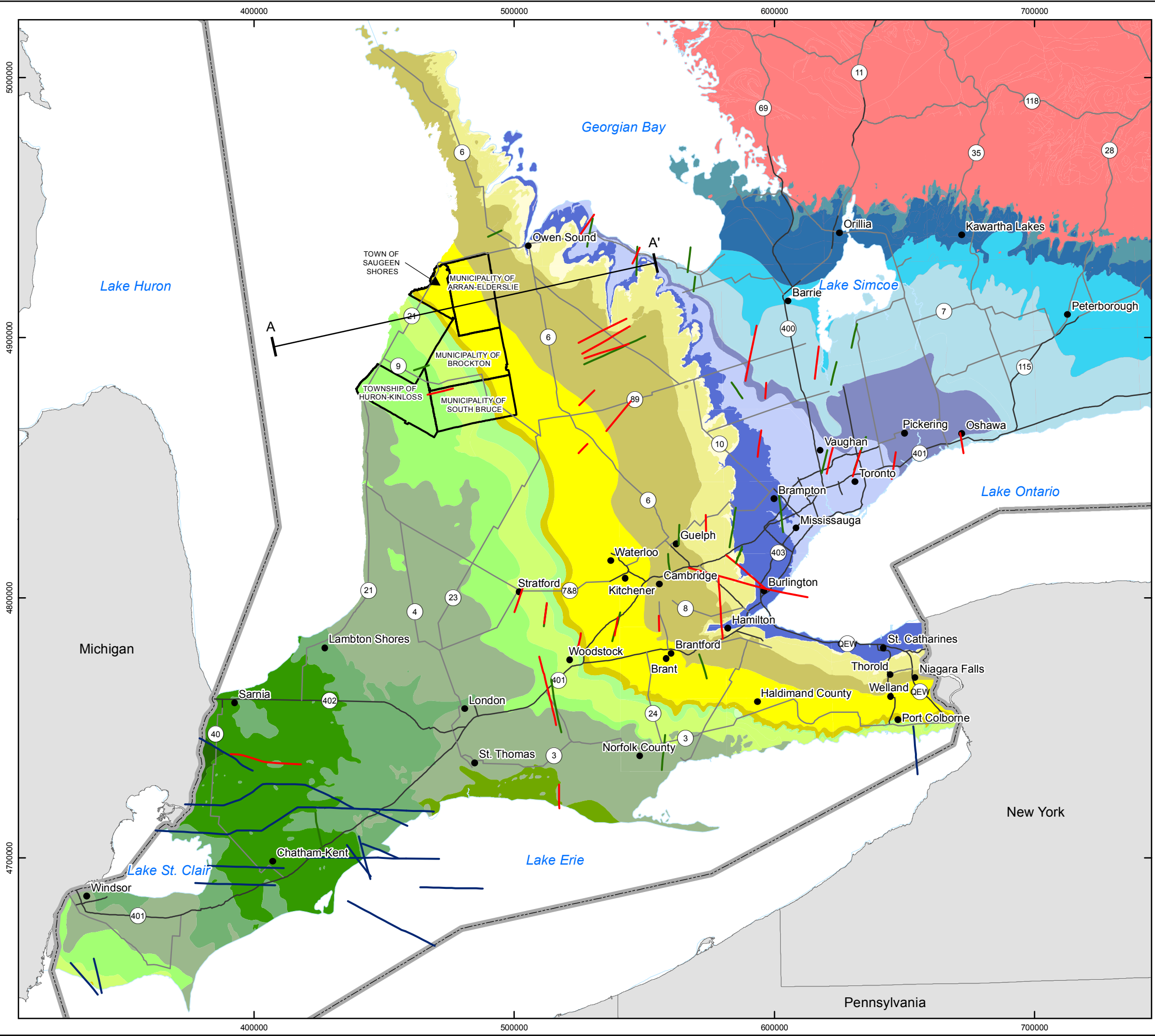


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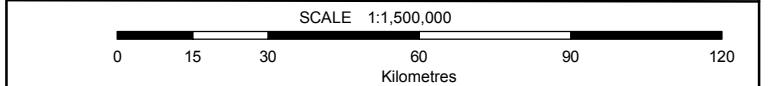
LEGEND

- The Communities
- Expressway
- Highway
- Canada - USA Boundary
- Mapped Subsurface Faults**
 - Rochester (Silurian)
 - Trenton (Ordovician)
 - Shadow Lake/Precambrian
 - Waterbody
 - Regional Cross-Section

Bedrock Geology

Upper Devonian	Lower Silurian
Port Lambton Group	Amabel
Kettle Point	Lockport
Middle Devonian	Clinton-Cataract Group
Hamilton Group	Upper Ordovician
Marcellus	Queenston
Dundee	Georgian Bay
Lucas	Blue Mountain
Amherstburg	Lindsay (Cobourg)
Onondaga	Verulam (Sherman Fall)
Lower Devonian	Bobcaygeon (Cobocok & Kirkfield)
Bois Blanc	Gull River
Oriskany	Shadow Lake
Upper Silurian	Cambrian
Bass Islands	Cambrian
Bertie	Precambrian
Salina	Precambrian
Guelph	

(Cobourg) = Subsurface Nomenclature

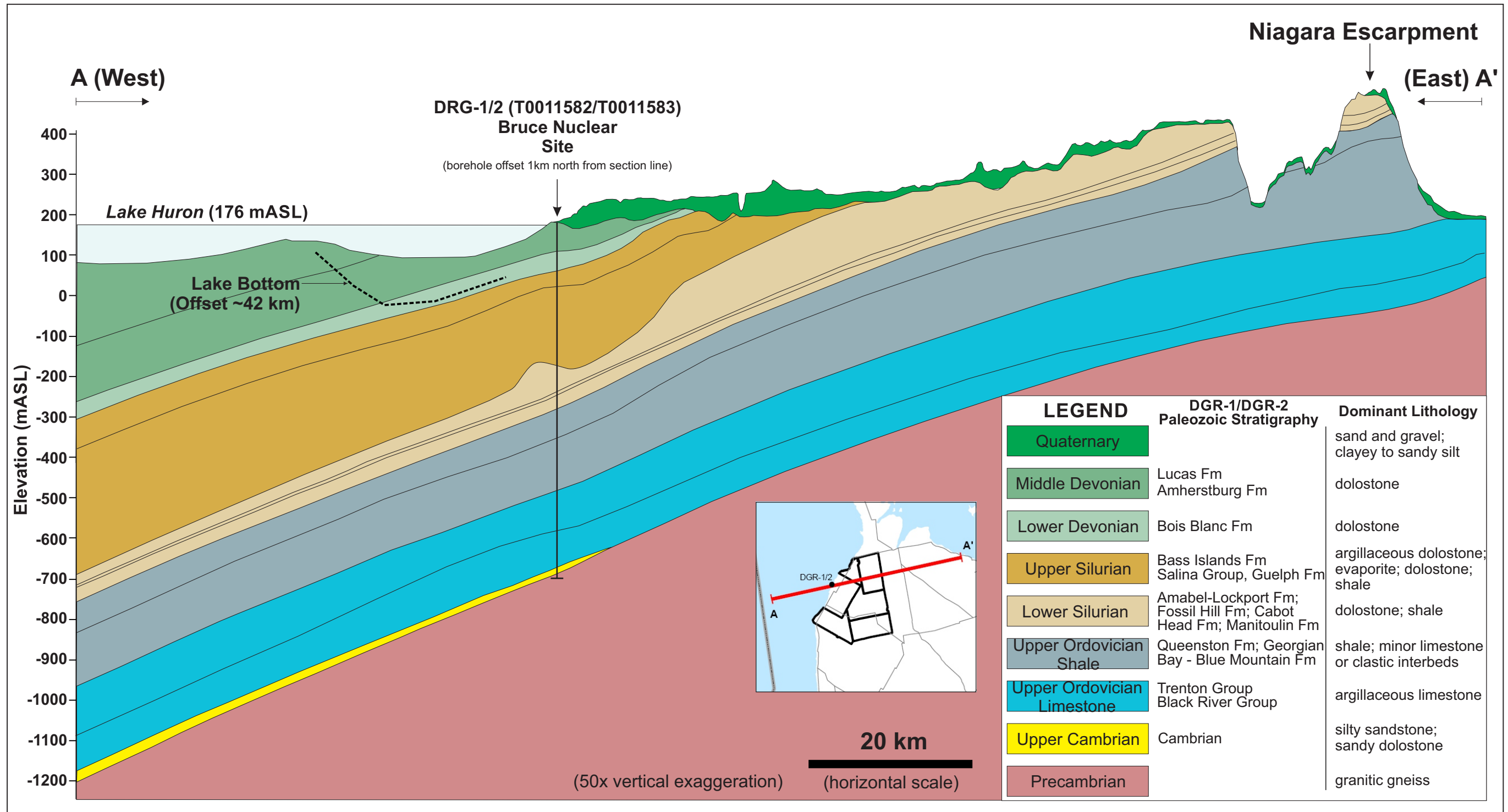


COORDINATE SYSTEM: UTM NAD83 Zone 17N
SOURCE:
Basemap Layers: LIO, MNR, ESRI
Geology: MRD219 Paleozoic Geology of Southern Ontario, OGS, 2007
Fault Mapping: MRD 276 Regional structure and isopach maps of potential hydrocarbon-bearing strata for southern Ontario, OGS, 2011
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NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Sedimentary Sites

TITLE **Bedrock Geology of Southern Ontario**

FIGURE 3.2	DESIGN: NMP CAD/GIS: NMP CHECK: KGR/SNS REV: 0	
	DATE: 6/27/2014	



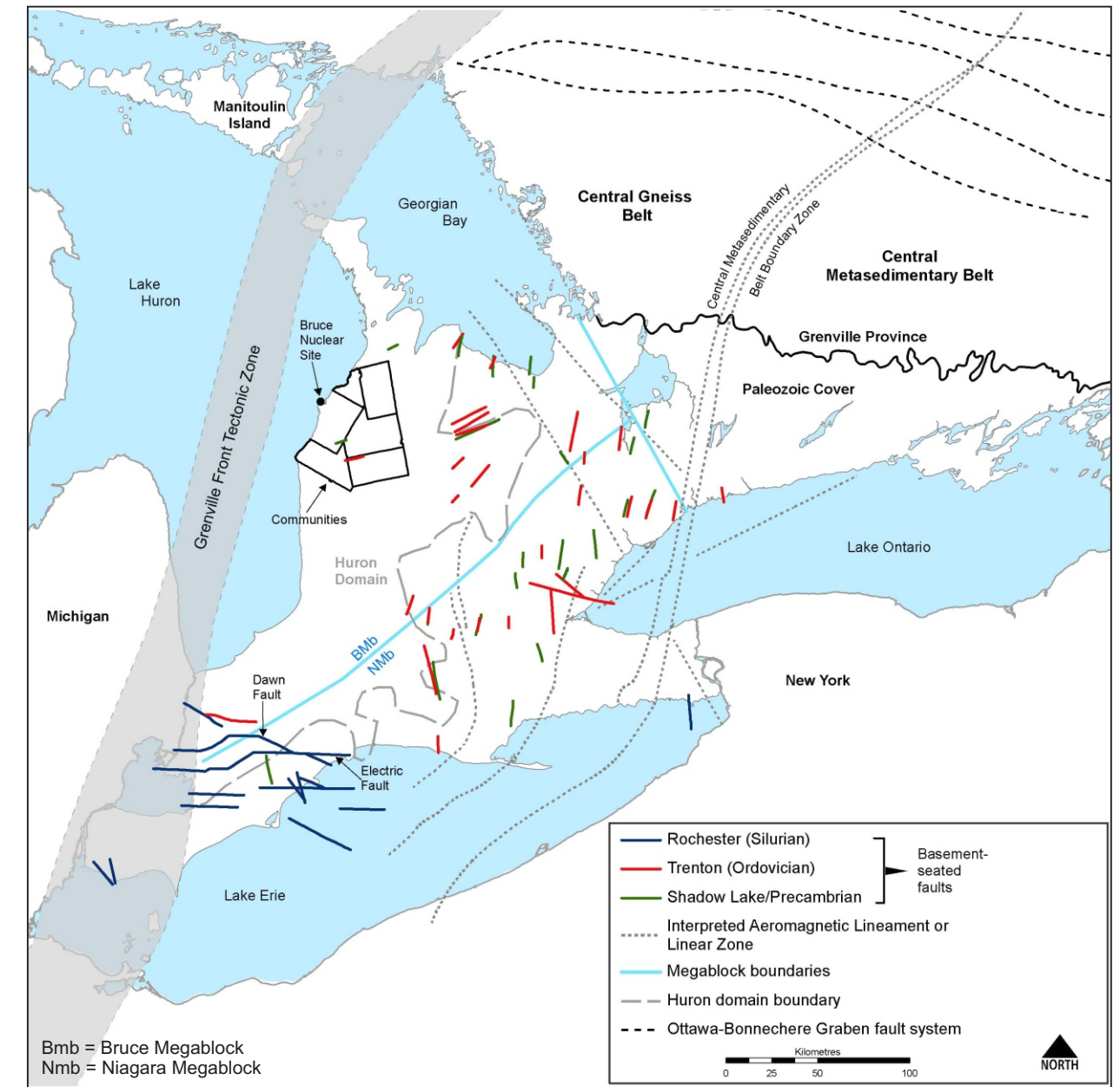
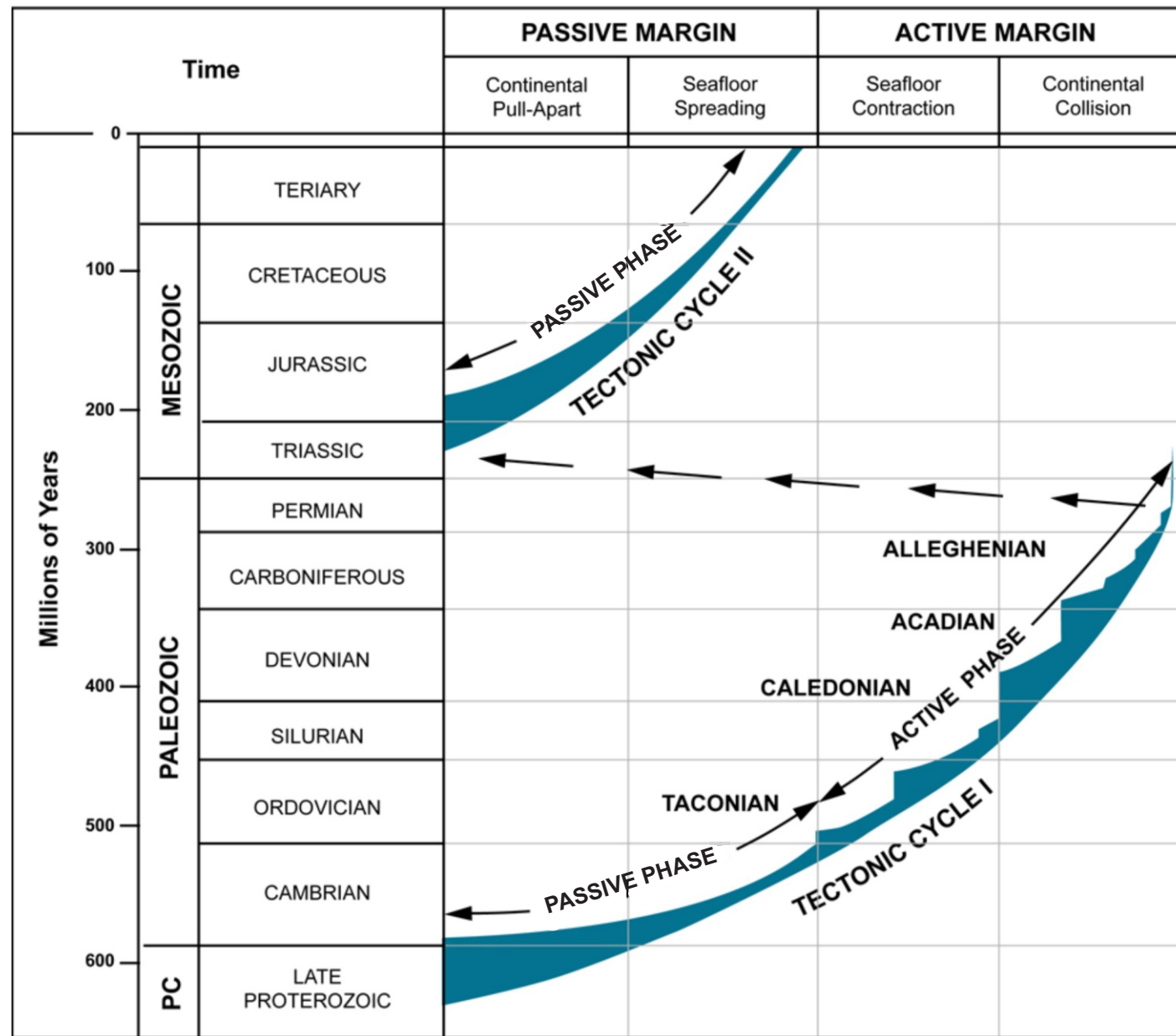
Data Source: after NWMO, 2011

FIGURE 3.3 - Regional Geological Cross-Section of the Eastern Flank of the Michigan Basin

PROJECT No: 10-214-7
NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Sedimentary Sites

Prepared by: NMP/ADG
 Reviewed by: KGR/SNS
 Date: 10/02/2014





Data Source: Contacts are based on field mapping and interpretations aided by subsurface drilling, borehole stratigraphic correlation, and aeromagnetic and gravity imaging (Liberty and Bolton (1971), and compiled from Brigham (1971), Bailey and Cochrane (1984a), Bailey and Cochrane (1984b), Sanford et al. (1985), Carter and Easton (1990), Sage (1991), Jacobi and Fountain (1993), Easton and Carter (1995), Carter et al. (1996), Wallach et al. (1998), Ketchum and Davidson (2000), Boyce and Morris (2002)

Data Source: Sanford et al. (1985).

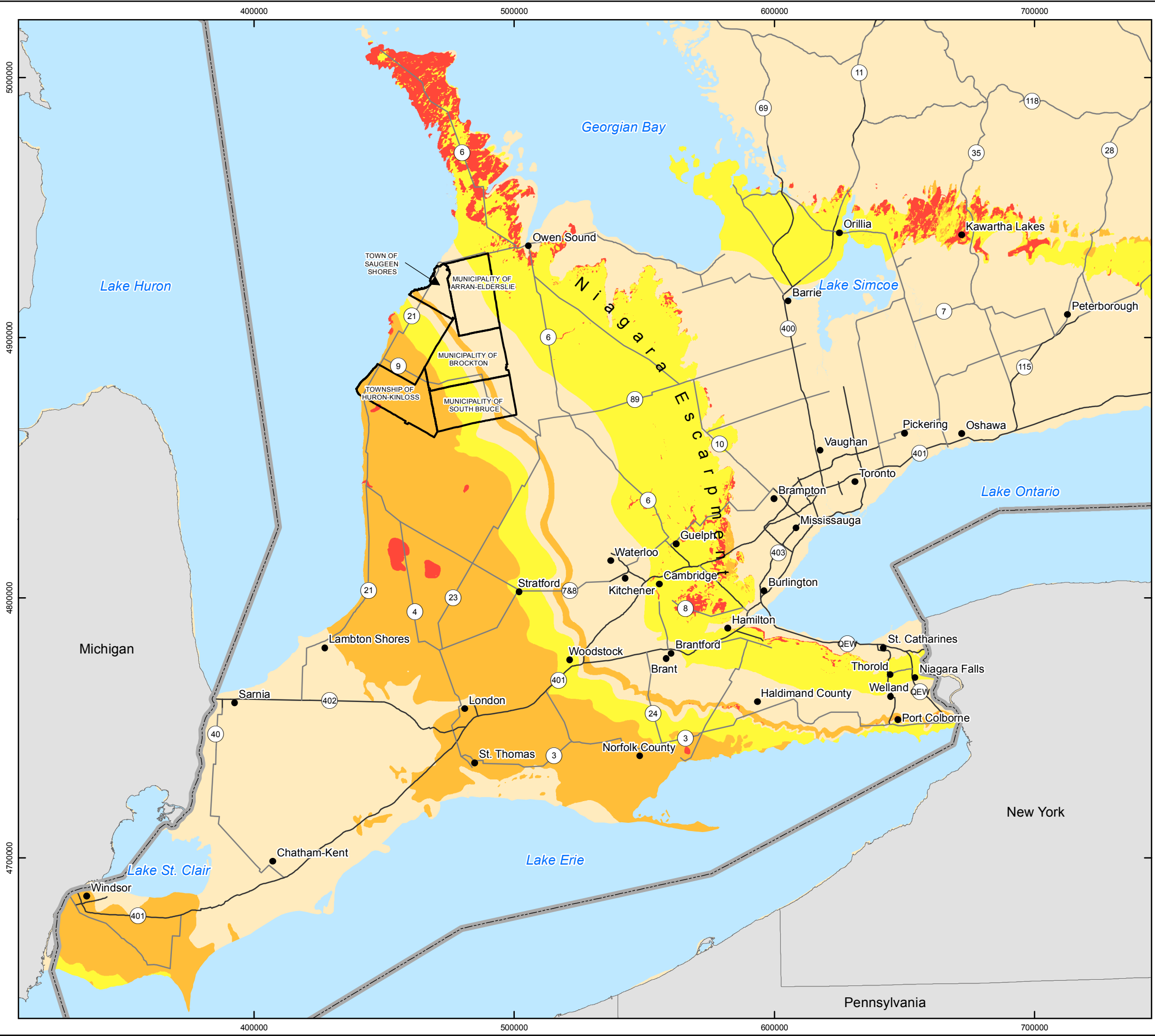
a. Phanerozoic Tectonic Cycles

b. Tectonic Boundaries and Fault Contacts.

FIGURE 3.4 - Structural Geology of Southern Ontario: a – Phanerozoic Tectonic Cycles; b – Tectonic Boundaries and Fault Contacts.	Prepared by: ECK/ADG
	Reviewed by: KGR/SNS
NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Sedimentary Sites	Date: 28/05/2014



G:\Data\Project\Sedimentary_Site_NWMO\10-214-7_FS_SedimentarySites\SedimentarySites_Maps\SedimentarySites_Suitability_Report_Maps\10-214-7-110_SedSites_Fig3_5_KarstMappingRegional.mxd



LEGEND

- The Communities
- Expressway
- Highway
- Canada - USA Boundary
- Waterbody

Karst

- Known
- Inferred
- Potential

INDEX MAP

SCALE 1:1,500,000

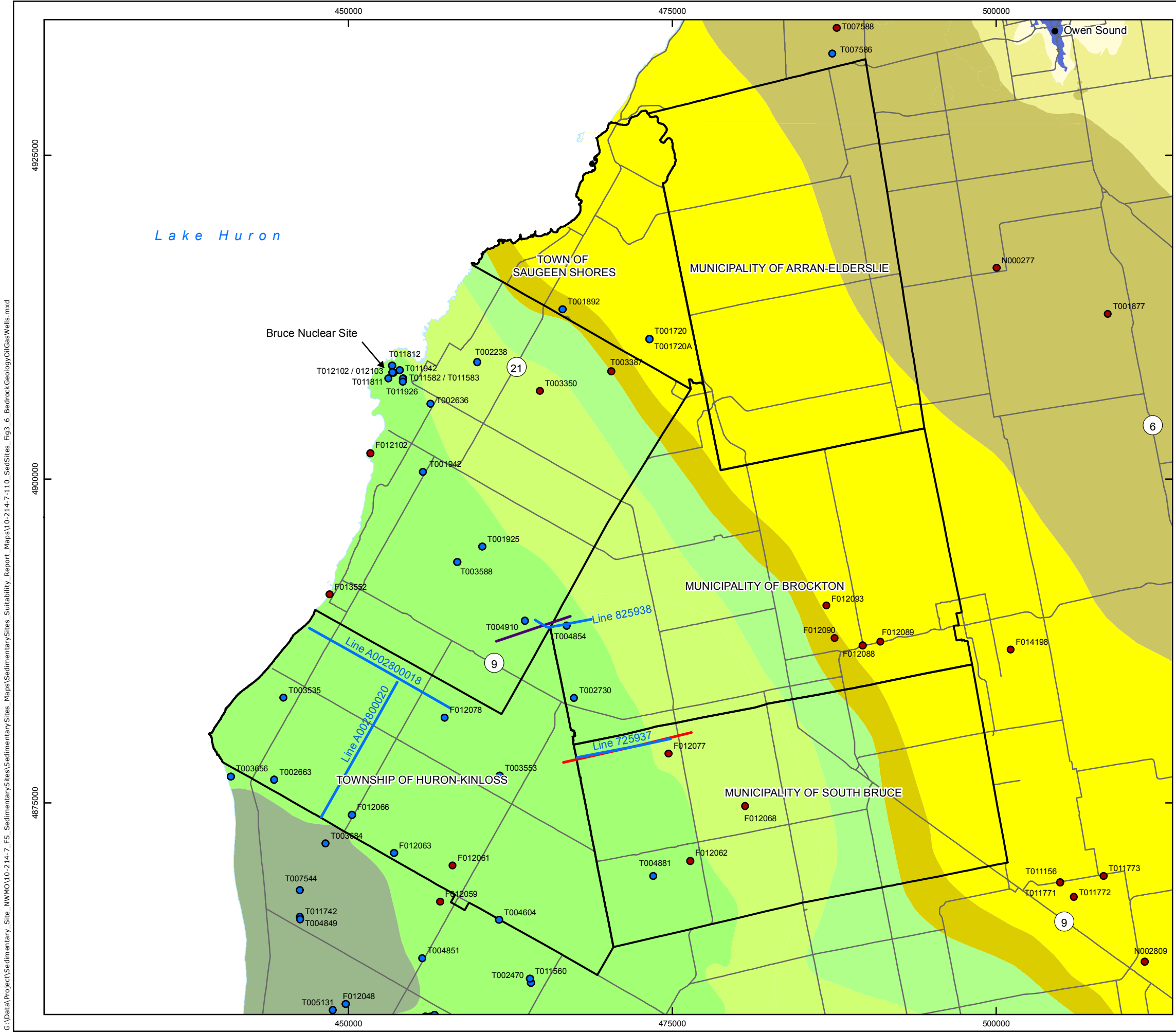
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COORDINATE SYSTEM: UTM NAD83 Zone 17N
 SOURCE: Basemap Layers: LIO, MNR, ESRI
 Geology: Karst of southern Ontario and Manitoulin Island; OGS Dataset GRS005, 2008
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TITLE
Karst Mapping of Southern Ontario

FIGURE 3.5	DESIGN: NMP CAD/GIS: NMP CHECK: KGR/SNS REV: 0	
	DATE: 04/06/2014	



LEGEND

- The Communities
- Highway/Major Road
- Waterbody
- Acquired 2D Seismic Data
- OGSRL Well
- OGSRL Well with Geophysics Log

Mapped Subsurface Faults

- Shadow Lake/Precambrian
- Trenton (Ordovician)

Bedrock Geology

Middle Devonian

- Dundee
- Lucas
- Amherstburg

Lower Devonian

- Bois Blanc

Upper Silurian

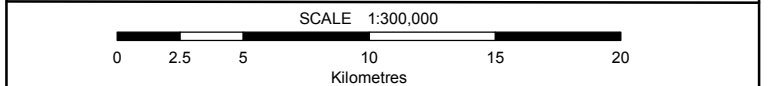
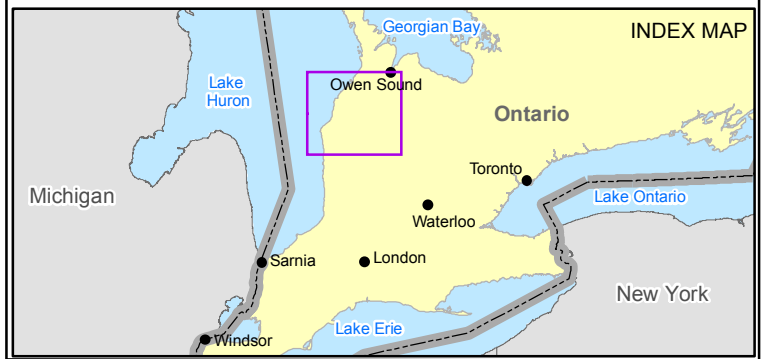
- Bass Islands
- Salina
- Guelph

Lower Silurian

- Amabel
- Clinton-Cataract Group

Upper Ordovician

- Queenston



COORDINATE SYSTEM: UTM NAD83 Zone 17N
 SOURCE:
 Basemap Layers: LIO, MNR, ESRI
 Geology: MRD219 Paleozoic Geology of Southern Ontario, OGS, 2007
 Fault Mapping: MRD276 Regional structure and isopach maps of potential hydrocarbon-bearing strata for southern Ontario, OGS, 2011
 Oil and Gas Wells: OGSRL 2013
 Produced by Geofirma Engineering Ltd under license from Ontario Ministry of Natural Resources, ©Queens Printer 2011

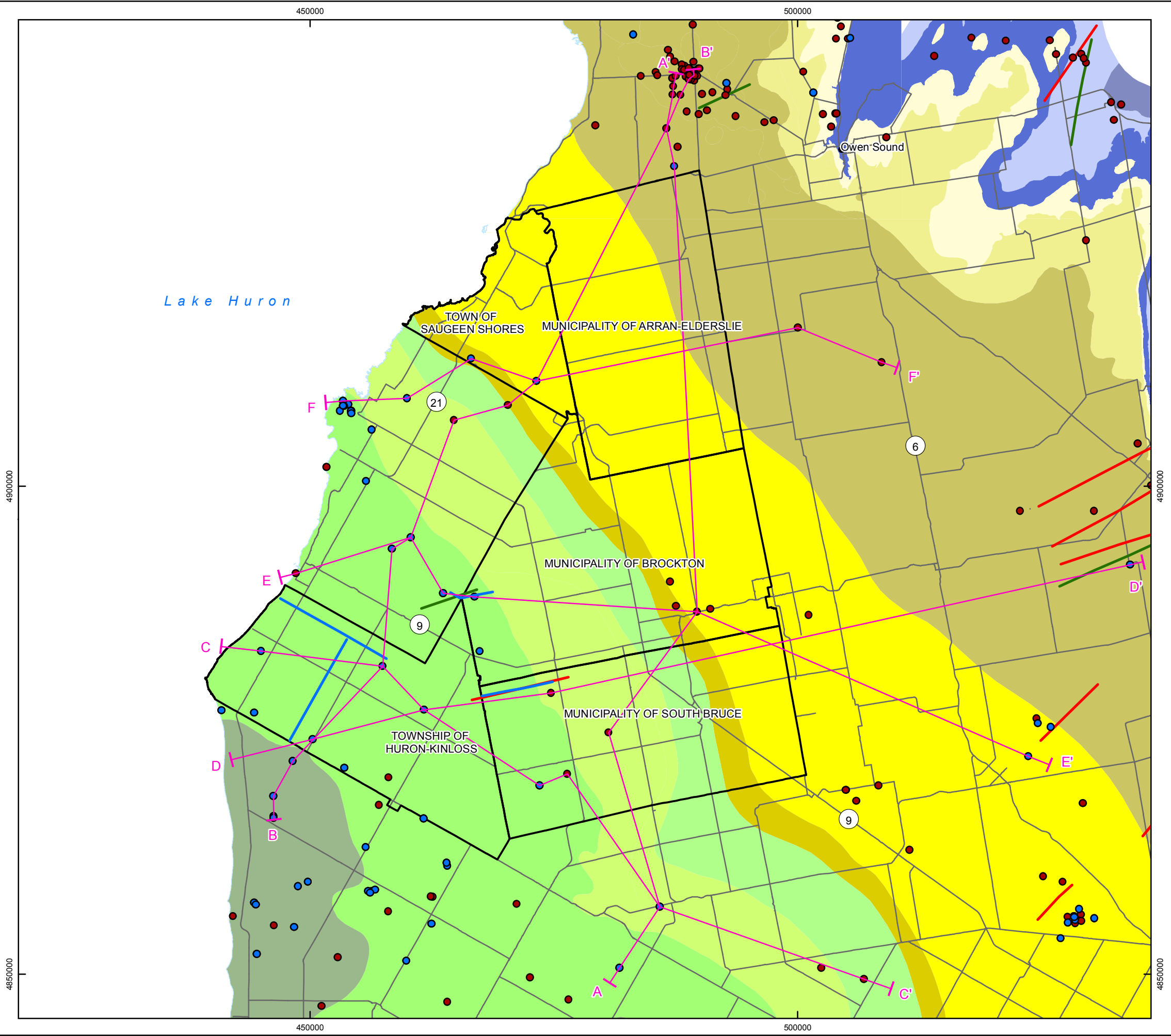
PROJECT No. 10-214-7
 NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Sedimentary Sites

TITLE
Bedrock Geology, Oil and Gas Wells and 2D Seismic Lines of the Area of the Five Communities

FIGURE 3.6	DESIGN: NMP CAD/GIS: NMP CHECK: KGR/SNS REV: 0	
	DATE: 11/6/2014	

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LEGEND

- The Communities
- Highway/Major Road
- Waterbody
- Mapped Subsurface Faults**
 - Shadow Lake/Precambrian
 - Trenton (Ordovician)
 - Acquired 2D Seismic Data
 - OGSRL Well
 - OGSRL Well with Geophysics Log
 - Cross-Section
- Bedrock Geology**
 - Middle Devonian**
 - Dundee
 - Lucas
 - Amherstburg
 - Lower Devonian**
 - Bois Blanc
 - Upper Silurian**
 - Bass Islands
 - Salina
 - Guelph
 - Lower Silurian**
 - Amabel
 - Clinton-Cataract Group
 - Upper Ordovician**
 - Queenston
 - Georgian Bay
 - Blue Mountain

INDEX MAP

SCALE 1:400,000

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COORDINATE SYSTEM: UTM NAD83 Zone 17N

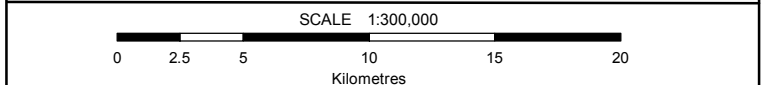
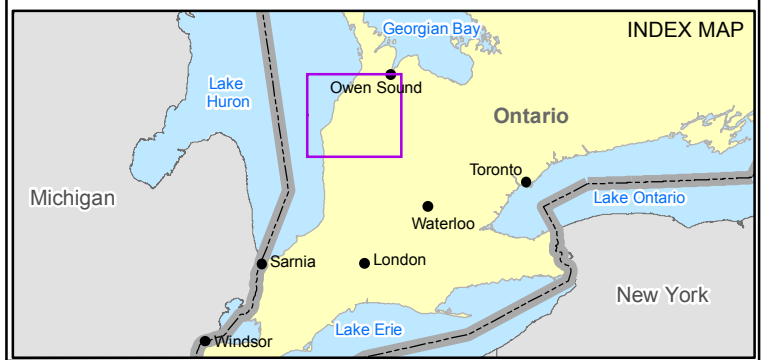
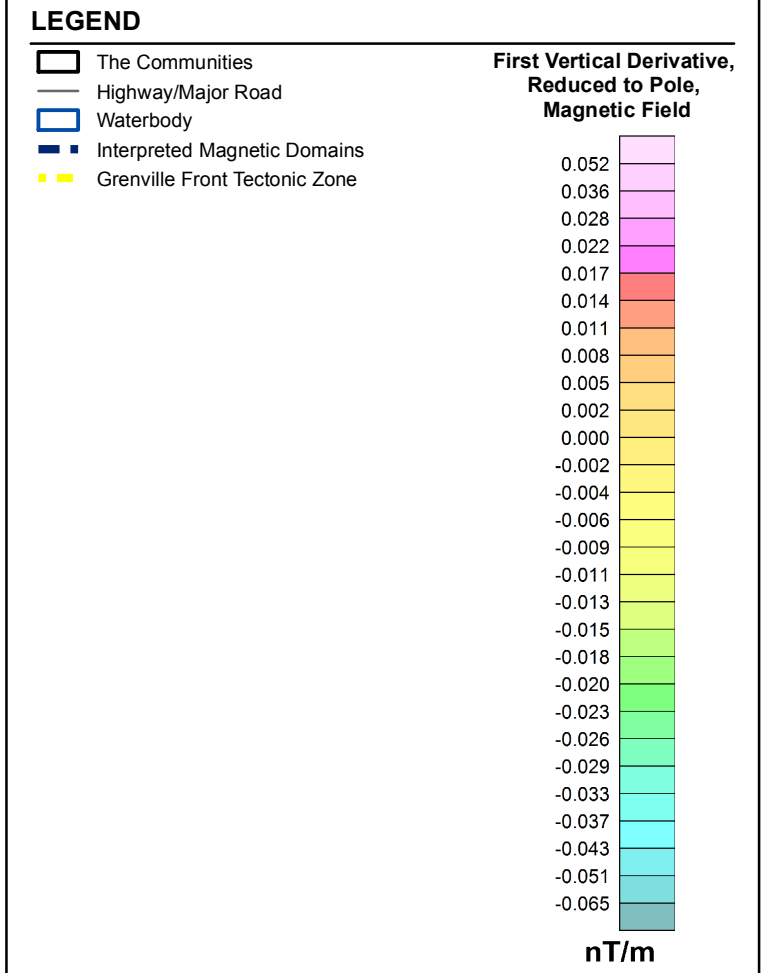
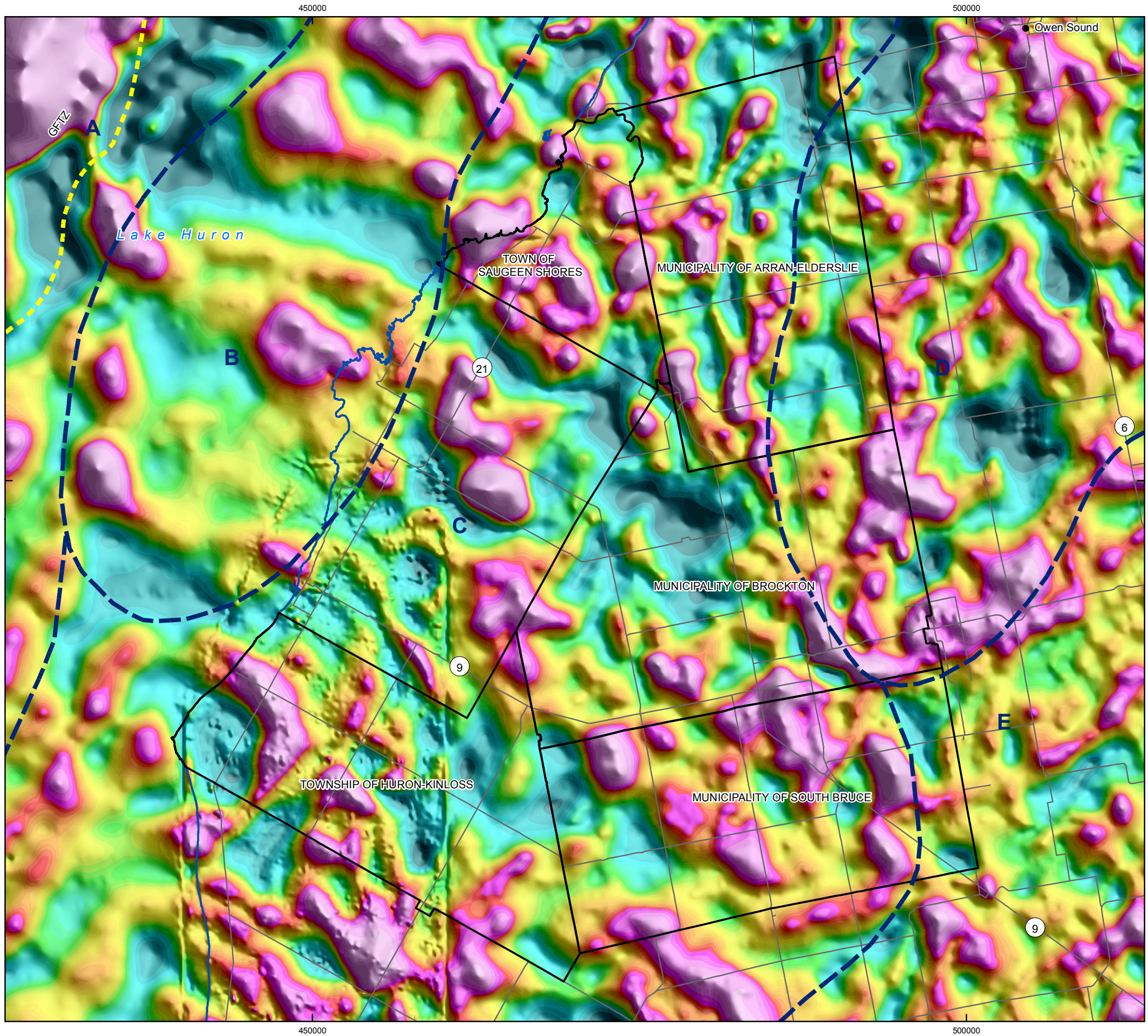
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 Geology: MRD219 Paleozoic Geology of Southern Ontario, OGS, 2007
 Fault Mapping: Regional structure and isopach maps of potential hydrocarbon-bearing strata for southern Ontario, OGS, 2011
 Oil and Gas Wells: OGSRL 2013
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PROJECT No. 10-214-7
NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Sedimentary Sites

TITLE
Location of Cross-Sections and 2D Seismic Lines

FIGURE 3.7	DESIGN: NMP CAD/GIS: NMP CHECK: KGR/SNS REV: 0	
	DATE: 6/26/2014	

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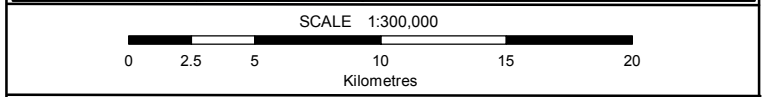
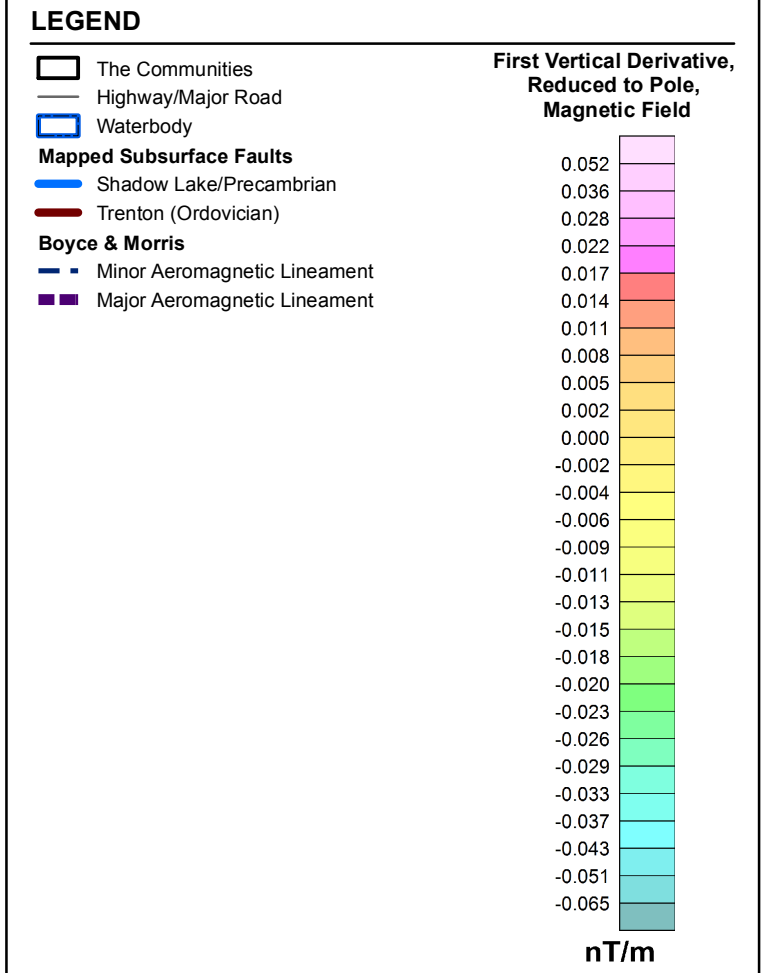
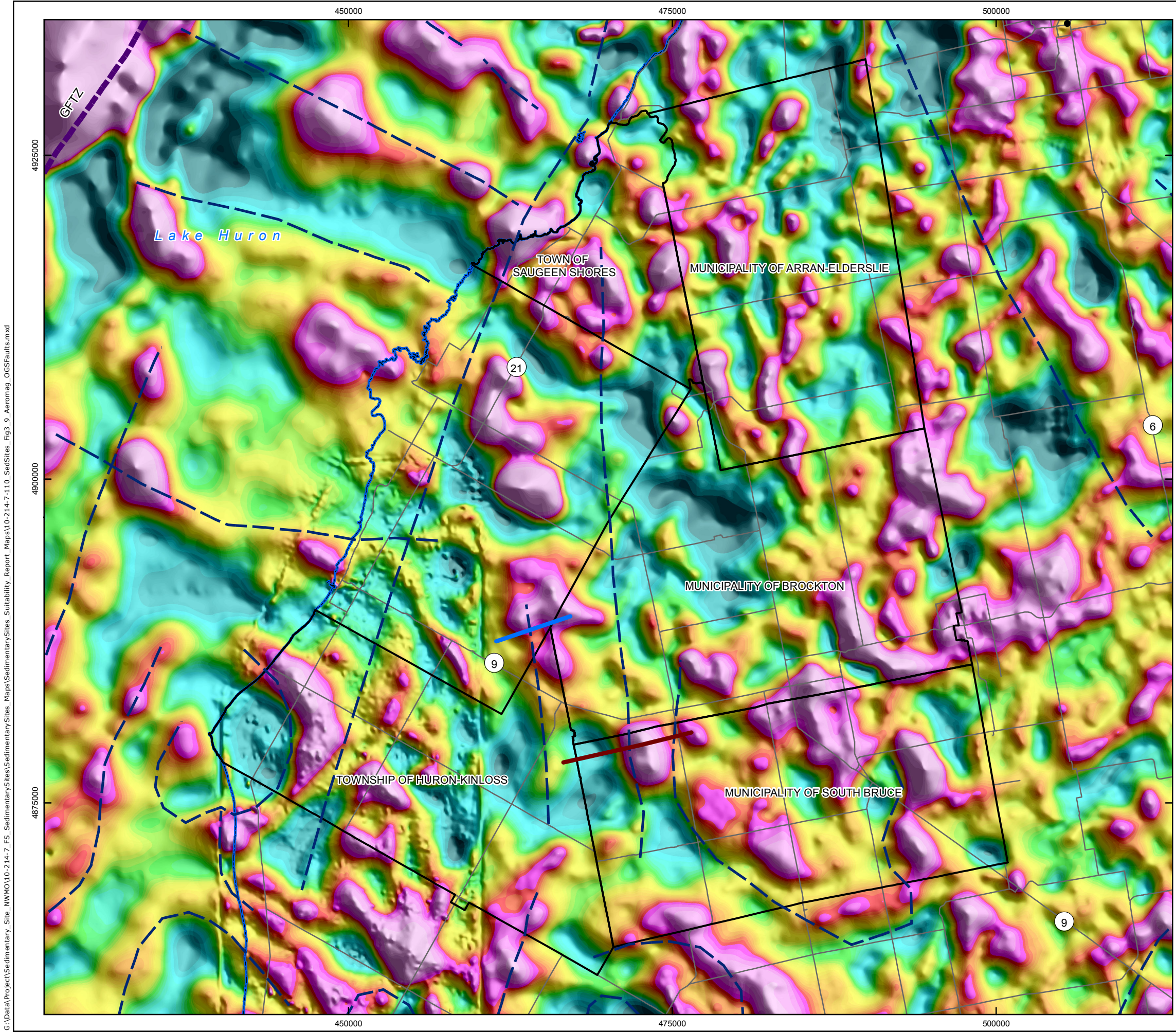


COORDINATE SYSTEM: UTM NAD83 Zone 17N
 SOURCE:
 Basemap Layers: LIO, MNR, ESRI
 Interpreted Domains: PGW 2014
 Aeromagnetic Data: PGW 2014
 Produced by Geofirma Engineering Ltd under license from
 Ontario Ministry of Natural Resources, ©Queens Printer 2011

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 NWMO Phase 1 Geoscientific Desktop Preliminary
 Assessment Study - Sedimentary Sites

TITLE
**First Vertical Derivative of the Pole Reduced
 Magnetic Field in the Area of the Five Communities**

FIGURE 3.8	DESIGN: NMP CAD/GIS: NMP CHECK: KGR/SNS REV: 0	
	DATE: 5/29/2014	



COORDINATE SYSTEM: UTM NAD83 Zone 17N
 SOURCE:
 Basemap Layers: LIO, MNR, ESRI
 Aeromagnetic Data: PGW 2014
 Fault Mapping: MRD 276 Regional structure and isopach maps of potential hydrocarbon-bearing strata for southern Ontario, OGS, 2011
 Produced by Geofirma Engineering Ltd under license from Ontario Ministry of Natural Resources, ©Queens Printer 2011

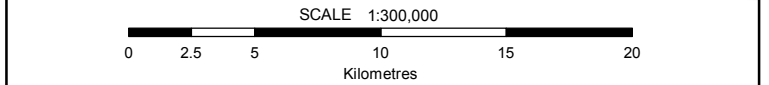
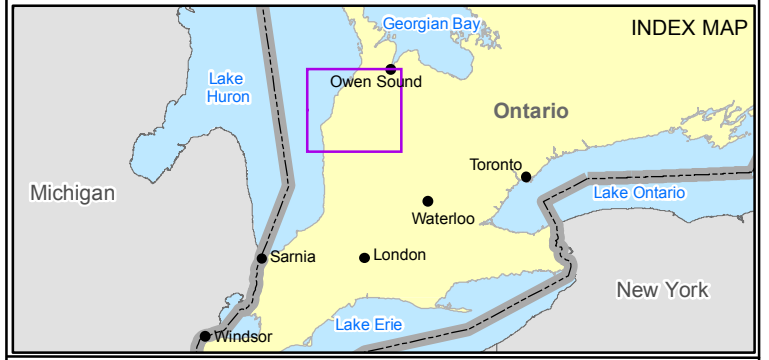
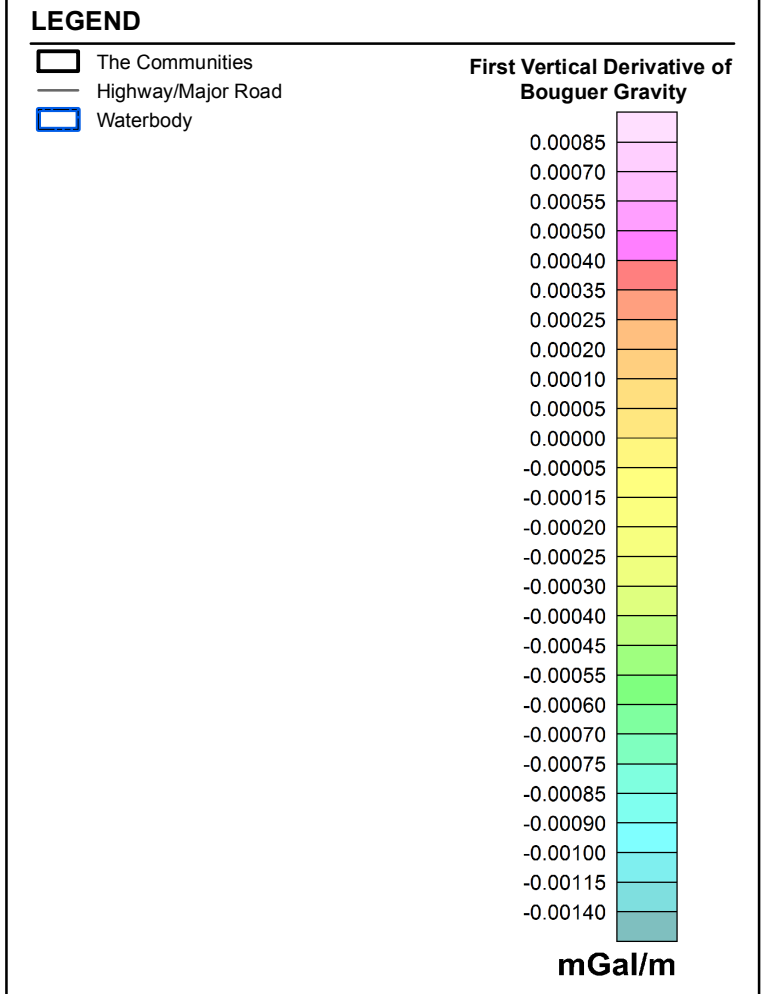
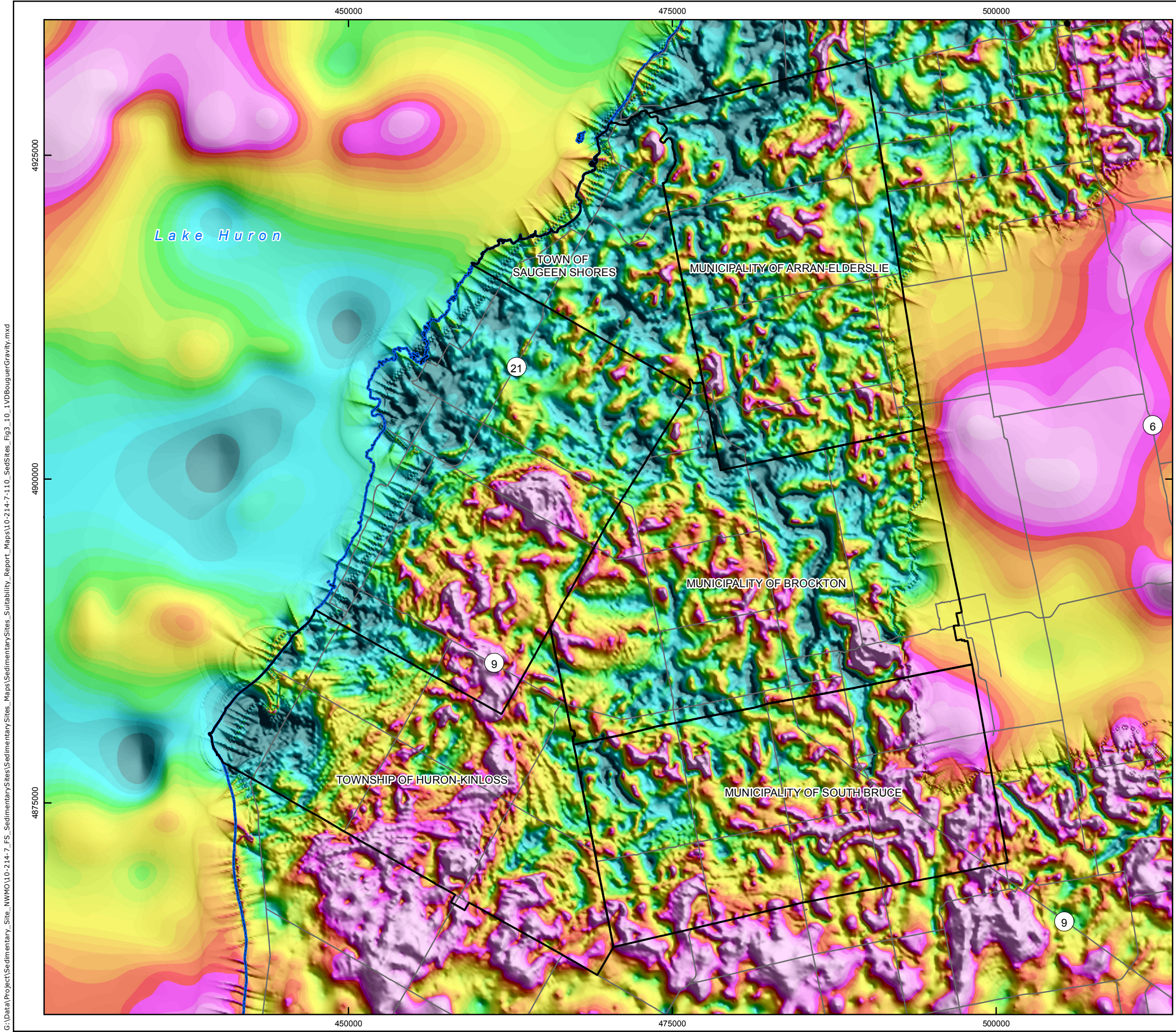
NORTH

PROJECT No. 10-214-7
 NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Sedimentary Sites

TITLE
Boyce and Morris (2002) Aeromagnetic Lineaments, Mapped Subsurface Faults and Aeromagnetic Data in the Area of the Five Communities

FIGURE 3.9	DESIGN: NMP CAD/GIS: NMP/ADG CHECK: KGR/SNS REV: 0	
	DATE: 6/26/2014	

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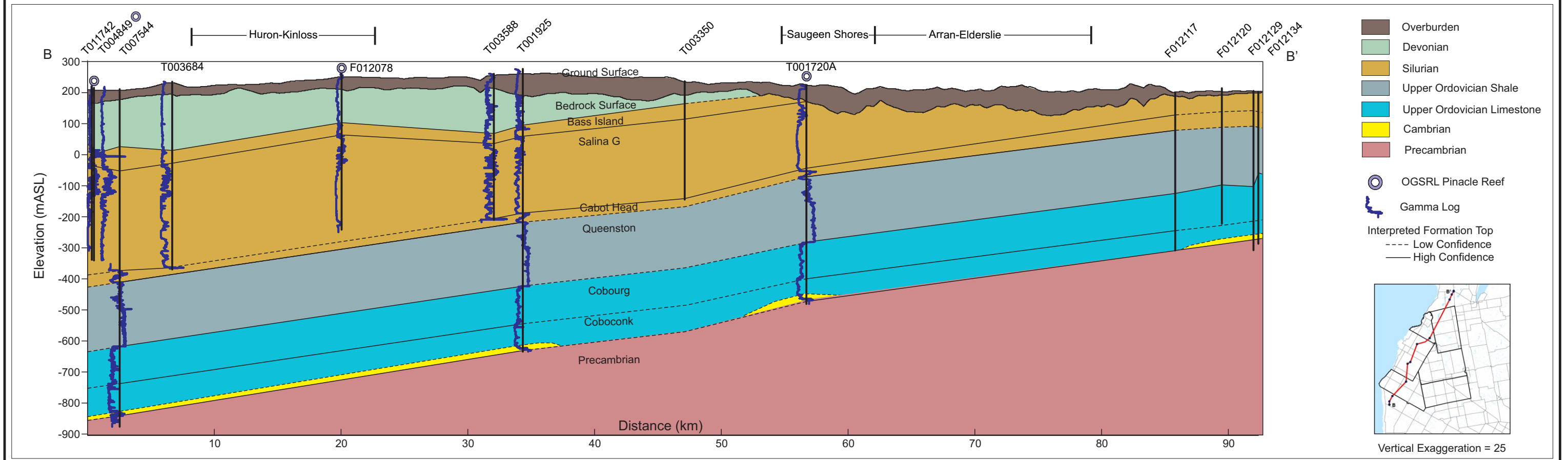
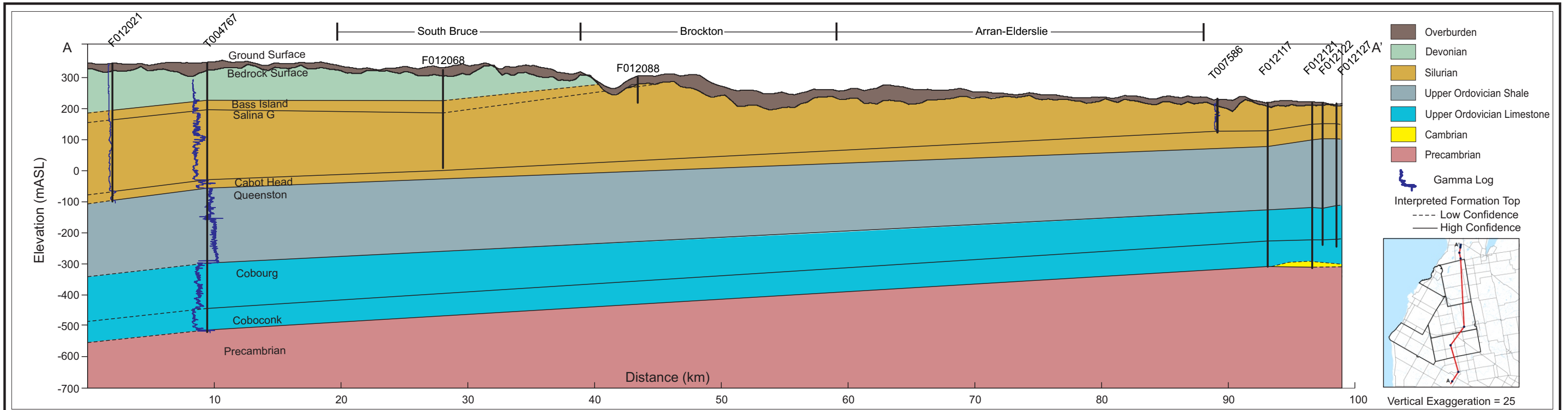
COORDINATE SYSTEM: UTM NAD83 Zone 17N
 SOURCE:
 Basemap Layers: LIO, MNR, ESRI
 Gravity Data: PGW 2014
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 NWMO Phase 1 Geoscientific Desktop Preliminary
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TITLE
**First Vertical Derivative of the Bouguer
 Gravity in the Area of the Five Communities**

FIGURE 3.10	DESIGN: NMP CAD/GIS: NMP/ADG CHECK: KGR/SNS REV: 0	
	DATE: 5/29/2014	

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Data Source: OGSRL, 2013

FIGURE 3.11 - Geological Cross-Sections (a) A-A' and (b) B-B'

PROJECT No: 10-214-7
NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Sedimentary Sites

Prepared by: NMP/ADG
 Reviewed by: KGR/SNS
 Date: 23/06/2014

