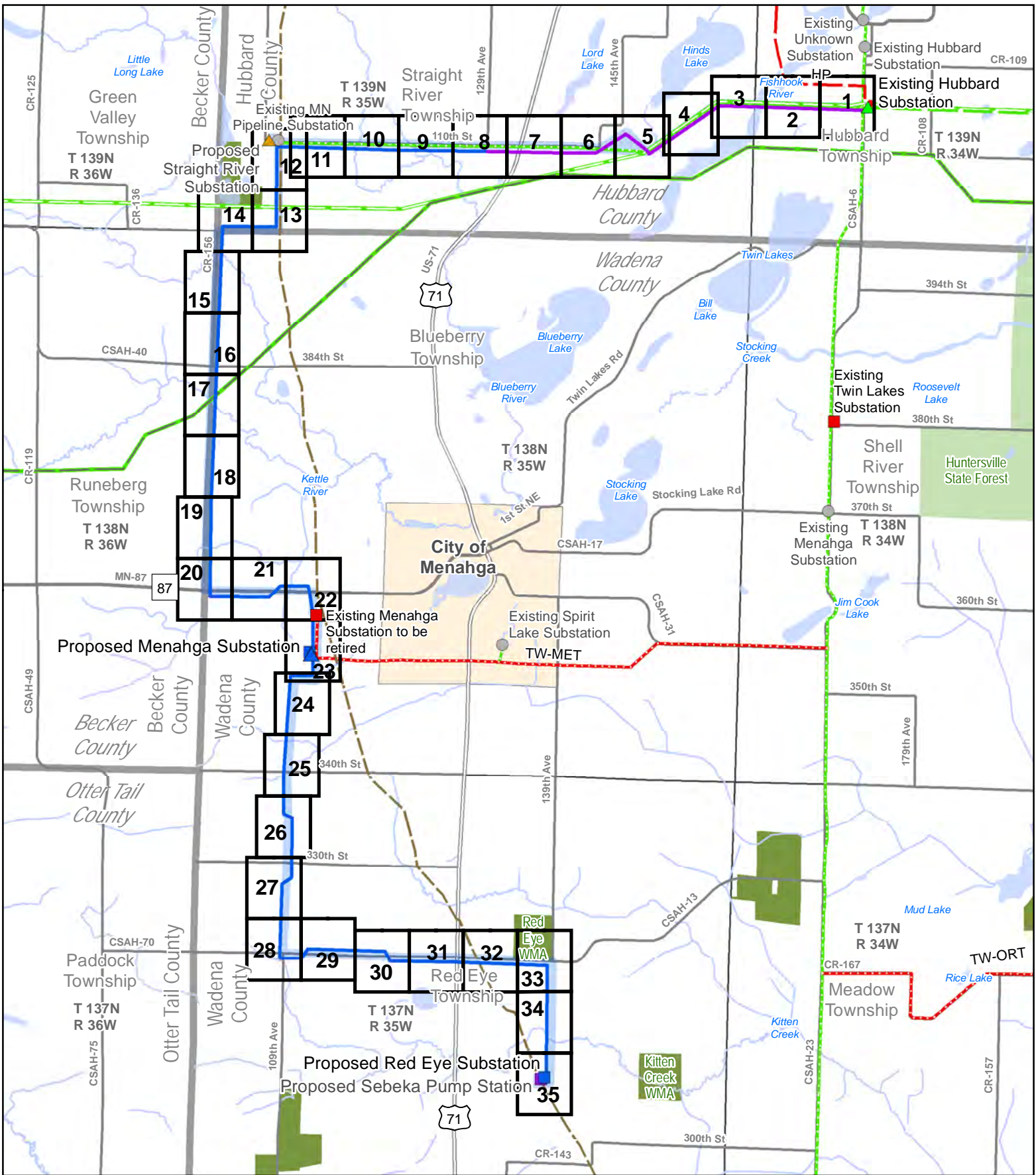


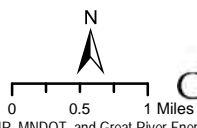
Figures – Route Permit Maps

Docket# 14-797 – Menahga Area 115 kV TL

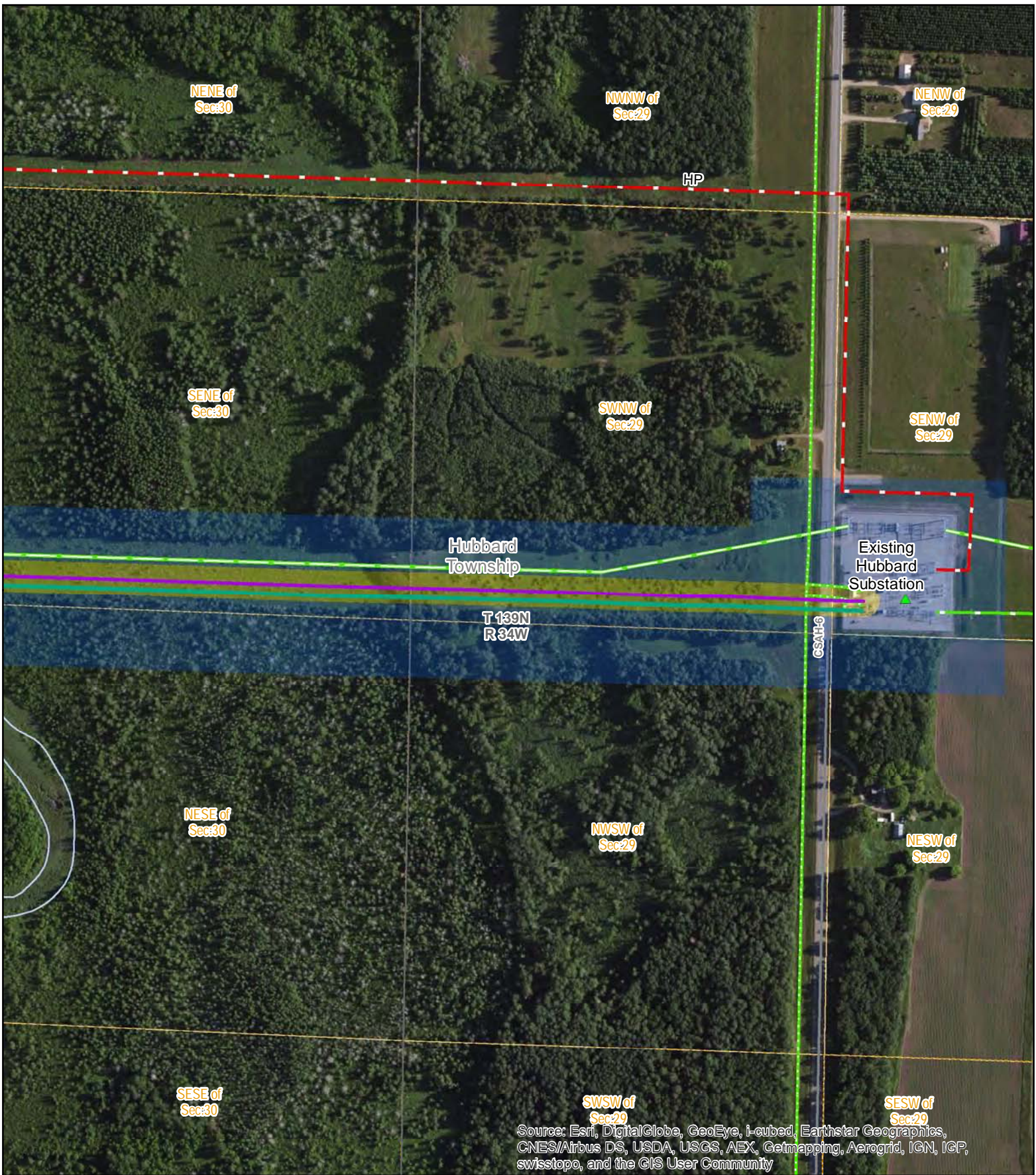


- | | |
|--|-------------------------------------|
| Great River Energy | Minnesota Power |
| Proposed Route (500' width) | Proposed Transmission Substation |
| Proposed Alignment - Single Circuit 115 kV | Existing Distribution Substation |
| Proposed Alignment - Double Circuit 115 kV | Other Electric Transmission Utility |
| Proposed Transmission Substation | Existing 34.5 kV Transmission Line |
| Existing 34.5 kV Transmission Line | Existing 115 kV Transmission Line |
| Existing 115 kV Transmission Line | Existing 230 kV Transmission Line |
| Existing Transmission Substation | Existing 250 kV Transmission Line |
| Todd-Wadena Electric | Minnesota Pipe Line |
| Proposed Distribution Substation | Proposed Pump Station |
| Existing Distribution Substation | Existing Pipeline |

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet Key



GIS Data sources include: MNGEO, MNDNR, MNDOT, and Great River Energy.



Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

<p>Great River Energy</p> <ul style="list-style-type: none"> — Proposed Route (500' width) — Proposed Easement Area (100' width) — Proposed Alignment - Single Circuit 115 kV — Proposed Alignment - Double Circuit 115 kV ▲ Proposed Transmission Substation — Existing 34.5 kV Transmission Line — Existing 115 kV Transmission Line ▲ Existing Transmission Substation Proposed Substation Fence 	<p>Todd-Wadena Electric</p> <ul style="list-style-type: none"> ■ Proposed Distribution Substation ■ Existing Distribution Substation <p>Minnesota Power</p> <ul style="list-style-type: none"> ▲ Proposed Transmission Substation ● Existing Distribution Substation — Other Electric Transmission Utility — Existing 34.5 kV Transmission Line — 34.5 kv line to be removed with the project — Existing 115 kV Transmission Line 	<p>— Existing 230 kV Transmission Line</p> <p>— Existing 250 kV Transmission Line</p> <p>Structure</p> <ul style="list-style-type: none"> ● Residence 50-100' (0) ● Residence 100-150' (0) ● Residence 150-250' (0) ★ Commercial / Industrial 50-100' (0) ■ Non-Residential Building 0-250' (0) — Minnesota Pipe Line ■ Proposed Pump Station <p>— Existing Pipeline</p>	<p align="center">Menahga Area 115 kV Project</p> <p align="center">Appendix G - Detailed Route Maps</p> <p align="center">Map Sheet 1 of 35</p> <p>N</p> <p>0 50 100 200 Feet</p> <p>GIS Data sources include: MINGEO, MNDNR, MNDOT, and Great River Energy.</p> <p align="center">GREAT RIVER ENERGY</p> <p align="center">A Touchstone Energy Cooperative</p>
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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

<p>Great River Energy</p> <ul style="list-style-type: none"> Proposed Route (500' width) Proposed Easement Area (100' width) Proposed Alignment - Single Circuit 115 kV Proposed Alignment - Double Circuit 115 kV Proposed Transmission Substation Existing 34.5 kV Transmission Line Existing 115 kV Transmission Line Existing Transmission Substation Proposed Substation Fence 	<p>Todd-Wadena Electric</p> <ul style="list-style-type: none"> Proposed Distribution Substation Existing Distribution Substation <p>Minnesota Power</p> <ul style="list-style-type: none"> Proposed Transmission Substation Existing Distribution Substation Other Electric Transmission Utility Existing 34.5 kV Transmission Line 34.5 kv line to be removed with the project Existing 115 kV Transmission Line 	<ul style="list-style-type: none"> Existing 230 kV Transmission Line Existing 250 kV Transmission Line <p>Structure</p> <ul style="list-style-type: none"> Residence 50-100' (1) Residence 100-150' (0) Residence 150-250' (1) Commercial / Industrial 50-100' (0) Non-Residential Building 0-250' (4) Minnesota Pipe Line Proposed Pump Station 	<ul style="list-style-type: none"> Existing Pipeline
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Menahga Area 115 kV Project

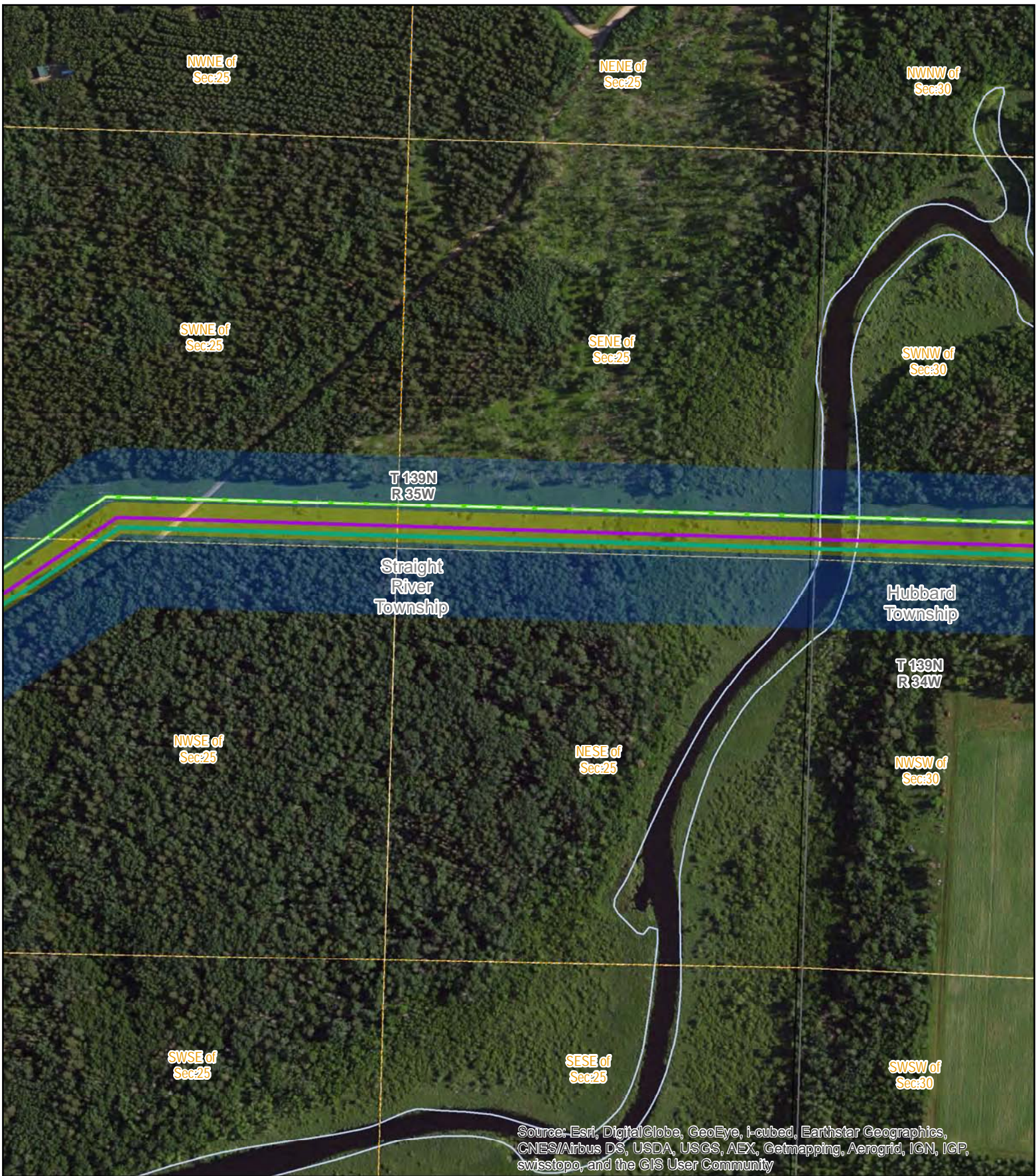
Appendix G - Detailed Route Maps

Map Sheet 2 of 35

0 50 100 200 Feet

GIS Data sources include:
MNGEO, MNDNR, MNDOT, and Great River Energy.

GREAT RIVER ENERGY
A Touchstone Energy Cooperative



Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


- | | | |
|--|---|------------------------------------|
| Great River Energy | Todd-Wadena Electric | Minnesota Power |
| Proposed Route (500' width) | Proposed Distribution Substation | Proposed Transmission Substation |
| Proposed Easement Area (100' width) | Existing Distribution Substation | Existing Distribution Substation |
| Proposed Alignment - Single Circuit 115 kV | Other Electric Transmission Utility | Existing 34.5 kV Transmission Line |
| Proposed Alignment - Double Circuit 115 kV | Existing 34.5 kV Transmission Line | Existing 115 kV Transmission Line |
| Proposed Transmission Substation | 34.5 kv line to be removed with the project | Existing Transmission Substation |
| Existing 34.5 kV Transmission Line | Existing 115 kV Transmission Line | Proposed Substation Fence |
| Existing 115 kV Transmission Line | | |
| Existing Transmission Substation | | |
| Proposed Substation Fence | | |

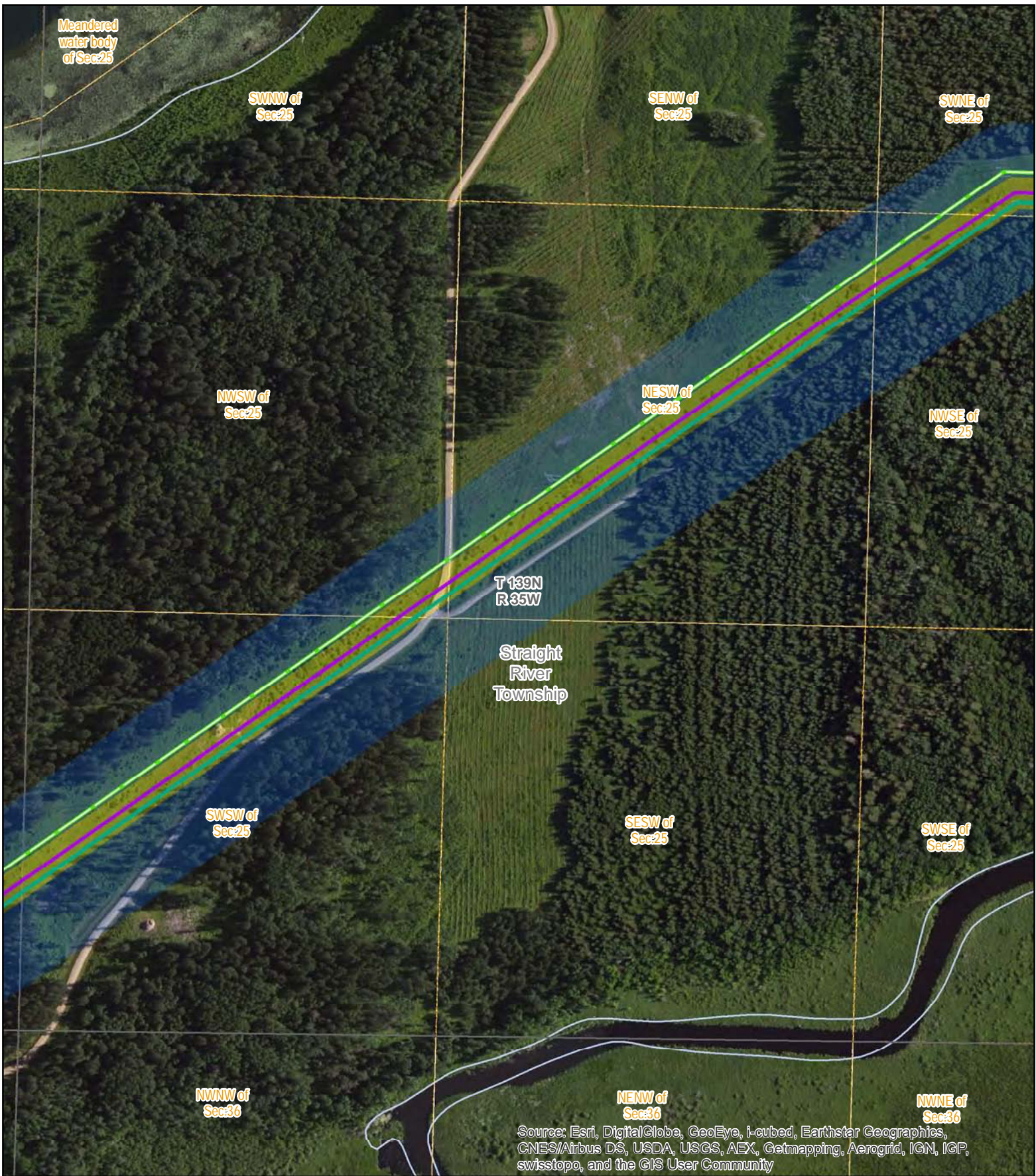
- | | |
|-------------------------------------|-------------------|
| Existing 230 kV Transmission Line | Existing Pipeline |
| Existing 250 kV Transmission Line | |
| Structure | |
| Residence 50-100' (0) | |
| Residence 100-150' (0) | |
| Residence 150-250' (0) | |
| Commercial / Industrial 50-100' (0) | |
| Non-Residential Building 0-250' (0) | |
| Minnesota Pipe Line | |
| Proposed Pump Station | |

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 3 of 35

N
 0 50 100 200 Feet
 GIS Data sources include:
 MNGEO, MNDNR, MNDOT, and Great River Energy.

GREAT RIVER ENERGY
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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- Great River Energy
- Proposed Route (500' width)
- Proposed Easement Area (100' width)
- Proposed Alignment - Single Circuit 115 kV
- Proposed Alignment - Double Circuit 115 kV
- Proposed Transmission Substation
- Existing 34.5 kV Transmission Line
- Existing 115 kV Transmission Line
- Existing Transmission Substation
- Proposed Substation Fence

- Todd-Wadena Electric
- Proposed Distribution Substation
- Existing Distribution Substation
- Minnesota Power
- Proposed Transmission Substation
- Existing Distribution Substation
- Other Electric Transmission Utility
- Existing 34.5 kV Transmission Line
- 34.5 kv line to be removed with the project
- Existing 115 kV Transmission Line

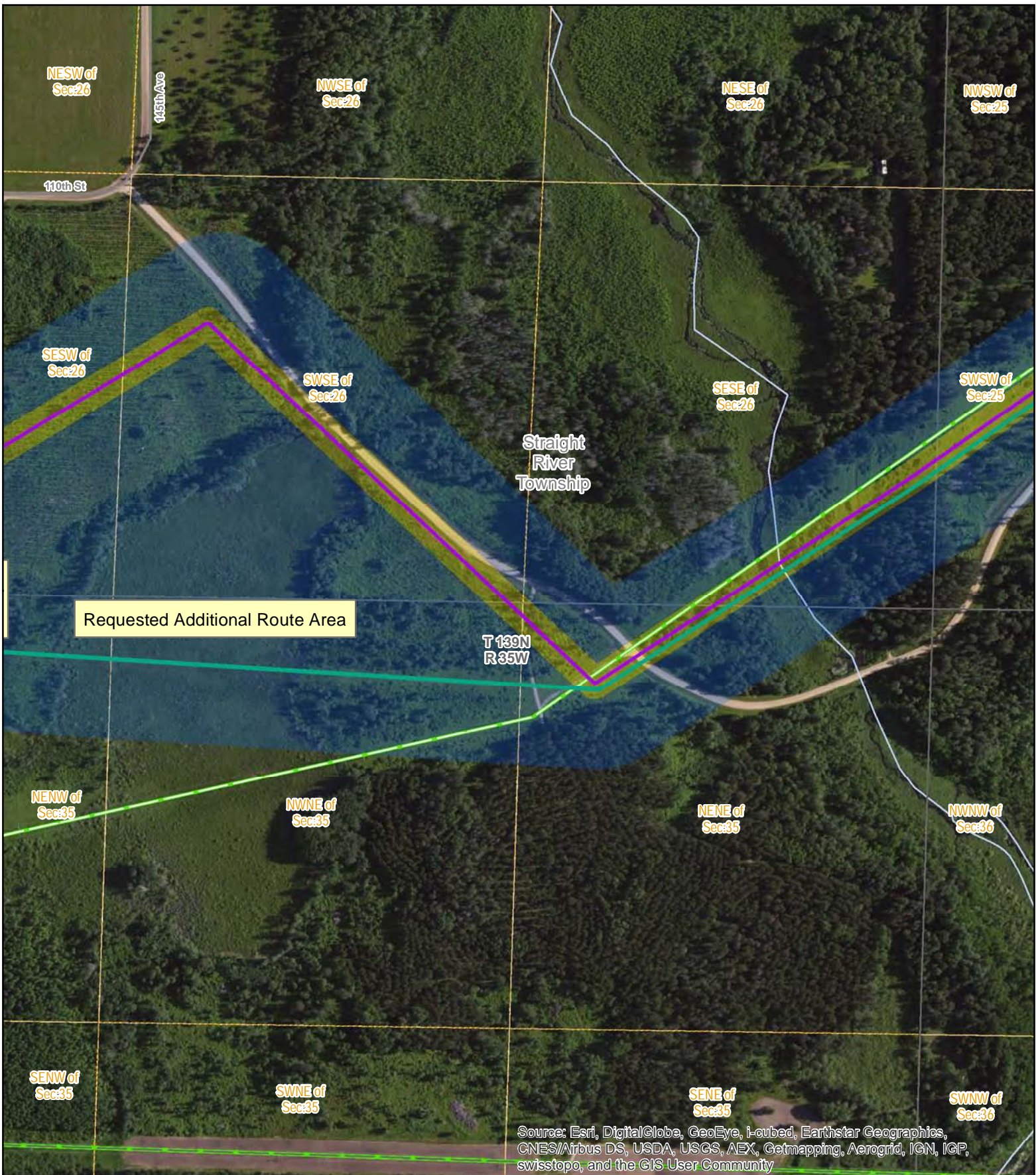
- Existing 230 kV Transmission Line
- Existing 250 kV Transmission Line
- Structure
- Residence 50-100' (0)
- Residence 100-150' (0)
- Residence 150-250' (0)
- Commercial / Industrial 50-100' (0)
- Non-Residential Building 0-250' (0)
- Minnesota Pipe Line
- Proposed Pump Station

- Existing Pipeline

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 4 of 35

N
 0 50 100 200 Feet
 GIS Data sources include:
 MNGEO, MNDNR, MNDOT, and Great River Energy.

GREAT RIVER ENERGY
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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

<p>Great River Energy</p> <ul style="list-style-type: none"> Proposed Route (500' width) Proposed Easement Area (100' width) Proposed Alignment - Single Circuit 115 kV Proposed Alignment - Double Circuit 115 kV Proposed Transmission Substation Existing 34.5 kV Transmission Line Existing 115 kV Transmission Line Existing Transmission Substation Proposed Substation Fence 	<p>Todd-Wadena Electric</p> <ul style="list-style-type: none"> Proposed Distribution Substation Existing Distribution Substation <p>Minnesota Power</p> <ul style="list-style-type: none"> Proposed Transmission Substation Existing Distribution Substation Other Electric Transmission Utility Existing 34.5 kV Transmission Line 34.5 kV line to be removed with the project Existing 115 kV Transmission Line 	<ul style="list-style-type: none"> Existing 230 kV Transmission Line Existing 250 kV Transmission Line <p>Structure</p> <ul style="list-style-type: none"> Residence 50-100' (0) Residence 100-150' (0) Residence 150-250' (0) Commercial / Industrial 50-100' (0) Non-Residential Building 0-250' (0) Minnesota Pipe Line Proposed Pump Station 	<ul style="list-style-type: none"> Existing Pipeline
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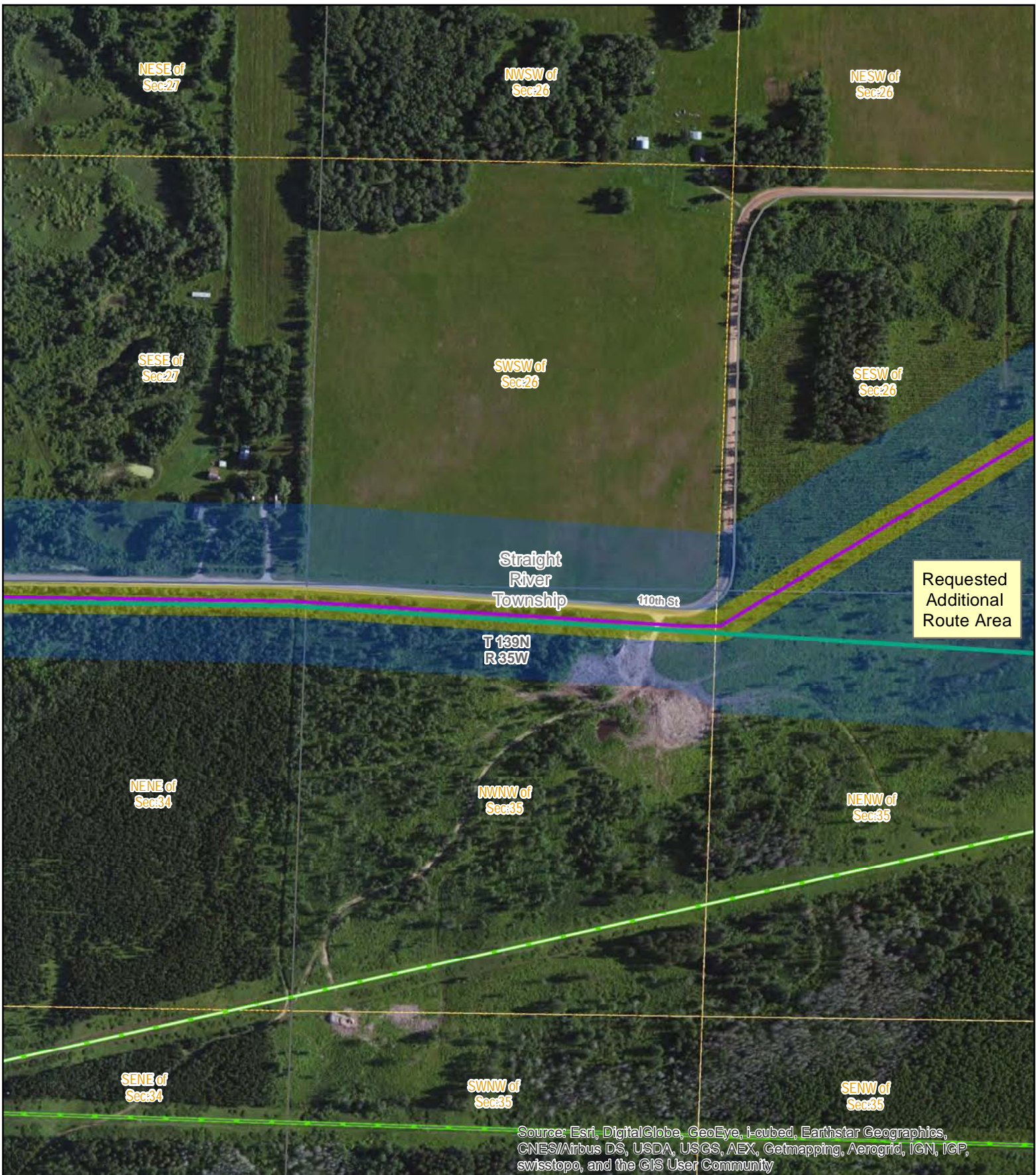
Menahga Area 115 kV Project

Appendix G - Detailed Route Maps

Map Sheet 5 of 35

0 50 100 200 Feet
 GIS Data sources include:
 MNGEO, MNDNR, MNDOT, and Great River Energy.

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Requested
Additional
Route Area

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Great River Energy	Todd-Wadena Electric	Existing 230 kV Transmission Line	Existing Pipeline
Proposed Route (500' width)	Proposed Distribution Substation	Existing 250 kV Transmission Line	
Proposed Easement Area (100' width)	Existing Distribution Substation	Structure	
Proposed Alignment - Single Circuit 115 kV	Minnesota Power	Residence 50-100' (0)	
Proposed Alignment - Double Circuit 115 kV	Proposed Transmission Substation	Residence 100-150' (0)	
Proposed Transmission Substation	Existing Distribution Substation	Residence 150-250' (0)	
Existing 34.5 kV Transmission Line	Other Electric Transmission Utility	Commercial / Industrial 50-100' (0)	
Existing 115 kV Transmission Line	Existing 34.5 kV Transmission Line	Non-Residential Building 0-250' (0)	
Existing Transmission Substation	34.5 kv line to be removed with the project	Minnesota Pipe Line	
Proposed Substation Fence	Existing 115 kV Transmission Line	Proposed Pump Station	


Menahga Area 115 kV Project

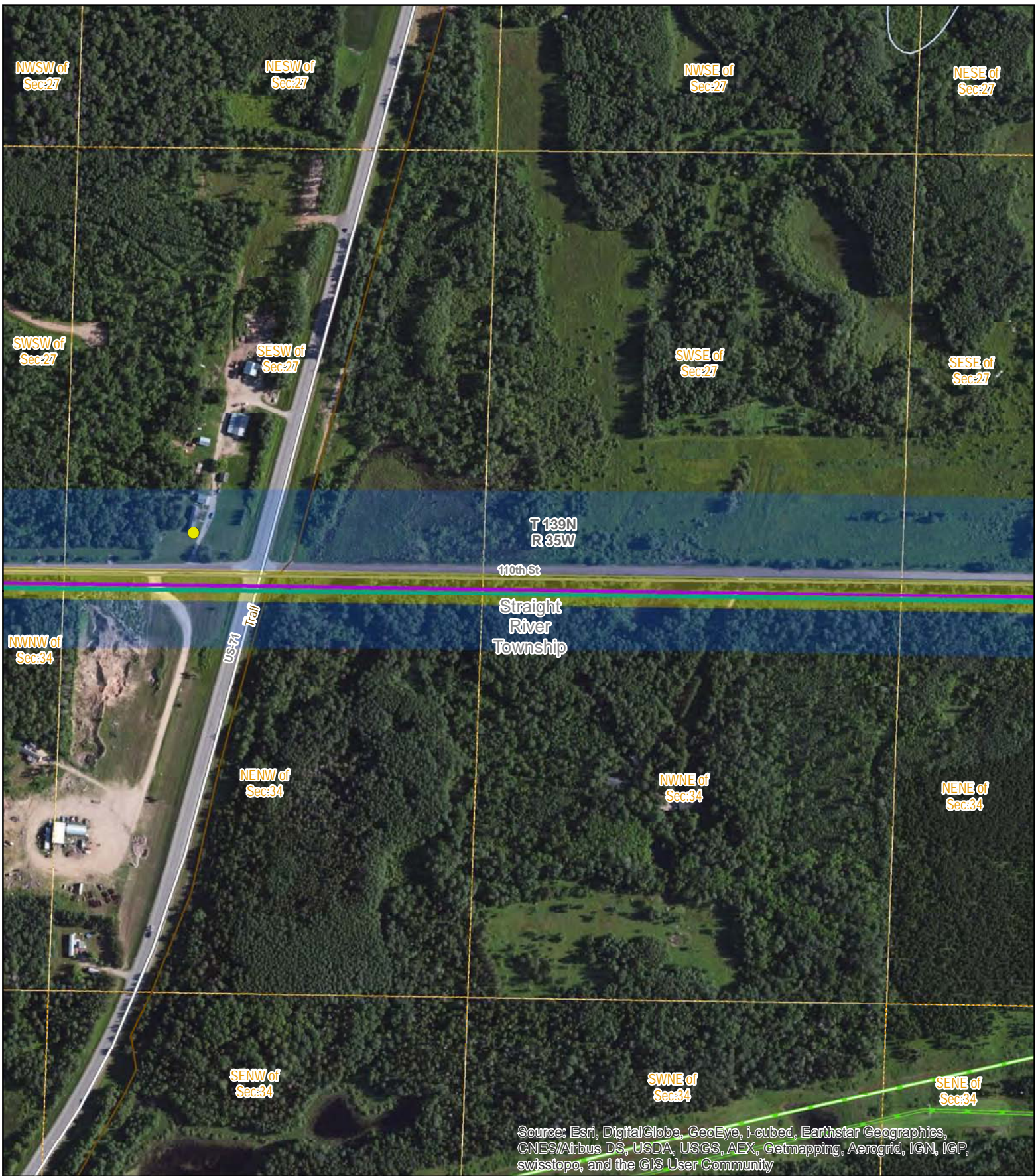
Appendix G - Detailed Route Maps

Map Sheet 6 of 35

N
0 50 100 200 Feet
GIS Data sources include:
MINGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

<p>Great River Energy</p> <ul style="list-style-type: none"> Proposed Route (500' width) Proposed Easement Area (100' width) Proposed Alignment - Single Circuit 115 kV Proposed Alignment - Double Circuit 115 kV Proposed Transmission Substation Existing 34.5 kV Transmission Line Existing 115 kV Transmission Line Existing Transmission Substation Proposed Substation Fence 	<p>Todd-Wadena Electric</p> <ul style="list-style-type: none"> Proposed Distribution Substation Existing Distribution Substation <p>Minnesota Power</p> <ul style="list-style-type: none"> Proposed Transmission Substation Existing Distribution Substation Other Electric Transmission Utility Existing 34.5 kV Transmission Line 34.5 kV line to be removed with the project Existing 115 kV Transmission Line 	<ul style="list-style-type: none"> Existing 230 kV Transmission Line Existing 250 kV Transmission Line <p>Structure</p> <ul style="list-style-type: none"> Residence 50-100' (0) Residence 100-150' (0) Residence 150-250' (1) Commercial / Industrial 50-100' (0) Non-Residential Building 0-250' (0) Minnesota Pipe Line Proposed Pump Station 	<ul style="list-style-type: none"> Existing Pipeline
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Menahga Area 115 kV Project

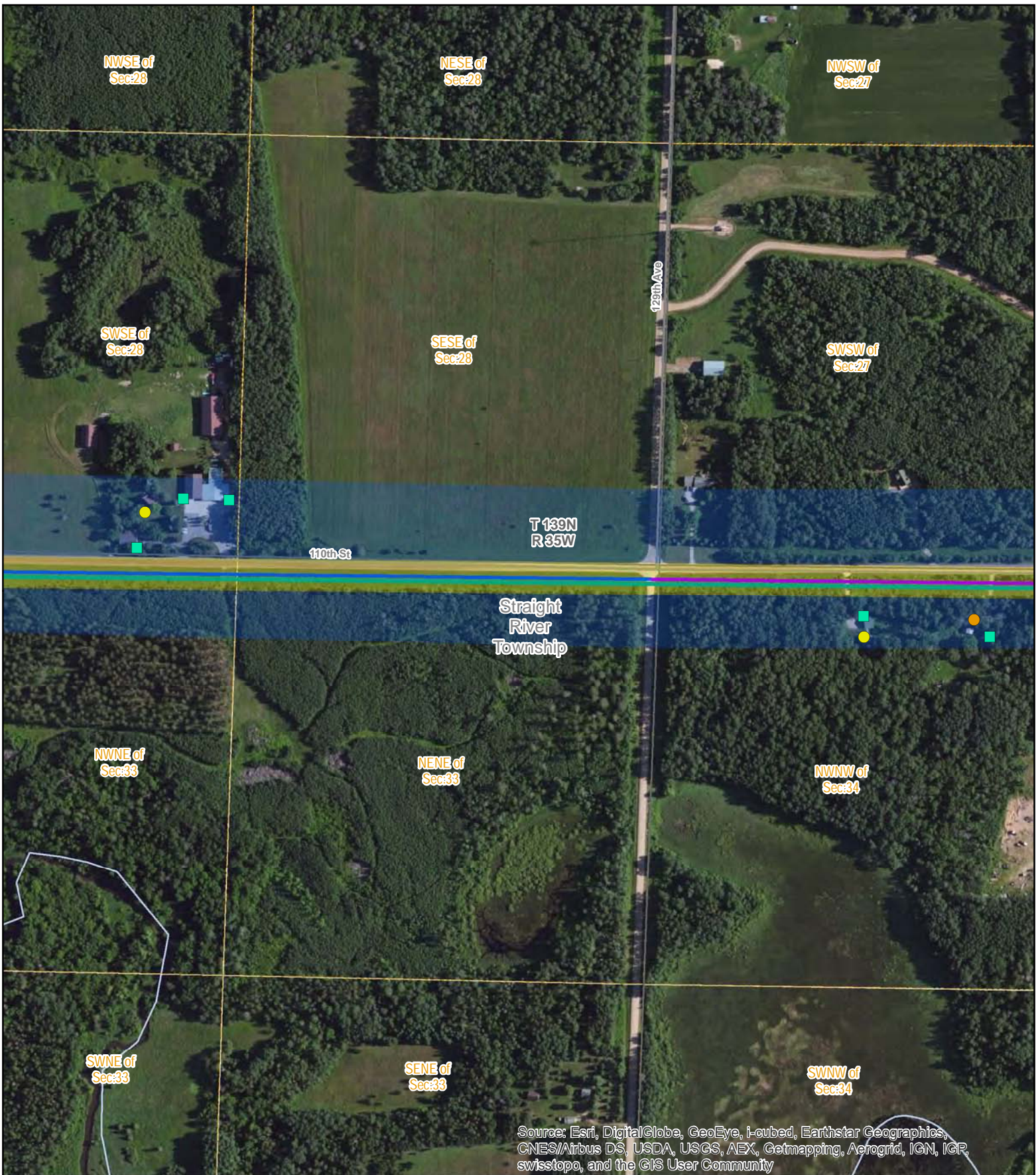
Appendix G - Detailed Route Maps

Map Sheet 7 of 35

0 50 100 200 Feet

GIS Data sources include:
MINGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

<p>Great River Energy</p> <ul style="list-style-type: none"> Proposed Route (500' width) Proposed Easement Area (100' width) Proposed Alignment - Single Circuit 115 kV Proposed Alignment - Double Circuit 115 kV Proposed Transmission Substation Existing 34.5 kV Transmission Line Existing 115 kV Transmission Line Existing Transmission Substation Proposed Substation Fence 	<p>Todd-Wadena Electric</p> <ul style="list-style-type: none"> Proposed Distribution Substation Existing Distribution Substation <p>Minnesota Power</p> <ul style="list-style-type: none"> Proposed Transmission Substation Existing Distribution Substation <p>Other Electric Transmission Utility</p> <ul style="list-style-type: none"> Existing 34.5 kV Transmission Line 34.5 kV line to be removed with the project Existing 115 kV Transmission Line 	<ul style="list-style-type: none"> Existing 230 kV Transmission Line Existing 250 kV Transmission Line <p>Structure</p> <ul style="list-style-type: none"> Residence 50-100' (0) Residence 100-150' (1) Residence 150-250' (2) Commercial / Industrial 50-100' (0) Non-Residential Building 0-250' (5) Minnesota Pipe Line Proposed Pump Station 	<ul style="list-style-type: none"> Existing Pipeline
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Menahga Area 115 kV Project

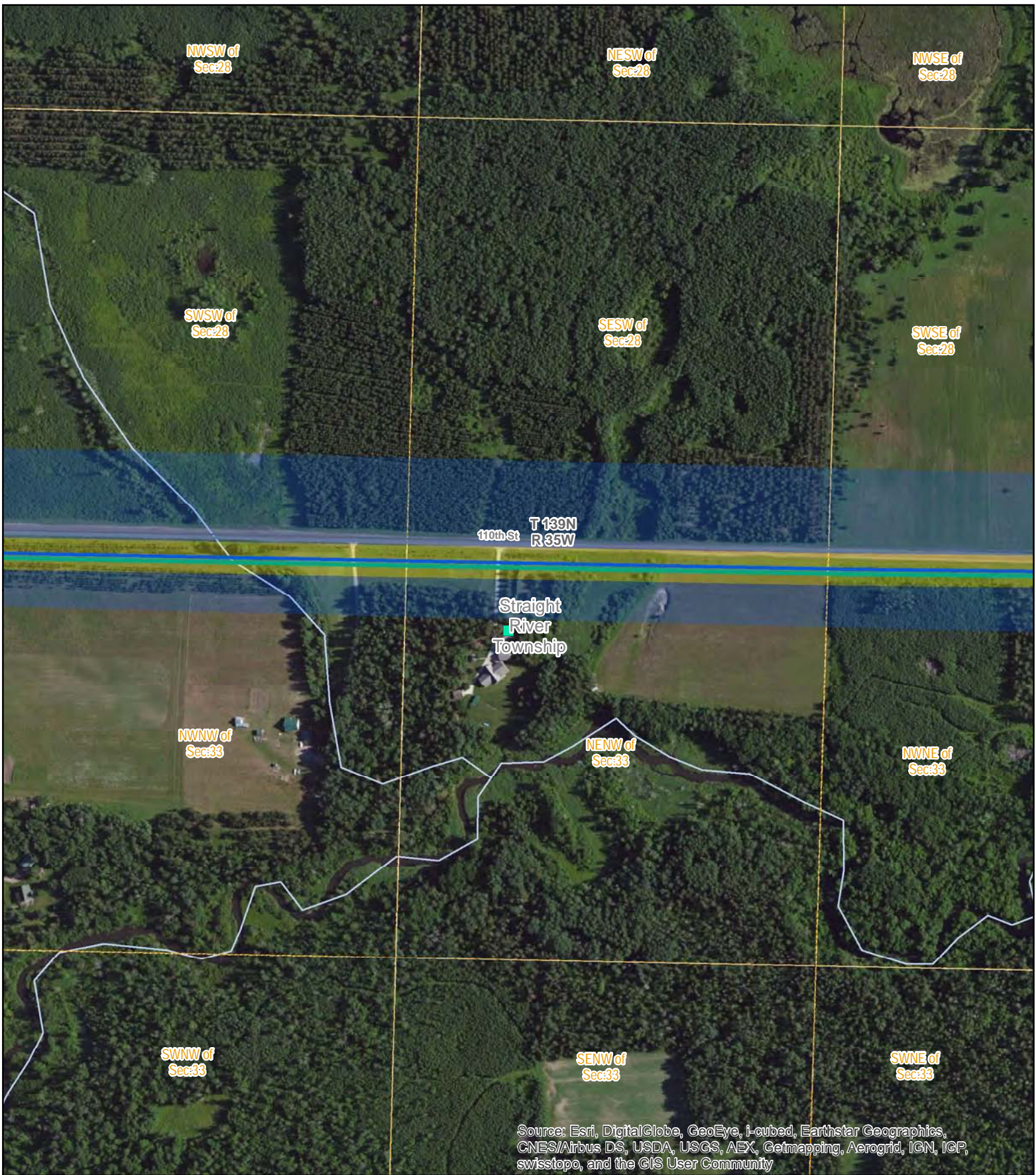
Appendix G - Detailed Route Maps

Map Sheet 8 of 35

0 50 100 200 Feet

GIS Data sources include:
MNGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

<p>Great River Energy</p> <ul style="list-style-type: none"> Proposed Route (500' width) Proposed Easement Area (100' width) Proposed Alignment - Single Circuit 115 kV Proposed Alignment - Double Circuit 115 kV Proposed Transmission Substation Existing 34.5 kV Transmission Line Existing 115 kV Transmission Line Existing Transmission Substation Proposed Substation Fence 	<p>Todd-Wadena Electric</p> <ul style="list-style-type: none"> Proposed Distribution Substation Existing Distribution Substation <p>Minnesota Power</p> <ul style="list-style-type: none"> Proposed Transmission Substation Existing Distribution Substation Other Electric Transmission Utility Existing 34.5 kV Transmission Line 34.5 kV line to be removed with the project Existing 115 kV Transmission Line 	<ul style="list-style-type: none"> Existing 230 kV Transmission Line Existing 250 kV Transmission Line <p>Structure</p> <ul style="list-style-type: none"> Residence 50-100' (0) Residence 100-150' (0) Residence 150-250' (0) Commercial / Industrial 50-100' (0) Non-Residential Building 0-250' (1) Minnesota Pipe Line Proposed Pump Station 	<ul style="list-style-type: none"> Existing Pipeline
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Menahga Area 115 kV Project

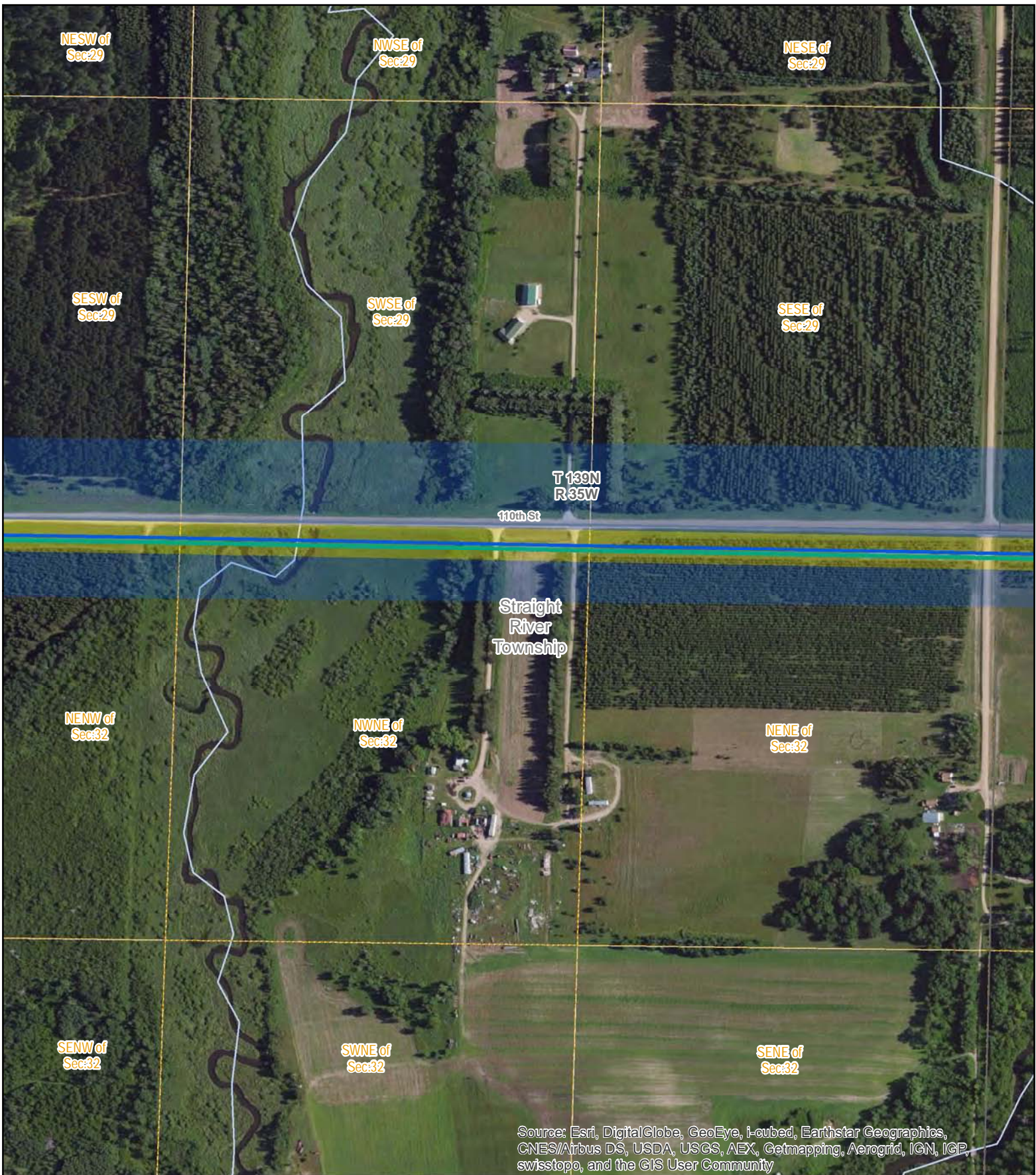
Appendix G - Detailed Route Maps

Map Sheet 9 of 35

0 50 100 200 Feet

GIS Data sources include:
MNGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

<p>Great River Energy</p> <ul style="list-style-type: none"> Proposed Route (500' width) Proposed Easement Area (100' width) Proposed Alignment - Single Circuit 115 kV Proposed Alignment - Double Circuit 115 kV Proposed Transmission Substation Existing 34.5 kV Transmission Line Existing 115 kV Transmission Line Existing Transmission Substation Proposed Substation Fence 	<p>Todd-Wadena Electric</p> <ul style="list-style-type: none"> Proposed Distribution Substation Existing Distribution Substation <p>Minnesota Power</p> <ul style="list-style-type: none"> Proposed Transmission Substation Existing Distribution Substation <p>Other Electric Transmission Utility</p> <ul style="list-style-type: none"> Existing 34.5 kV Transmission Line 34.5 kV line to be removed with the project Existing 115 kV Transmission Line 	<ul style="list-style-type: none"> Existing 230 kV Transmission Line Existing 250 kV Transmission Line <p>Structure</p> <ul style="list-style-type: none"> Residence 50-100' (0) Residence 100-150' (0) Residence 150-250' (0) Commercial / Industrial 50-100' (0) Non-Residential Building 0-250' (0) Minnesota Pipe Line Proposed Pump Station 	<ul style="list-style-type: none"> Existing Pipeline
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Menahga Area 115 kV Project

Appendix G - Detailed Route Maps

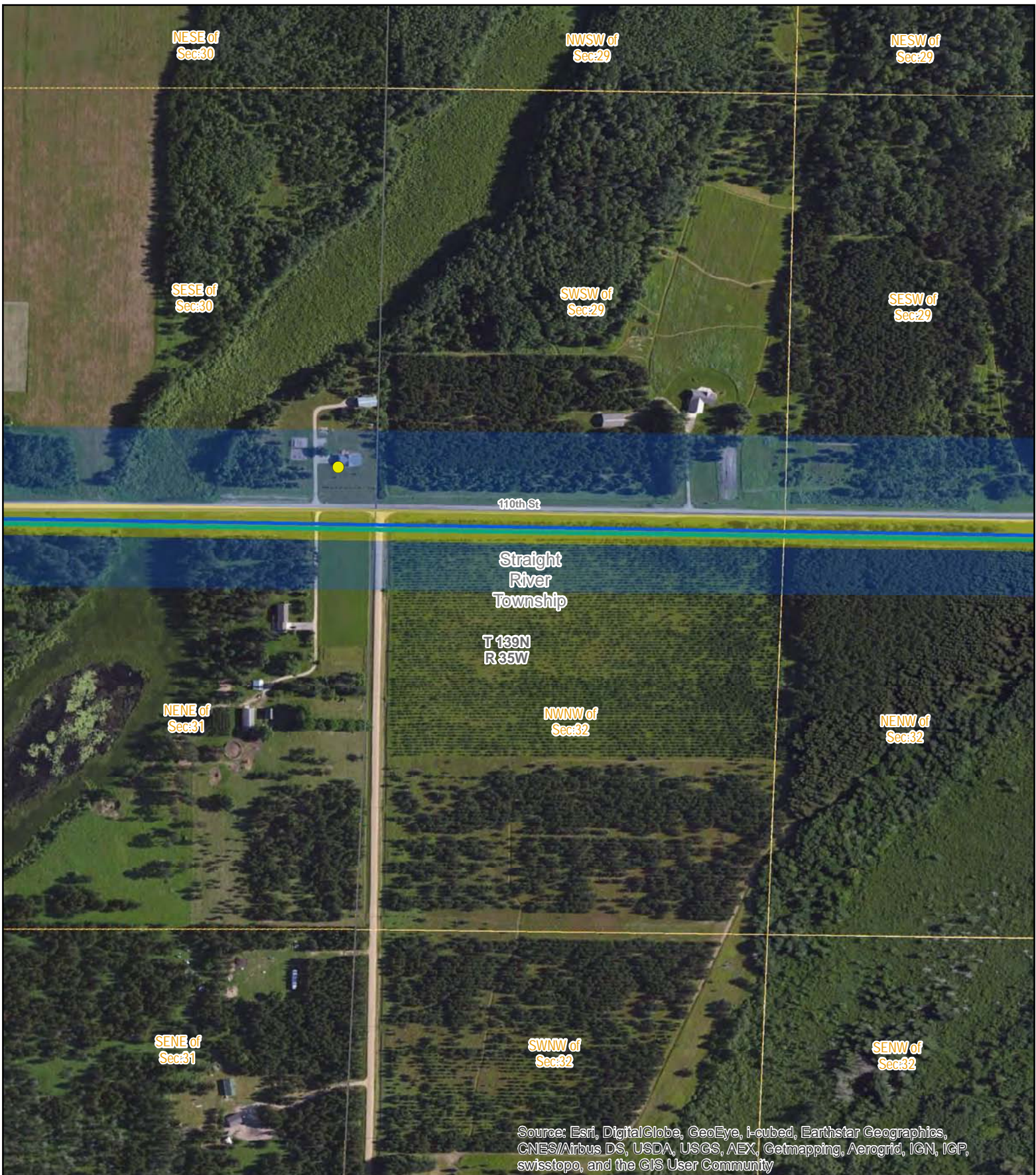
Map Sheet 10 of 35

0 50 100 200 Feet

 GIS Data sources include:

 MNGEO, MNDNR, MNDOT, and Great River Energy.

A Touchstone Energy Cooperative



Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

<p>Great River Energy</p> <ul style="list-style-type: none"> Proposed Route (500' width) Proposed Easement Area (100' width) Proposed Alignment - Single Circuit 115 kV Proposed Alignment - Double Circuit 115 kV Proposed Transmission Substation Existing 34.5 kV Transmission Line Existing 115 kV Transmission Line Existing Transmission Substation Proposed Substation Fence 	<p>Todd-Wadena Electric</p> <ul style="list-style-type: none"> Proposed Distribution Substation Existing Distribution Substation <p>Minnesota Power</p> <ul style="list-style-type: none"> Proposed Transmission Substation Existing Distribution Substation Other Electric Transmission Utility Existing 34.5 kV Transmission Line 34.5 kV line to be removed with the project Existing 115 kV Transmission Line 	<ul style="list-style-type: none"> Existing 230 kV Transmission Line Existing 250 kV Transmission Line <p>Structure</p> <ul style="list-style-type: none"> Residence 50-100' (0) Residence 100-150' (0) Residence 150-250' (1) Commercial / Industrial 50-100' (0) Non-Residential Building 0-250' (0) Minnesota Pipe Line Proposed Pump Station 	<ul style="list-style-type: none"> Existing Pipeline
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Menahga Area 115 kV Project

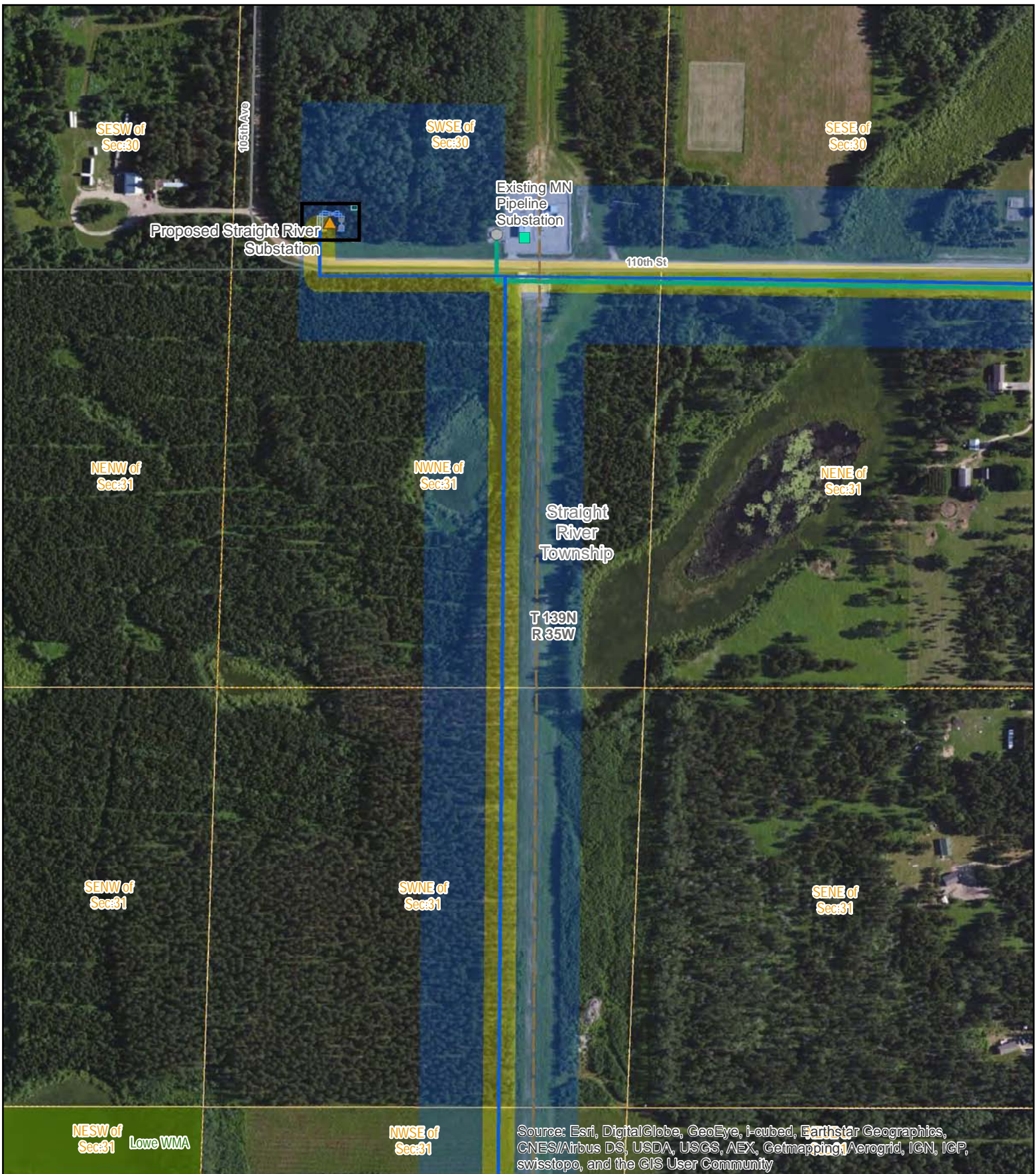
Appendix G - Detailed Route Maps

Map Sheet 11 of 35

0 50 100 200 Feet

GIS Data sources include:
MNGEO, MNDNR, MNDOT, and Great River Energy.

A Touchstone Energy Cooperative



Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

<p>Great River Energy</p> <ul style="list-style-type: none"> Proposed Route (500' width) Proposed Easement Area (100' width) Proposed Alignment - Single Circuit 115 kV Proposed Alignment - Double Circuit 115 kV Proposed Transmission Substation Existing 34.5 kV Transmission Line Existing 115 kV Transmission Line Existing Transmission Substation Proposed Substation Fence 	<p>Todd-Wadena Electric</p> <ul style="list-style-type: none"> Proposed Distribution Substation Existing Distribution Substation <p>Minnesota Power</p> <ul style="list-style-type: none"> Proposed Transmission Substation Existing Distribution Substation Other Electric Transmission Utility Existing 34.5 kV Transmission Line 34.5 kV line to be removed with the project Existing 115 kV Transmission Line 	<ul style="list-style-type: none"> Existing 230 kV Transmission Line Existing 250 kV Transmission Line <p>Structure</p> <ul style="list-style-type: none"> Residence 50-100' (0) Residence 100-150' (0) Residence 150-250' (0) Commercial / Industrial 50-100' (0) Non-Residential Building 0-250' (1) Minnesota Pipe Line Proposed Pump Station <ul style="list-style-type: none"> Existing Pipeline
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Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 12 of 35

N
 0 50 100 200 Feet
 GIS Data sources include:
 MNGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

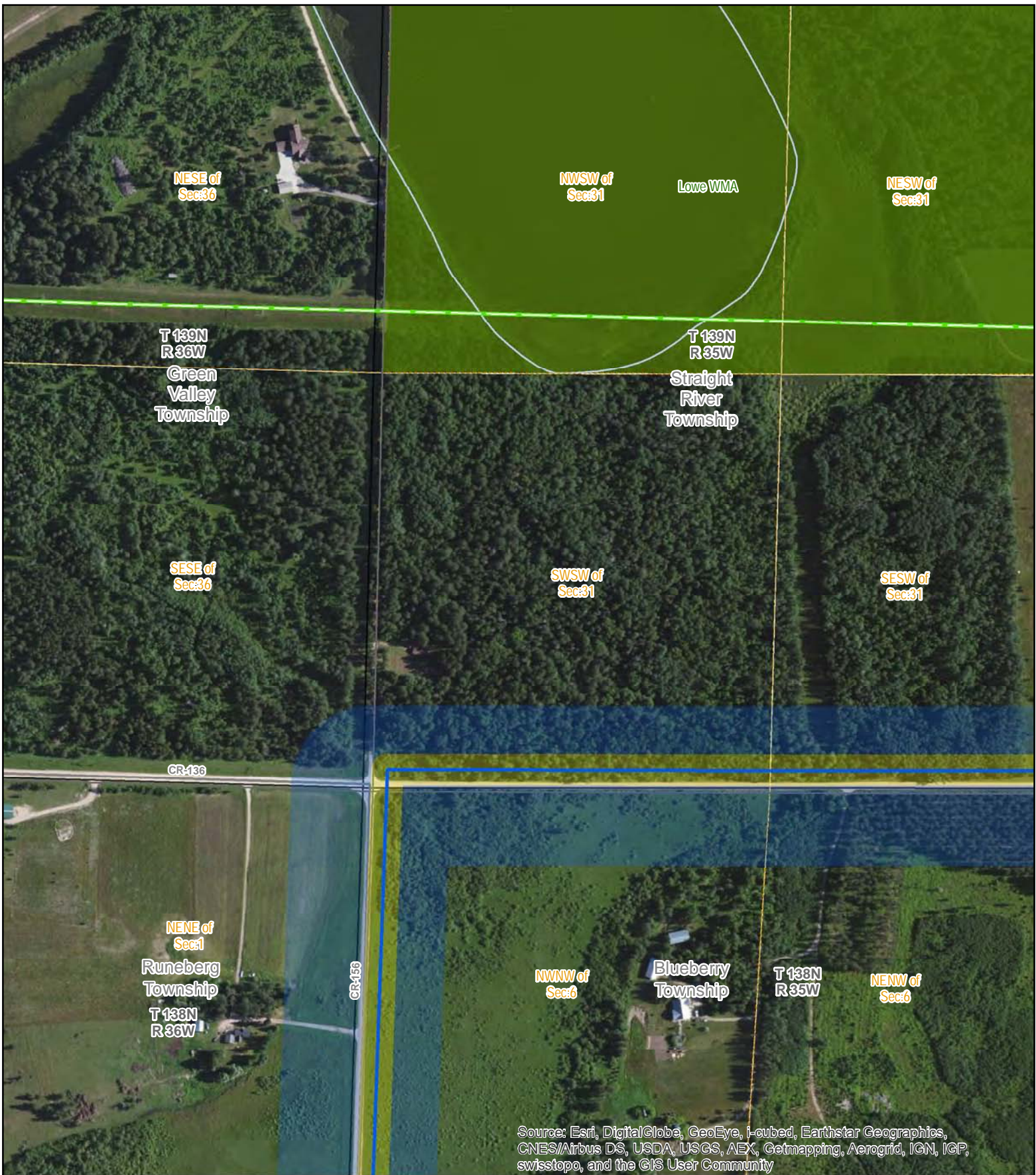
- | | | |
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| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | Residence 150-250' (0) |
| Proposed Transmission Substation | Existing Distribution Substation | Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | Non-Residential Building 0-250' (0) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 13 of 35

N
 0 50 100 200 Feet
 GIS Data sources include:
 MNGEO, MNDNR, MNDOT, and Great River Energy.

GREAT RIVER ENERGY
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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

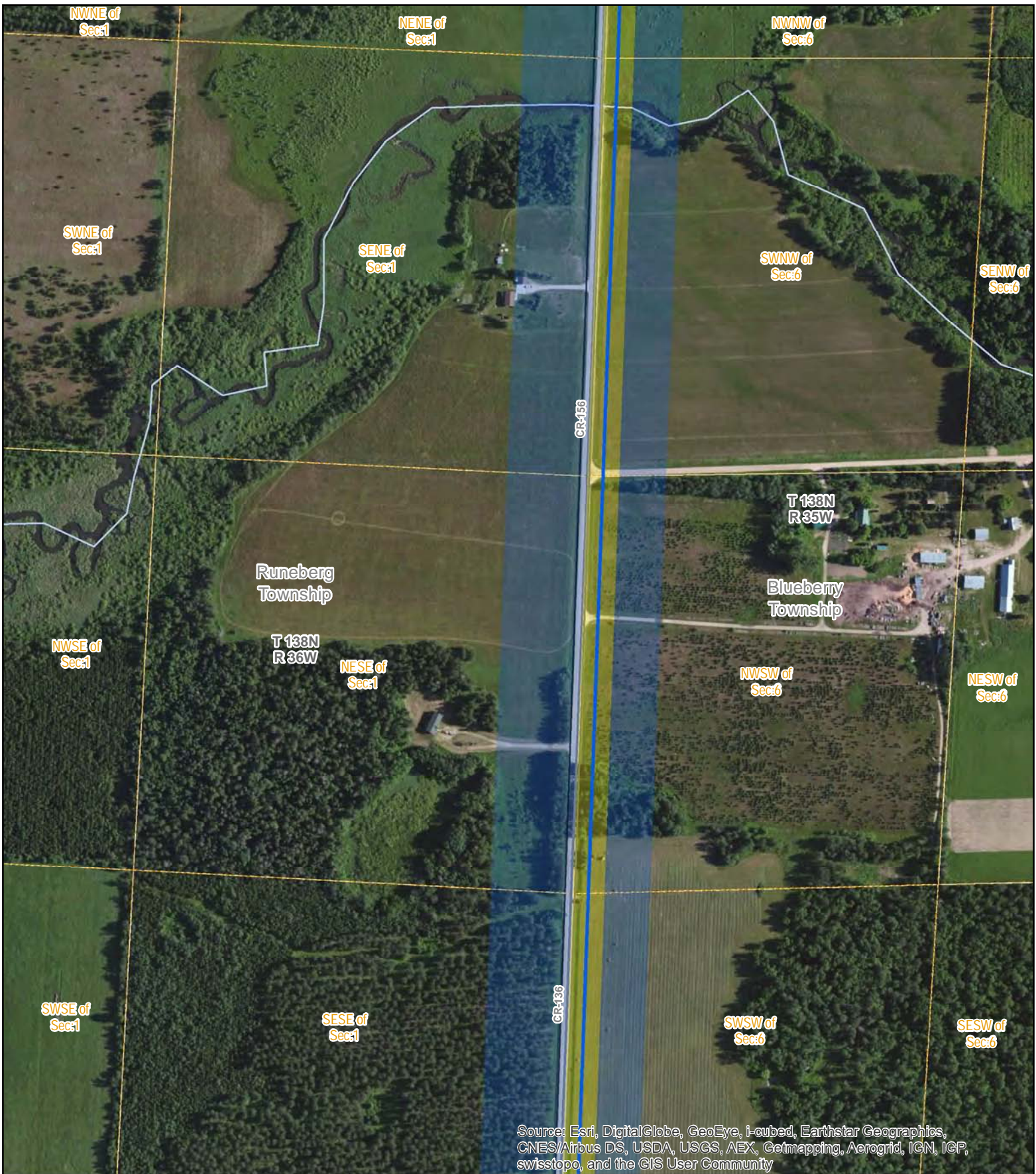
- | | | |
|--|--------------------------------------|---------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | ● Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | ● Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | ▲ Proposed Transmission Substation | ● Residence 150-250' (0) |
| ▲ Proposed Transmission Substation | ● Existing Distribution Substation | ★ Commercial / Industrial 50-100' (0) |
| ▲ Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | ■ Non-Residential Building 0-250' (0) |
| ▲ Existing 115 kV Transmission Line | ▲ Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| ▲ Existing Transmission Substation | ▲ Existing 115 kV Transmission Line | ■ Proposed Pump Station |
| ■ Proposed Substation Fence | ▲ Existing 230 kV Transmission Line | — Existing Pipeline |

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 14 of 35

N
 0 50 100 200 Feet
 GIS Data sources include:
 MNGEO, MNDNR, MNDOT, and Great River Energy.

GREAT RIVER ENERGY
 A Touchstone Energy Cooperative





Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- | | | |
|--|-------------------------------------|-------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | Residence 150-250' (0) |
| Proposed Transmission Substation | Existing Distribution Substation | Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | Non-Residential Building 0-250' (0) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project Appendix G - Detailed Route Maps

Map Sheet 15 of 35

0 50 100 200 Feet
GIS Data sources include:
MINGEO, MNDNR, MNDOT, and Great River Energy.

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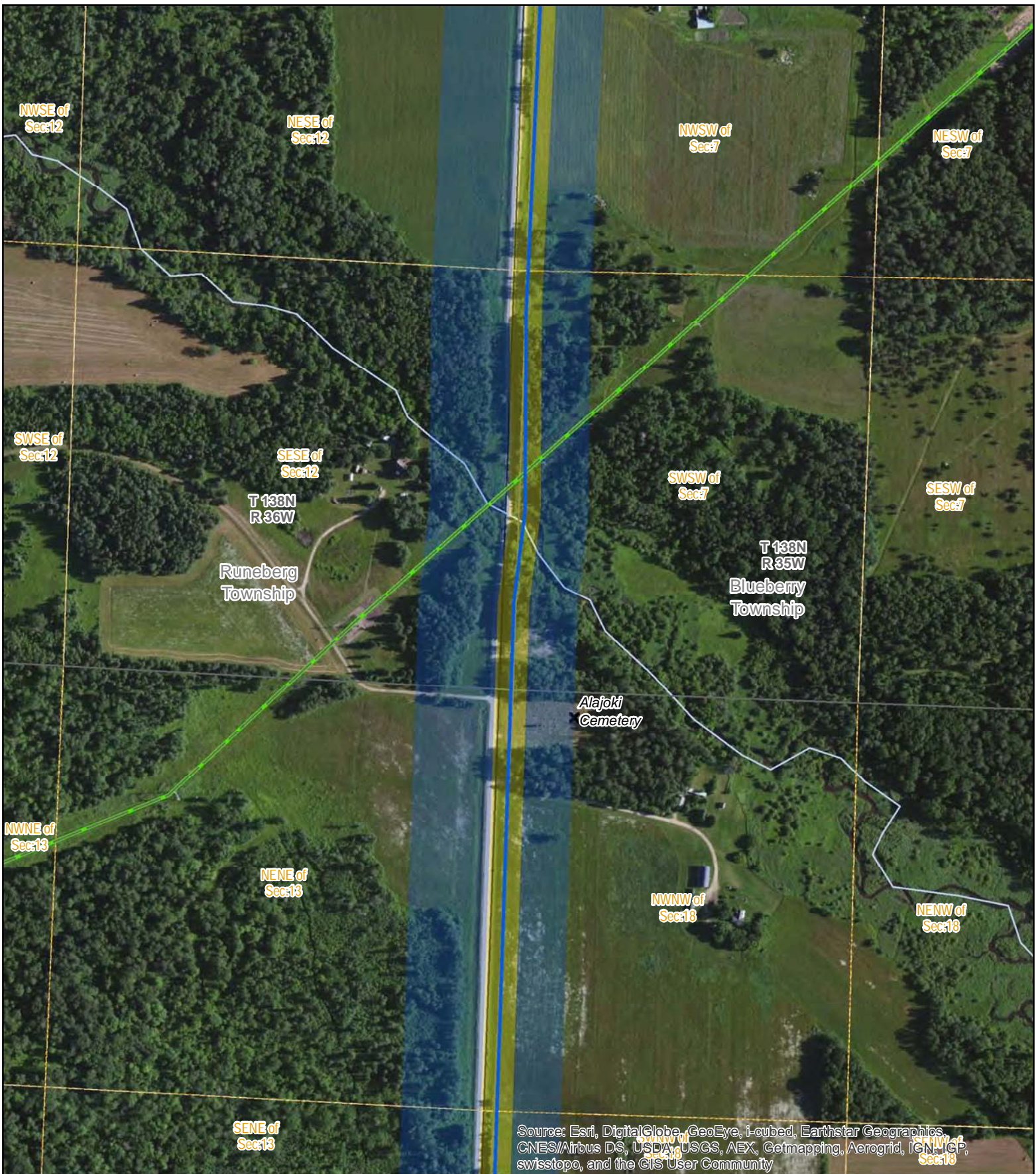
Great River Energy	Todd-Wadena Electric	Existing 250 kV Transmission Line Structure
Proposed Route (500' width)	Proposed Distribution Substation	Residence 50-100' (0)
Proposed Easement Area (100' width)	Existing Distribution Substation	Residence 100-150' (0)
Proposed Alignment - Single Circuit 115 kV	Minnesota Power	Residence 150-250' (0)
Proposed Alignment - Double Circuit 115 kV	Proposed Transmission Substation	Commercial / Industrial 50-100' (0)
Proposed Transmission Substation	Existing Distribution Substation	Non-Residential Building 0-250' (0)
Existing 34.5 kV Transmission Line	Other Electric Transmission Utility	Minnesota Pipe Line
Existing 115 kV Transmission Line	Existing 34.5 kV Transmission Line	Proposed Pump Station
Existing Transmission Substation	Existing 115 kV Transmission Line	Existing Pipeline
Proposed Substation Fence	Existing 230 kV Transmission Line	

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 16 of 35

0 50 100 200 Feet
 GIS Data sources include:
 MNGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

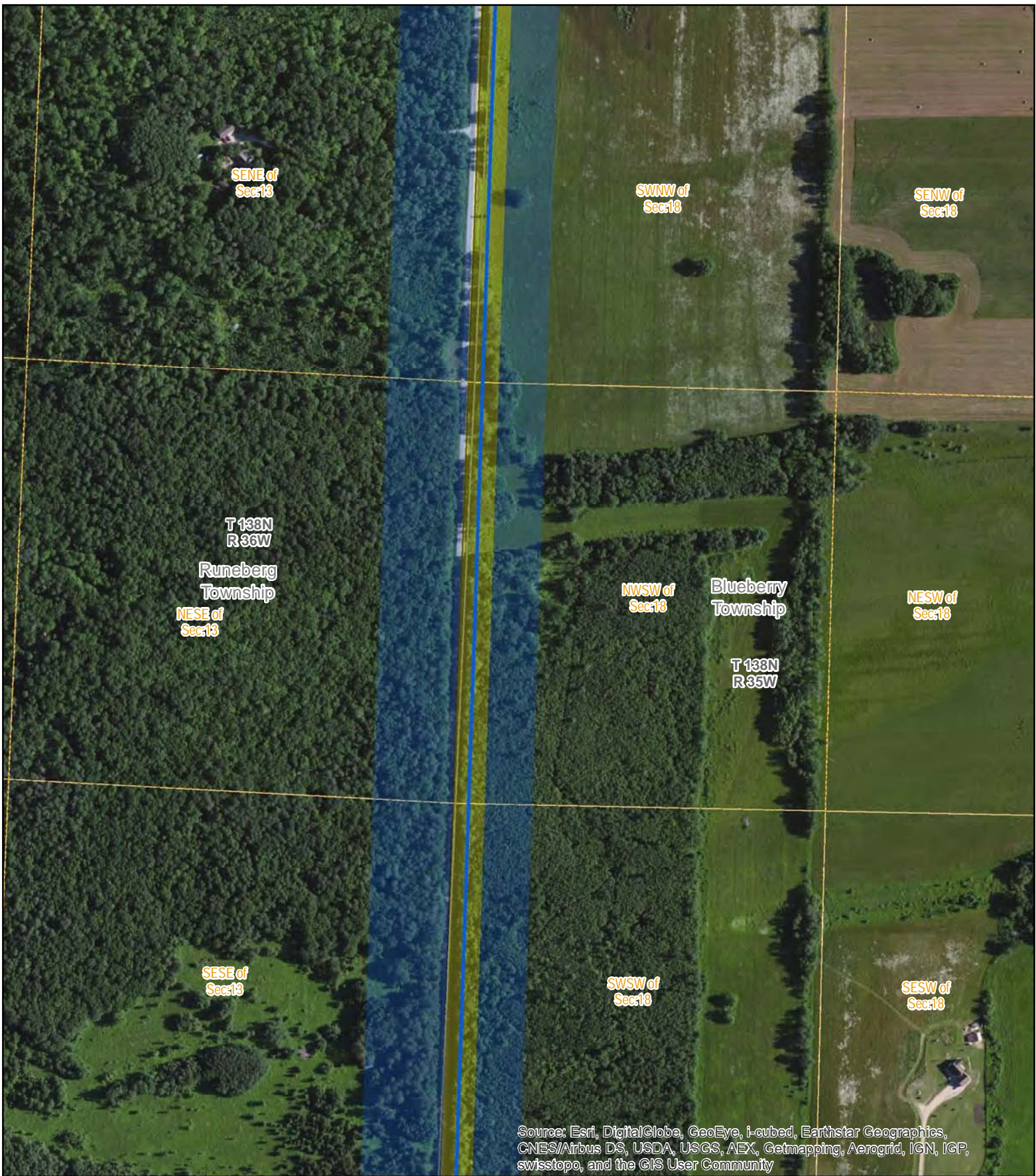
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|--|-------------------------------------|---------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | ● Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | ● Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | ● Residence 150-250' (0) |
| Proposed Transmission Substation | Existing Distribution Substation | ★ Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | ■ Non-Residential Building 0-250' (0) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 17 of 35

0 50 100 200 Feet
 GIS Data sources include:
 MNGEO, MNDNR, MNDOT, and Great River Energy.

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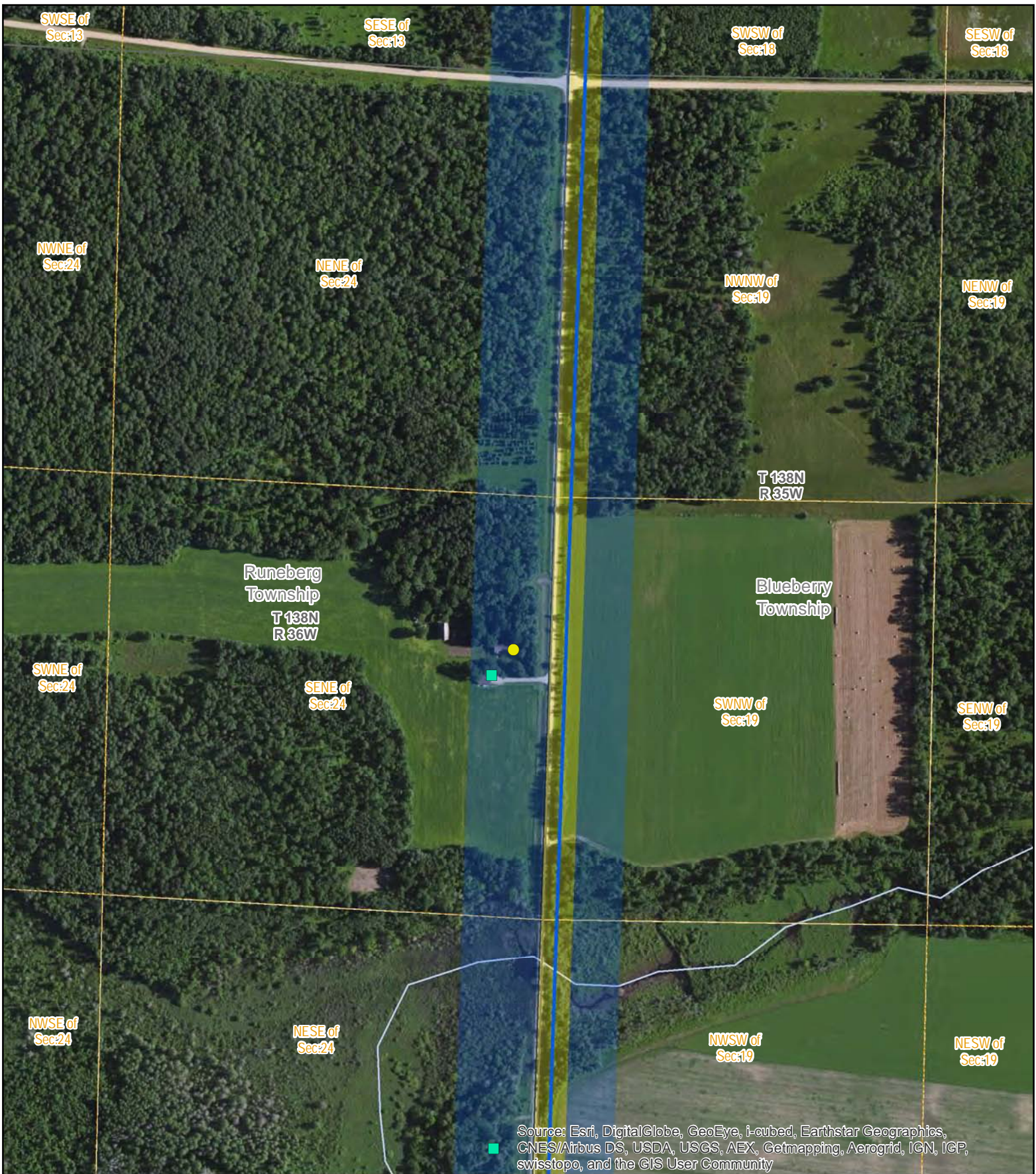
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|--|-------------------------------------|-------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | Residence 150-250' (0) |
| Proposed Transmission Substation | Existing Distribution Substation | Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | Non-Residential Building 0-250' (0) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 18 of 35

N
 0 50 100 200 Feet
 GIS Data sources include:
 MNGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

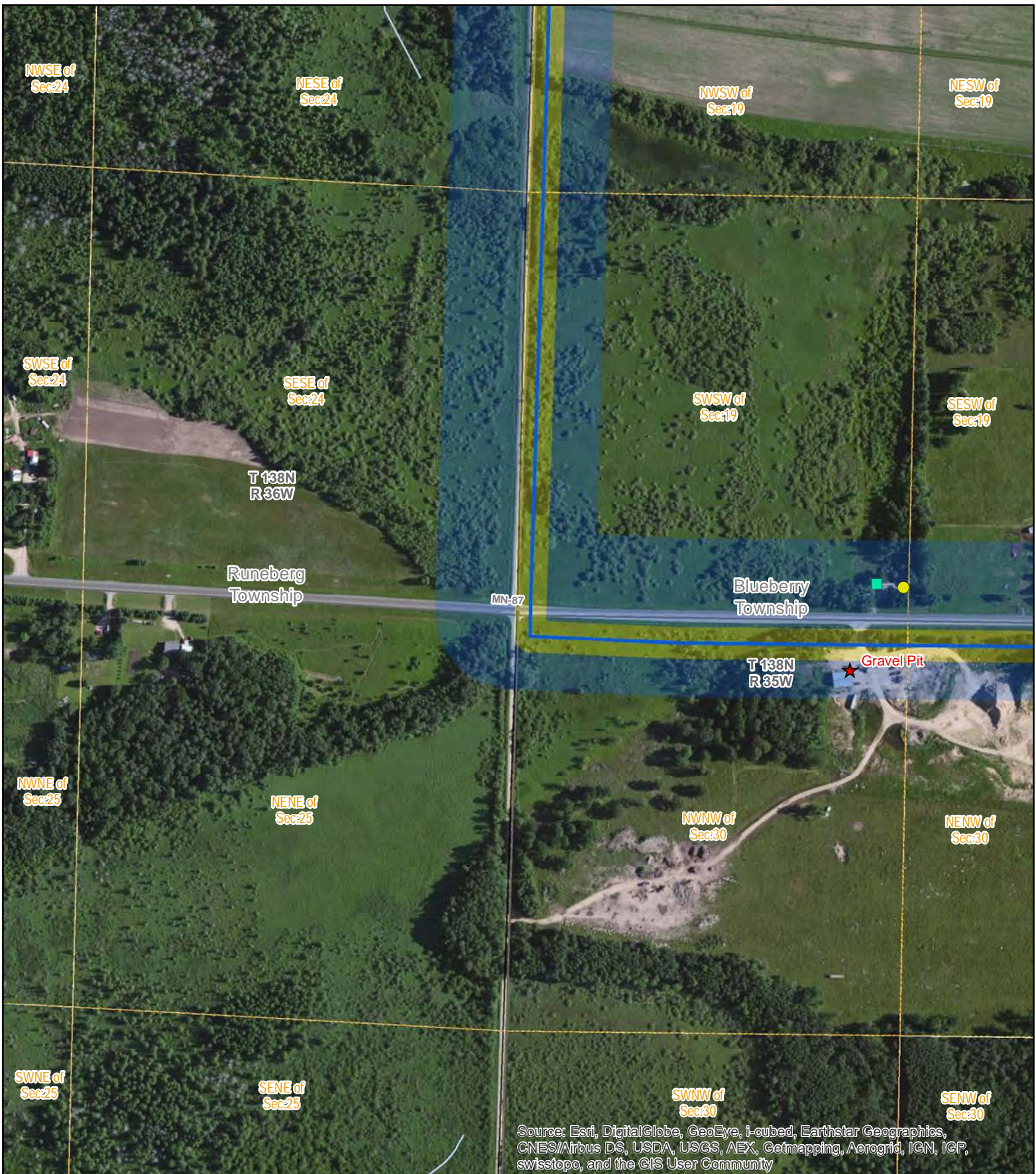
Great River Energy	Todd-Wadena Electric	Existing 250 kV Transmission Line
Proposed Route (500' width)	Proposed Distribution Substation	Structure
Proposed Easement Area (100' width)	Existing Distribution Substation	Residence 50-100' (0)
Proposed Alignment - Single Circuit 115 kV	Minnesota Power	Residence 100-150' (0)
Proposed Alignment - Double Circuit 115 kV	Proposed Transmission Substation	Residence 150-250' (1)
Proposed Transmission Substation	Existing Distribution Substation	Commercial / Industrial 50-100' (0)
Existing 34.5 kV Transmission Line	Other Electric Transmission Utility	Non-Residential Building 0-250' (2)
Existing 115 kV Transmission Line	Existing 34.5 kV Transmission Line	Minnesota Pipe Line
Existing Transmission Substation	Existing 115 kV Transmission Line	Proposed Pump Station
Proposed Substation Fence	Existing 230 kV Transmission Line	Existing Pipeline

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 19 of 35

N
0 50 100 200 Feet
GIS Data sources include:
MINGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

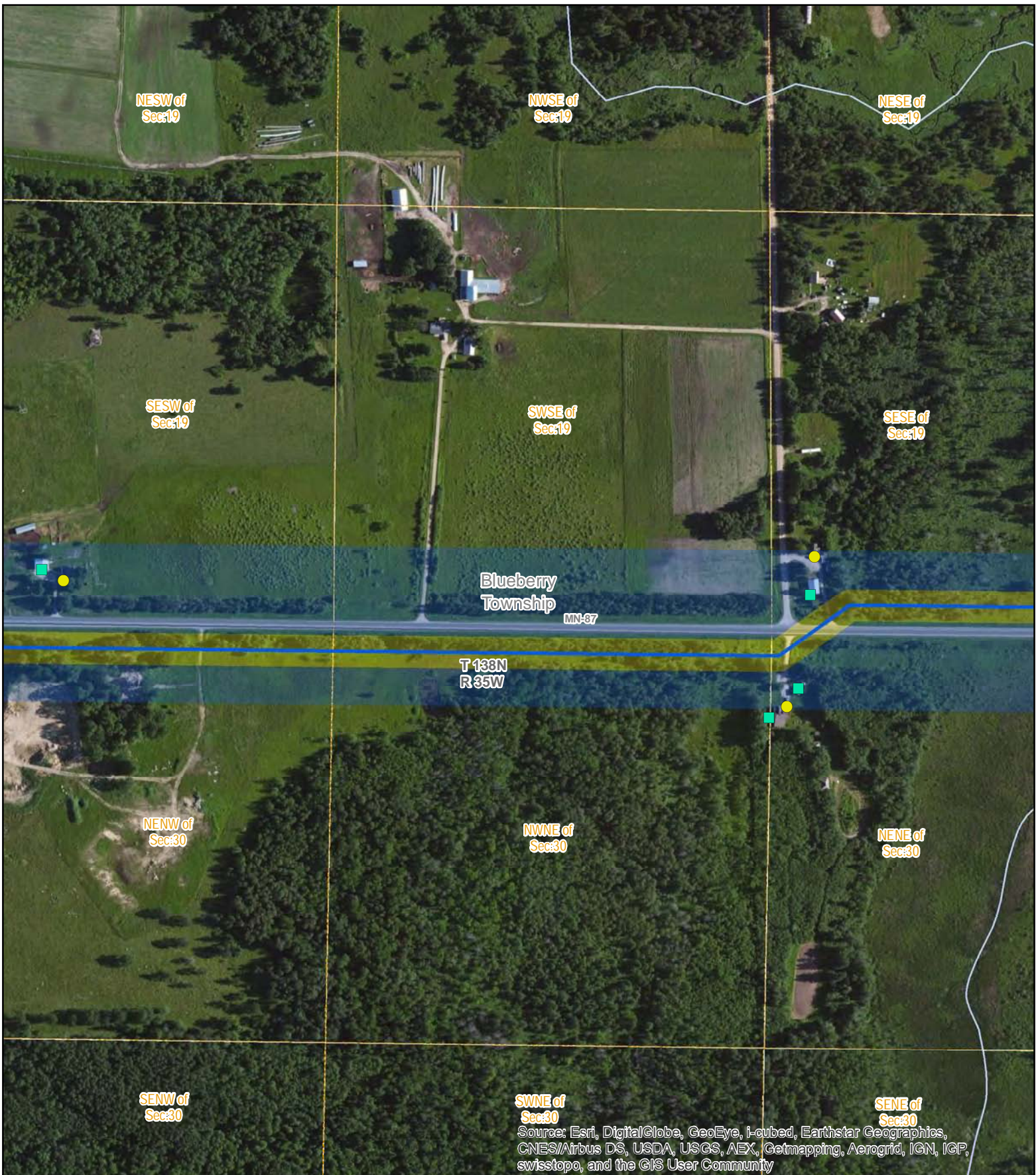
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|--|-------------------------------------|---------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | ● Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | ● Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | ● Residence 150-250' (1) |
| Proposed Transmission Substation | Existing Distribution Substation | ★ Commercial / Industrial 50-100' (1) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | ■ Non-Residential Building 0-250' (1) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project Appendix G - Detailed Route Maps

Map Sheet 20 of 35

0 50 100 200 Feet
GIS Data sources include:
MINGEO, MNDNR, MNDOT, and Great River Energy.






Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Great River Energy	Todd-Wadena Electric	Existing 250 kV Transmission Line
Proposed Route (500' width)	Proposed Distribution Substation	Structure
Proposed Easement Area (100' width)	Existing Distribution Substation	● Residence 50-100' (0)
Proposed Alignment - Single Circuit 115 kV	Minnesota Power	● Residence 100-150' (0)
Proposed Alignment - Double Circuit 115 kV	Proposed Transmission Substation	● Residence 150-250' (3)
Proposed Transmission Substation	Existing Distribution Substation	★ Commercial / Industrial 50-100' (0)
Existing 34.5 kV Transmission Line	Other Electric Transmission Utility	■ Non-Residential Building 0-250' (4)
Existing 115 kV Transmission Line	Existing 34.5 kV Transmission Line	Minnesota Pipe Line
Existing Transmission Substation	Existing 115 kV Transmission Line	Proposed Pump Station
Proposed Substation Fence	Existing 230 kV Transmission Line	Existing Pipeline

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 21 of 35

N
0 50 100 200 Feet
GIS Data sources include:
MNGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Great River Energy	Todd-Wadena Electric	Existing 250 kV Transmission Line
Proposed Route (500' width)	Proposed Distribution Substation	Structure
Proposed Easement Area (100' width)	Existing Distribution Substation	Residence 50-100' (0)
Proposed Alignment - Single Circuit 115 kV	Minnesota Power	Residence 100-150' (0)
Proposed Alignment - Double Circuit 115 kV	Proposed Transmission Substation	Residence 150-250' (2)
Proposed Transmission Substation	Existing Distribution Substation	Commercial / Industrial 50-100' (0)
Existing 34.5 kV Transmission Line	Other Electric Transmission Utility	Non-Residential Building 0-250' (3)
Existing 115 kV Transmission Line	Existing 34.5 kV Transmission Line	Minnesota Pipe Line
Existing Transmission Substation	Existing 115 kV Transmission Line	Proposed Pump Station
Proposed Substation Fence	Existing 230 kV Transmission Line	Existing Pipeline

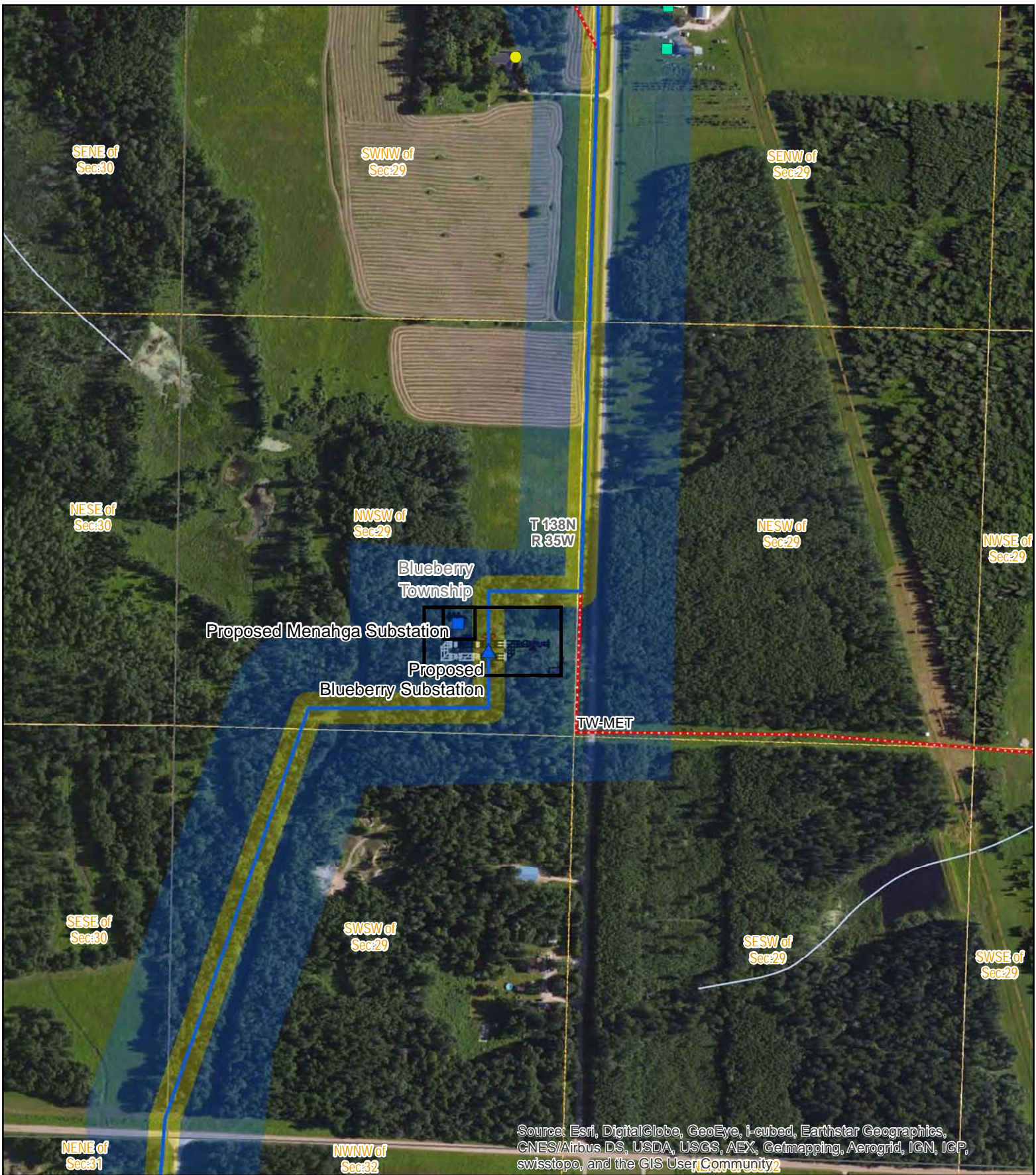
Menahga Area 115 kV Project

Appendix G - Detailed Route Maps

Map Sheet 22 of 35

0 50 100 200 Feet
 GIS Data sources include:
 MNGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- | | | |
|--|-------------------------------------|-------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | Residence 150-250' (1) |
| Proposed Transmission Substation | Existing Distribution Substation | Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | Non-Residential Building 0-250' (2) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project Appendix G - Detailed Route Maps

Map Sheet 23 of 35

0 50 100 200 Feet
GIS Data sources include:
MNGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

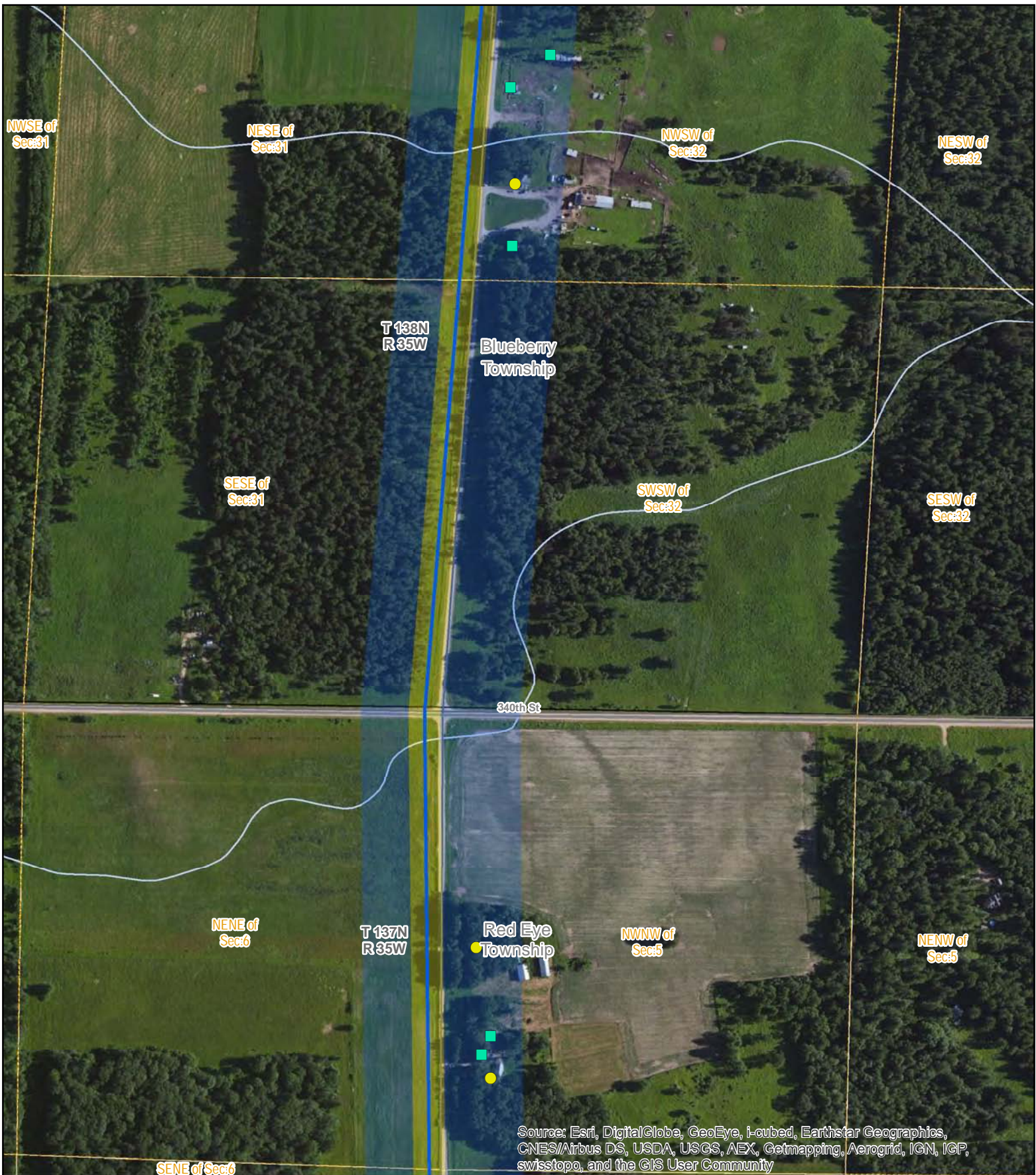
Great River Energy	Todd-Wadena Electric	Existing 250 kV Transmission Line
Proposed Route (500' width)	Proposed Distribution Substation	Structure
Proposed Easement Area (100' width)	Existing Distribution Substation	Residence 50-100' (0)
Proposed Alignment - Single Circuit 115 kV	Minnesota Power	Residence 100-150' (0)
Proposed Alignment - Double Circuit 115 kV	Proposed Transmission Substation	Residence 150-250' (1)
Proposed Transmission Substation	Existing Distribution Substation	Commercial / Industrial 50-100' (0)
Existing 34.5 kV Transmission Line	Other Electric Transmission Utility	Non-Residential Building 0-250' (0)
Existing 115 kV Transmission Line	Existing 34.5 kV Transmission Line	Minnesota Pipe Line
Existing Transmission Substation	Existing 115 kV Transmission Line	Proposed Pump Station
Proposed Substation Fence	Existing 230 kV Transmission Line	Existing Pipeline

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 24 of 35

N
0 50 100 200 Feet
GIS Data sources include:
MNGEO, MNDNR, MNDOT, and Great River Energy.

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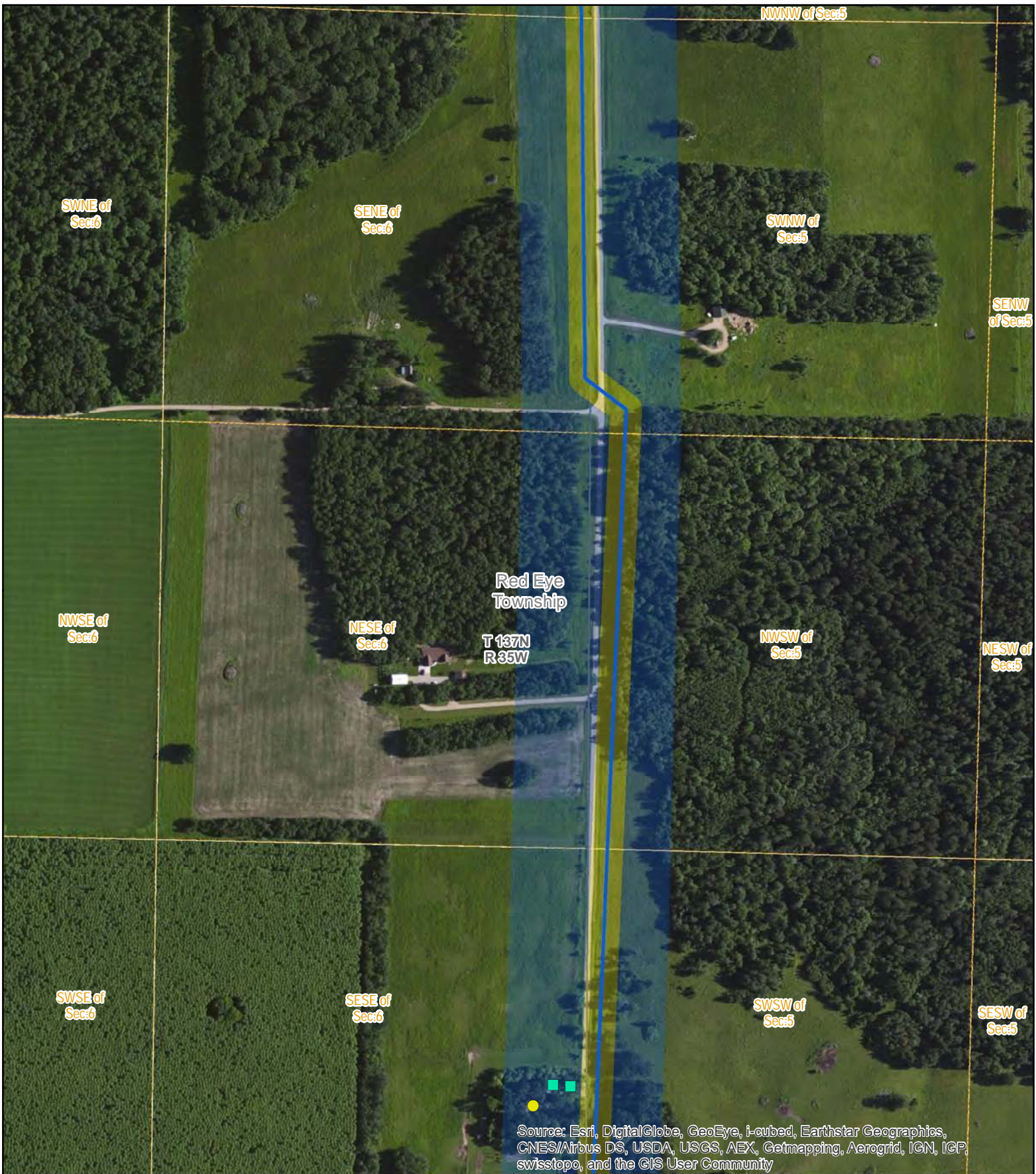
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|--|-------------------------------------|-------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | Residence 150-250' (3) |
| Proposed Transmission Substation | Existing Distribution Substation | Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | Non-Residential Building 0-250' (5) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 25 of 35

N
0 50 100 200 Feet
GIS Data sources include:
MINGEO, MNDNR, MNDOT, and Great River Energy.

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Great River Energy	Todd-Wadena Electric	Existing 250 kV Transmission Line
Proposed Route (500' width)	Proposed Distribution Substation	Structure
Proposed Easement Area (100' width)	Existing Distribution Substation	● Residence 50-100' (0)
Proposed Alignment - Single Circuit 115 kV	Minnesota Power	● Residence 100-150' (0)
Proposed Alignment - Double Circuit 115 kV	Proposed Transmission Substation	● Residence 150-250' (1)
Proposed Transmission Substation	Existing Distribution Substation	★ Commercial / Industrial 50-100' (0)
Existing 34.5 kV Transmission Line	Other Electric Transmission Utility	■ Non-Residential Building 0-250' (2)
Existing 115 kV Transmission Line	Existing 34.5 kV Transmission Line	Minnesota Pipe Line
Existing Transmission Substation	Existing 115 kV Transmission Line	Proposed Pump Station
Proposed Substation Fence	Existing 230 kV Transmission Line	Existing Pipeline

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 26 of 35

N
0 50 100 200 Feet
GIS Data sources include:
MINGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

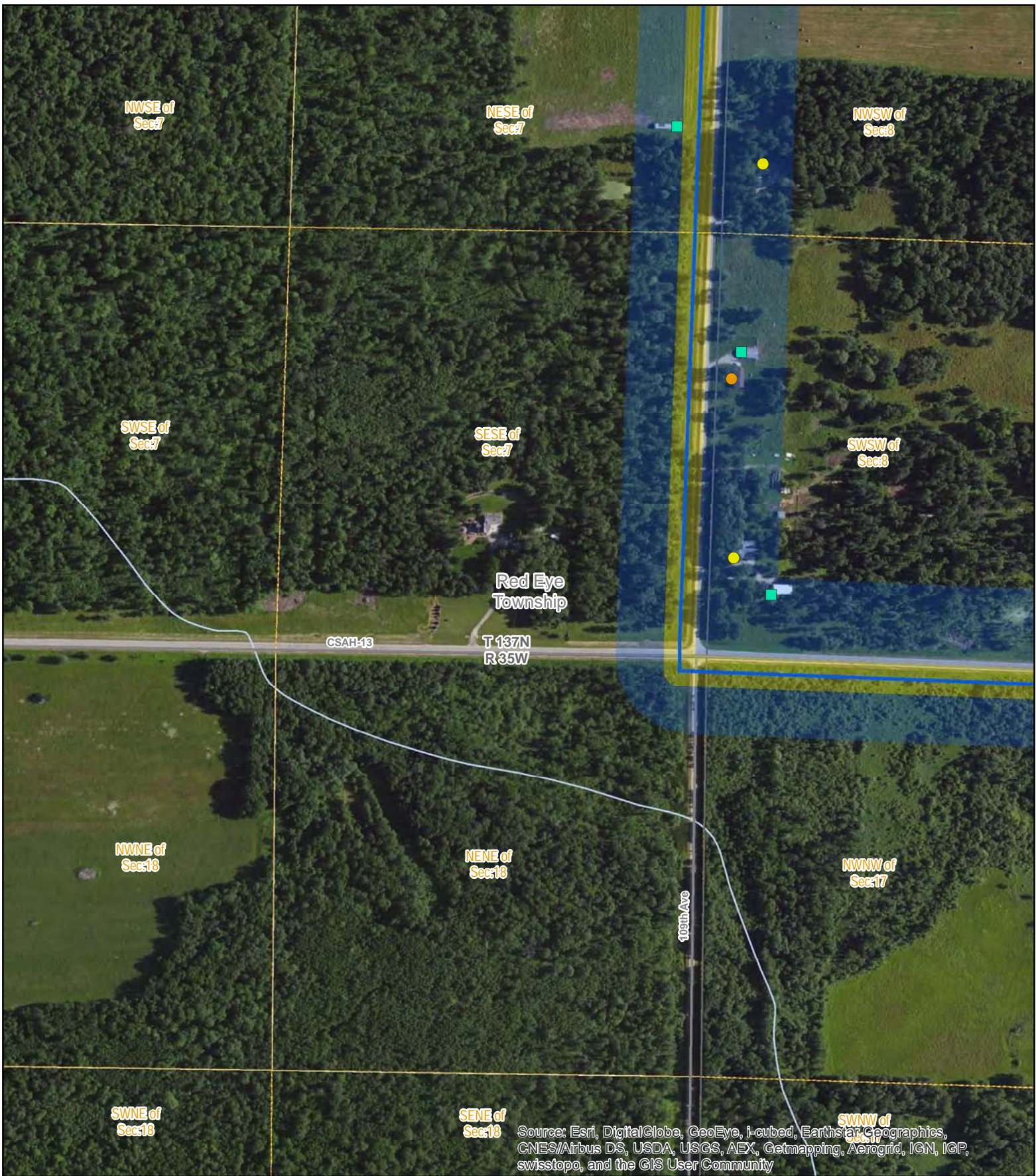
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|--|-------------------------------------|-------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | Residence 100-150' (1) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | Residence 150-250' (1) |
| Proposed Transmission Substation | Existing Distribution Substation | Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | Non-Residential Building 0-250' (2) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project Appendix G - Detailed Route Maps

Map Sheet 27 of 35

0 50 100 200 Feet
GIS Data sources include:
MNGEO, MNDNR, MNDOT, and Great River Energy.






Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

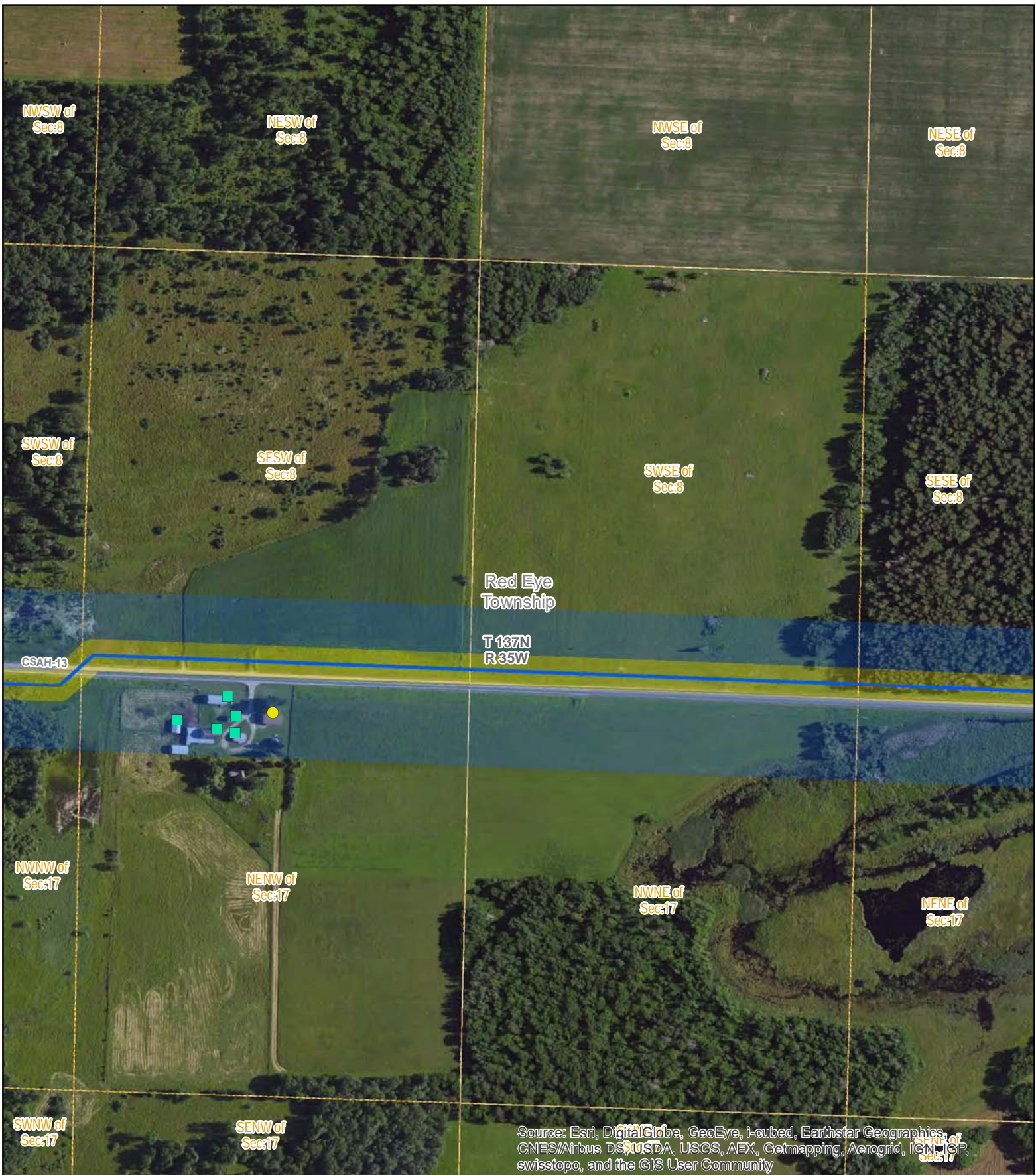
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|--|-------------------------------------|-------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | Residence 100-150' (1) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | Residence 150-250' (2) |
| Proposed Transmission Substation | Existing Distribution Substation | Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | Non-Residential Building 0-250' (3) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 28 of 35

N
0 50 100 200 Feet
GIS Data sources include:
MNGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

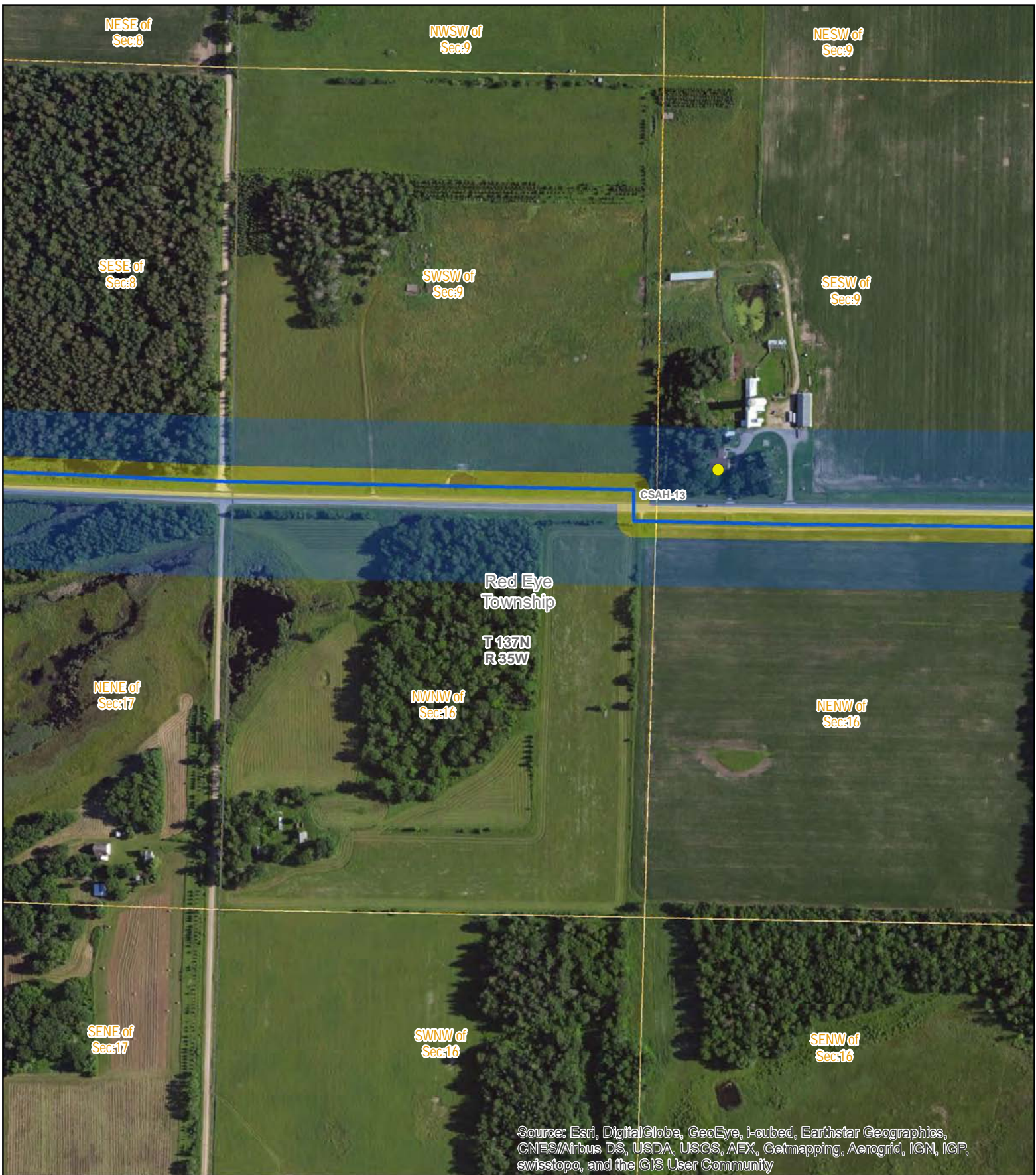
Great River Energy	Todd-Wadena Electric	Existing 250 kV Transmission Line
Proposed Route (500' width)	Proposed Distribution Substation	Structure
Proposed Easement Area (100' width)	Existing Distribution Substation	Residence 50-100' (0)
Proposed Alignment - Single Circuit 115 kV	Minnesota Power	Residence 100-150' (0)
Proposed Alignment - Double Circuit 115 kV	Proposed Transmission Substation	Residence 150-250' (1)
Proposed Transmission Substation	Existing Distribution Substation	Commercial / Industrial 50-100' (0)
Existing 34.5 kV Transmission Line	Other Electric Transmission Utility	Non-Residential Building 0-250' (5)
Existing 115 kV Transmission Line	Existing 34.5 kV Transmission Line	Minnesota Pipe Line
Existing Transmission Substation	Existing 115 kV Transmission Line	Proposed Pump Station
Proposed Substation Fence	Existing 230 kV Transmission Line	Existing Pipeline

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 29 of 35

N
0 50 100 200 Feet
GIS Data sources include:
MINGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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|--|-------------------------------------|-------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | Residence 150-250' (1) |
| Proposed Transmission Substation | Existing Distribution Substation | Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | Non-Residential Building 0-250' (0) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project Appendix G - Detailed Route Maps

Map Sheet 30 of 35

0 50 100 200 Feet
GIS Data sources include:
MNGEO, MNDNR, MNDOT, and Great River Energy.






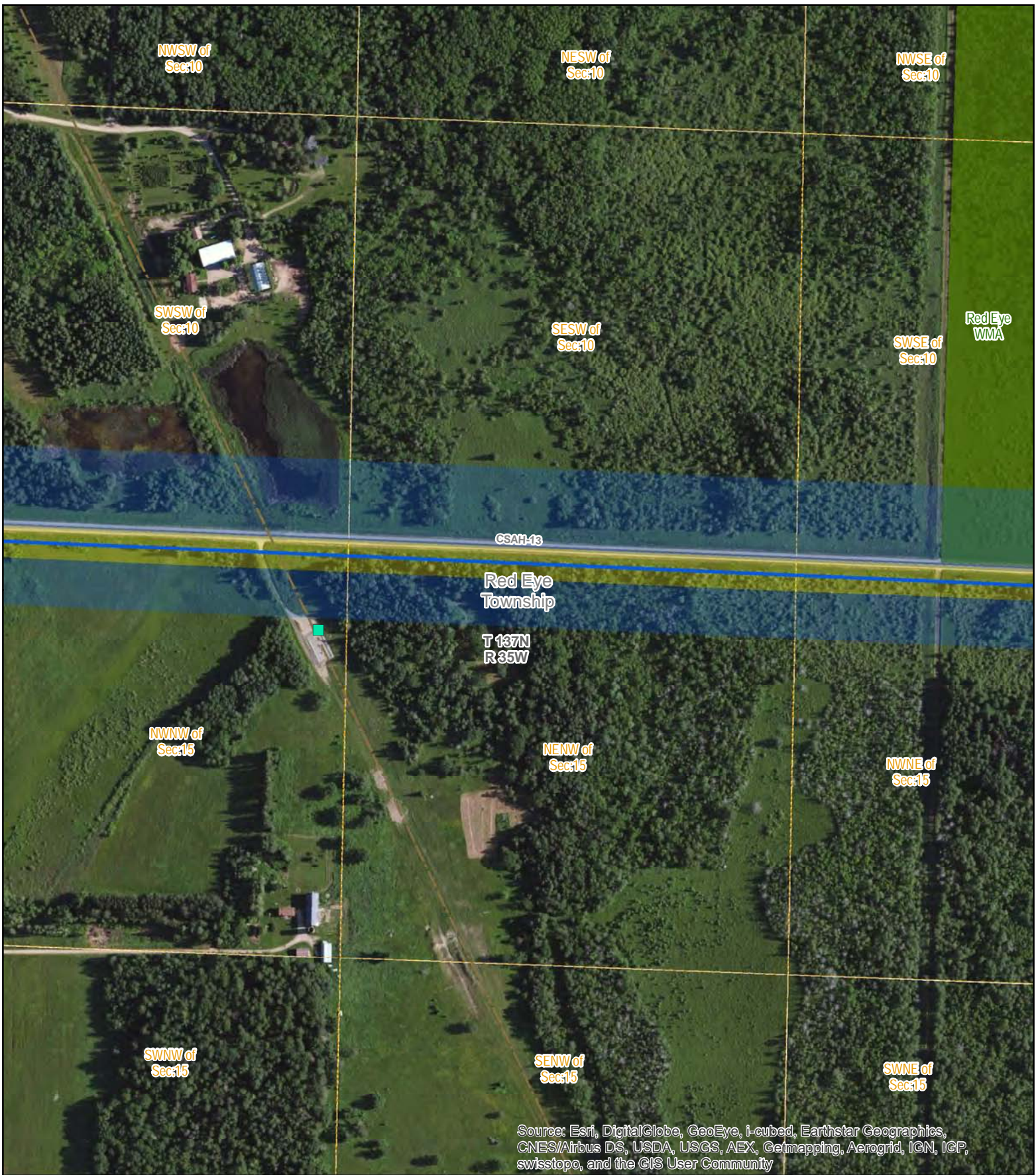
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|--|-------------------------------------|---------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | ● Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | ● Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | ● Residence 150-250' (0) |
| Proposed Transmission Substation | Existing Distribution Substation | ★ Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | ■ Non-Residential Building 0-250' (1) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 31 of 35

N
0 50 100 200 Feet
GIS Data sources include:
MINGEO, MNDNR, MNDOT, and Great River Energy.

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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|--|-------------------------------------|-------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | Residence 150-250' (0) |
| Proposed Transmission Substation | Existing Distribution Substation | Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | Non-Residential Building 0-250' (1) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project Appendix G - Detailed Route Maps

Map Sheet 32 of 35

0 50 100 200 Feet
GIS Data sources include:
MINGEO, MNDNR, MNDOT, and Great River Energy.






Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Great River Energy	Todd-Wadena Electric	Existing 250 kV Transmission Line
Proposed Route (500' width)	Proposed Distribution Substation	Structure
Proposed Easement Area (100' width)	Existing Distribution Substation	Residence 50-100' (0)
Proposed Alignment - Single Circuit 115 kV	Minnesota Power	Residence 100-150' (0)
Proposed Alignment - Double Circuit 115 kV	Proposed Transmission Substation	Residence 150-250' (1)
Proposed Transmission Substation	Existing Distribution Substation	Commercial / Industrial 50-100' (0)
Existing 34.5 kV Transmission Line	Other Electric Transmission Utility	Non-Residential Building 0-250' (0)
Existing 115 kV Transmission Line	Existing 34.5 kV Transmission Line	Minnesota Pipe Line
Existing Transmission Substation	Existing 115 kV Transmission Line	Proposed Pump Station
Proposed Substation Fence	Existing 230 kV Transmission Line	Existing Pipeline

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 33 of 35

N
 0 50 100 200 Feet
 GIS Data sources include:
 MNGEO, MNDNR, MNDOT, and Great River Energy.

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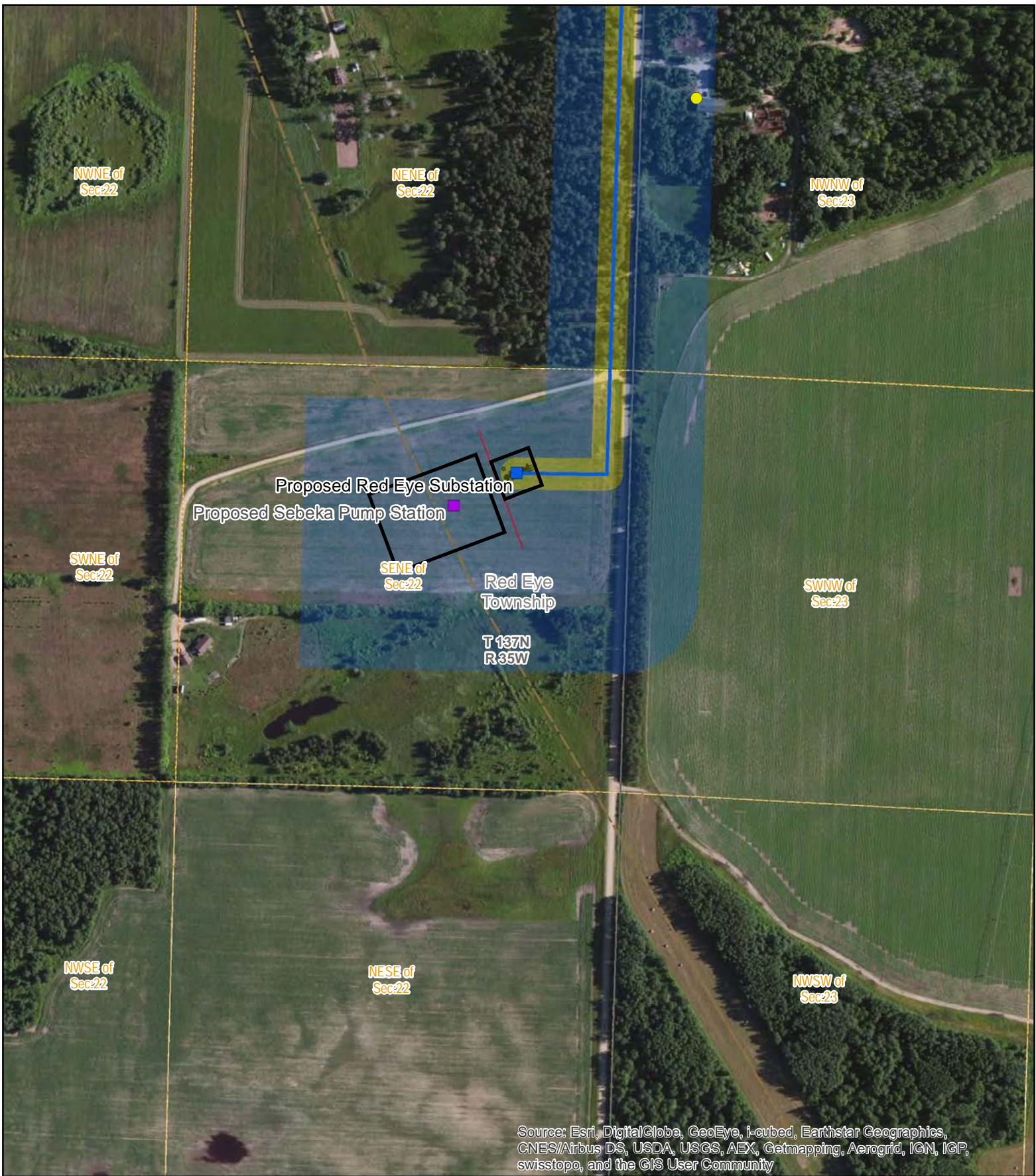
- | | | |
|--|-------------------------------------|-------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
| Proposed Easement Area (100' width) | Existing Distribution Substation | Residence 50-100' (0) |
| Proposed Alignment - Single Circuit 115 kV | Minnesota Power | Residence 100-150' (0) |
| Proposed Alignment - Double Circuit 115 kV | Proposed Transmission Substation | Residence 150-250' (0) |
| Proposed Transmission Substation | Existing Distribution Substation | Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | Non-Residential Building 0-250' (0) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
| Proposed Substation Fence | Existing 230 kV Transmission Line | Existing Pipeline |

Menahga Area 115 kV Project
Appendix G - Detailed Route Maps
Map Sheet 34 of 35

N
0 50 100 200 Feet
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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

- | | | |
|--|-------------------------------------|-------------------------------------|
| Great River Energy | Todd-Wadena Electric | Existing 250 kV Transmission Line |
| Proposed Route (500' width) | Proposed Distribution Substation | Structure |
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| Proposed Transmission Substation | Existing Distribution Substation | Commercial / Industrial 50-100' (0) |
| Existing 34.5 kV Transmission Line | Other Electric Transmission Utility | Non-Residential Building 0-250' (0) |
| Existing 115 kV Transmission Line | Existing 34.5 kV Transmission Line | Minnesota Pipe Line |
| Existing Transmission Substation | Existing 115 kV Transmission Line | Proposed Pump Station |
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Menahga Area 115 kV Project Appendix G - Detailed Route Maps

Map Sheet 35 of 35

0 50 100 200 Feet
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