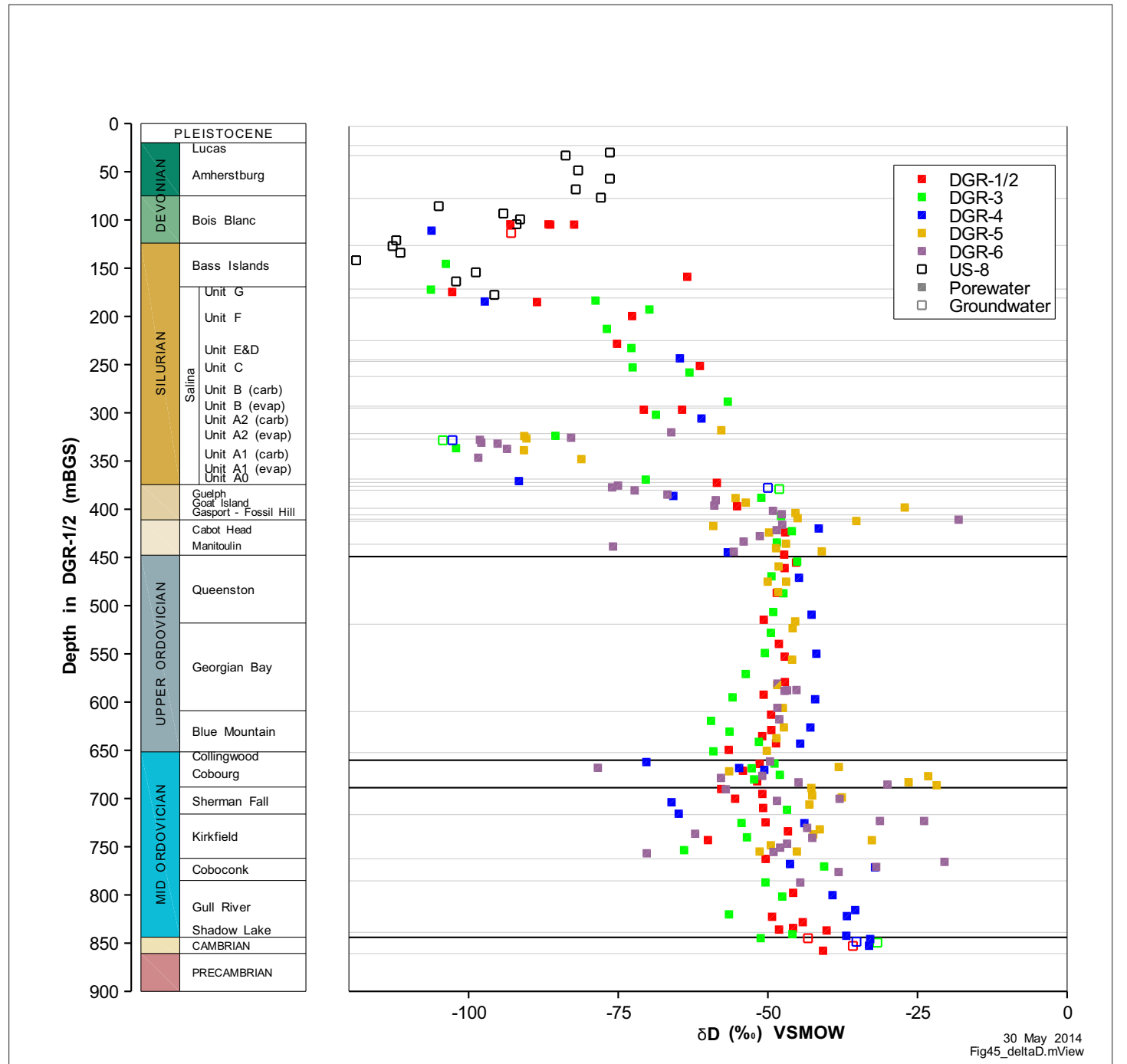


a. Oxygen-18
(after Intera Engineering Ltd., 2011)



b. Deuterium
(after Intera Engineering Ltd., 2011)

FIGURE 4.5 - Profiles of Environmental Isotopes in Porewater and Groundwater at the Bruce Nuclear Site

NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Central Huron

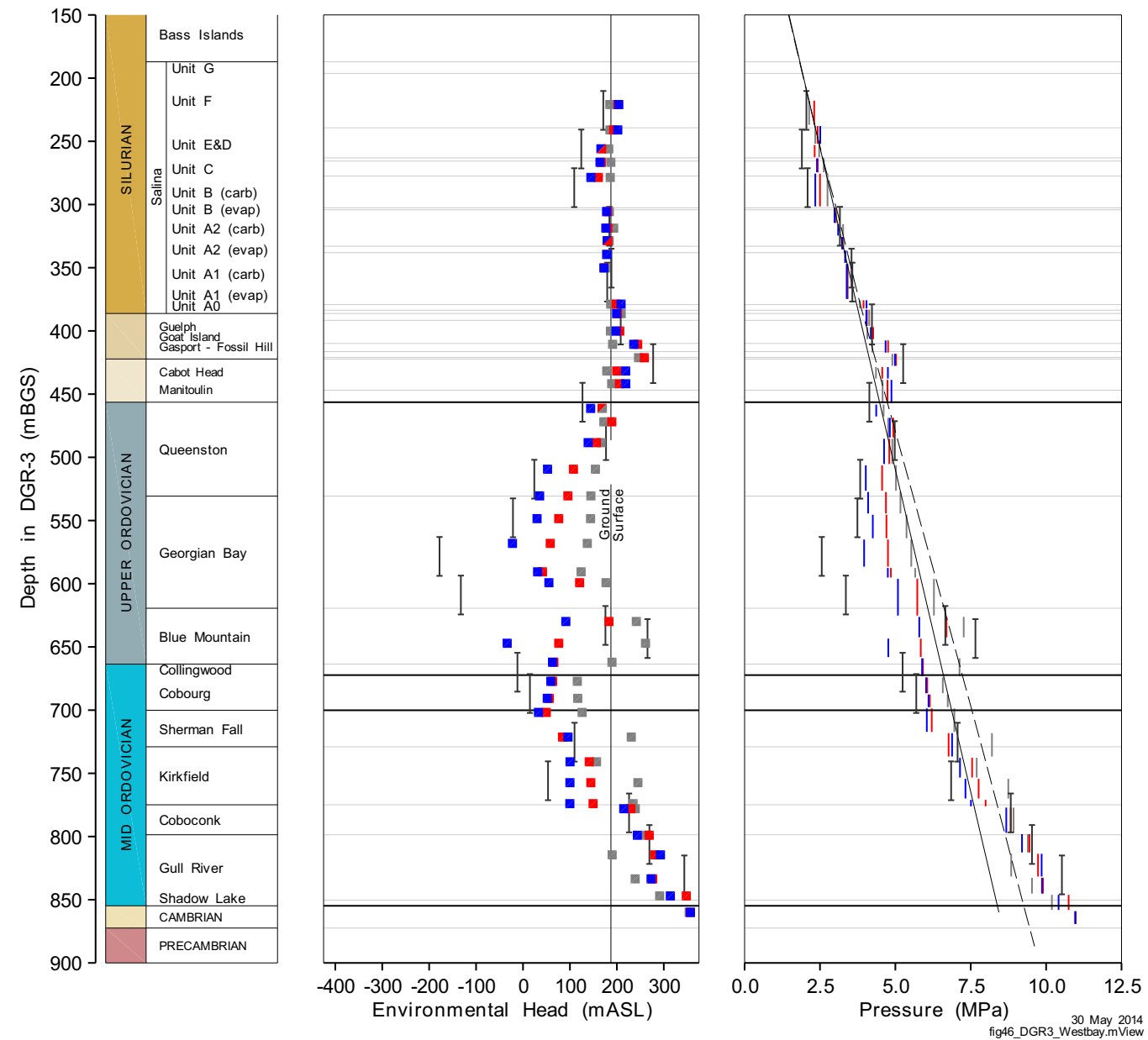
Prepared by: VMS/ADG

Reviewed by: KGR/SNS

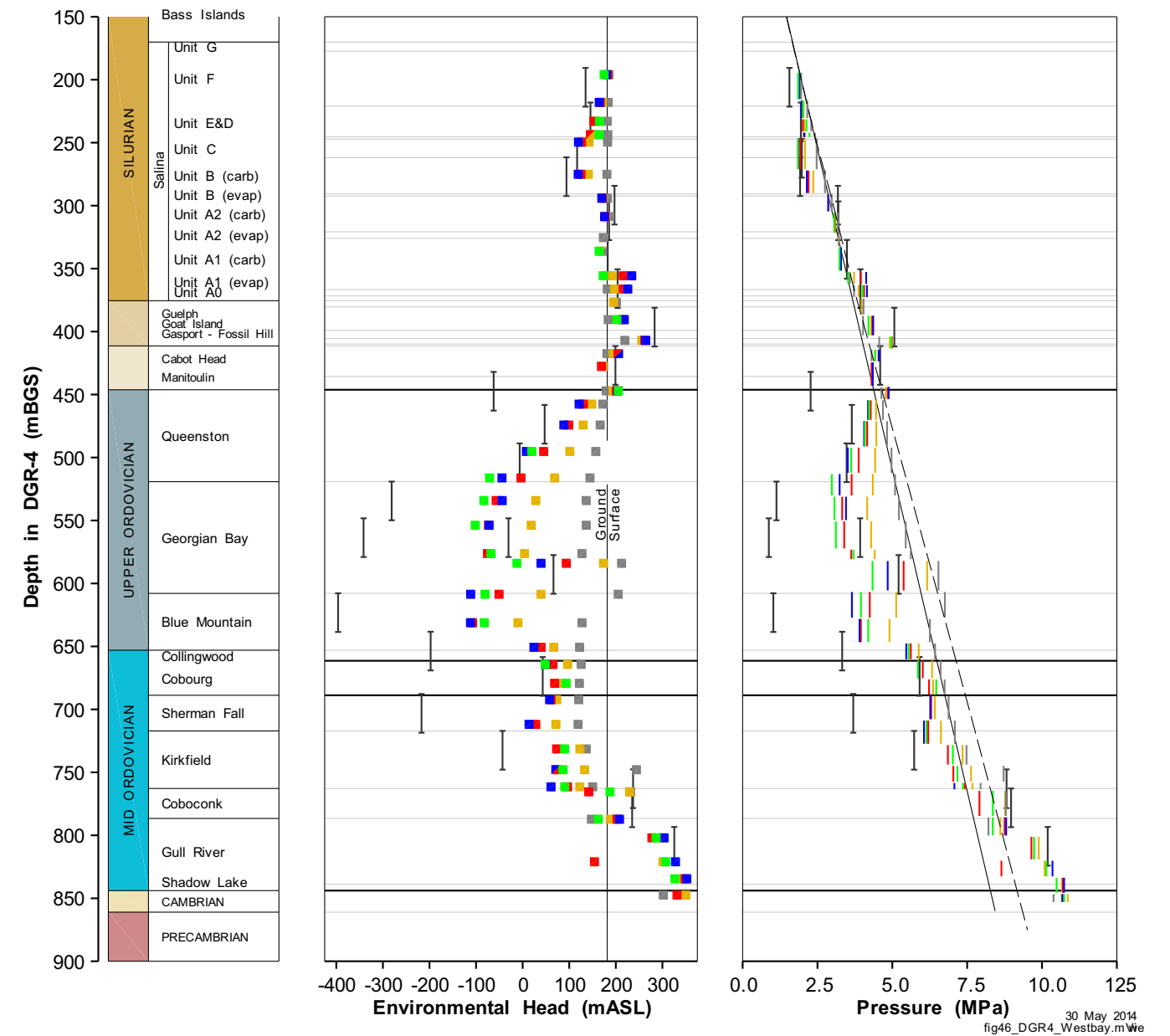
Date: 20/01/2015

Note: Stratigraphic nomenclature shown on figures predates Armstrong and Carter (2010), see Table 3.1 for current nomenclature





a. DGR-3
(after Intera Engineering Ltd., 2011)



b. DGR-4
(after Intera Engineering Ltd., 2011)

FIGURE 4.6 - Profiles of Formation Pressures and Environmental Heads in Deep Boreholes at the Bruce Nuclear Site

NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Central Huron

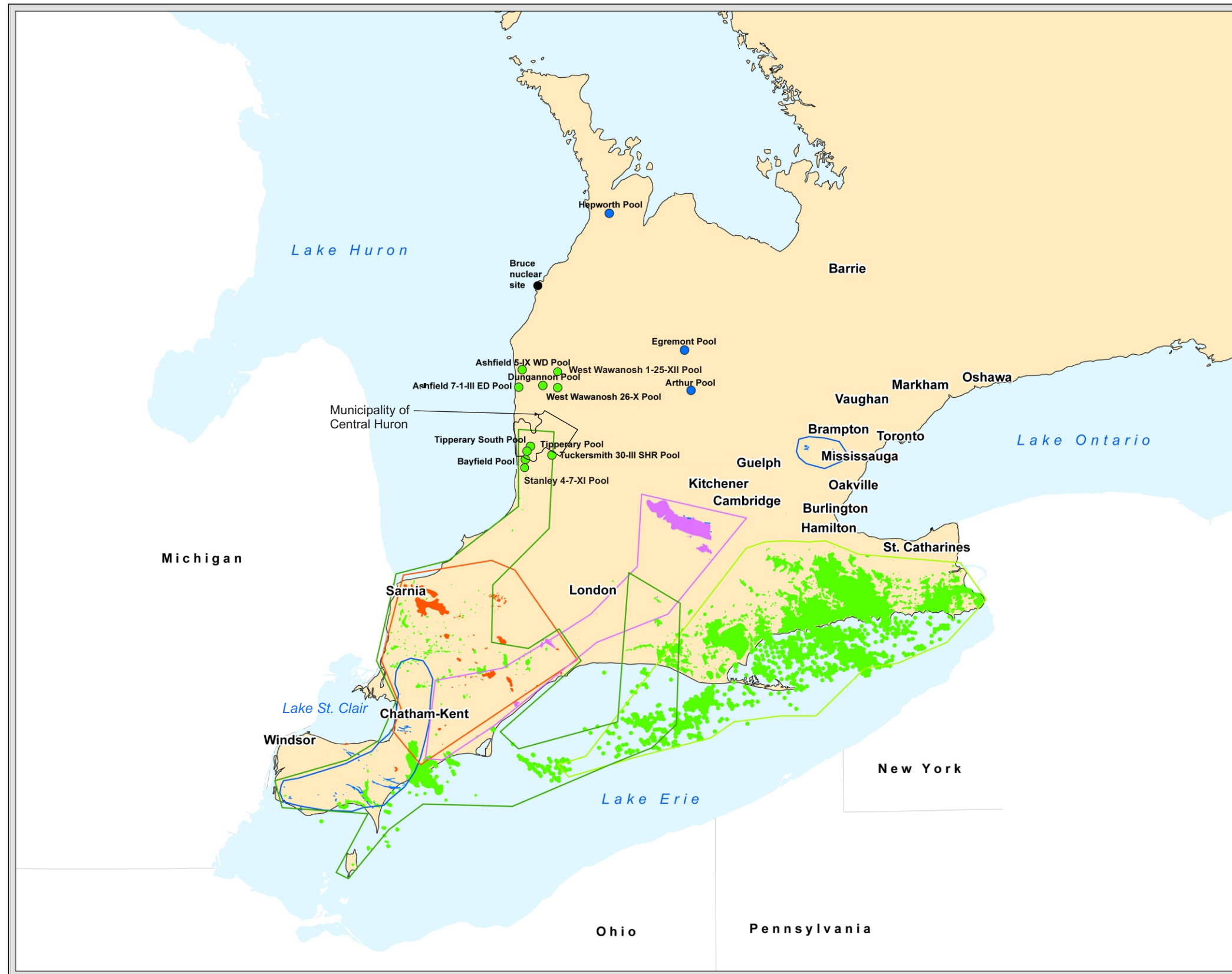
Prepared by: VMS/ADG

Reviewed by: KGR/SNS

Date: 20/01/2015

Note: Stratigraphic nomenclature shown on figures predates Armstrong and Carter (2010), see Table 3.1 for current nomenclature





Legend

Oil and Gas Pools

- Cambrian
- Ordovician
- Silurian
- Devonian

Oil and Gas Producing Boundaries

- Cambrian (CAM)
- Ordovician (ORD)
- Clinton-Cataract (Silurian, CLI)
- Salina-Guelph (Silurian, SAL)
- Devonian (DEV)

UTM Zone N NAD 83

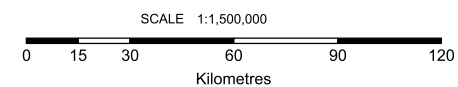


FIGURE 5.1 - Principal Oil and Natural Gas Producing Regions and Pools in Southern Ontario

NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Central Huron

Prepared by: ECK/ADG

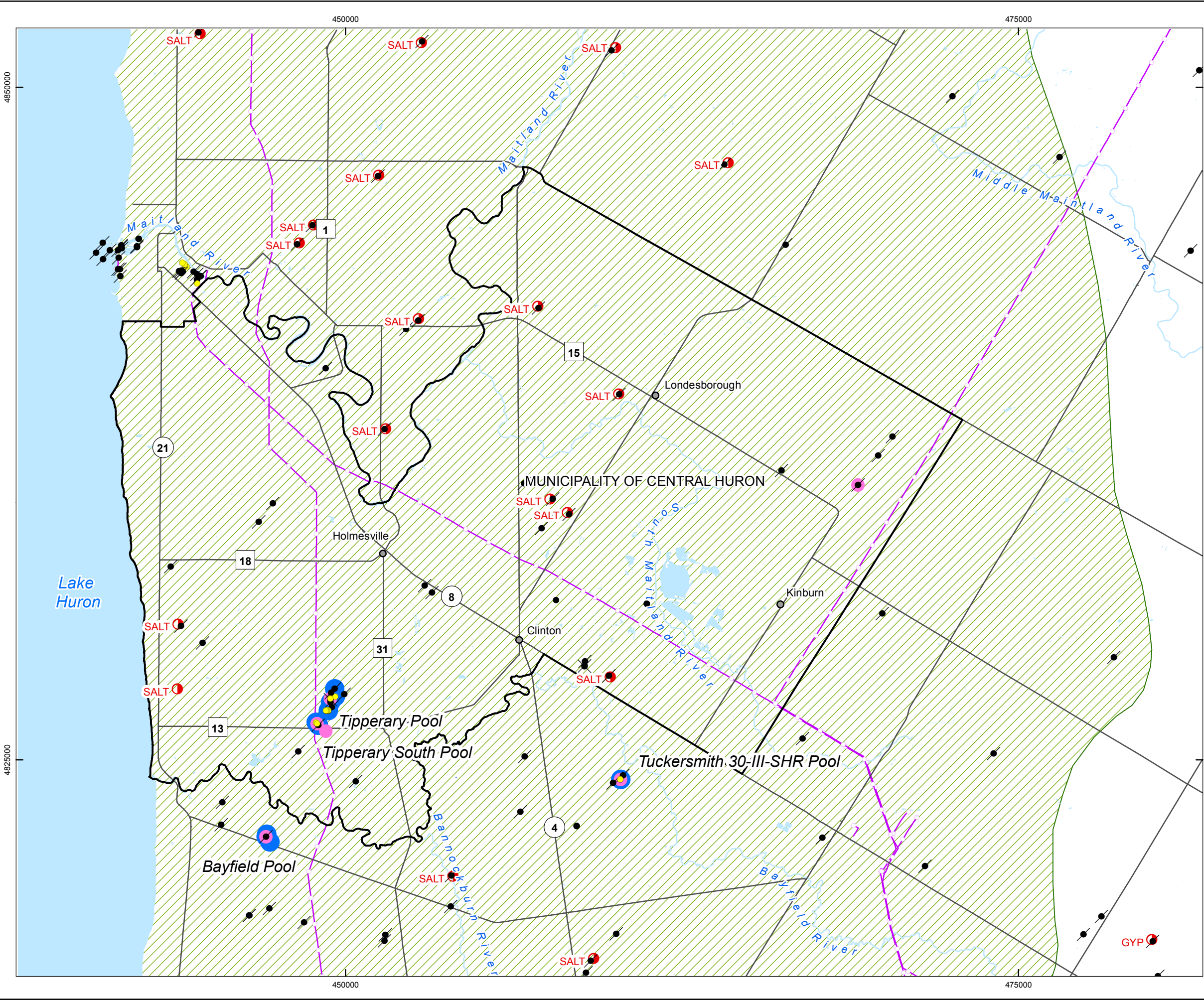
Reviewed by: KGR/SNS

Date: 14/04/2015

Notes: Base map is from Ontario Ministry of Natural Resources Pool data supplied by the Oil, Gas and Salt Resources Library and the Ontario Ministry of Natural Resources. All pool boundaries are accurate as of October 2012. Pool boundaries are interpretive and approximate. Dots represent pools which have boundaries too small to see on figure. Production boundaries are modified from Carter (1990).



G:\Data\Project\Sedimentary_Site_NWMO\10-214-11_CentralHuron_Maps\CentralHuron_SuitabilityReport_Maps\10-214-11-10_CentralHuron_Fig5_2_Resources.mxd



LEGEND

- Municipality of Central Huron
- Highway/Major Road
- Waterbody
- Watercourse
- Discretionary Mineral Occurrence
 - GYP = Gypsum
 - SALT = Salt
- Pinnacle Reef
- Oil and Gas Pool

Oil, Gas and Salt Resources Library Database Wells

- Abandoned Well
- Abandoned and Junked (Lost)
- Active Well
- Unknown
- Area of Salt Occurrence

INDEX MAP

SCALE 1:140,000

0 1.25 2.5 5 7.5 10
Kilometres

COORDINATE SYSTEM: UTM NAD83 Zone 17N
SOURCE:
Basemap Layers: LIO, MNR, ESRI
Mineral: Mineral Deposit Inventory (MDI), OGS, 2014
Oil and Gas Wells: OGSRL, 2014a
Pinnacle Reefs: MRD276 Regional structure and isopach maps of potential hydrocarbon-bearing strata for southern Ontario, OGS, 2011
Salt Occurrence: Sanford, 1977
Produced by Geofirma Engineering Ltd under license from Ontario Ministry of Natural Resources, ©Queens Printer 2011

PROJECT No. 10-214-11

NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Central Huron

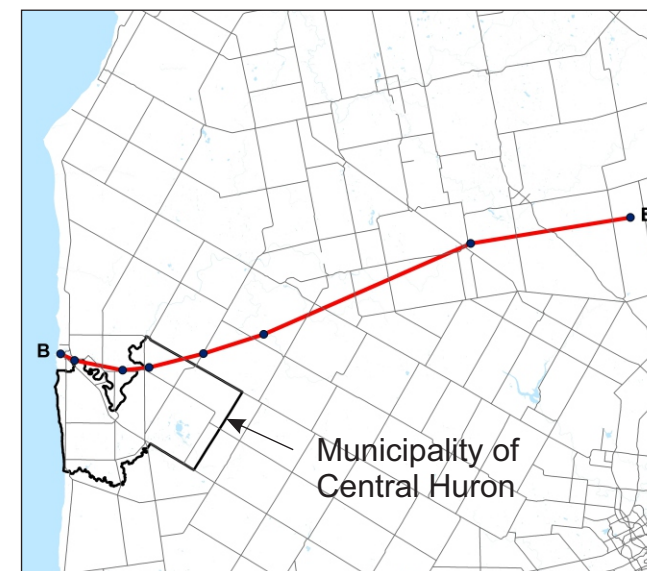
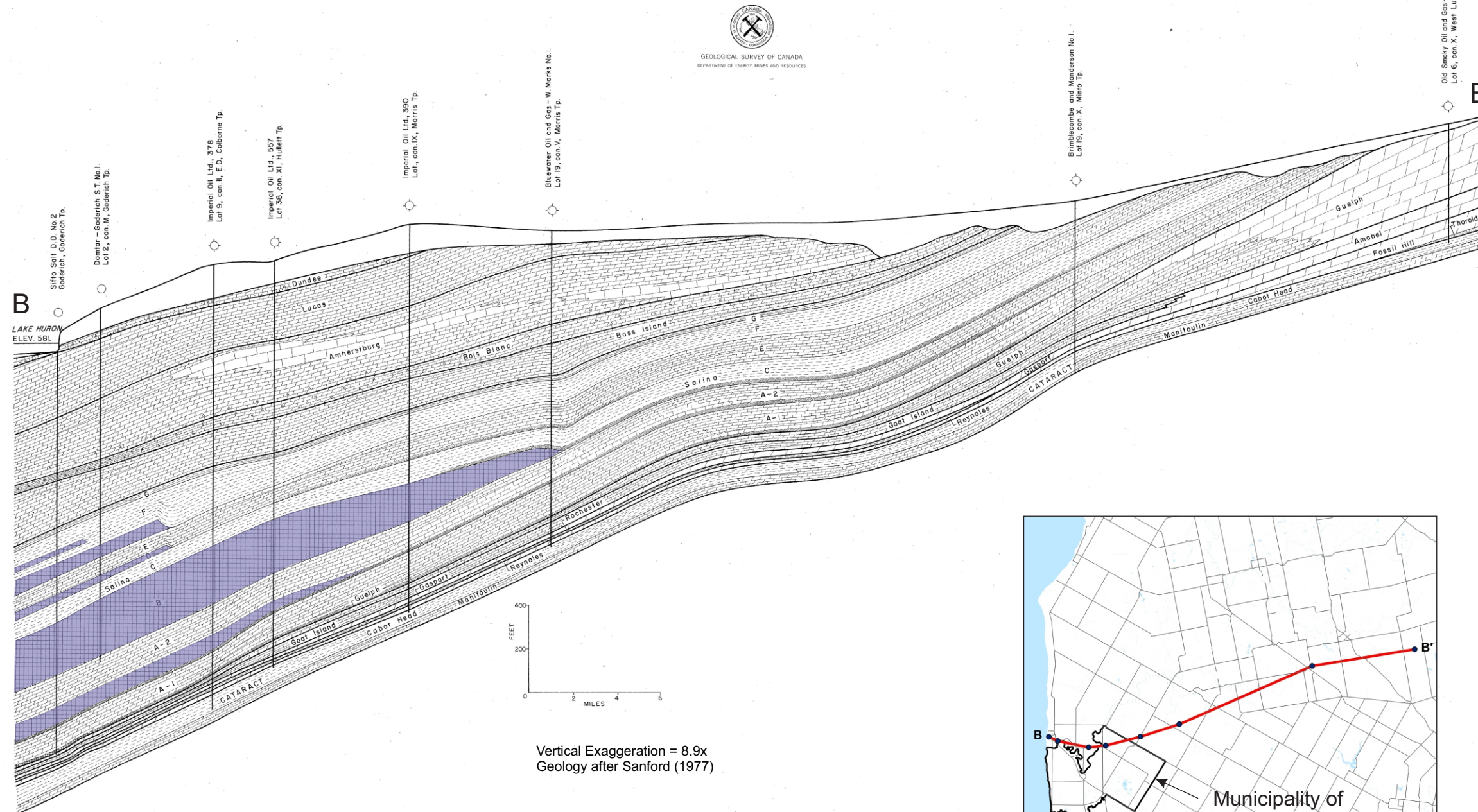
TITLE
Petroleum and Mineral Resources in the Central Huron Area

FIGURE 5.2	DESIGN: NMP CAD/GIS: VMS/ADG CHECK: KGR REV: 0	
	DATE: 4/14/2015	

West

East

Projected Extent of the Municipality of Central Huron



LEGEND

Dominant Lithology

- Salt
- Shale
- Limestone
- Dolostone

Note: The Rochester Fm and Reynales Fm are Southwestern Ontario - Lake Erie equivalents of the Lion's Head Member (Amabel Fm) and Fossil Hill Fm, shown in Table 3.1

PROJECT No. 10-214-11.20
 NWMO Phase 1 Geoscientific Desktop
 Preliminary Assessment Study -
 Central Huron

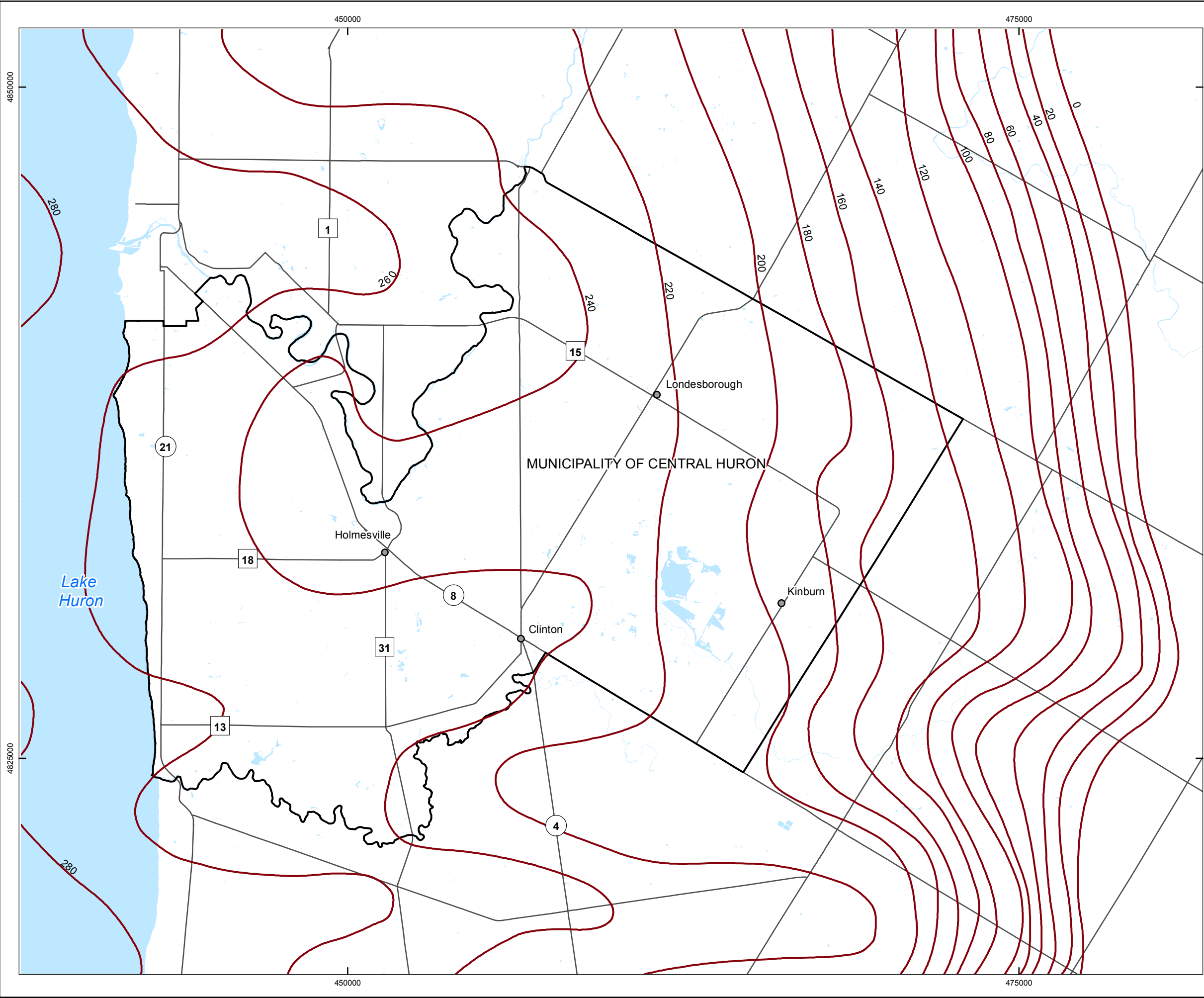
TITLE
**Regional Geological
 Cross-Section of the
 Silurian and Devonian Rocks
 of Southwestern Ontario**

**FIGURE
 5.3**

DESIGN: ADG
 Core/GIS: ADG
 CHECK: KGR
 REV: 0
 DATE: 2/27/2015



G:\Data\Project\Sedimentary_Site_NWMO\10-214-11_CentralHuron_Maps\CentralHuron_SuitabilityReport_Maps\10-214-11-10_CentralHuron_Fig5_4_SalinaBThickness.mxd



LEGEND

- Municipality of Central Huron
- Waterbody
- Highway/Major Road
- 100 Salina B Unit Salt Isopach (ft)

INDEX MAP

SCALE 1:140,000

0 1.25 2.5 5 7.5 10
Kilometres

COORDINATE SYSTEM: UTM NAD83 Zone 17N
SOURCE:
Basemap Layers: LIO, MNR, ESRI
Salt Occurrence: Sanford, 1977
Produced by Geofirma Engineering Ltd under license from Ontario Ministry of Natural Resources, ©Queens Printer 2011

NORTH

PROJECT No. 10-214-11

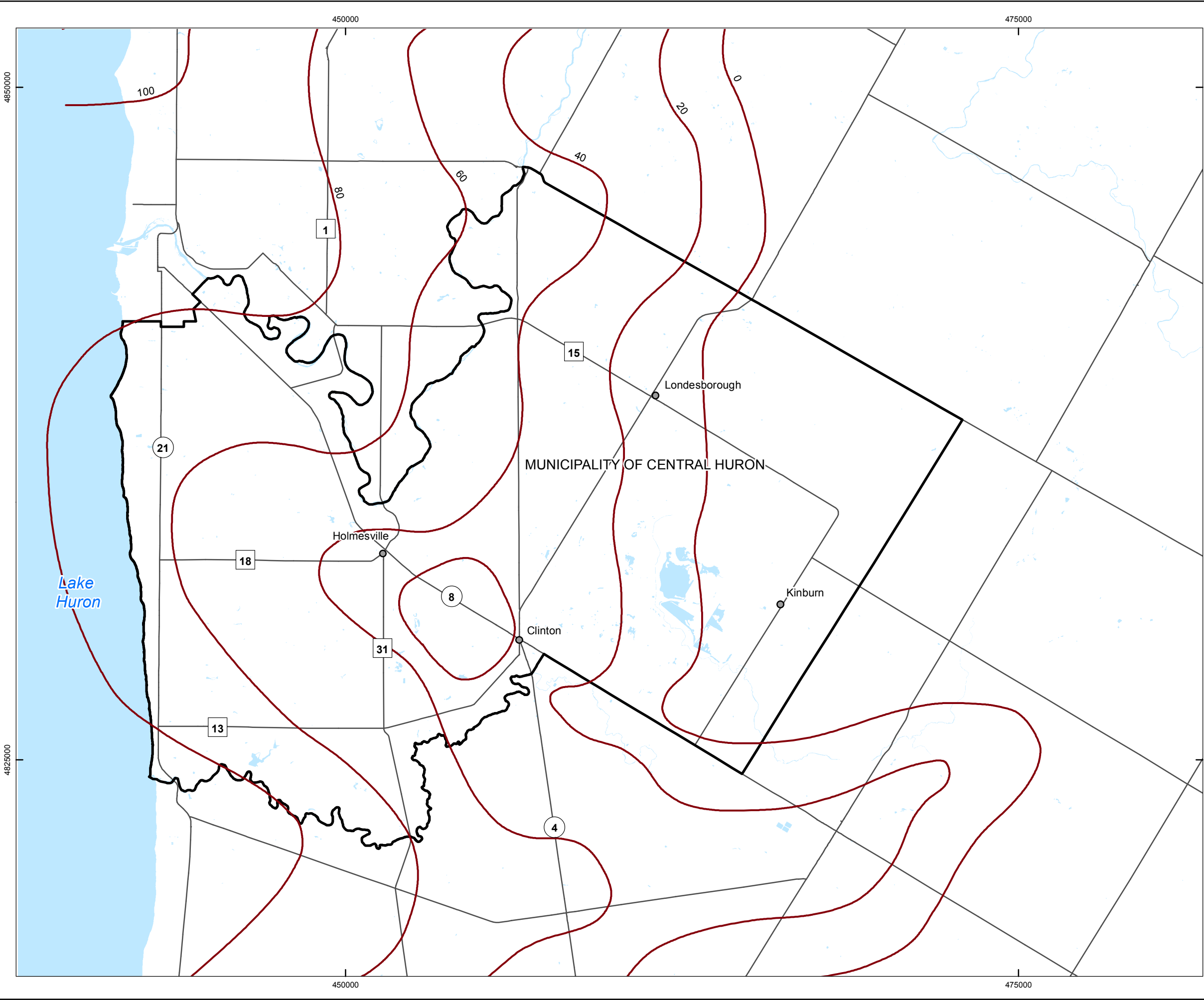
NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Central Huron

TITLE

Thickness of Salina B Unit Salt in the Central Huron Area

FIGURE 5.4	DESIGN: NMP CAD/GIS: VMS/ADG CHECK: KGR REV: 0	
	DATE: 10/7/2015	

G:\Data\Project\Sedimentary_Site_NWMO\10-214-11_CentralHuron\CentralHuron_SuitabilityReport_Maps\10-214-11-10_CentralHuron_Fig5_5_SalinaA2Thickness.mxd



LEGEND

- Municipality of Central Huron
- Waterbody
- Highway/Major Road
- 40 Salina A2 Unit Salt Isopach (ft)

INDEX MAP

SCALE 1:140,000

0 1.25 2.5 5 7.5 10
Kilometres

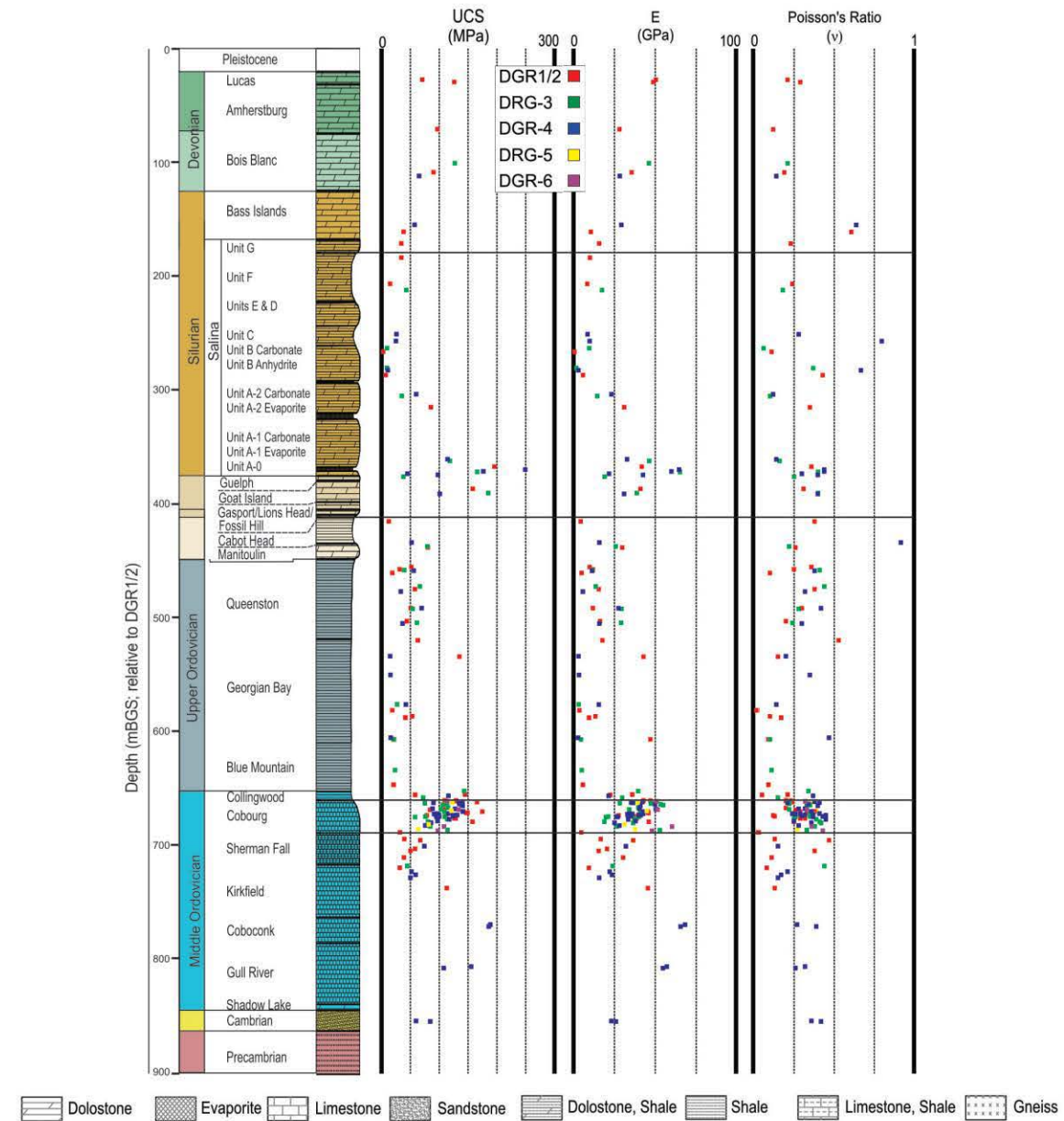
COORDINATE SYSTEM: UTM NAD83 Zone 17N
SOURCE:
Basemap Layers: LIO, MNR, ESRI
Salt Occurrence: Sanford, 1977
Produced by Geofirma Engineering Ltd under license from Ontario Ministry of Natural Resources, ©Queens Printer 2011

NORTH

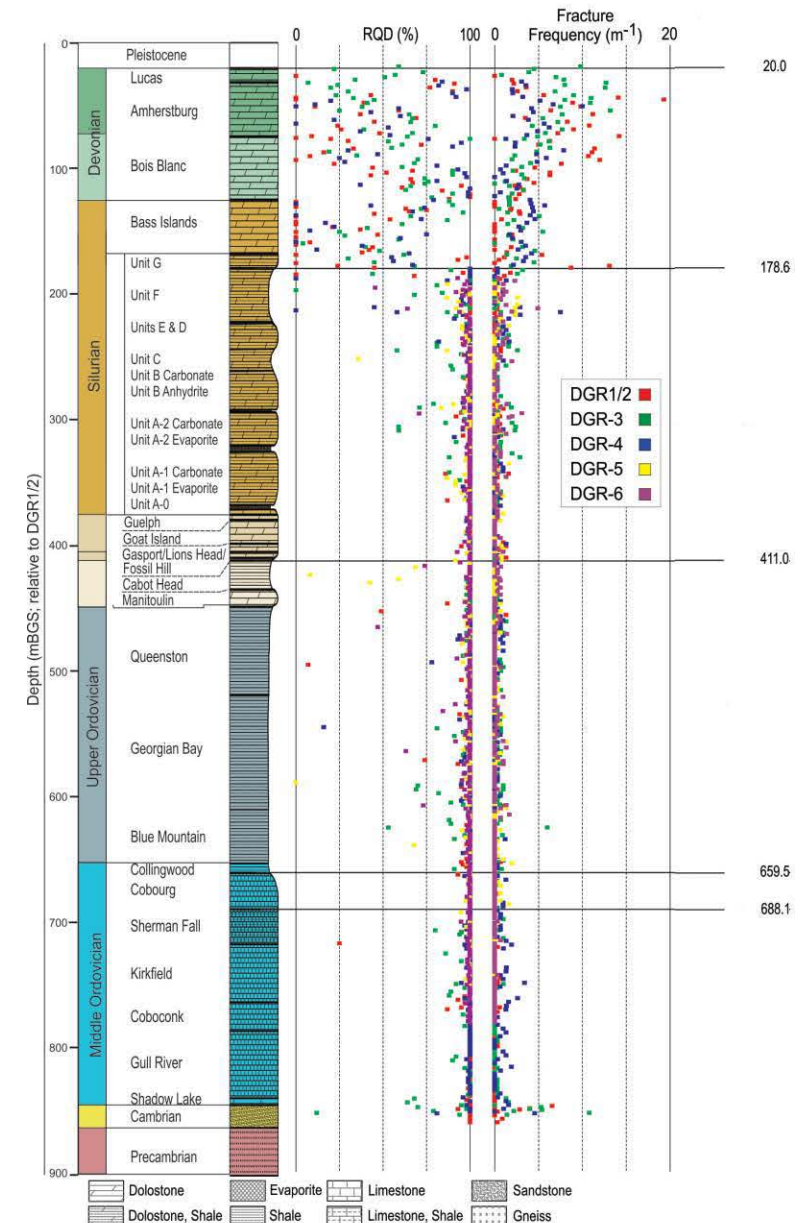
PROJECT No. 10-214-11
NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Central Huron

TITLE
Thickness of Salina A-2 Unit Salt in the Central Huron Area

FIGURE 5.5	DESIGN: NMP CAD/GIS: VMS/ADG CHECK: KGR REV: 0	
	DATE: 10/7/2015	



a. Uniaxial Compression Test Results
(after NWMO, 2011)



b. Reference Stratigraphic Column and RQD and Fracture Frequency
(after NWMO, 2011)

FIGURE 6.1 - Geomechanical Properties of Paleozoic Rocks at the Bruce Nuclear Site

NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Central Huron

Prepared by: VMS/ECK

Reviewed by: KGR

Date: 20/01/2015

Note: Stratigraphic nomenclature shown on figures predates Armstrong and Carter (2010), see Table 3.1 for current nomenclature





a. Manitoulin Formation Dolostone
480.75 - 483.79 mBGS
in DGR-5



b. Queenston Formation Shale
475.73 - 478.78 mBGS
in DGR-3



c. Blue Mountain Formation Shale
619.08 - 622.13 mBGS
in DGR-4



d. Cobourg Formation Limestone
677.03 - 680.08 mBGS
in DGR-3

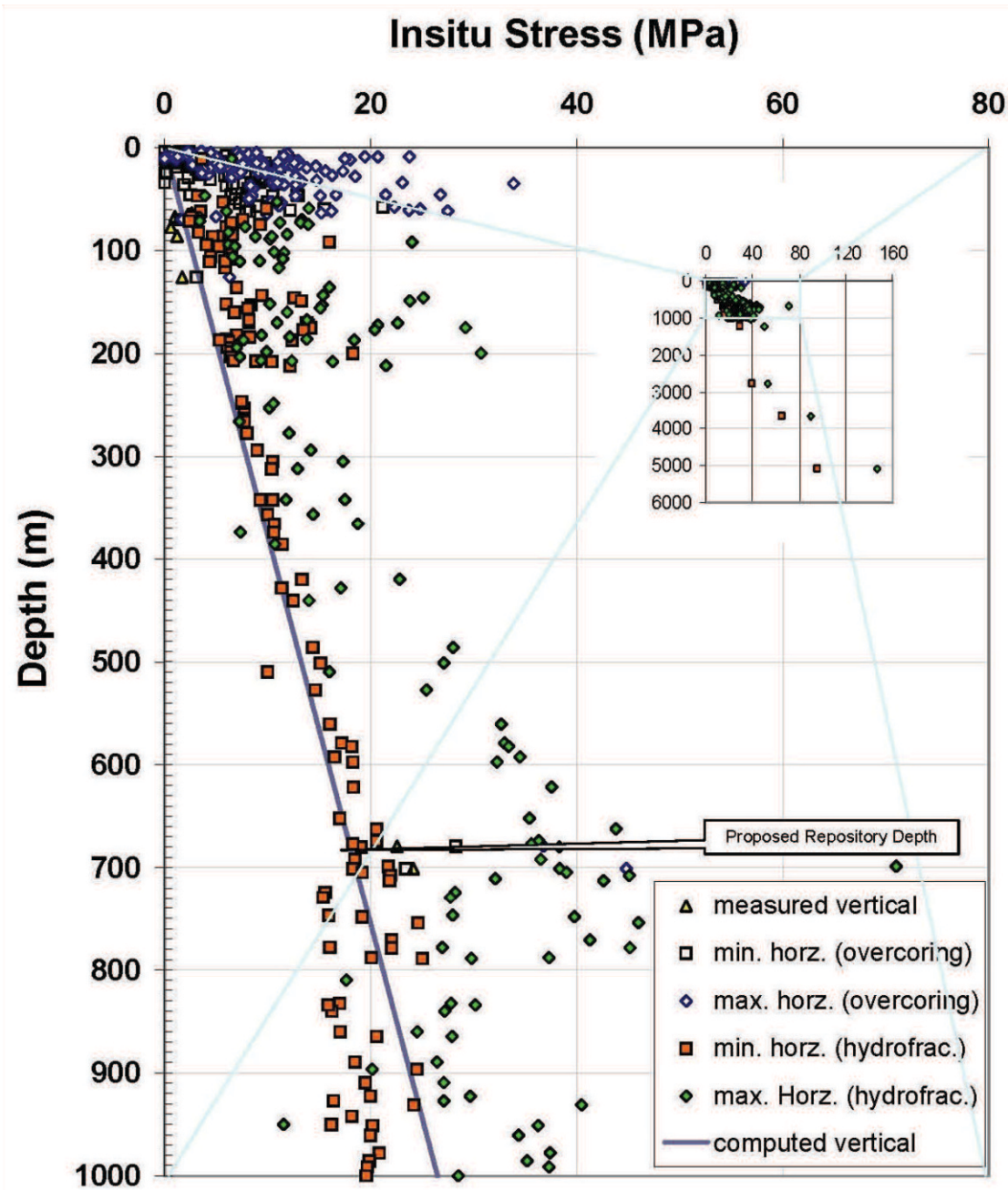
FIGURE 6.2 - Intact Core Runs of Paleozoic Formations at the Bruce Nuclear Site

NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Central Huron

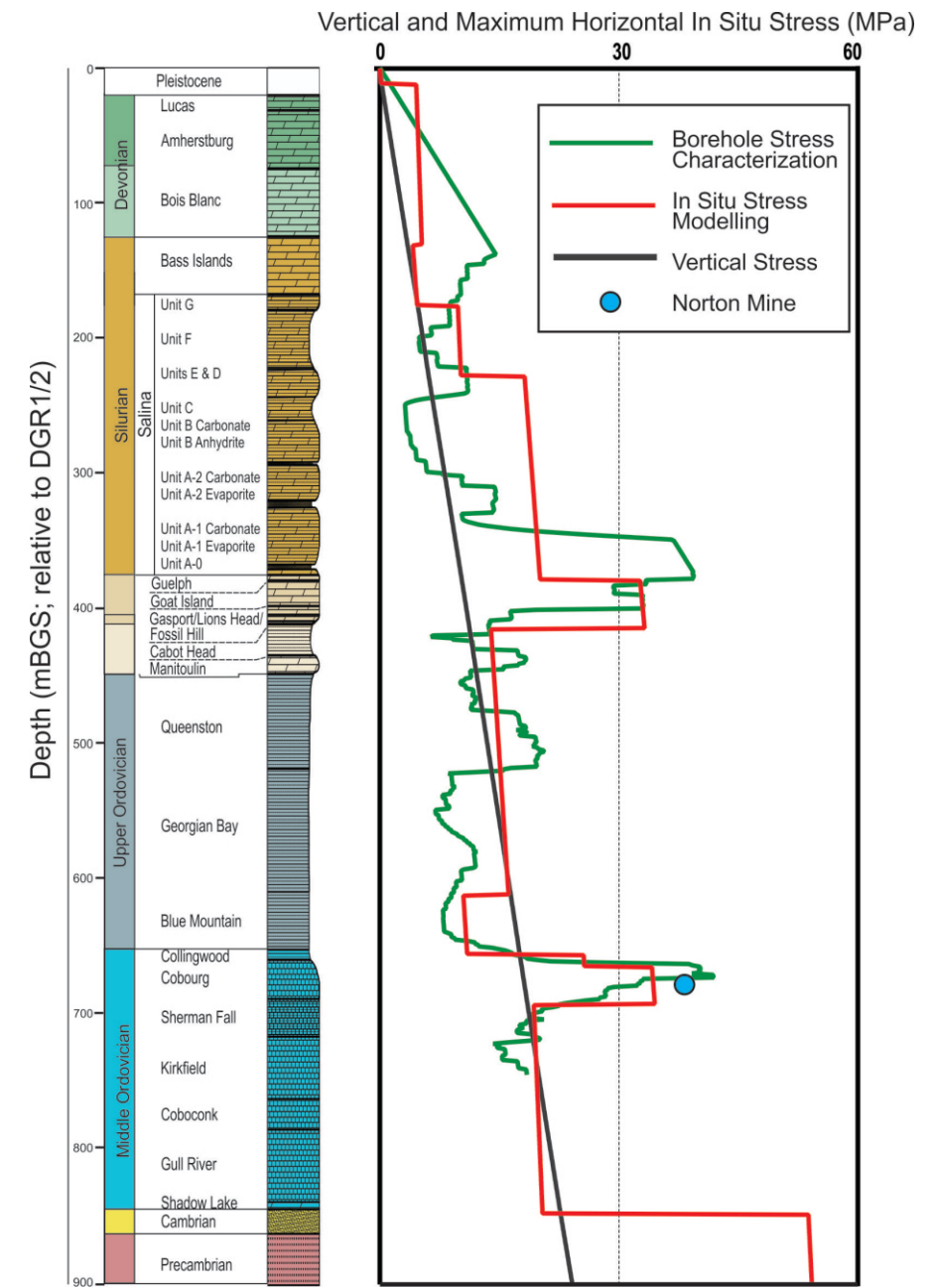
Prepared by: VMS/ECK

Reviewed by: KGR

Date: 20/01/2015



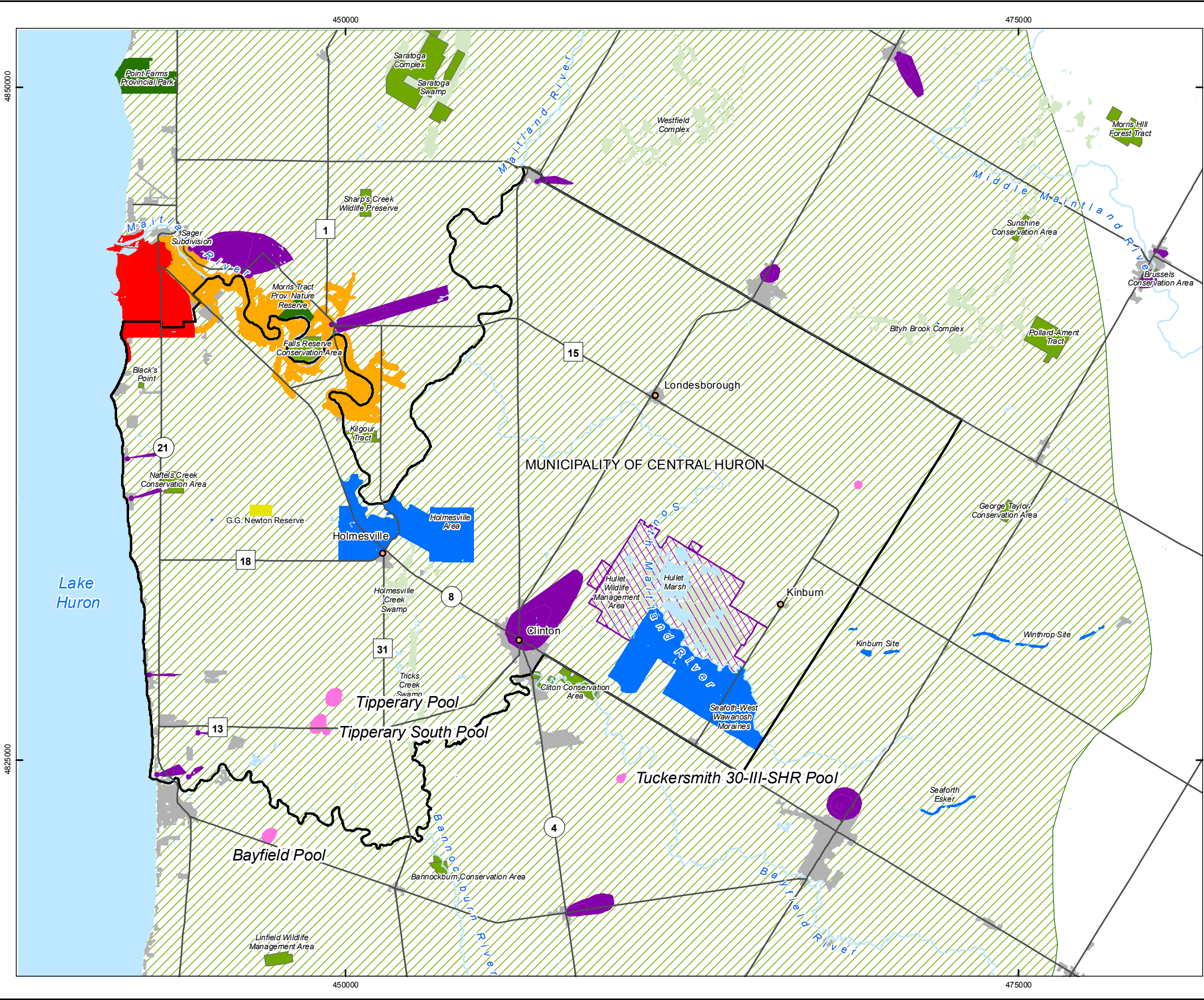
a. Distribution of Principal Stress with Depth in the Appalachian and Michigan Basins
(after: NWMO and AECOM Canada Ltd., 2011)



b. Calculated Maximum Horizontal Stress Profiles at the Bruce Nuclear Site
(after: NWMO, 2011)

FIGURE 6.3 - Distribution of Principal Stress with Depth in the Appalachian and Michigan Basins and Calculated Maximum Horizontal Stress Profiles at the Bruce Nuclear Site

G:\Data\Project\Sedimentary_Site_NWMO\10-214-11_CentralHuron\Maps\CentralHuron_SuitabilityReport_Maps\10-214-11-110_CentralHuron_Fig7_1_Geoscientific_Characteristics.mxd



LEGEND

- Municipality of Central Huron
- Highway/Major Road
- Watercourse
- Waterbody
- Oil and Gas Pools and Pinnacle Reefs (see Fig 5.3)
- ANSI (Earth Science)
- Built-Up Area
- Conservation Area/Reserve
- NGO Nature Reserve
- Provincial Park
- Provincial Wildlife Area
- Provincially Significant Wetland
- Surface Water Intake Protection Zone (IPZ) 1 and 2
- Wellhead Protection Area (WHPA) A, B, and C
- Wellhead Protection Area (WHPA) E
- Area of Salt Occurrence

Entire Study Area is >500m above the Cobourg Formation

Approximate Size of Repository Footprint

2 Km
3 Km

INDEX MAP

Extent of figure frame

SCALE 1:140,000

0 1.25 2.5 5 7.5 10
Kilometres

COORDINATE SYSTEM: UTM NAD83 Zone 17N
SOURCE:
Basemap Layers: LIO, MNR, ESRI
Oil and Gas Pools and Pinnacle Reefs: MRD 276 Regional structure and isopach maps of potential hydrocarbon-bearing strata for Southern Ontario, OGS, 2011
Protected Areas: LIO, 2014; ABCA, 2014
Salt Occurrence: Sanford, 1977
Source Water Protection: Ausable Bayfield Maitland Valley Protection Region, 2011a,b
Produced by Geofirma Engineering Ltd under license from Ontario Ministry of Natural Resources, ©Queens Printer 2011

PROJECT No. 10-214-11

NWMO Phase 1 Geoscientific Desktop Preliminary Assessment Study - Central Huron

TITLE
Characteristics and Constraints in the Central Huron Area

FIGURE 7.1	DESIGN: ADG CAD/GIS: VMS/ADG CHECK: KGR REV: 0	
	DATE: 05/10/2015	