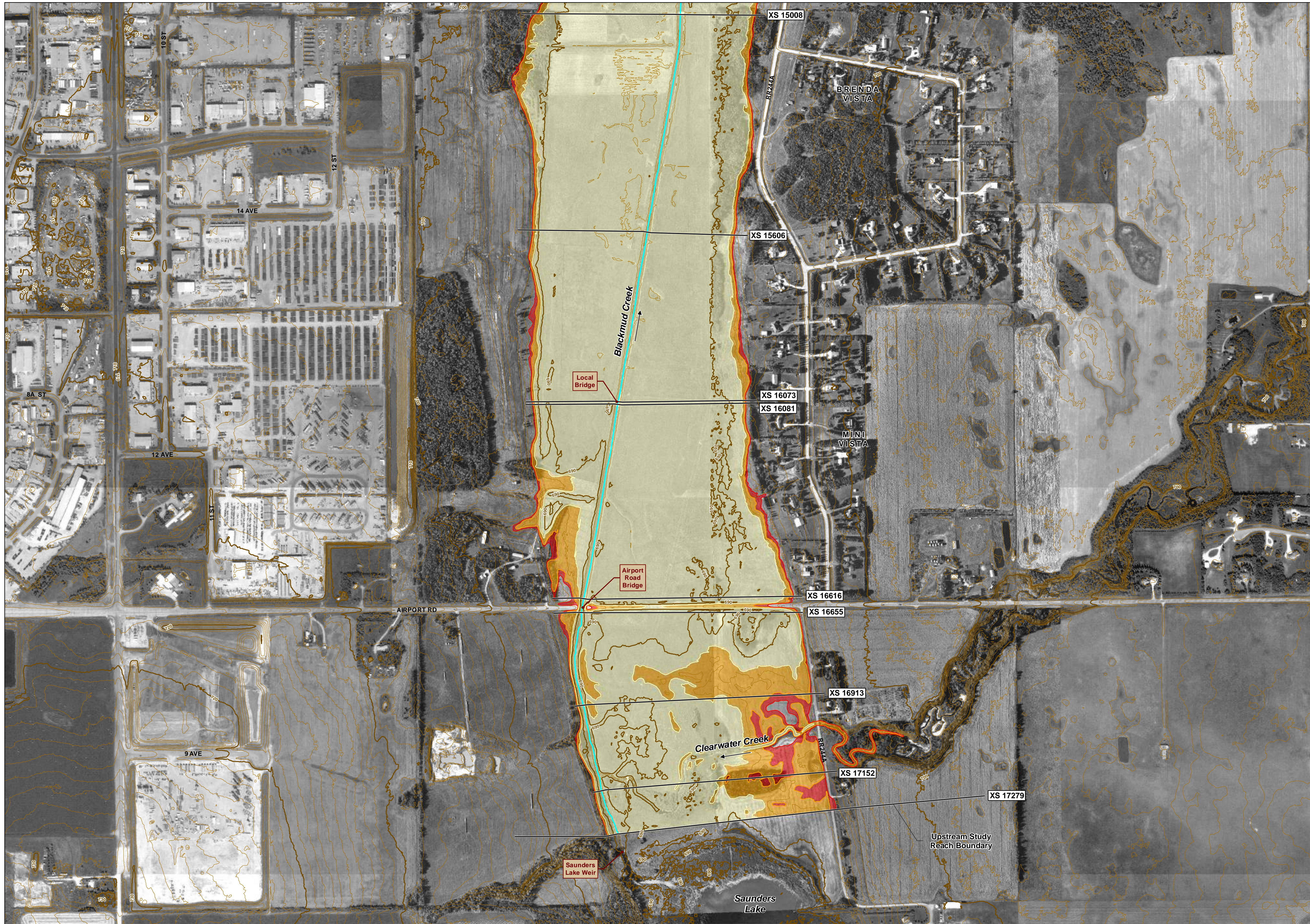


**APPENDIX C**  
**FLOOD FREQUENCY MAPS**





**NISKU FLOOD HAZARD STUDY**

**FLOOD FREQUENCY MAP**

**MAPSHEET 1 OF 5**

Job: 100132      Date: FEBRUARY 2014

SCALE - 1:5,000

0    100    200    300    400    M

N

Coordinate System: 3TM 114', NAD 1983  
Units: METRES

10-Year Flood Extent  
 50-Year Flood Extent  
 100-Year Flood Extent  
 Creek Centreline  
 Cross Section  
XS 8991 Cross Section Number  
 Contour (10 m interval)  
 Contour (1 m interval)

**Notes to Users:**

- Flood levels are presented for flows with return periods of 10, 50 and 100 years.
- Where one or more of the flood limits are not shown, it can be assumed to be coincident with the next higher flood limit.
- The flood inundation maps are based on water levels simulated using a calibrated hydrodynamic model, under existing topographic, bathymetric and development conditions.
- Within the flood inundation limits delineated on this map, there may be isolated pockets of high ground. To determine whether or not a particular site is subject to flooding, reference should be made to the computed flood levels in conjunction with site specific surveys where detailed definition is required.
- Non-riverine and local sources of water have not been considered, and structures such as roads, railways or barriers such as levees can restrict water flow and affect local flood levels. Channel obstruction, local stormwater inflow, groundwater seepage or other land drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood hazard area may be subject to flooding from tributary streams not indicated on the maps.

**Definitions:**

**Flood Inundation Mapping** - Delineates flood inundation areas, showing the extent of one or more flood scenarios under existing, non-encroachment conditions. Depending on the particular flood scenario, the mapping may have associated inundation flood levels or be divided into multiple zones. Flood inundation mapping is typically used for near real-time emergency response planning and operations.

**Flood Inundation Area** - The area inundated during a particular flood scenario under existing, non-encroachment conditions. The flood inundation area may be divided into multiple zones, including areas inundated due to dedicated flood protection structure failure and isolated areas of inundation due to groundwater seepage.

**Flood Scenario** - Flow conditions that describe a particular flood event. Flood scenarios typically represent a range of flows, based either on flood frequency analysis or set flow intervals. Typical flood frequency flows in Alberta include the 2-year, 10-year, 20-year, 50-year, 100-year, 200-year, 500-year and 1000-year flood events.

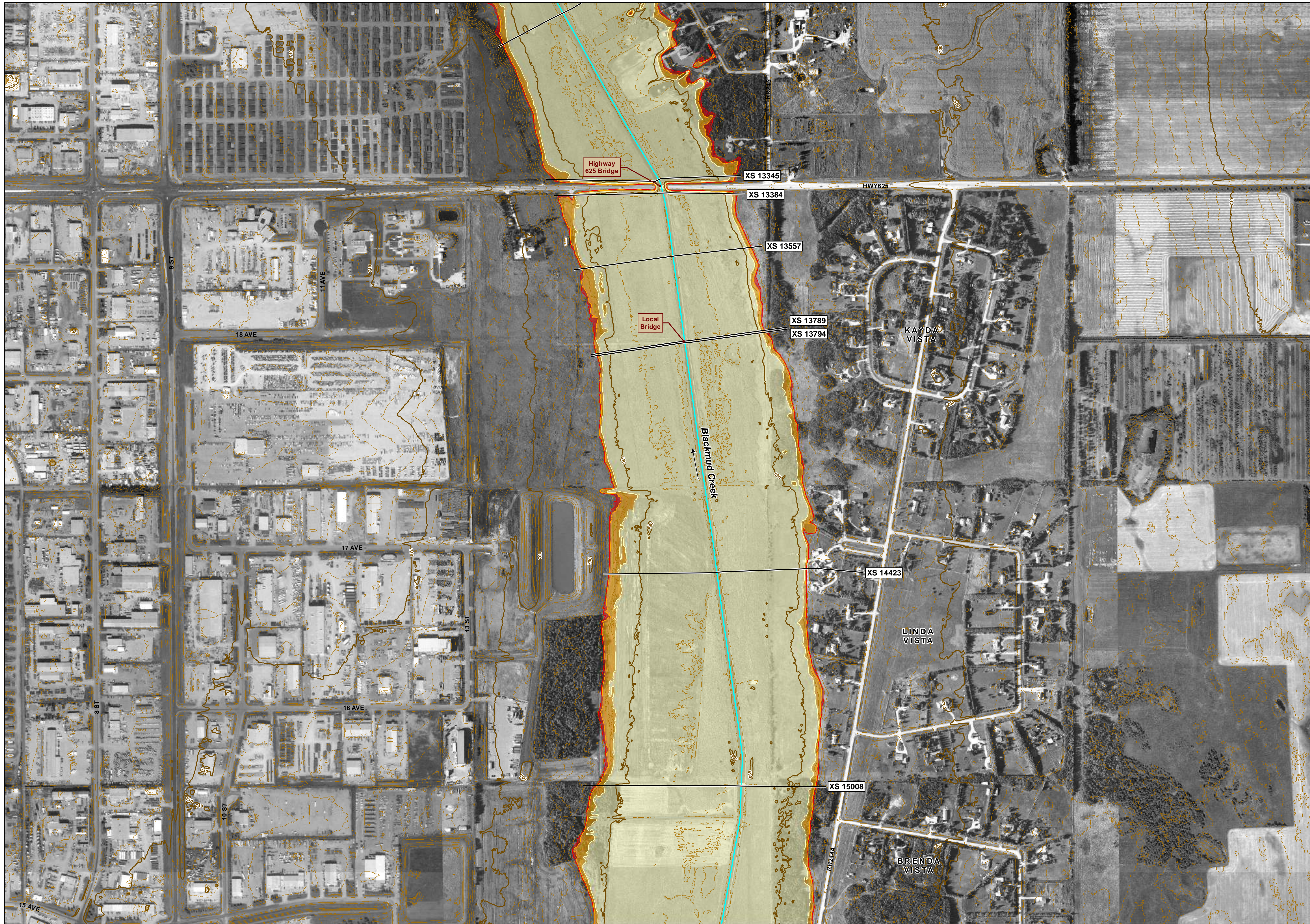
**Inundation Flood Levels** - Flood inundation area water elevations computed to result from a particular flood scenario under existing, non-encroachment conditions. Inundation flood levels may change as a result of development or obstruction of flows within the flood inundation area.

**Data Sources and References:**

- High resolution orthophoto and contours provided by Orthoshop Geomatics Ltd., August 2013. Projection / Datum: 3TM 114' / NAD 83.
- Low resolution orthophoto from DigitalGlobe via Esri World Imagery. Date of image: August 31, 2012.
- Street annotation supplied by Leduc County.
- Reference map from Esri and National Geographic.

Nisku, Watermain/Project/Projects/100132 - Nisku Flood Hazard Study/GIS/100132\_Map1 - Flood/Freq Map



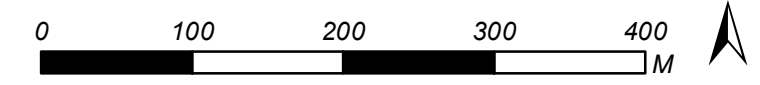


NISKU FLOOD HAZARD STUDY

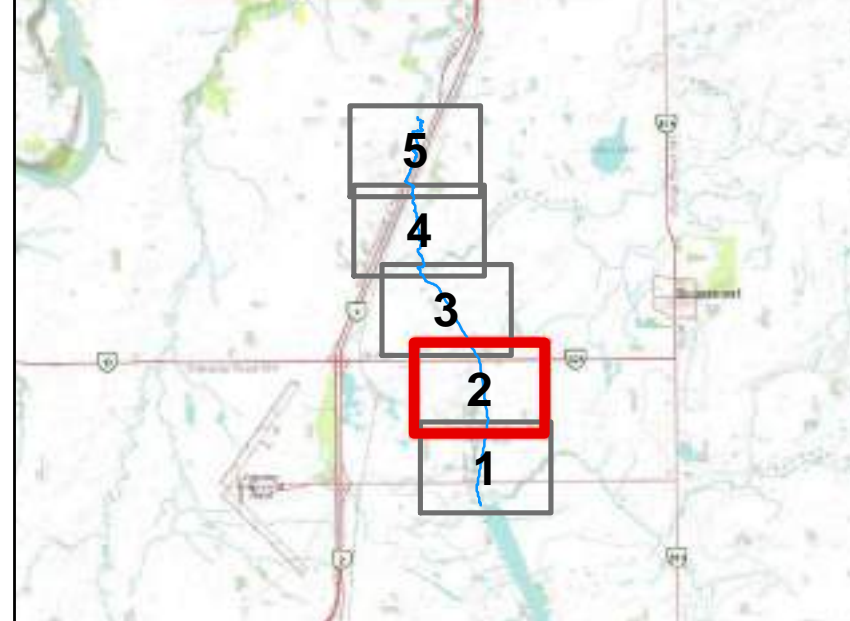
FLOOD FREQUENCY MAP  
MAPSHEET 2 OF 5

Job: 100132 Date: FEBRUARY 2014

SCALE - 1:5,000



Coordinate System: 3TM 114', NAD 1983  
Units: METRES



- 10-Year Flood Extent
- 50-Year Flood Extent
- 100-Year Flood Extent
- Creek Centreline
- Cross Section
- XS 8991 Cross Section Number
- Contour (10 m interval)
- Contour (1 m interval)

Notes to Users:

1. Flood levels are presented for flows with return periods of 10, 50 and 100 years.
2. Where one or more of the flood limits are not shown, it can be assumed to be coincident with the next higher flood limit.
3. The flood inundation maps are based on water levels simulated using a calibrated hydrodynamic model, under existing topographic, bathymetric and development conditions.
4. Within the flood inundation limits delineated on this map, there may be isolated pockets of high ground. To determine whether or not a particular site is subject to flooding, reference should be made to the computed flood levels in conjunction with site specific surveys where detailed definition is required.
5. Non-riverine and local sources of water have not been considered, and structures such as roads, railways or barriers such as levees can restrict water flow and affect local flood levels. Channel obstruction, local stormwater inflow, groundwater seepage or other land drainage can cause flood levels to exceed those indicated on the map. Lands adjacent to a flood hazard area may be subject to flooding from tributary streams not indicated on the maps.

Definitions:

**Flood Inundation Mapping** - Delineates flood inundation areas, showing the extent of one or more flood scenarios under existing, non-encroachment conditions. Depending on the particular flood scenario, the mapping may have associated inundation flood levels or be divided into multiple zones. Flood inundation mapping is typically used for near real-time emergency response planning and operations.

**Flood Inundation Area** - The area inundated during a particular flood scenario under existing, non-encroachment conditions. The flood inundation area may be divided into multiple zones, including areas inundated due to dedicated flood protection structure failure and isolated areas of inundation due to groundwater seepage.

**Flood Scenario** - Flow conditions that describe a particular flood event. Flood scenarios typically represent a range of flows, based either on flood frequency analysis or set flow intervals. Typical flood frequency flows in Alberta include the 2-year, 10-year, 20-year, 50-year, 100-year, 200-year, 500-year and 1000-year flood events.

**Inundation Flood Levels** - Flood inundation area water elevations computed to result from a particular flood scenario under existing, non-encroachment conditions. Inundation flood levels may change as a result of development or obstruction of flows within the flood inundation area.

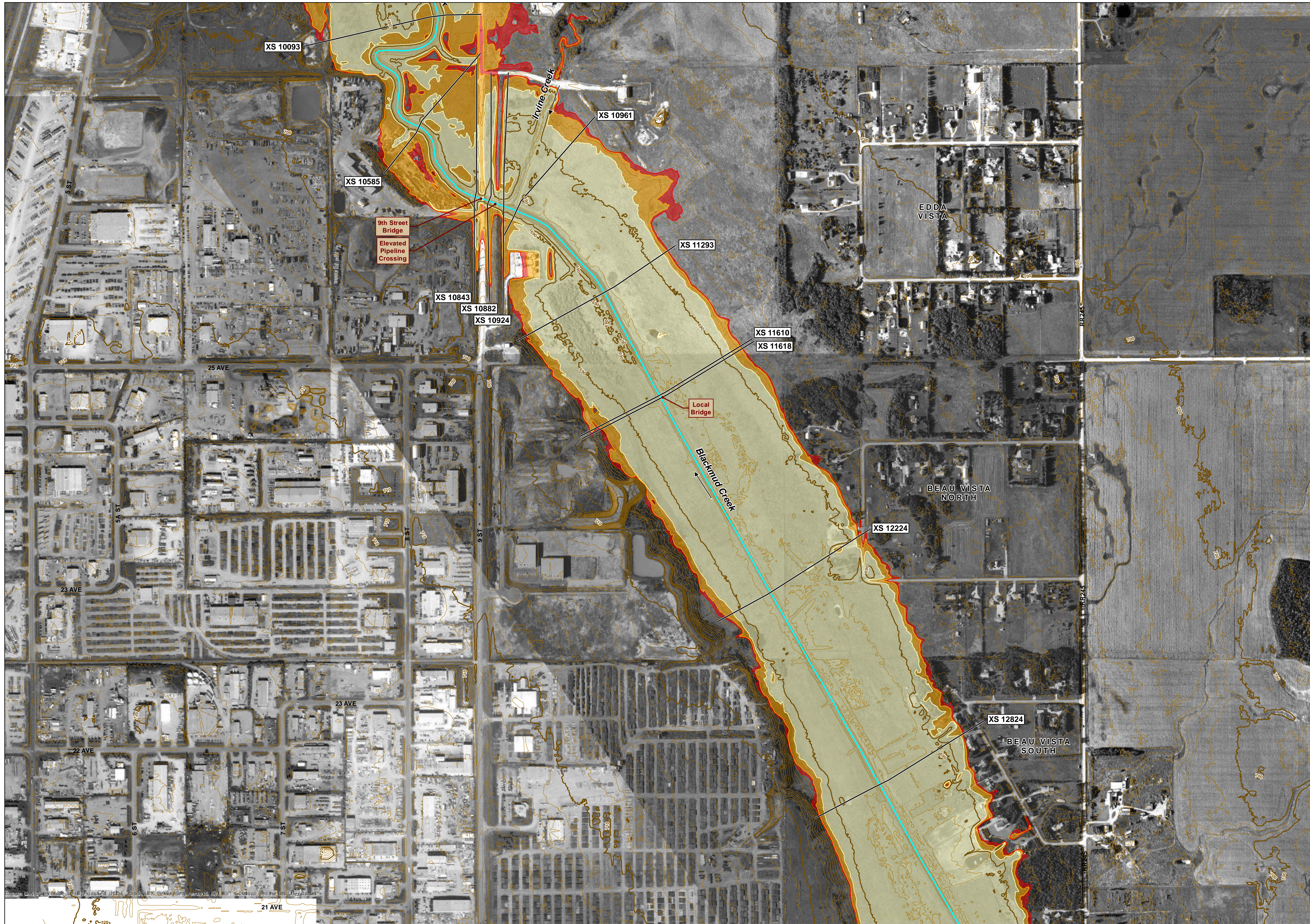
Data Sources and References:

1. High resolution orthophoto and contours provided by Orthoshop Geomatics Ltd., August 2013. Projection / Datum: 3TM 114' / NAD 83.
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3. Street annotation supplied by Leduc County.
4. Reference map from Esri and National Geographic.



Nisku, Viewshed/Project/100132 Nisku Flood Hazard Study/GIS/011/02\_04\_14\_1401/Flood/Freq map



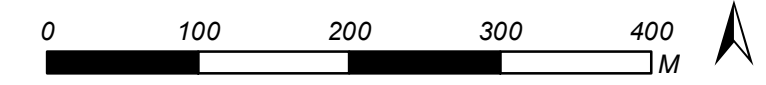


NISKU FLOOD HAZARD STUDY

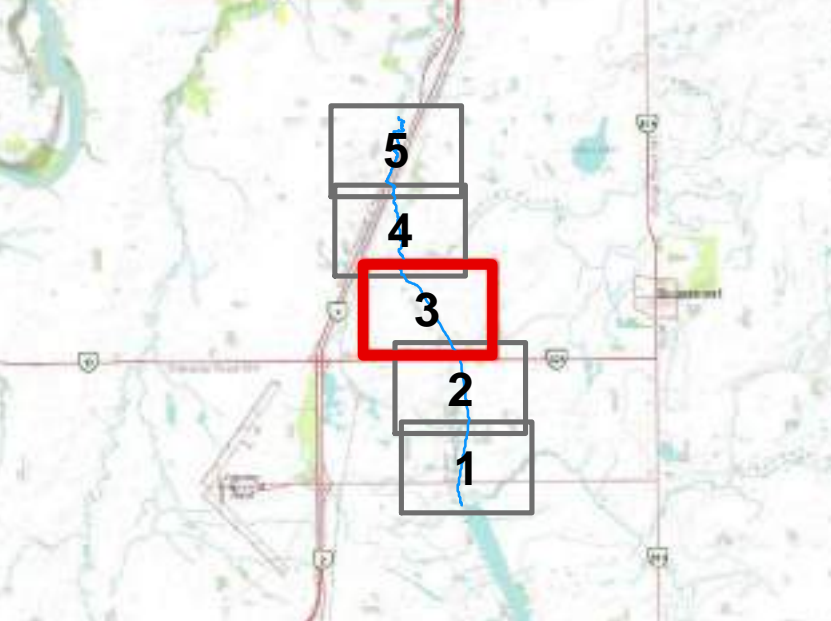
FLOOD FREQUENCY MAP  
MAPSHEET 3 OF 5

Job: 100132      Date: FEBRUARY 2014

SCALE - 1:5,000



Coordinate System: 3TM 114', NAD 1983  
Units: METRES



- 10-Year Flood Extent
- 50-Year Flood Extent
- 100-Year Flood Extent
- Creek Centreline
- Cross Section
- XS 8991 Cross Section Number
- Contour (10 m interval)
- Contour (1 m interval)

Notes to Users:

1. Flood levels are presented for flows with return periods of 10, 50 and 100 years.
2. Where one or more of the flood limits are not shown, it can be assumed to be coincident with the next higher flood limit.
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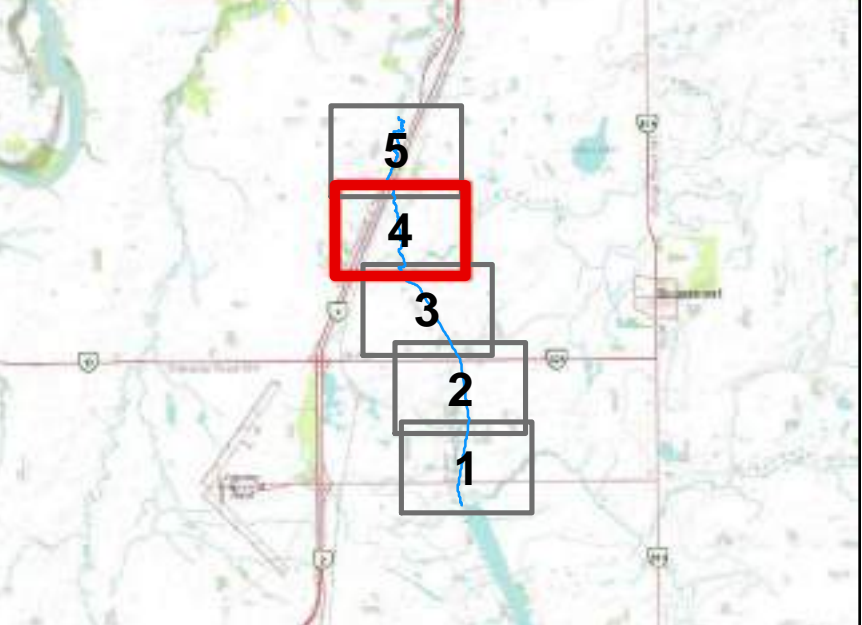
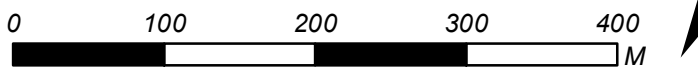
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- 100-Year Flood Extent
- Creek Centreline
- Cross Section
- Cross Section Number
- Contour (10 m interval)
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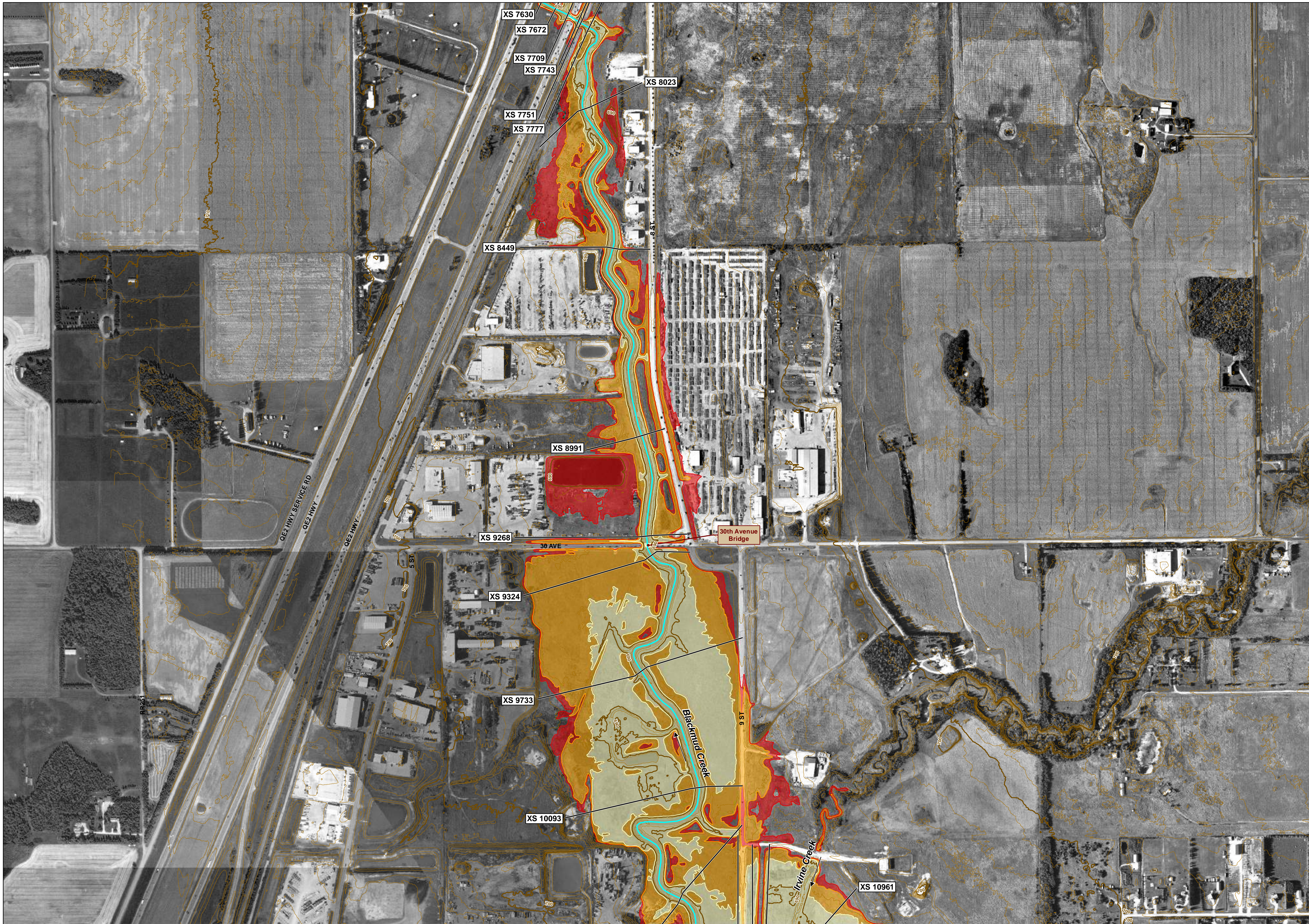
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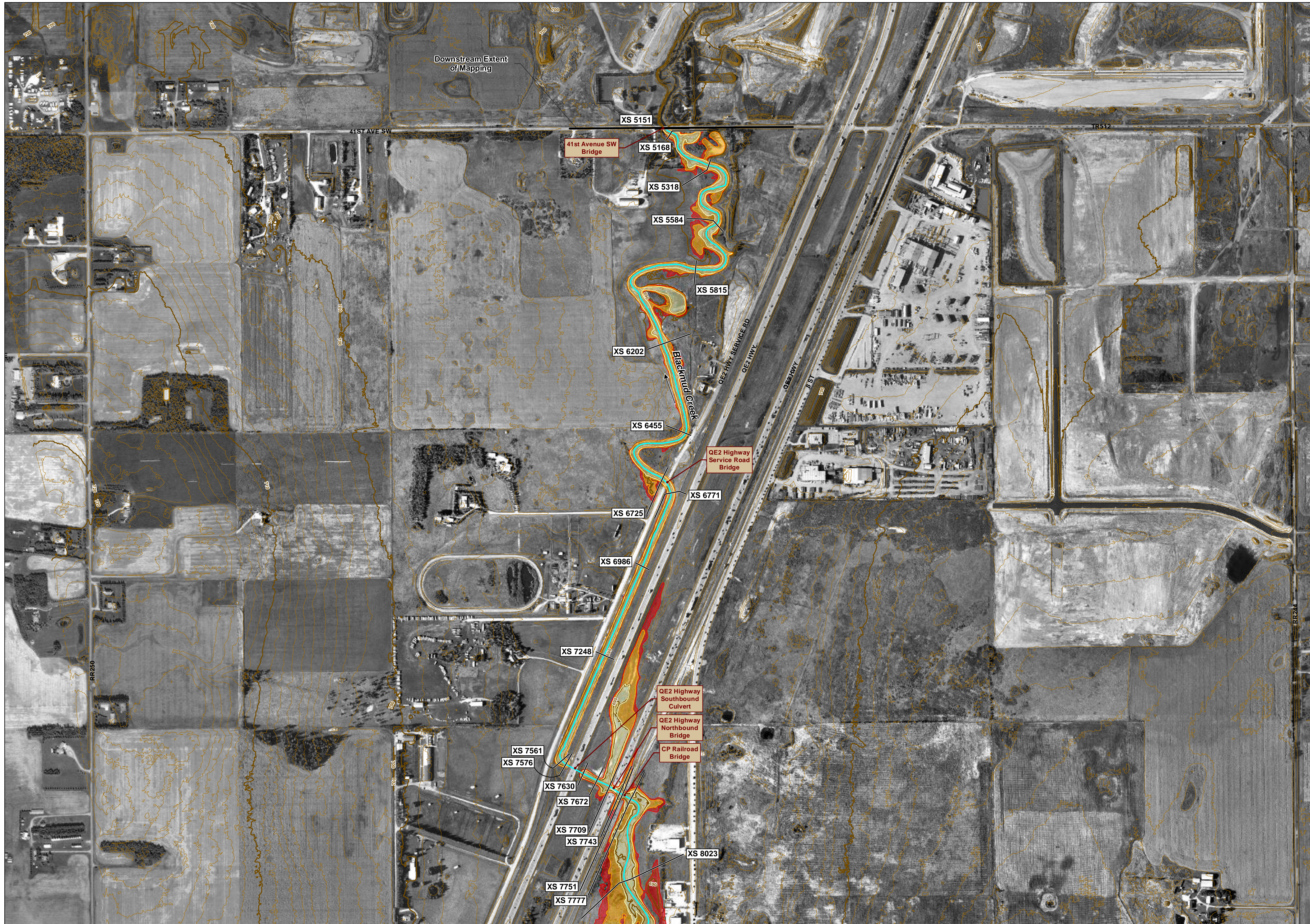
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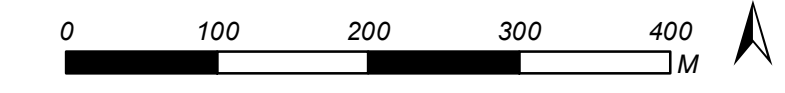


NISKU FLOOD HAZARD STUDY

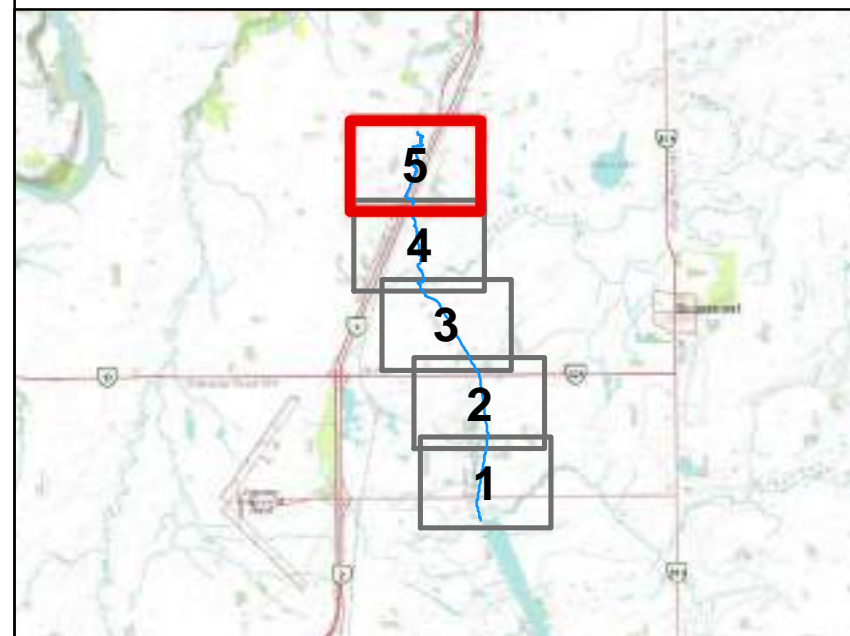
FLOOD FREQUENCY MAP  
MAPSHEET 5 OF 5

Job: 100132 Date: FEBRUARY 2014

SCALE - 1:5,000



Coordinate System: 3TM 114', NAD 1983  
Units: METRES



- 10-Year Flood Extent
- 50-Year Flood Extent
- 100-Year Flood Extent
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Nisku, Viewshed/Map/Project/100132\_Nisku\_Flood\_Hazard\_Study/051112\_XS\_Map\_Flood\_Freq\_Map