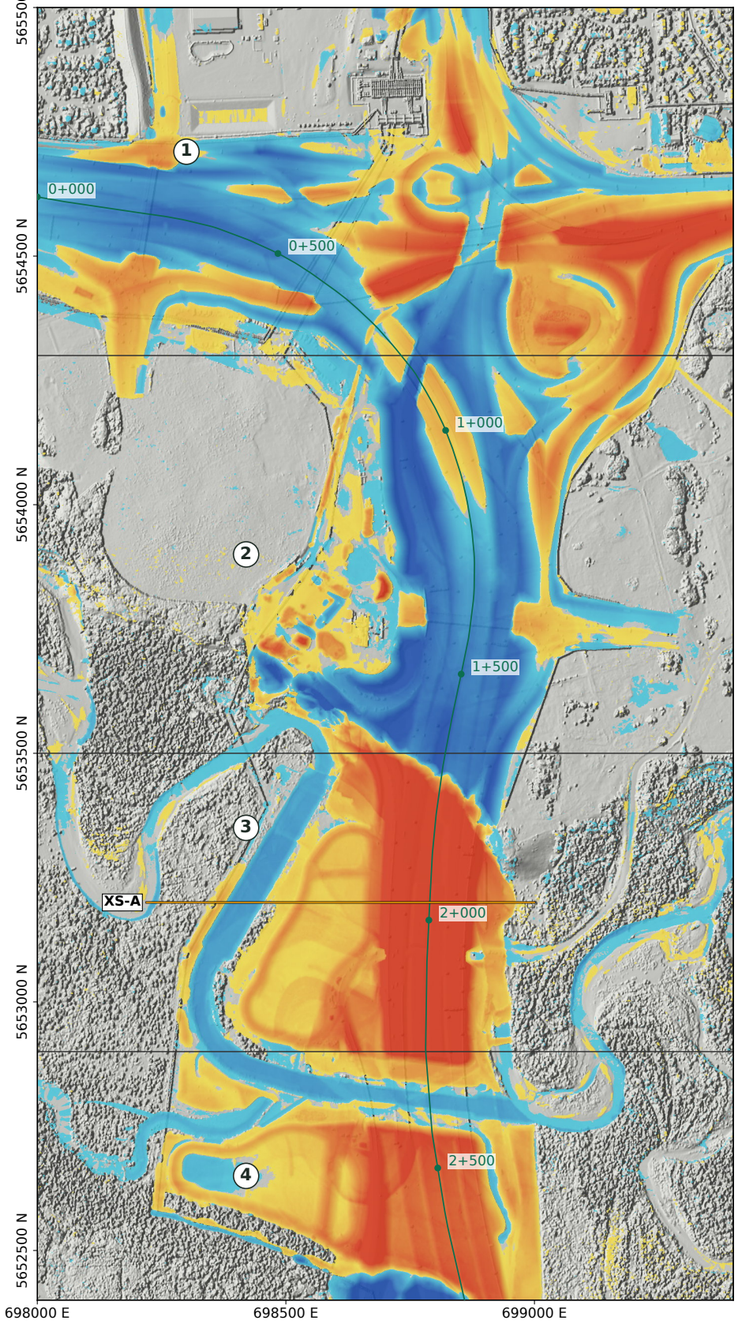
PLAN · CUT / FILL 2015 → 2020

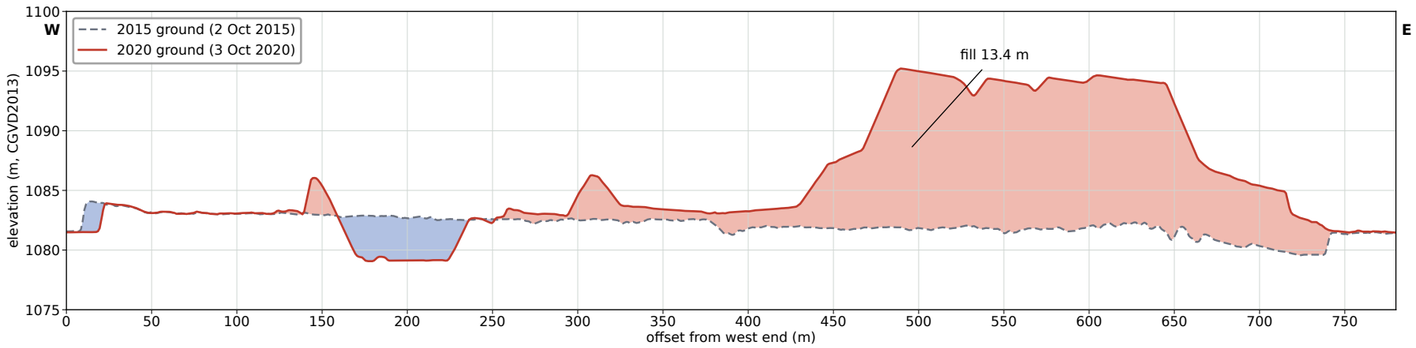
Scale 1:12,000 at 11×17 · measured area: the whole 1.4 × 2.6 km demo box



LIVE 3D VIEWER
of this sheet, on a phone:
scan the code, or open
denesurveysolutions.ca/demo

CROSS-SECTION XS-A · ACROSS THE ELBOW VALLEY EMBANKMENT (looking north)

E 698220 → 699000 at N 5653200 · 780 m · horizontal 1:3,500, vertical 1:500 (7.0× exaggerated) · section areas: cut 260 m², fill 3,145 m² (beyond ±0.15 m)

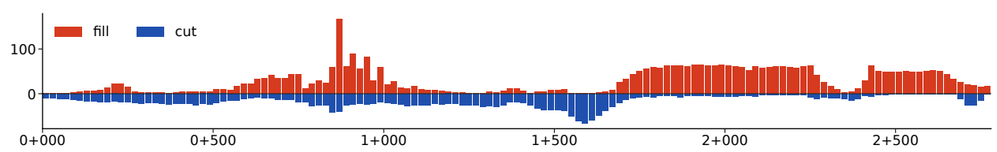


EARTHWORK VOLUMES · 2015 → 2020

Zone (north → south)	Cut m³	Fill m³	Net m³	Changed ha
1 · Glenmore / Sarcee interchange	796,495	1,142,334	+345,839	63.1
2 · North valley-wall cut	1,197,494	278,697	−918,797	48.0
3 · Elbow valley embankment	200,160	1,666,212	+1,466,052	38.7
4 · River crossing + south approach	182,008	861,628	+679,620	33.3
TOTAL (measured area 3.64 km²)	**2,376,158**	**3,948,872**	**+1,572,714**	**183.0**

Volumes = 2020 ground − 2015 ground (bare-earth LiDAR DTMs) on a 1 m grid; changes within ±0.15 m are treated as no change.
A +0.025 m offset between the surveys on stable roads and bare ground was removed (no tilt; horizontal shift ≤ 0.02 m).
Deepest cut 15.6 m, highest fill 16.4 m. Net + = fill imported. Zones are northing bands of the measured area.
Independent check from the source rasters (no reprojection): cut +0.08 %, fill +0.05 %.

VOLUME BY CHAINAGE · 20 m bands along the ring-road centreline (thousand m³)



LEGEND

CUT (ground removed) — FILL (ground added)

−8 m · −4 · +4 · +8 m

clear = within ±0.15 m (no change)

- Volume zone boundary (zones 1–4)
- Ring-road centreline, demo chainage every 500 m
- Section line

NOTES

1. Open-data sample prepared to show deliverable format. Not a legal survey; not for construction, design or payment. Legal and boundary surveys are referred to licensed land surveyors.
2. Bare-earth models remove bridge decks (ground under decks interpolated); in the river the surface is water level.
3. LiDAR: 2015 5.3 pts/m² (vertical 0.10 m, 95%), 2020 43 pts/m² (0.05 m RMSE).
4. Interactive version: denesurveysolutions.ca/demo

DENE SURVEY SOLUTIONS

Indigenous-owned · Alberta

Drone (RPAS) mapping
GNSS topographic & as-built survey
Civil 3D drafting · SiteViewer web viewers
denesurveysolutions.ca

PRINT AT 11×17 (ANSI B).
At letter size, text is 65 %.

PROJECT
SW Calgary Ring Road at the Elbow River
Stoney Trail / Tsuut'ina Trail and Glenmore Trail interchange, Calgary AB

SHEET TITLE
Earthwork change 2015 → 2020: cut / fill
isopach, volumes and cross-section (open-data sample)

DATA CREDITS AND LICENCE

Elevation: High Resolution Digital Elevation Model (HRDEM), CanElevation Series, Natural Resources Canada; source LiDAR "Elbow River" 2015 © Government of Alberta and "Calgary West 2020" © Airborne Imaging Inc. Roads: National Road Network, Statistics Canada. Contains information licensed under the Open Government Licence – Canada (open.canada.ca/en/open-government-licence-canada). Not an official product; not endorsed by the Government of Canada, the Government of Alberta or the Tsuut'ina Nation.

SHEET
C-01 (1 of 1)

SCALE
Plan 1:12,000 · XS 1:3,500 H / 1:500 V

DATE
2026-10-03

HORIZONTAL DATUM
NAD83(CSRS) / UTM zone 11N (EPSG:2955)

VERTICAL DATUM
CGVD2013 (orthometric heights, m)

SURVEYS
LiDAR 2015-10-02 (existing) · 2020-10-03 (new)

REVISION
1 · larger print, short links (0 · 2026-10-02)

SAMPLE – NOT FOR CONSTRUCTION