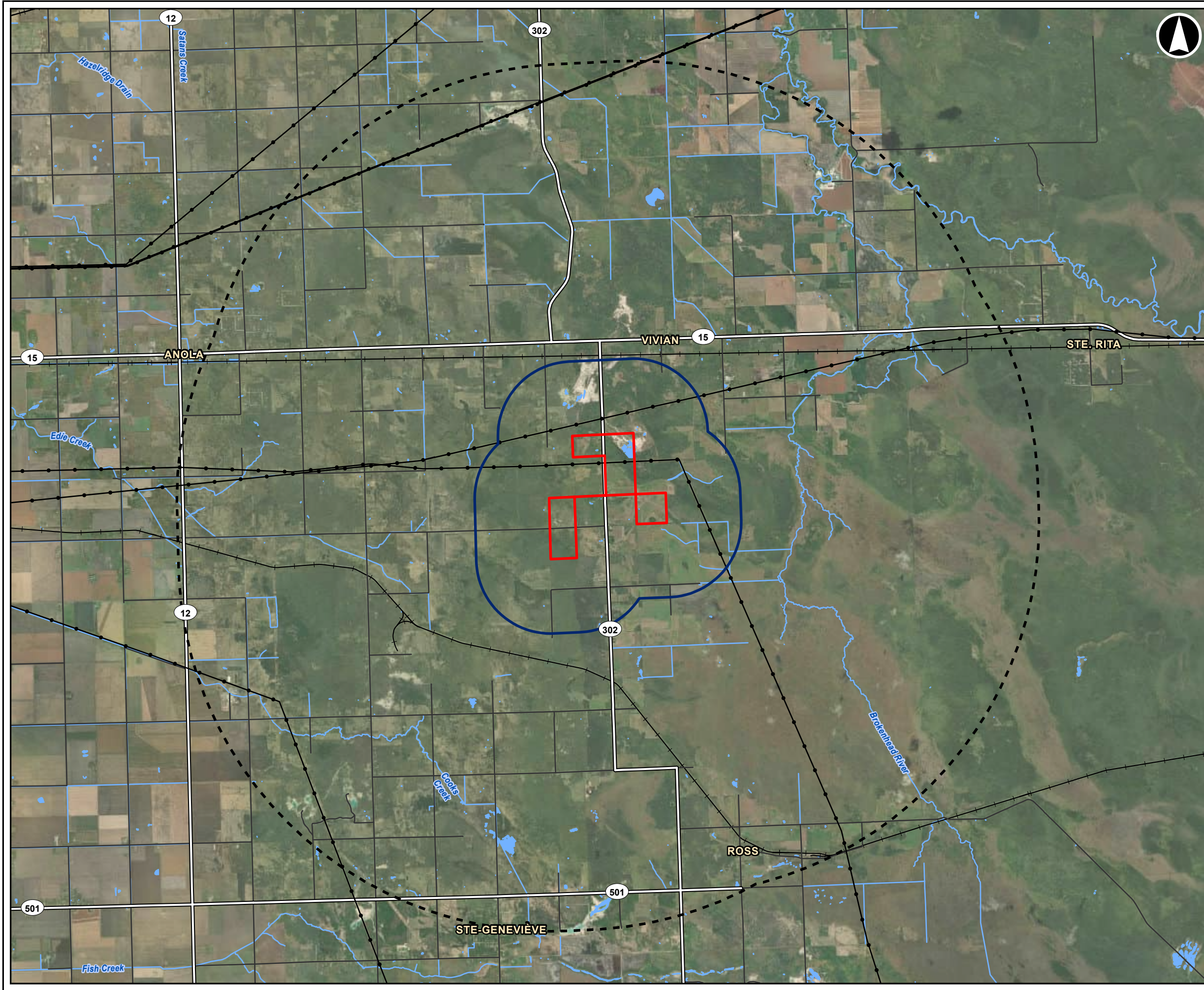


FIGURES





Legend

- Project Site Boundary
- Local Project Area
- Regional Project Area

General Features

- Highway
- Road
- Railway
- Transmission Line
- Watercourse
- Waterbody

SIMBA PROJECT
SIO SILICA CORPORATION
HYDROGEOLOGY AND GEOCHEMISTRY ASSESSMENT

SPATIAL BOUNDARIES

0 1 2 3 4
Kilometres

Datum: NAD 1983 UTM Zone 14N

Nov, 2024	PN#: 60730241	1:100,000 * when printed 11"x17"
-----------	---------------	-------------------------------------

Figure 1-2

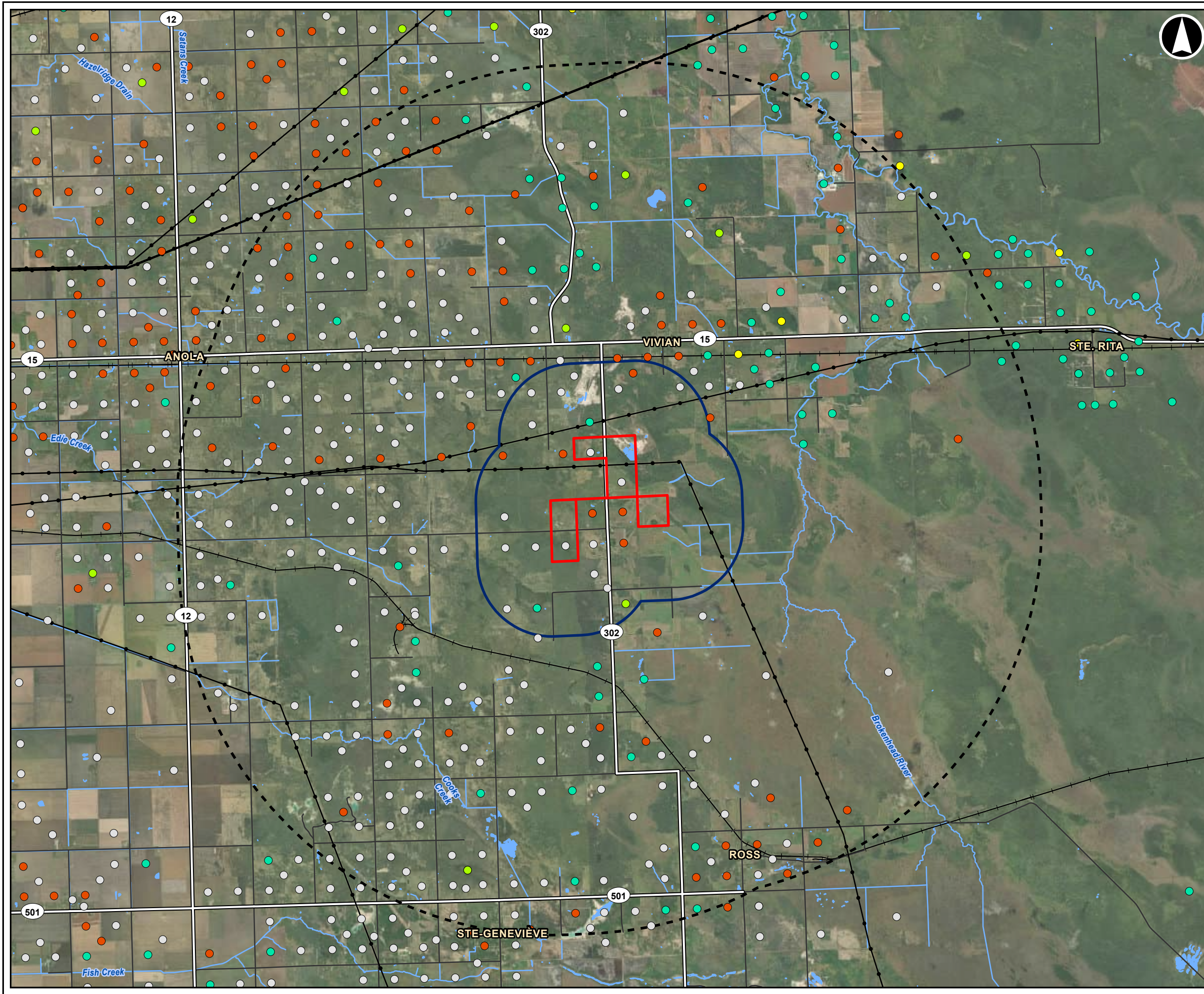
Data Sources: ML, NRCan - Canvec
Earthstar Geographics

AECOM

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

MAP LOCATION: L:\DISCUSSION\T08080320\1\SIO_SILICA\EXTRACT\REPORT\HYDROGEOLOGY\PR_60730241_SIO_SILICA\EXTRACT_HYDROGEOLOGY\APRX_FIGURE_MAP_FIG_2_HYDROGEO_SPATIALBOUNDARIES

DATE SAVED: 2024-11-21 USER: NAME PAGE: CROSSMAN



Legend

- Project Site Boundary
- Local Project Area
- Regional Project Area

Existing Goundwater Users by Aquifer

- Quaternary Sediments
- Red River Carbonate
- Winnipeg Shale
- Winnipeg Sandstone
- Lower Shale/Precambrian

General Features

- Highway
- Road
- Railway
- Transmission Line
- Watercourse
- Waterbody

SIMba PROJECT
SIO SILICA CORPORATION
HYDROGEOLOGY AND GEOCHEMISTRY ASSESSMENT

EXISTING GROUNDWATER USERS BY AQUIFER

01234

Kilometres

Datum: NAD 1983 UTM Zone 14N

Nov, 2024

PN#: 60730241

1:100,000
* when printed 11"x17"

Figure 1-3

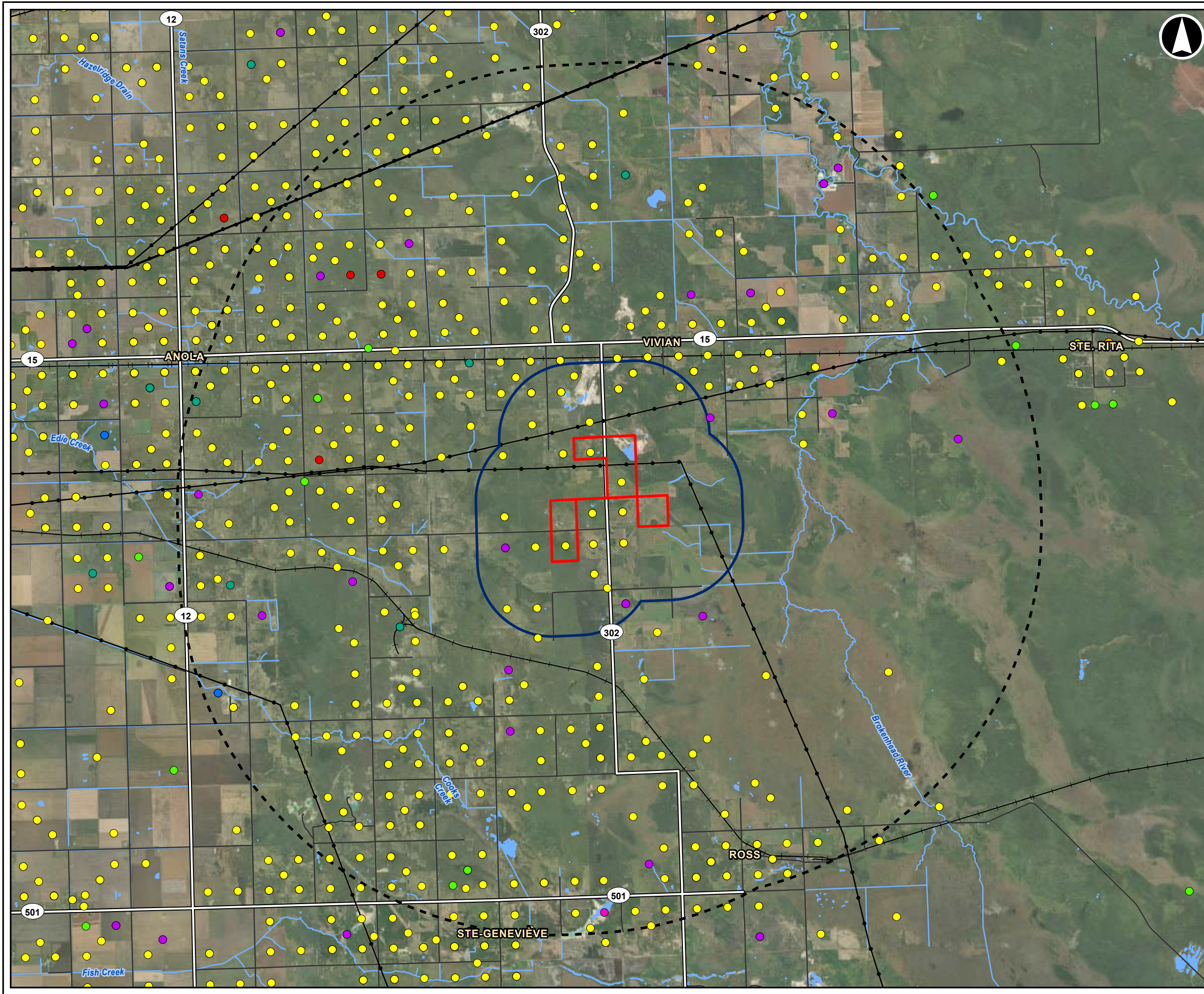
AECOM

Data Sources: MLI, GIN, NRCan - Canvec
Earthstar Geographics

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

MAP LOCATION: L:\DISCUSSION\T08030241\SIO SILICA\EXTRACT\REPORTS\HYDROGEOLOGY\PR_60730241_SIO SILICA\EXTRACT_HYDROGEOLOGY\APRX_FIGURE MAP_FIG 3_HYDROGEOG_GROUNDWATERWELLSUSER

DATE SAVED: 2024-11-21 USER NAME: PAGE CROSSMAN



Legend

- Project Site Boundary
- Local Project Area
- Regional Project Area

Existing Goundwater Users by Type

- Air Conditioning
- Domestic
- Industrial
- Irrigation
- Livestock
- Missing
- Municipal
- Other

General Features

- Highway
- Road
- Railway
- Transmission Line
- Watercourse
- Waterbody

SIMBA PROJECT
SIO SILICA CORPORATION
HYDROGEOLOGY AND GEOCHEMISTRY ASSESSMENT

EXISTING GROUNDWATER USERS BY TYPE

01234

Kilometres

Datum: NAD 1983 UTM Zone 14N

Nov, 2024

PN#: 60730241

1:100,000
* when printed 11"x17"

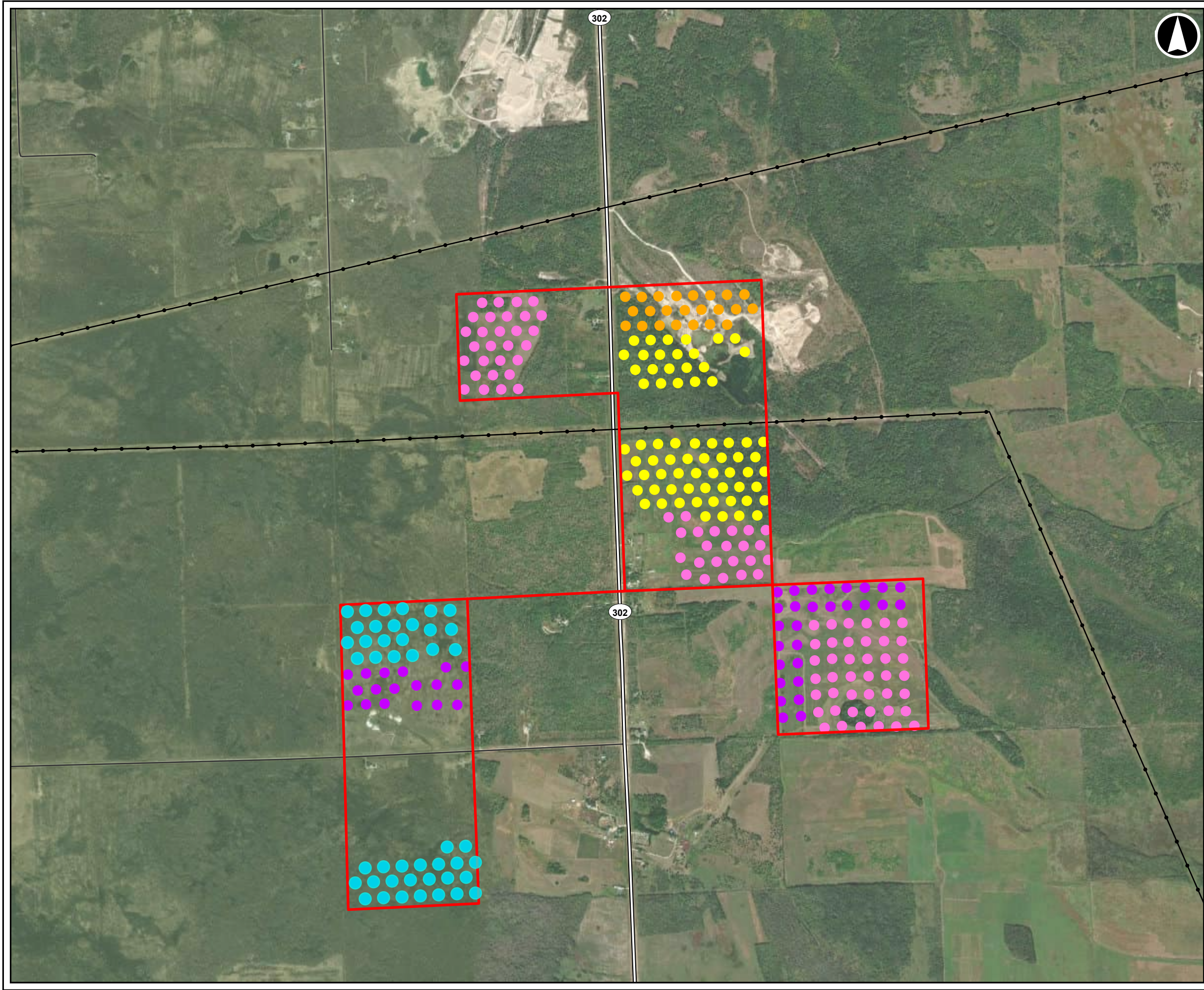
AECOM

Figure 1-4

Data Sources: MLI, GIN, NRCan - Canvec
Earthstar Geographics

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

MAP LOCATION: L:\DISCUSSION\T08030241_SIO_SILICA\EXTRACT\REPORTS\HYDROGEOLOGY\PR_60730241_SIO_SILICA\EXTRACT_HYDROGEOLOGY\APRX_FIGURE_MAP_FIG_1_HYDROGEOG_GROUNDWATERWELLSTYPE
DATE SAVED: 2024-11-21 USER NAME: PAGE CROSSMAN



Legend

Project Site Boundary

Proposed Silica Sand Extraction Years

Year 0

Year 1

Year 2

Year 3

Year 4

General Features

Highway

Road

Railway

Transmission Line

SIMba PROJECT

SIO SILICA CORPORATION

HYDROGEOLOGY AND GEOCHEMISTRY ASSESSMENT

PROPOSED SILICA SAND EXTRACTION

(YEARS 0 TO 4)

02004006008001000

Metres

Datum: NAD 1983 UTM Zone 14N

Nov, 2024

PN#: 60730241

1:20,000
* when printed 11"x17"

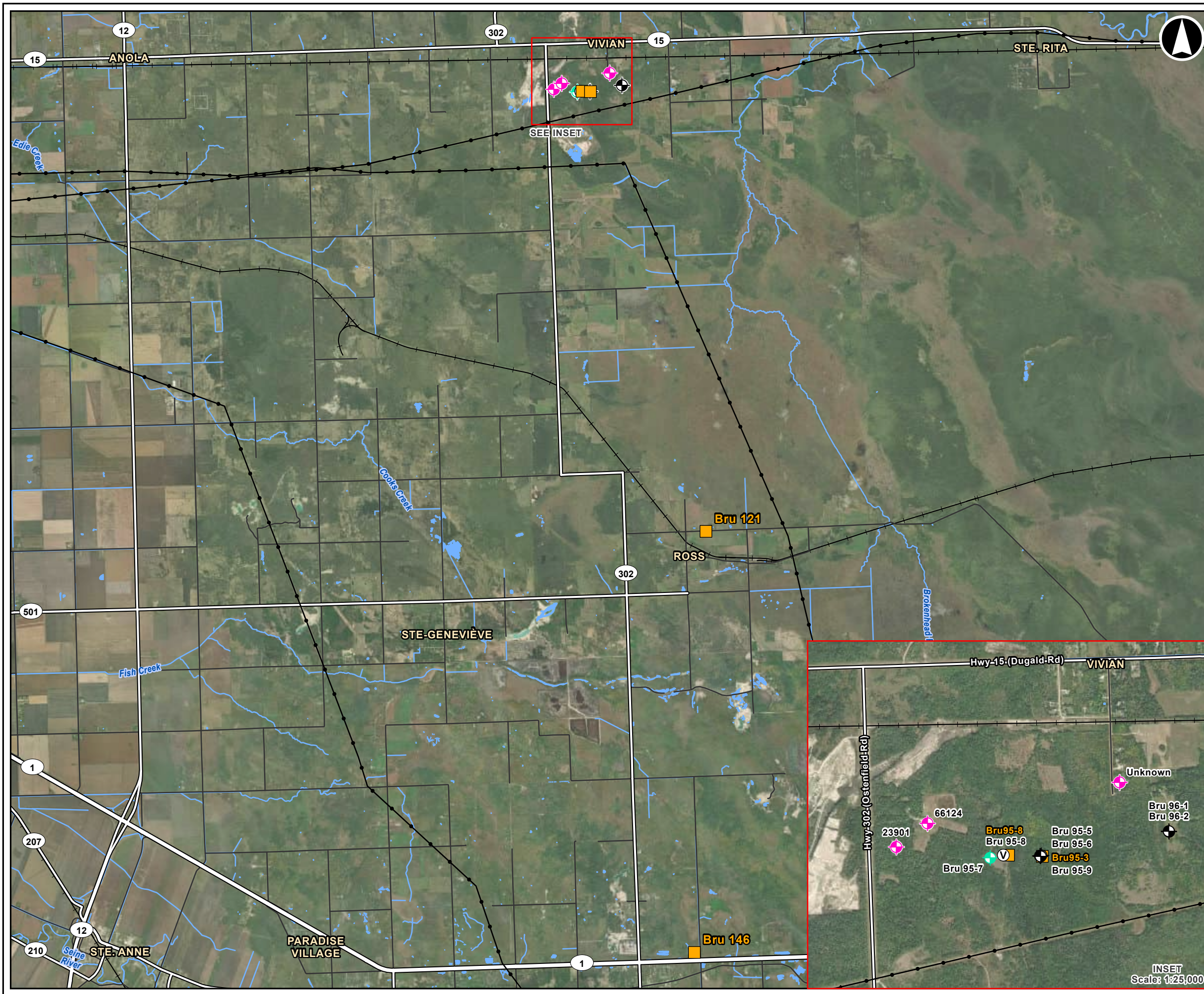
Figure 2-1

AECOM

Data Sources: ML, NRCan - Canvec
Maxar

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

\\AECOM\LOCATION\L\DISCUSSION\T0808030241_SIO_SILICA_EXTRACT\REPORTS\HYDROGEOLOGY\PR_60730241_SIO_SILICA_EXTRACT_HYDROGEOLOGY\APRX_FIGURE_MAP_FIG2_1_HYDROGEOC_YEAR0-4
DATE SAVED: 2024-11-21 USERNAME: PAGE CROSSMAN

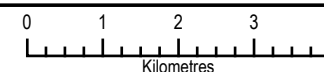


- Legend**
- Groundwater Monitoring Well (Sio)
 - Vibrating Wire Piezometers (Sio)
 - Geochemistry Sample Location
 - Water Supply Wells (Sio)
 - Surveyed Domestic Well

- General Features**
- Highway
 - Road
 - Railway
 - Transmission Line
 - Watercourse
 - Waterbody

**SIMba PROJECT
SIO SILICA CORPORATION
HYDROGEOLOGY AND GEOCHEMISTRY ASSESSMENT**

SITE INVESTIGATION PLAN



Datum: NAD 1983 UTM Zone 14N

Nov, 2024 PN#: 60730241 1:100,000
* when printed 11"x17"

Figure 3-1

AECOM

Data Sources: ML, NRCan - Canvec
Earthstar Geographics, Maxar

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

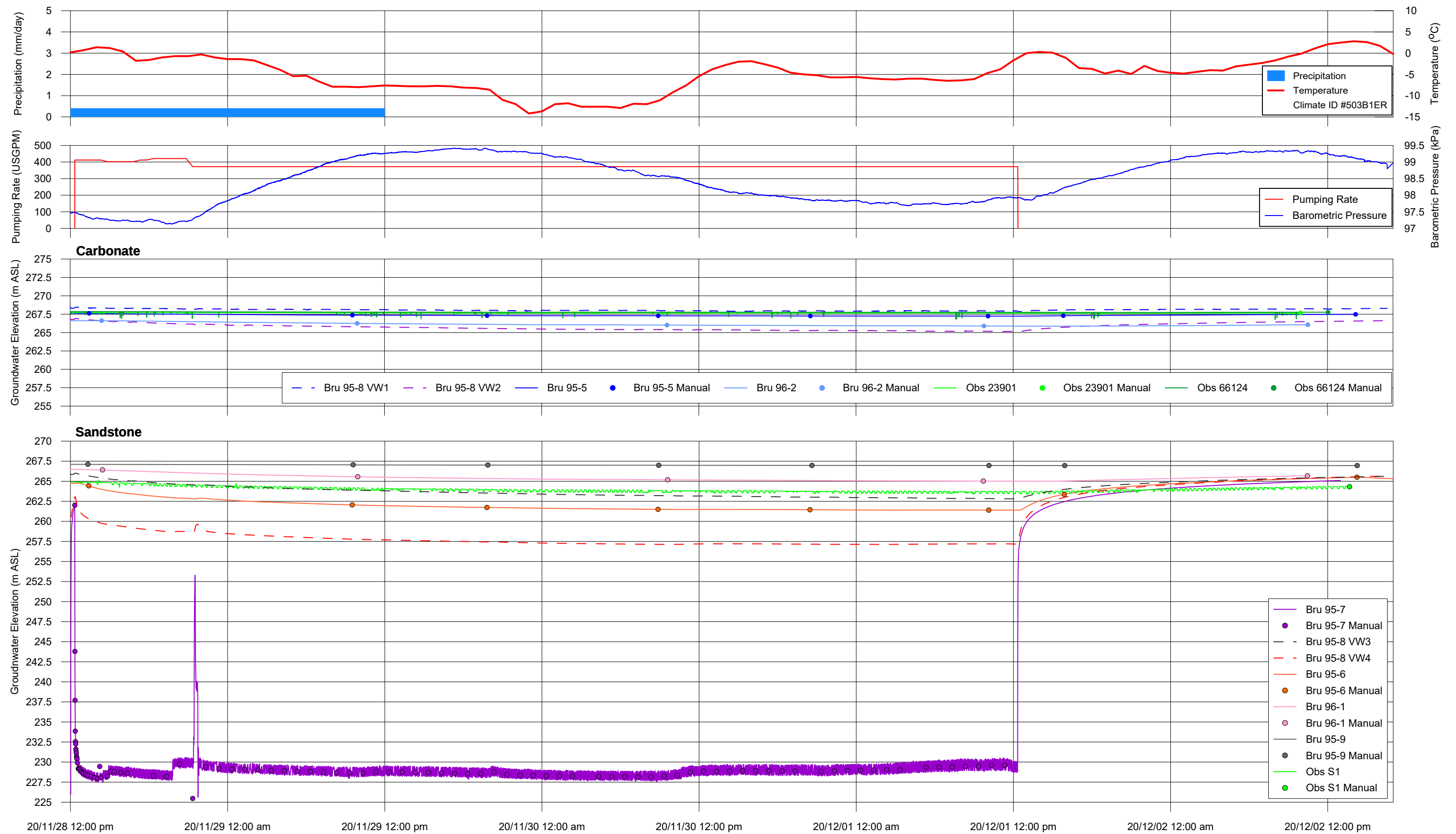


Figure 3-2. Groundwater Levels During Pumping Test – Red River Carbonate and Winnipeg Sandstone

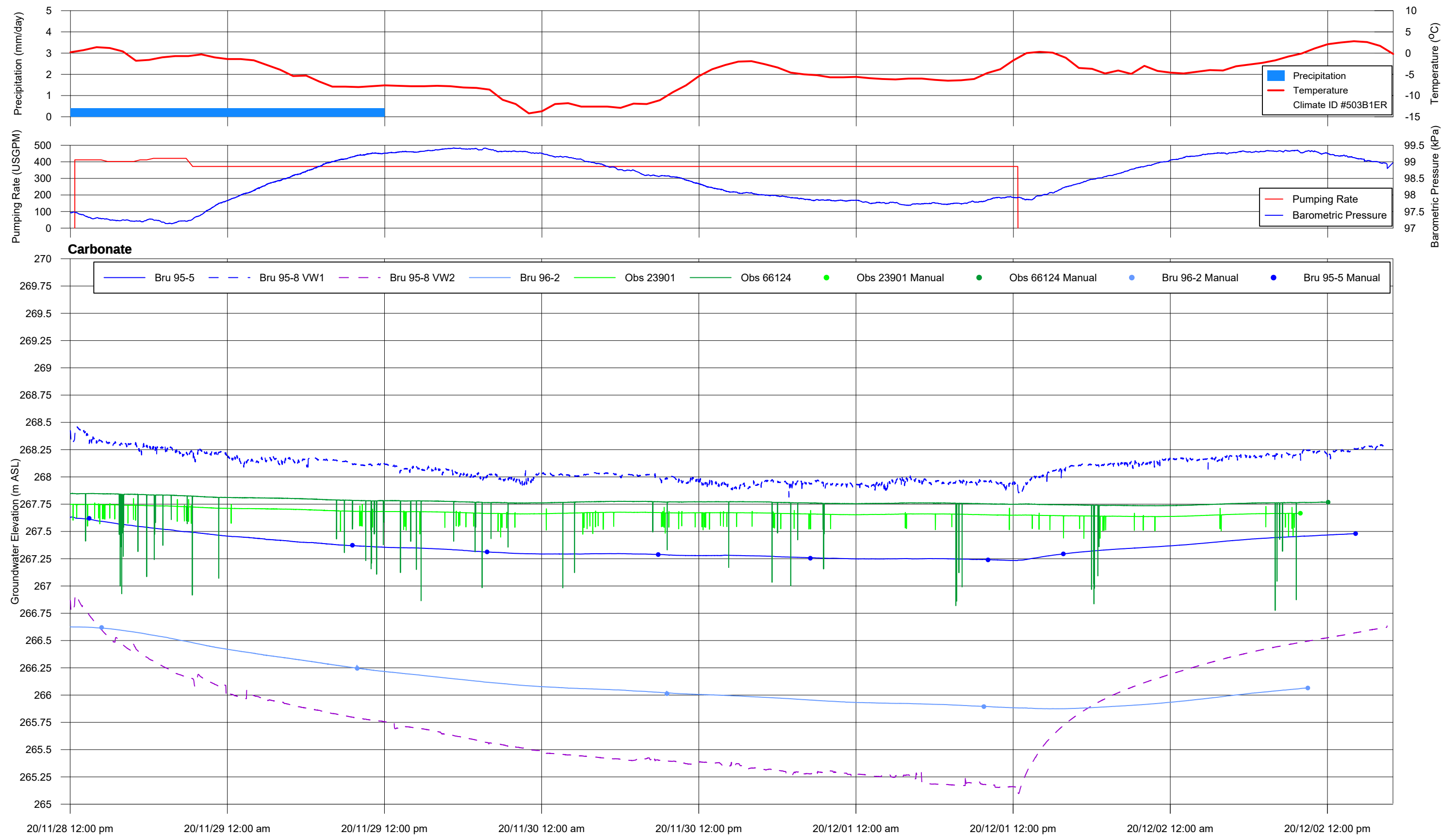


Figure 3-3. Groundwater Levels During Pumping Test – Red River Carbonate



Legend

- Groundwater Monitoring Well (Sio)
- Vibrating Wire Piezometers (Sio)
- Water Supply Wells (Sio)
- Surveyed Domestic Well
- Extent of 1 m Drawdown Cone (Carbonate)
- Extent of 1 m Drawdown Cone (Sandstone)
- (1.5 m) Measured Drawdown (Carbonate)
- (2.8 m) Measured Drawdown (Sandstone)

General Features

- Highway
- Road
- Railway
- Transmission Line

SIMBA PROJECT
SIO SILICA CORPORATION
HYDROGEOLOGY AND GEOCHEMISTRY ASSESSMENT

MAXIMUM EXTENT OF DRAWDOWN DURING 72-HOUR PUMPING TEST

0 100 200 300 400
Metres

Datum: NAD 1983 UTM Zone 14N

Nov, 2024	PN#: 60730241	1:10,000 *when printed 11"x17"
-----------	---------------	-----------------------------------

Figure 3-4

Data Sources: ML, NRCan - Canvec
Maxar

AECOM

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

\\AECOM\LOCATION\PROJECTS\SI\2024\07\2024_07_20_1300_SILICA_CORPORATION_HYDROGEOLOGY_AND_GEOCHEMISTRY_ASSESSMENT\Figure 3-4_HYDROGEOLOGY_DRAWING.DWG DATE: 2024-11-21 USER: NAME PAGE: CROSSMAN

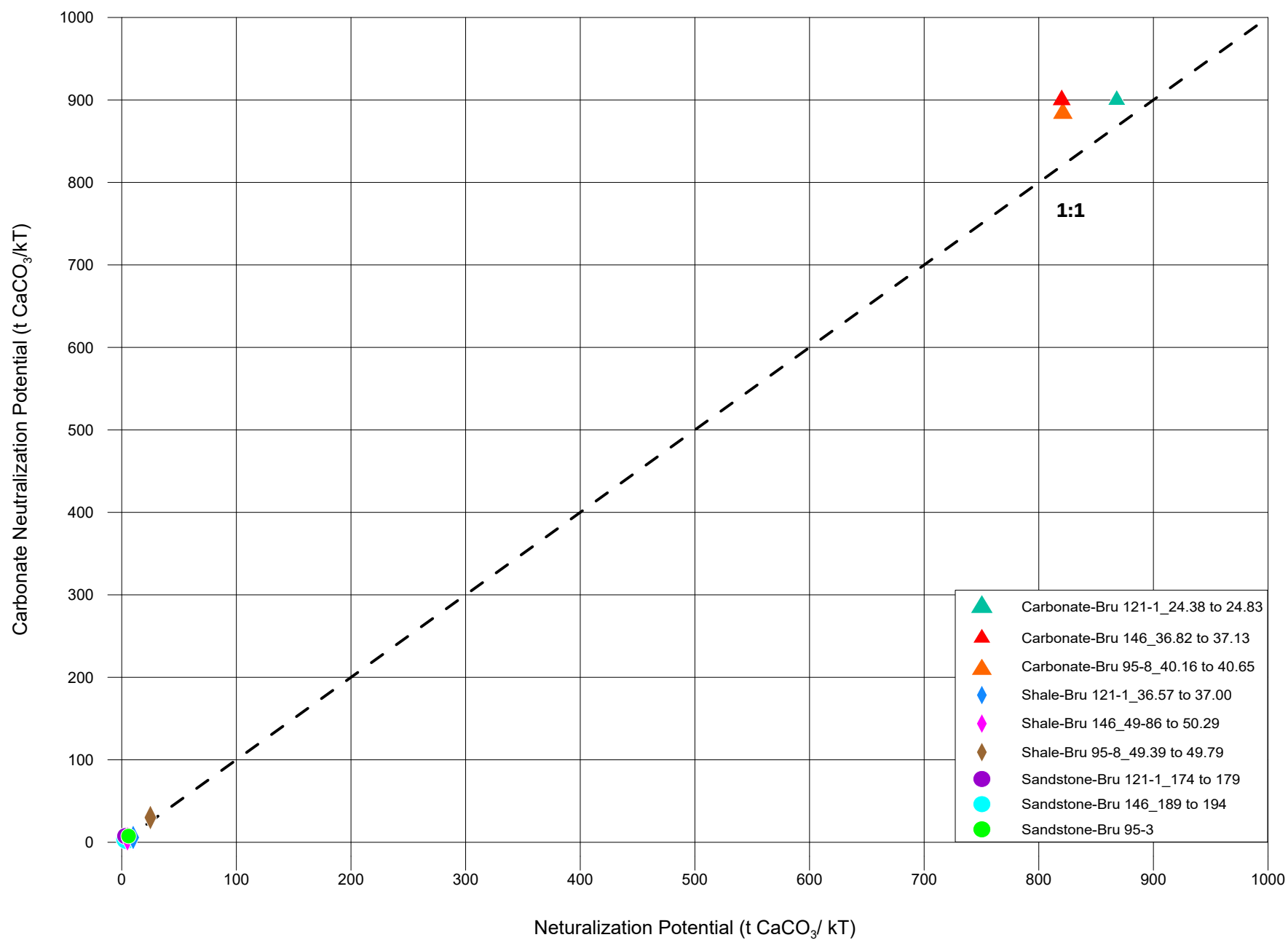


Figure 4-1. Neutralization Potential (NP) vs. Carbonate Neutralization Potential (CaNP)

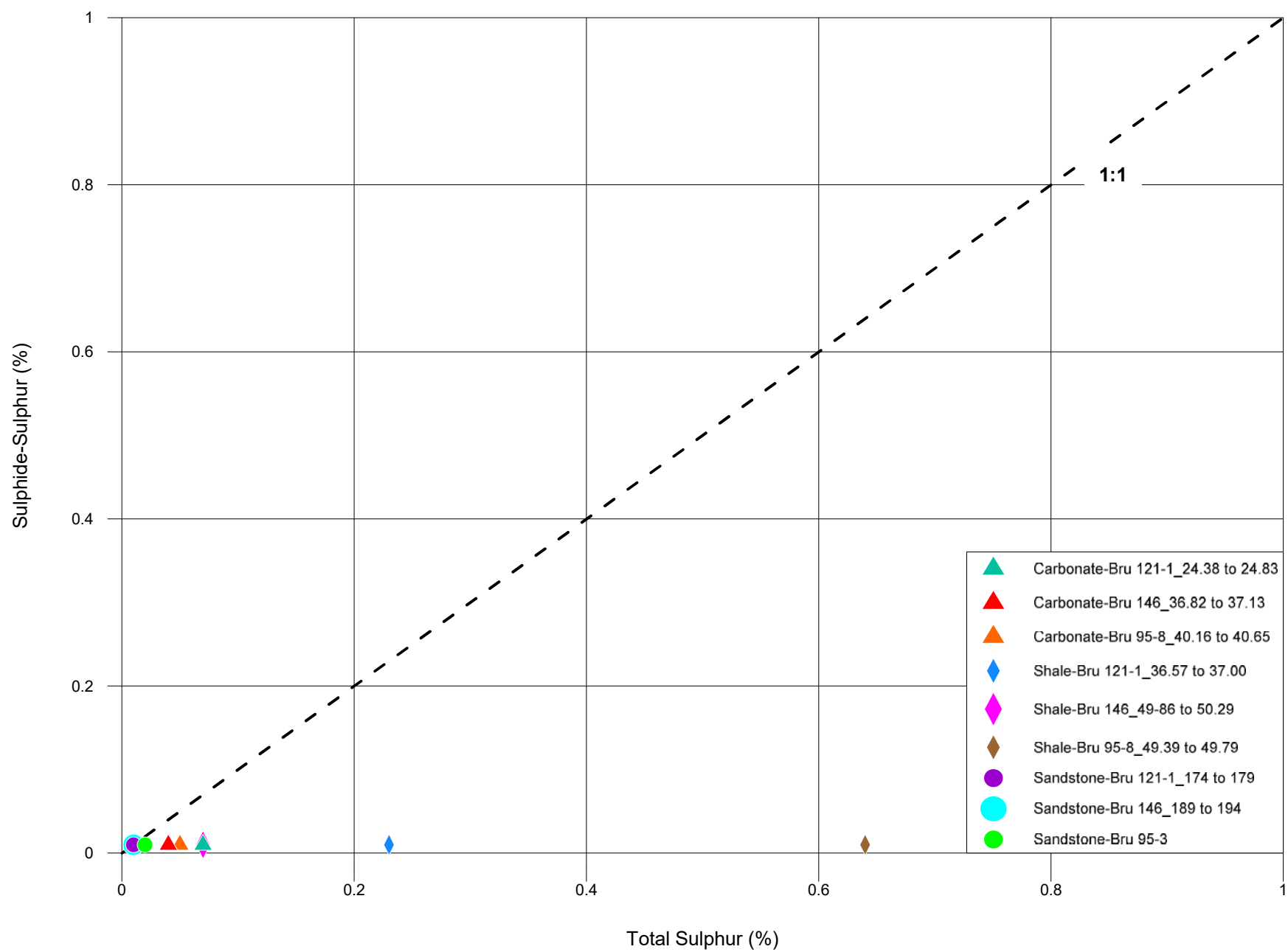


Figure 4-2. Sulphide Sulphur (%) vs. Total Sulphur (%)

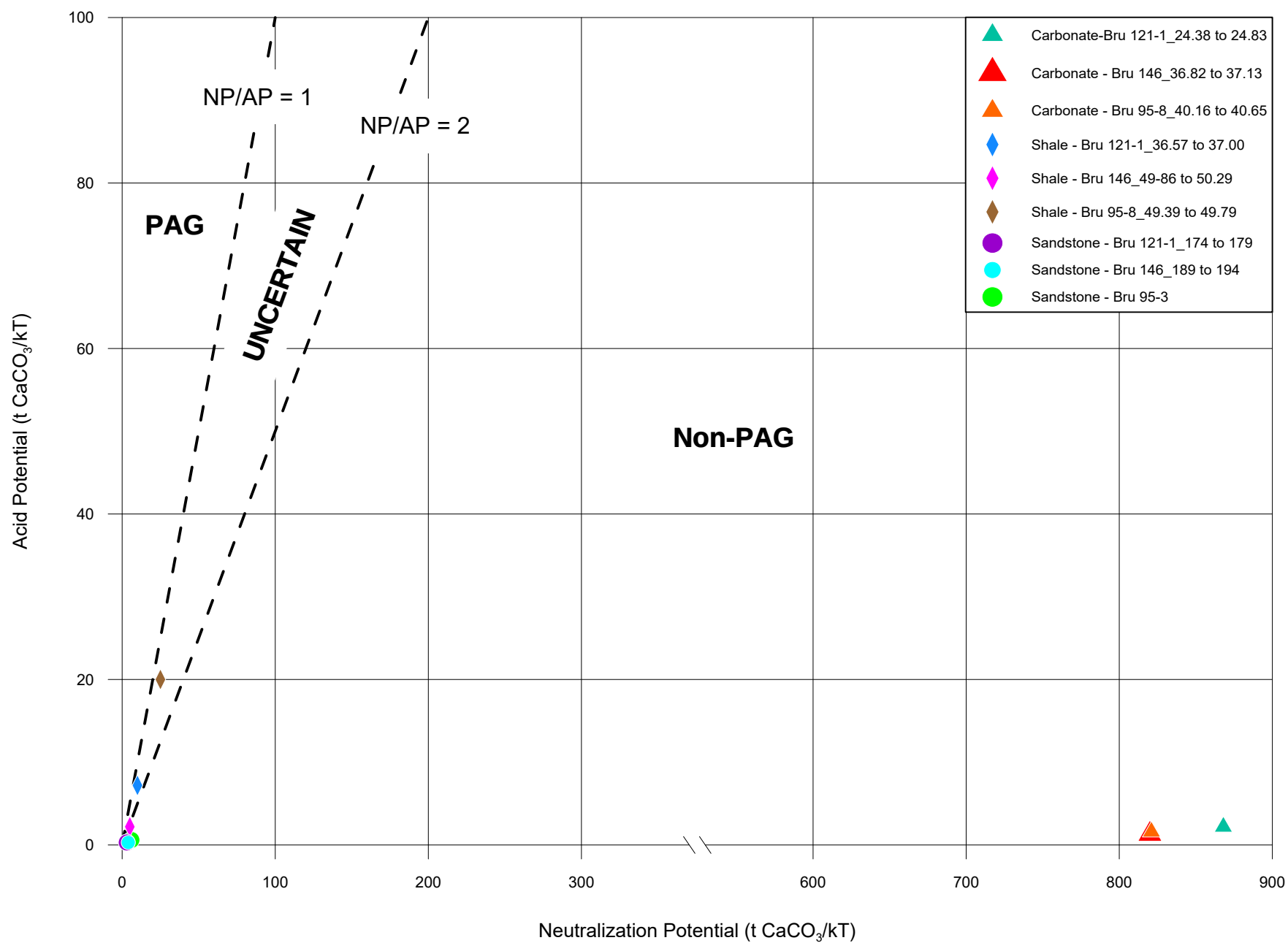


Figure 4-3. Acid Generation Potential (AP) vs. Neutralization Potential (NP)

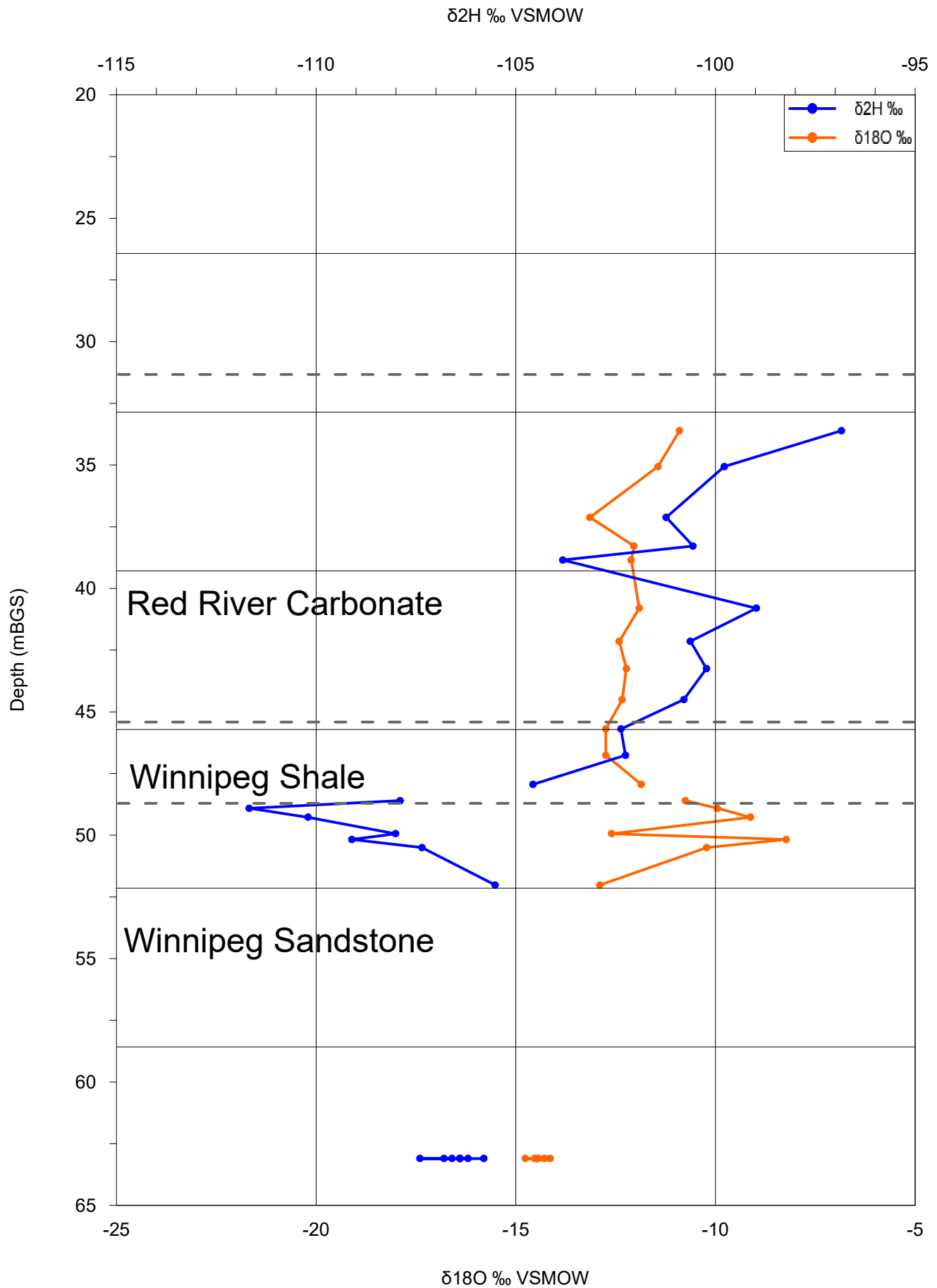


Figure 4-4. Depth Profile of Stable Isotopes - Oxygen-18 and Deuterium

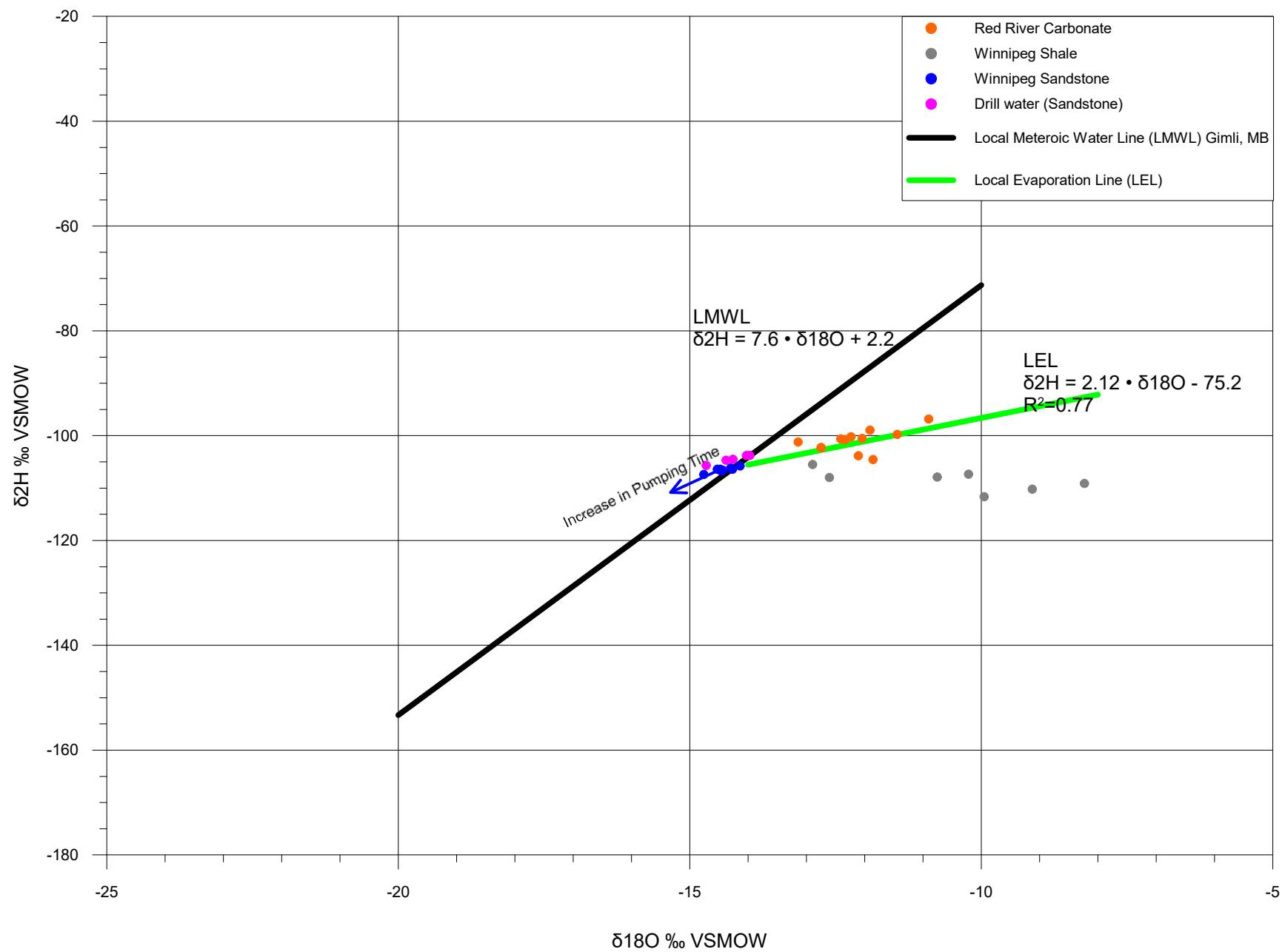


Figure 4-5. Stable Isotopes of Water in Carbonate, Sandstone and Shale Units

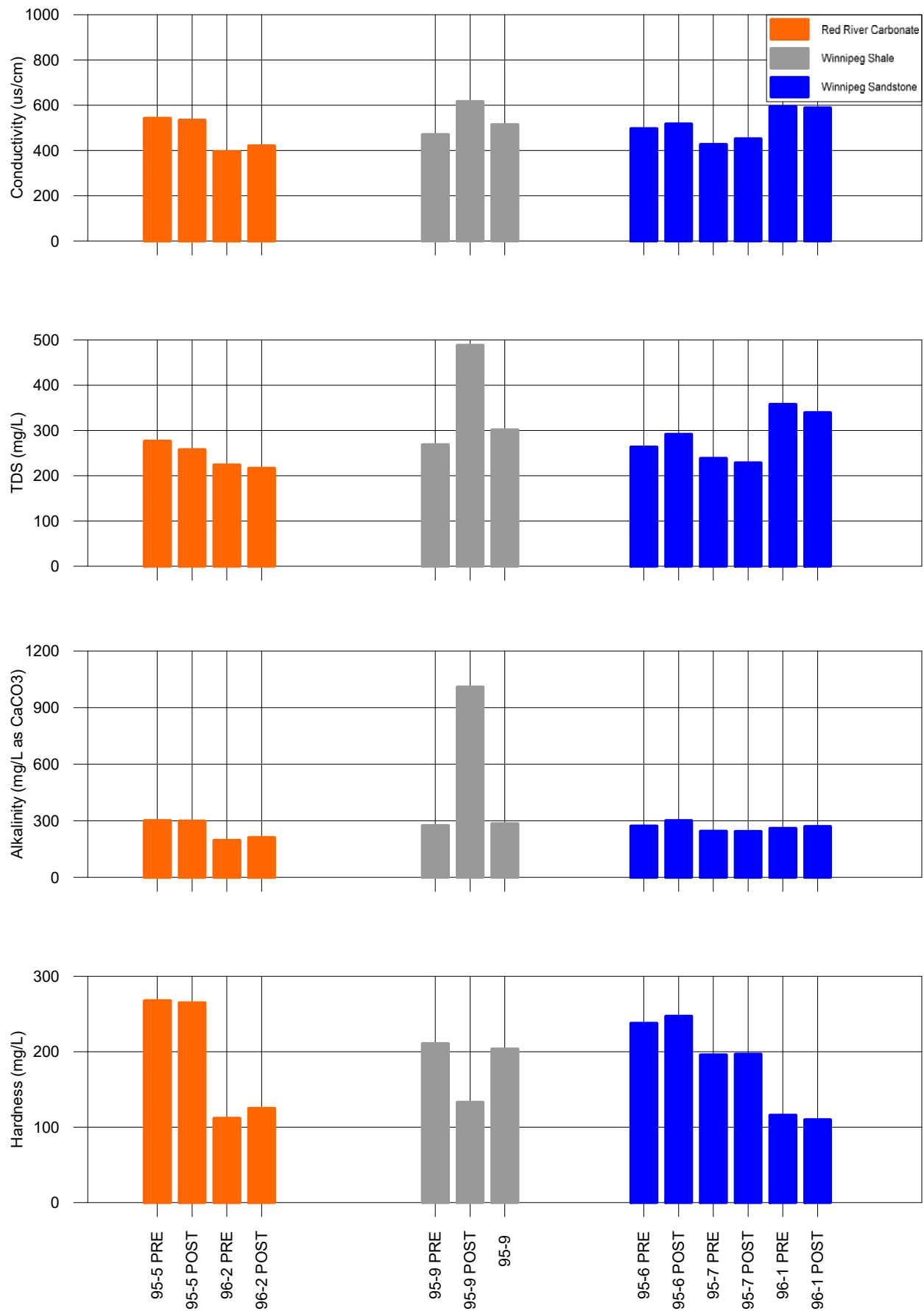


Figure 4-6. Groundwater Chemistry - Conductivity, Total Dissolved Solids, Alkalinity and Hardness **AECOM**

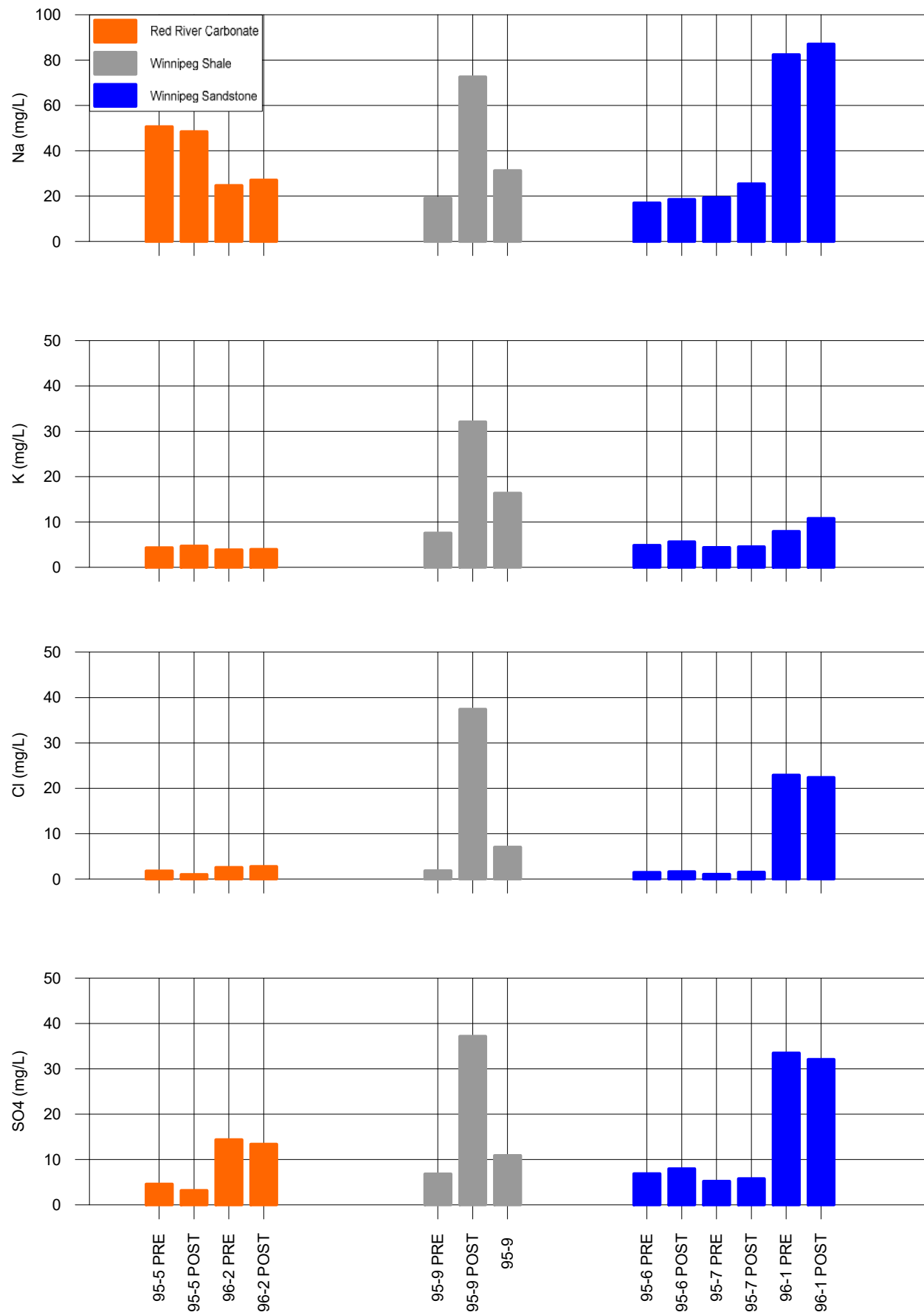


Figure 4-7. Groundwater Chemistry – Sodium, Potassium, Chloride and Sulphate

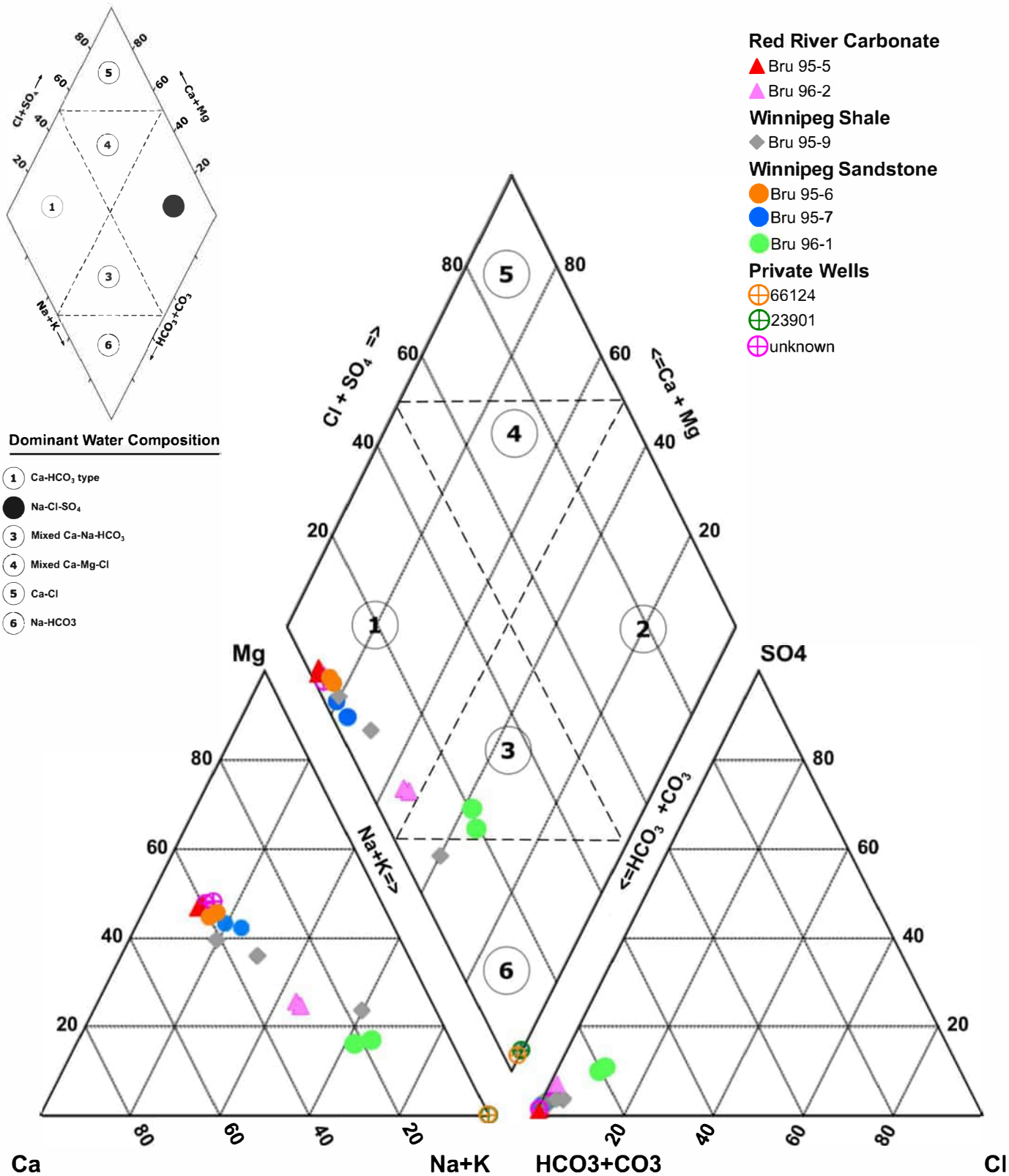


Figure 4-8 Groundwater Piper Plot of Major Ions