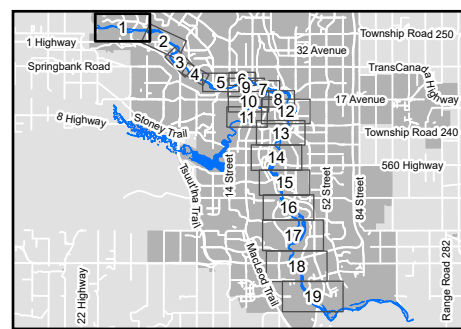
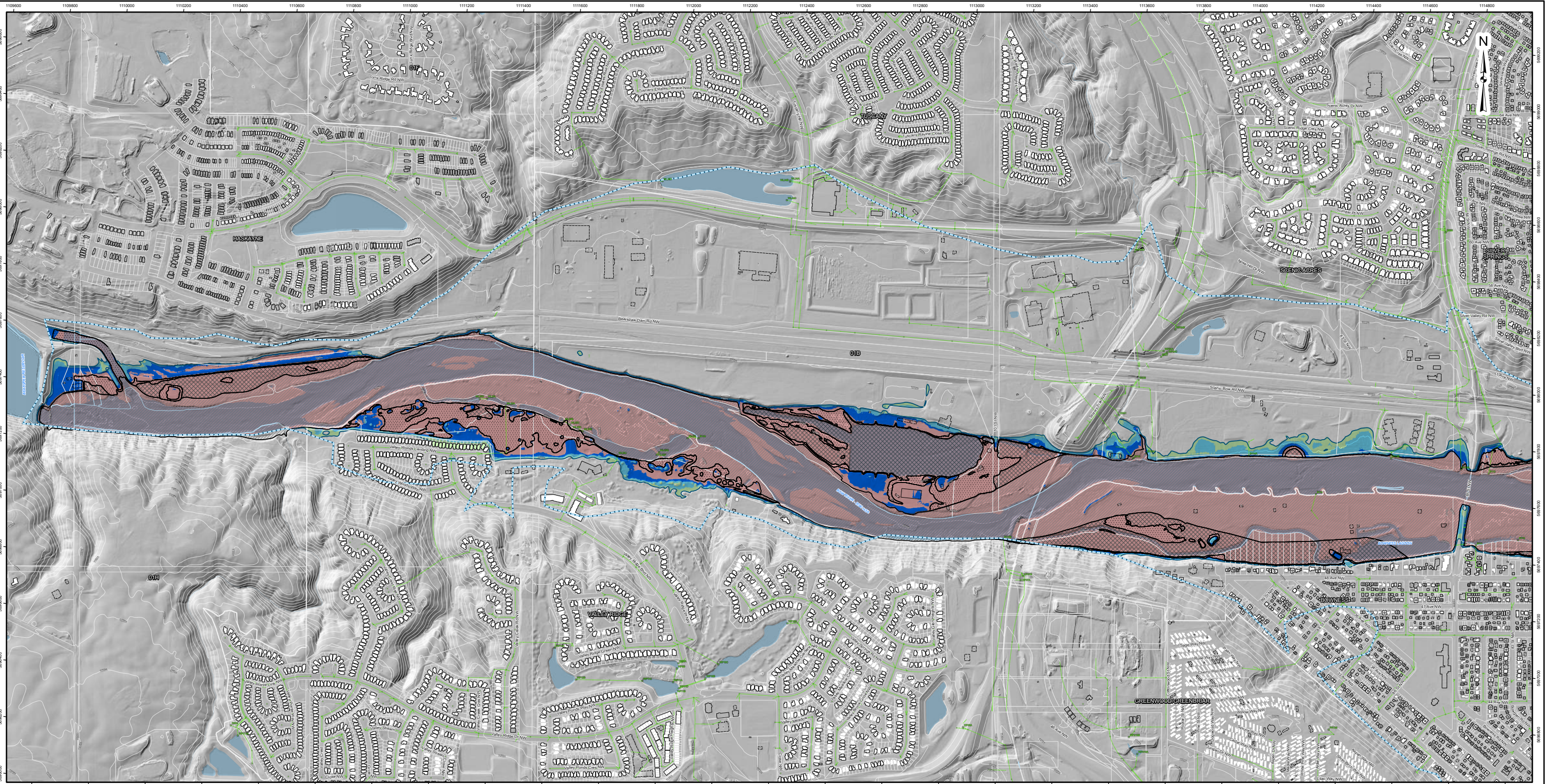


Groundwater Depth and Building Risk Factors (P90)

1 in 100 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 Hazard Area (100-Year)

- Floodway
- Flood Fringe
- High Hazard Flood Fringe

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.
2. 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.
3. The scope of buildings in this study focus primarily on residential structures. Specifically residential structures with livable space below grade.
4. Modelled flood conditions assume the flood conditions are modeled based on a flow rate of 2090 m³/s in the Bow River and 150 m³/s in the Elbow River. With a combined flow rate of 2240 m³/s.
5. Groundwater depth is compared between the modelled water elevations and the LIDAR data elevation.

DATA SOURCES

- Groundwater and bedrock data compiled from various sources and reports. Refer to City Wide River Valleys Groundwater Study Report for complete list.
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- Overland flood hazard area data provided from Golder Associates (WSP) Bow and Elbow River Hazard Study (2023)

FIGURE 3.8

GROUNDWATER DEPTH & BUILDING RISK FACTORS (P90) - 1 IN 100 YEAR FLOOD 1 - VALLEY RIDGE

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

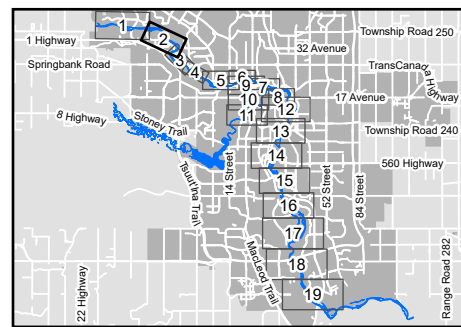
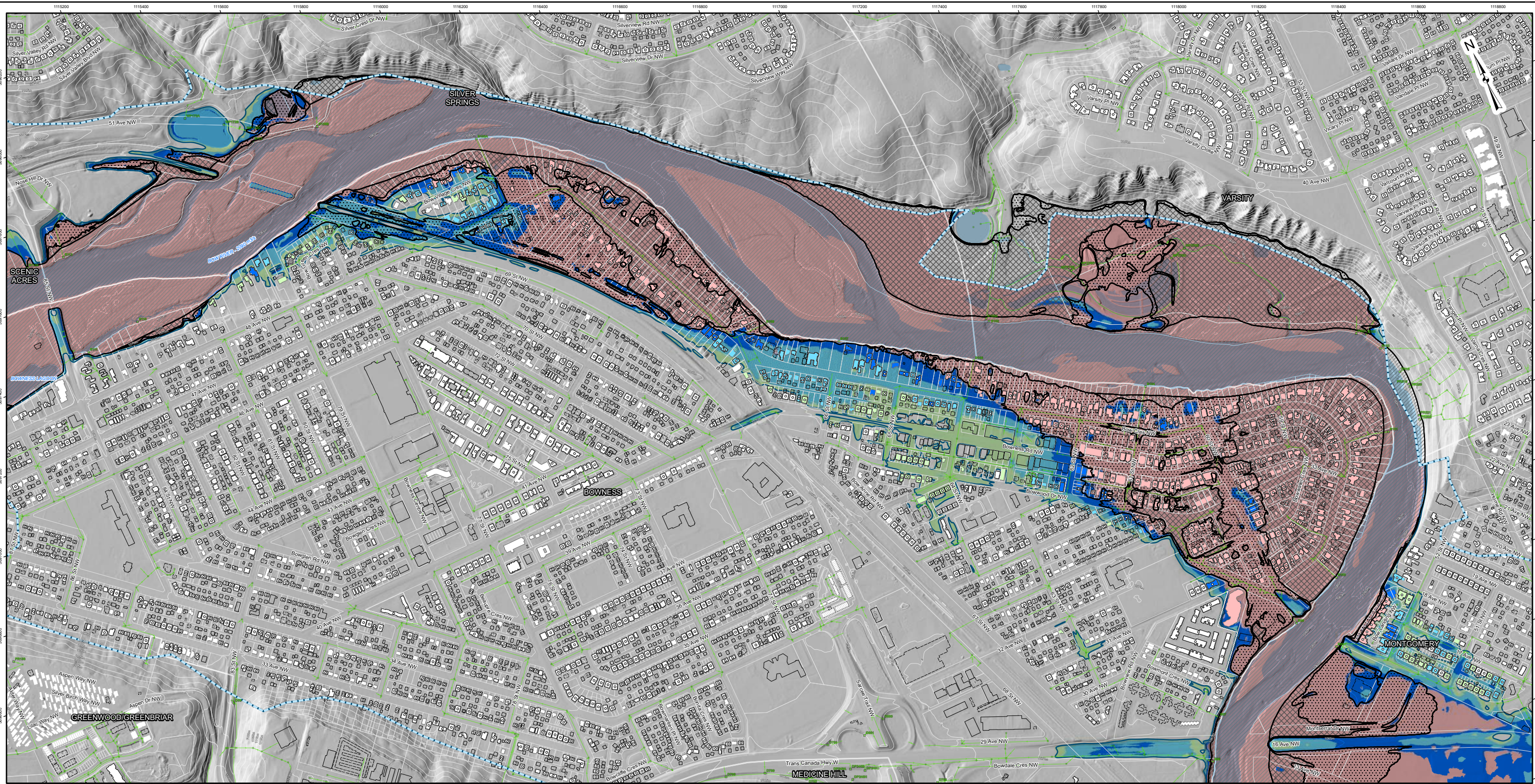
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Meters

SCALE 1:13,500

DATE 8/18/2026

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 Hazard Area (100-Year)

- Floodway
- Flood Fringe
- High Hazard Flood Fringe

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DATA SOURCES

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FIGURE 3.8

GROUNDWATER DEPTH & BUILDING RISK FACTORS (P90) - 1 IN 100 YEAR FLOOD 2 - BOWNESS

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

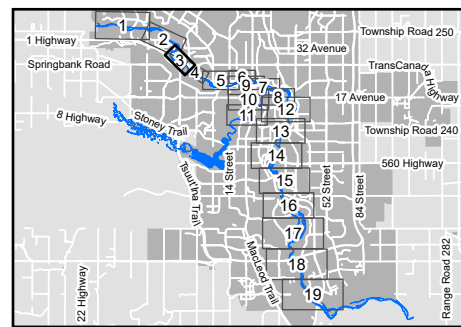
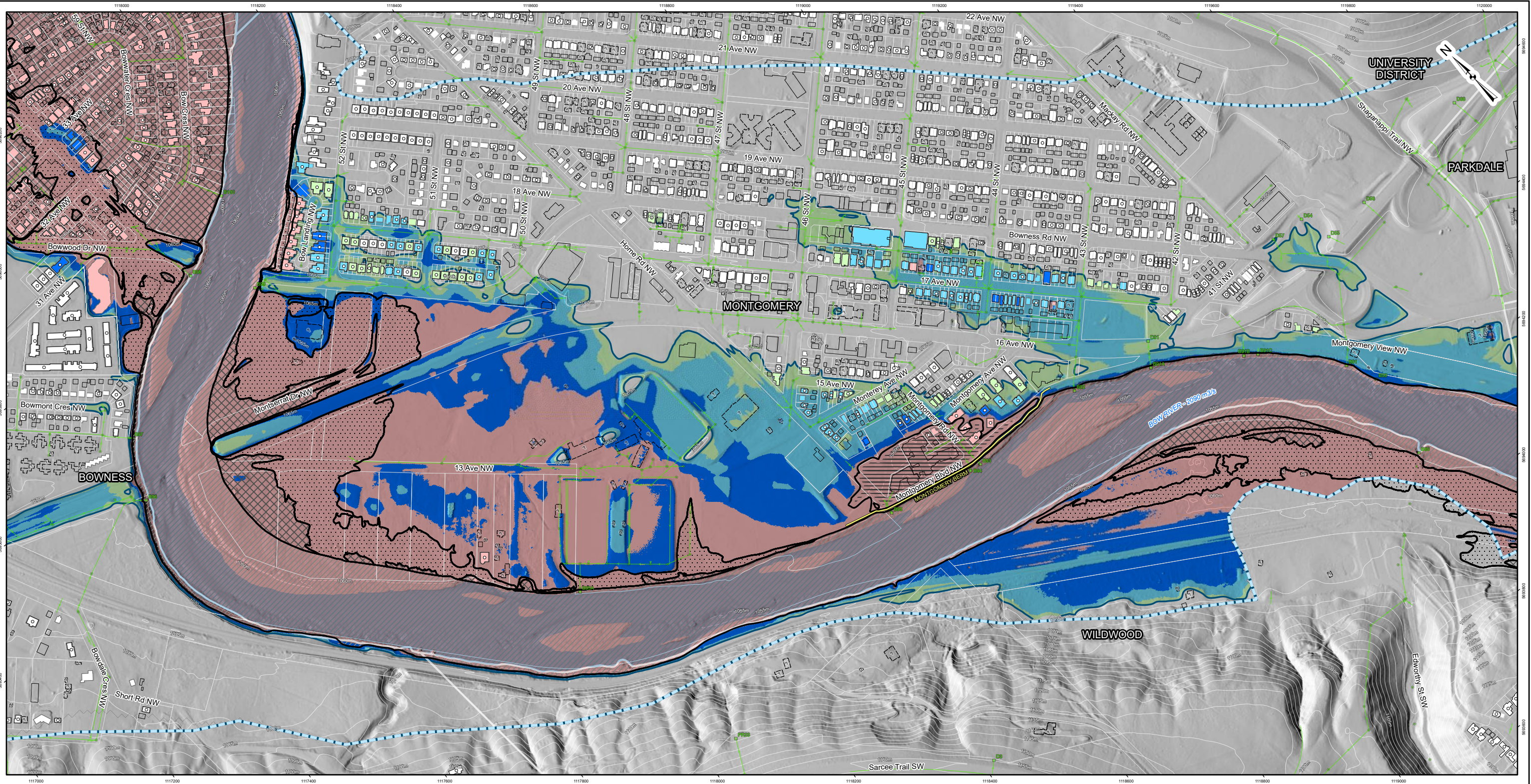
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Meters

SCALE 1:10,000

DATE 8/18/2026

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 Hazard Area (100-Year)

- Floodway
- Flood Fringe
- High Hazard Flood Fringe
- Protected Flood Fringe

NOTES

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DATA SOURCES

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FIGURE 3.8
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(P90) - 1 IN 100 YEAR FLOOD
3 - MONTGOMERY

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

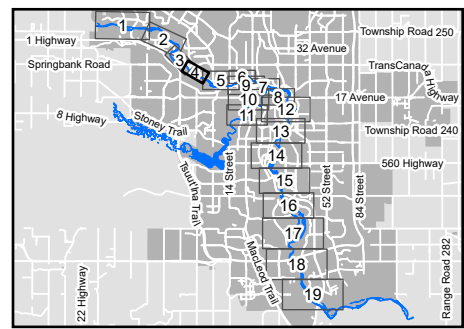
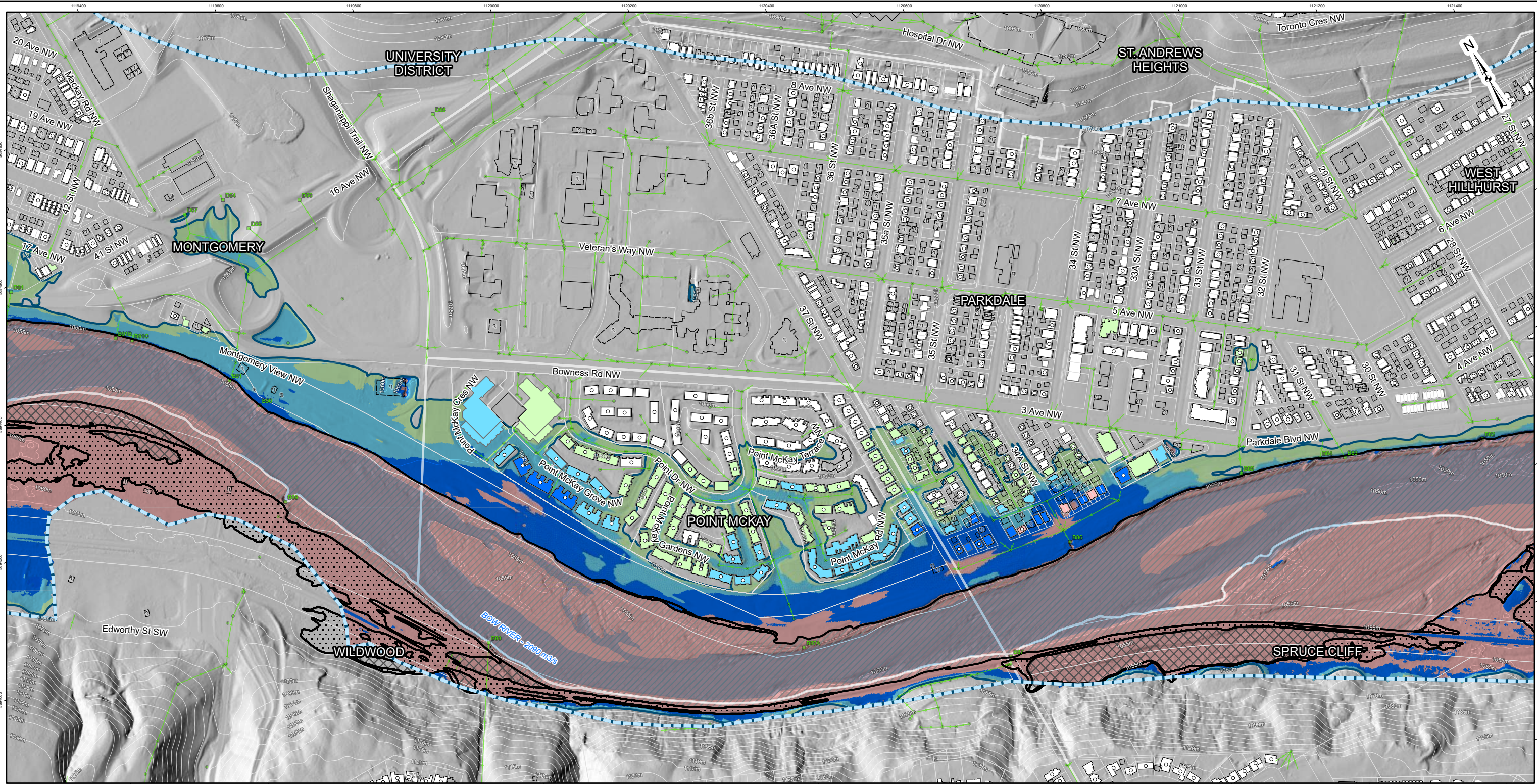
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SCALE 1:7,000

DATE 8/18/2026

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 Hazard Area (100-Year)
 - Floodway
 - Flood Fringe
 - High Hazard Flood Fringe

NOTES

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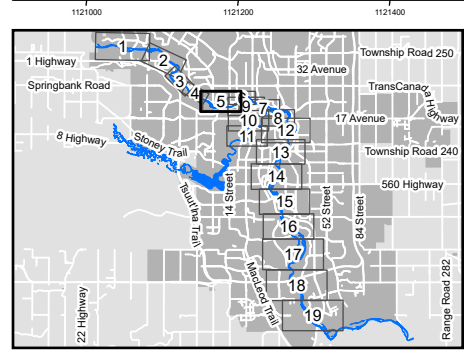
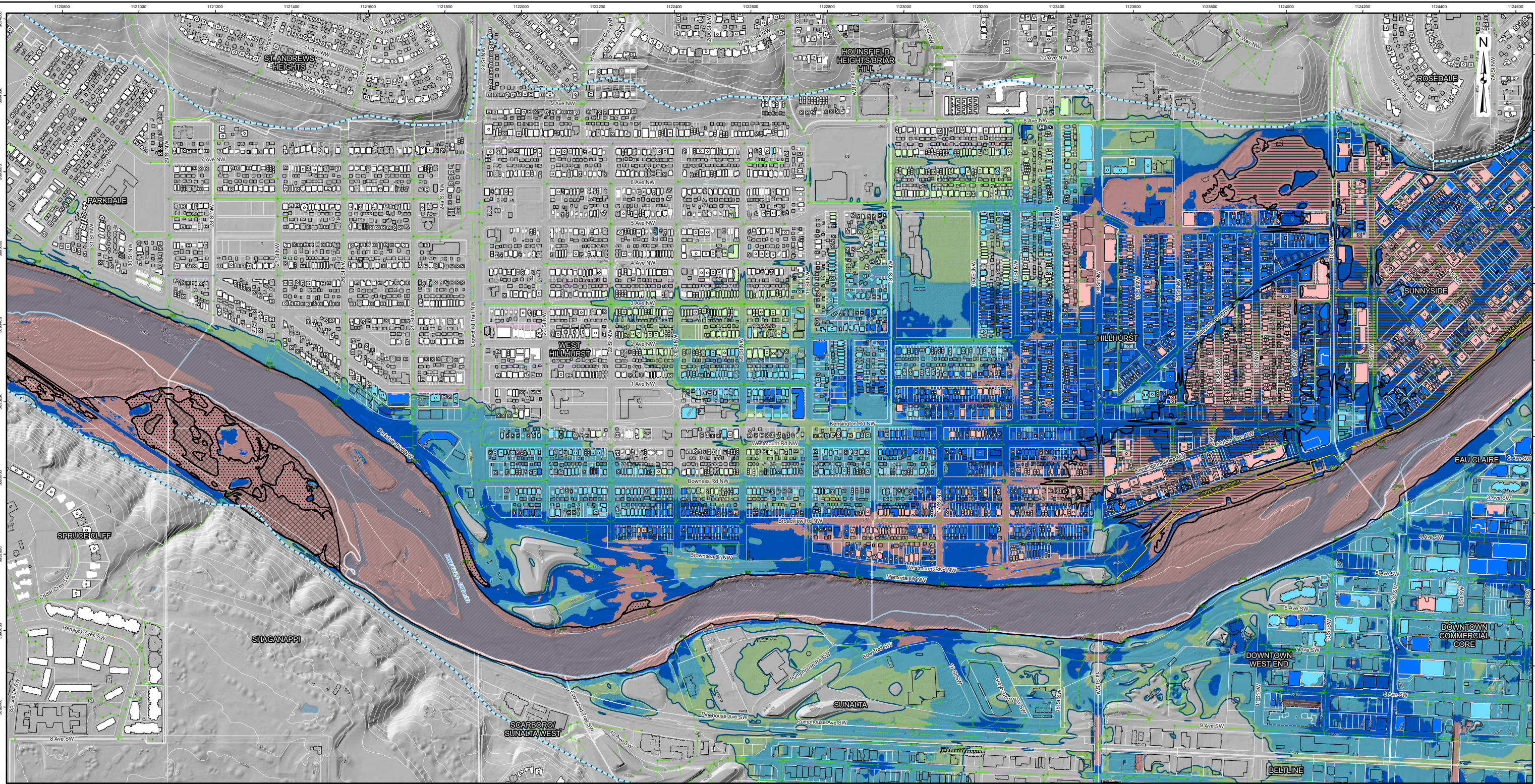
FIGURE 3.8
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(P90) - 1 IN 100 YEAR FLOOD
4 - POINT MCKAY

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

SCALE 1:6,000 DATE 8/18/2026 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 Hazard Area (100-Year)

- Floodway
- Flood Fringe
- High Hazard Flood Fringe
- Protected Flood Fringe

NOTES

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FIGURE 3.8

GROUNDWATER DEPTH & BUILDING RISK FACTORS (P90) - 1 IN 100 YEAR FLOOD 5 - HILLHURST / WEST HILLHURST

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

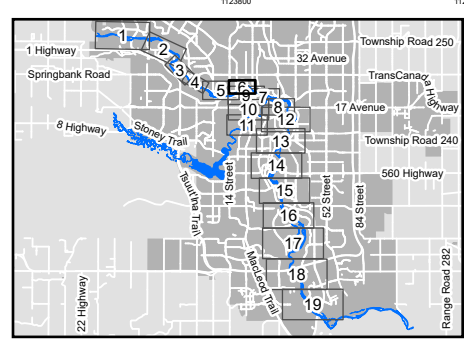
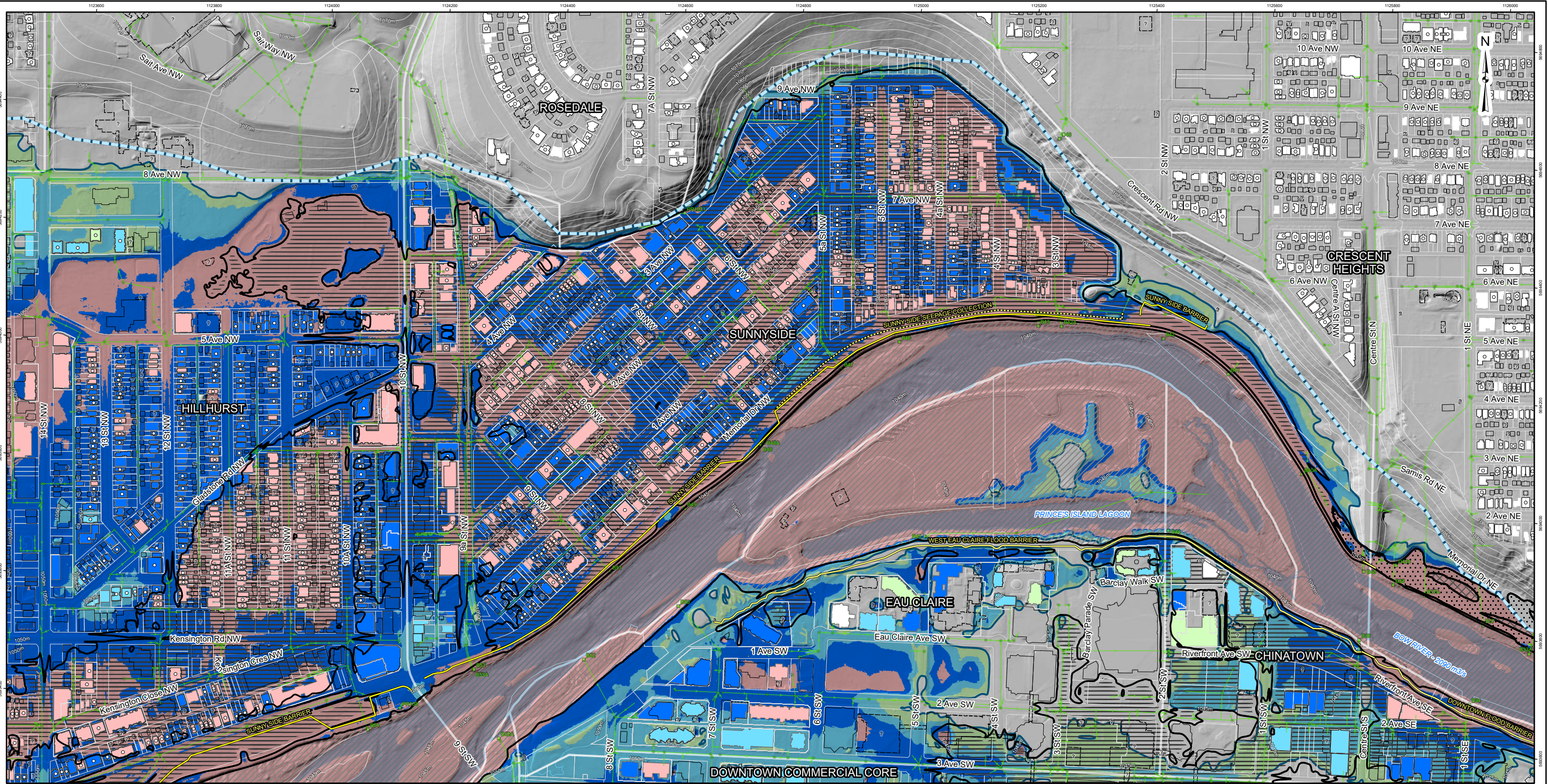
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SCALE 1:10,000

DATE 8/18/2026

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 Hazard Area (100-Year)

- Floodway
- Flood Fringe
- High Hazard Flood Fringe
- Protected Flood Fringe

NOTES

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DATA SOURCES

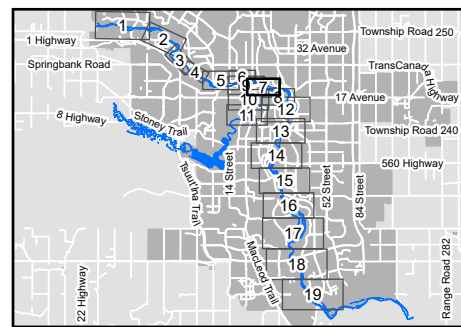
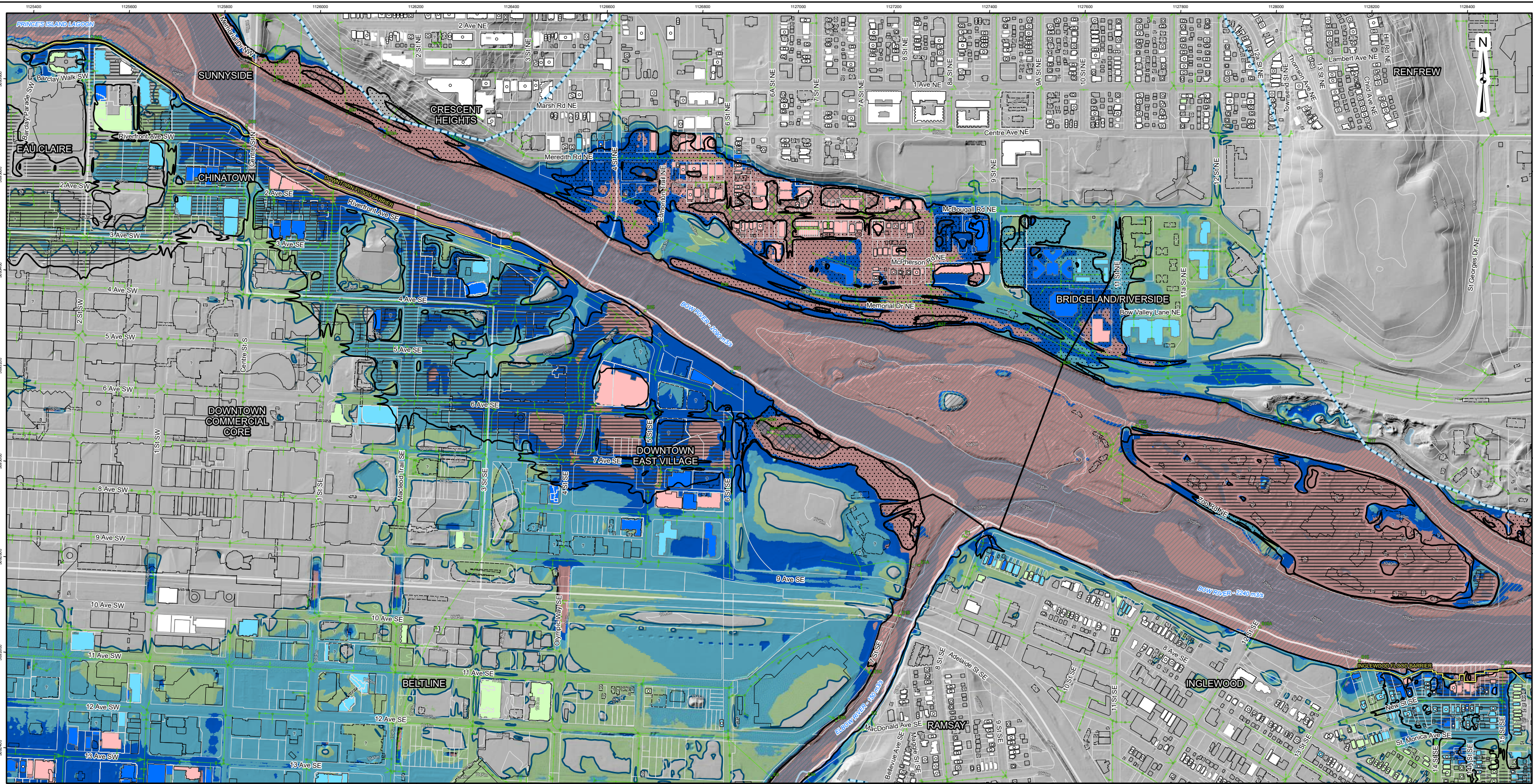
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FIGURE 3.8
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(P90) - 1 IN 100 YEAR FLOOD
6 - SUNNYSIDE

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:6,500 DATE 8/18/2026 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 Hazard Area (100-Year)

- Floodway
- Flood Fringe
- High Hazard Flood Fringe
- Protected Flood Fringe

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FIGURE 3.8
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(P90) - 1 IN 100 YEAR FLOOD
7 - EAST VILLAGE / BRIDGELAND

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

SCALE 1:8,000

DATE 8/18/2026

AUTHOR TDA Silva

0 40 80
Meters





-  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 Hazard Area (100-Year)

-  Floodway
 Flood Fringe
 High Hazard Flood Fringe
 Protected Flood Fringe

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

DATA SOURCES

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FIGURE 3.8
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(P90) - 1 IN 100 YEAR FLOOD
8 - INGLEWOOD

PROJECT

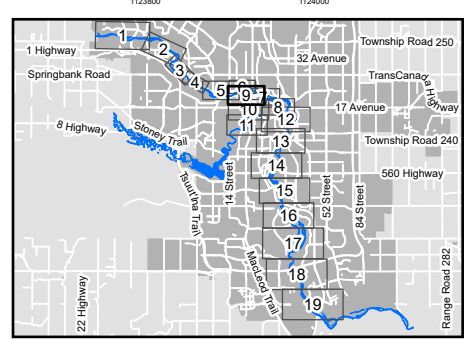
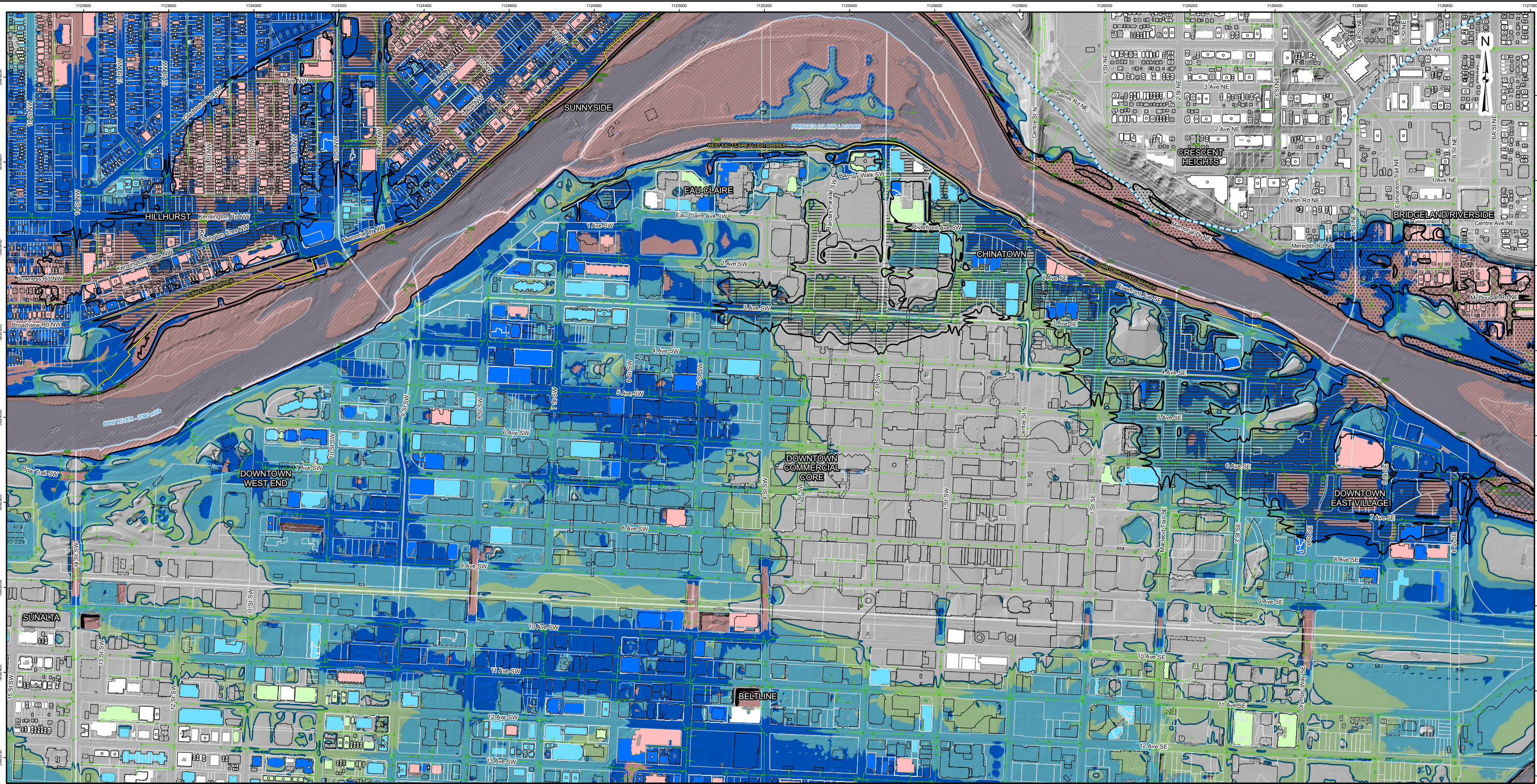
CANGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

SCALE 1:8,000 DATE 8/18/2026 AUTHOR TDaSilva

A scale bar with markings at 0, 40, and 80, followed by the word "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 Hazard Area (100-Year)

- Floodway
- Flood Fringe
- High Hazard Flood Fringe
- Protected Flood Fringe

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

DATA SOURCES

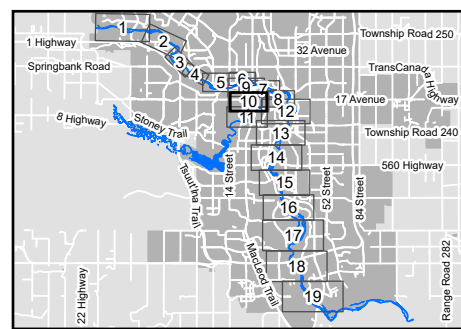
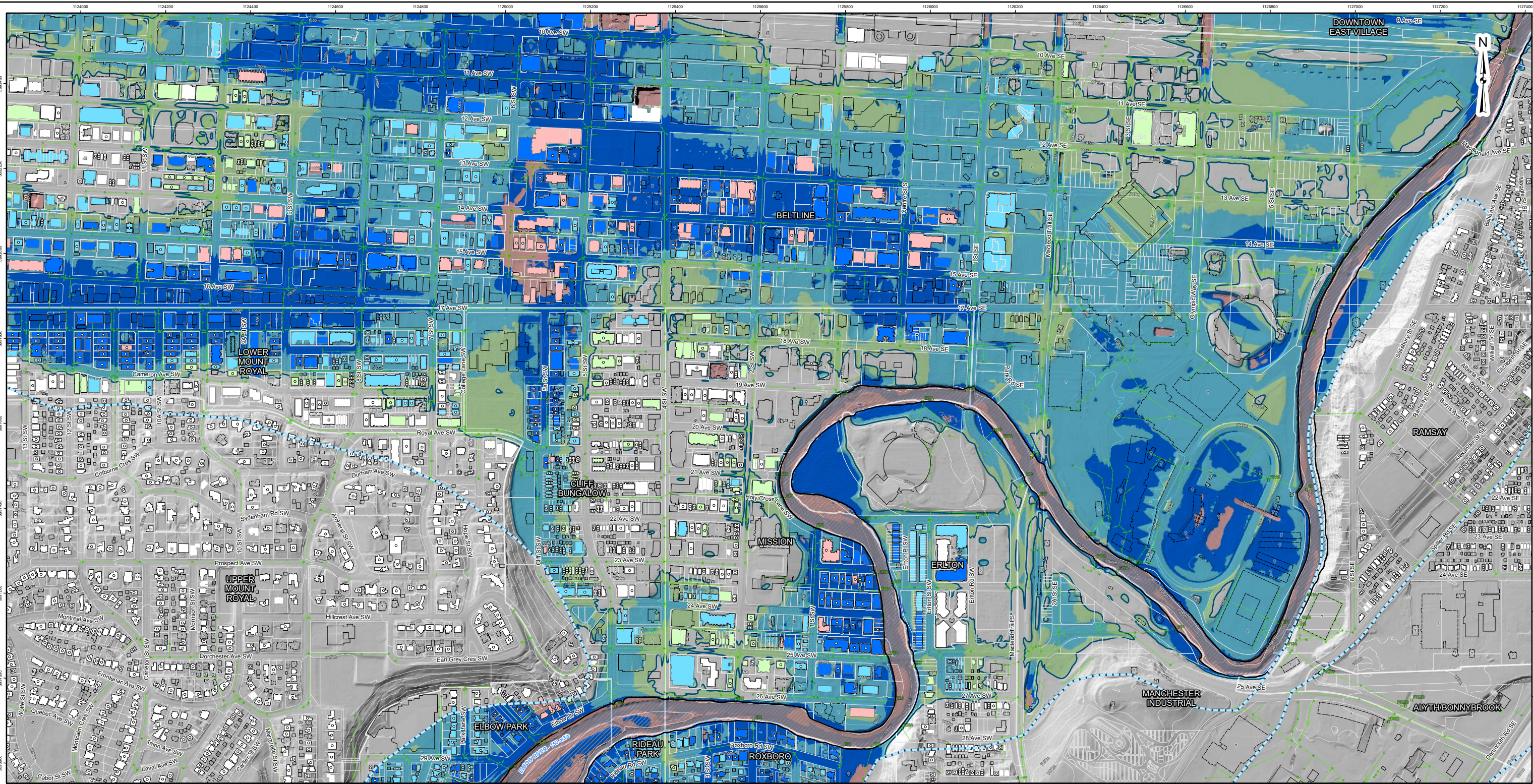
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FIGURE 3.8
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(P90) - 1 IN 100 YEAR FLOOD
9 - DOWNTOWN

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:9,000 DATE 8/18/2026 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 Hazard Area (100-Year)
- Floodway

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FIGURE 3.8

GROUNDWATER DEPTH & BUILDING RISK FACTORS (P90) - 1 IN 100 YEAR FLOOD 10 - BELTLINE

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

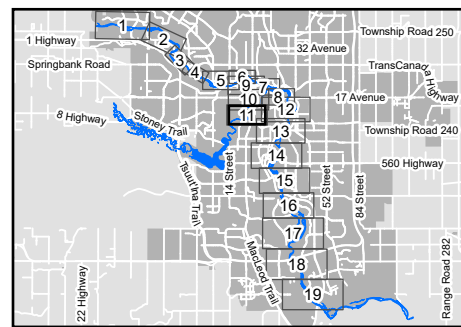
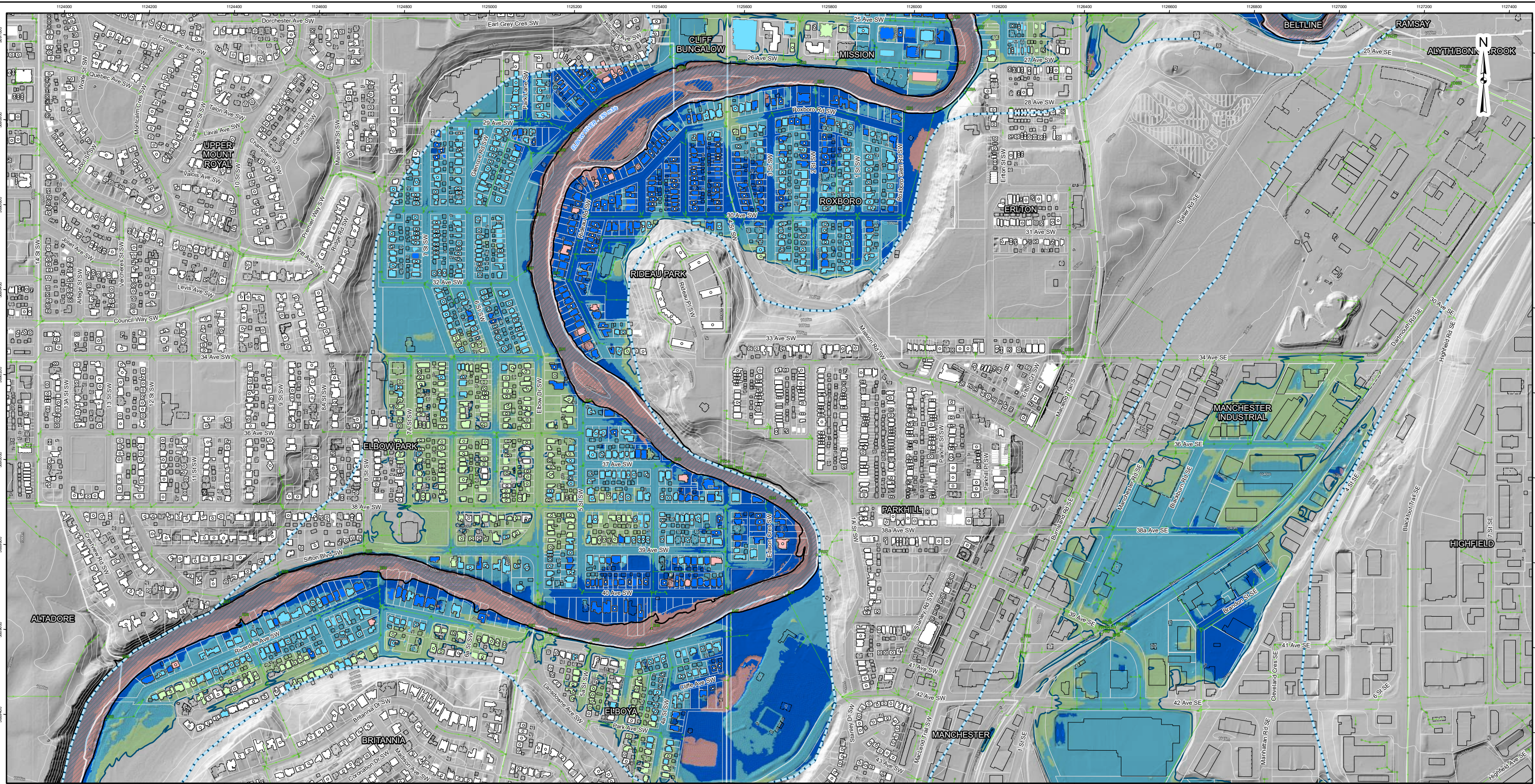
SCALE 1:9,000

DATE 8/18/2026

AUTHOR TDaSilva

0 50 100
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 Hazard Area (100-Year)

- Floodway

NOTES

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FIGURE 3.8

GROUNDWATER DEPTH & BUILDING RISK FACTORS (P90) - 1 IN 100 YEAR FLOOD 11 - LOWER ELBOW

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

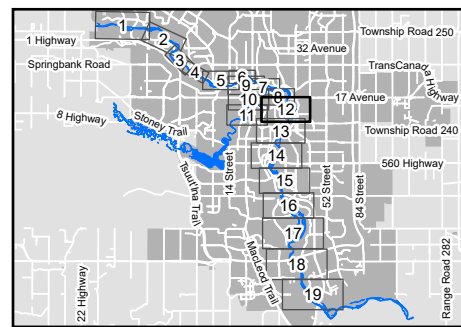
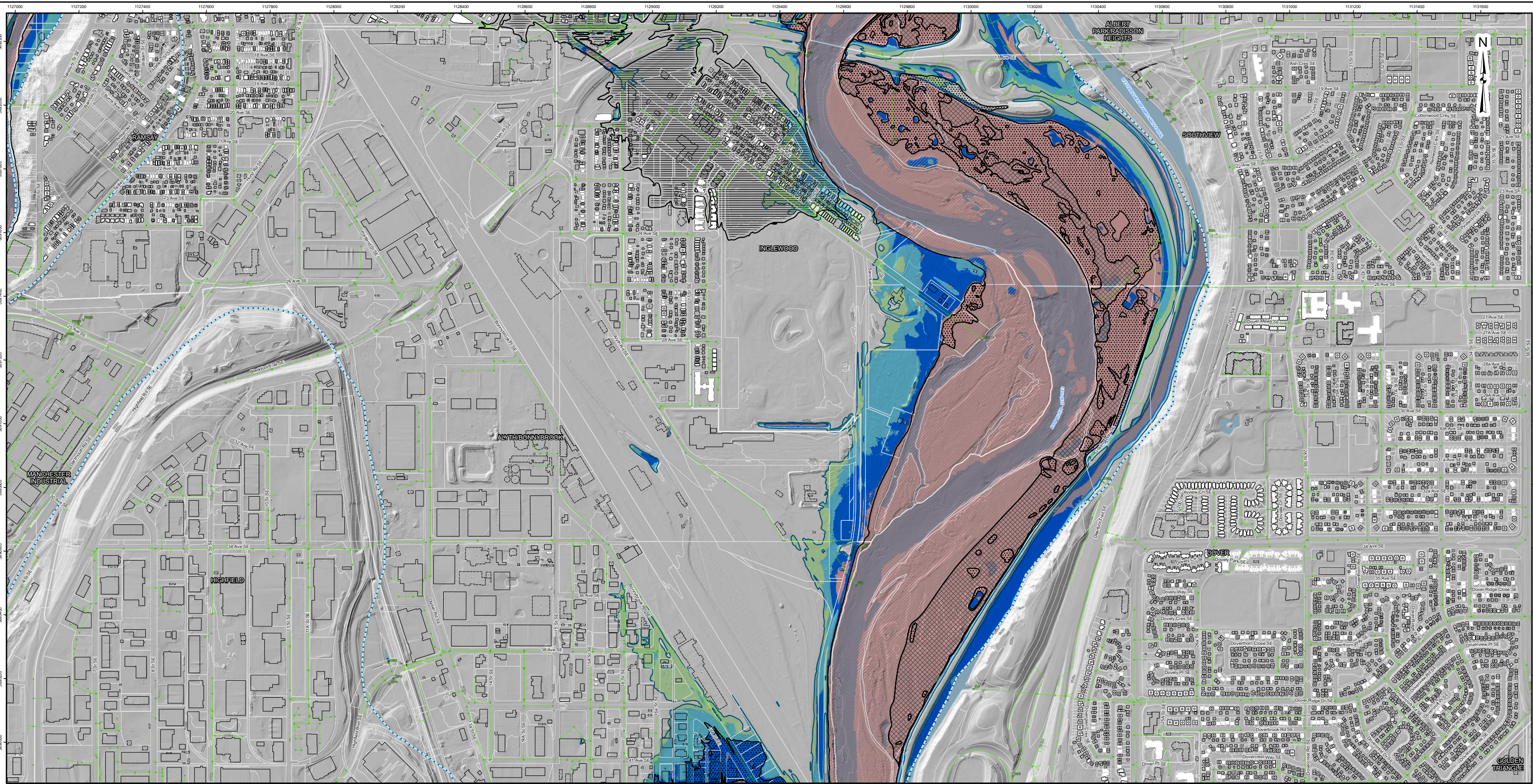
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Meters

SCALE 1:9,000

DATE 8/18/2026

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

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- 3m to 2.4m
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- Above Ground Surface

Flood Hazard Area (100-Year)

- Floodway
- Flood Fringe
- High Hazard Flood Fringe
- Protected Flood Fringe

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FIGURE 3.8
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(P90) - 1 IN 100 YEAR FLOOD
12 - INGLEWOOD - BONNYBROOK

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

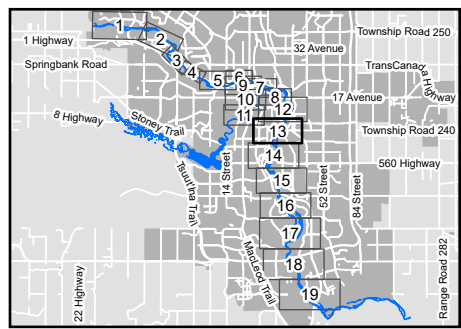
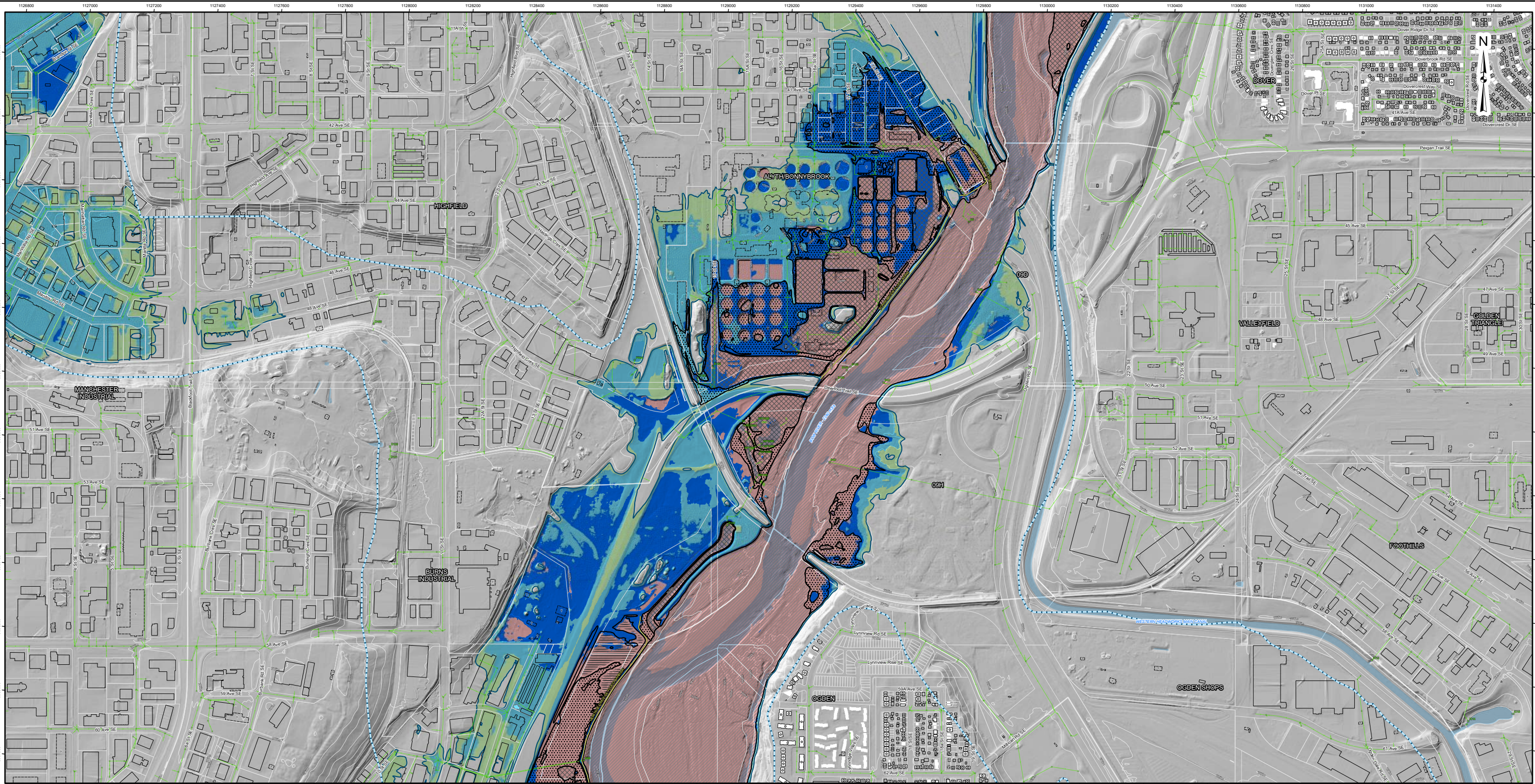
SCALE 1:12,000

DATE 8/18/2026

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
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- Flood Fringe
- High Hazard Flood Fringe
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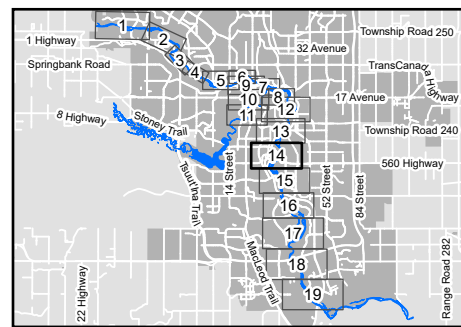
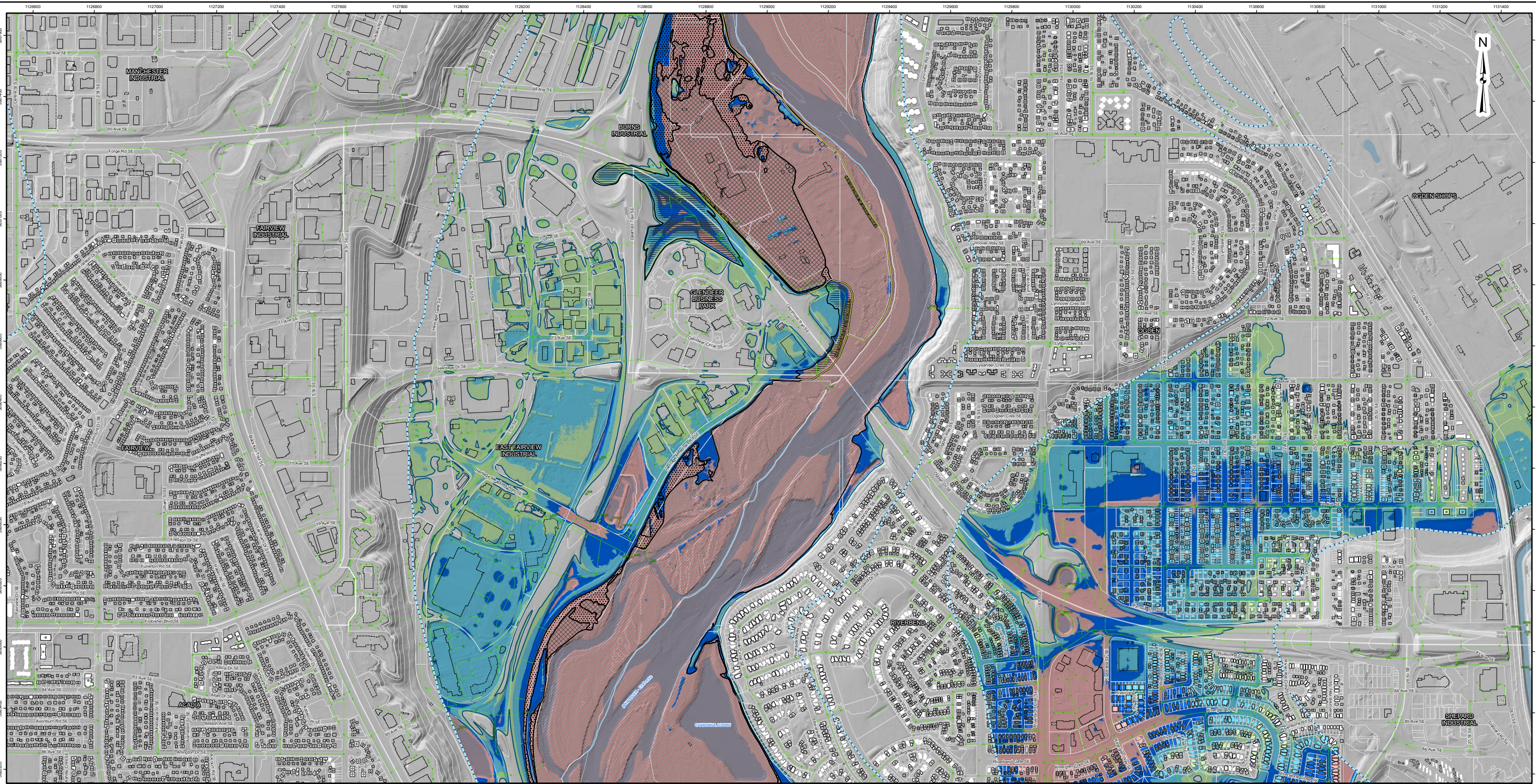
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FIGURE 3.8
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(P90) - 1 IN 100 YEAR FLOOD
13 - BONNYBROOK

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:12,000
DATE 8/18/2026
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
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Flood Hazard Area (100-Year)

- Floodway
- Flood Fringe
- High Hazard Flood Fringe
- Protected Flood Fringe

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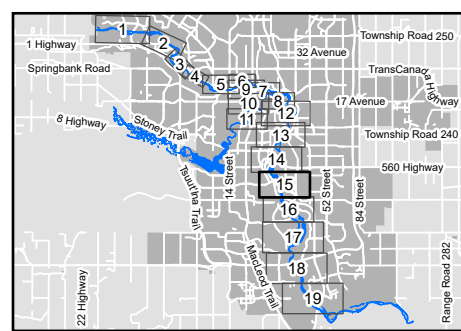
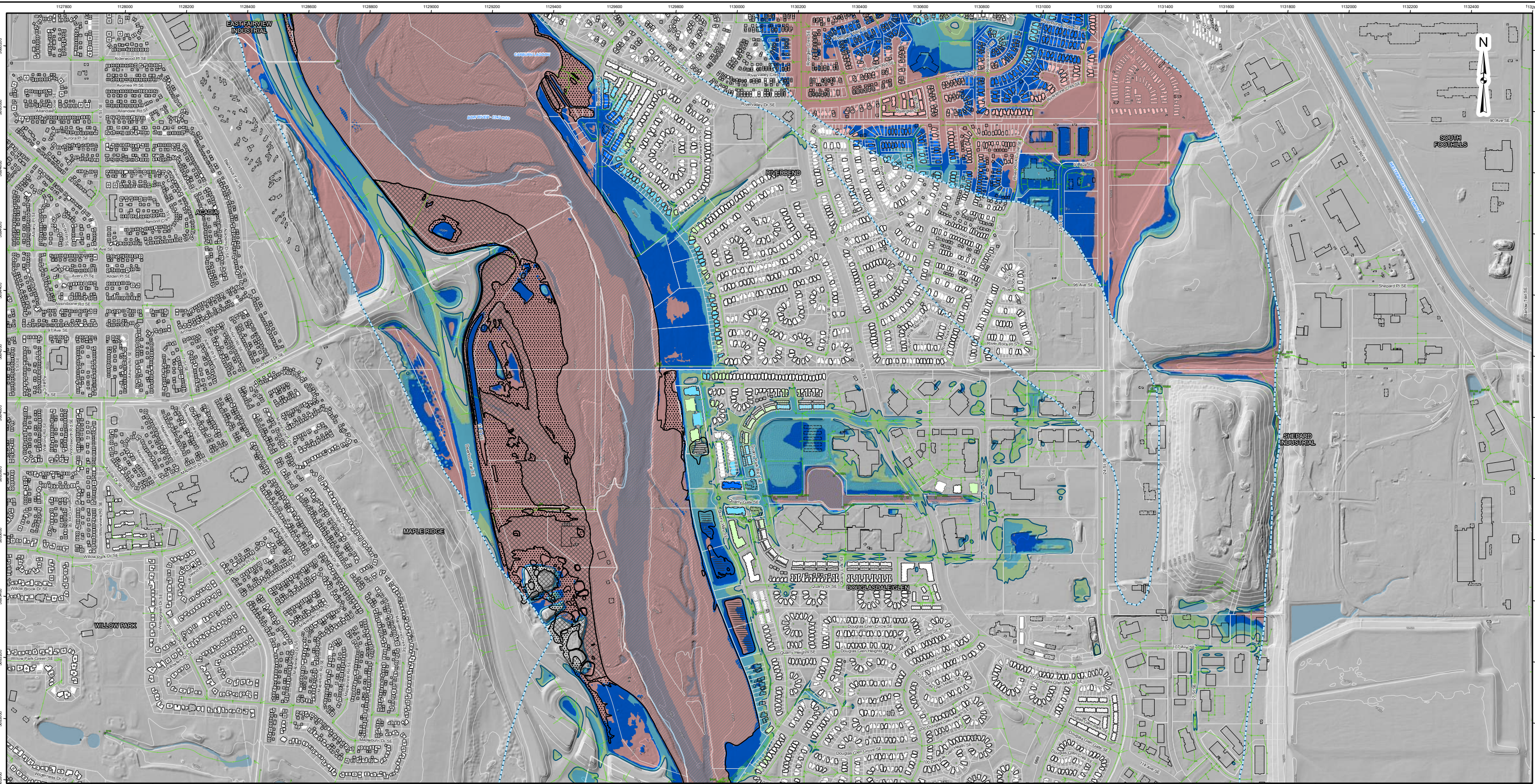
FIGURE 3.8
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(P90) - 1 IN 100 YEAR FLOOD
14 - DEERFOOT MEADOWS

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114

SCALE 1:12,500 DATE 8/18/2026 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
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- Manhole
- Outfall
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- 3m Depth Threshold
- Flood Control Structure
- Sunnyside Seepage Collection
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Estimated Depth to Groundwater

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Flood Hazard Area (100-Year)

- Floodway
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FIGURE 3.8

GROUNDWATER DEPTH & BUILDING RISK FACTORS (P90) - 1 IN 100 YEAR FLOOD 15 - RIVERBEND / QUARRY PARK

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

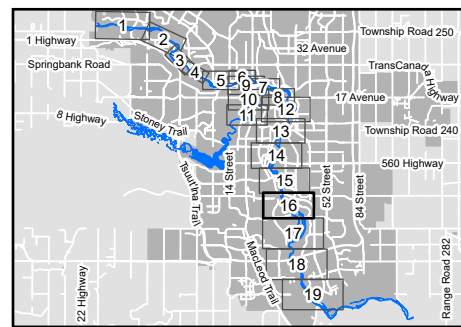
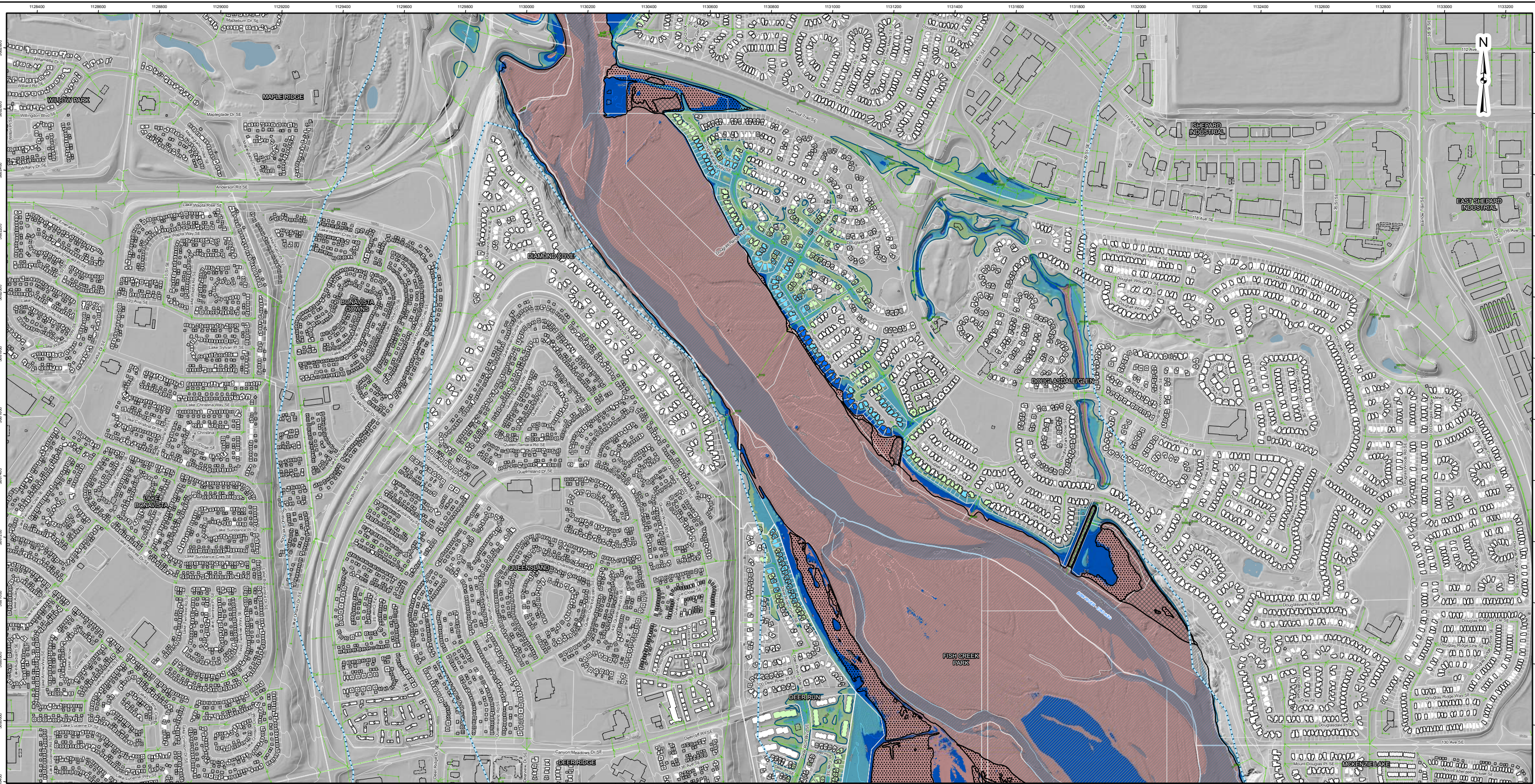
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Meters

SCALE 1:12,500

DATE 8/18/2026

AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
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FIGURE 3.8
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(P90) - 1 IN 100 YEAR FLOOD
16 - DOUGLASDALE

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

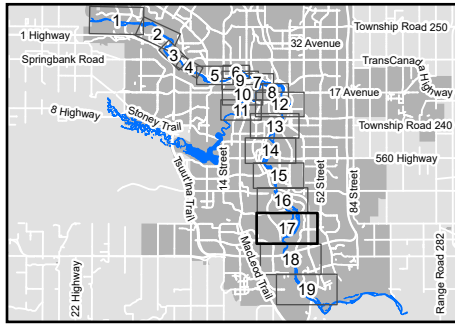
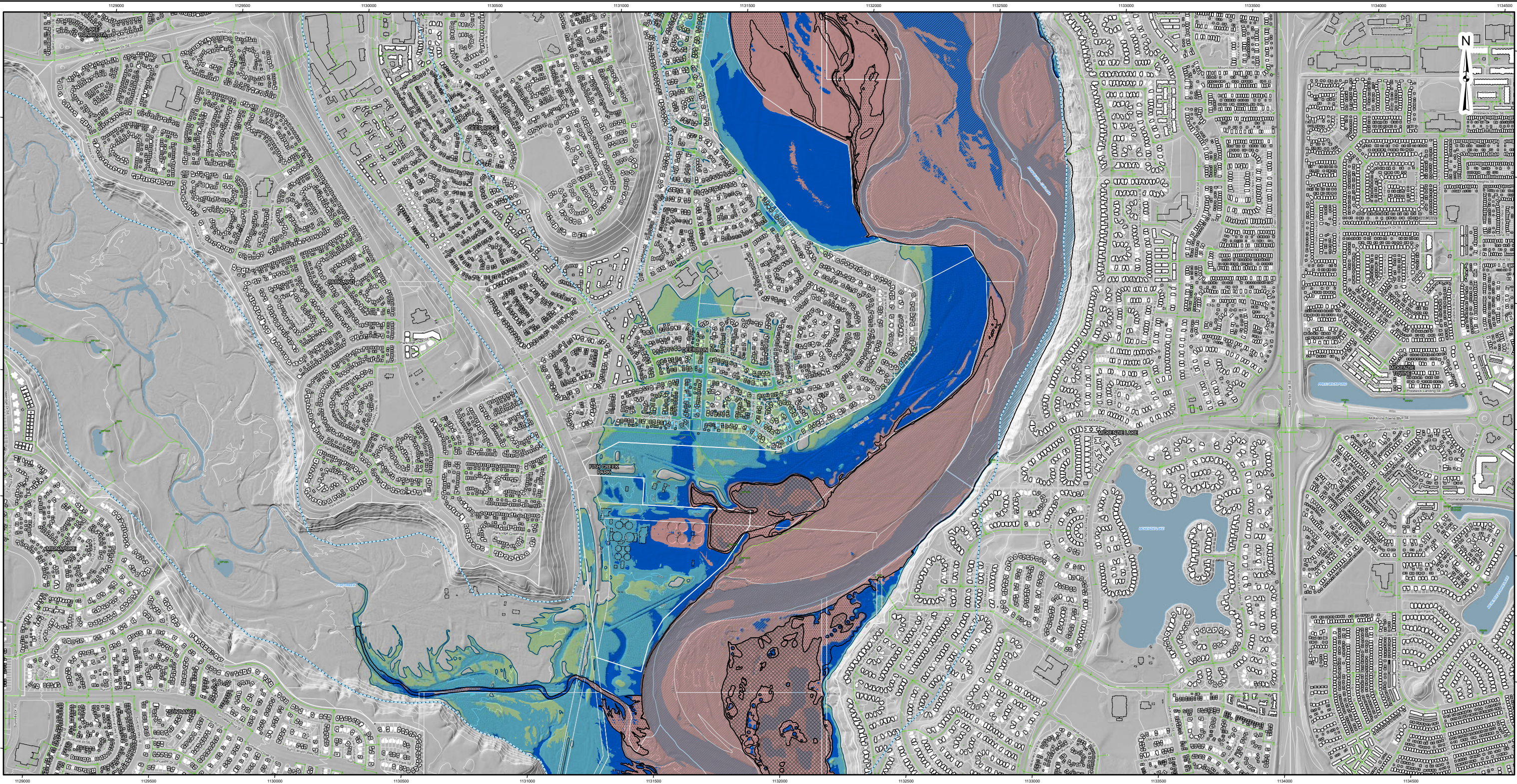
0 75 150
Meters

SCALE 1:12,500

DATE 8/18/2026

AUTHOR TDaSilva





LEGEND

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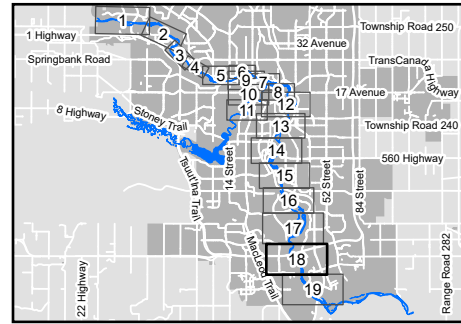
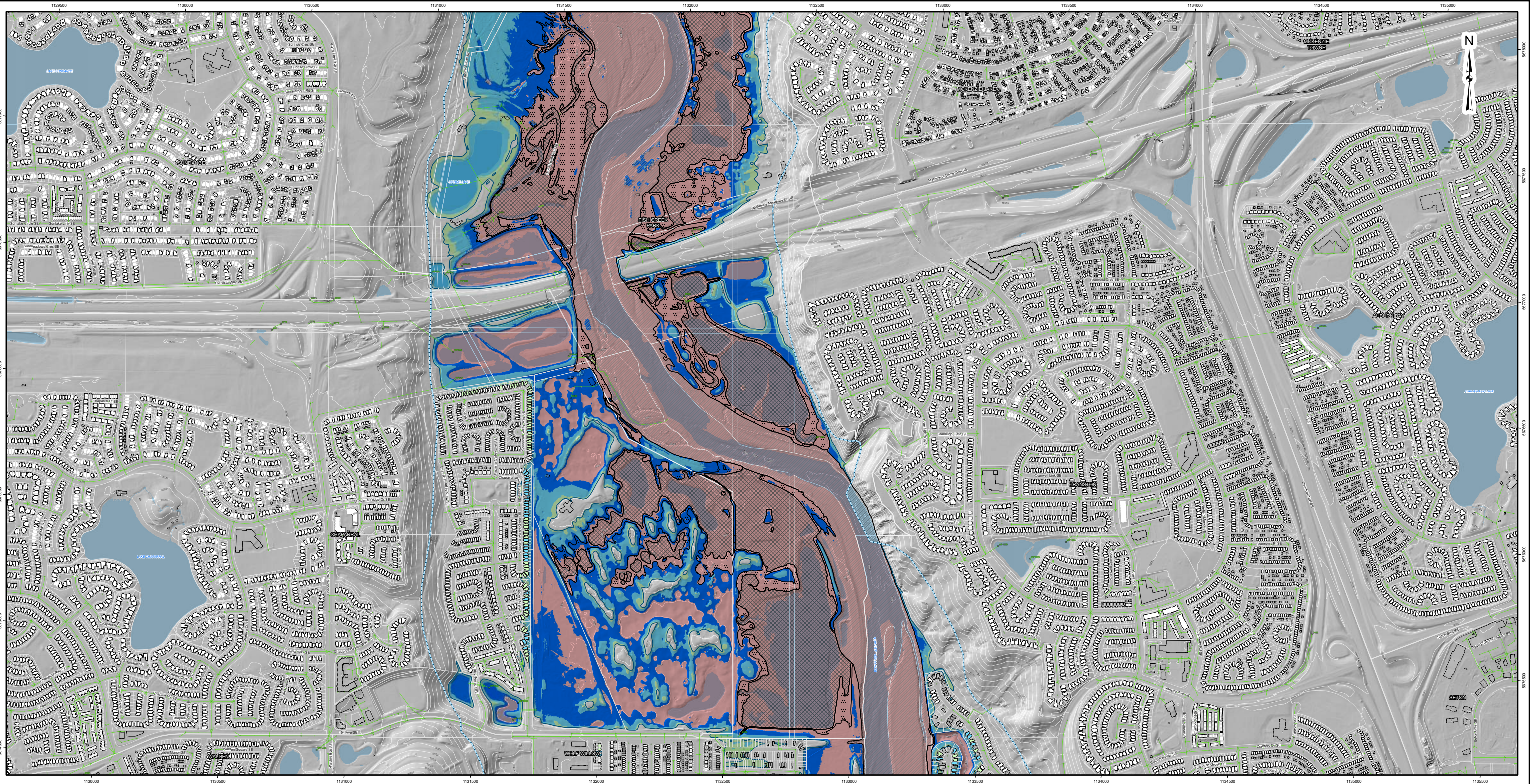
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FIGURE 3.8
GROUNDWATER DEPTH & BUILDING RISK FACTORS
(P90) - 1 IN 100 YEAR FLOOD
17 - FISH CREEK

PROJECT
CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION
NAD 1983 CSRS 3TM 114
SCALE 1:15,000
DATE 8/18/2026
AUTHOR TDaSilva





LEGEND

- Building Footprint
- Pre-1990 Building Construction
- Below Grade Space
- Building Information Missing
- Non-Residential Building / Building Outside Scope
- Parcel
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Flood Hazard Area (100-Year)

- Floodway
- Flood Fringe
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FIGURE 3.8

GROUNDWATER DEPTH & BUILDING RISK FACTORS (P90) - 1 IN 100 YEAR FLOOD 18 - SOUTH STONEY TRAIL

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

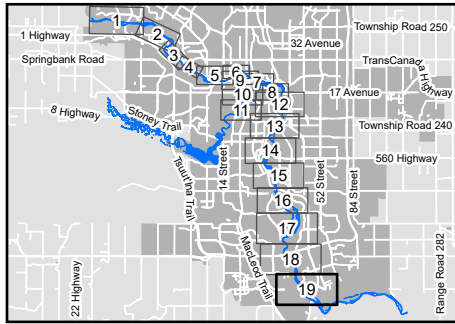
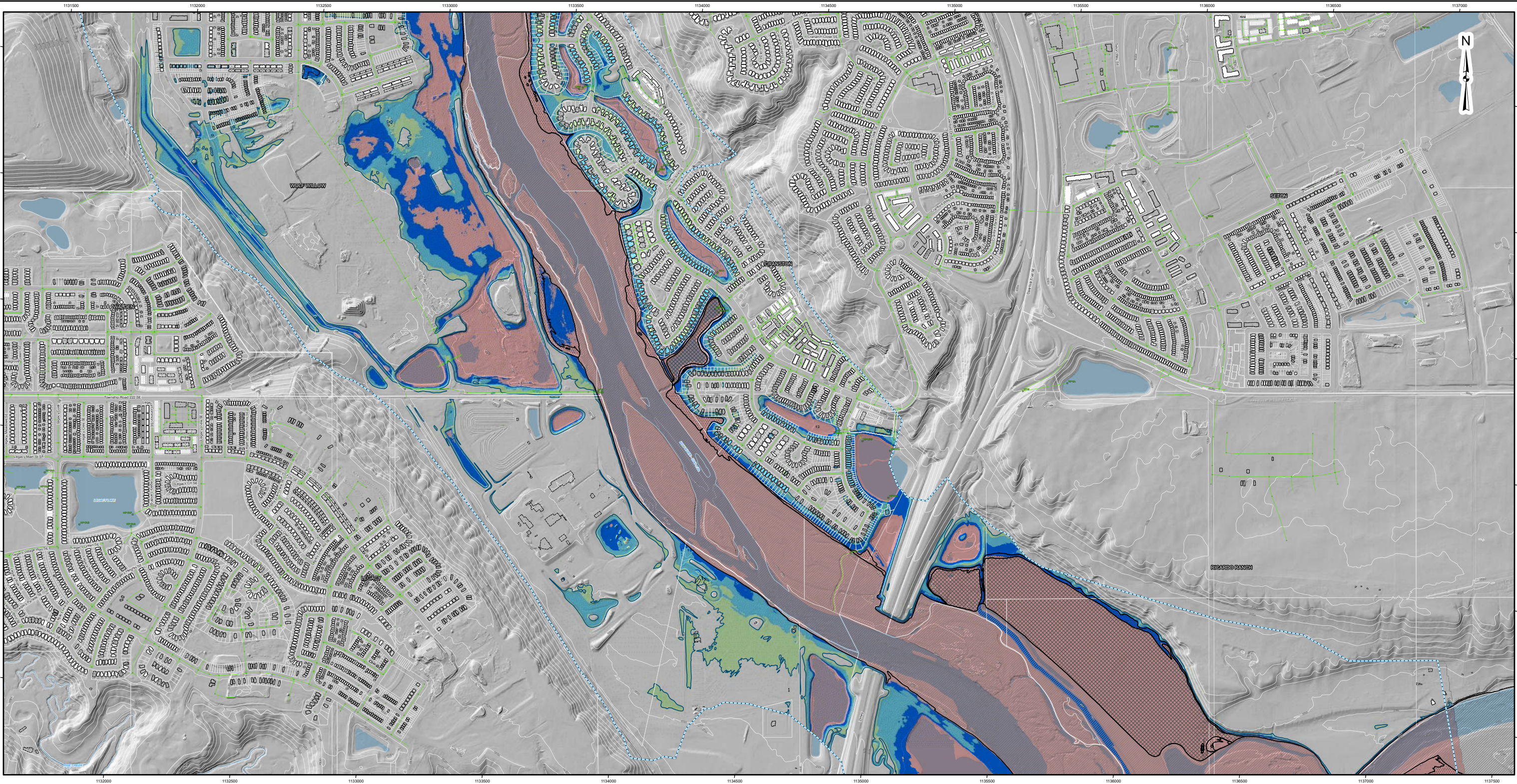
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Meters

SCALE 1:15,000

DATE 8/18/2026

AUTHOR TDaSilva





LEGEND

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- Pre-1990 Building Construction
- Below Grade Space
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FIGURE 3.8

GROUNDWATER DEPTH & BUILDING RISK FACTORS (P90) - 1 IN 100 YEAR FLOOD 19 - PINE CREEK / CRANSTON

PROJECT

CALGARY RIVER VALLEYS GROUNDWATER STUDY

PROJECTION

NAD 1983 CSRS 3TM 114

0 90 180
Meters

SCALE 1:15,000

DATE 8/18/2026

AUTHOR TDaSilva

