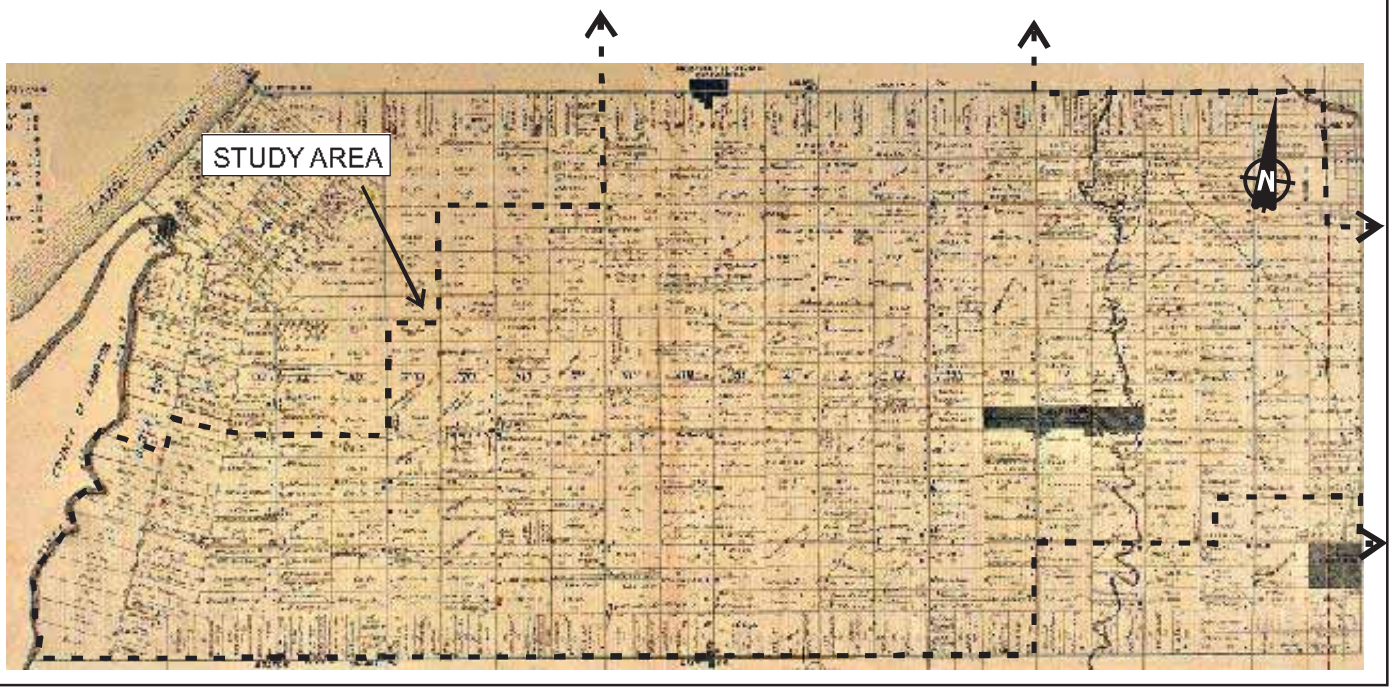


LEGEND

STUDY AREA

REFERENCE

DRAWING BASED ON
BELDEN, H. AND CO.
1879 *ILLUSTRATED HISTORICAL ATLAS OF THE COUNTY OF HURON, ONT.* 1972 REPRINT. ROSS CUMMING, OWEN SOUND, ONTARIO.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

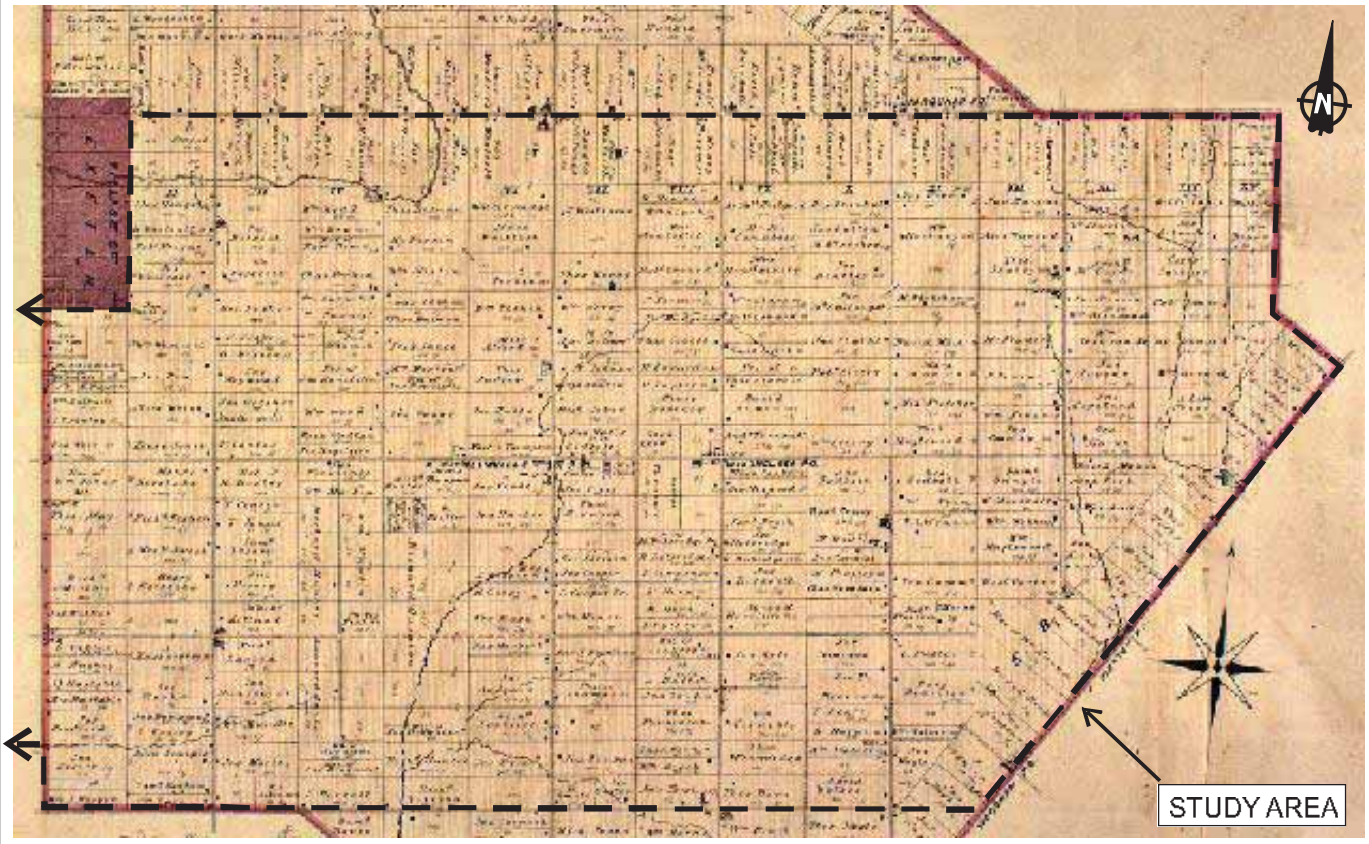
ALL LOCATIONS ARE APPROXIMATE.

PROJECT
STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE
A PORTION OF THE STUDY AREA ON A PORTION OF THE 1879 MAP OF STEPHEN TOWNSHIP

Golder Associates

PROJECT No. 10-1151-0201-2000-2200			FILE No. 1011510201-2000-2200-R01004
			SCALE NOT TO SCALE REV.
CADD	SW-M	MAY 30/12	**FIGURE 4**
CHECK			



LEGEND

STUDY AREA

REFERENCE

DRAWING BASED ON
BELDEN, H. AND CO.
1879 *ILLUSTRATED HISTORICAL ATLAS OF THE COUNTY OF HURON, ONT.* 1972 REPRINT. ROSS CUMMING, OWEN SOUND, ONTARIO.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

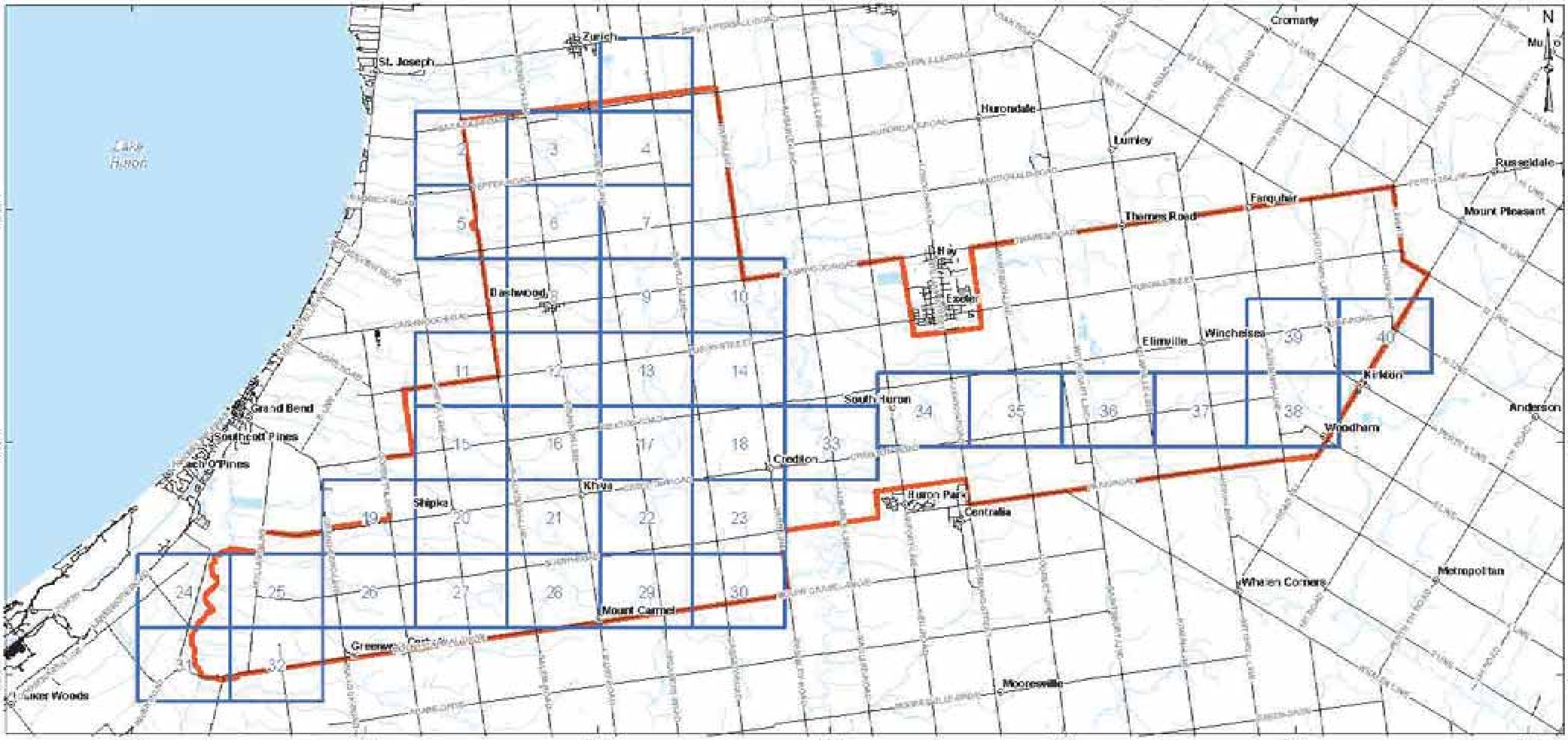
ALL LOCATIONS ARE APPROXIMATE.

PROJECT
STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE
A PORTION OF THE STUDY AREA ON A PORTION OF THE 1879 MAP OF USBORNE TOWNSHIP

Golder Associates

PROJECT No. 10-1151-0201-2000-1200			FILE No. 1011510201-2000-2200-R01005
			SCALE NOT TO SCALE REV.
CADD	SW-M	MAY 30/12	FIGURE 5
CHECK			



LEGEND

- Road
- Watercourse
- Study Area
- Figure Extent

SCALE 1:125,000 — KILOMETRES

REFERENCE

Base Data - MNR NRVIS, obtained 2004, CANMAP v2006.4
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PROJECT

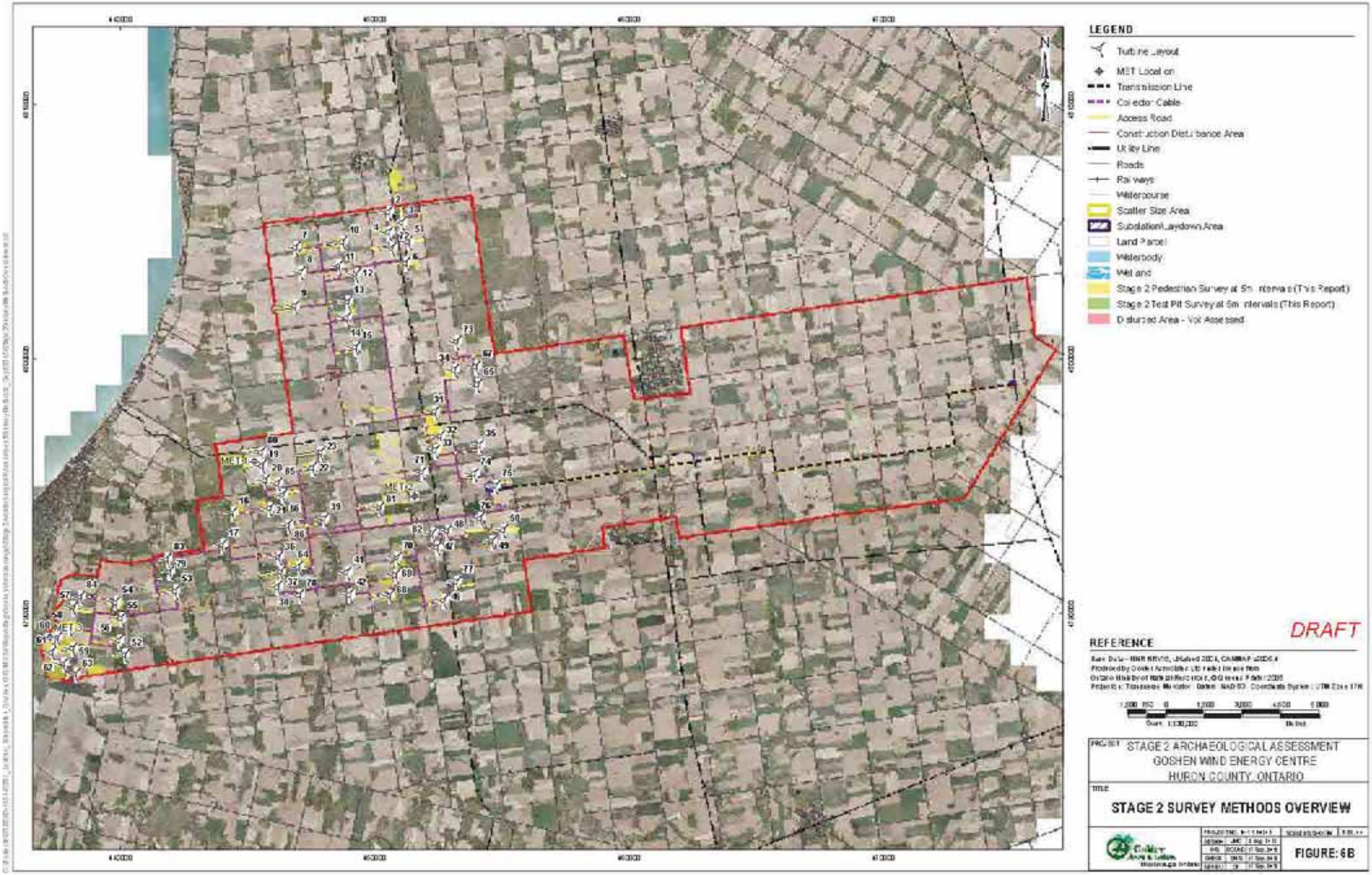
STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

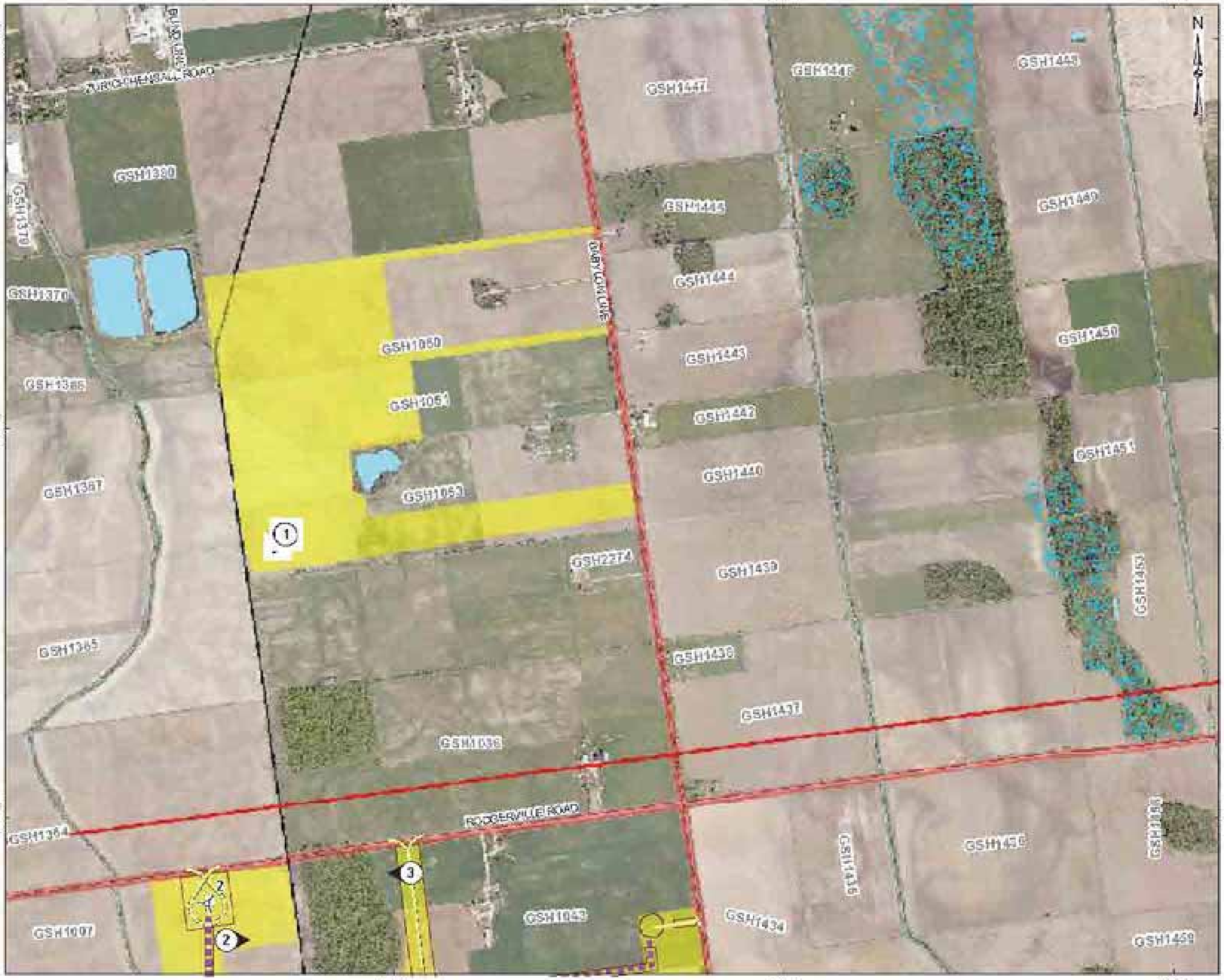
TITLE

KEY PAN

Golder Associates
Mississauga, Ontario

FIGURE: 6A


LEGEND
Turbine Layout
MET Location
Transmission Line
Collector Cable
Access Road
Construction Disturbance Area
Utility Line
Roads
Railways
Watercourse
Scatter Size Area
Substation\Laydown Area
Land Parcel
Waterbody
Wetland
Stage 2 Pedestrian Survey at 5m Intervals (This Report)
Stage 2 Test Pit Survey at 5m Intervals (This Report)
Disturbed Area - Not Assessed
N
MET 1
MET 2
MET 3
DRAFT
REFERENCE
STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO
STAGE 2 SURVEY METHODS OVERVIEW
FIGURE: 6B



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

DRAFT

REFERENCE

Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

Scale 1:10,000 Metres

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GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

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FIGURE: 6-01

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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REFERENCE

Scale 1:10,000

PROJECT STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

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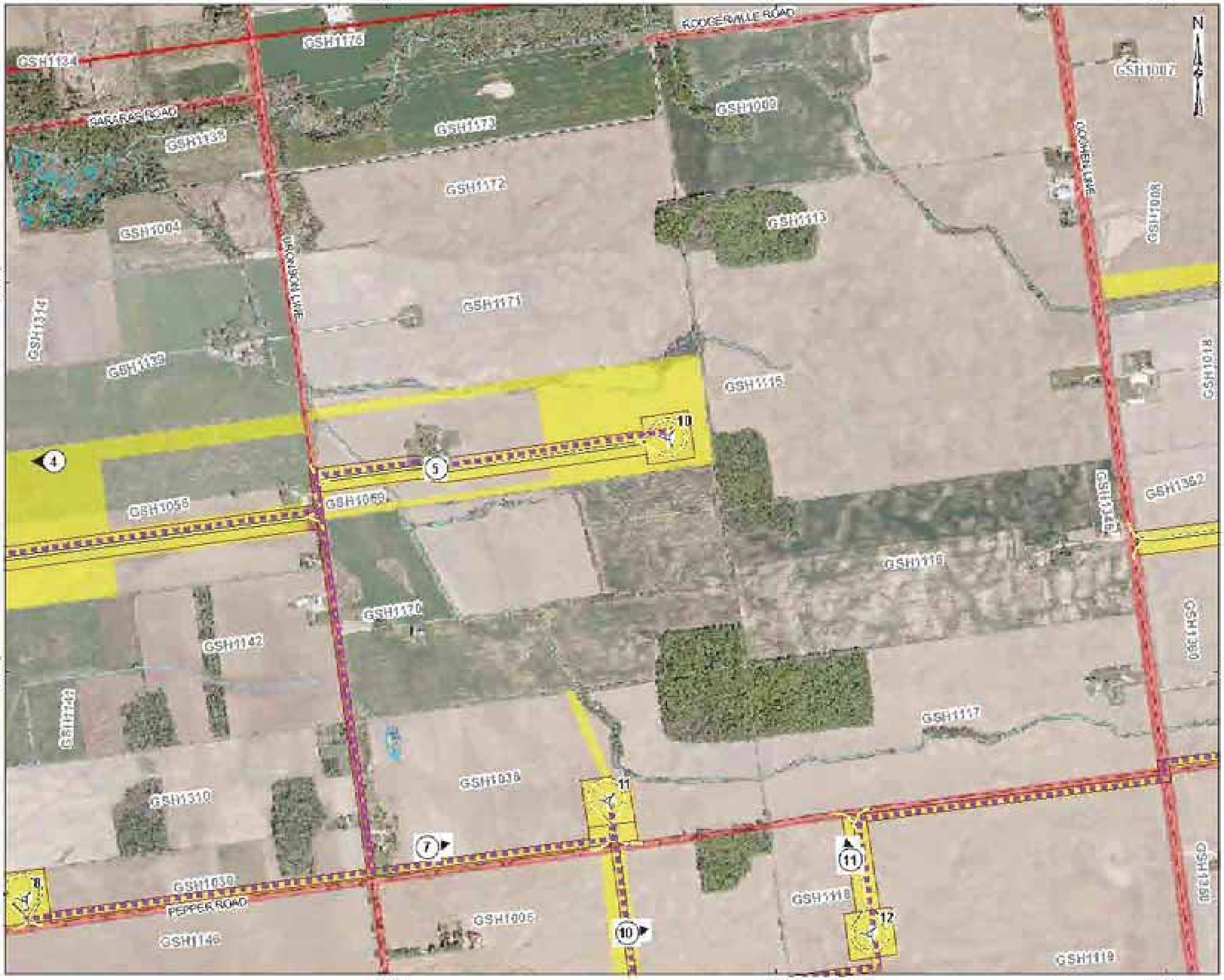
FIGURE: 6-02



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

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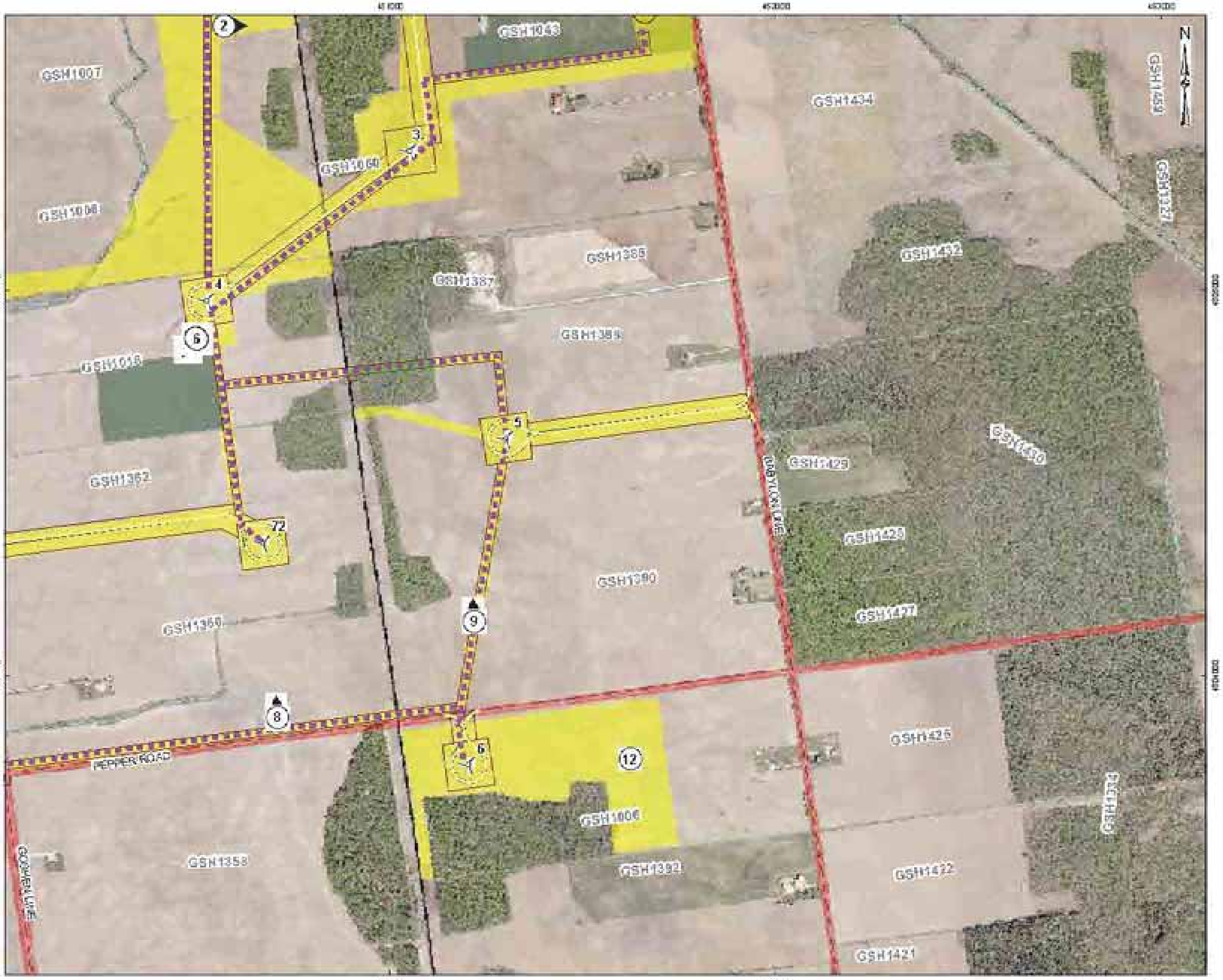
FIGURE: 6-03



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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REFERENCE

Scale 1:10,000

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GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

FIGURE: 6-04

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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REFERENCE

Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

Scale 1:10,000 Metres

PROJECT: STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

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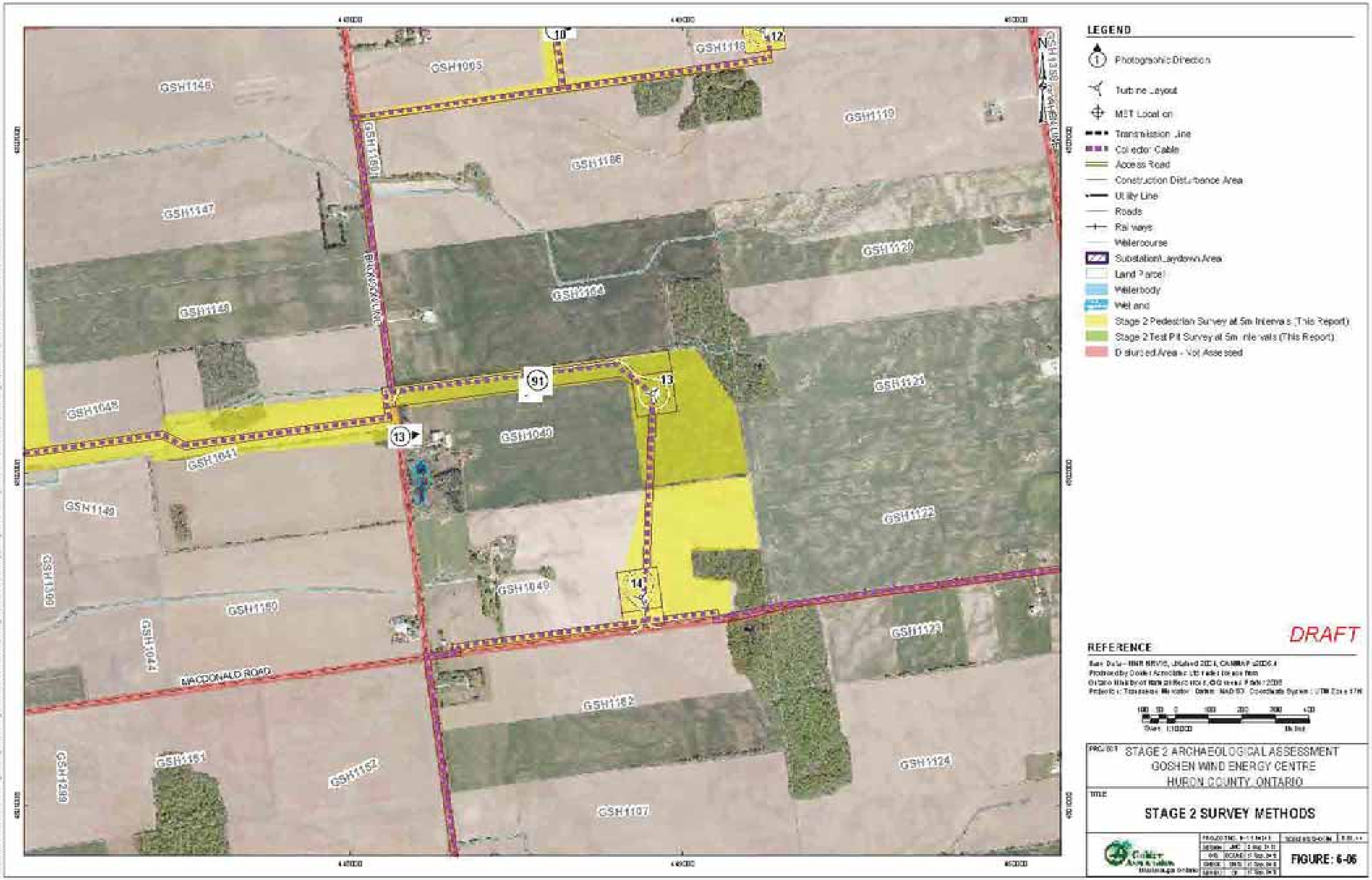
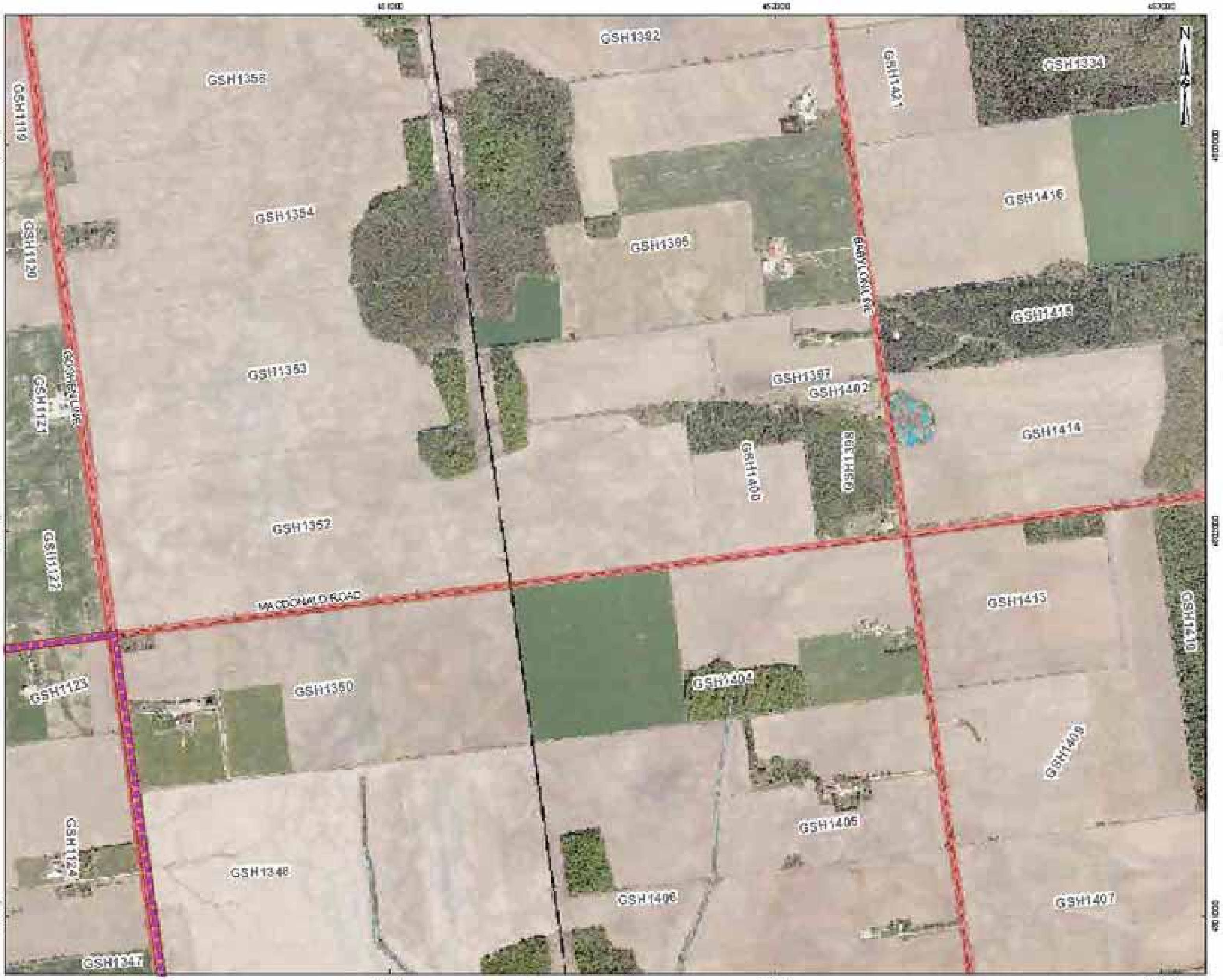
FIGURE: 6-05



LEGEND
Photographic Direction
Turbine Layout
MET Location
Transmission Line
Collector Cable
Access Road
Construction Disturbance Area
Utility Line
Roads
Railways
Watercourse
Substation/Laydown Area
Land Parcel
Waterbody
Wetland
Stage 2 Pedestrian Survey at 5m Intervals (This Report)
Stage 2 Test Pit Survey at 5m Intervals (This Report)
Disturbed Area - Not Assessed
DRAFT
REFERENCE
GSH1146
GSH1005
GSH1118
GSH1119
GSH1186
GSH1147
GSH1120
GSH1148
GSH1121
GSH1048
GSH1041
GSH1040
GSH1149
GSH1122
GSH1049
GSH1150
GSH1123
MACDONALD ROAD
GSH1182
GSH1151
GSH1152
GSH1124
GSH1107
PROJECT STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO
TITLE
STAGE 2 SURVEY METHODS
FIGURE: 6-06



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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REFERENCE

Scale 1:10,000

Metres

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GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

Golder Associates, Mississauga, Ontario

FIGURE: 6-07

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

Scale 1:10,000 Metres

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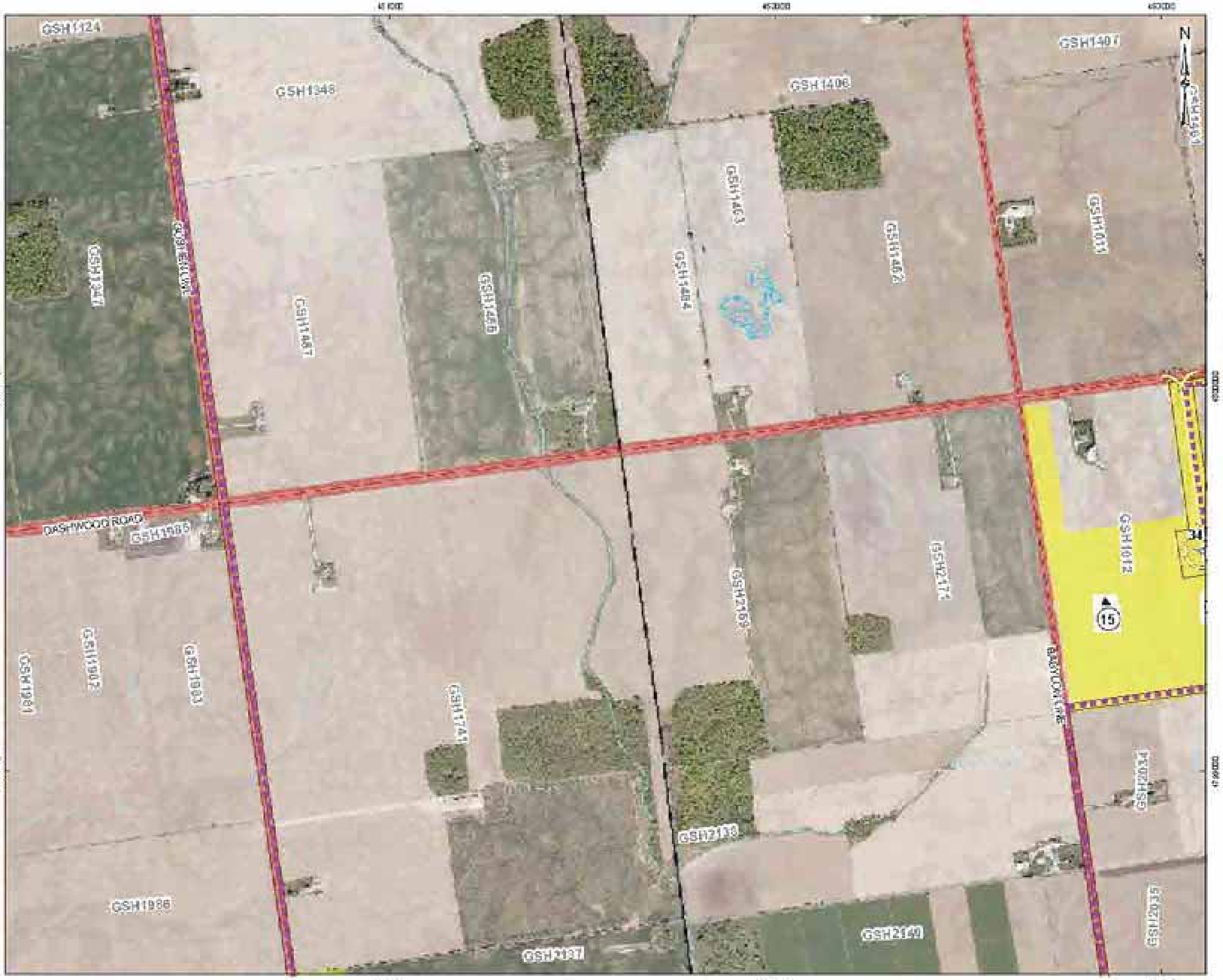
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: STAGE 2 SURVEY METHODS

Golder Associates

FIGURE: 6-08



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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REFERENCE

[illegible]

Scale 1:10,000

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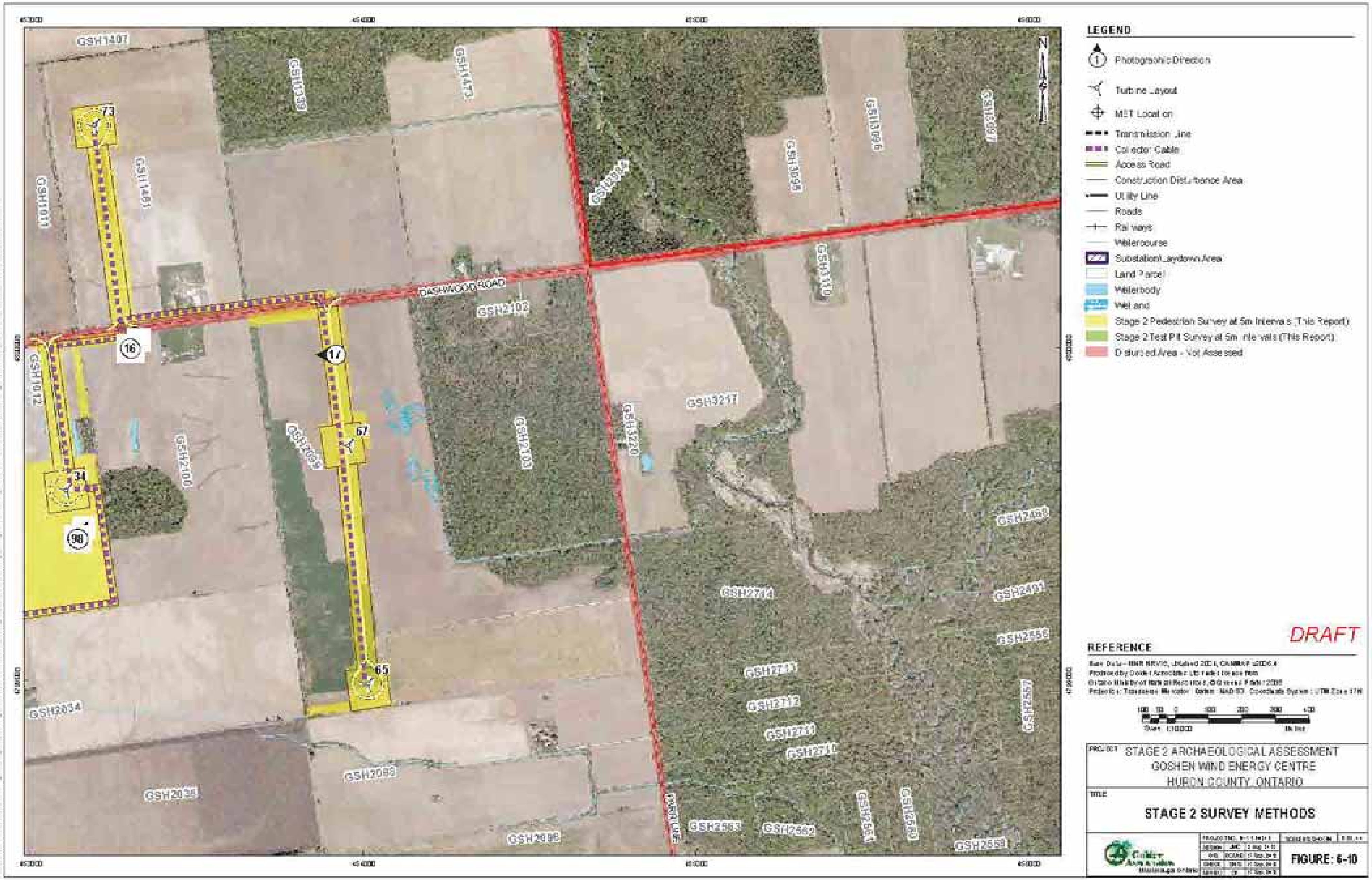
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

Golder Associates

FIGURE: 6-09


LEGEND
Photographic Direction
Turbine Layout
MET Location
Transmission Line
Collector Cable
Access Road
Construction Disturbance Area
Utility Line
Roads
Railways
Watercourse
Substation/Laydown Area
Land Parcel
Waterbody
Wetland
Stage 2 Pedestrian Survey at 5m Intervals (This Report)
Stage 2 Test Pit Survey at 5m Intervals (This Report)
Disturbed Area - Not Assessed
DASHWOOD ROAD
GSH1407
GSH1399
GSH1473
GSH1461
GSH1011
GSH1012
GSH2100
GSH2099
GSH2102
GSH2103
GSH3217
GSH3220
GSH3110
GSH3098
GSH3096
GSH3097
GSH2714
GSH2713
GSH2712
GSH2711
GSH2710
GSH2034
GSH2036
GSH2098
GSH2096
GSH2563
GSH2562
GSH2561
GSH2560
GSH2559
GSH2557
GSH2556
GSH2491
GSH2489
73
67
65
34
16
17
98
DRAFT
REFERENCE
STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO
TITLE
STAGE 2 SURVEY METHODS
FIGURE: 6-10

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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PROJECT
STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

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FIGURE: 6-11

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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REFERENCE

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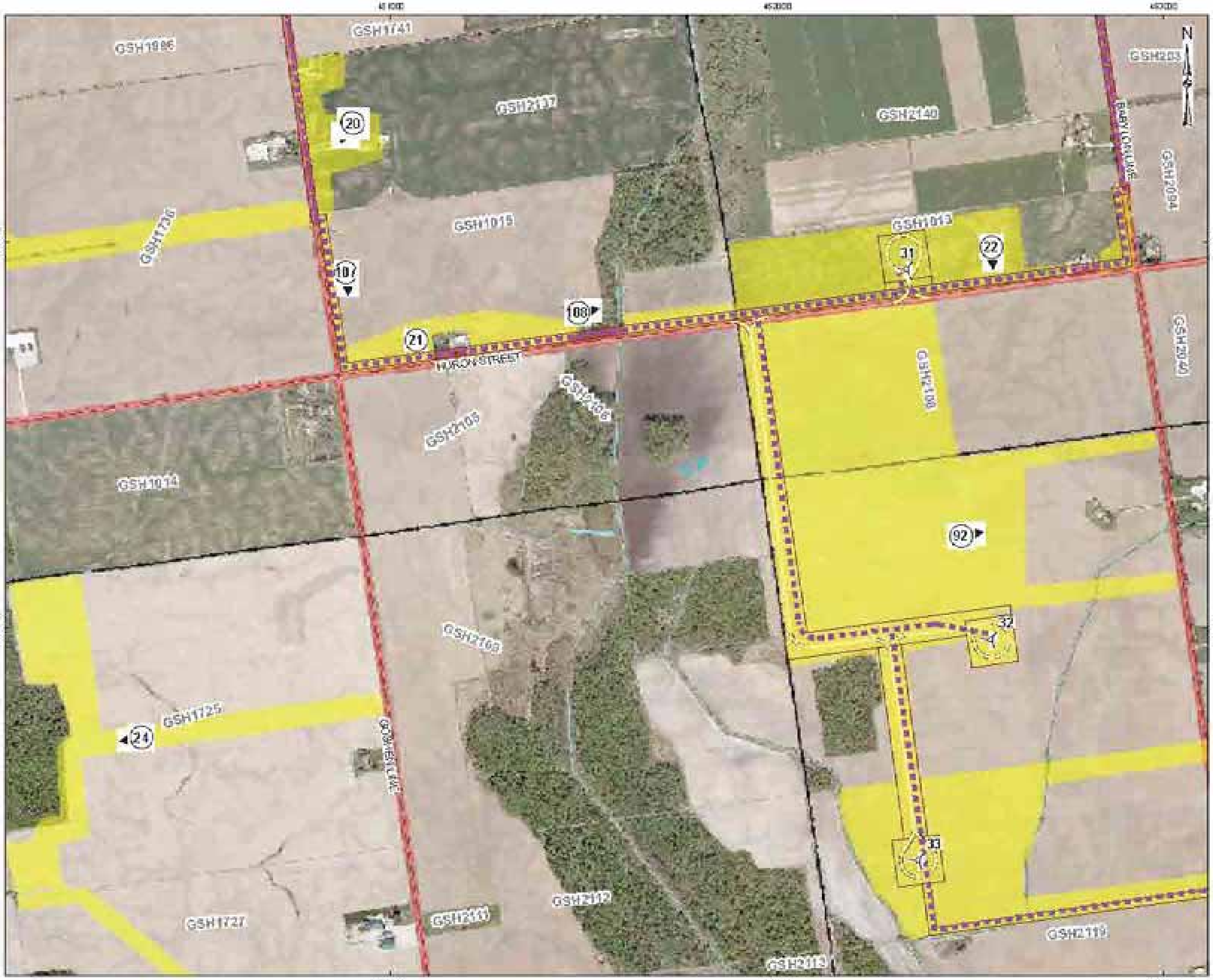
PROJECT STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

Golder Associates
Mississauga, Ontario

FIGURE: 6-12



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LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

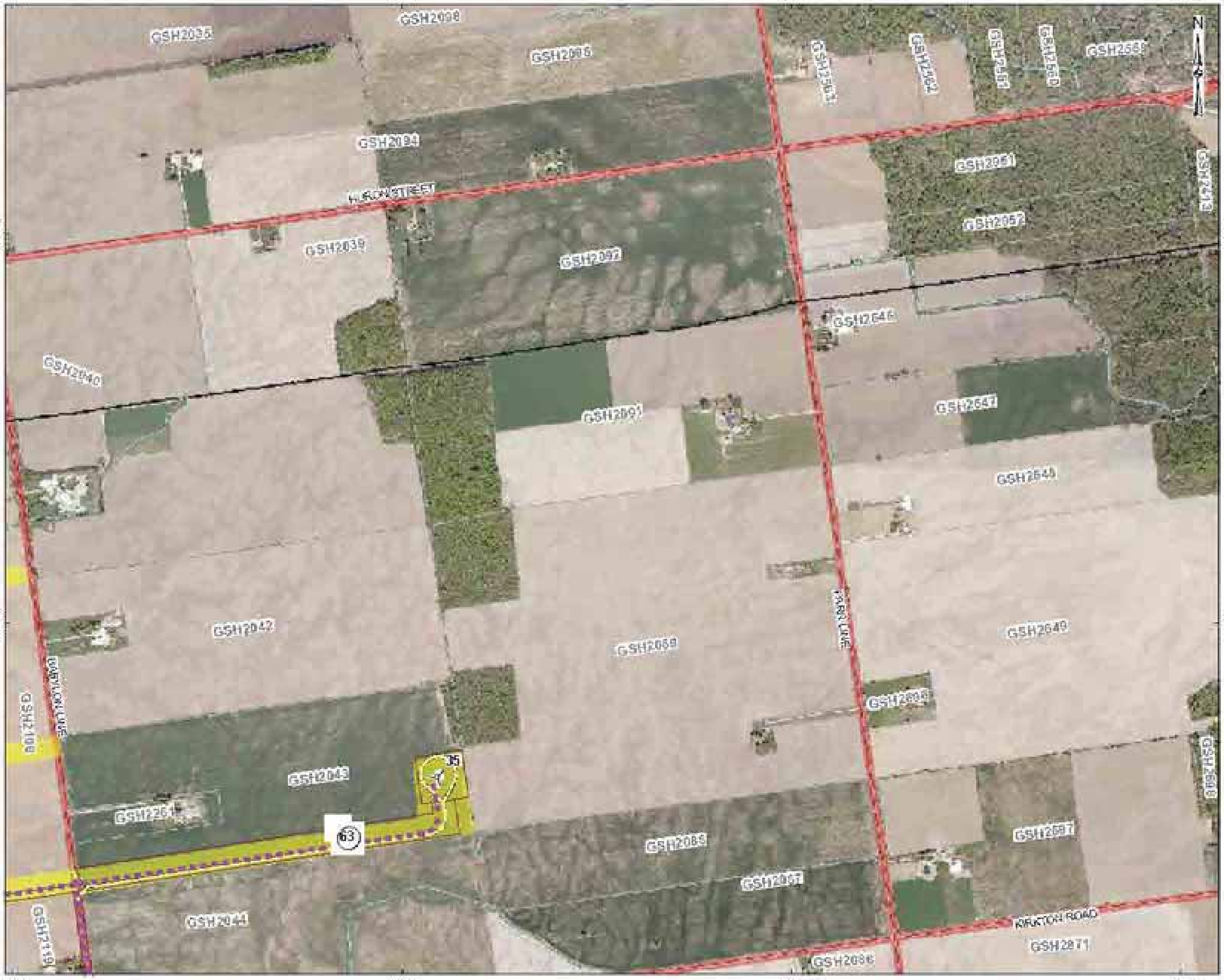
REFERENCE

Scale 1:10,000

PROJECT: STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

FIGURE: 6-13



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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PROJECT STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

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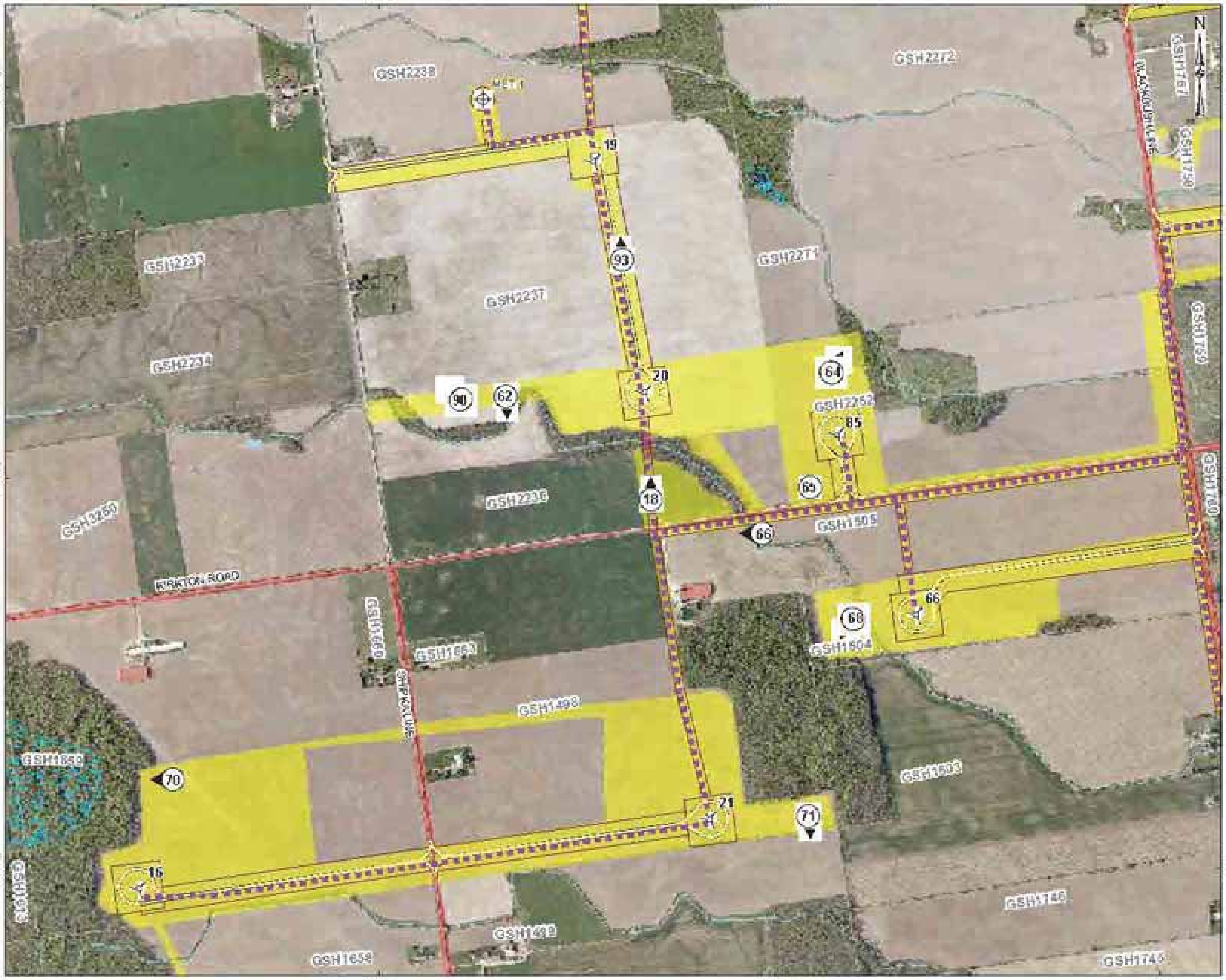
FIGURE: 6-14



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

PROJECT
STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

FIGURE: 6-15

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

DRAFT

REFERENCE

Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

100 50 0 100 200 300 400

Metres

PROJECT: STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

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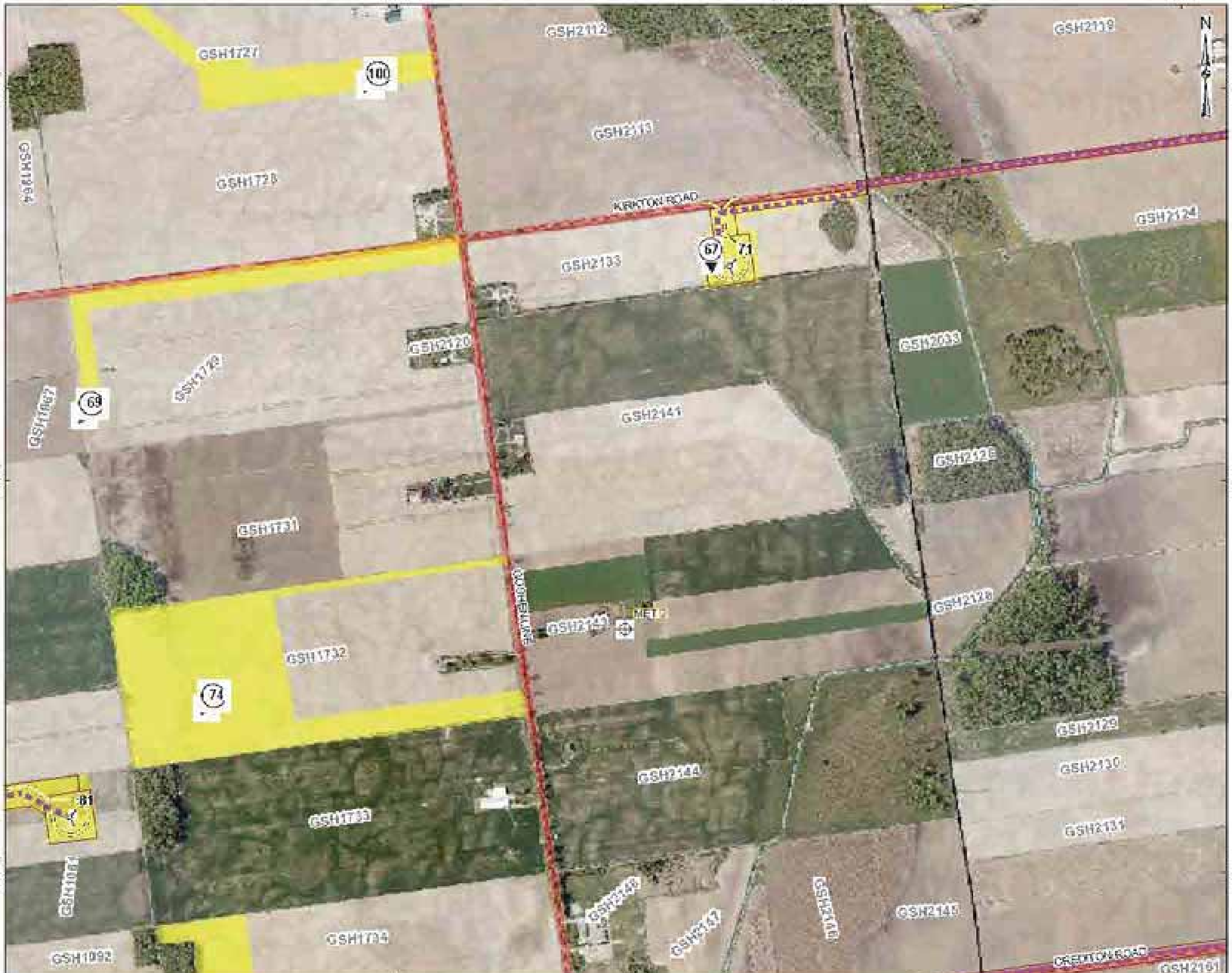
FIGURE: 6-16



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

DRAFT

REFERENCE

Scale 1:10,000

PROJECT: STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

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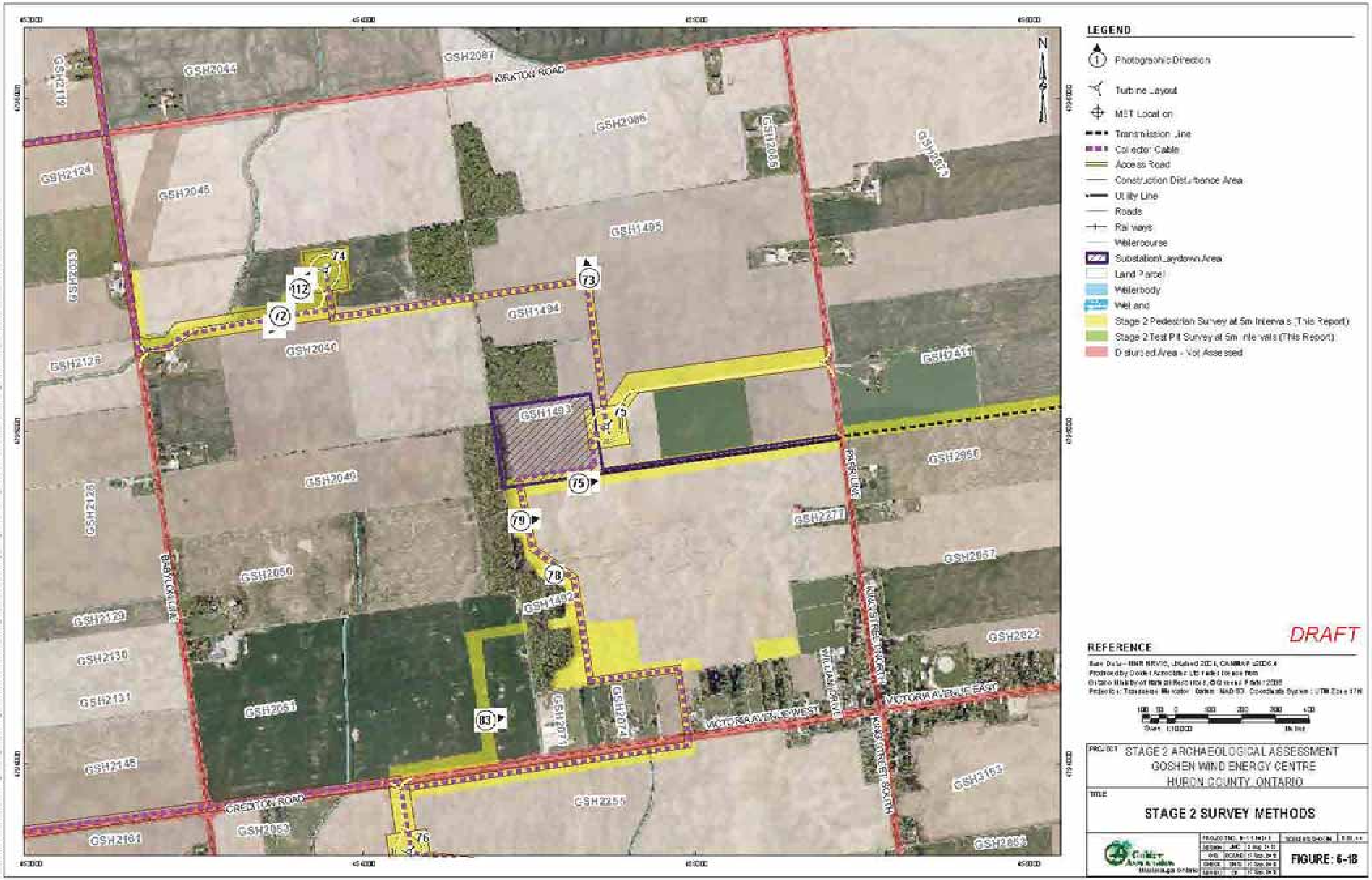
FIGURE: 6-17


KIRKTON ROAD
GSH2087
GSH2044
GSH2086
GSH2124
GSH2045
GSH1495
GSH2033
GSH1494
GSH2040
GSH2126
GSH1411
GSH1493
GSH2046
GSH2956
GSH2277
GSH2050
GSH2957
GSH1492
GSH2129
GSH2130
GSH2131
GSH2051
GSH2822
GSH2146
GSH2163
CREDITON ROAD
GSH2255
GSH2161
GSH2053
GSH2853
BABYLON LINE
PARR LINE
VICTORIA AVENUE WEST
VICTORIA AVENUE EAST
KING STREET NORTH
KING STREET SOUTH
WILLIAM DRIVE
74
112
72
73
75
79
78
83
76
N
LEGEND
Photographic Direction
Turbine Layout
MET Location
Transmission Line
Collector Cable
Access Road
Construction Disturbance Area
Utility Line
Roads
Railways
Watercourse
Substation/Laydown Area
Land Parcel
Waterbody
Wetland
Stage 2 Pedestrian Survey at 5m Intervals (This Report)
Stage 2 Test Pit Survey at 5m Intervals (This Report)
Disturbed Area - Not Assessed
DRAFT
REFERENCE
Scale 1:10,000
PROJECT
STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO
TITLE
STAGE 2 SURVEY METHODS
FIGURE: 6-18

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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Scale 1:10,000 Metres

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GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

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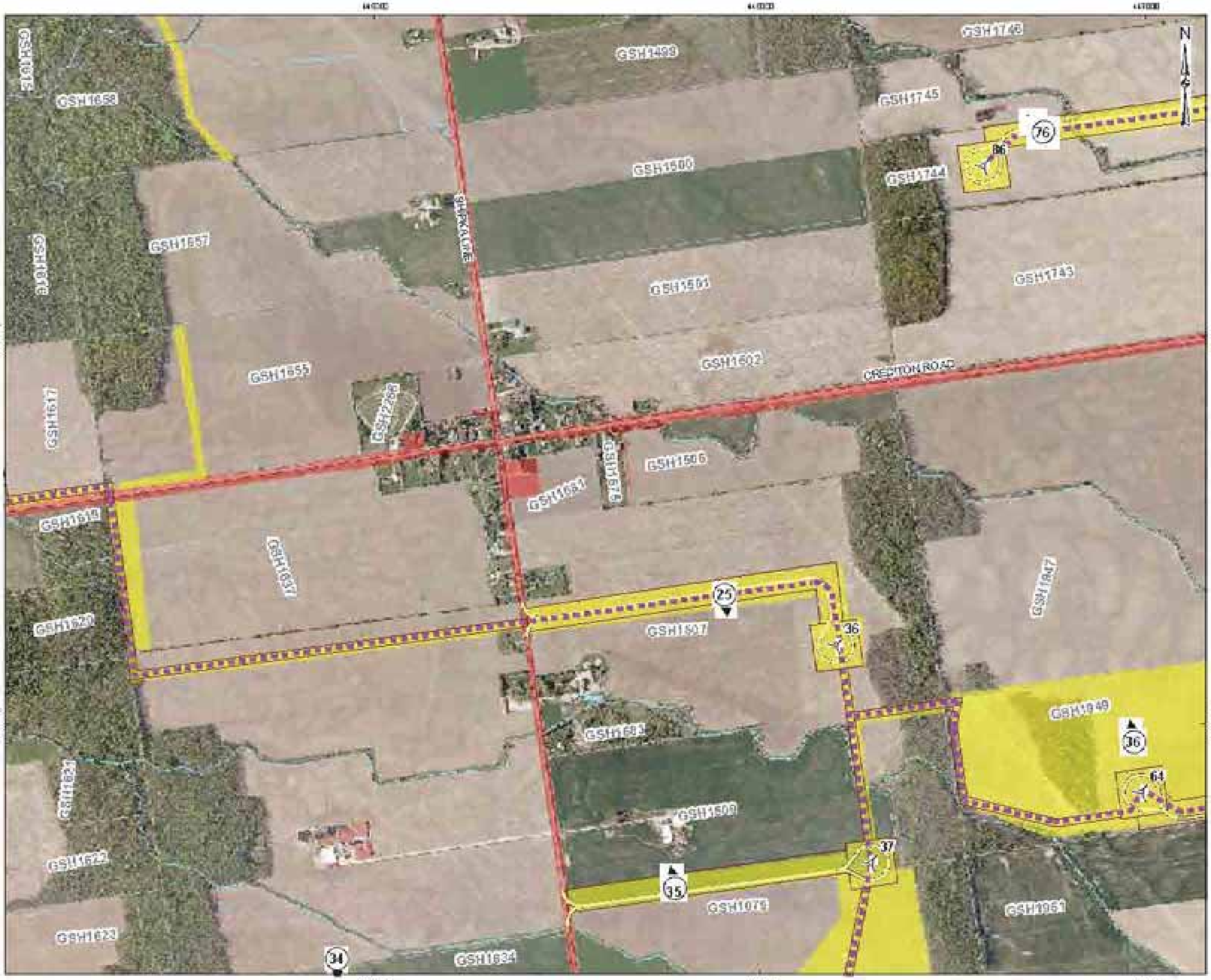
FIGURE: 6-19



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

DRAFT

REFERENCE

Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

Scale 1:10,000

PROJECT

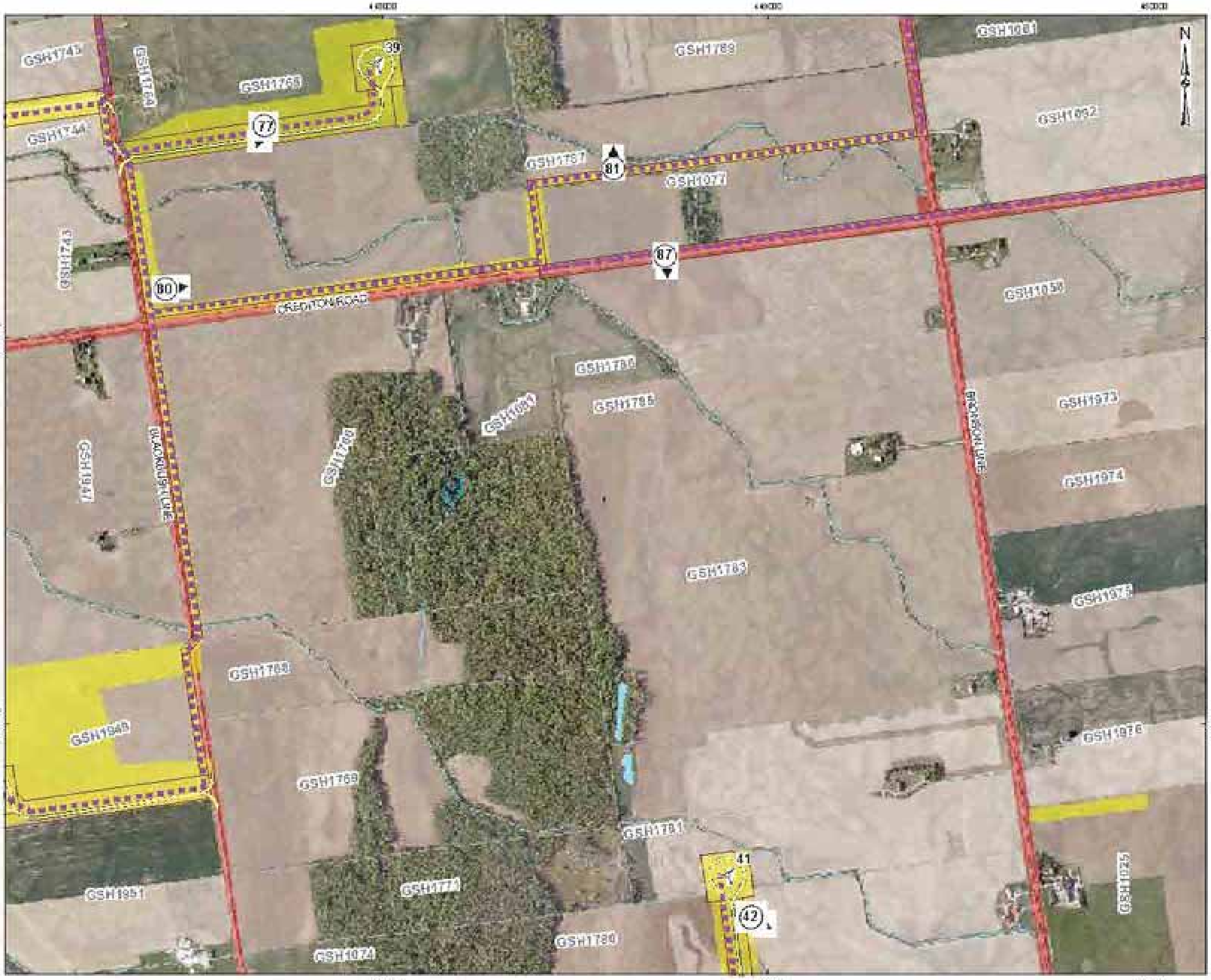
STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

Golder Associates
Mississauga, Ontario

FIGURE: 6-20



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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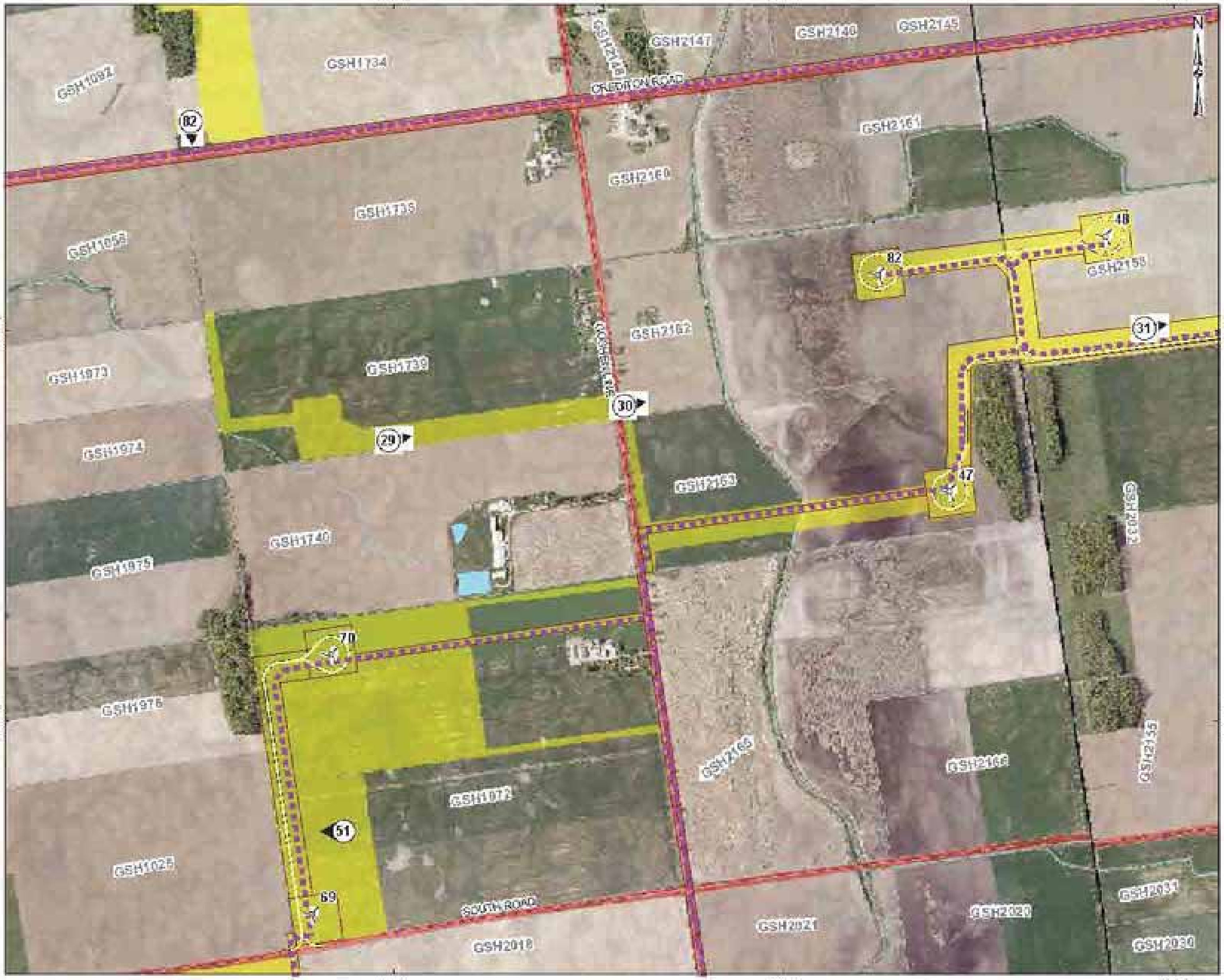
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

FIGURE: 6-21



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
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Scale 1:10,000 — Metres

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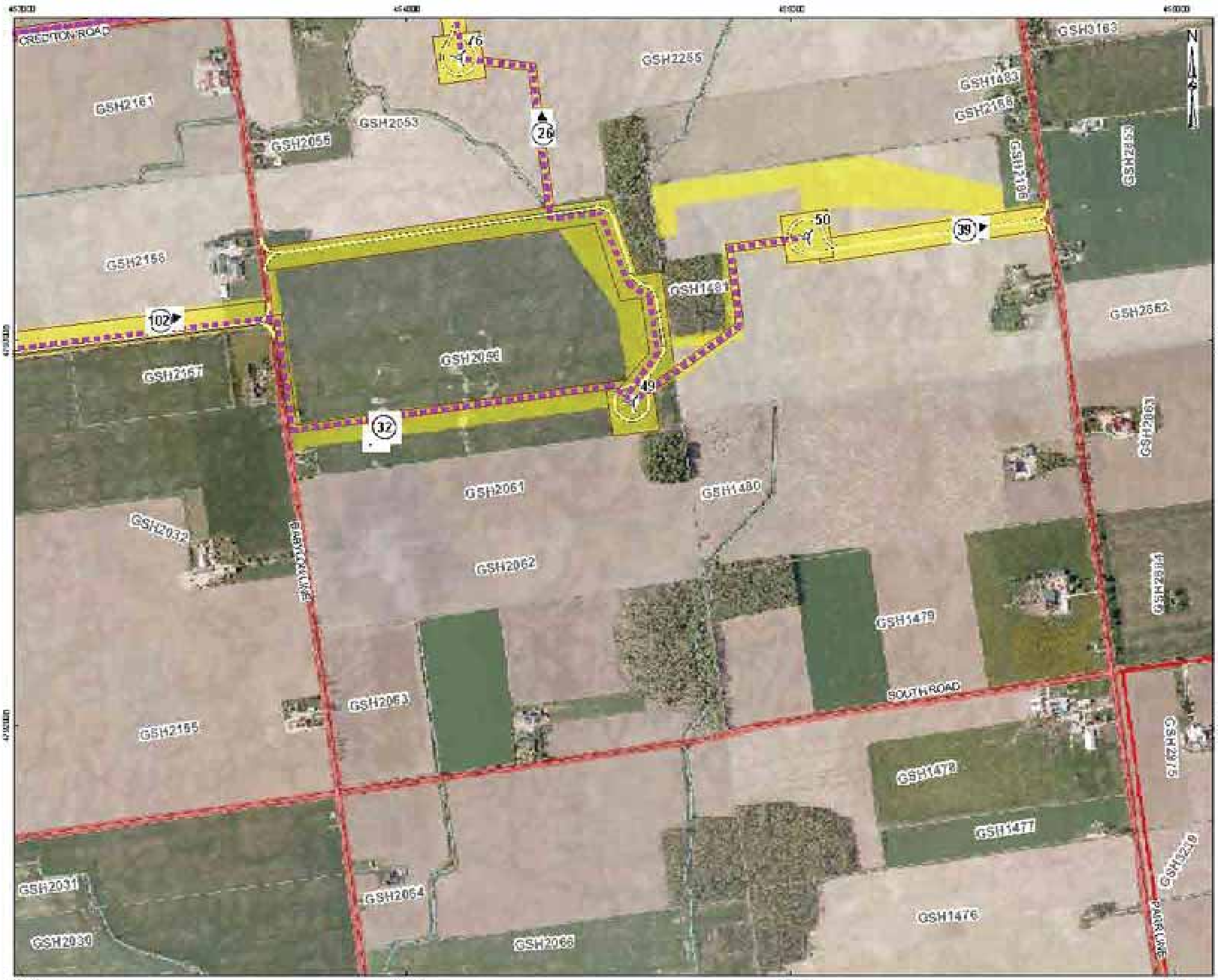
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

Golder Associates, Mississauga, Ontario

FIGURE: 6-22



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
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100 50 0 100 200 300 400

Scale 1:10,000 Metres

PROJECT

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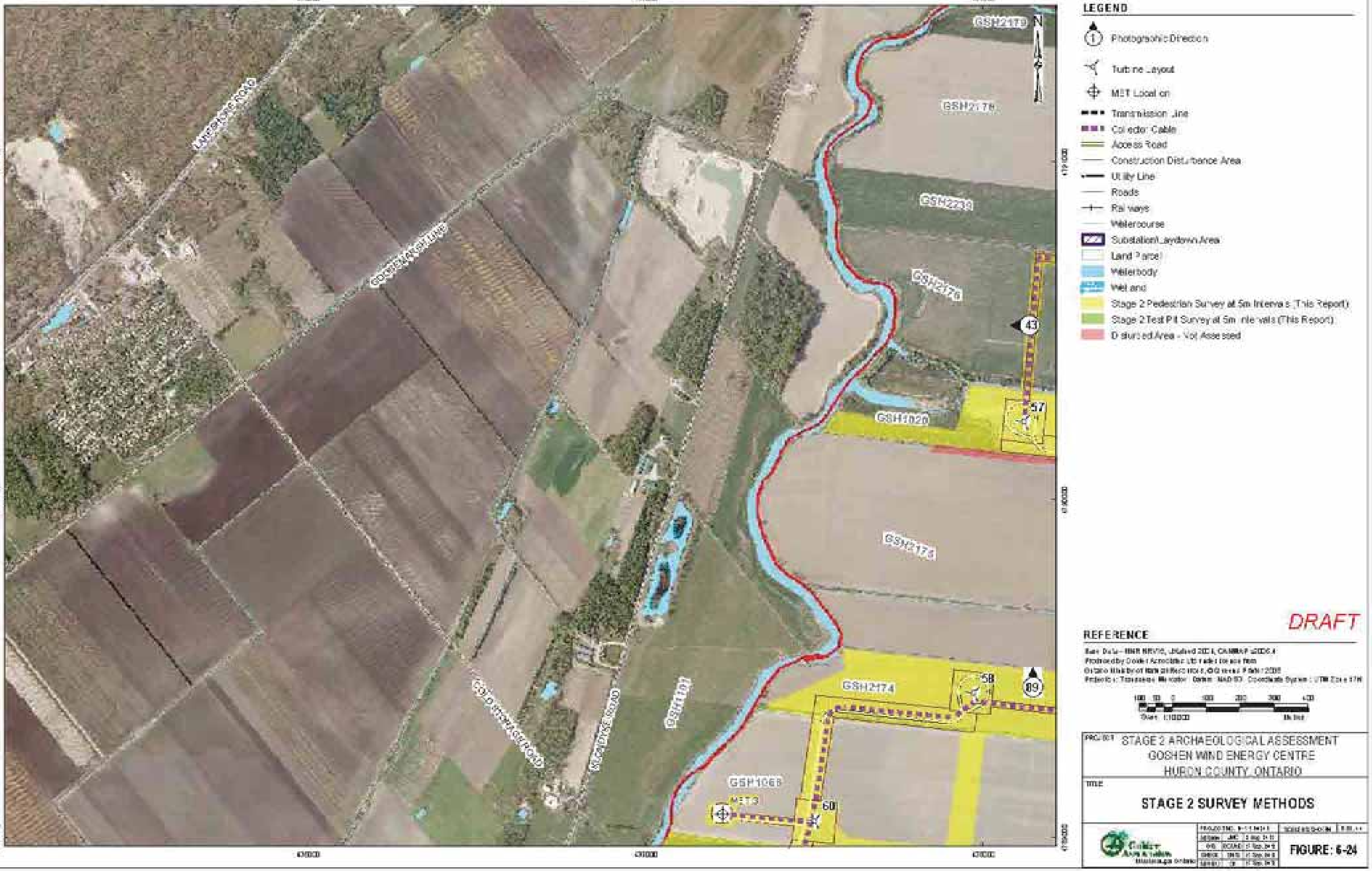
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

Golder Associates
Mississauga, Ontario

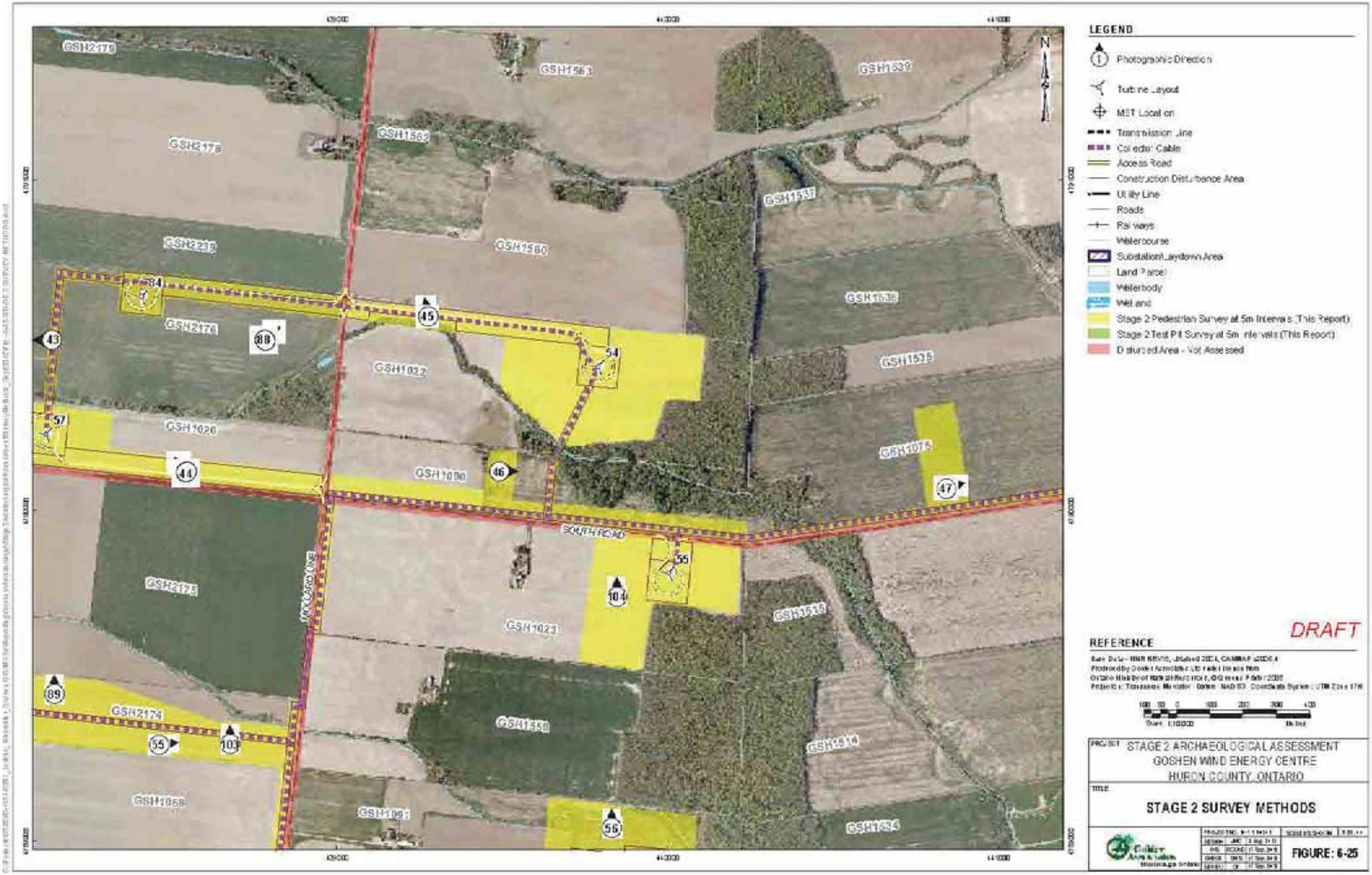
FIGURE: 6-23

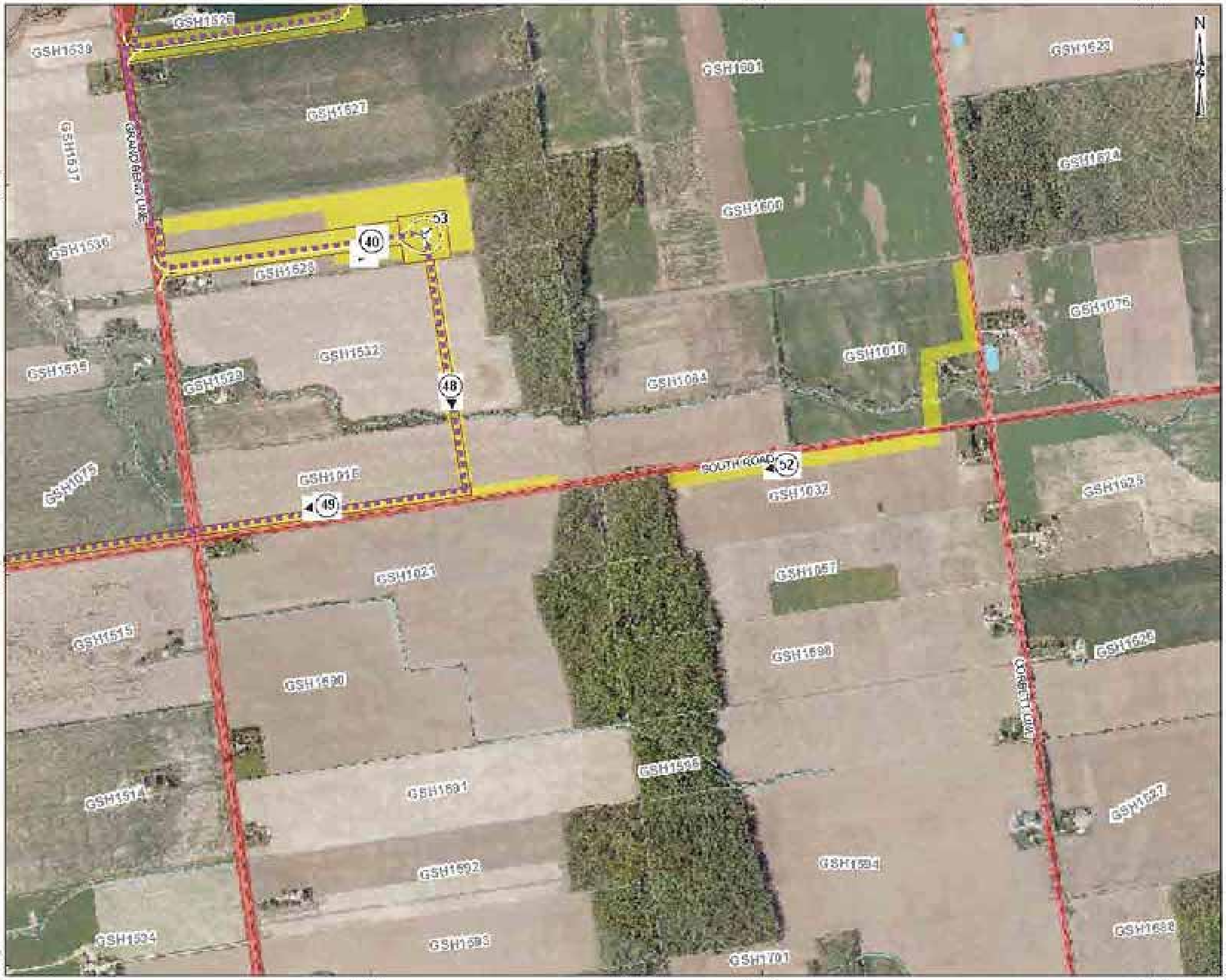


PROJECT: STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

FIGURE: 6-24


LEGEND
Photographic Direction
Turbine Layout
MET Location
Transmission Line
Collector Cable
Access Road
Construction Disturbance Area
Utility Line
Roads
Railways
Watercourse
Substation\Laydown Area
Land Parcel
Waterbody
Wetland
Stage 2 Pedestrian Survey at 5m Intervals (This Report)
Stage 2 Test Pit Survey at 5m Intervals (This Report)
Disturbed Area - Not Assessed
DRAFT
REFERENCE
PROJECT: STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO
TITLE
STAGE 2 SURVEY METHODS
FIGURE: 6-25
SOUTH ROAD
HOLLANDS LINE
GSH2178
GSH1561
GSH1562
GSH1539
GSH2178
GSH2235
GSH1560
GSH1537
GSH2174
GSH1022
GSH1536
GSH1535
GSH1020
GSH1075
GSH1090
GSH2175
GSH1023
GSH1518
GSH2174
GSH1558
GSH1534
GSH1068
GSH1091
GSH1534



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
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REFERENCE

Scale 1:10000

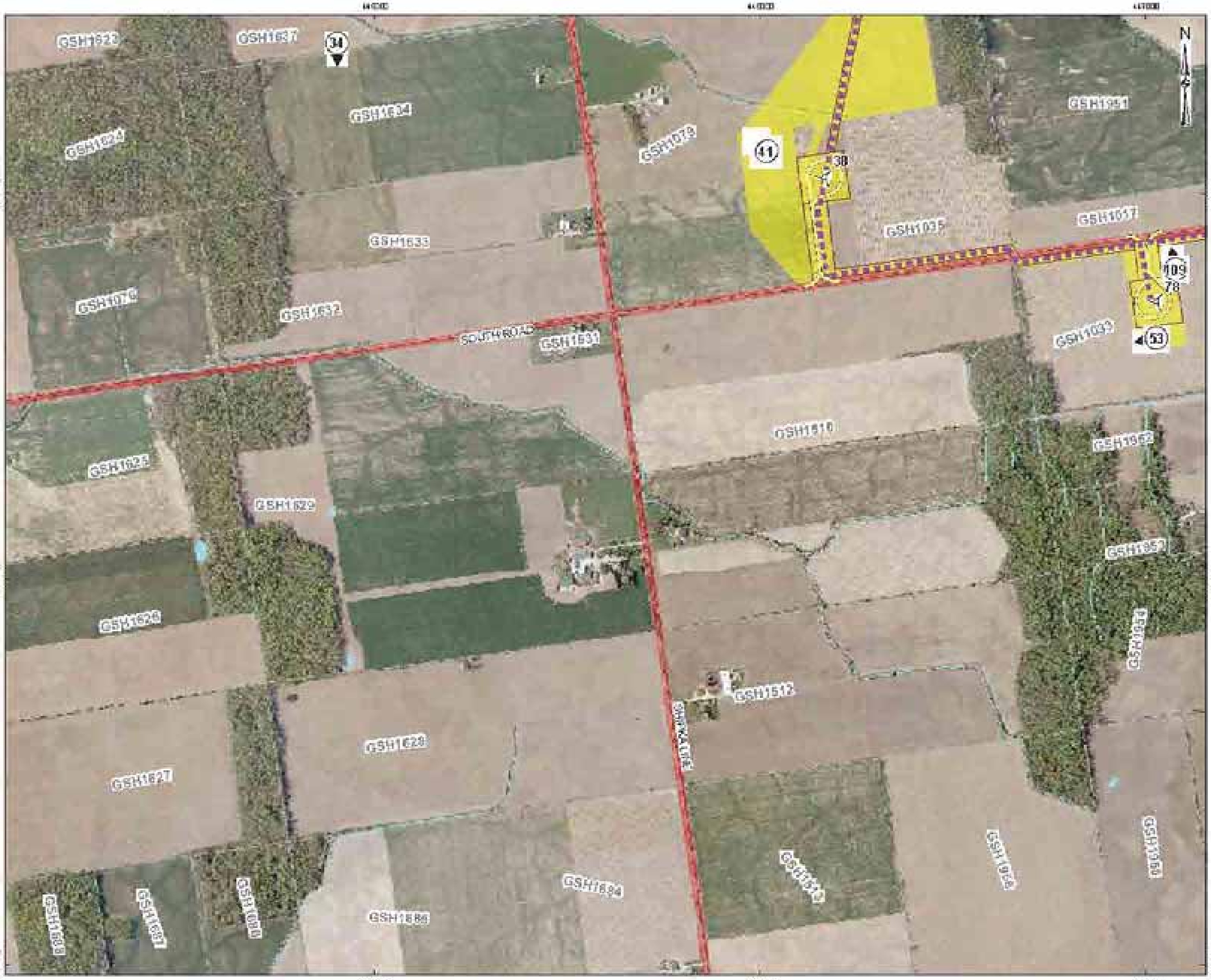
PROJECT STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

Golder Associates
Mississauga, Ontario

FIGURE: 6-25



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
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100 50 0 100 200 300 400
Scale 1:10,000 Metres

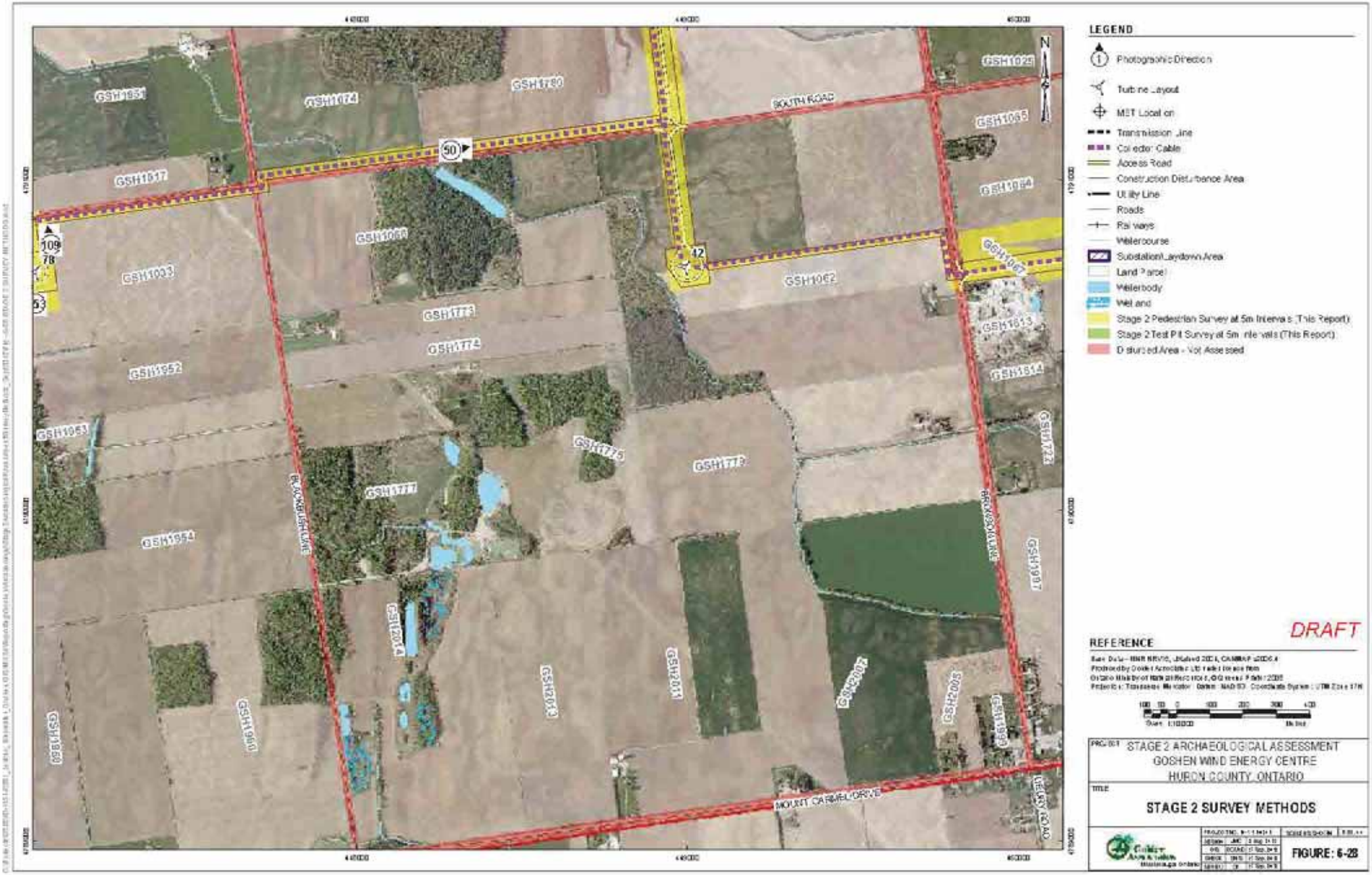
PROJECT: STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

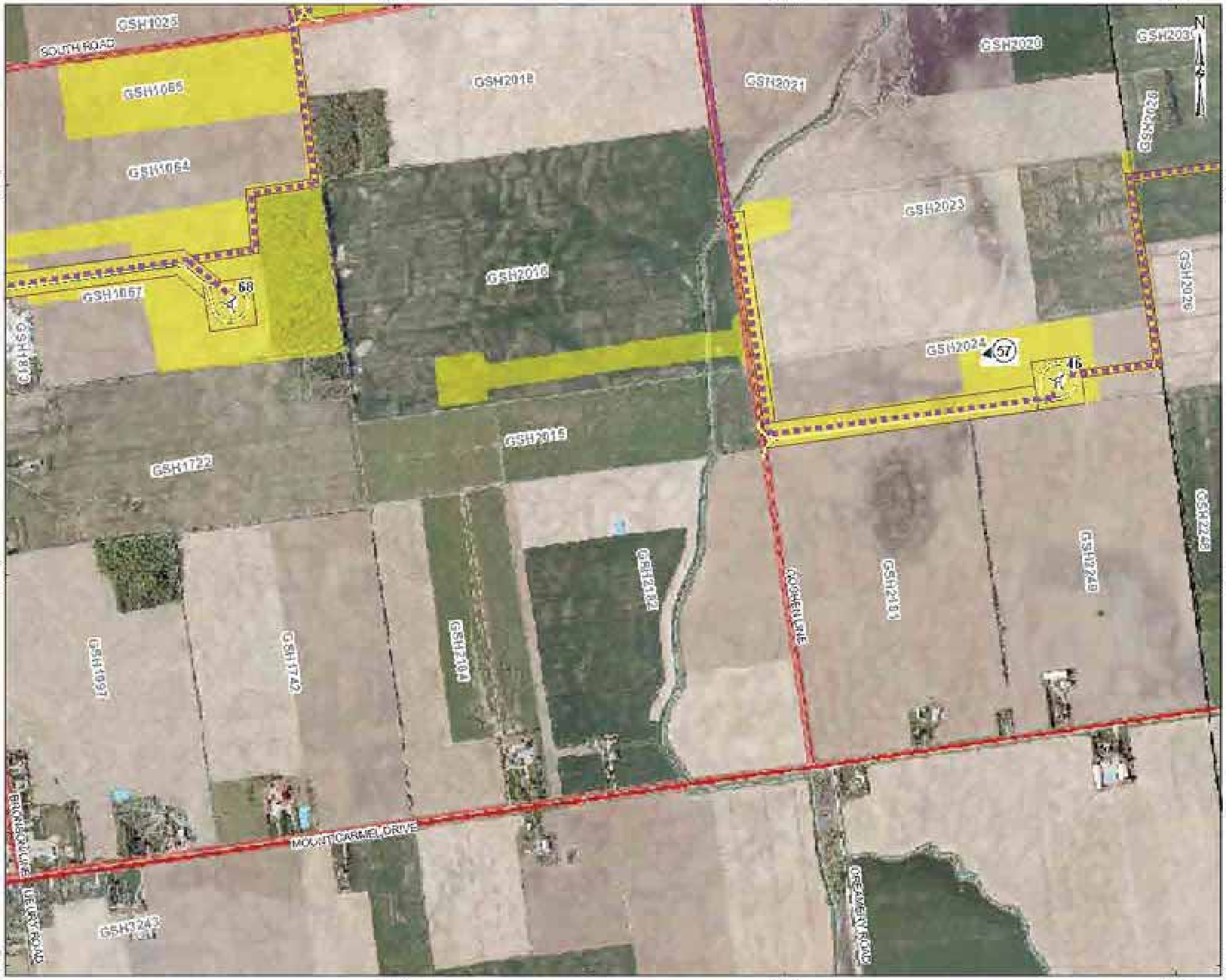
TITLE

STAGE 2 SURVEY METHODS

Golder Associates
Mississauga, Ontario

FIGURE: 6-27


LEGEND
Photographic Direction
Turbine Layout
MET Location
Transmission Line
Collector Cable
Access Road
Construction Disturbance Area
Utility Line
Roads
Railways
Watercourse
Substation\Laydown Area
Land Parcel
Waterbody
Wetland
Stage 2 Pedestrian Survey at 5m Intervals (This Report)
Stage 2 Test Pit Survey at 5m Intervals (This Report)
Disturbed Area - Not Assessed
DRAFT
REFERENCE
SOUTH ROAD
MOUNT CARMEL DRIVE
BLACKBUSH LANE
GSH1951
GSH1974
GSH1780
GSH1025
GSH1817
GSH1065
GSH1064
GSH1066
GSH1003
GSH1062
GSH1773
GSH1774
GSH1613
GSH1952
GSH1614
GSH1953
GSH1775
GSH1772
GSH1777
GSH1954
GSH1987
GSH2014
GSH2013
GSH2011
GSH2007
GSH2005
GSH1960
GSH1959
STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO
STAGE 2 SURVEY METHODS
FIGURE: 6-28



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
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- Stage 2 Test Pit Survey at 5m Intervals (This Report)
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100 50 0 100 200 300 400
Scale 1:10,000 Metres

PROJECT STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

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DESIGN	[illegible]	[illegible]
GIS	[illegible]	[illegible]
CHECK	[illegible]	[illegible]
REVIEW	[illegible]	[illegible]

FIGURE: 6-29

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
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Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

Scale 1:10,000 Metres

PROJECT: STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

Golder Associates
Mississauga, Ontario

FIGURE: 6-30

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
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- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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REFERENCE

PROJECT: STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

Golder Associates
Mississauga, Ontario

FIGURE: 6-31

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
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- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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Scale 1:10,000 Metres

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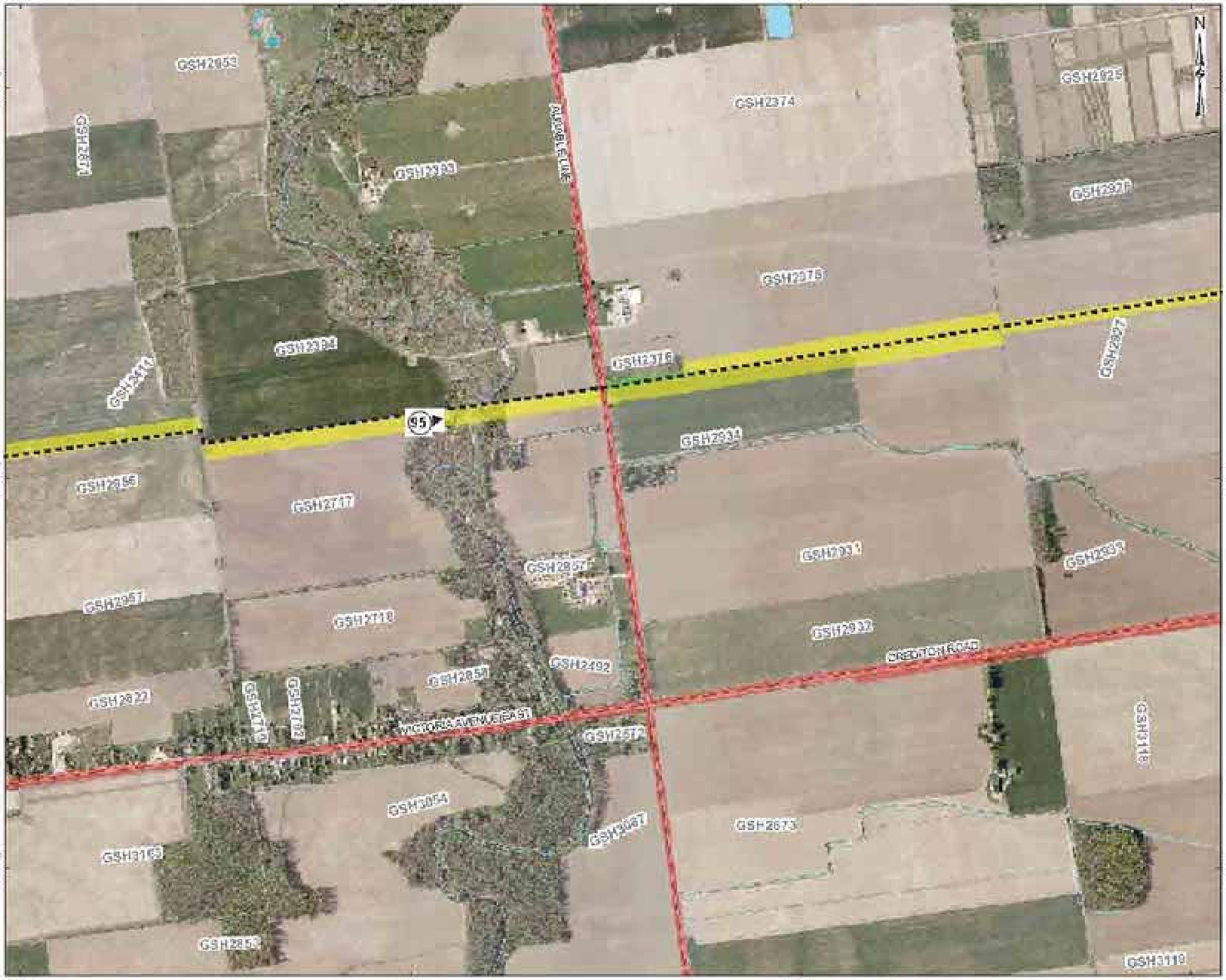
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

Golder Associates
Mississauga, Ontario

FIGURE: 6-32



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
- Stage 2 Pedestrian Survey at 5m Intervals (This Report)
- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

DRAFT

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Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17N

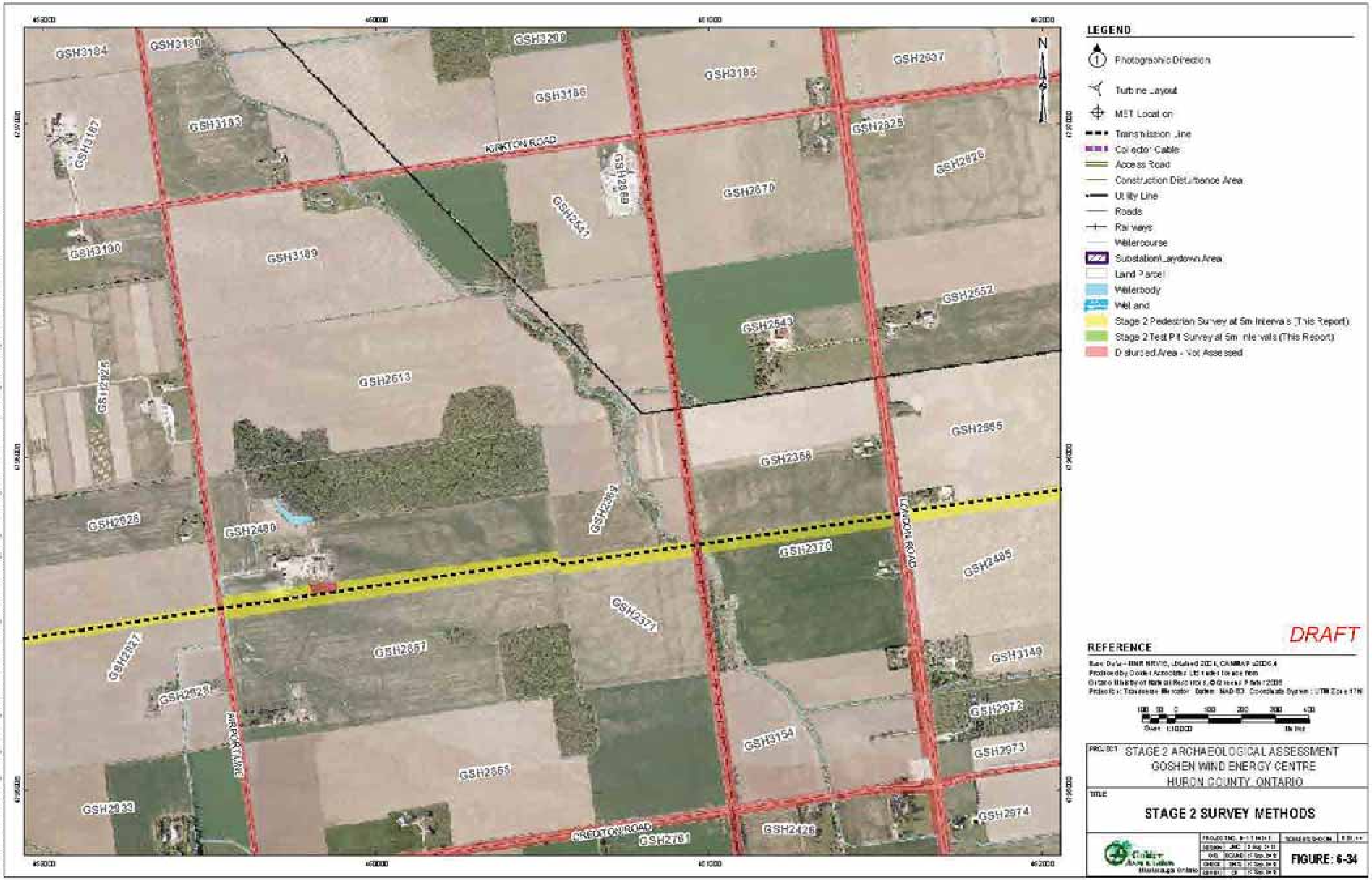
Scale 1:10,000 Metres

PROJECT: STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

Golder Associates
Mississauga, Ontario

FIGURE: 6-33


KIRKTON ROAD
CREDITON ROAD
LONDON ROAD
AIRPORT LINE
GSH3184
GSH3180
GSH3200
GSH3185
GSH2937
GSH3186
GSH3183
GSH3187
GSH2825
GSH2826
GSH2869
GSH2870
GSH2541
GSH3190
GSH3189
GSH2552
GSH2543
GSH2613
GSH2956
GSH2368
GSH2369
GSH2828
GSH2480
GSH2370
GSH2485
GSH2371
GSH2827
GSH2867
GSH3149
GSH2828
GSH2972
GSH3154
GSH2973
GSH2868
GSH2933
GSH2781
GSH2426
GSH2974
LEGEND
Photographic Direction
Turbine Layout
MET Location
Transmission Line
Collector Cable
Access Road
Construction Disturbance Area
Utility Line
Roads
Railways
Watercourse
Substation/Laydown Area
Land Parcel
Waterbody
Wetland
Stage 2 Pedestrian Survey at 5m Intervals (This Report)
Stage 2 Test Pit Survey at 5m Intervals (This Report)
Disturbed Area - Not Assessed
DRAFT
REFERENCE
PROJECT STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO
TITLE
STAGE 2 SURVEY METHODS
FIGURE: 6-34

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
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100 50 0 100 200 300 400
SCALE 1:10,000 METRES

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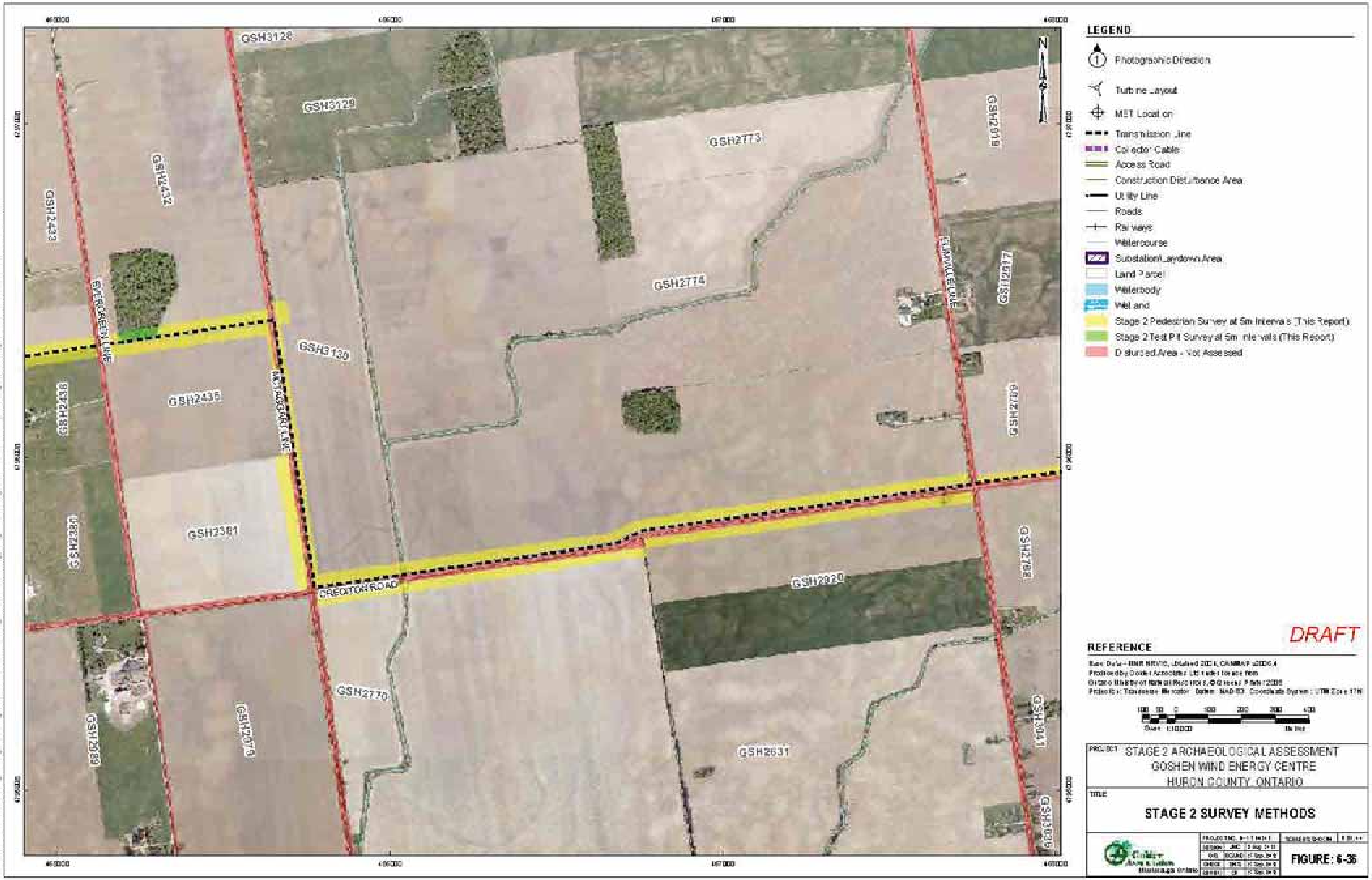
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

Golder Associates
Mississauga, Ontario

FIGURE: 6-35


GSH3128
GSH3129
GSH2773
GSH2619
GSH2432
GSH2433
GSH2774
GSH2617
GSH3130
GSH2435
GSH2436
GSH2769
GSH2381
GSH2380
GSH2788
CREDITON ROAD
GSH2630
GSH2770
GSH2079
GSH2089
GSH2631
GSH3041
LEGEND
Photographic Direction
Turbine Layout
MET Location
Transmission Line
Collector Cable
Access Road
Construction Disturbance Area
Utility Line
Roads
Railways
Watercourse
Substation/Laydown Area
Land Parcel
Waterbody
Wetland
Stage 2 Pedestrian Survey at 5m Intervals (This Report)
Stage 2 Test Pit Survey at 5m Intervals (This Report)
Disturbed Area - Not Assessed
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REFERENCE
PROJECT
STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO
TITLE
STAGE 2 SURVEY METHODS
FIGURE: 6-36

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
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- Stage 2 Test Pit Survey at 5m Intervals (This Report)
- Disturbed Area - Not Assessed

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100 50 0 100 200 300 400

Scale 1:10,000 Metres

PROJECT: STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

Mississauga, Ontario

FIGURE: 6-37

LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
- Waterbody
- Wetland
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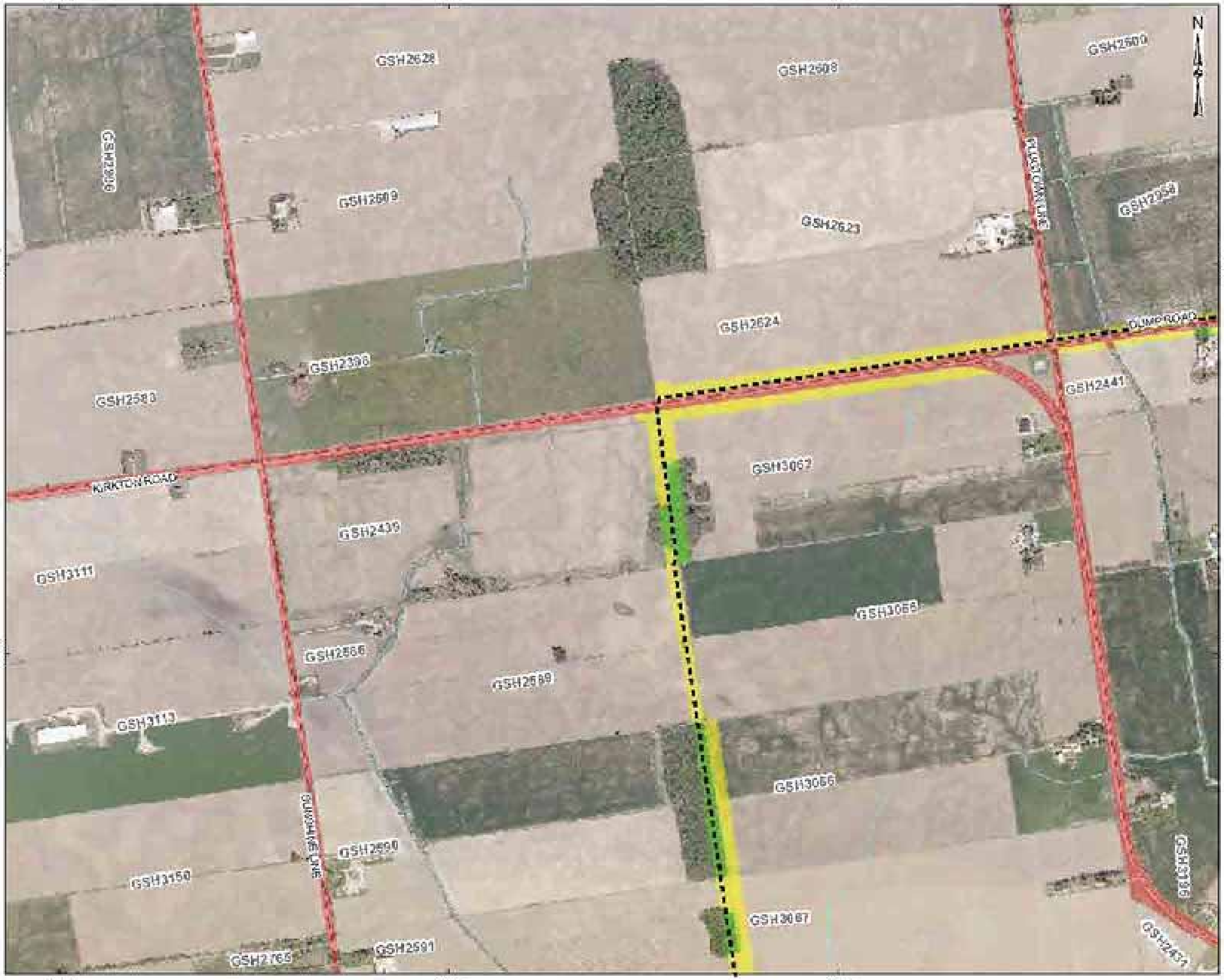
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

Golder Associates, Mississauga, Ontario

FIGURE: 6-38



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
- Construction Disturbance Area
- Utility Line
- Roads
- Railways
- Watercourse
- Substation/Laydown Area
- Land Parcel
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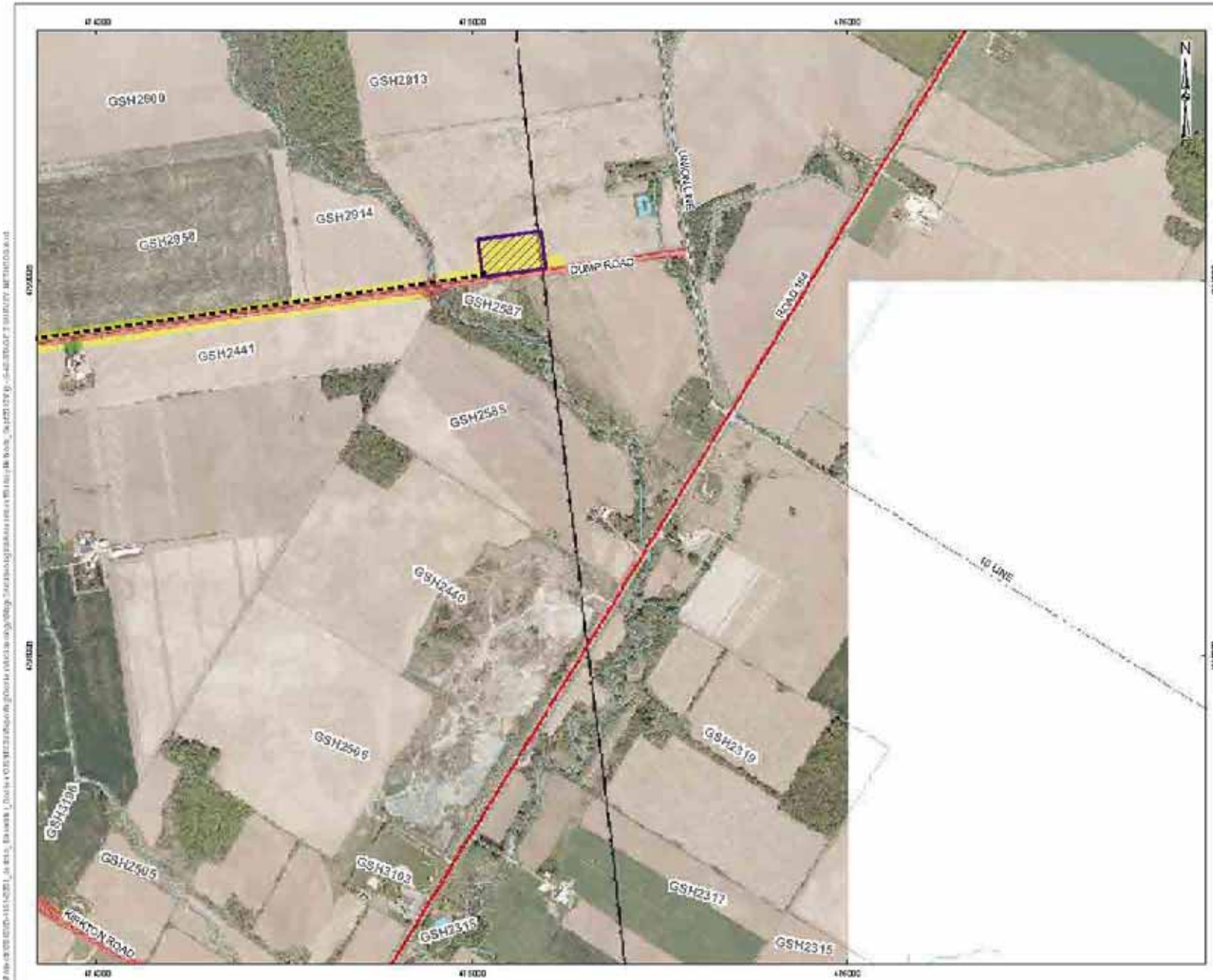
PROJECT STAGE 2 ARCHAEOLOGICAL ASSESSMENT
GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE

STAGE 2 SURVEY METHODS

FIGURE: 6-39



LEGEND

- Photographic Direction
- Turbine Layout
- MET Location
- Transmission Line
- Collector Cable
- Access Road
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GOSHEN WIND ENERGY CENTRE
HURON COUNTY, ONTARIO

TITLE: **STAGE 2 SURVEY METHODS**

Golder Associates Mississauga, Ontario

FIGURE: 6-40

10.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT

Golder has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the archaeological profession currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

This report has been prepared for the specific site, design objective, developments and purpose described to Golder, by AECOM Canada Ltd... The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the Client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder's report or other work products.

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Special risks occur whenever archaeological investigations are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain archaeological resources. The sampling strategies incorporated in this study comply with those identified in the Ministry of Tourism and Culture's 1993 *Archaeological Assessment Technical Guidelines (Stages 1-3 & Reporting Format)*, but whenever possible the 2011 Ministry of Tourism and Culture's *Standards and Guidelines for Consultant Archaeologists* were employed as best practices.

Report Signature Page

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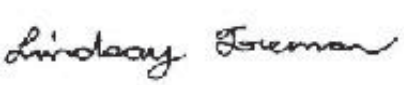

Lindsay Foreman, Ph.D.
Project Archaeologist

Carla Parslow, Ph.D.
Senior Archaeologist

LF/CAP/gf

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APPENDIX A

Background on Historic Euro-Canadian Artifacts

The following appendix is intended to provide information on certain artifacts commonly found on historic Euro-Canadian archaeological sites. The list and descriptions are not meant to be an exhaustive reference. Rather, they provide general background information on the most commonly recovered ceramics, structural artifacts, and personal items. Further information on these and other artifact types found at historic Euro-Canadian archaeological sites can be found in the main text of this report or are cited in Section 7.0 (Bibliography and Sources).

Domestic Artifacts - Ceramics

Pearlware

Pearlware, sometimes referred to as “China glazed”, is a variety of earthenware that was popular from 1780 to 1840. Pearlware may be difficult to recognize because of its similar appearance to later whiteware ceramics. However, because of the addition of cobalt, the glaze on pearlware has a light blue to blue-green tint. When placed on white earthenware bisque, this glaze gave the impression of a “whiter” ware than the earlier yellow-tinted creamware.

Transfer printing on pearlware was developed as early as 1780, but did not become common in Upper Canada until around 1810 (Kenyon 1985). The early transfer printed pearlwares were most frequently decorated in blue. Other colours, such as black, green, red, and purple became popular post-1820. The most common images that were transfer printed were floral designs and landscape images. Early transfer printed wares were frequently densely decorated, with very little white background present.

Miller (1987) outlines the production range for edged pearlware according to rim decoration as follows: scalloped rim with impressed curved lines, 1780-1820; scalloped rim with impressed straight lines, 1795-1840; scalloped rim with impressed bud, 1800-1850; embossed raised patterns, 1820-1845; unscalloped and impressed rim, 1825-1891; and unscalloped and unmoulded rim, 1850-1897.

The earliest painted designs used only monochromatic blue beginning in the late 18th century and declined in popularity around 1830. “Early Palette” colours, such as muted shades of blue, yellow, orange, brown and green, were manufactured from as early as 1795 to 1815 (Noël Hume 1969). More brilliant, jewel-toned colours, such as red, pink, bright yellow and bright green, were not used until 1840 (Noël Hume 1969) and are referred to as the “Late Palette” colours. Floral motifs were the most popular subject matter for hand painted pearlwares.

Whiteware

Whiteware is a variety of earthenware with a near colorless glaze that replaced earlier near-white ceramics such as pearlware and creamware by the early 1830s. Early whiteware tends to have a porous paste, with more vitrified, harder, ceramics becoming increasingly common later in the 19th century (Kenyon 1985). Painted whiteware was popular from as early as 1830 through to the 1870s.

Stamped and sponge decorated whiteware ceramics were a form of inexpensive tableware in which a sponge was used to apply an underglaze pigment. All-over sponging became popular by the 1840s and remained common until the 1870s. Both stamped and spongewares were produced in hollowware form and were among the cheapest wares available. Although the technique was widely applied, it is considered Scottish. The

principal overseas customer for these inexpensive cheerful wares was Canada, where it was distributed out of Quebec and other settlements along the St. Lawrence River (Cruikshank 1982:1-7; 52-53).

Transfer printed whiteware, which involved the transfer of an intricate pattern from a sheet of treated paper to the underglaze surface of the clay, became popular early in the 19th century. Before 1830, almost all transfer printed wares were blue. After 1830, however, colours such as light blue, black, brown, green, purple and red became more common. Flow transfer printed whiteware, in which the pigment flows into the glaze due to the introduction of volatile chlorides during firing, became popular in the 1840s and 1850s, with a later revival in the 1890s.

Edged whiteware plates became common as early as 1790 and overlapped with the manufacture of edged pearlware ceramics. Both blue and green edged wares were popular in the late 18th and early 19th centuries with green edged wares declining in popularity post 1830.

Miller (1987) outlines the production range for edged whiteware according to rim decoration as follows: scalloped rim with impressed curved lines, 1780 to 1820; scalloped rim with impressed straight lines, 1795 to 1840; scalloped rim with impressed bud, 1800 to 1850; embossed raised patterns, 1820 to 1845; unscalloped and impressed rim, 1825 to 1891; or unscalloped and unmoulded rim, 1850 to 1897.

Banded wares were decorated with horizontal bands of coloured slip applied in varying widths. Colours are predominantly muted earth tones including, black, green, brown, orange, yellow, grey, and pale blue. Banding occurred both as a primary decorative element and in conjunction with other design elements such as marbling, or the dendritic patterns found on mocha ware. Banded patterns can be found on whiteware from 1830 to the 20th century (Sussman 1997). After 1850 annular wares became available only on the blue banded variety and its use continued into the 20th century (Sussman 1997).

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Methods for moulding ceramic vessels were intensively refined during the 18th century and vastly improved by the 19th century (Hughes 1961).

Dyed earthenware is refined white earthenware dyed with metallic oxides. The glaze for this ware is clear to allow the colour of the fabric to show through. The decoration of this ware is varied, including moulded relief, underglaze and overglaze painting, underglaze printing, lithograph, lustre and gilding. Common vessel forms include tablewares and pitchers. The ware was produced from 1878 to 1893 in Canada, and the late 19th century to present elsewhere.

Ironstone

This common nineteenth century utilitarian pottery is part of the general category of English "Stone China." It is referred to as "Undecorated White Granite Ware" or "Undecorated Ironstone" in the archaeological literature, after Mason's Patent Ironstone China (which was a specific brand of stone china patented in 1813). Ironstone, or graniteware, is a variety of refined white earthenware, introduced to Canada by the 1820's, widely available in the 1840s, and extremely popular in Upper Canada by the 1860's (Collard 1967; Kenyon 1985). It is usually much thicker than other whiteware. There is evidence that in the 1850s and early 1860s it was as expensive as

transfer-printed earthenware, transfer printing being generally the most expensive decorative method used on earthenware. However, by 1897, ironstone china was the cheapest dinnerware offered for sale in the T. Eaton Company's mail-order catalogue and the prices charged for moulded patterns, including Wheat, were the same as those charged for plain ironstone (Sussman 1985:9).

Chronologically, decorated Ironstone, including hand painted, transfer printed, sponged, and stamped, generally dates between 1805 and 1840 (Miller 1991). Undecorated Stone China with a vitreous paste is most common after 1840. Ironstone can also be decorated with raised moulded designs of wheat or fruit. The wheat design, also referred to as "Ceres", was the most popular ironstone pattern produced and has a production range of 1859 to present. Other popular mid-19th century decorative moulded motifs included leaves (e.g. oak, maple, grape, and ivy) and raised vines. Grape leaves and vines sheltered tiny, embossed bunches of grapes. Other fruits were used as well, including peaches, figs, plums, pears and berries. Flowers also decorated a lot of the mid-century ironstone. Lilies of the Valley, tulips, forget-me-not and hyacinths were used individually and also combined with other flowers in patterns such as "Meadow Bouquet" by W. Baker and Co. and "Summer Garden" by George Jones (Birks 2012).

Semi-Porcelain

During the first half of the 19th century, the English improved pottery techniques resulting in the production of durable and decorative wares with trade names such as semi-porcelain. This hard earthenware sought to emulate imported porcelains but lacked true translucency. In 1850, semi-porcelains were reintroduced and this vitreous, hard-glazed white earthenware, resembling bone china, soon dominated the marketplace (Hughes 1961).

Yellowware

Yellow Ware has a buff to dark yellow fabric with a clear lead glaze giving the vessel a yellow appearance and was used primarily for kitchenwares and storage vessels with a date range of 1840 to present day with a peak popularity of 1870 to 1900. By the mid-19th century, yellowware hollowware forms included such decorative techniques as: slip-banding, mocha designs and a thick slip with an elaborate decoration. Other decorative methods included moulded relief, underglaze painted, finger trailing, and luster. Though much of the Yellow Ware found in Nova Scotia was produced in England, there were several producers in Canada who operated from the mid-19th century until about 1930. Yellow Ware declined as white wares began to dominate, but production of Yellow Ware continued on into the 20th century (Gallo 1985).

Redware

Redware is a thin-bodied earthenware covered on both the interior and exterior surfaces by a dark reddish-brown, dark brown, or black glaze. This type of redware was commonly used in the early 19th century for tea pots and mugs.

Porcelain

Porcelain is a type of earthenware fired at such a high temperature that the clay has begun to vitrify; consequently the ceramic is translucent when held up to light. The Canadian pioneer generally preferred utilitarian earthenwares, but by mid-19th century, English potteries such as Copeland and Minton, were producing porcelains for the Canadian marketplace. Porcelain was not required as much as utilitarian ceramics, but it was always in steady demand (Collard 1967:163,175). By the turn of the century, porcelain became relatively common as production techniques had been developed in Europe which greatly reduced costs.

Utilitarian Earthenware

Red and yellow earthenware vessels were manufactured throughout the late 18th and 19th centuries and were the most common utilitarian ware in the first half of the 19th century, eventually replaced by more durable stoneware vessels. Stoneware vessels were also produced throughout the 19th century, becoming more durable and refined over time (Adams *et al.* 1994:99).

North American stoneware, usually grey bodied with a clear salt glaze, and some with a characteristic interior with a dark brown, high-gloss surface called an Albany slip, characterize Canadian sites from 1840 to 1900. Exterior decoration, when present, generally consists of simple painted or stenciled designs in cobalt or manganese and in the early to mid-19th century, size numbers and makers marks were often stamped on the vessels. Stoneware tended to be used for large vessels, such as harvest bottles, butter pots, creampans, storage crocks and pinched-neck pitchers (Noël Hume 1969). English stonewares are also present on Canadian historic sites and this typically includes Derbyshire stonewares, which possess a smooth, highly vitrified grey fabric with a light brown or buff interior and brown mottled exterior. Derbyshire stonewares are used most frequently for various types of bottles, preserve jars and jugs and have a date range of 1800 to post-1875.

Rockingham ware is similar to yellowware with a yellow or buff paste, but the addition of a second brown coloured manganese glaze results in the body of the ceramic having a mottled appearance. Rockingham wares were used as utilitarian vessels often in the form of crocks, jars, pitchers, and tea pots, and have a similar date range and popularity peak as yellowwares.

Domestic Artifacts - Glass

While the colour of bottle glass alone is very limited with regards to providing dates of manufacture for glass bottles (Lindsey 2012), glass colour can sometimes indicate at least a temporal range and the following is a list of date ranges for some typical coloured glass found on Canadian archaeological sites.

Colourless, or “clear” glass was relatively uncommon prior to the 1870s but became quite common after the wide spread use of automatic bottle machines in the mid-to-late 1910s (Toulouse 1969; Kendrick 1971; Fike 1987). Colorless glass is usually attained by using the purest sand source possible and by adding "decolorizing agents" to the glass batch to offset the residual iron impurities. The use of manganese, or "glassmakers soap", would neutralize the effects of other impurities in the sand, particularly iron and render the glass colourless and clear (Hunter 1950). But manganese oxide turns amethyst over time due to a chemical reaction caused by sun exposure. This glass, referred to as sun coloured amethyst glass, generally dates from the 1880s to 1920.

Colourless glass was also de-colorized with selenium or arsenic (or typically a combination of the two in conjunction with cobalt oxide) and results in a very faint "straw" or amber tint in the thickest portions of the glass (Scholes 1952; Tooley 1953; Lockhart 2011). This colourless "color" can be very diagnostic of a machine-made bottle from between 1900 and 1915, but typically no later than the 1950s (Girade 1989; Lockhart 2011).

Generally, aqua coloured glass fragments originate from medical and pharmaceutical products including patent medicine bottles of the 19th and 20th century (Kendrick 1971). "Black" glass dates from the early-to-mid 19th century. The addition of iron when making glass was a common practice up until 1860 and produced dark olive or dark amber glass that became known as "black glass" (Kendrick 1971).

Opaque white, or "milk" glass was most commonly used for cosmetic containers, toiletry bottles, or cream jars from about 1870 through to the 20th century (Lindsey 2012). It was typically produced by the addition of tin or zinc oxide, calcium and phosphate rich animal horns, bones, fluorides (i.e. fluorspar), and phosphates (Kendrick 1971).

Pressed glass dishes and dishwares can also be temporally diagnostic. Non-leaded pressed glass in a variety of patterns is common on Canadian sites post-1860 (Jones and Sullivan 1989:35).

Structural Artifacts

Nails

Nails can be temporally diagnostic, depending on whether they are wrought, cut, or wire drawn (Adams *et al.* 1994:92). Wrought nails were handmade and are identifiable by their irregular heads, hammered body texture, with all four sides coming to a taper. Wrought nails were the most commonly used nail in Upper Canada until about 1830 when machine cut nails started to become more popular. Cut nails date to the mid-to-late 19th century. Cut nails were machine cut and have a flat head. They were invented as early as 1790, but did not become common in Ontario until 1830. They were replaced by wire drawn nails in the 1890s. Wire drawn nails are identical to the type of nails in current use today, with a flat, round head and a wire shaft.

Window Glass

There were two common methods of making window or "flat" glass before industrial improvements developed in the late 19th and early 20th centuries. The crown glass method involved spinning out molten glass into circular sheets, which were then cut into panes. In the broad glass method large tubes or cylinders were blown, cut down one side, and then opened flat to form a large sheet. On small sherds, it is impossible to differentiate these two manufacturing methods.

A very visible change in window glass, however, took place in the 1840s. This was due, in part, to an English tax on window glass based on weight. Before the tax was lifted in 1845, manufacturers made window glass as thin as possible (usually by the crown method) to minimize the effects of this tax. As a result, most window glass made before the mid-1840s tends to be less than 1.6 mm thick, while window glass made after this date is thicker. While this is not true for every sherd, a sample of window glass dating to the first half of the 19th century should have and average thickness of 1.1 to 1.4 mm compared to about 1.7 to 2.0 mm from the last half (Adams *et al.* 1994:92,93; Kenyon 1980).

Personal Artifacts

Clay Tobacco Pipes

White clay pipes were very popular throughout the 19th century, with a decline in use by 1880 when they were replaced by briar pipes and cigarettes (Adams *et al.* 1994:93). Most white clay pipes found in Upper Canada were manufactured in either Quebec or Scotland; occasionally examples from English, Dutch, French and American makers are also found. The maker's name may be impressed with the city of manufacture on the opposite side, although this did not become common practice until the 1840s.

Red clay pipes were generally produced out of local clays during the 18th and 19th centuries and Walker (1983:40) mentions them as an almost exclusively American product in the Canadian market place. They were generally stub-stemmed with a short socket needing a reed or stem attachment, but there is evidence that manufacturers, such as Ford based in Montreal, also made red clay pipes in the 19th century.

Buttons

Agate buttons are made from pressed ceramic powder manufactured by the "Prosser" process patented in 1840. They became common from the late 1840s onwards. Agate buttons, which are often confused with white glass buttons, are distinguishable due to the dimpled appearance of the back of the button which is a result of the moulding process (Adams *et al.* 1994:96).

Bone buttons are common to the 19th century and can have a range of manufacture from 1800 to 1865 (Noël Hume 1969:90). Shell buttons are turned discs of freshwater or exotic shell and they were typically used as shirt buttons prior to the 1840s.

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Africa	+ 27 11 254 4800
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Australasia	+ 61 3 8862 3500
Europe	+ 356 21 42 30 20
North America	+ 1 800 275 3281
South America	+ 55 21 3095 9500

solutions@golder.com
www.golder.com

Golder Associates Ltd.
2390 Argentia Road
Mississauga, Ontario, L5N 5Z7
Canada
T: +1 (905) 567 4444

Golder Associates