's [MASCOT News](#)⁴ webpage from 2006 to 2026. It provides information on the numbering system used to define coordinate versions present in the provincial geodetic control network.

NAD83 COORDINATE VERSION NUMBERING

Most GCMs published on GeoNetBC have been georeferenced to one of the following 4 official horizontal datums:

- 1.) The Capital Regional District (CRD) Regional Re-Fresh of 2000

Version # NAD83(CSRS) 3.0.0.BC.1.CRD

- 2.) The Northern Vancouver Island (NVI) North of the CRD, Re-Fresh of 2005

Version # NAD83(CSRS) 3.0.0.BC.1.NVI

- 3.) The Metro Vancouver Regional District (MVRD) Regional Re-Fresh of 2019

Version # NAD83(CSRS) 4.0.0.BC.1.MVRD

- 4.) The Provincial Mainland Refresh of 2005, consisting of the remainder of the province with the exception of the MVRD and Vancouver Island.

Version # NAD83(CSRS) 4.0.0.BC.1

The years listed above are the dates of publication on the provincial geodetic database.

The following is an explanation of the version numbering scheme for the publication of NAD83 coordinates in Canada. The scheme is capable of tracking coordinates from different adjustments by different agencies or different adjustments of different networks/hierarchies by the same agency. The scheme provides a means to uniquely define these different network adjustments.

⁴ https://a100.gov.bc.ca/pub/mascotw/public/mascot_news.html

Definition of acronyms used:

CACS Canadian Active Control System

CBN Canadian Base Network

GPS Global Positioning System

CSRS Canadian Spatial Reference System

ITRF International Terrestrial Reference Frame

NAD83 North American Datum of 1983

NAD83(Adopted) Original realization of NAD83 (primarily horizontal only)

NAD83(CSRS96) Realization of NAD83 based on preliminary transformation from ITRF96

NAD83(CSRS98) Realization of NAD83 based on adopted transformation from ITRF96

NAD83(CSRS) Equivalent to NAD83(CSRS98)

NMIP Network Maintenance Integration Project (1993)

SHIBA Secondary Integration Helmert Block Adjustment (1990)

MVRD Metro Vancouver Regional District

CRD Capital Regional District

NVI Northern Vancouver Island

The version numbering scheme is of the following form:

NAD83(CSRS) a.b.c.XX.d...

a = version number of the realization of the NAD83 reference frame:

0 = NAD83(Original) (e.g., used for NMIP and SHIBA adjustments)

1 = NAD83(CSRS96)/ITRF96 (e.g., CACS v1.0 used for CBN v1.x)

2 = NAD83(CSRS98)/ITRF96 (e.g., CACS v2.0 used for CBN v2.x)

3 = NAD83(CSRS98)/ITRF97 (e.g., CACS v3.0 used for CBN v3.x)

4 = NAD83(CSRS98)/ITRF2000 (e.g., CACS v4.0 to be used for CBN 4.0)

b = version number of national and regional CACS coordinates. A number 0 shall be used to denote coordinates directly from the transformed ITRF solution. Subsequent numbers shall be used to track further adjustments for regional CACS stations not in the ITRF or for updating CACS stations that have moved since the ITRF solution.

c = version number of CBN based on CACS version "a" (usually 0 or 1, as in CBN 3.0 and CBN 3.1).

XX = 2-character sub-network identifier, normally the provincial code for a provincial network; i.e., BC, AB, SK, MB, ON, QC, NB, PE, NS, NL, YT, NT, NU. Codes for other national networks besides the CBN shall also be used (e.g., "BM" for the GPS on Bench Marks network, "CHS" for Canadian Hydrographic Service networks, etc.).

d... = version numbering scheme of sub-network (provincial) adjustments and hierarchies which are based on the national adjustment version "a.b.c". The sub-network numbering scheme is left to the responsible provincial agency. In some cases it is only necessary to number the provincial network and thus only one decimal field is shown. For more hierarchies/networks, additional fields are used as needed. For consistency, only decimal points are used to separate the fields (e.g., "NAD83(CSRS) a.b.c.XX.d.CRD"). Note that all federal version numbering begins at 0 but provincial agencies begin at 1.