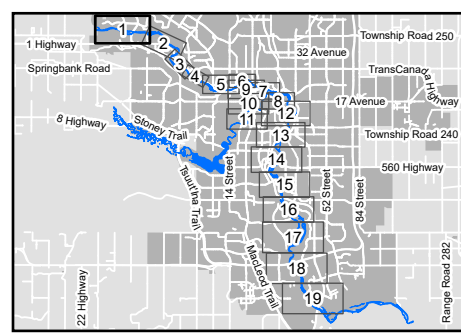
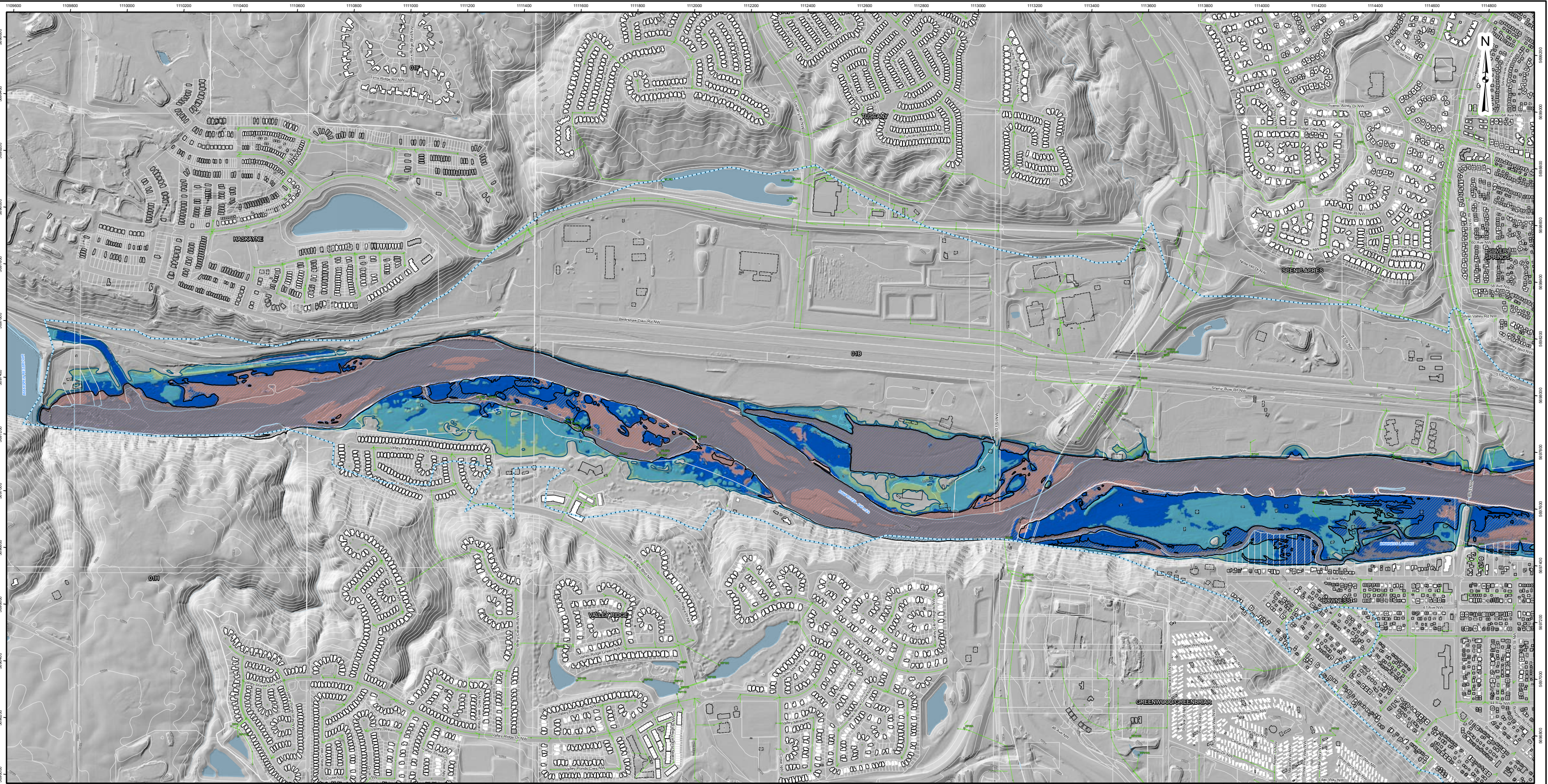


Groundwater Depth and Building Risk Factors (Calibrated Model)

1 in 10 Year Flood

- | | | | |
|-----|----------------------------|-----|------------------------|
| 1. | Valley Ridge | 11. | Lower Elbow |
| 2. | Bowness | 12. | Inglewood – Bonnybrook |
| 3. | Montgomery | 13. | Bonnybrook |
| 4. | Point McKay | 14. | Deerfoot Meadows |
| 5. | Hillhurst / West Hillhurst | 15. | Riverbend/Quarry Park |
| 6. | Sunnyside | 16. | Douglasdale |
| 7. | East Village / Bridgeland | 17. | Fish Creek |
| 8. | Inglewood | 18. | South Stoney Trail |
| 9. | Downtown | 19. | Pine Creek/Cranston |
| 10. | Beltline | | |



LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded

NOTES

1. Pre-1990 buildings are more susceptible to groundwater due to lack of reinforcement requirements before 1990. Implementation of reinforcement basement structures may vary since inception of code requirements.
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5. Groundwater depth is compared between the modelled water elevations and the LiDAR data elevation.

DATA SOURCES

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- Overland flood hazard area data provided from Golder Associates (WSP) Bow and Elbow River Hazard Study (2023)

FIGURE 3.3

GROUNDWATER DEPTH & BUILDING RISK FACTORS (CALIBRATED) - 1 IN 10 YEAR FLOOD 1 - VALLEY RIDGE

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

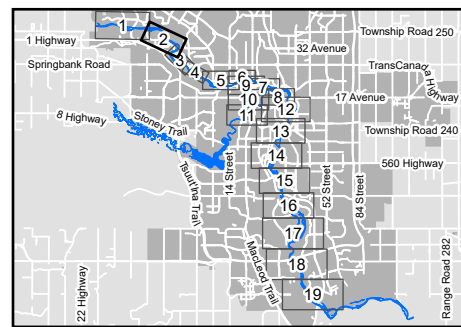
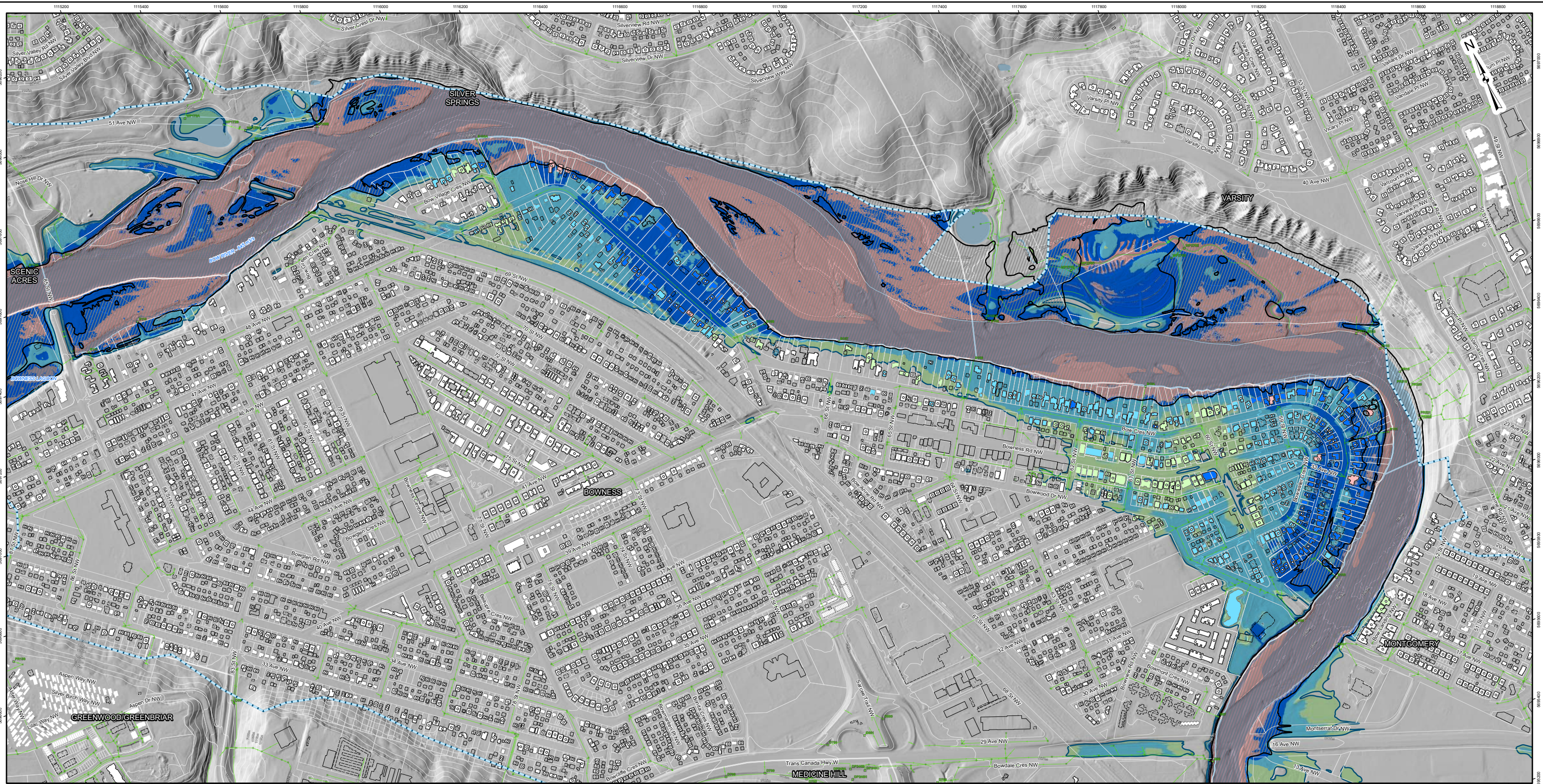
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Meters

SCALE 1:13,500

DATE 8/14/2026

AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded

NOTES

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- Groundwater depth is compared between the modelled water elevations and the LiDAR data elevation.

DATA SOURCES

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- Property assessment, building footprint, storm network, hydrology, flood control structures and other base data were sourced from the City of Calgary geospatial data.
- Overland flood hazard area data provided from Golder Associates (WSP) Bow and Elbow River Hazard Study (2023)

FIGURE 3.3

GROUNDWATER DEPTH & BUILDING RISK FACTORS (CALIBRATED) - 1 IN 10 YEAR FLOOD 2 - BOWNESS

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

0 60 120 Meters

SCALE 1:10,000

DATE 8/14/2026

AUTHOR TDaSilva





-  Building Footprint
-  Pre-1990 Building Construction
-  Below Grade Space
-  Building Information Missing
-  Non-Residential Building / Building Outside Scope
-  Parcel
-  Community District
-  Alluvial Aquifer / Model Domain
-  Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
3m to 2.4m
2.4m to 1.2m
0m to 1.2m
Above Ground Surface

Flood Inundation Area (10-Year)

-
- Directly Flooded

NOTES

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5. Groundwater depth is compared between the modelled water elevations and the LIDAR data elevation.

DATA SOURCES

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FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
3 - MONTGOMERY

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

SCALE 1:7,000

DATE 8/14/2026

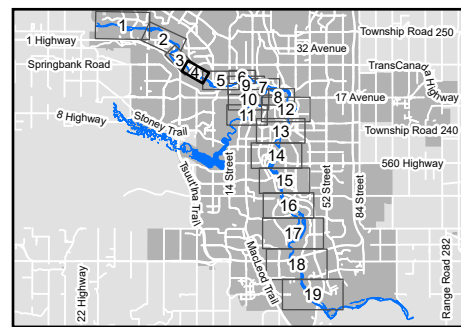
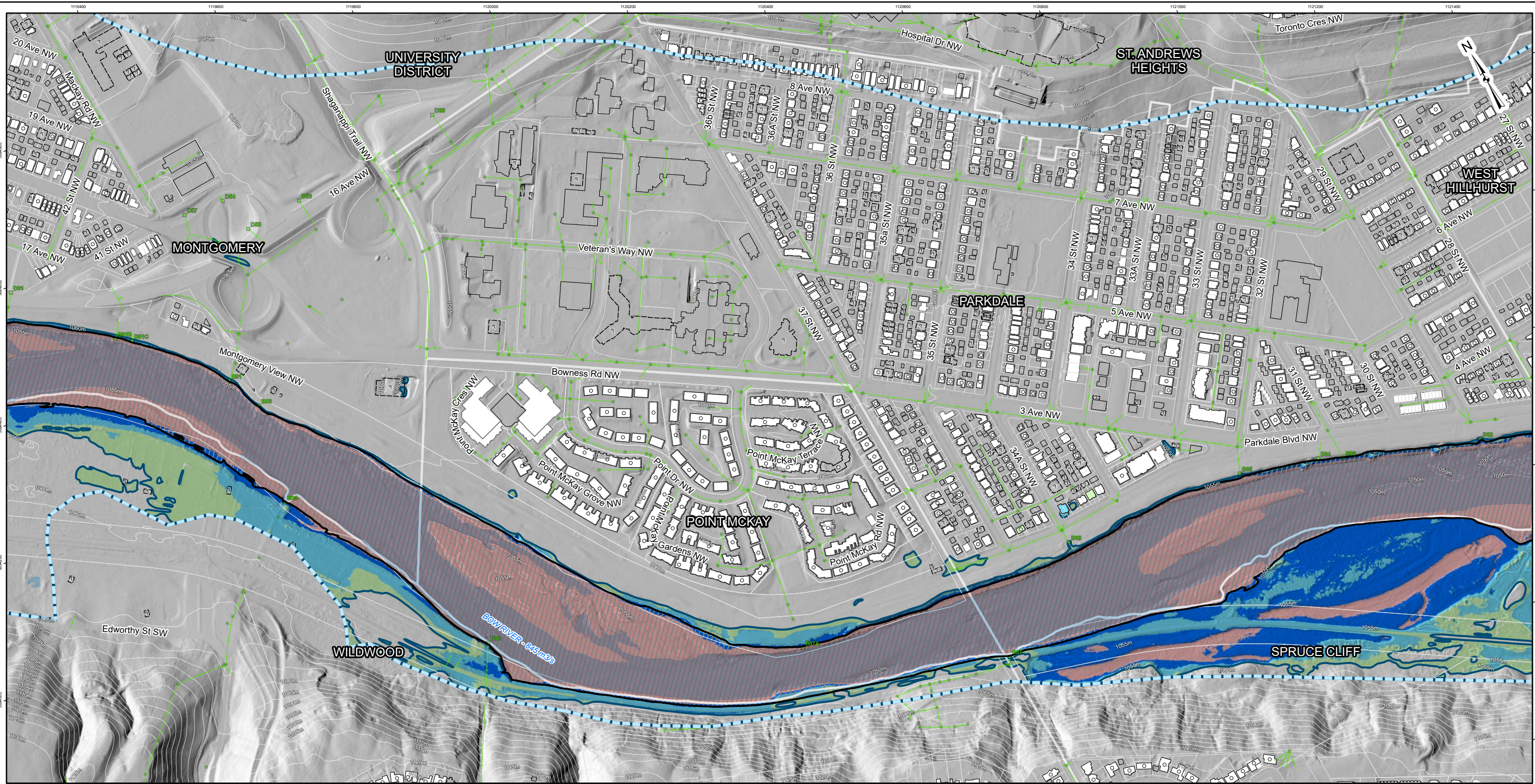
AUTHOR TDaSilva



Fluid Domains

Calgary





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded

NOTES

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- Groundwater depth is compared between the modelled water elevations and the LiDAR data elevation.

DATA SOURCES

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FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
4 - POINT MCKAY

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

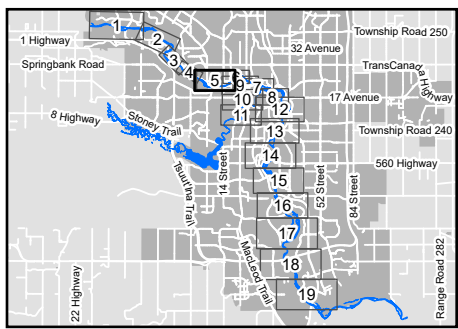
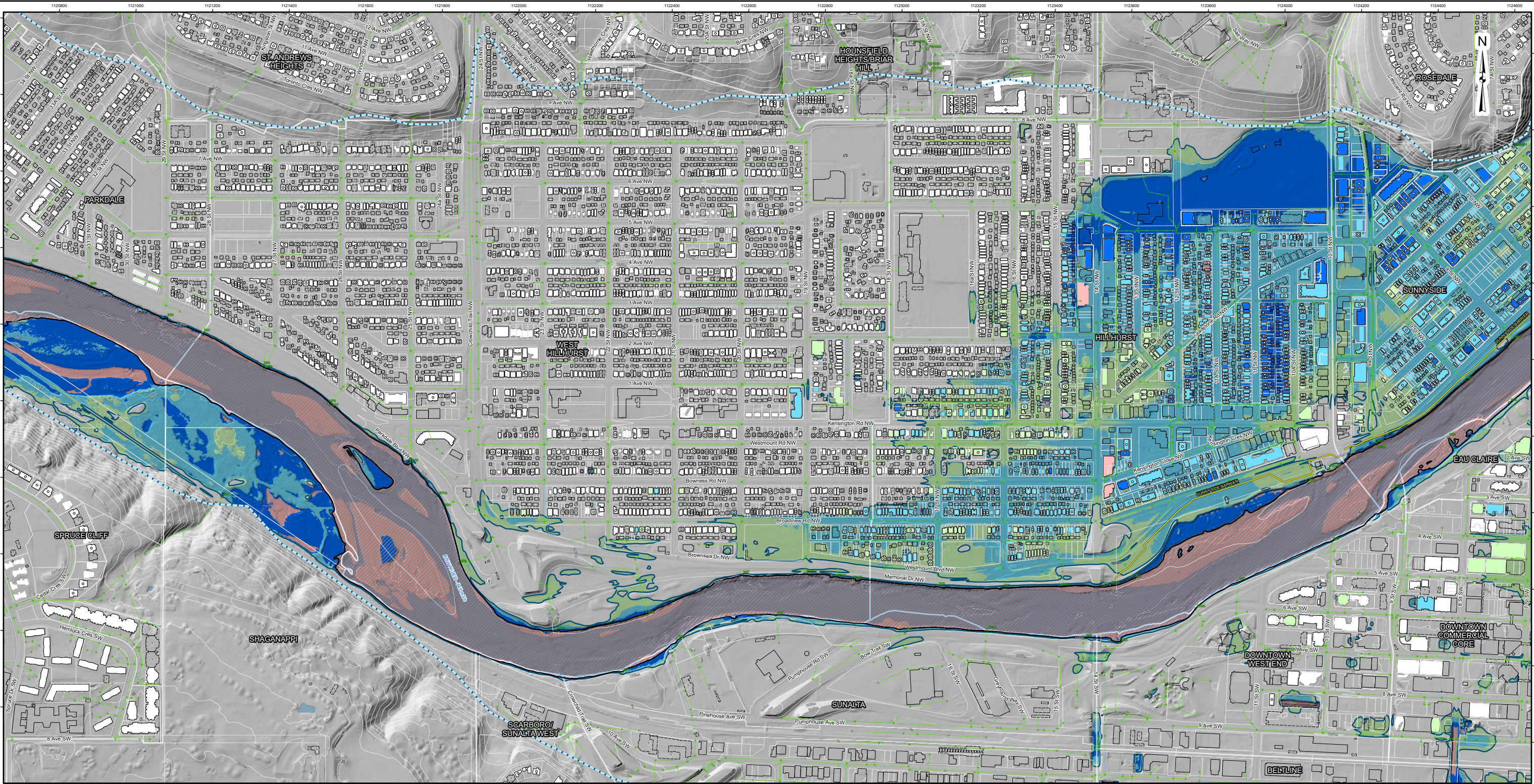
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DATE 8/14/2026

AUTHOR TDaSilva

0 30 60
Meters





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded

NOTES

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5. Groundwater depth is compared between the modelled water elevations and the LiDAR data elevation.

DATA SOURCES

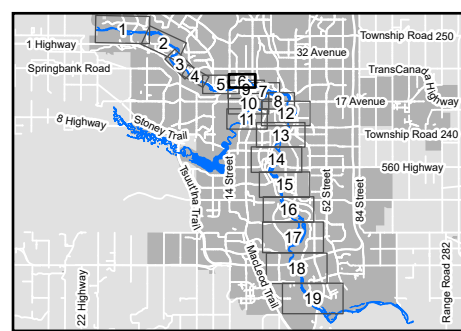
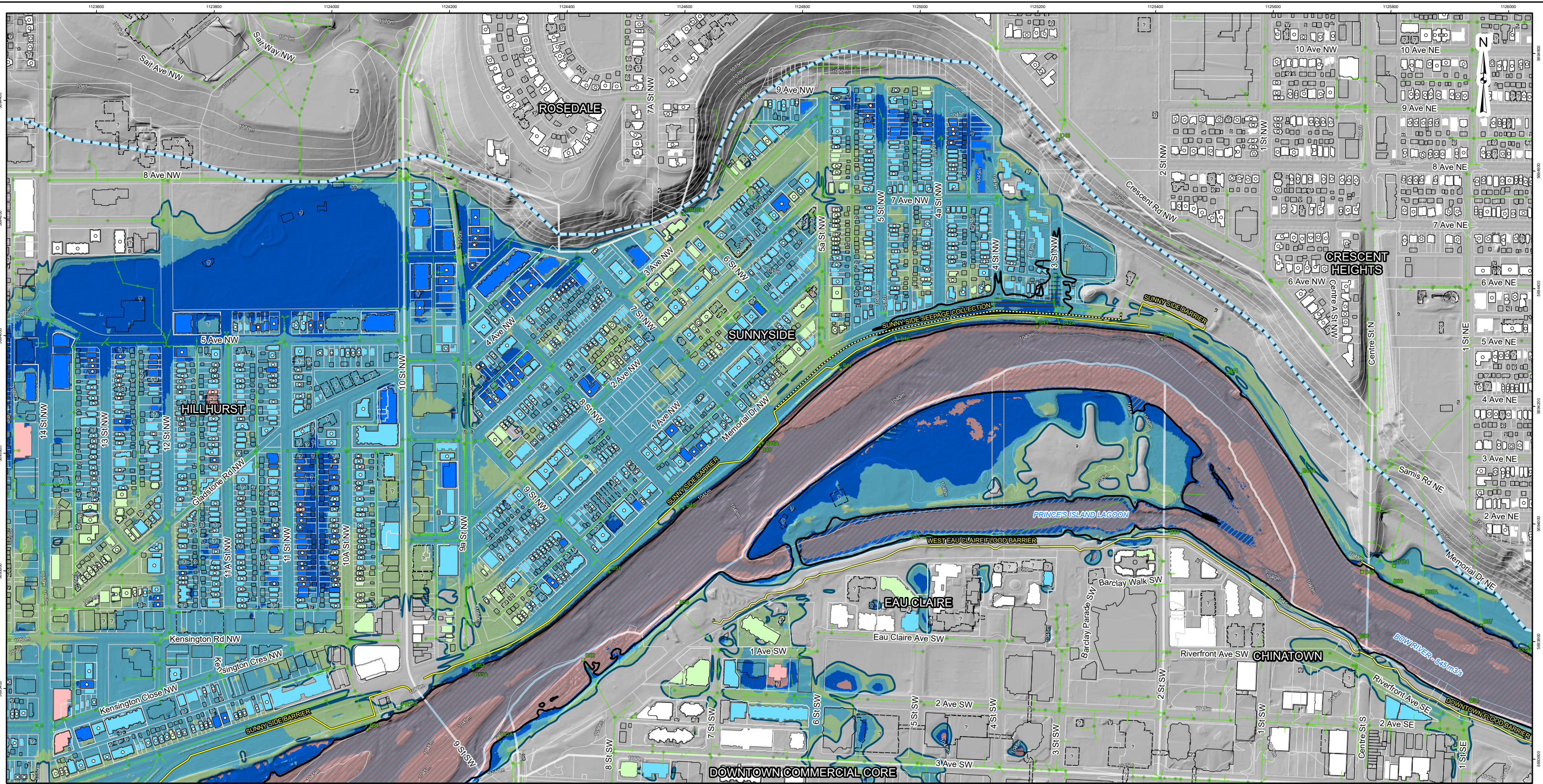
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FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
5 - HILLHURST / WEST HILLHURST

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:10,000
DATE 8/14/2026
AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded
- Protected by Flood Berm

NOTES

- Pre-1990 buildings are more susceptible to groundwater due to lack of reinforcement requirements before 1990. Implementation of reinforcement basement structures may vary since inception of code requirements.
- Buildings with below grade space has been determined from the City of Calgary property assessment data records. ISL or the City make no claims to the accuracy or completeness of the data.
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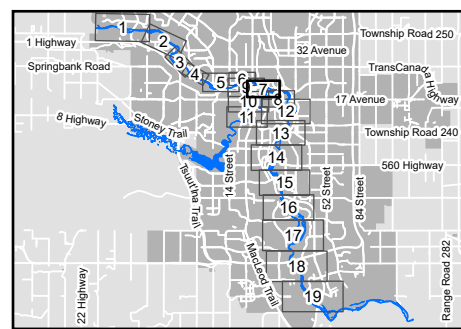
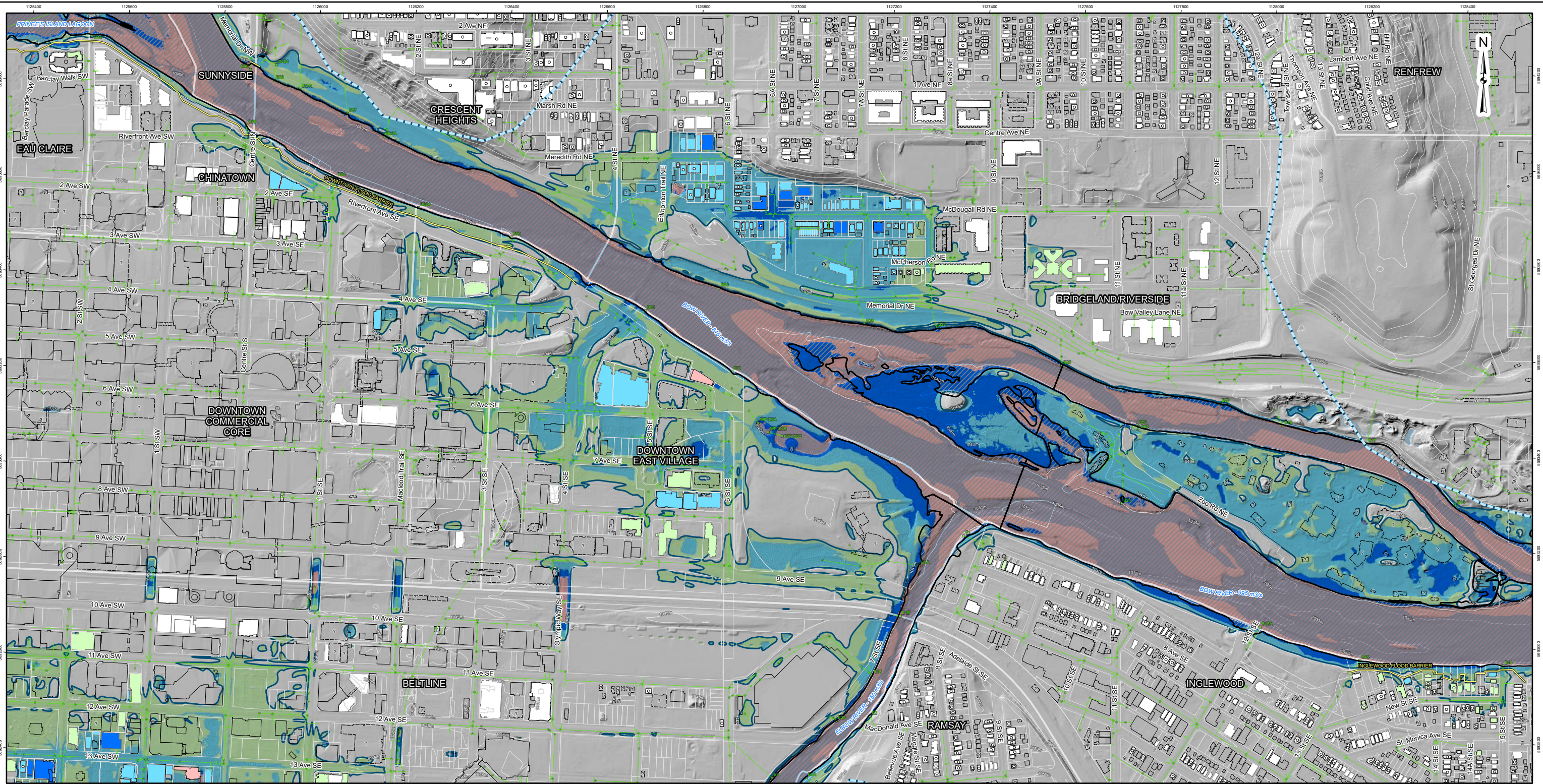
FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
6 - SUNNYSIDE

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

SCALE 1:6,500 DATE 8/14/2026 AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded
- Protected by Flood Berm

NOTES

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FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
7 - EAST VILLAGE / BRIDGELAND

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

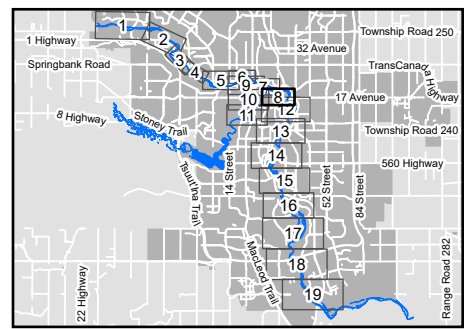
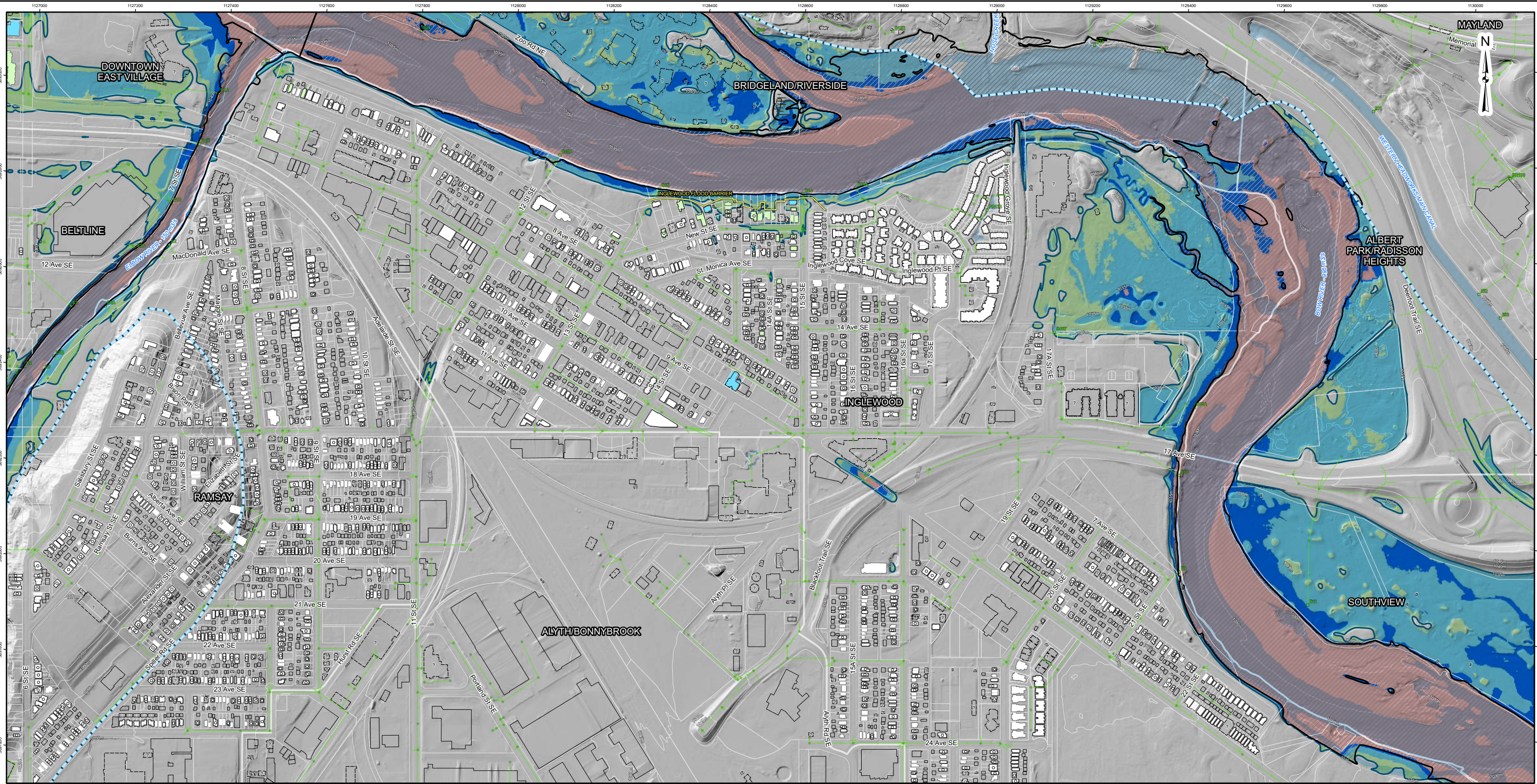
PROJECTION
NAD 1983 CSRS 3TM 114

SCALE 1:8,000 DATE 8/14/2026 AUTHOR TDaSilva

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Document: I:\02_168_4_04\GIS\Shared\GIS\Projects\28592 CoC River Valleys Groundwater Study\28592 CoC River Valleys Groundwater Study Reporting\28592 CoC River Valleys Groundwater Study Reporting.aprx - 03_03_GW_Depth_Calib_10Year



LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded
- Protected by Flood Berm

NOTES

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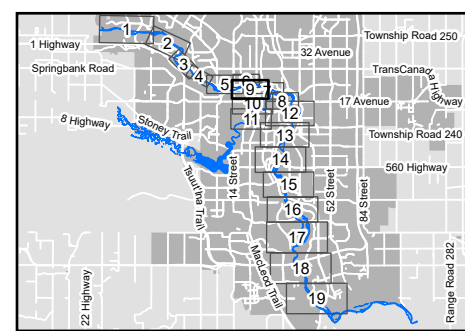
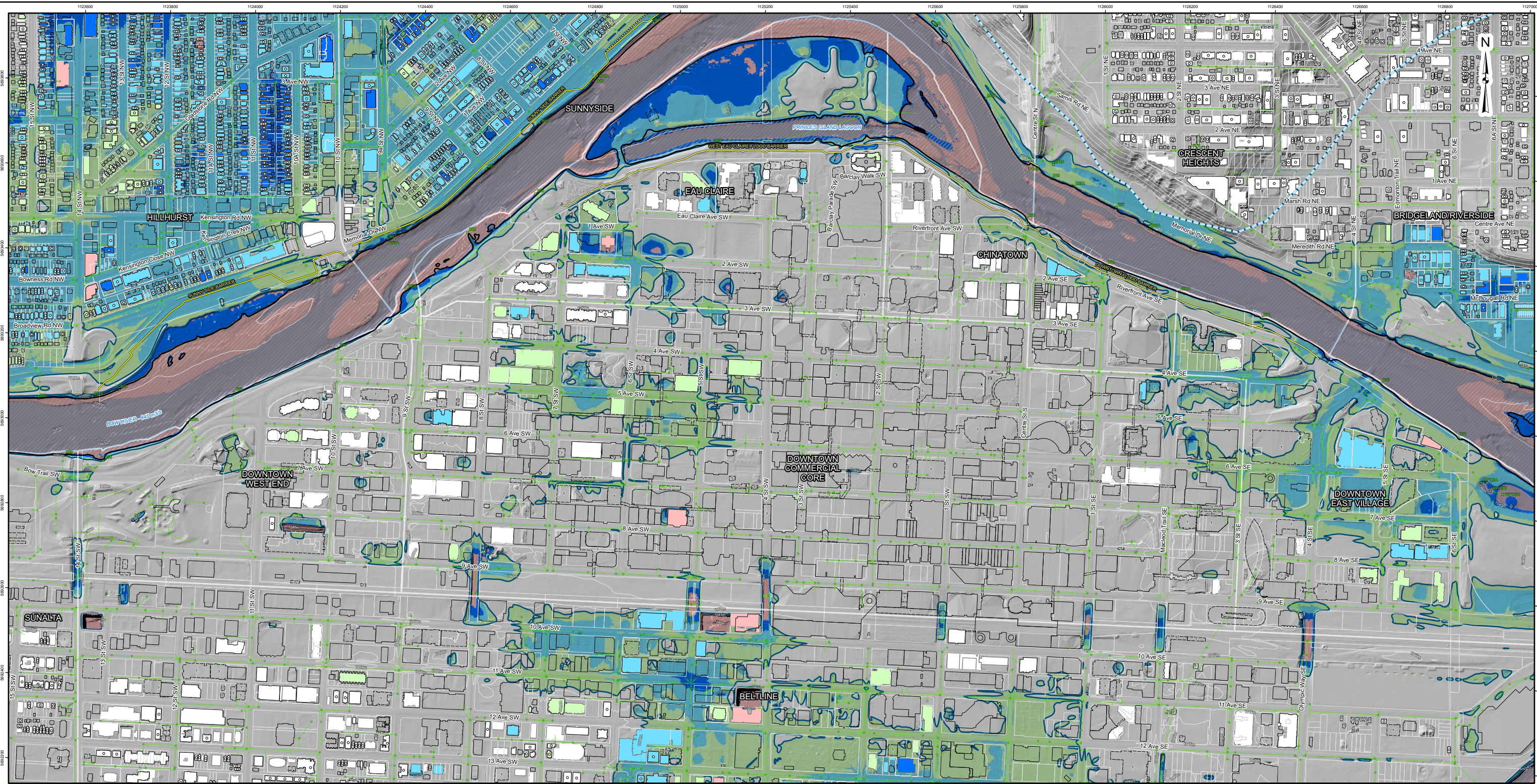
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FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
8 - INGLEWOOD

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY
PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:8,000 DATE 8/14/2026 AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded

NOTES

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FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
9 - DOWNTOWN

PROJECT

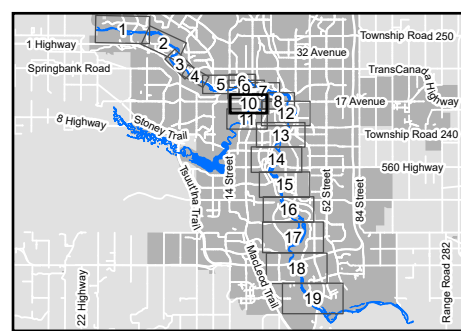
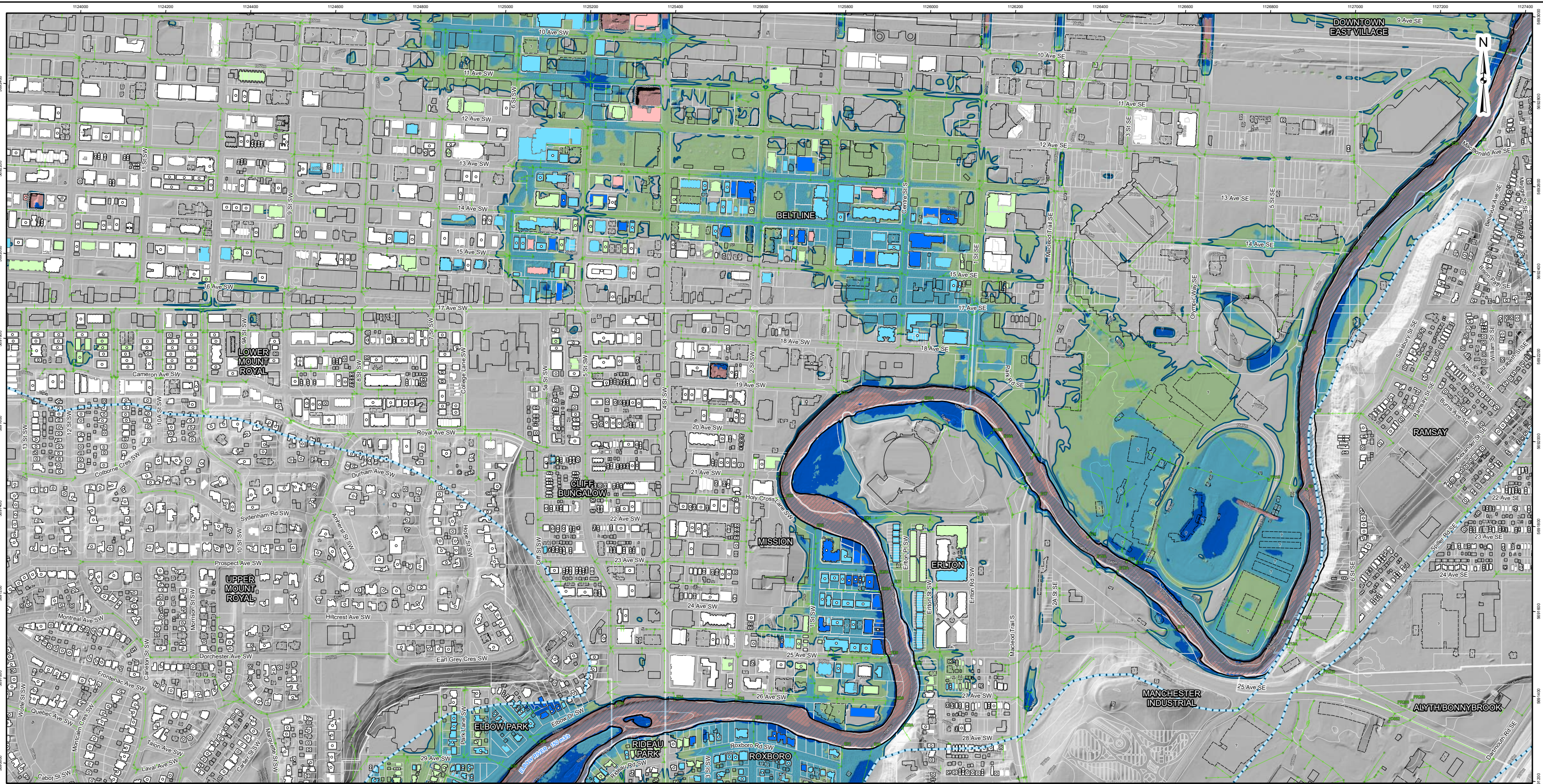
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

0 50 100
Meters

SCALE 1:9,000 DATE 8/14/2026 AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded

NOTES

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FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
10 - BELTLINE

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

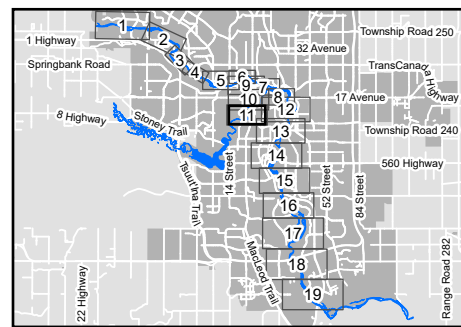
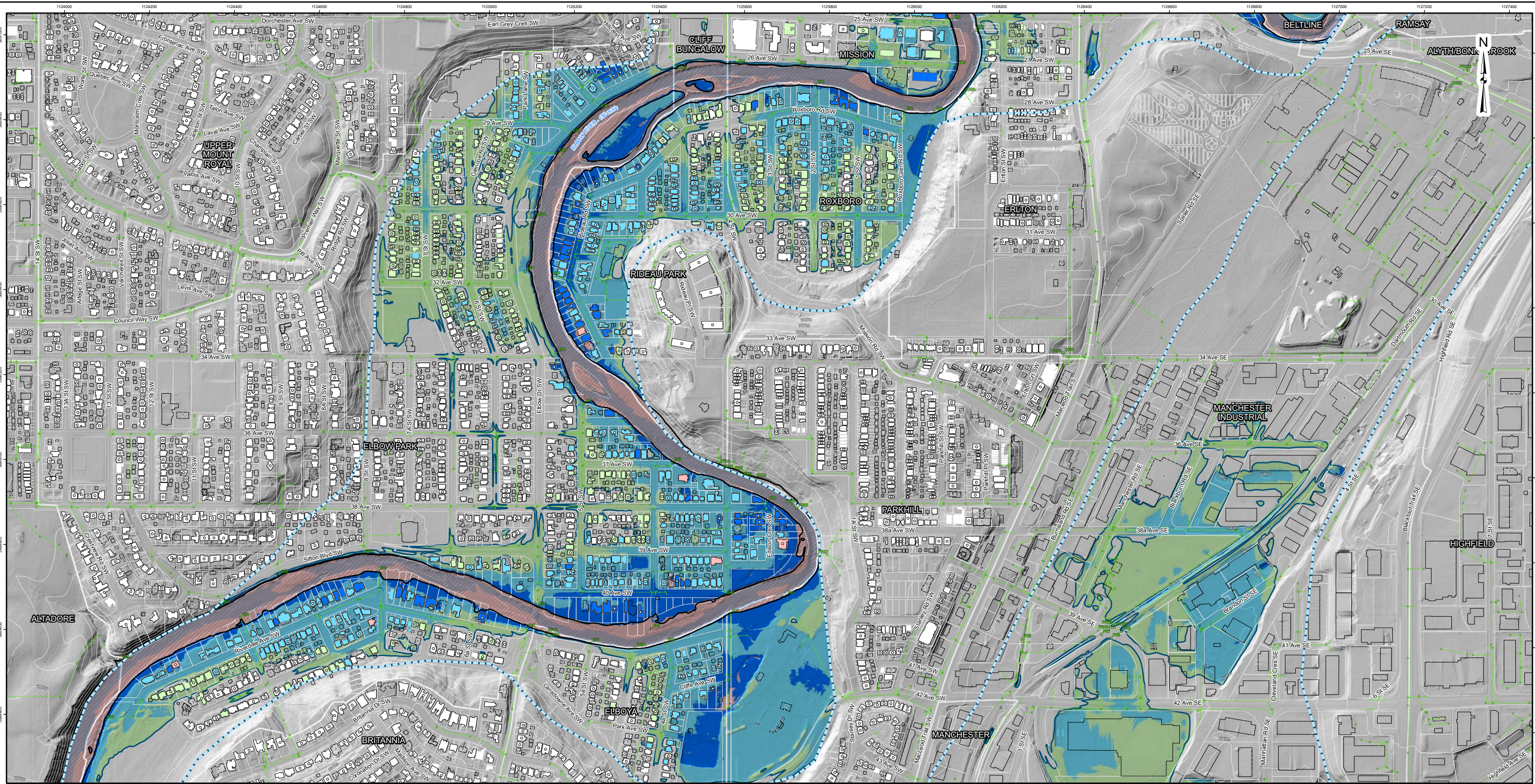
PROJECTION
NAD 1983 CSRS 3TM 114

SCALE 1:9,000

DATE 8/14/2026

AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded

NOTES

- Pre-1990 buildings are more susceptible to groundwater due to lack of reinforcement requirements before 1990. Implementation of reinforcement basement structures may vary since inception of code requirements.
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DATA SOURCES

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- Elevation data from the City wide 2022 LiDAR data and 2020 bathymetry data.
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- Overland flood hazard area data provided from Golder Associates (WSP) Bow and Elbow River Hazard Study (2023)

FIGURE 3.3

GROUNDWATER DEPTH & BUILDING RISK FACTORS (CALIBRATED) - 1 IN 10 YEAR FLOOD 11 - LOWER ELBOW

PROJECT

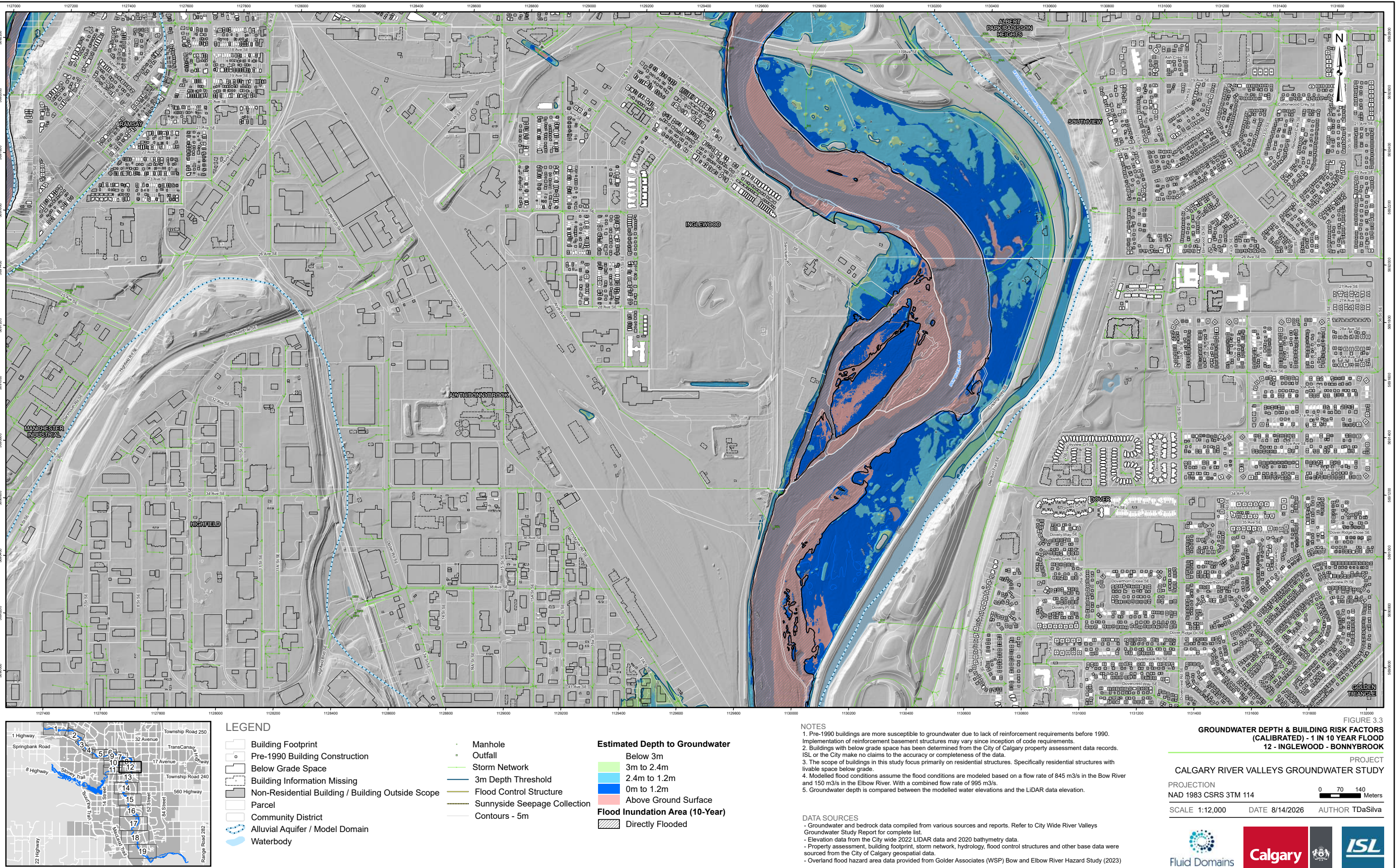
CALGARY RIVER VALLEYS GROUNDWATER STUDY

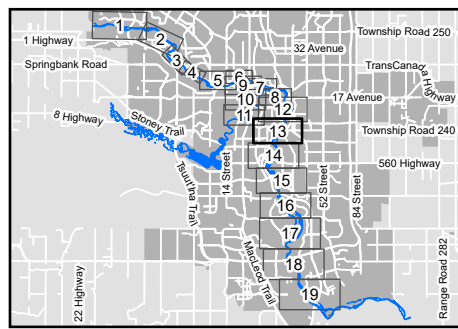
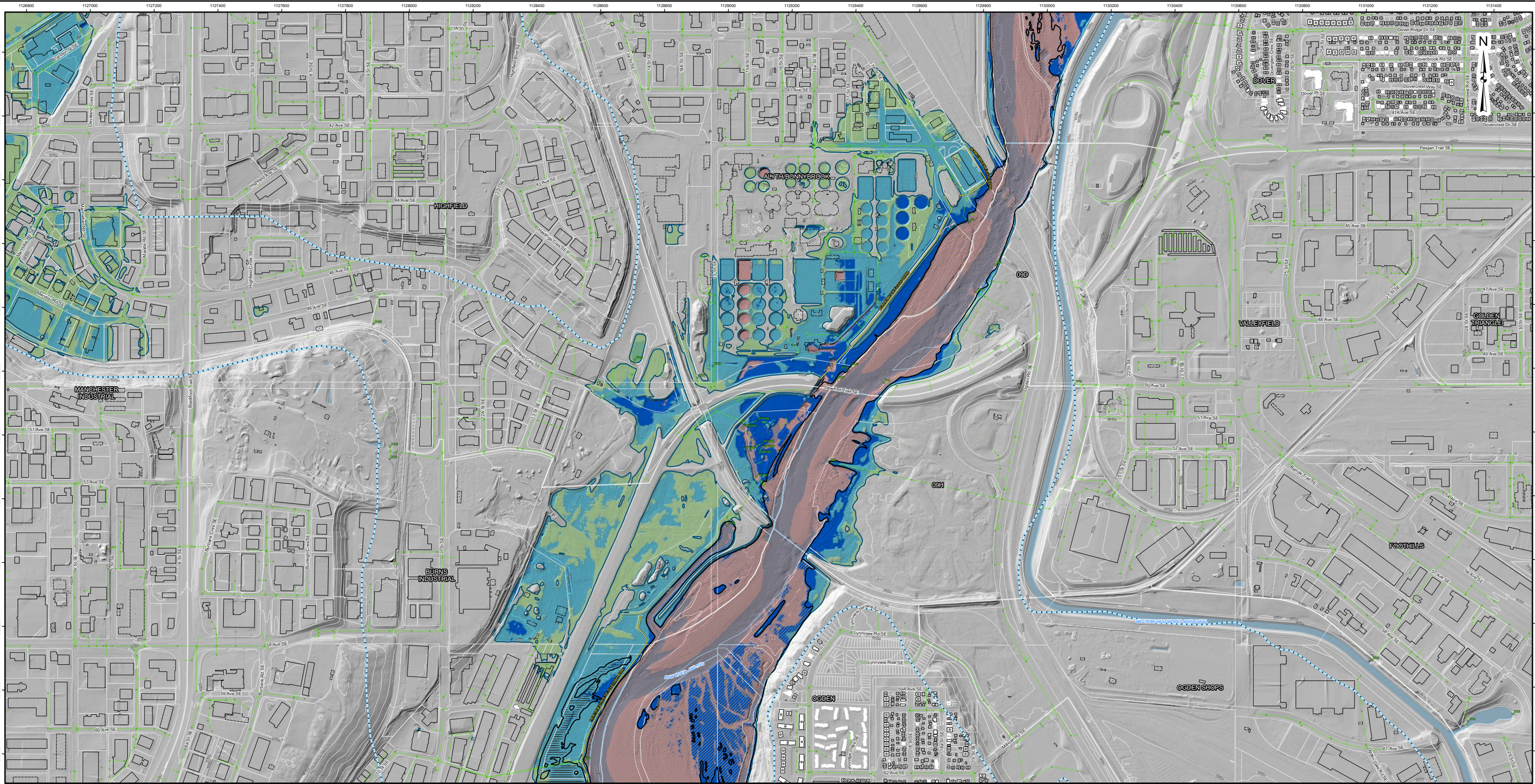
PROJECTION
NAD 1983 CSRS 3TM 114

0 50 100
Meters

SCALE 1:9,000 DATE 8/14/2026 AUTHOR TDaSilva







LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody

- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
- 3m to 2.4m
- 2.4m to 1.2m
- 0m to 1.2m
- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded
- Protected by Flood Berm

NOTES

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FIGURE 3.3
**GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
13 - BONNYBROOK**

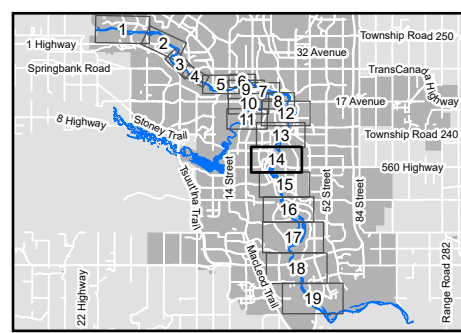
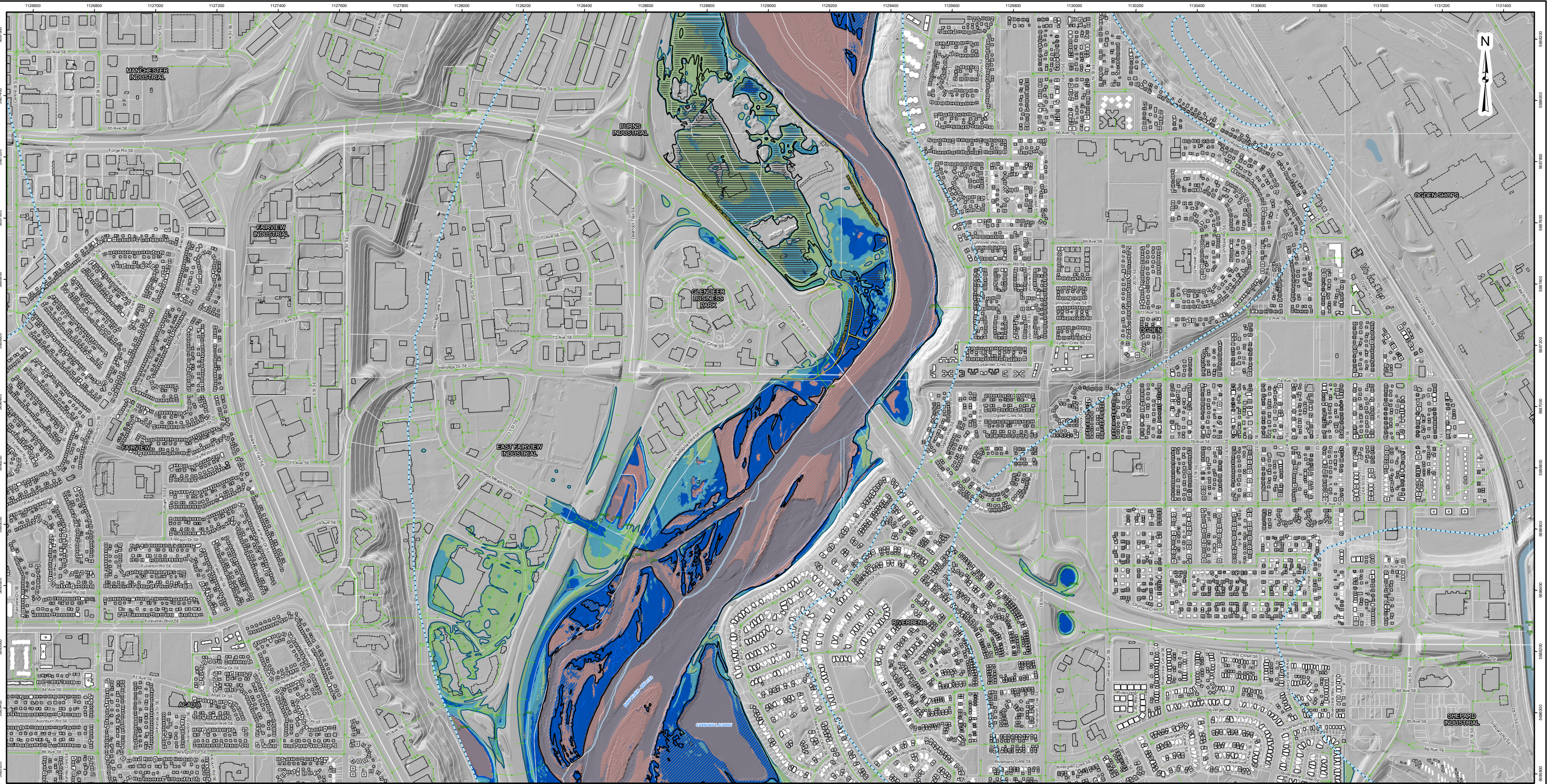
PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

SCALE 1:12,000 DATE 8/14/2026 AUTHOR TDaSilva

0 70 140 Meters





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

- Below 3m
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- Above Ground Surface

Flood Inundation Area (10-Year)

- Directly Flooded
- Protected by Flood Berm

NOTES

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FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
14 - DEERFOOT MEADOWS

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

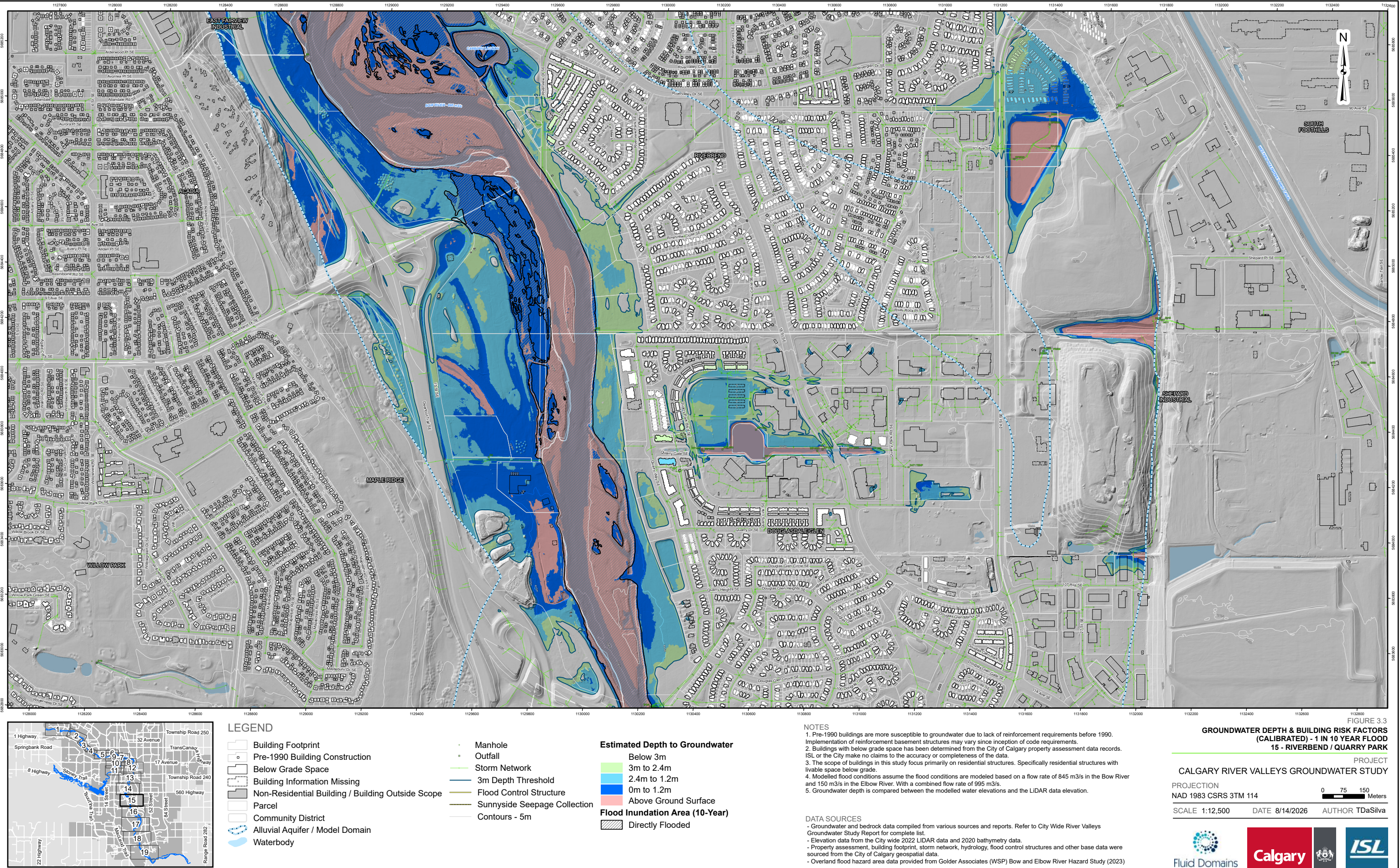
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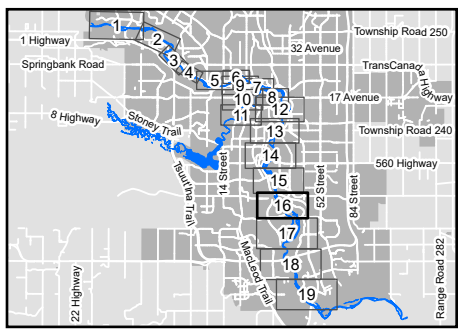
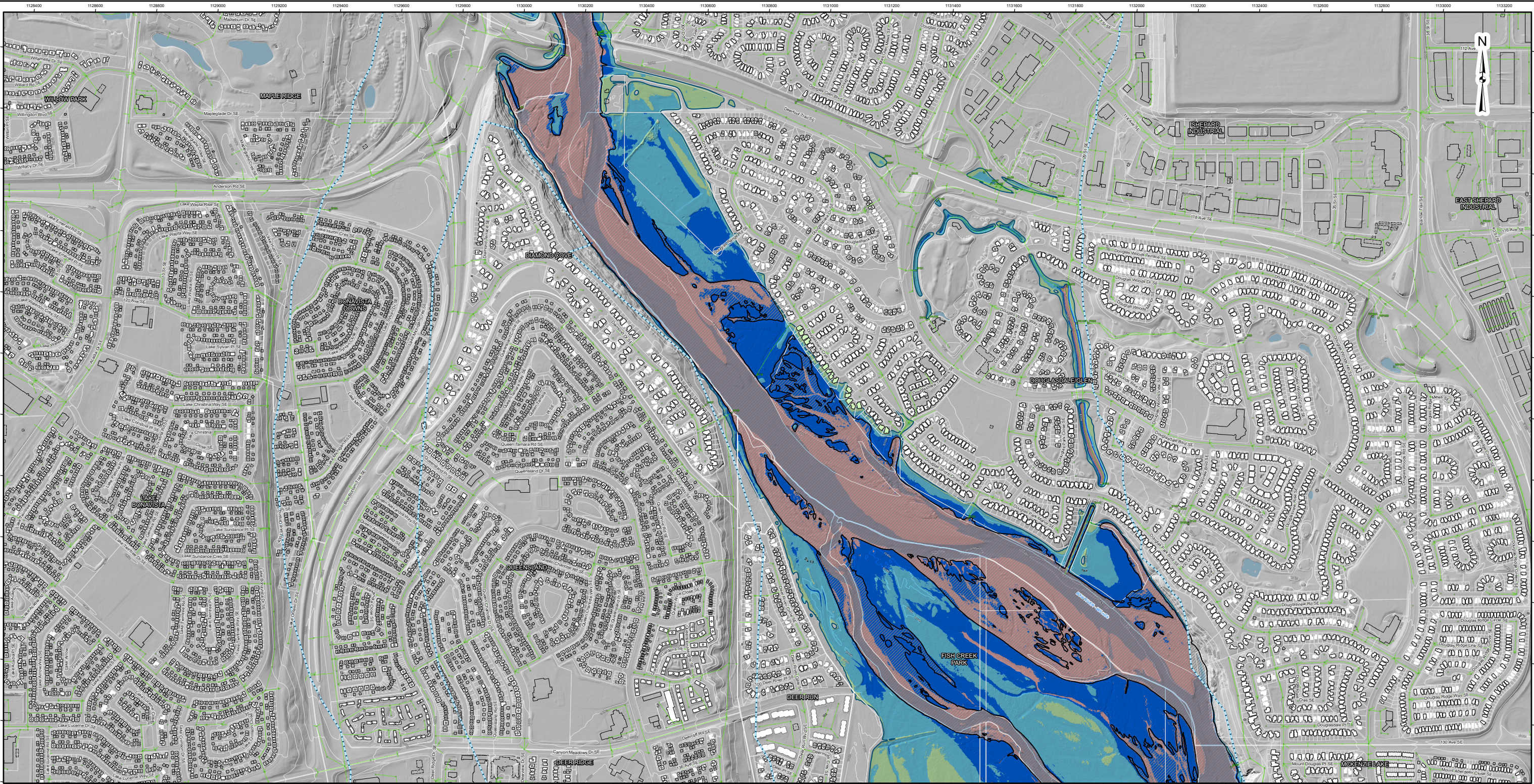
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DATE 8/14/2026

AUTHOR TDaSilva







LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
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- Sunnyside Seepage Collection
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Flood Inundation Area (10-Year)

- Directly Flooded

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FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
16 - DOUGLASDALE

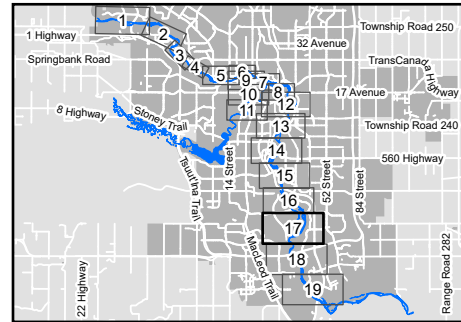
PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

SCALE 1:12,500 DATE 8/14/2026 AUTHOR TDaSilva

0 75 150 Meters

Fluid Domains Calgary ISL



LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
- Contours - 5m

Estimated Depth to Groundwater

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Flood Inundation Area (10-Year)

- Directly Flooded

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FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
17 - FISH CREEK

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

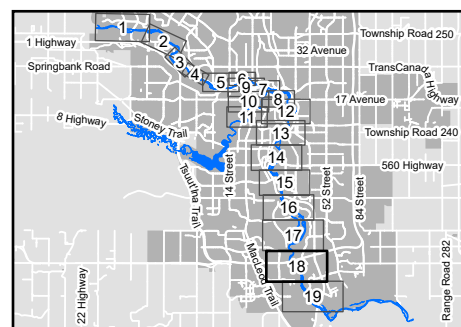
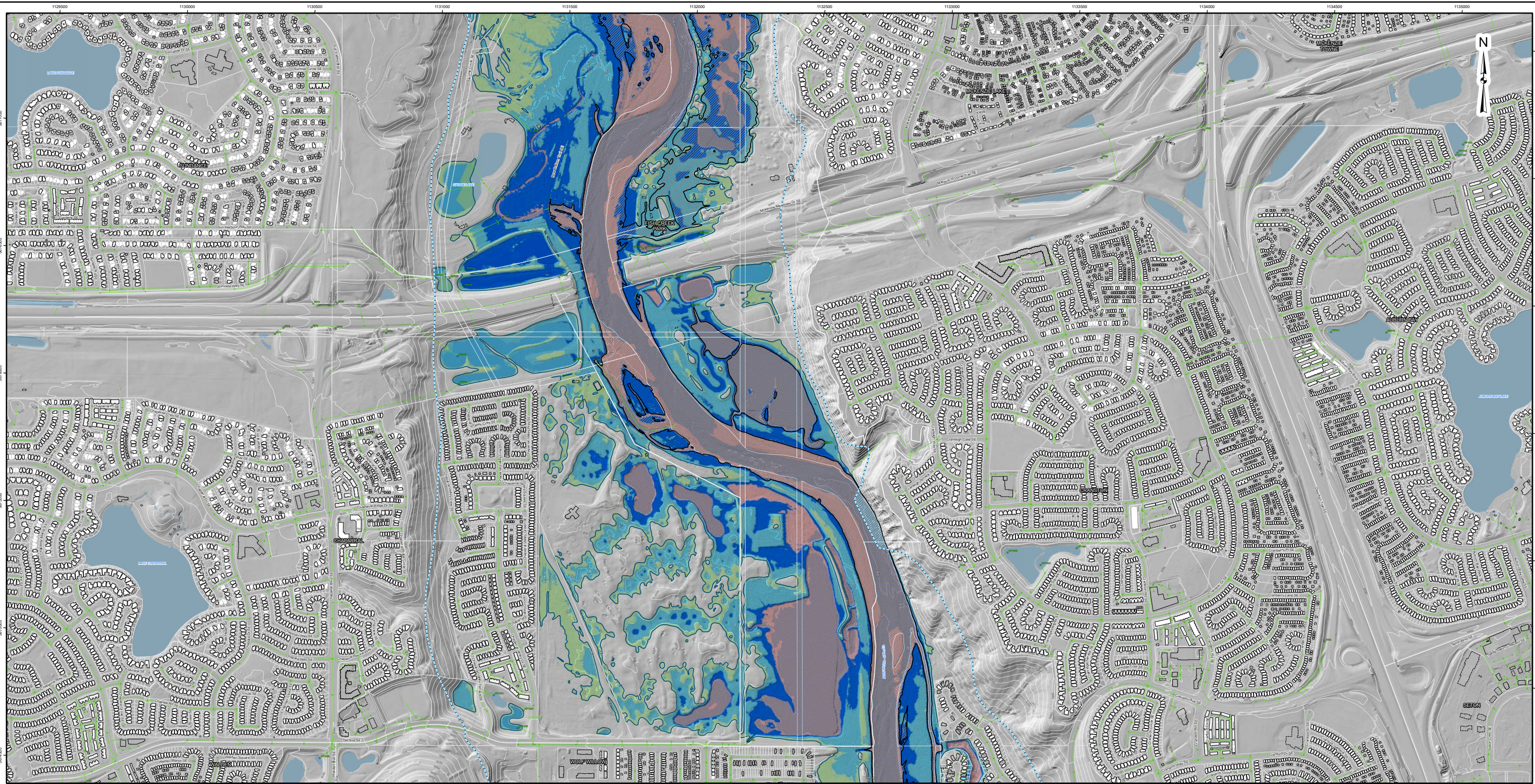
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SCALE 1:15,000

DATE 8/14/2026

AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
- Community District
- Alluvial Aquifer / Model Domain
- Waterbody
- Manhole
- Outfall
- Storm Network
- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
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Flood Inundation Area (10-Year)

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FIGURE 3.3

GROUNDWATER DEPTH & BUILDING RISK FACTORS (CALIBRATED) - 1 IN 10 YEAR FLOOD 18 - SOUTH STONEY TRAIL

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

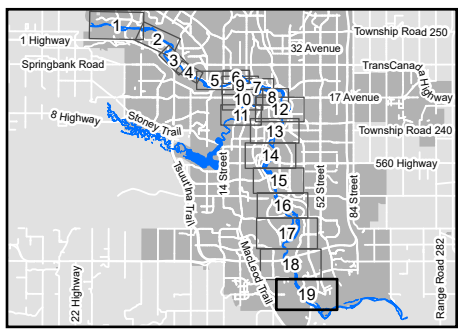
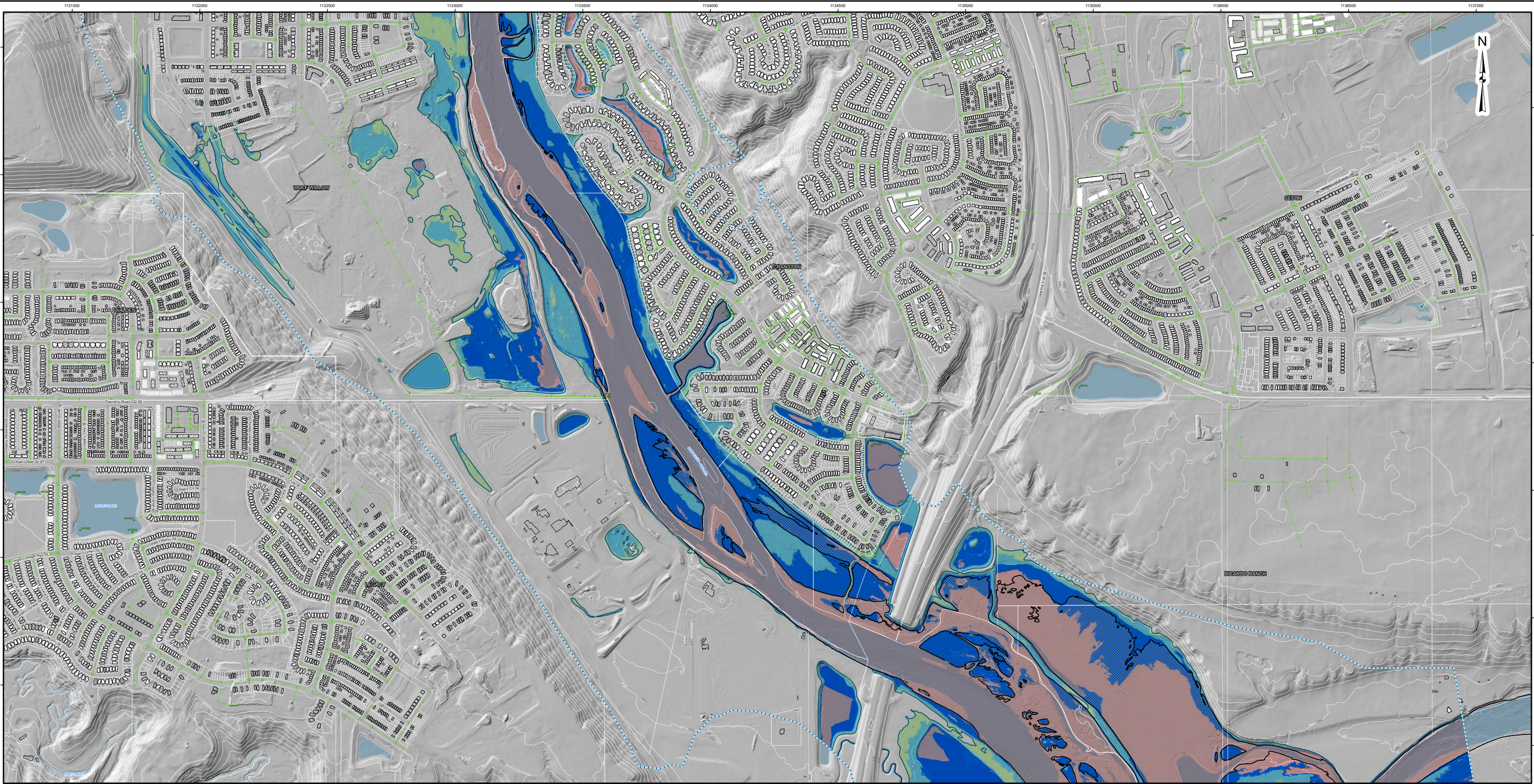
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Meters

SCALE 1:15,000

DATE 8/14/2026

AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
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- Community District
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- Manhole
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- 3m Depth Threshold
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- Flood Inundation Area (10-Year)
- Directly Flooded

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FIGURE 3.3
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(CALIBRATED) - 1 IN 10 YEAR FLOOD
19 - PINE CREEK / CRANSTON

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY
PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:15,000
DATE 8/14/2026
AUTHOR TDaSilva

