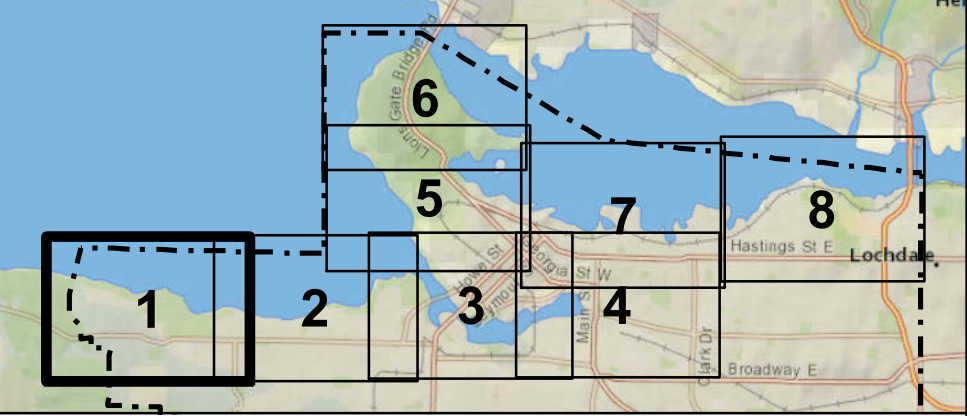
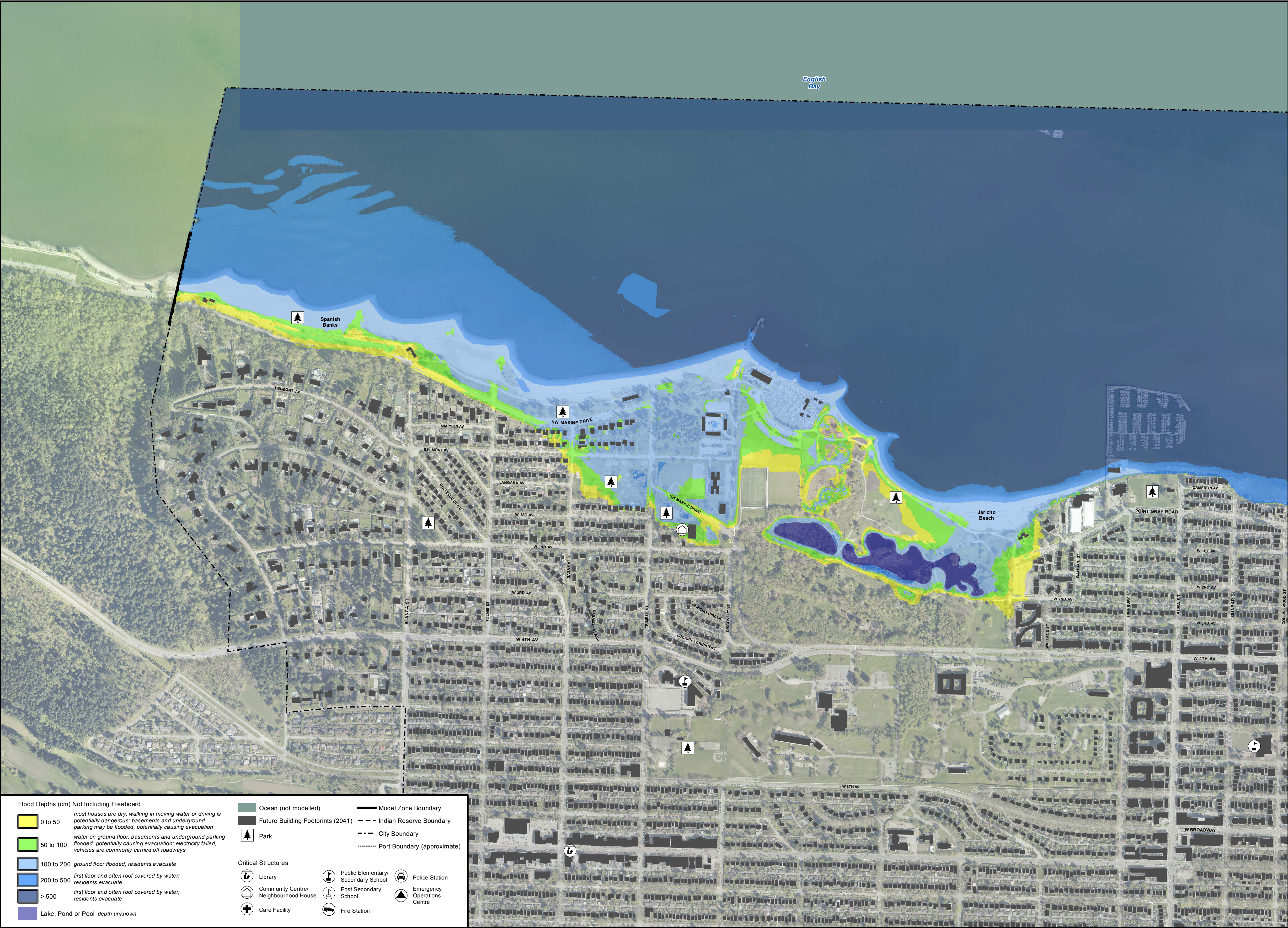


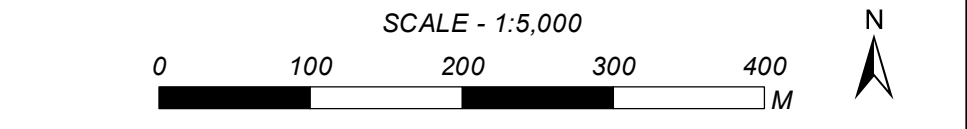


- Notes:**
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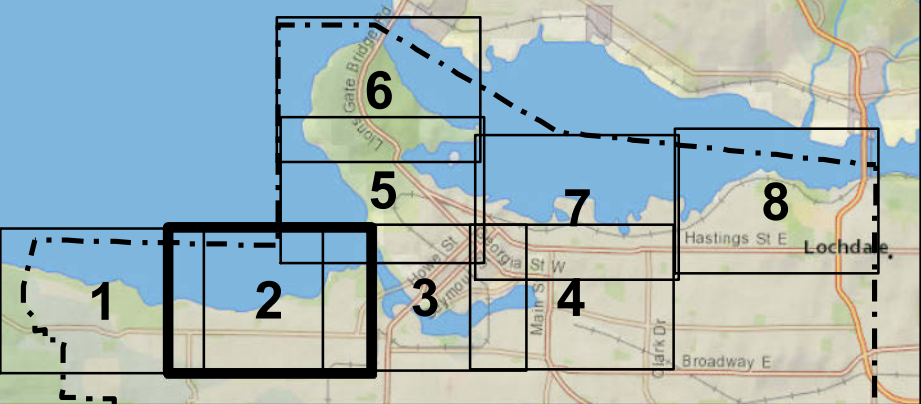
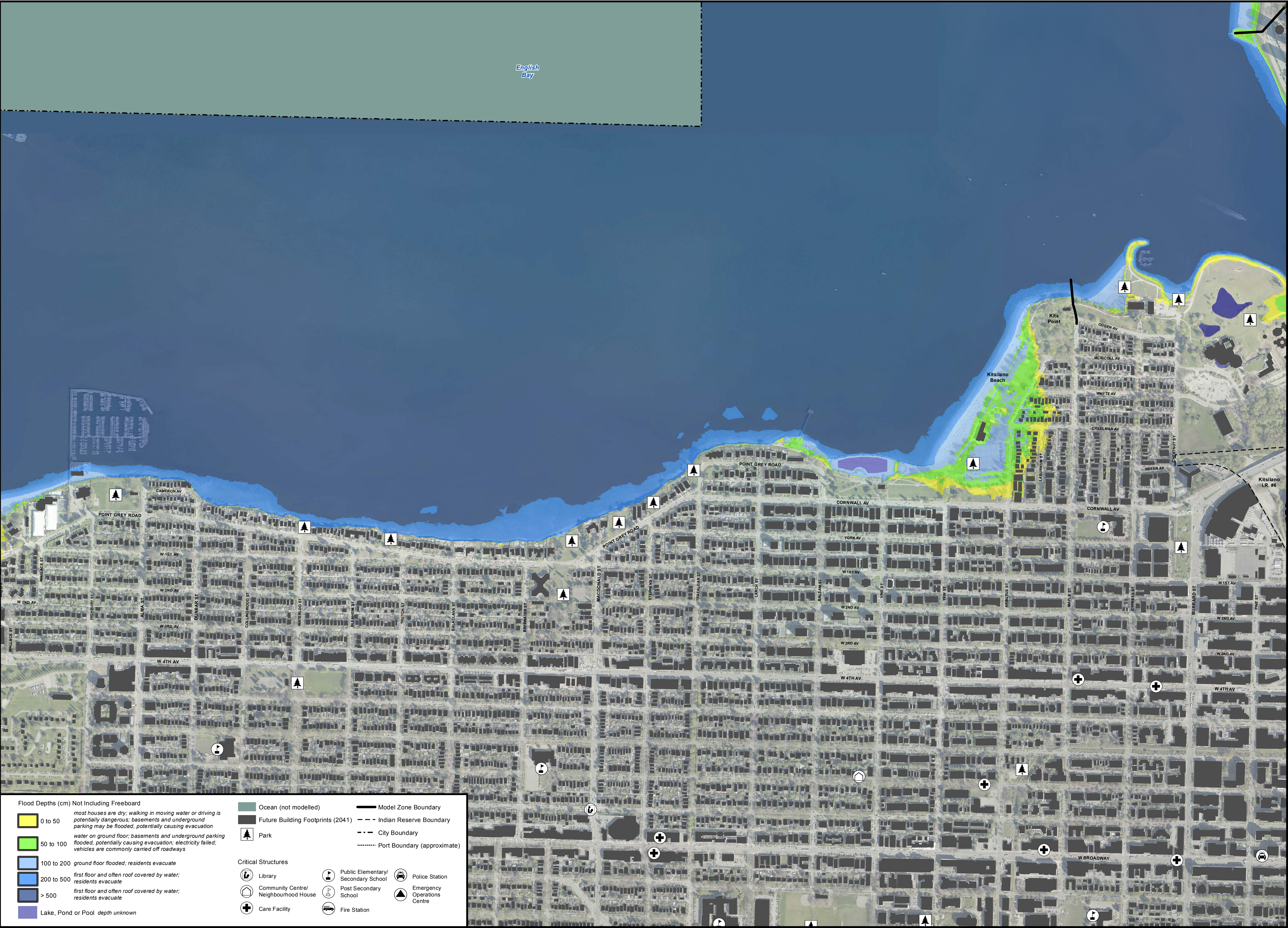
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Coordinate System: NAD 1983 UTM ZONE 10N	Date
Units: METRES	18-JUN-2014

Engineer	GIS	Reviewer	Job Number
VFOC	MSN	MM	300227

COASTAL FLOOD RISK ASSESSMENT
BURRARD INLET FLOOD DEPTHS
NOT INCLUDING FREEBOARD
SCENARIO 3 - YEAR 2100, SLR 1 M
PROBABILITY OF 1/500
MAP 1 OF 8



- Notes:**
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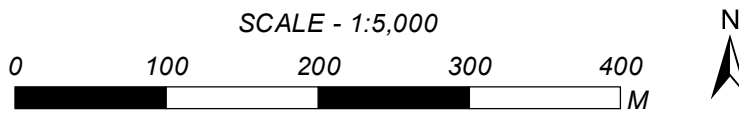
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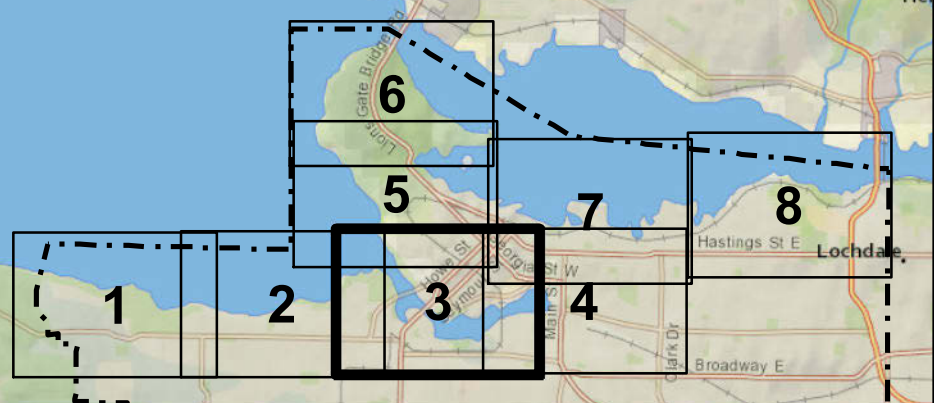
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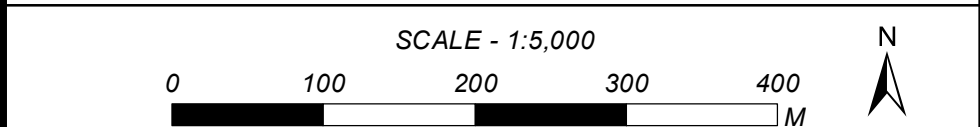


Coordinate System: NAD 1983 UTM ZONE 10N		Date	
Units: METRES		18-JUN-2014	
Engineer	GIS	Reviewer	Job Number
VFOC	MSN	MM	300227

**COASTAL FLOOD RISK ASSESSMENT
BURRARD INLET FLOOD DEPTHS
NOT INCLUDING FREEBOARD
SCENARIO 3 - YEAR 2100, SLR 1 M
PROBABILITY OF 1/500
MAP 2 OF 8**

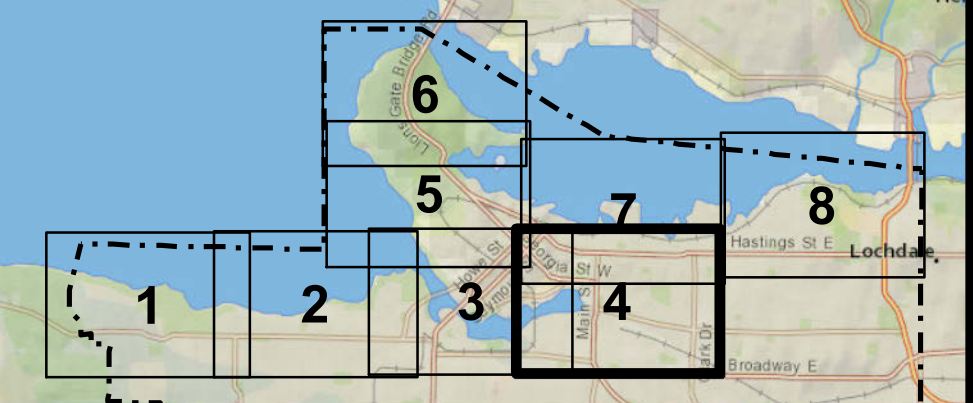
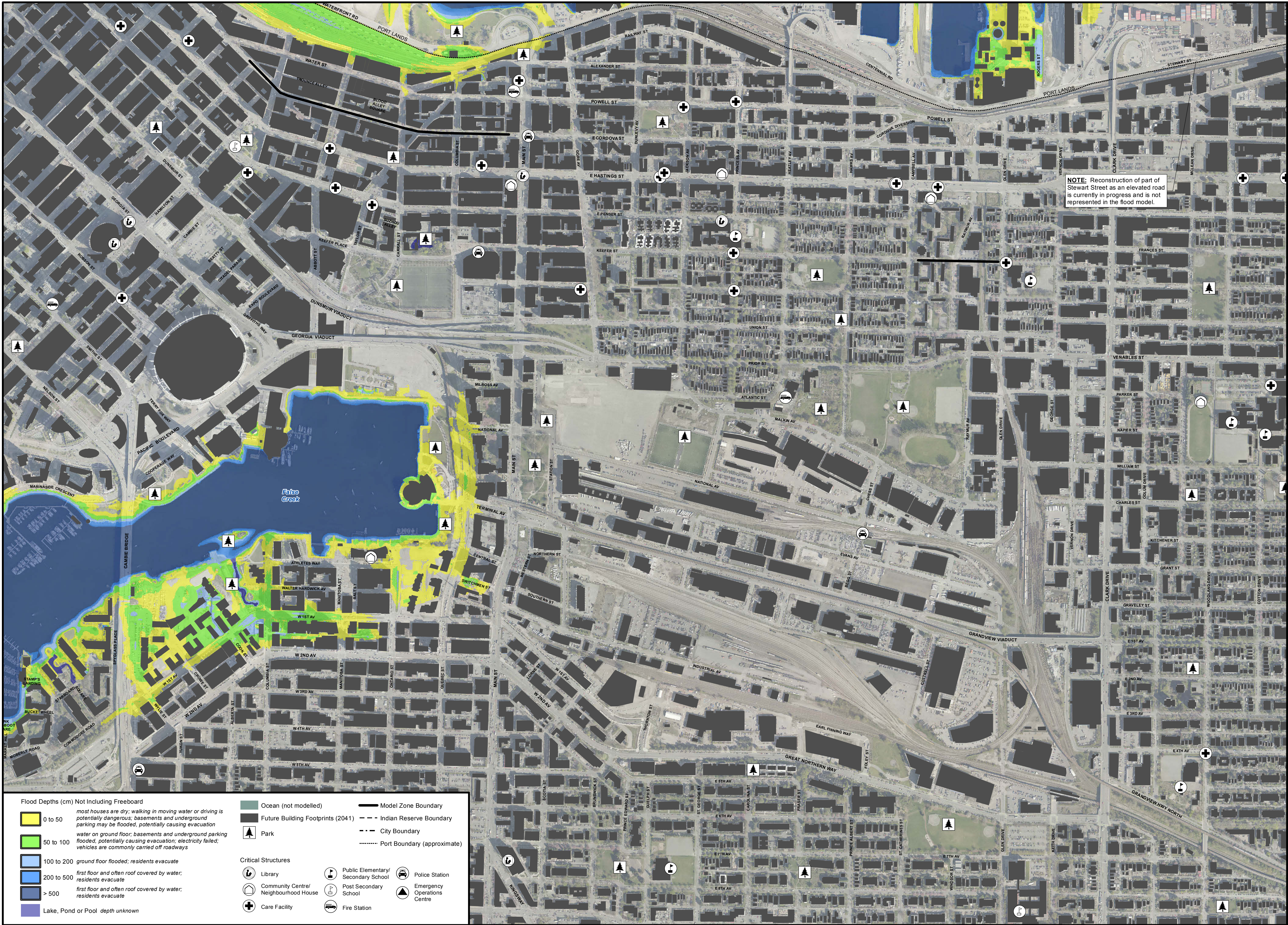


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COASTAL FLOOD RISK ASSESSMENT
BURRARD INLET FLOOD DEPTHS
NOT INCLUDING FREEBOARD
SCENARIO 3 - YEAR 2100, SLR 1 M
PROBABILITY OF 1/500
MAP 3 OF 8



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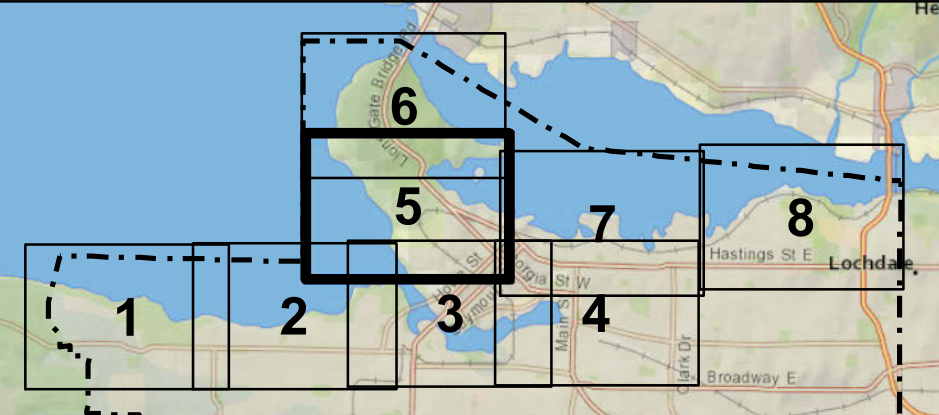
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SCALE - 1:5,000
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Coordinate System: NAD 1983 UTM ZONE 10N Date 18-JUN-2014
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Engineer	GIS	Reviewer	Job Number
VFOC	MSN	MM	300227

COASTAL FLOOD RISK ASSESSMENT
BURRARD INLET FLOOD DEPTHS
NOT INCLUDING FREEBOARD
SCENARIO 3 - YEAR 2100, SLR 1 M
PROBABILITY OF 1/500
MAP 4 OF 8



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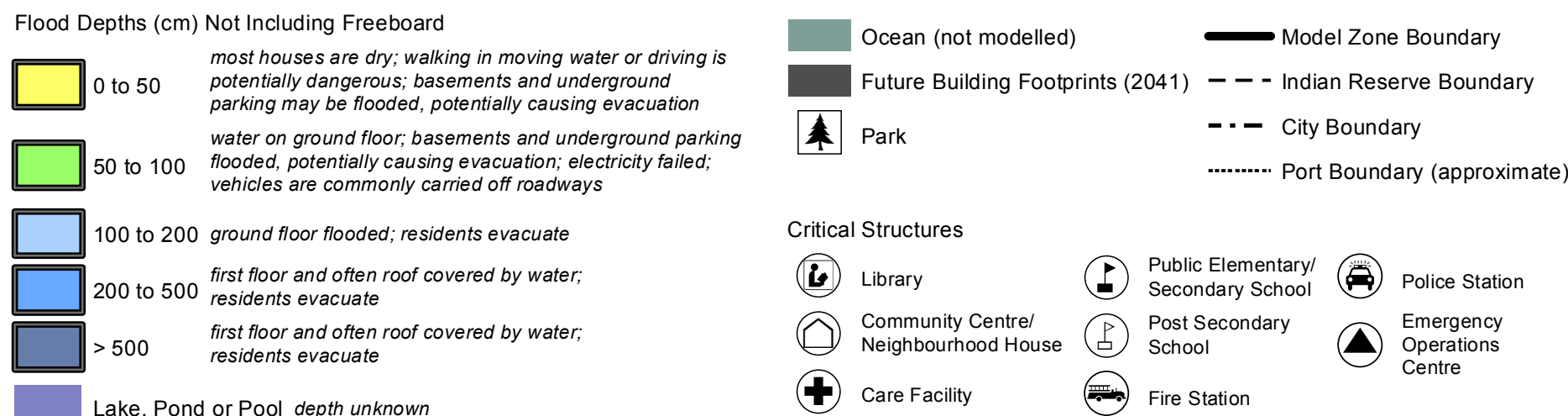
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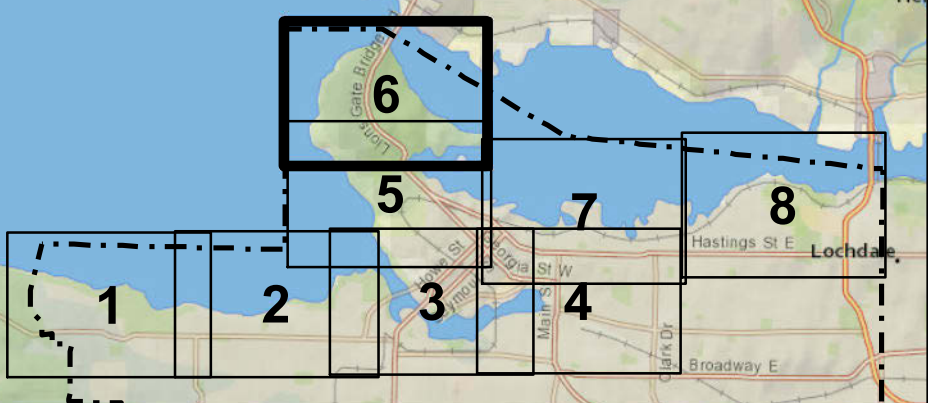


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COASTAL FLOOD RISK ASSESSMENT
BURRARD INLET FLOOD DEPTHS
NOT INCLUDING FREEBOARD
SCENARIO 3 - YEAR 2100, SLR 1 M
PROBABILITY OF 1/500
MAP 5 OF 8





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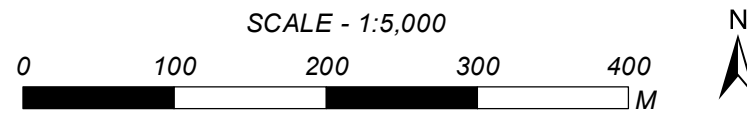
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Coordinate System: NAD 1983 UTM ZONE 10N		Date	
Units: METRES		18-JUN-2014	
Engineer	GIS	Reviewer	Job Number
VFOC	MSN	MM	300227

COASTAL FLOOD RISK ASSESSMENT
BURRARD INLET FLOOD DEPTHS
NOT INCLUDING FREEBOARD
SCENARIO 3 - YEAR 2100, SLR 1 M
PROBABILITY OF 1/500
MAP 6 OF 8



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Notes:

- Flood water levels were developed for five coastal flood scenarios as described in NHC et al. (2014). This map delineates the potential for coastal flooding under Year 2100 conditions assuming a 1.0 m sea level rise (SLR) and a current 500-year return period ocean event. A 500-year return period ocean event means that, on average, the event will occur once in 500 years and that there is a one-in-500 chance that the flood level mapped could be equalled or exceeded in any one year (or that there is about a one-in-10 chance that the flood level mapped could be equalled or exceeded in a period of 50 years).
- The adopted value for SLR is based on guidelines from Ausenco-Sandwell (2011), and discussions and recommendations from the project's Technical Advisory Group.
- The flood levels are based on water surface profiles simulated using a two-dimensional hydrodynamic model developed by NHC (NHC et al. 2014). A generalization algorithm was used to merge closely spaced buildings (<5m apart) that would act as a single flow obstacle. Buildings were removed from the model mesh and building outlines represented by solid boundaries. Model roughness values were assigned based on typical land use classes to represent the flow resistance due to various sources of energy loss.
- LIDAR data surveyed in 2013 was used to create a Digital Elevation Model (DEM) for the City of Vancouver; the DEM surface was edited to remove buildings and temporary features. The DEM surface was also modified to include (1) the Powell Street Overpass, currently under construction, (2) modifications to Pacific Boulevard and Griffiths Way planned as part of the Georgia Viaduct removal, (3) underpasses at the Stanley Park Causeway east of Lost Lagoon, and (4) manually interpolated bathymetry under some pile structures in the Inner Harbour. The maps depict flood levels based on ground conditions represented in this DEM. Any changes to ground elevations, land use or buildings from those included in the model will affect the flood levels and render site-specific information obsolete.
- The model geometry was kept constant at all flows although variations (erosion, subsidence, or future constructions) may occur before and during a flood. Irregularities or blockages caused by fences, walls, hedges, vehicles, boats, or other barriers are difficult to characterize and were not represented in the model. The flood map does not take into account flood defences which may be in place now or in the future.
- The accuracy of simulated flood levels is limited by the reliability of the water level data used for calibrating the model. Only limited calibration data was available at selected locations and in no instance extended more than 15 m from the shoreline.
- The accuracy of the location of a floodplain boundary is limited by the accuracy of the DEM, model boundary conditions and model parameters.
- Other sources of water (i.e. precipitation, groundwater, or sewer surcharge) and complex interactions between subsurface drainage networks and structures (i.e. Skytrain infrastructure, underground parking, conduits, etc.) were not considered and may locally affect flood levels. A Qualified Professional must be consulted for site-specific engineering analysis.
- Industry best practices were followed to generate the flood depth maps. However, actual flood depths and extents may vary from those shown and Northwest Hydraulic Consultants Ltd. (NHC) does not assume any liability for such variations.

Data Sources:

- Building footprints supplied by City of Vancouver.
- 2013 orthophoto supplied by City of Vancouver. Supplemented with 2010 Ikonos satellite imagery from Esri and GeoEye and 2013 orthophoto from District of North Vancouver GIS Department.
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SCALE - 1:5,000

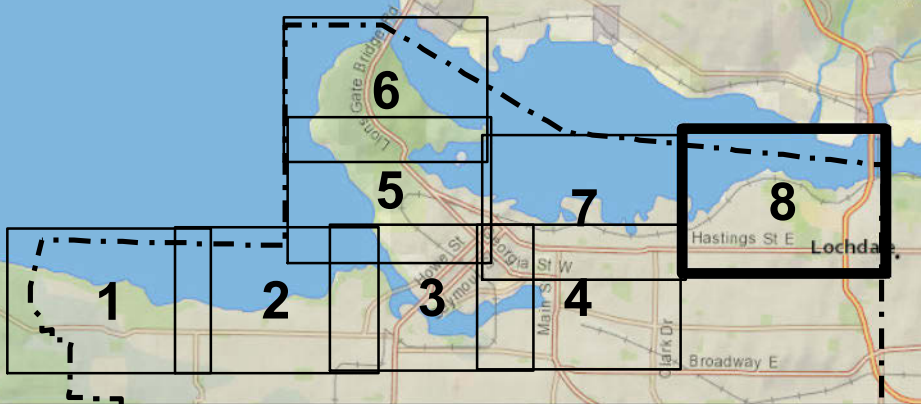
0 100 200 300 400 M

Coordinate System: NAD 1983 UTM ZONE 10N
Units: METRES

Date: 18-JUN-2014

Engineer	VFOC	GIS	MSN	Reviewer	MM	Job Number	300227
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**COASTAL FLOOD RISK ASSESSMENT
BURRARD INLET FLOOD DEPTHS
NOT INCLUDING FREEBOARD
SCENARIO 3 - YEAR 2100, SLR 1 M
PROBABILITY OF 1/500
MAP 7 OF 8**

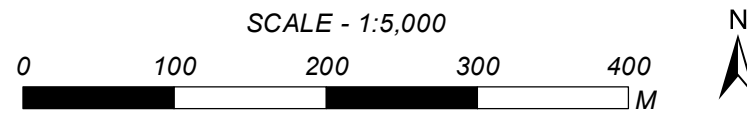


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MAP 8 OF 8