

**APPENDIX B- PLAN MAPS SHOWING VELOCITIES, DEPTHS AND
WATER SURFACE ELEVATIONS IN THE TURNERS FALLS
IMPOUNDMENT 5 KM UPSTREAM AND 5 KM DOWNSTREAM OF
THE NORTHFIELD TAILRACE**

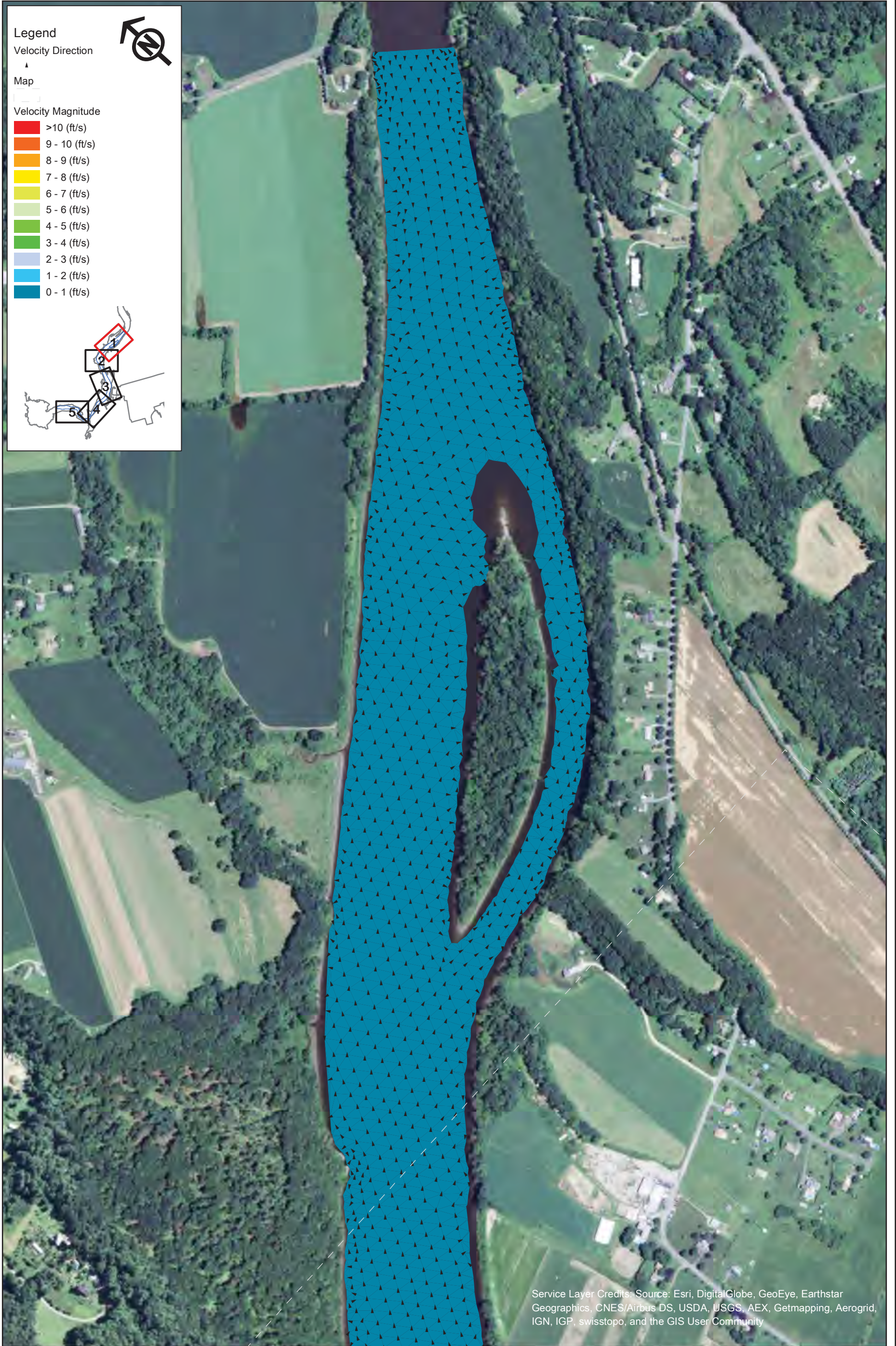
Note: Maps below are listed in the order as shown in [Table 5.0-1](#): List of 2D Hydraulic Modeling Scenarios. They are ordered from Scenario 1 through 60. In the case of the velocity maps, they too are ordered from Scenario 1 through 60, with the 5 maps per scenario arranged in upstream to downstream order.

Northfield Mountain Pumped Storage Project (No. 2485) and Turners Falls Hydroelectric Project (No. 1889)

STUDY NO. 3.3.9: NORTHFIELD INTAKE STUDY

APPENDIX B.

**Velocity in the Turner Falls Impoundment 5 km upstream and 5 Km Downstream
of the Northfield Tailrace**



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Map

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

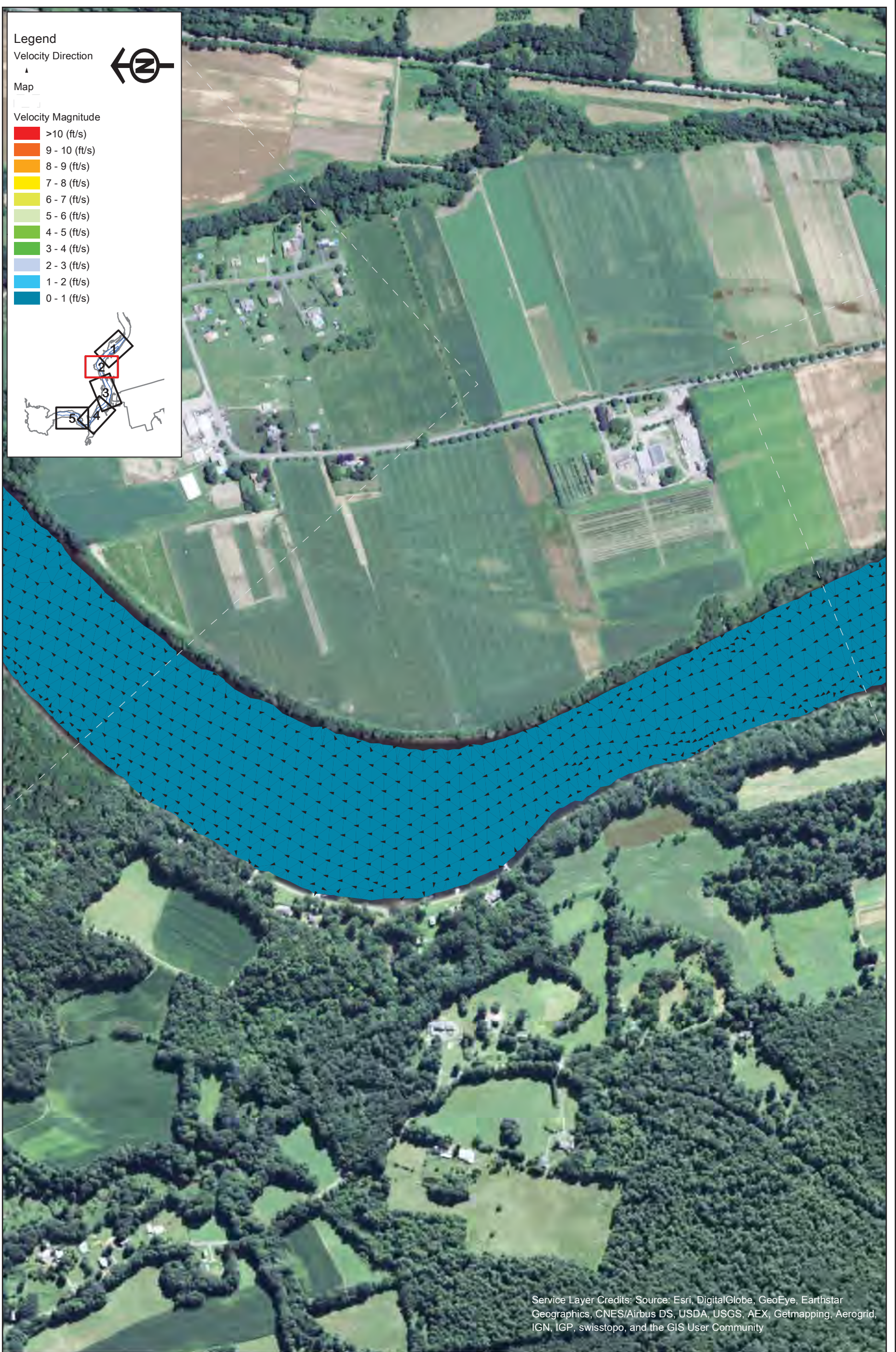


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 1 - Map 1
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



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

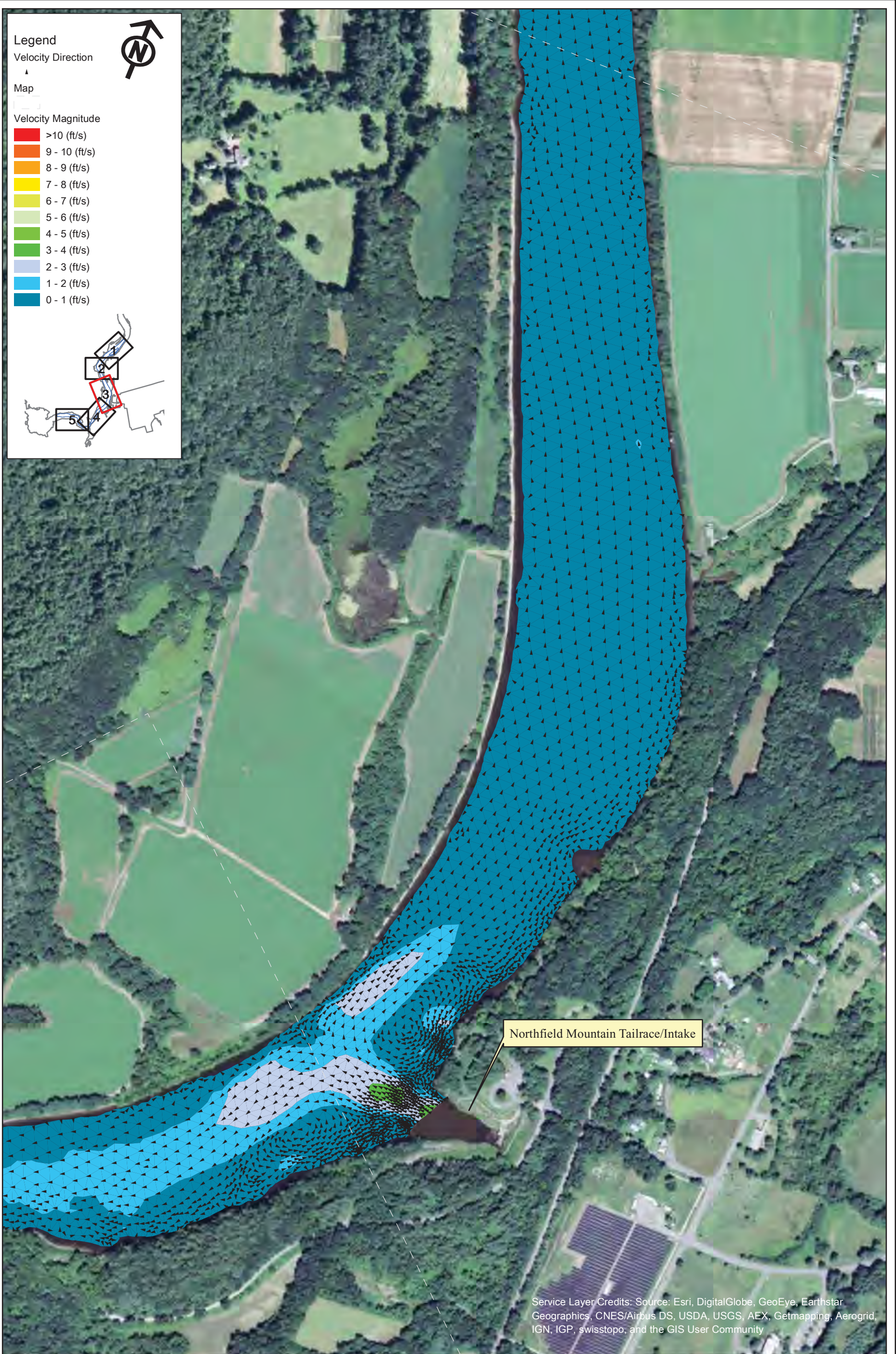


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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 1 - Map 2
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

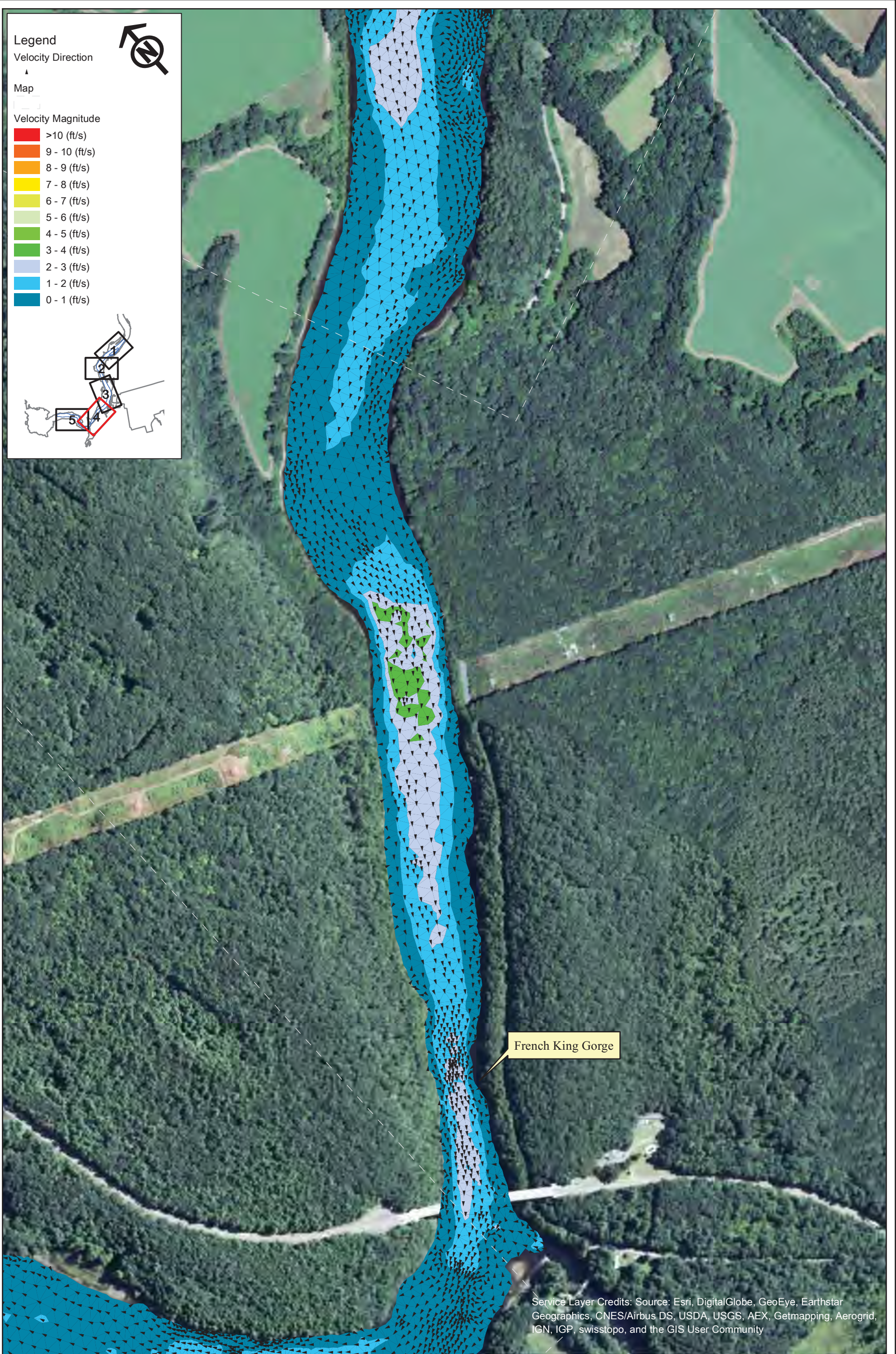
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 1 - Map 3
 95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



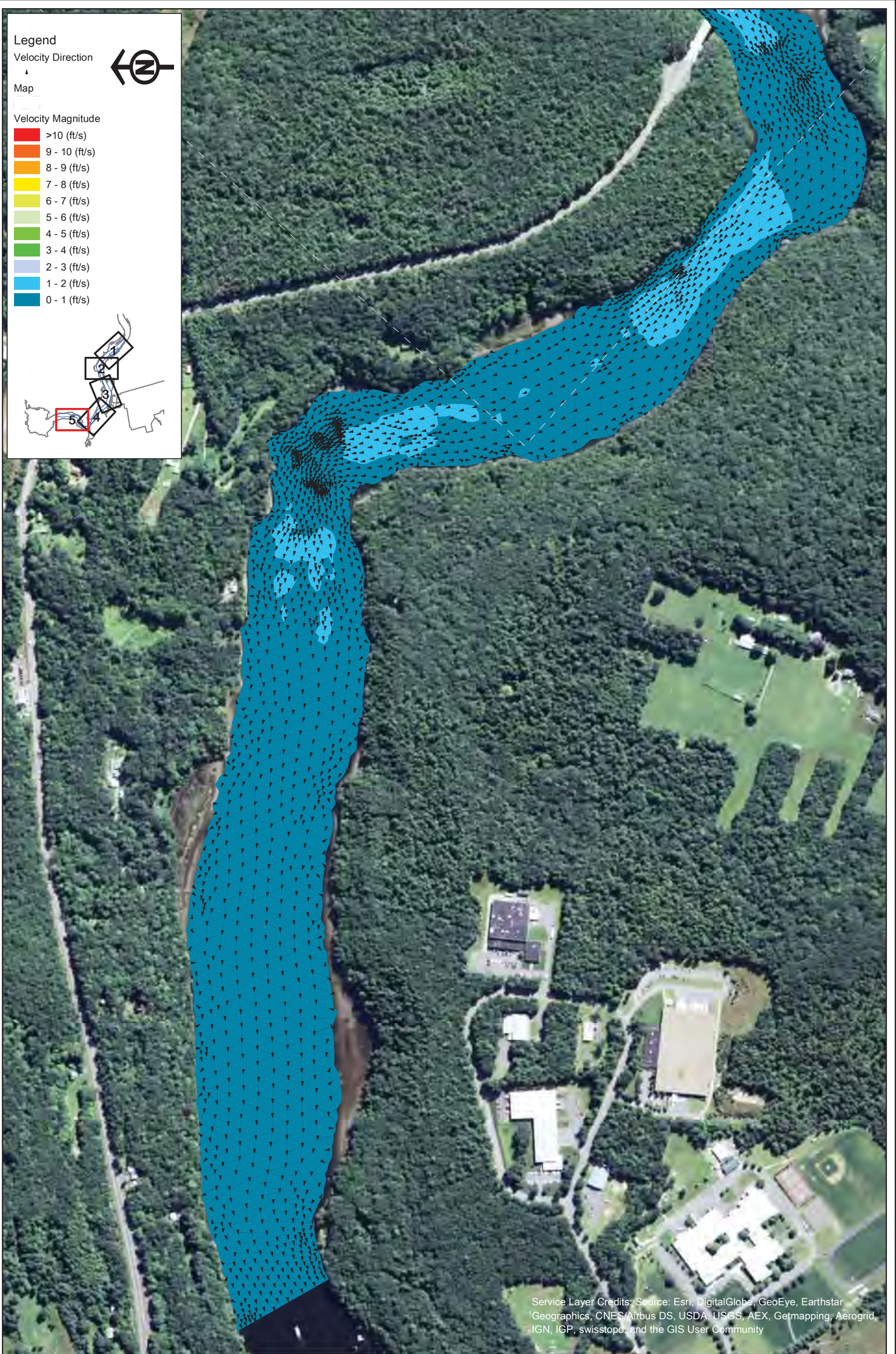


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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 1 - Map 4
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



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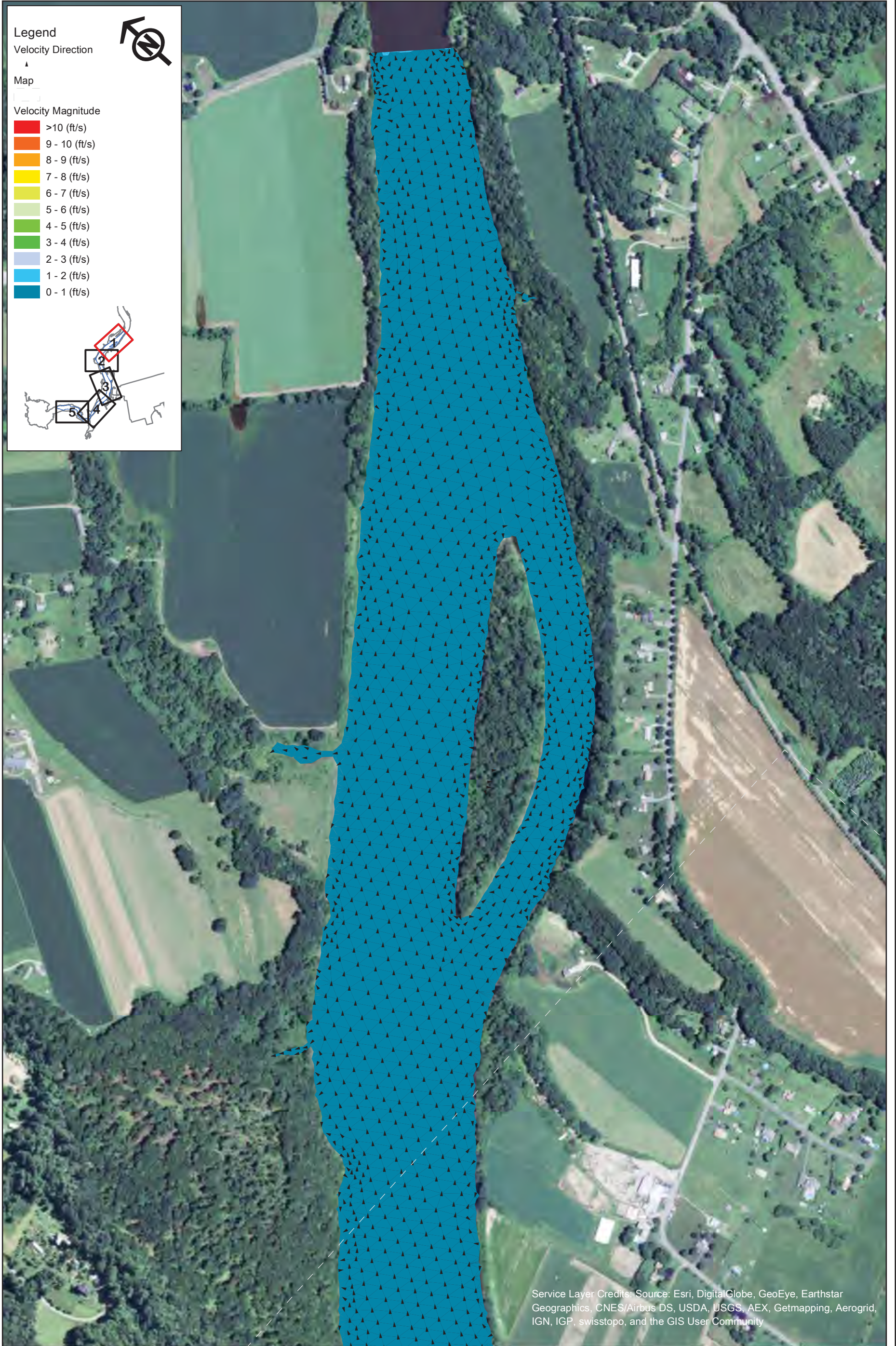


Northfield Mountain Pumped Storage Project (No. 2485)
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Scenario 1 - Map 5
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

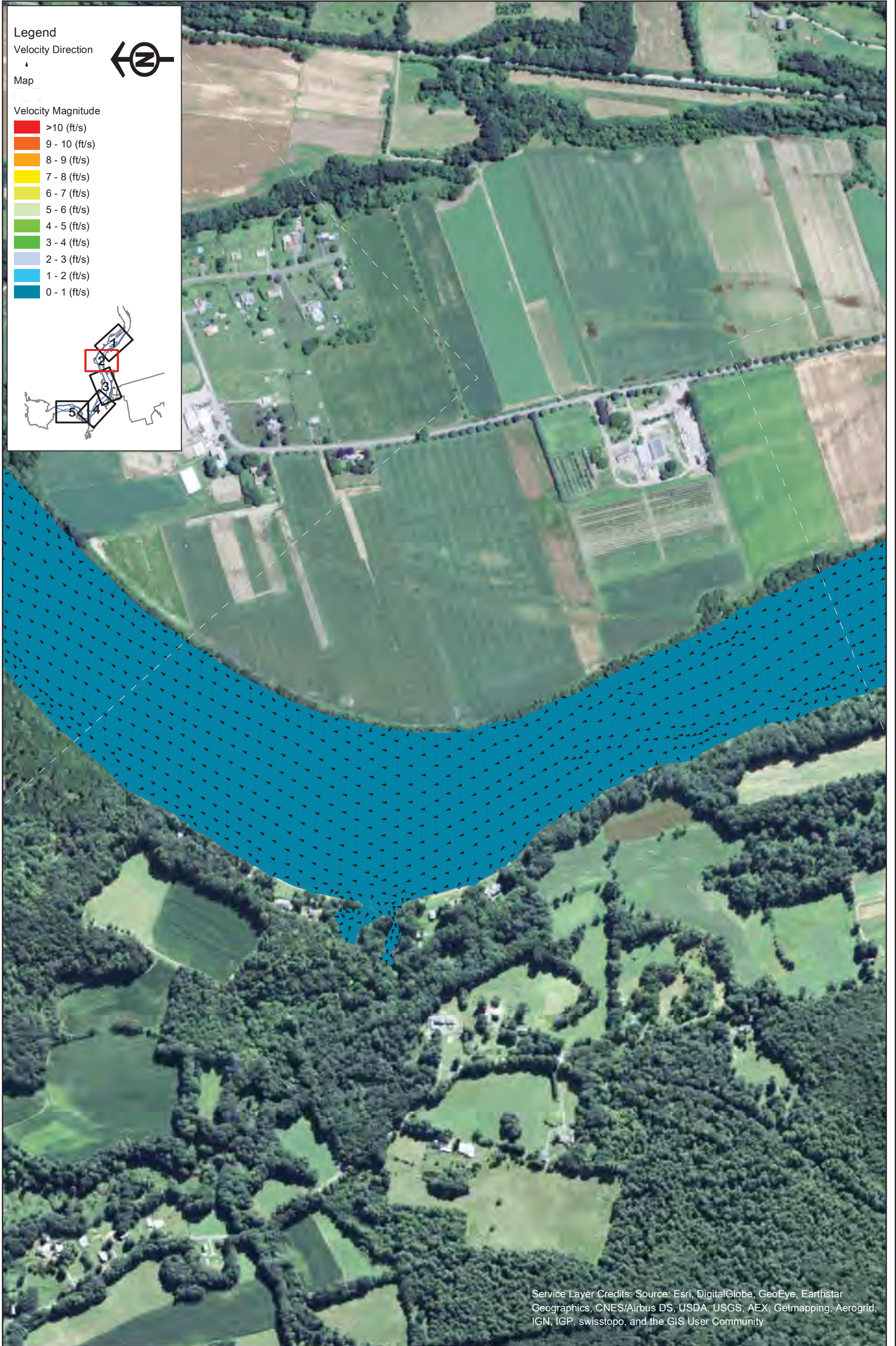


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 2 - Map 1
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



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

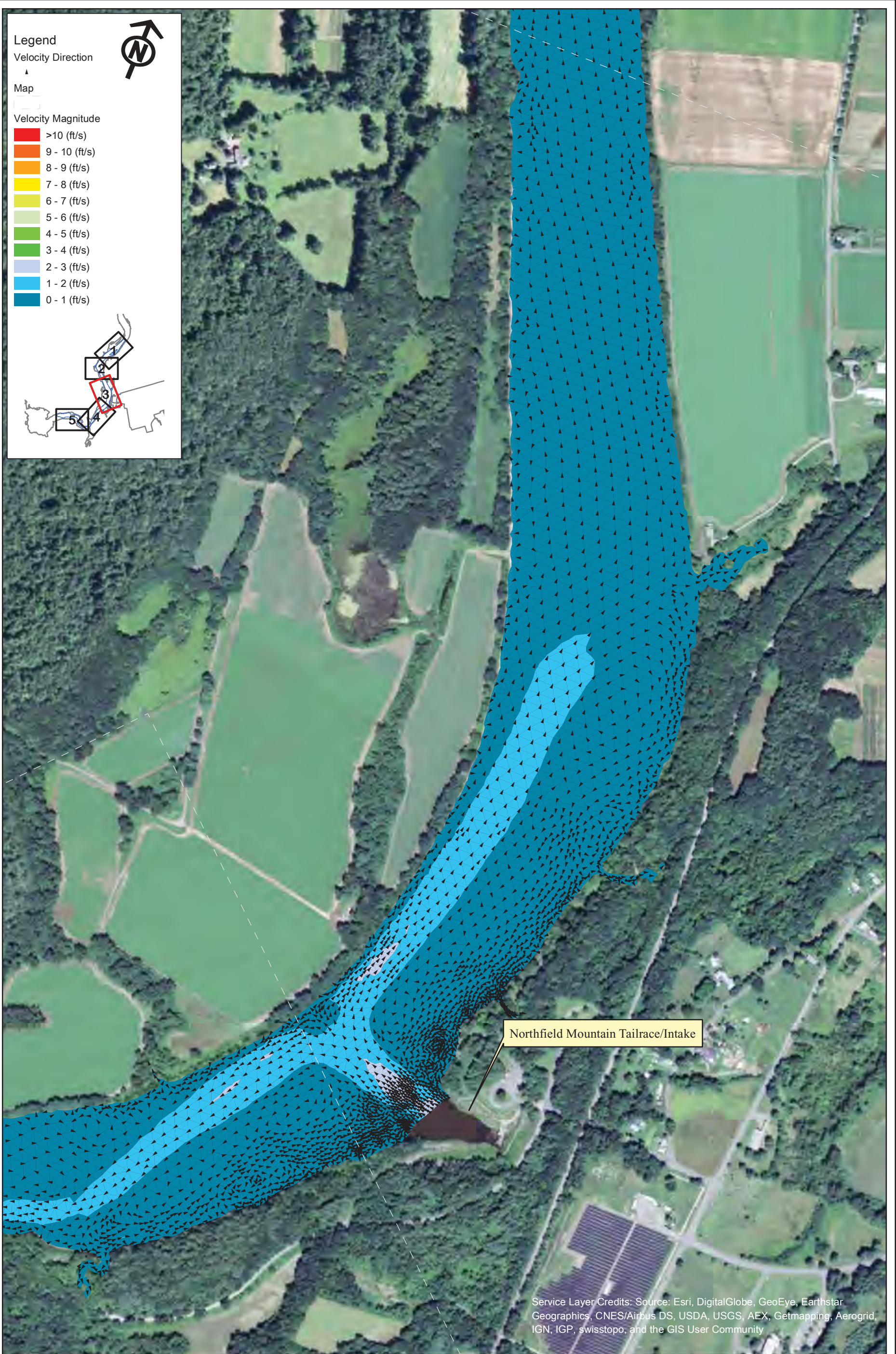


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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 2 - Map 2
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

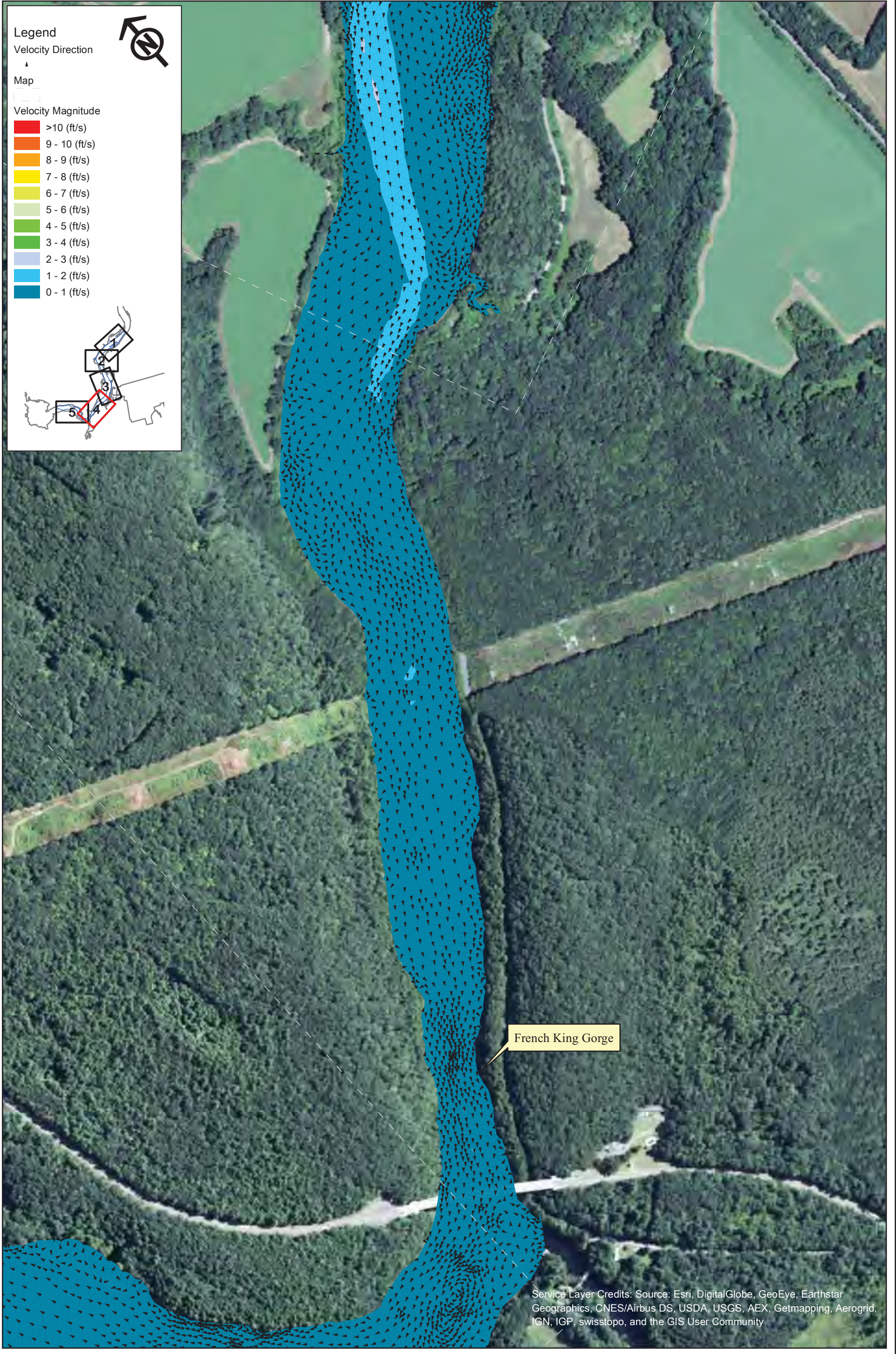


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 2 - Map 3
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam

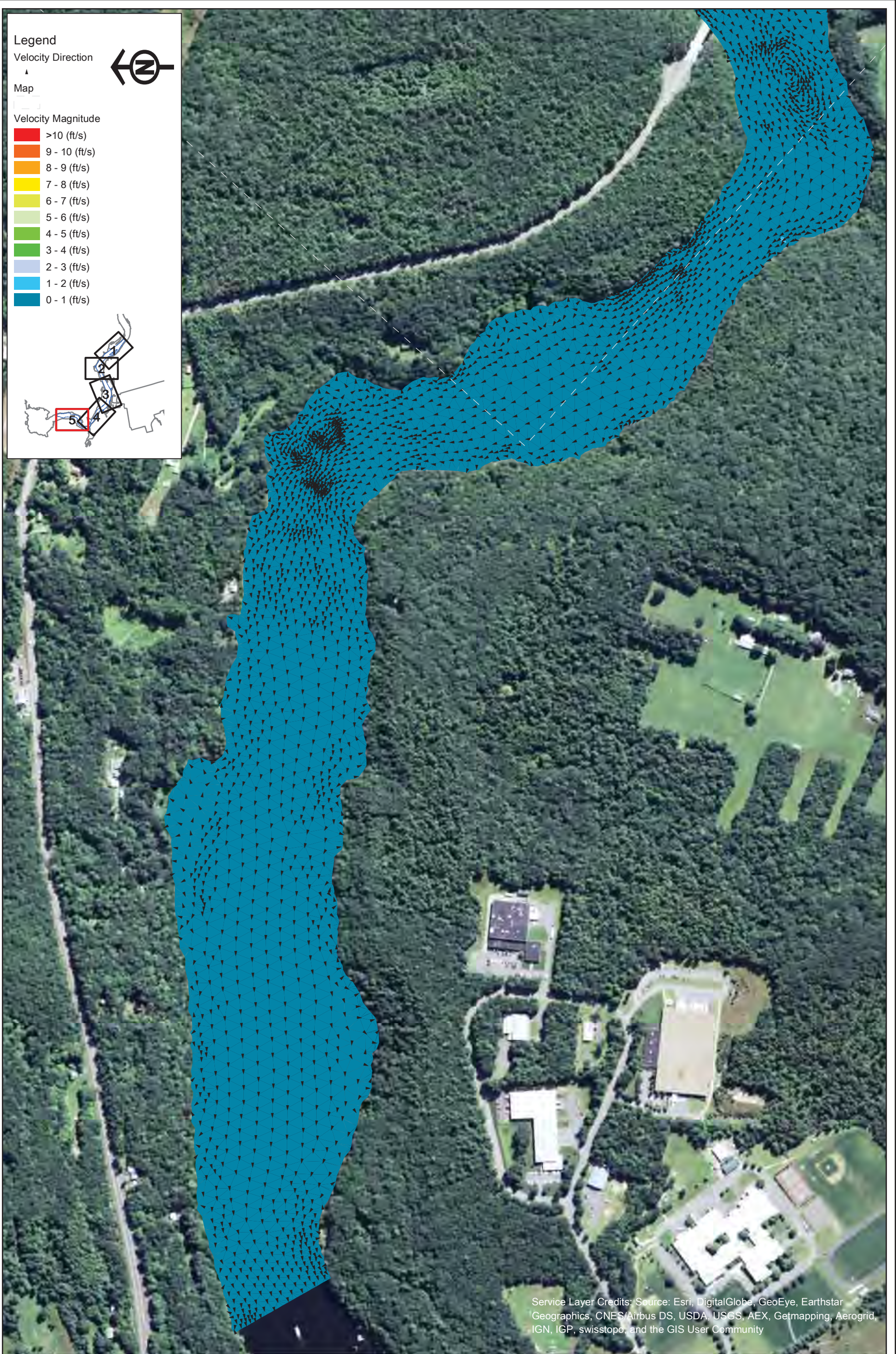


Northfield Mountain Pumped Storage Project (No. 2485)
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Scenario 2 - Map 4
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



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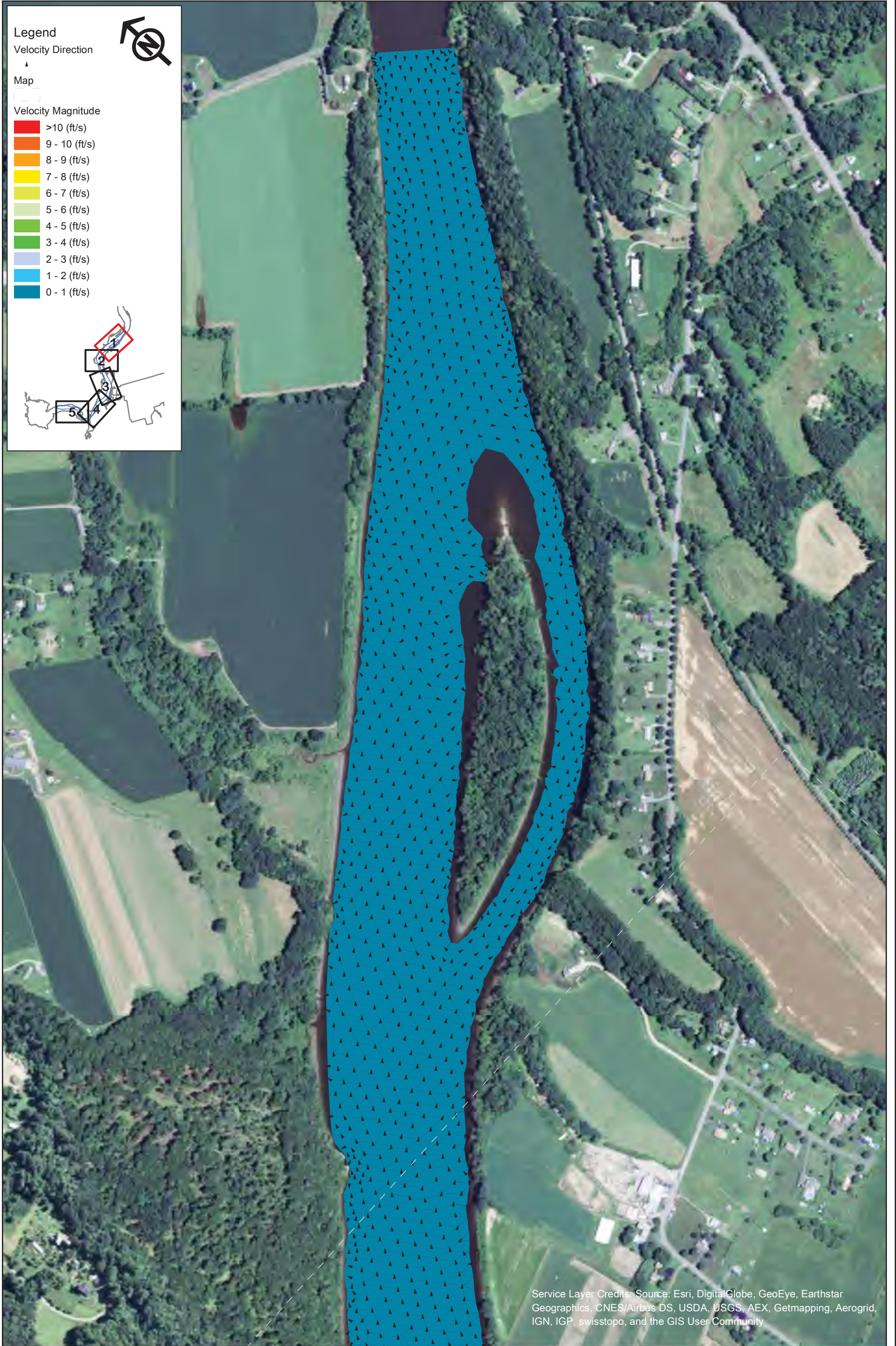


Northfield Mountain Pumped Storage Project (No. 2485)
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Scenario 2 - Map 5
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
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- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
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- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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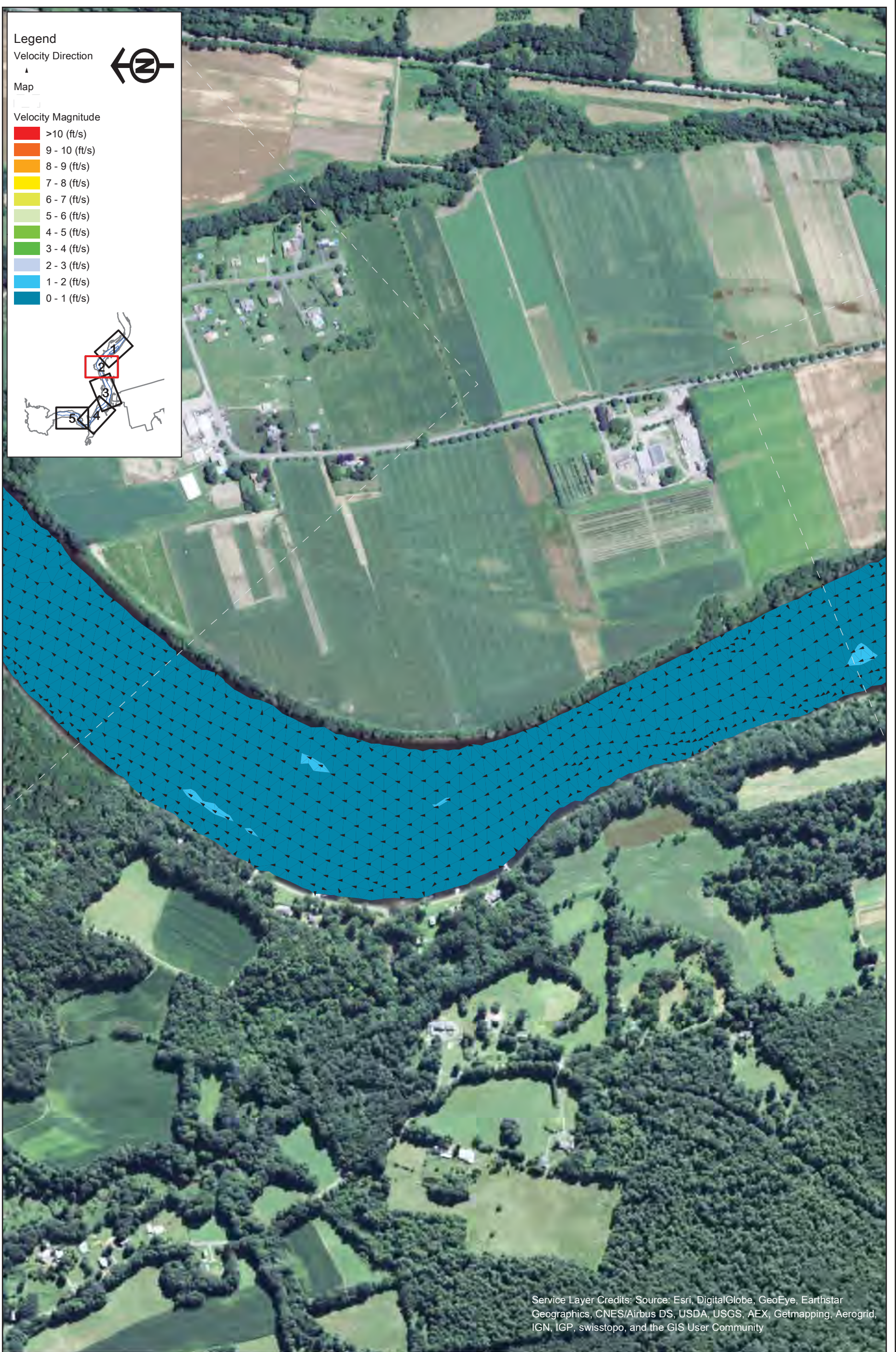


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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 3 - Map 1
95% Exceedance Flow (1,760 cfs), 4 Units Generating (20,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
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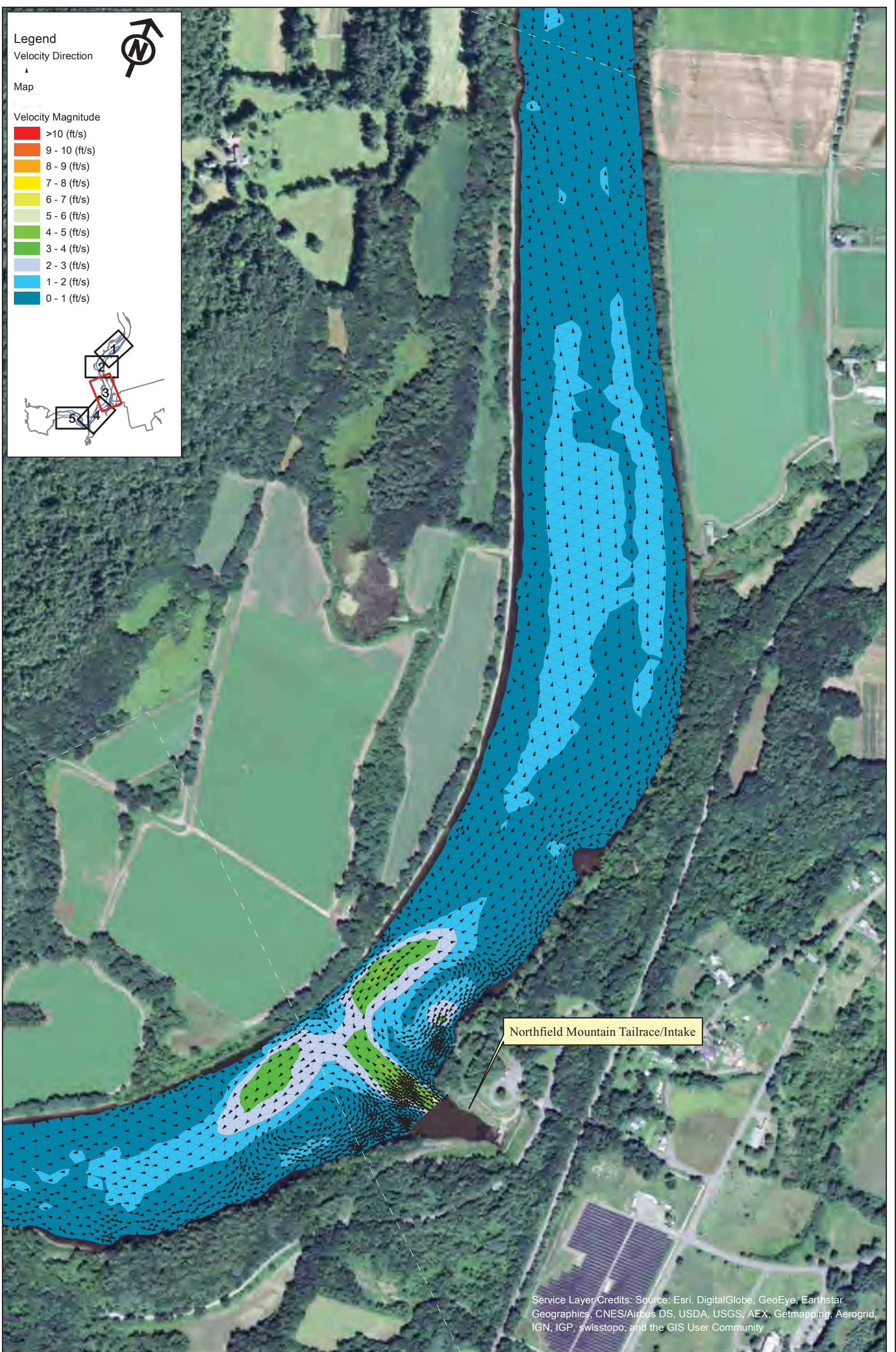
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0 250 500 1,000
 Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 3 - Map 2
 95% Exceedance Flow (1,760 cfs), 4 Units
 Generating (20,000 cfs), 176 WSEL at Dam





Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

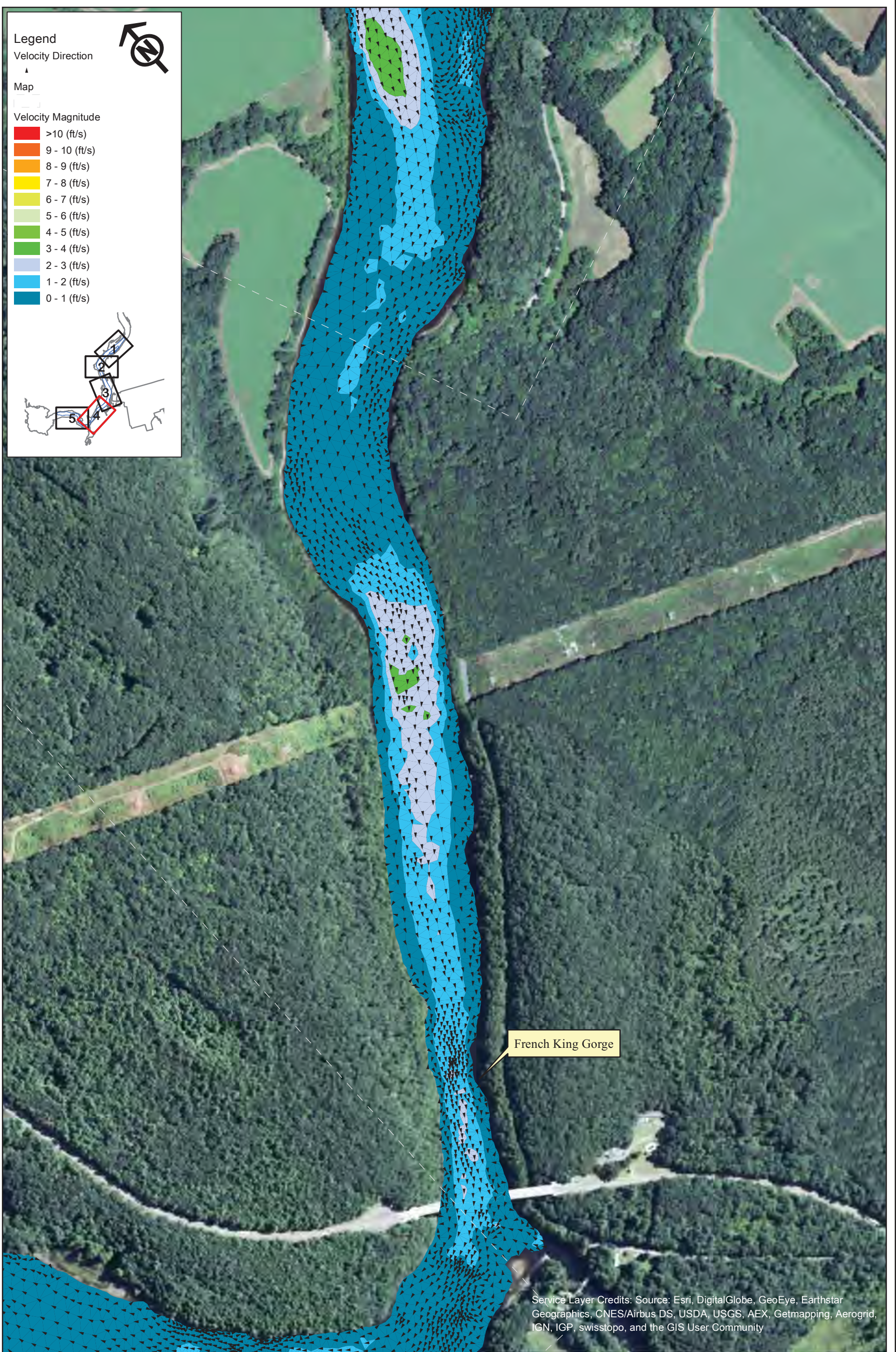


Northfield Mountain Pumped Storage Project (No. 2485)
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Scenario 3 - Map 3
95% Exceedance Flow (1,760 cfs), 4 Units Generating (20,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
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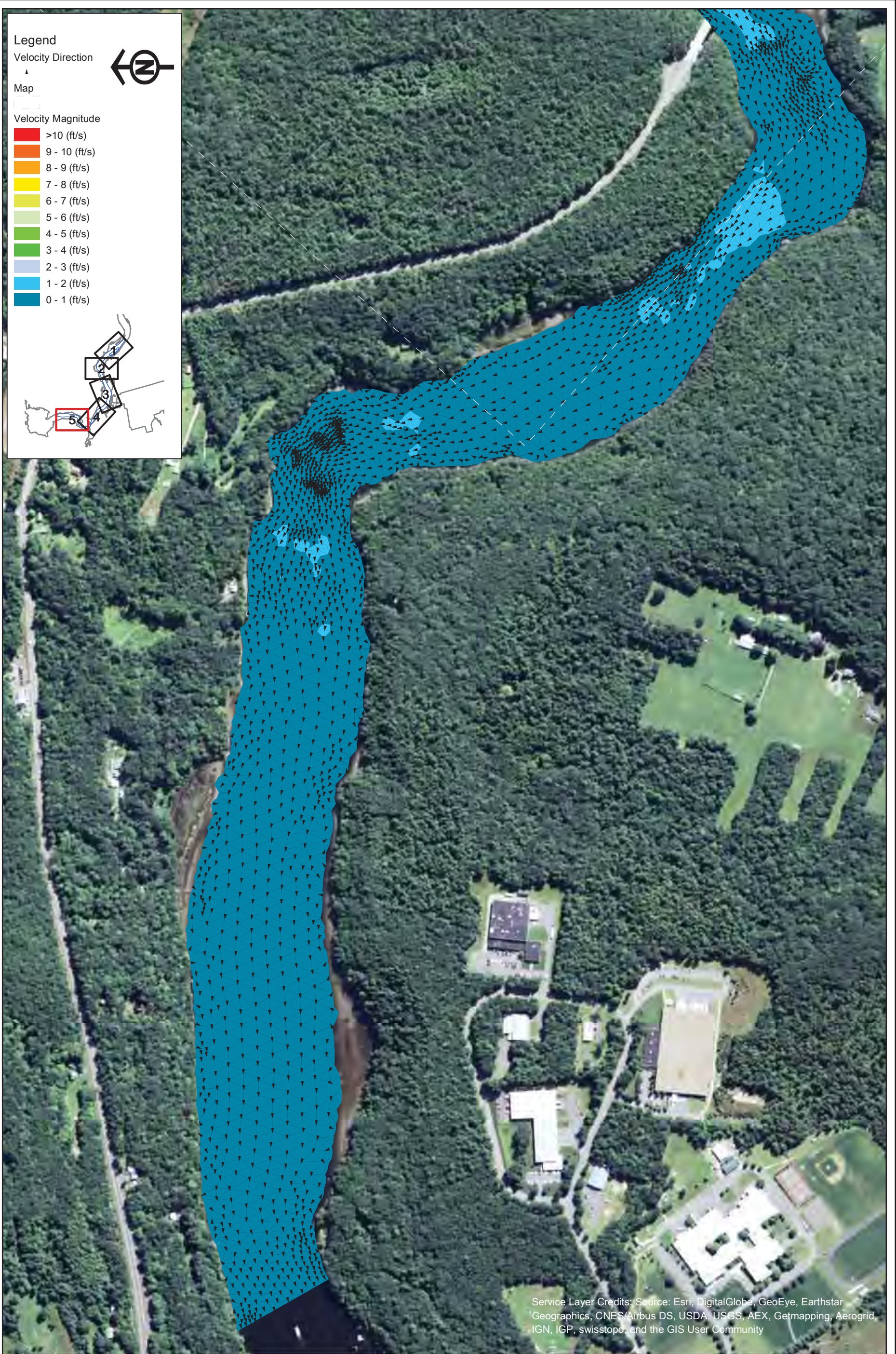
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0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 3 - Map 4
95% Exceedance Flow (1,760 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam





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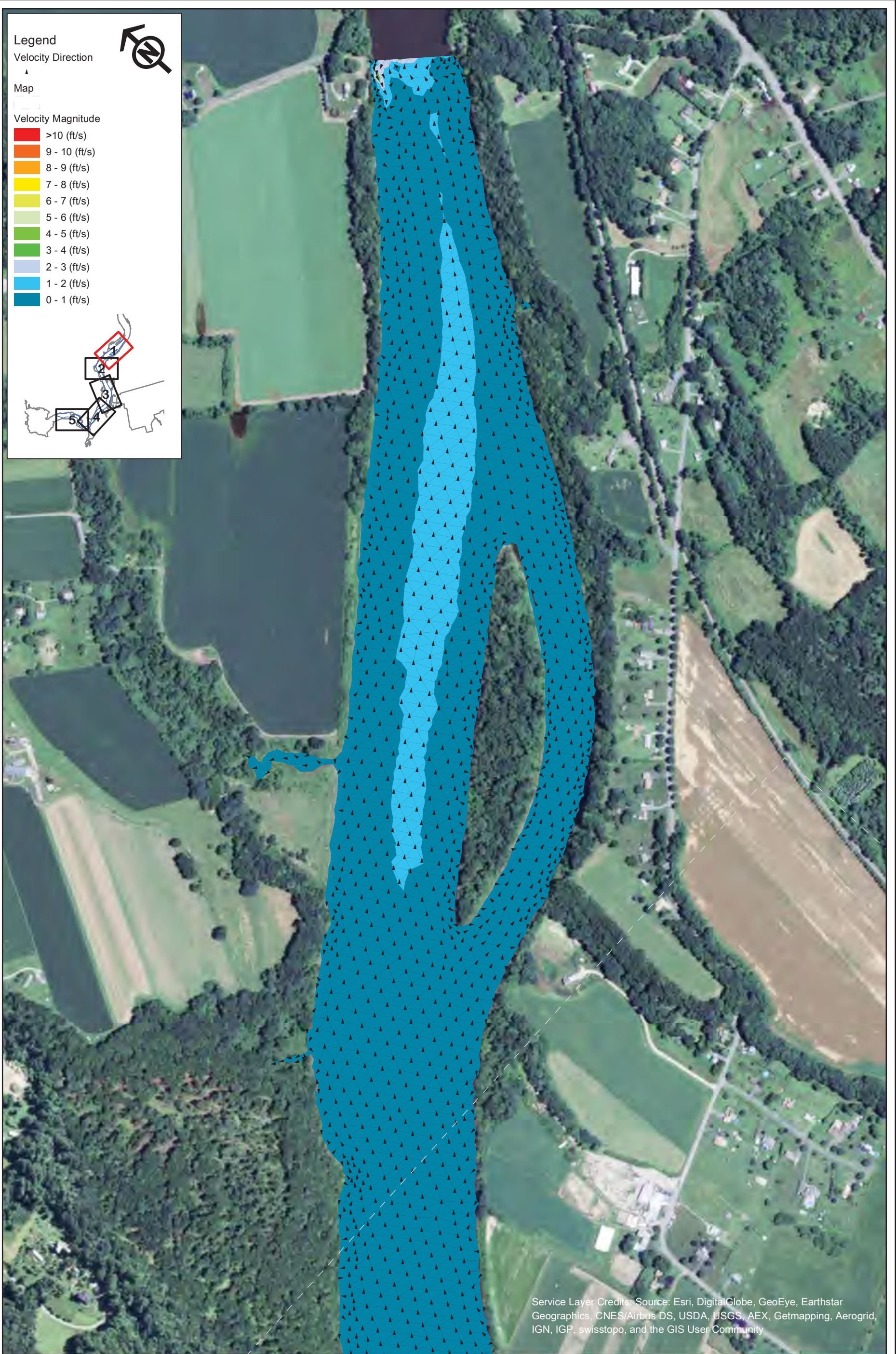


Northfield Mountain Pumped Storage Project (No. 2485)
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 3 - Map 5
95% Exceedance Flow (1,760 cfs), 4 Units Generating (20,000 cfs), 176 WSEL at Dam



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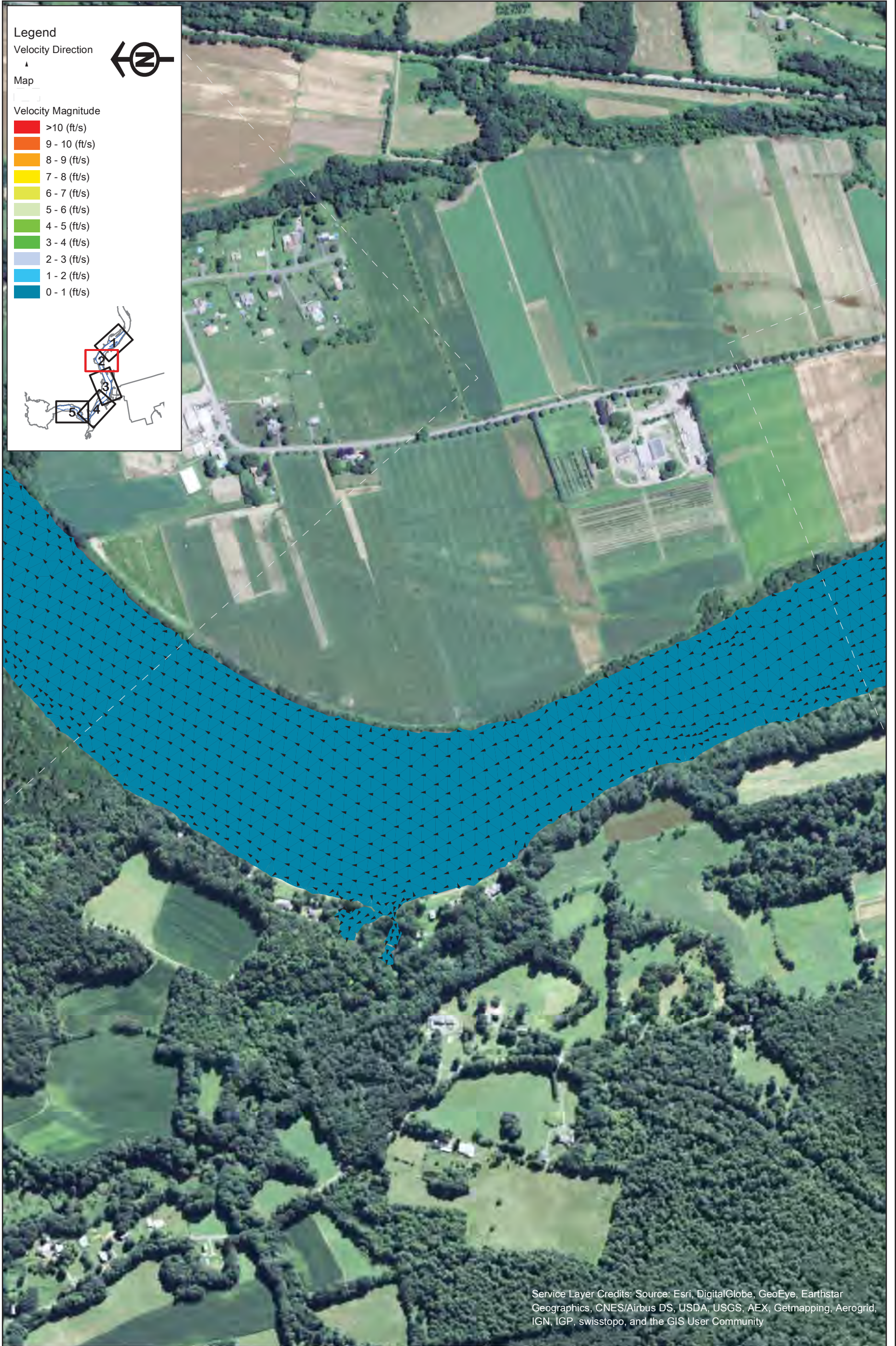
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 4 - Map 1
95% Exceedance Flow (1,760 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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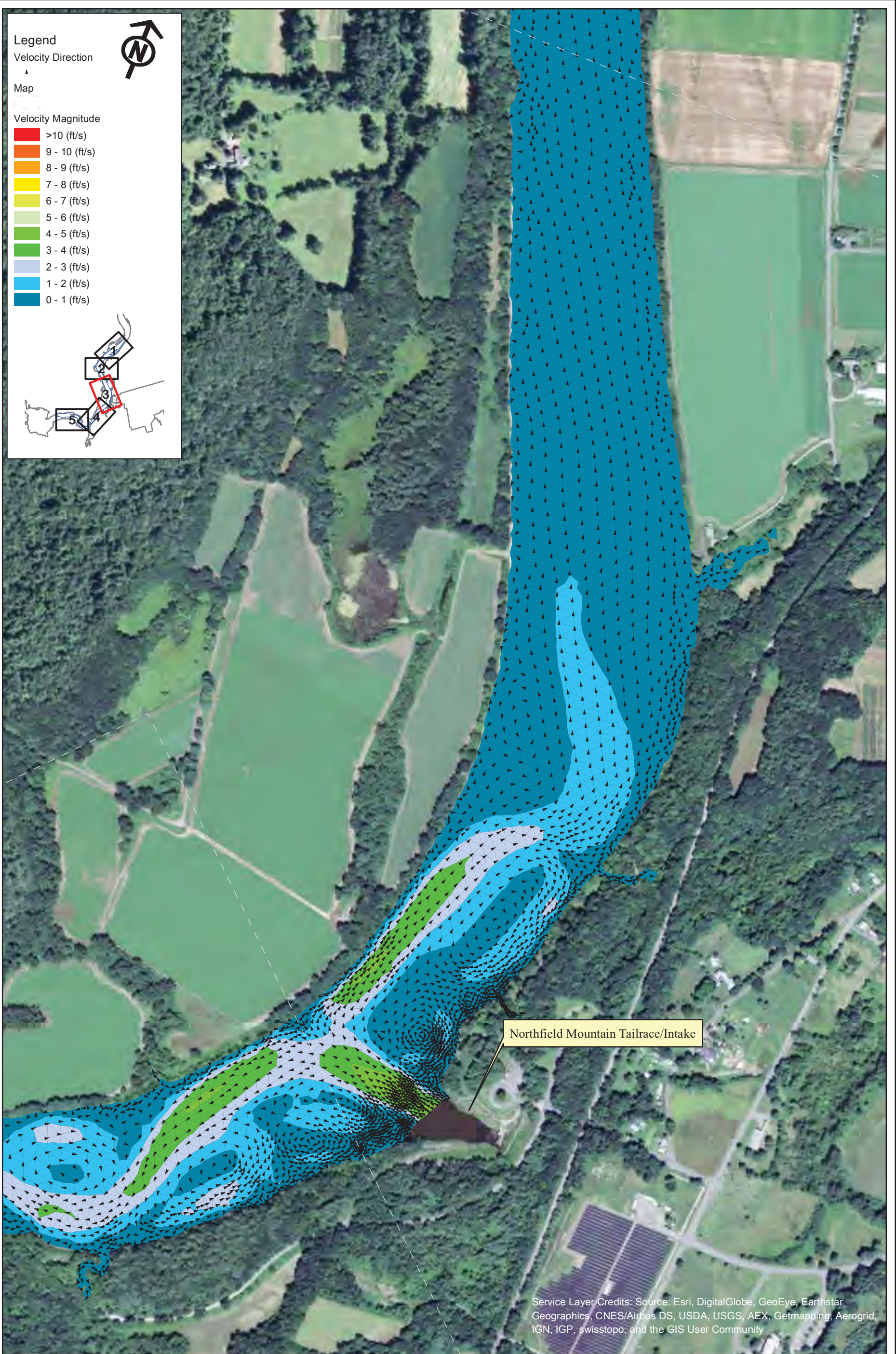


Northfield Mountain Pumped Storage Project (No. 2485)
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 4 - Map 2
 95% Exceedance Flow (1,760 cfs), 4 Units
 Generating (20,000 cfs), 185 WSEL at Dam



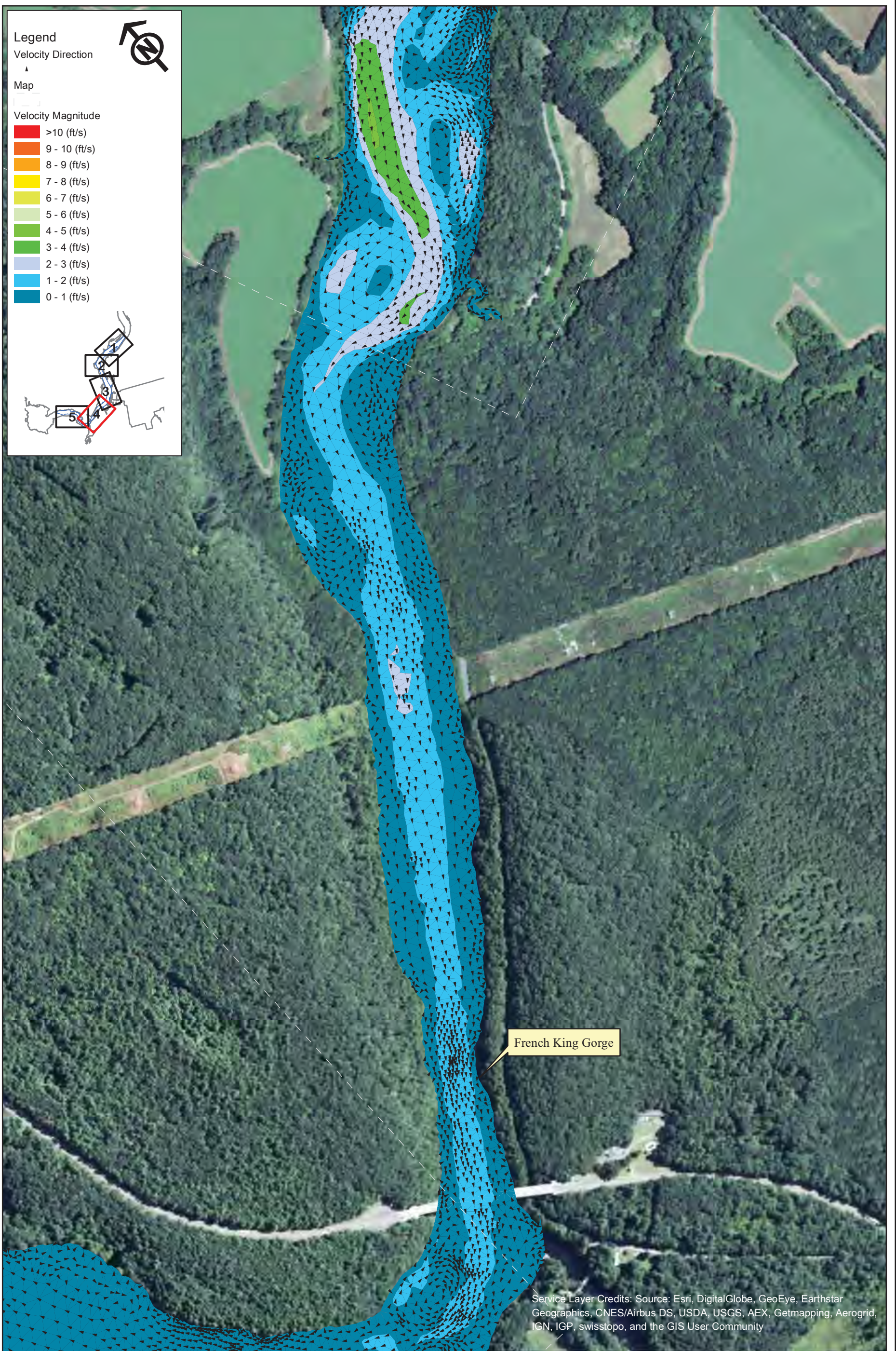
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Scenario 4 - Map 3
95% Exceedance Flow (1,760 cfs), 4 Units Generating (20,000 cfs), 185 WSEL at Dam



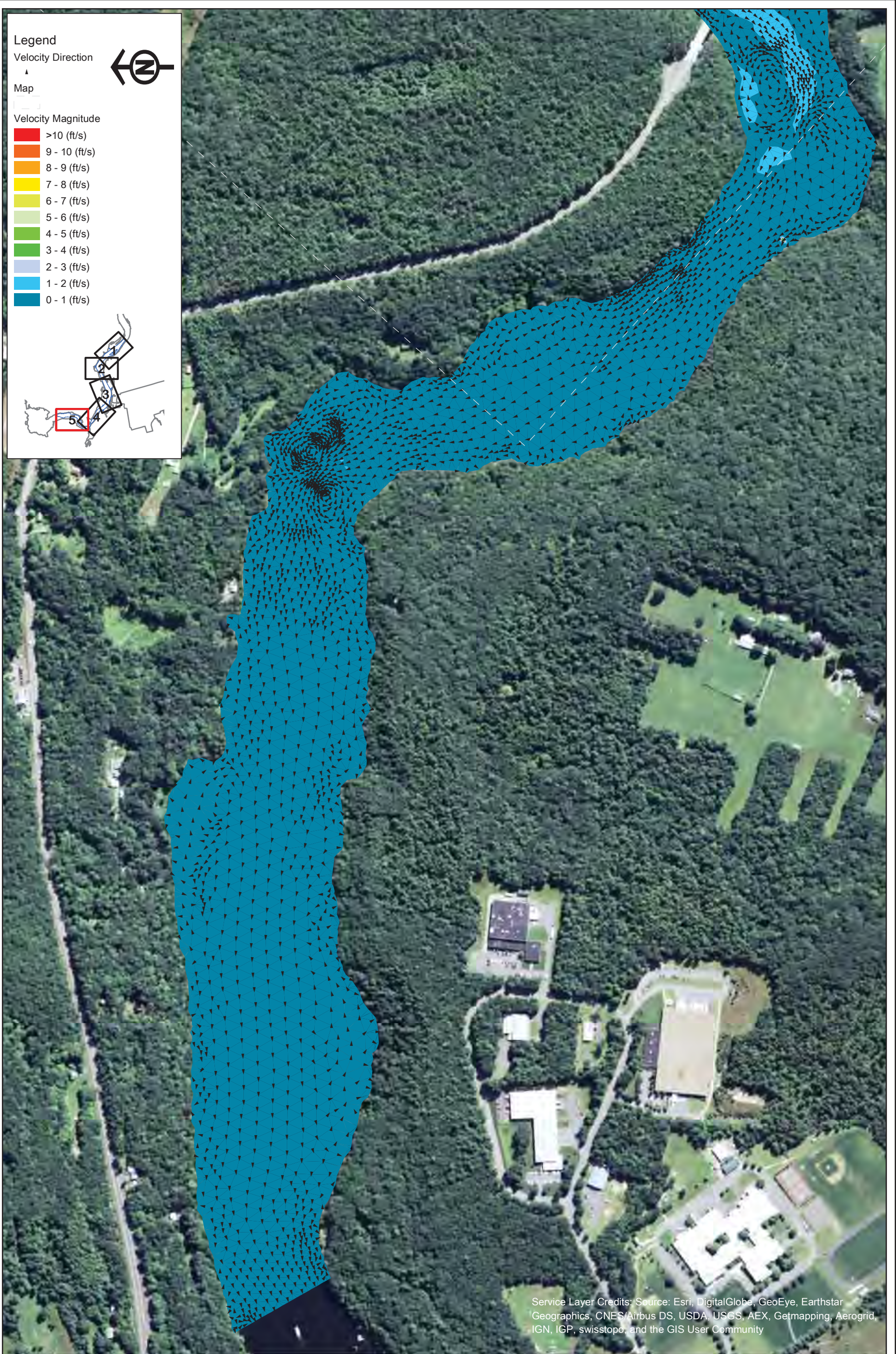


Northfield Mountain Pumped Storage Project (No. 2485)
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Scenario 4 - Map 4
95% Exceedance Flow (1,760 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam



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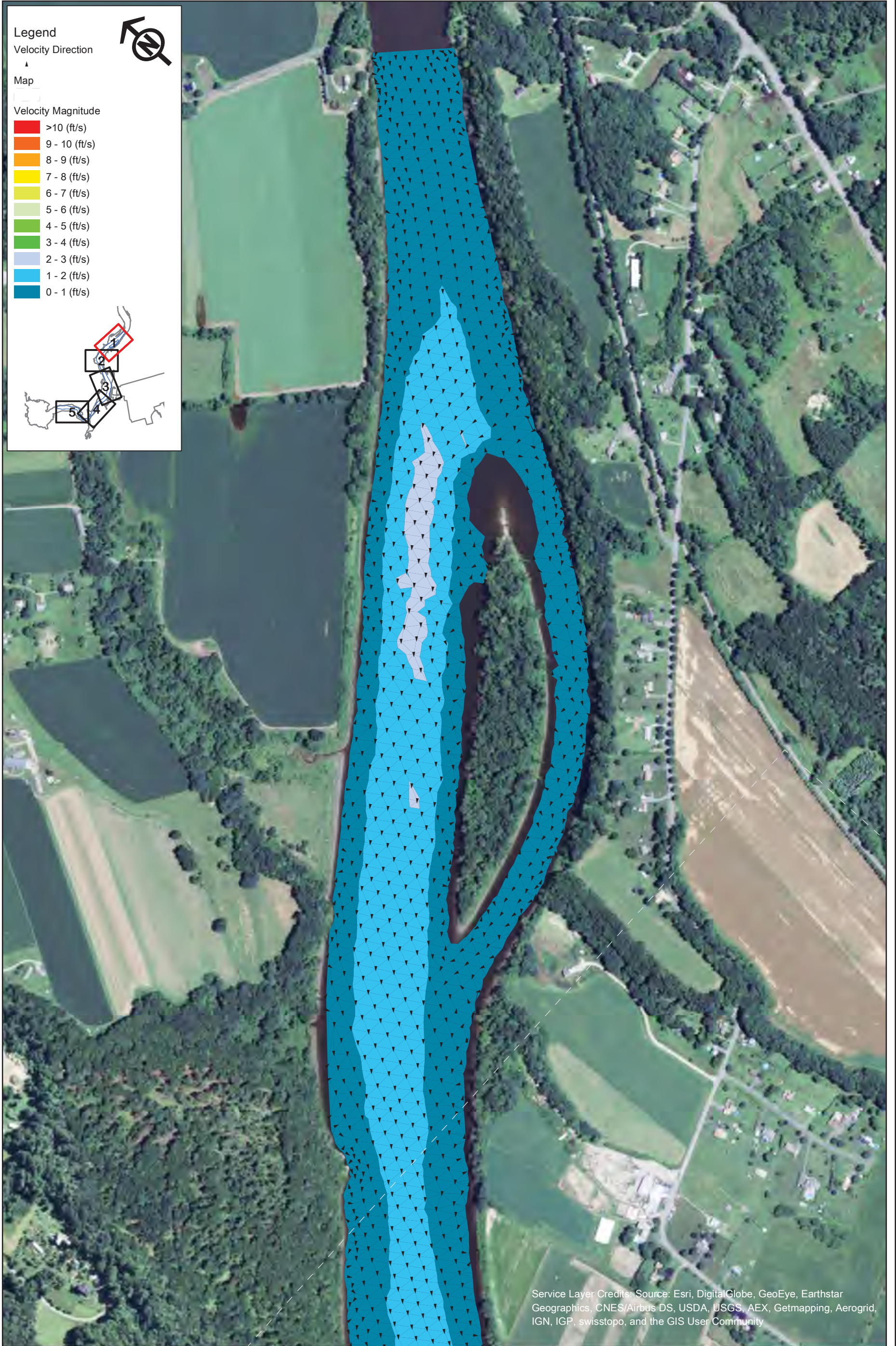


Northfield Mountain Pumped Storage Project (No. 2485)
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 Scenario 4 - Map 5
 95% Exceedance Flow (1,760 cfs), 4 Units
 Generating (20,000 cfs), 185 WSEL at Dam

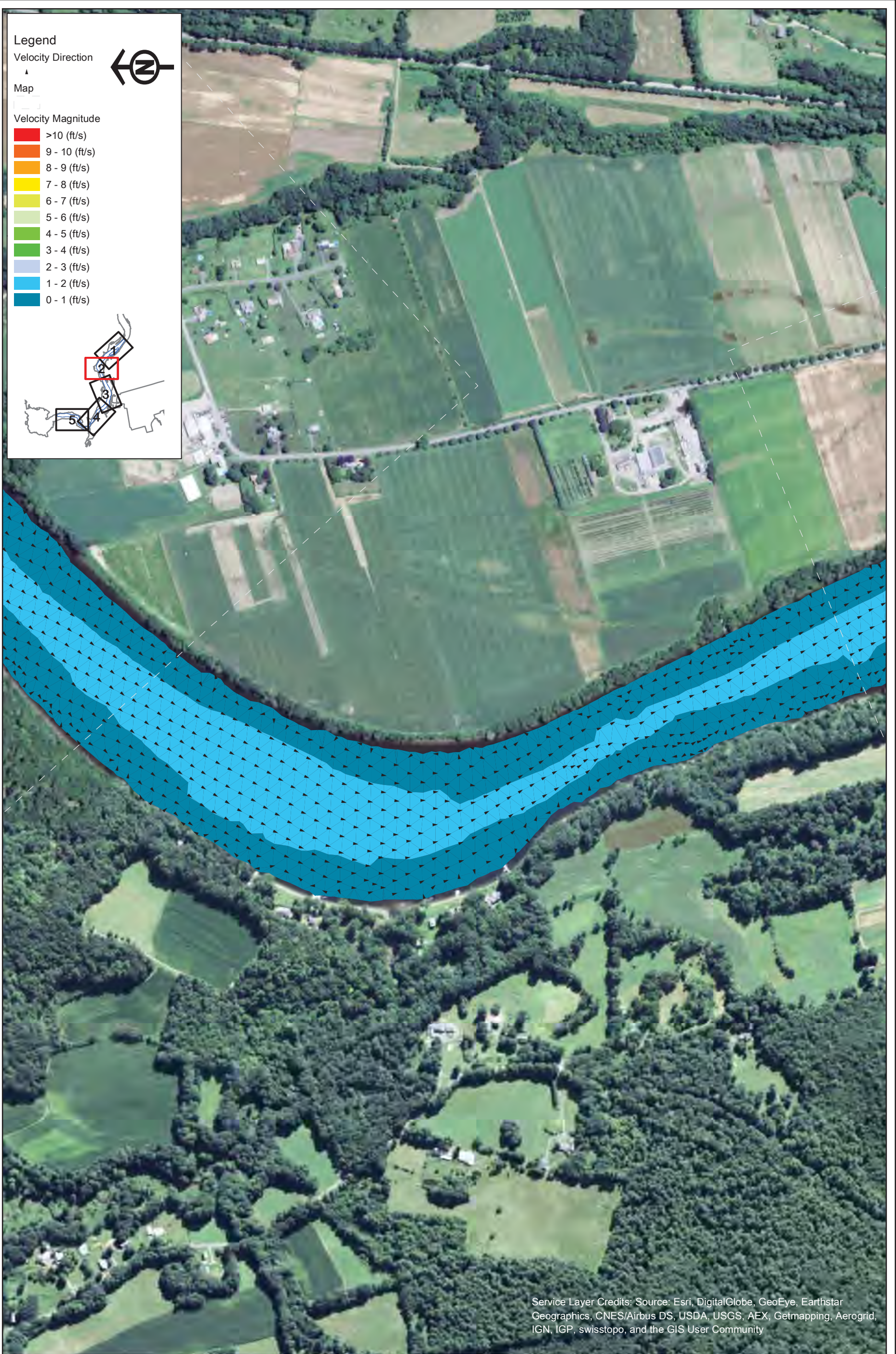


Northfield Mountain Pumped Storage Project (No. 2485)
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 5 - Map 1
95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



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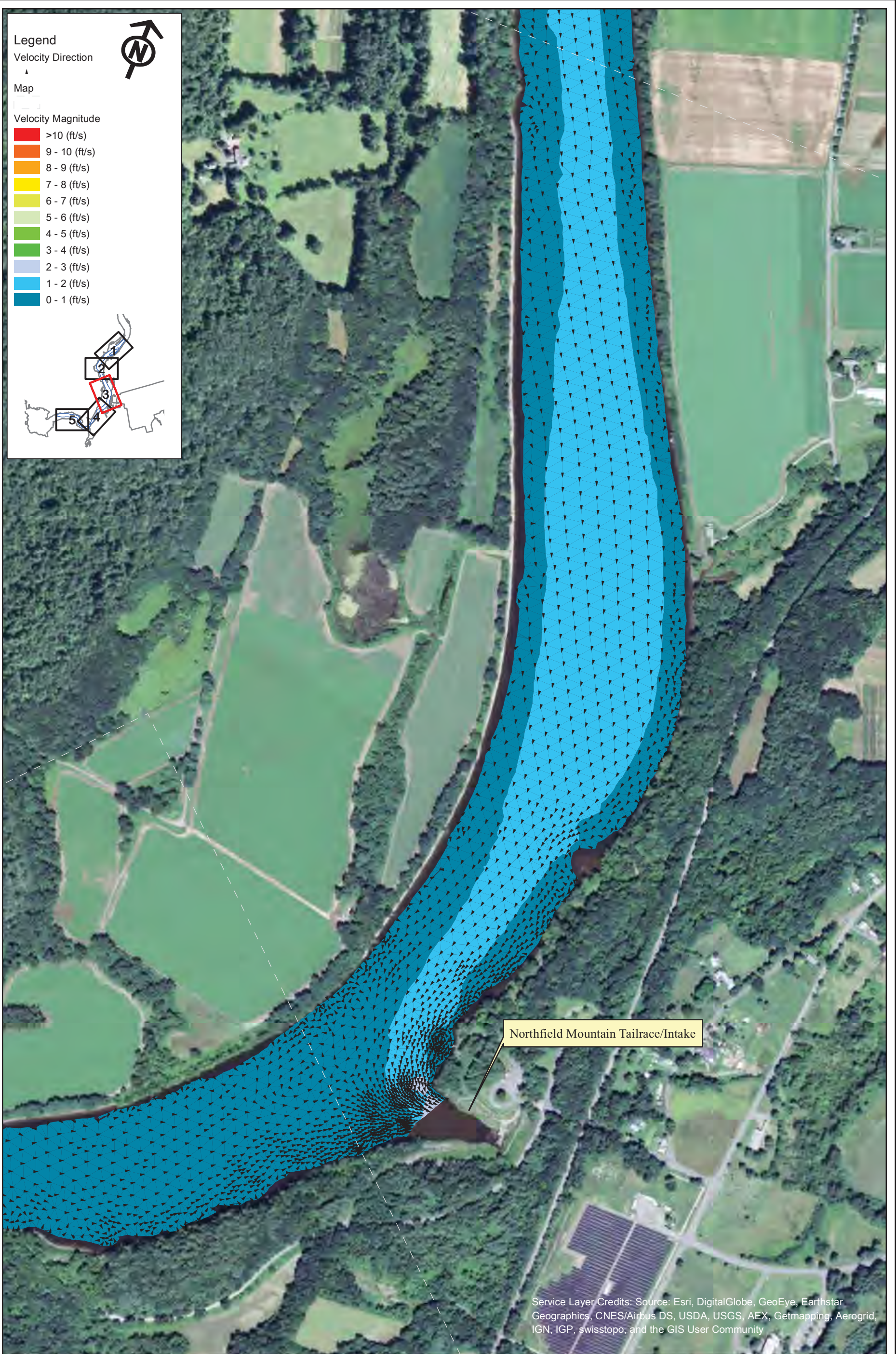


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 5 - Map 2
 95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

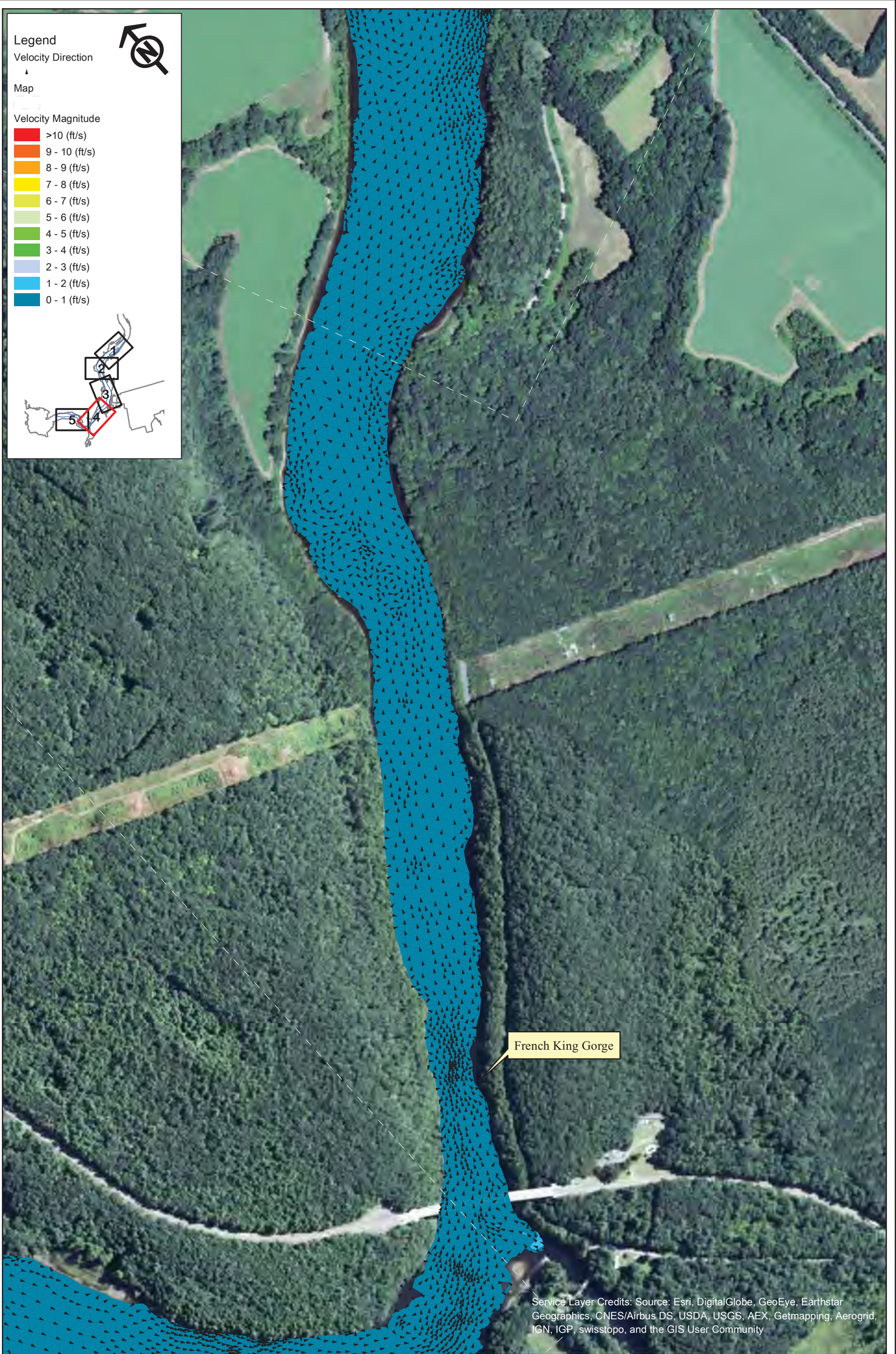
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0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 5 - Map 3
95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam





Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Map

French King Gorge

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

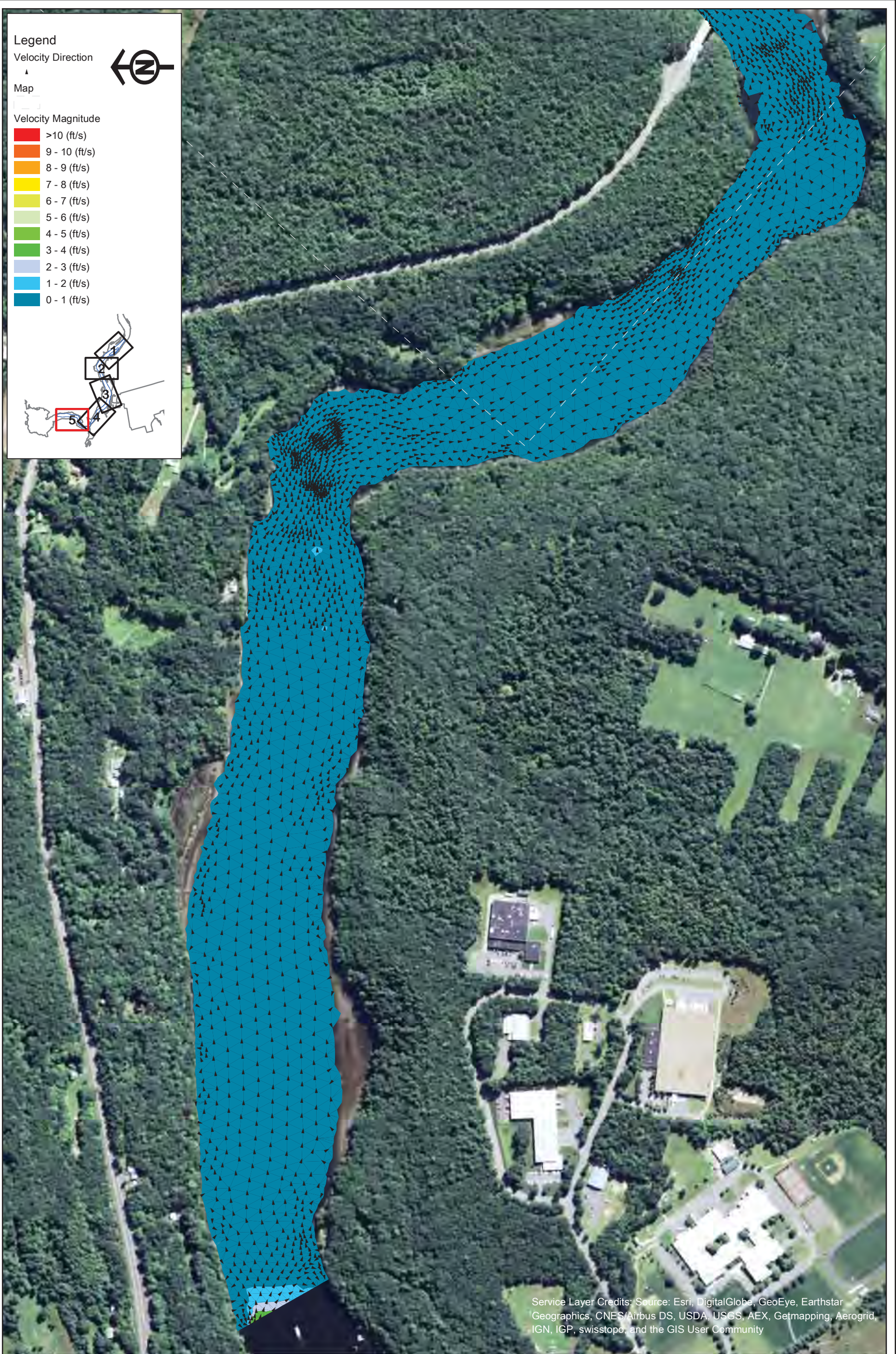


Northfield Mountain Pumped Storage Project (No. 2485) and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 5 - Map 4
95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



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

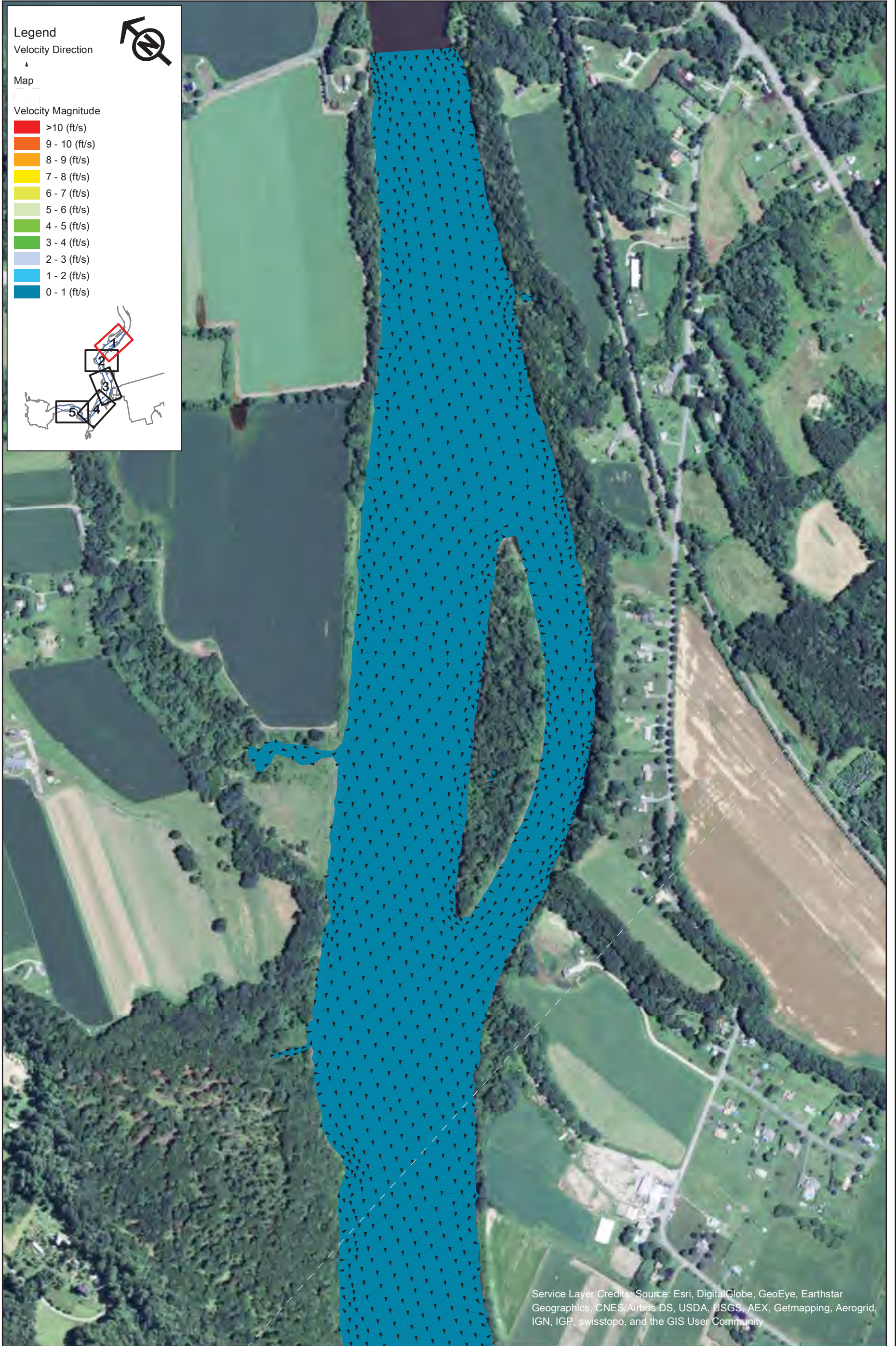


Northfield Mountain Pumped Storage Project (No. 2485)
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 5 - Map 5
95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



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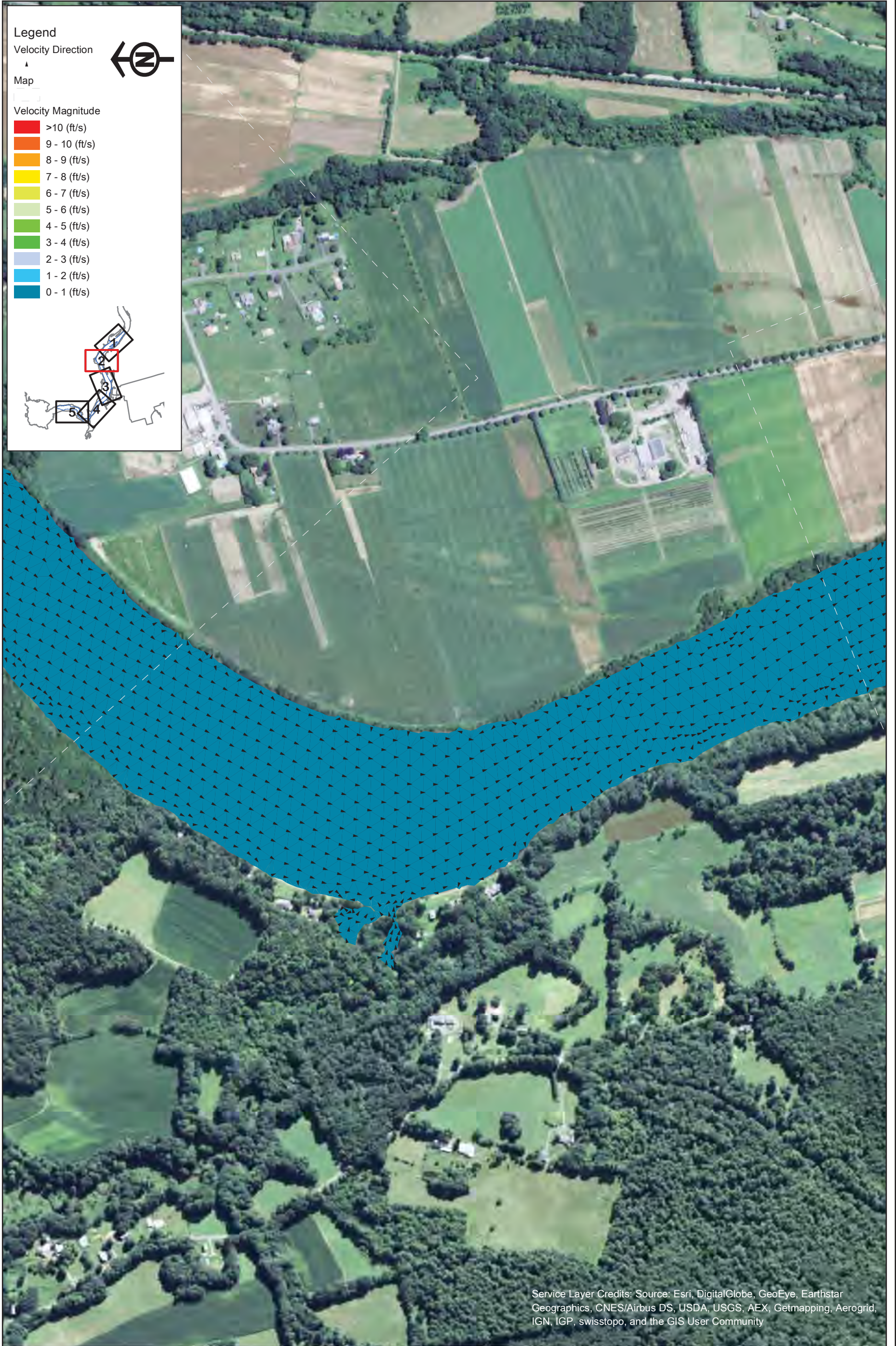


Northfield Mountain Pumped Storage Project (No. 2485)
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 6 - Map 1
95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



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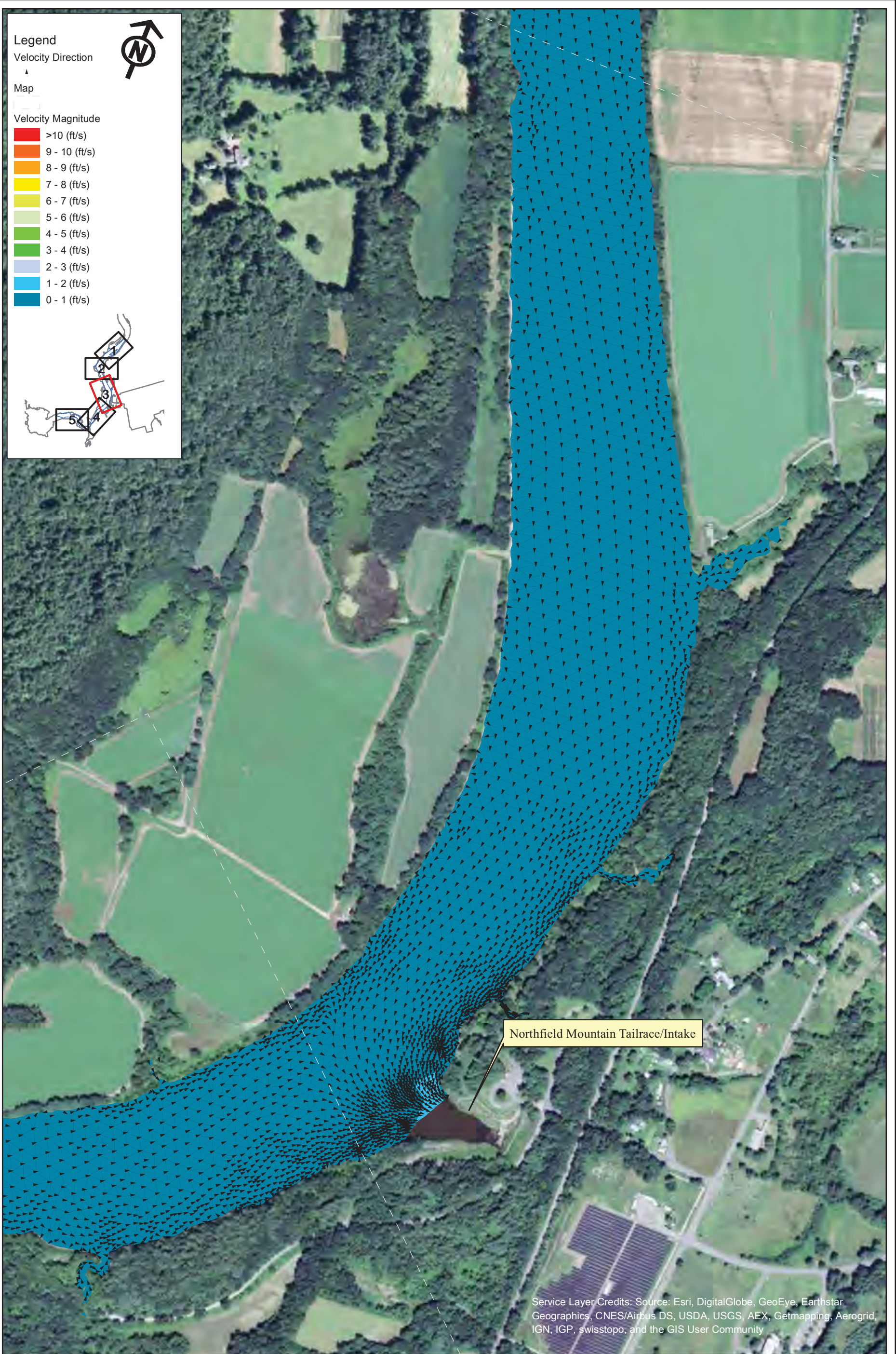


Northfield Mountain Pumped Storage Project (No. 2485)
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 6 - Map 2
 95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



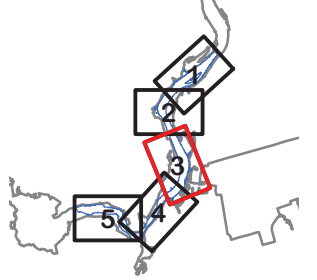
Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)



Northfield Mountain Tailrace/Intake

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

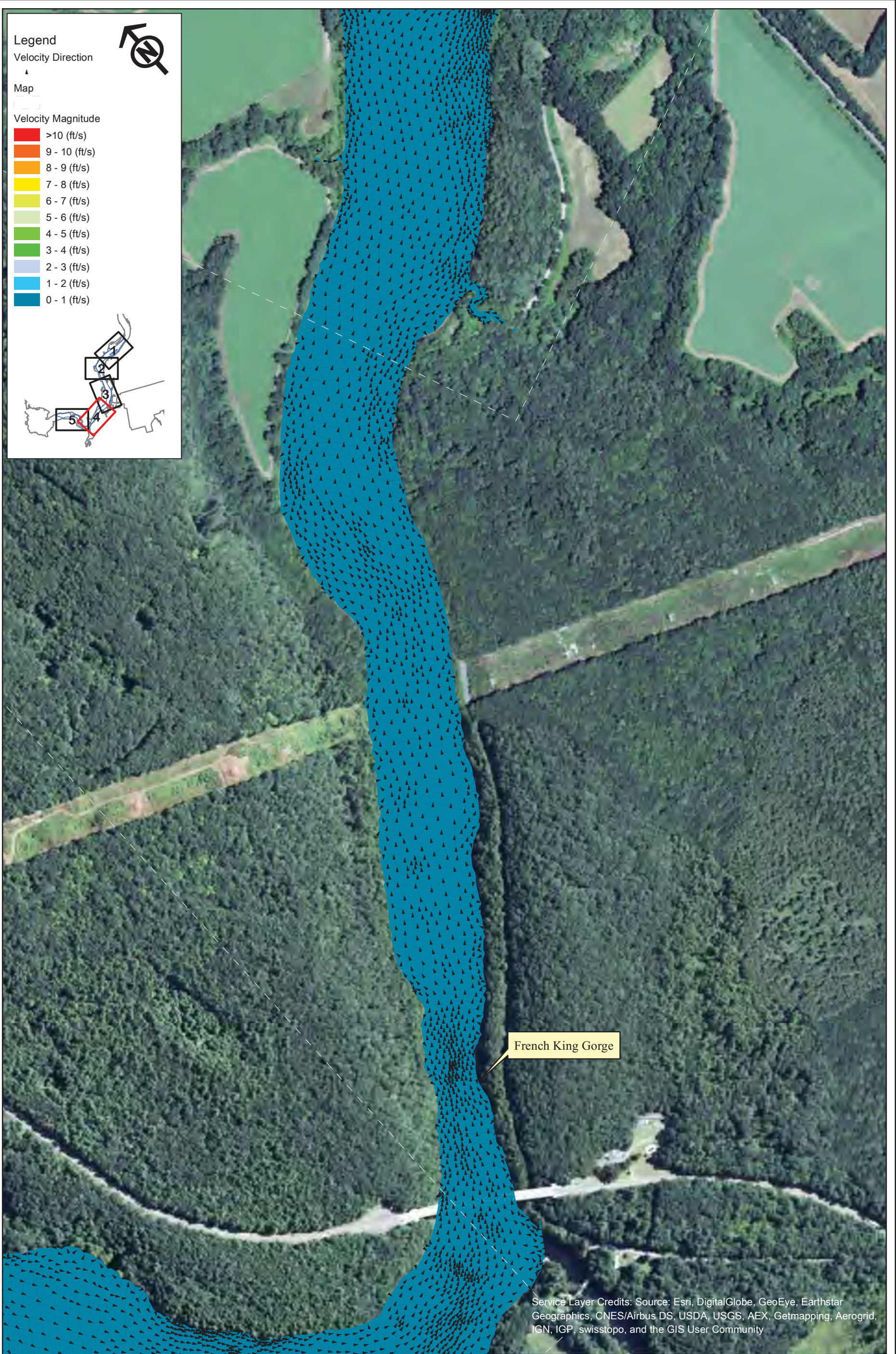


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 6 - Map 3
95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

French King Gorge

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

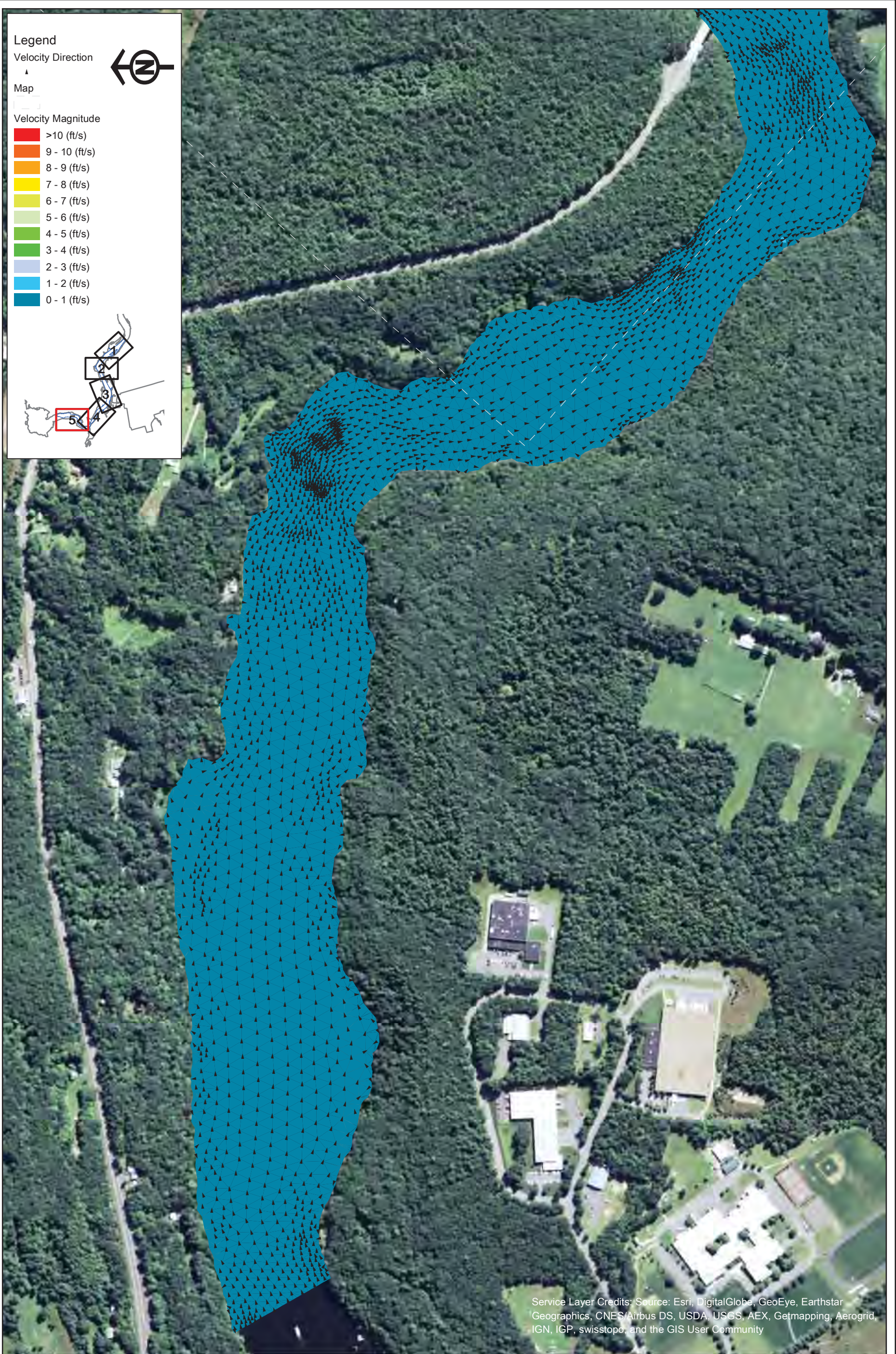


Northfield Mountain Pumped Storage Project (No. 2485) and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 6 - Map 4
95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



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

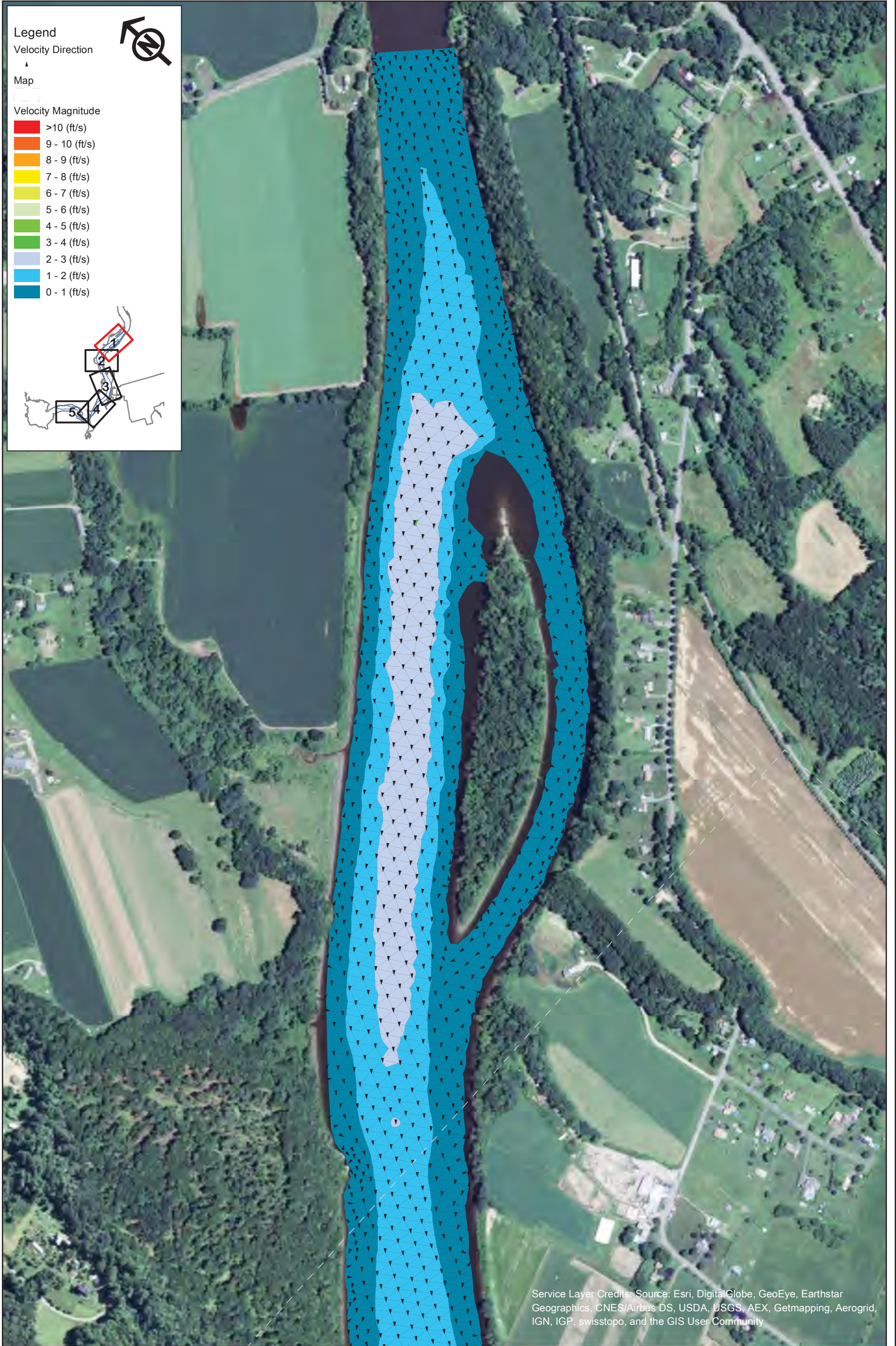


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 6 - Map 5
 95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



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

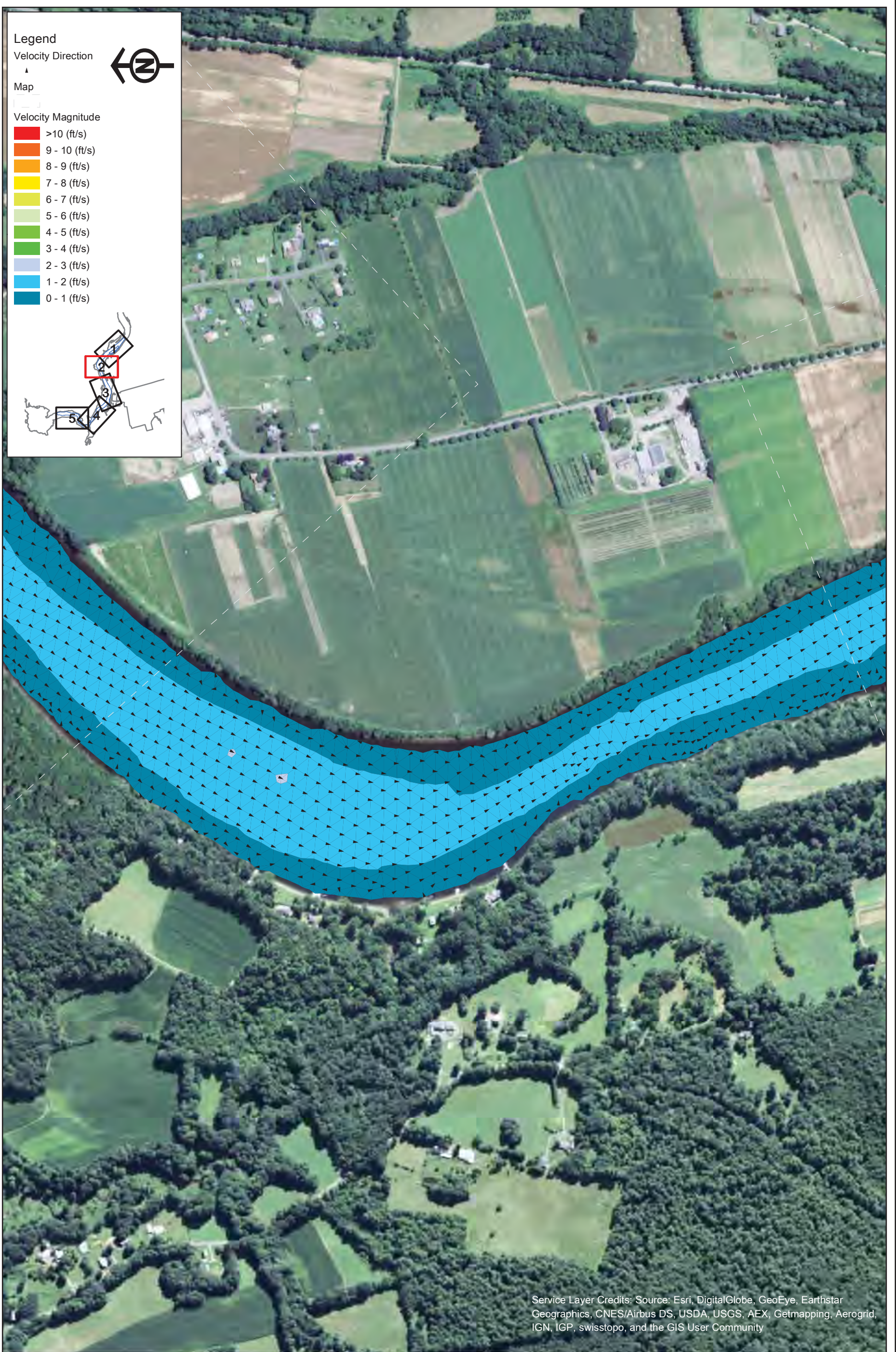
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 7 - Map 1
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

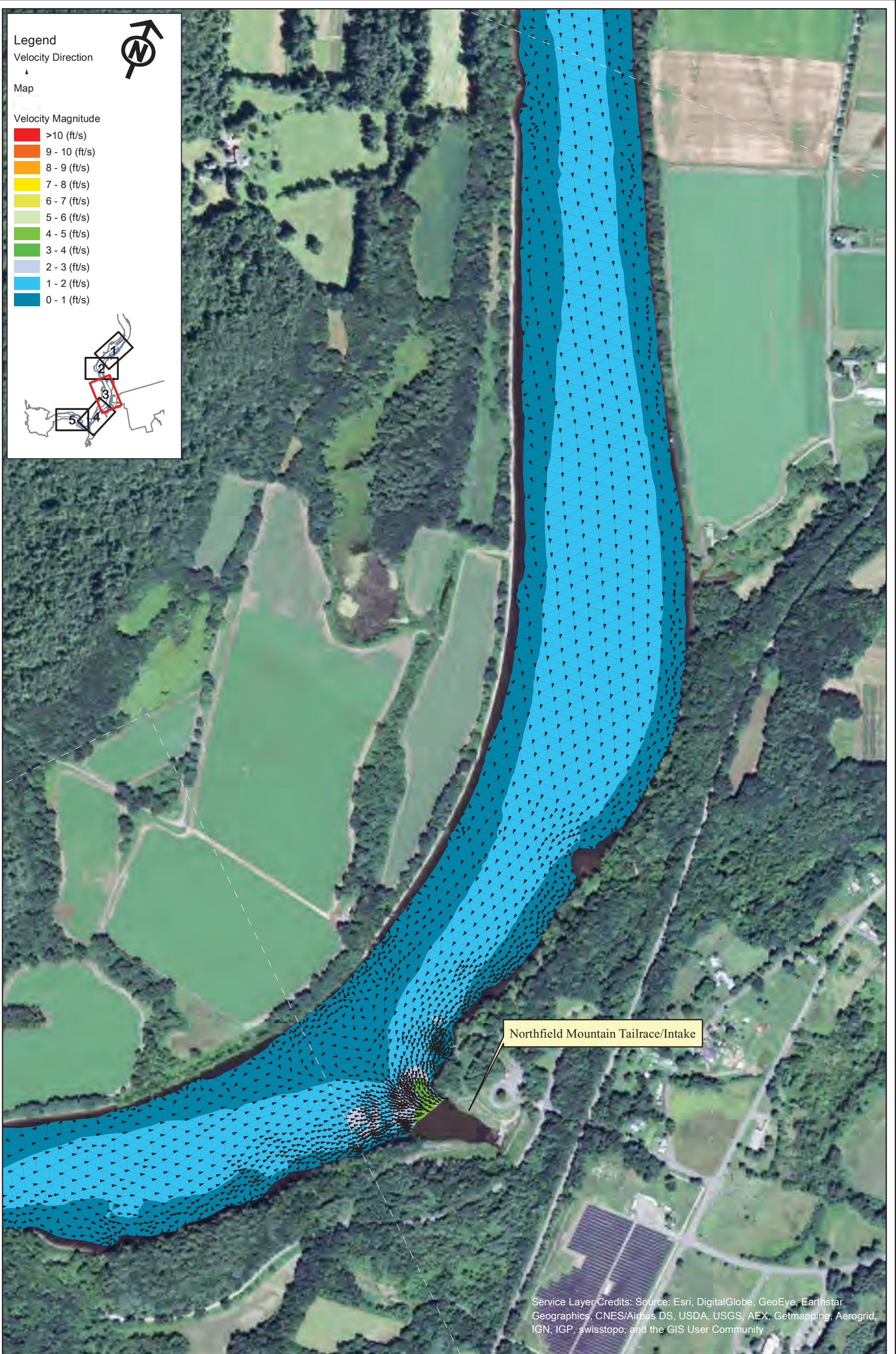


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 7 - Map 2
 95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



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

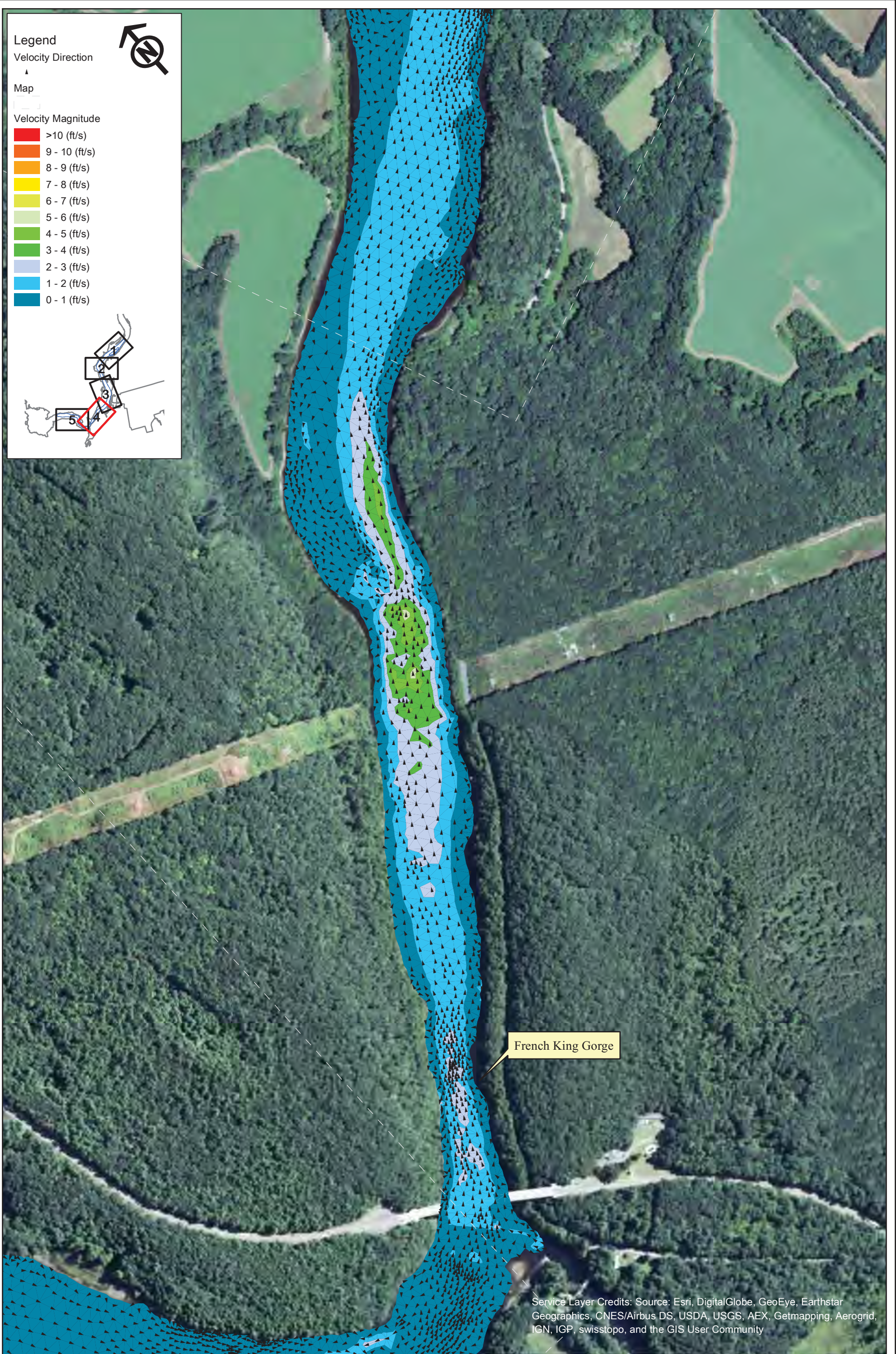
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 7 - Map 3
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

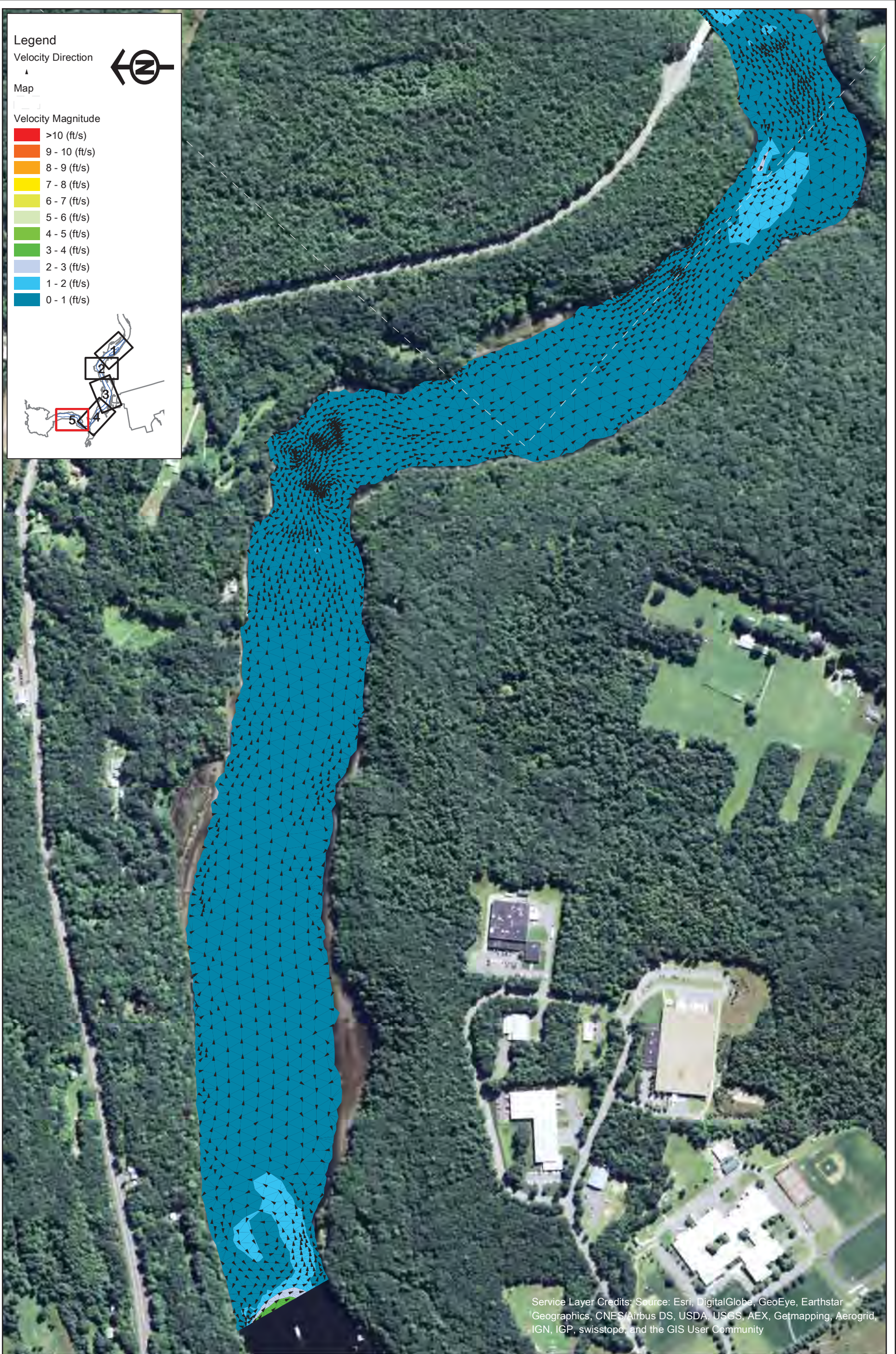
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 7 - Map 4
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam





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

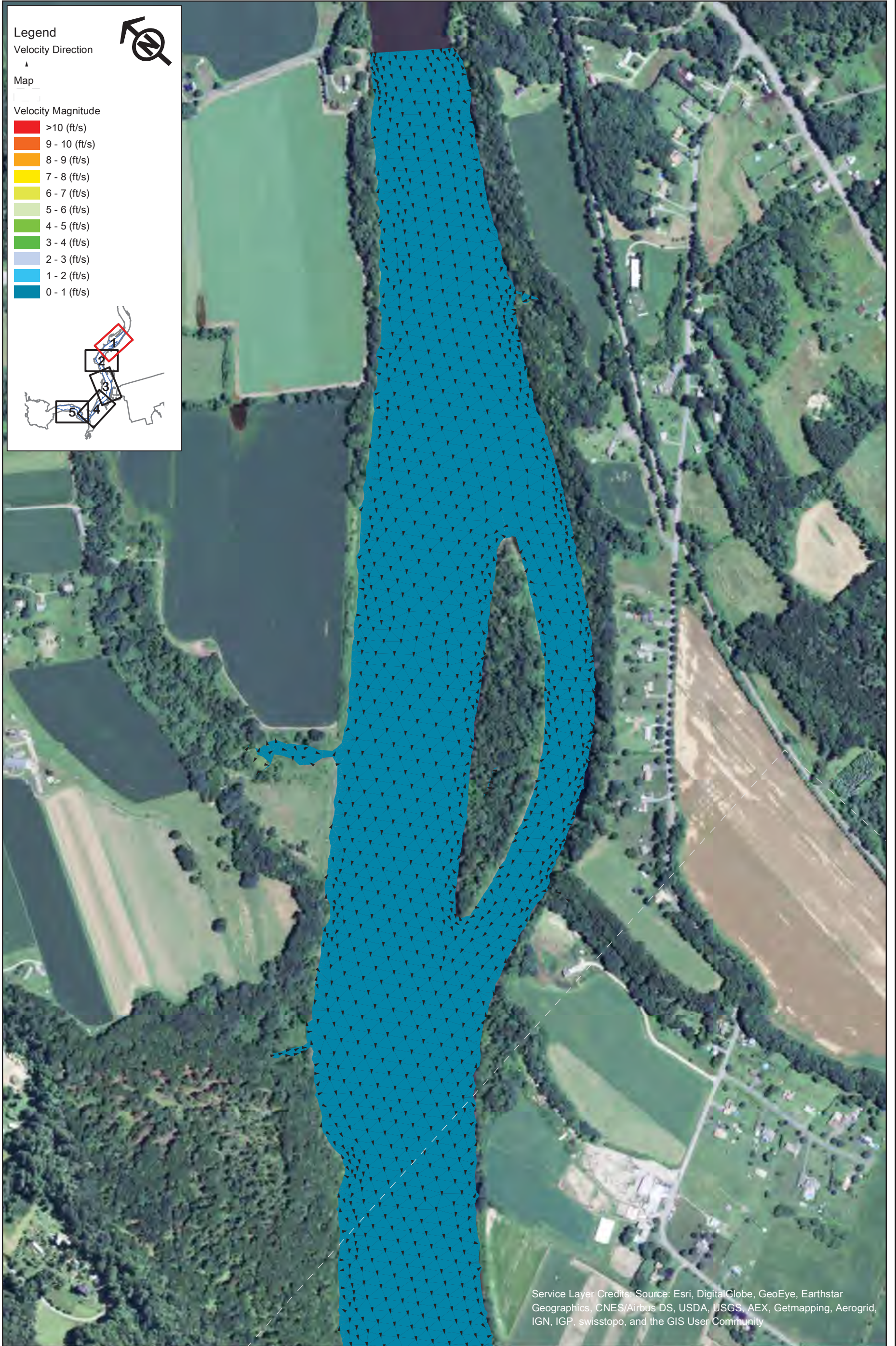


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 7 - Map 5
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

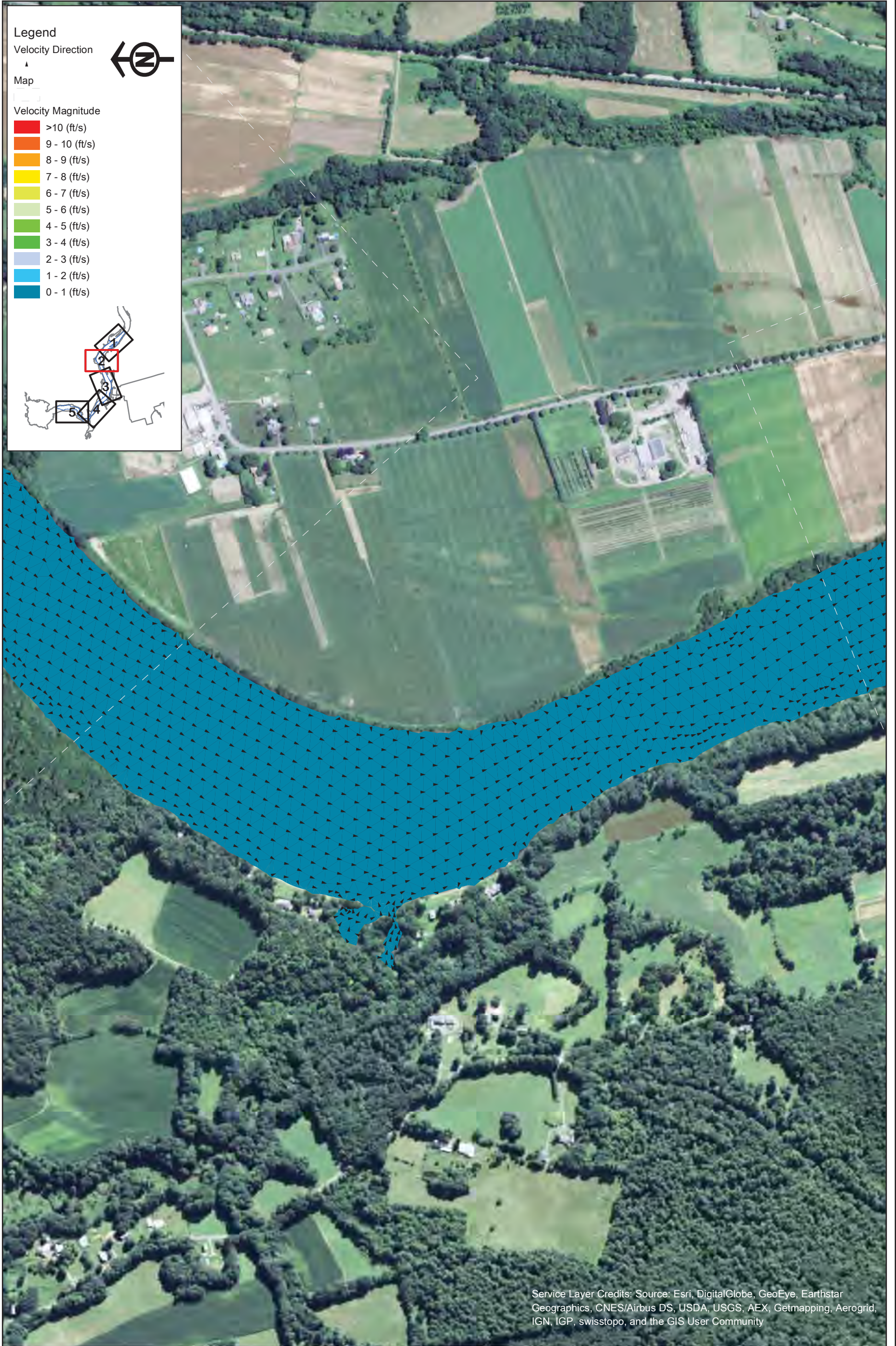


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 8 - Map 1
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



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

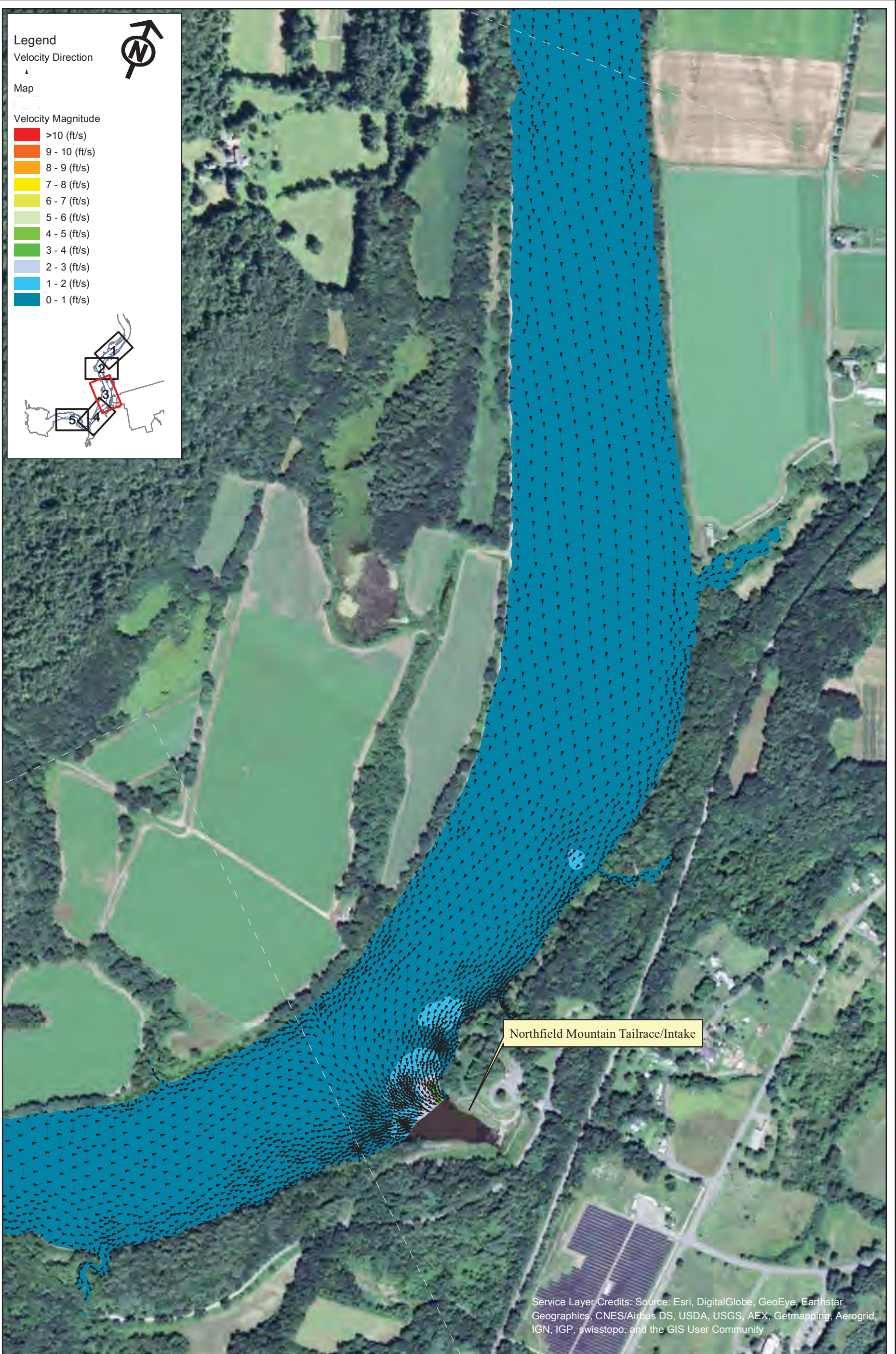


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 8 - Map 2
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



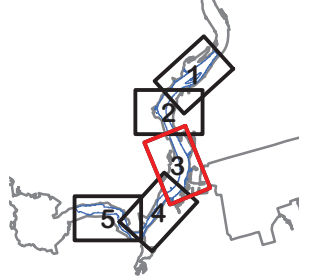
Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)



Northfield Mountain Tailrace/Intake

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

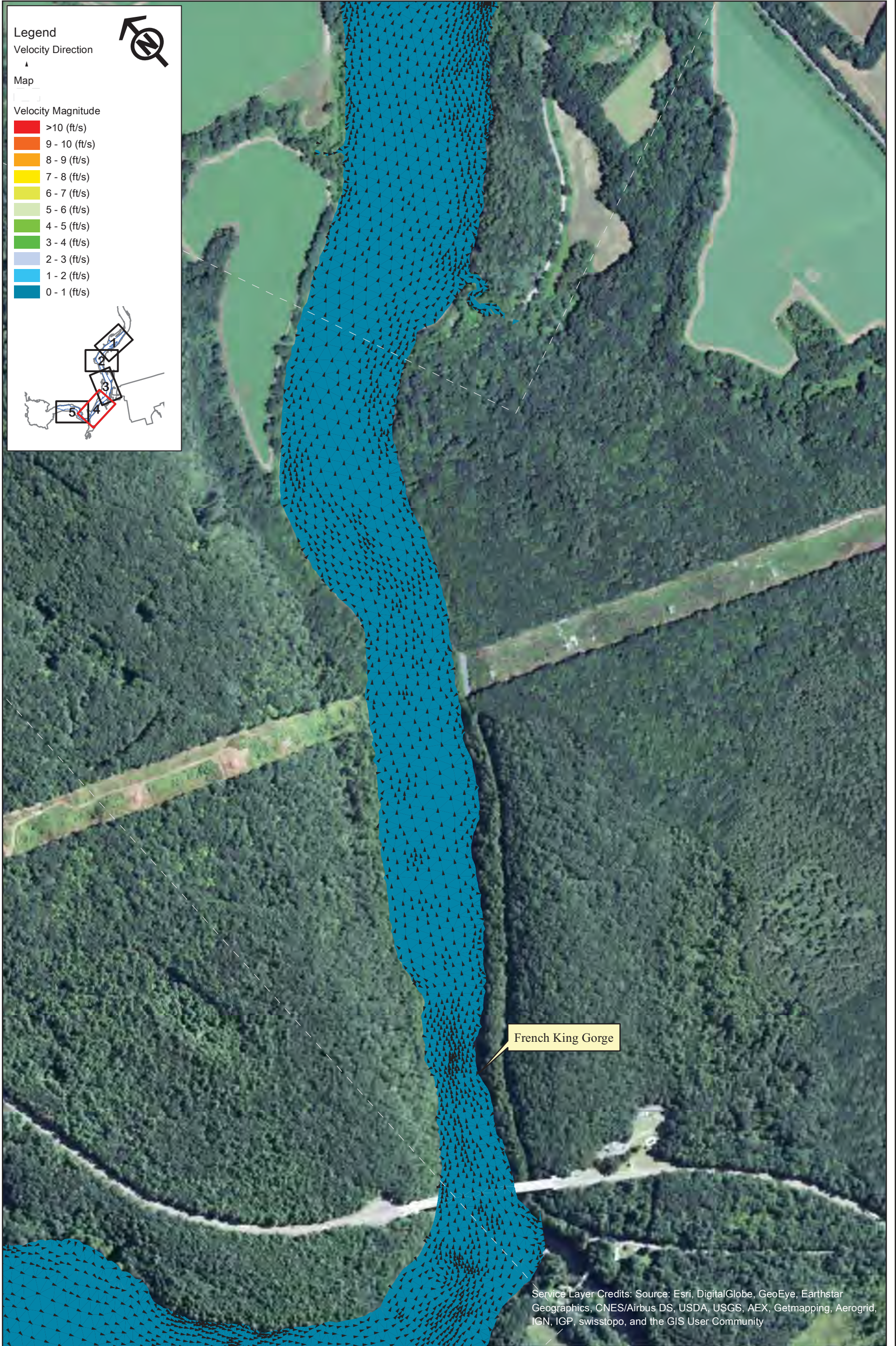


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 8 - Map 3
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

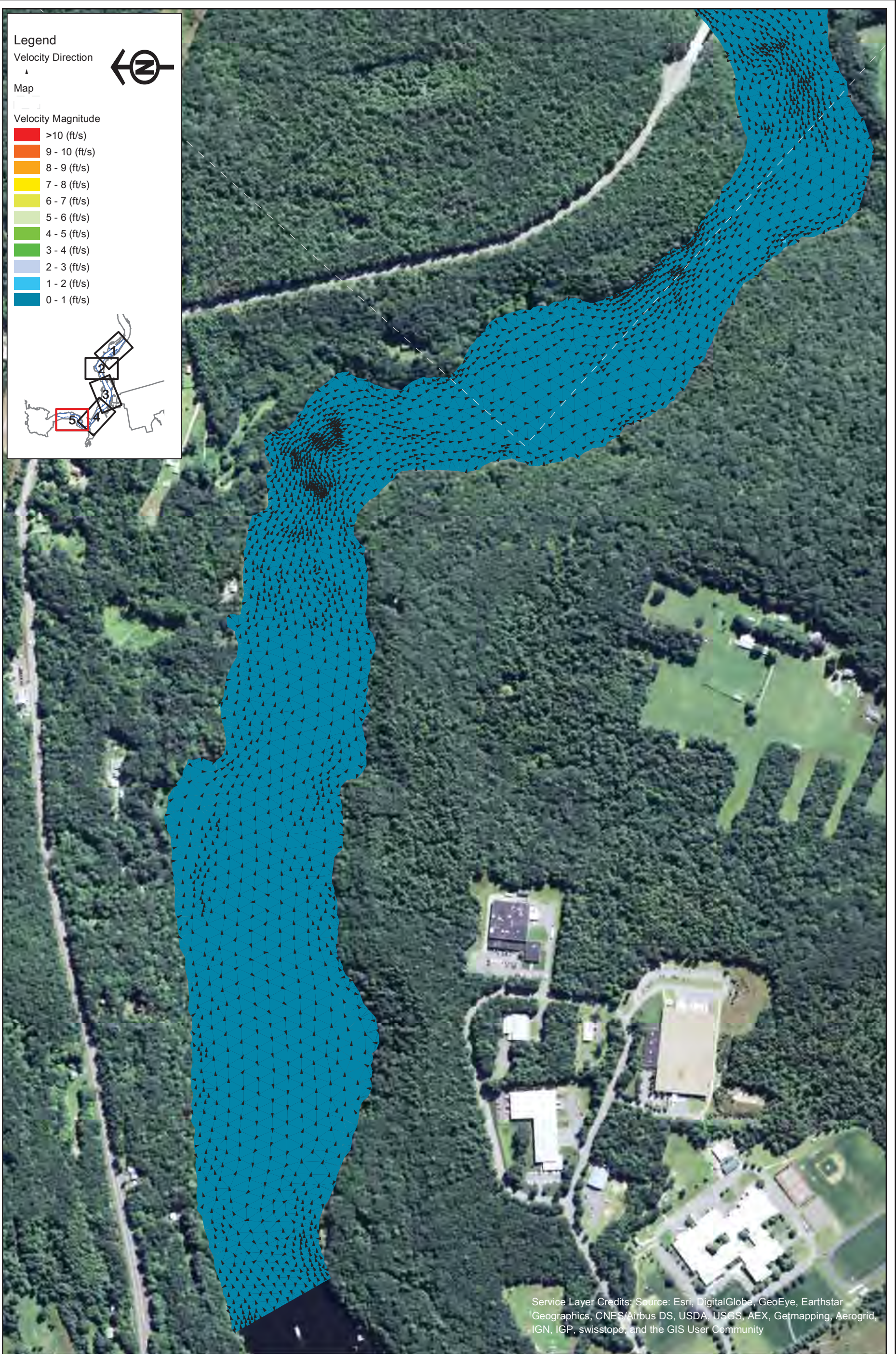
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 8 - Map 4
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam





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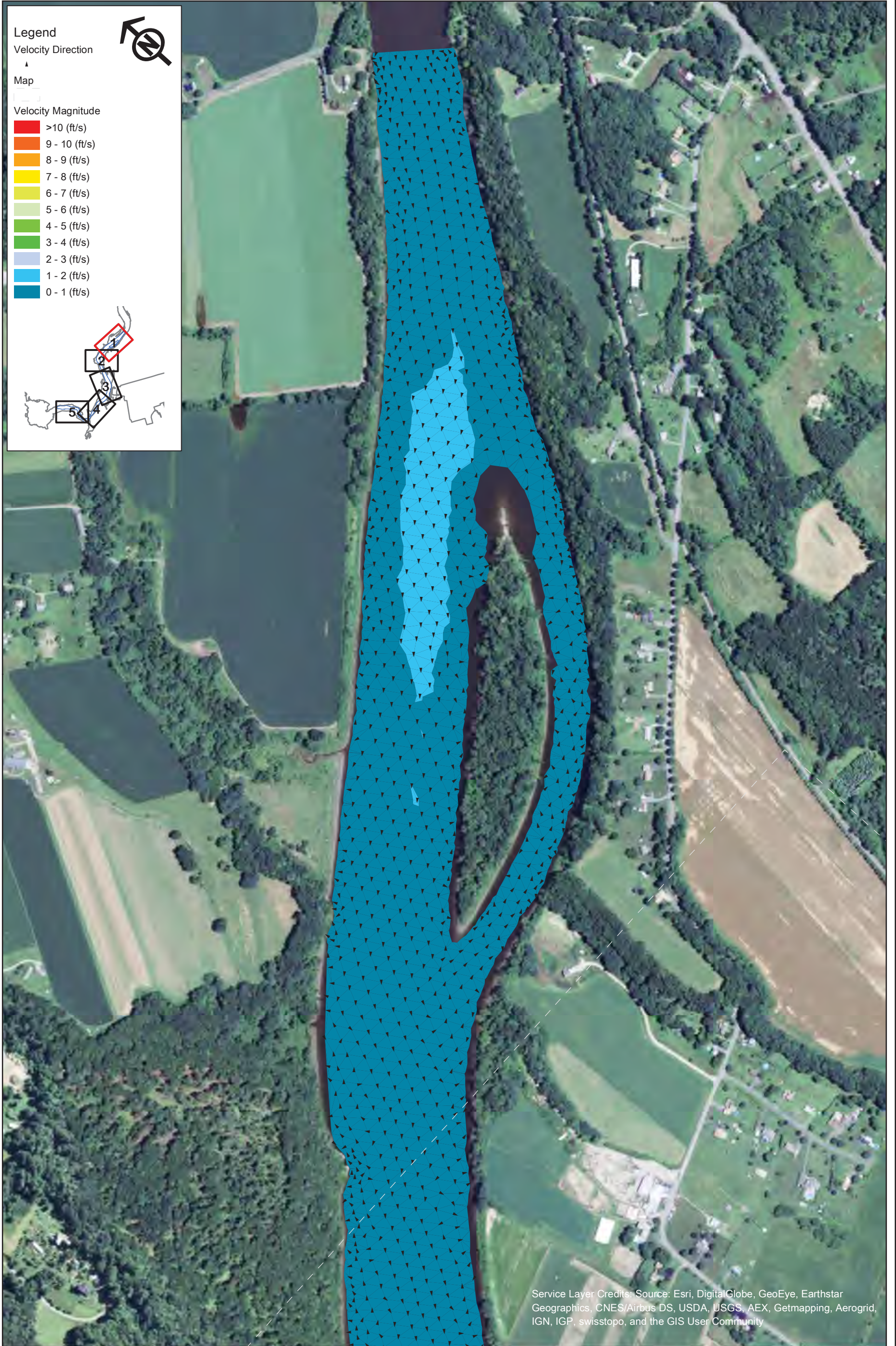


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 8 - Map 5
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



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

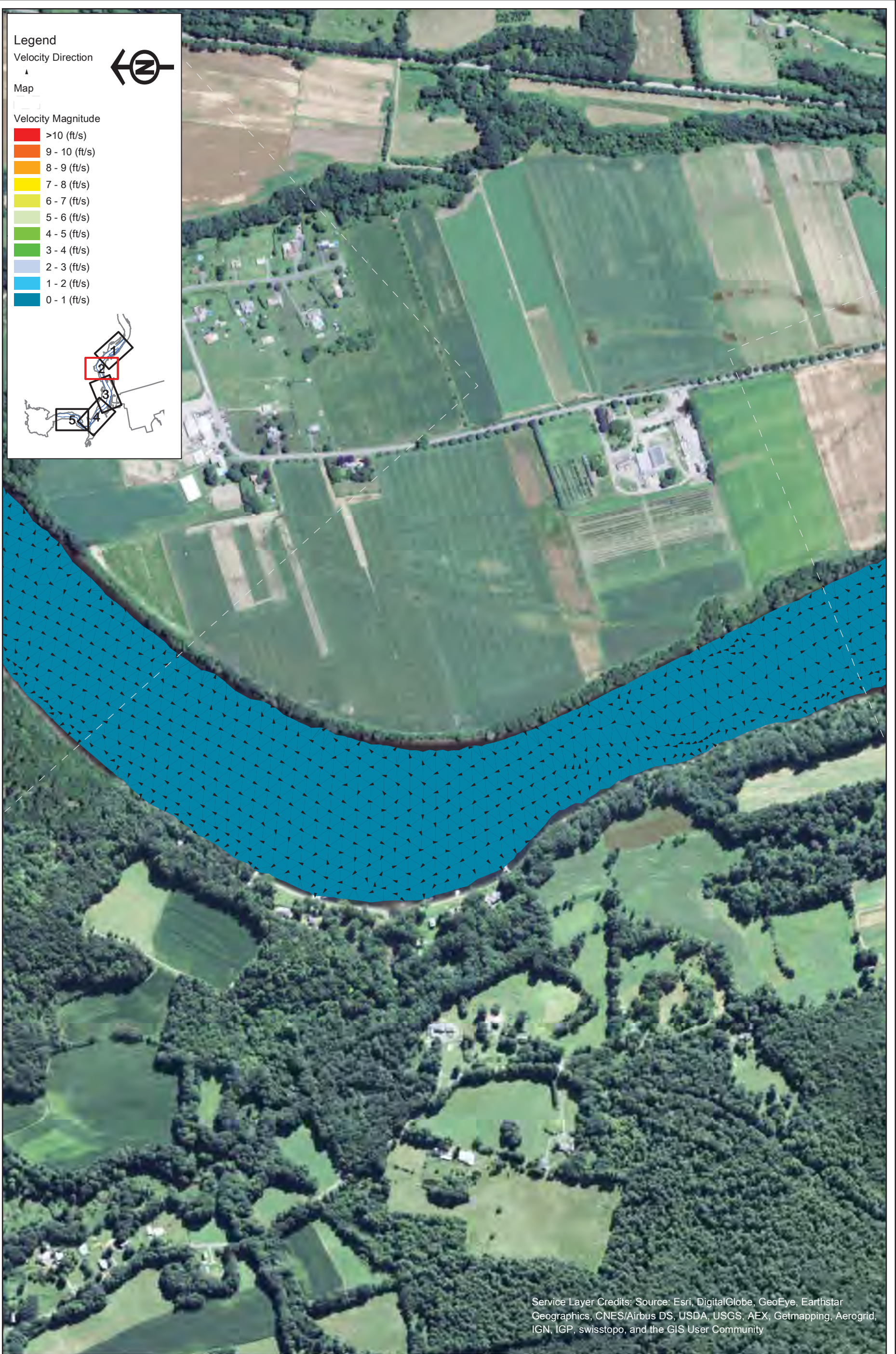


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 9 - Map 1
75% Exceedance Flow (4,900 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



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

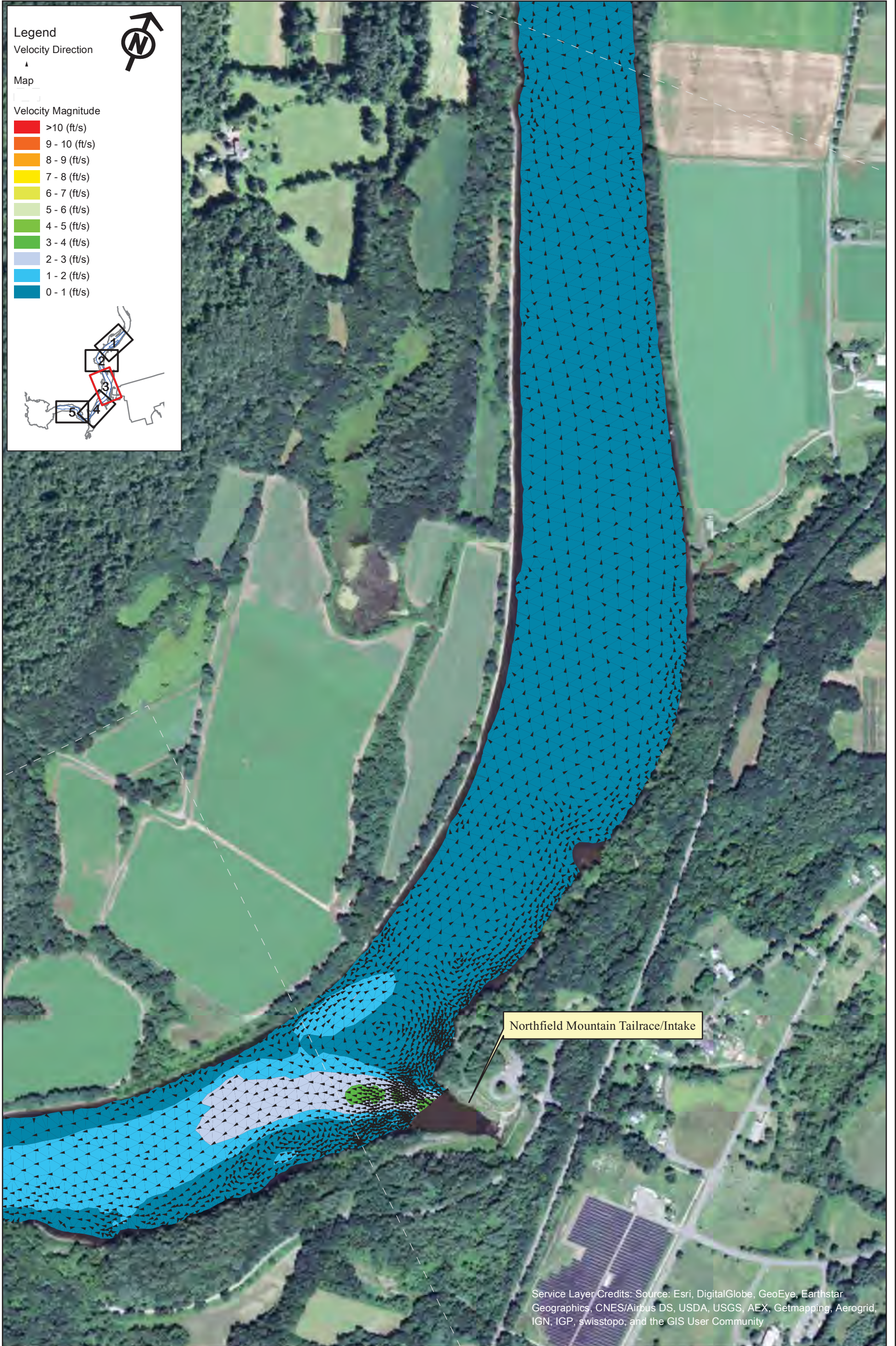


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 9 - Map 2
75% Exceedance Flow (4,900 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

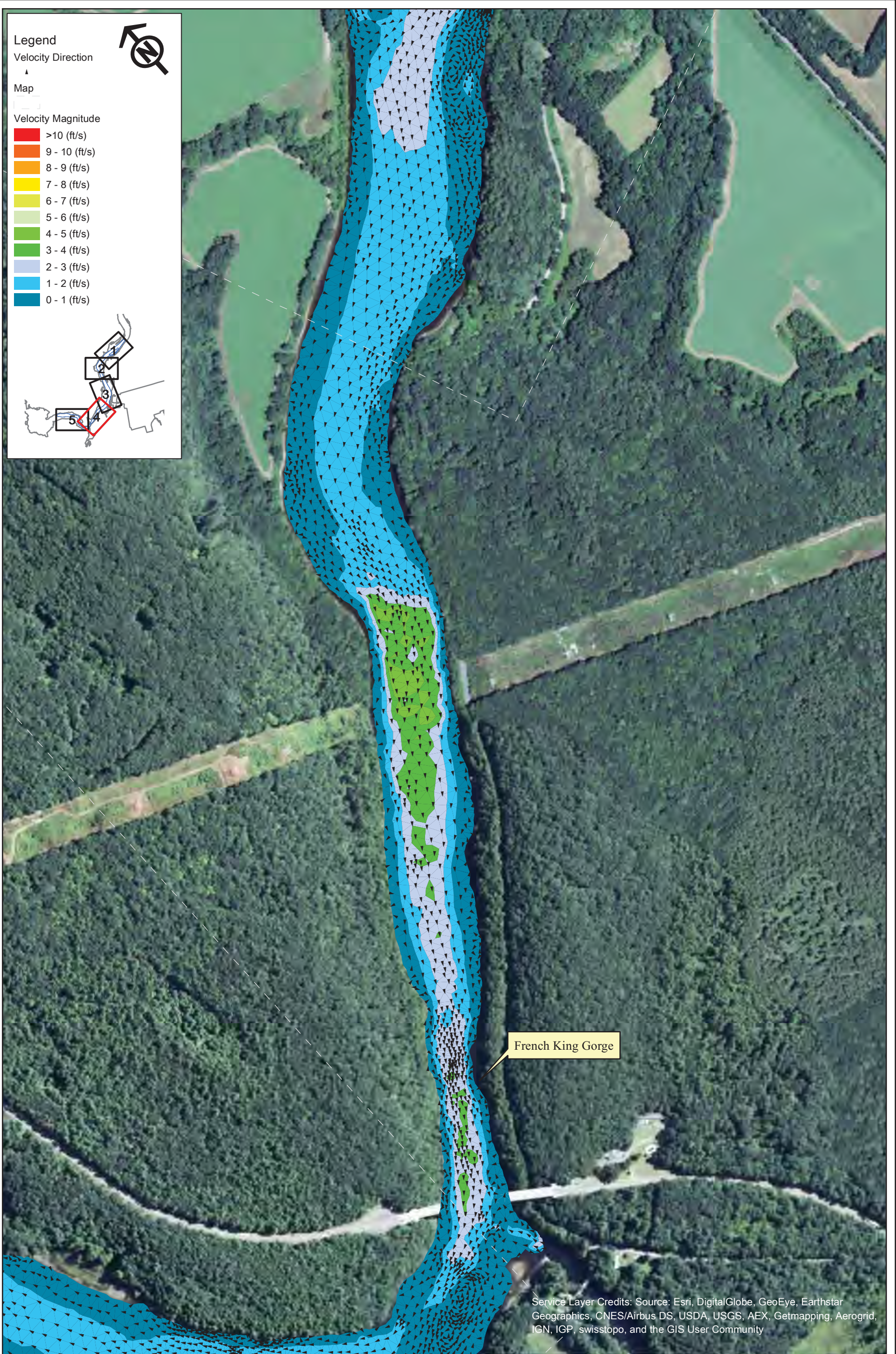
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 9 - Map 3
75% Exceedance Flow (4,900 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

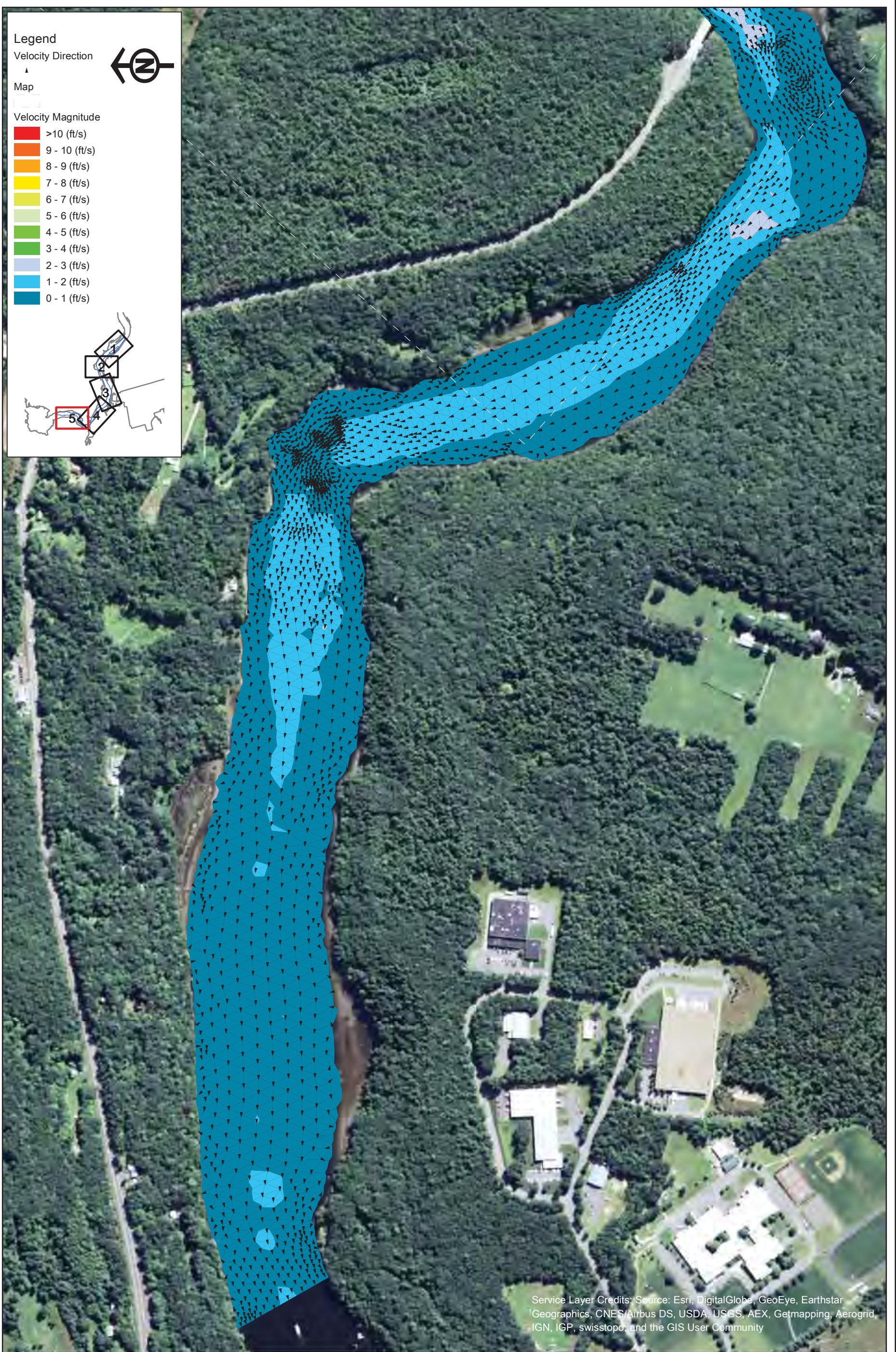
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace

Scenario 9 - Map 4
75% Exceedance Flow (4,900 cfs), 2 Units
Generating (10,000 cfs), 176 WSEL at Dam





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

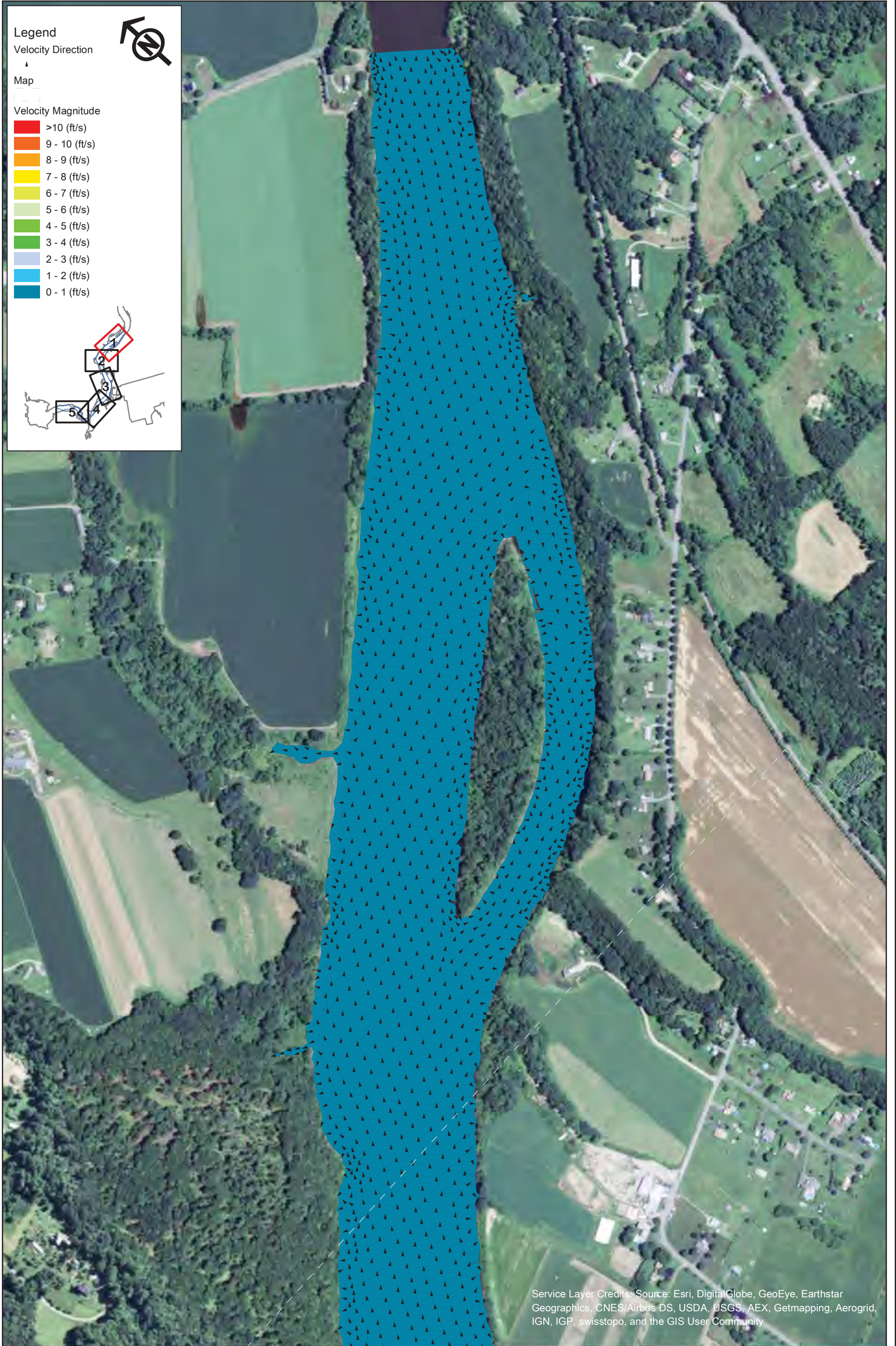


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 9 - Map 5
75% Exceedance Flow (4,900 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



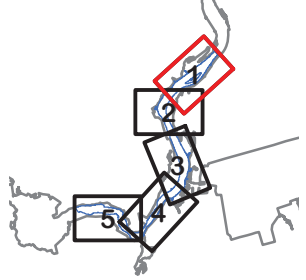
Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)



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

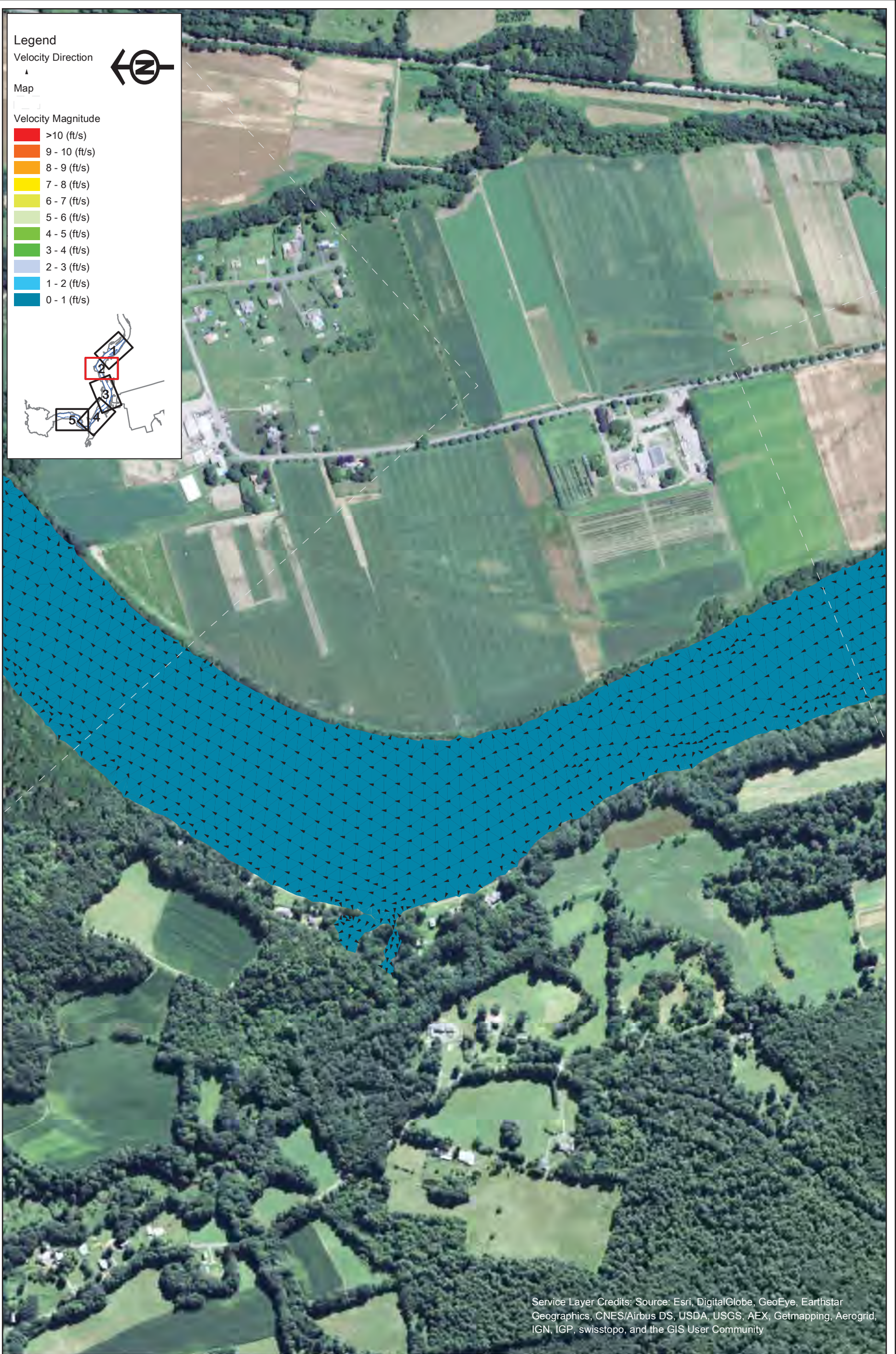


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 10 - Map 1
75% Exceedance Flow (4,900 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



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



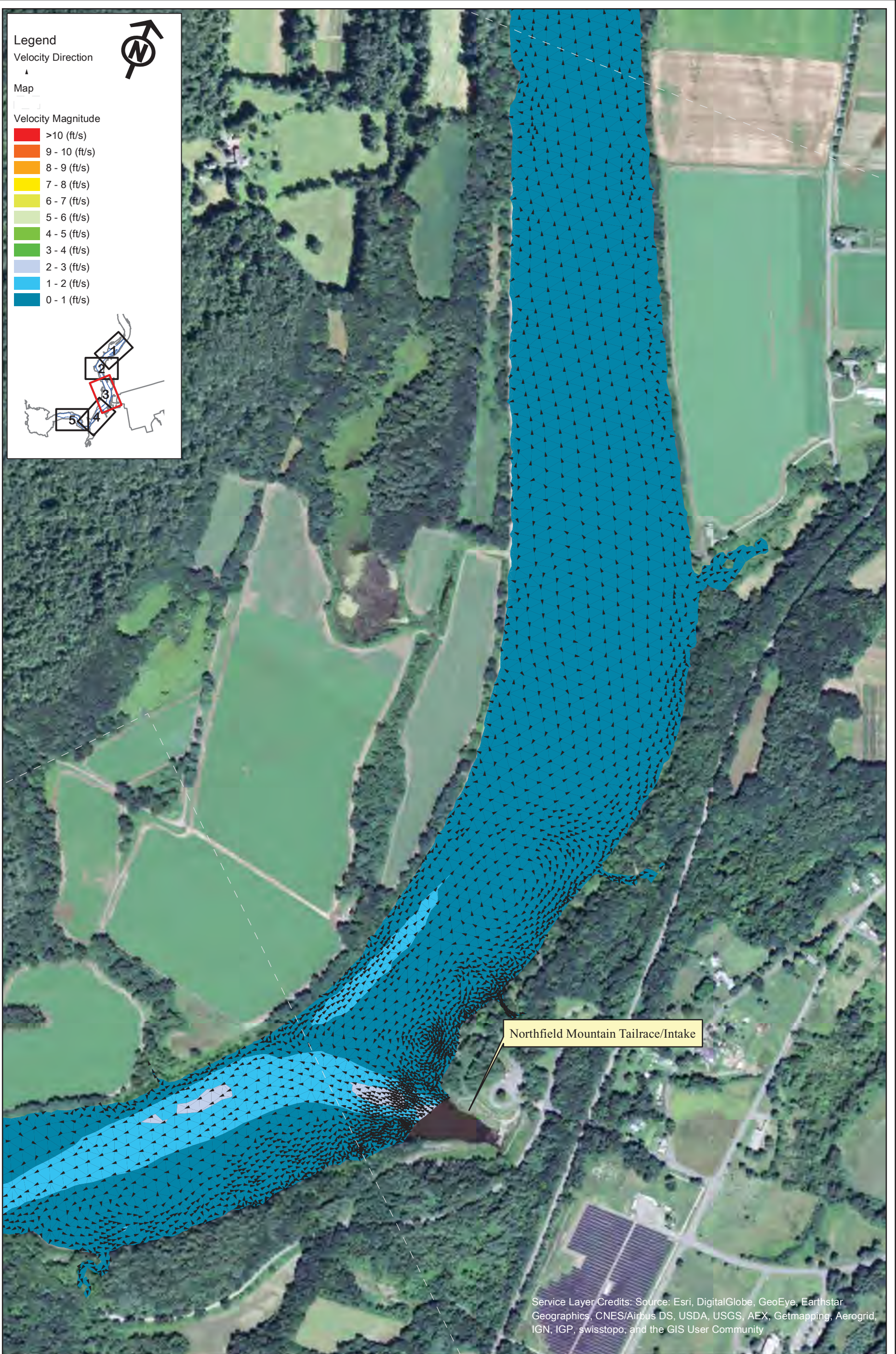
Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 10 - Map 2
 75% Exceedance Flow (4,900 cfs), 2 Units
 Generating (10,000 cfs), 185 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

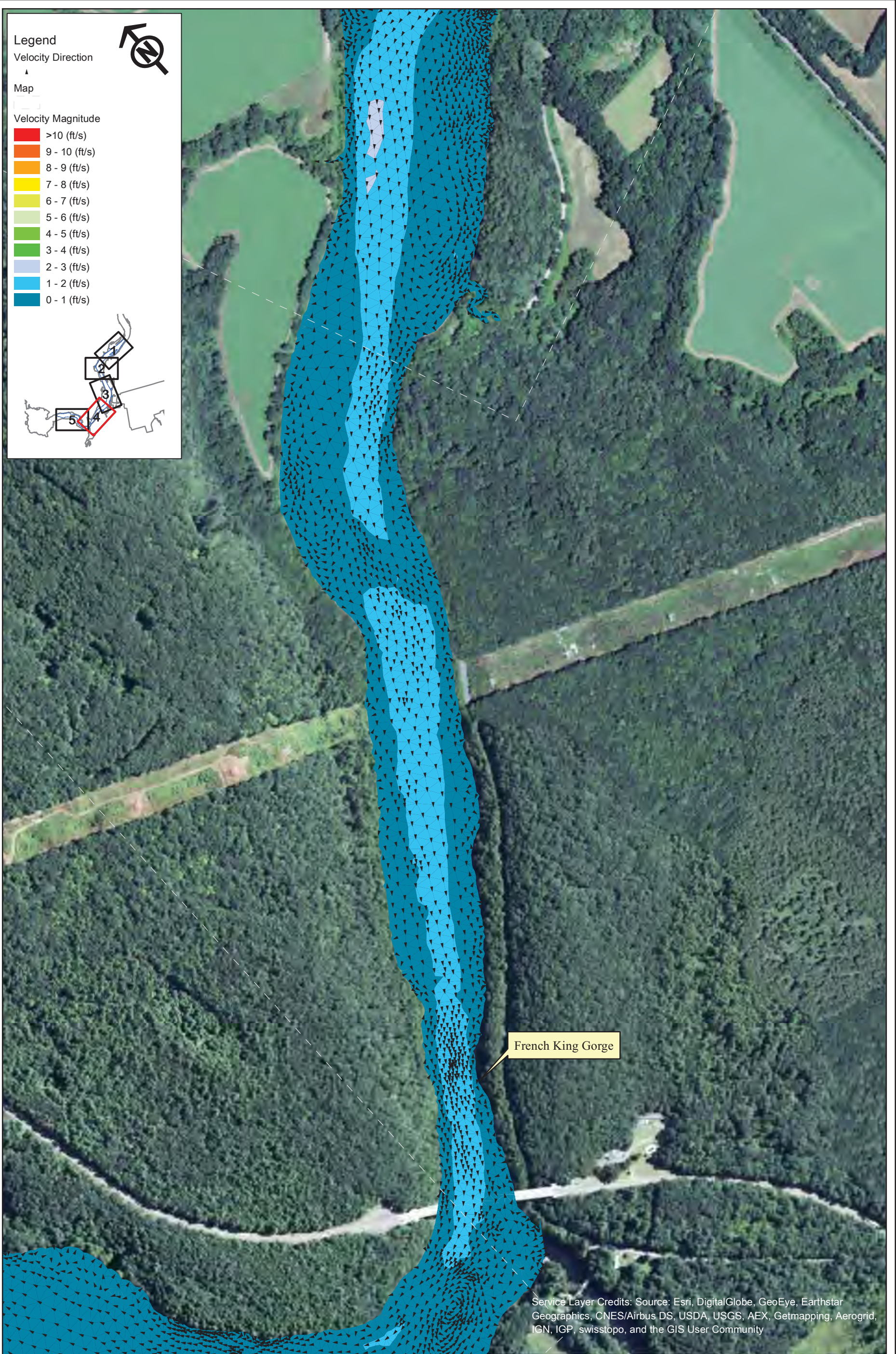
STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 10 - Map 3
75% Exceedance Flow (4,900 cfs), 2 Units
Generating (10,000 cfs), 185 WSEL at Dam



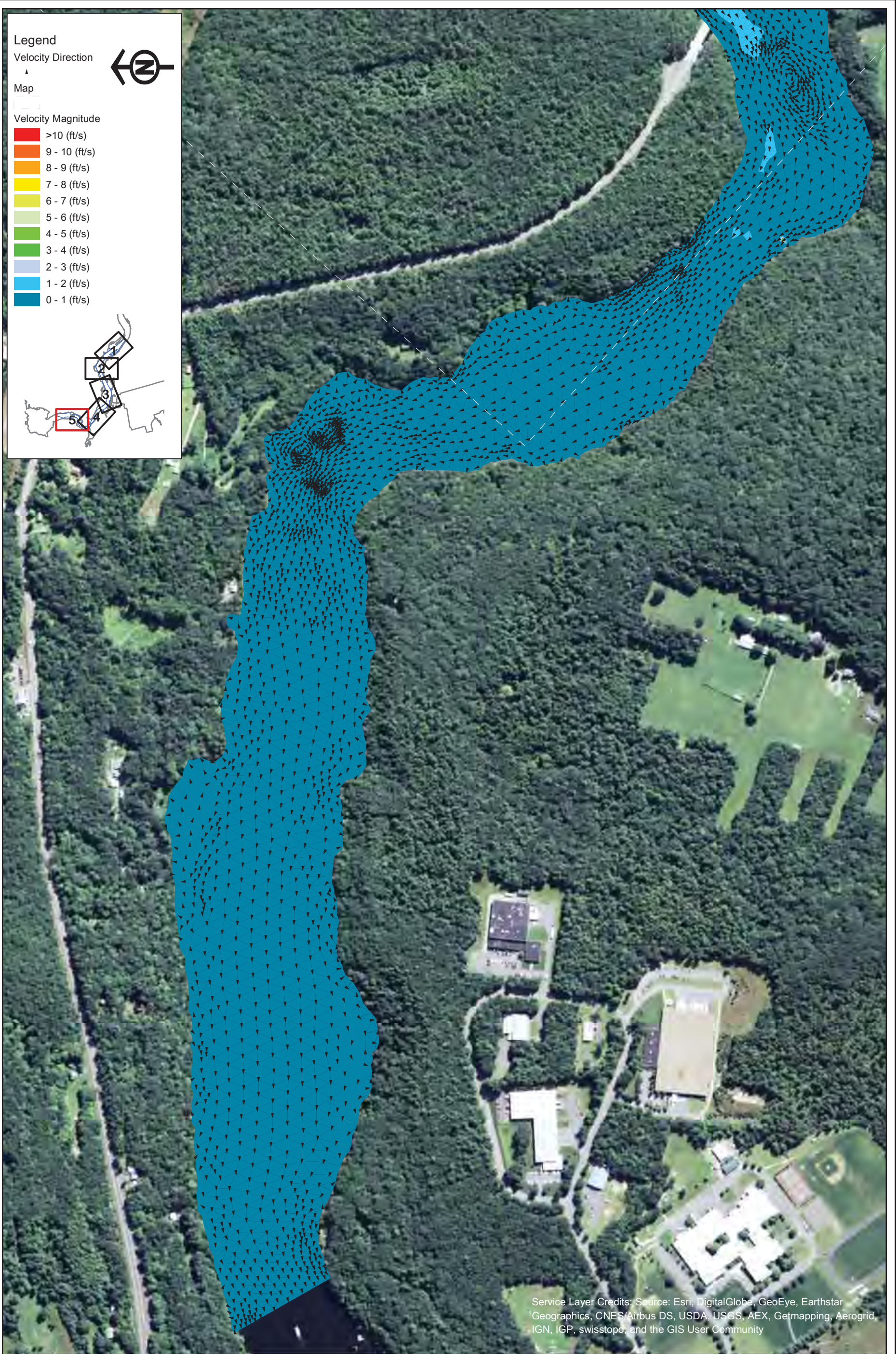


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 10 - Map 4
75% Exceedance Flow (4,900 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



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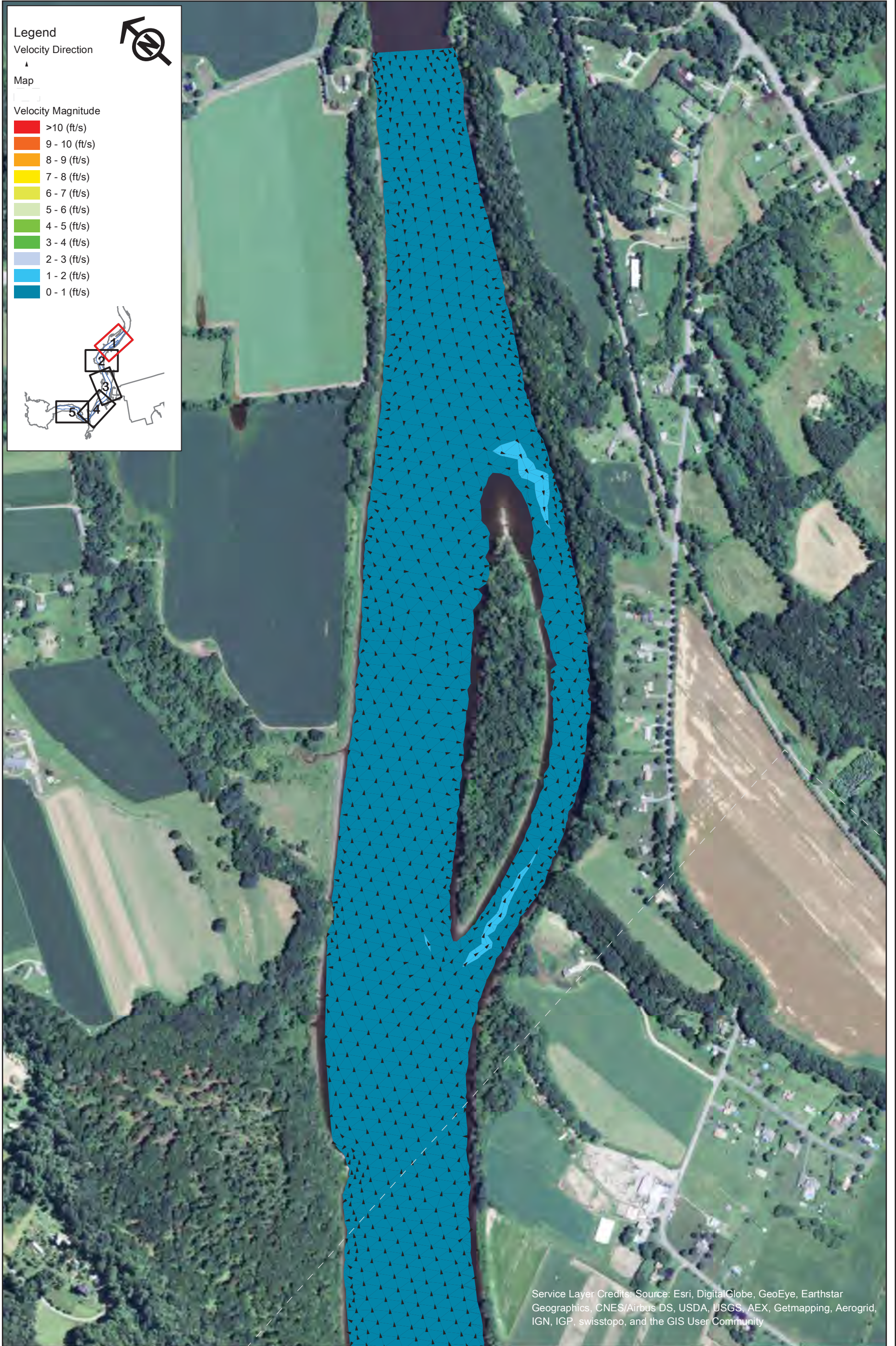


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 10 - Map 5
75% Exceedance Flow (4,900 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

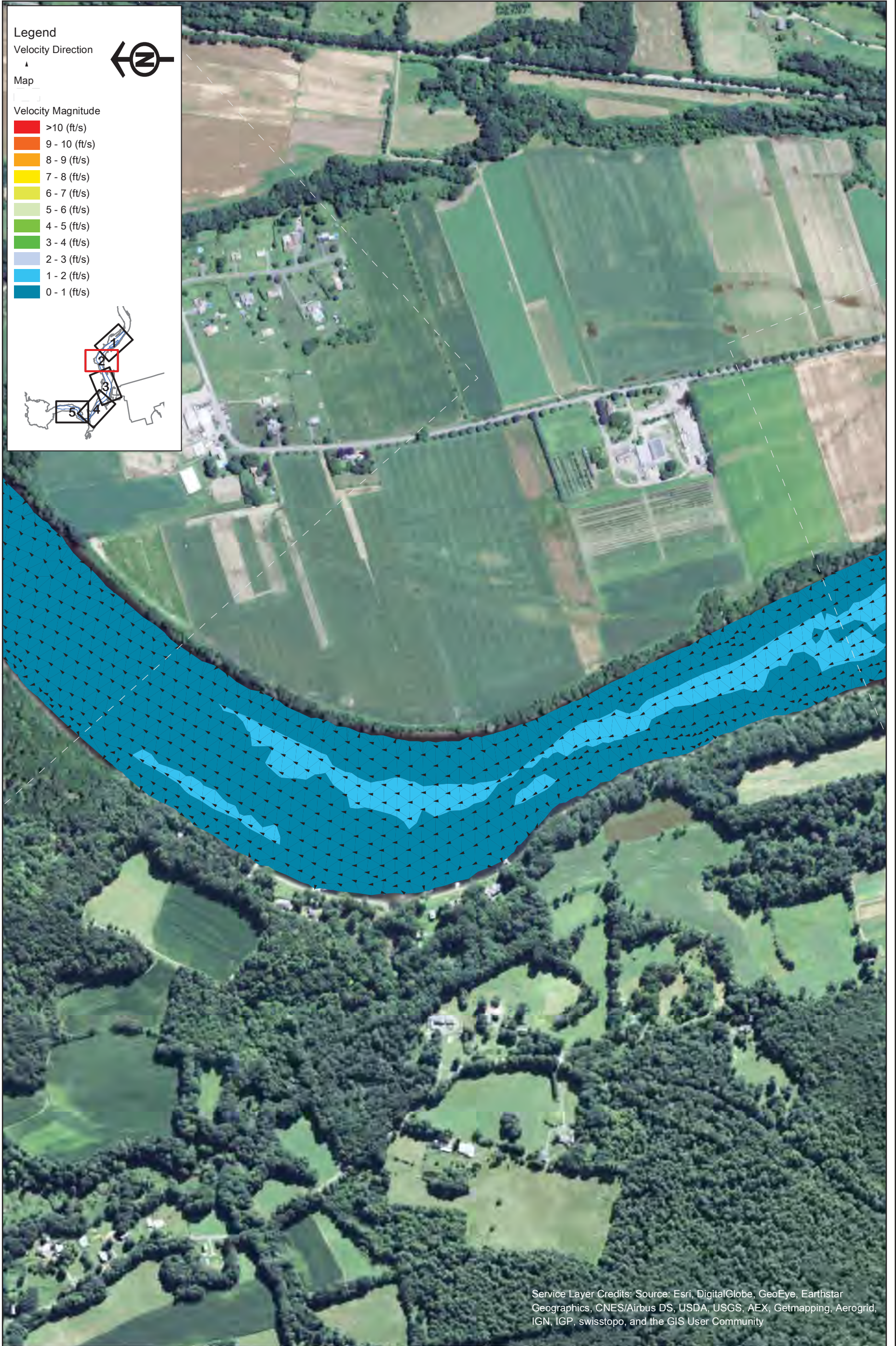


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 11 - Map 1
75% Exceedance Flow (4,900 cfs), 4 Units Generating (20,000 cfs), 176 WSEL at Dam

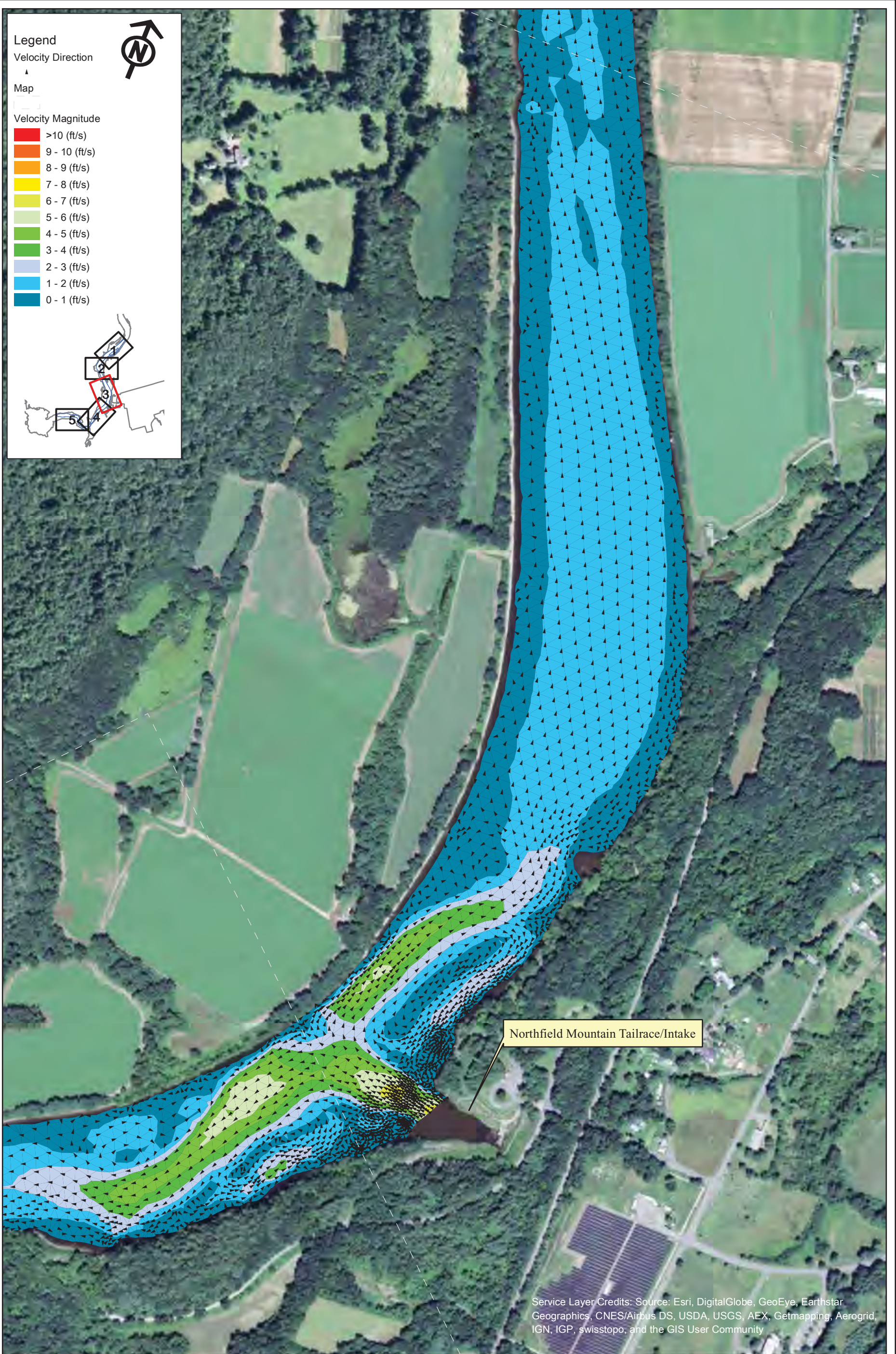


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 11 - Map 2
 75% Exceedance Flow (4,900 cfs), 4 Units
 Generating (20,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

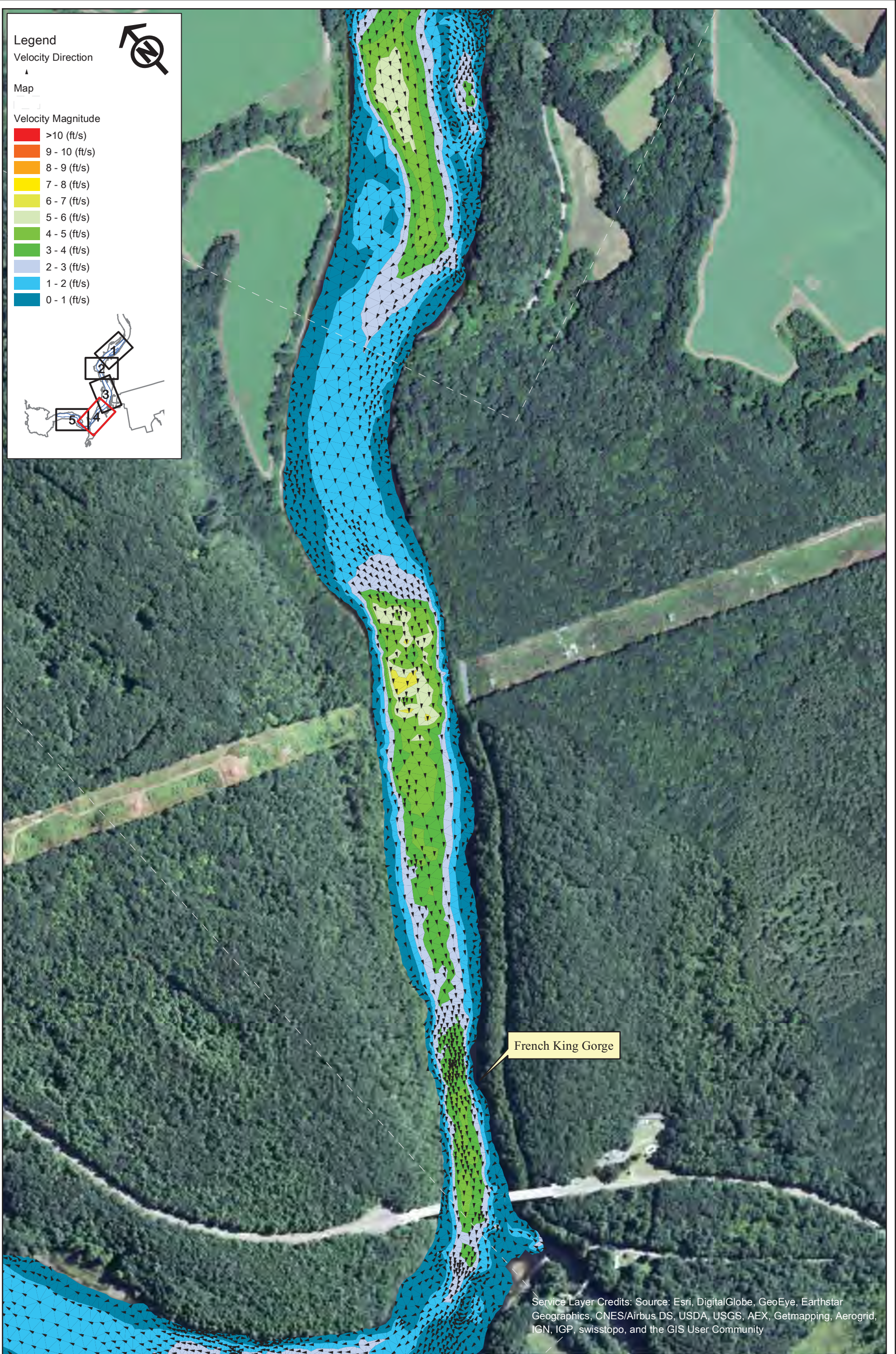
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 11 - Map 3
75% Exceedance Flow (4,900 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam



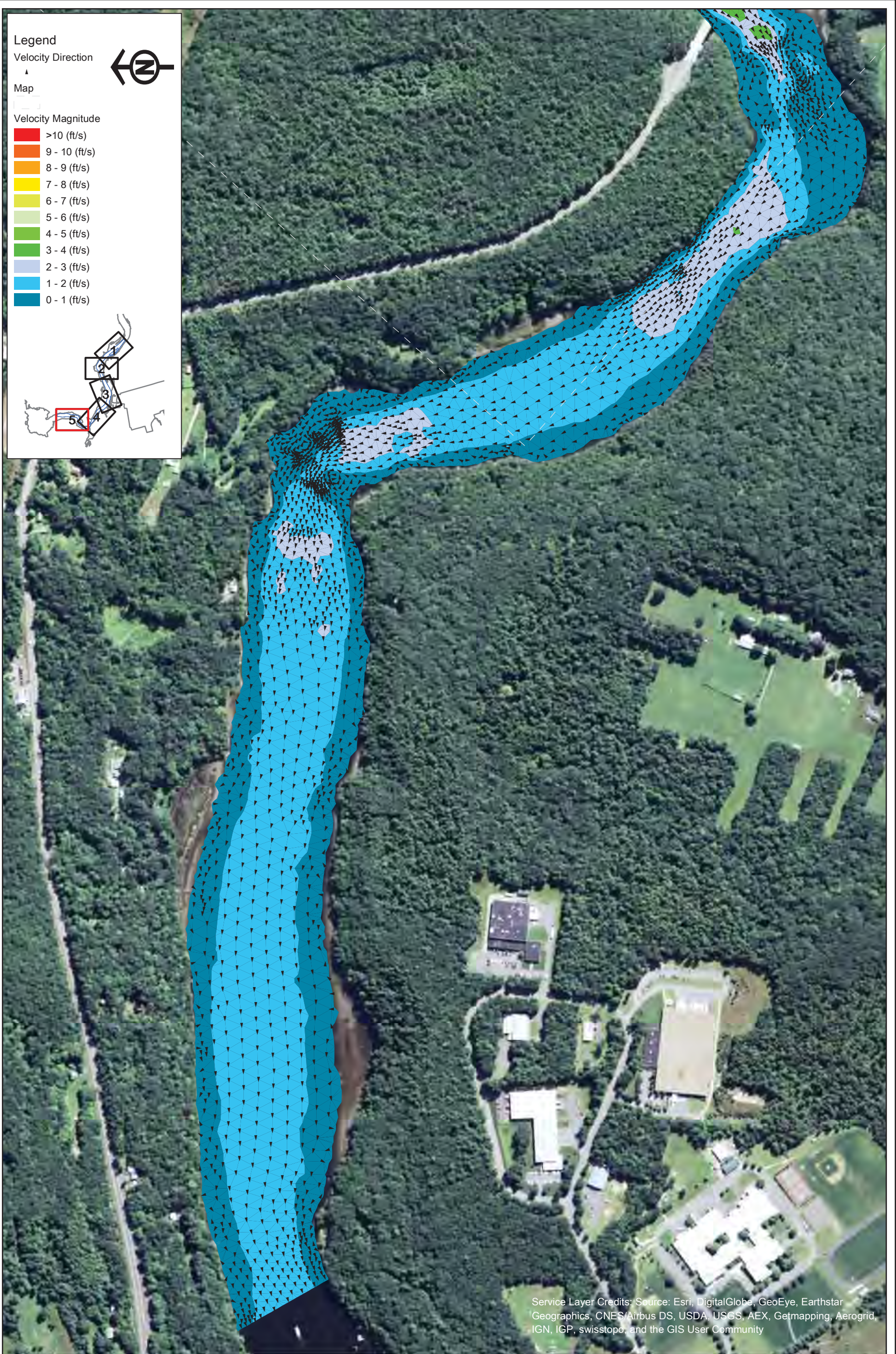


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace
Scenario 11 - Map 4
75% Exceedance Flow (4,900 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

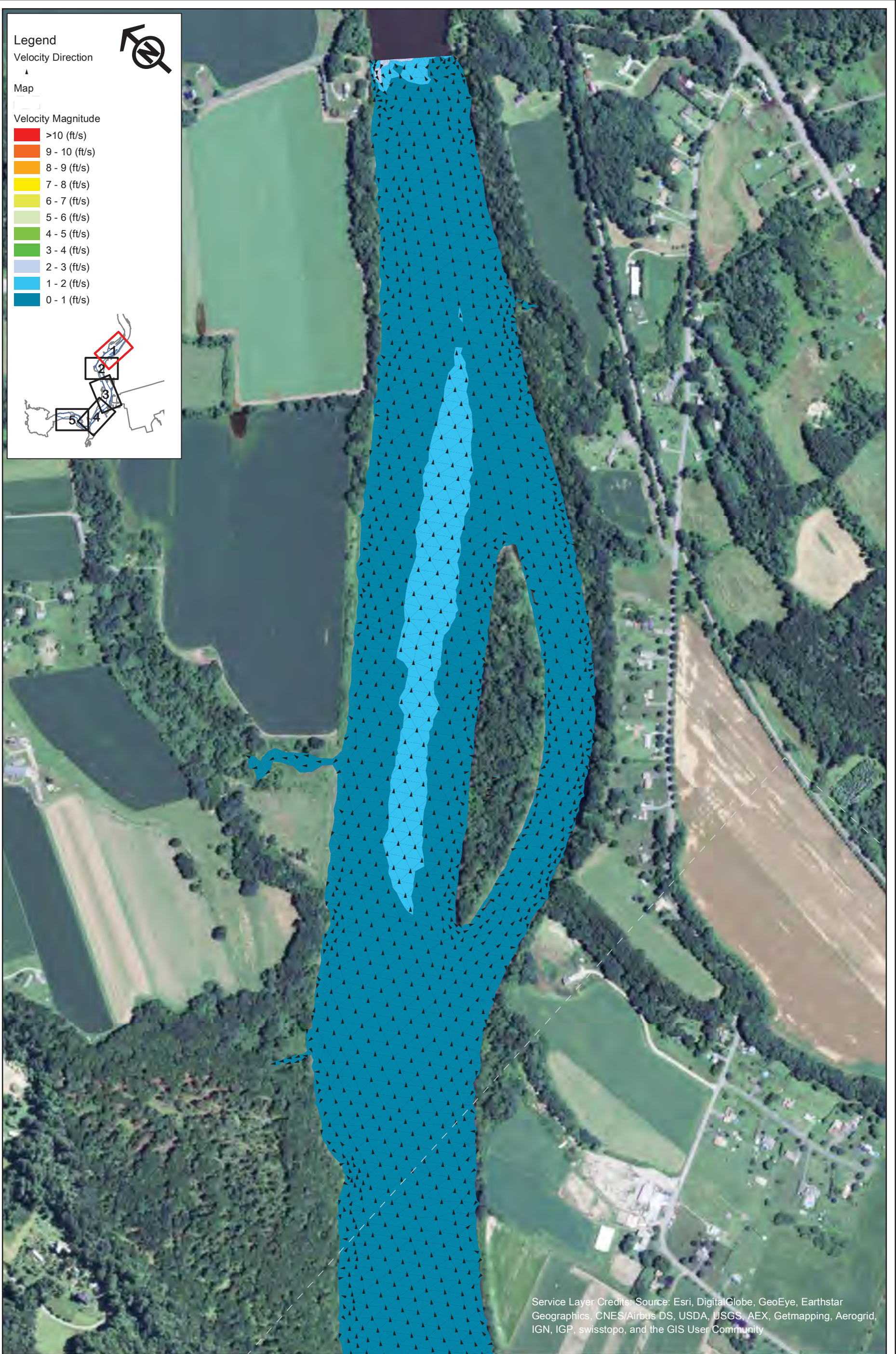


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 11 - Map 5
 75% Exceedance Flow (4,900 cfs), 4 Units Generating (20,000 cfs), 176 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

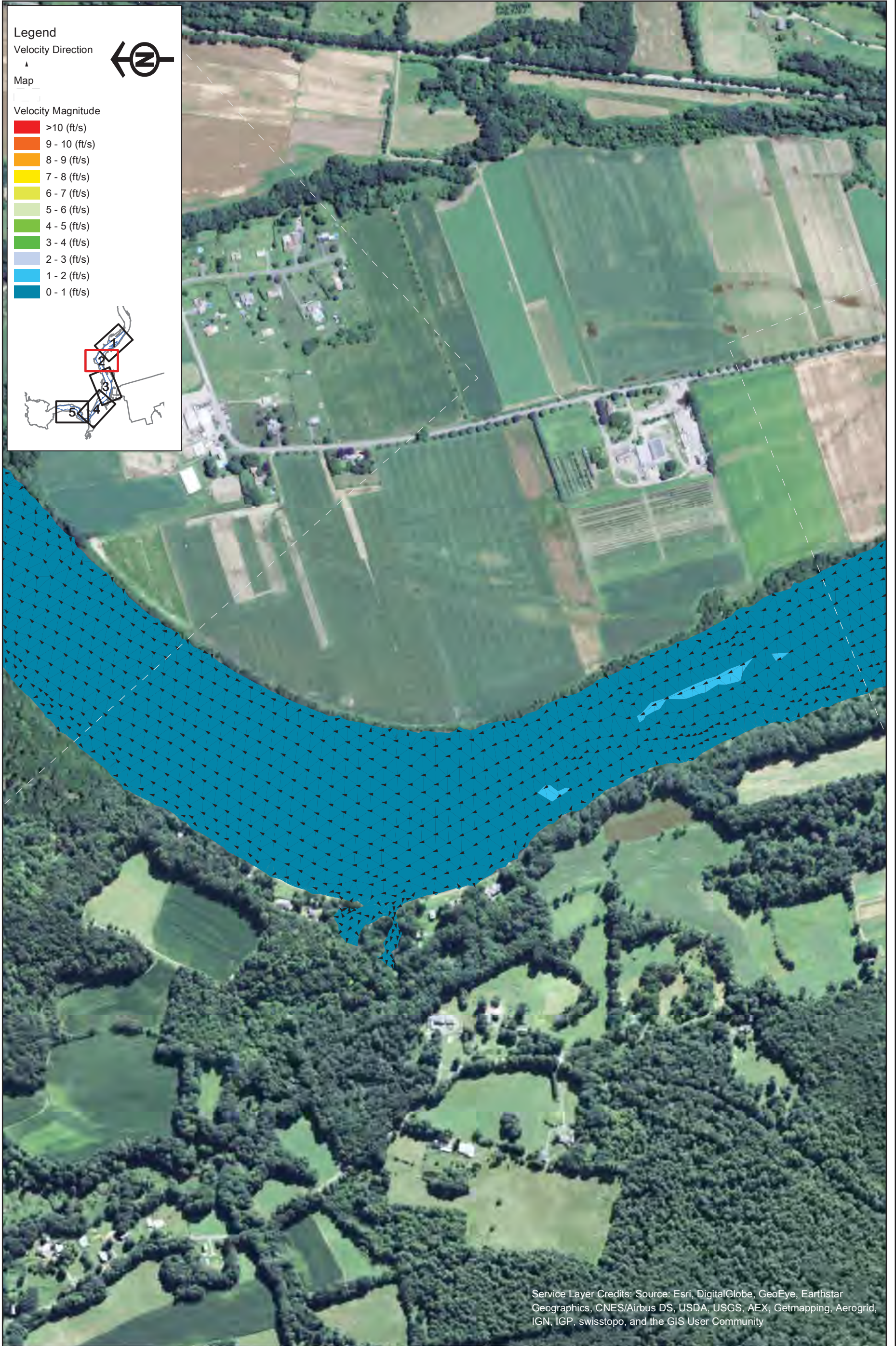
STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 12 - Map 1
75% Exceedance Flow (4,900 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam





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

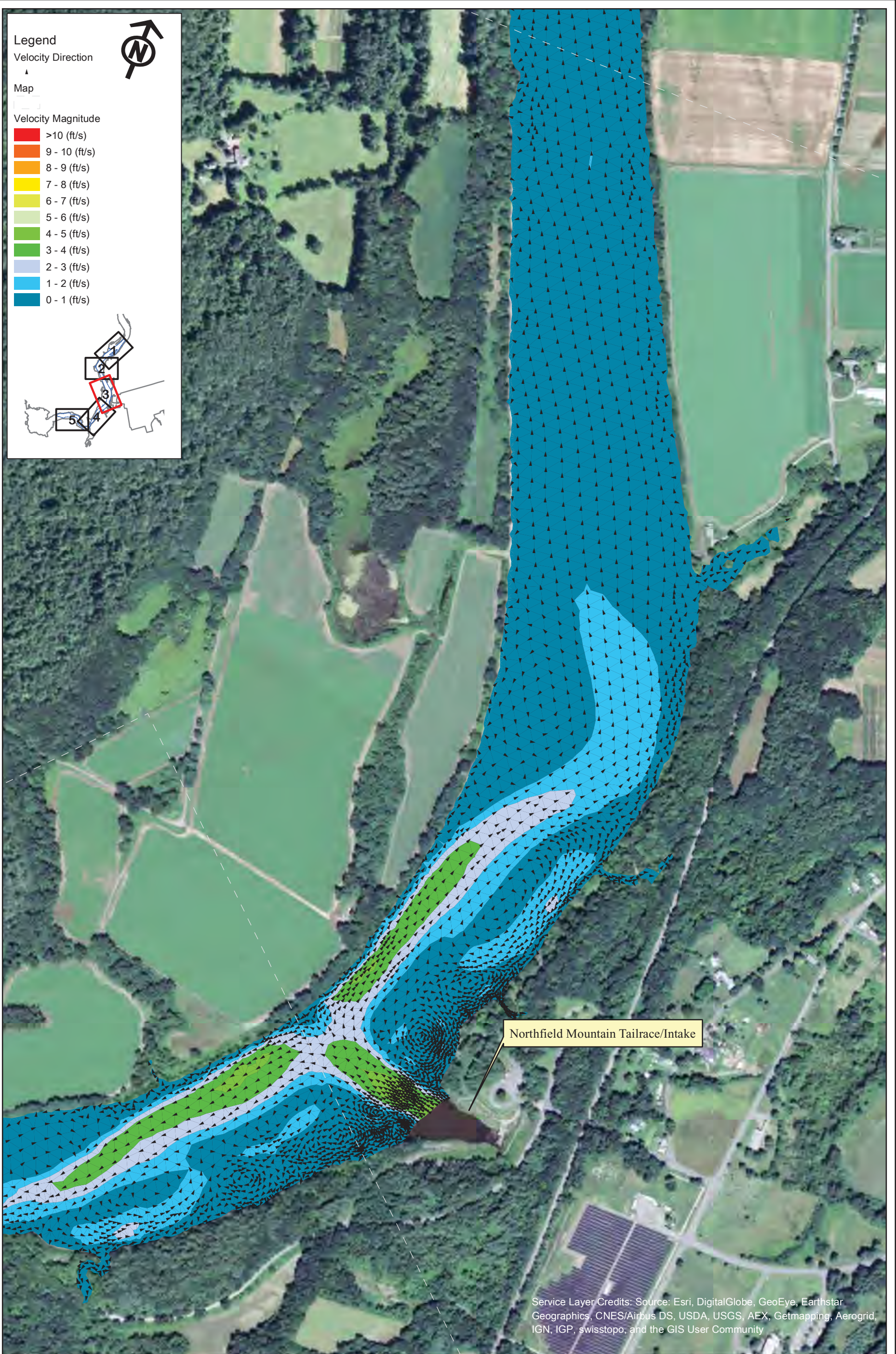


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 12 - Map 2
75% Exceedance Flow (4,900 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam



Northfield Mountain Tailrace/Intake

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

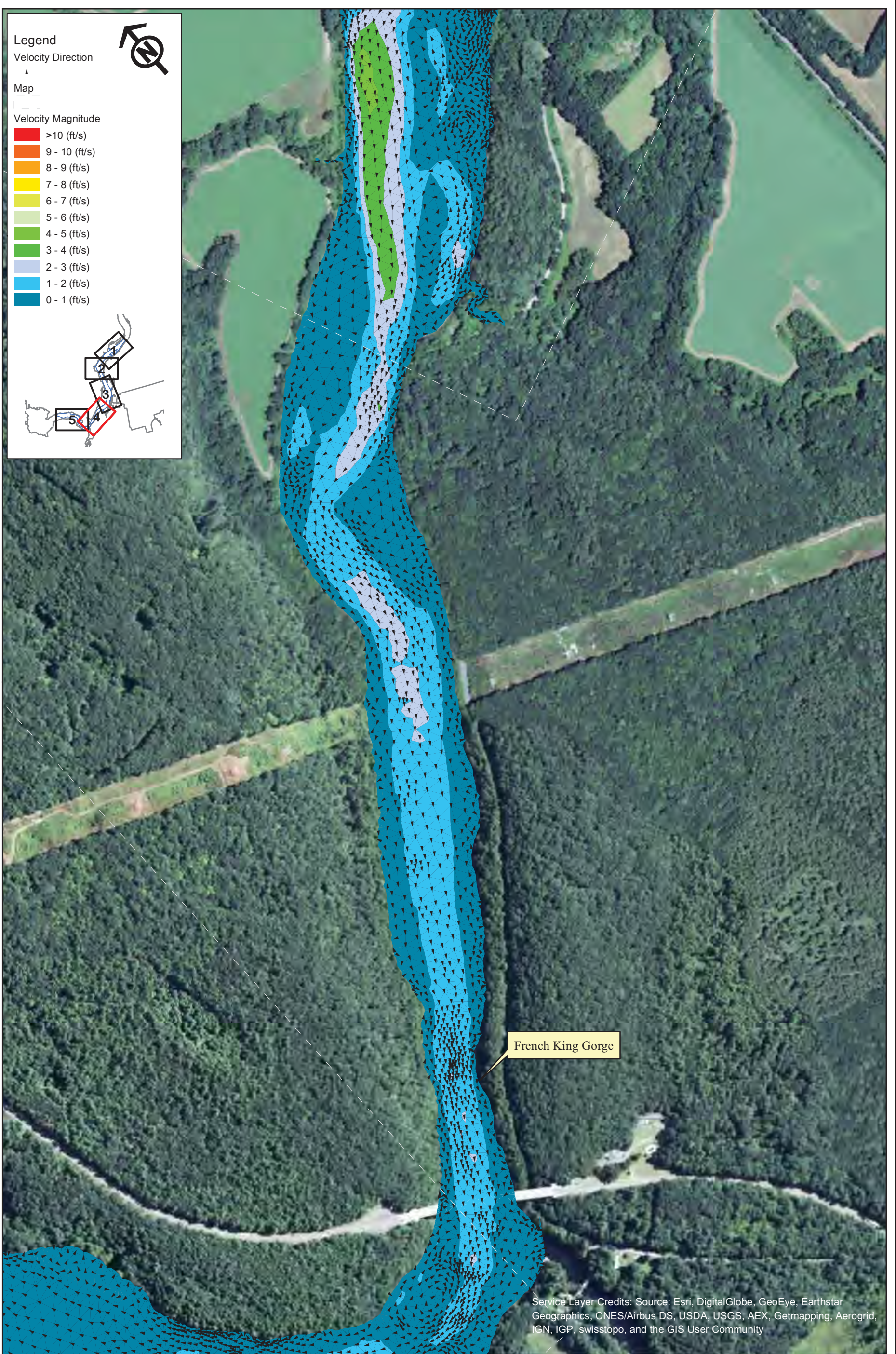


Northfield Mountain Pumped Storage Project (No. 2485) and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 12 - Map 3
75% Exceedance Flow (4,900 cfs), 4 Units Generating (20,000 cfs), 185 WSEL at Dam

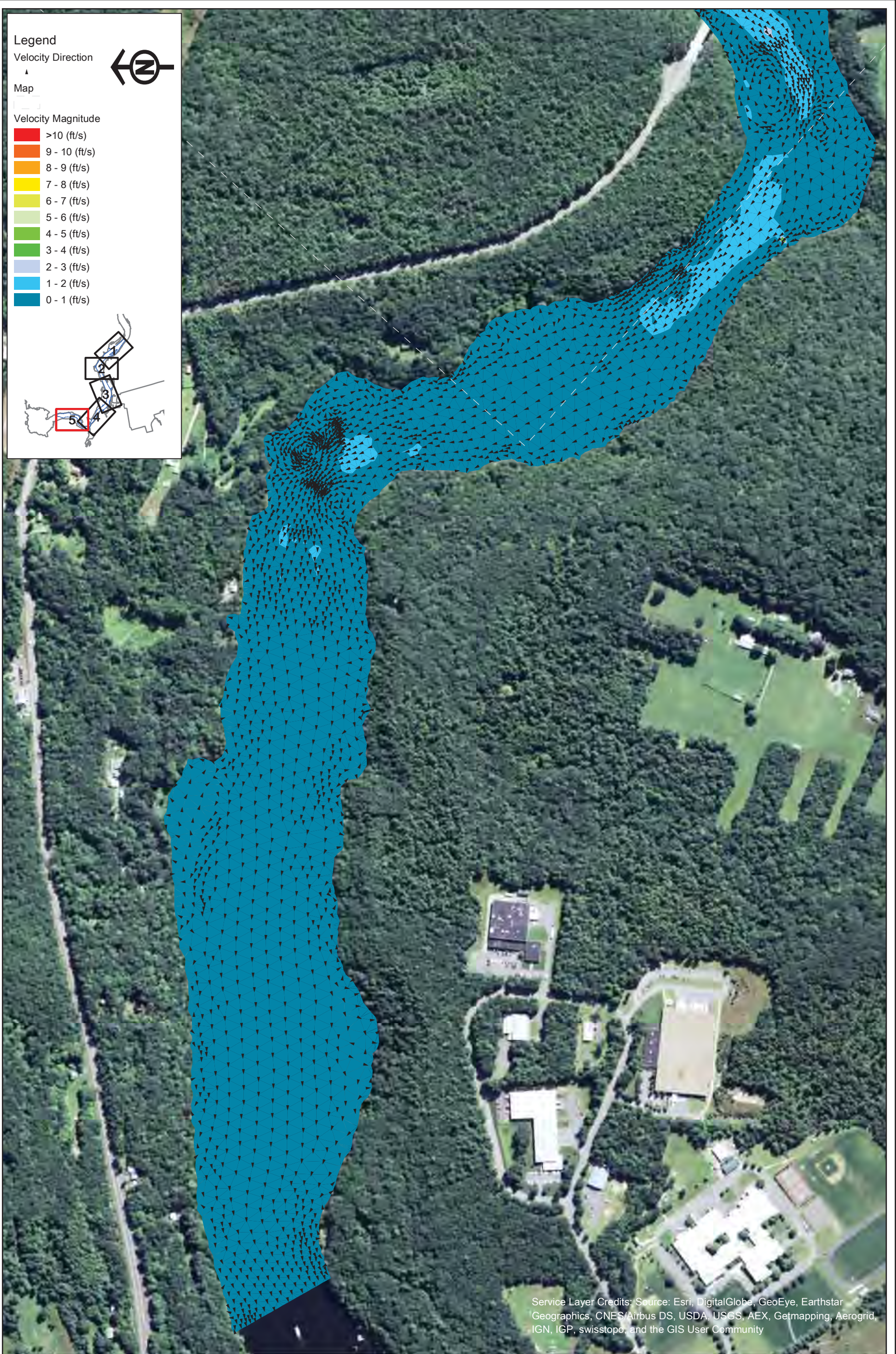


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 12 - Map 4
75% Exceedance Flow (4,900 cfs), 4 Units Generating (20,000 cfs), 185 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

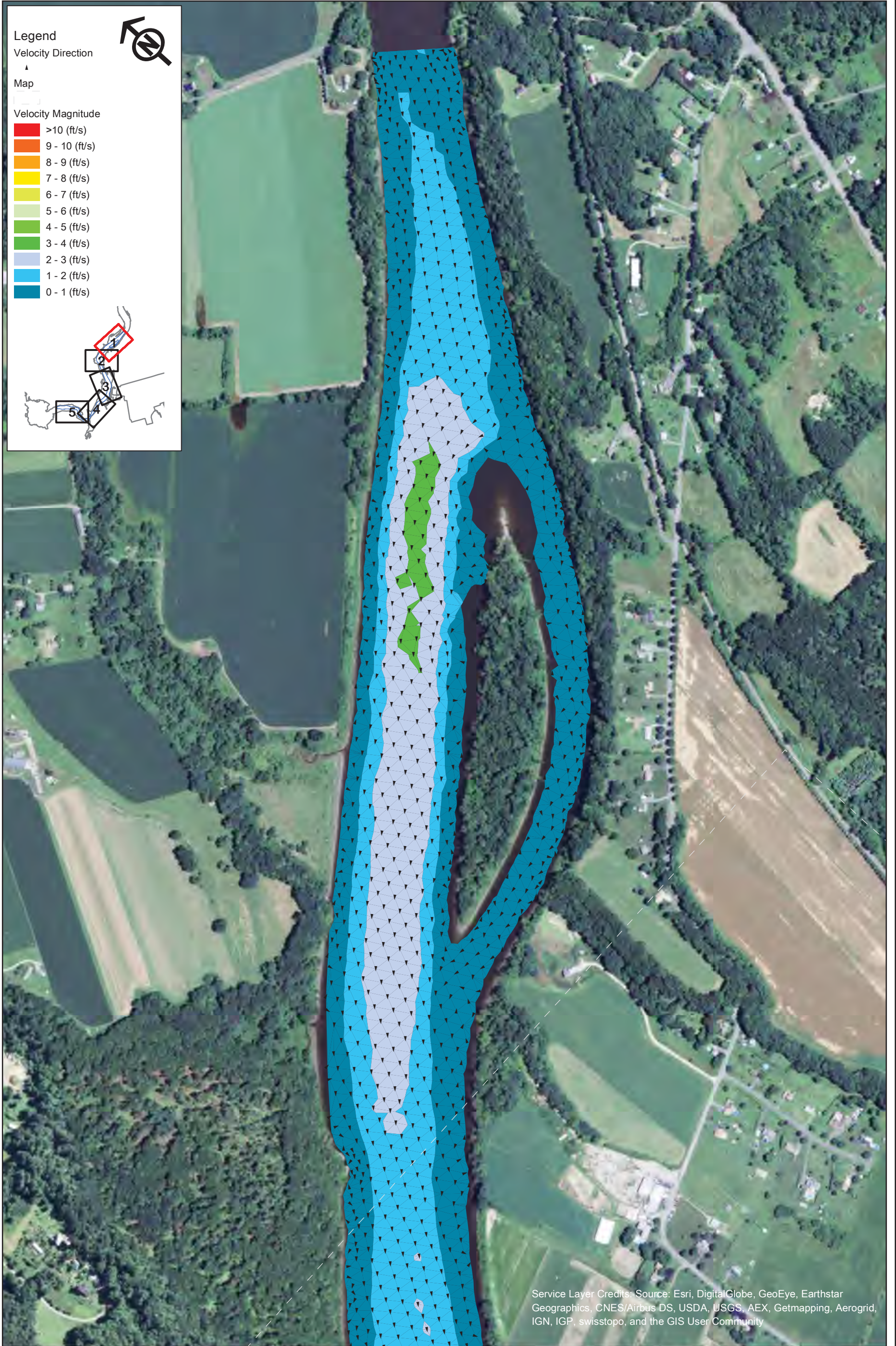
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 12 - Map 5
75% Exceedance Flow (4,900 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

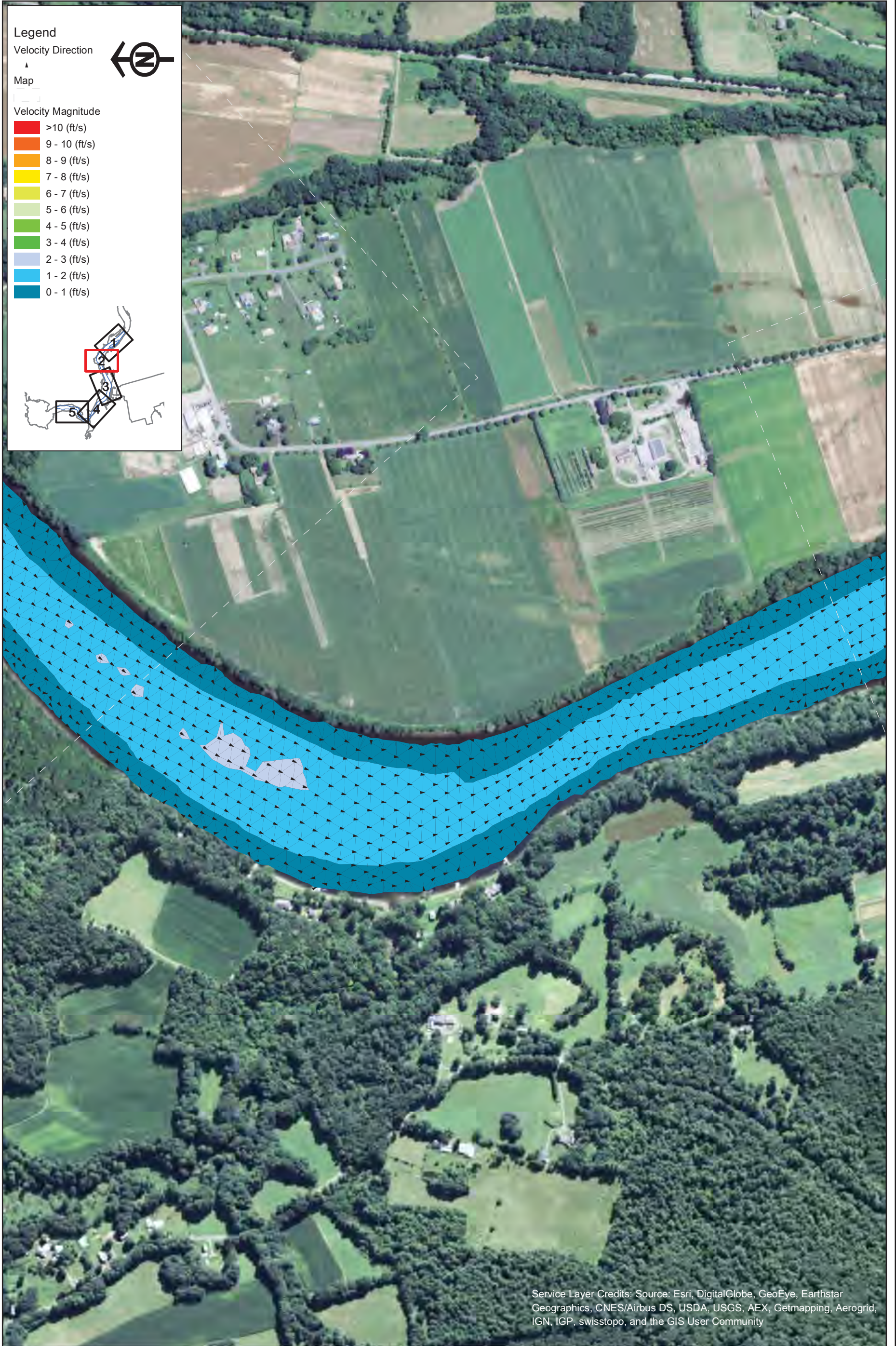
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 13 - Map 1
75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam





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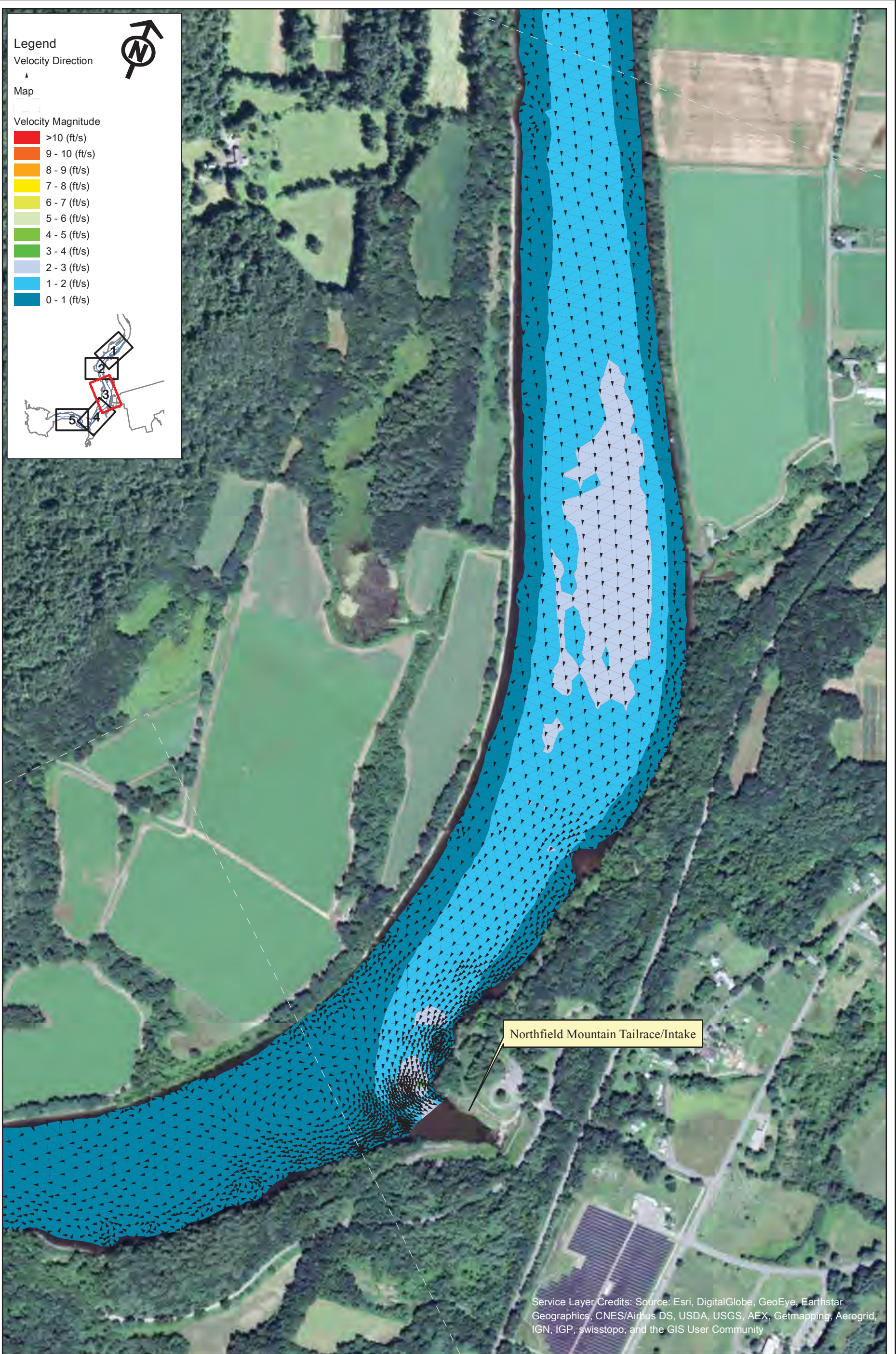


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 13 - Map 2
 75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

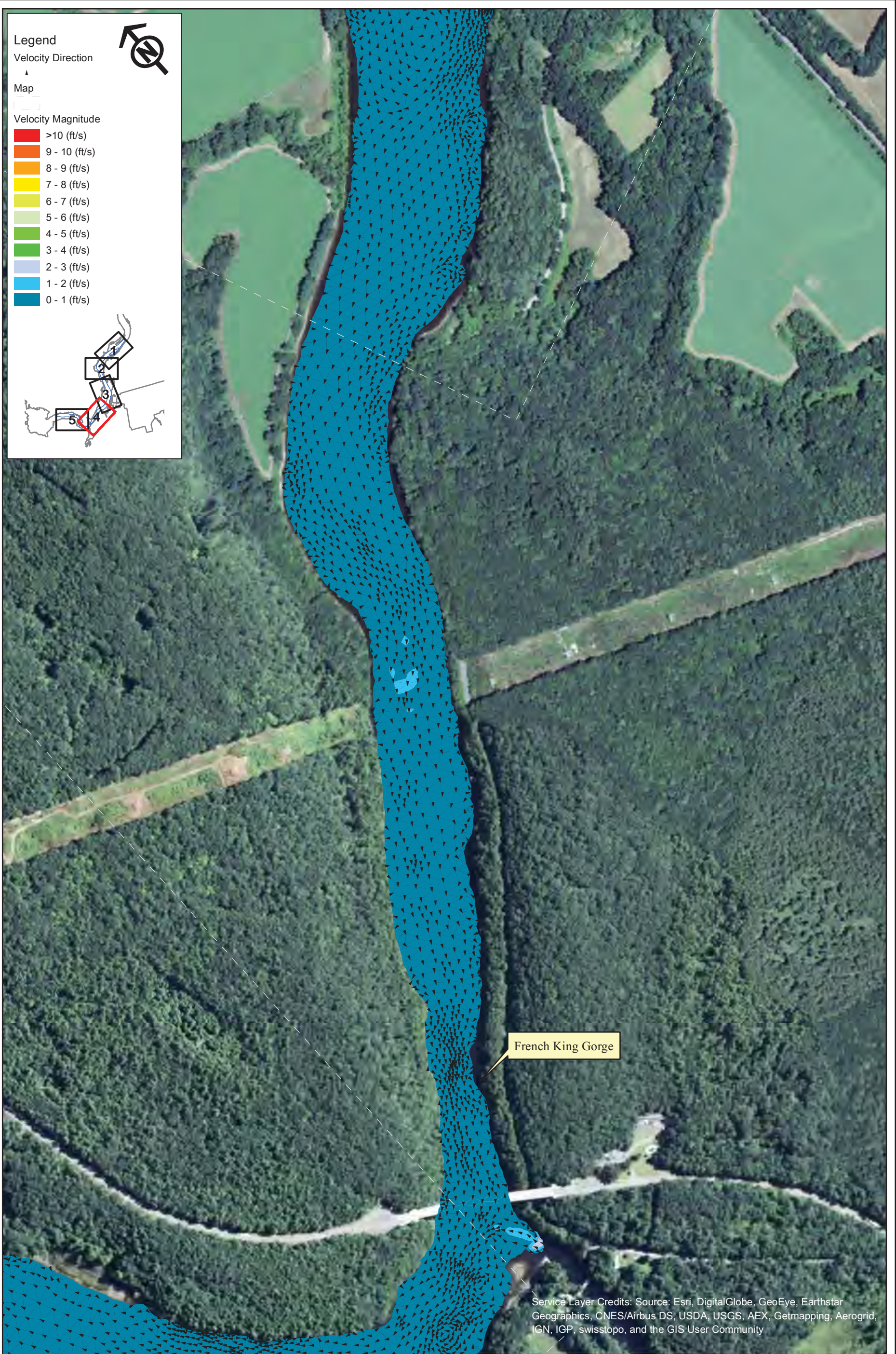
STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 13 - Map 3
75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



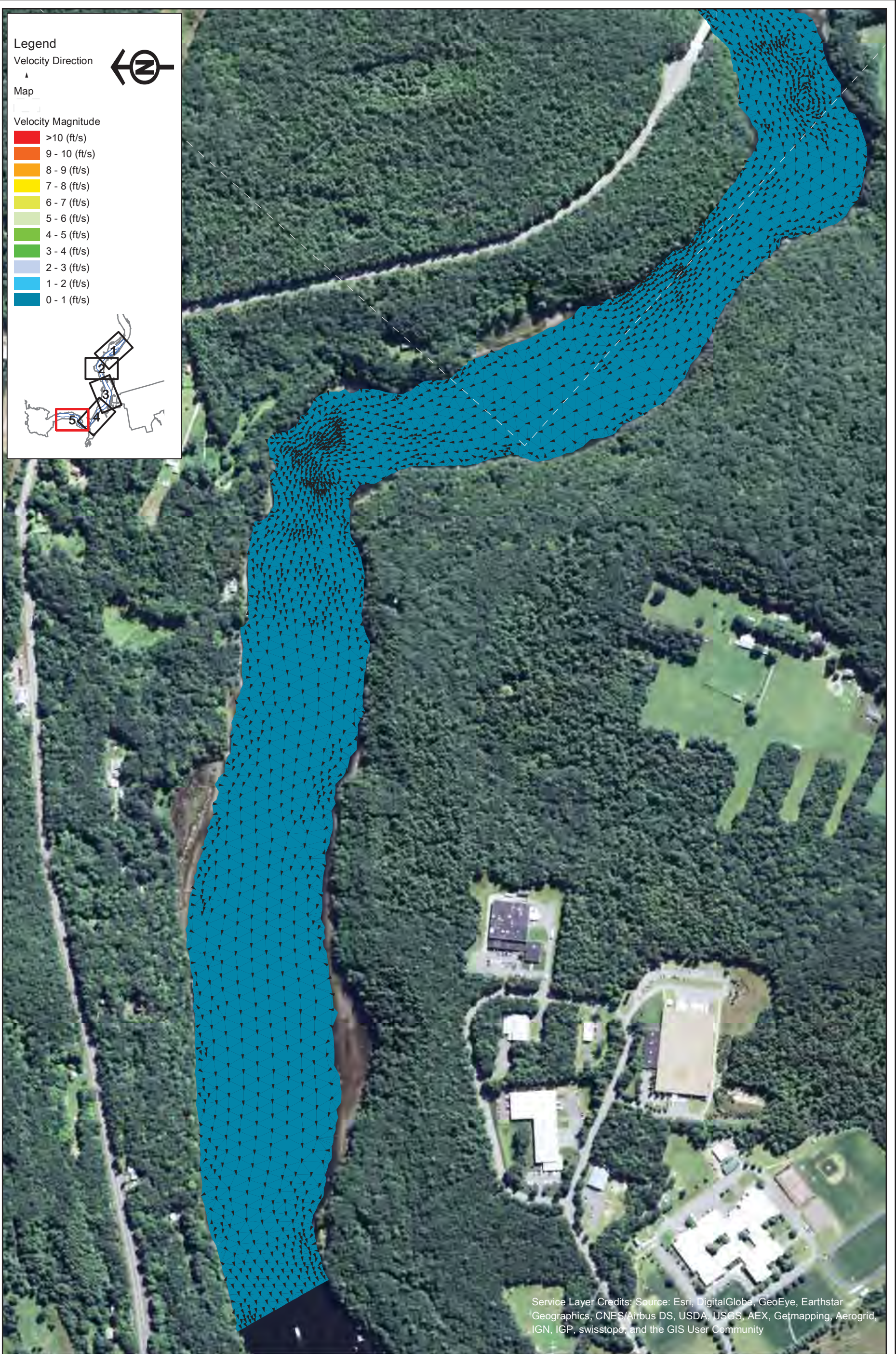


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 13 - Map 4
75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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



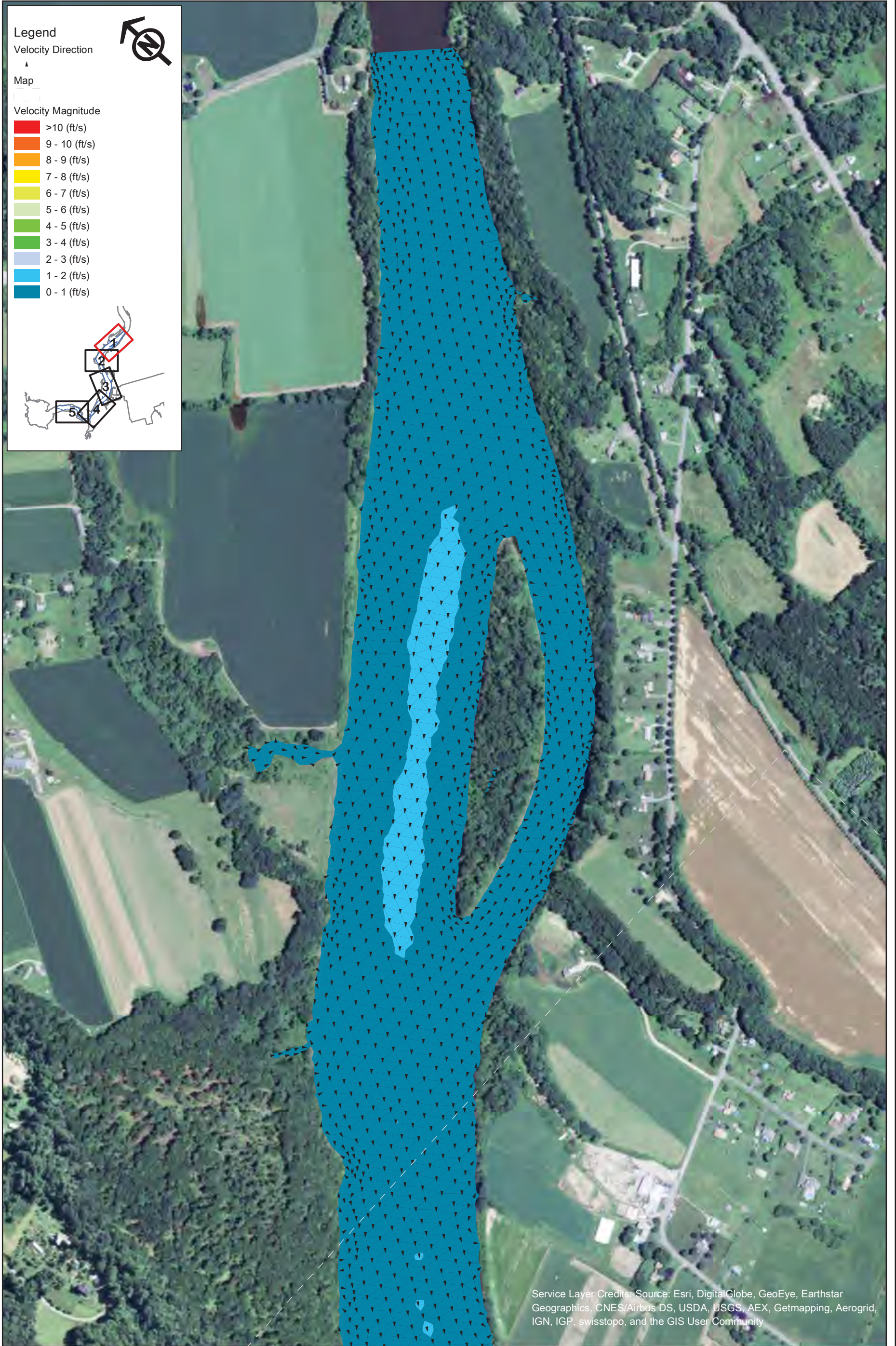
Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 13 - Map 5
 75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



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

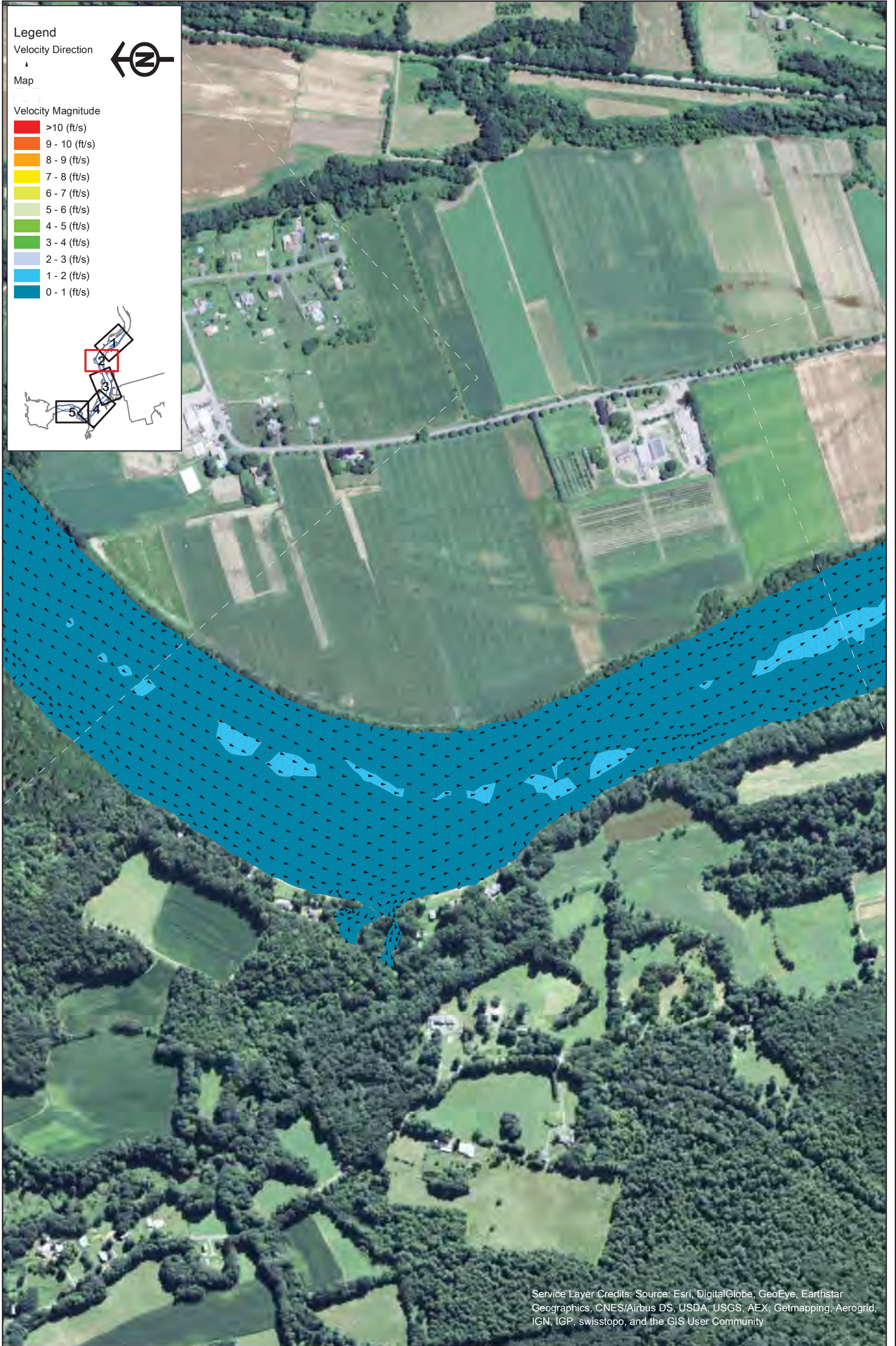


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 14 - Map 1
75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



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

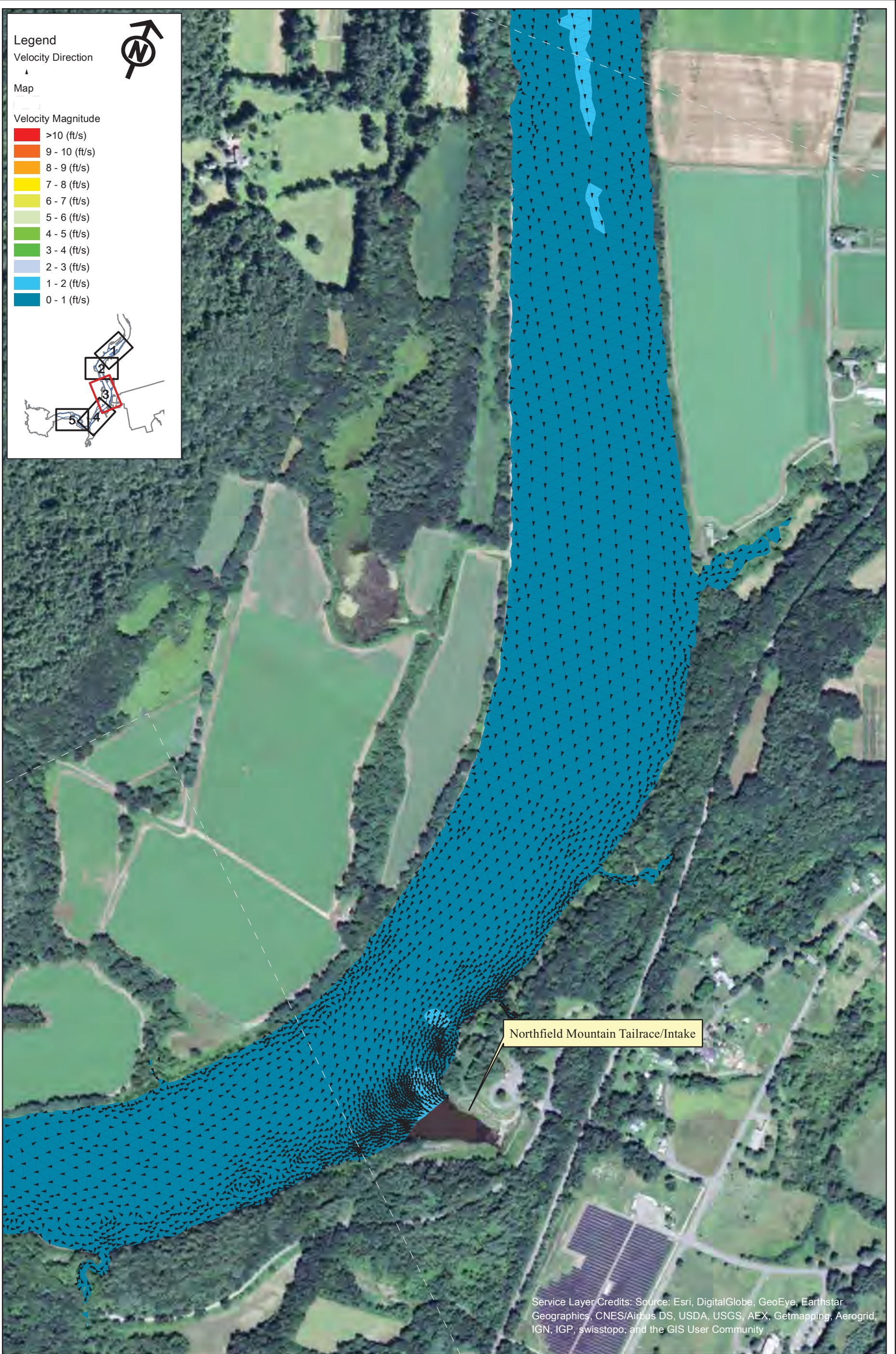


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 14 - Map 2
 75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

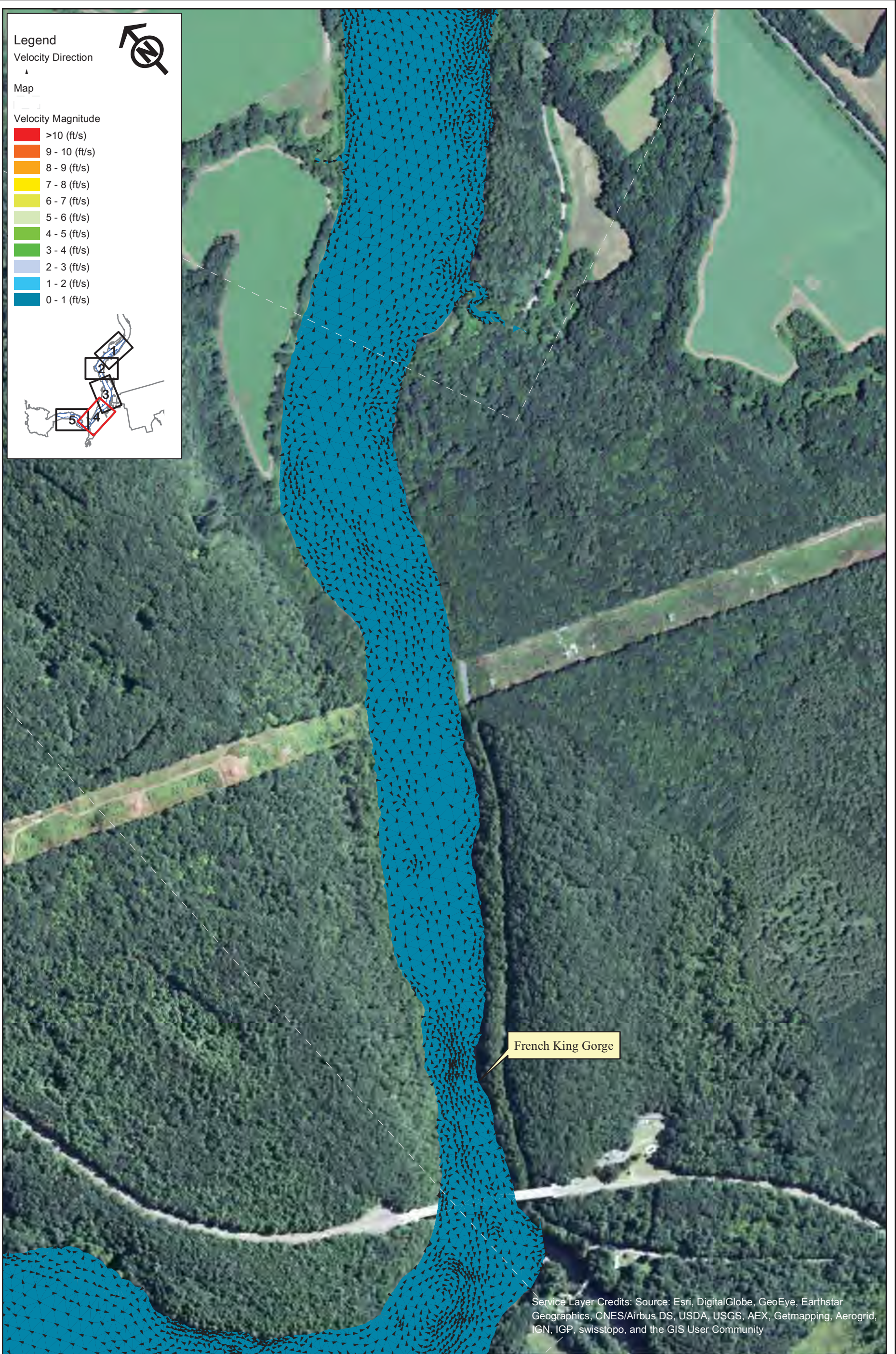


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 14 - Map 3
75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

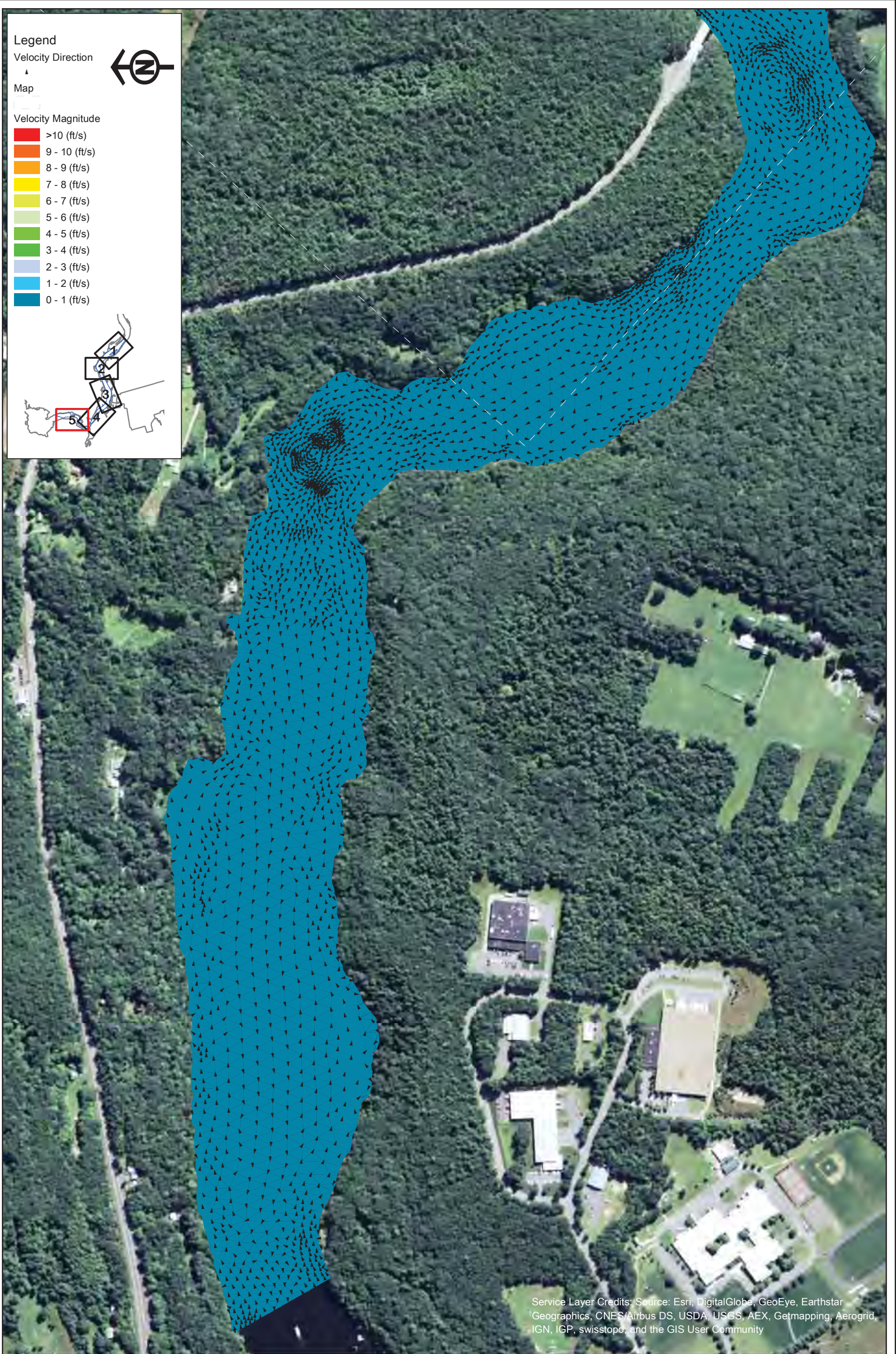
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 14 - Map 4
75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam





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

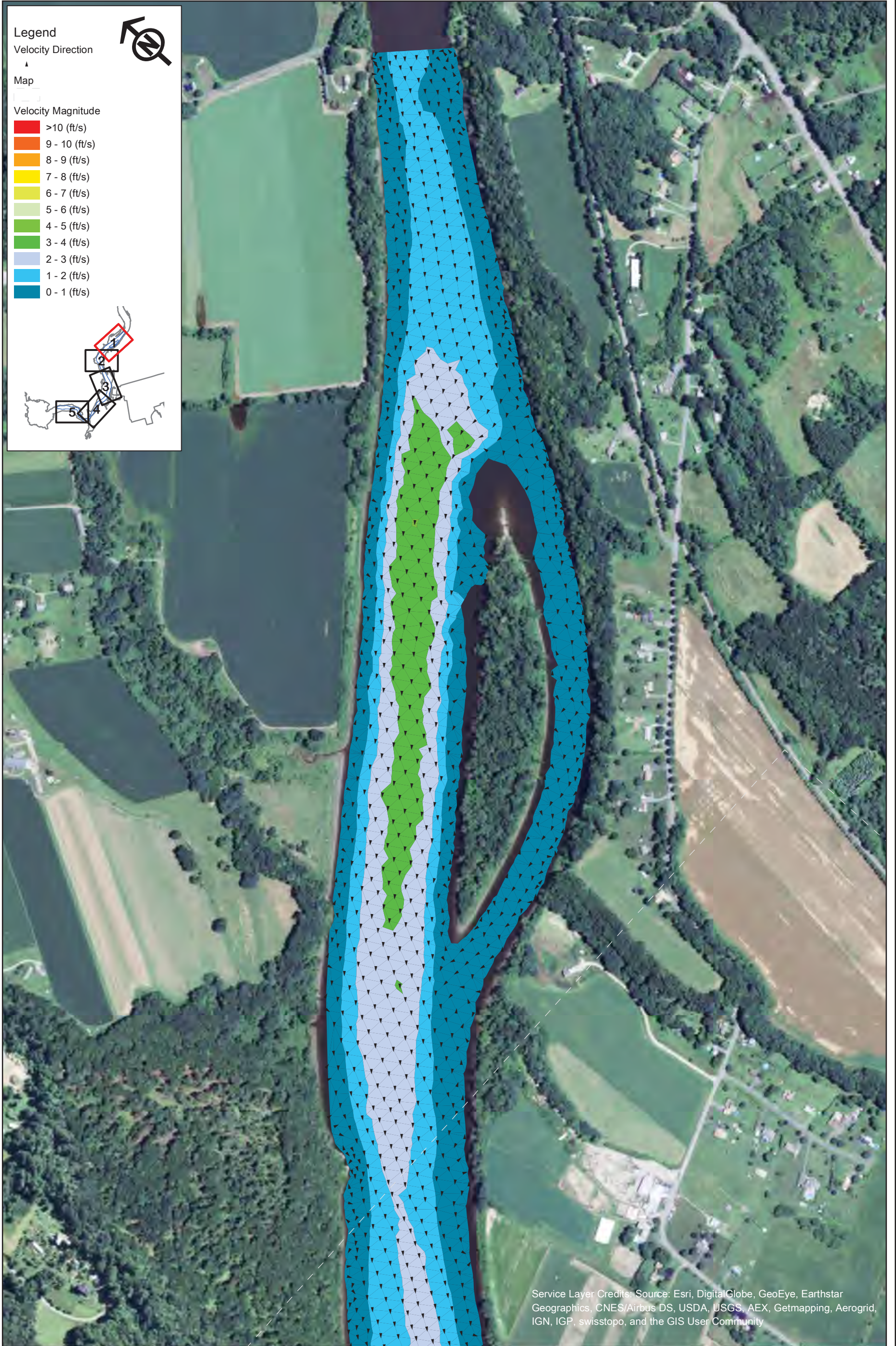


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 14 - Map 5
 75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam

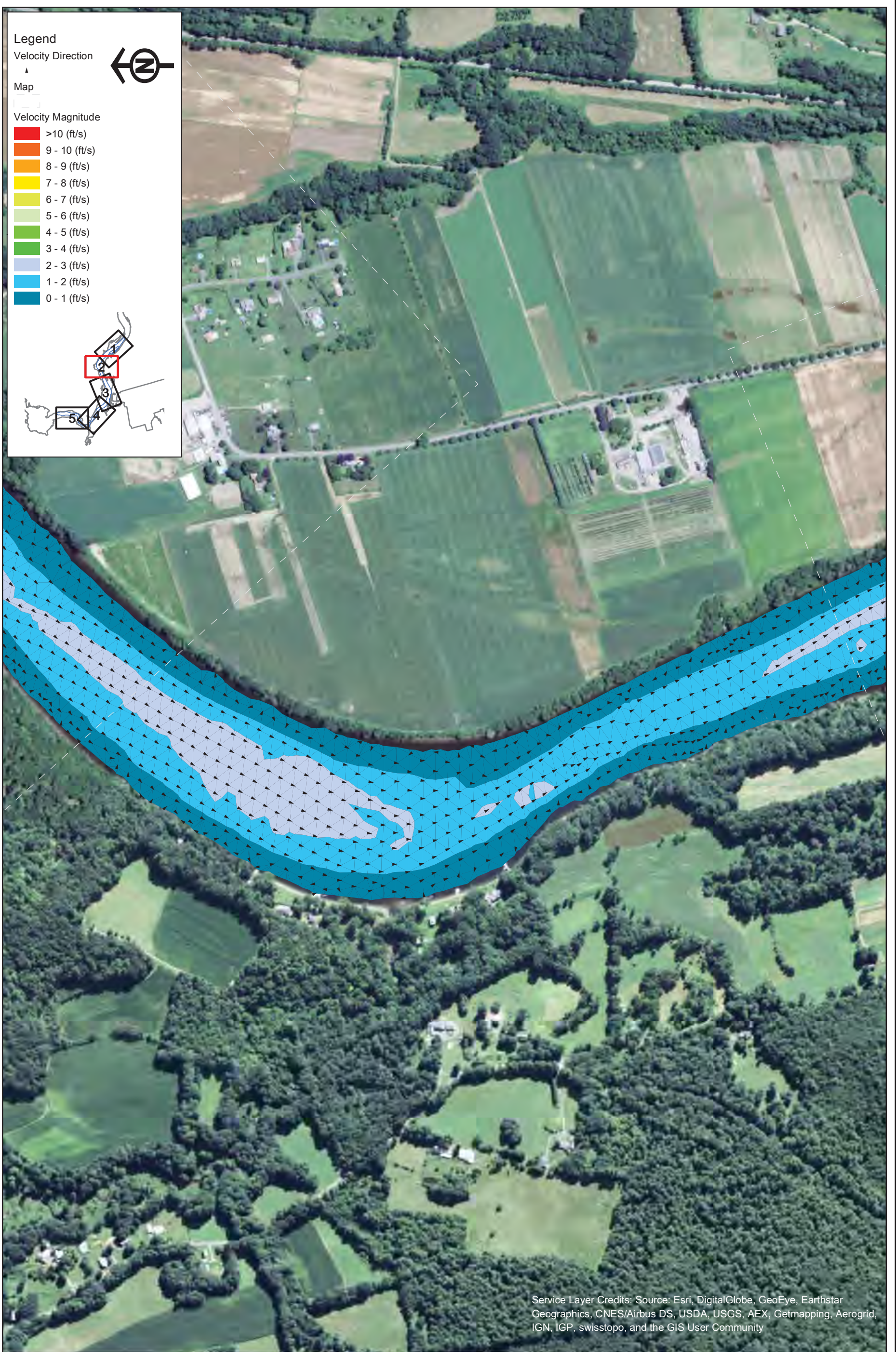


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 15 - Map 1
75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



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



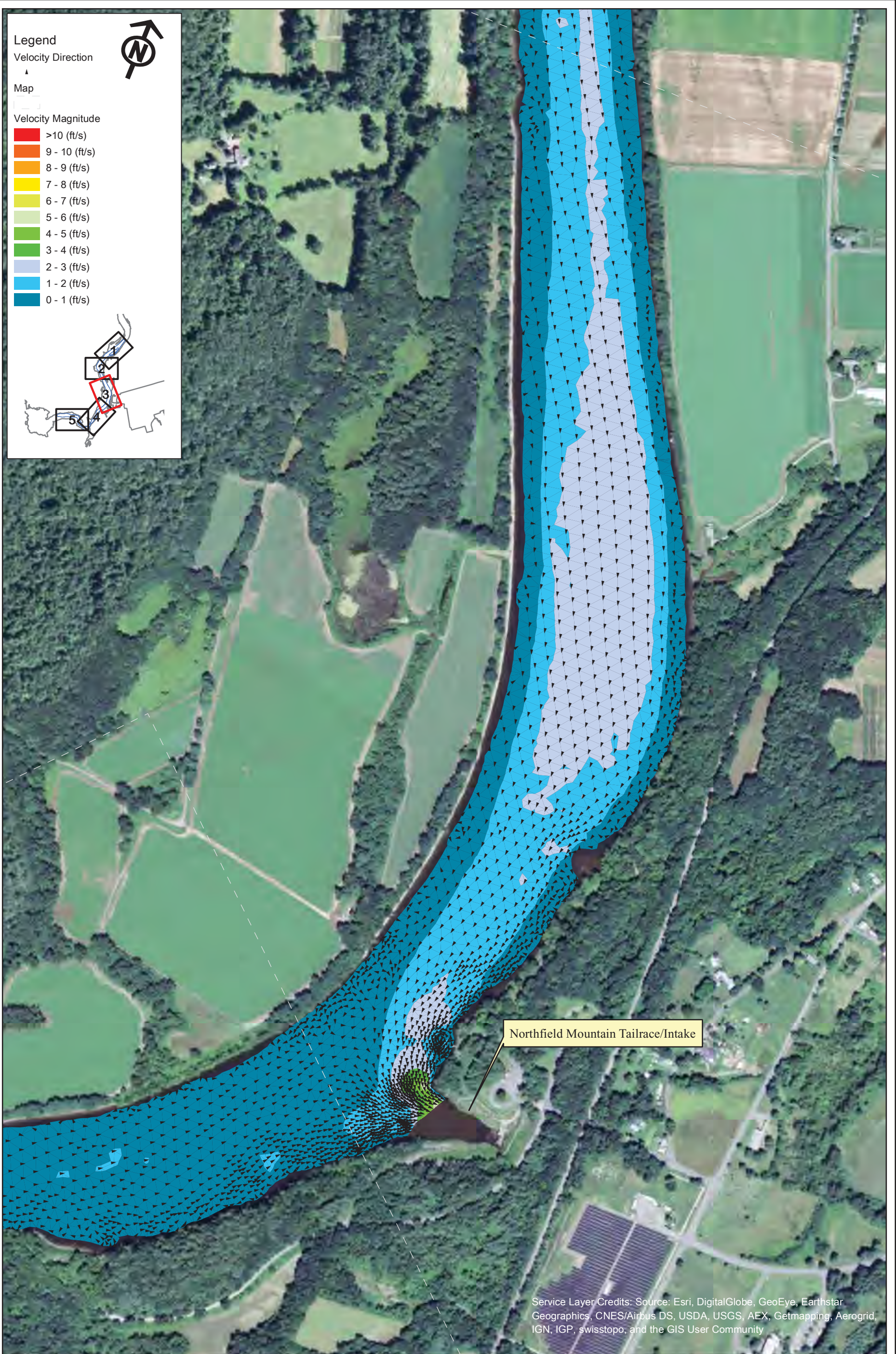
Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 15 - Map 2
 75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

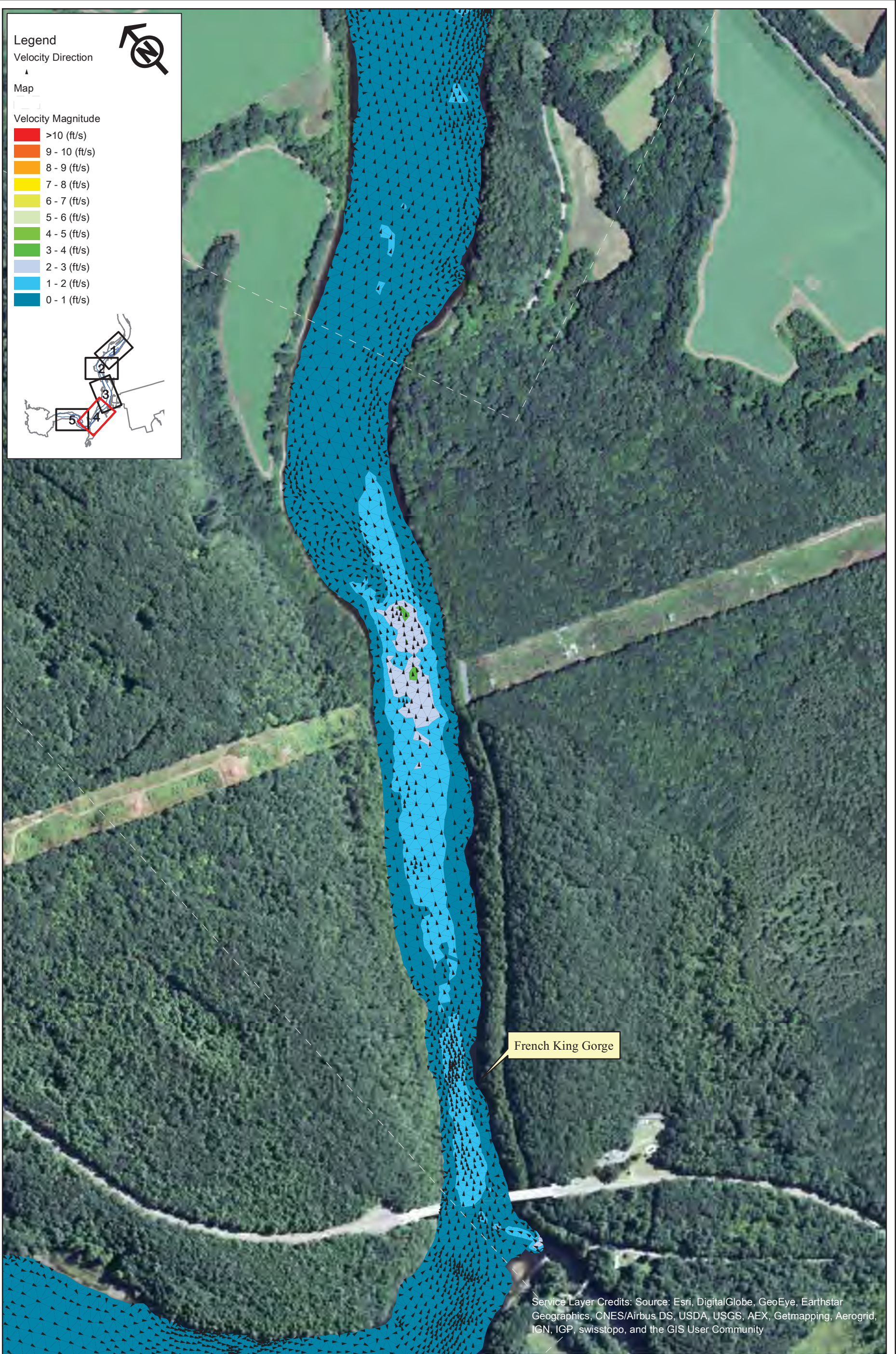


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 15 - Map 3
75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam

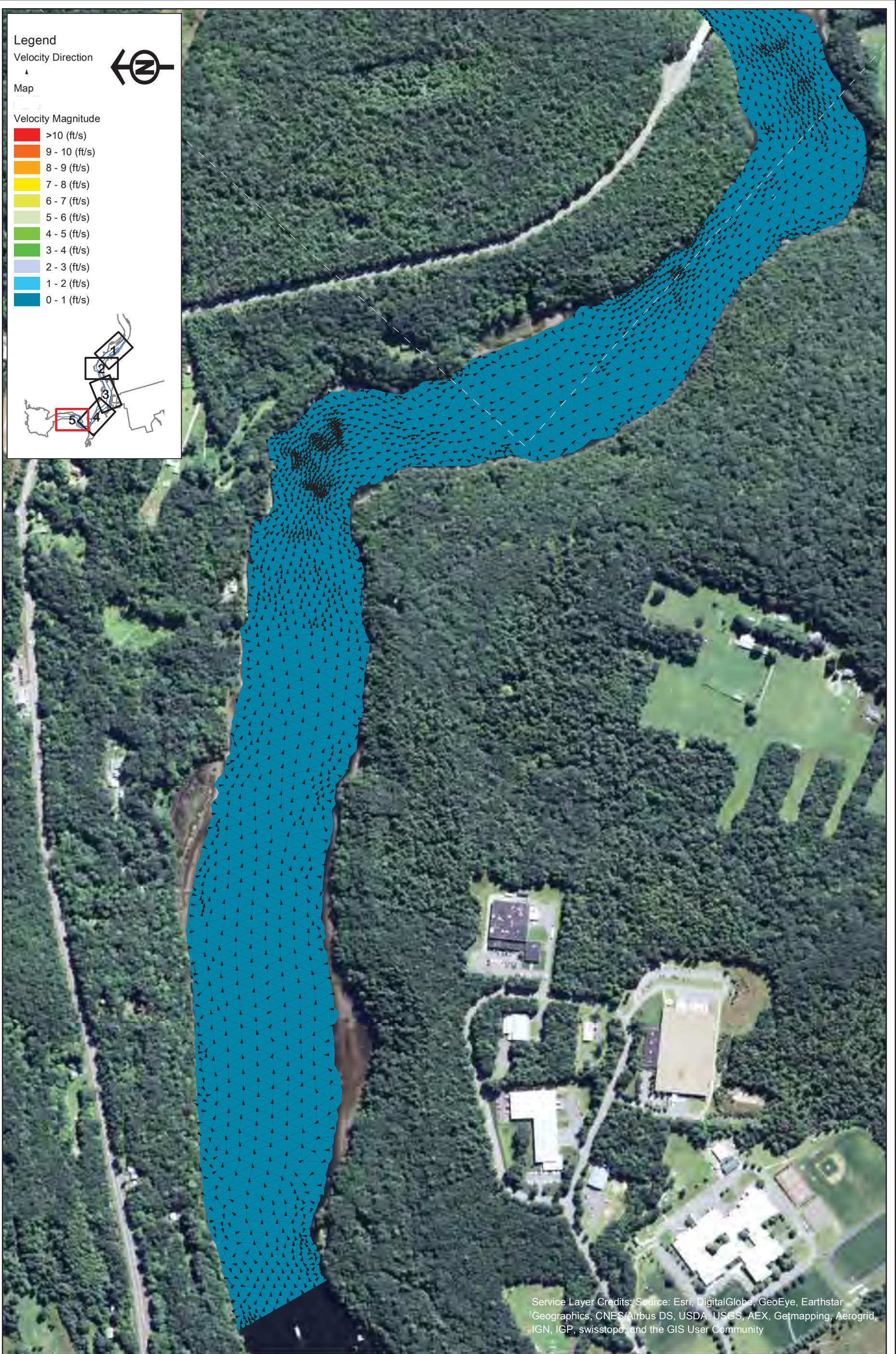


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 15 - Map 4
75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

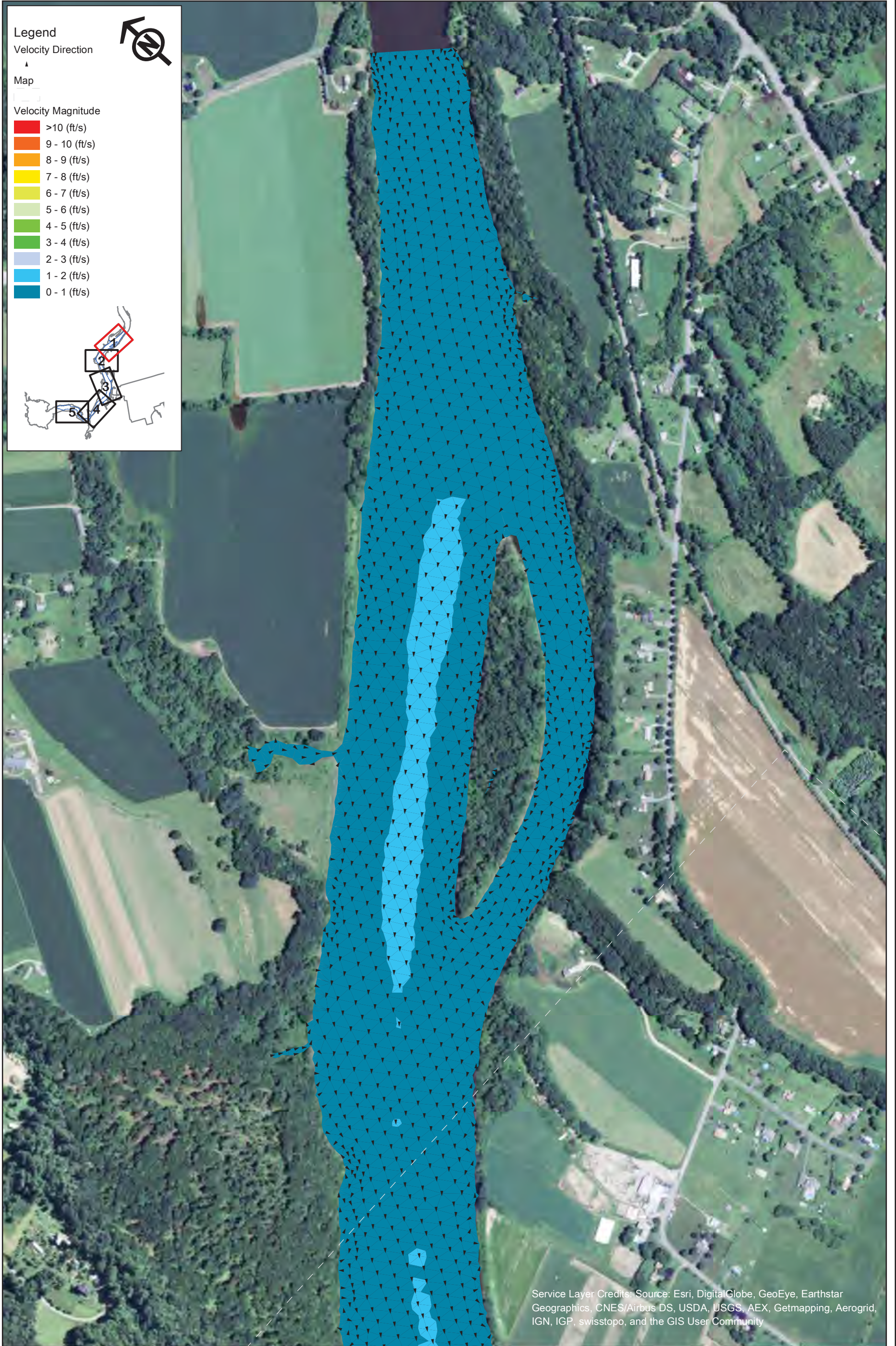


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 15 - Map 5
 75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

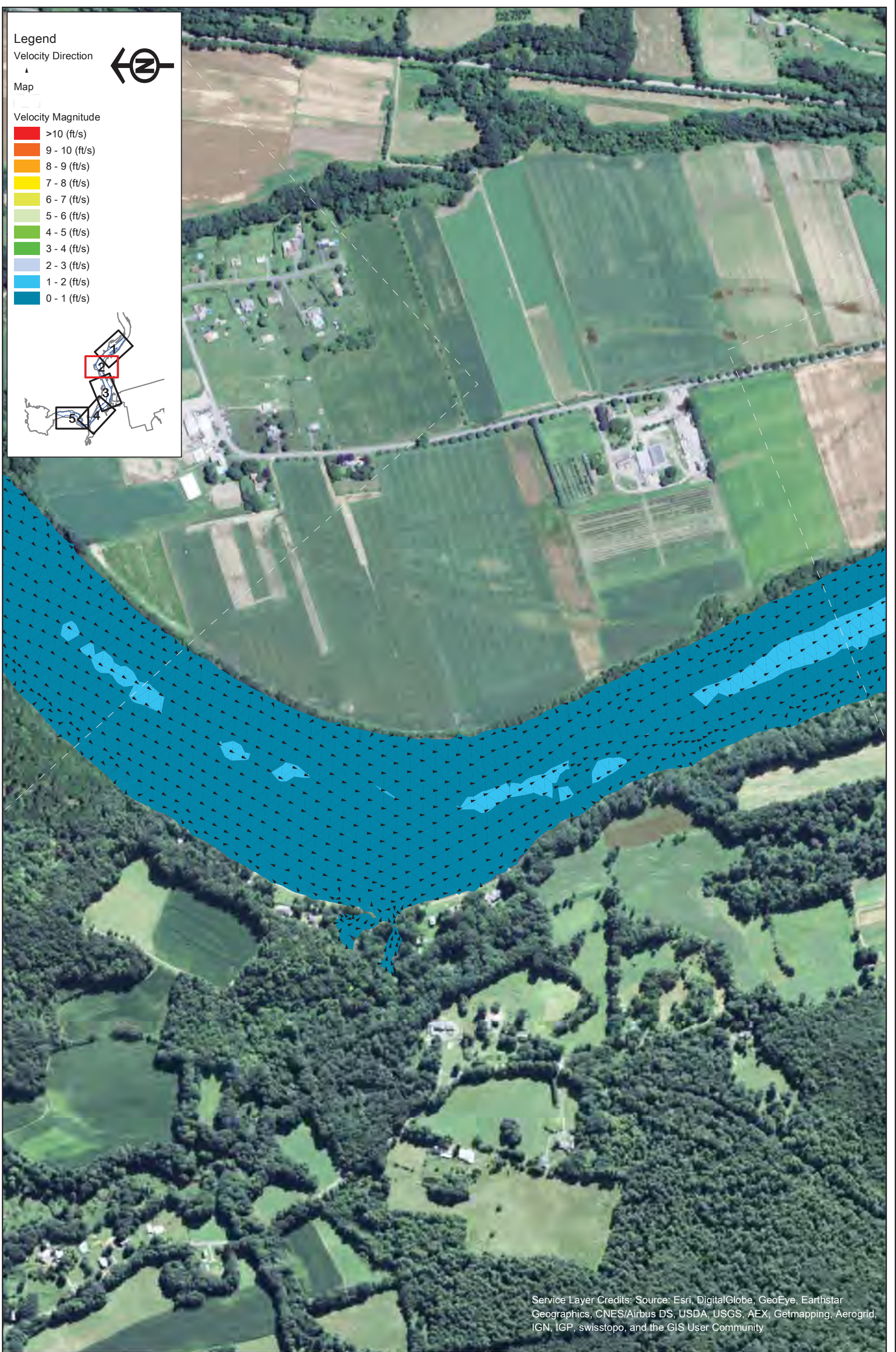
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 16 - Map 1
75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam





Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

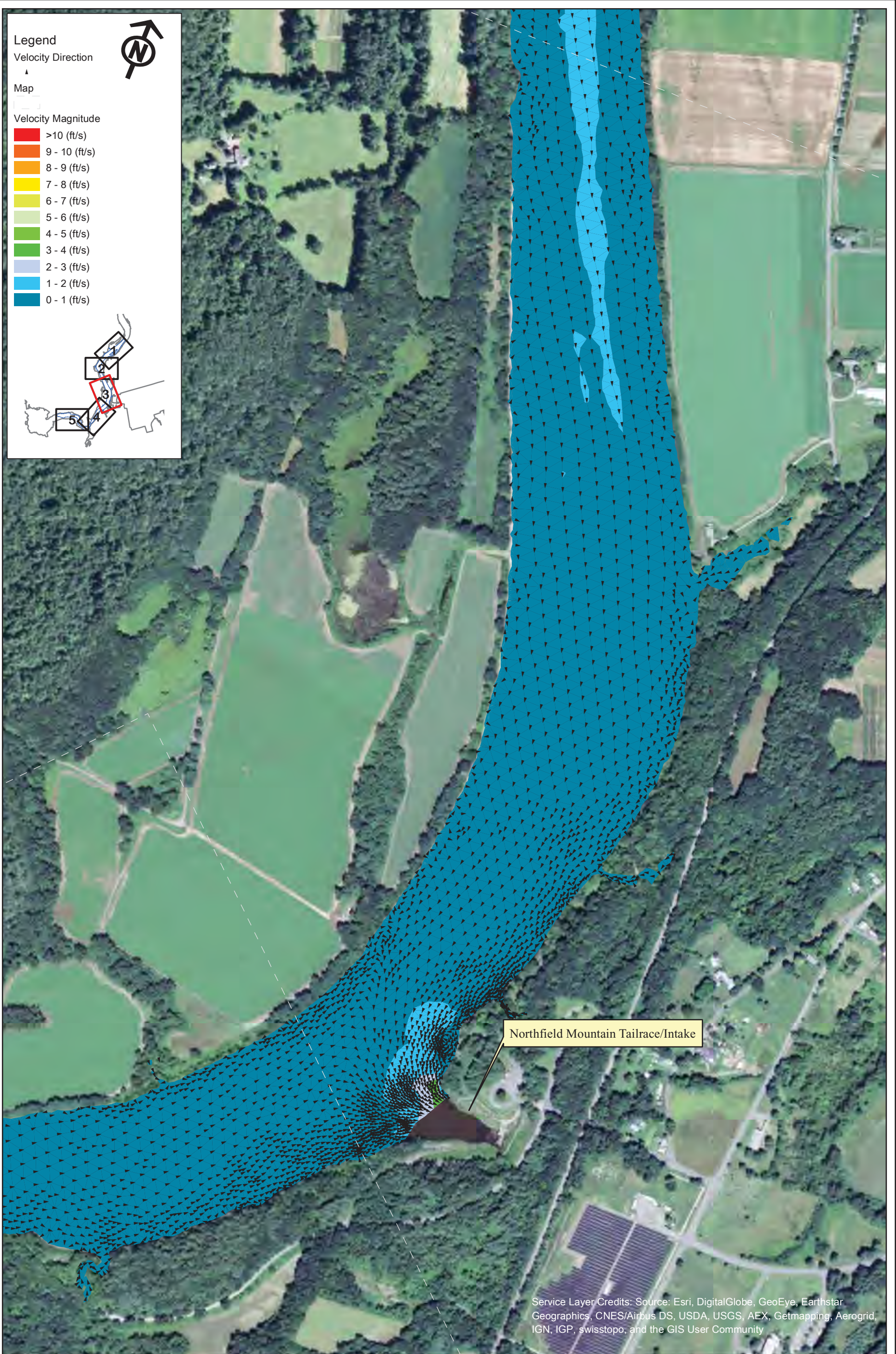


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 16 - Map 2
 75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

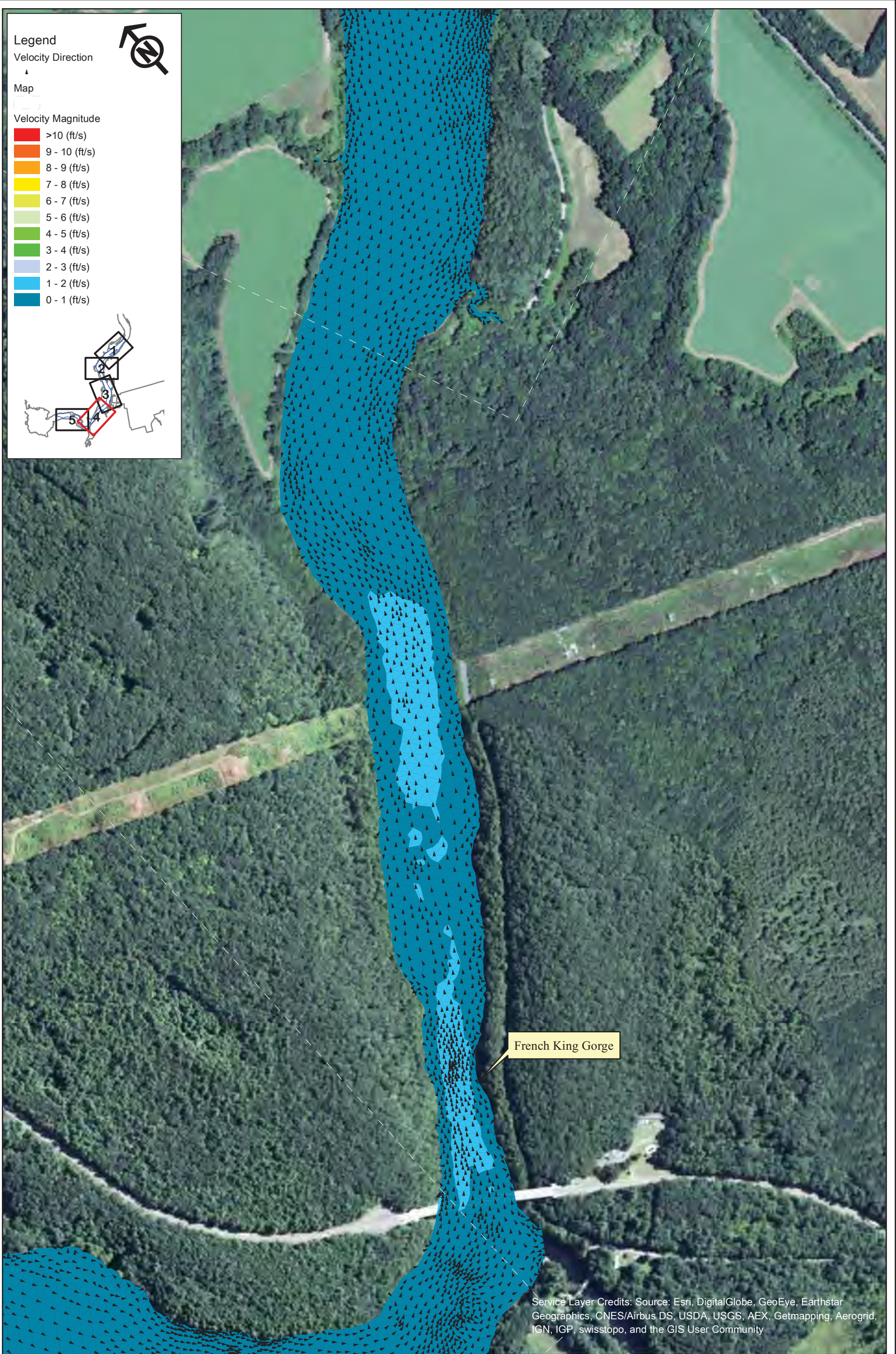
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 16 - Map 3
 75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

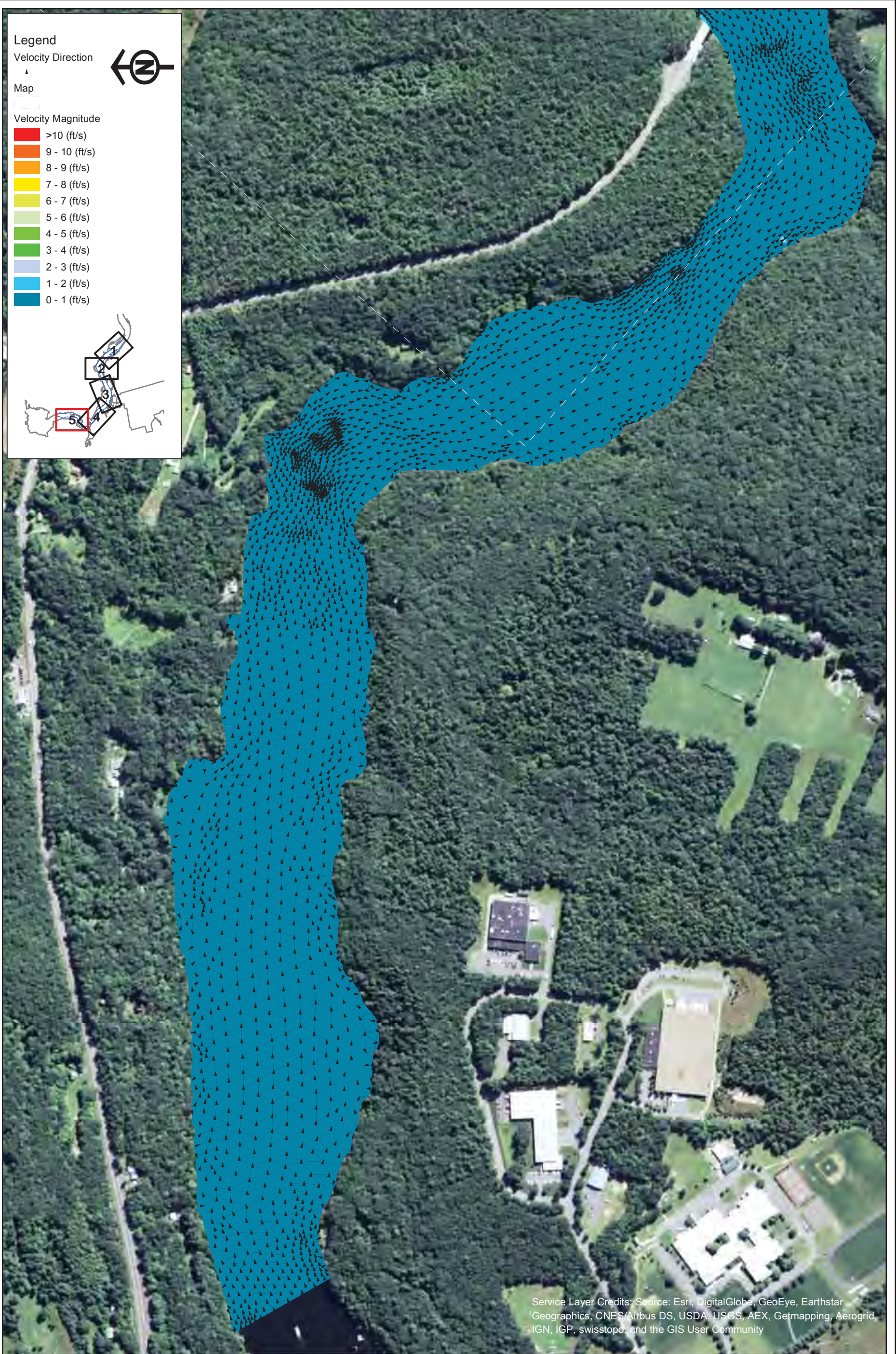
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 16 - Map 4
75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam





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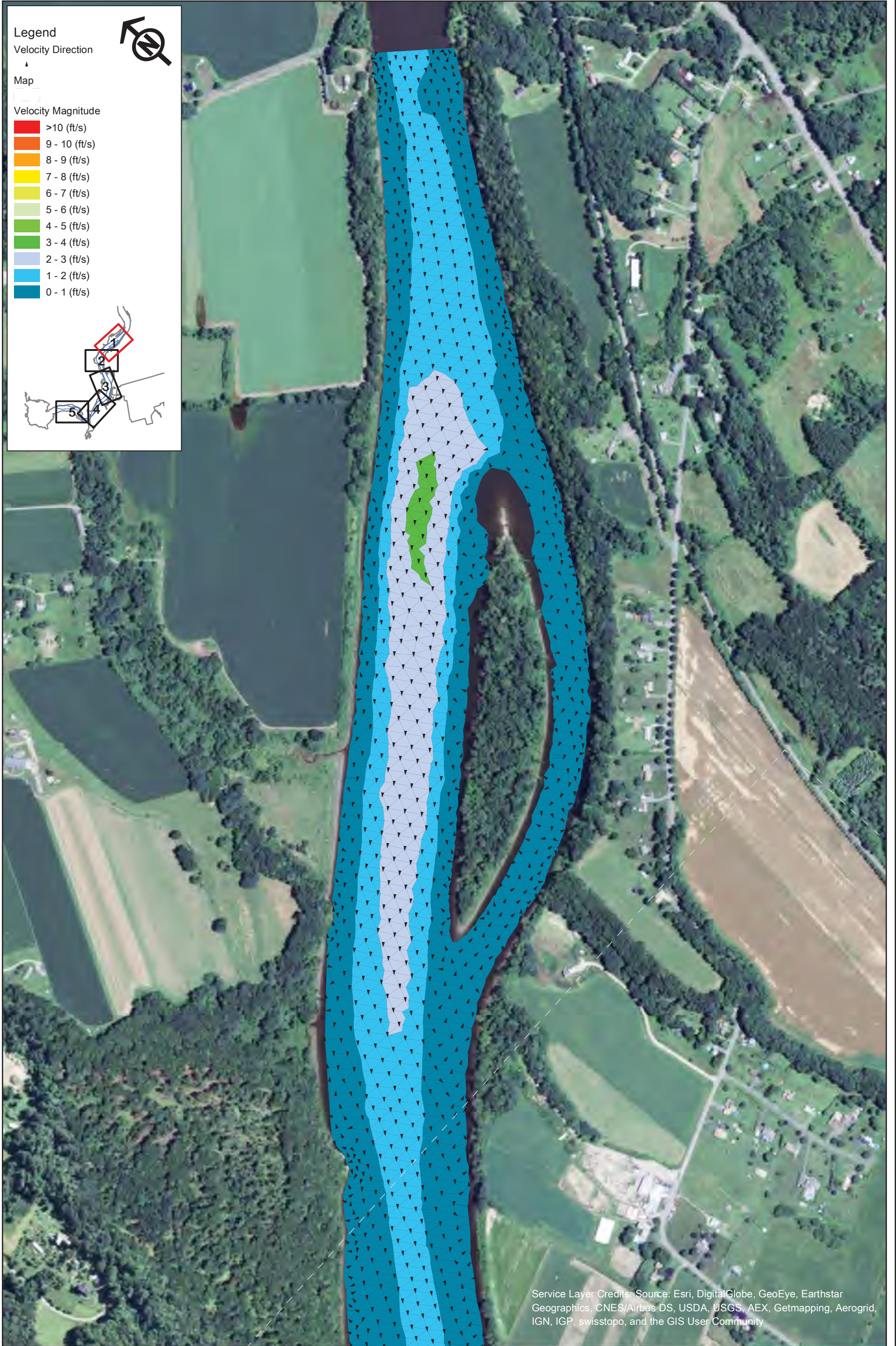


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 16 - Map 5
75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam

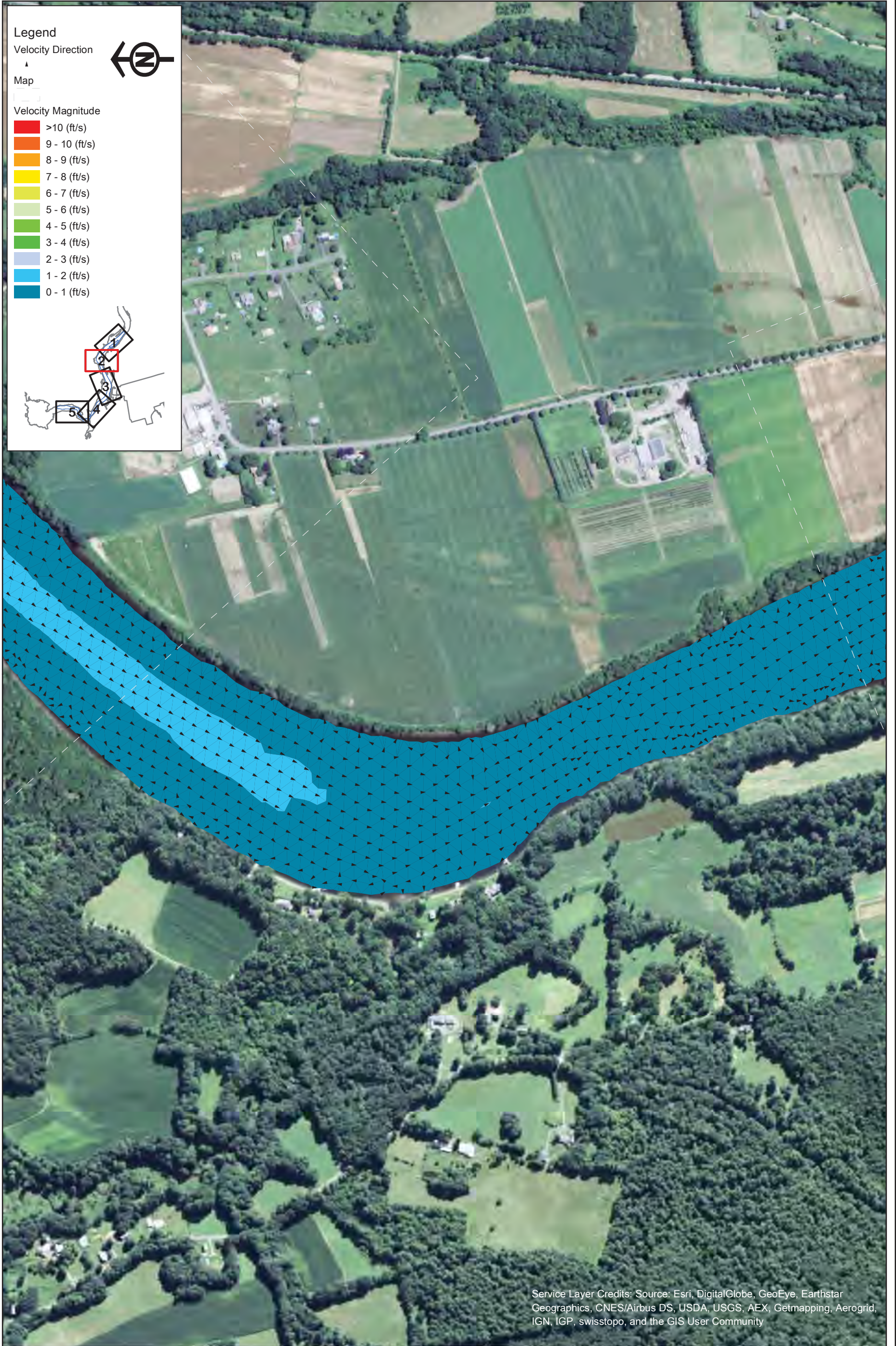


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 17 - Map 1
50% Exceedance Flow (8,440 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



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

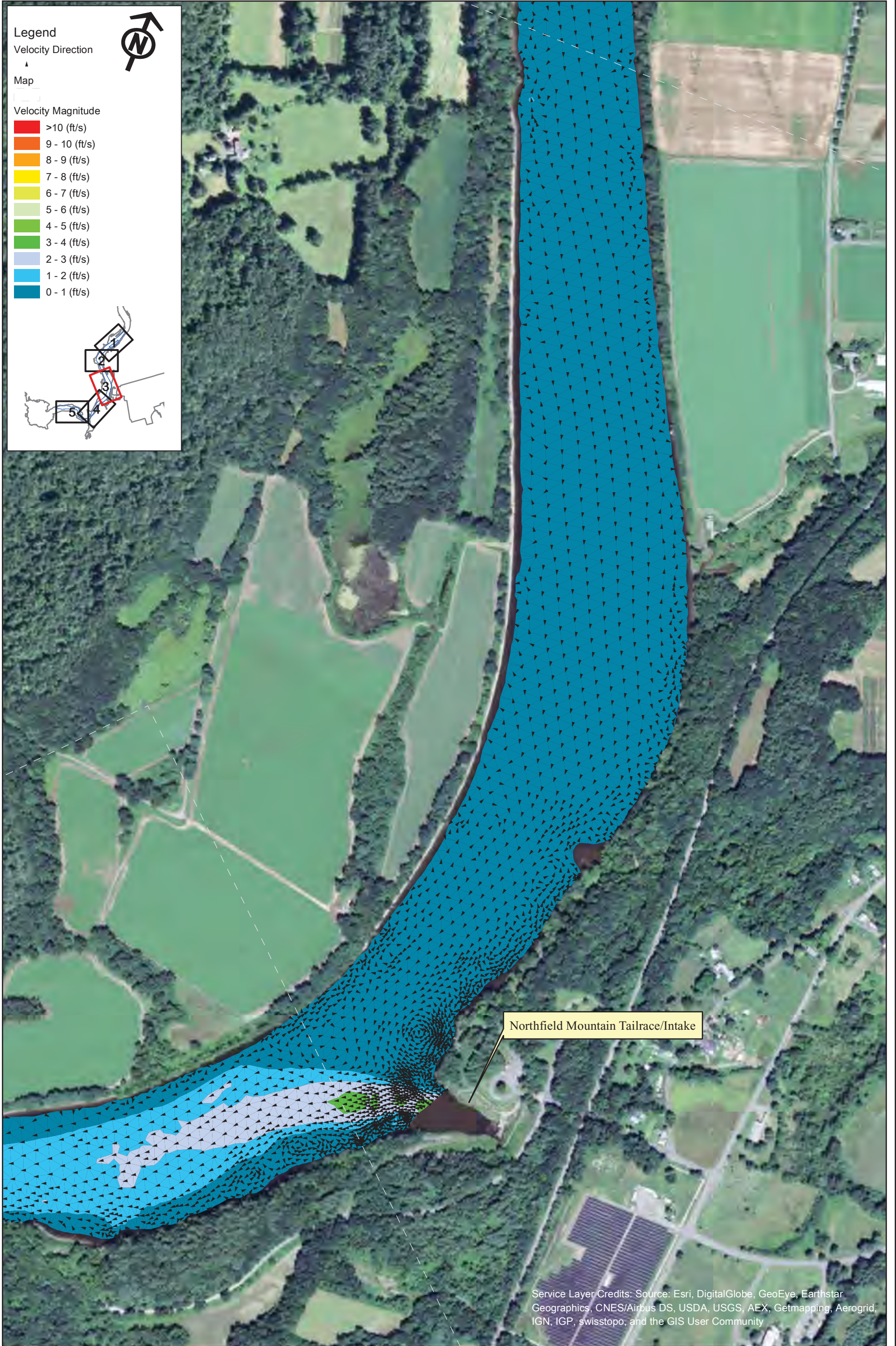


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 17 - Map 2
50% Exceedance Flow (8,440 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

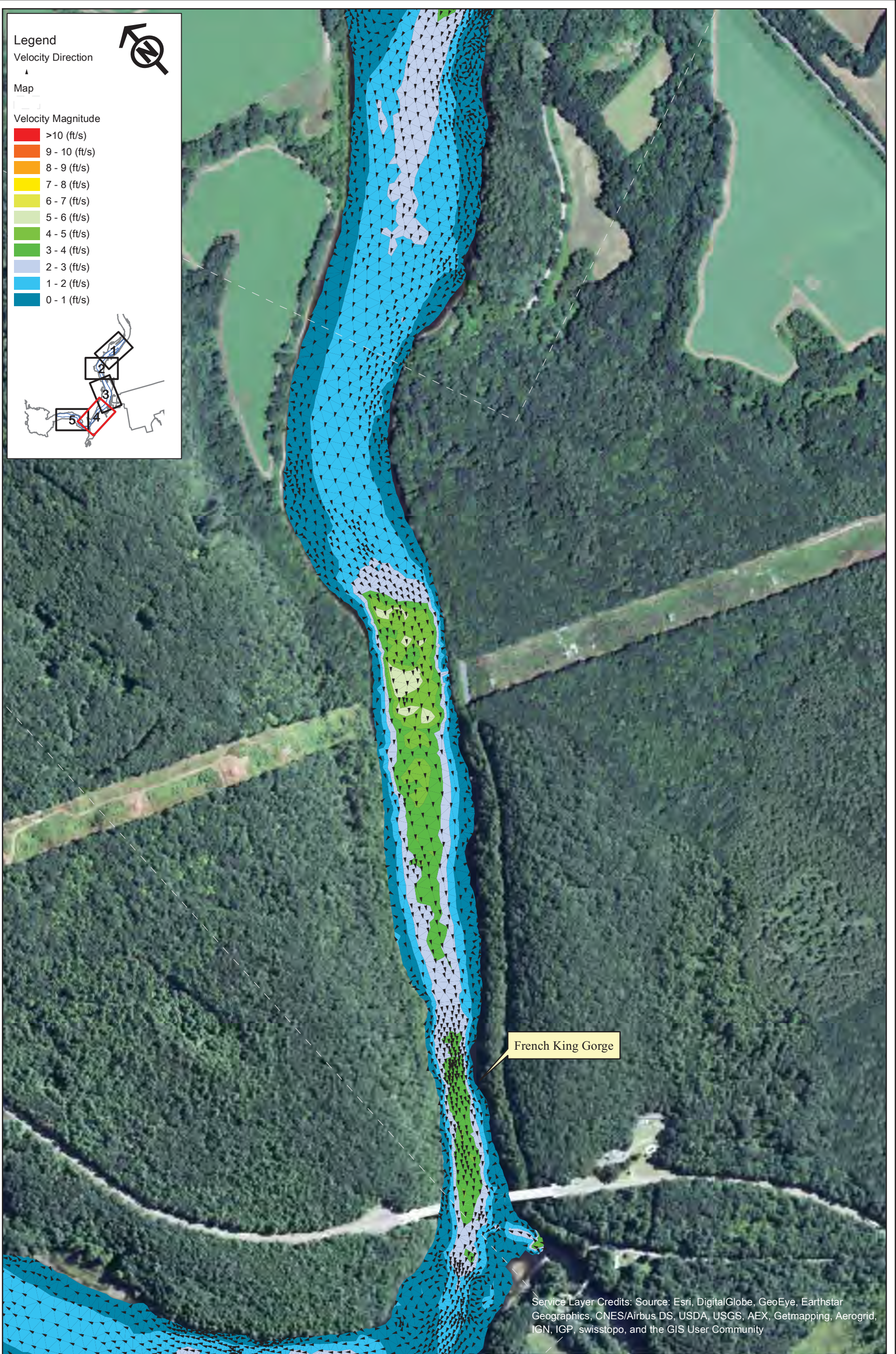
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 17 - Map 3
50% Exceedance Flow (8,440 cfs), 2 Units
Generating (10,000 cfs), 176 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

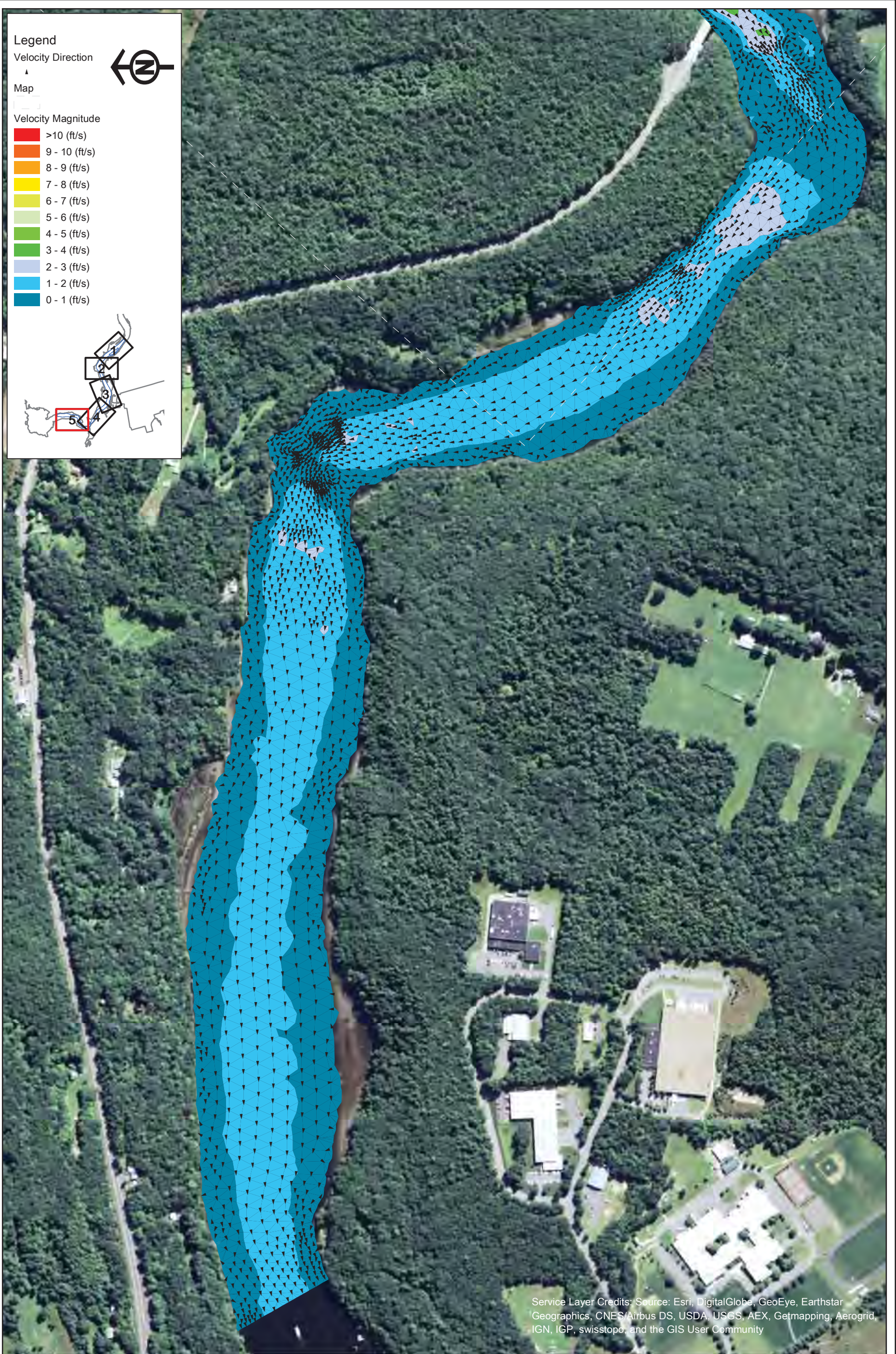
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0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 17 - Map 4
50% Exceedance Flow (8,440 cfs), 2 Units
Generating (10,000 cfs), 176 WSEL at Dam





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

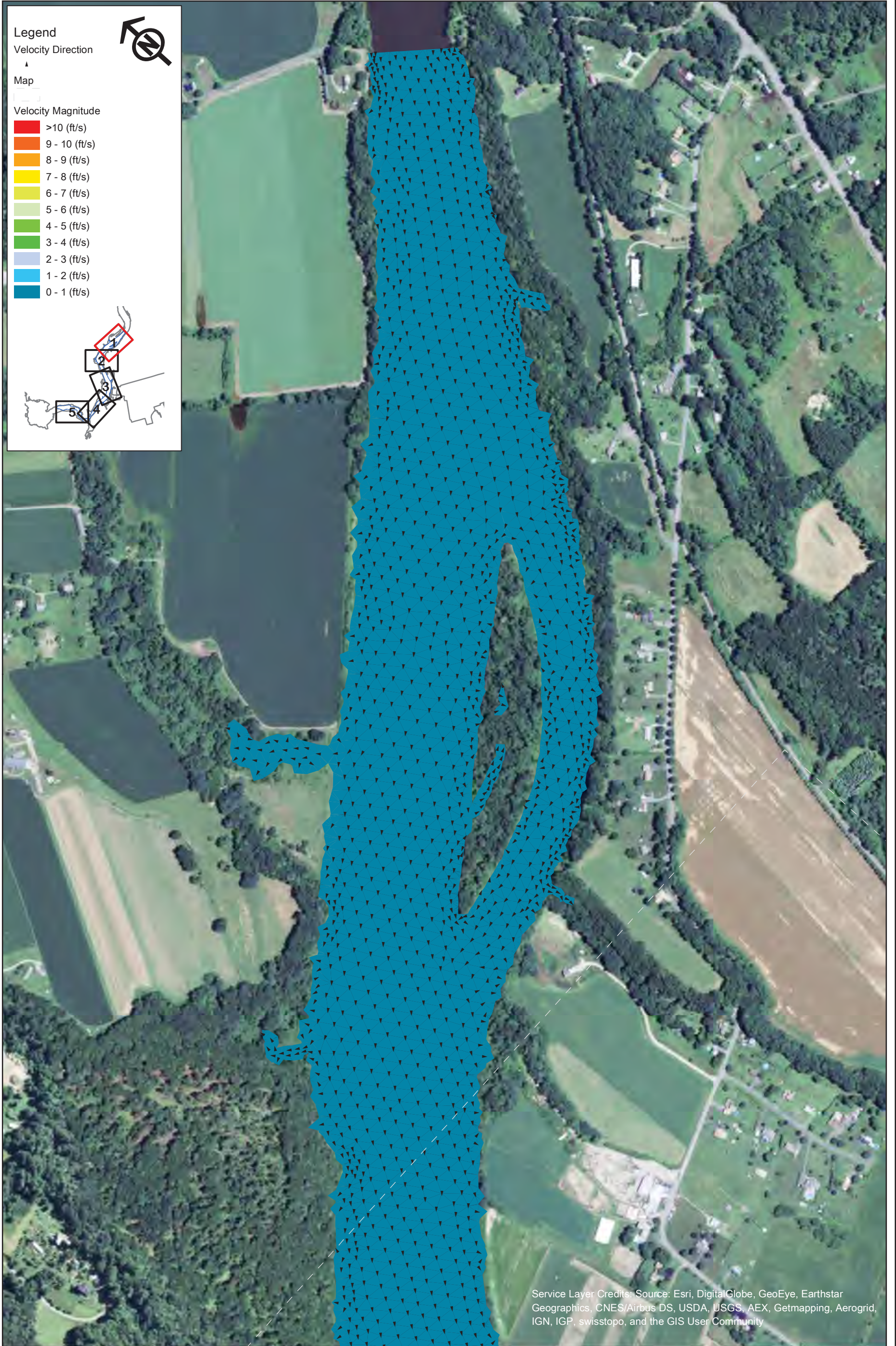


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 17 - Map 5
50% Exceedance Flow (8,440 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



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



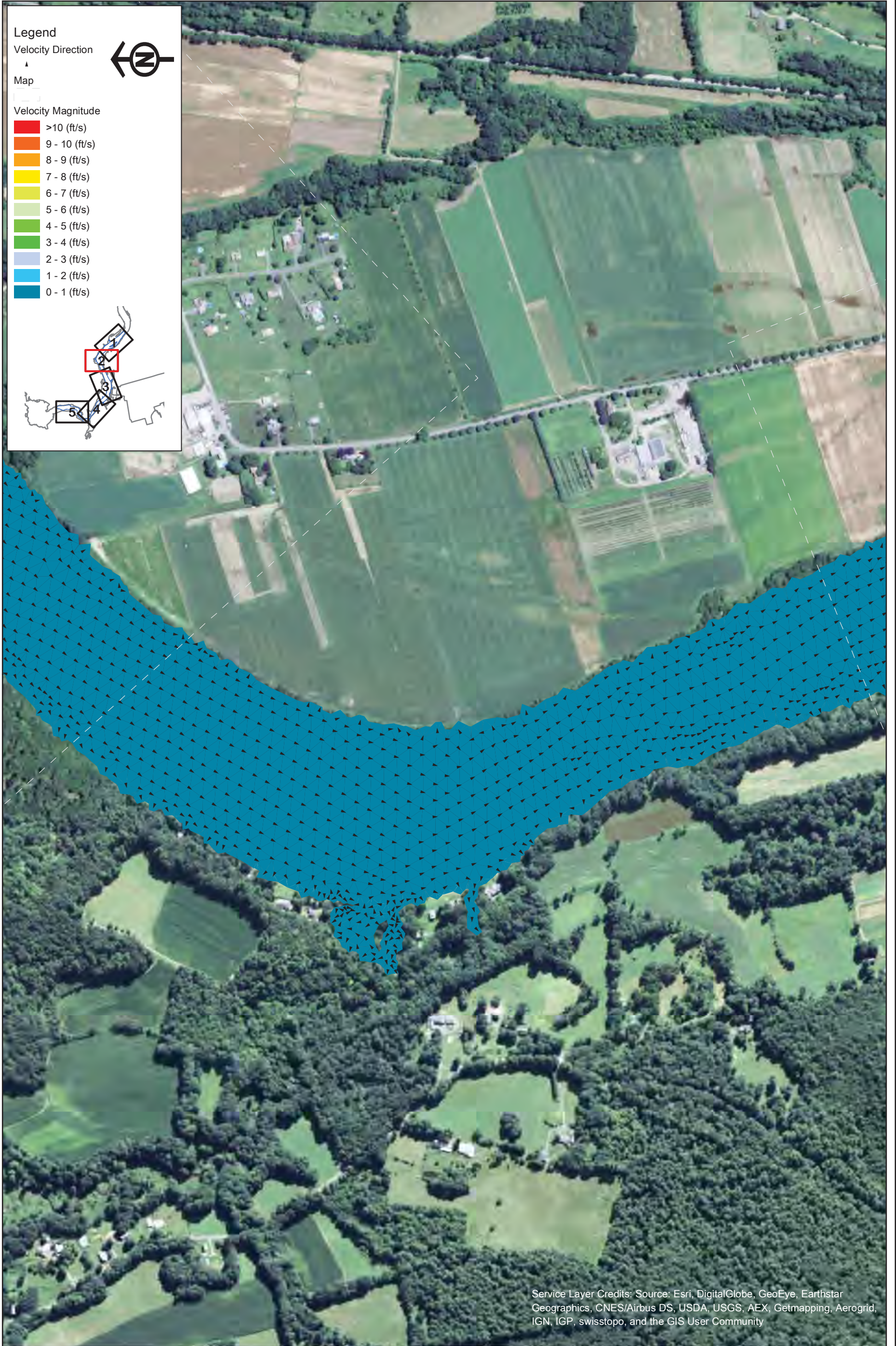
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 18 - Map 1
50% Exceedance Flow (8,440 cfs), 2 Units
Generating (10,000 cfs), 185 WSEL at Dam



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

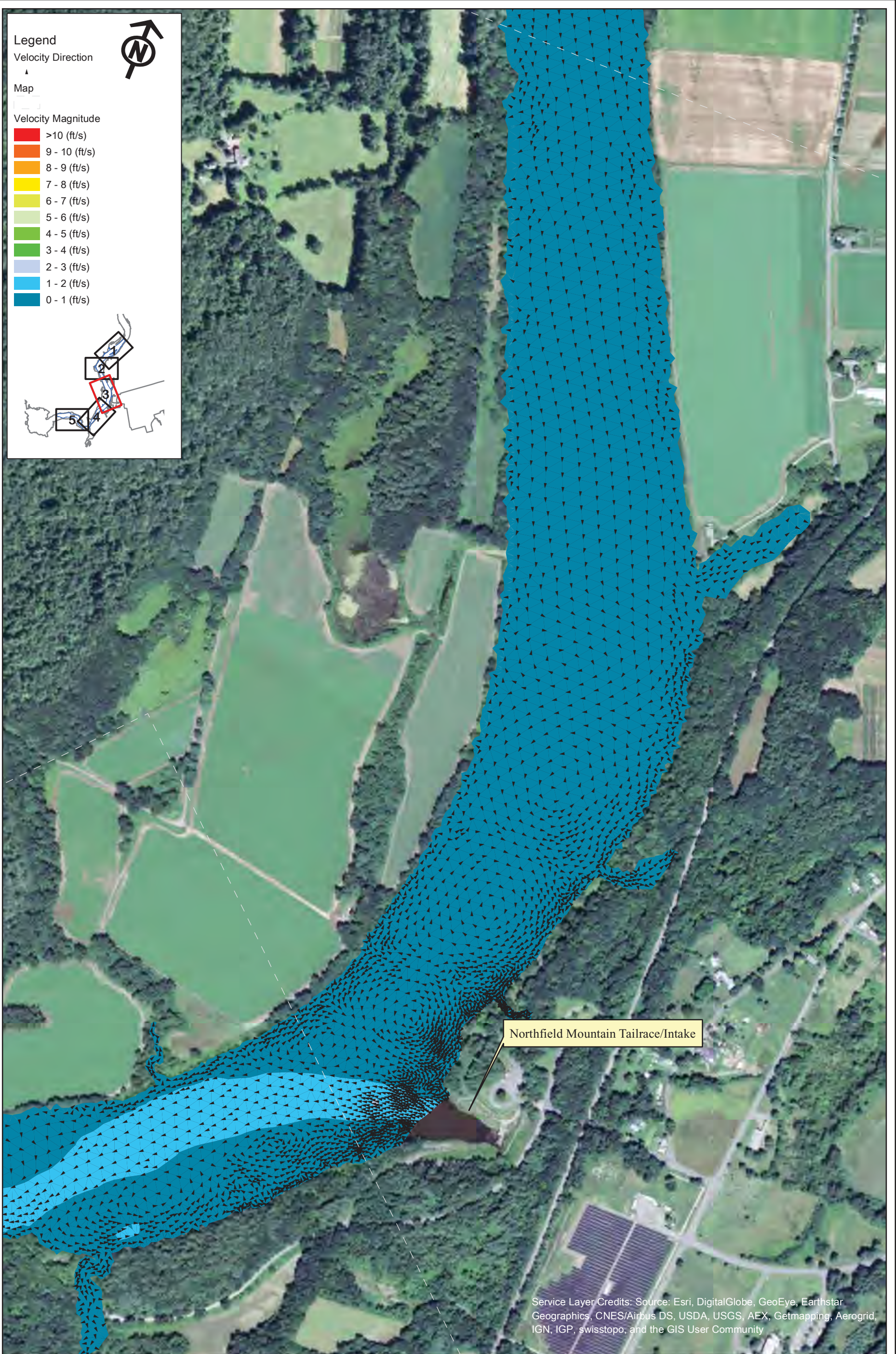


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 18 - Map 2
 50% Exceedance Flow (8,440 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

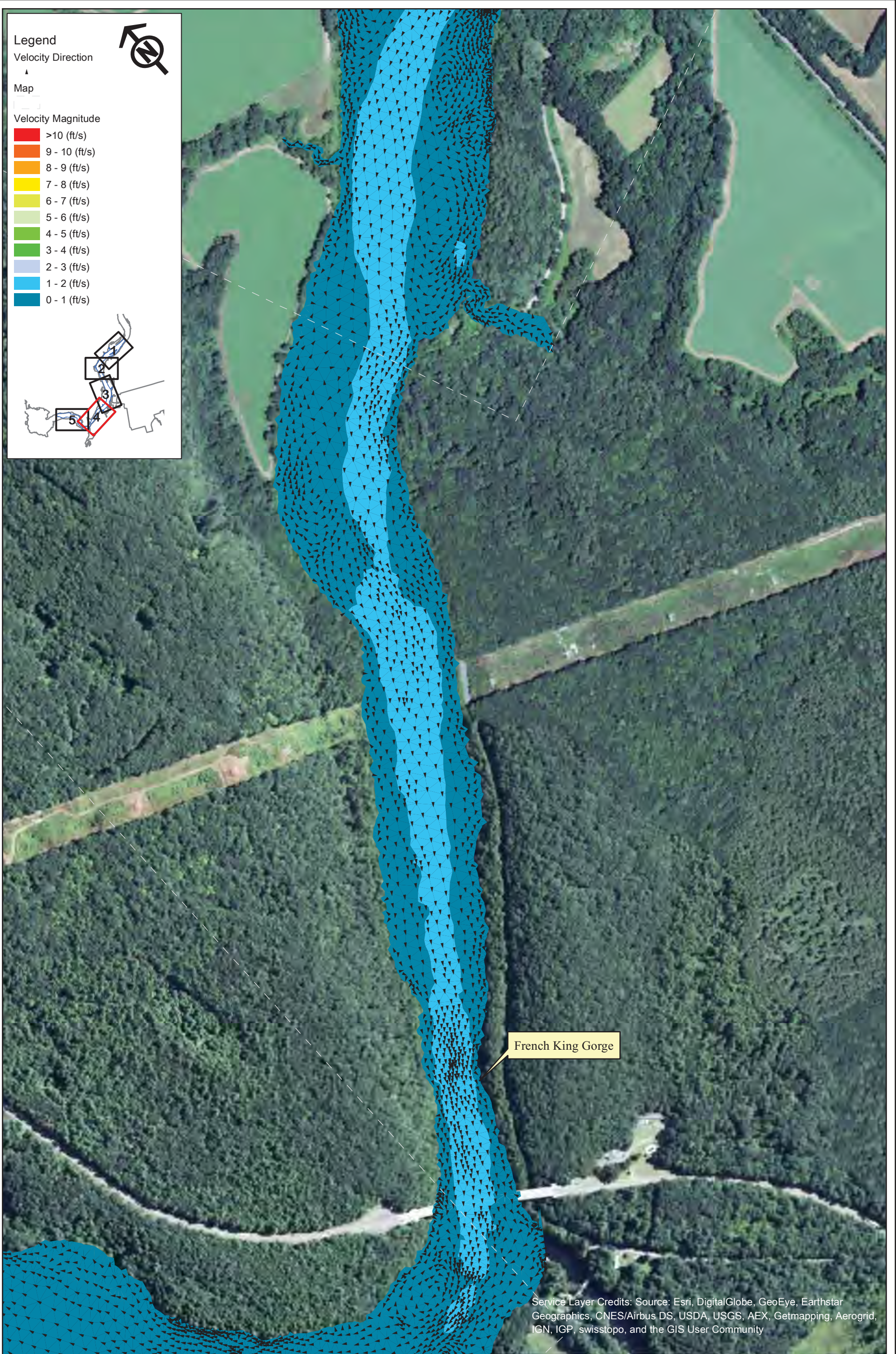


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 18 - Map 3
50% Exceedance Flow (8,440 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam

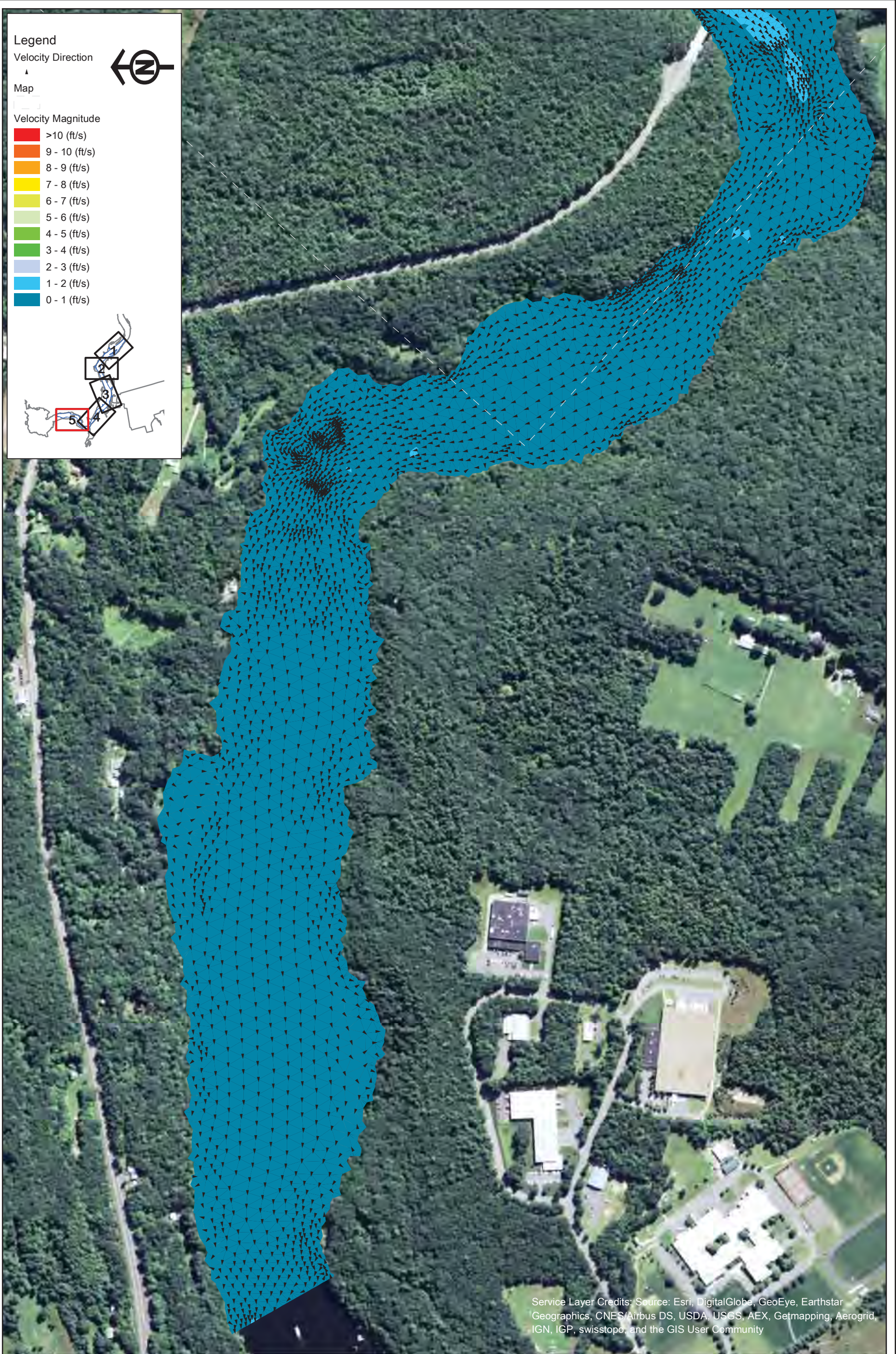


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9

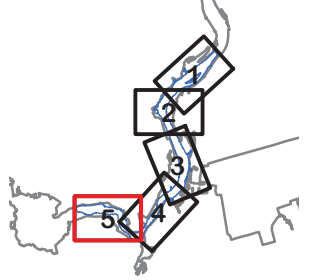


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 18 - Map 4
50% Exceedance Flow (8,440 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

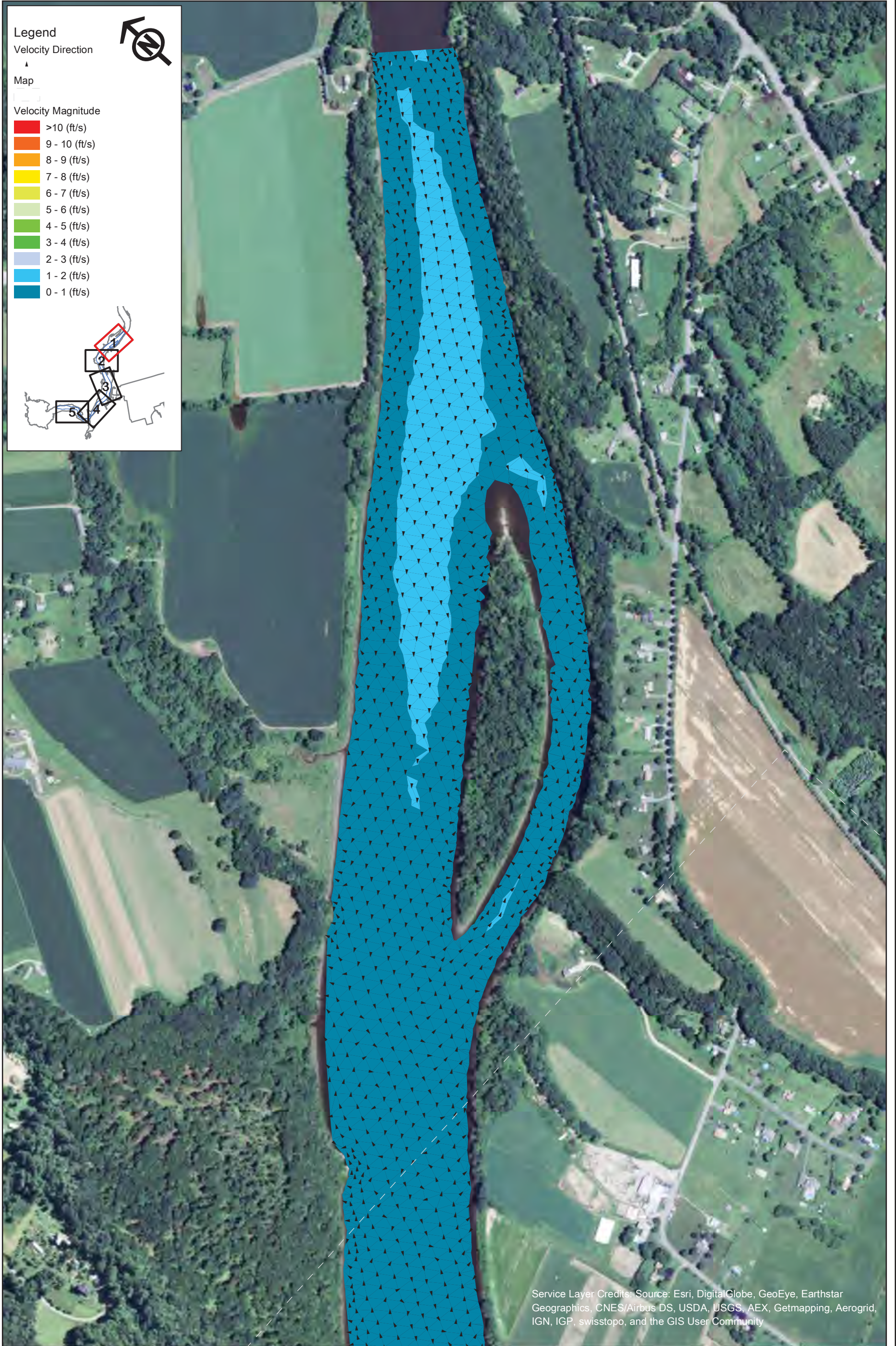


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 18 - Map 5
 50% Exceedance Flow (8,440 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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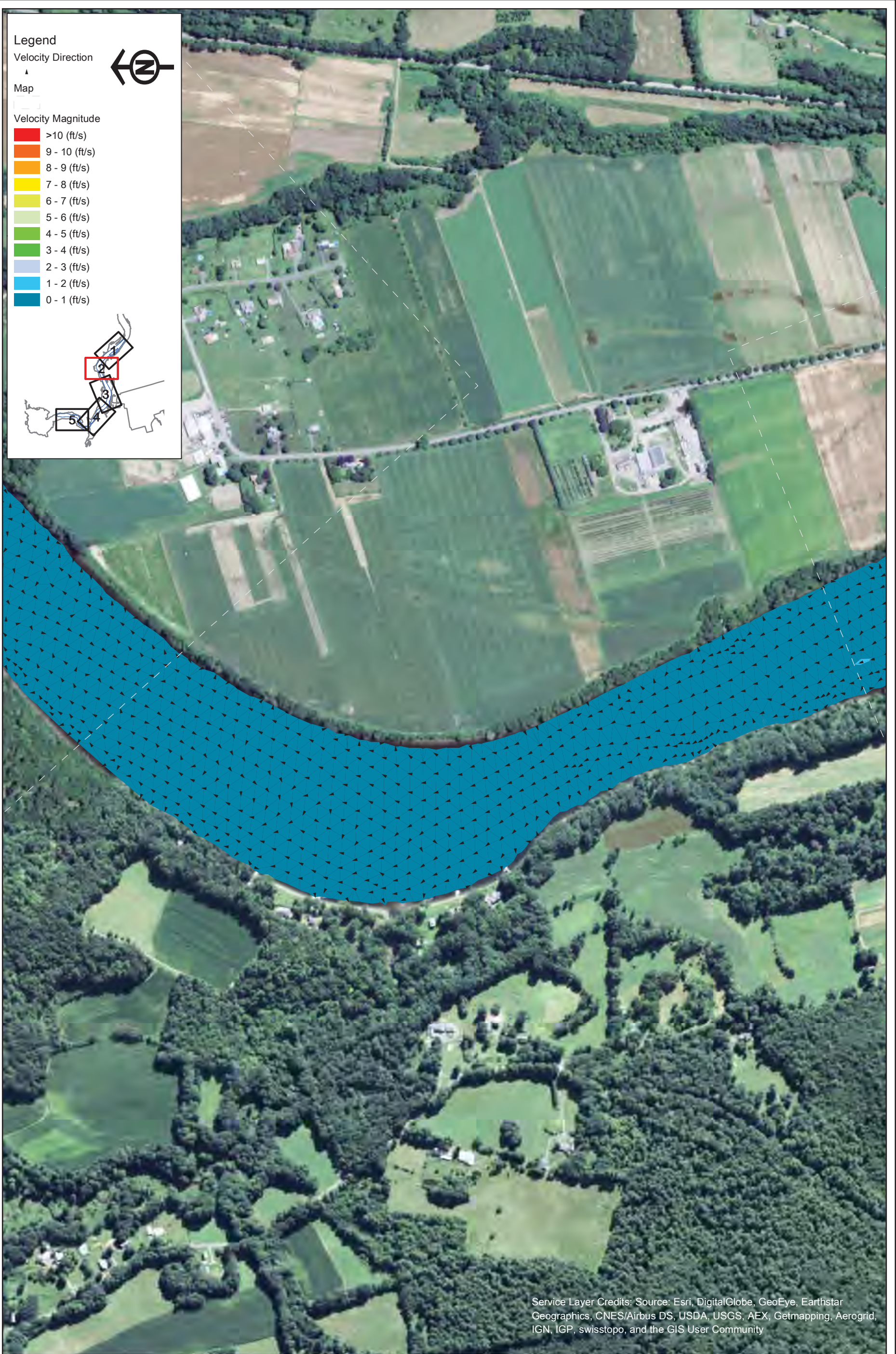


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 19 - Map 1
50% Exceedance Flow (8,440 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam



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Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

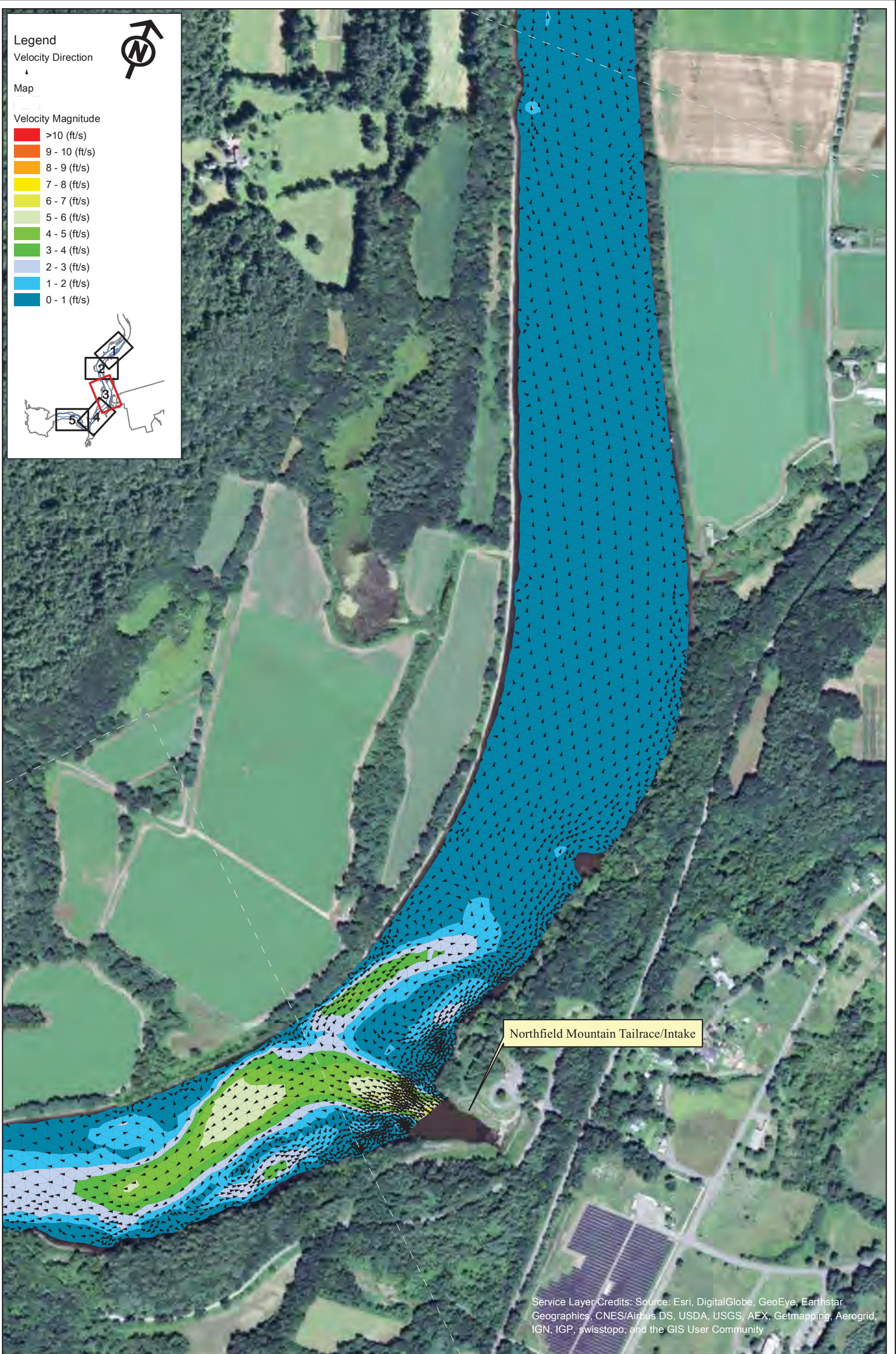


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 19 - Map 2
 50% Exceedance Flow (8,440 cfs), 4 Units
 Generating (20,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

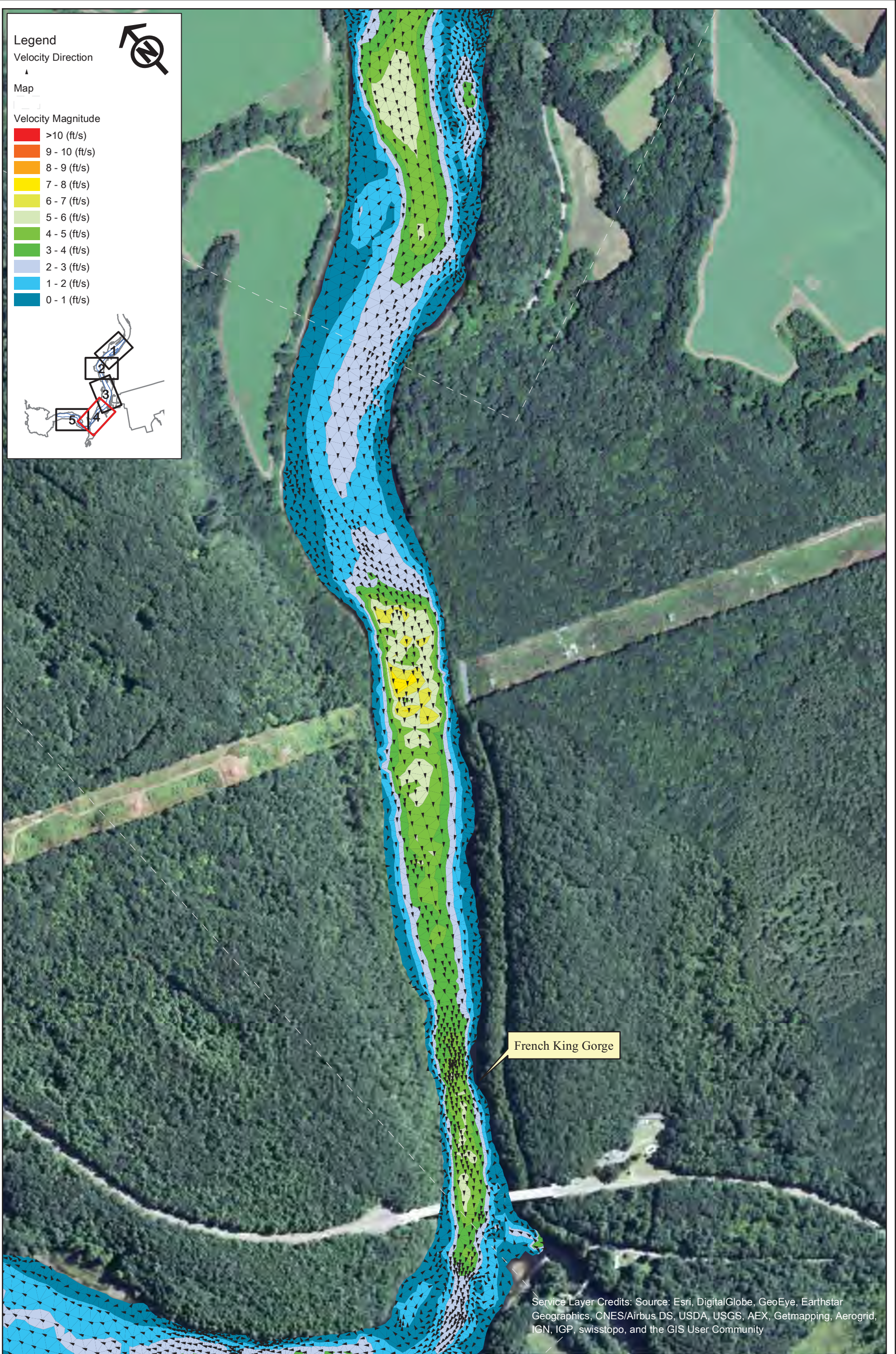
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 19 - Map 3
50% Exceedance Flow (8,440 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam



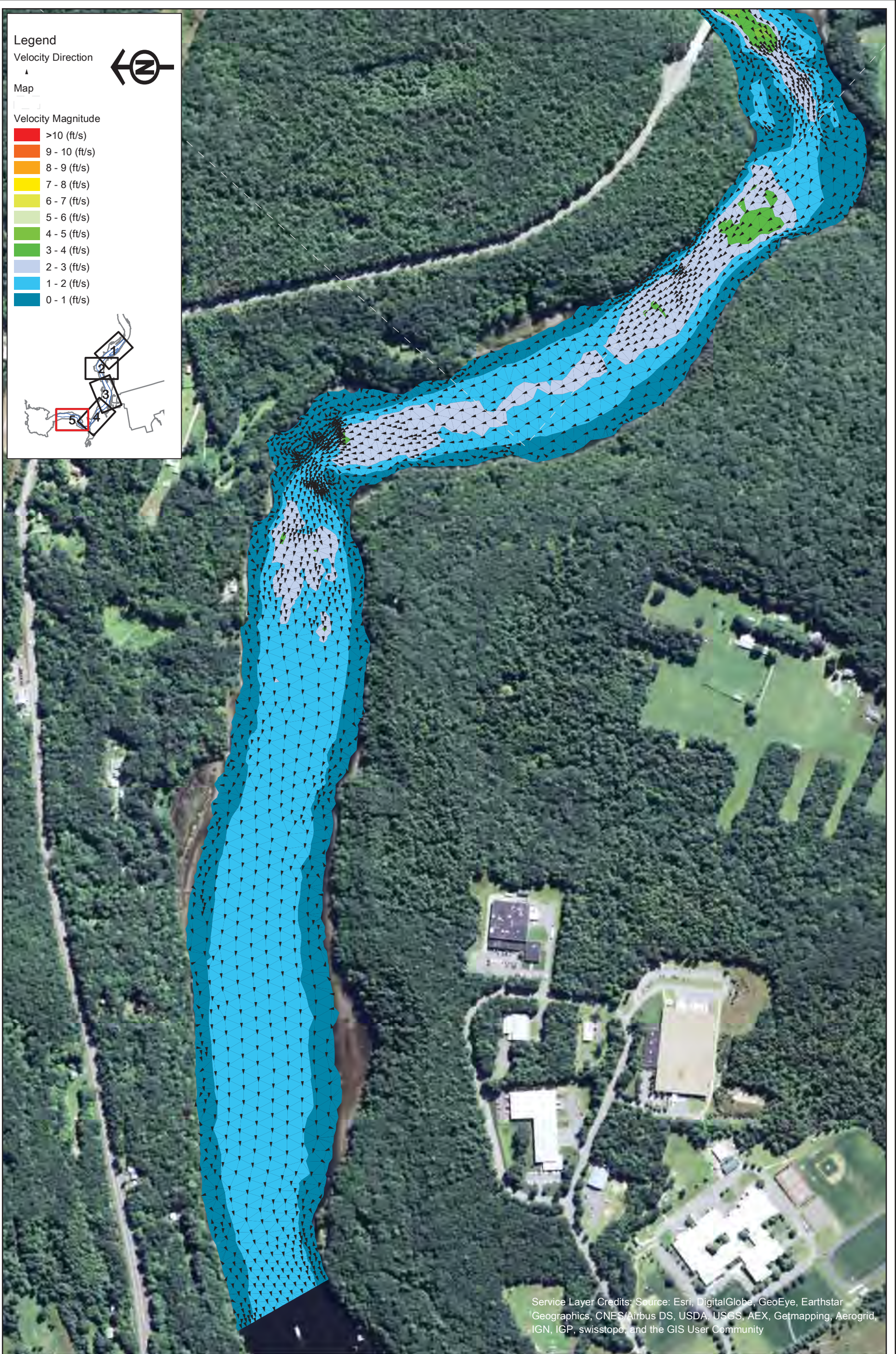


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace
Scenario 19 - Map 4
50% Exceedance Flow (8,440 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam



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



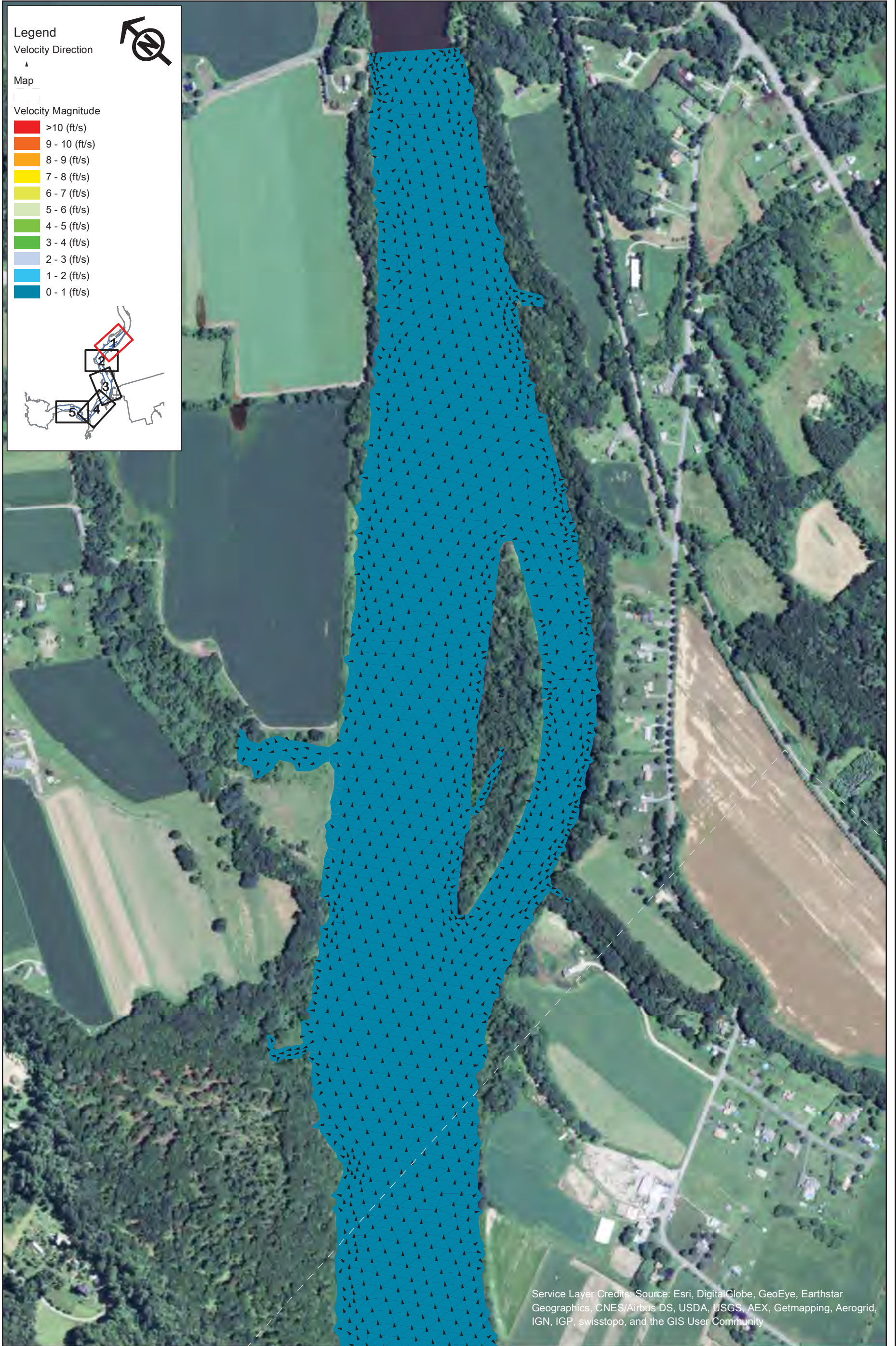
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 19 - Map 5
50% Exceedance Flow (8,440 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

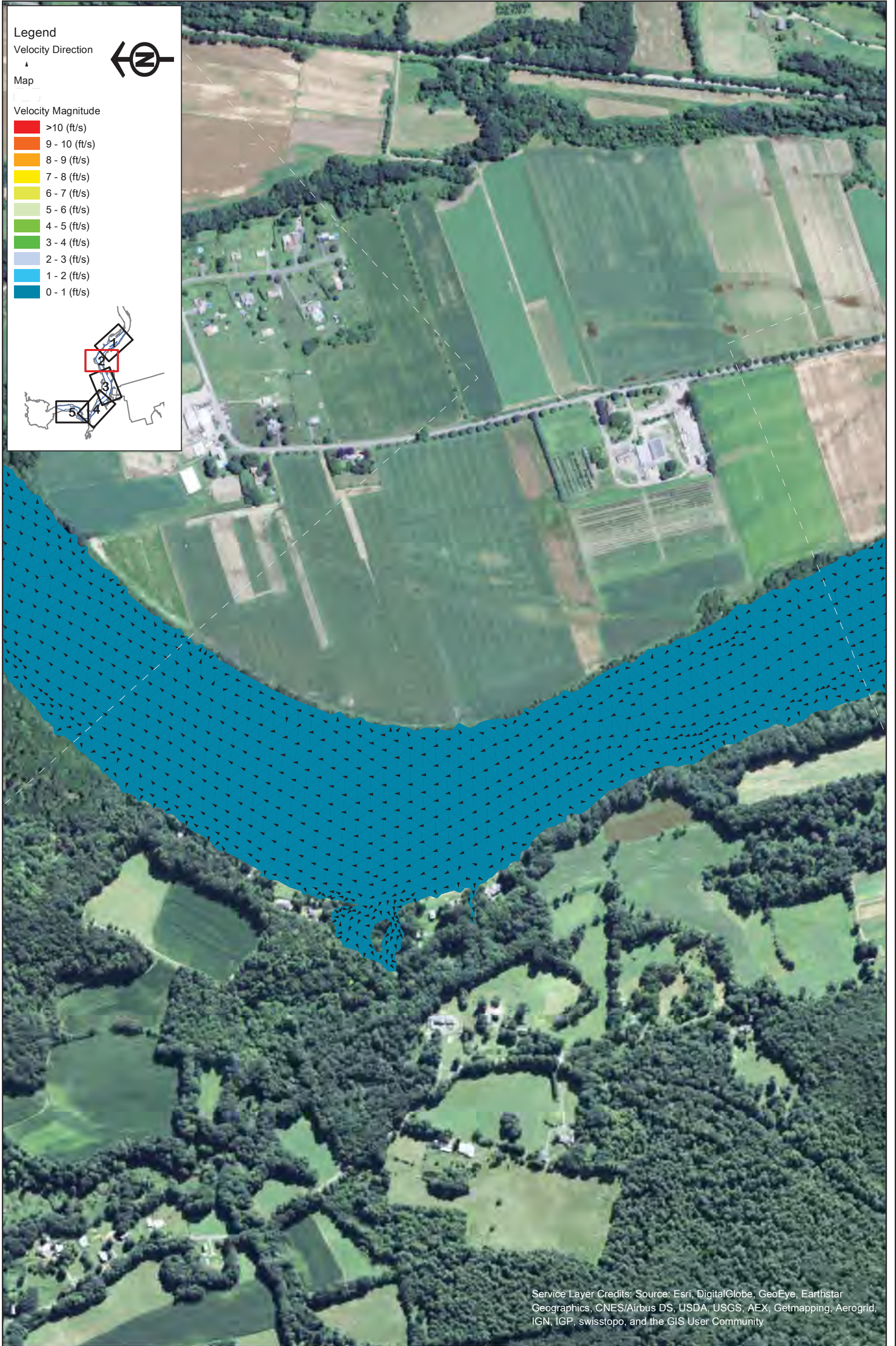
STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 20 - Map 1
50% Exceedance Flow (8,440 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam





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

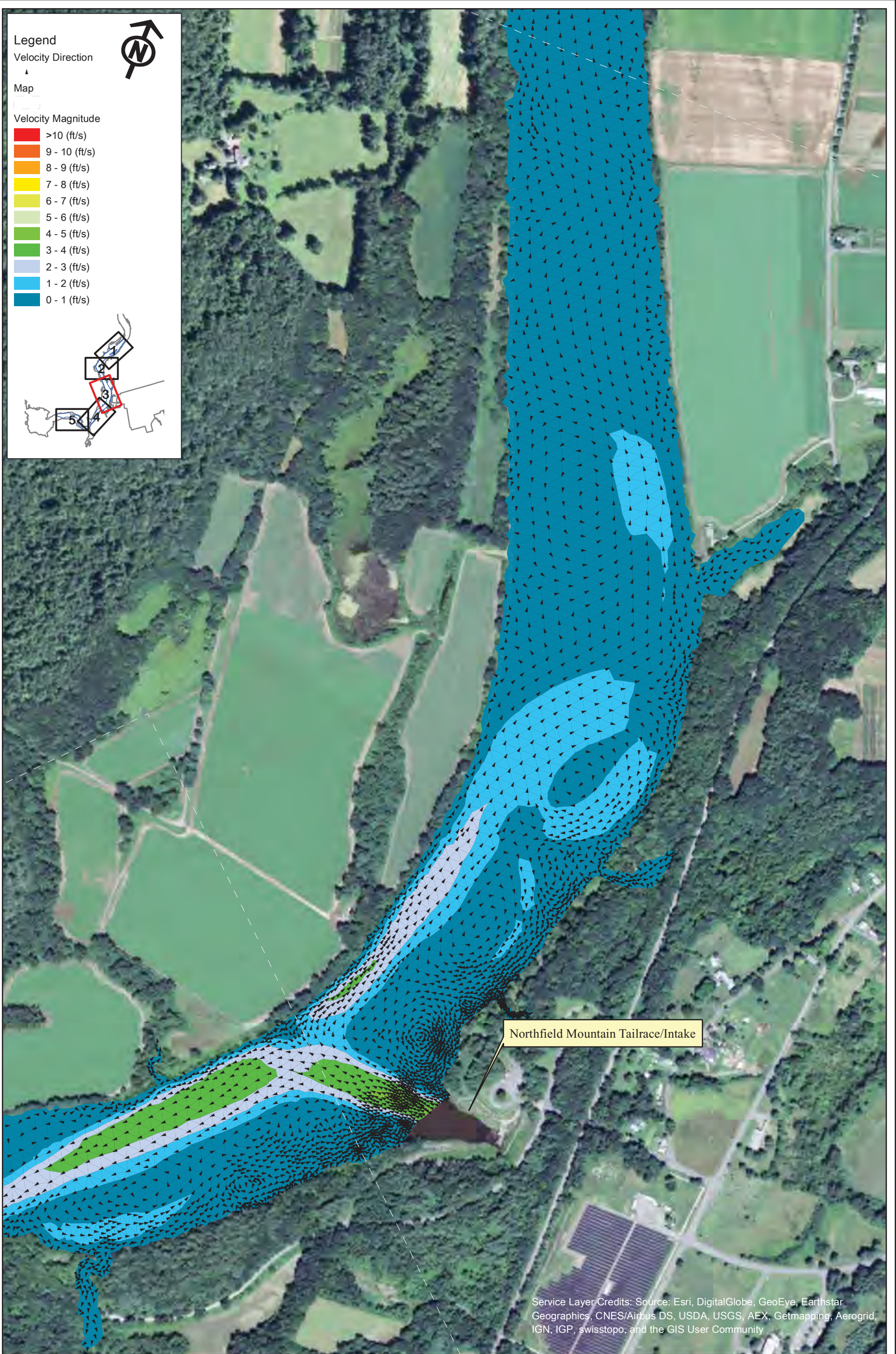


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 20 - Map 2
 50% Exceedance Flow (8,440 cfs), 4 Units
 Generating (20,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

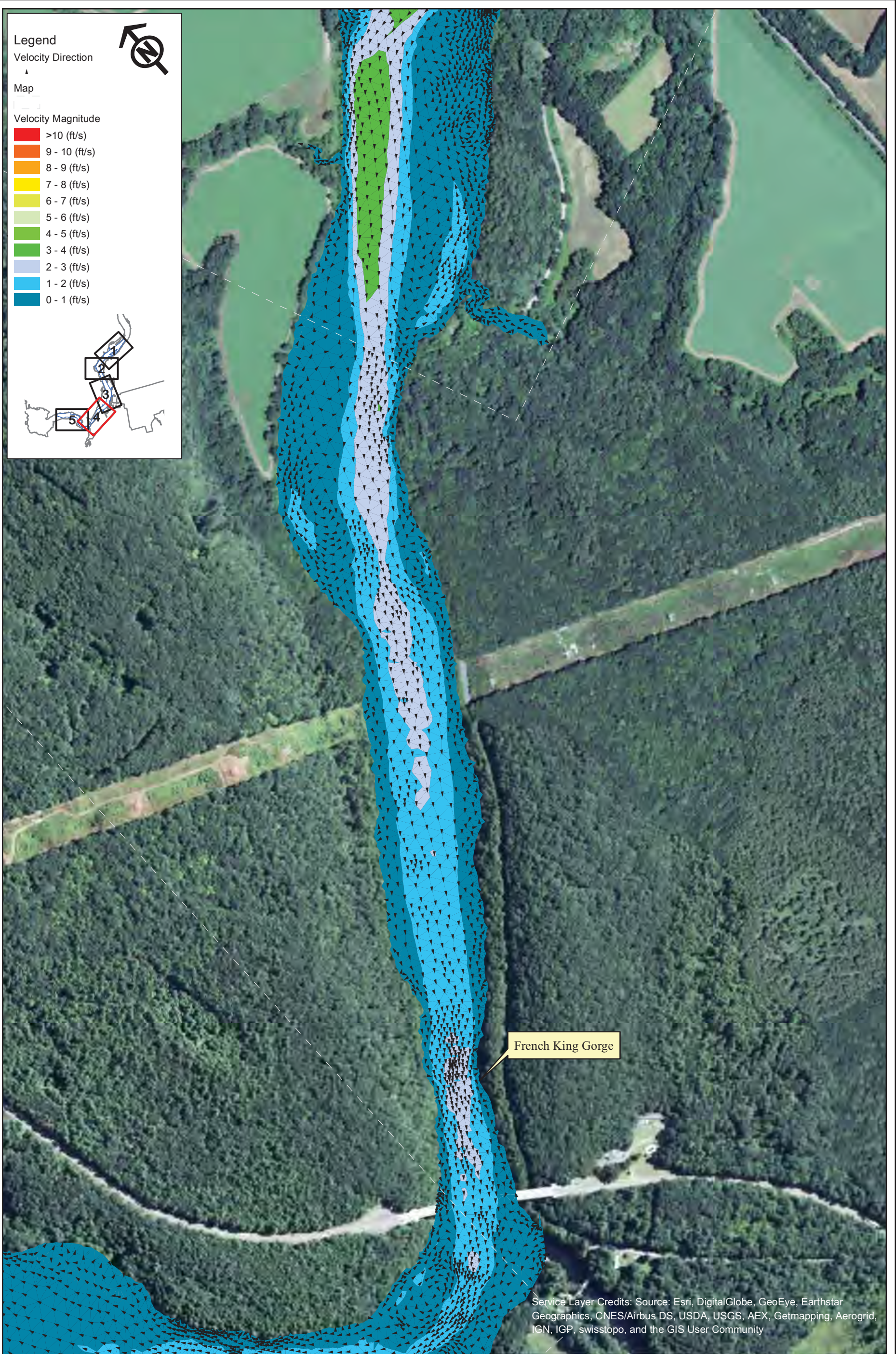


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 20 - Map 3
50% Exceedance Flow (8,440 cfs), 4 Units Generating (20,000 cfs), 185 WSEL at Dam

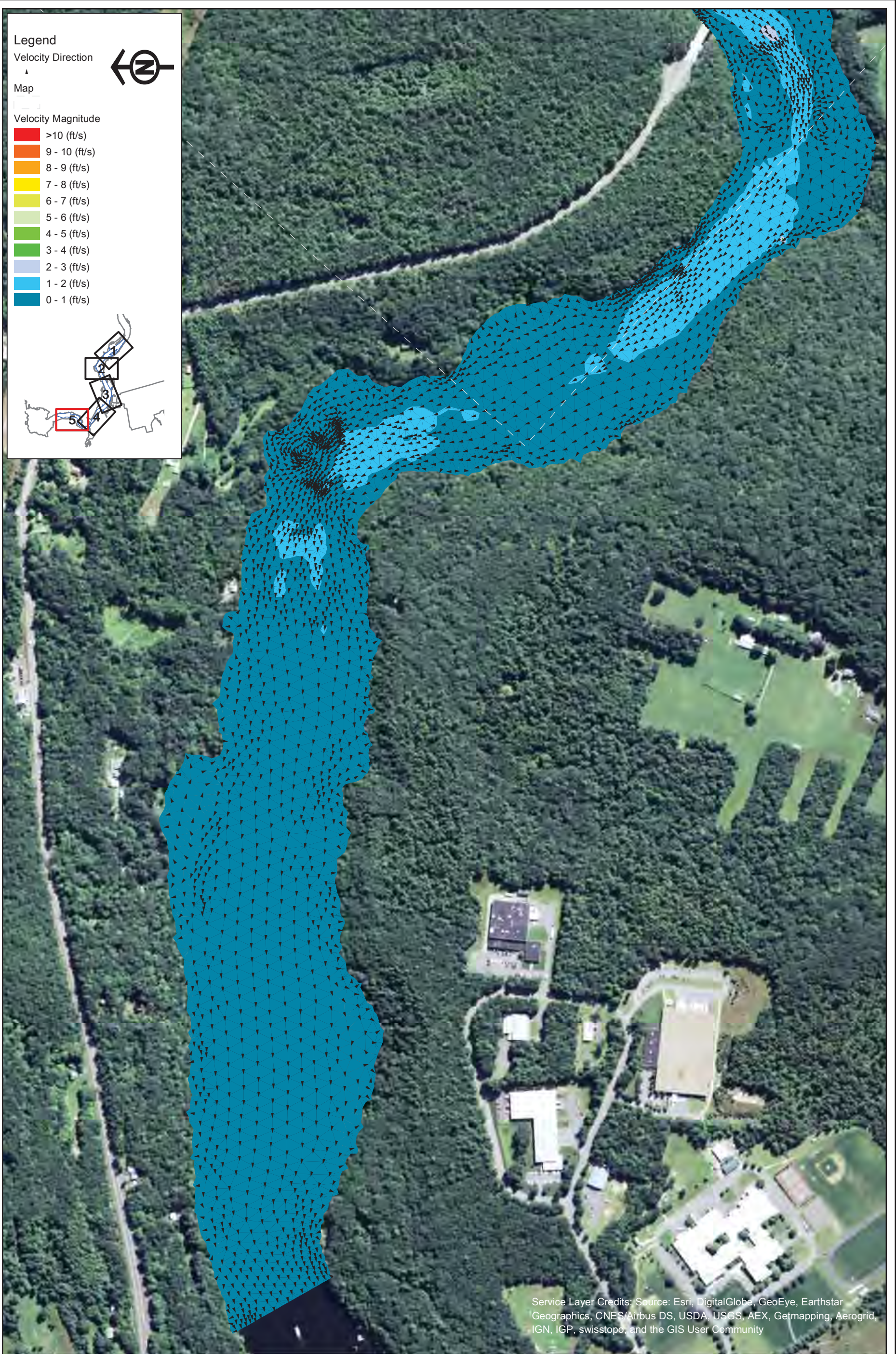


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 20 - Map 4
50% Exceedance Flow (8,440 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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



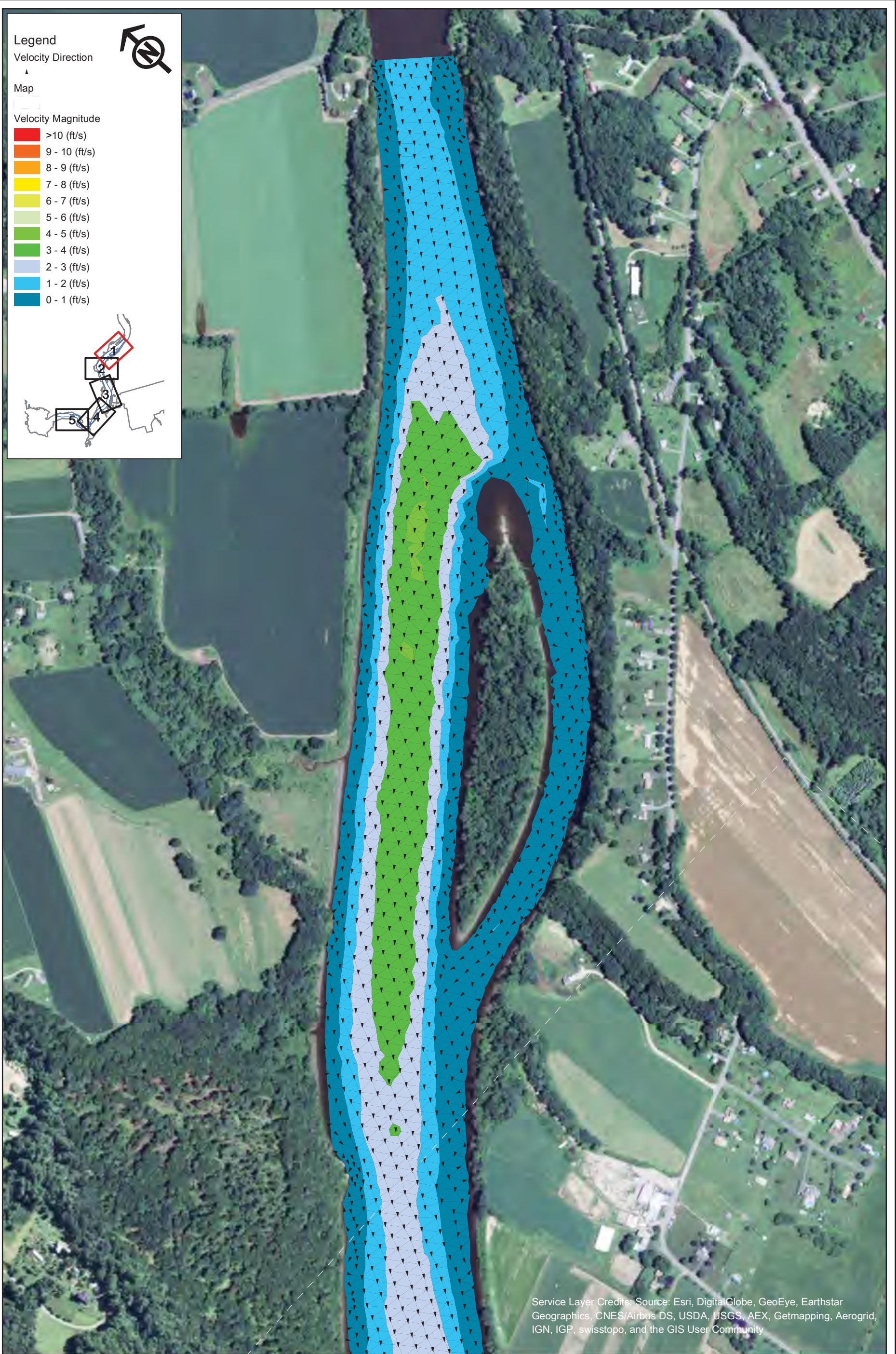
Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 20 - Map 5
 50% Exceedance Flow (8,440 cfs), 4 Units
 Generating (20,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
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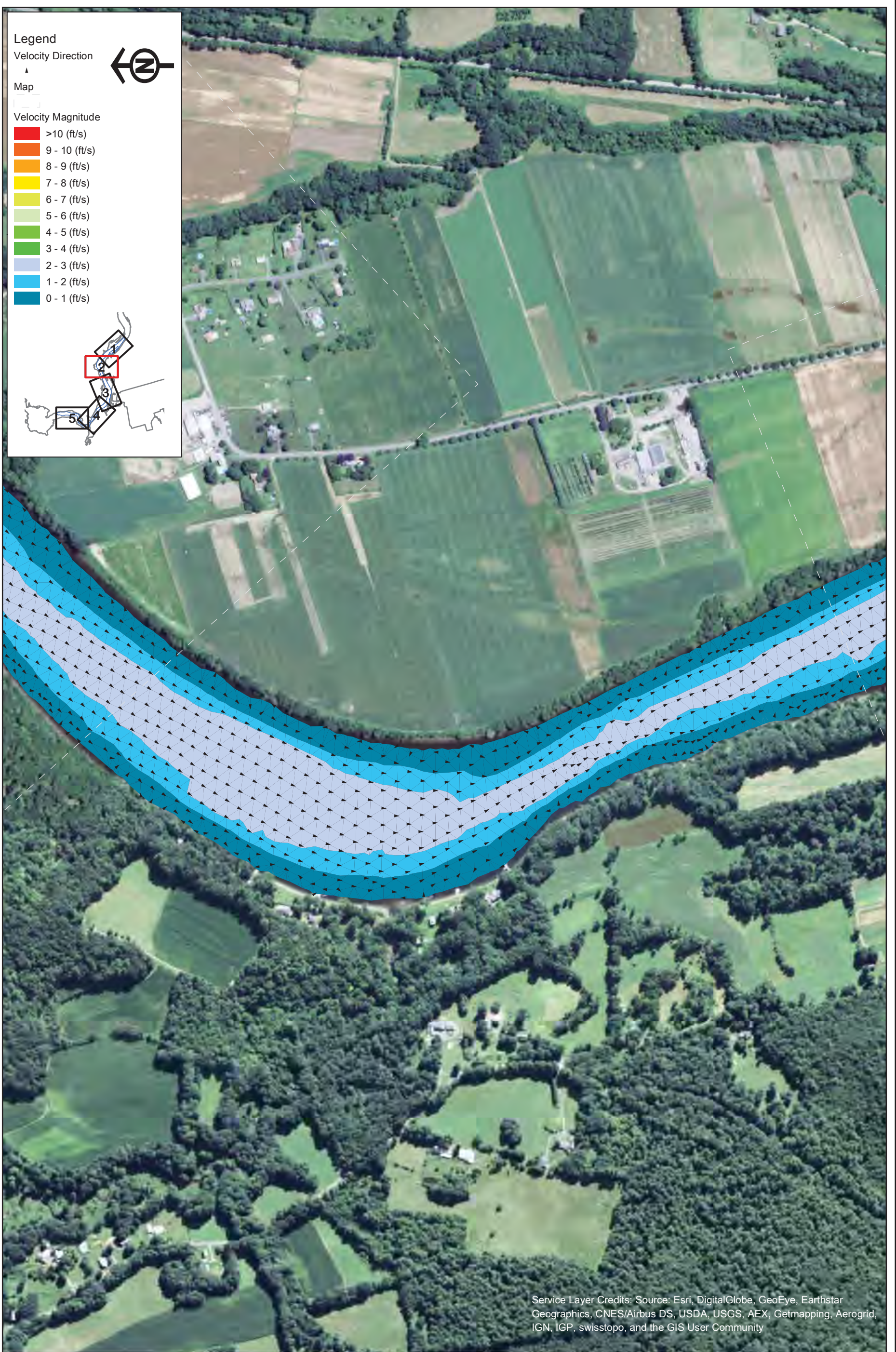
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Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 21 - Map 1
50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

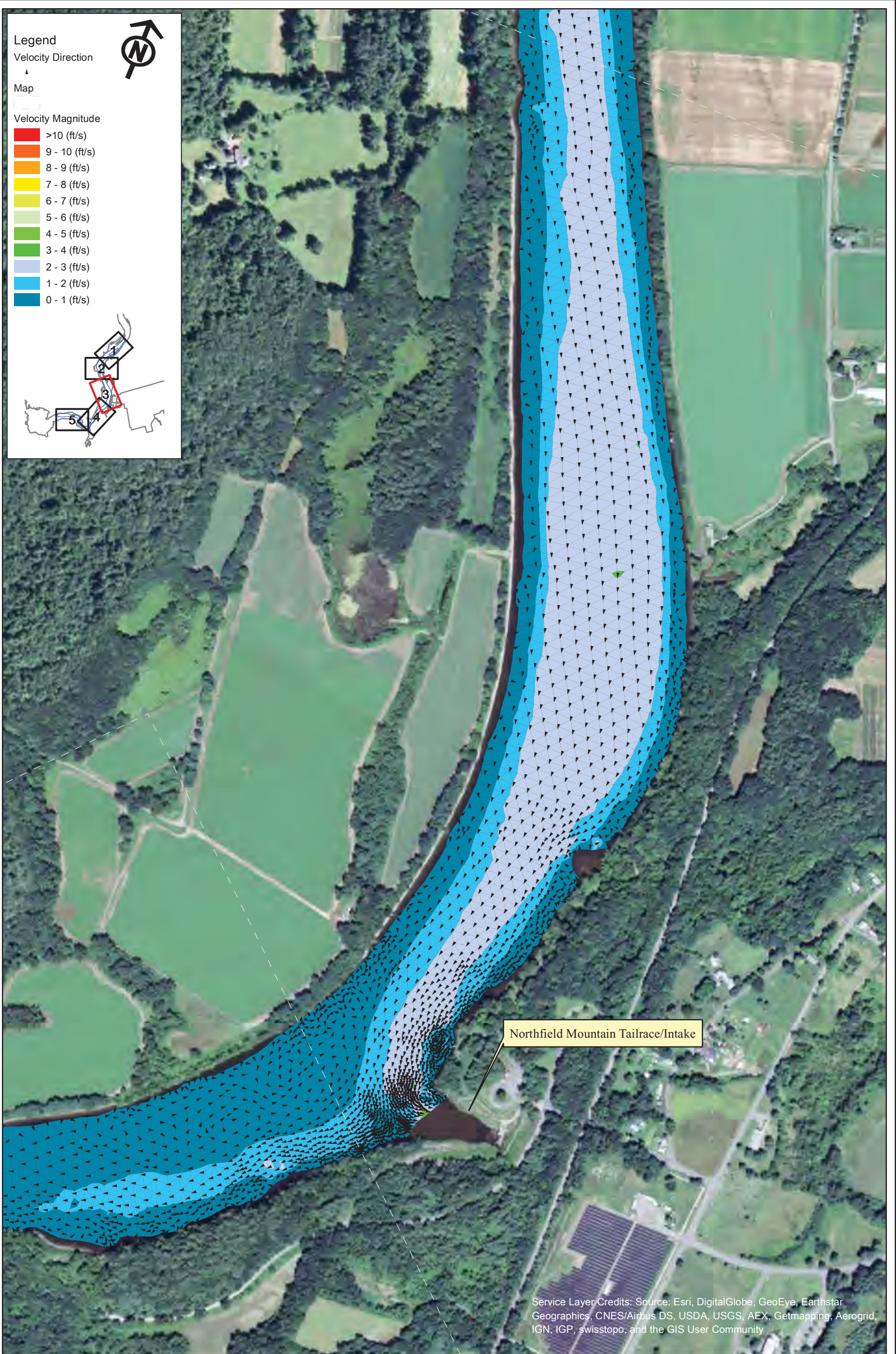
STUDY REPORT
 RELICENSING STUDY 3.3.9

0 250 500 1,000
 Feet

Appendix B - Velocity in the Turner Falls
 Impoundment 5 km Upstream and 5 km
 Downstream of the Northfield Tailrace

Scenario 21 - Map 2
 50% Exceedance Flow (8,440 cfs), 2 Units
 Pumping (7,600 cfs), 176 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

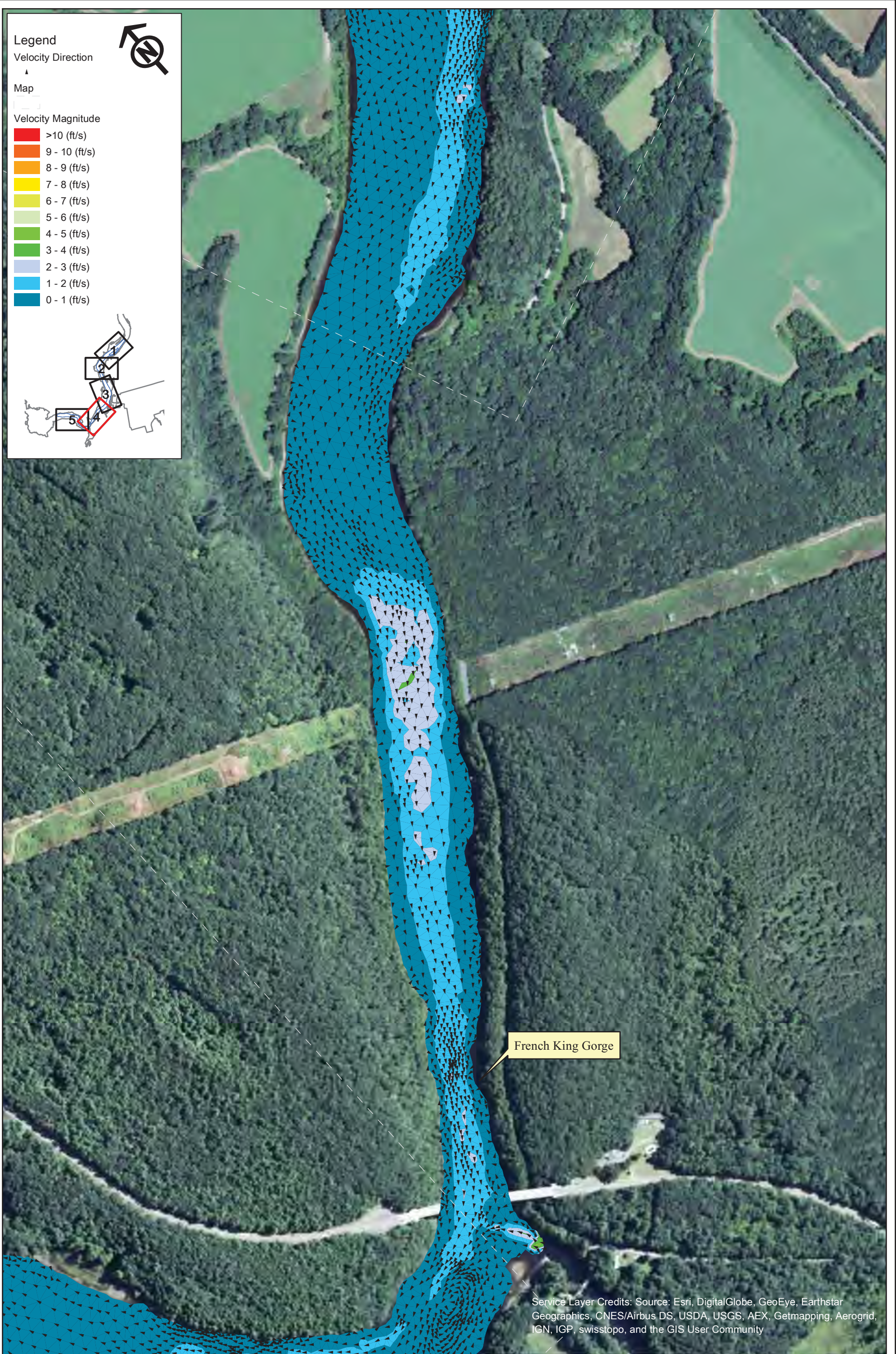
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 21 - Map 3
50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



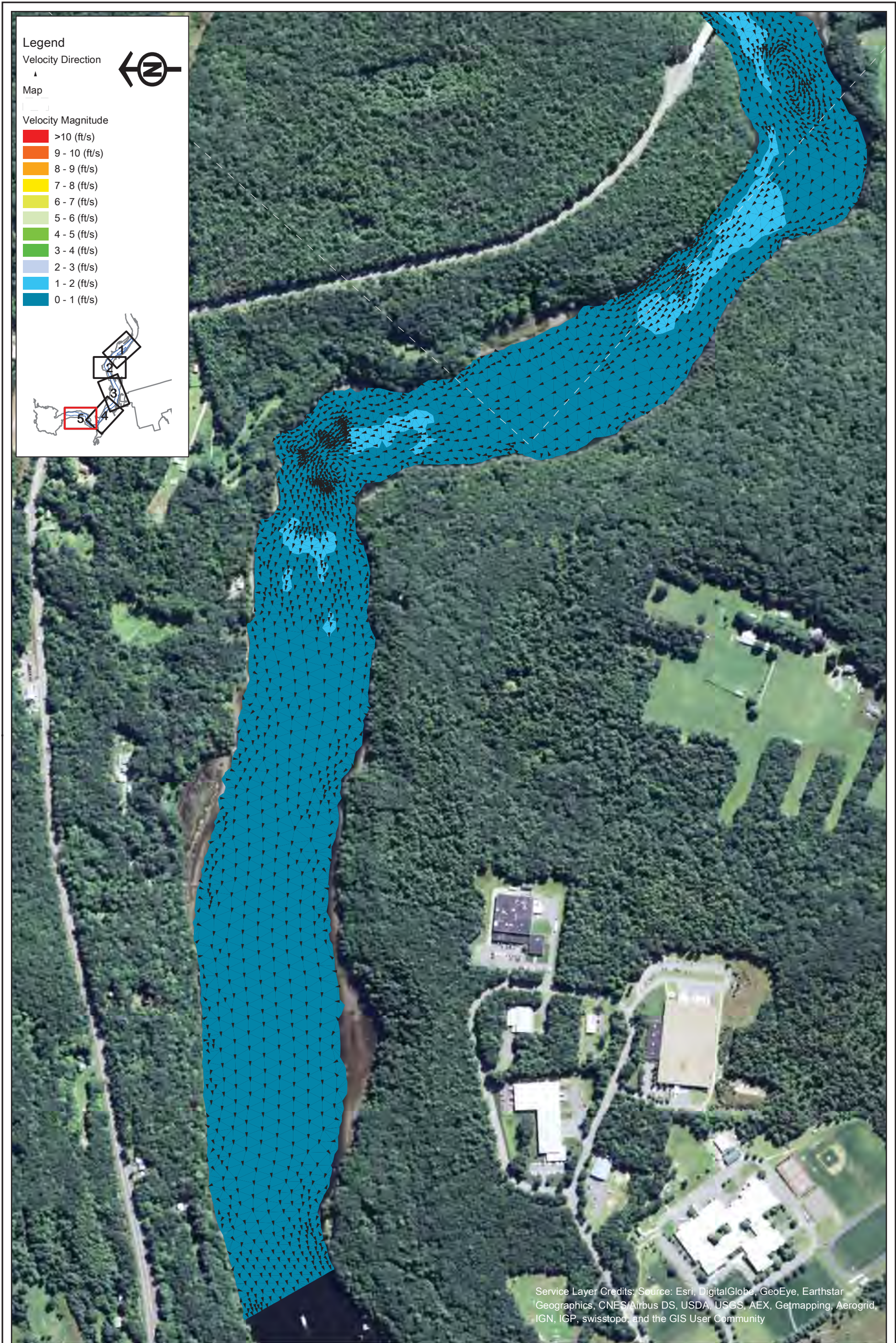


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 21 - Map 4
50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



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

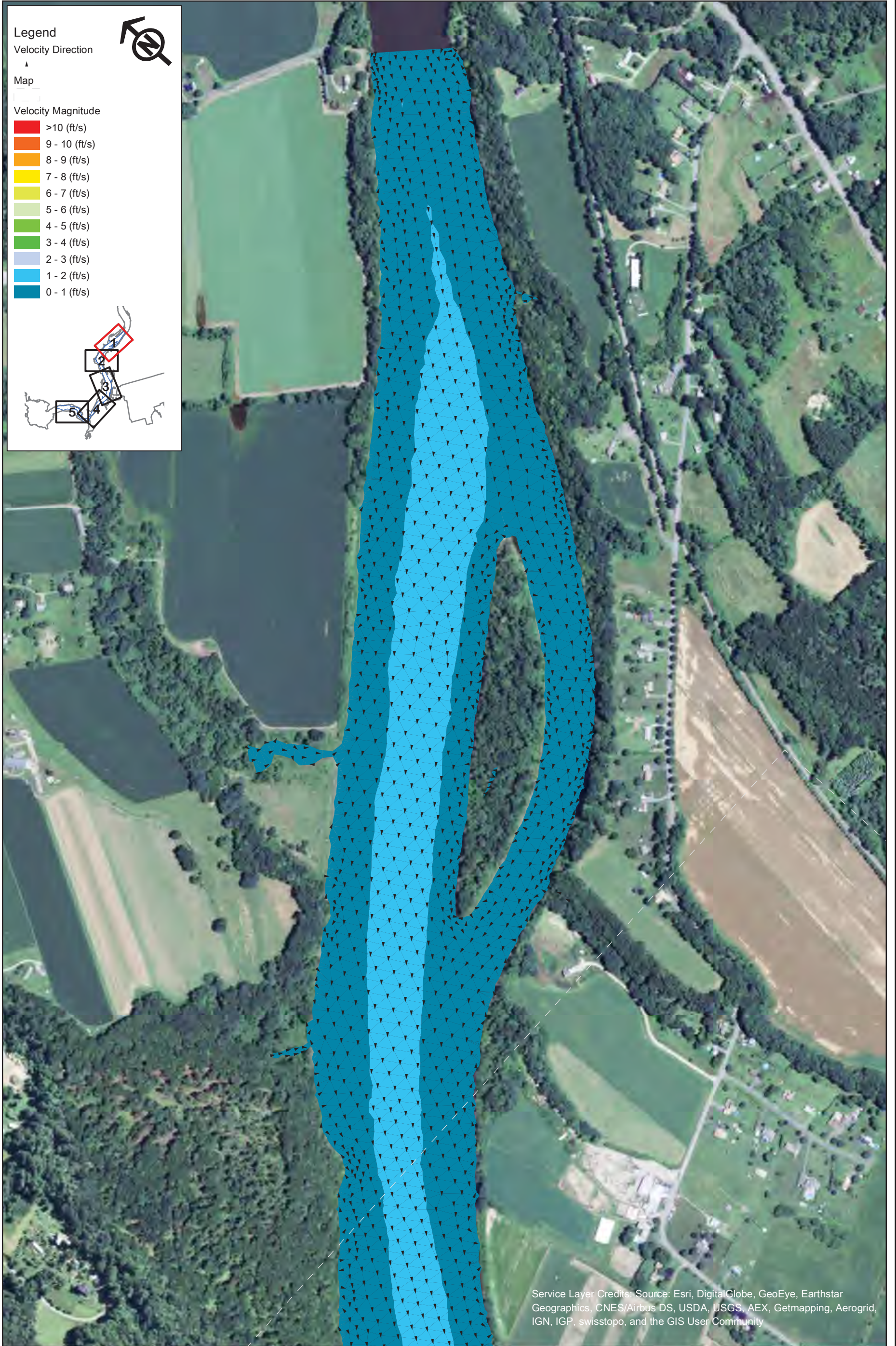


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 21 - Map 5
 50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



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

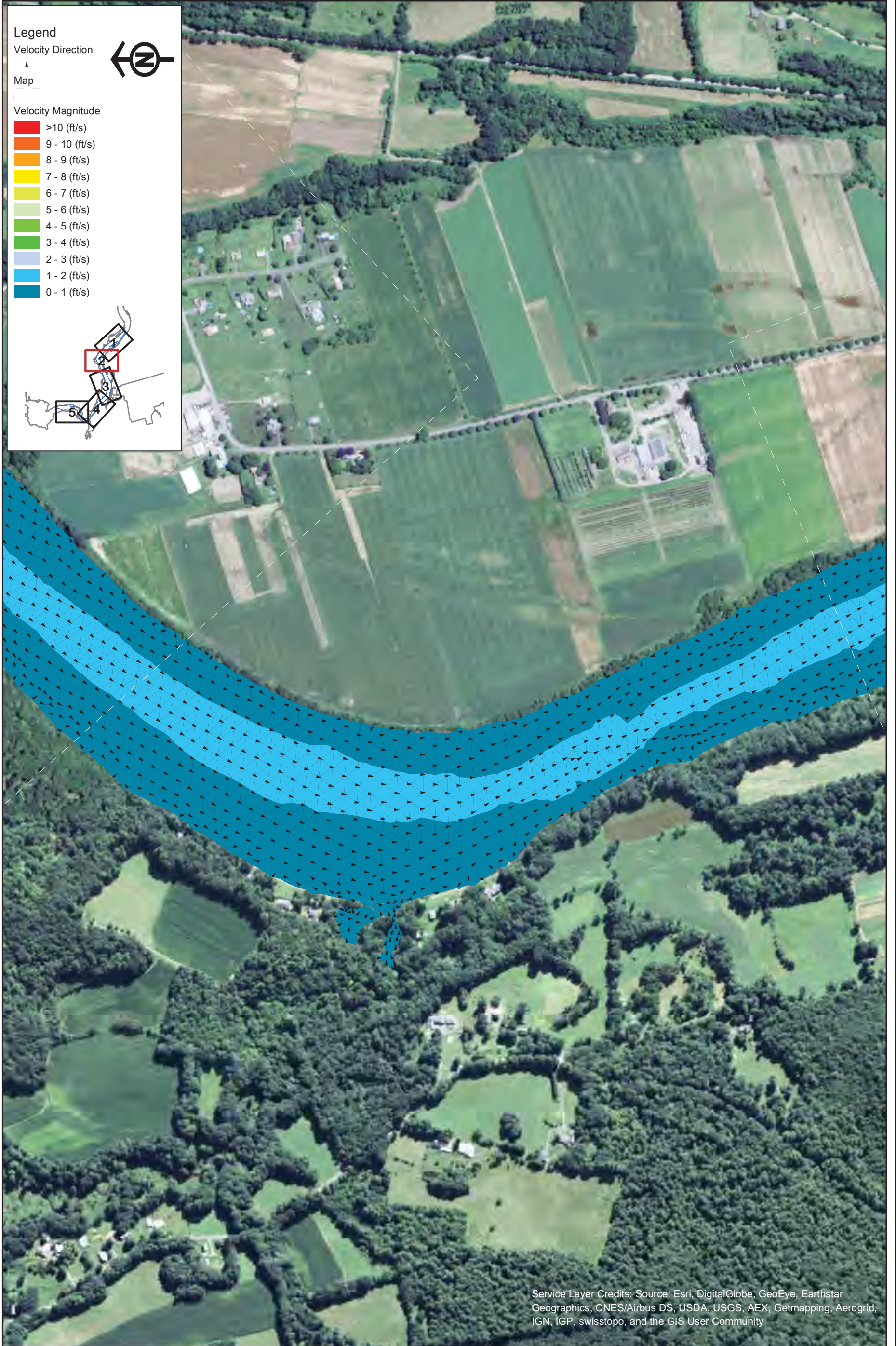
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 22 - Map 1
50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

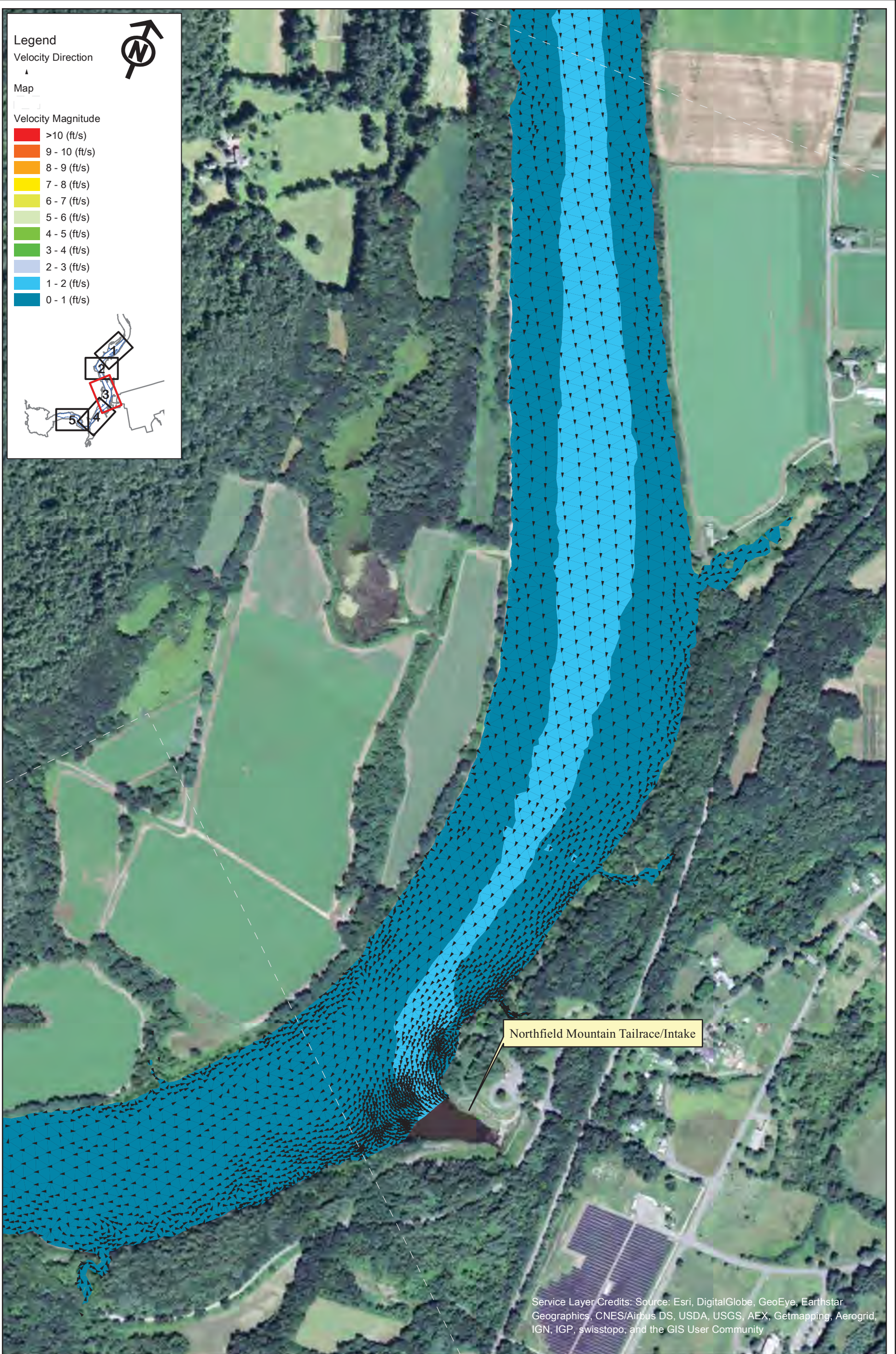


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 22 - Map 2
 50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

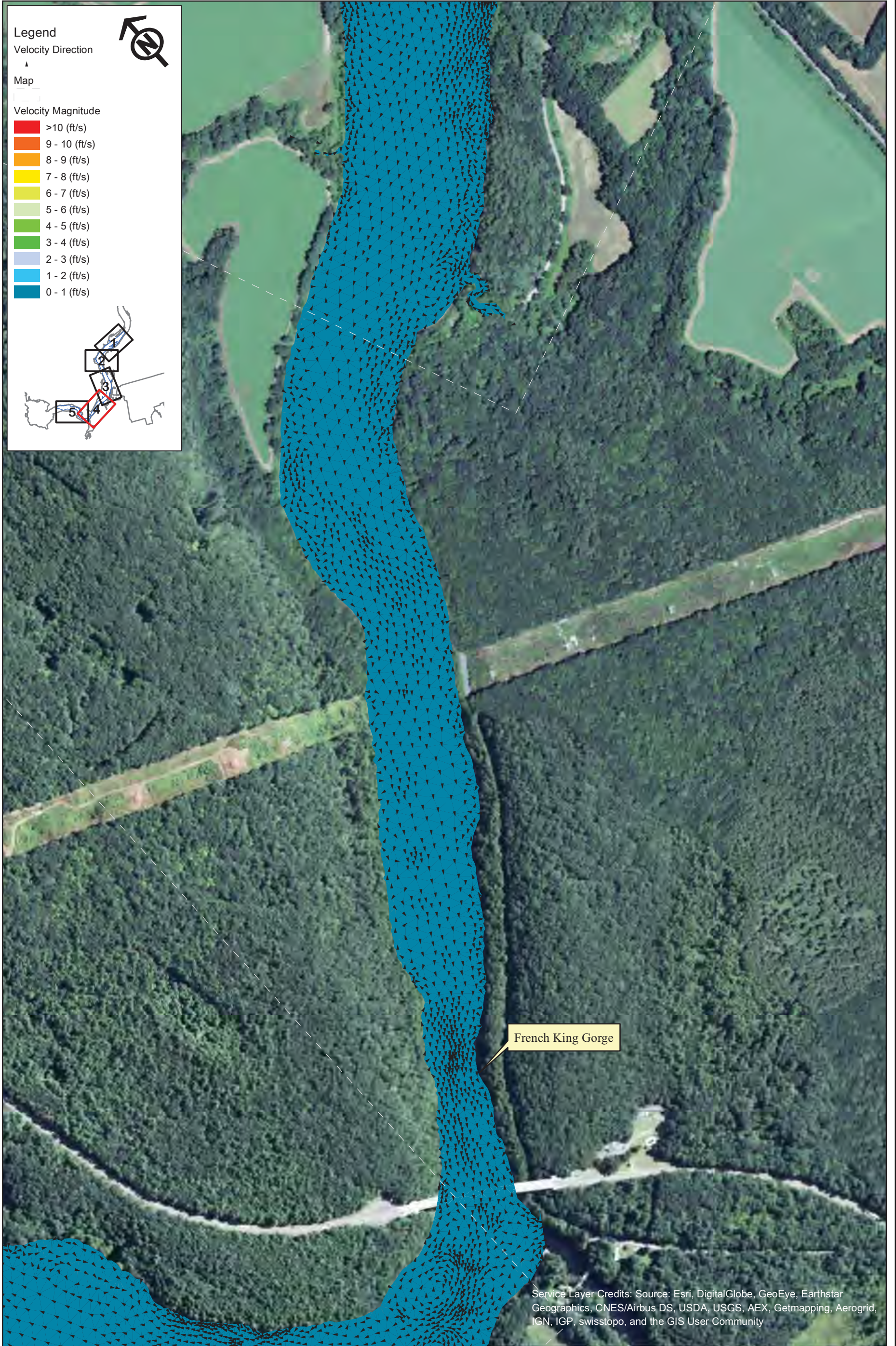


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 22 - Map 3
50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam

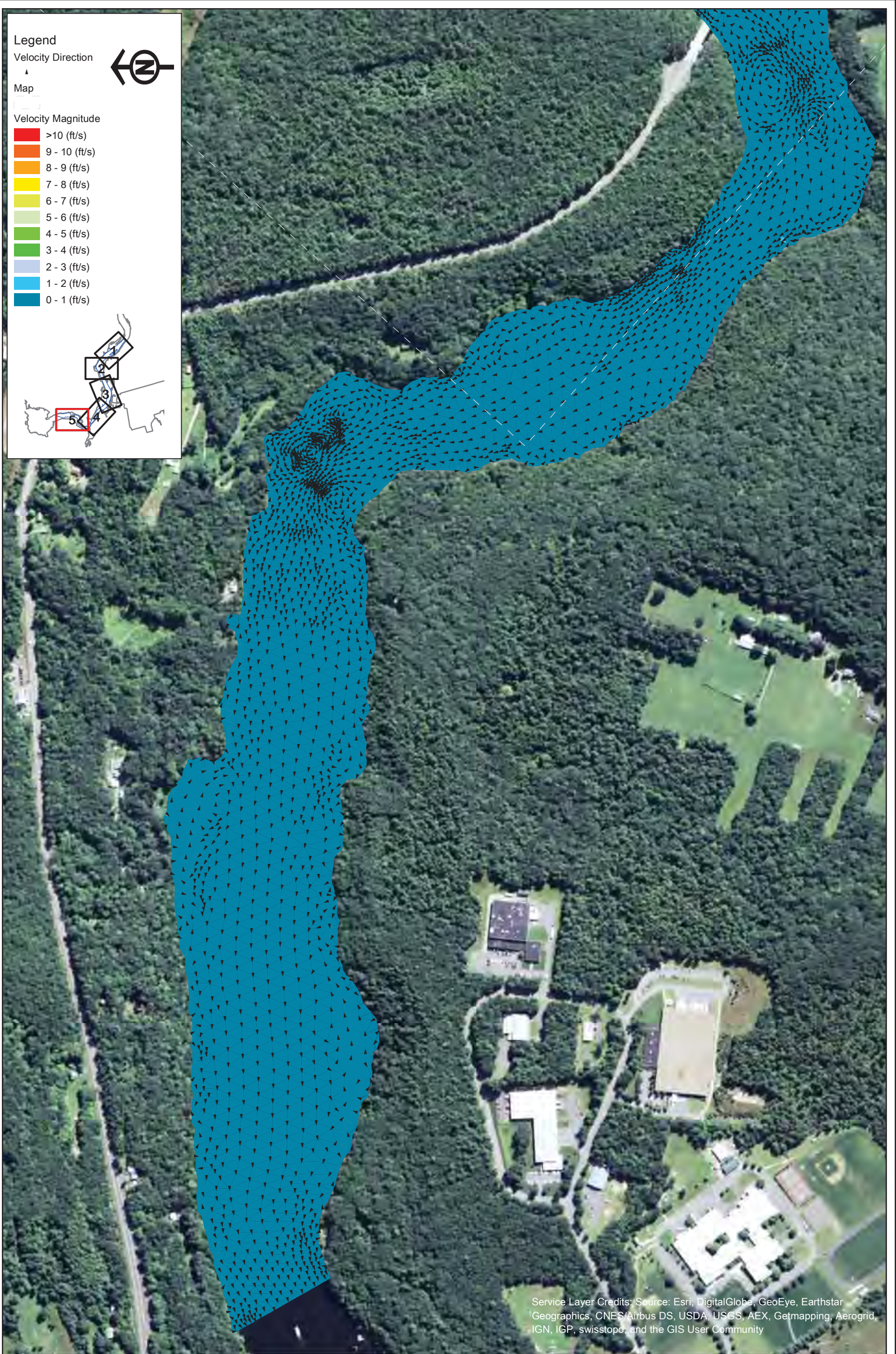


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace
Scenario 22 - Map 4
50% Exceedance Flow (8,440 cfs), 2 Units
Pumping (7,600 cfs), 185 WSEL at Dam



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

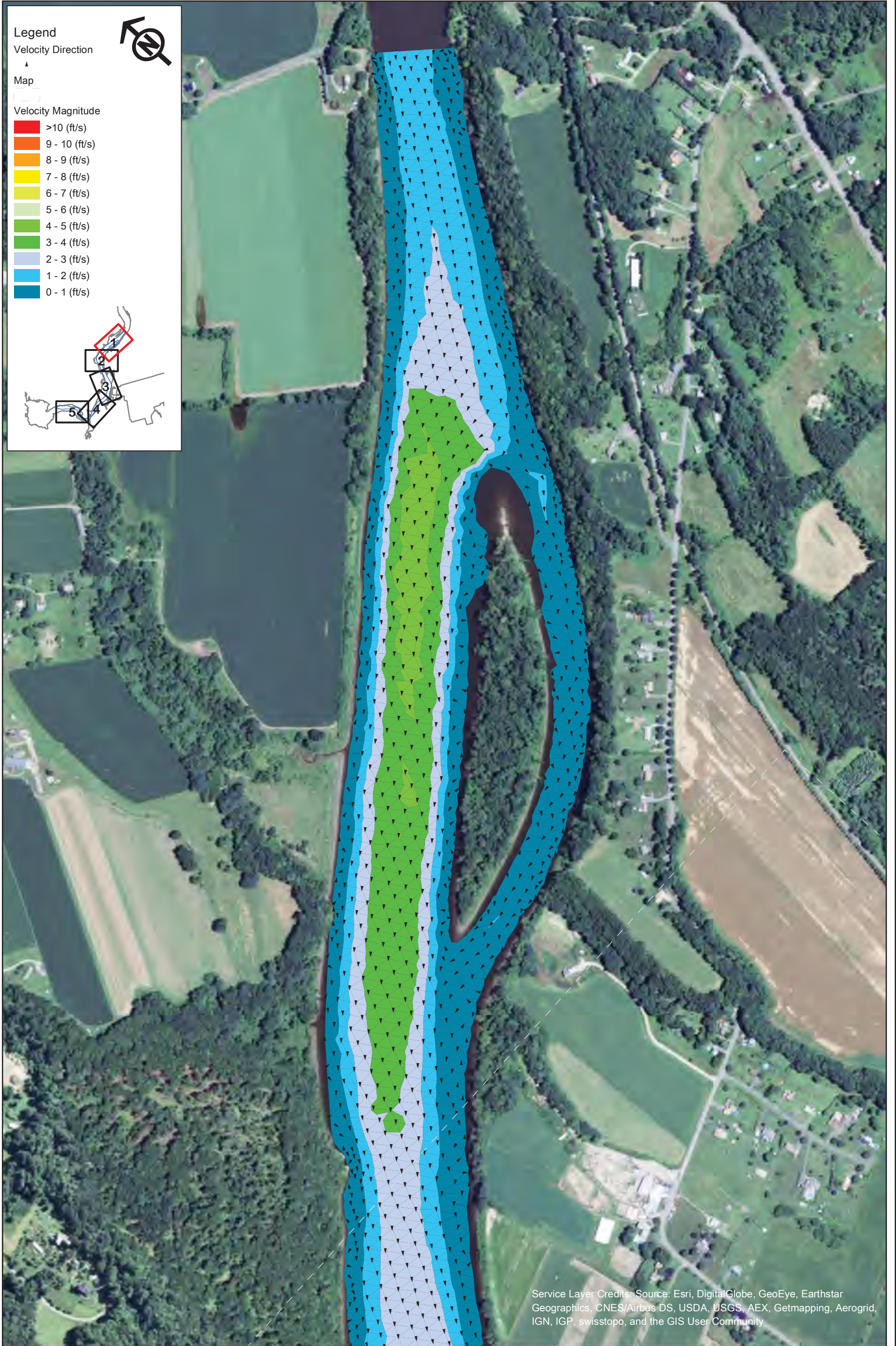


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 22 - Map 5
 50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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RELICENSING STUDY 3.3.9

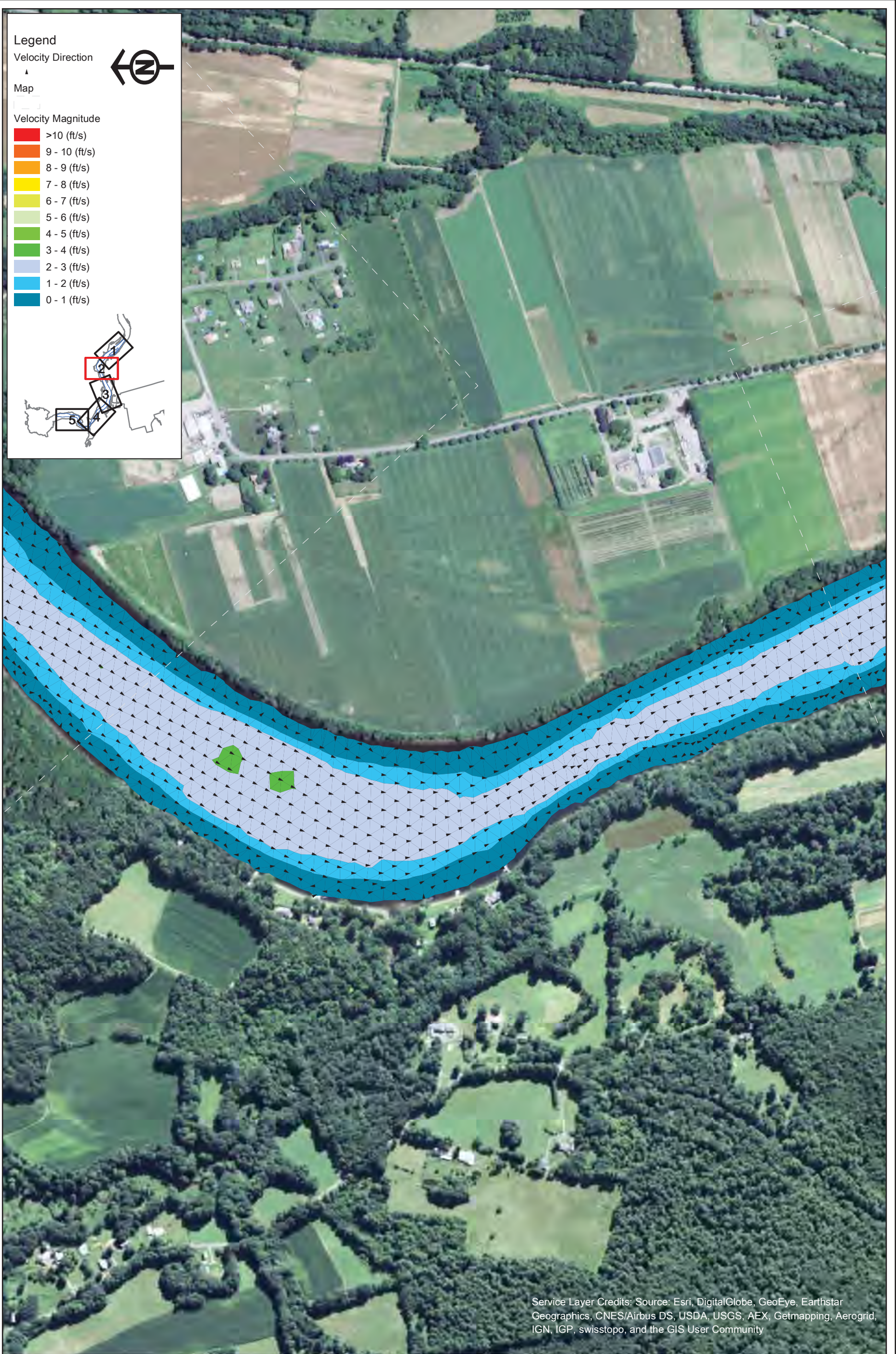


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 23 - Map 1
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



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Northfield Mountain Pumped Storage Project (No. 2485)
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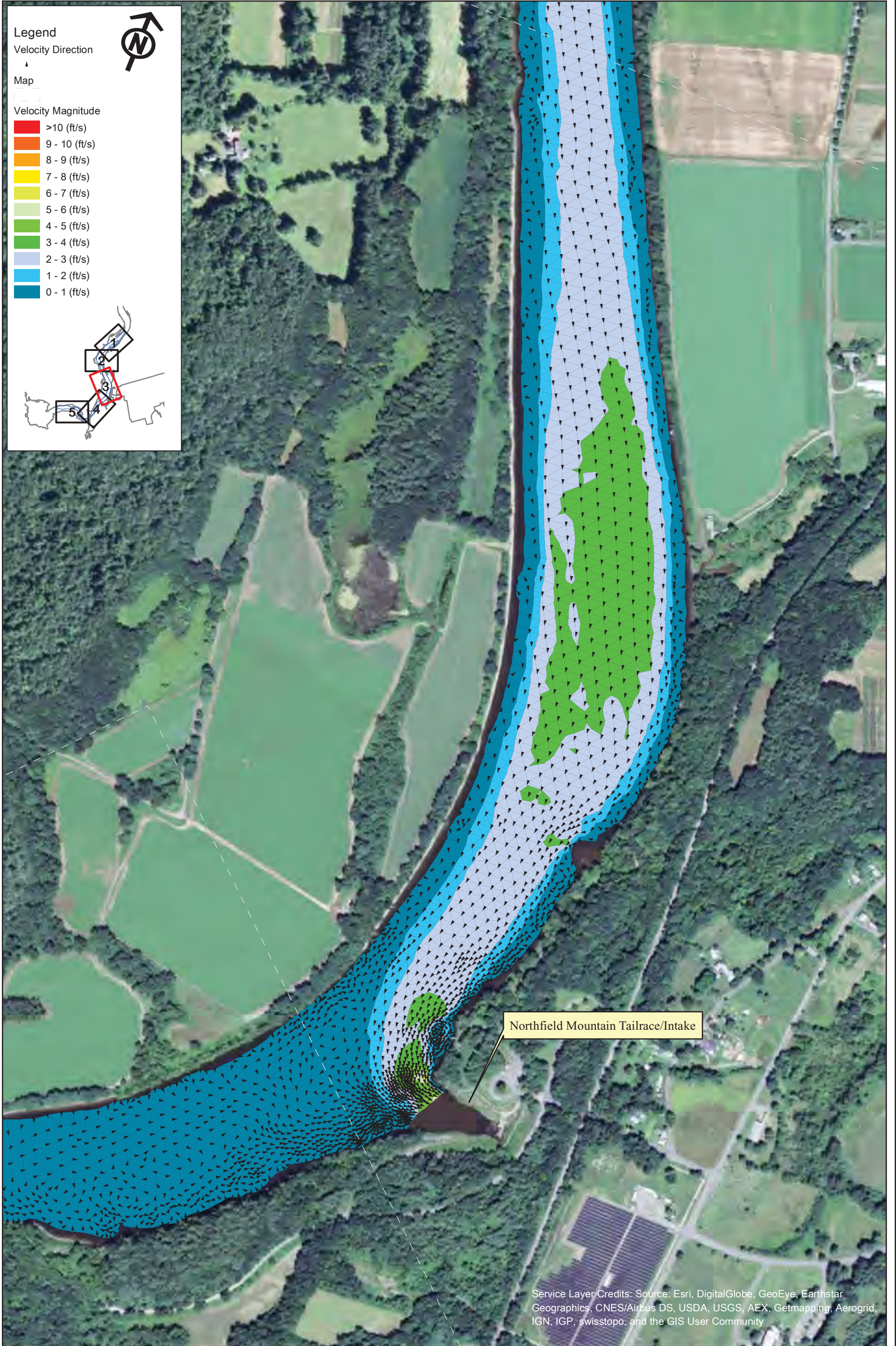
STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 23 - Map 2
 50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

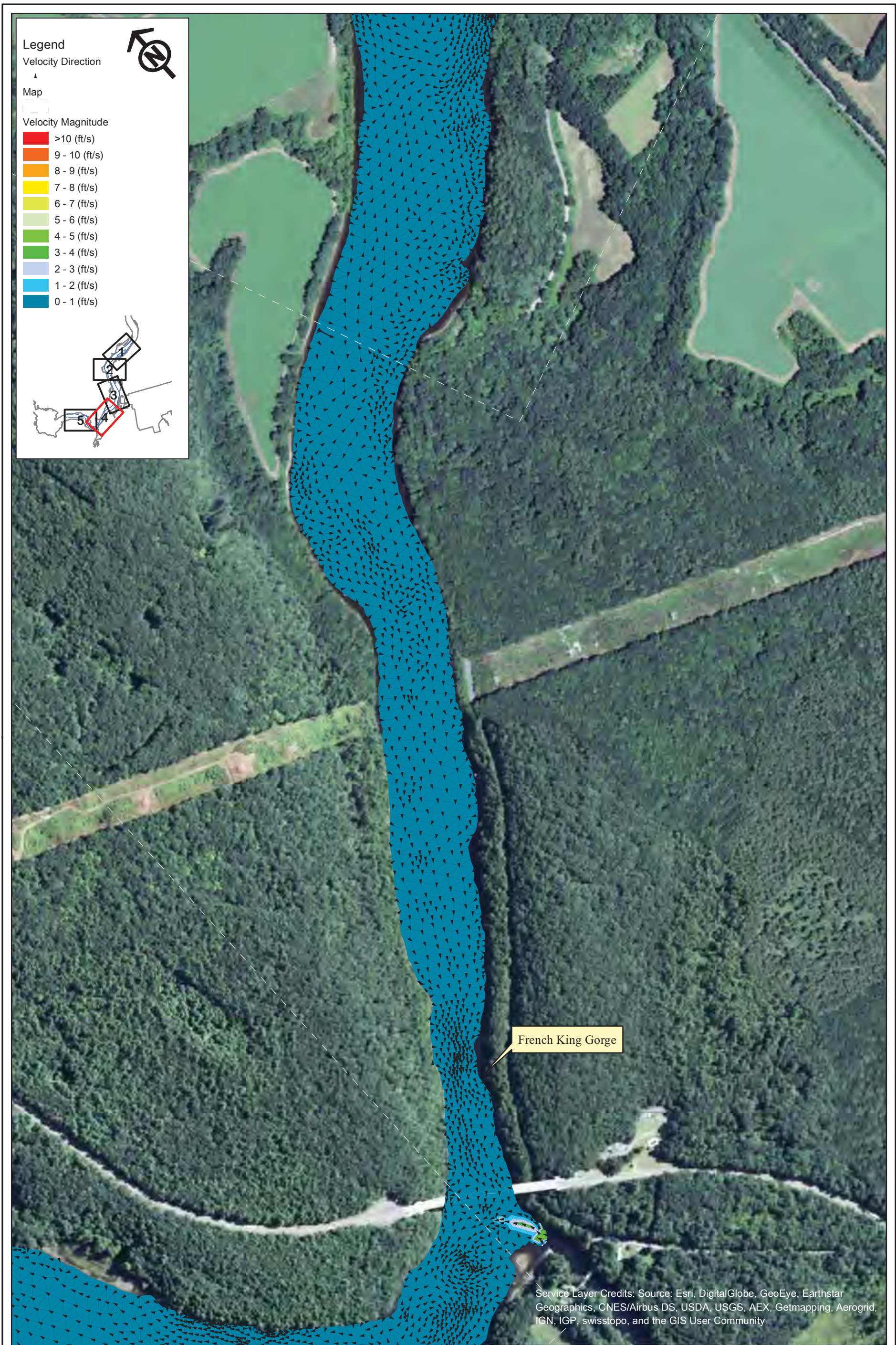
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RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 23 - Map 3
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam





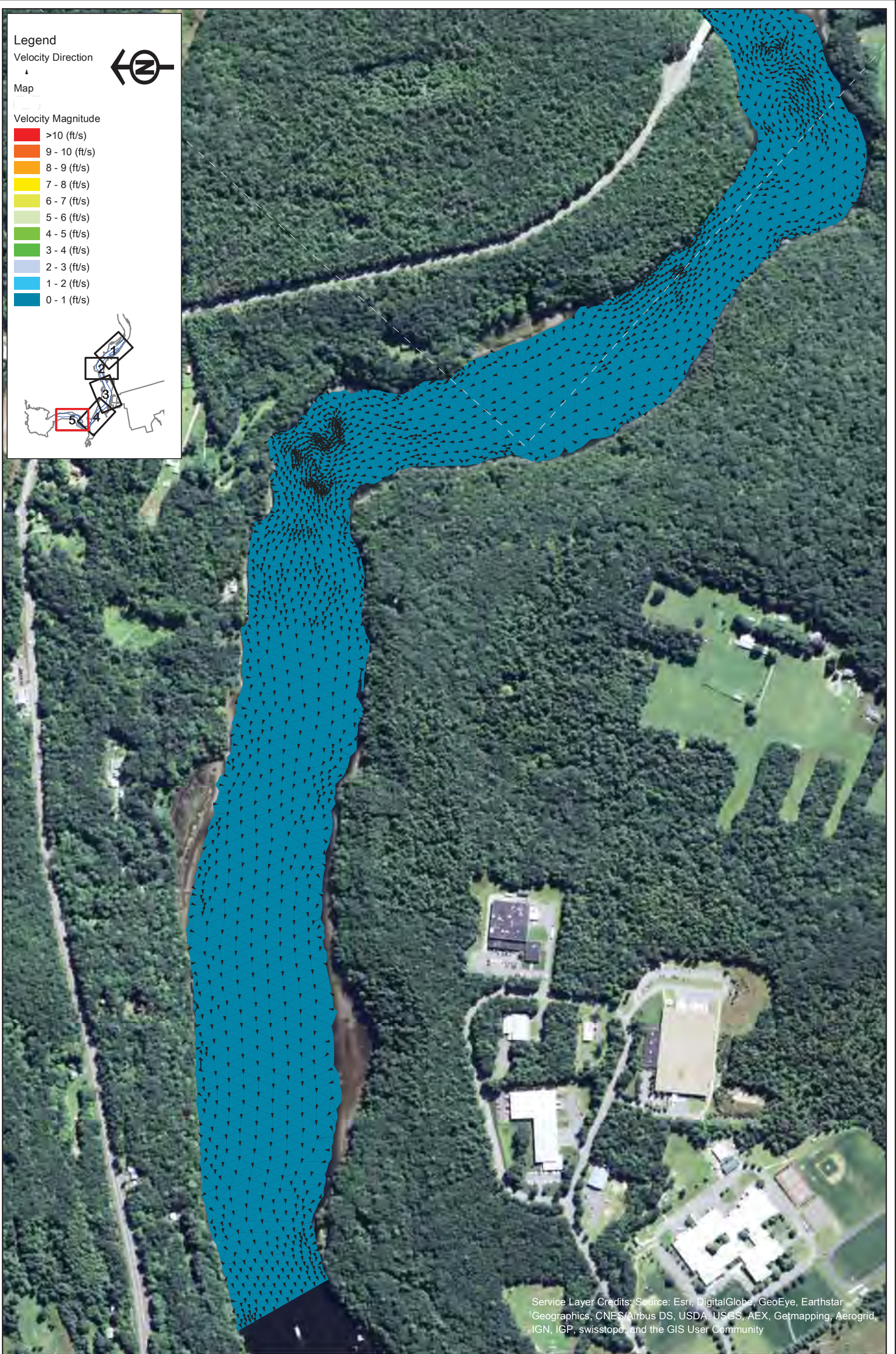
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 23 - Map 4
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam





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

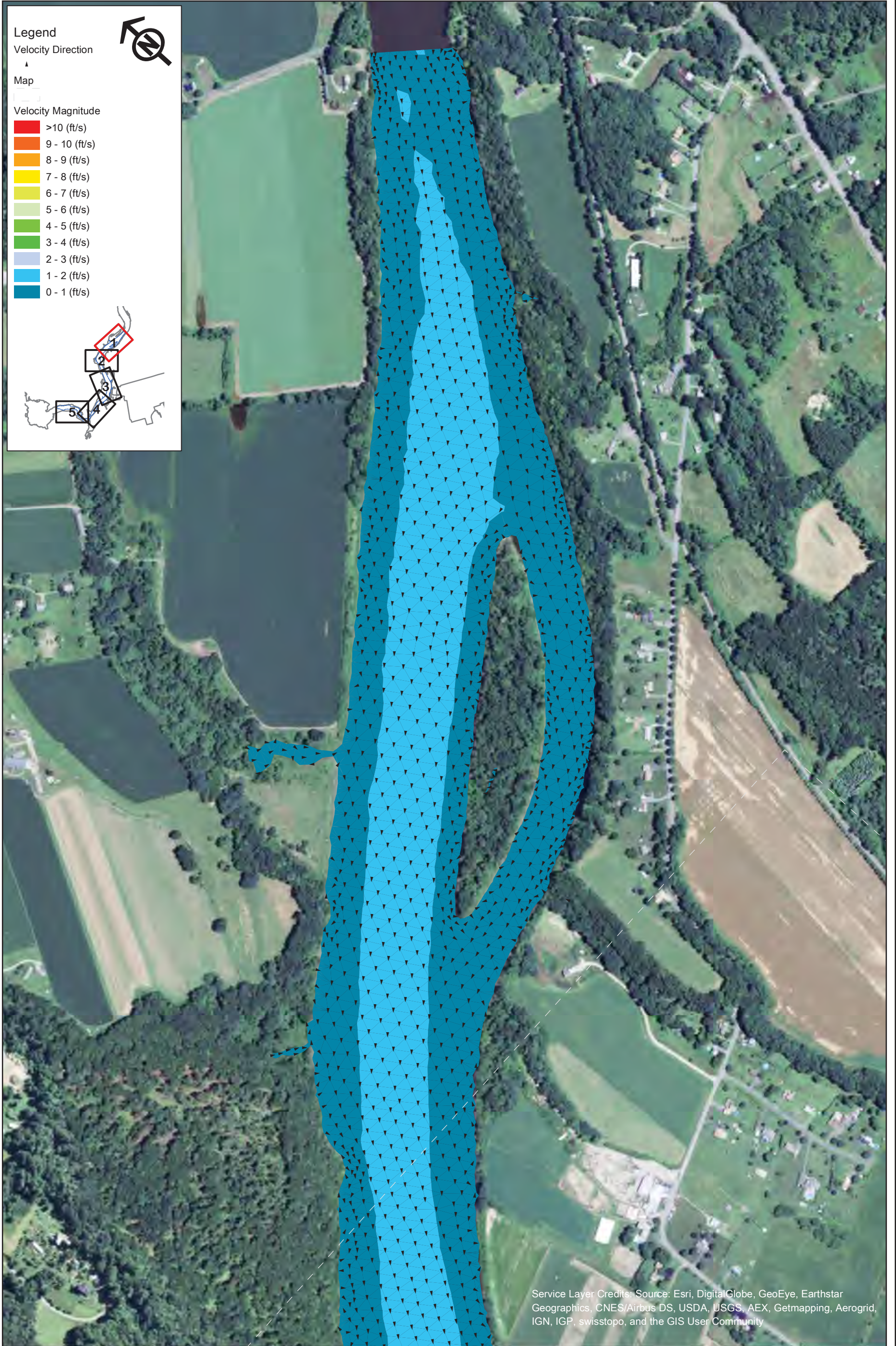


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 23 - Map 5
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

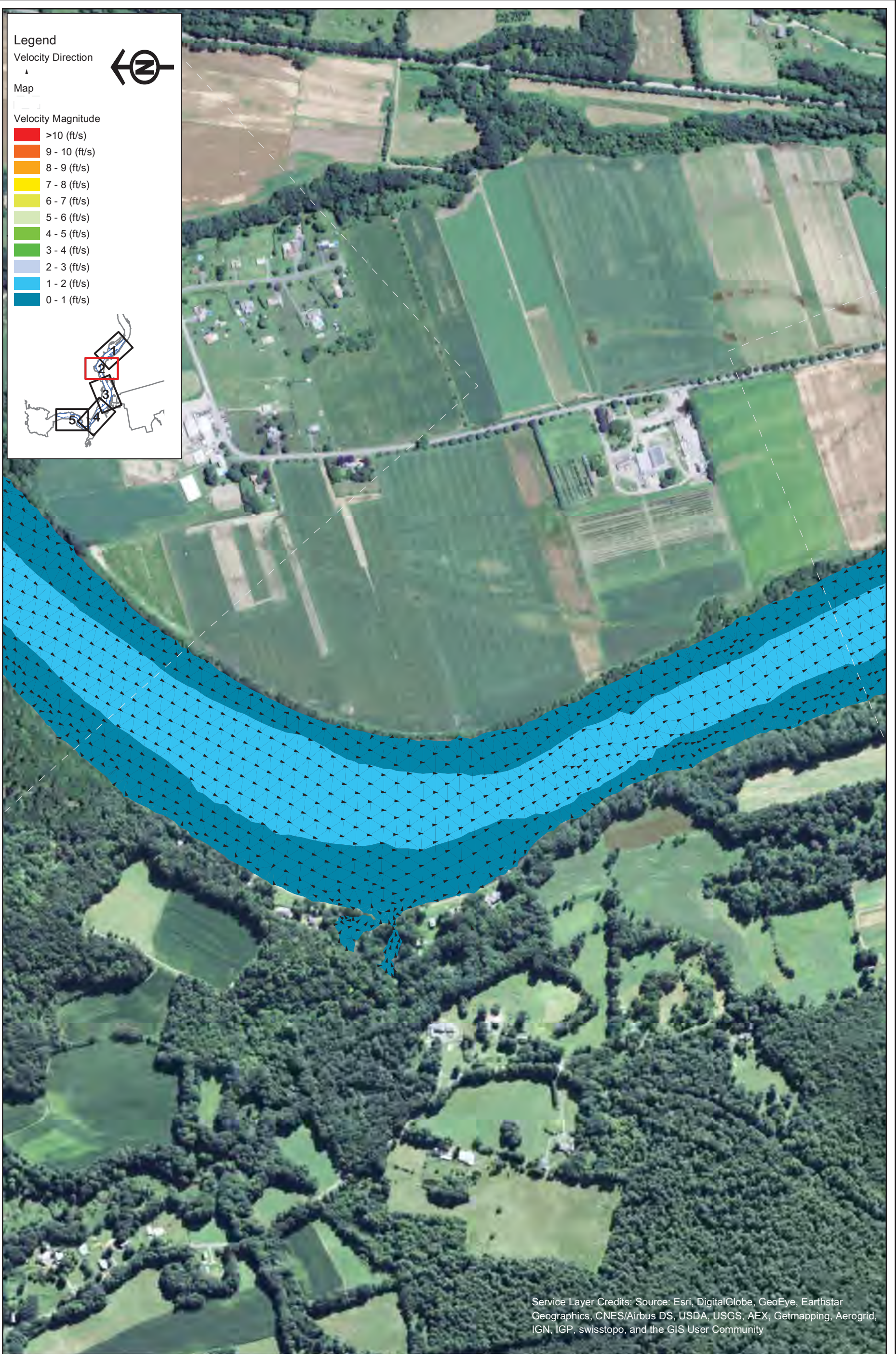
STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 24 - Map 1
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



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Northfield Mountain Pumped Storage Project (No. 2485)
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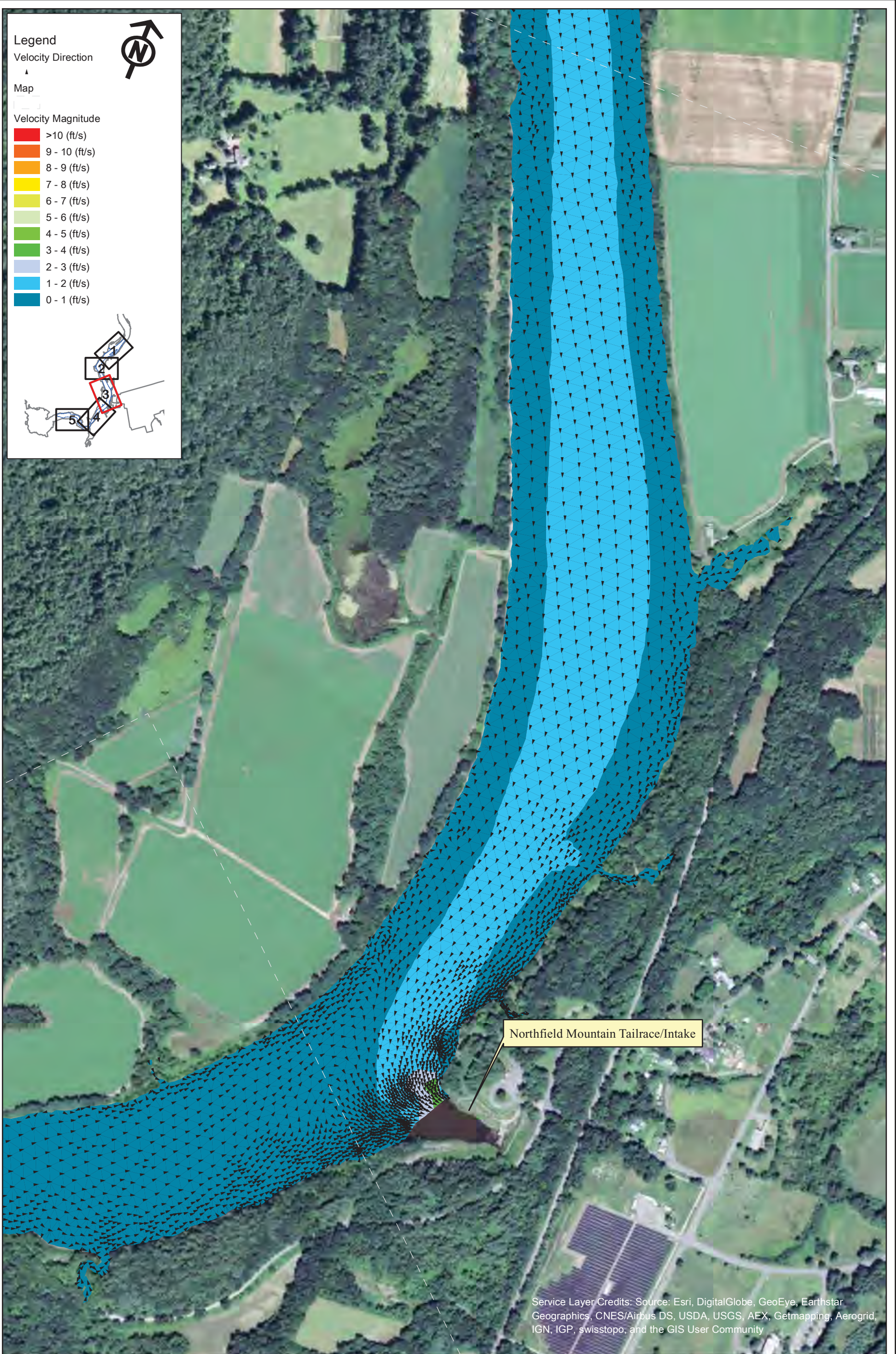
STUDY REPORT
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0 250 500 1,000
 Feet

Appendix B - Velocity in the Turner Falls
 Impoundment 5 km Upstream and 5 km
 Downstream of the Northfield Tailrace

Scenario 24 - Map 2
 50% Exceedance Flow (8,440 cfs), 4 Units
 Pumping (15,200 cfs), 185 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

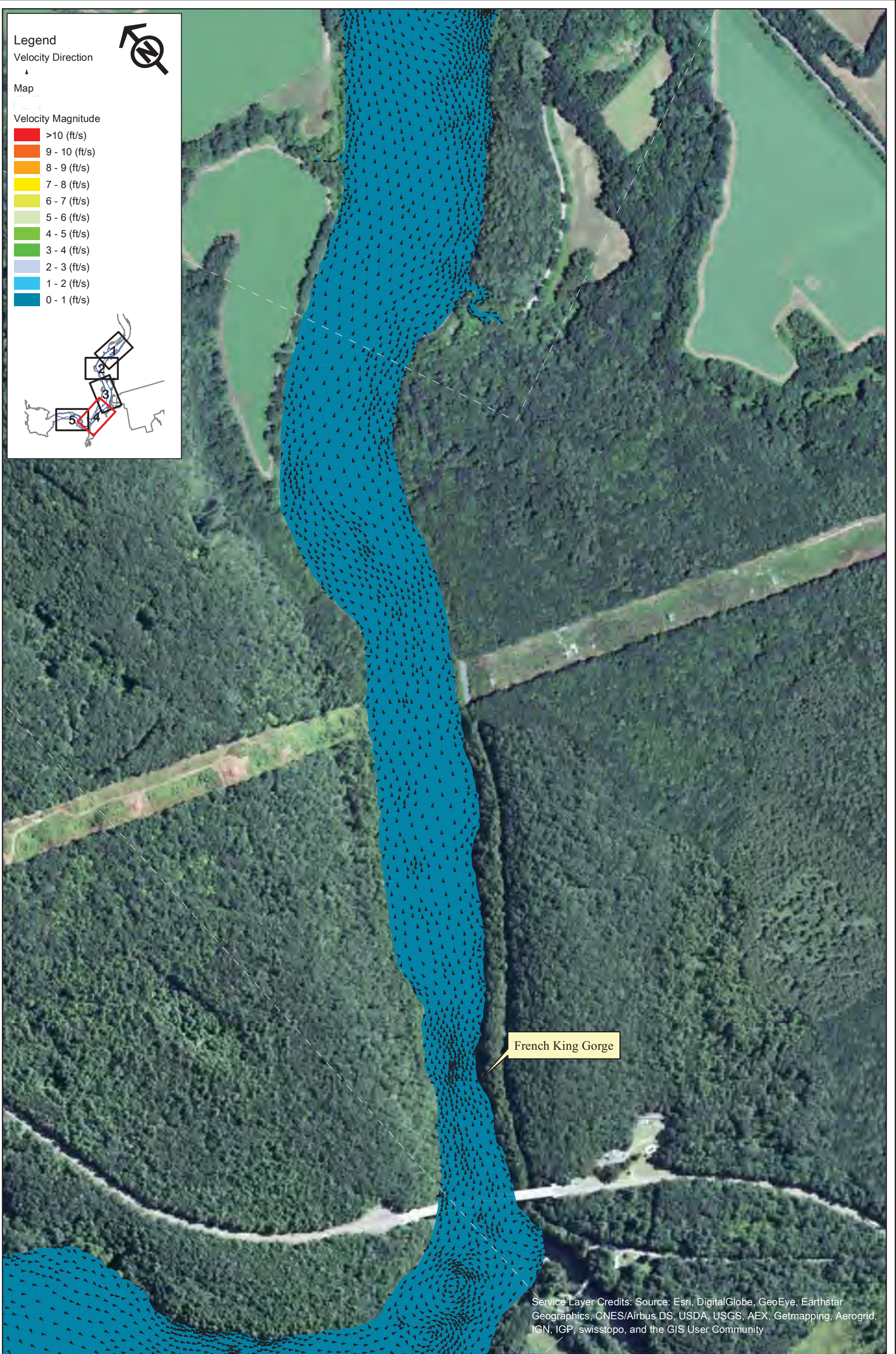
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 24 - Map 3
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam





Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

French King Gorge

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

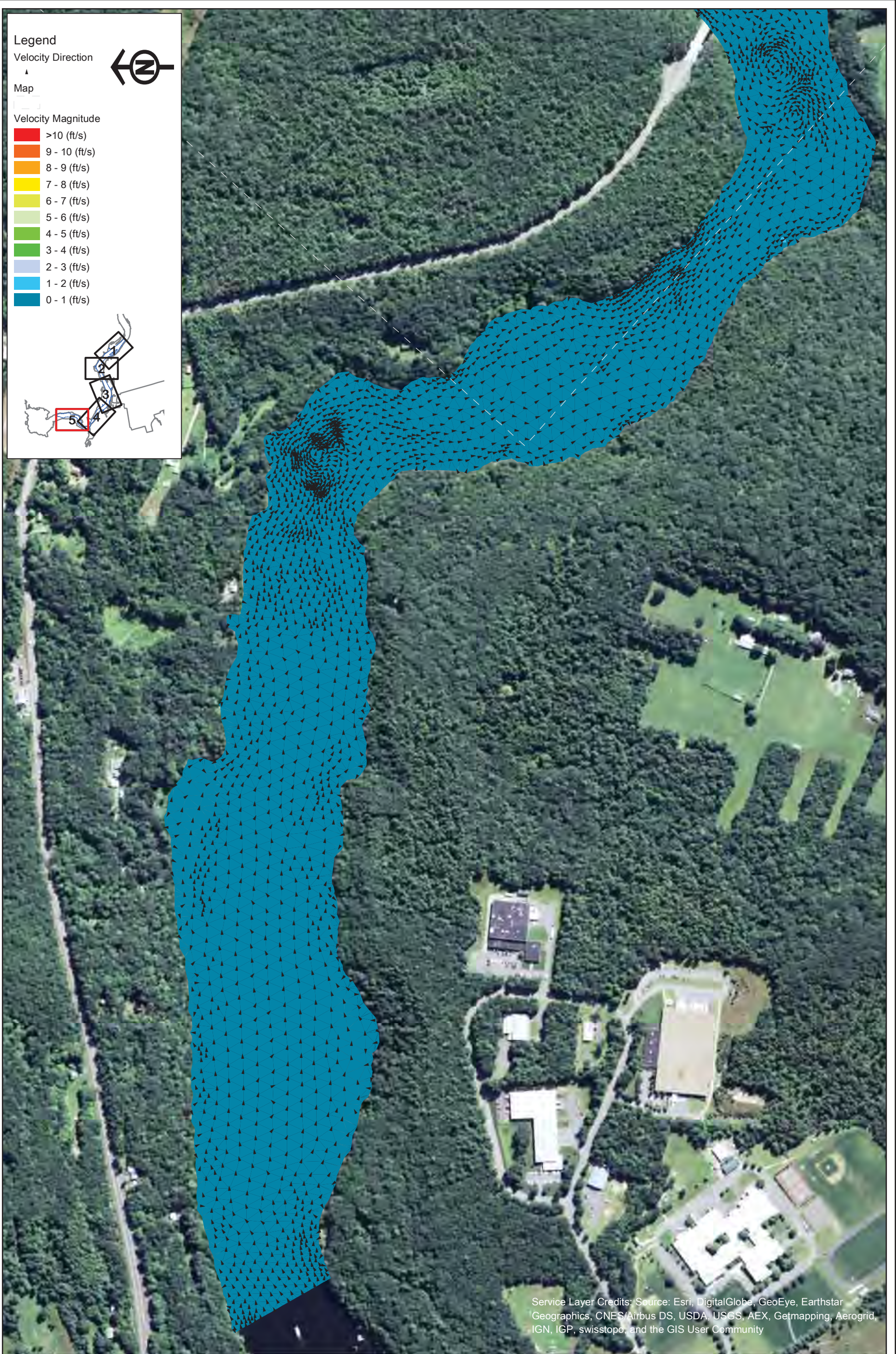


Northfield Mountain Pumped Storage Project (No. 2485) and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 24 - Map 4
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



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

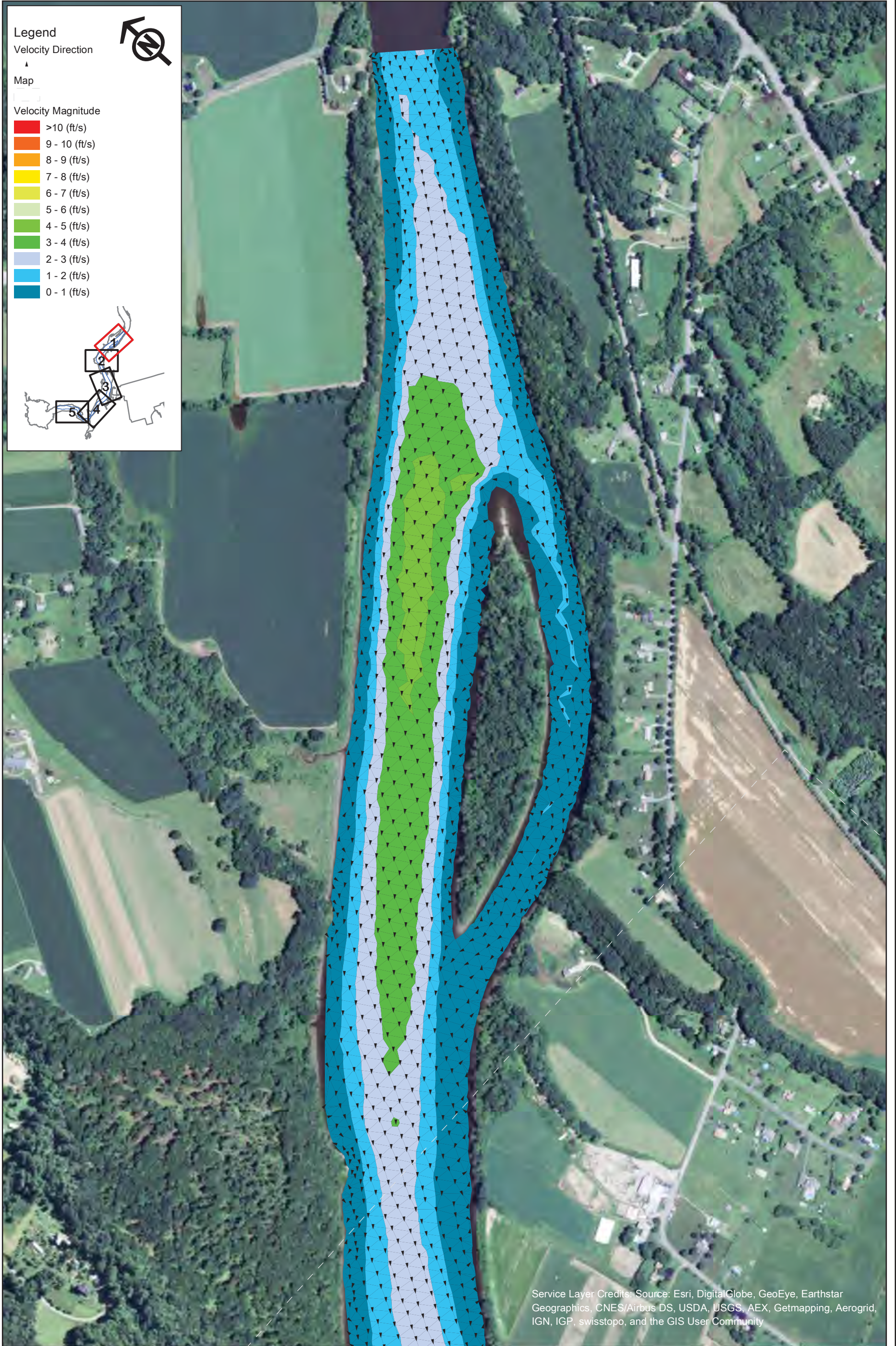


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 24 - Map 5
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



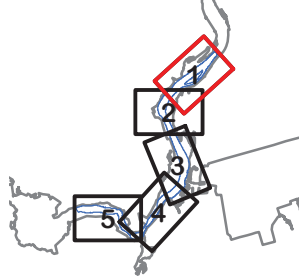
Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)



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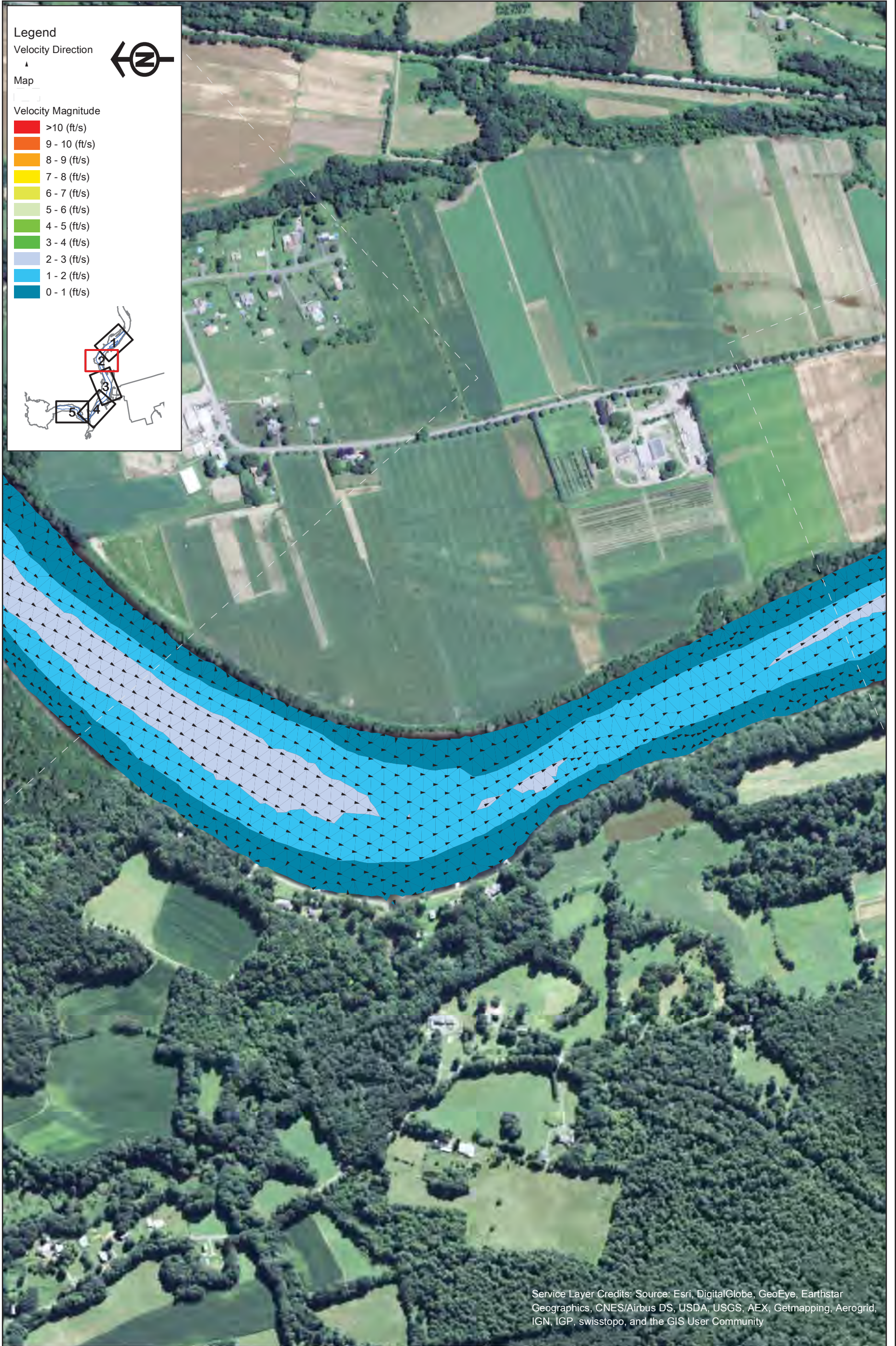
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 25 - Map 1
25% Exceedance Flow (15,700 cfs), 2 Units
Generating (10,000 cfs), 176 WSEL at Dam

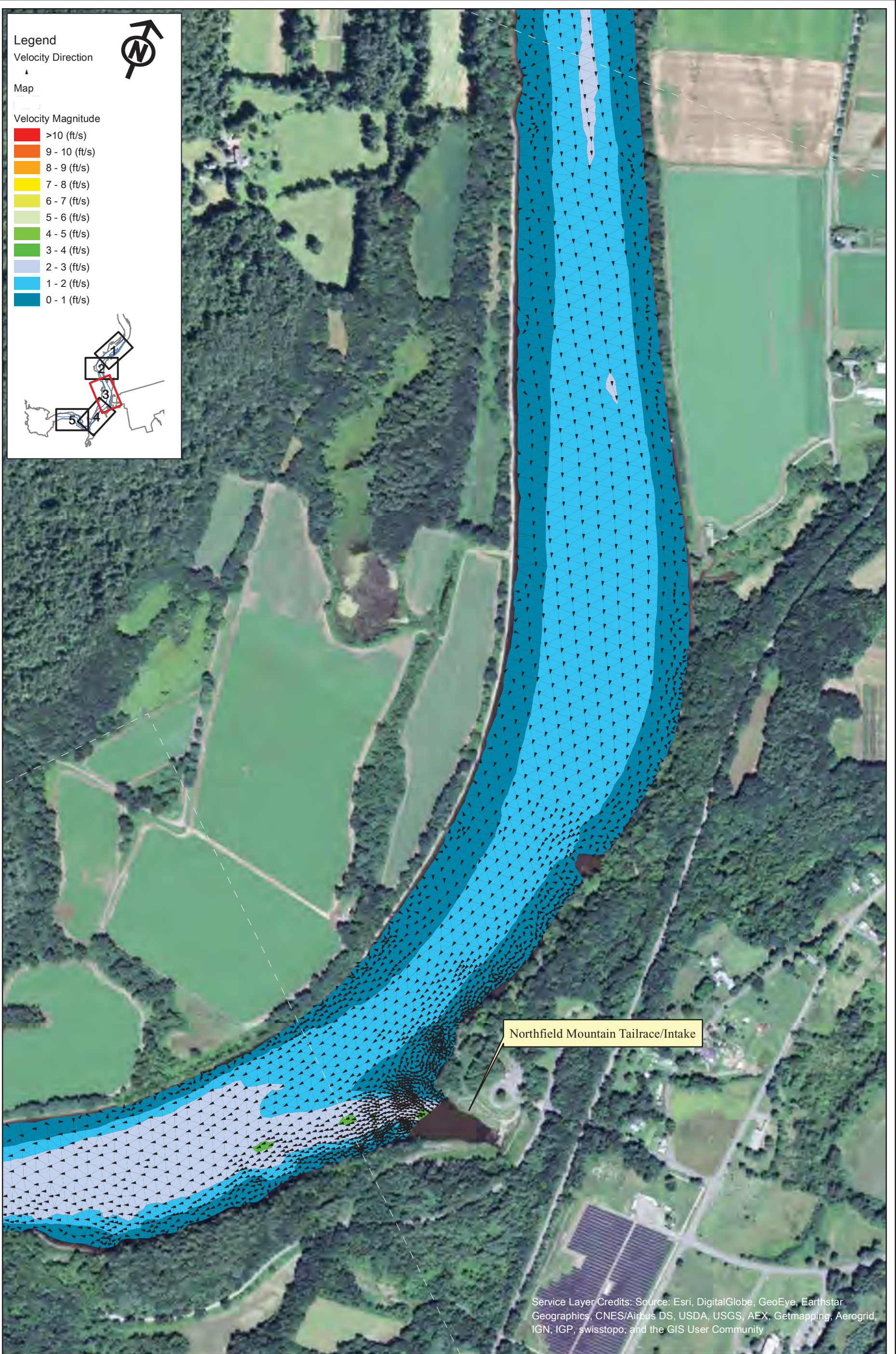


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 25 - Map 2
 25% Exceedance Flow (15,700 cfs), 2 Units
 Generating (10,000 cfs), 176 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

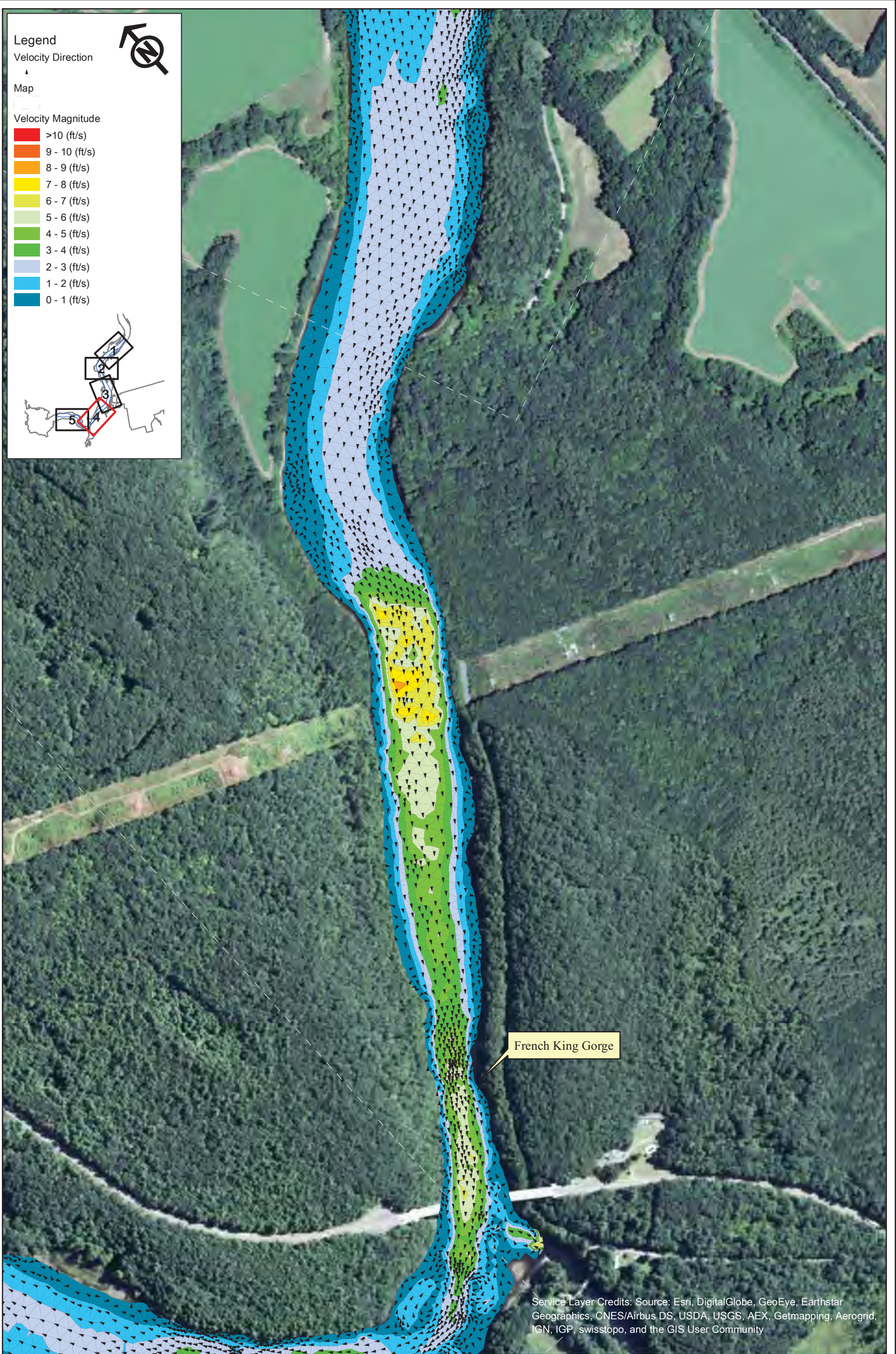


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 25 - Map 3
25% Exceedance Flow (15,700 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

French King Gorge

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

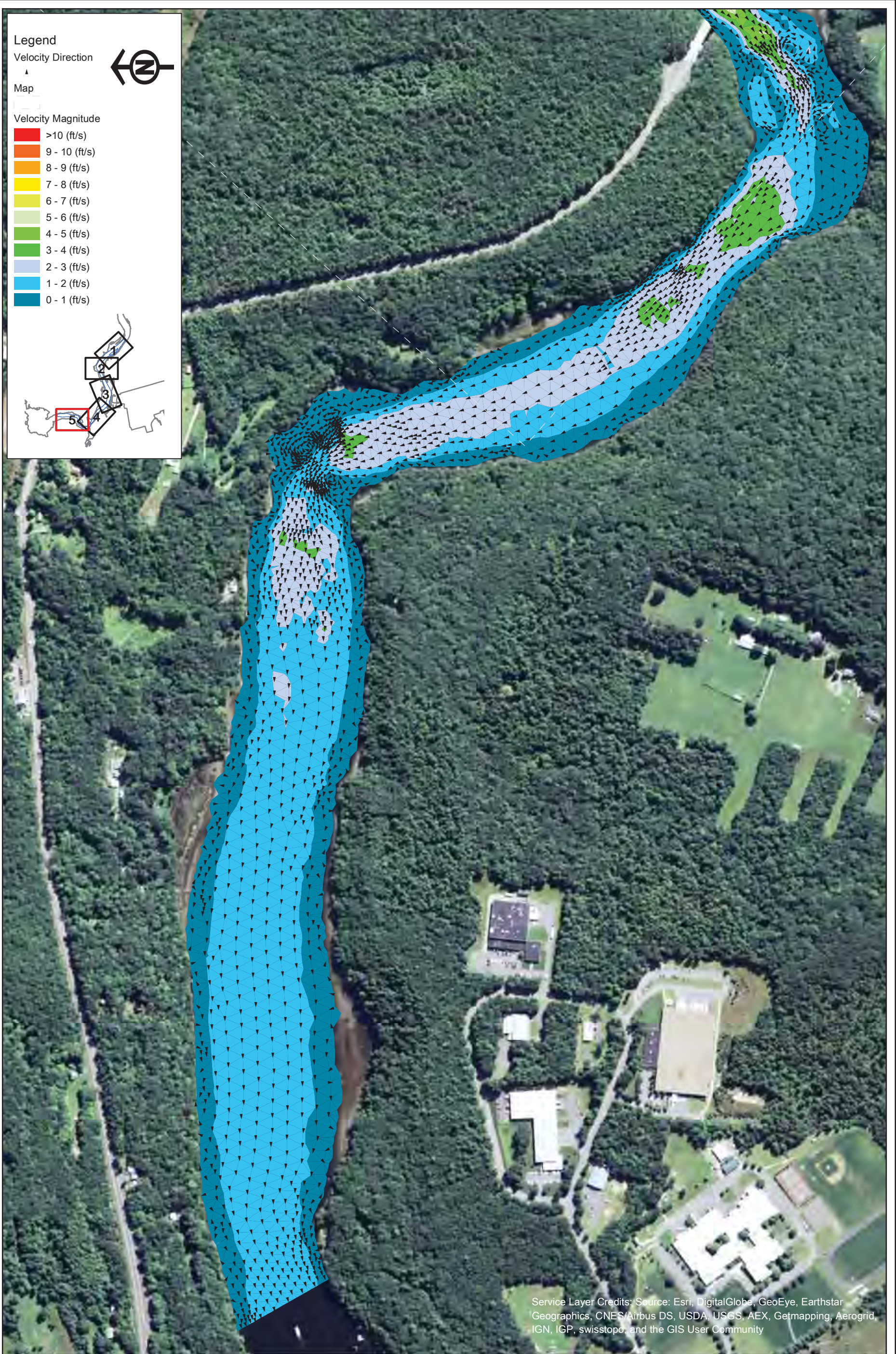


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 25 - Map 4
25% Exceedance Flow (15,700 cfs), 2 Units
Generating (10,000 cfs), 176 WSEL at Dam



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



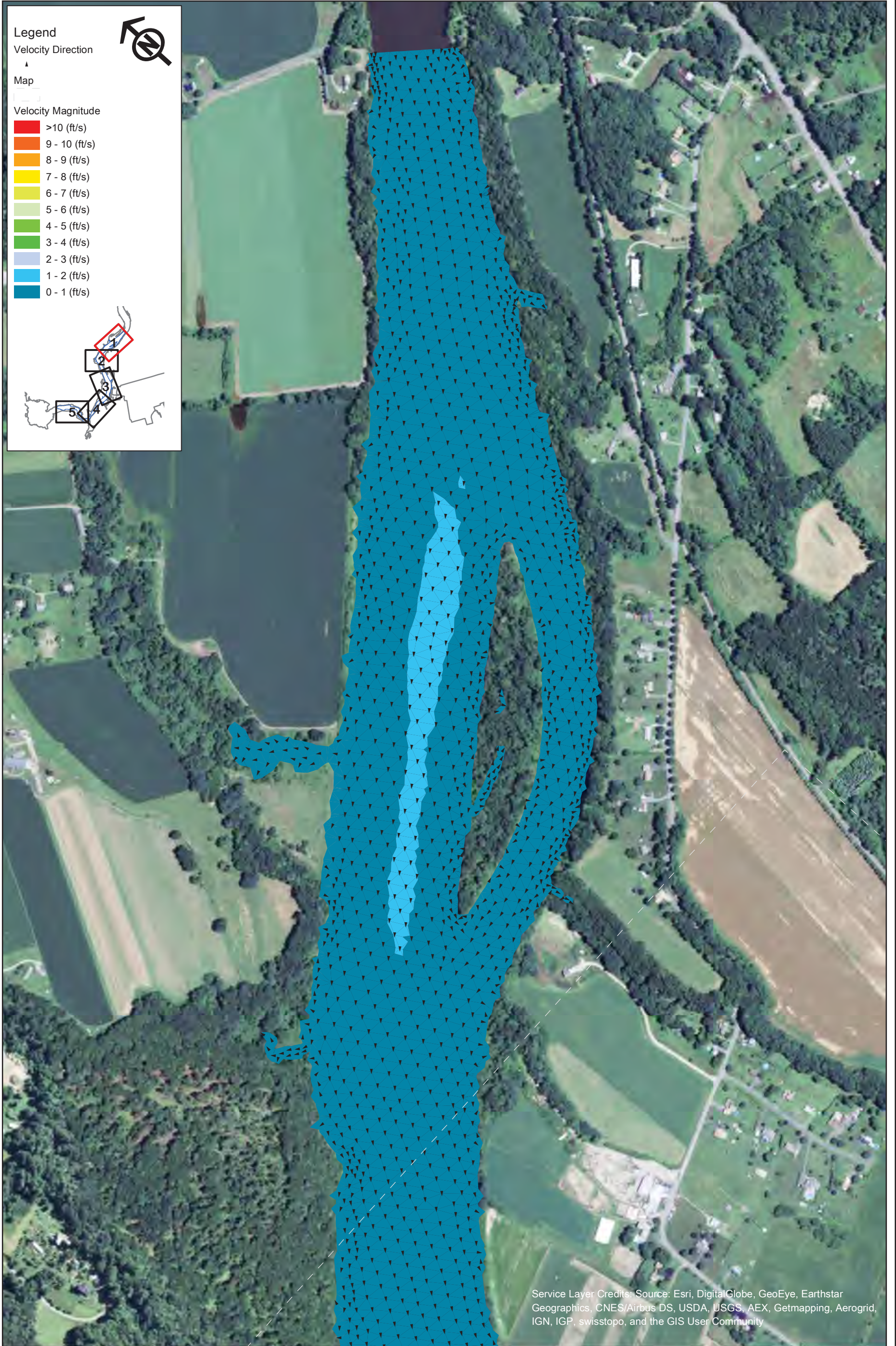
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 25 - Map 5
25% Exceedance Flow (15,700 cfs), 2 Units
Generating (10,000 cfs), 176 WSEL at Dam



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



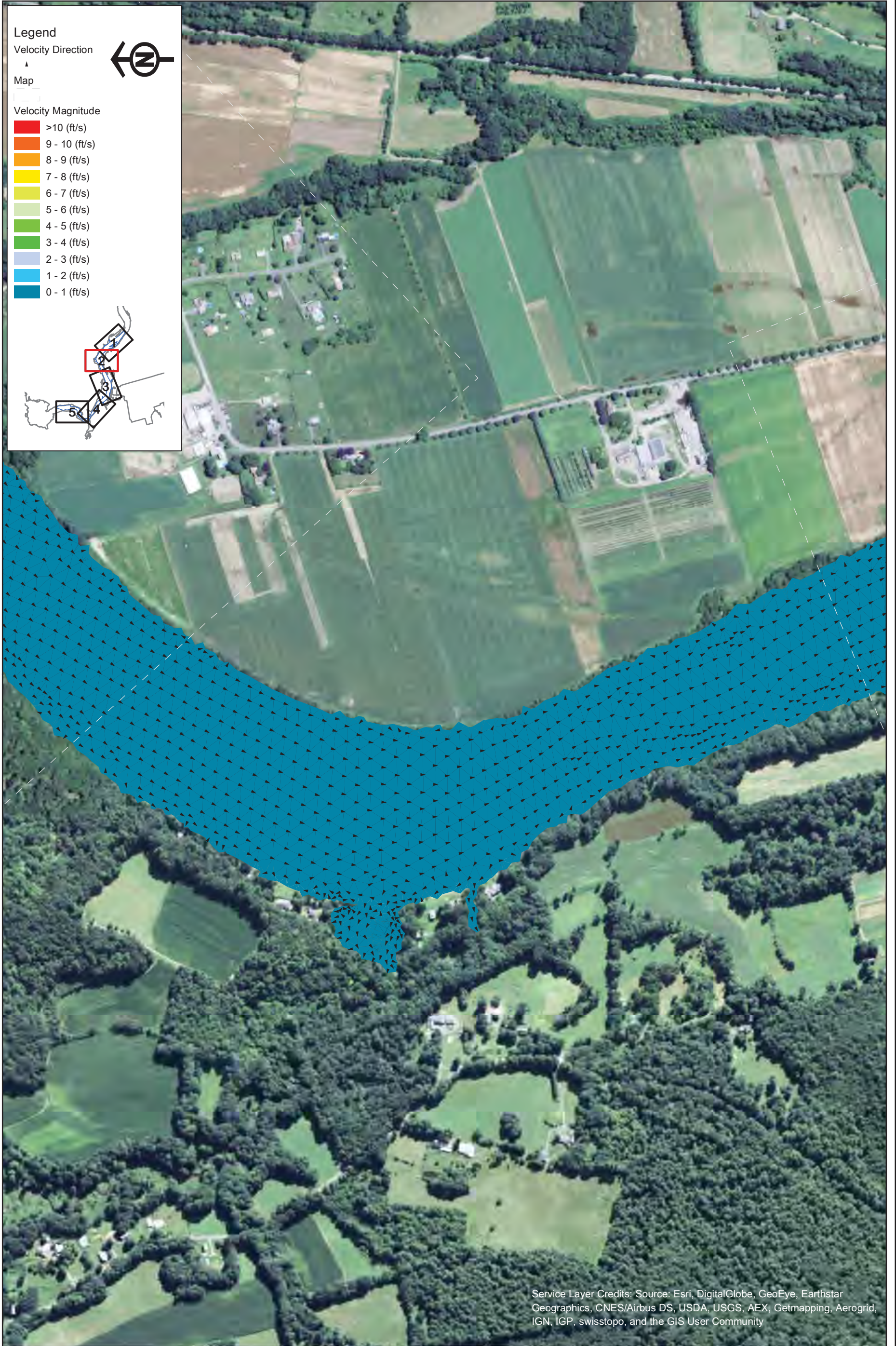
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 26 - Map 1
25% Exceedance Flow (15,700 cfs), 2 Units
Generating (10,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

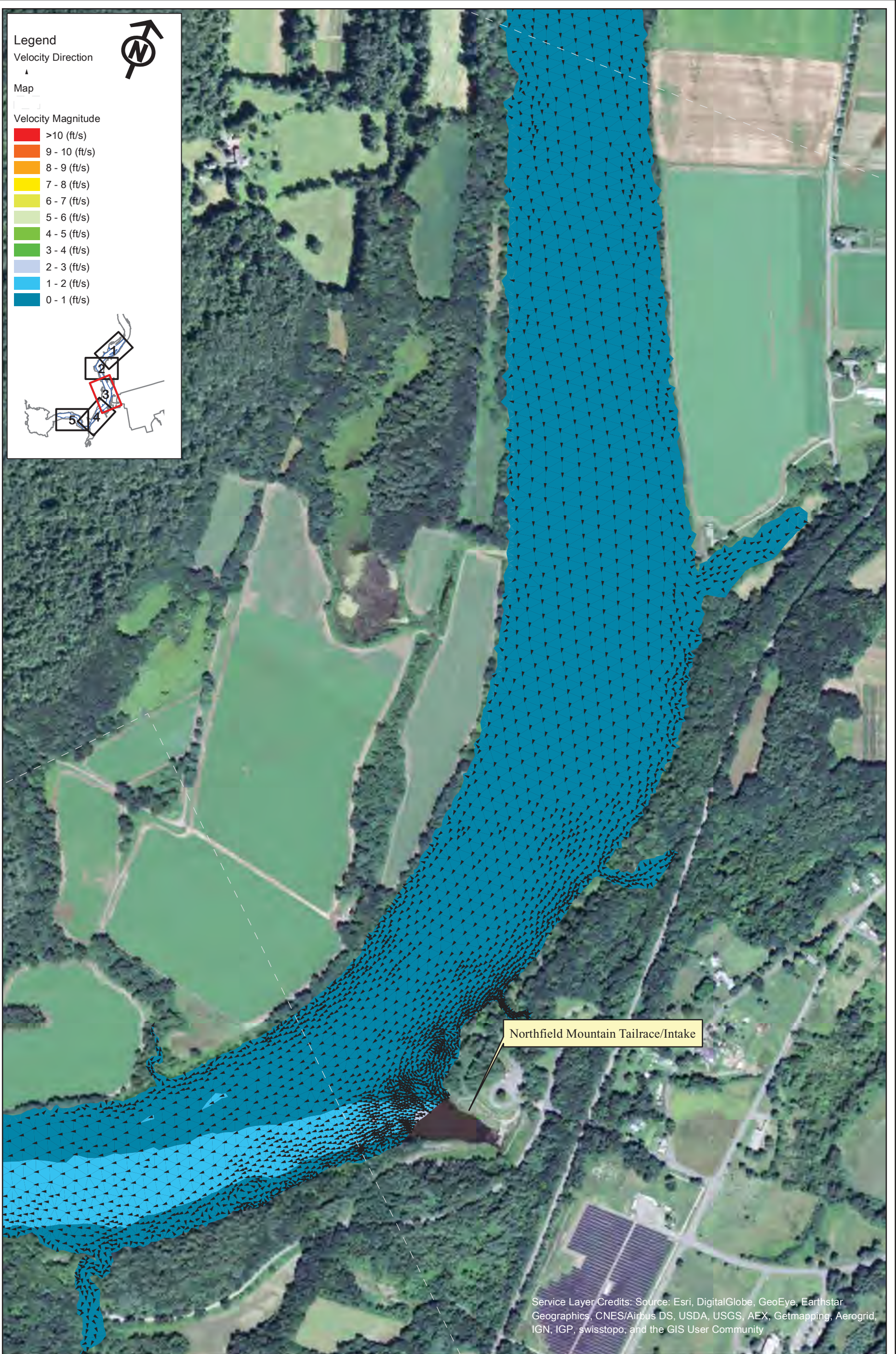


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 26 - Map 2
 25% Exceedance Flow (15,700 cfs), 2 Units
 Generating (10,000 cfs), 185 WSEL at Dam



Northfield Mountain Tailrace/Intake

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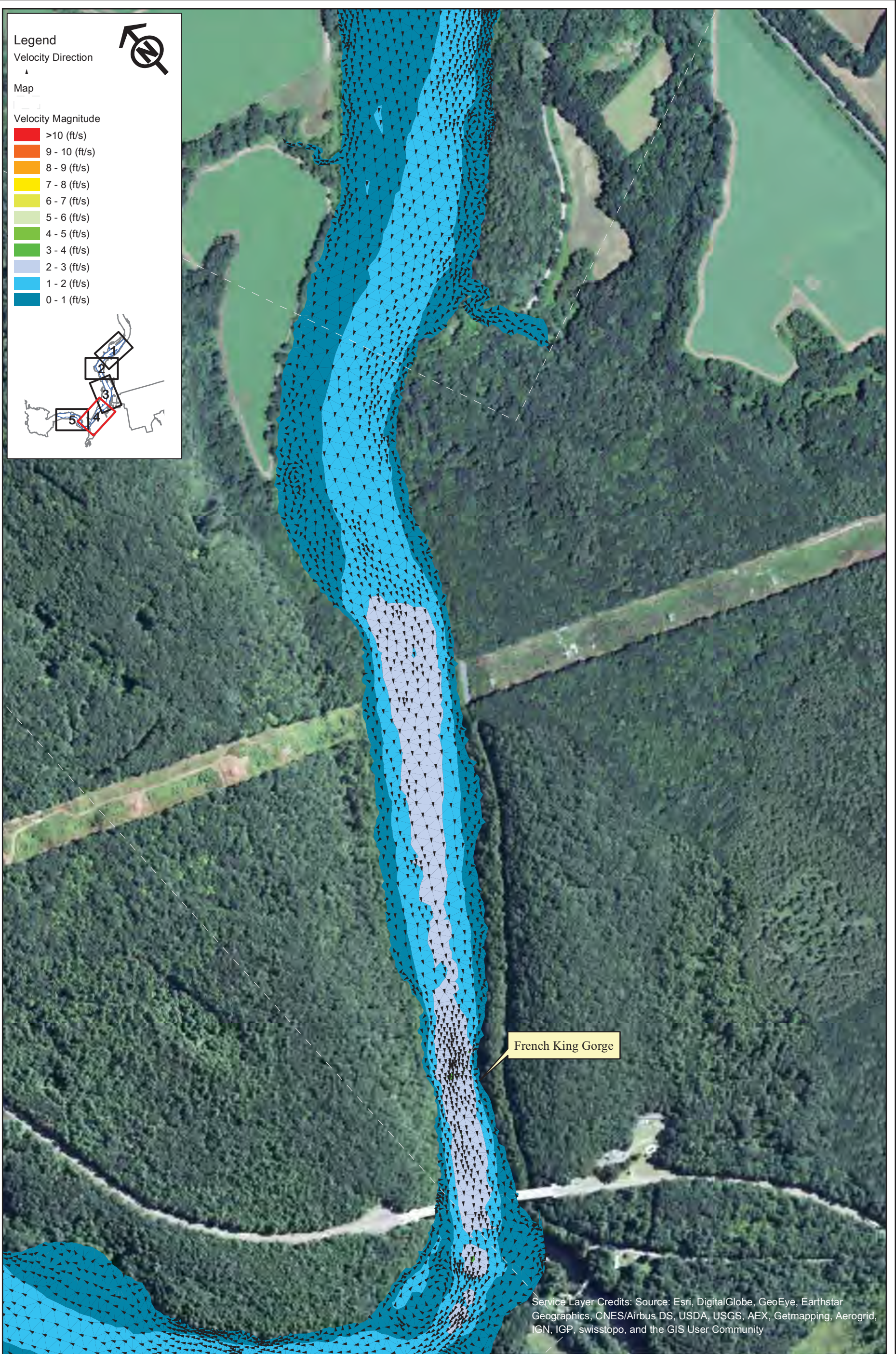
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 26 - Map 3
25% Exceedance Flow (15,700 cfs), 2 Units
Generating (10,000 cfs), 185 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

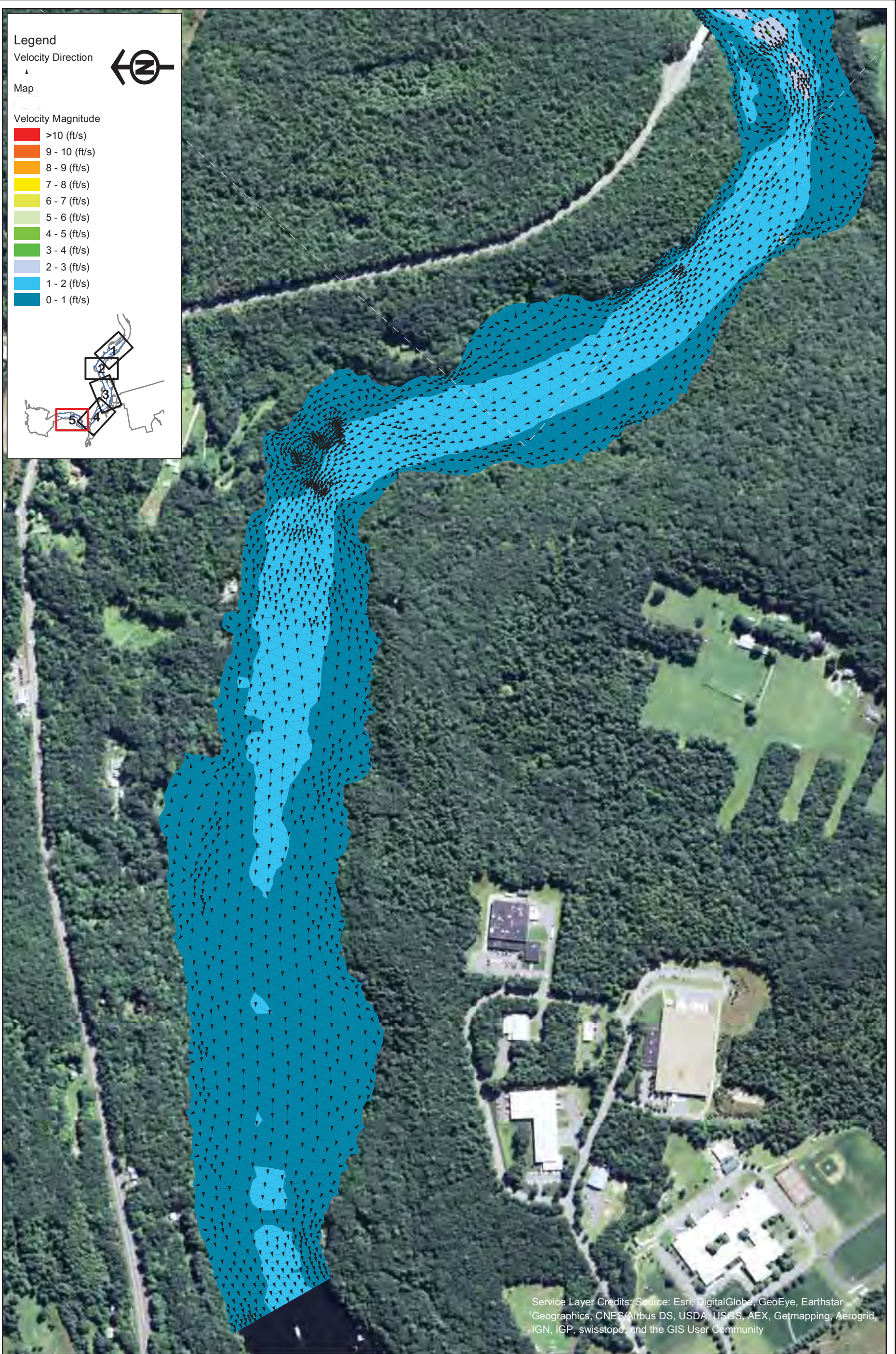
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 26 - Map 4
25% Exceedance Flow (15,700 cfs), 2 Units
Generating (10,000 cfs), 185 WSEL at Dam





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



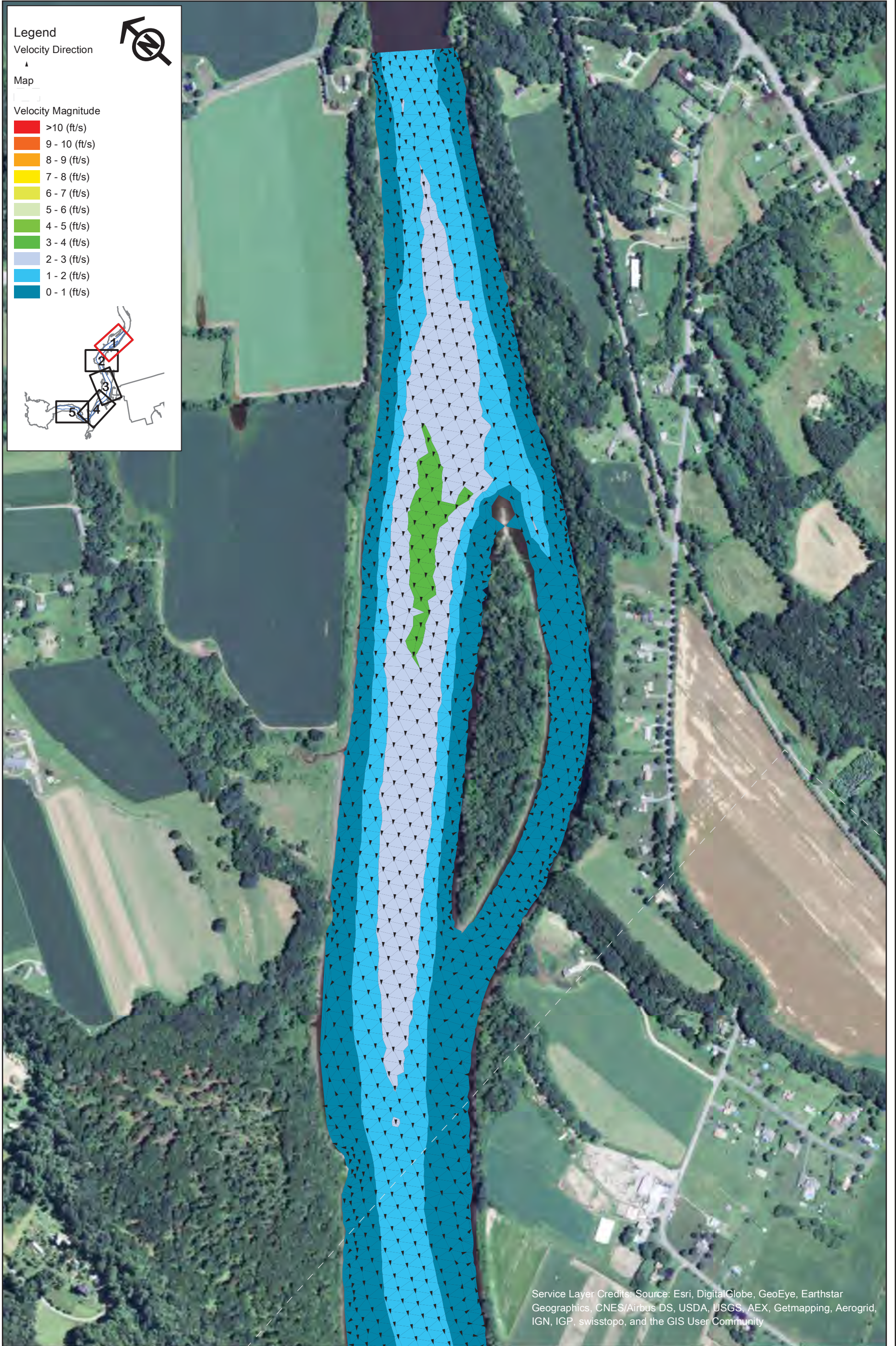
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 26 - Map 5
25% Exceedance Flow (15,700 cfs), 2 Units
Generating (10,000 cfs), 185 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

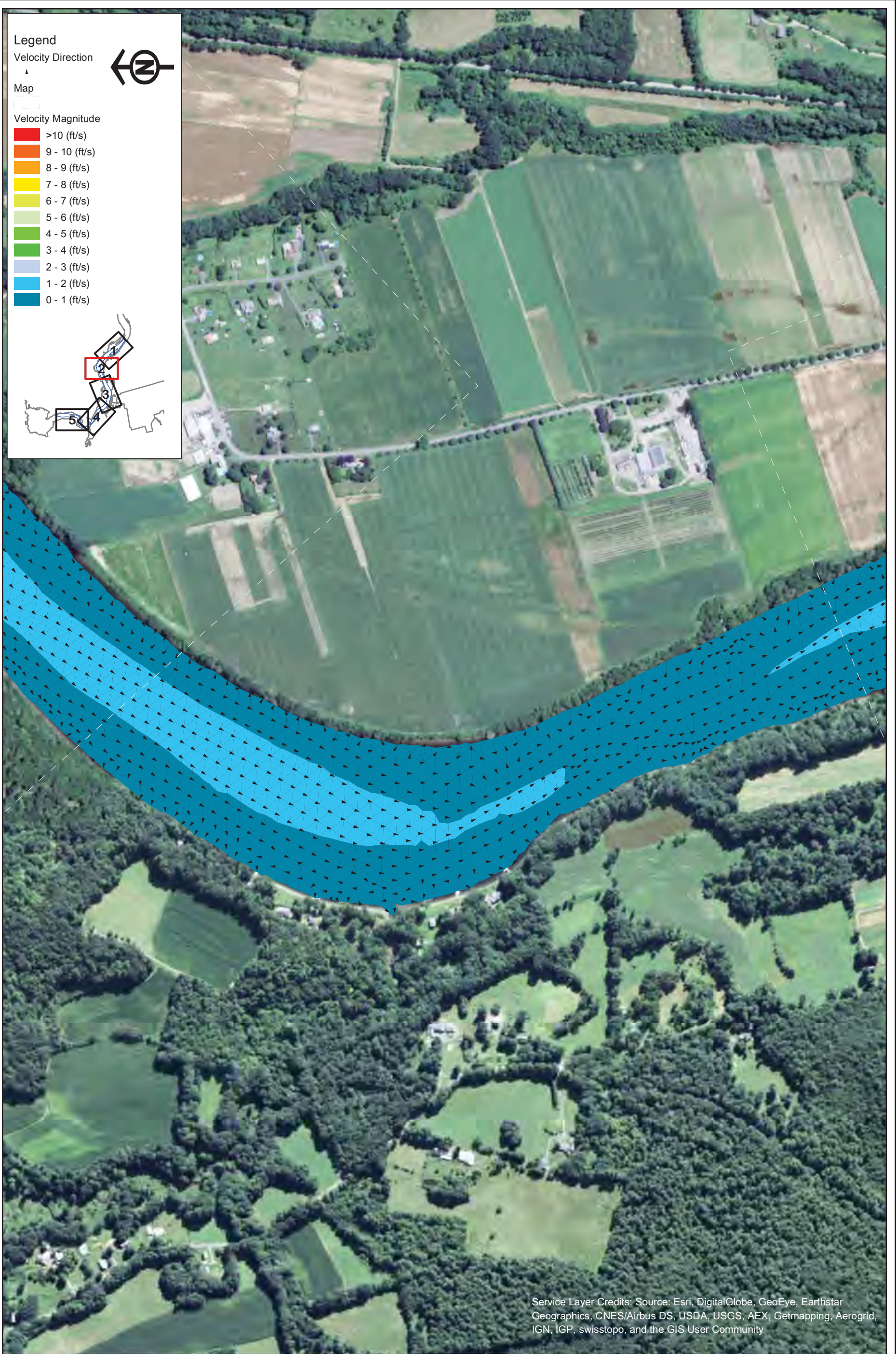
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 27 - Map 1
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam





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

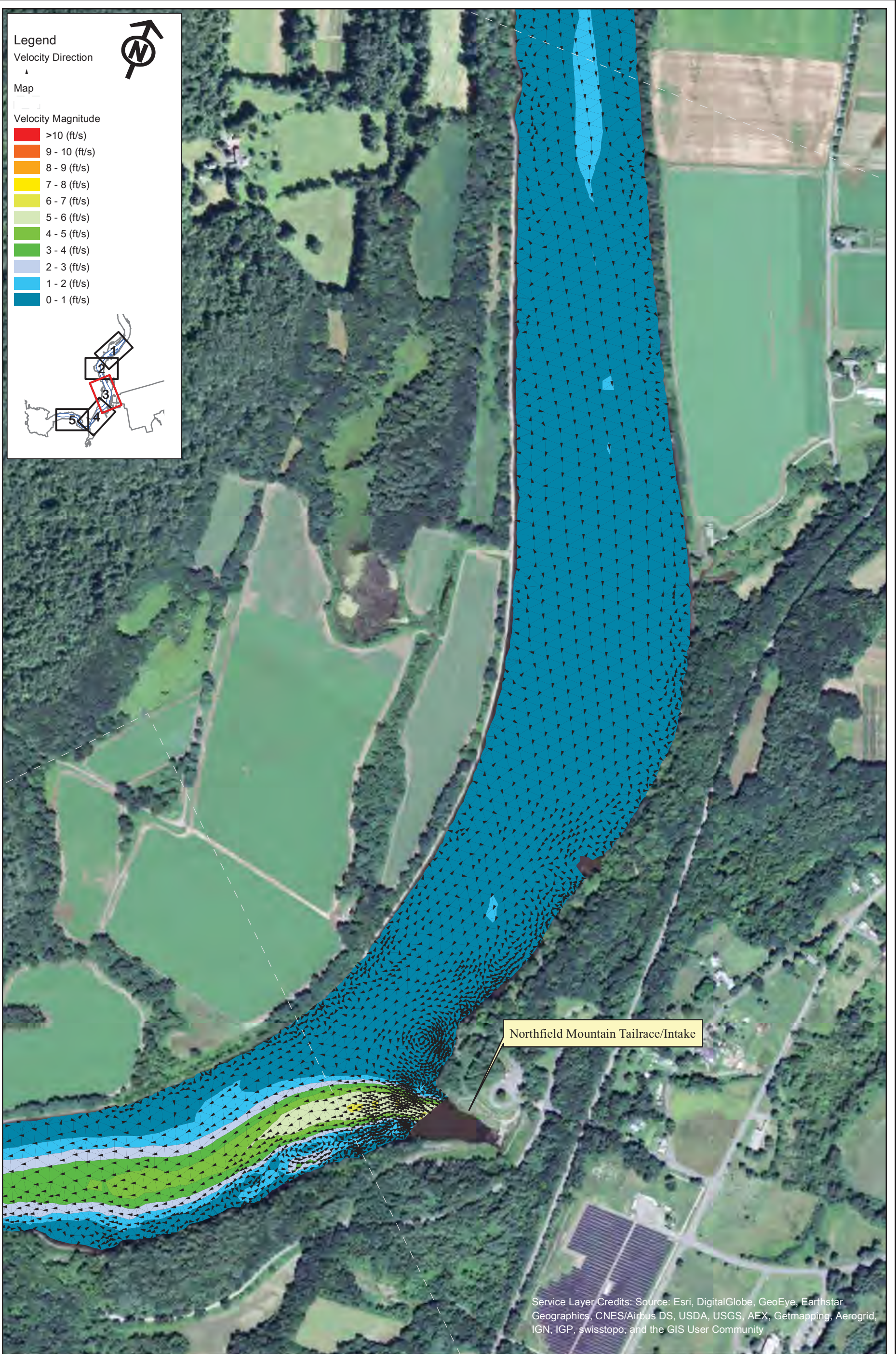


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 27 - Map 2
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

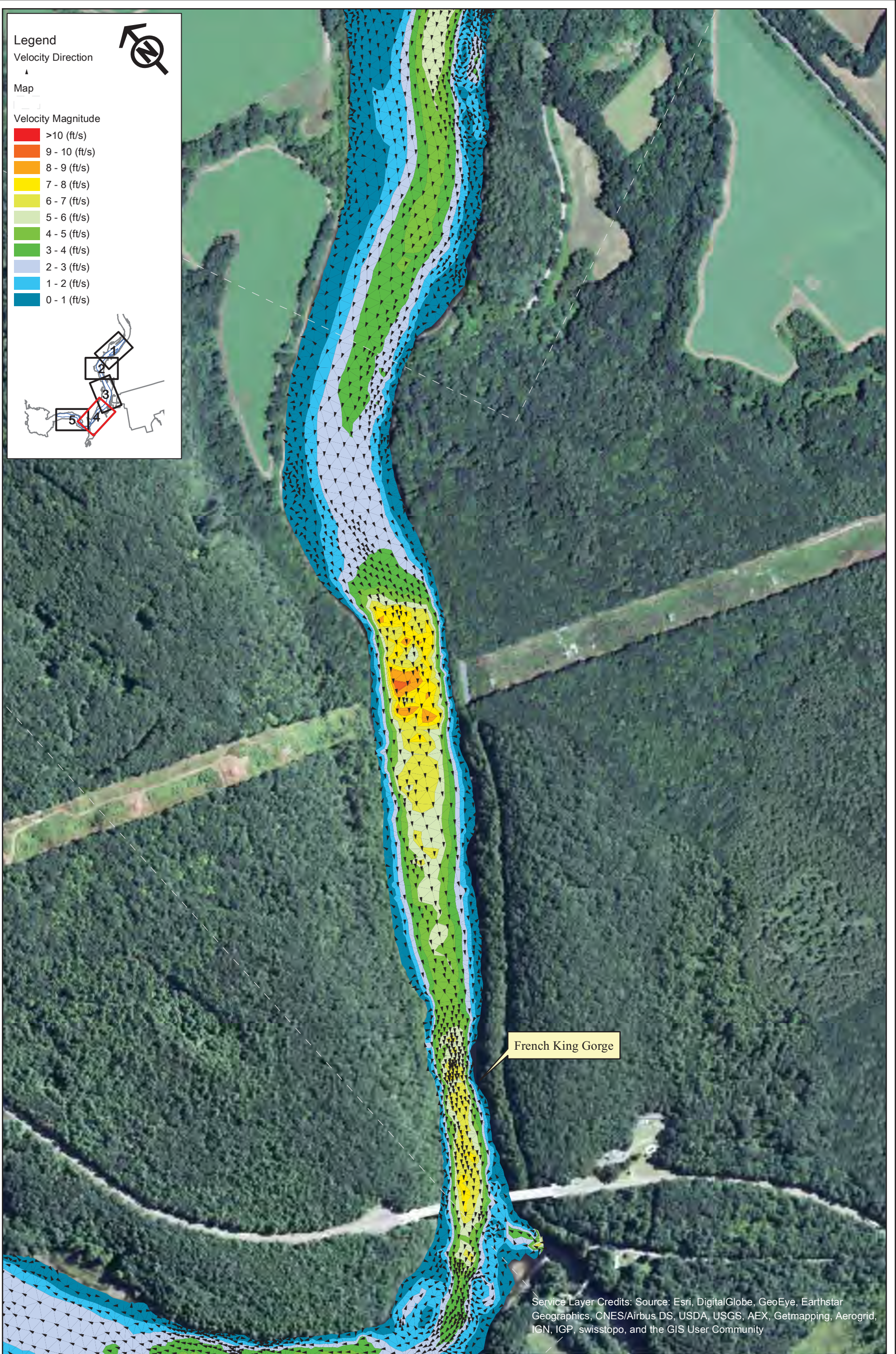
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 27 - Map 3
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam



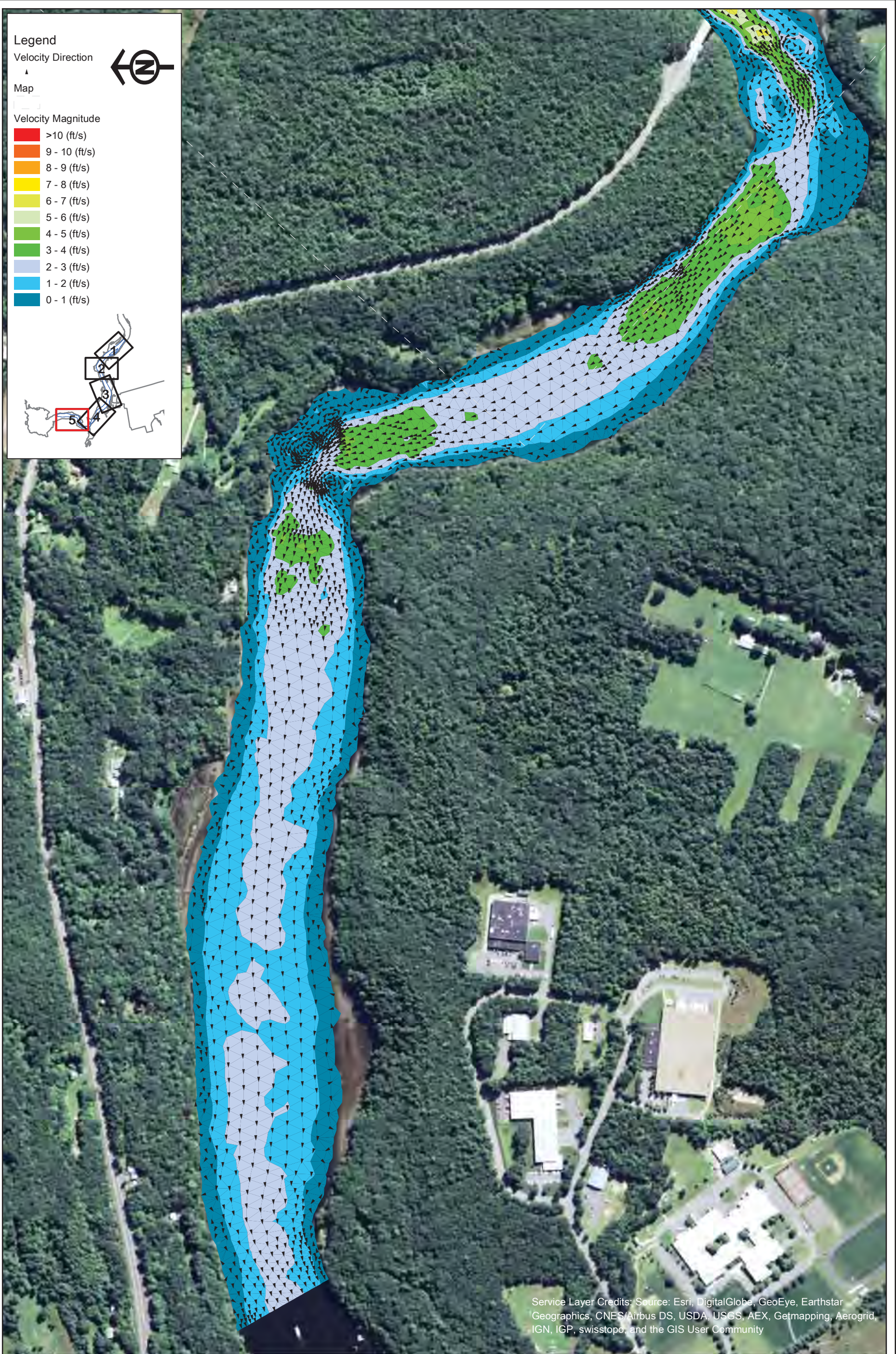


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace
Scenario 27 - Map 4
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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



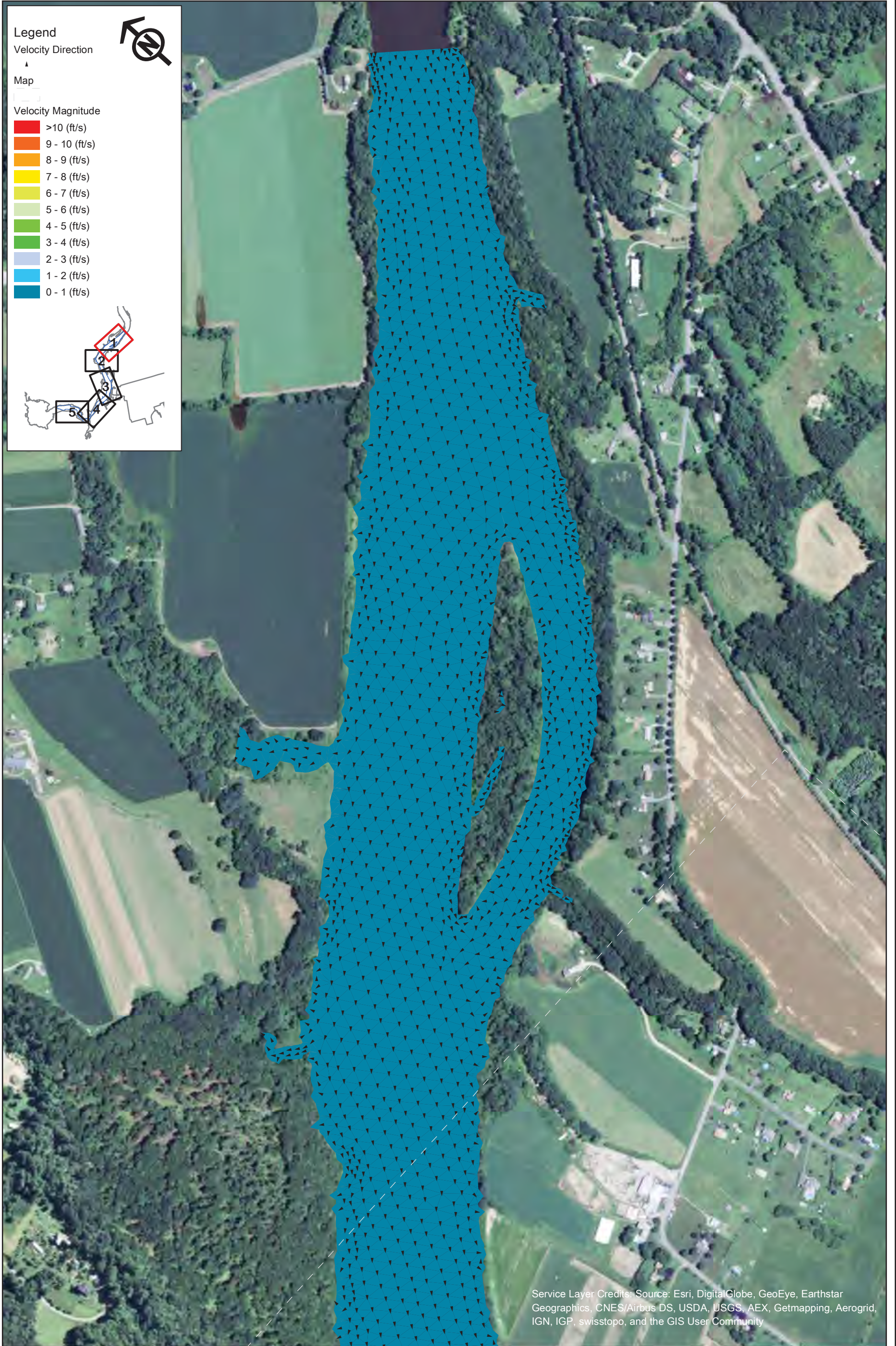
Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 27 - Map 5
 25% Exceedance Flow (15,700 cfs), 4 Units
 Generating (20,000 cfs), 176 WSEL at Dam



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



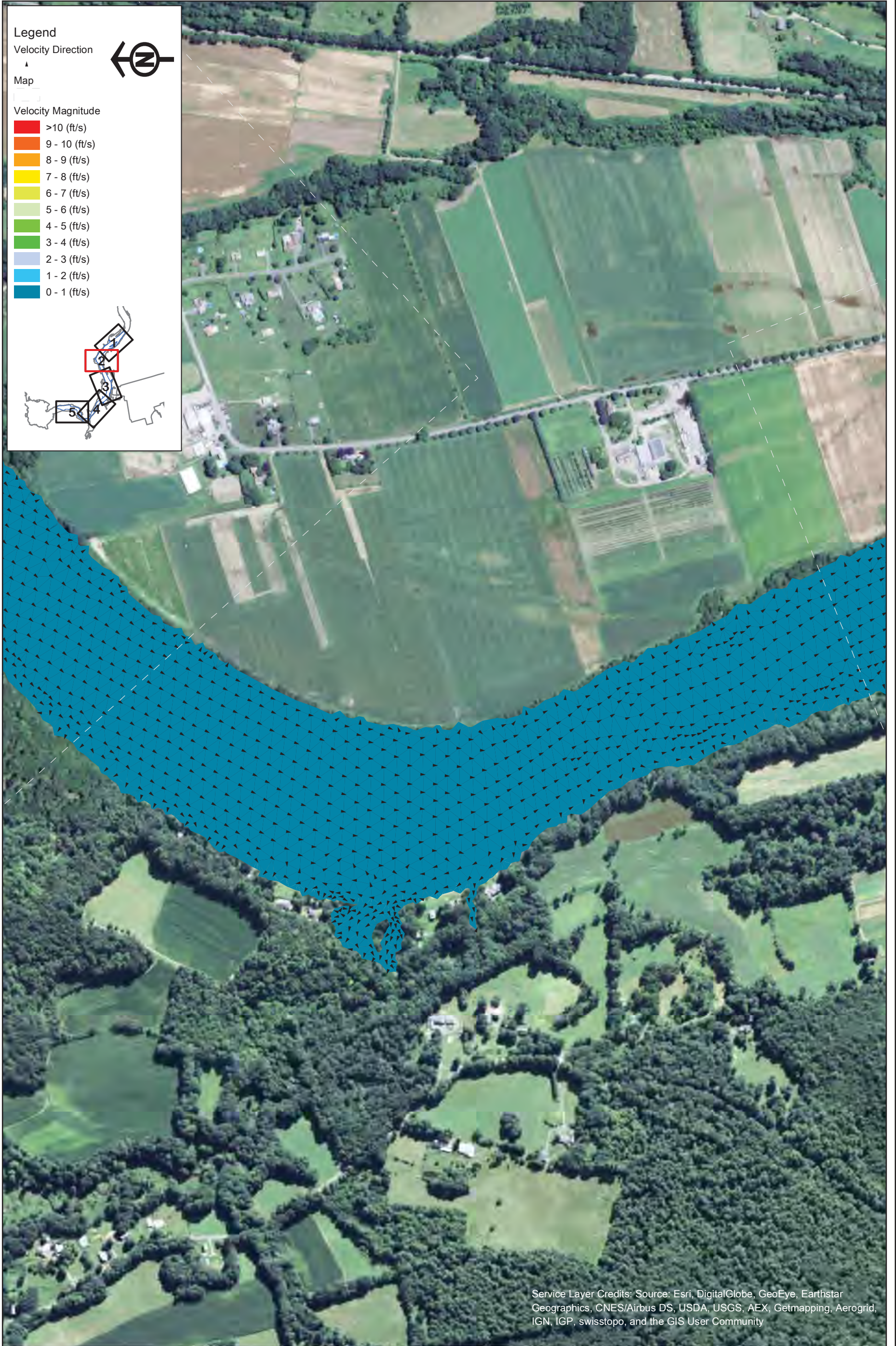
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 28 - Map 1
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam



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

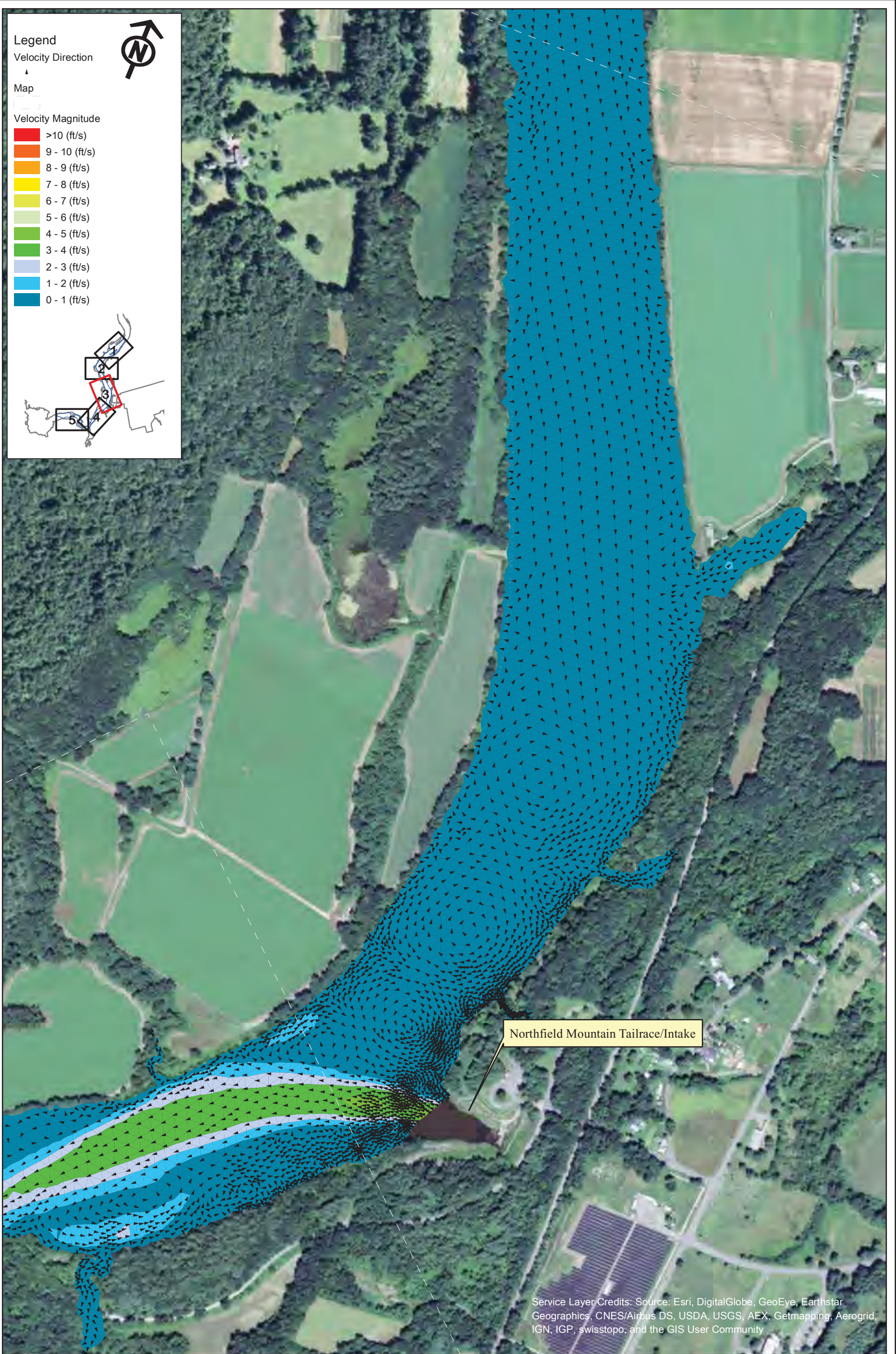


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 28 - Map 2
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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



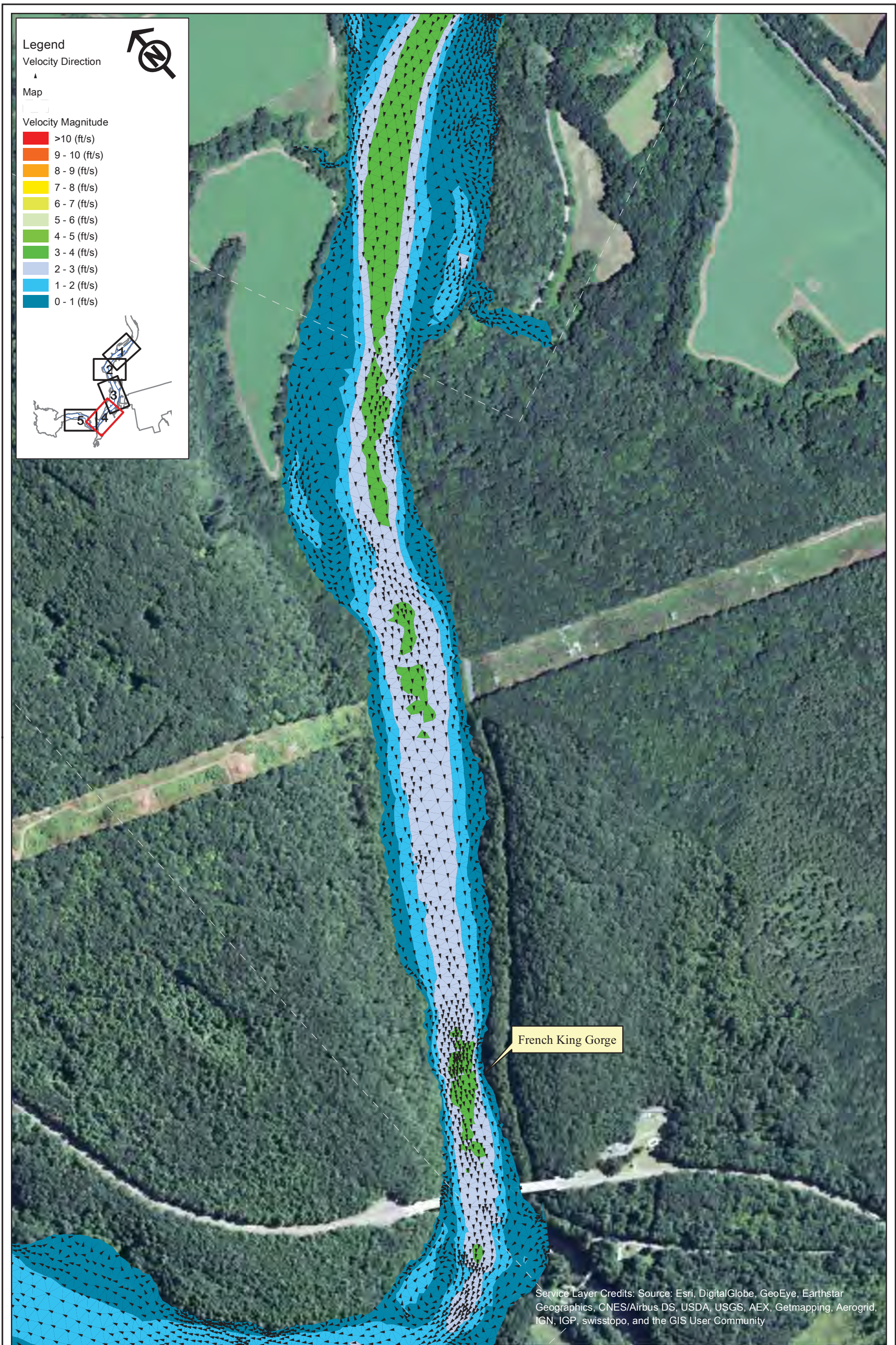
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 28 - Map 3
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam

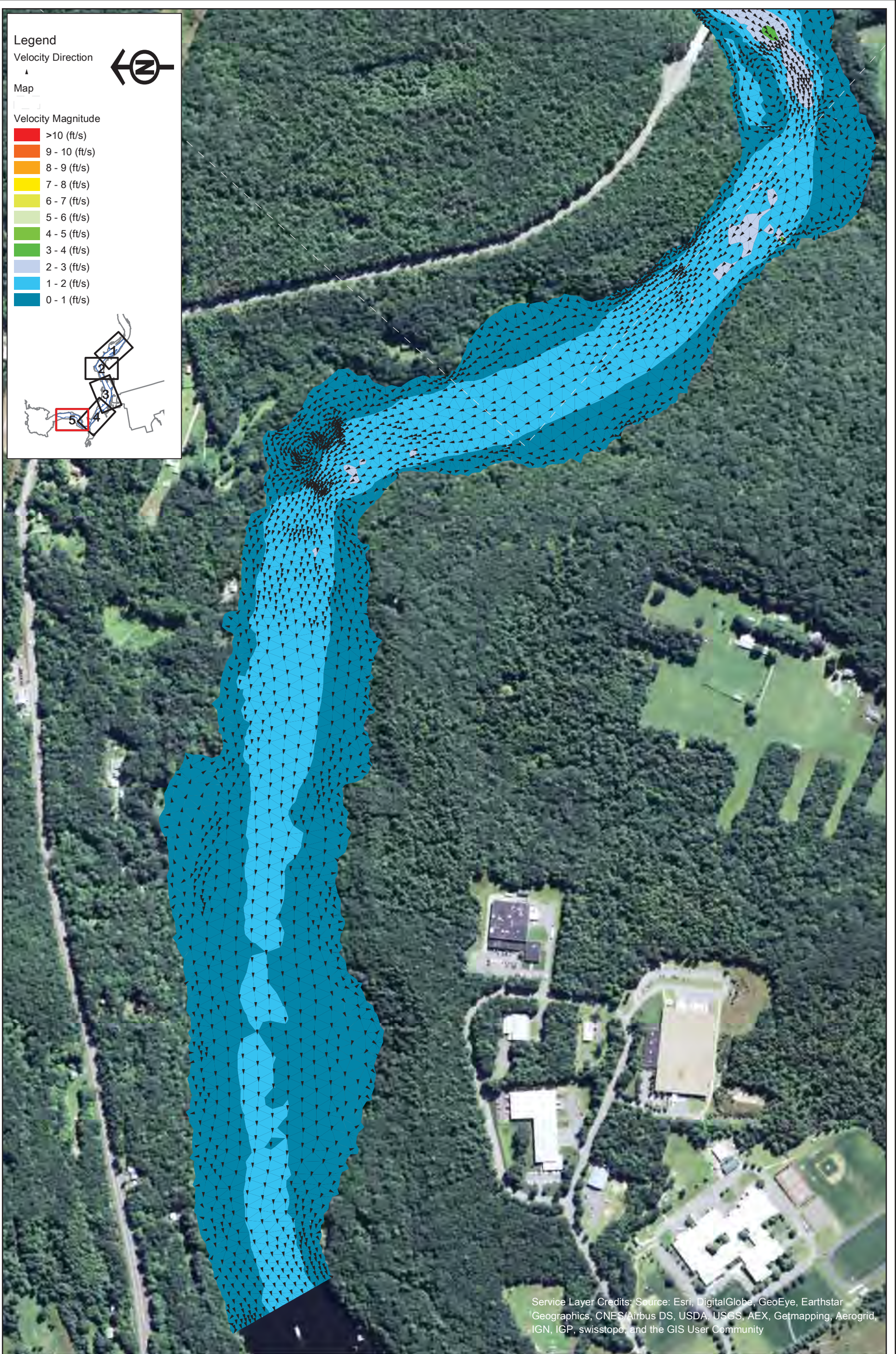


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 28 - Map 4
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam



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



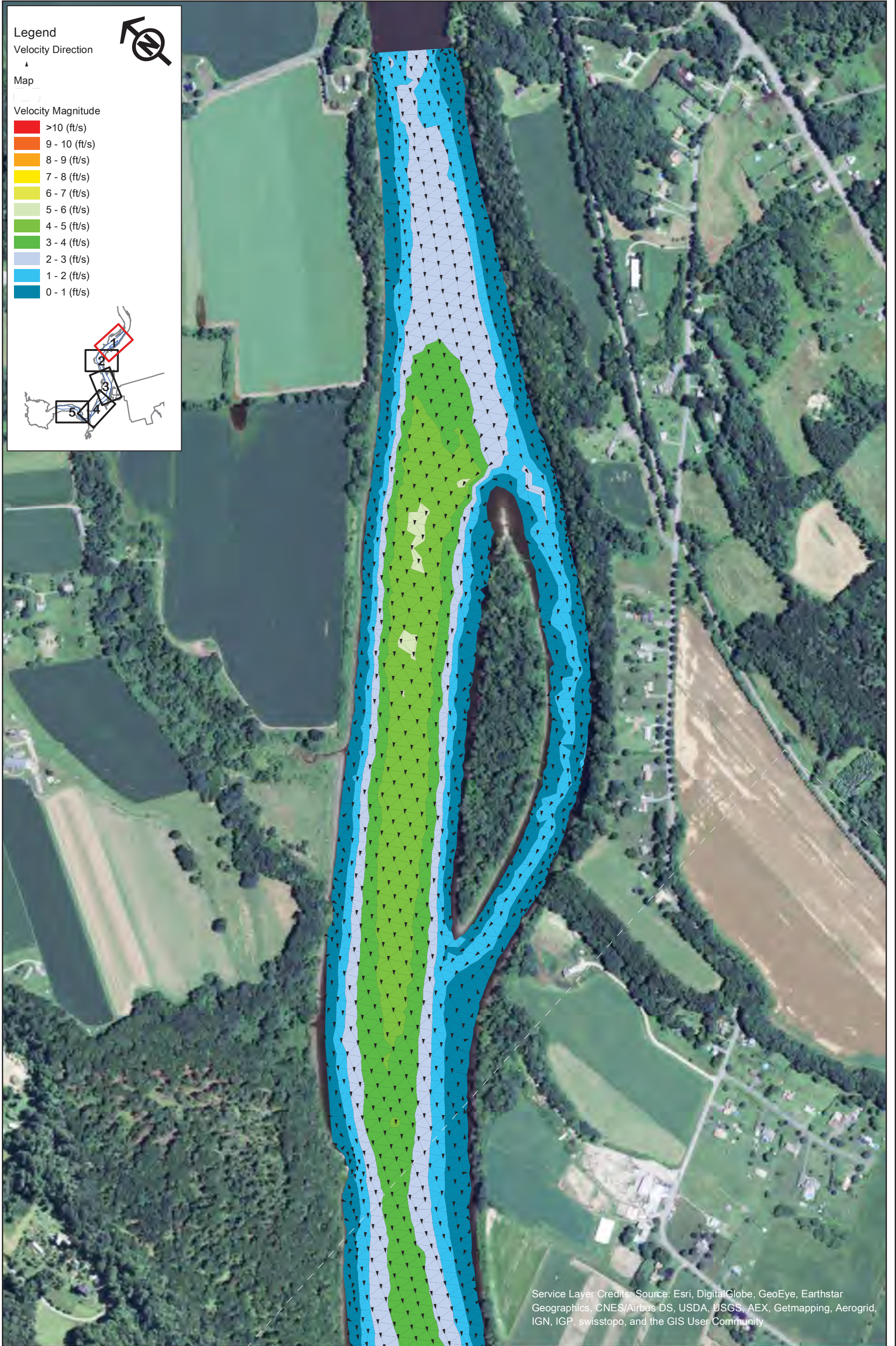
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 28 - Map 5
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

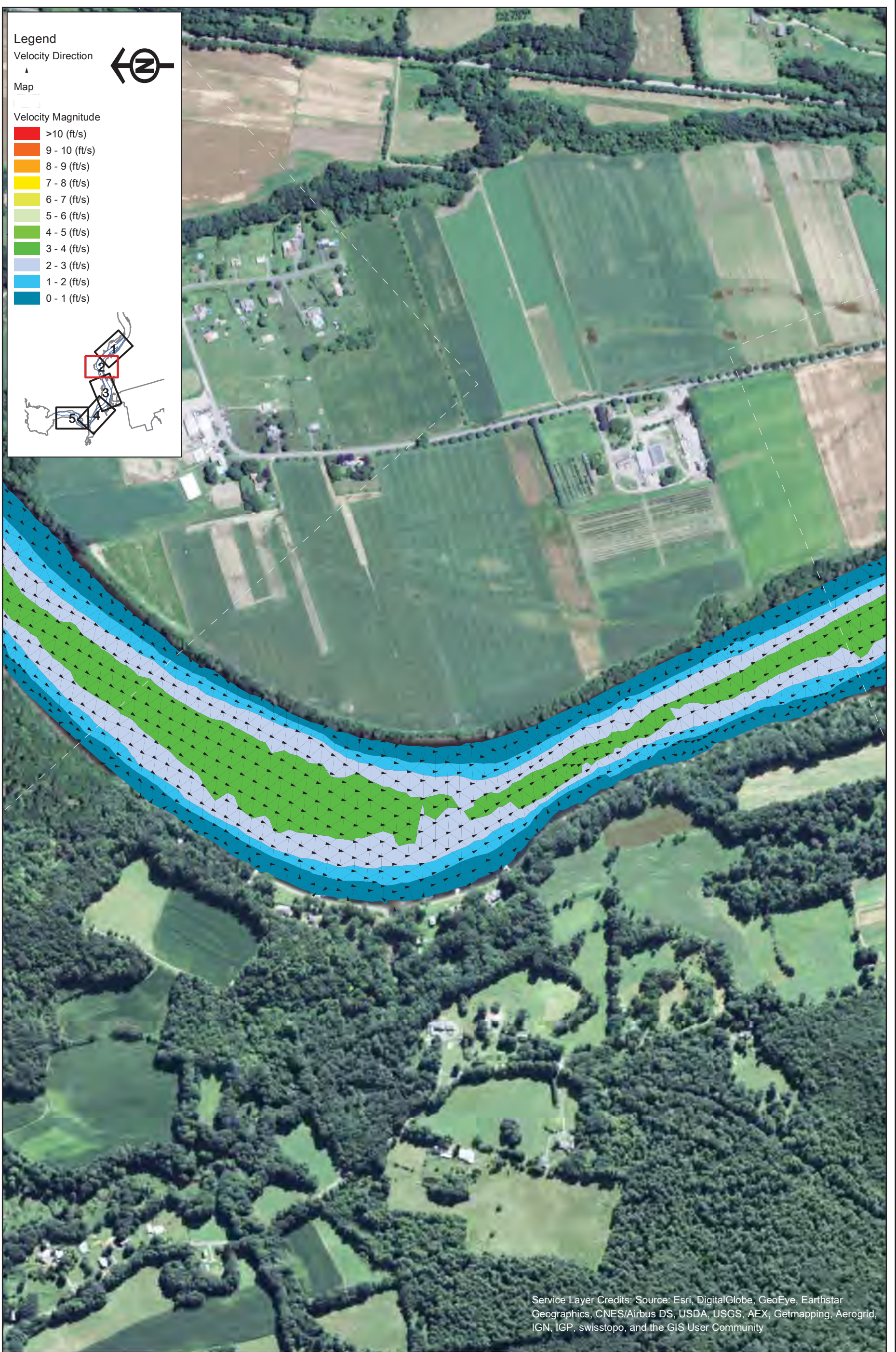
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 29 - Map 1
25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam





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



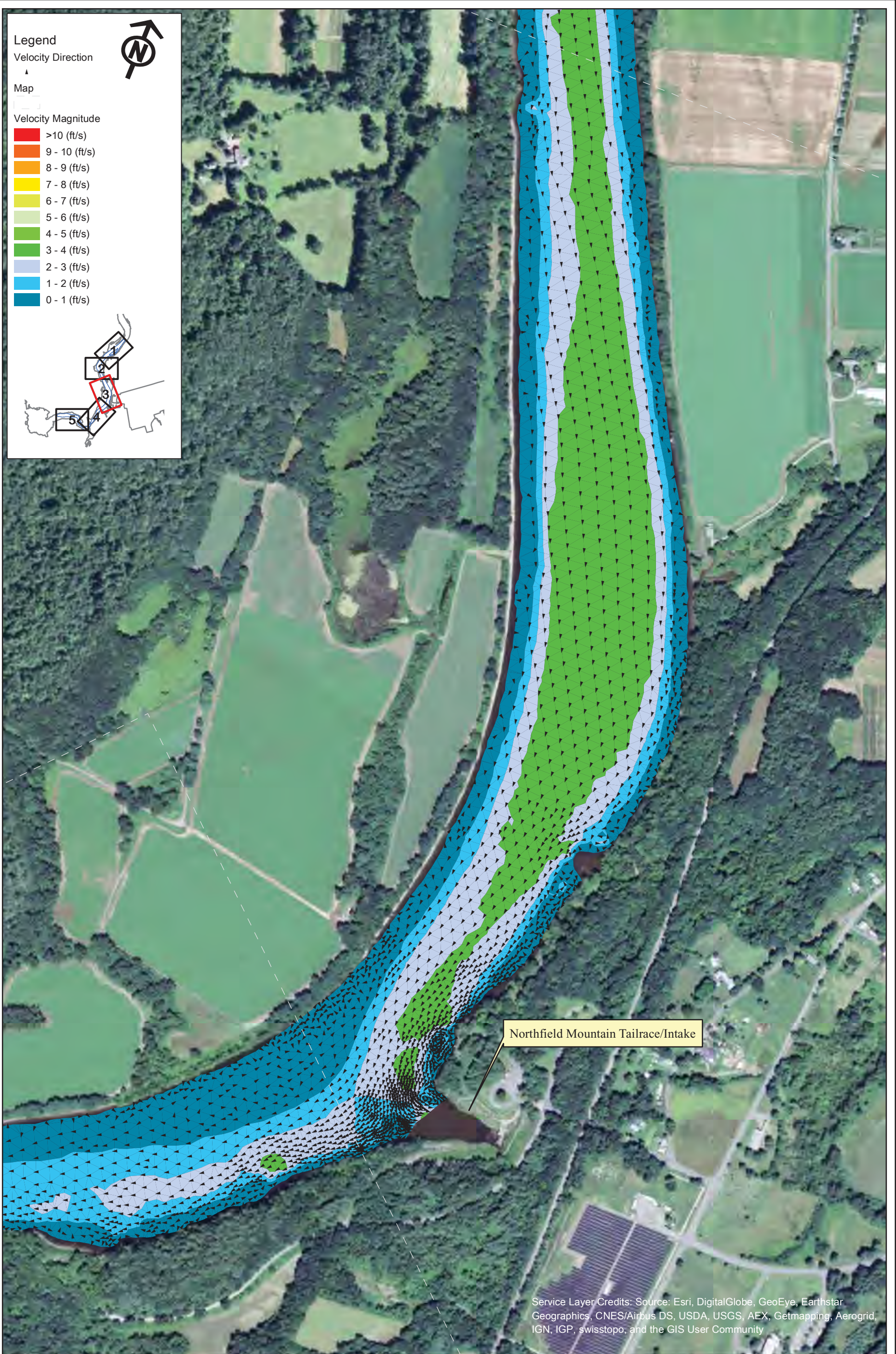
Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9

0 250 500 1,000
 Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 29 - Map 2
 25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

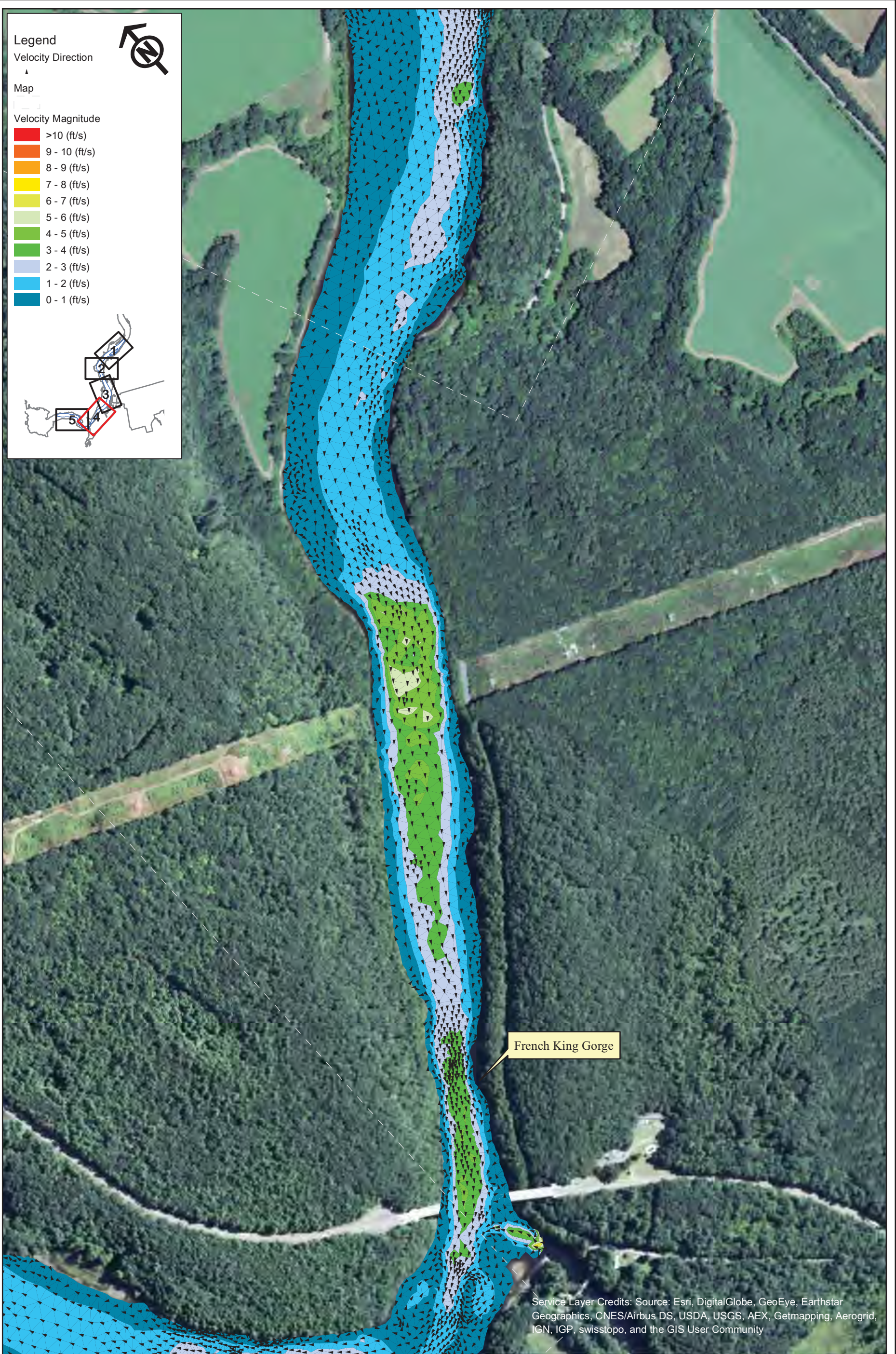
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace

Scenario 29 - Map 3
25% Exceedance Flow (15,700 cfs), 2 Units
Pumping (7,600 cfs), 176 WSEL at Dam



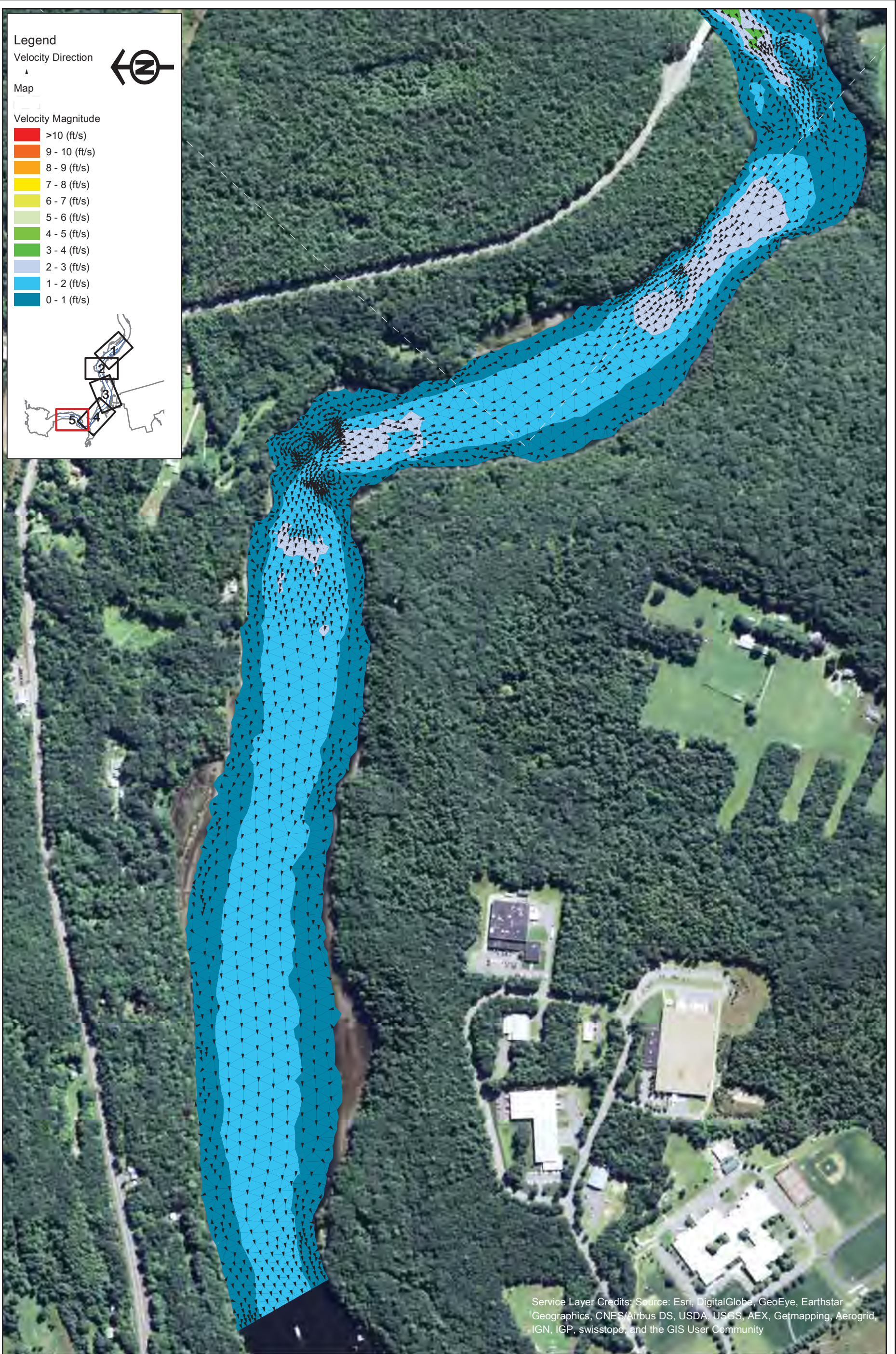


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 29 - Map 4
25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



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

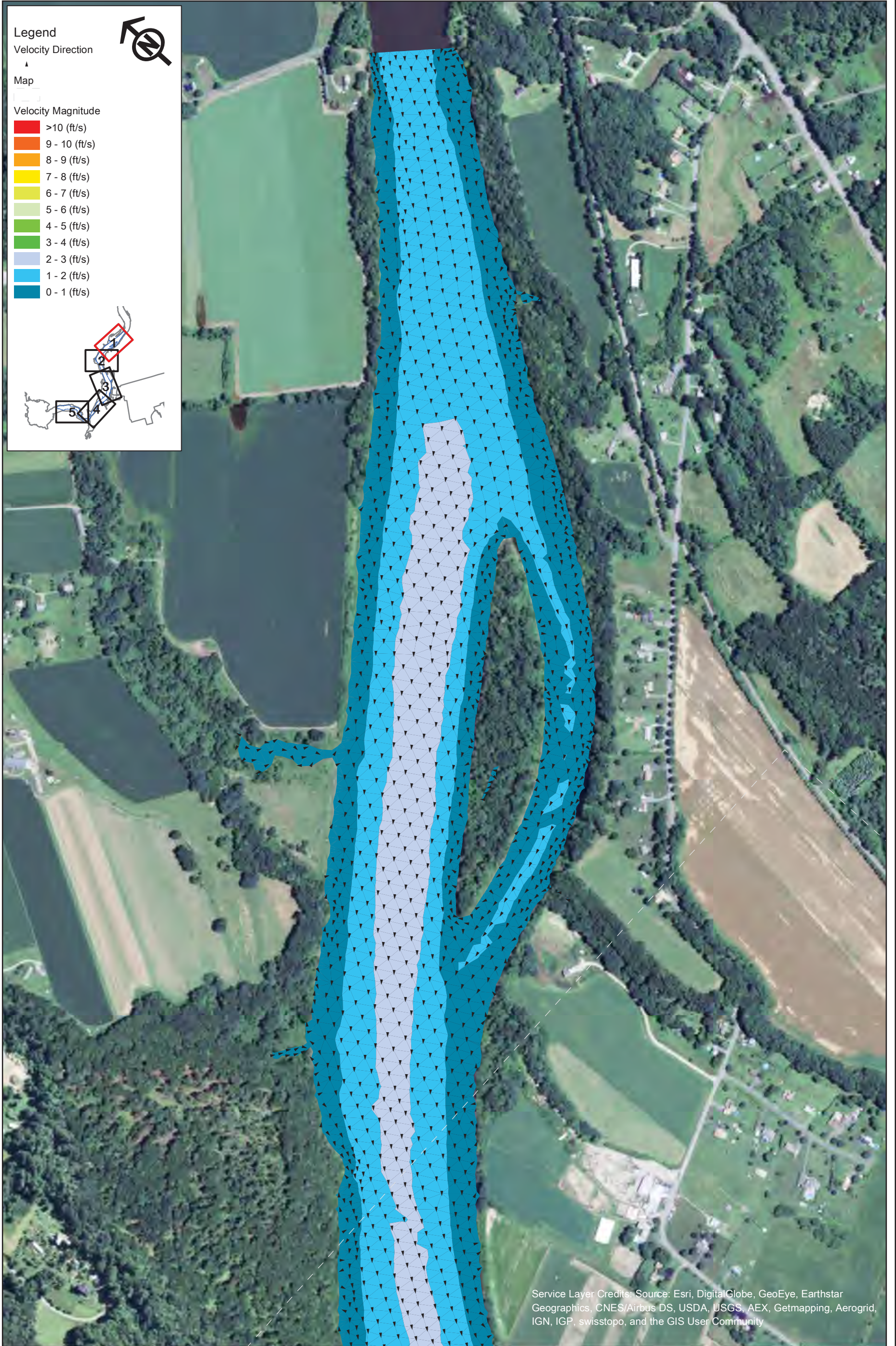


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 29 - Map 5
25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

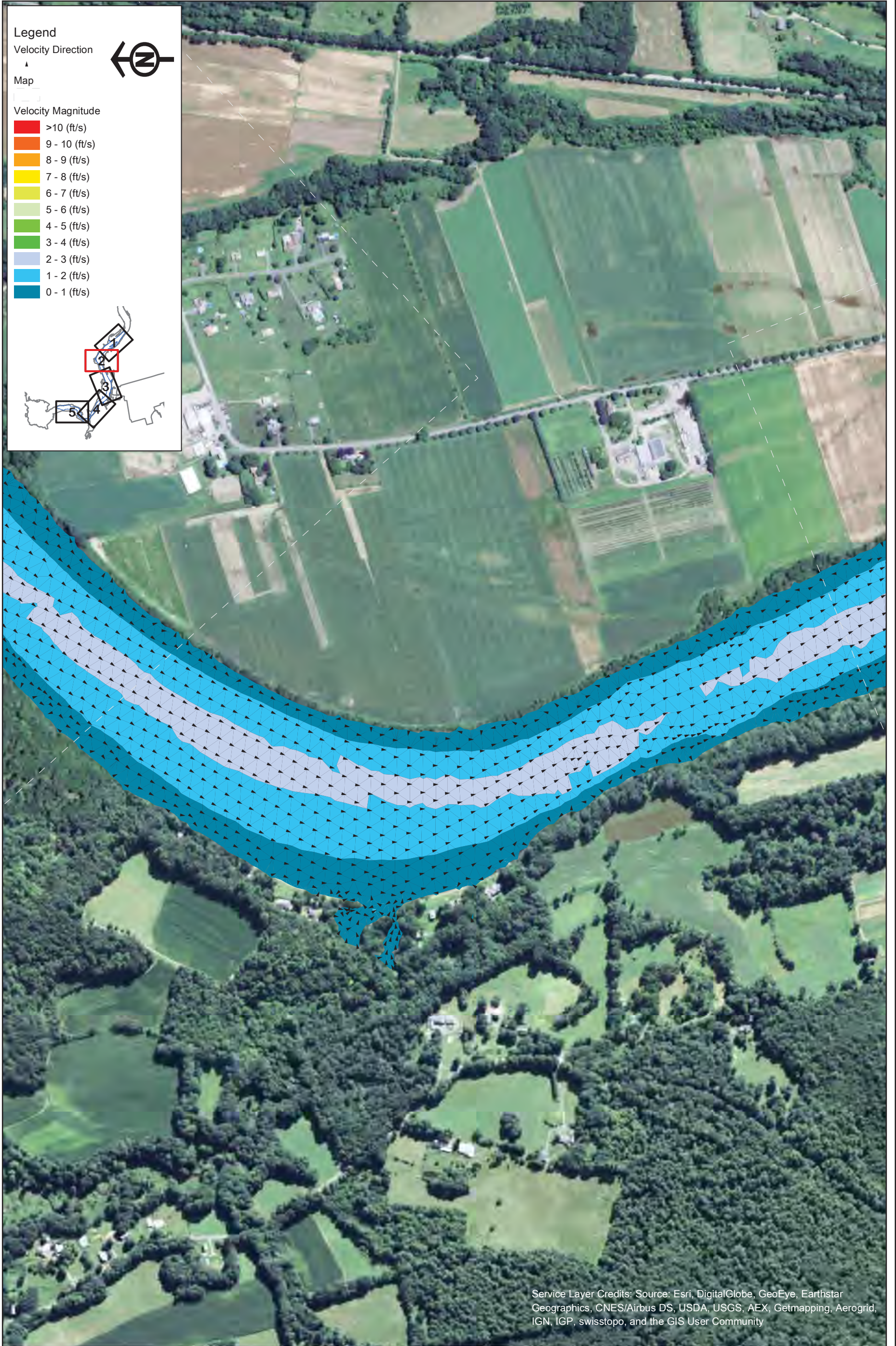
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 30 - Map 1
25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

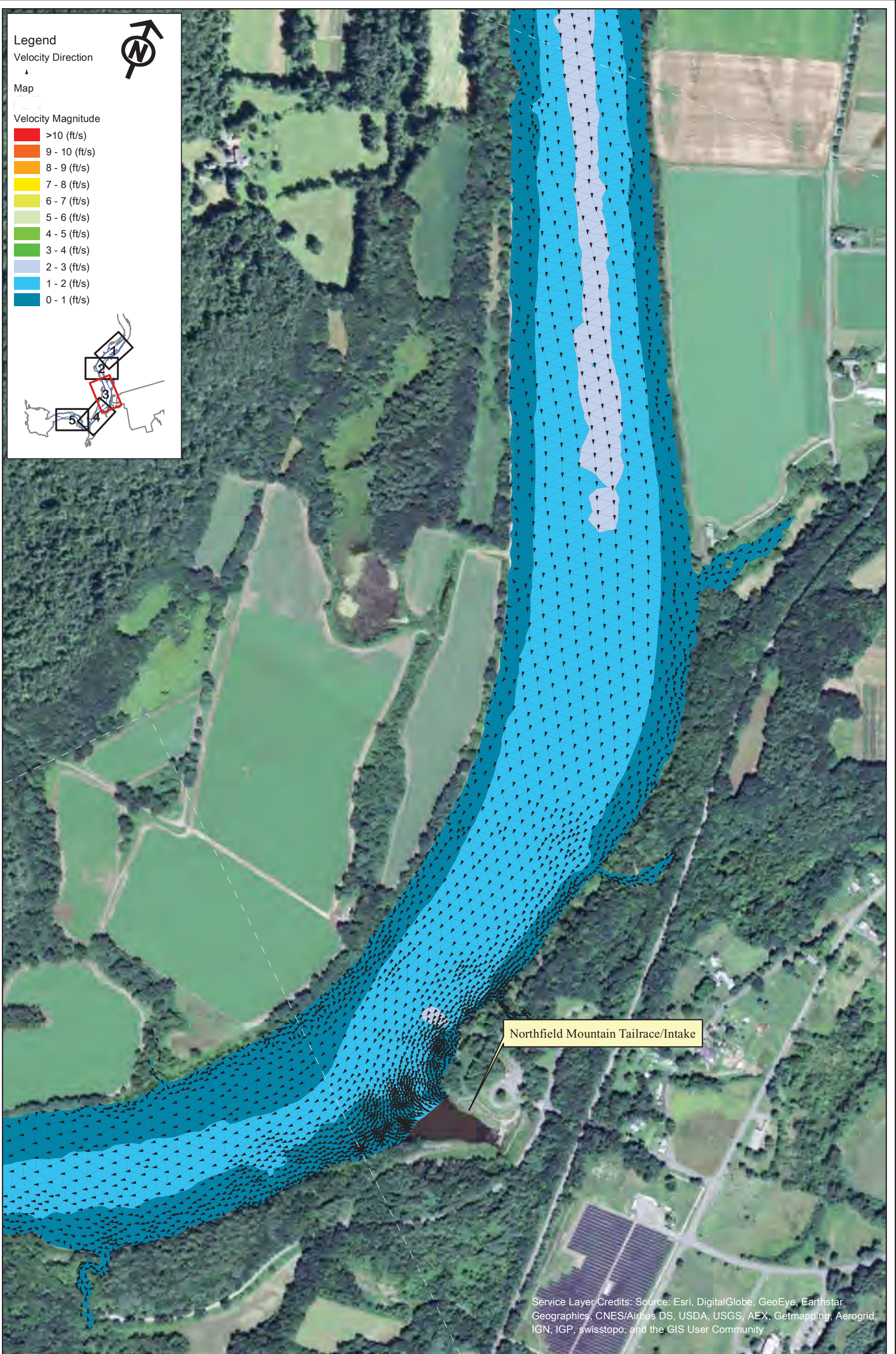


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 30 - Map 2
 25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

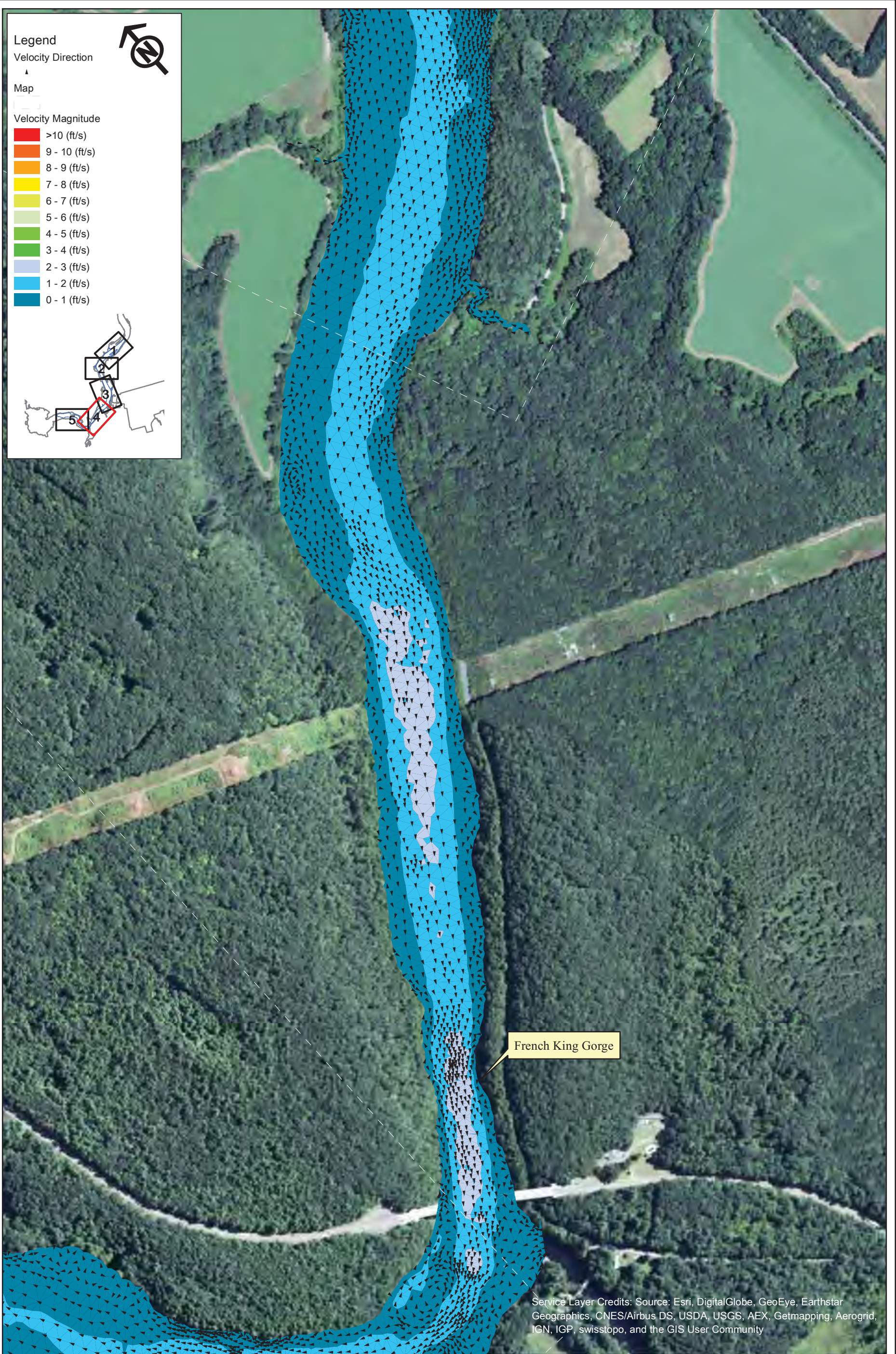
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 30 - Map 3
25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



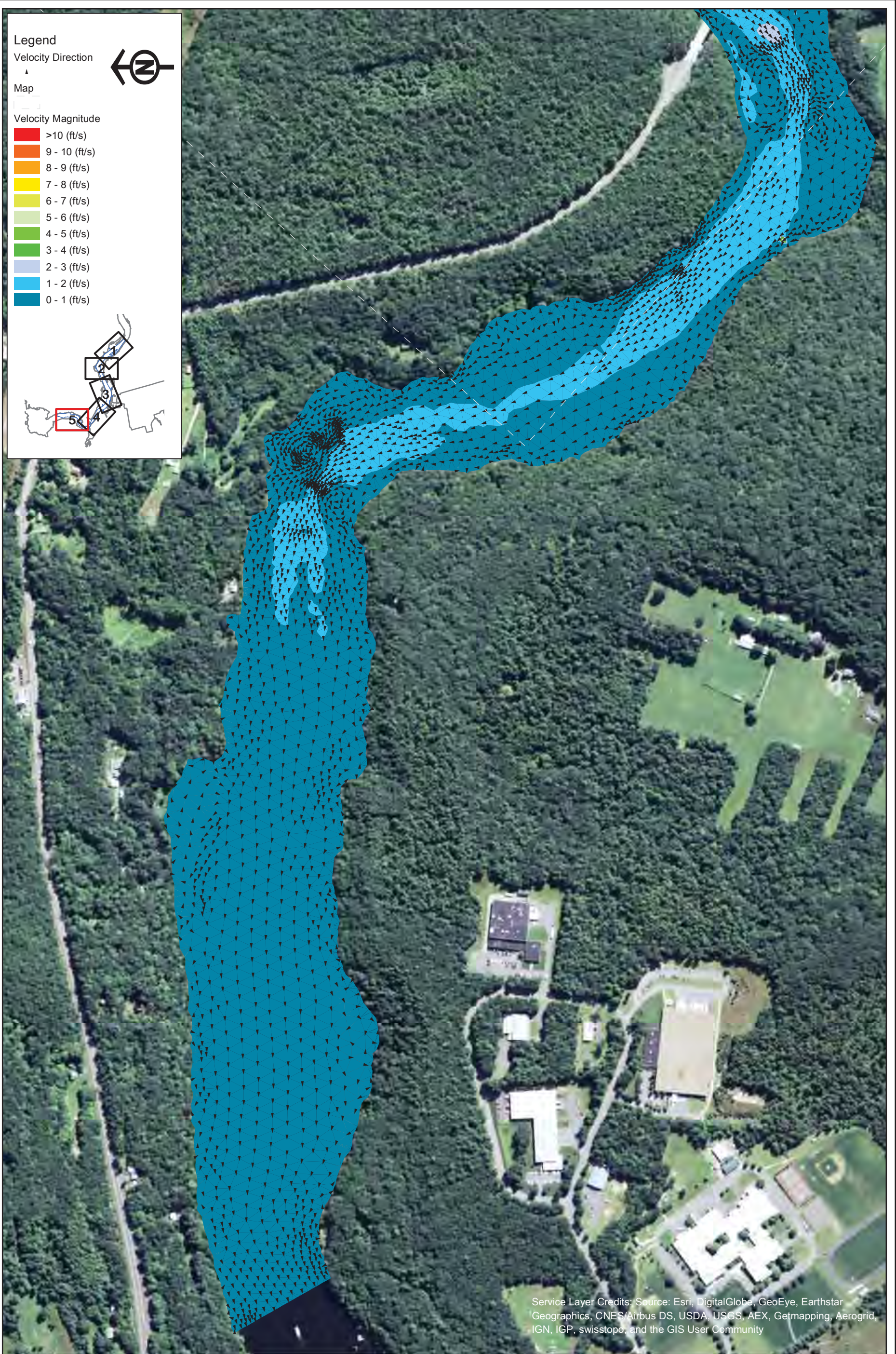


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 30 - Map 4
25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



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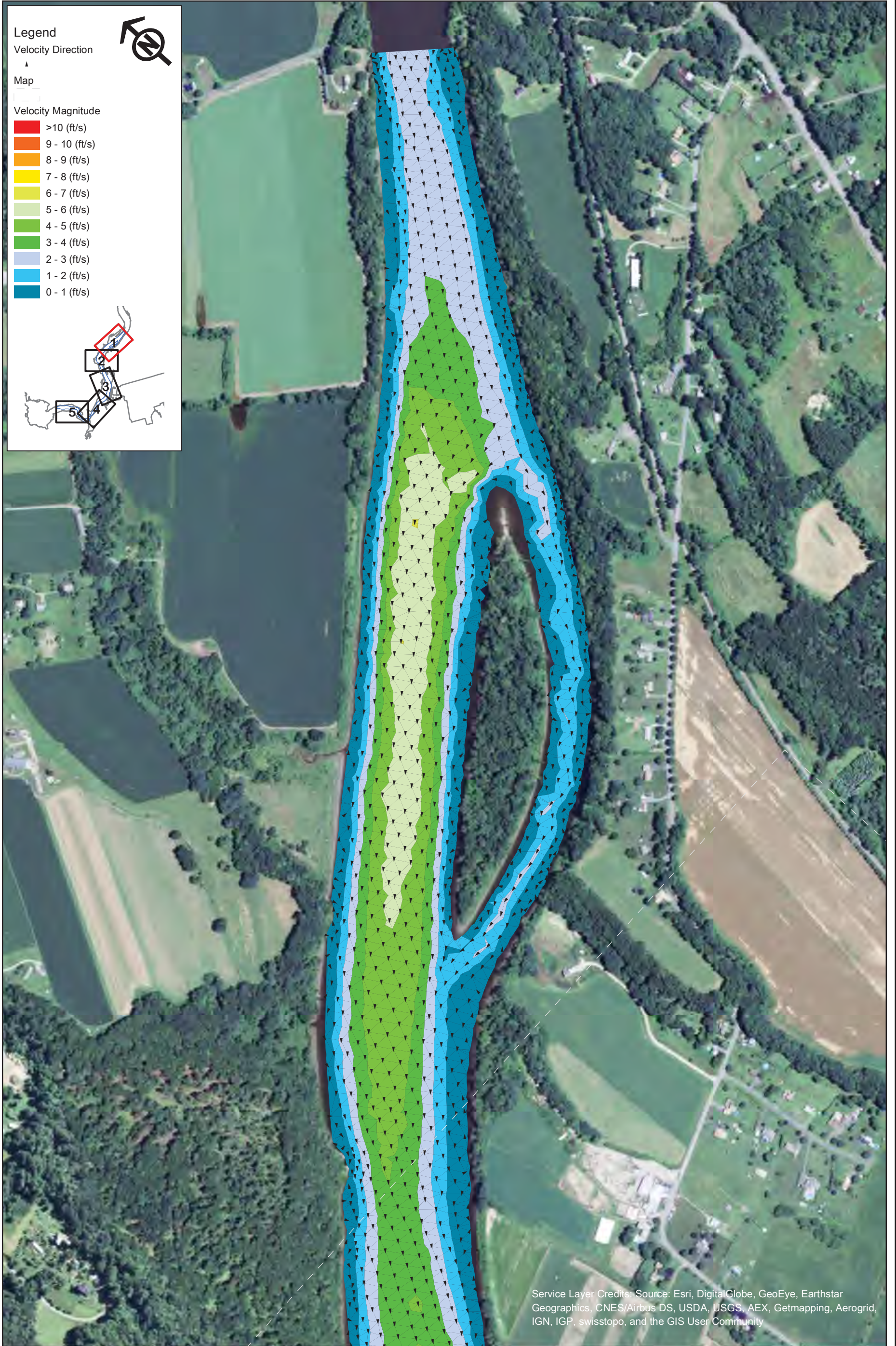


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 30 - Map 5
25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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



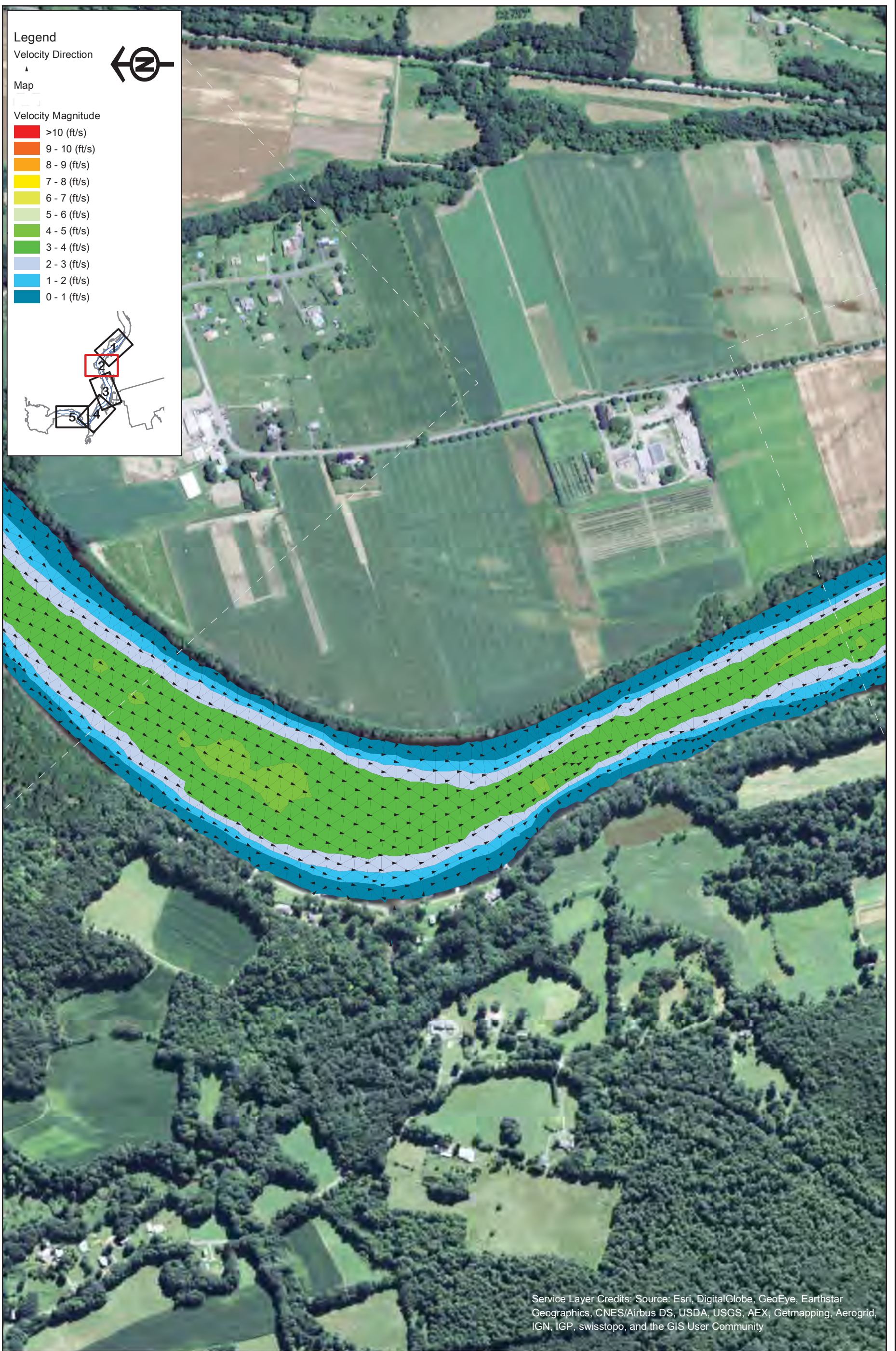
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 31 - Map 1
25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



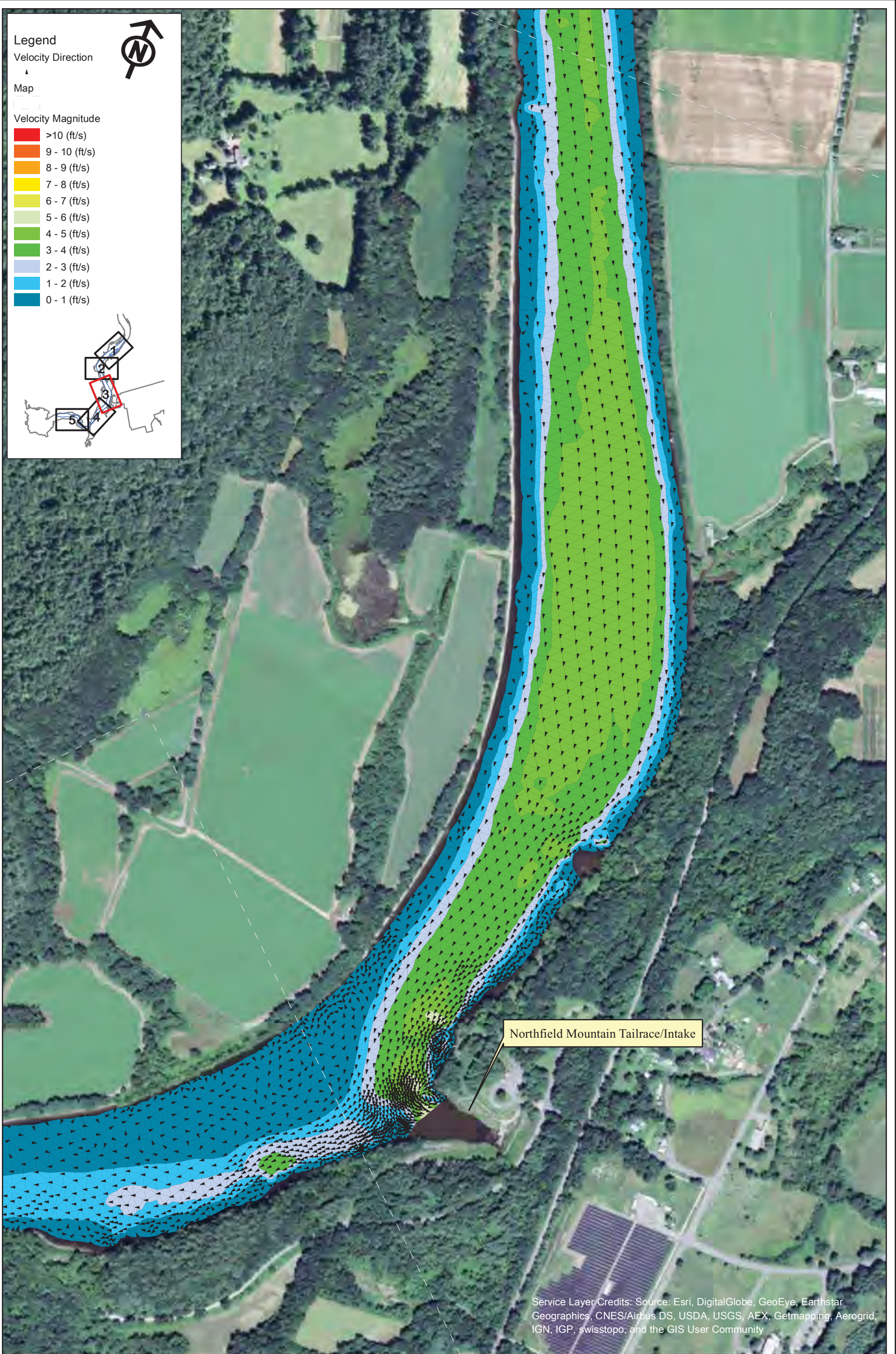
Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 31 - Map 2
 25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam





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

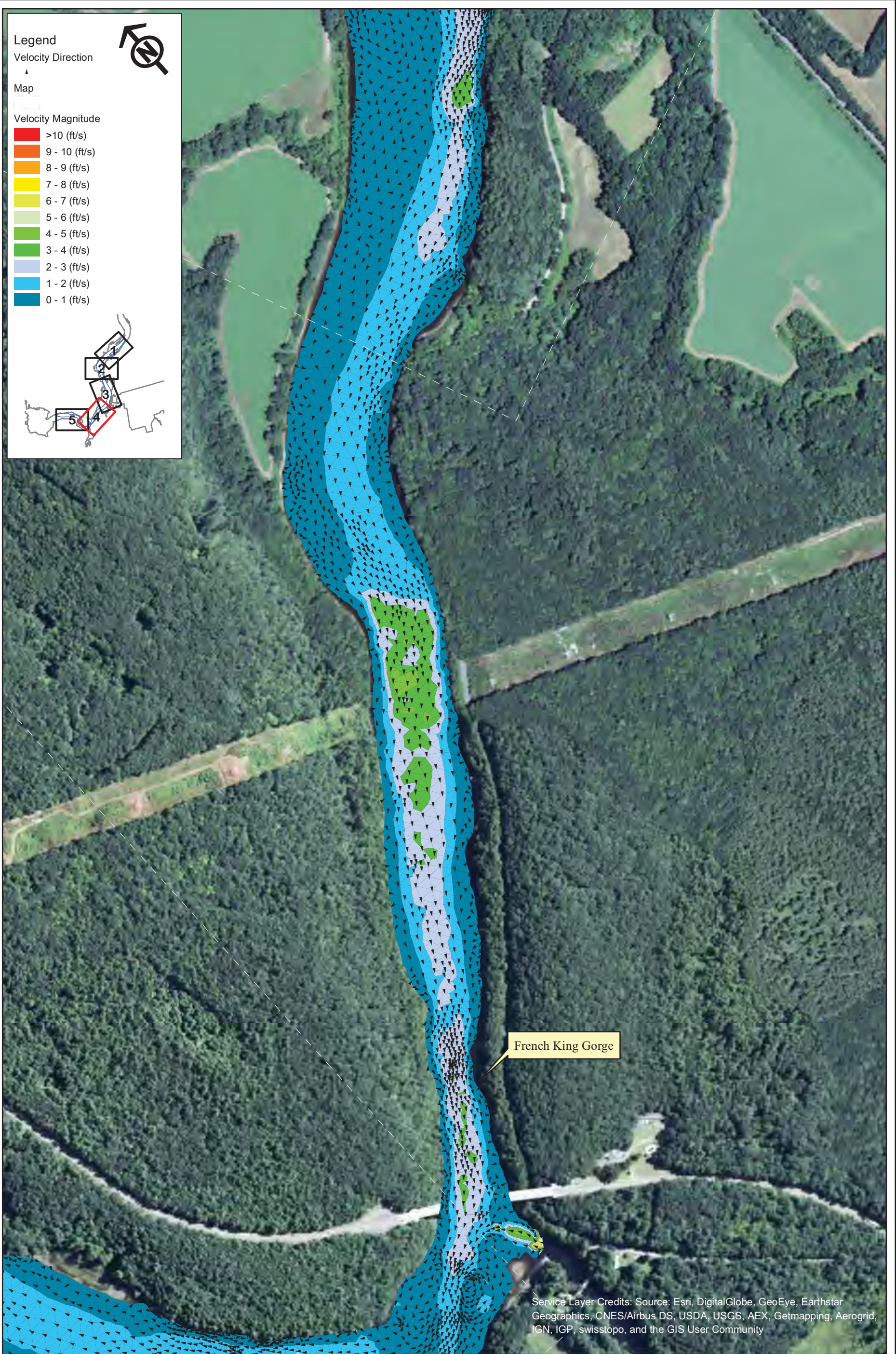


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 31 - Map 3
25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam

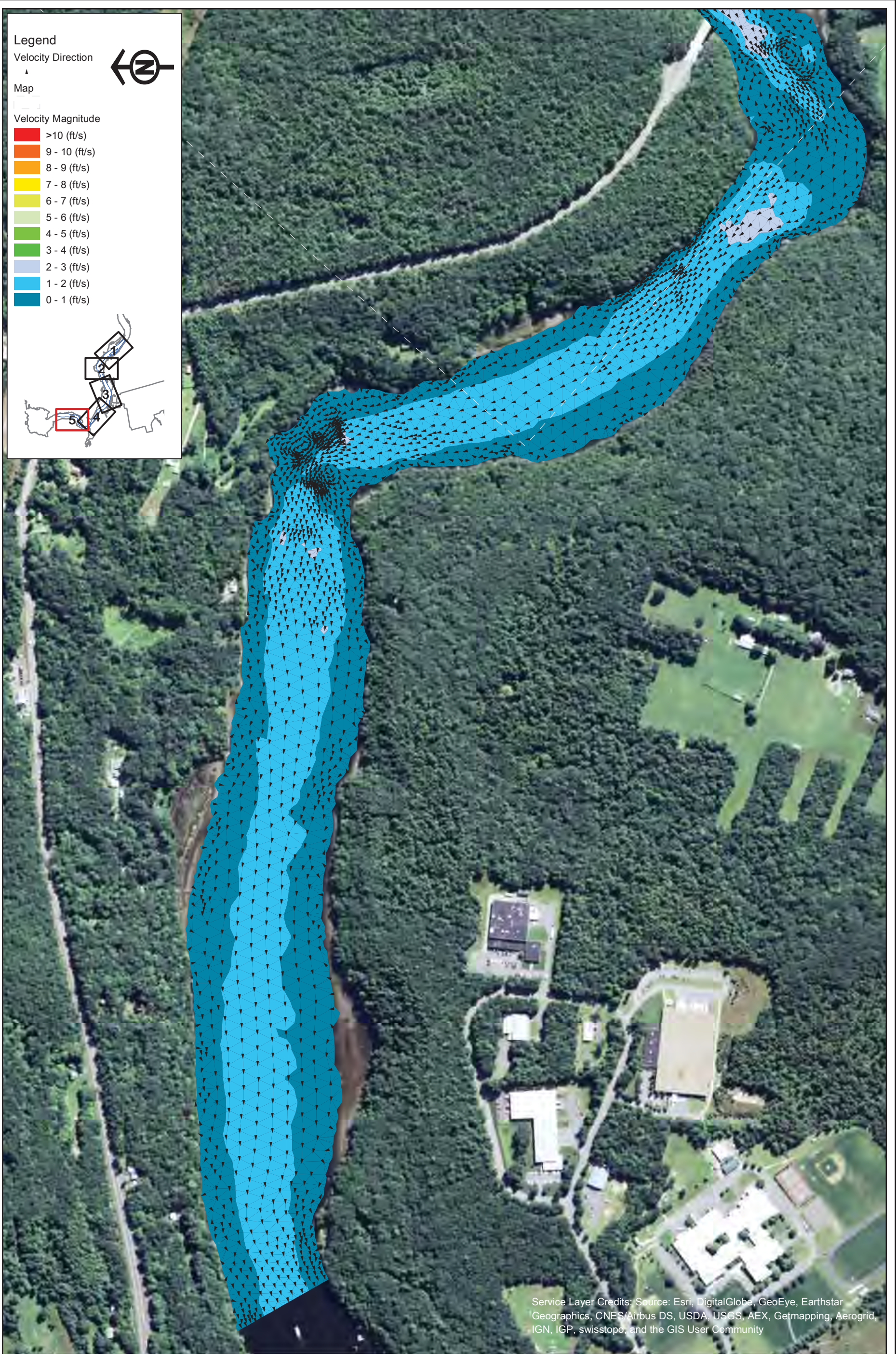


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 31 - Map 4
25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



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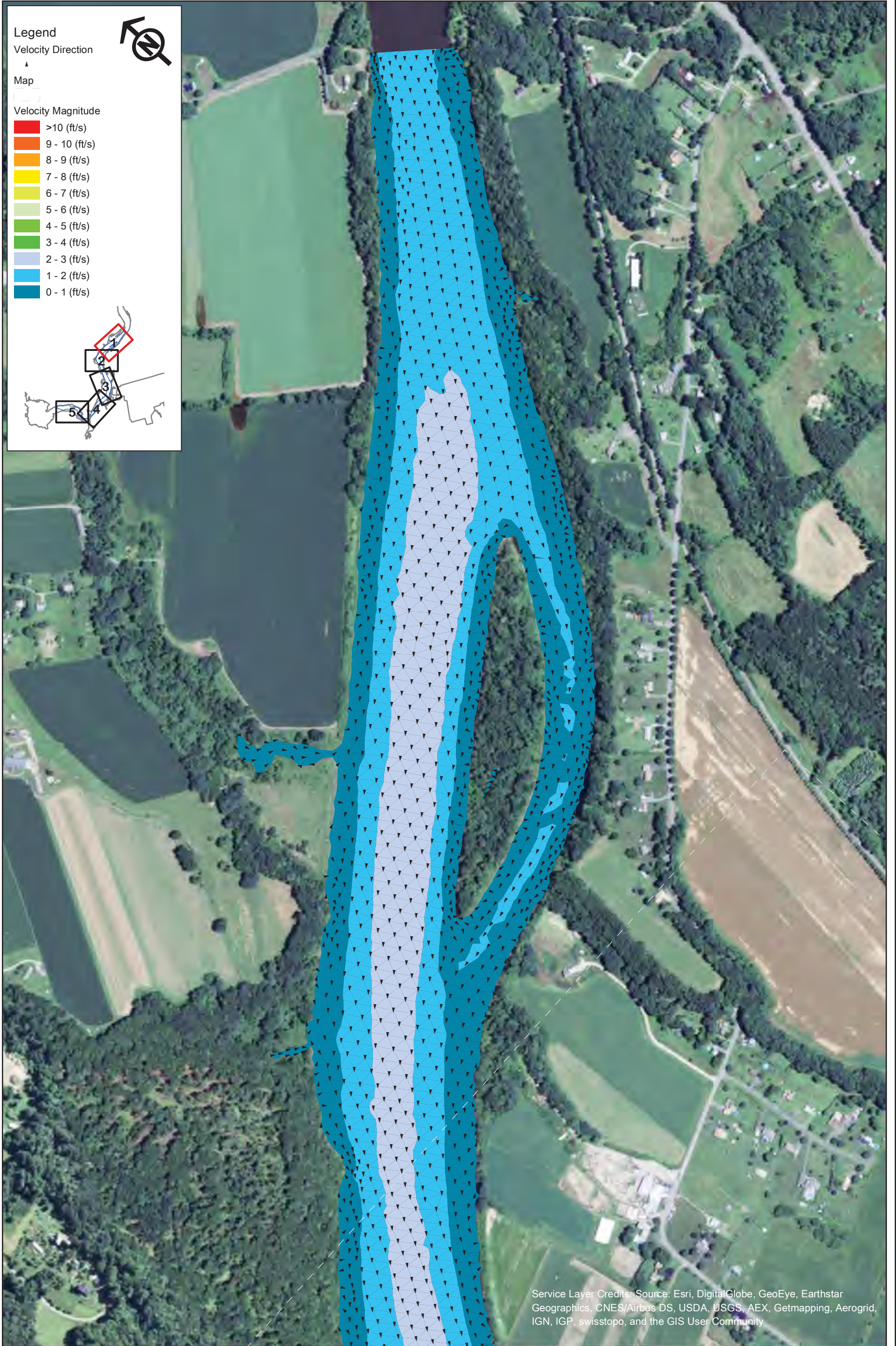
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 31 - Map 5
25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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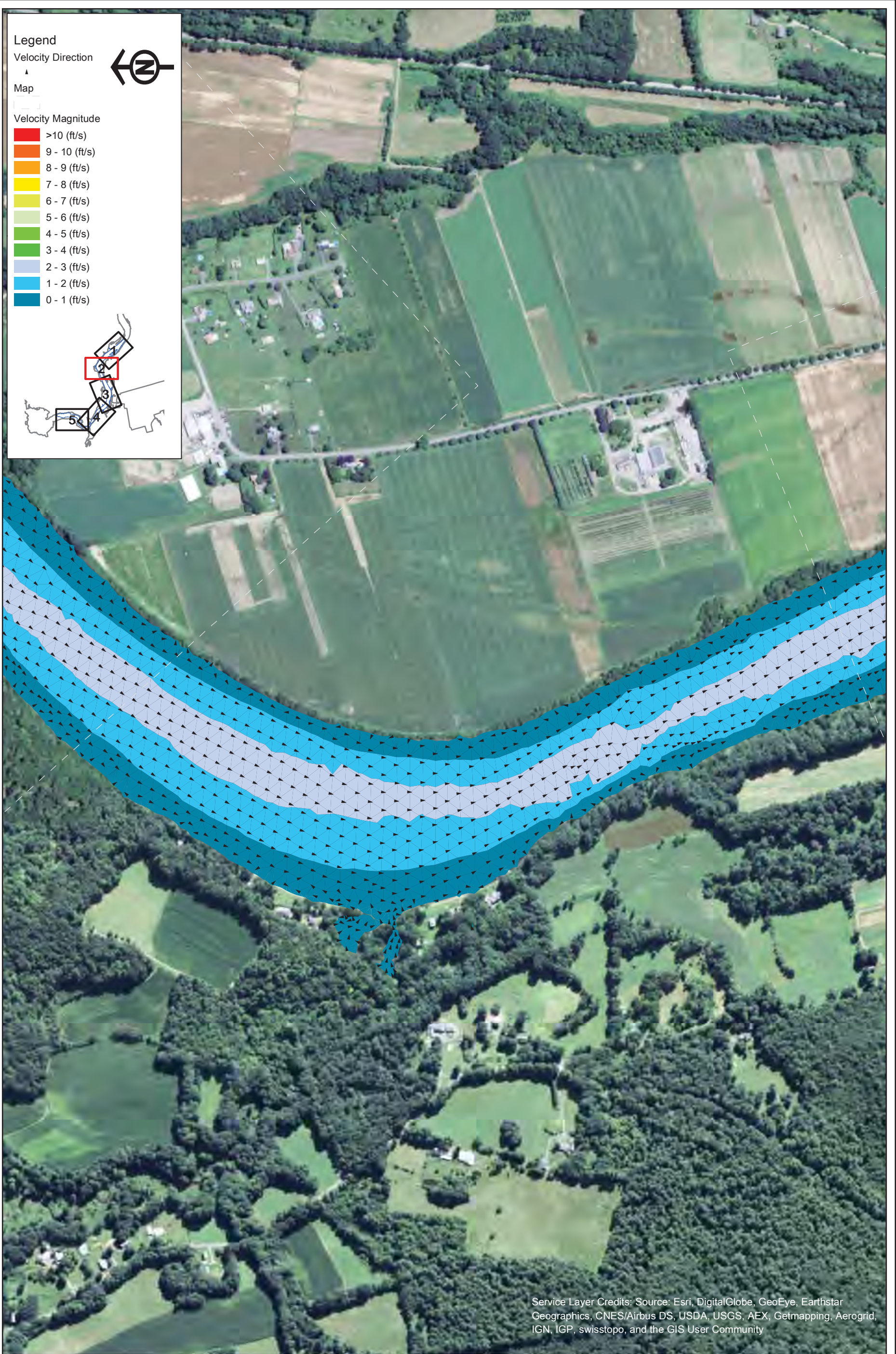


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 32 - Map 1
25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



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Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

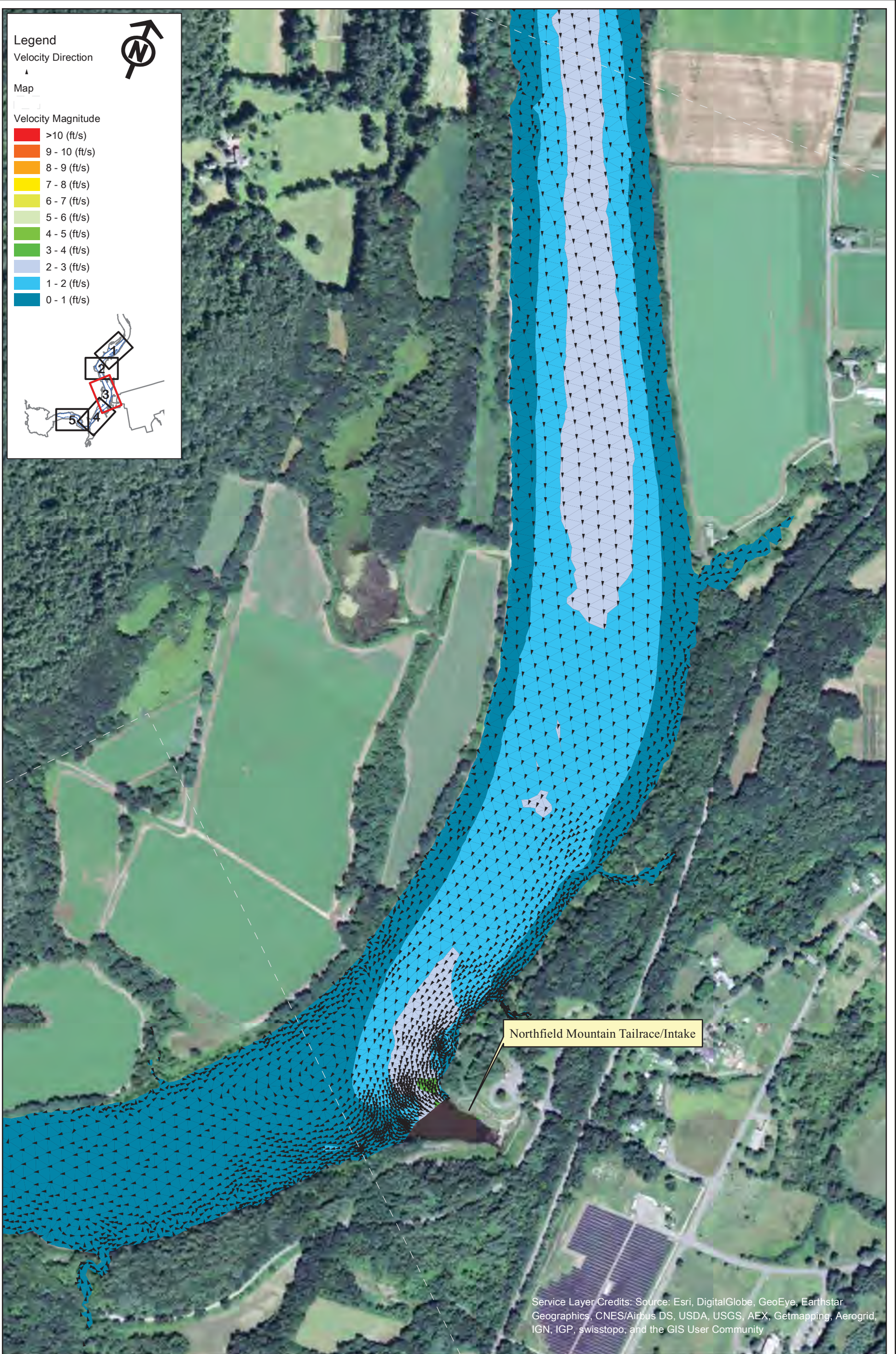


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 32 - Map 2
 25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

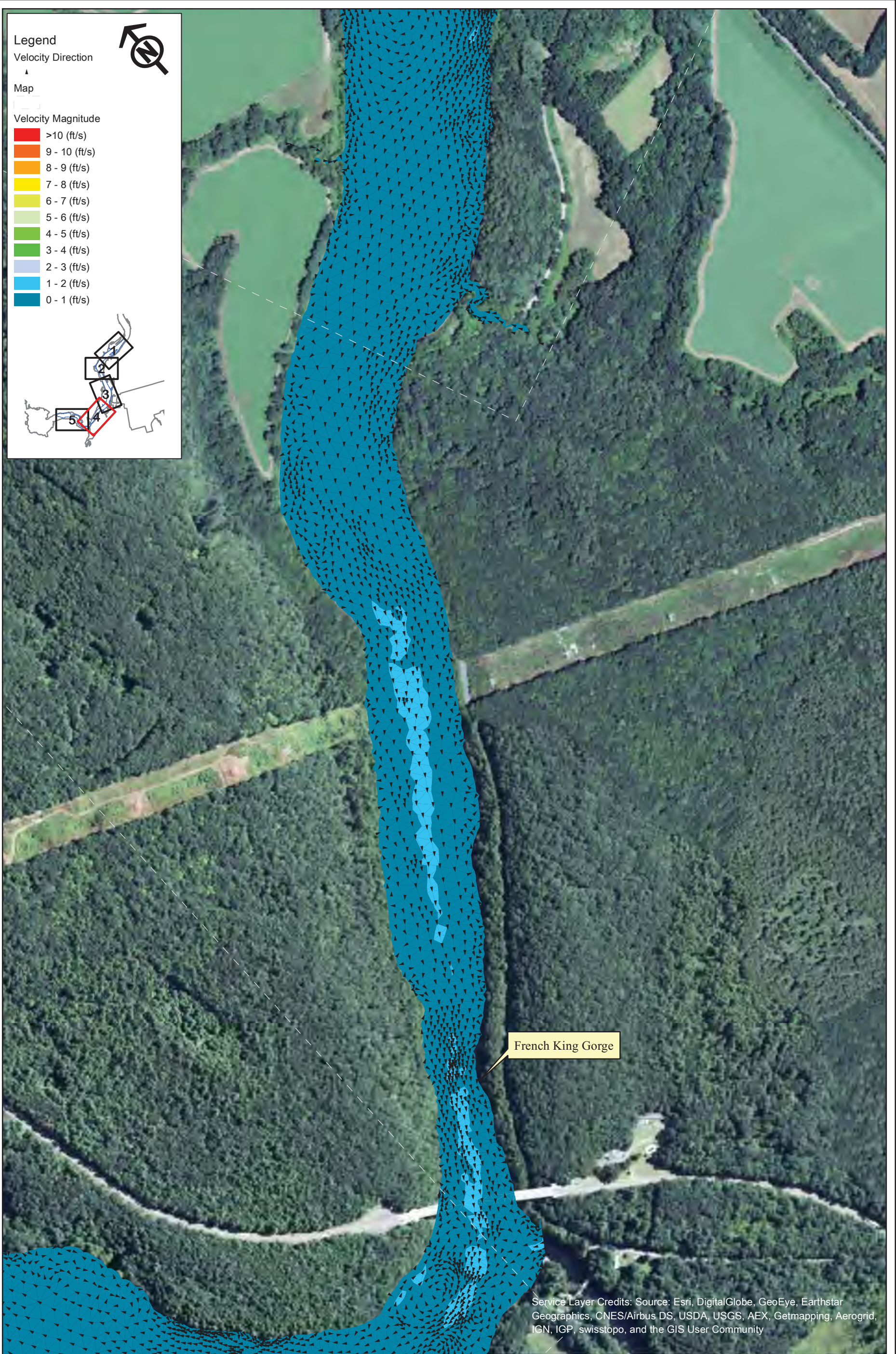


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 32 - Map 3
25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

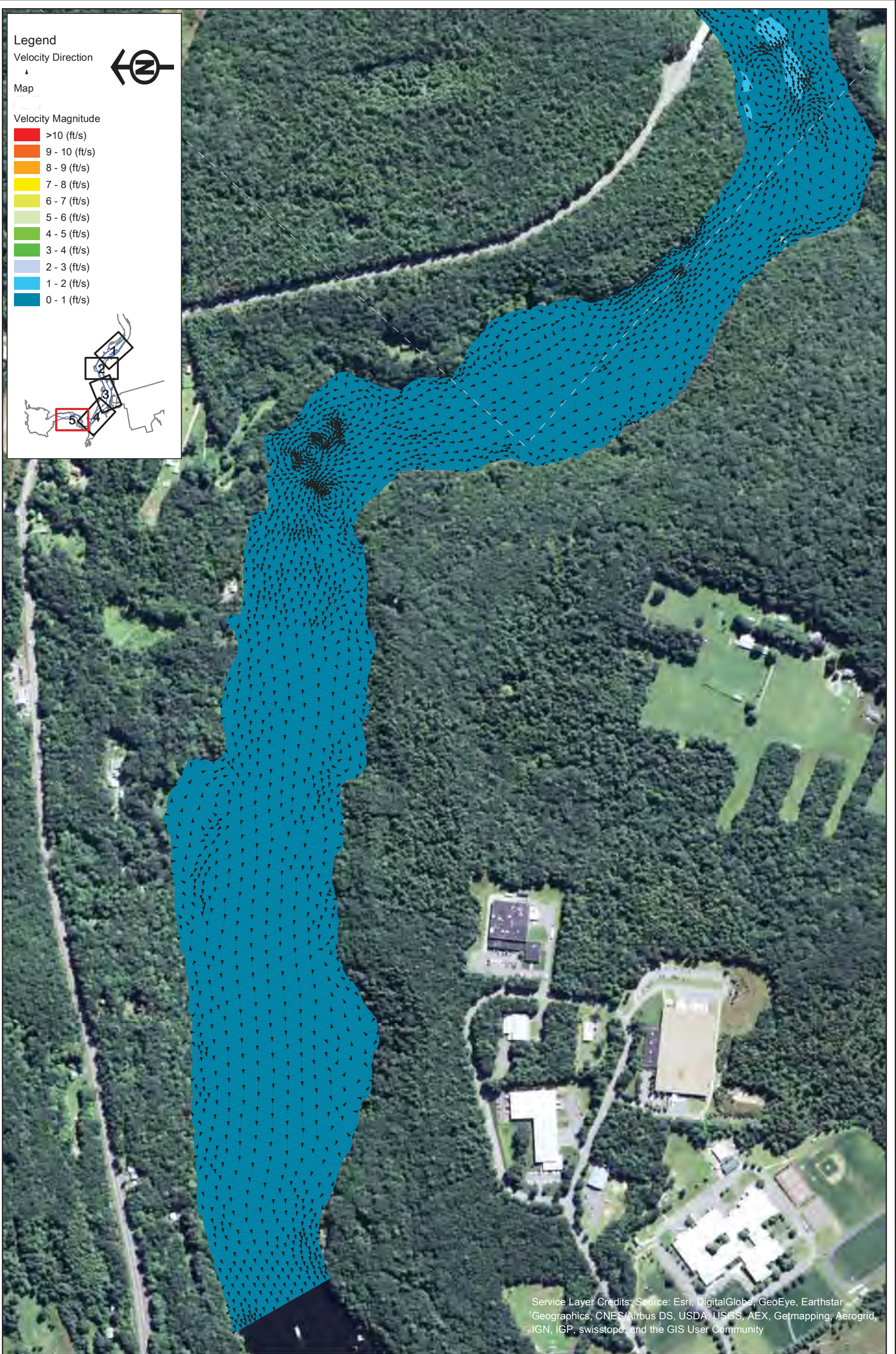
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

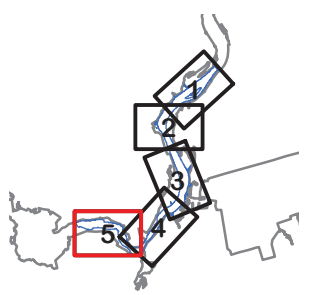
Scenario 32 - Map 4
25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam





Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

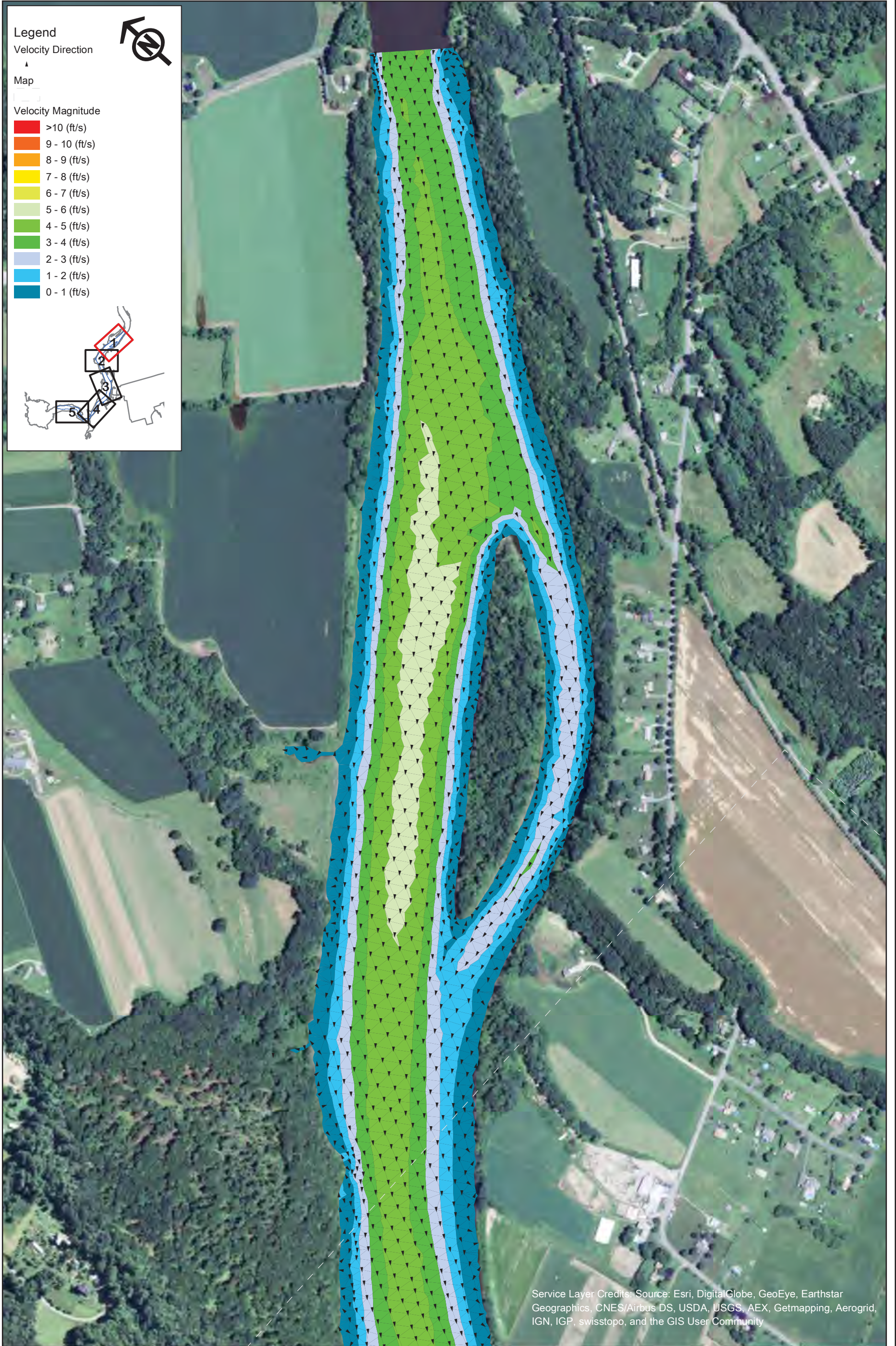


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 32 - Map 5
 25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

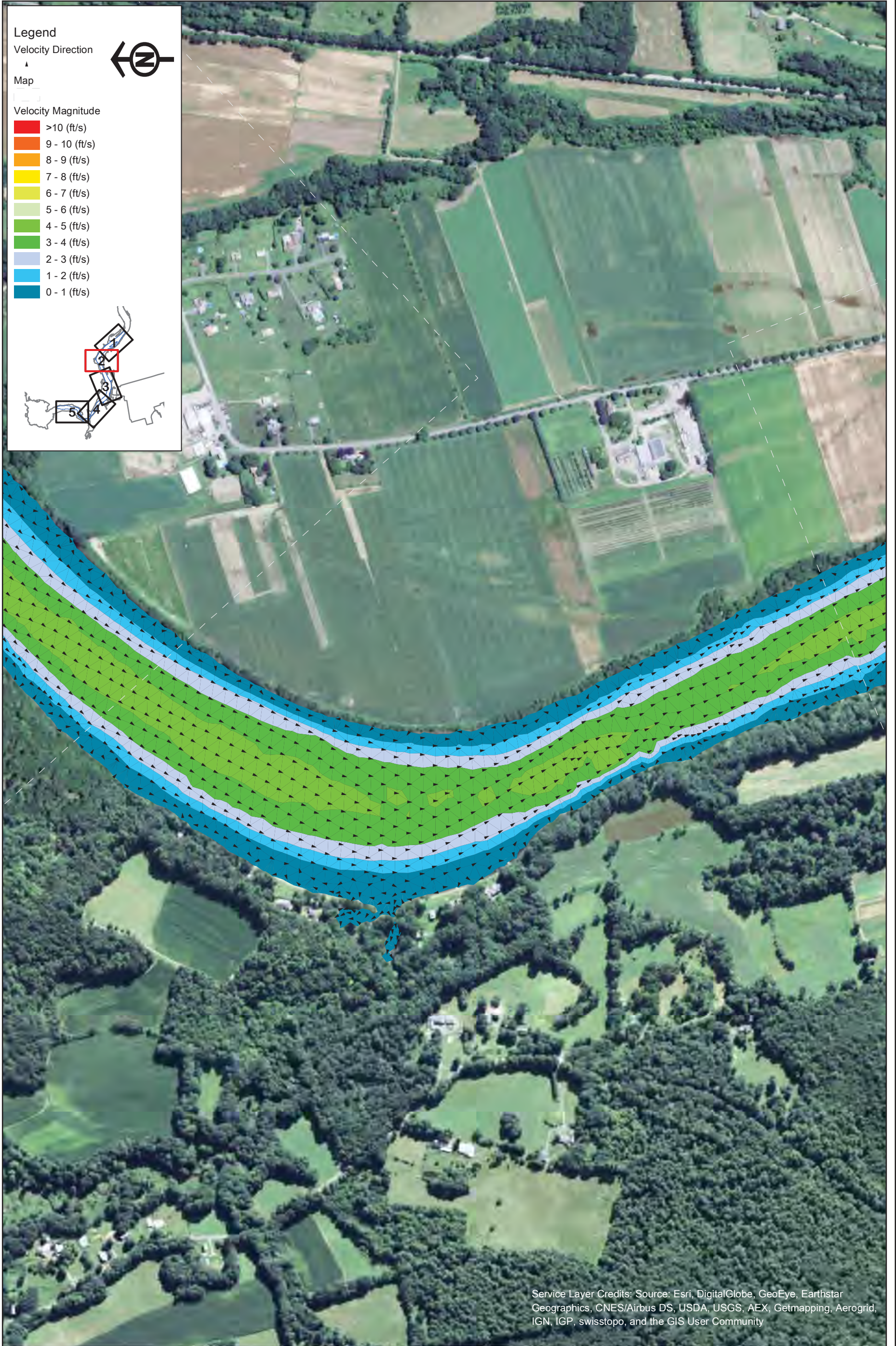
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 33 - Map 1
5% Exceedance Flow (40,100 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

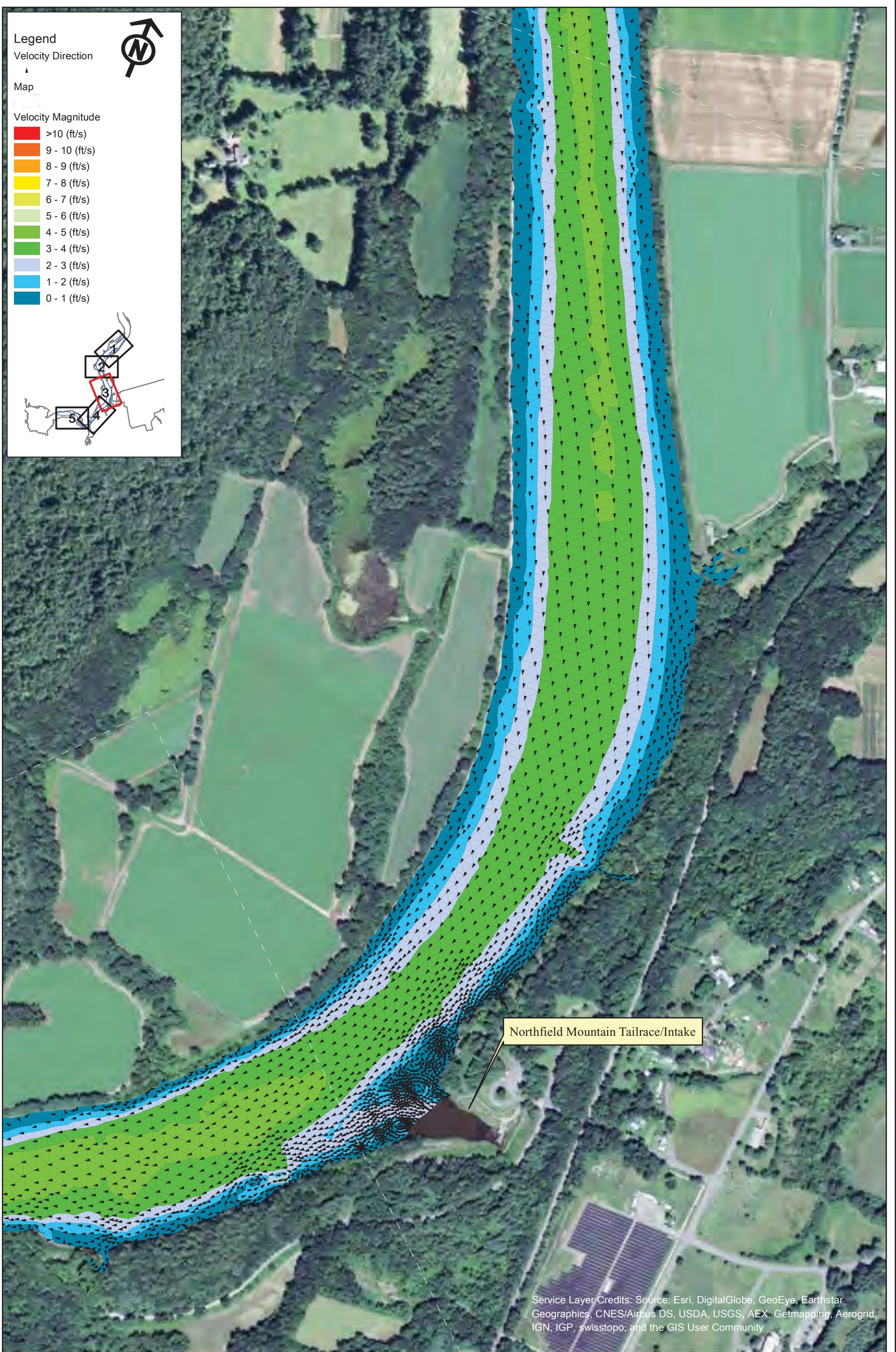


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 33 - Map 2
 5% Exceedance Flow (40,100 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

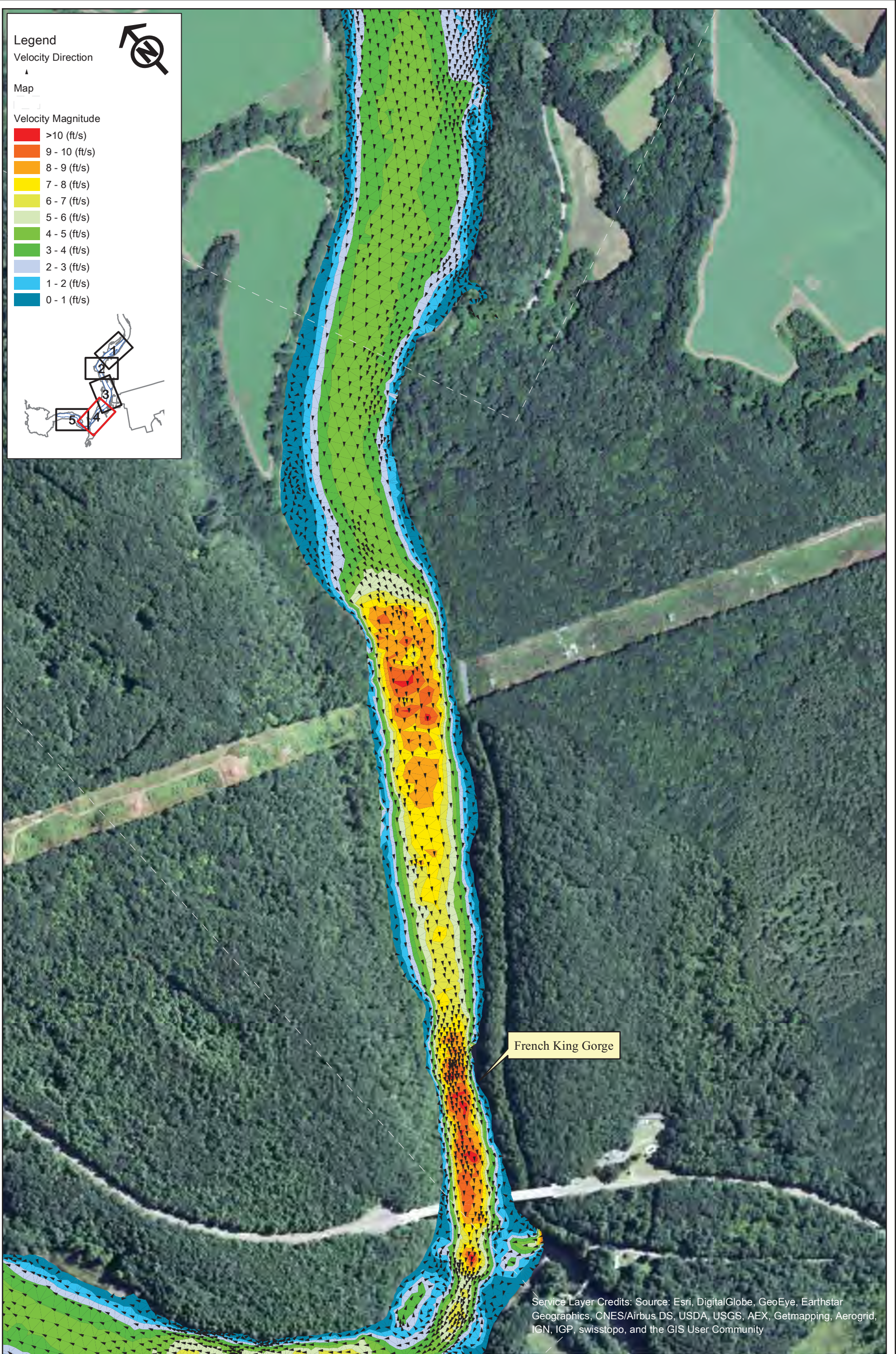
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 33 - Map 3
5% Exceedance Flow (40,100 cfs), 2 Units
Generating (10,000 cfs), 176 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

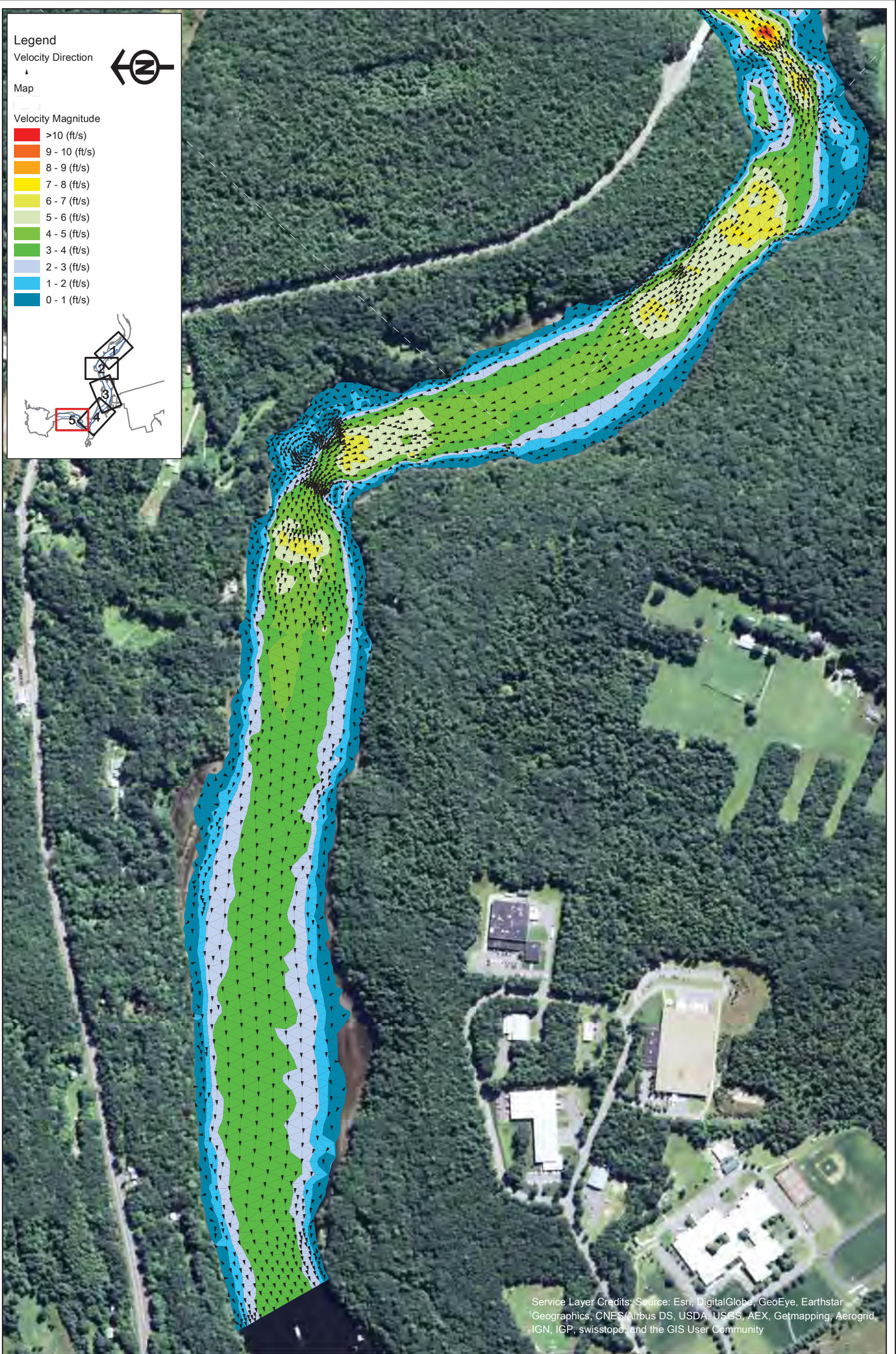
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 33 - Map 4
5% Exceedance Flow (40,100 cfs), 2 Units
Generating (10,000 cfs), 176 WSEL at Dam





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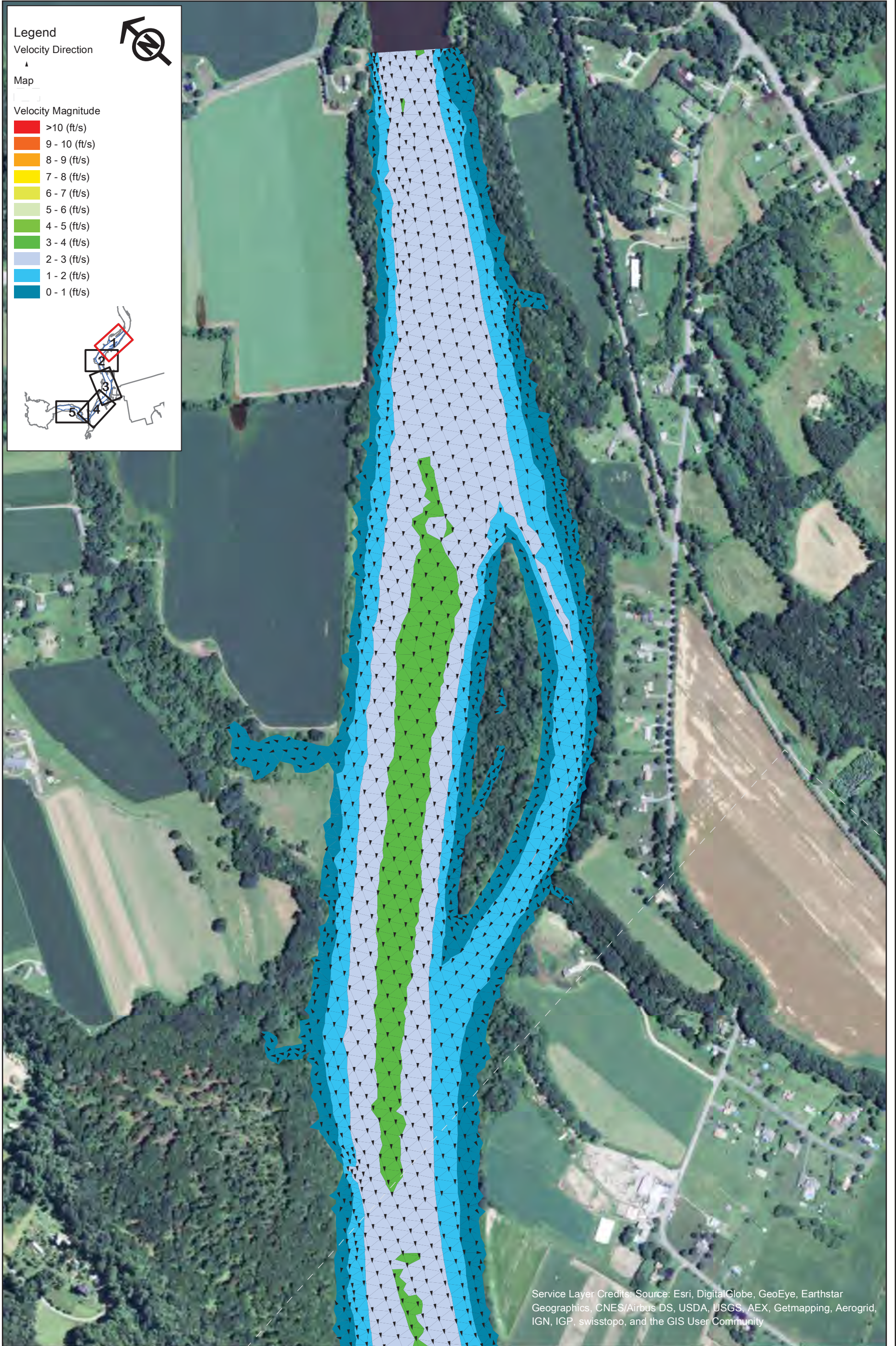


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 33 - Map 5
5% Exceedance Flow (40,100 cfs), 2 Units Generating (10,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

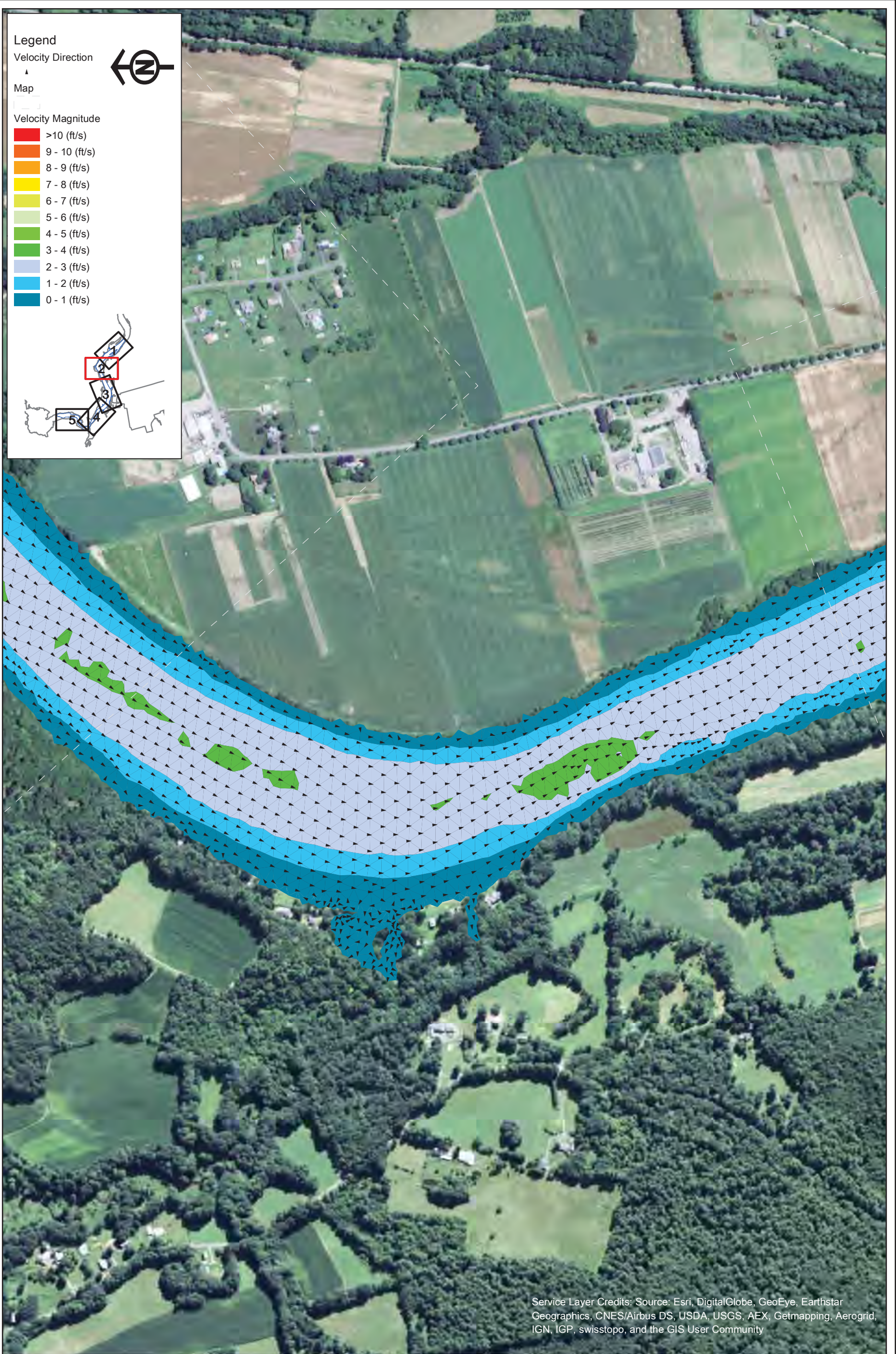
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 34 - Map 1
5% Exceedance Flow (40,100 cfs), 2 Units
Generating (10,000 cfs), 185 WSEL at Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

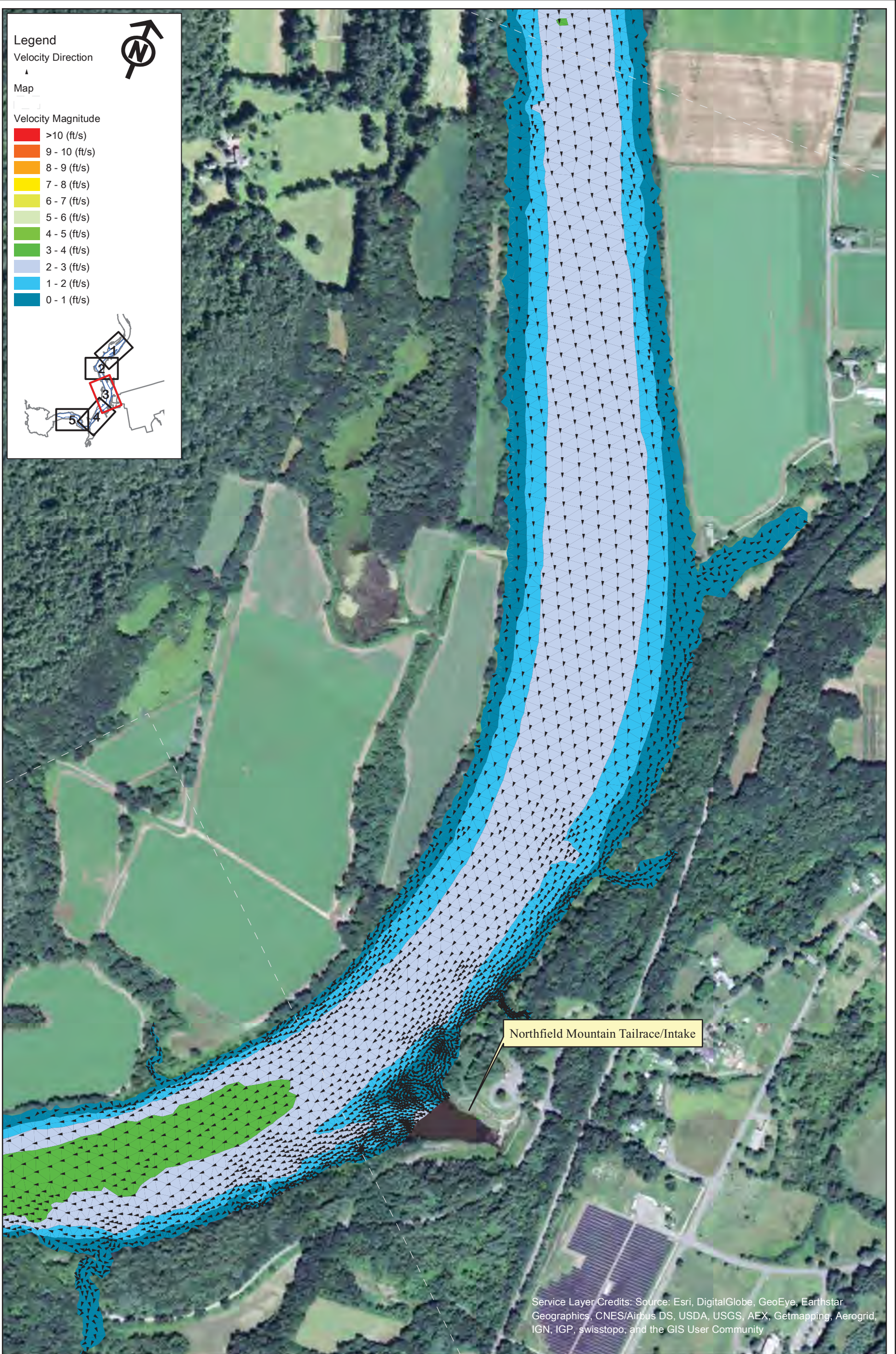
Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 34 - Map 2
 5% Exceedance Flow (40,100 cfs), 2 Units
 Generating (10,000 cfs), 185 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

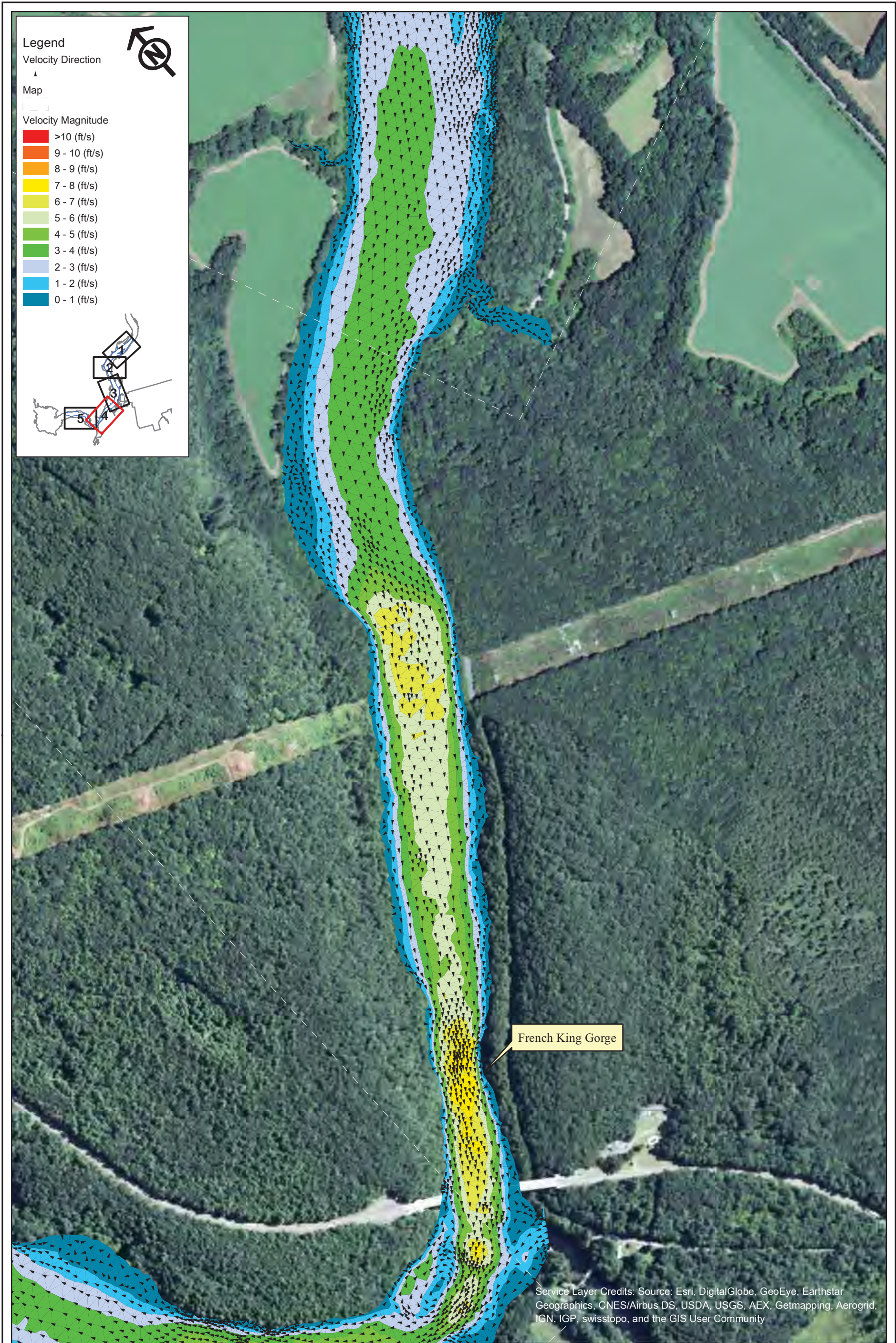
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace

Scenario 34 - Map 3
5% Exceedance Flow (40,100 cfs), 2 Units
Generating (10,000 cfs), 185 WSEL at Dam



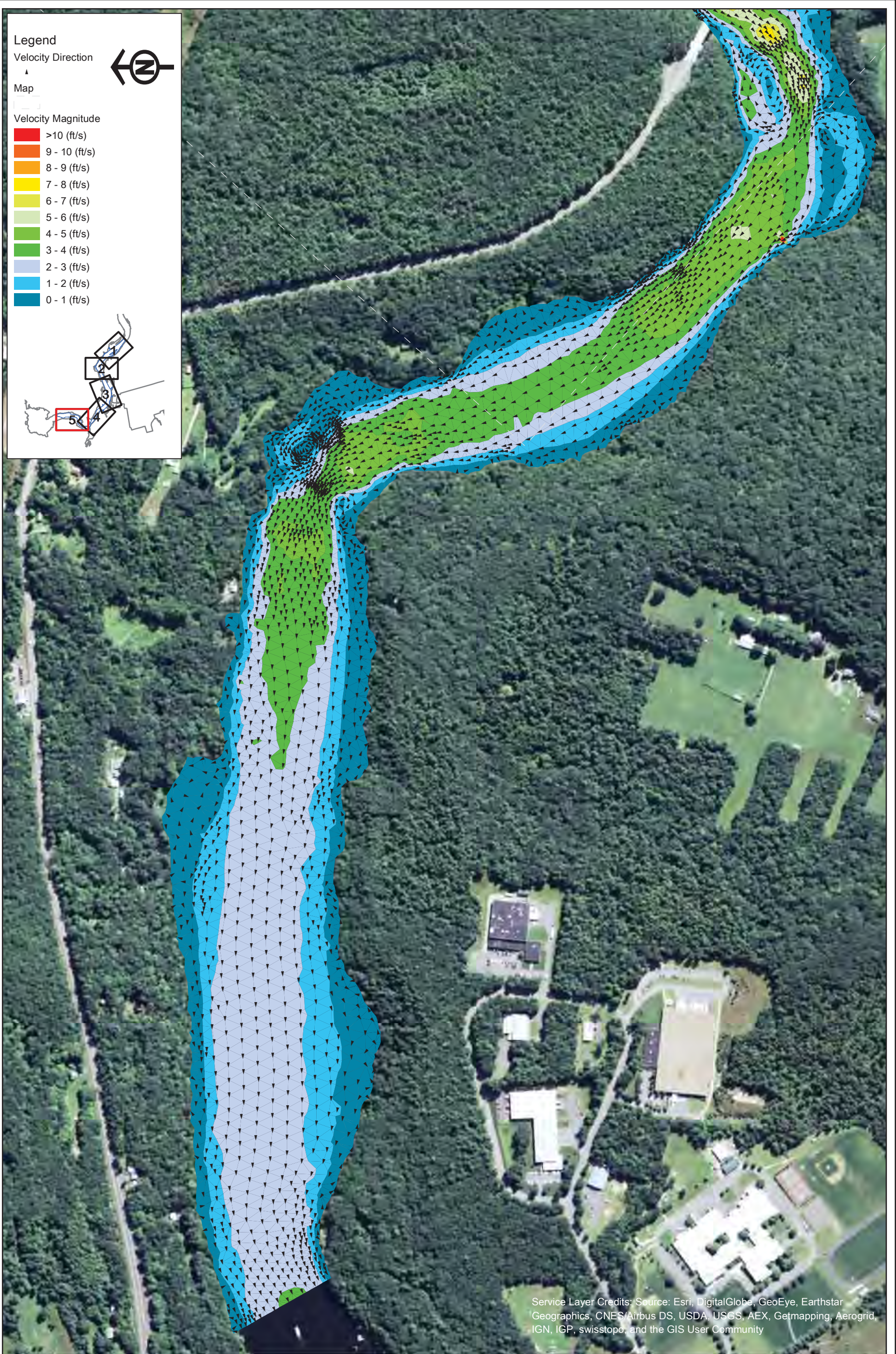


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)


STUDY REPORT
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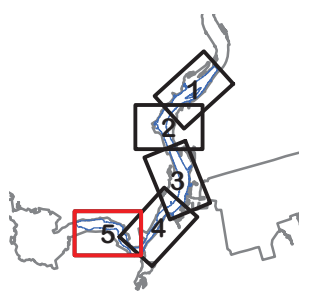


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 34 - Map 4
5% Exceedance Flow (40,100 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction


Map


Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

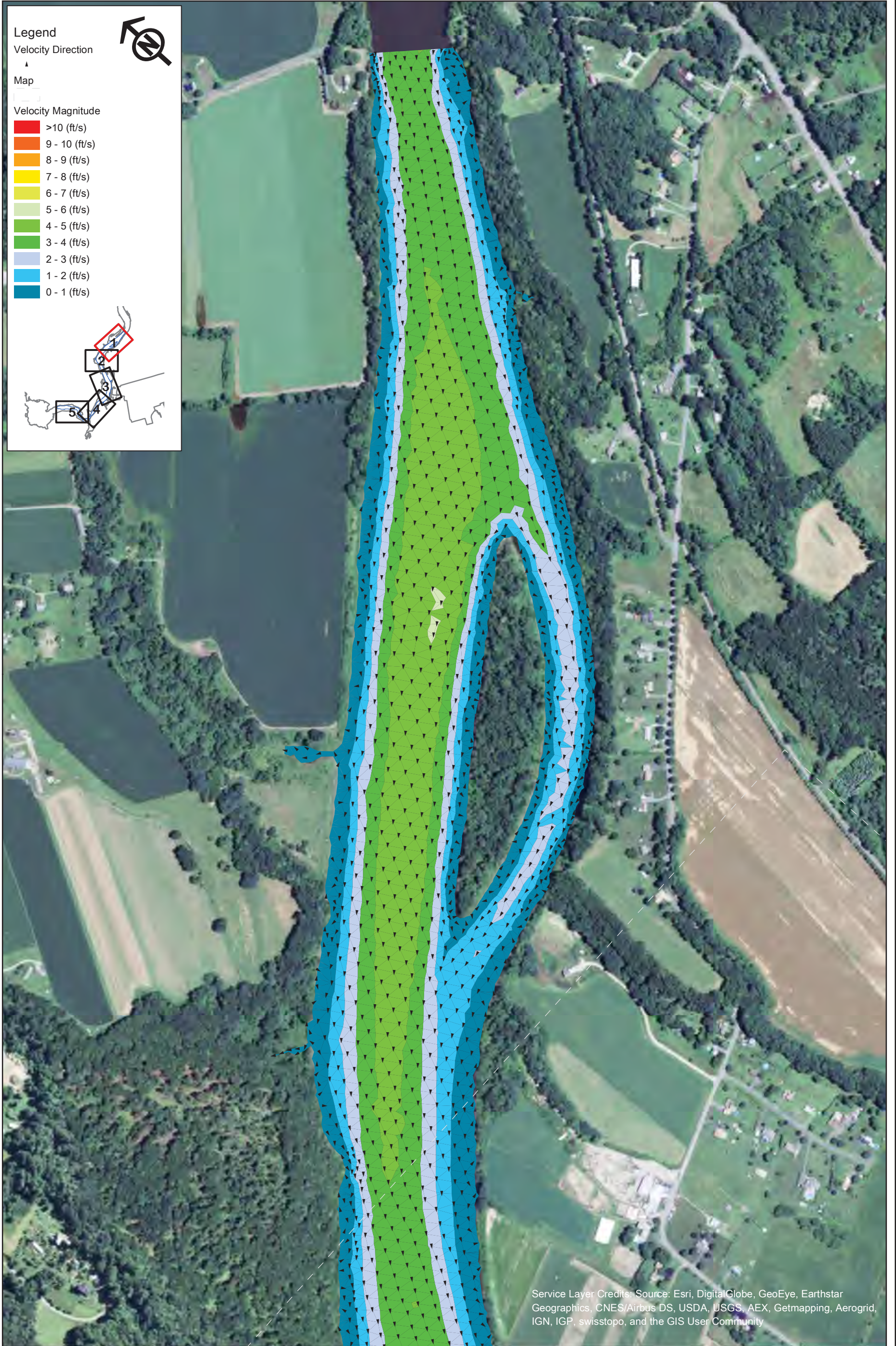


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 34 - Map 5
 5% Exceedance Flow (40,100 cfs), 2 Units Generating (10,000 cfs), 185 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

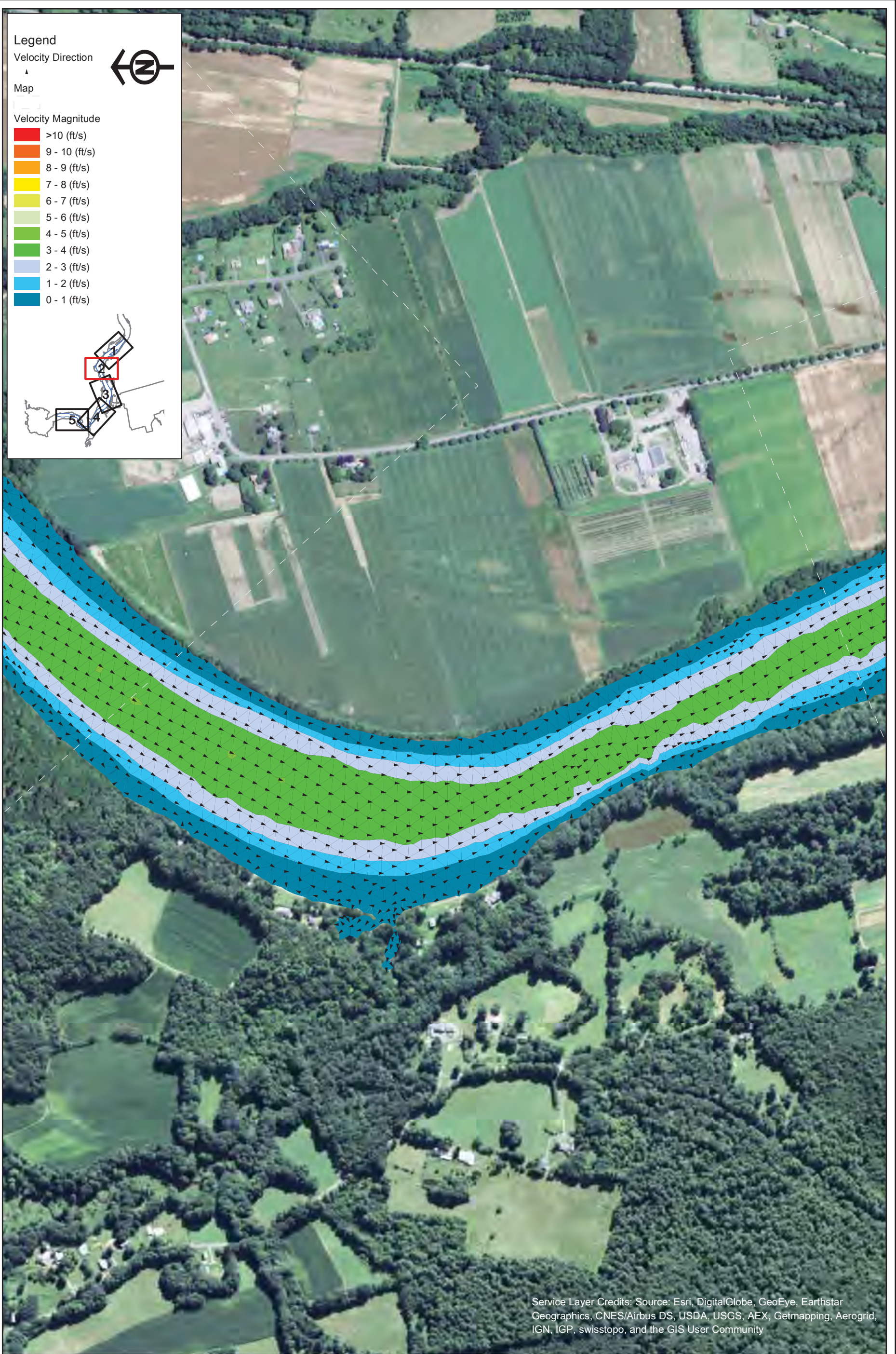
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 35 - Map 1
5% Exceedance Flow (40,100 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

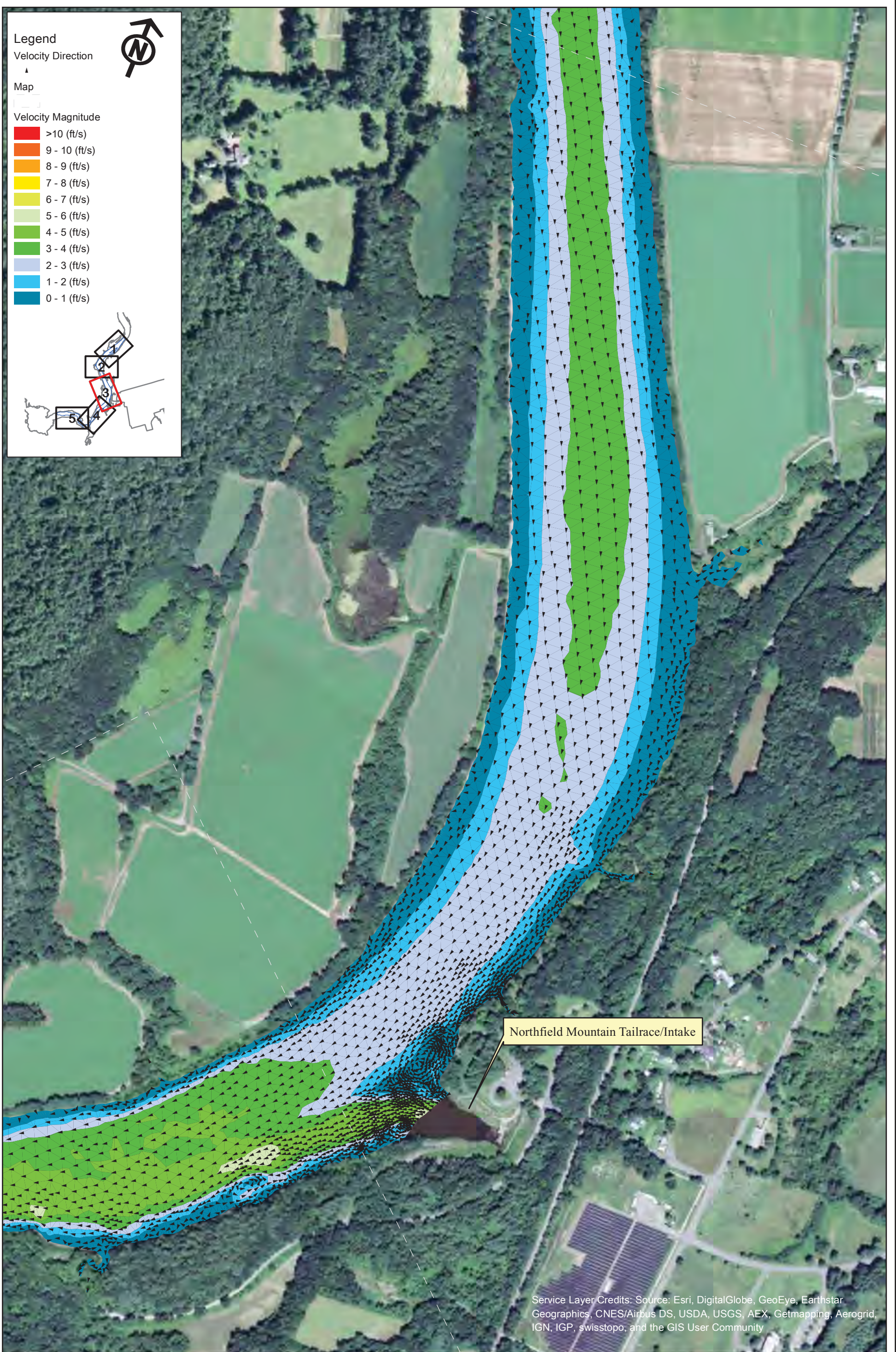


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 35 - Map 2
 5% Exceedance Flow (40,100 cfs), 4 Units
 Generating (20,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

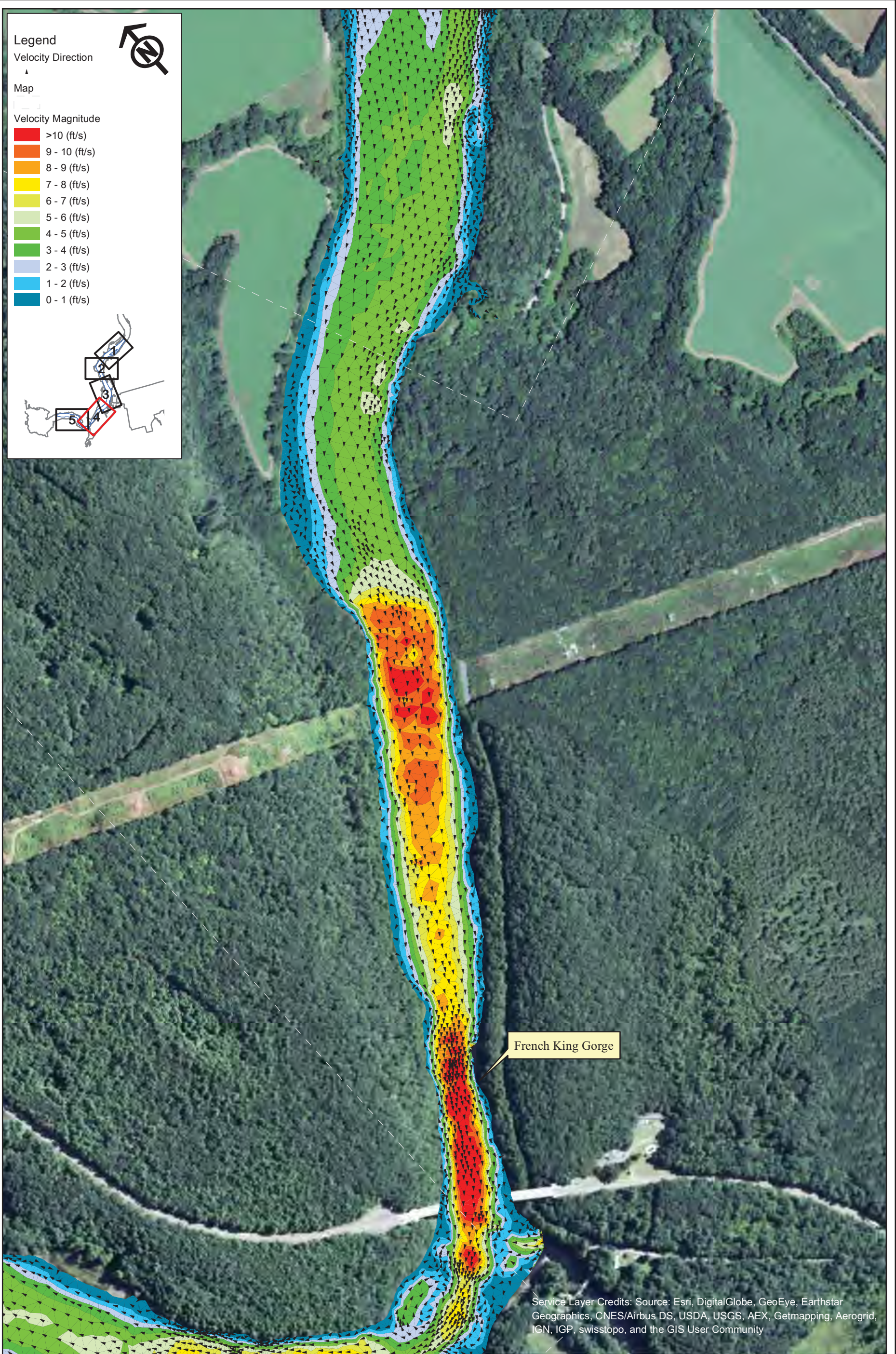
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 35 - Map 3
5% Exceedance Flow (40,100 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam





French King Gorge

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



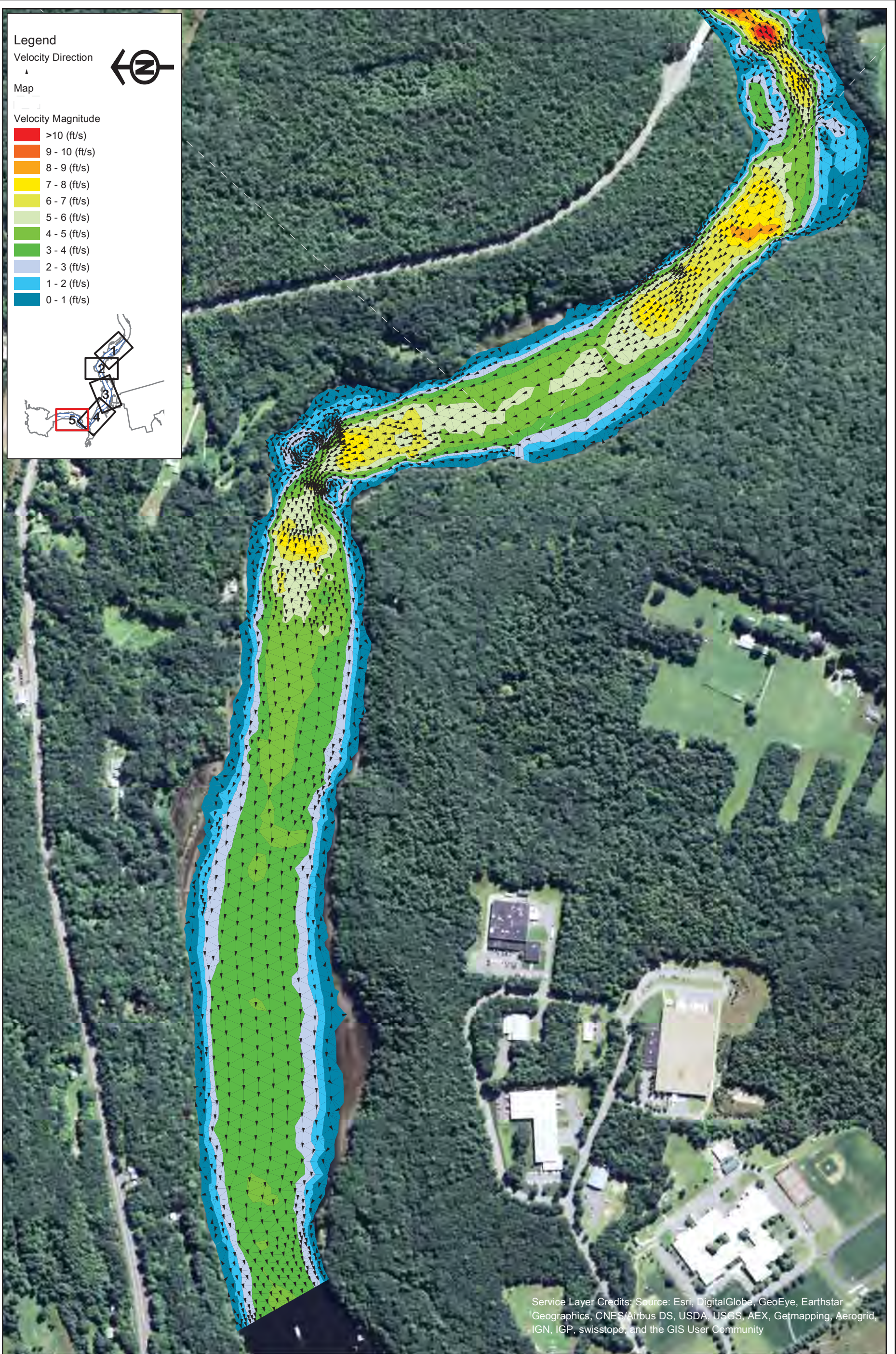
Northfield Mountain Pumped Storage Project (No. 2485) and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT RELICENSING STUDY 3.3.9




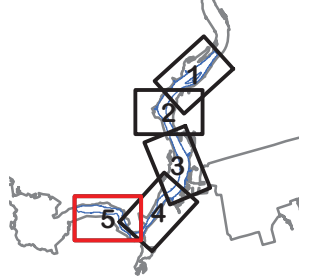
Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 35 - Map 4
5% Exceedance Flow (40,100 cfs), 4 Units
Generating (20,000 cfs), 176 WSEL at Dam



Legend

Velocity Direction


Map


Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

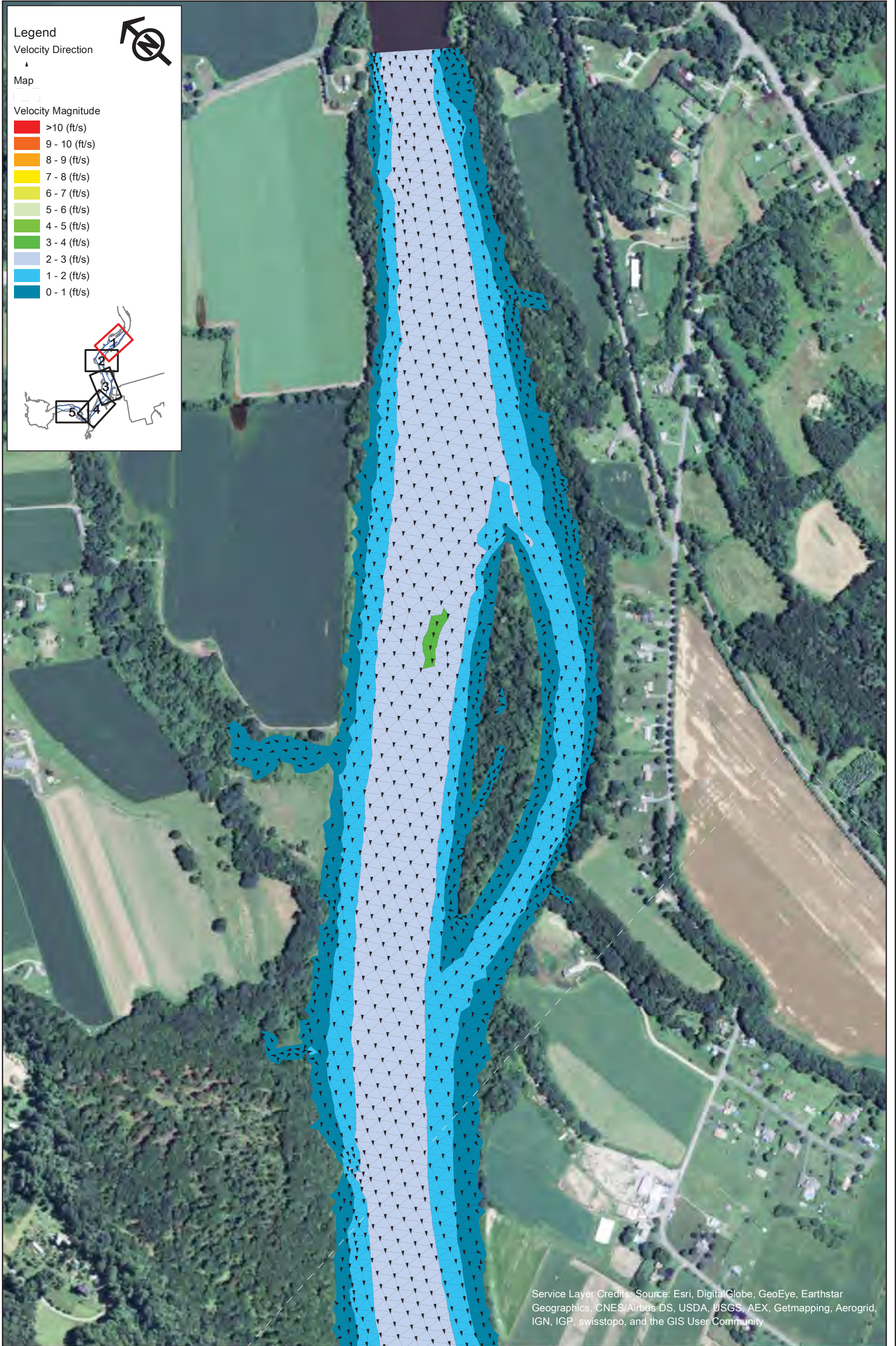


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 35 - Map 5
 5% Exceedance Flow (40,100 cfs), 4 Units
 Generating (20,000 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

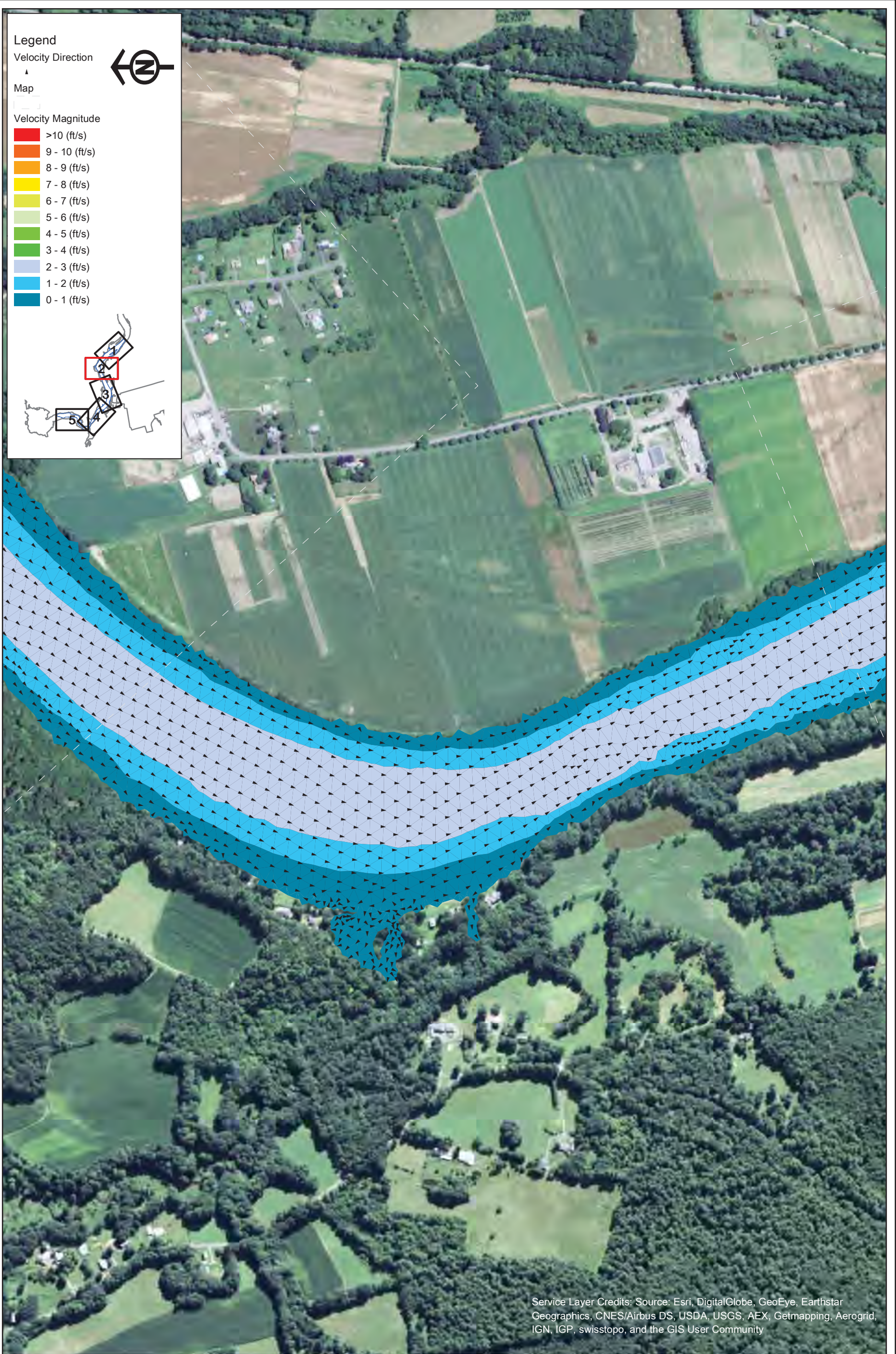
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 36 - Map 1
5% Exceedance Flow (40,100 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

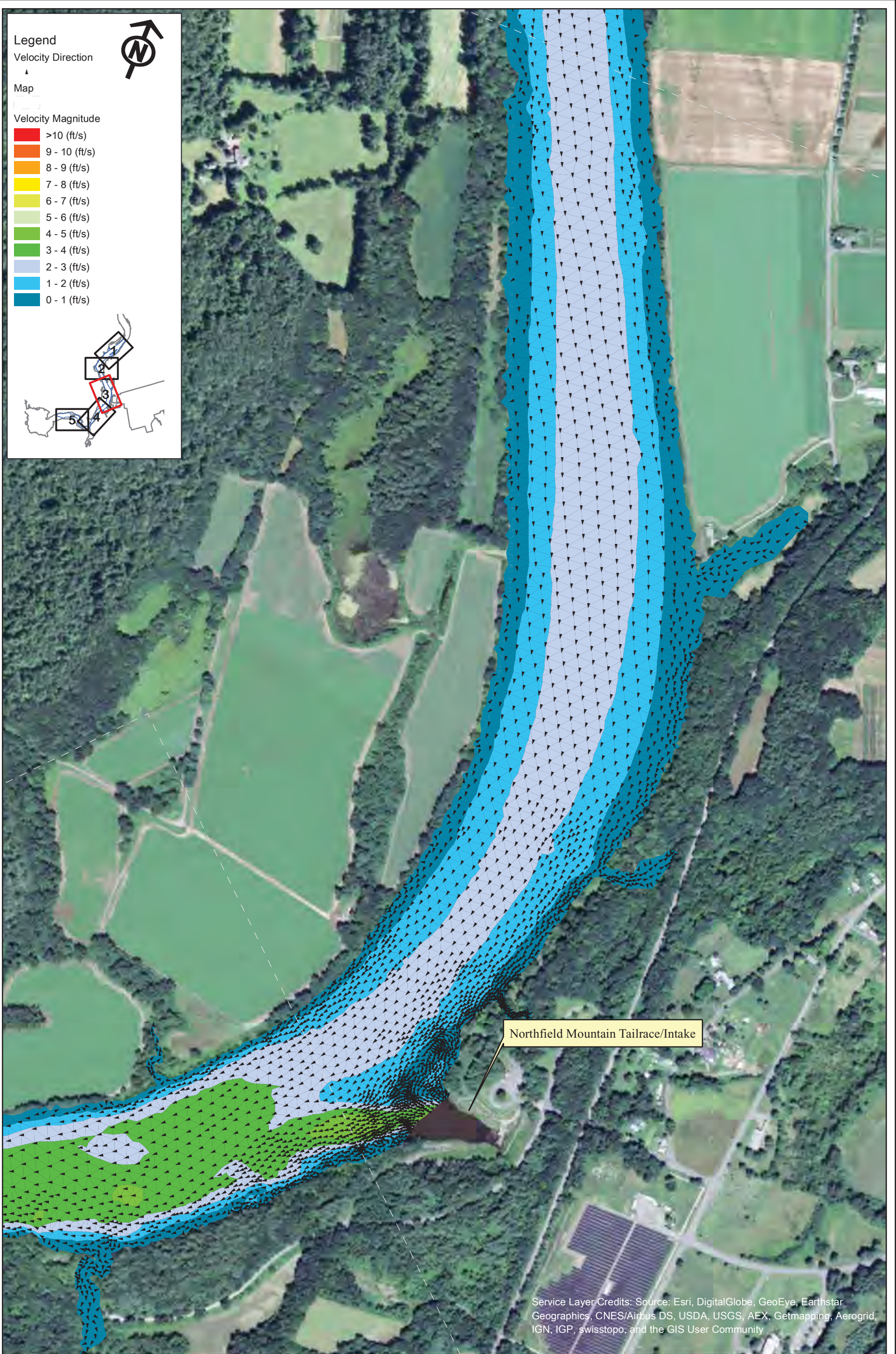


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 36 - Map 2
 5% Exceedance Flow (40,100 cfs), 4 Units
 Generating (20,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

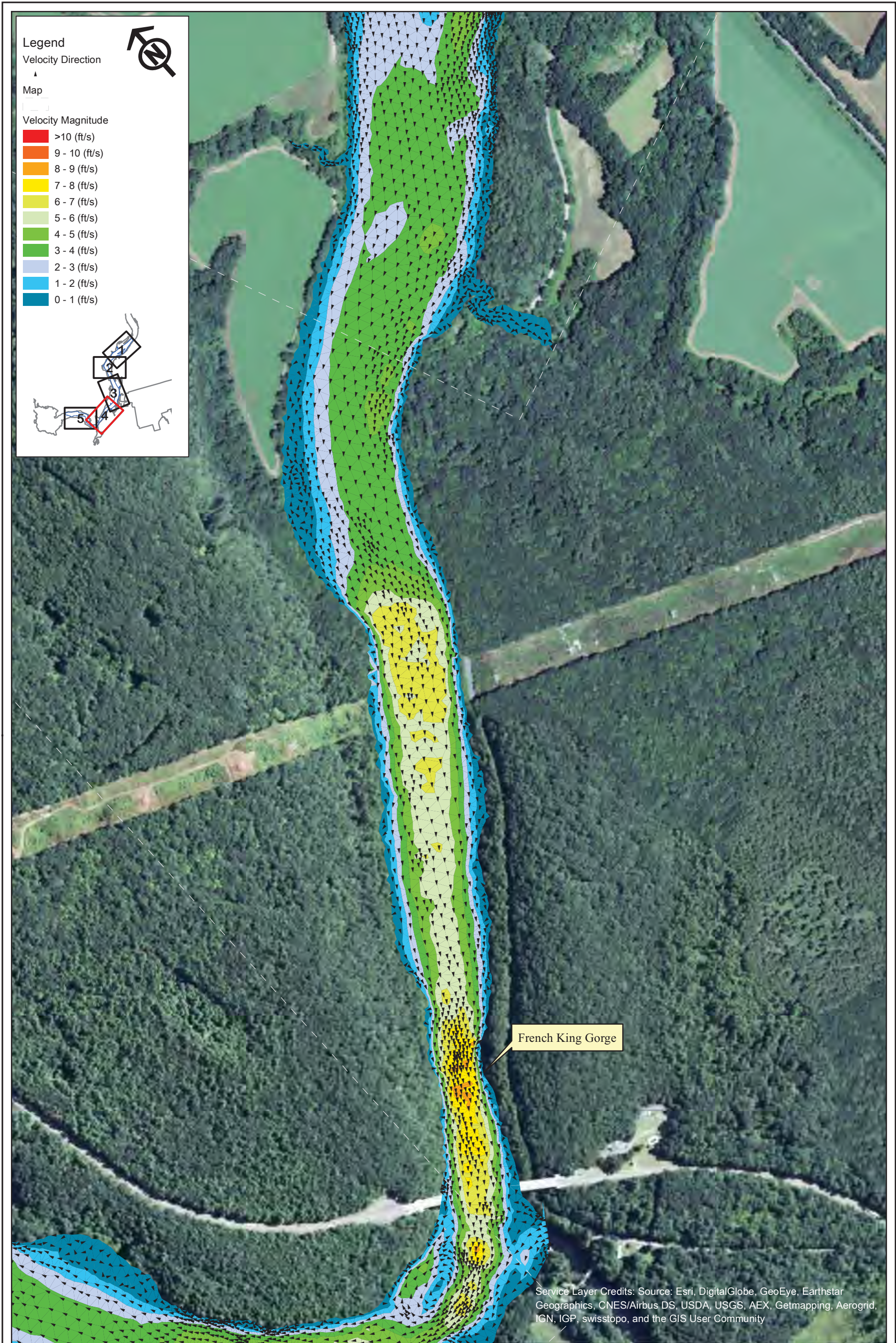


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 36 - Map 3
5% Exceedance Flow (40,100 cfs), 4 Units Generating (20,000 cfs), 185 WSEL at Dam

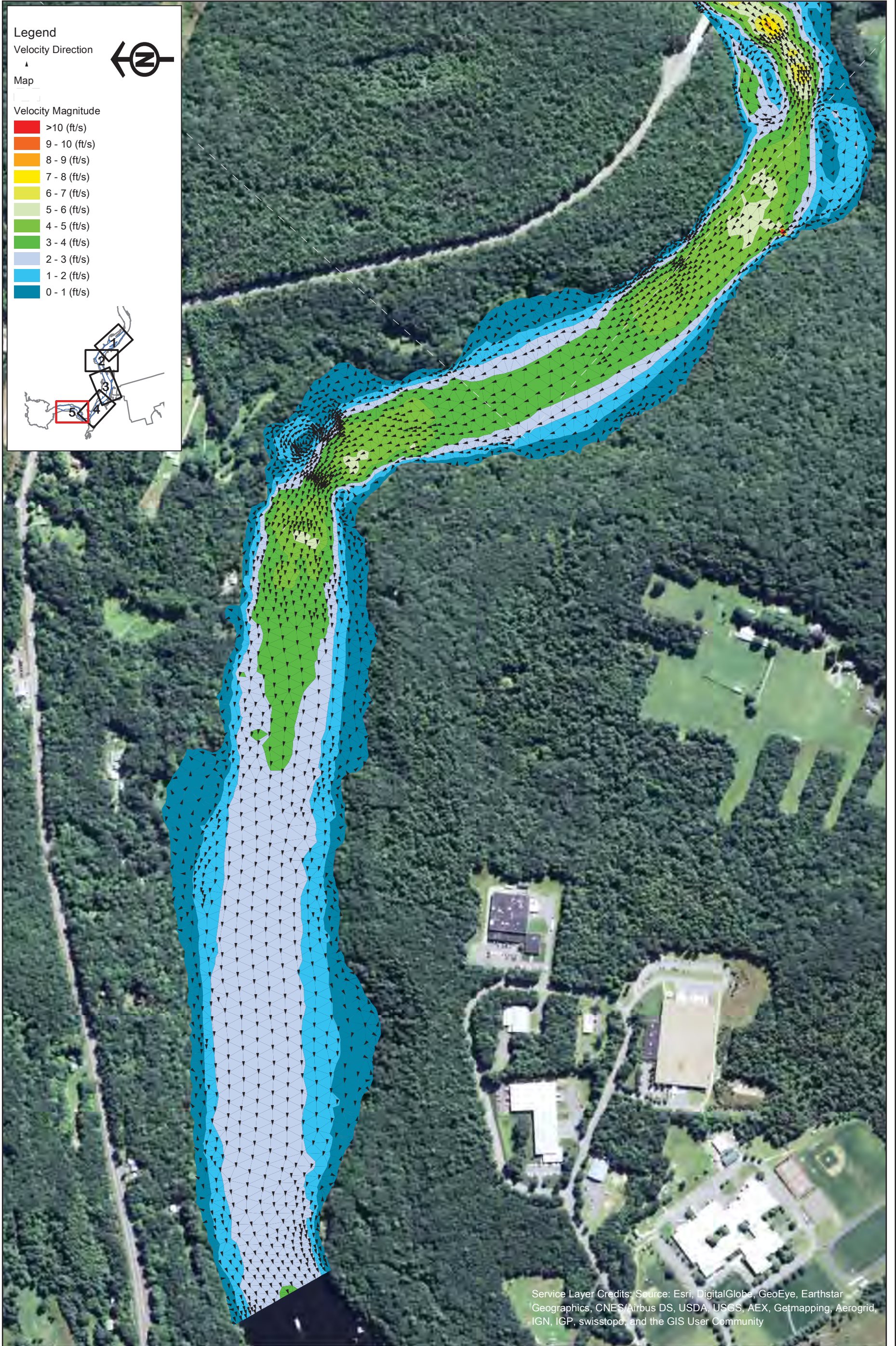


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace
Scenario 36 - Map 4
5% Exceedance Flow (40,100 cfs), 4 Units
Generating (20,000 cfs), 185 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

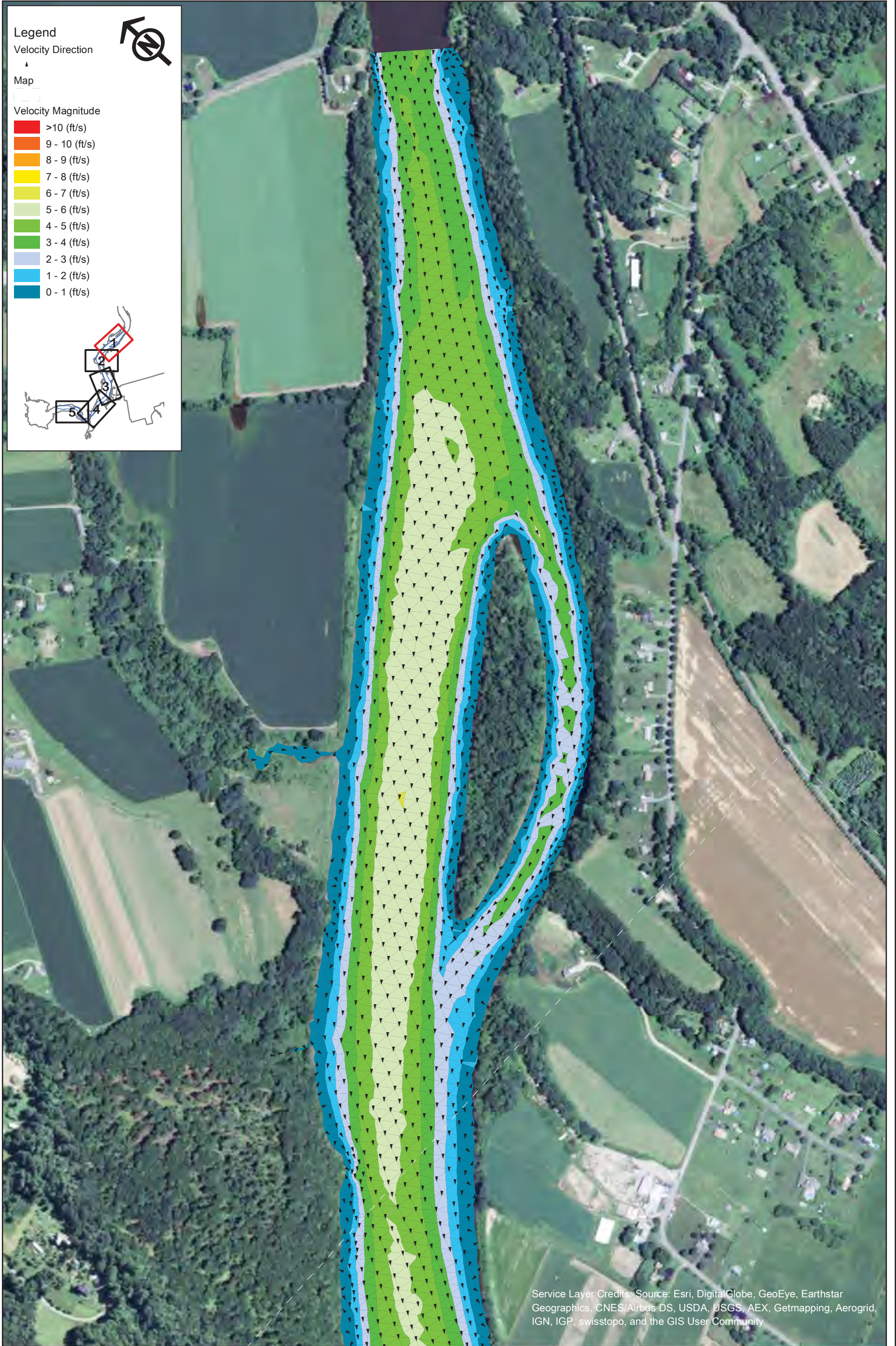


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 36 - Map 5
 5% Exceedance Flow (40,100 cfs), 4 Units Generating (20,000 cfs), 185 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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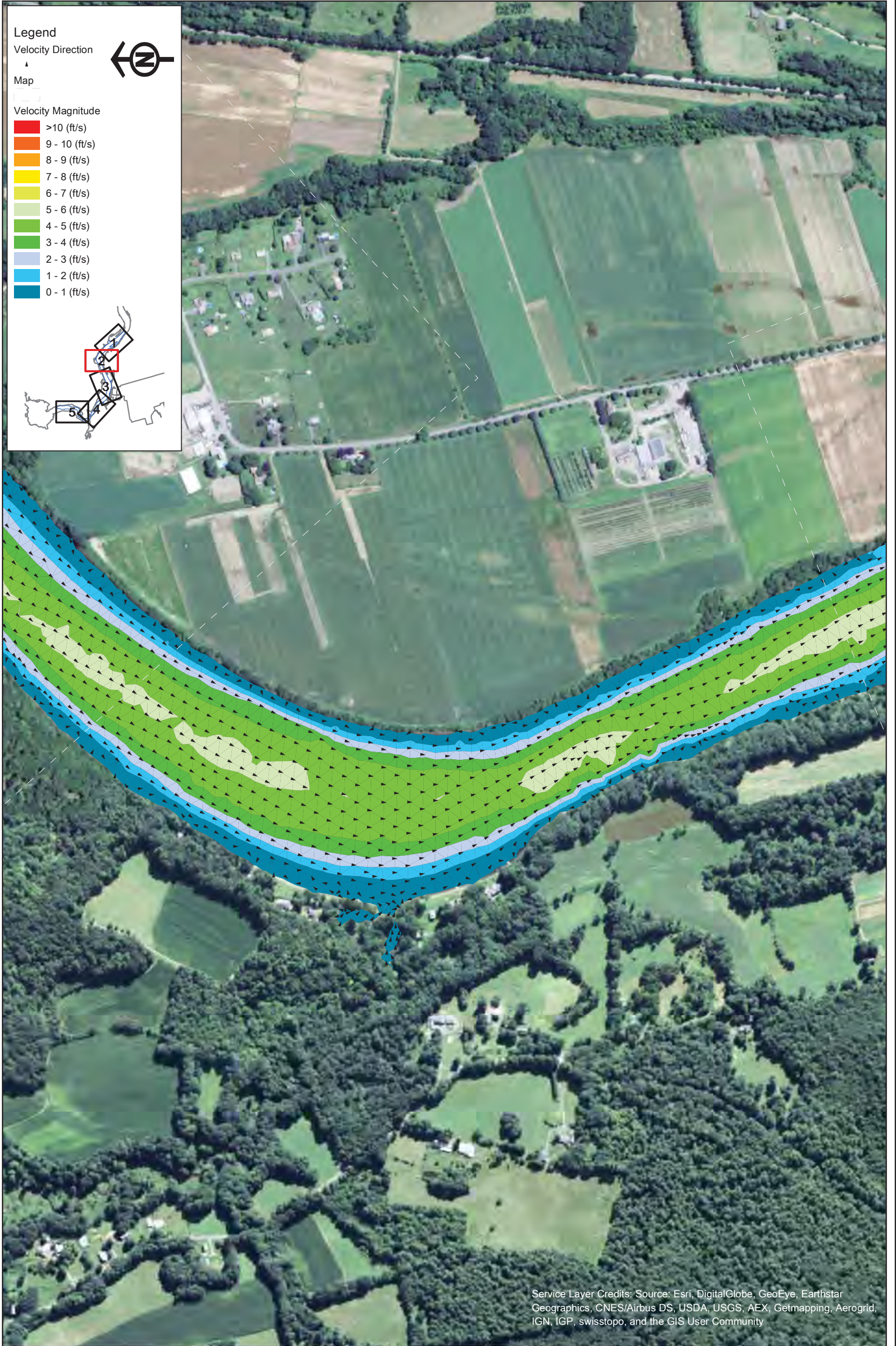


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 37 - Map 1
5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



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Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

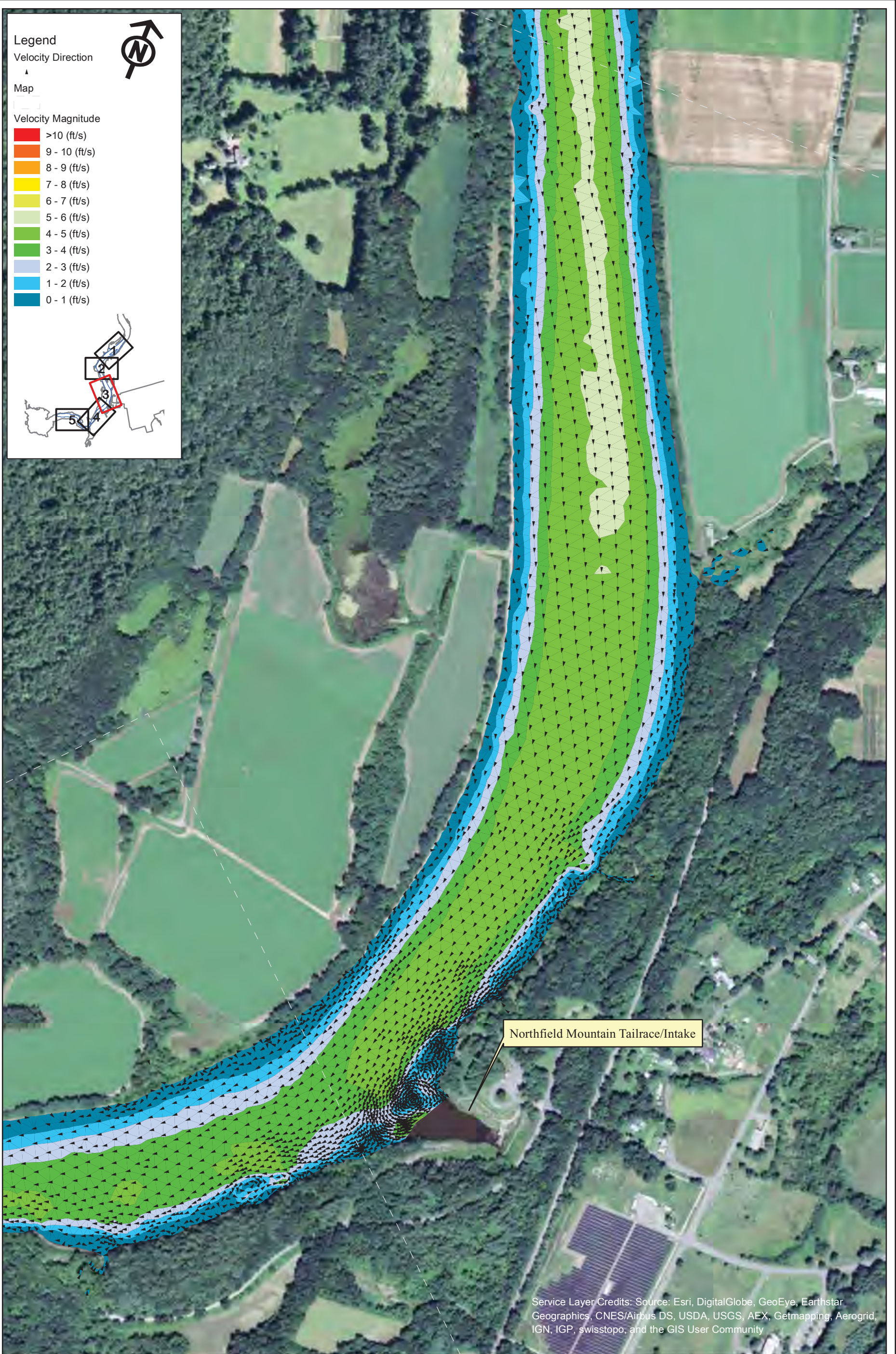


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 37 - Map 2
 5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

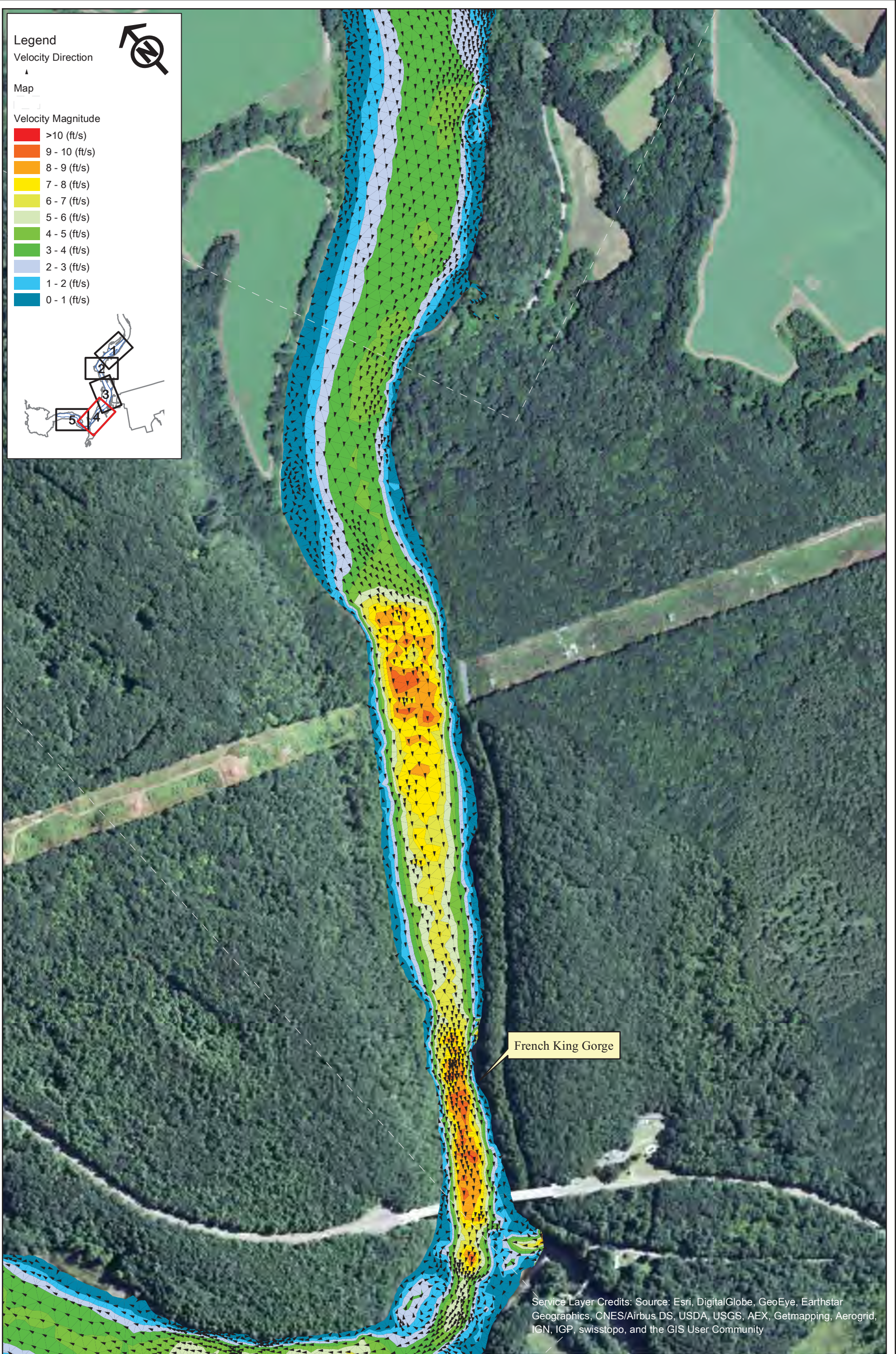
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace

Scenario 37 - Map 3
5% Exceedance Flow (40,100 cfs), 2 Units
Pumping (7,600 cfs), 176 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

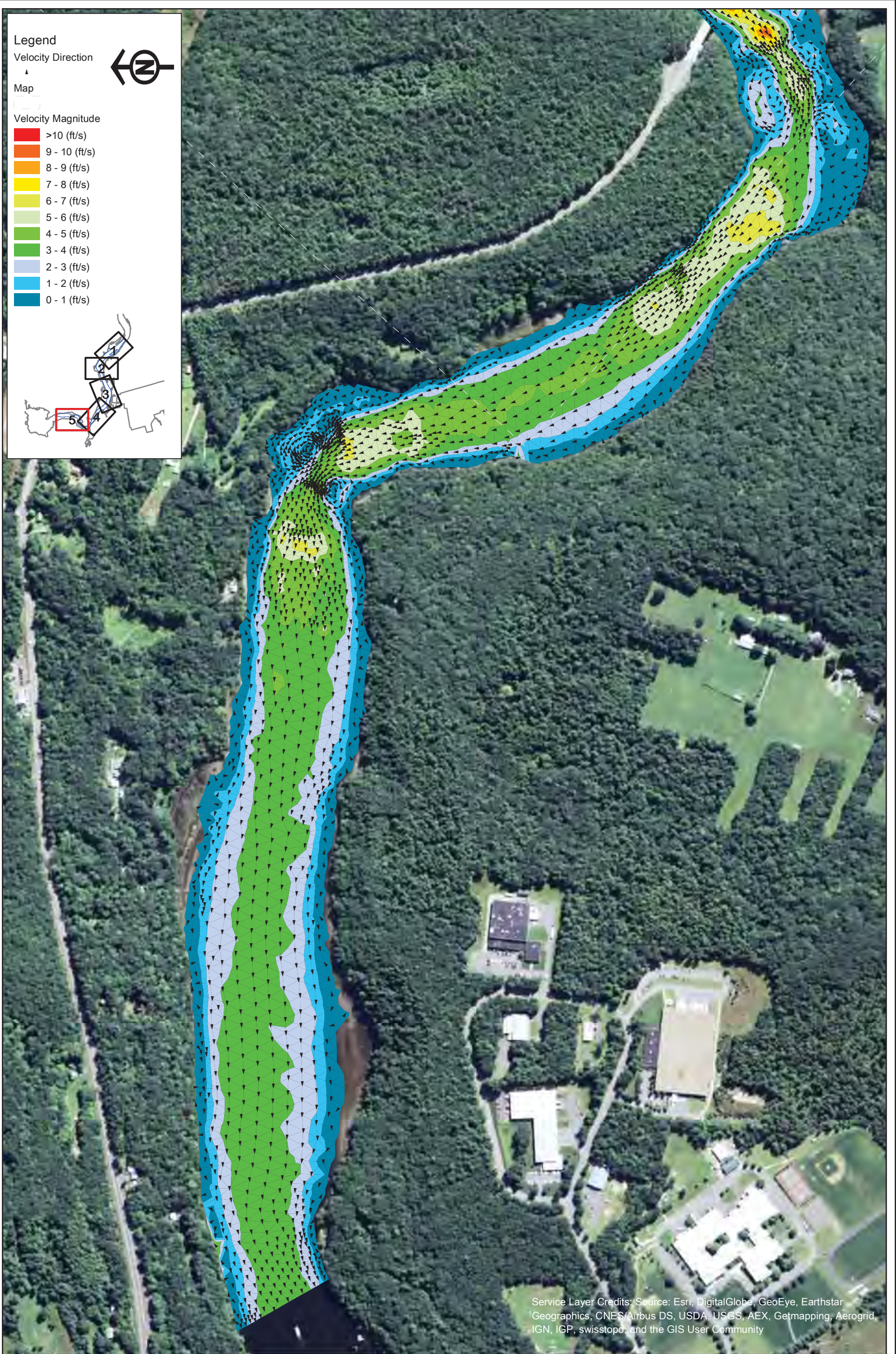
STUDY REPORT
 RELICENSING STUDY 3.3.9

0 250 500 1,000
 Feet


Appendix B - Velocity in the Turner Falls
 Impoundment 5 km Upstream and 5 km
 Downstream of the Northfield Tailrace

Scenario 37 - Map 4
 5% Exceedance Flow (40,100 cfs), 2 Units
 Pumping (7,600 cfs), 176 WSEL at Dam





Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

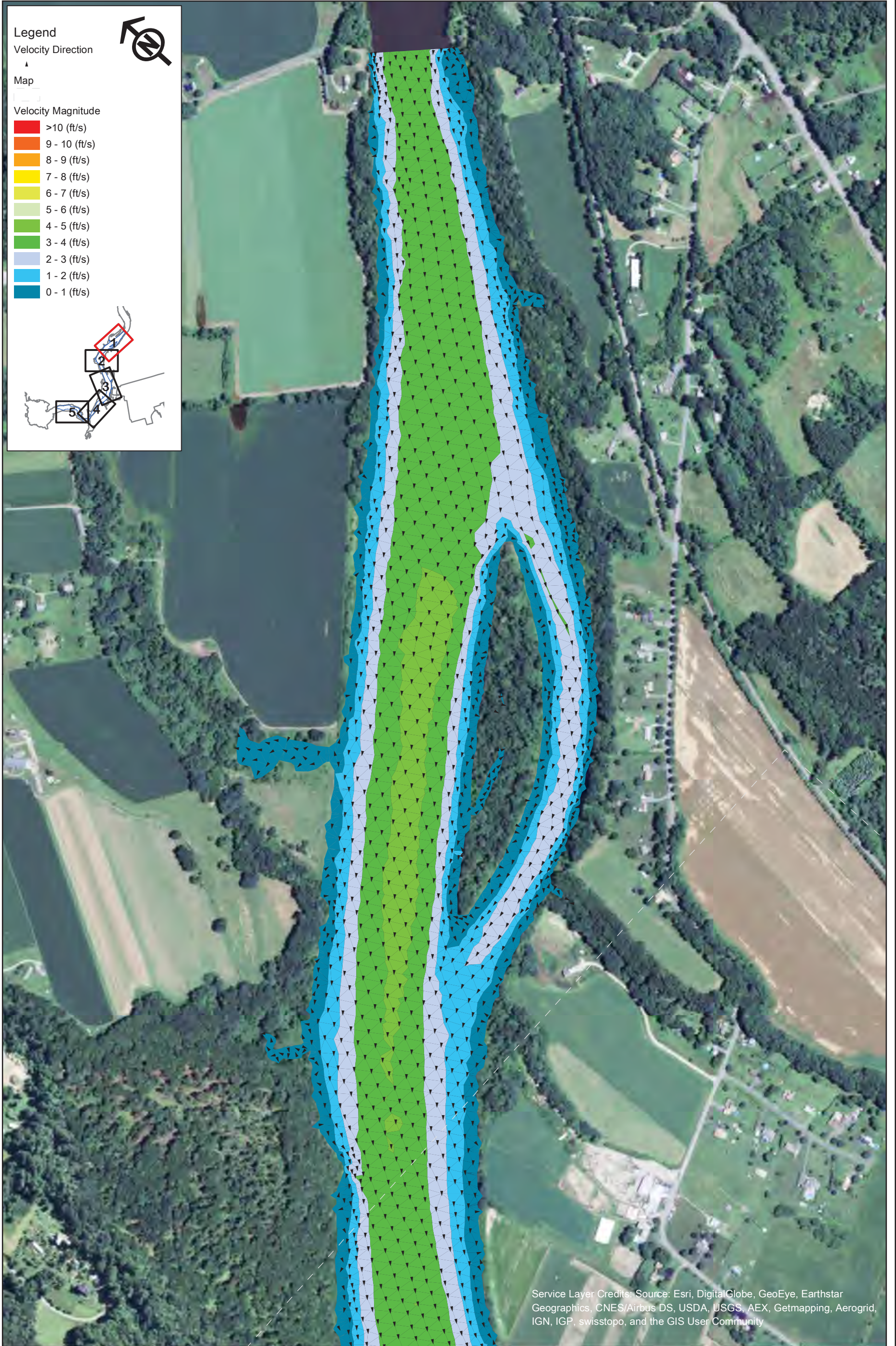


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 37 - Map 5
 5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 176 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

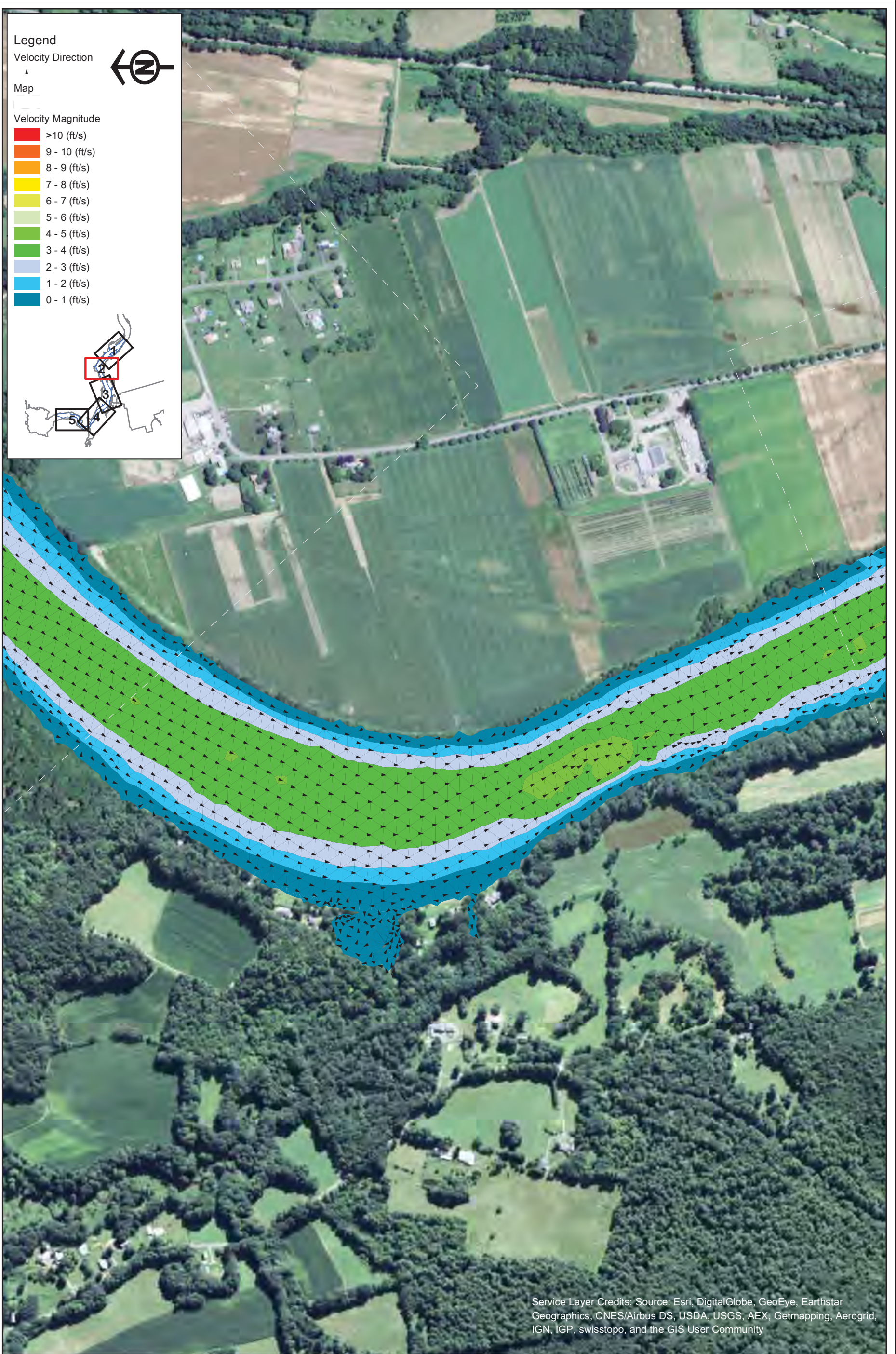


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 38 - Map 1
5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

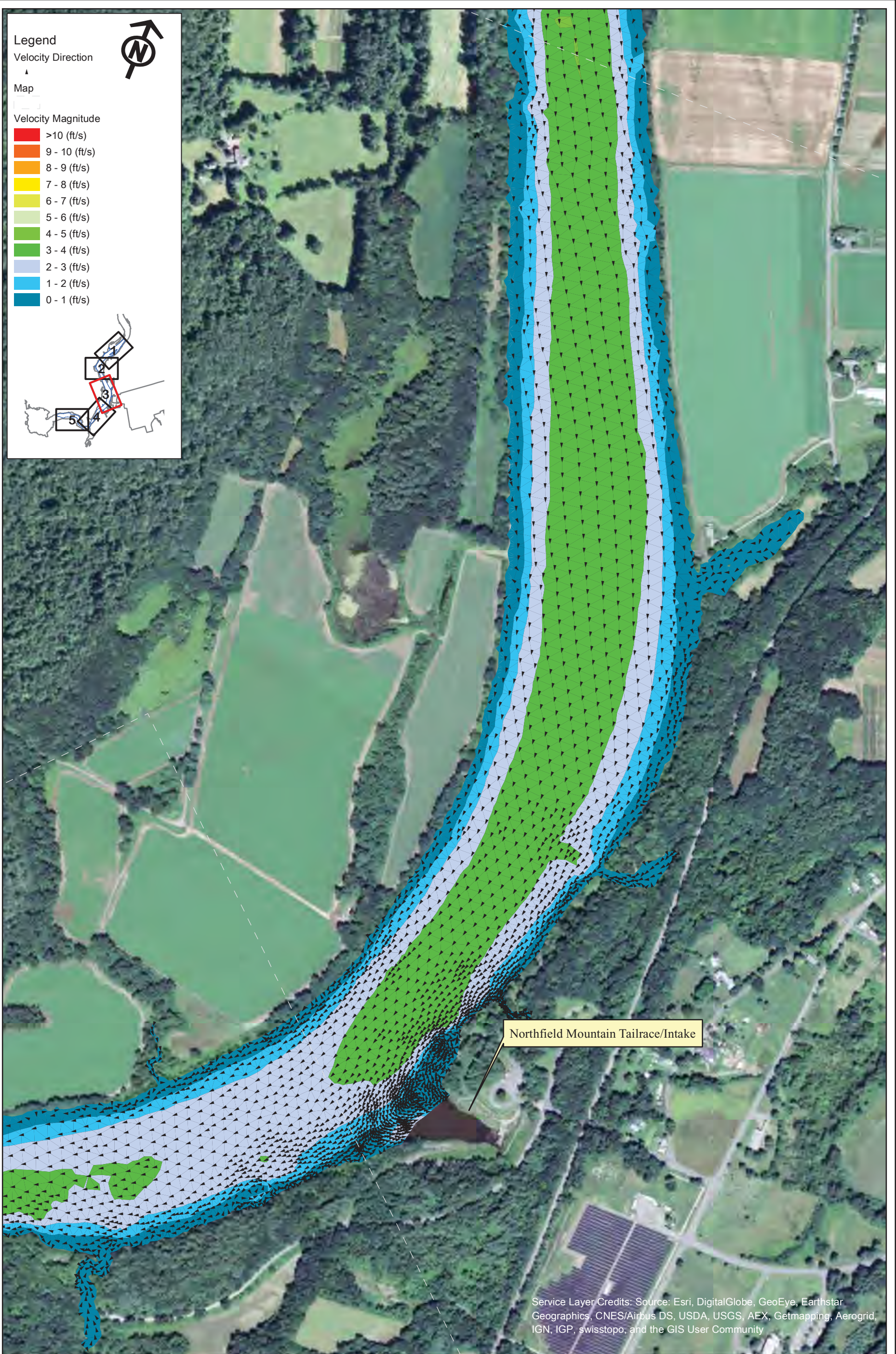


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 38 - Map 2
 5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

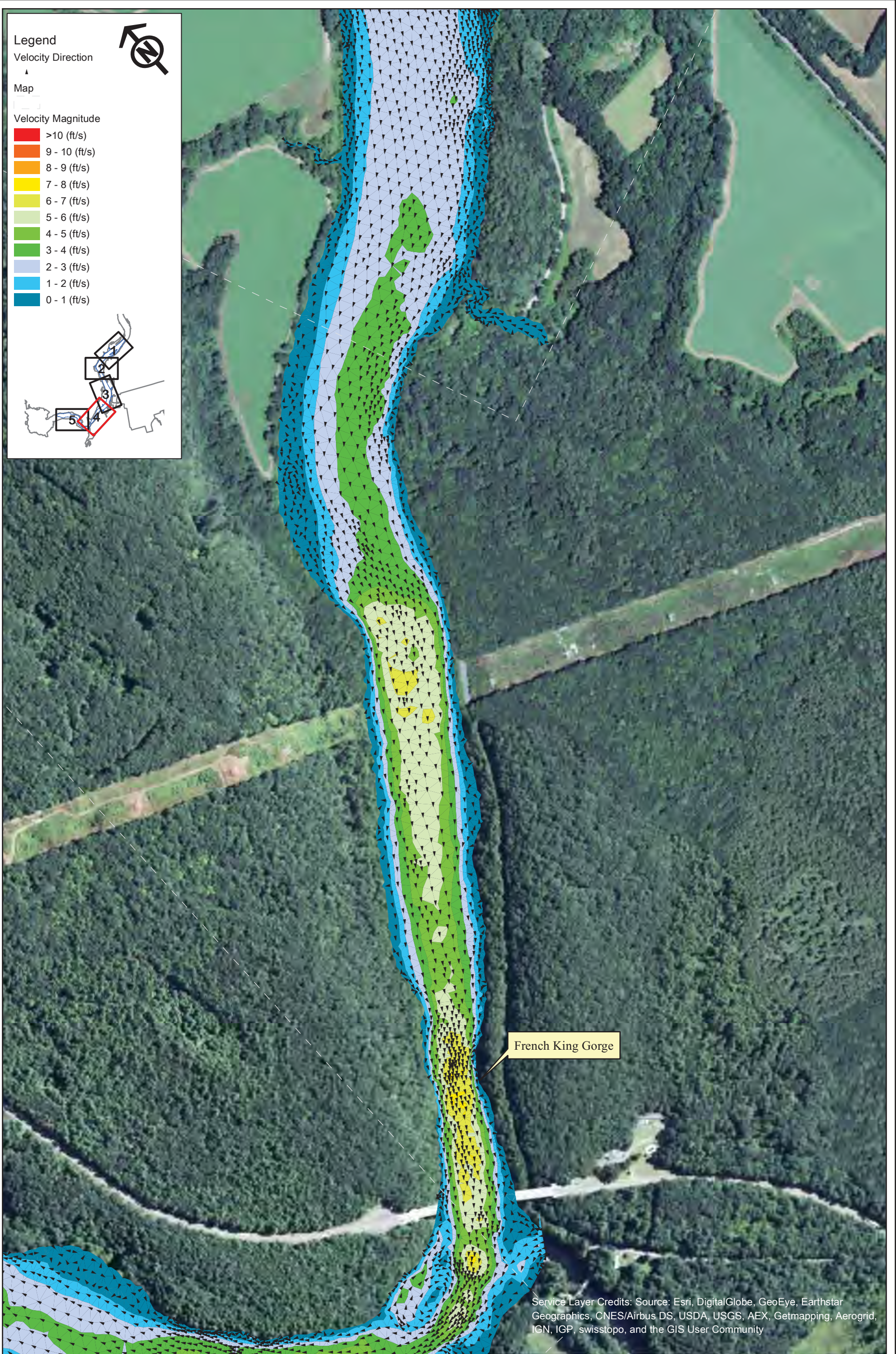


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 38 - Map 3
5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam

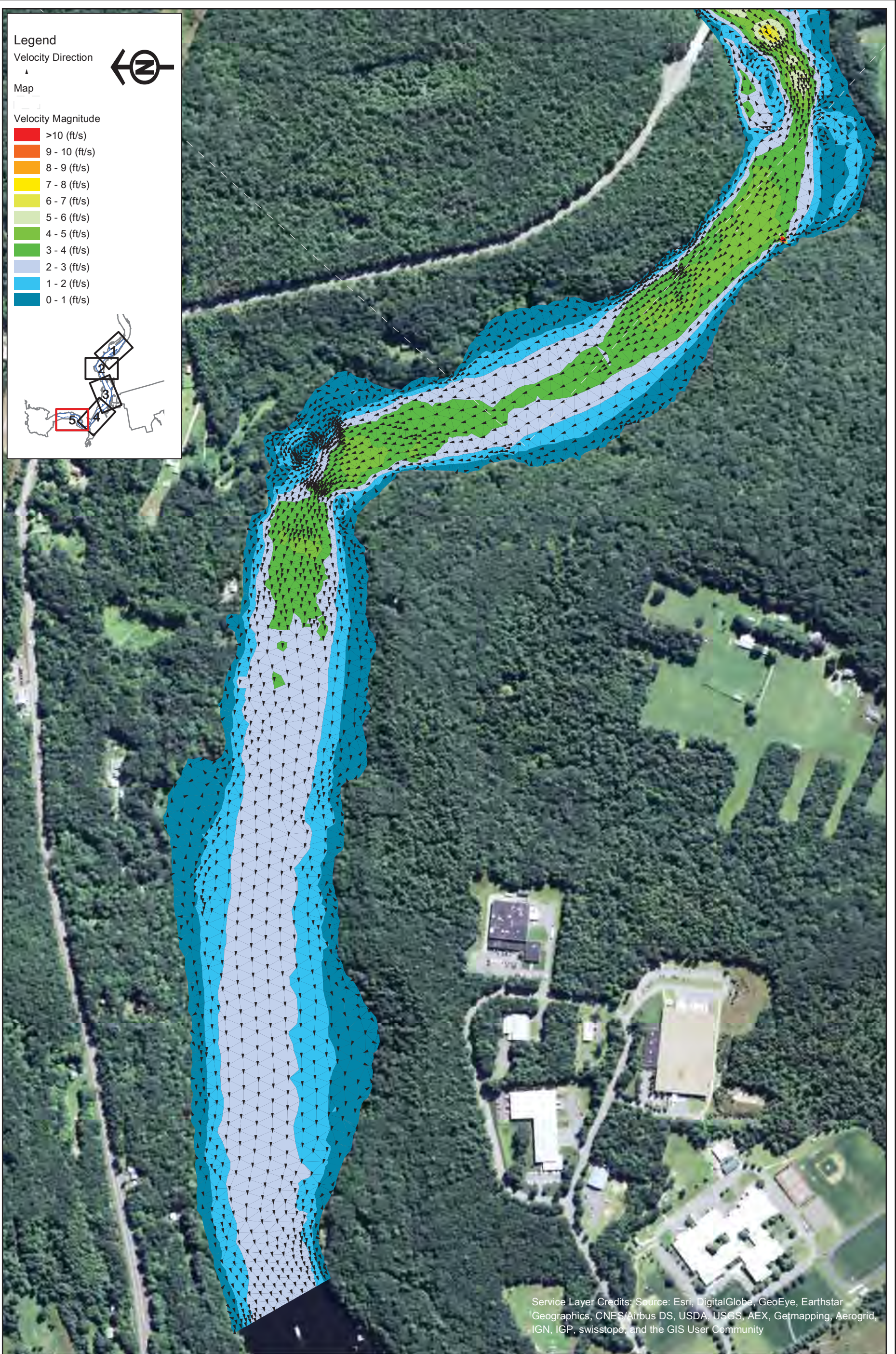


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 38 - Map 4
5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam



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Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

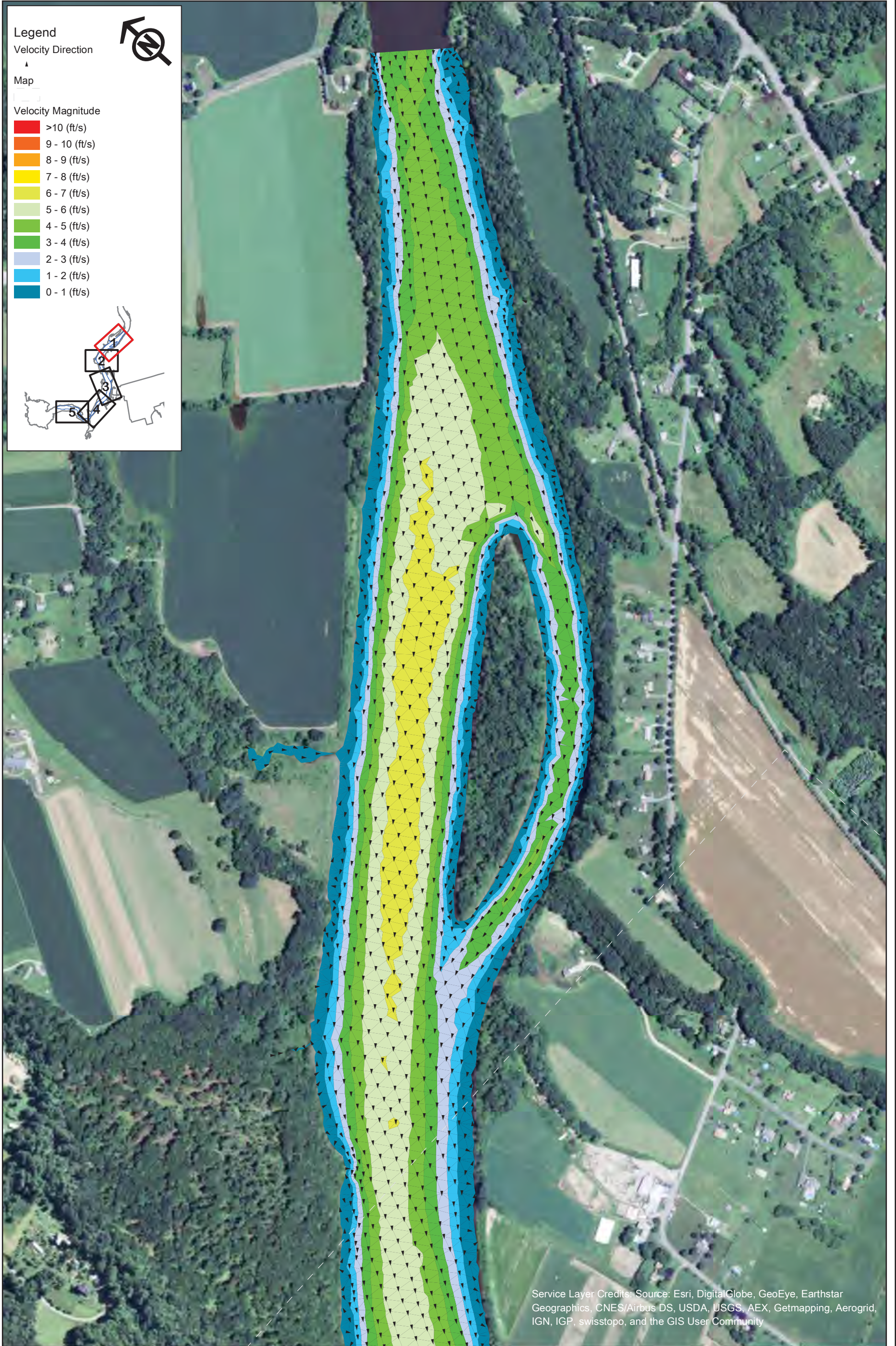
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RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 38 - Map 5
5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 185 WSEL at Dam





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Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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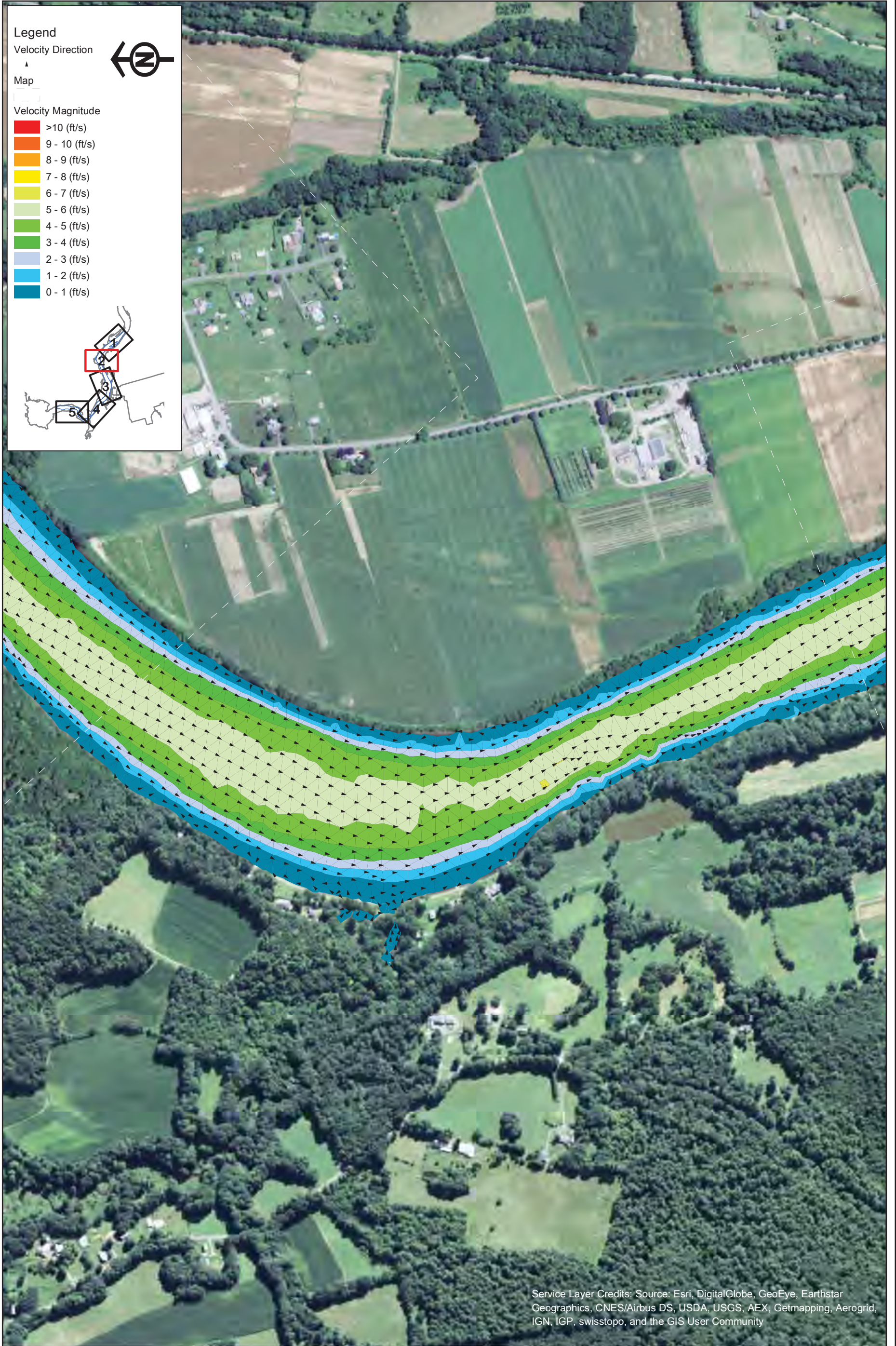


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 39 - Map 1
5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



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Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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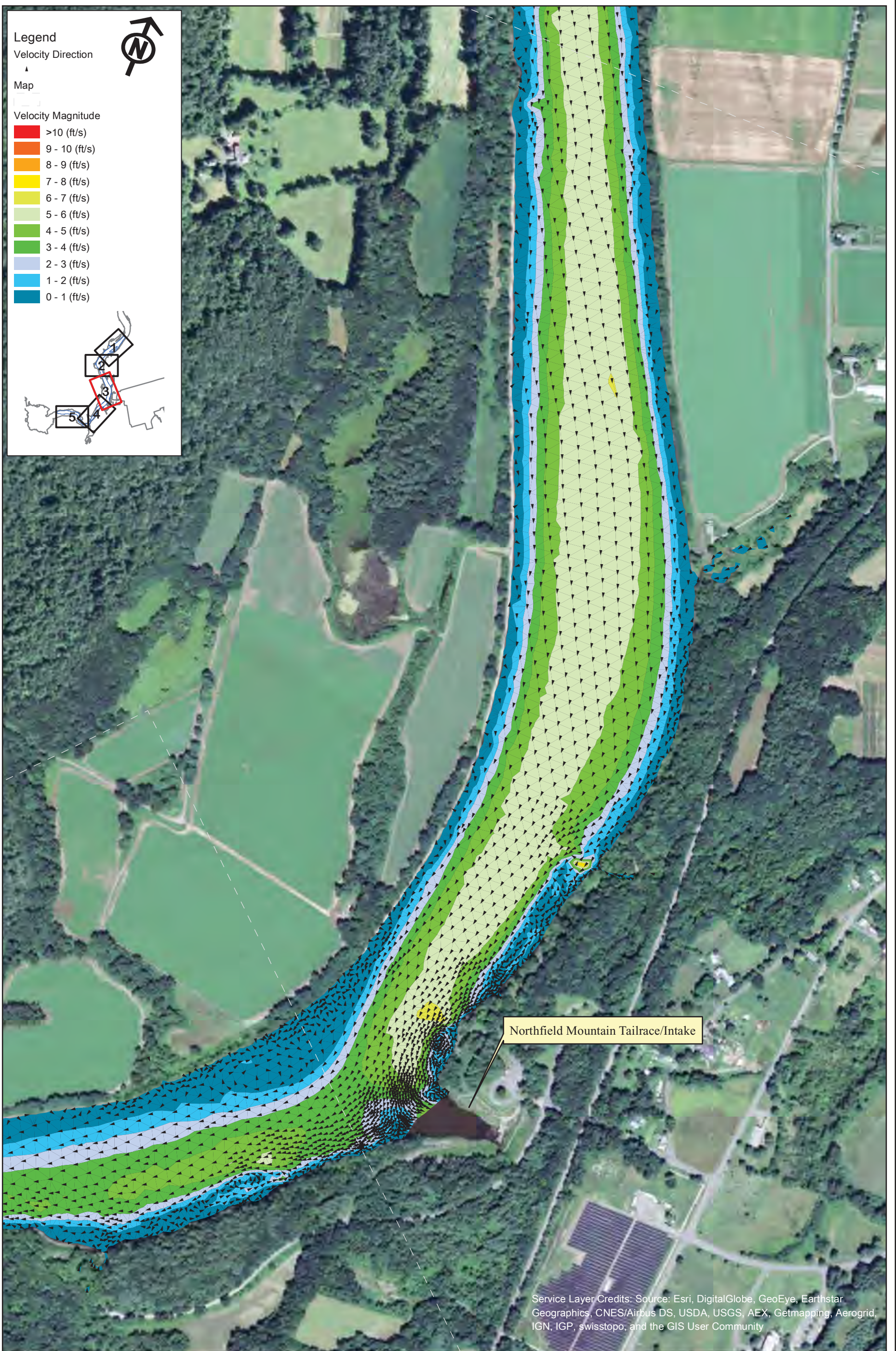


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 39 - Map 2
 5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

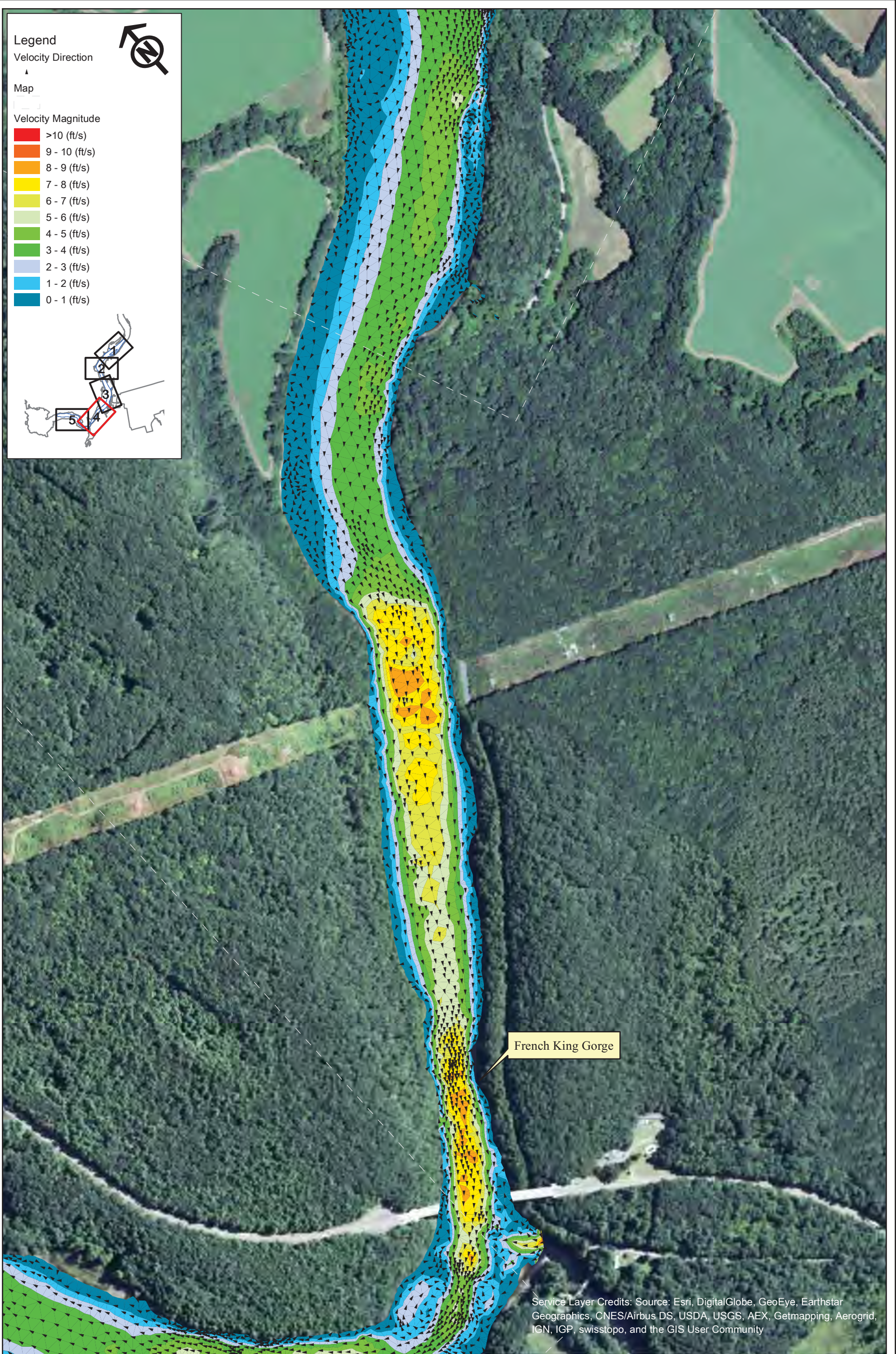
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 39 - Map 3
5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam





Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

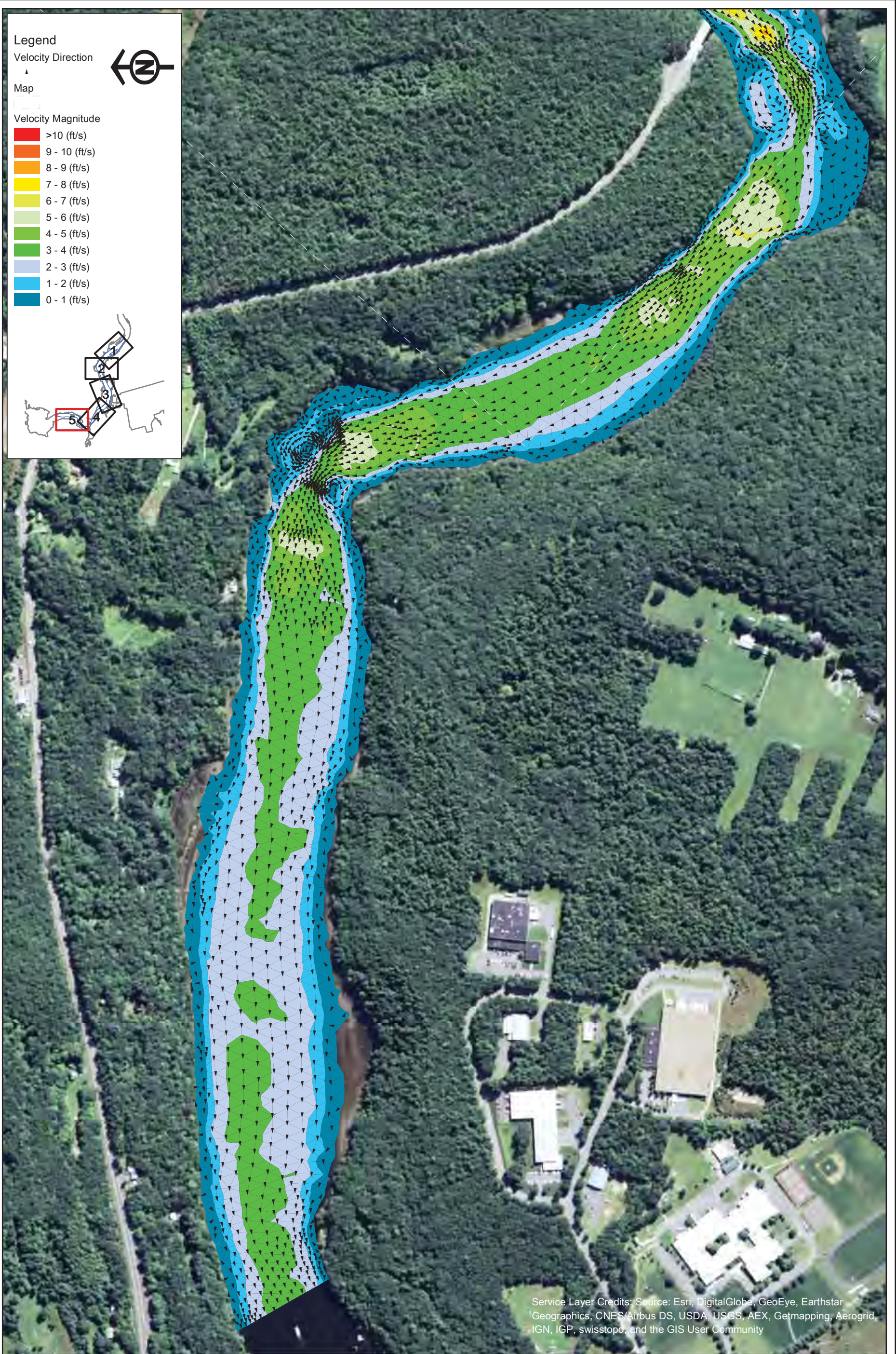
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

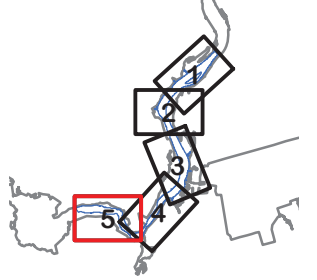
Scenario 39 - Map 4
5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam





Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

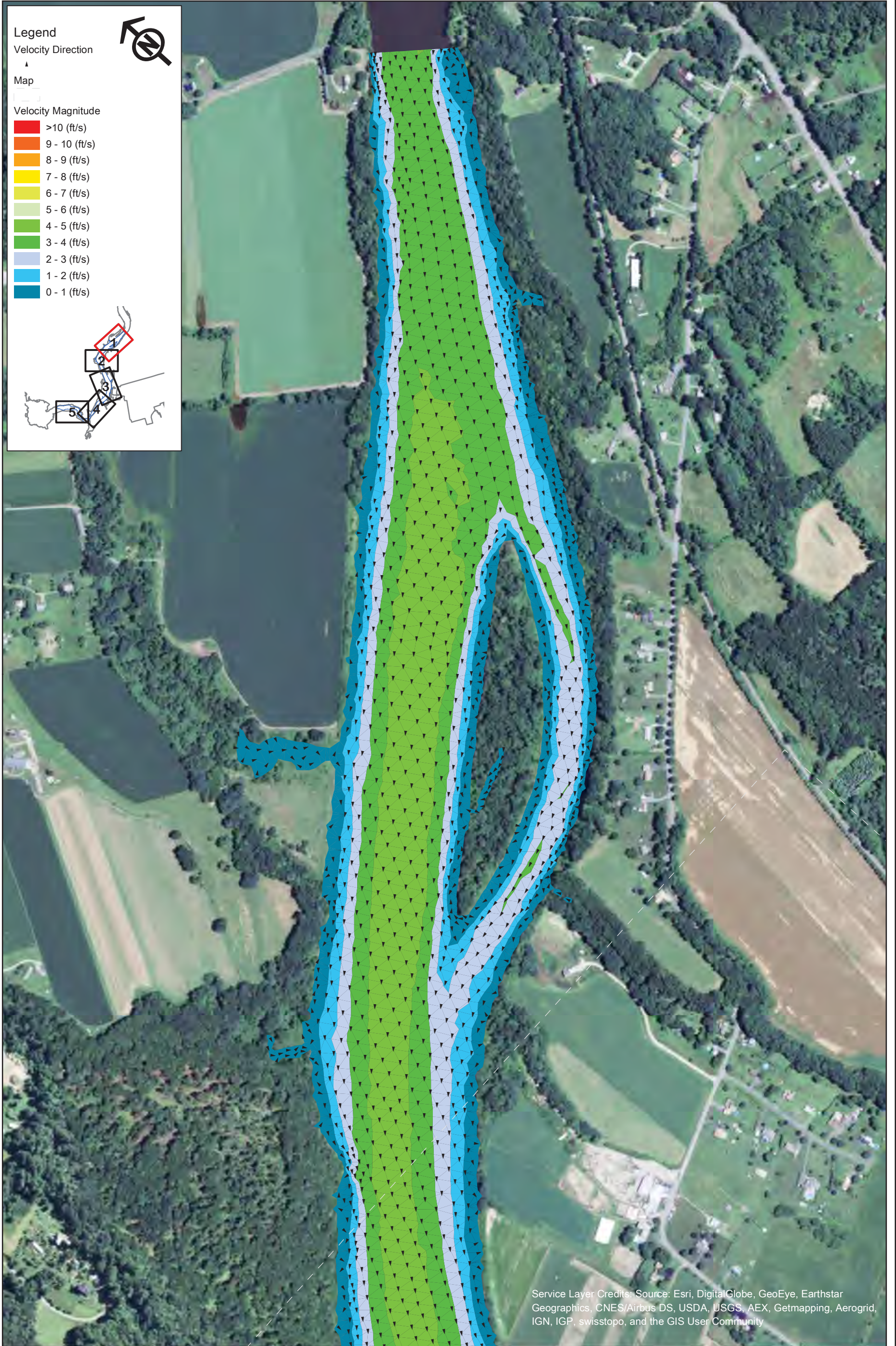


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 39 - Map 5
 5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 176 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Map

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

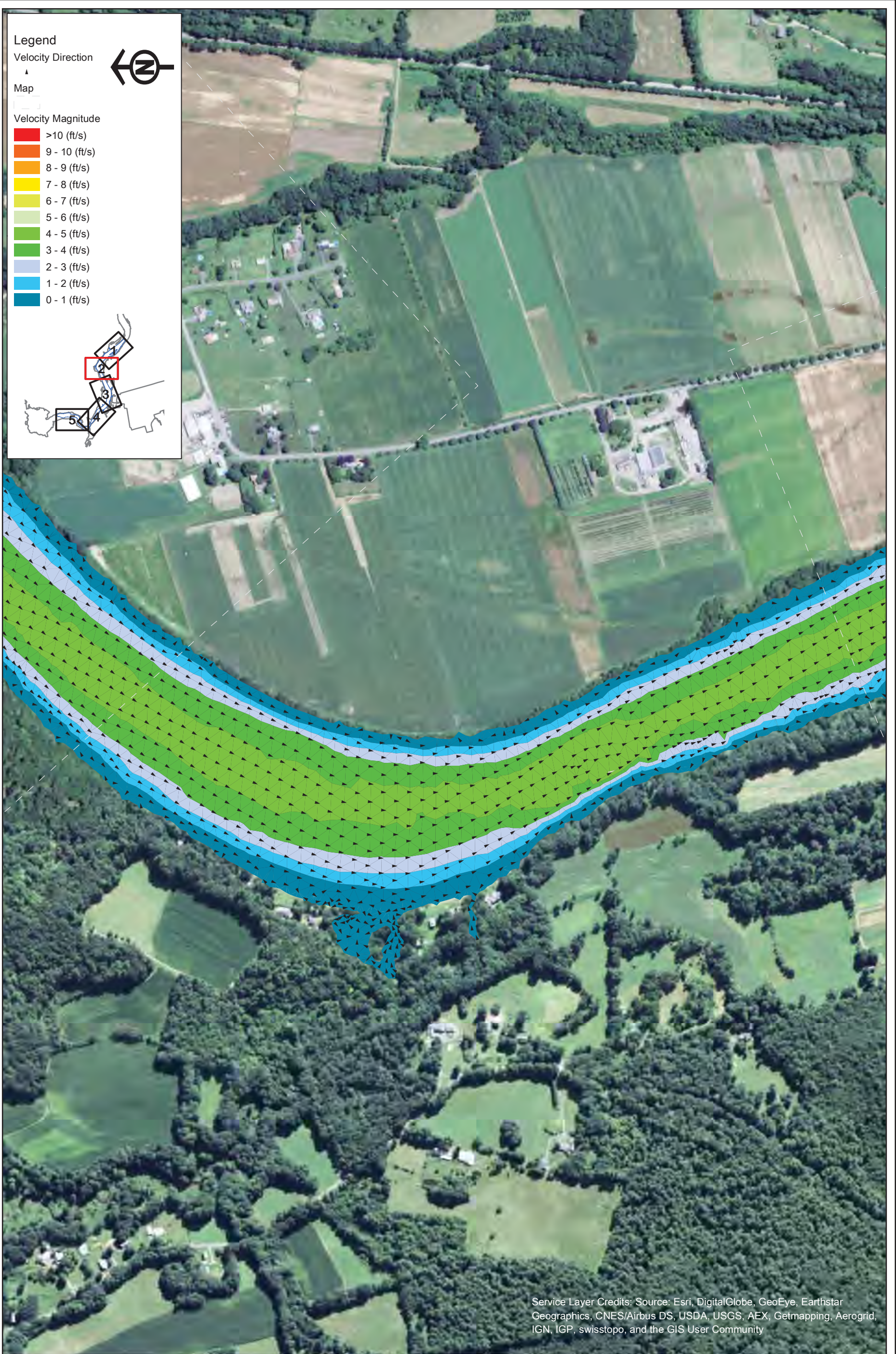
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9




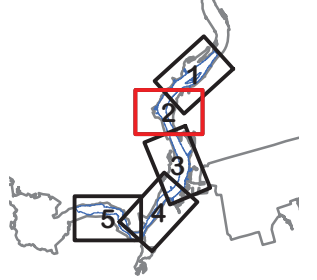
Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 40 - Map 1
5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam





Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

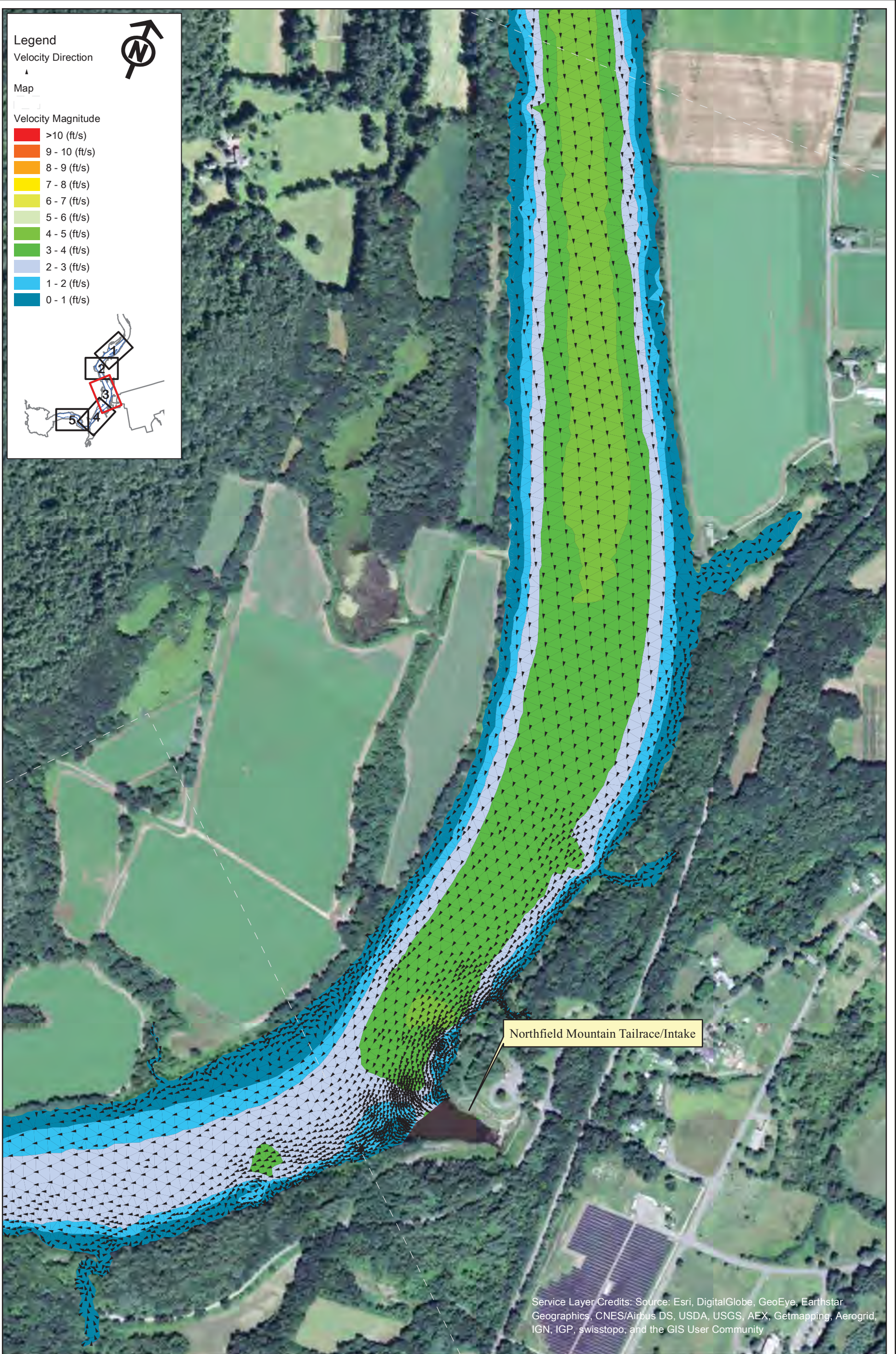


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 40 - Map 2
 5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

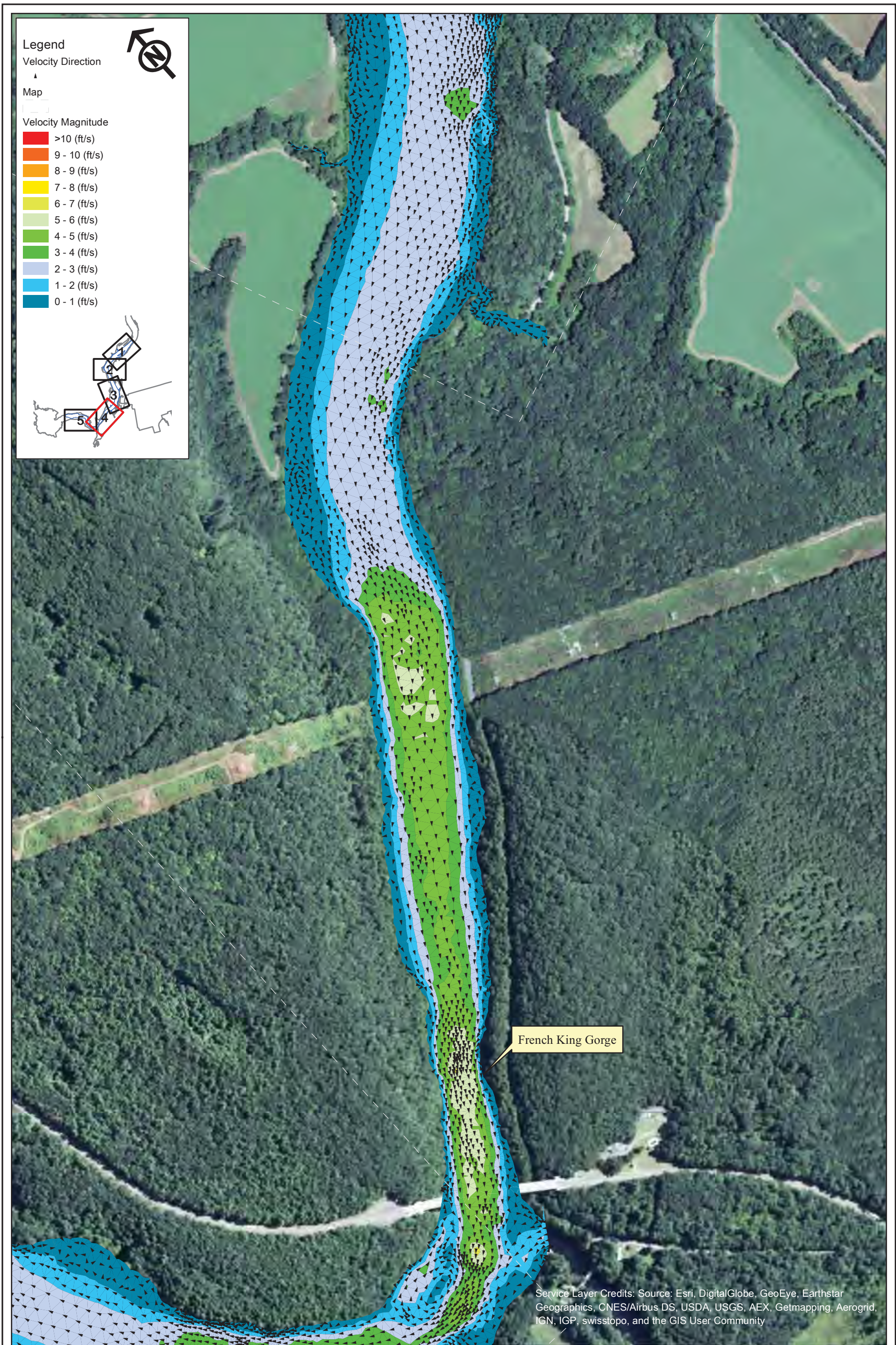


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 40 - Map 3
5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

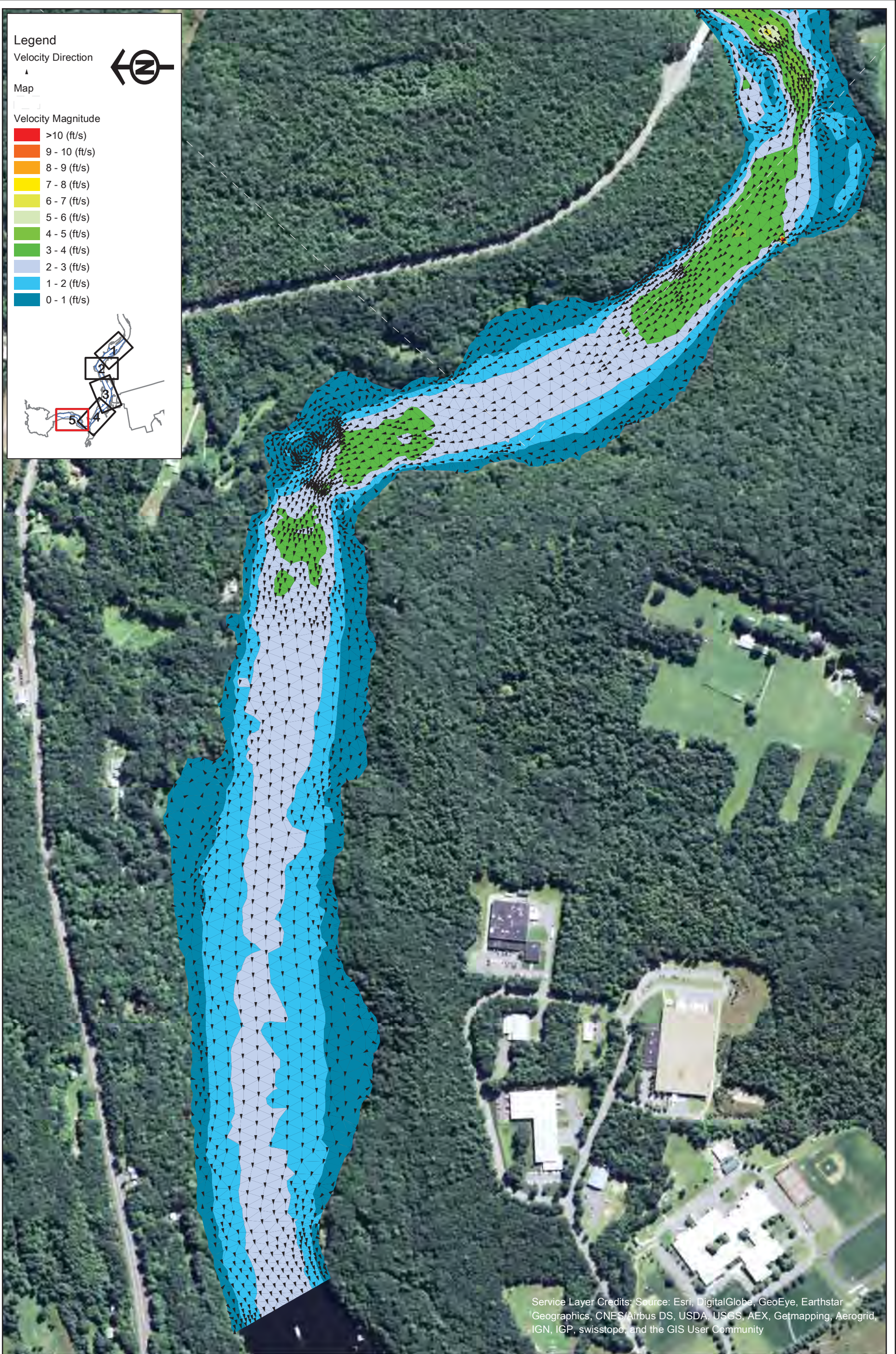
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace

Scenario 40 - Map 4
5% Exceedance Flow (40,100 cfs), 4 Units
Pumping (15,200 cfs), 185 WSEL at Dam





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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

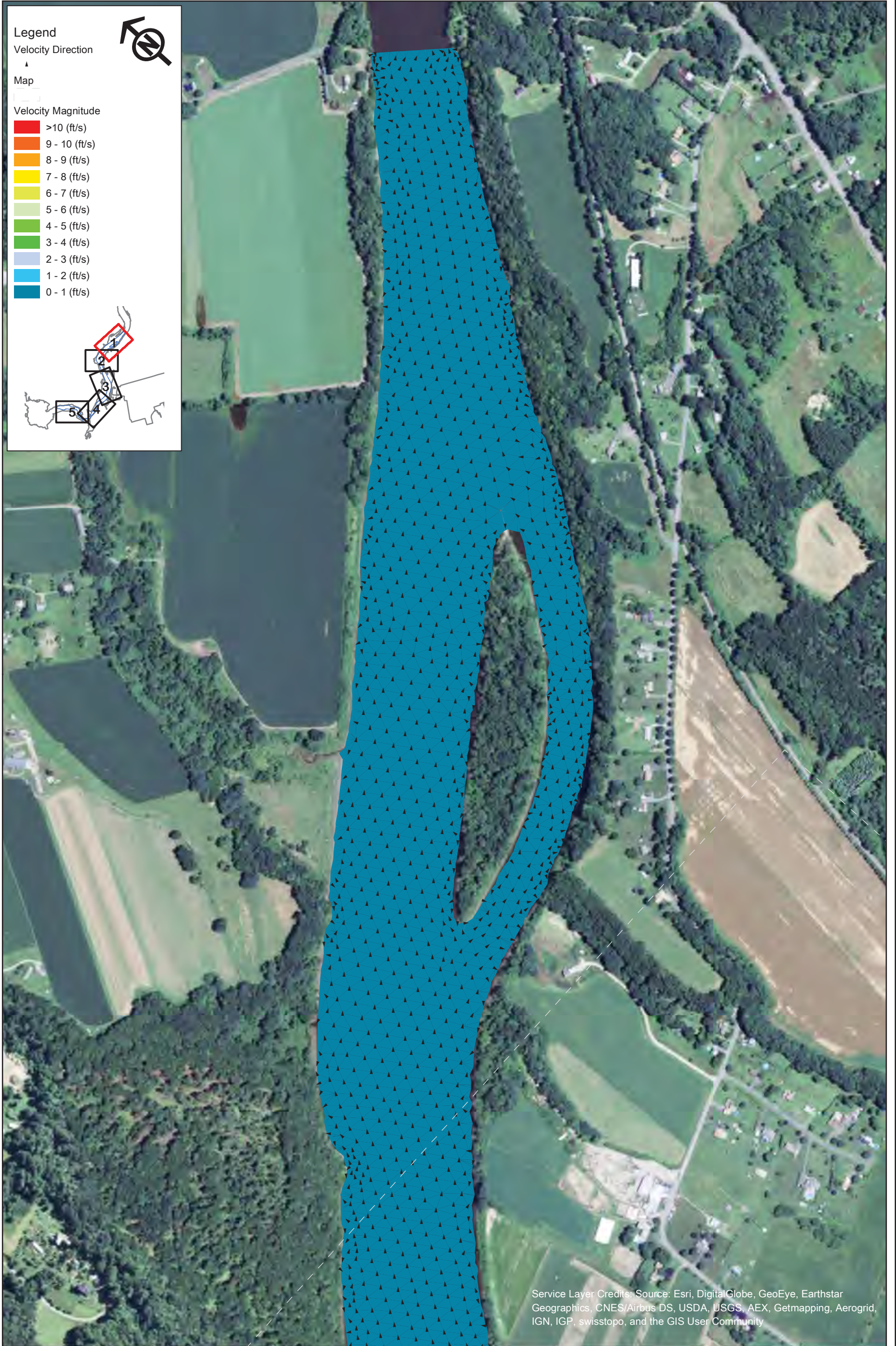
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 40 - Map 5
5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 185 WSEL at Dam





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

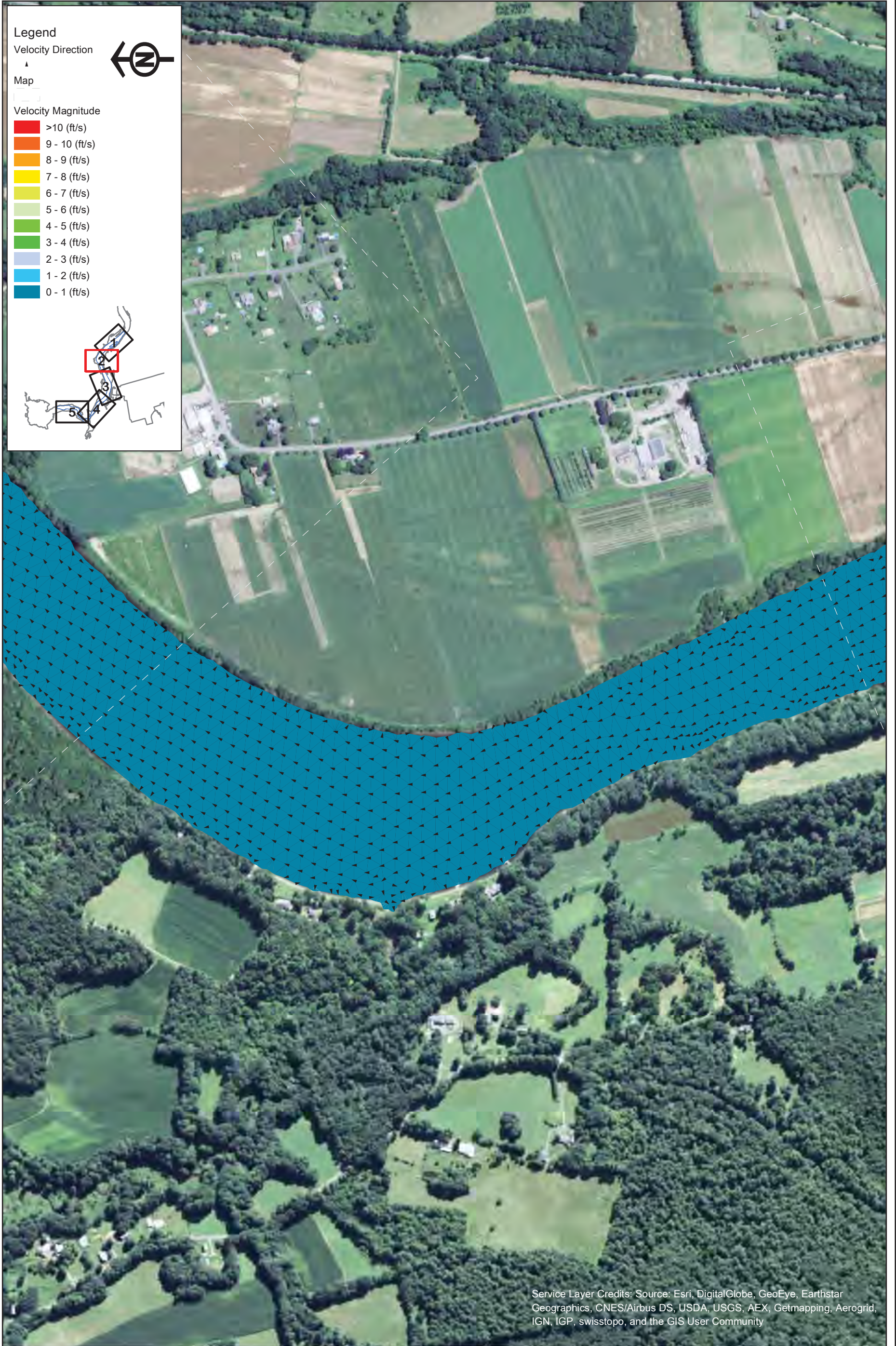


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 41 - Map 1
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



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

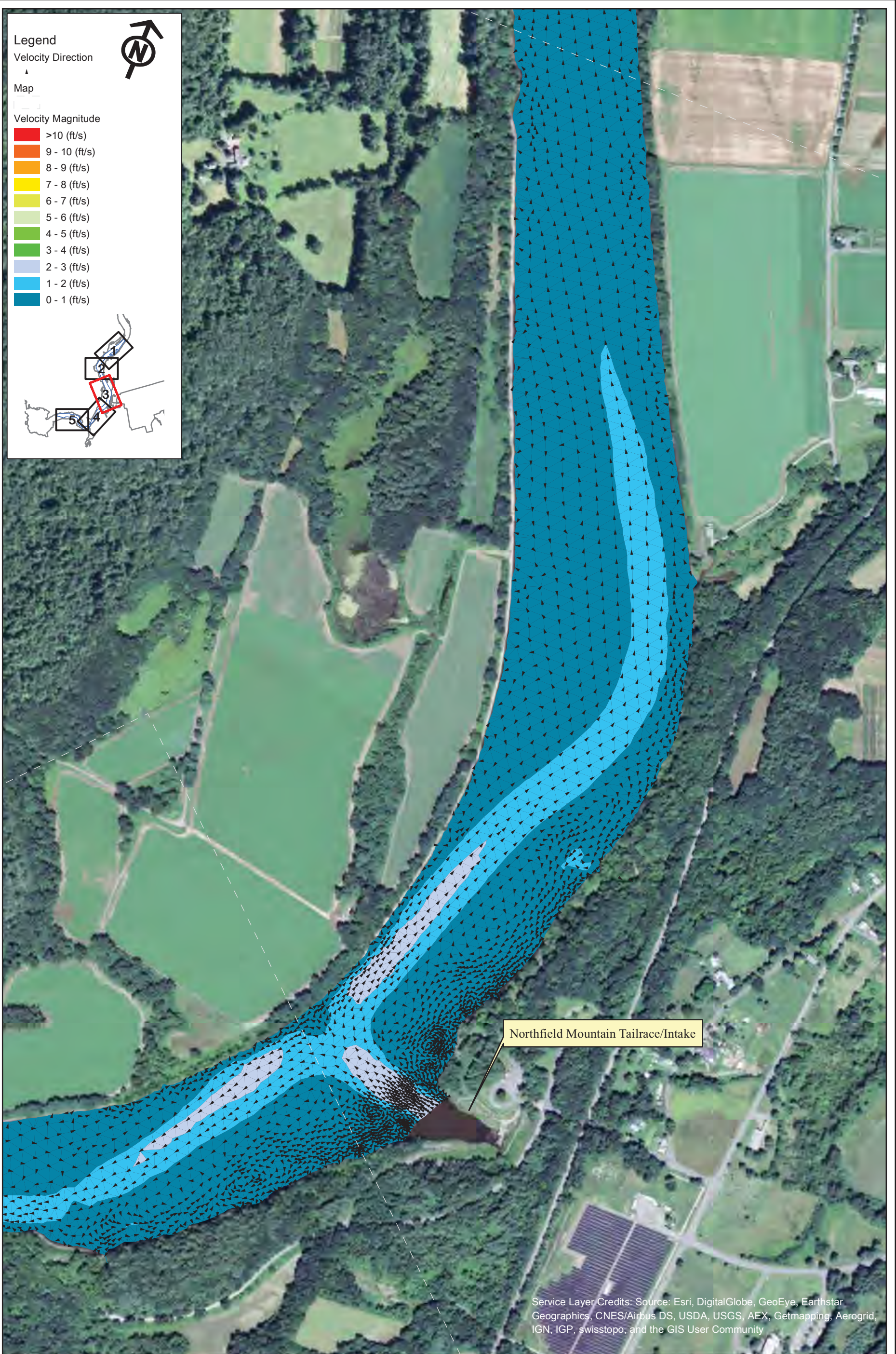


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 41 - Map 2
 95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Map

Northfield Mountain Tailrace/Intake

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

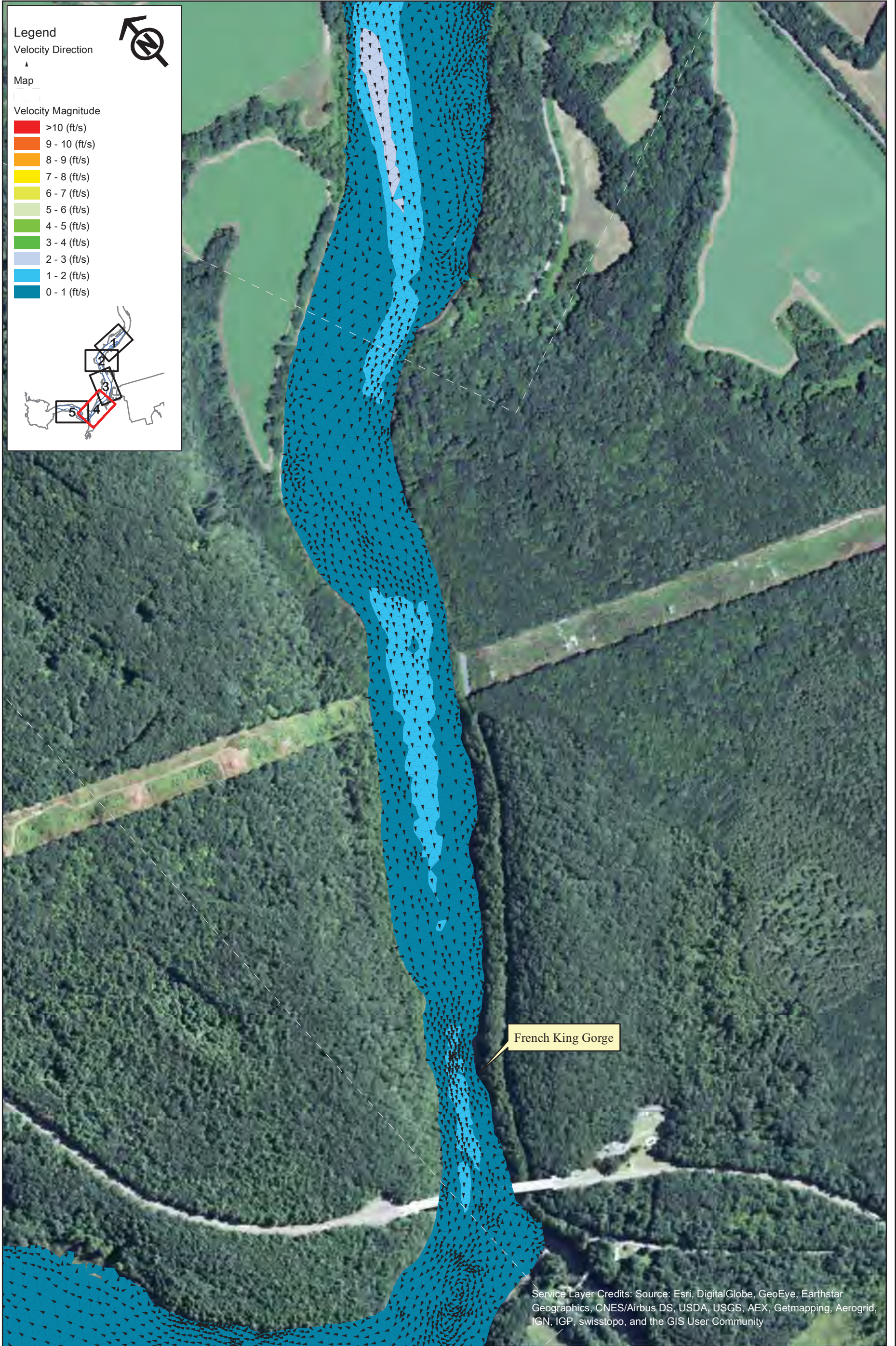


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 41 - Map 3
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam

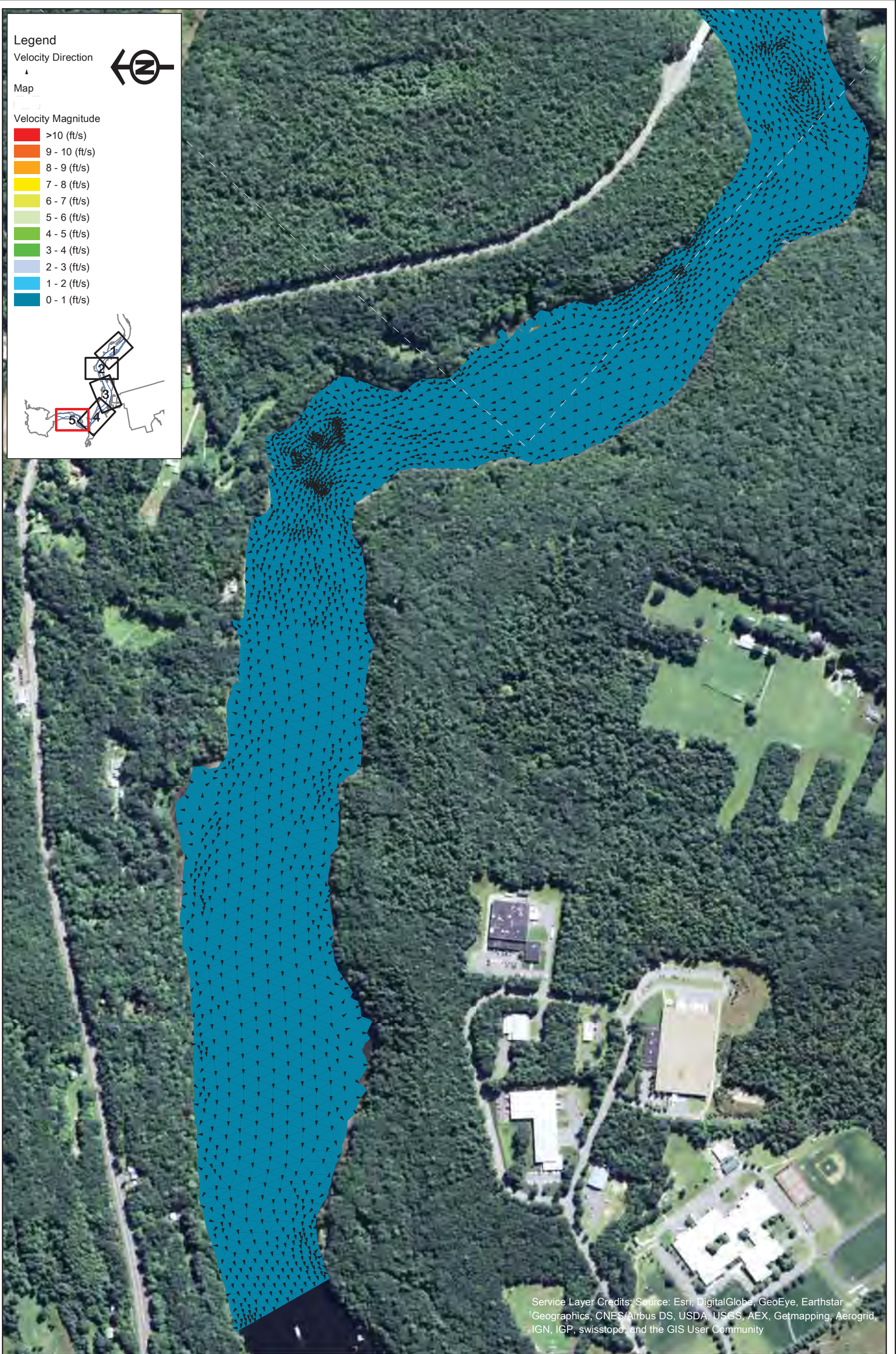


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 41 - Map 4
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



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

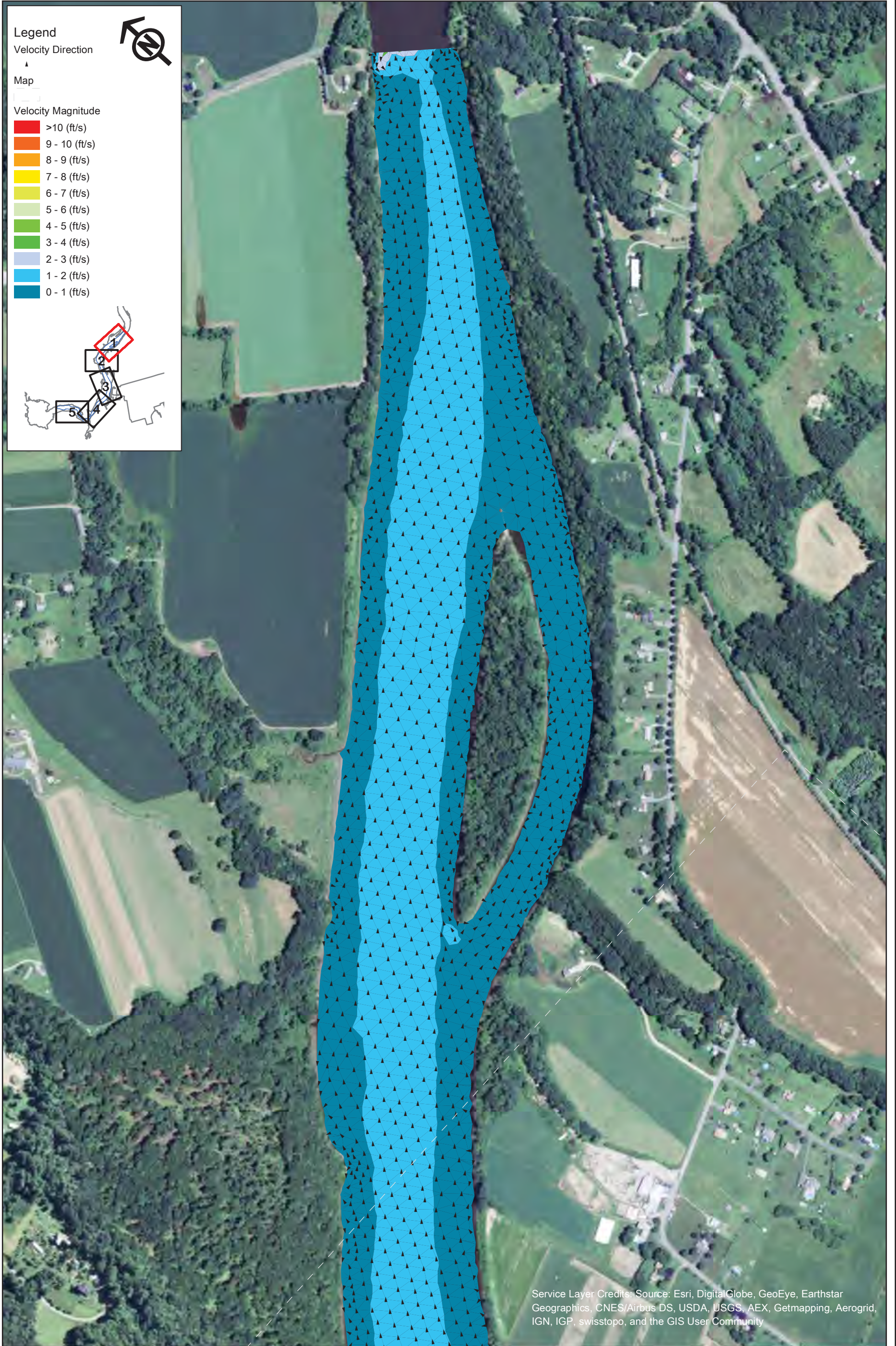


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 41 - Map 5
95% Exceedance Flow (1,760 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

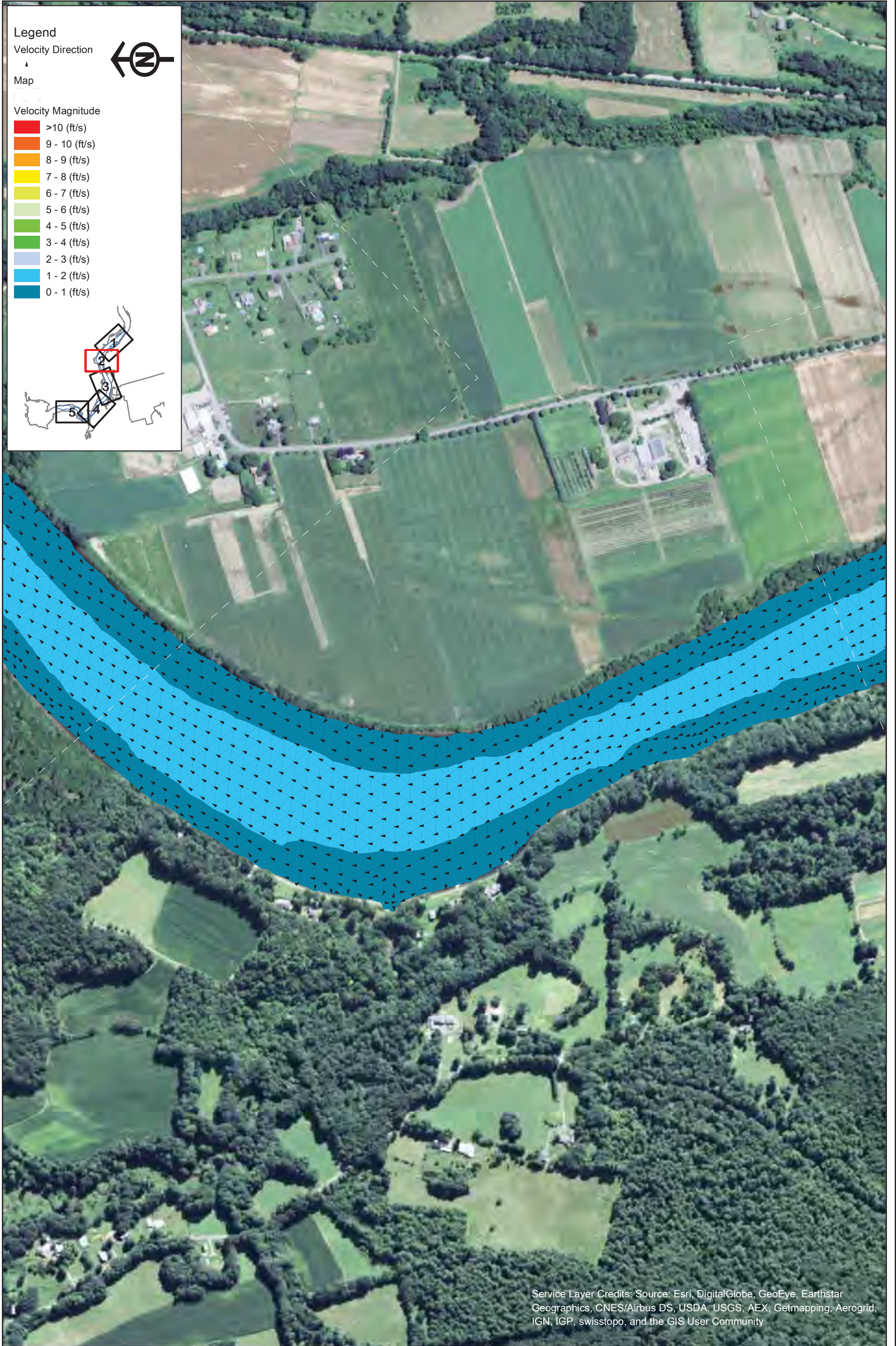
STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 42 - Map 1
95% Exceedance Flow (1,760 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



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Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

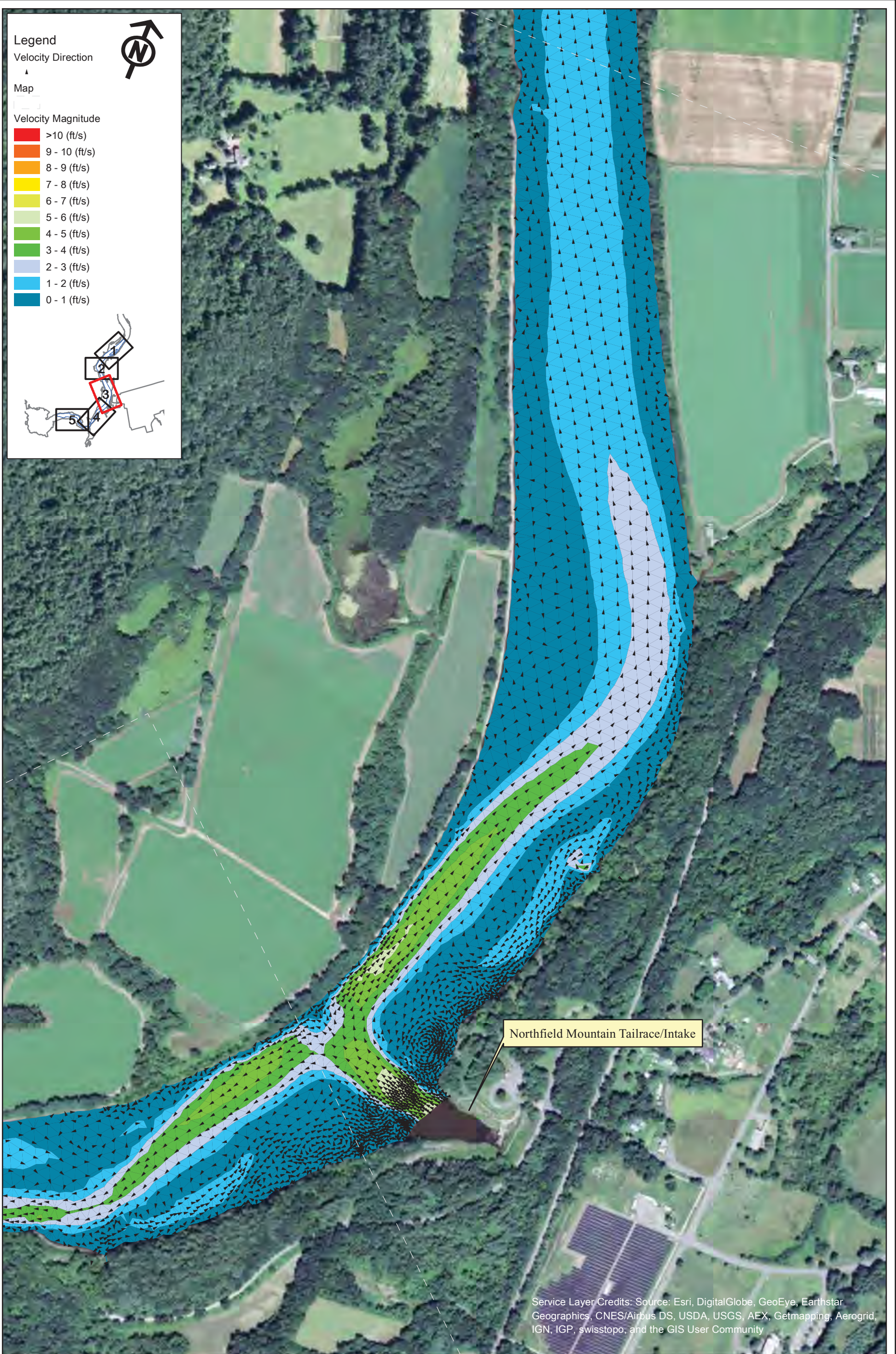


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 42 - Map 2
 95% Exceedance Flow (1,760 cfs), 4 Units
 Generating (20,000 cfs), 181.3 WSEL at Dam

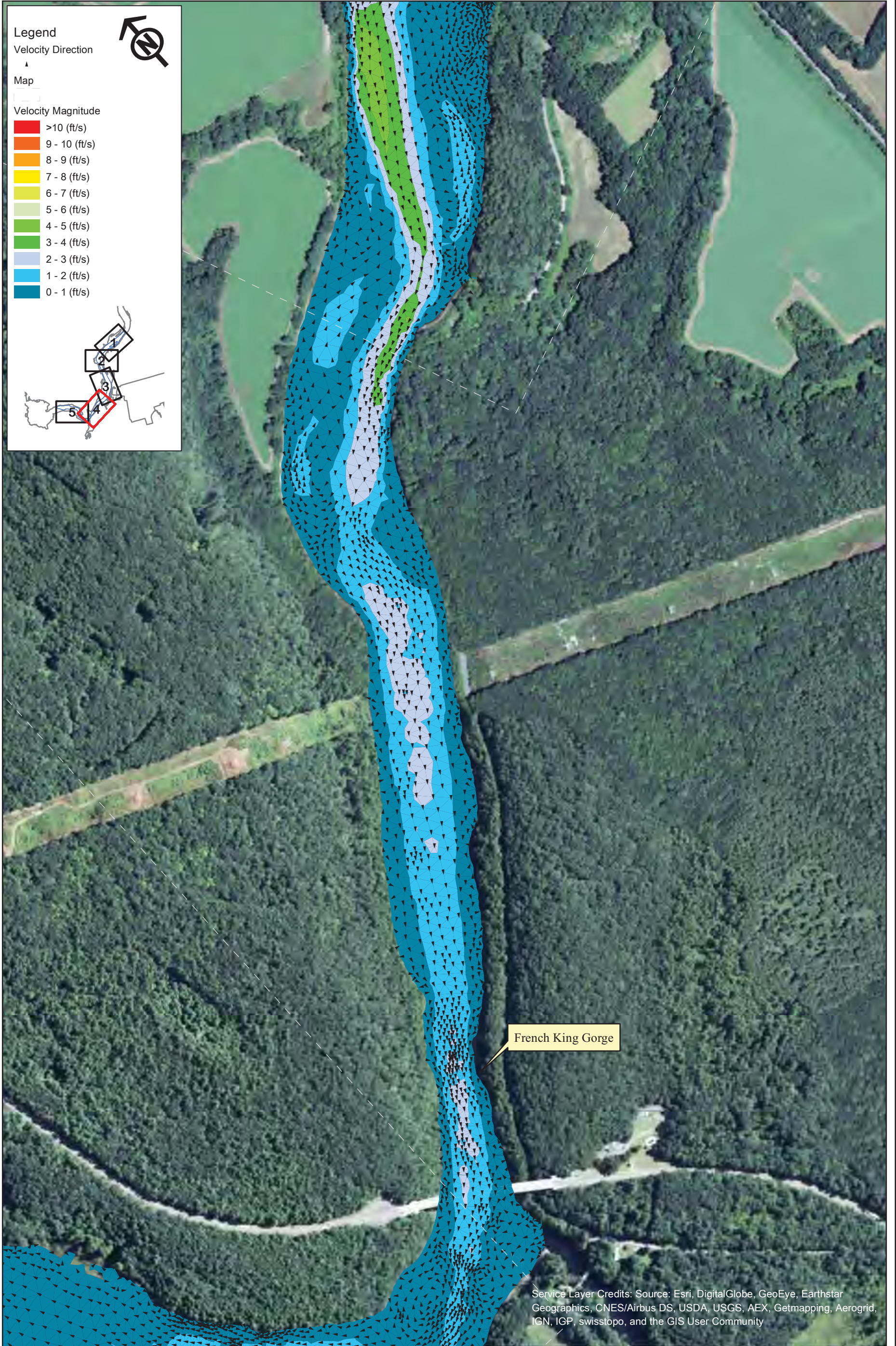


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 42 - Map 3
95% Exceedance Flow (1,760 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam

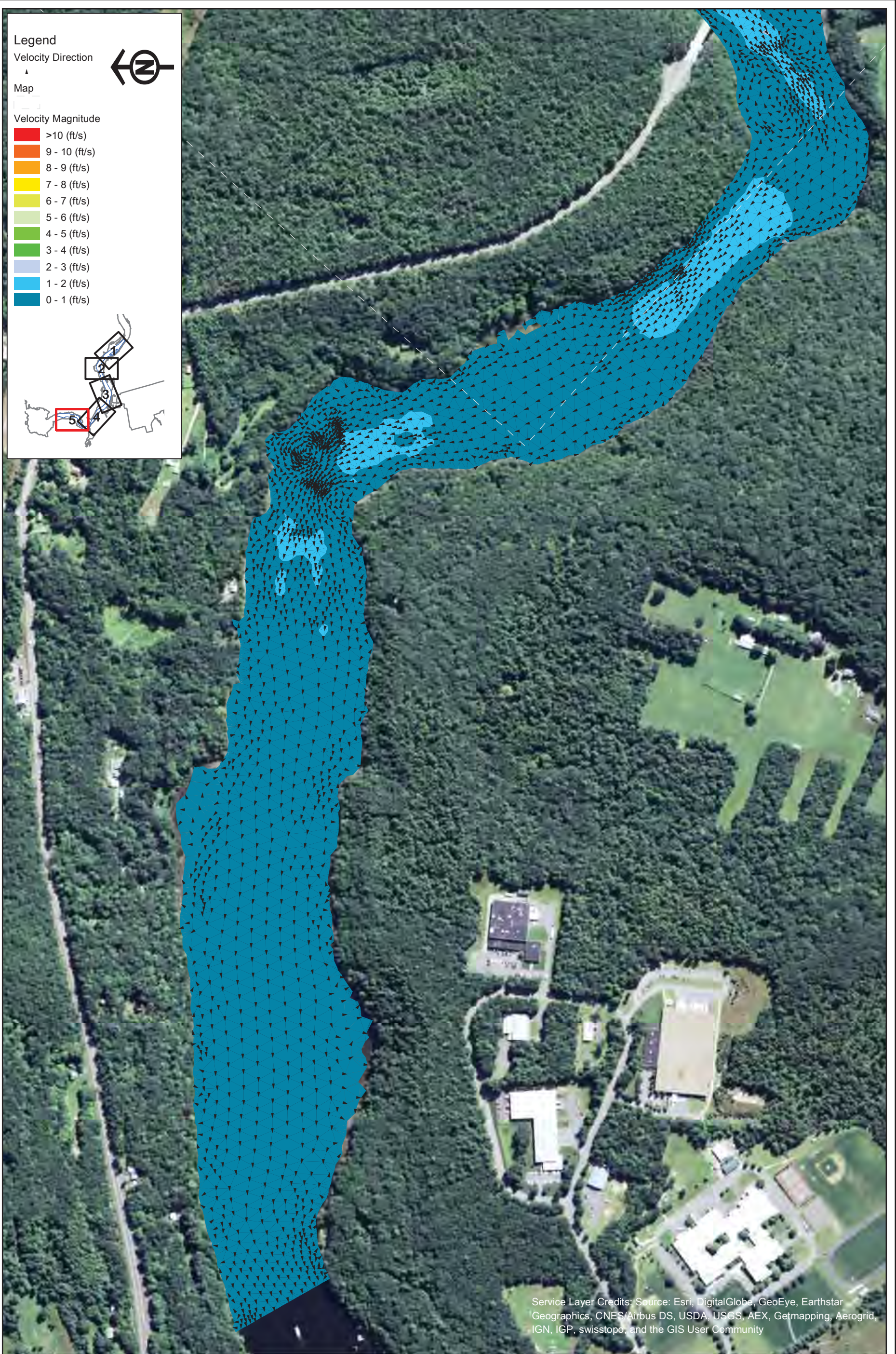


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)


STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 42 - Map 4
95% Exceedance Flow (1,760 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

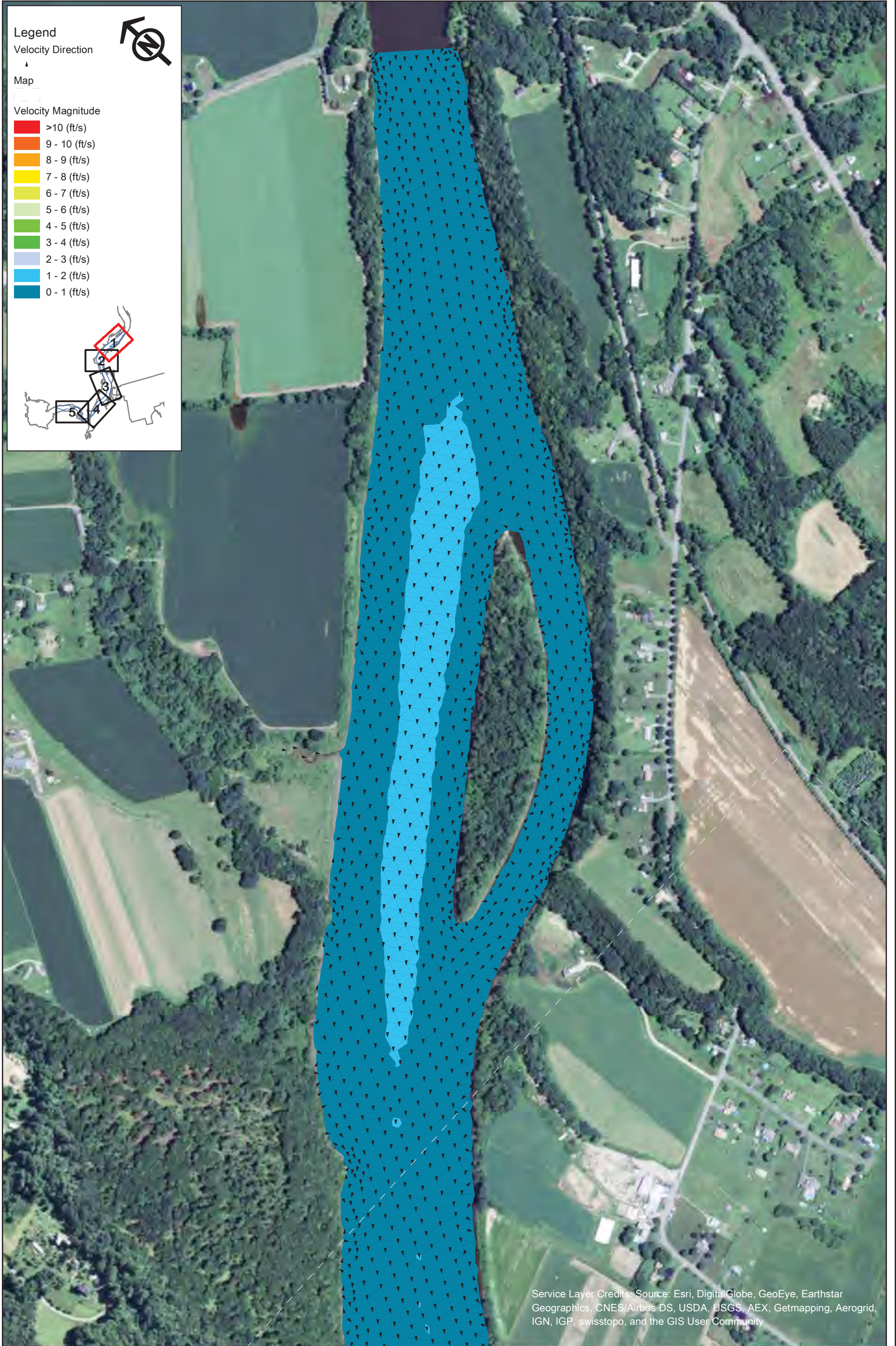


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 42 - Map 5
 95% Exceedance Flow (1,760 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



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

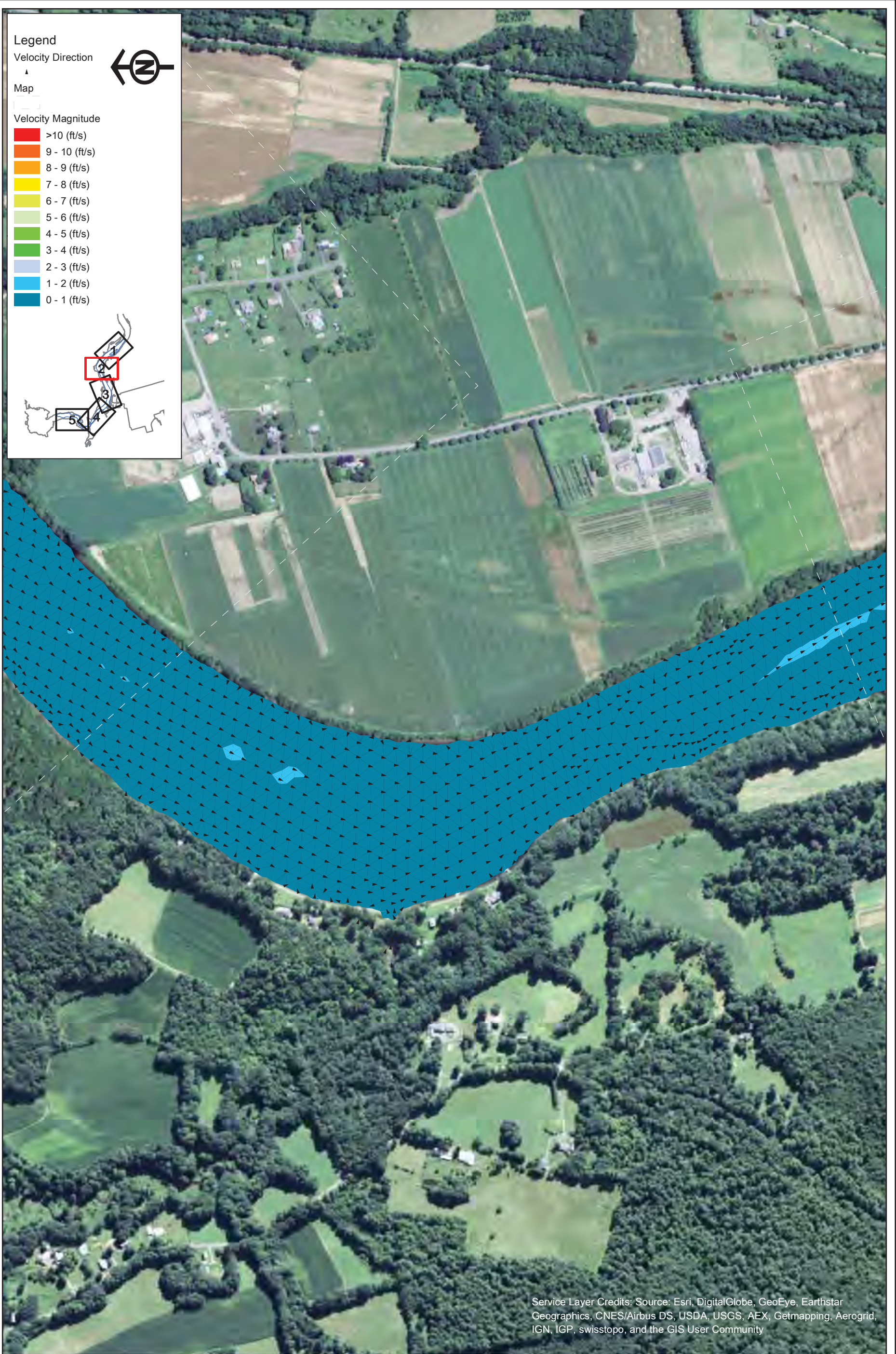
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 43 - Map 1
95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam





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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

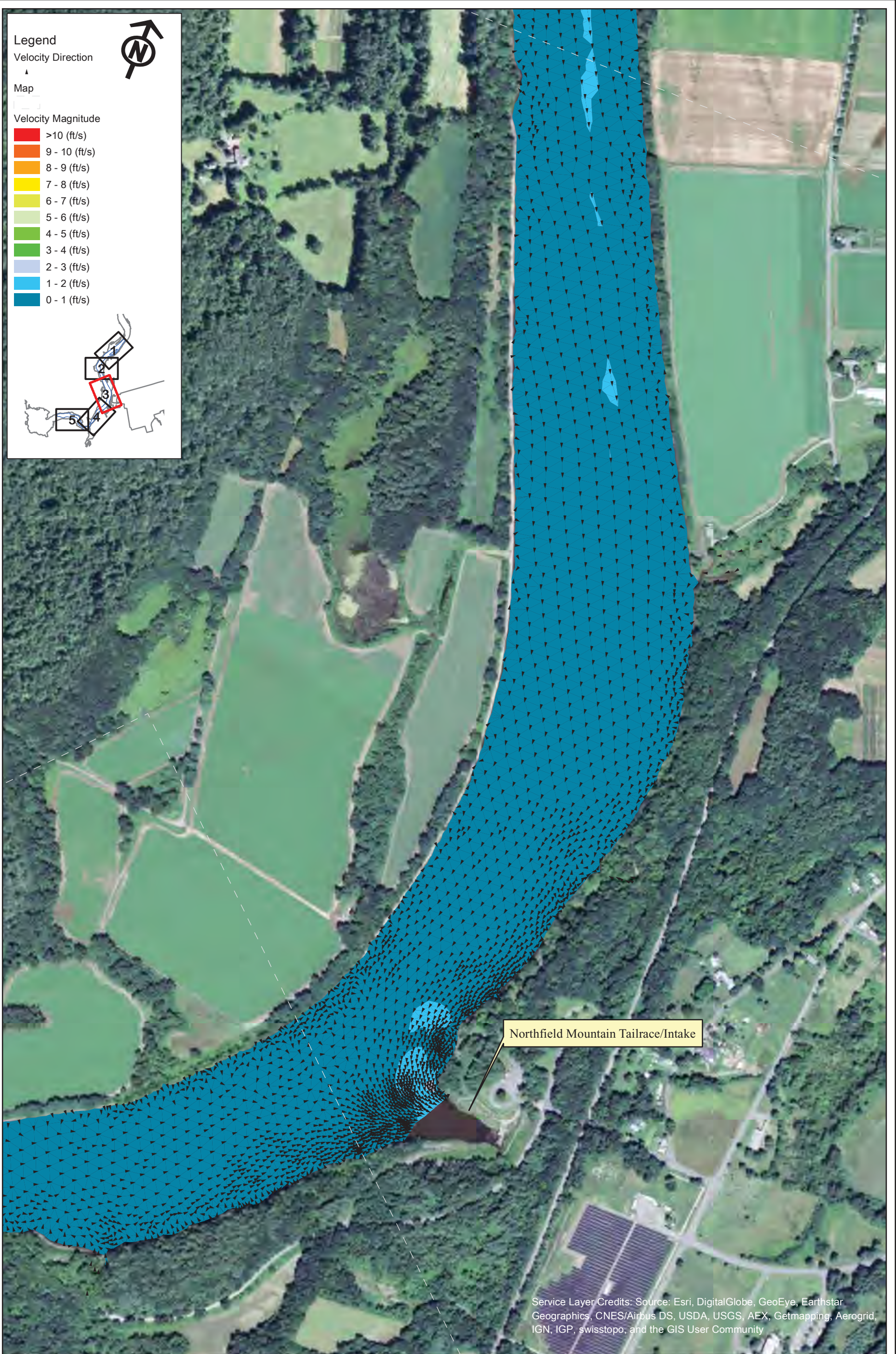
STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 43 - Map 2
95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam





Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

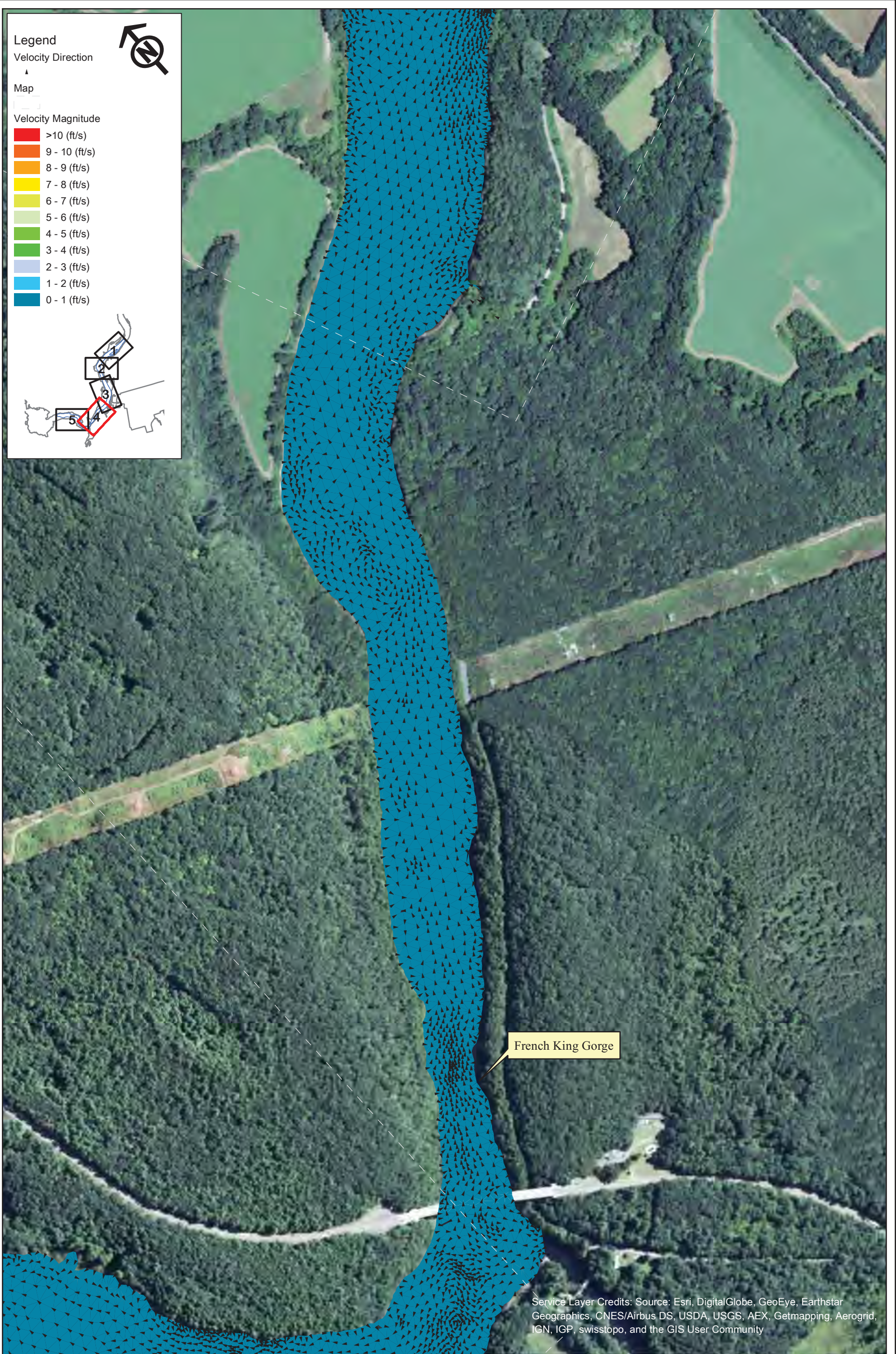


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 43 - Map 3
95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam

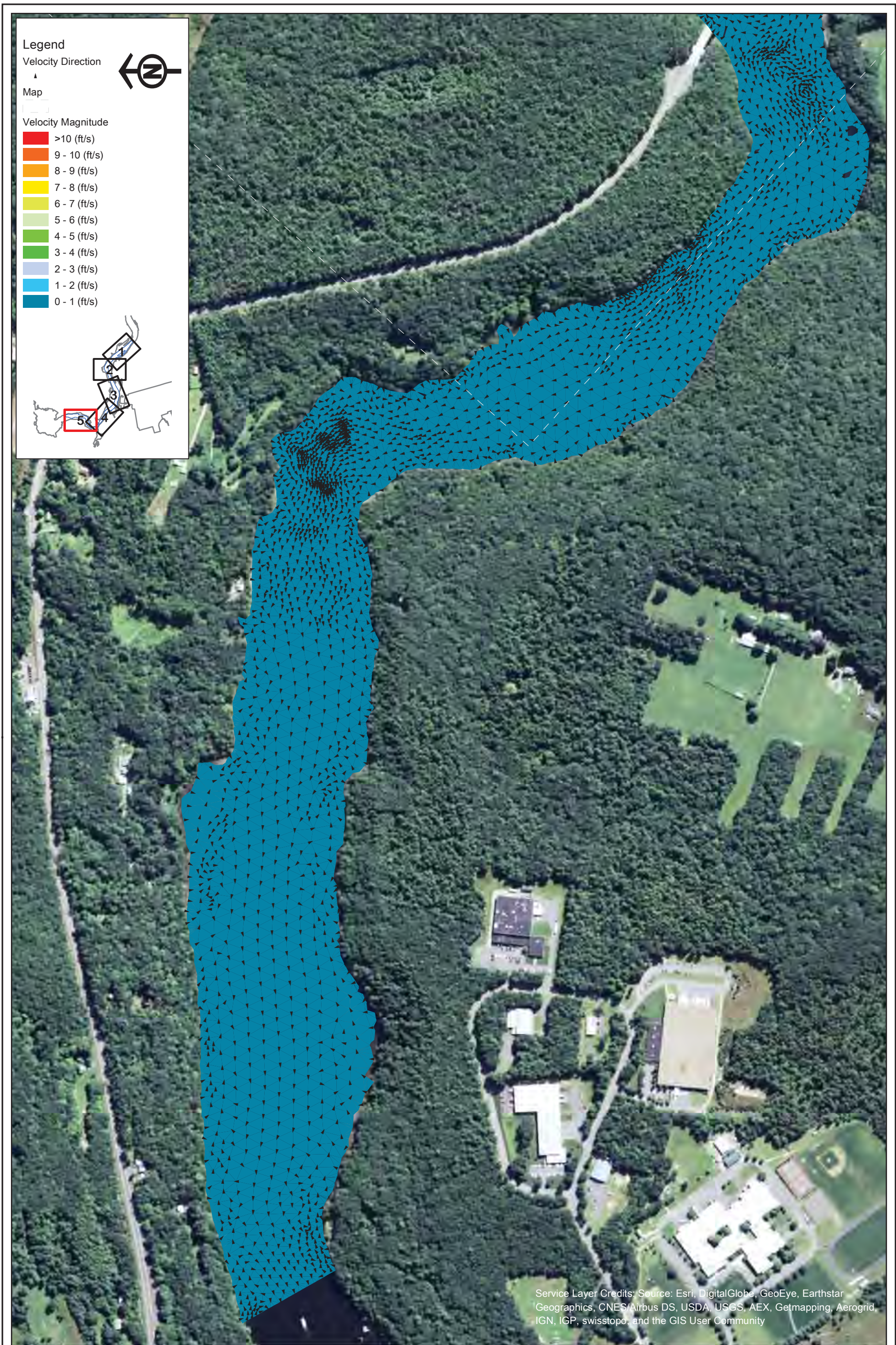


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace
Scenario 43 - Map 4
95% Exceedance Flow (1,760 cfs), 2 Units
Pumping (7,600 cfs), 181.3 WSEL at Dam



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

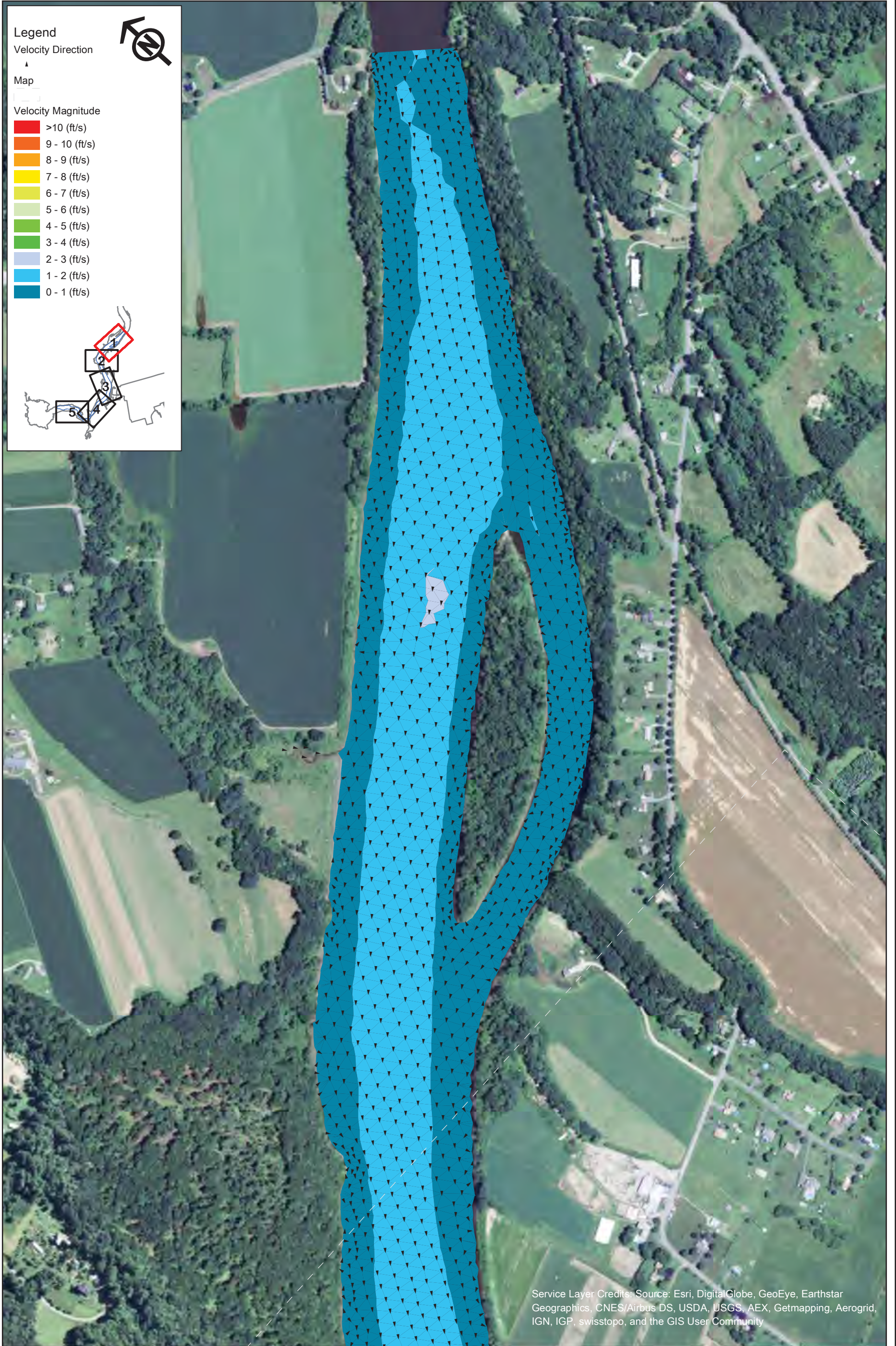


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 43 - Map 5
95% Exceedance Flow (1,760 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9

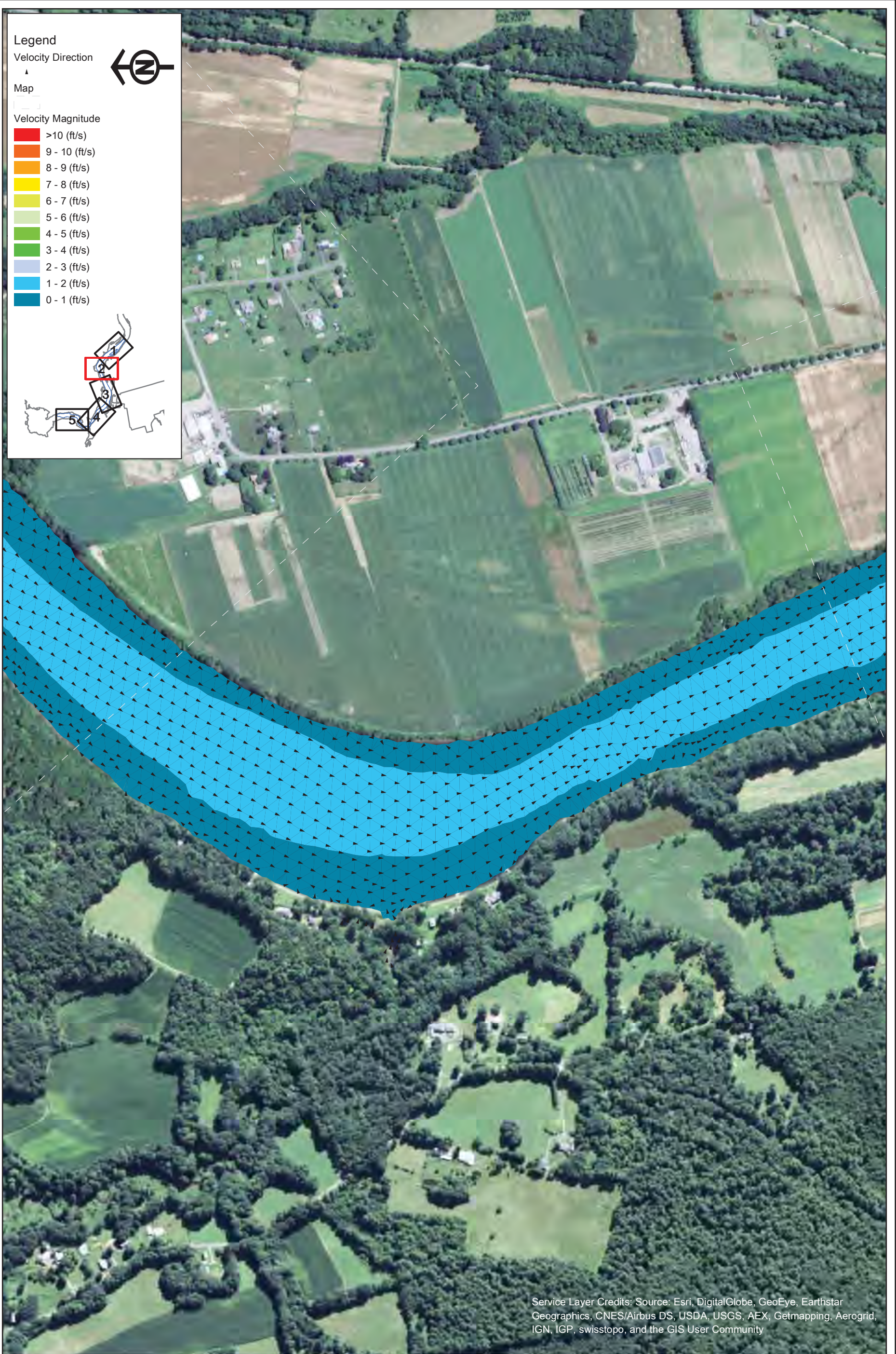


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 44 - Map 1
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



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Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

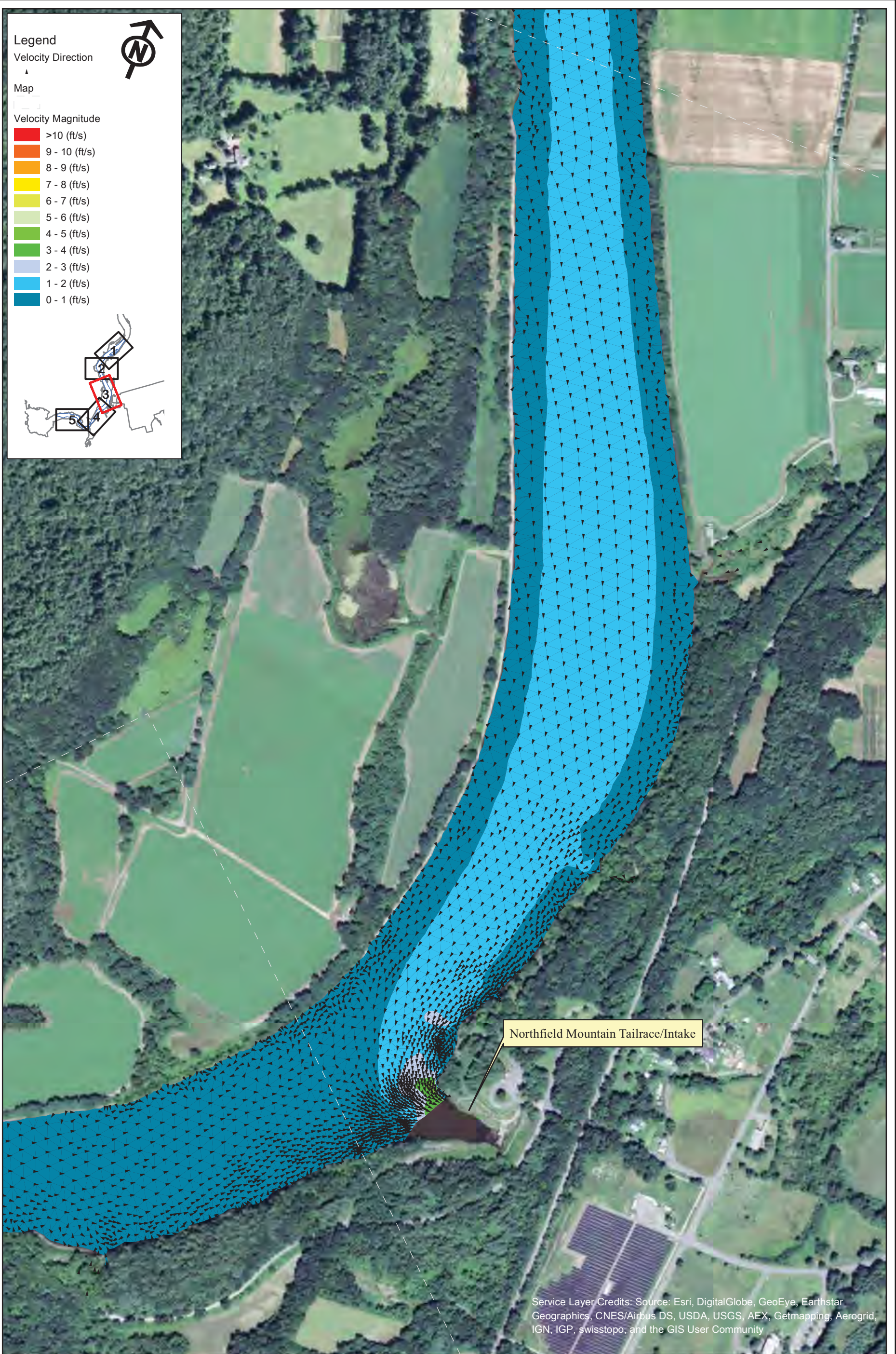


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 44 - Map 2
 95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



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

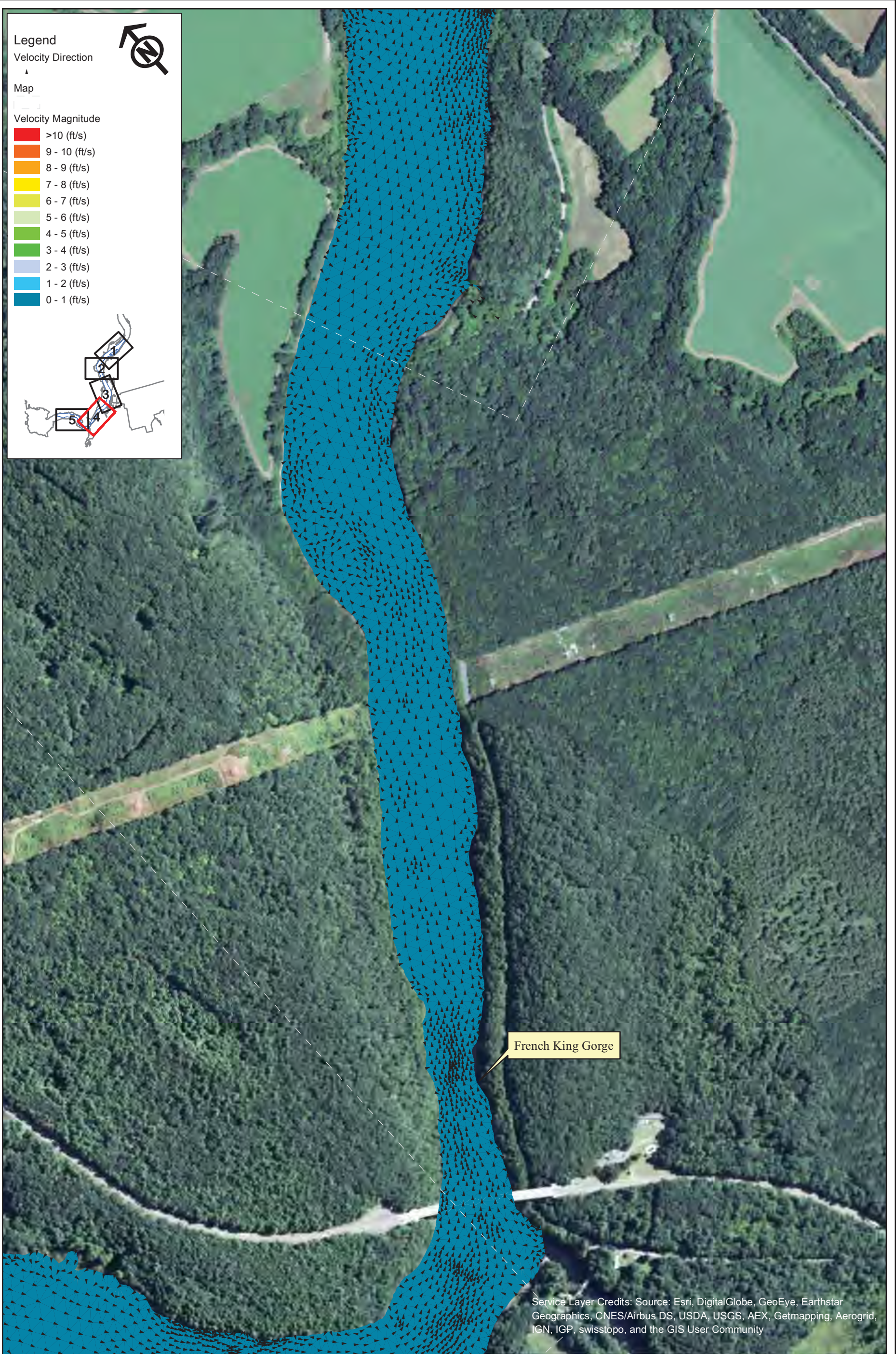


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 44 - Map 3
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

French King Gorge

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

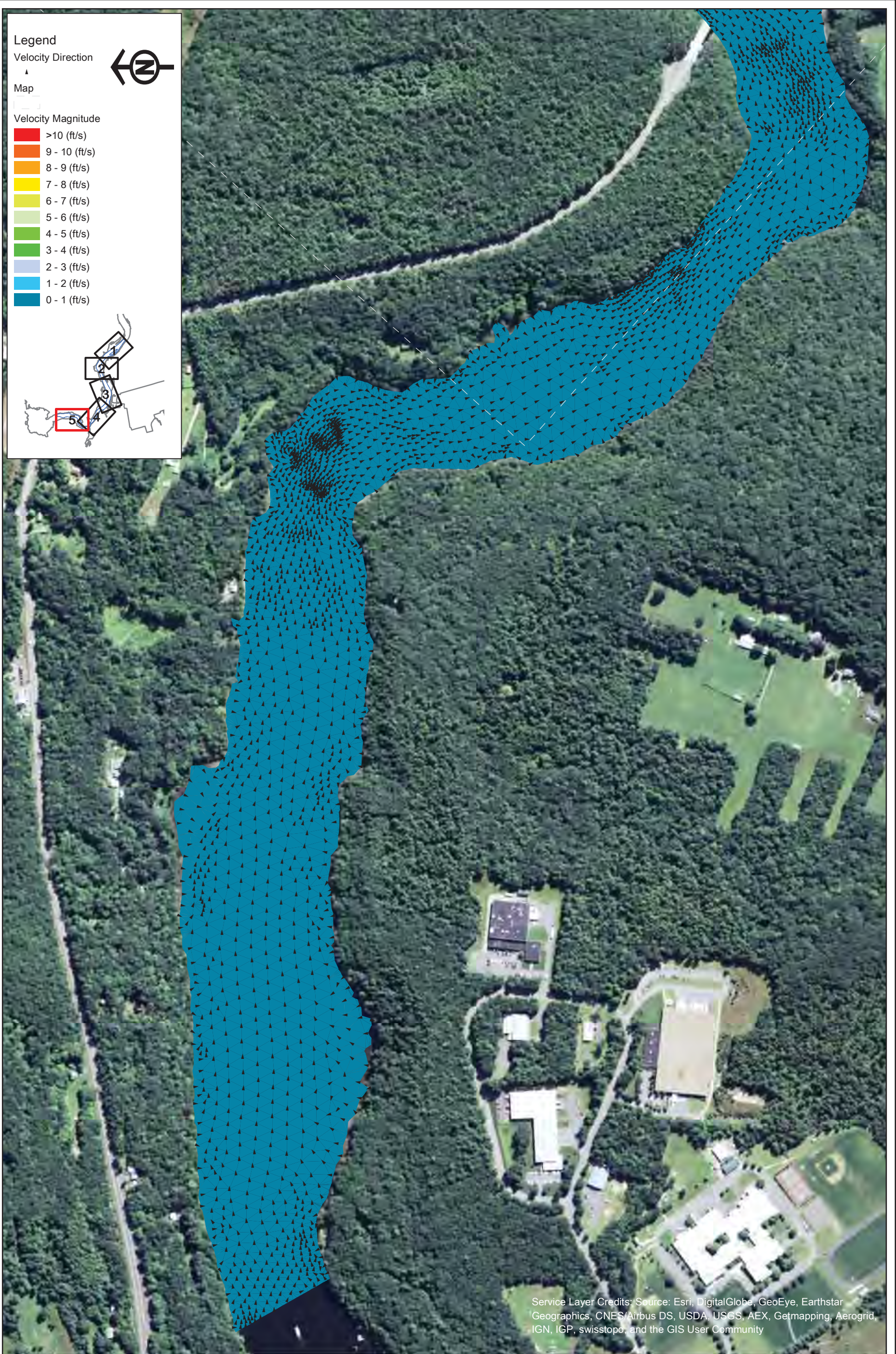


Northfield Mountain Pumped Storage Project (No. 2485) and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 44 - Map 4
95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



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

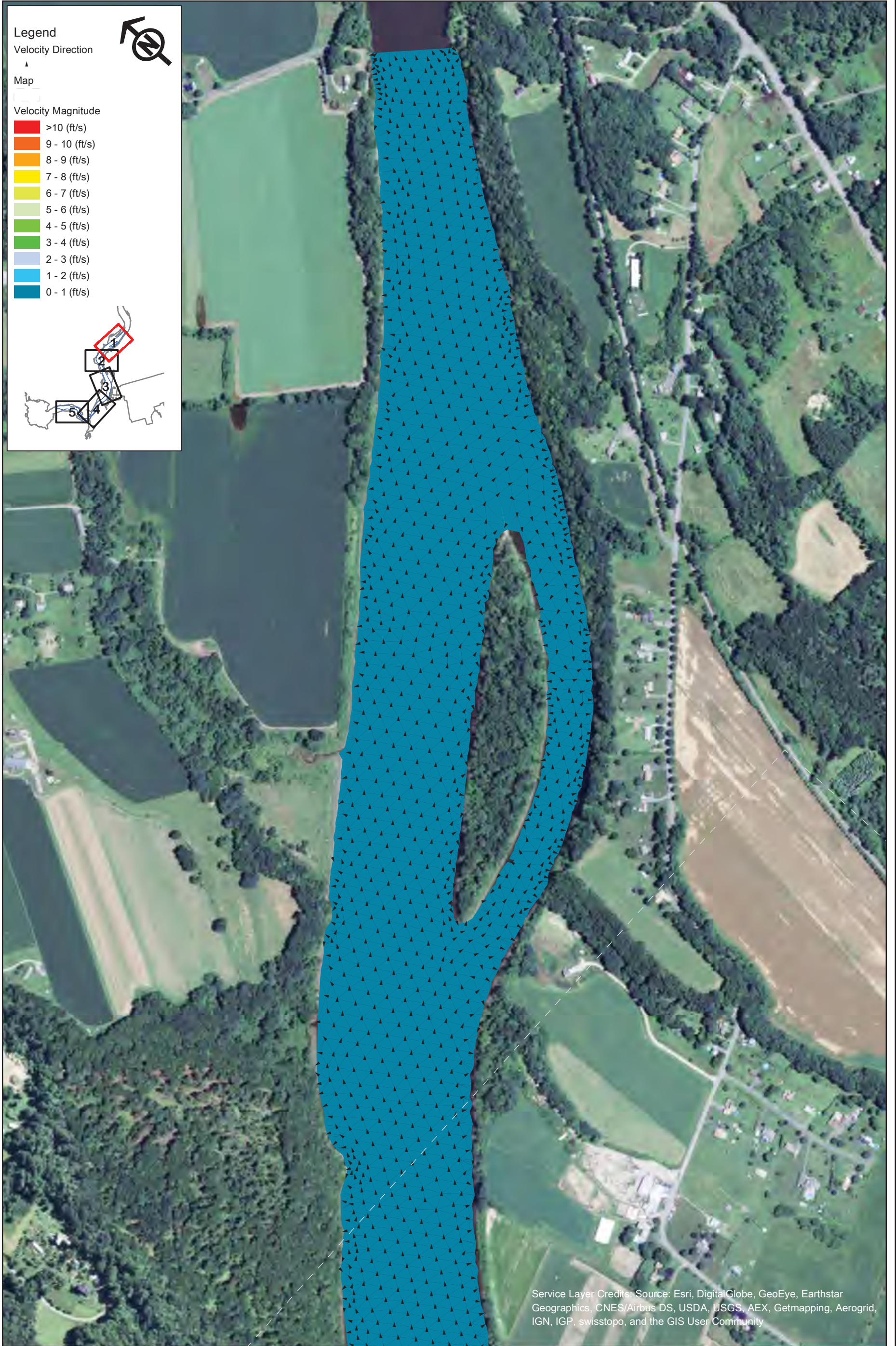


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 44 - Map 5
 95% Exceedance Flow (1,760 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



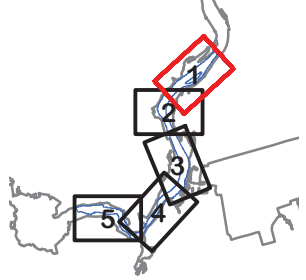
Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)



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

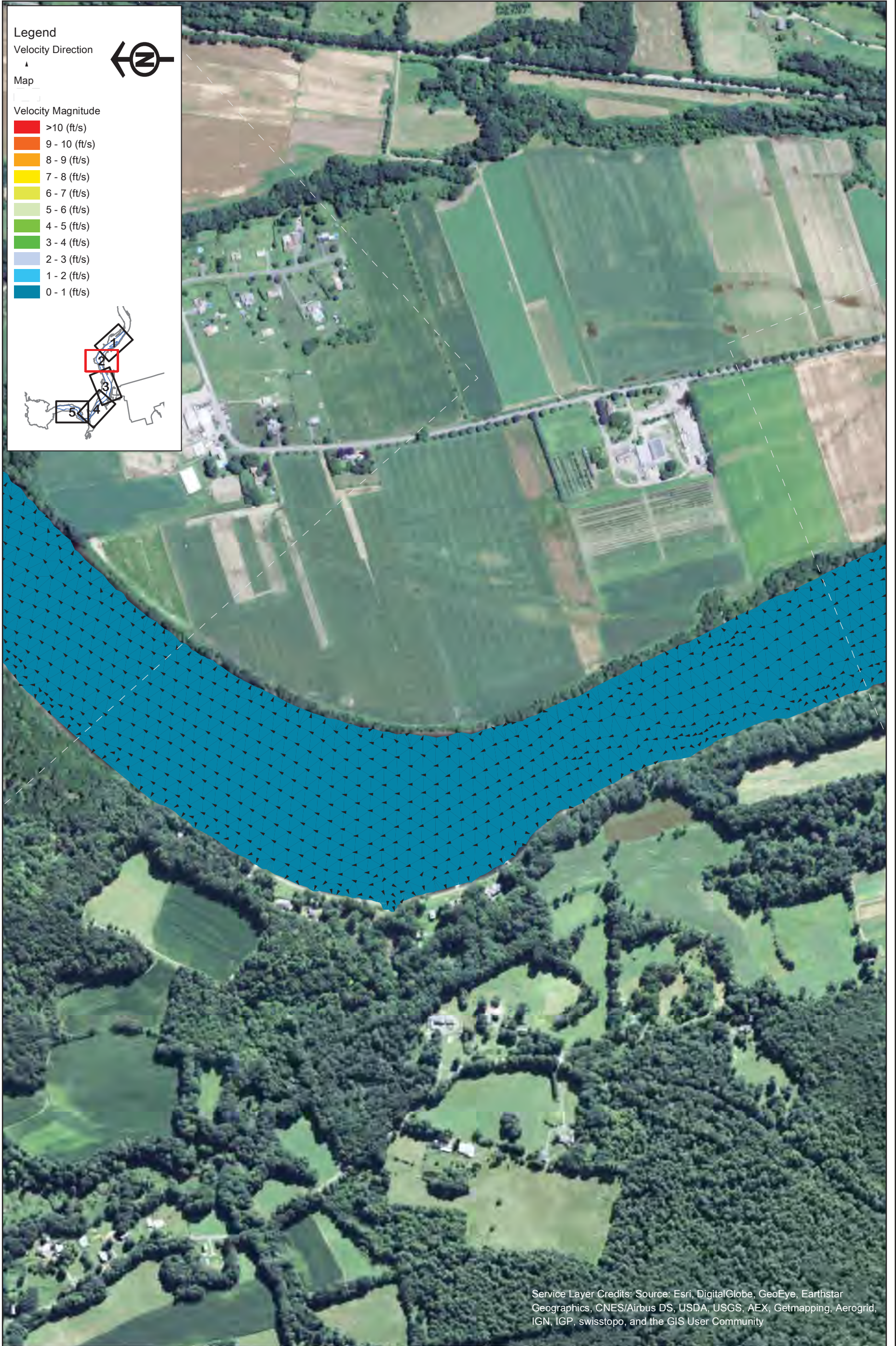


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 45 - Map 1
75% Exceedance Flow (4,900 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam

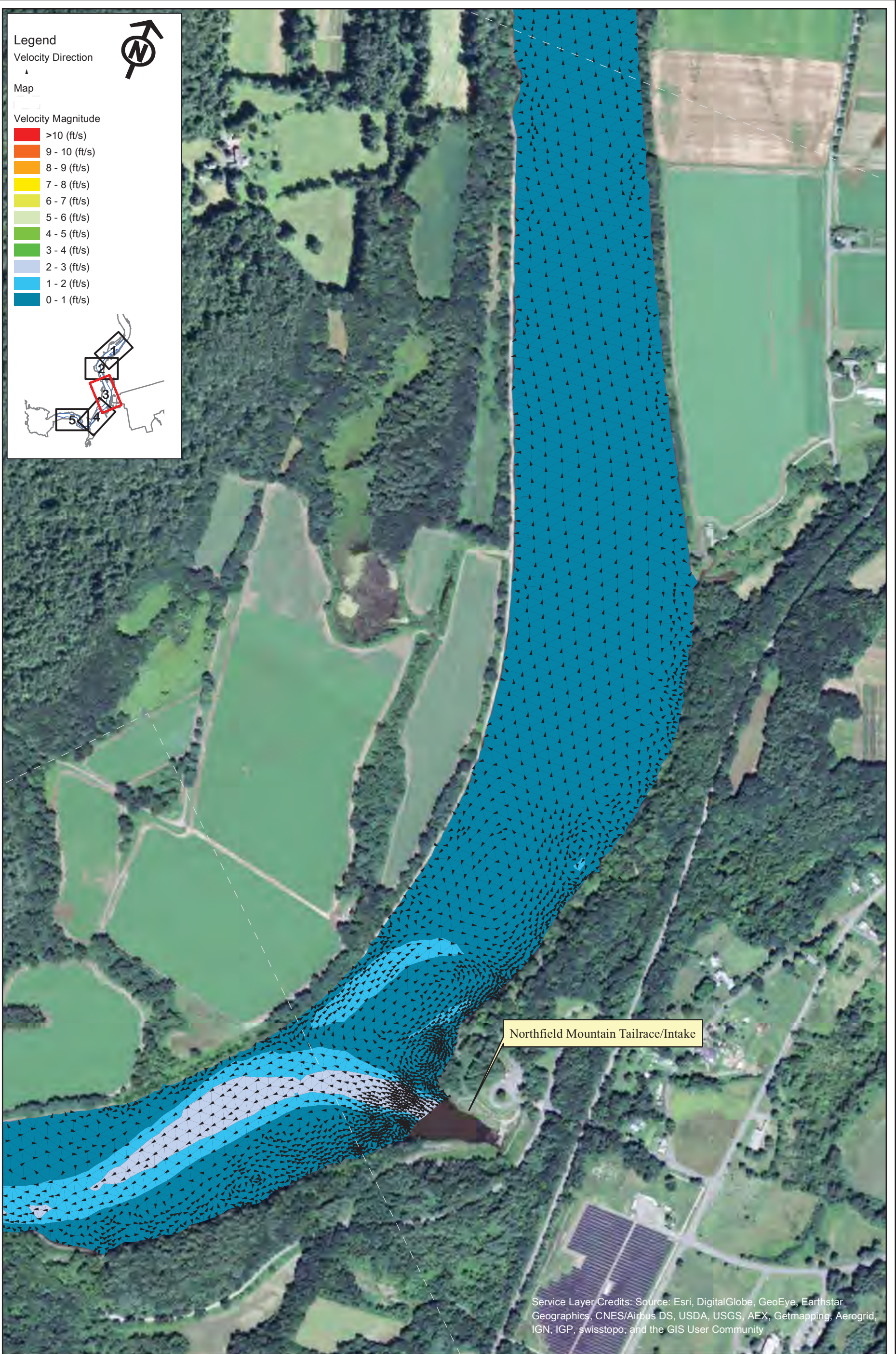


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 45 - Map 2
 75% Exceedance Flow (4,900 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Map

Northfield Mountain Tailrace/Intake

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

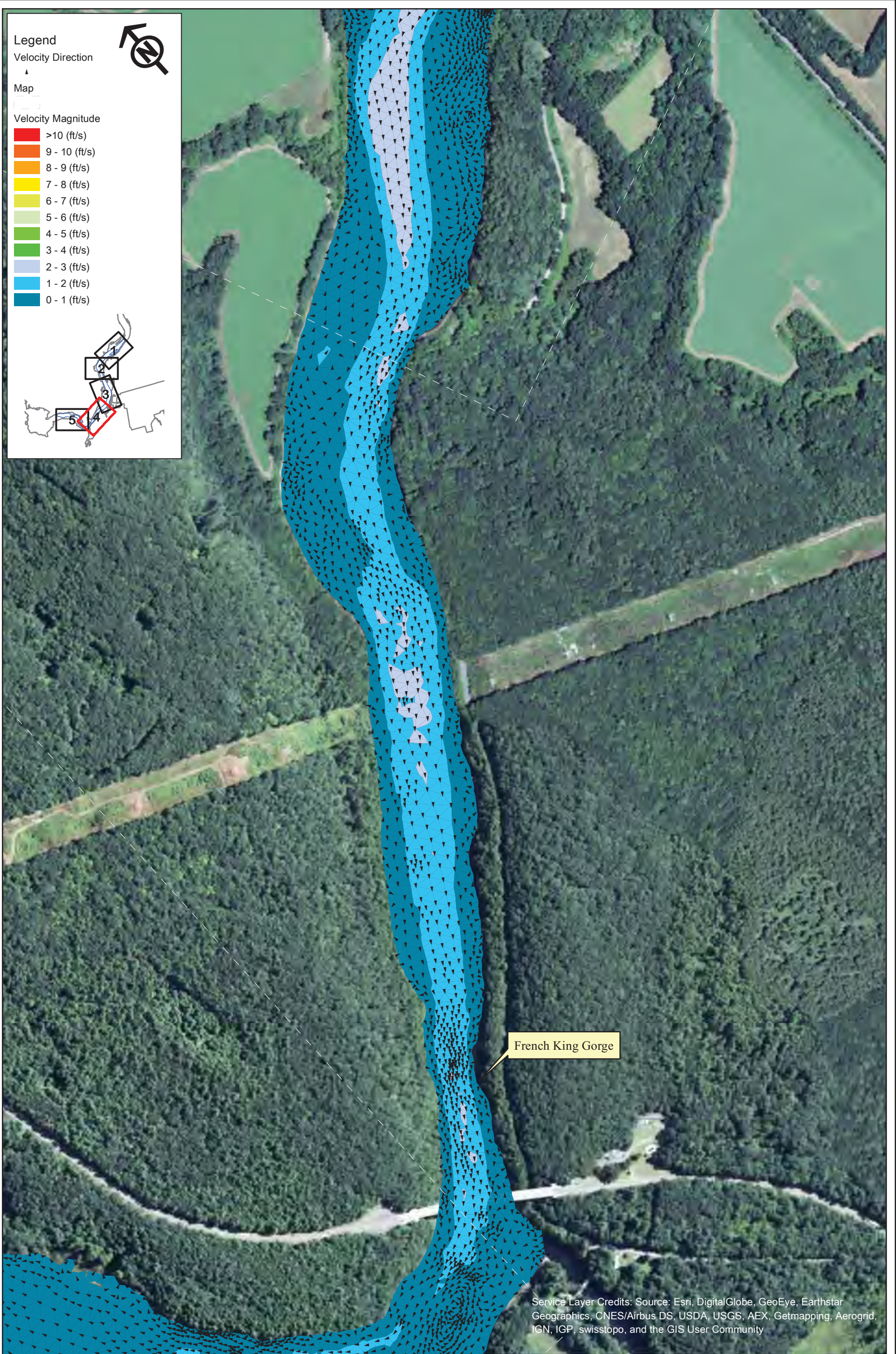


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 45 - Map 3
75% Exceedance Flow (4,900 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

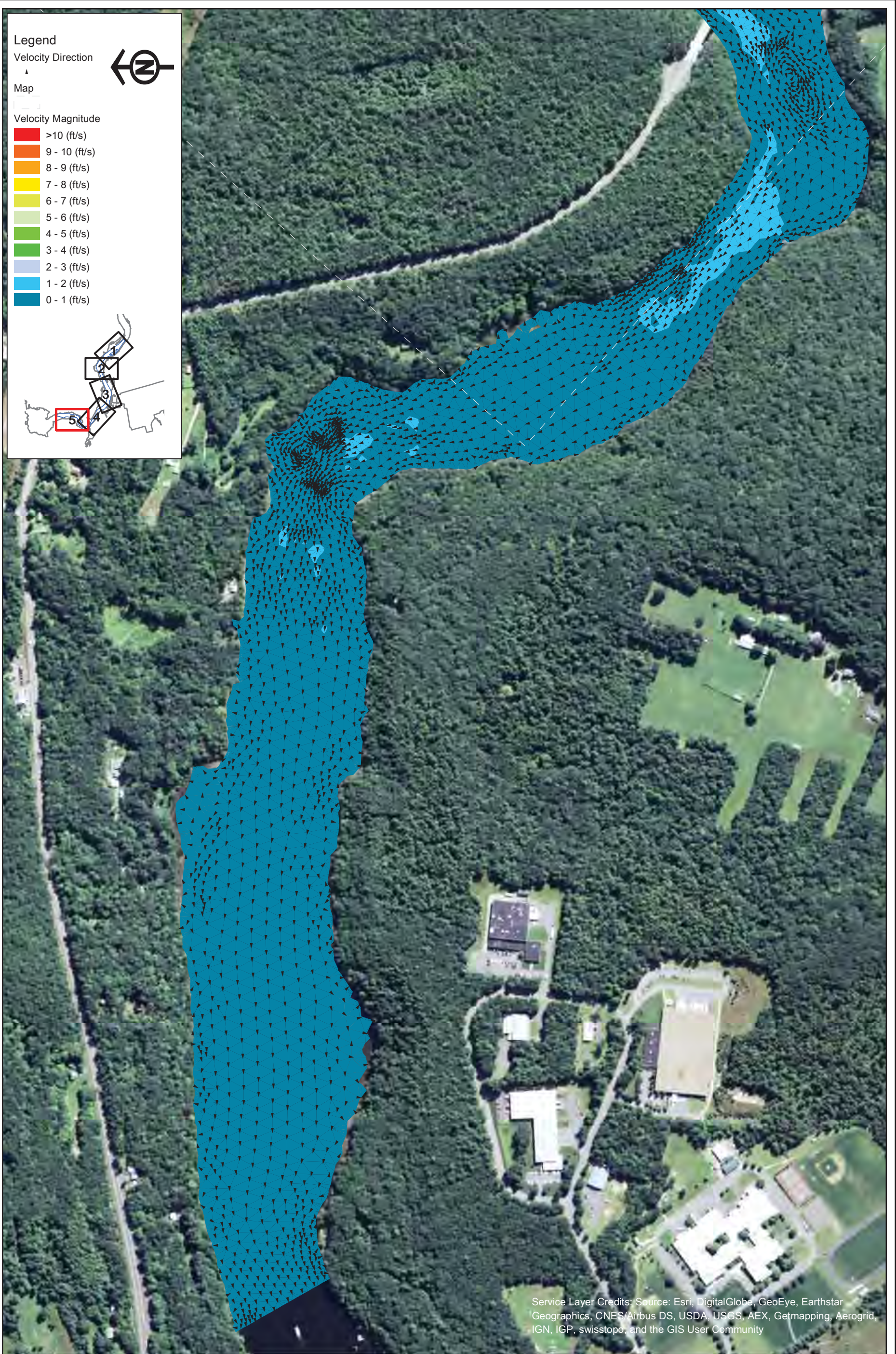
STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 45 - Map 4
75% Exceedance Flow (4,900 cfs), 2 Units
Generating (10,000 cfs), 181.3 WSEL at
Dam





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

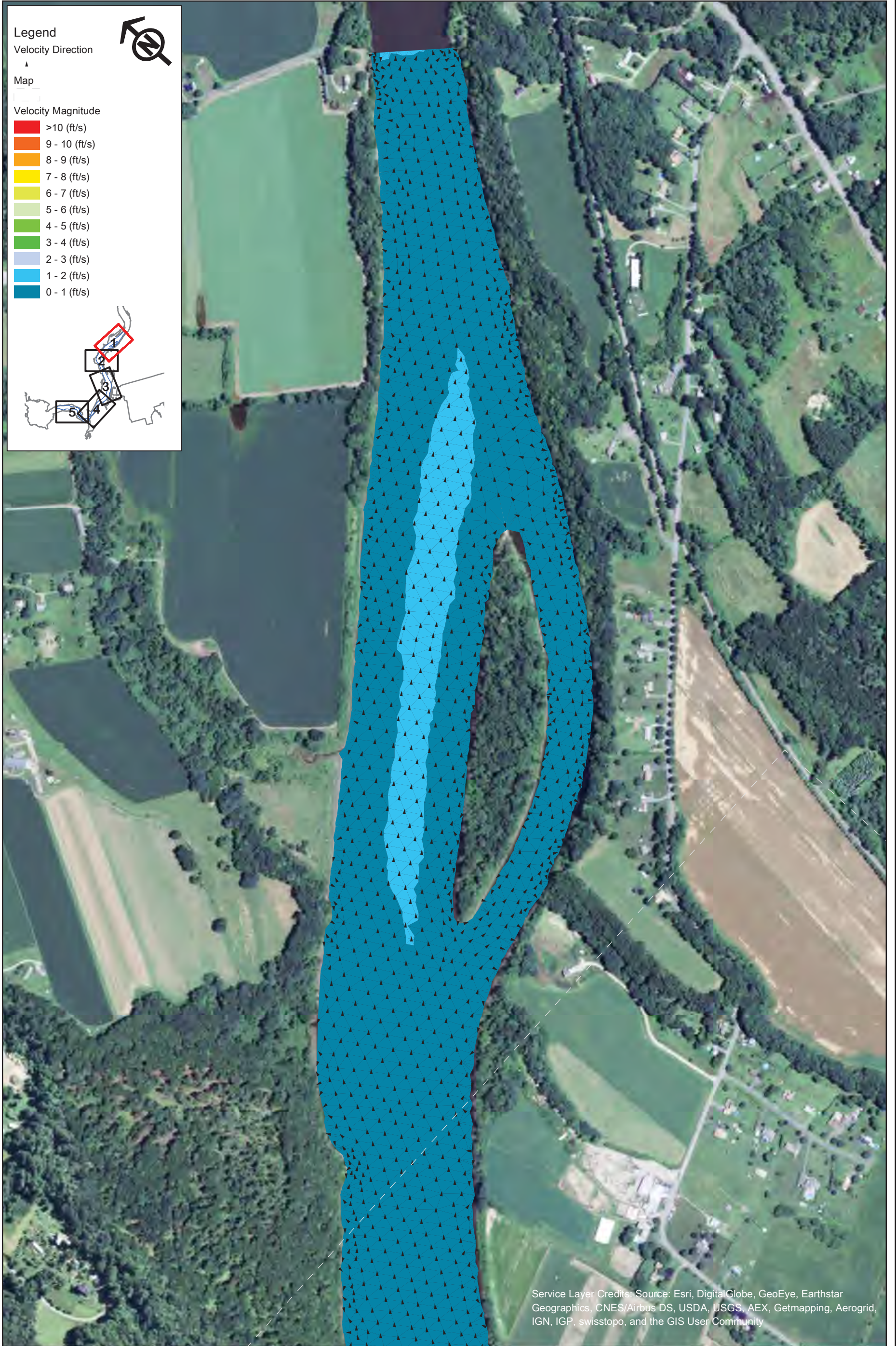


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 45 - Map 5
75% Exceedance Flow (4,900 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

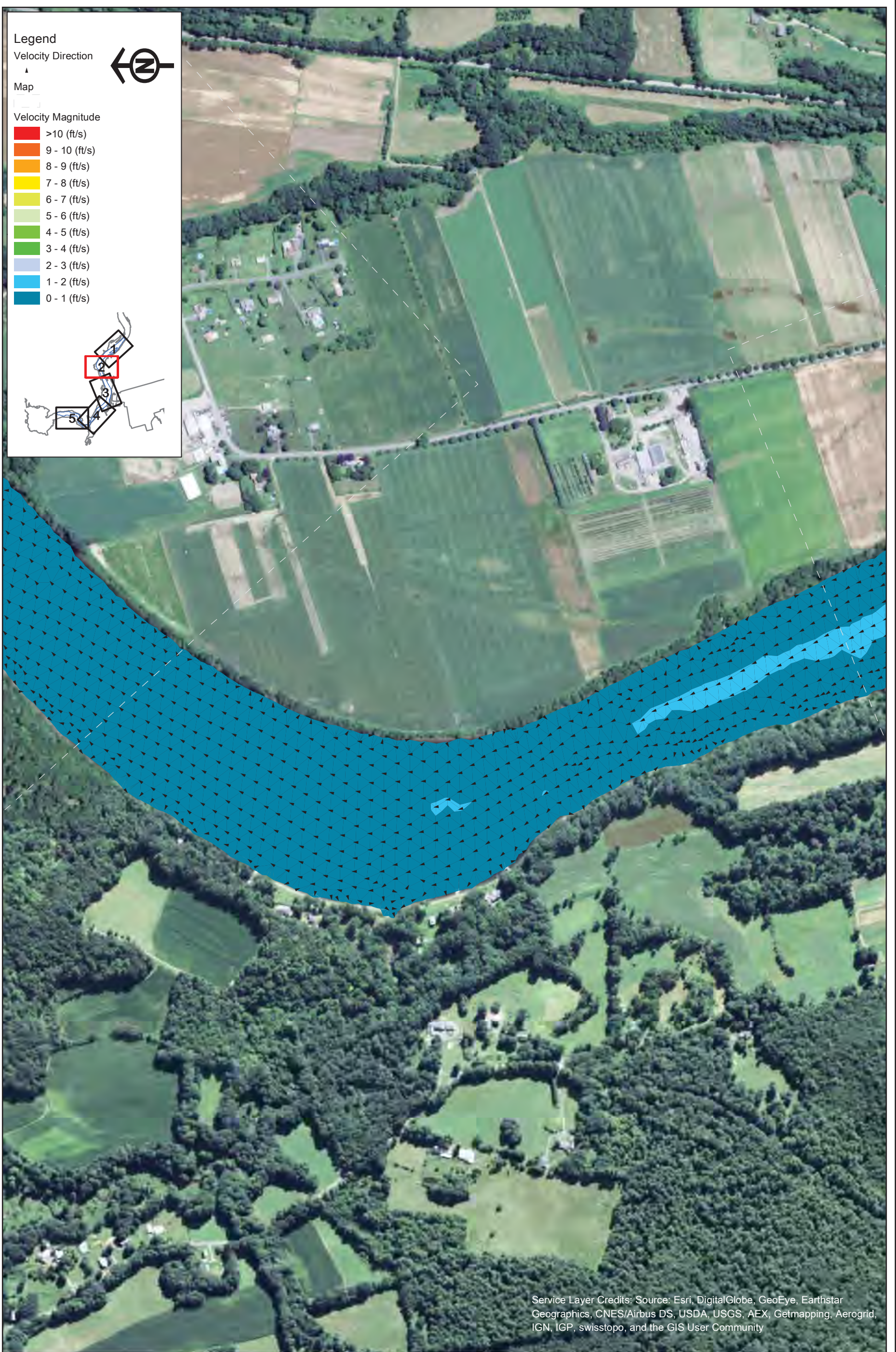
STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 46 - Map 1
75% Exceedance Flow (4,900 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



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Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

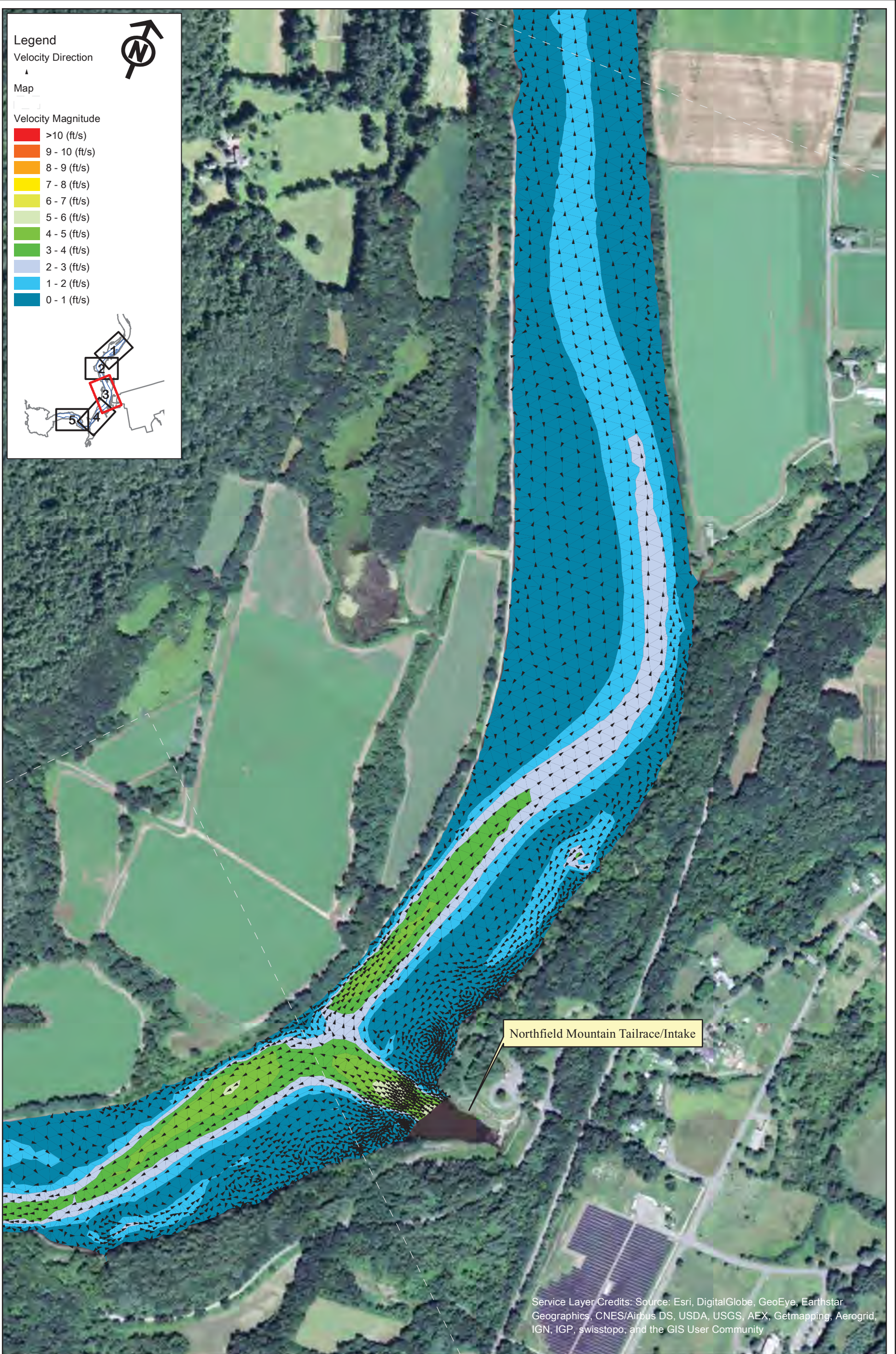


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 46 - Map 2
 75% Exceedance Flow (4,900 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

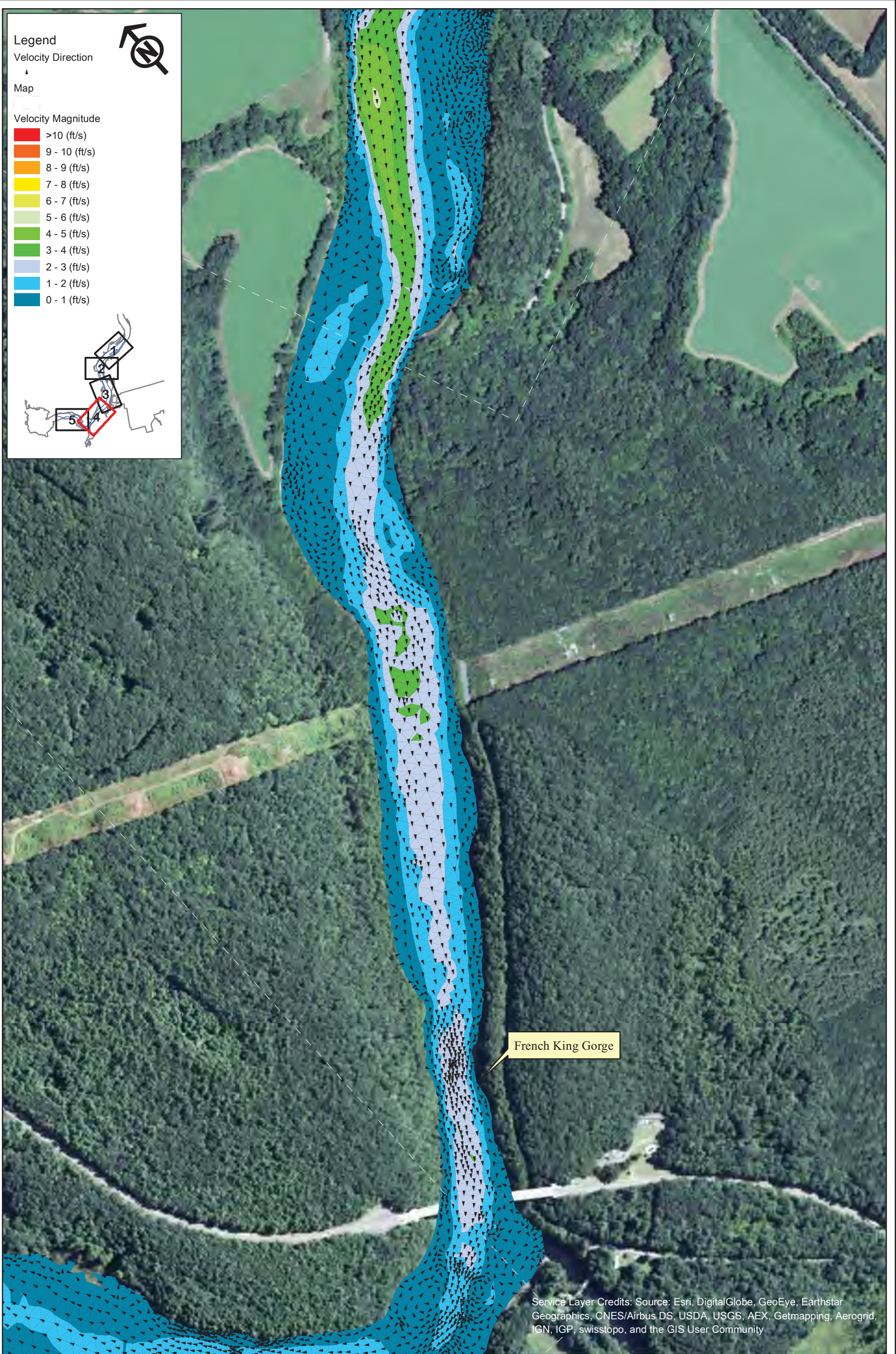


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 46 - Map 3
75% Exceedance Flow (4,900 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam

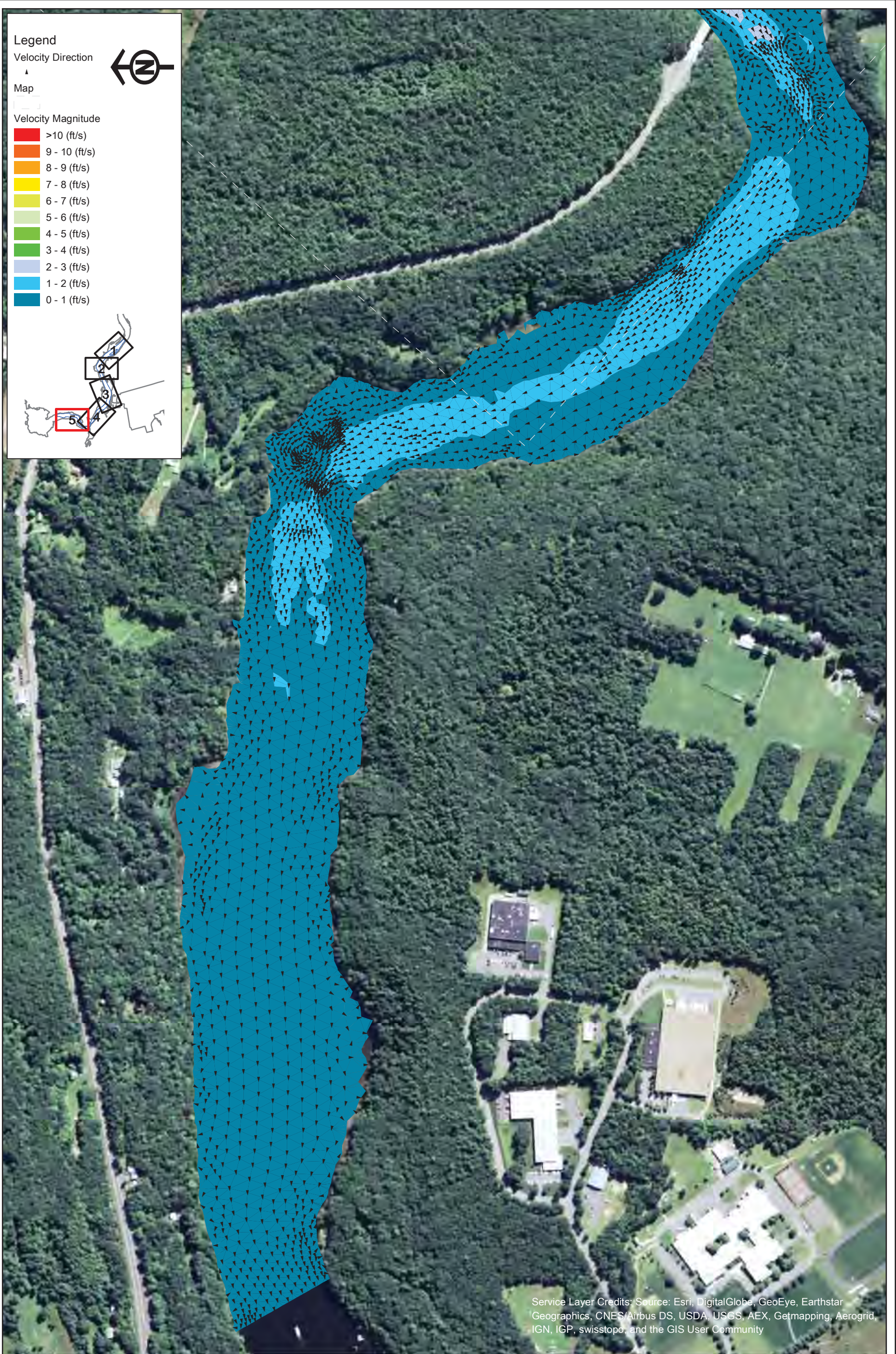


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)


STUDY REPORT
RELICENSING STUDY 3.3.9

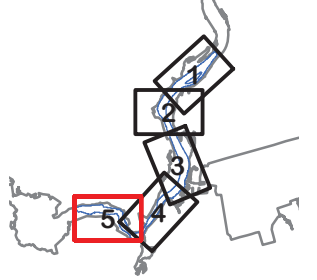


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 46 - Map 4
75% Exceedance Flow (4,900 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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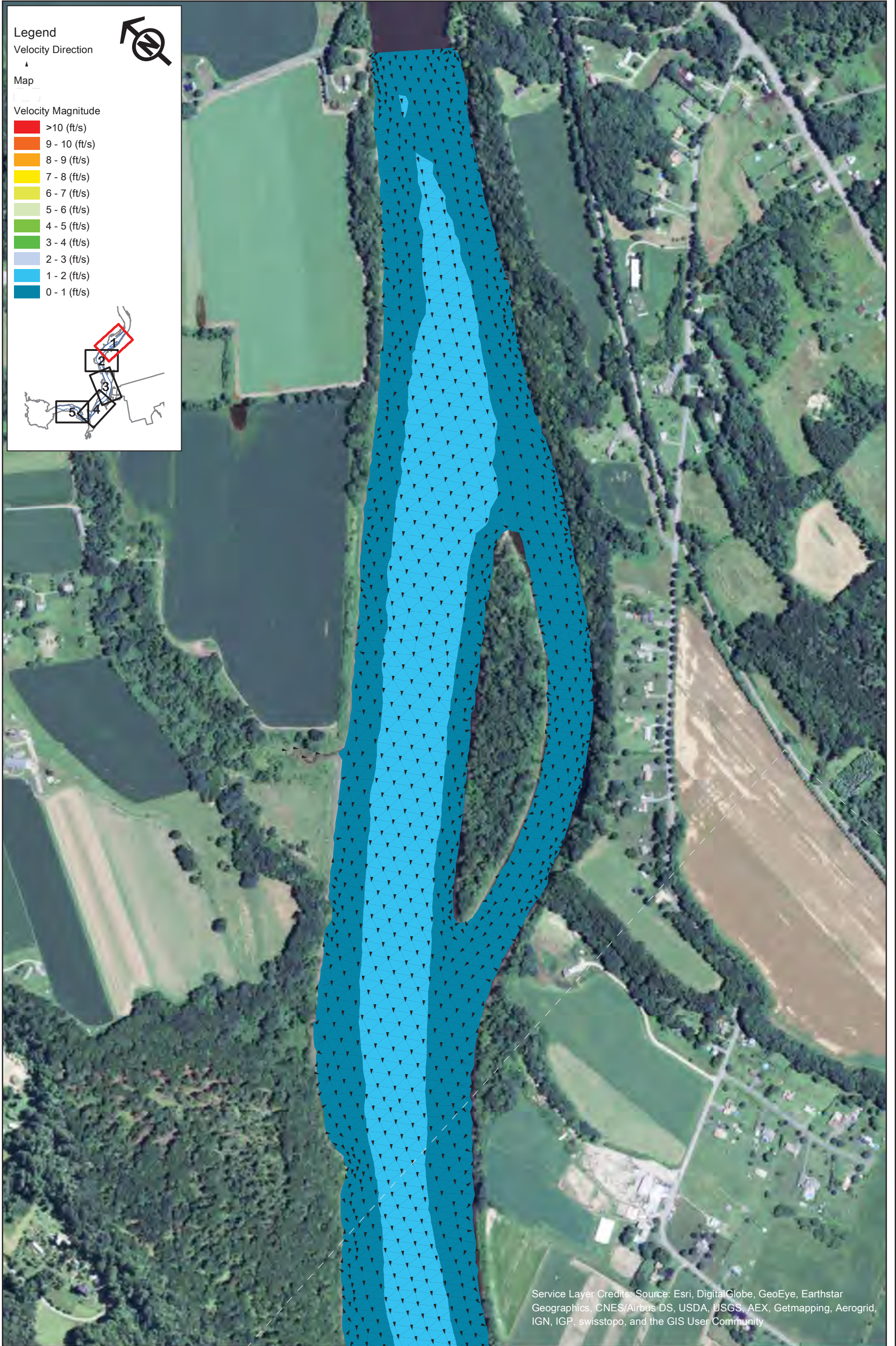


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 46 - Map 5
 75% Exceedance Flow (4,900 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)


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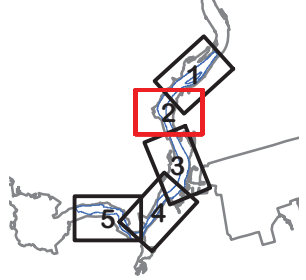


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 47 - Map 1
75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam














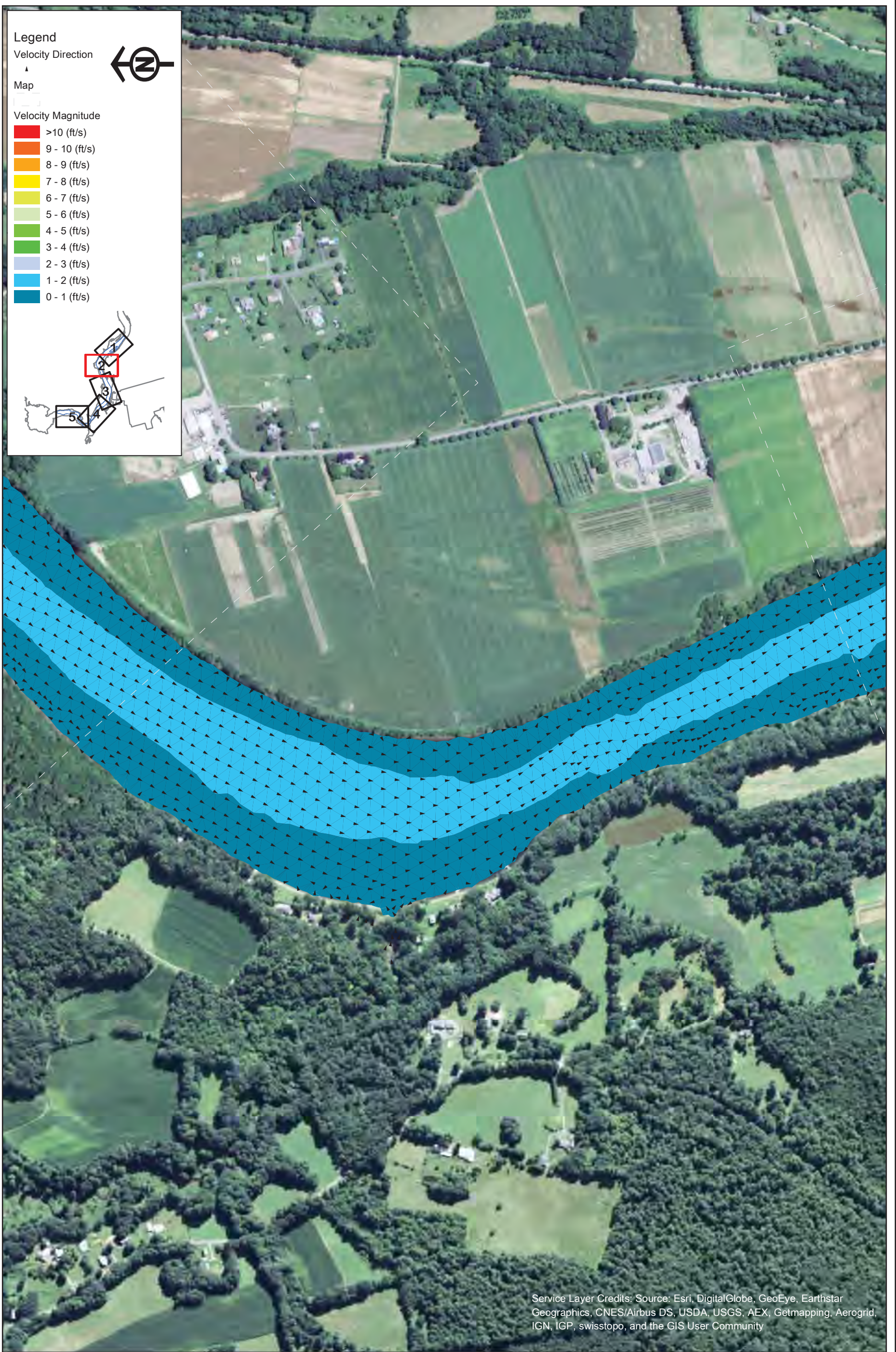
Legend

Velocity Direction


Map


Velocity Magnitude

-  >10 (ft/s)
-  9 - 10 (ft/s)
-  8 - 9 (ft/s)
-  7 - 8 (ft/s)
-  6 - 7 (ft/s)
-  5 - 6 (ft/s)
-  4 - 5 (ft/s)
-  3 - 4 (ft/s)
-  2 - 3 (ft/s)
-  1 - 2 (ft/s)
-  0 - 1 (ft/s)



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



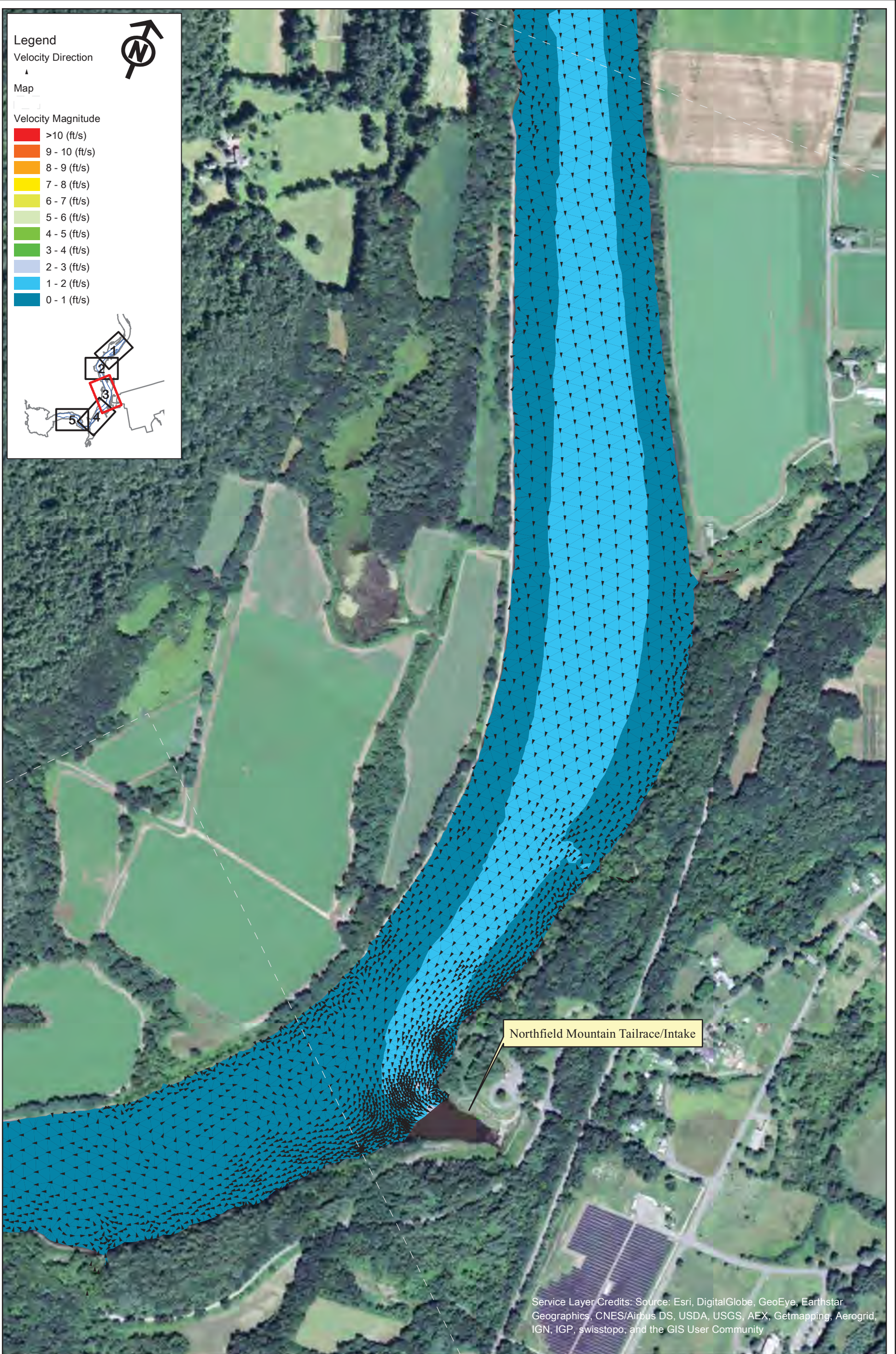
Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 47 - Map 2
 75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

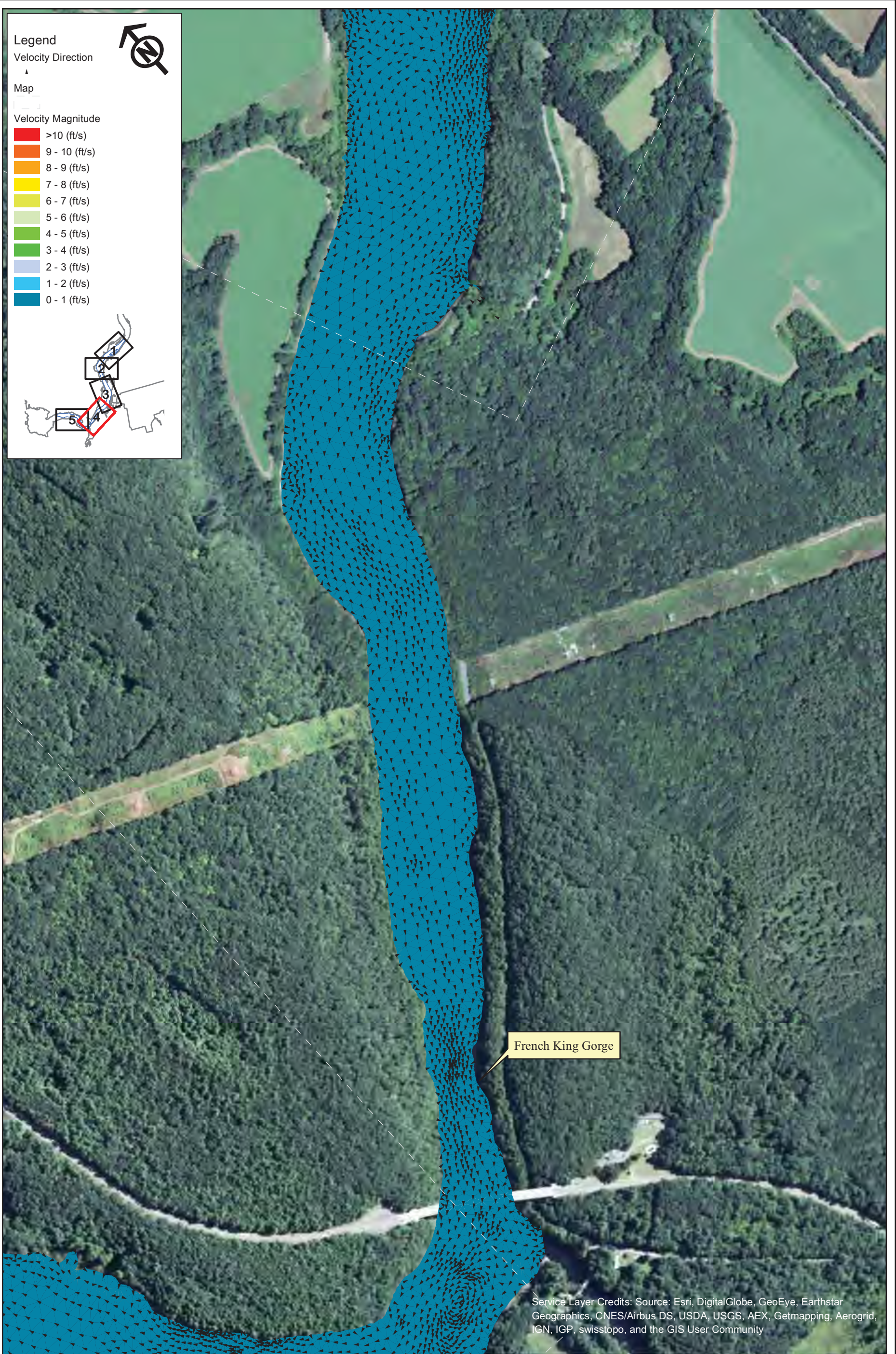
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 47 - Map 3
75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



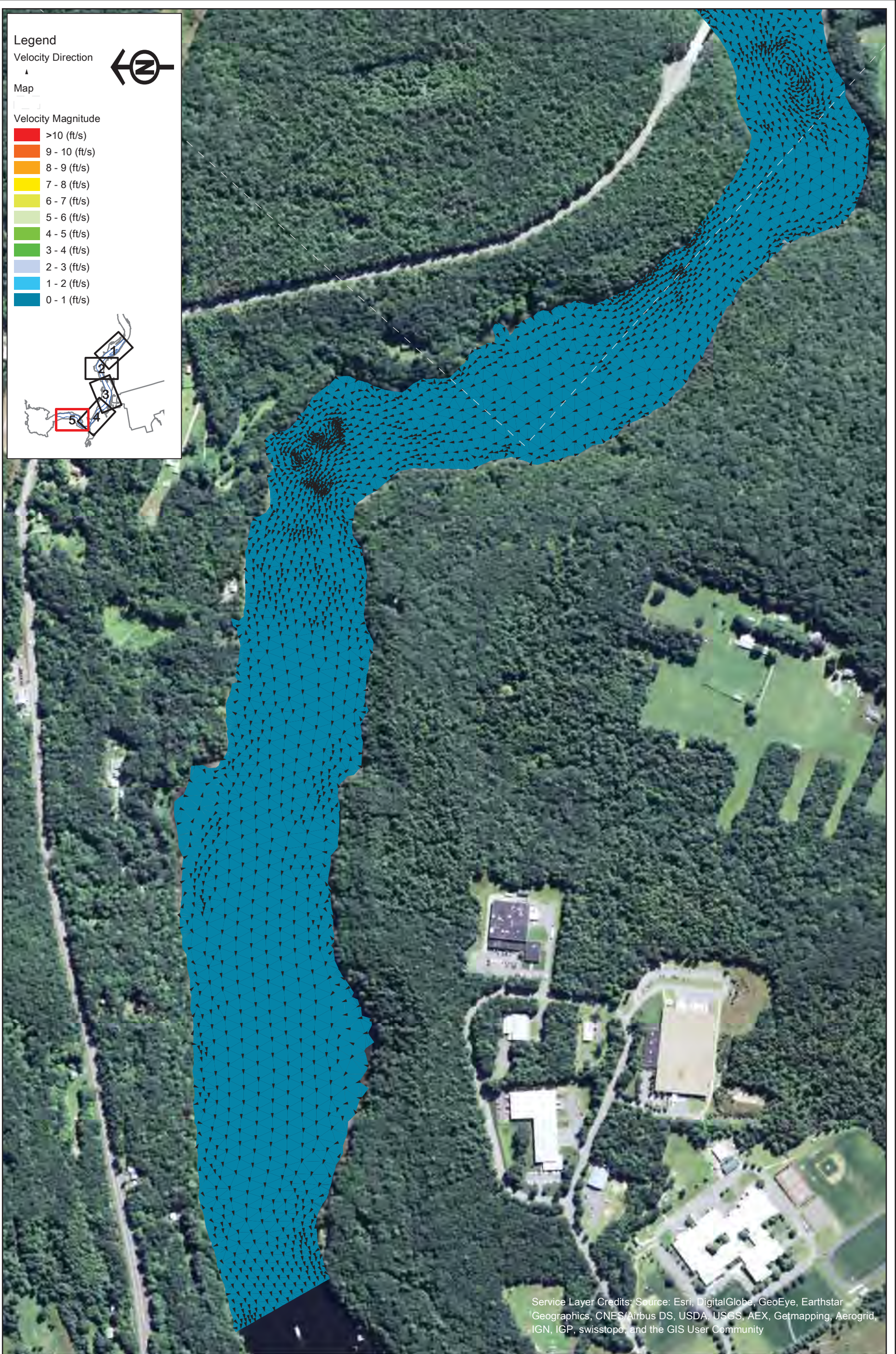


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 47 - Map 4
 75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



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Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

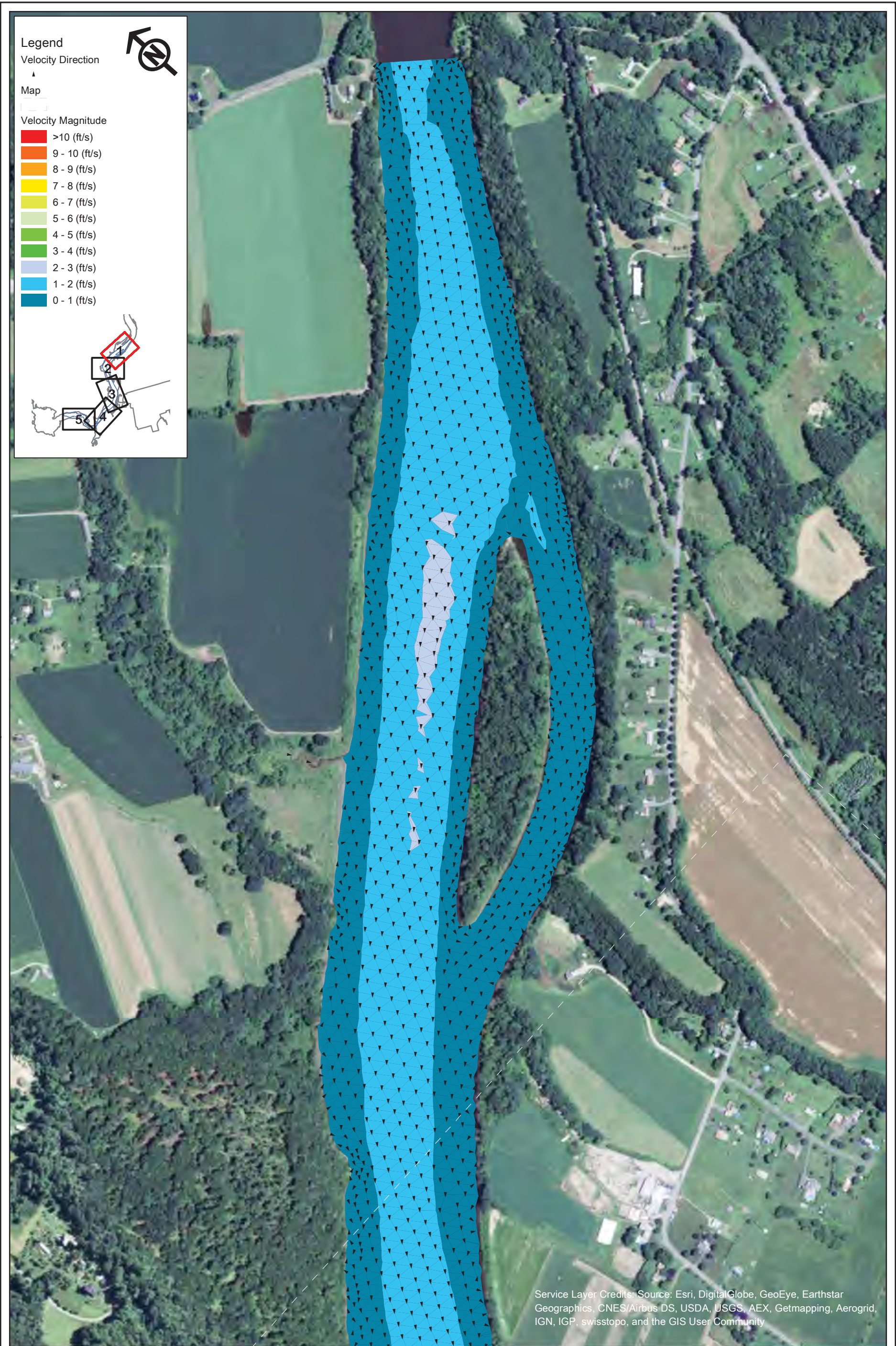
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 47 - Map 5
75% Exceedance Flow (4,900 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

(Note: The legend shows color swatches for each magnitude range, from red for the highest to dark blue for the lowest.)

(Note: The inset map shows a larger geographic area with a red box indicating the study area's location.)

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

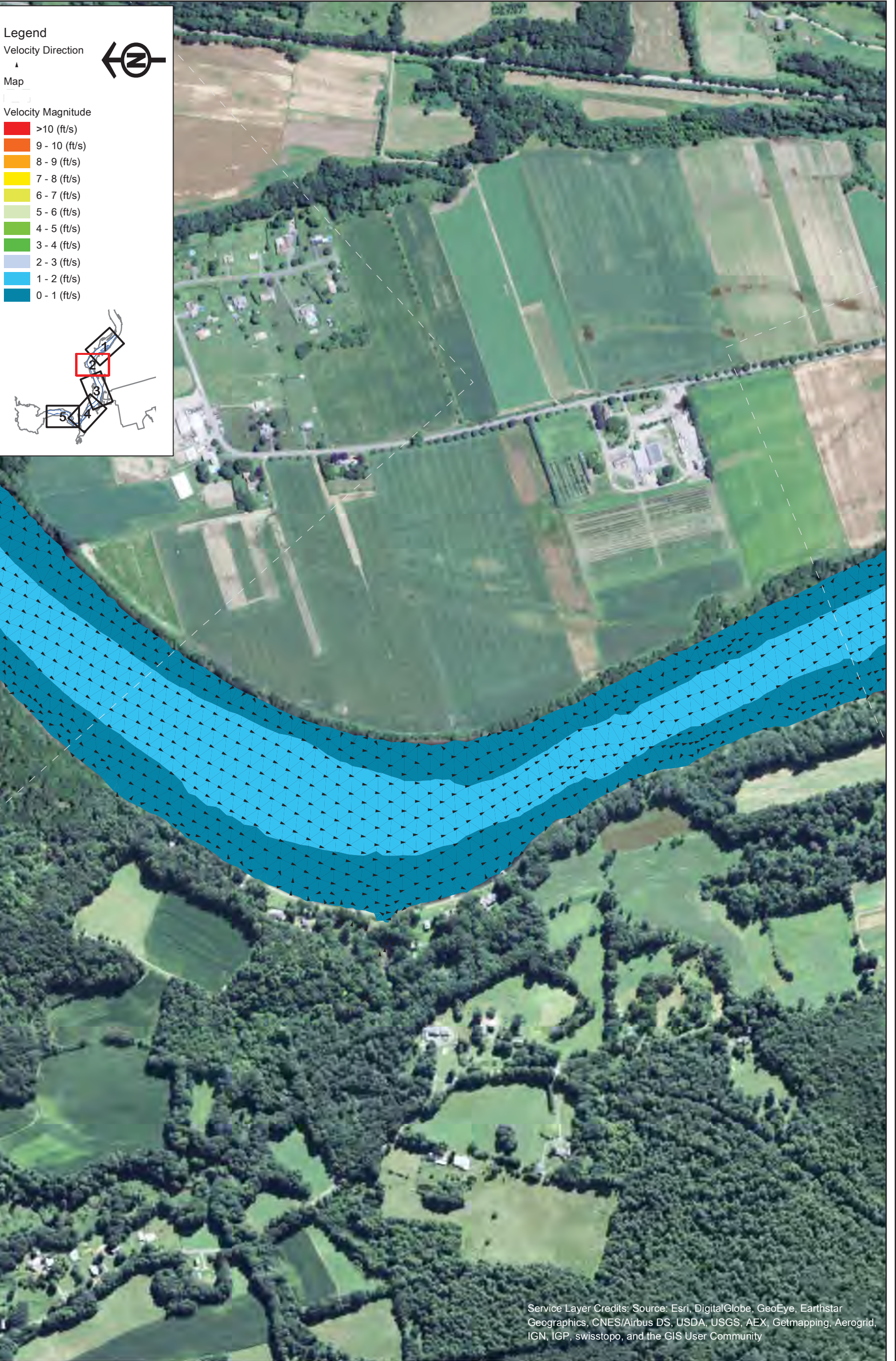


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 48 - Map 1
75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction


Map


Velocity Magnitude

-  >10 (ft/s)
-  9 - 10 (ft/s)
-  8 - 9 (ft/s)
-  7 - 8 (ft/s)
-  6 - 7 (ft/s)
-  5 - 6 (ft/s)
-  4 - 5 (ft/s)
-  3 - 4 (ft/s)
-  2 - 3 (ft/s)
-  1 - 2 (ft/s)
-  0 - 1 (ft/s)

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

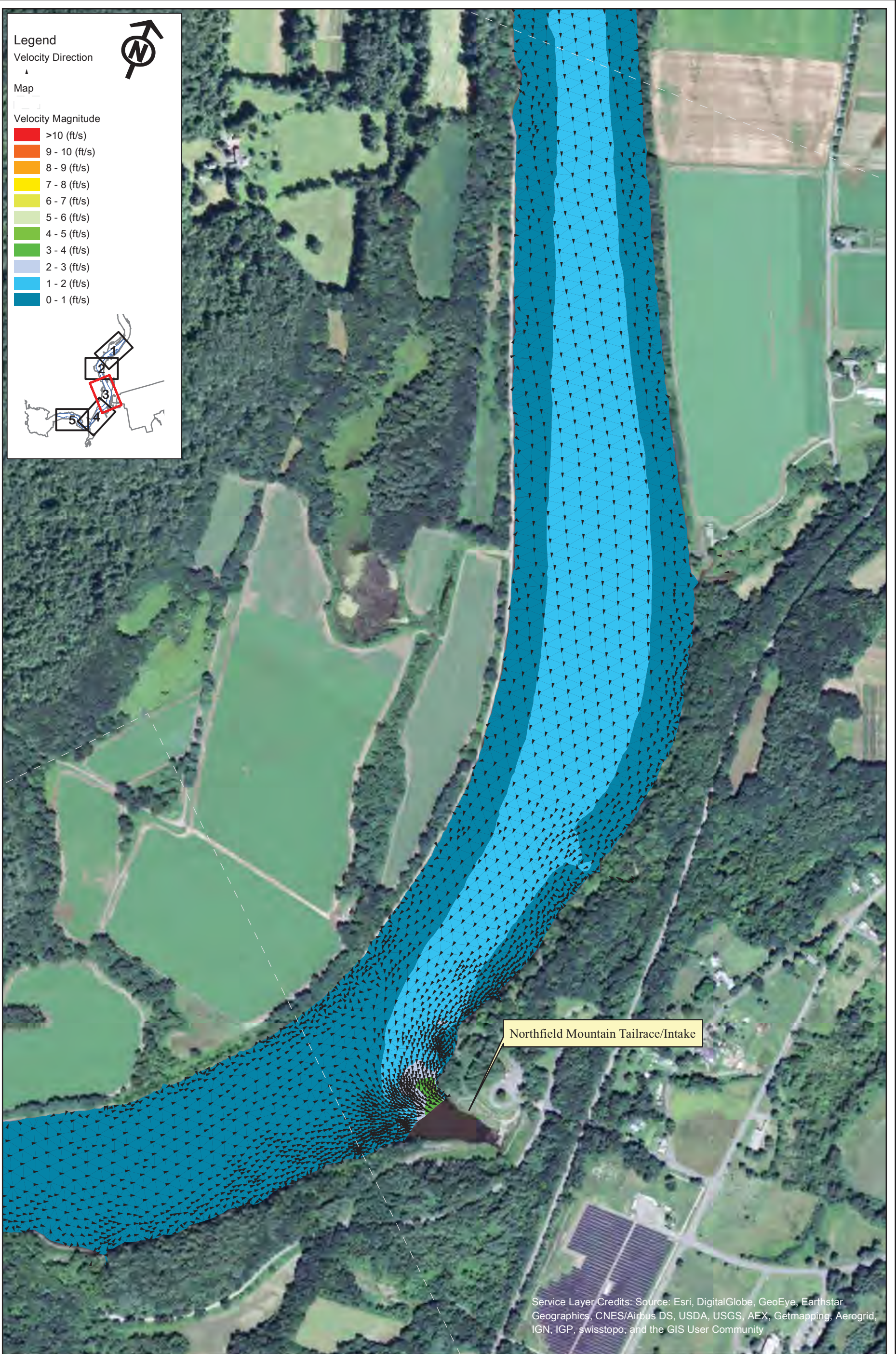


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 48 - Map 2
 75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam

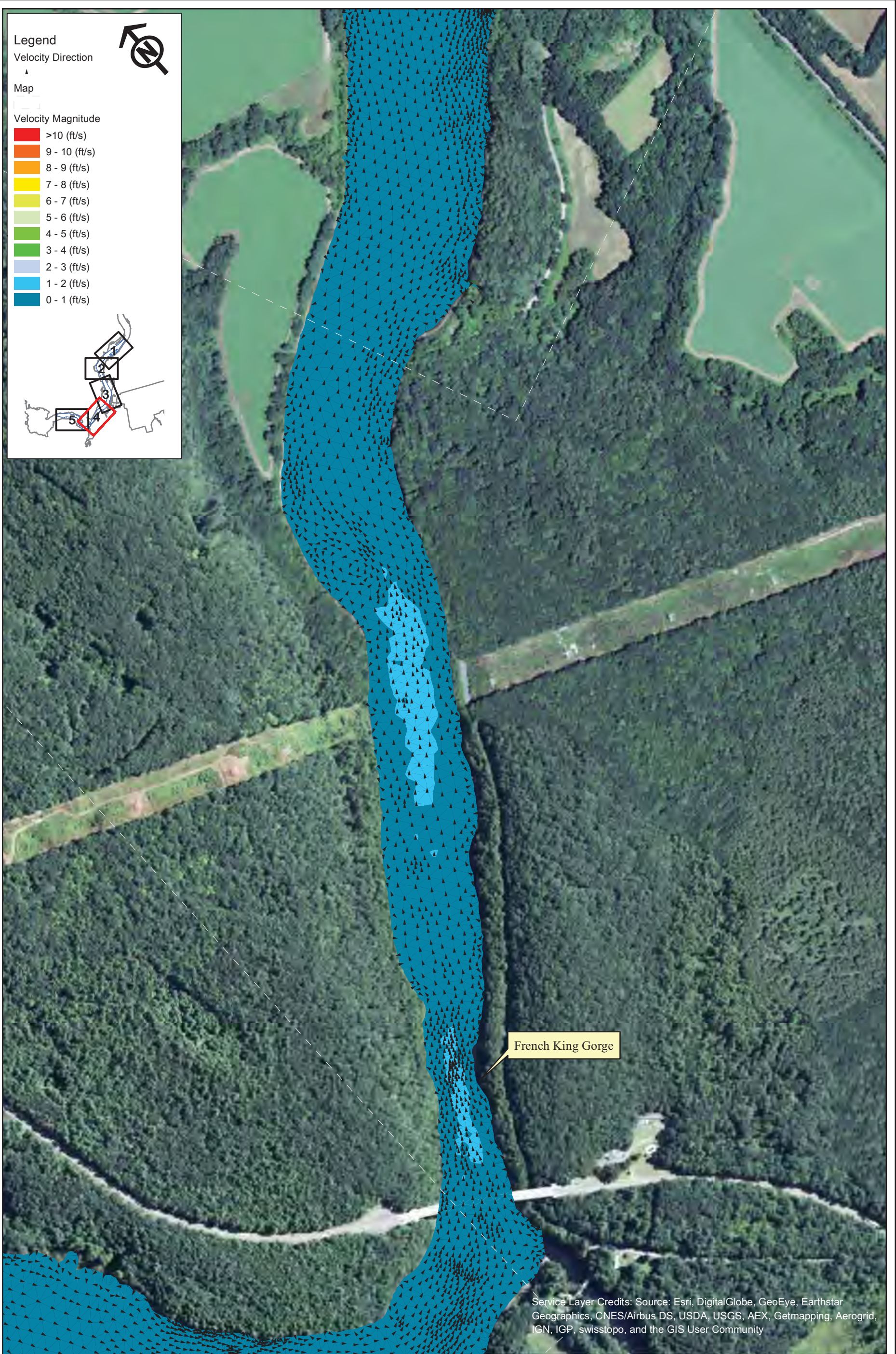


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 48 - Map 3
75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

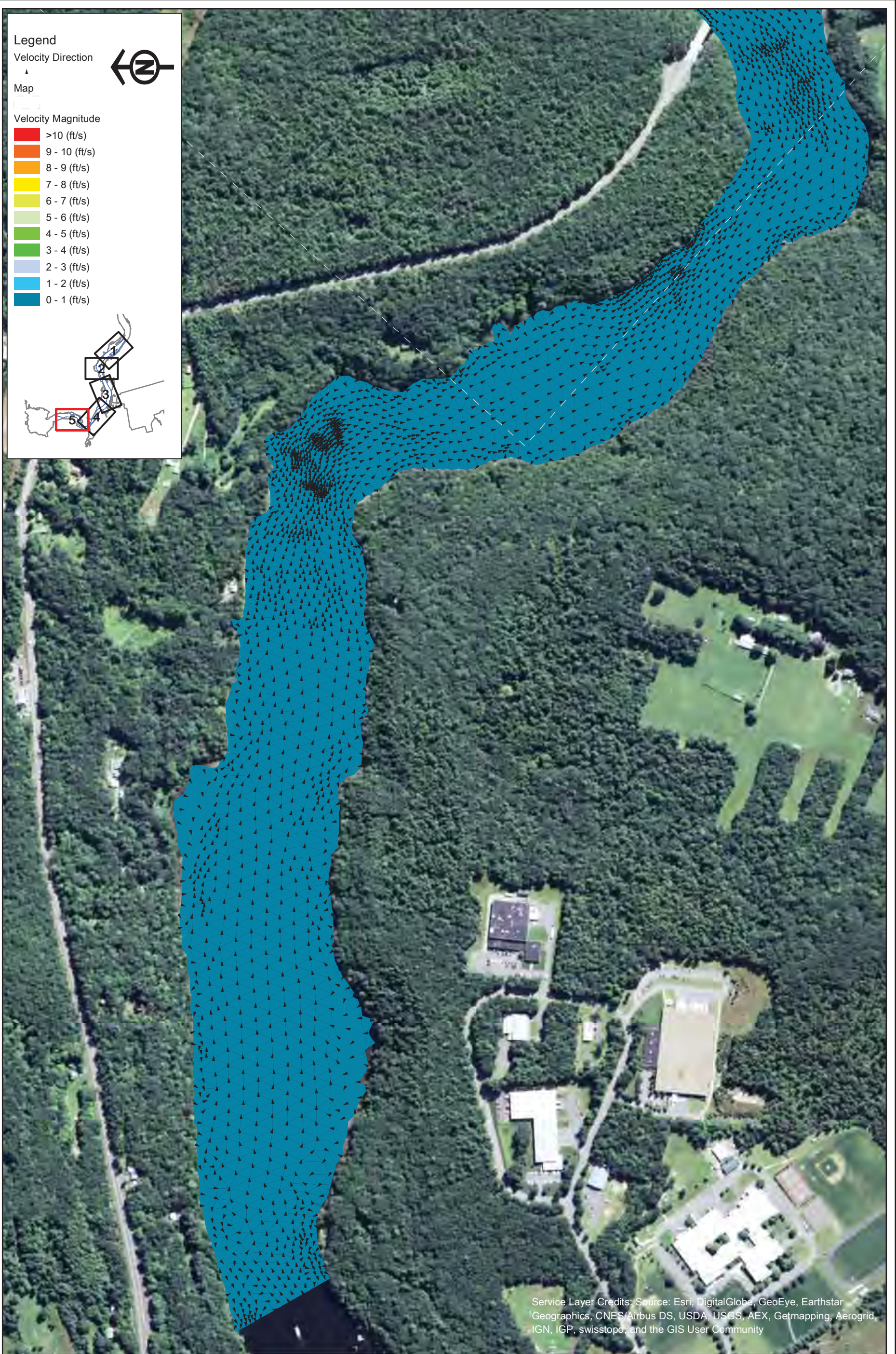
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace

Scenario 48 - Map 4
75% Exceedance Flow (4,900 cfs), 4 Units
Pumping (15,200 cfs), 181.3 WSEL at Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

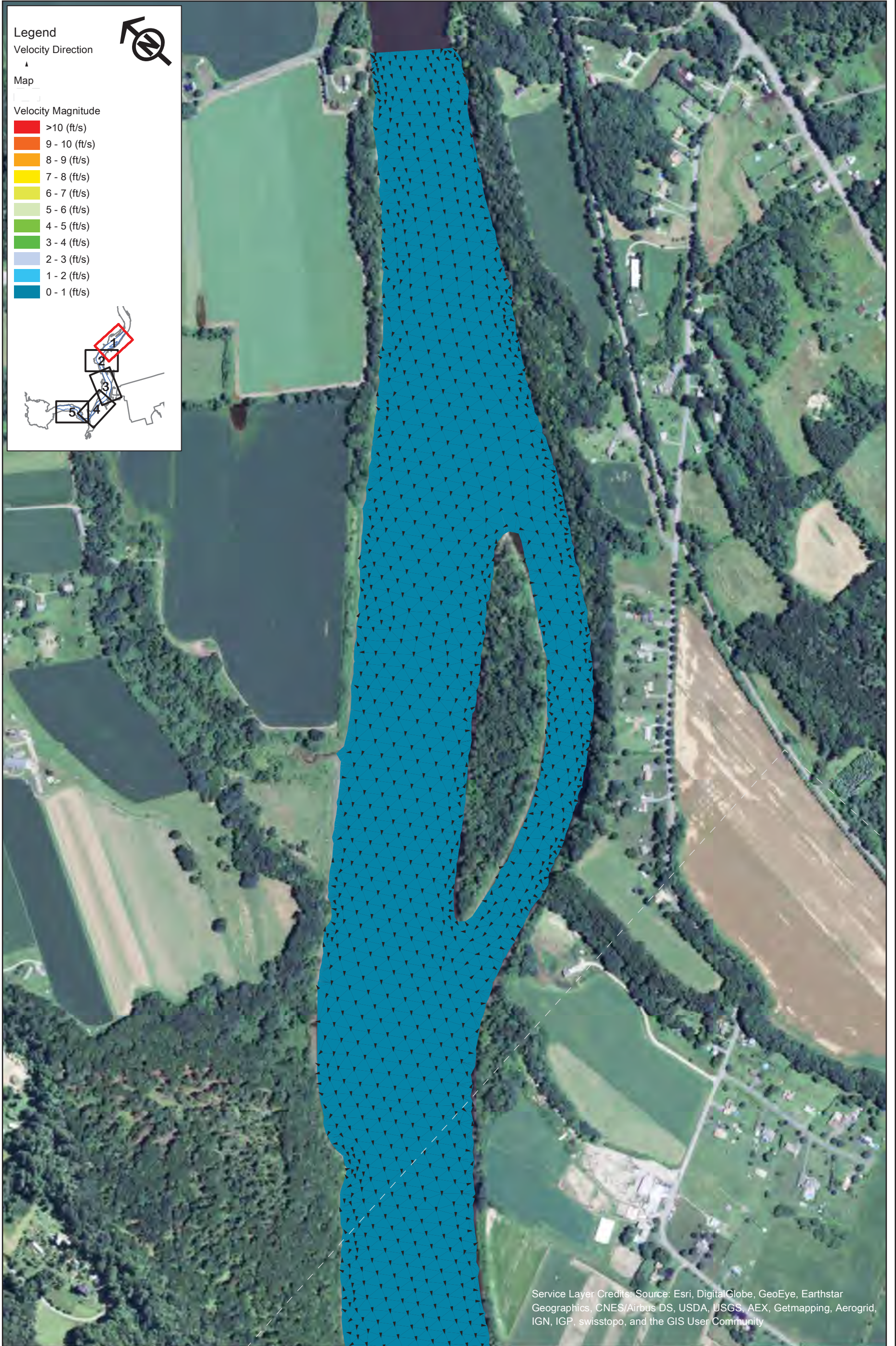


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 48 - Map 5
 75% Exceedance Flow (4,900 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



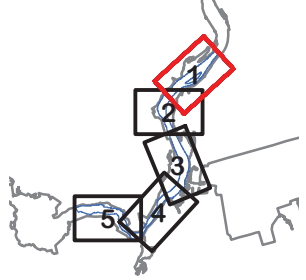
Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)



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

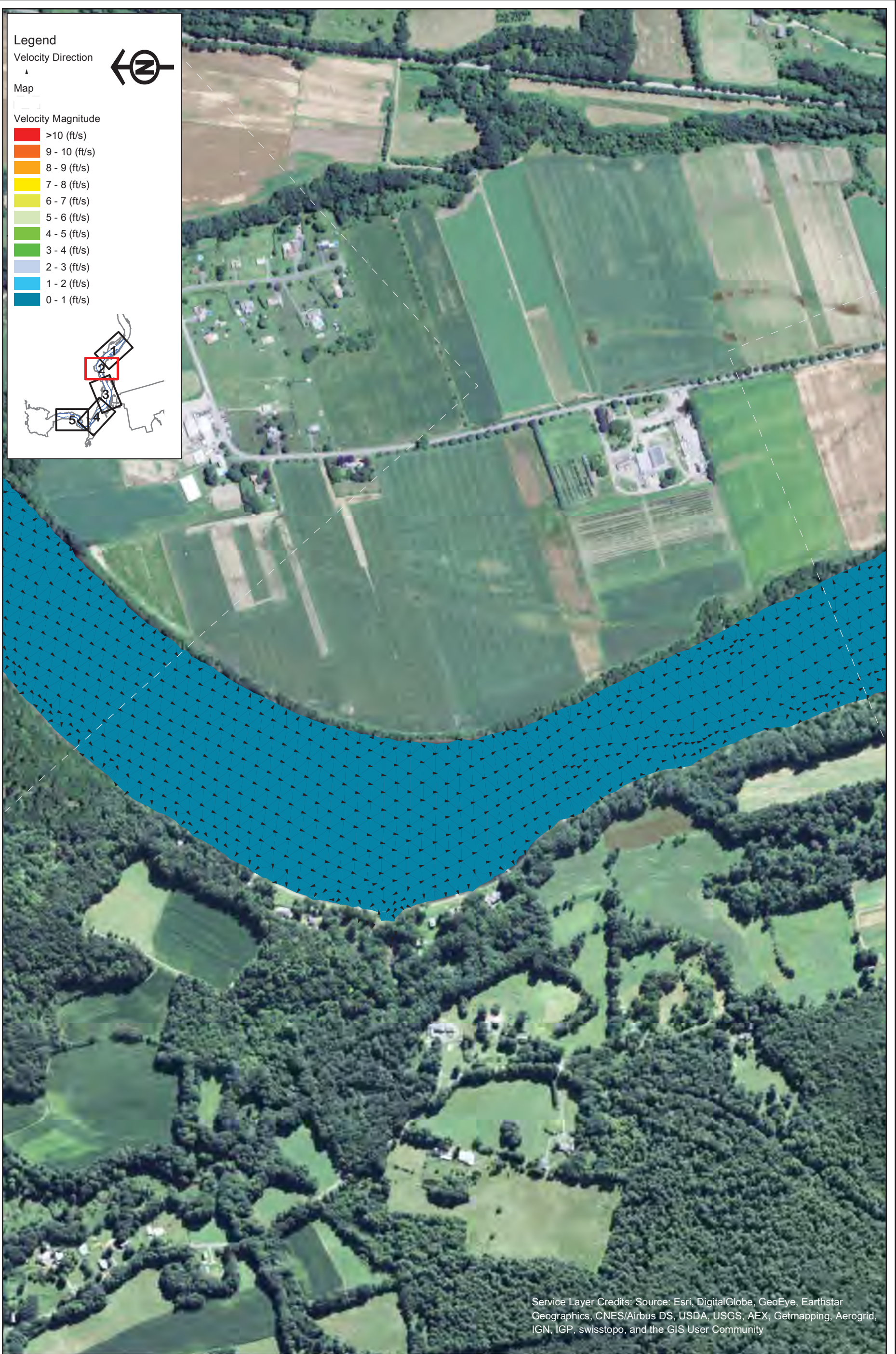


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)


STUDY REPORT
RELICENSING STUDY 3.3.9

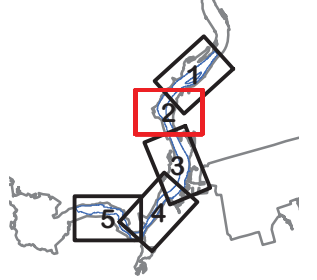


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 49 - Map 1
50% Exceedance Flow (8,440 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

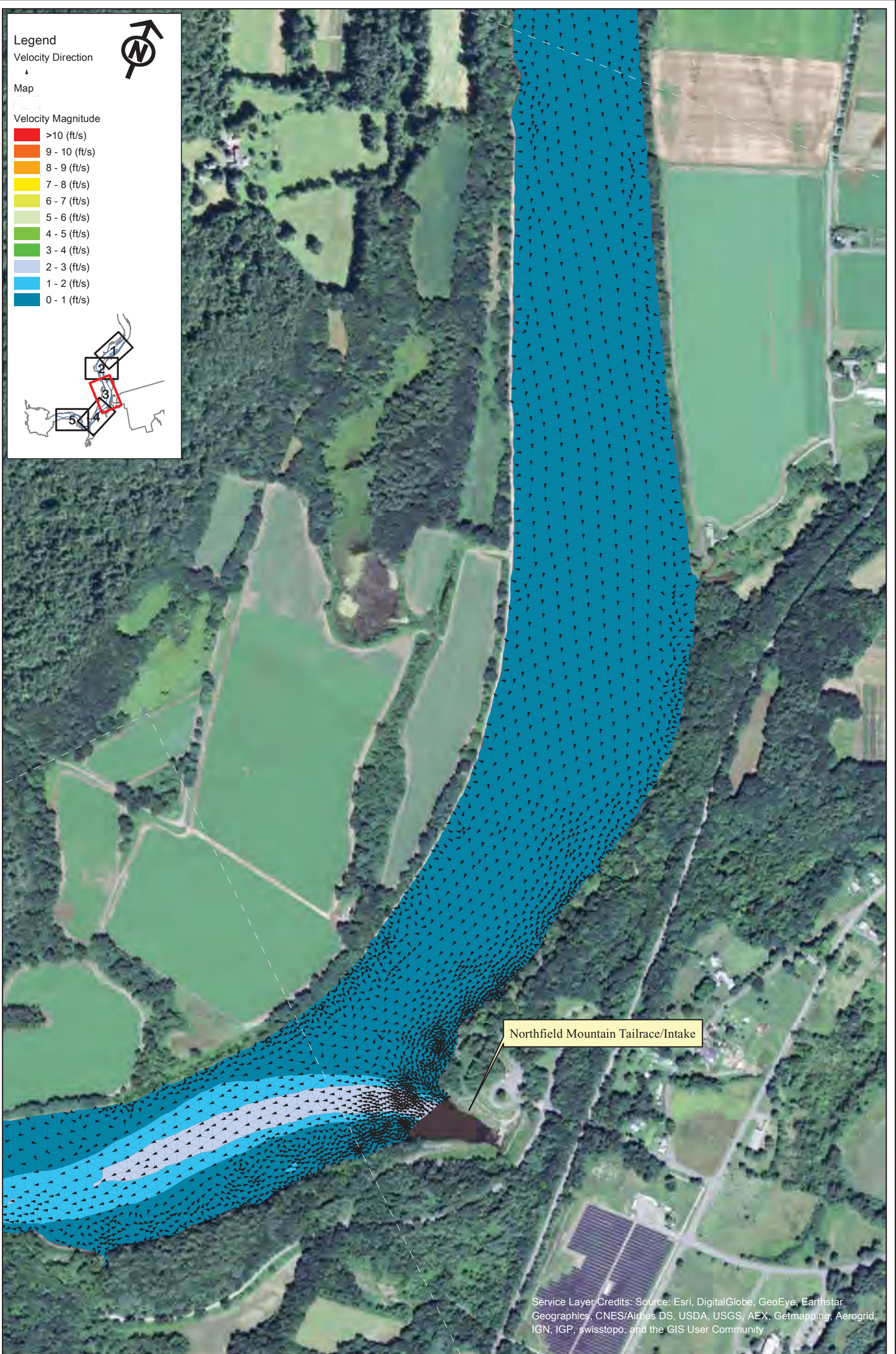


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 49 - Map 2
 50% Exceedance Flow (8,440 cfs), 2 Units
 Generating (10,000 cfs), 181.3 WSEL at Dam

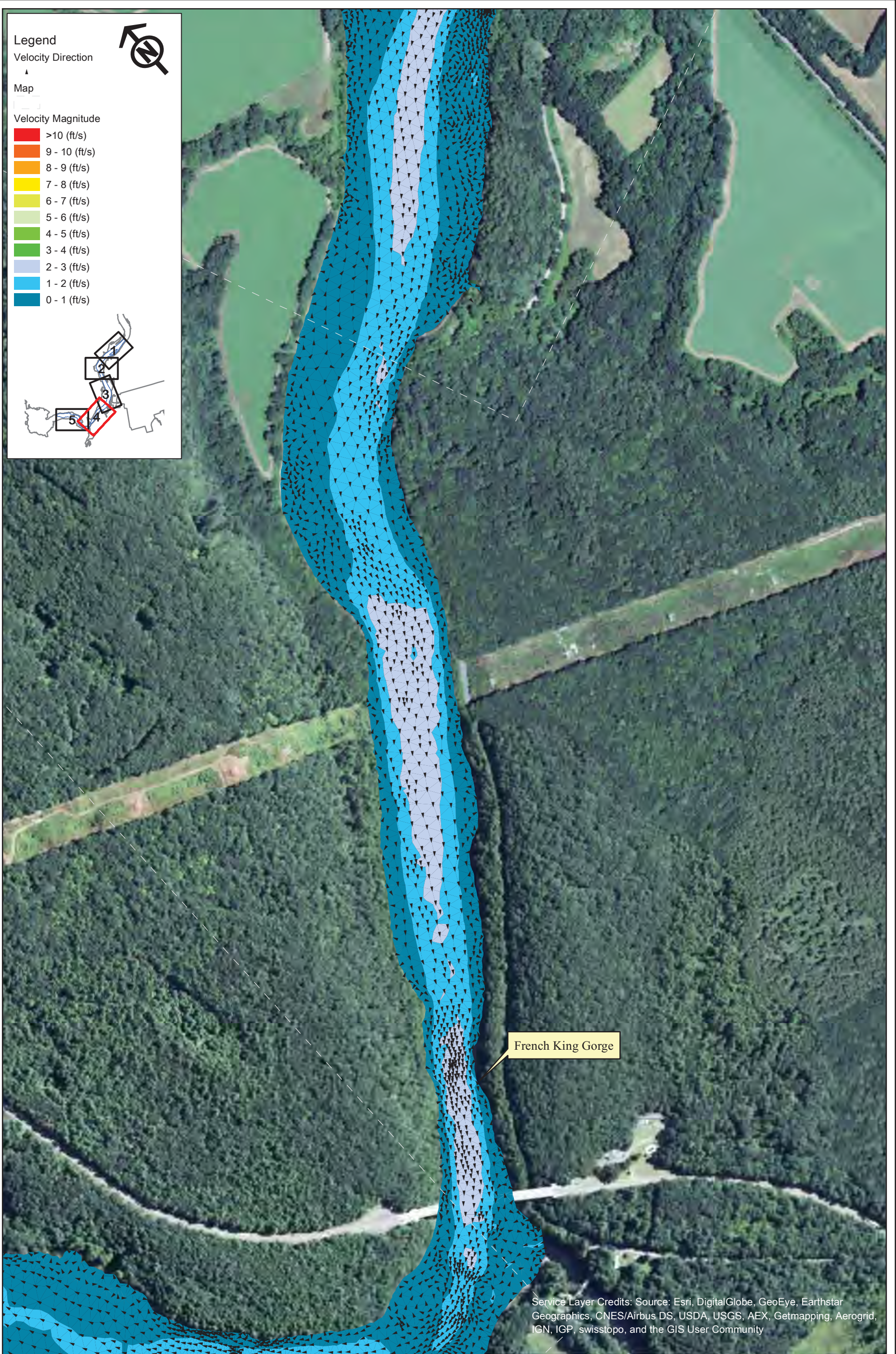


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 49 - Map 3
50% Exceedance Flow (8,440 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

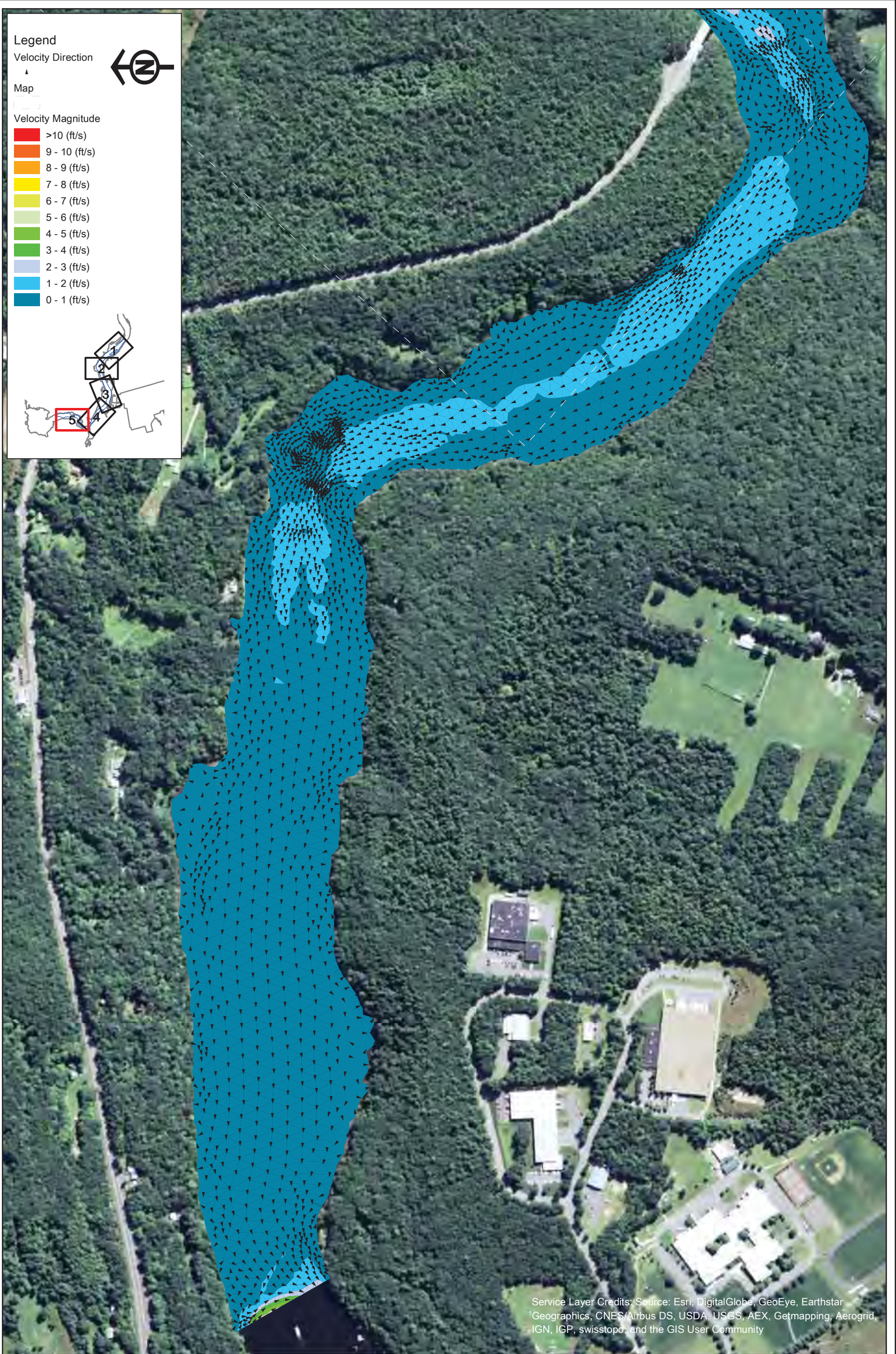
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 49 - Map 4
50% Exceedance Flow (8,440 cfs), 2 Units
Generating (10,000 cfs), 181.3 WSEL at
Dam





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

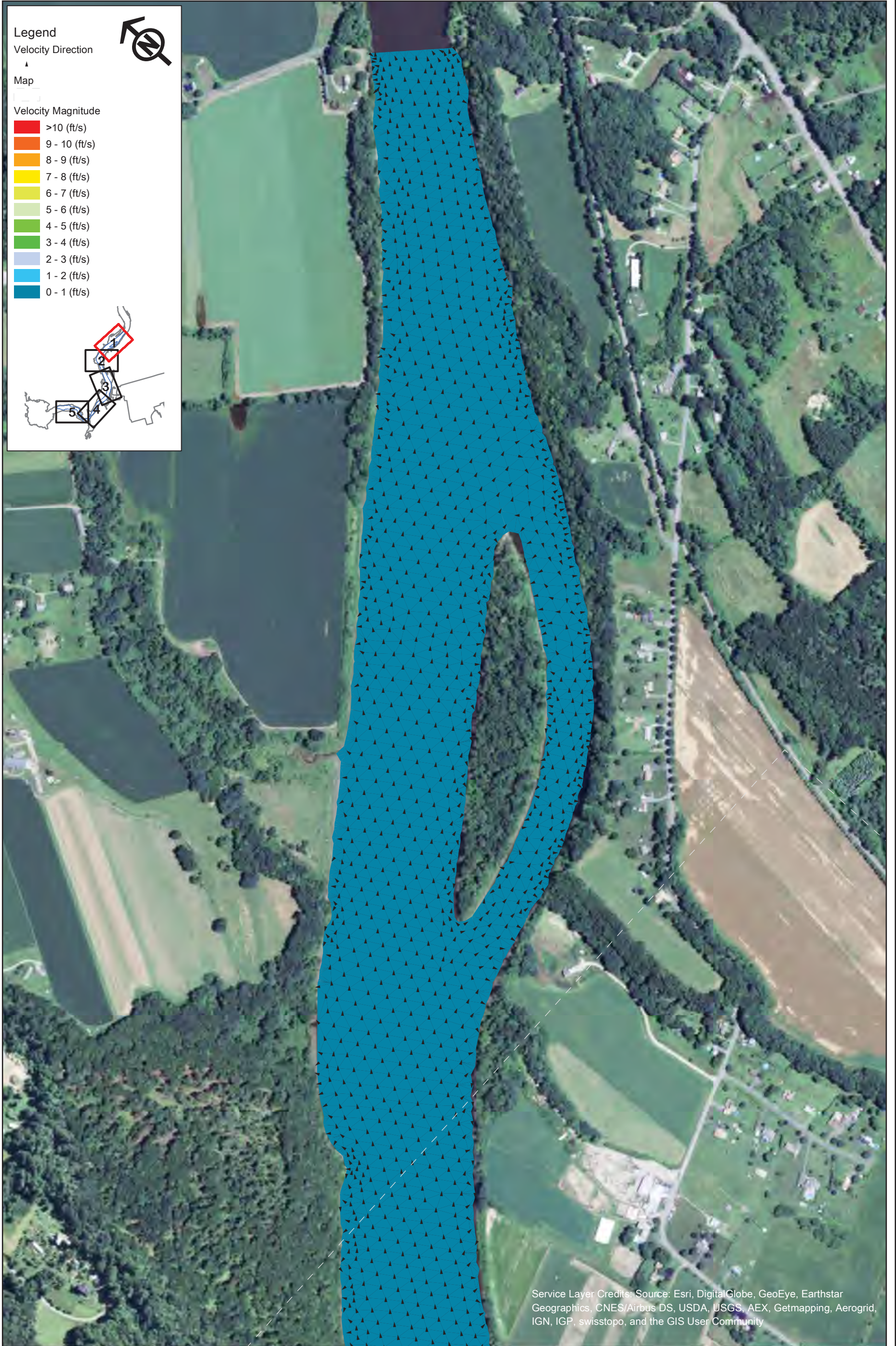


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 49 - Map 5
50% Exceedance Flow (8,440 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

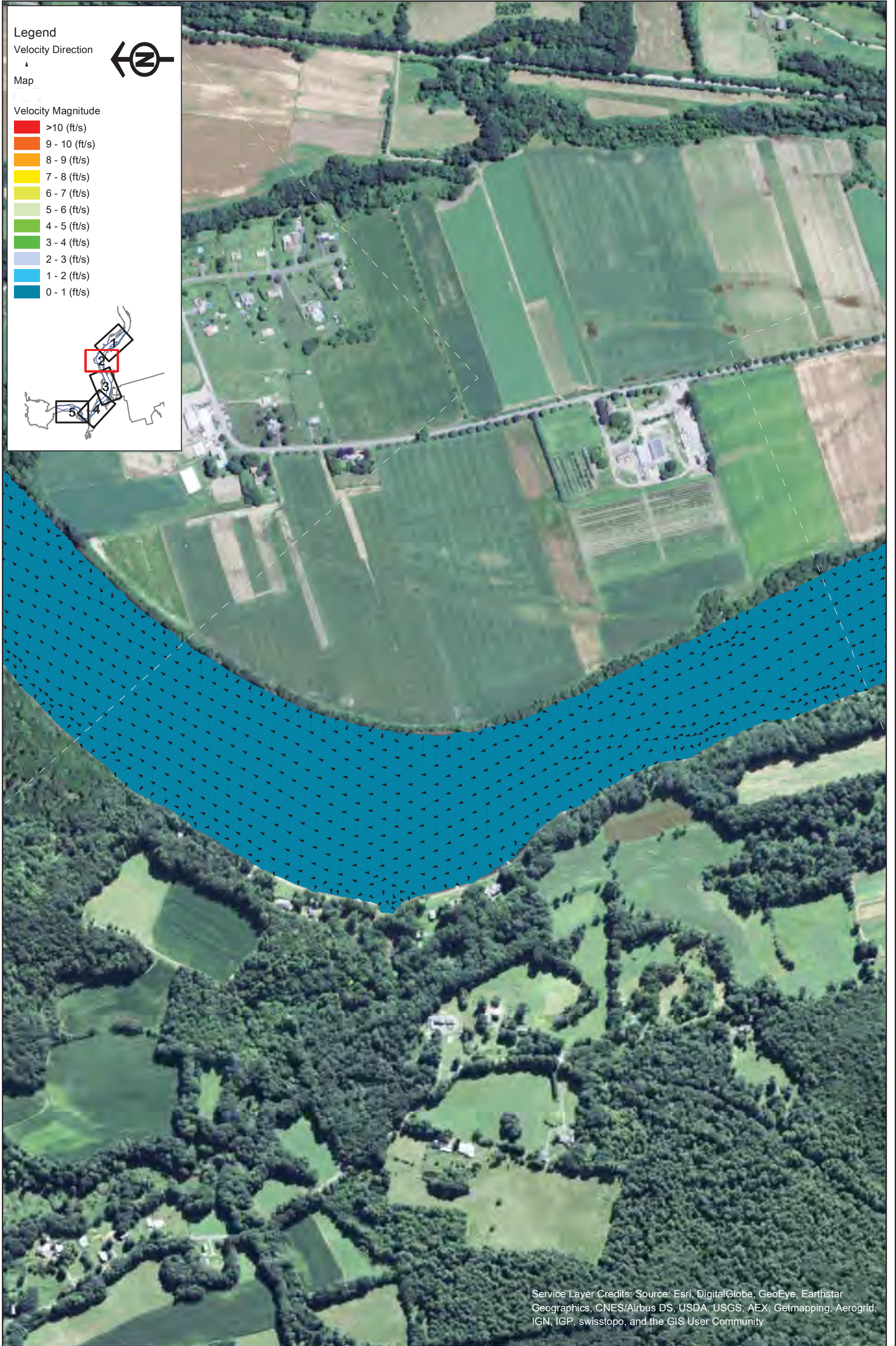
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 50 - Map 1
50% Exceedance Flow (8,440 cfs), 4 Units
Generating (20,000 cfs), 181.3 WSEL at
Dam





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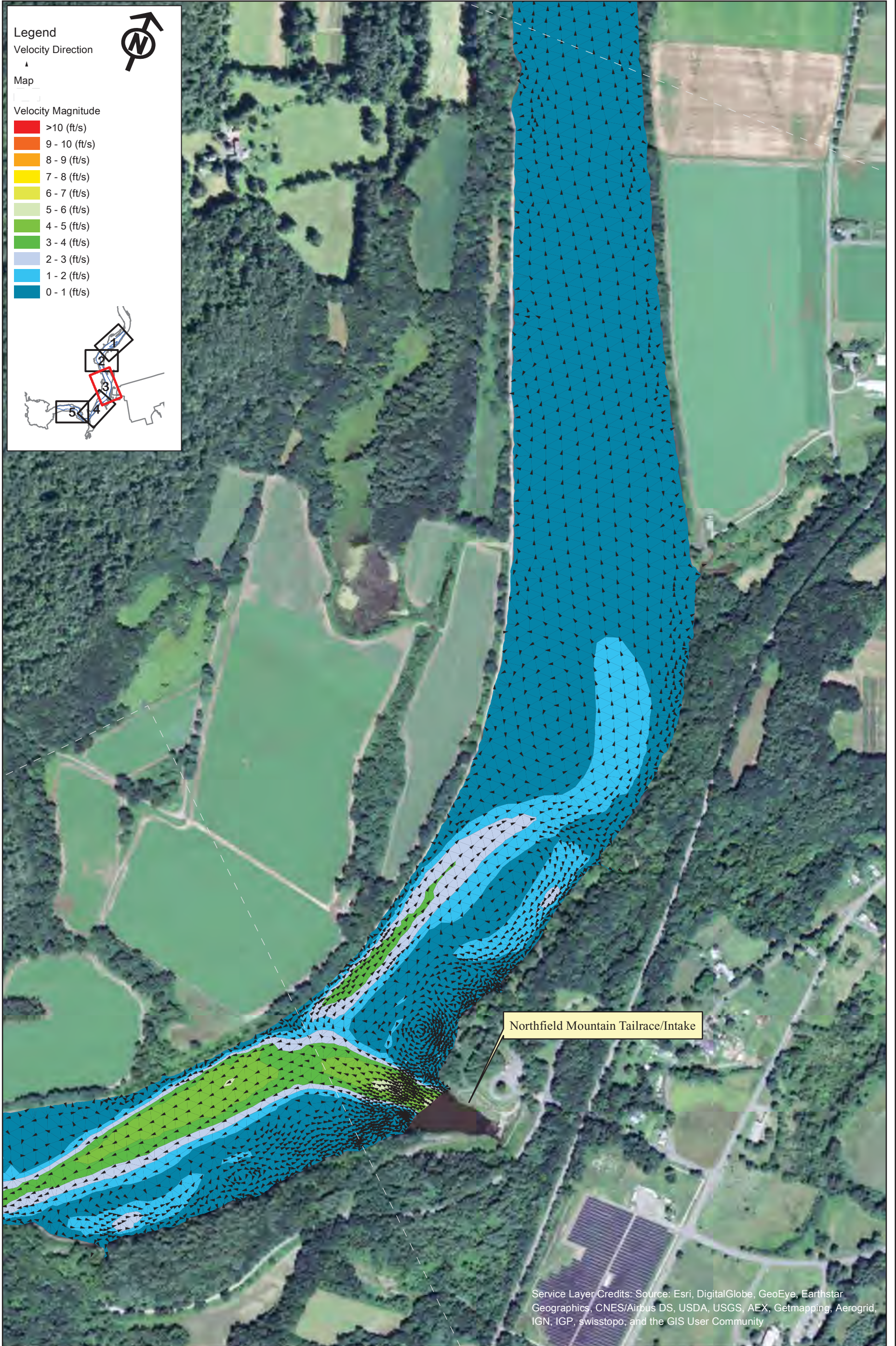


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 50 - Map 2
 50% Exceedance Flow (8,440 cfs), 4 Units
 Generating (20,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

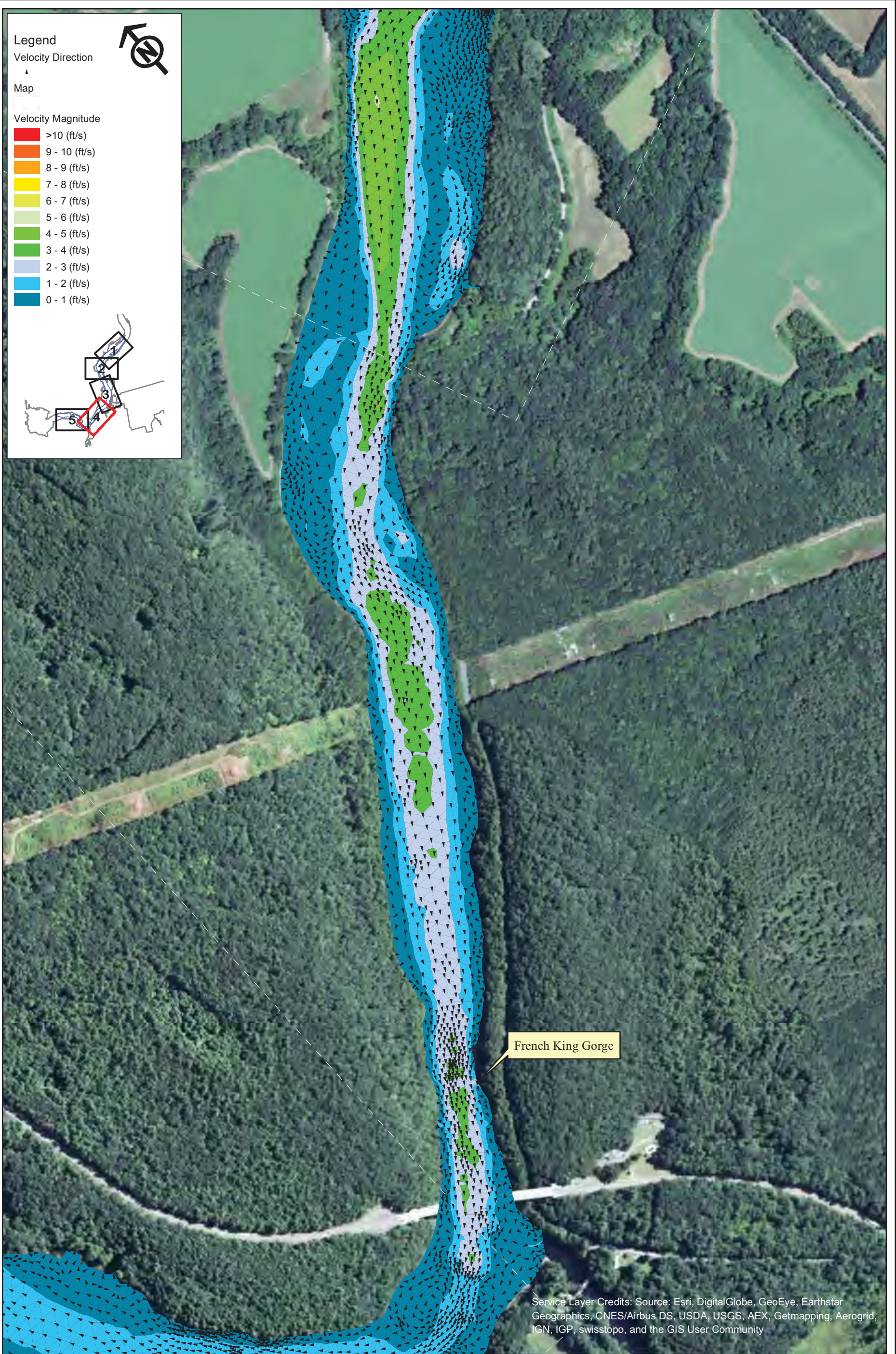


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 50 - Map 3
50% Exceedance Flow (8,440 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

French King Gorge

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

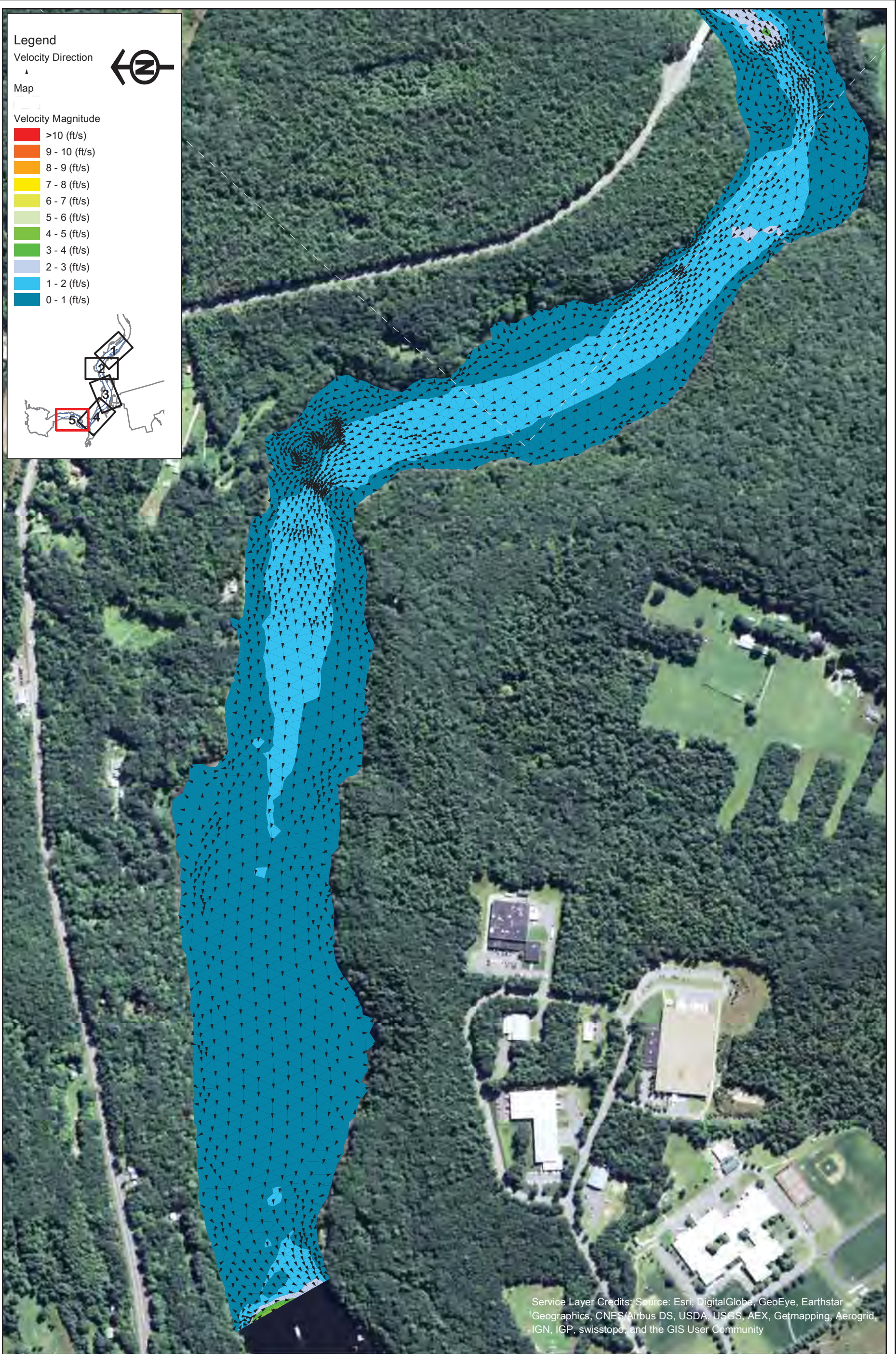


Northfield Mountain Pumped Storage Project (No. 2485) and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 50 - Map 4
50% Exceedance Flow (8,440 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

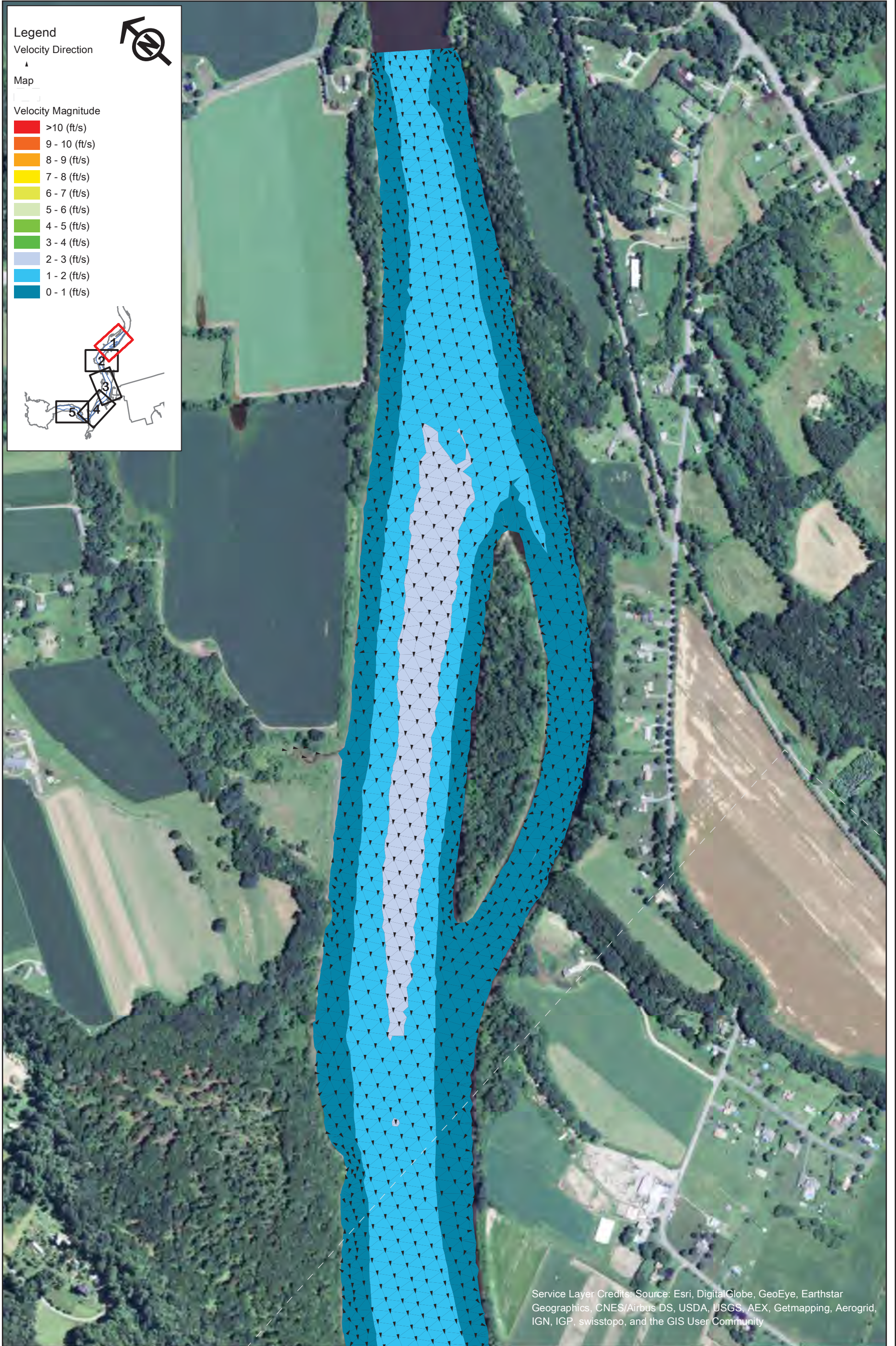


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 50 - Map 5
 50% Exceedance Flow (8,440 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9

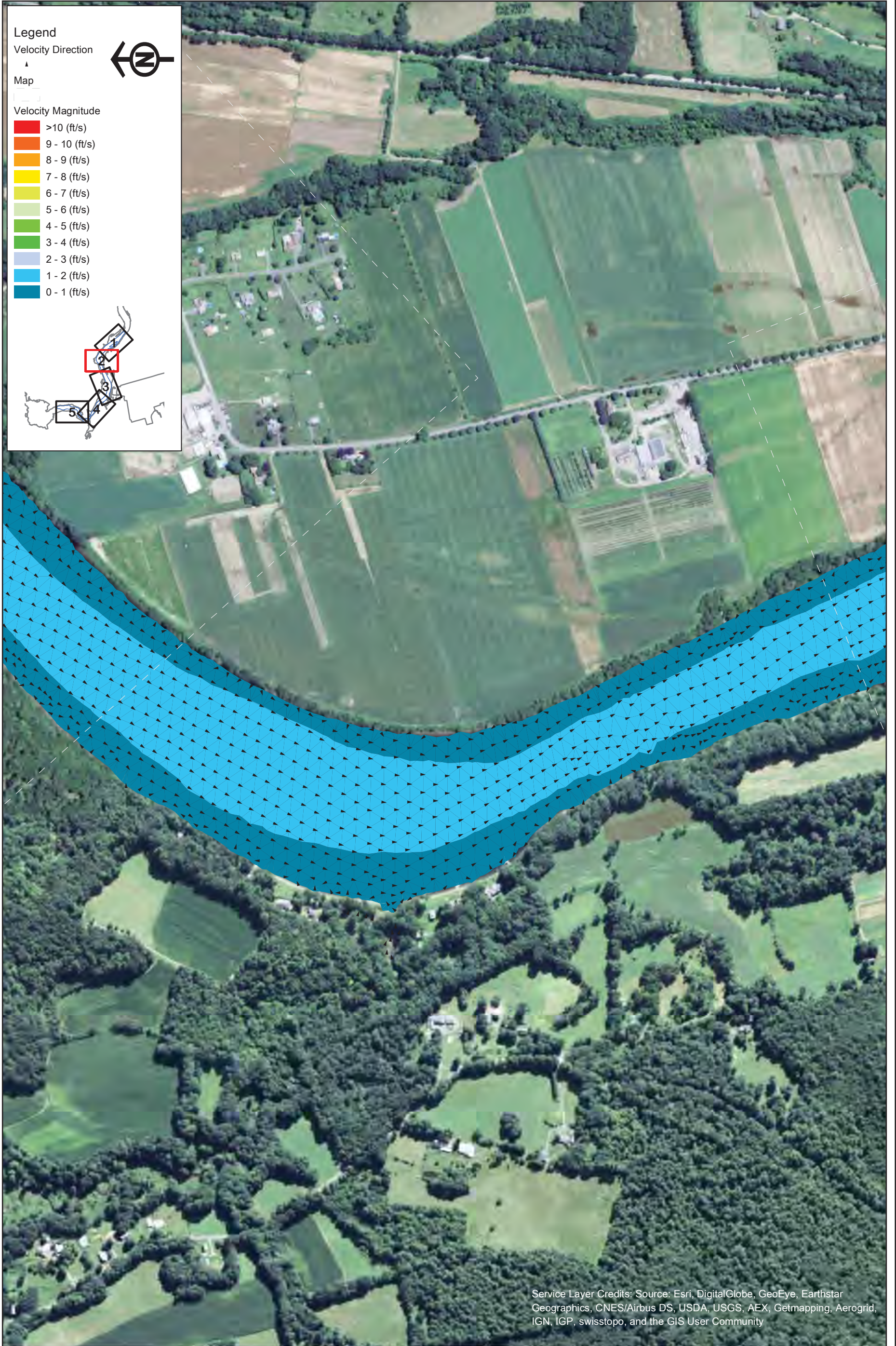


Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace

Scenario 51 - Map 1
50% Exceedance Flow (8,440 cfs), 2 Units
Pumping (7,600 cfs), 181.3 WSEL at Dam



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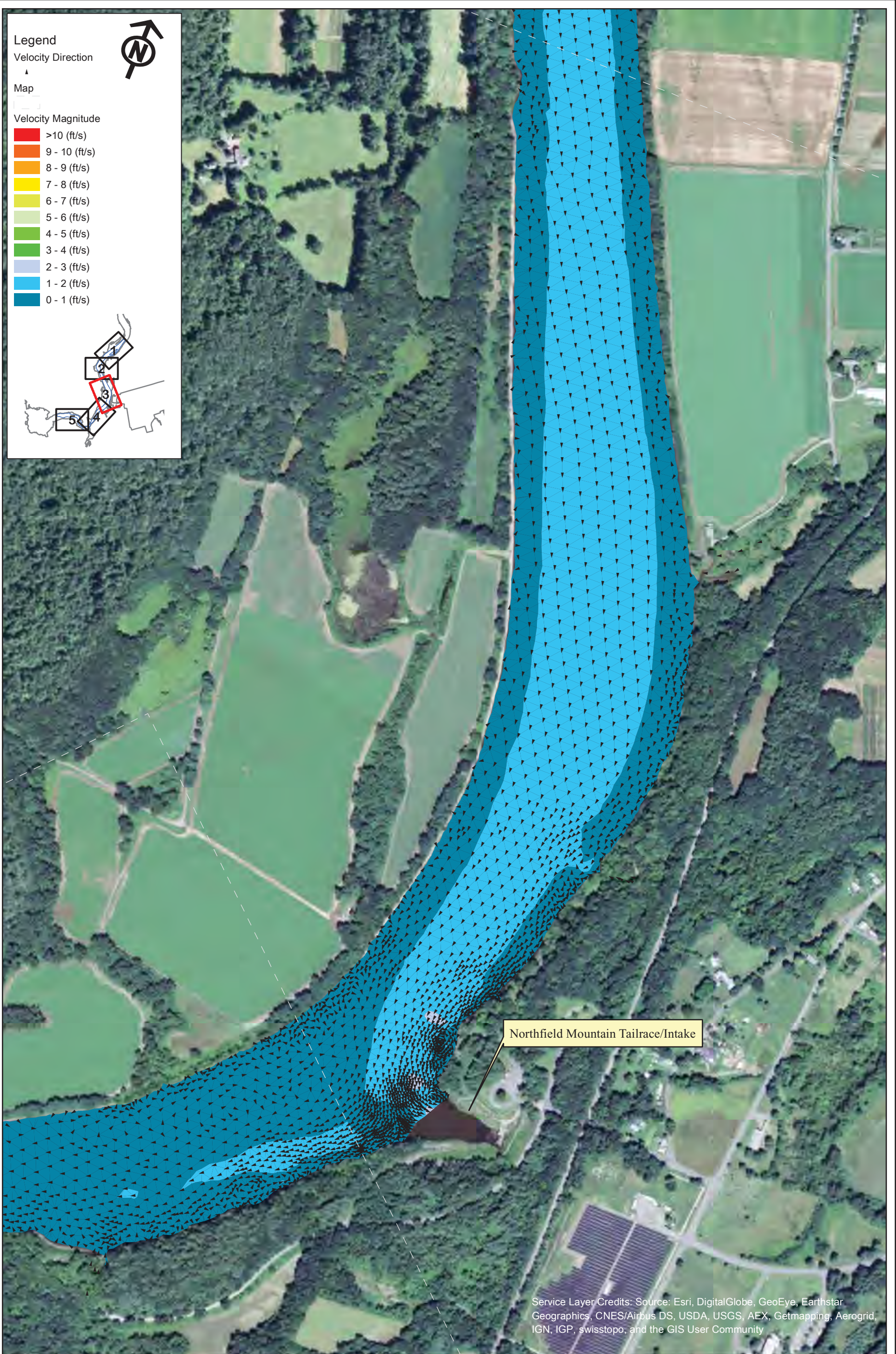
Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 51 - Map 2
 50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



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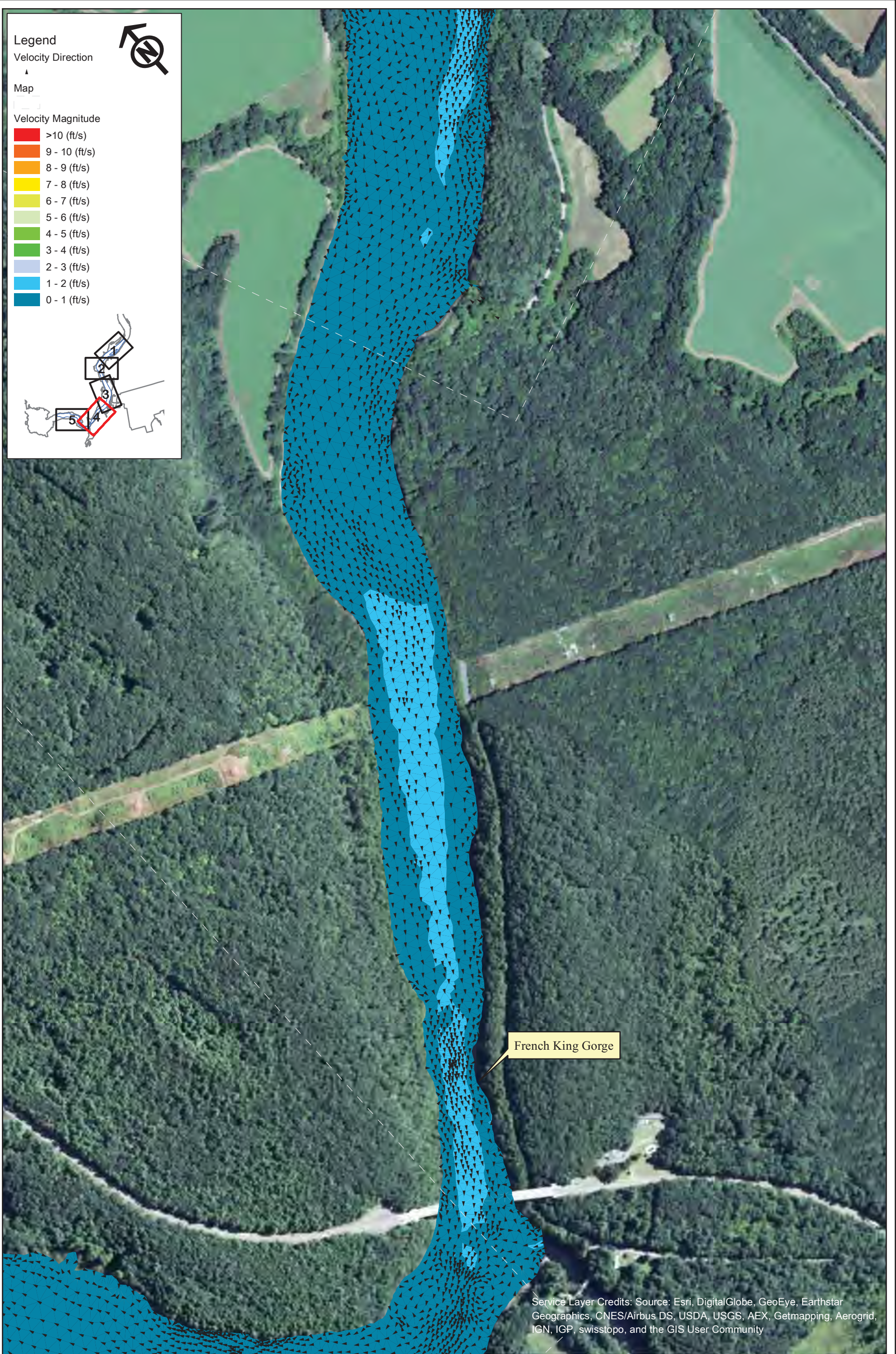


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 51 - Map 3
50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

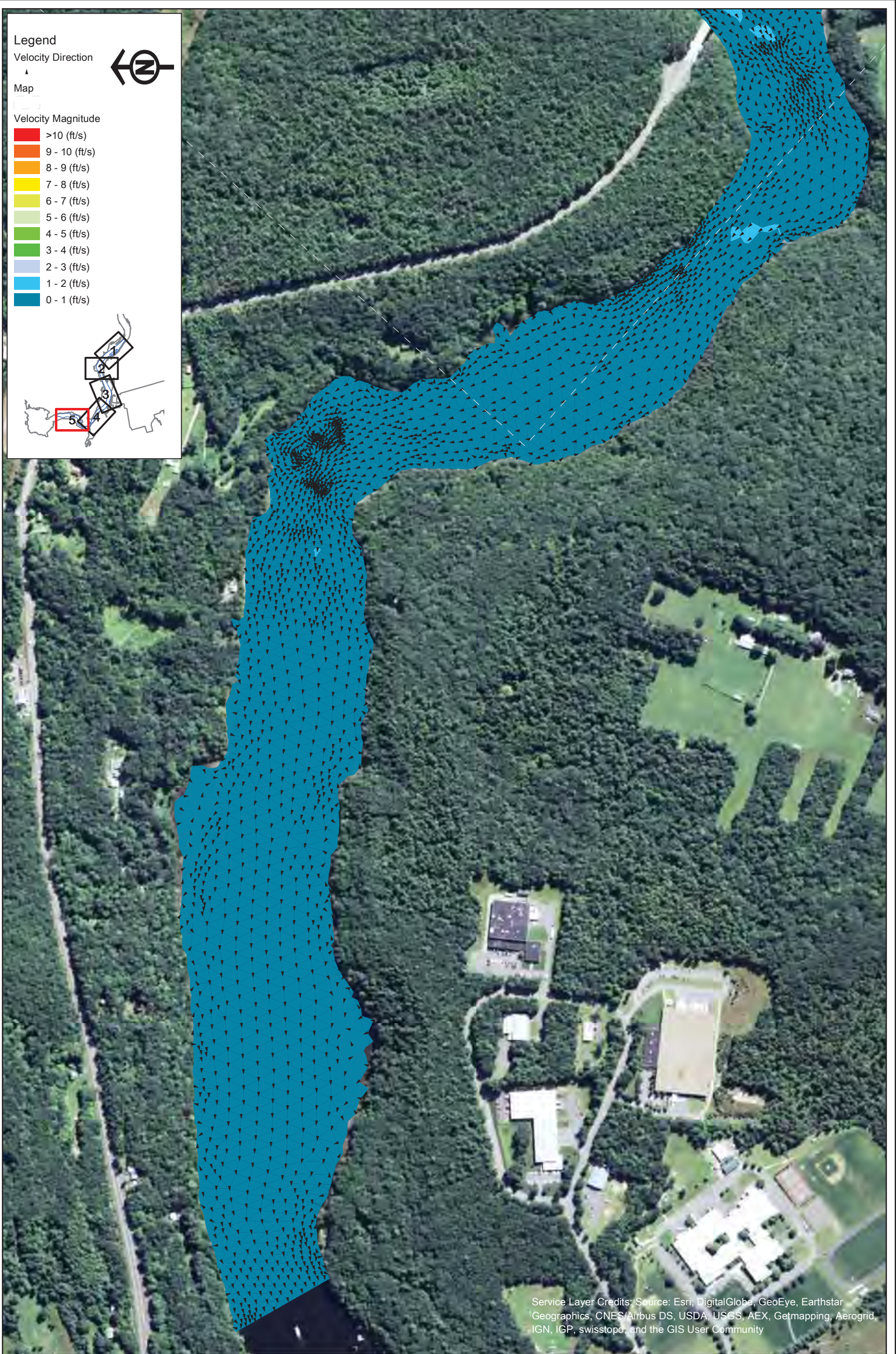
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

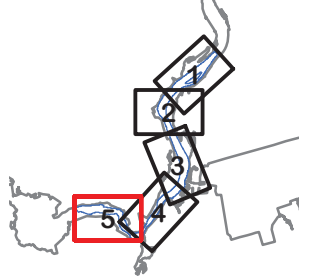
Scenario 51 - Map 4
50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam





Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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



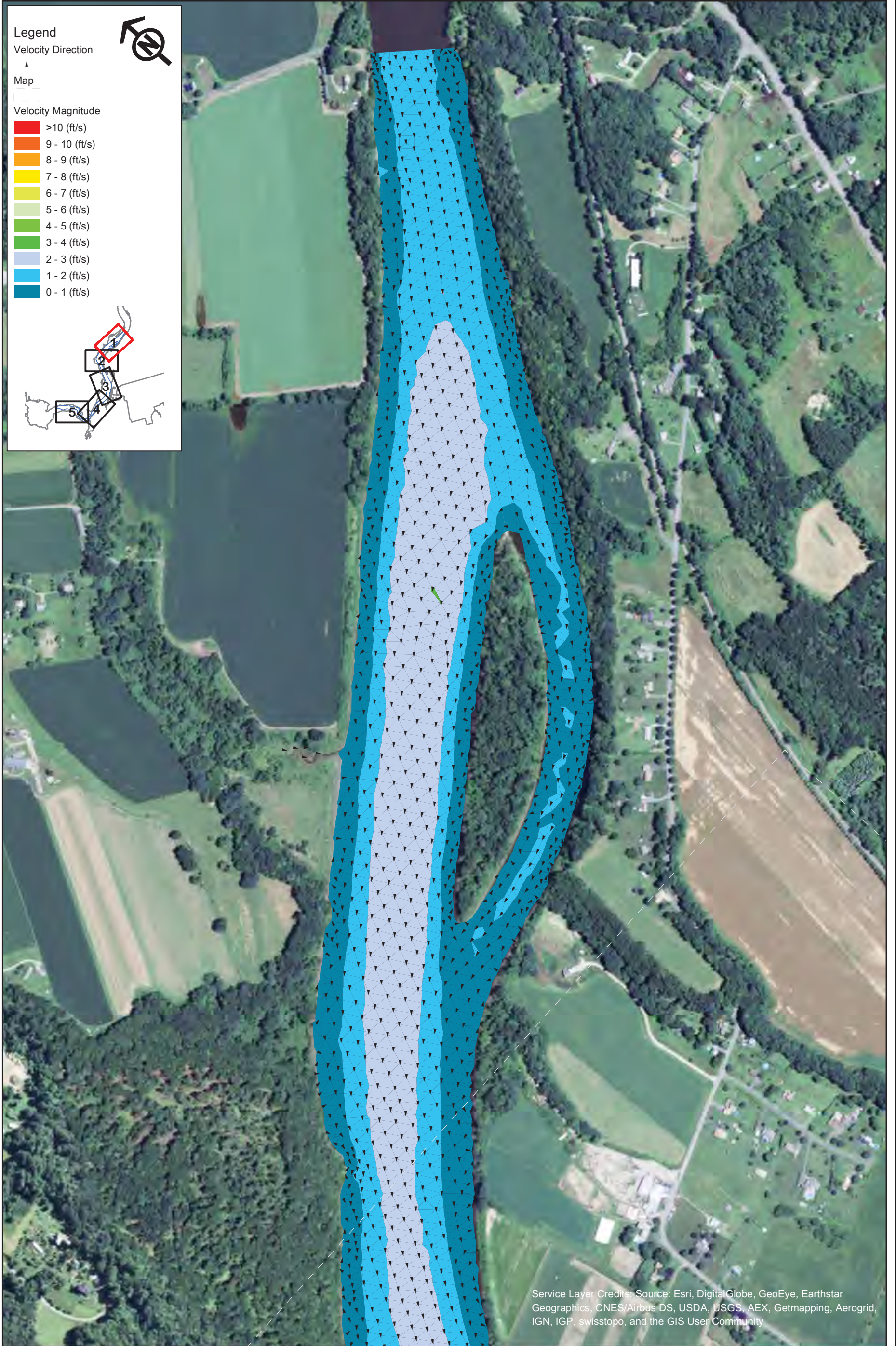
Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 51 - Map 5
 50% Exceedance Flow (8,440 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



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



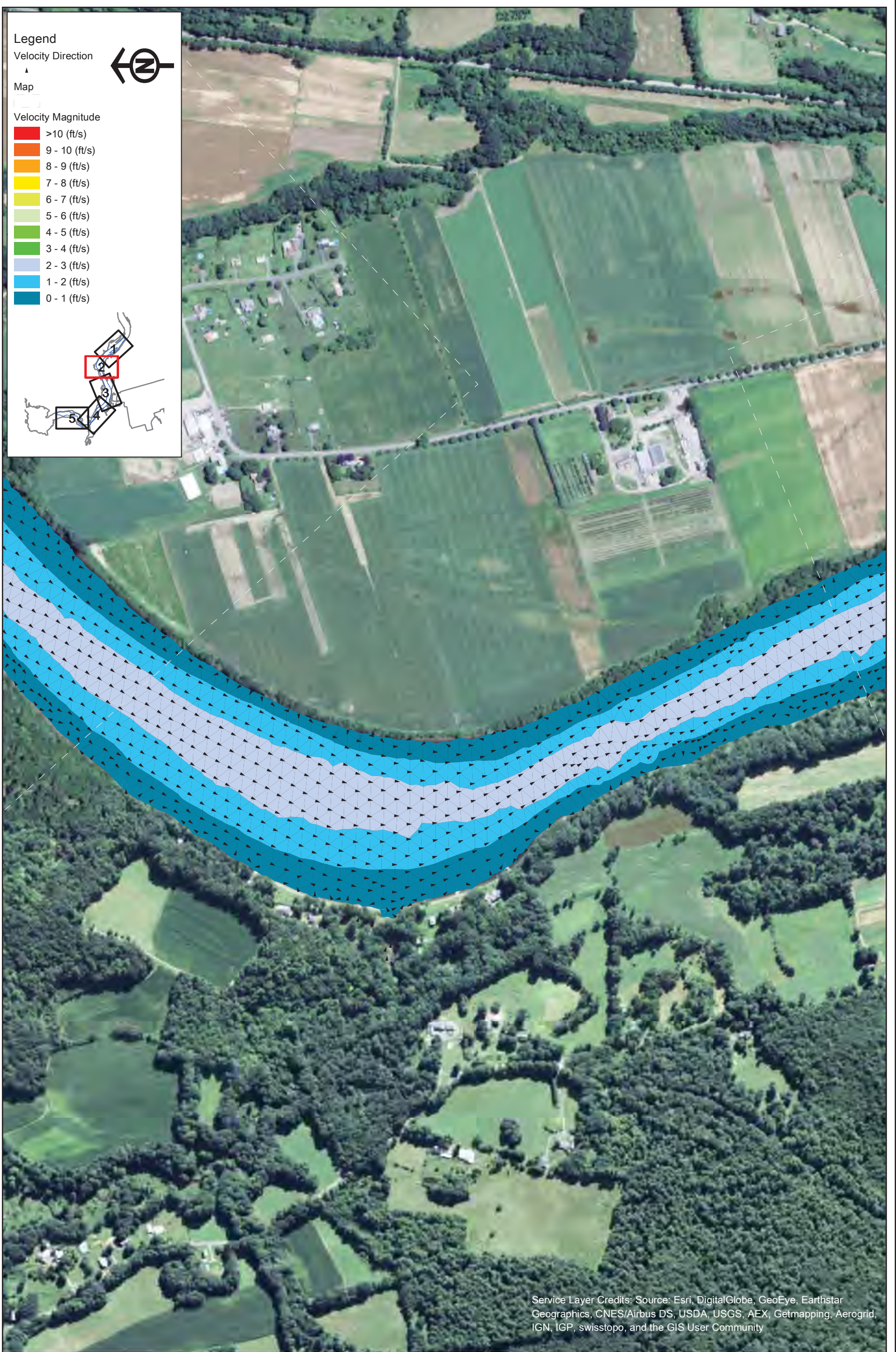
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 52 - Map 1
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



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

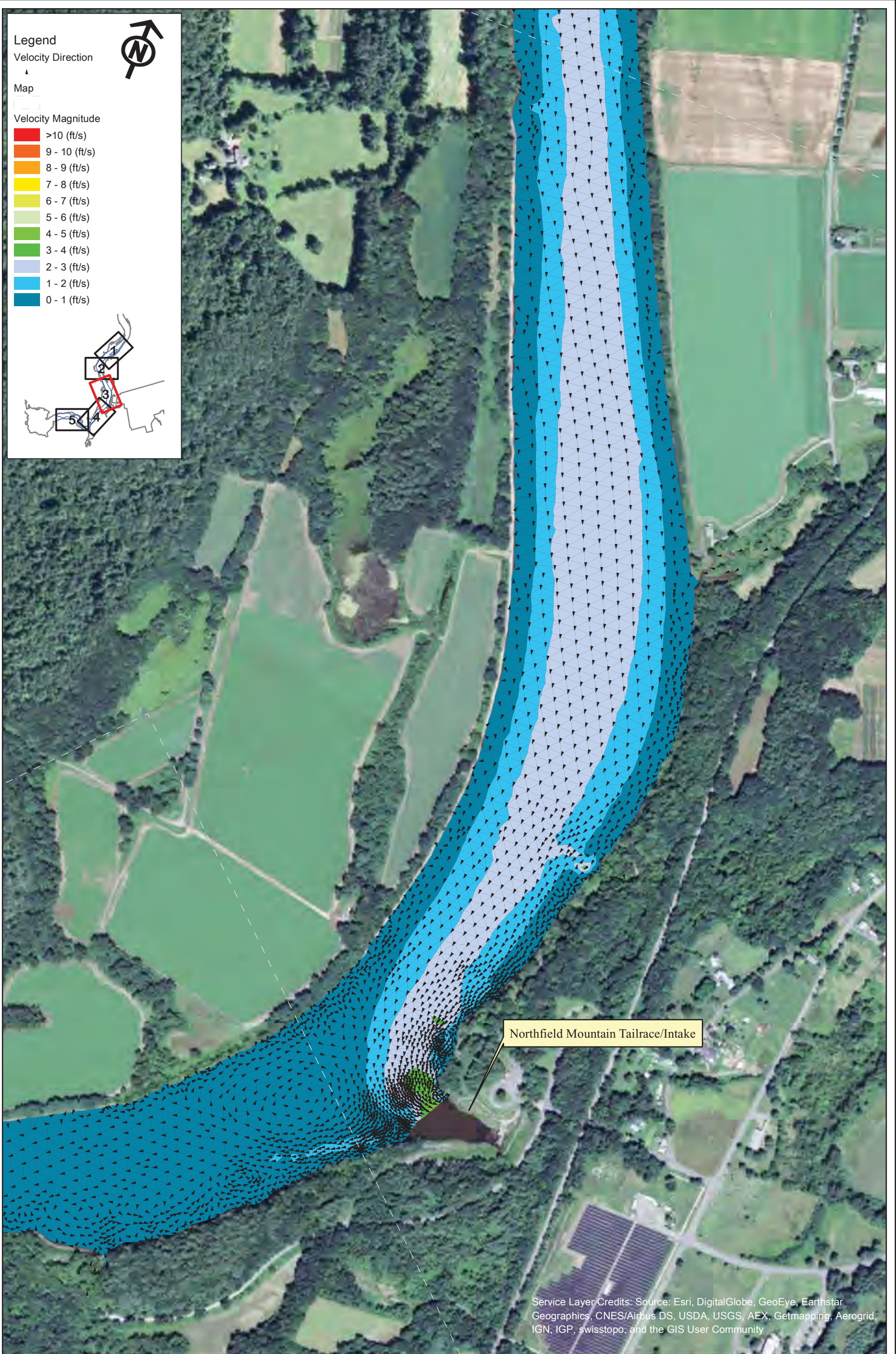


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 52 - Map 2
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

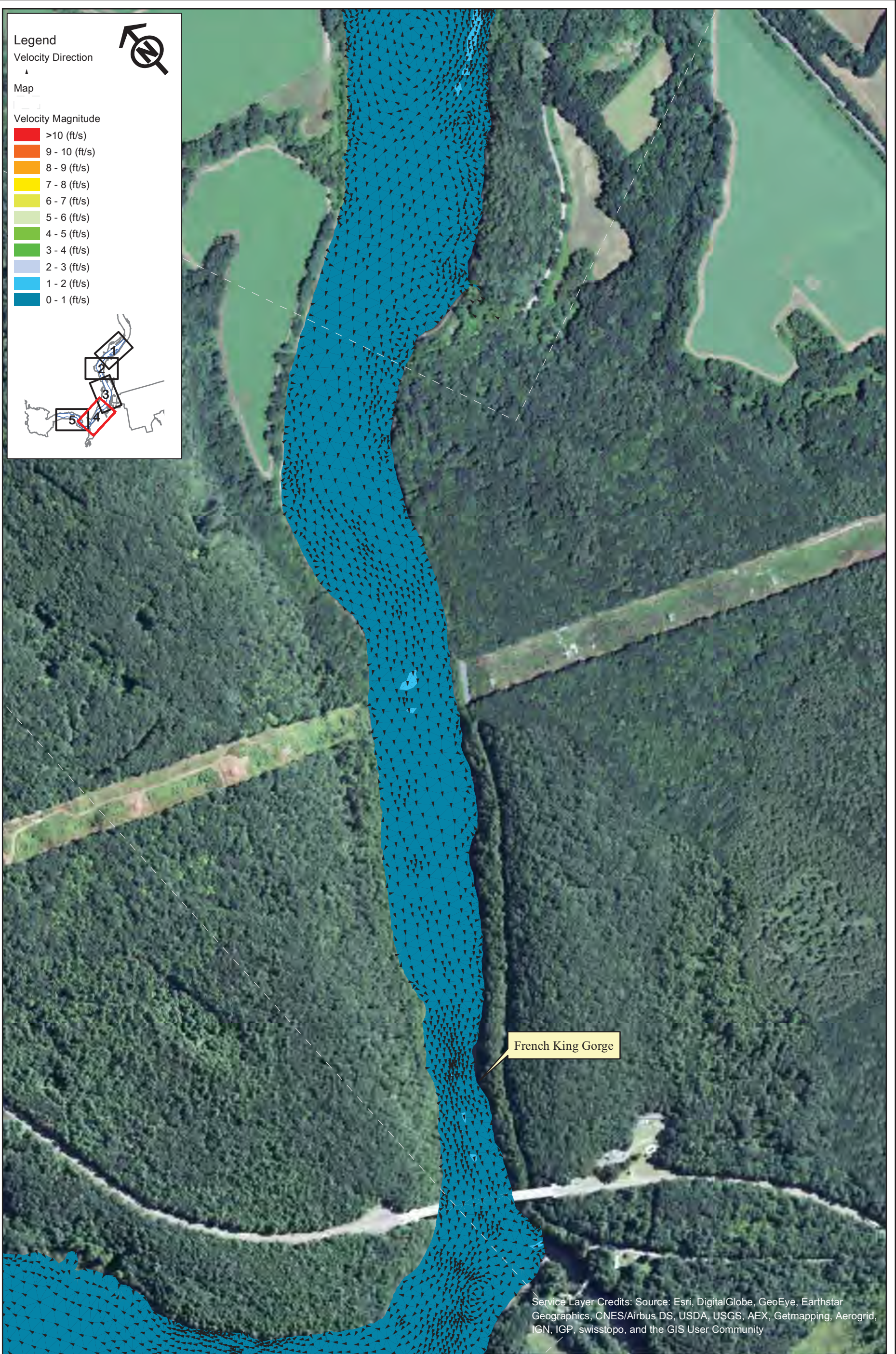


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 52 - Map 3
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

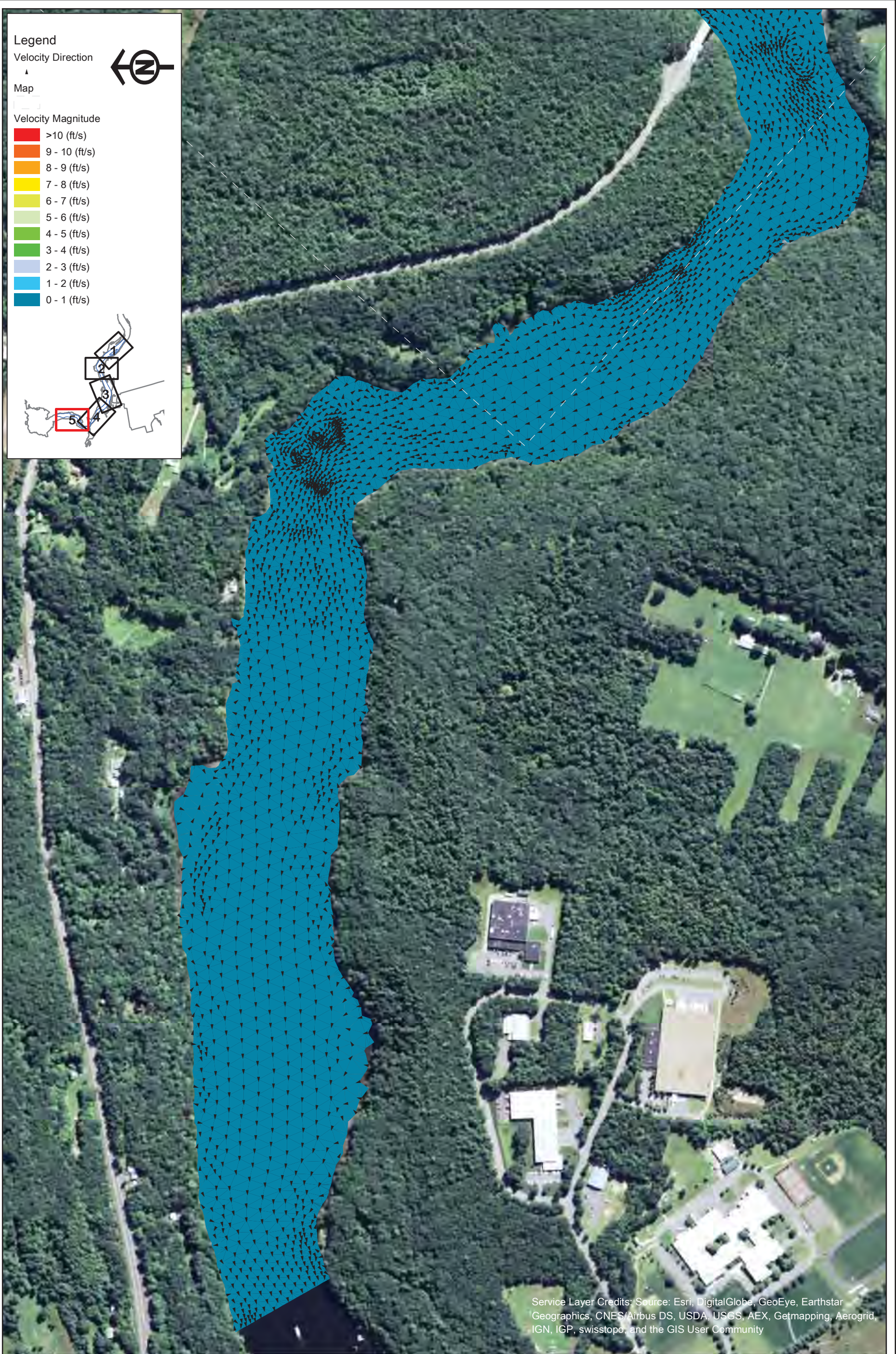
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

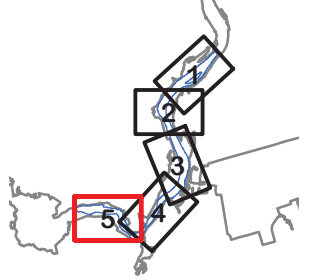
Scenario 52 - Map 4
50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam





Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

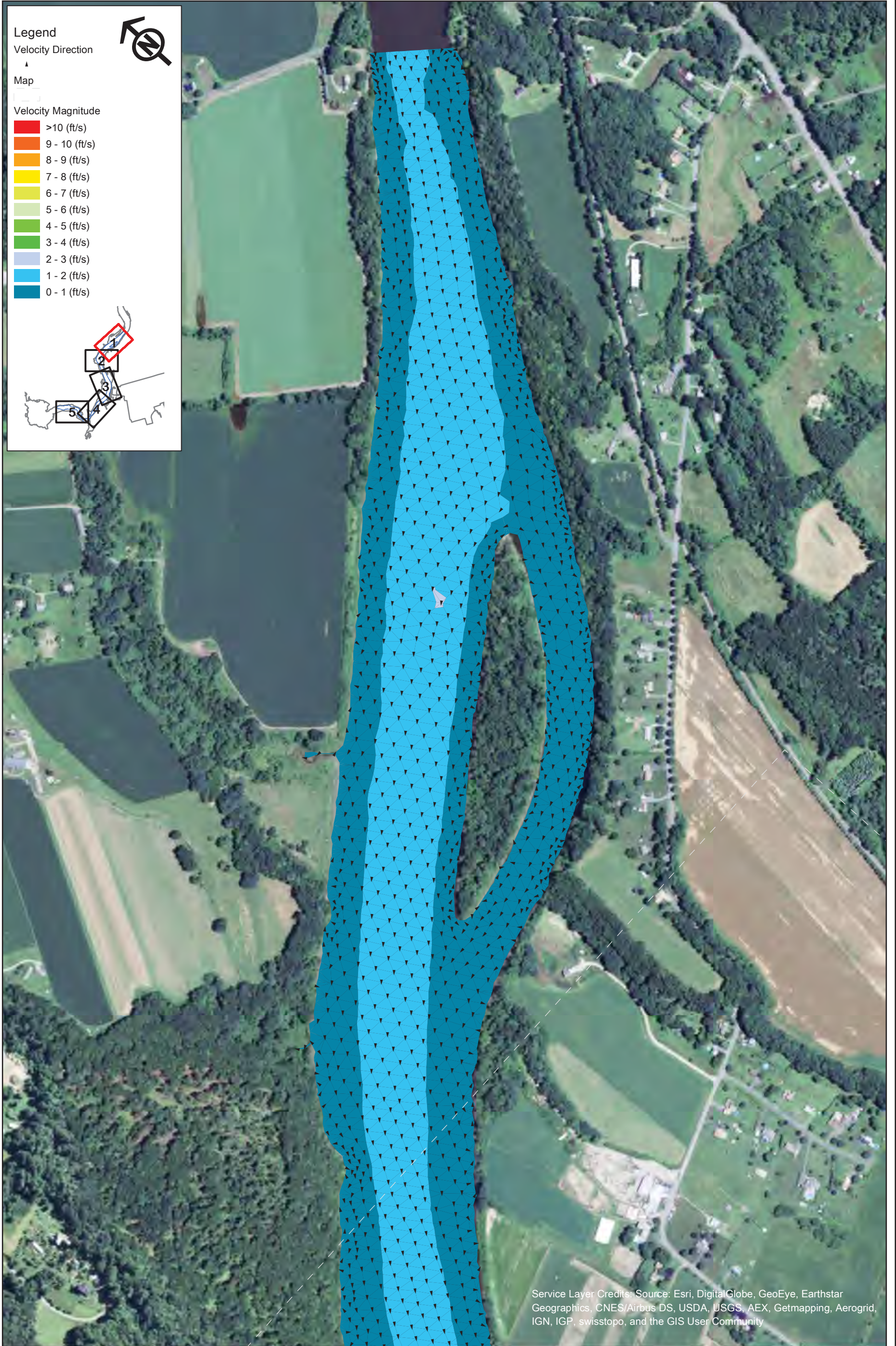


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 52 - Map 5
 50% Exceedance Flow (8,440 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



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

Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

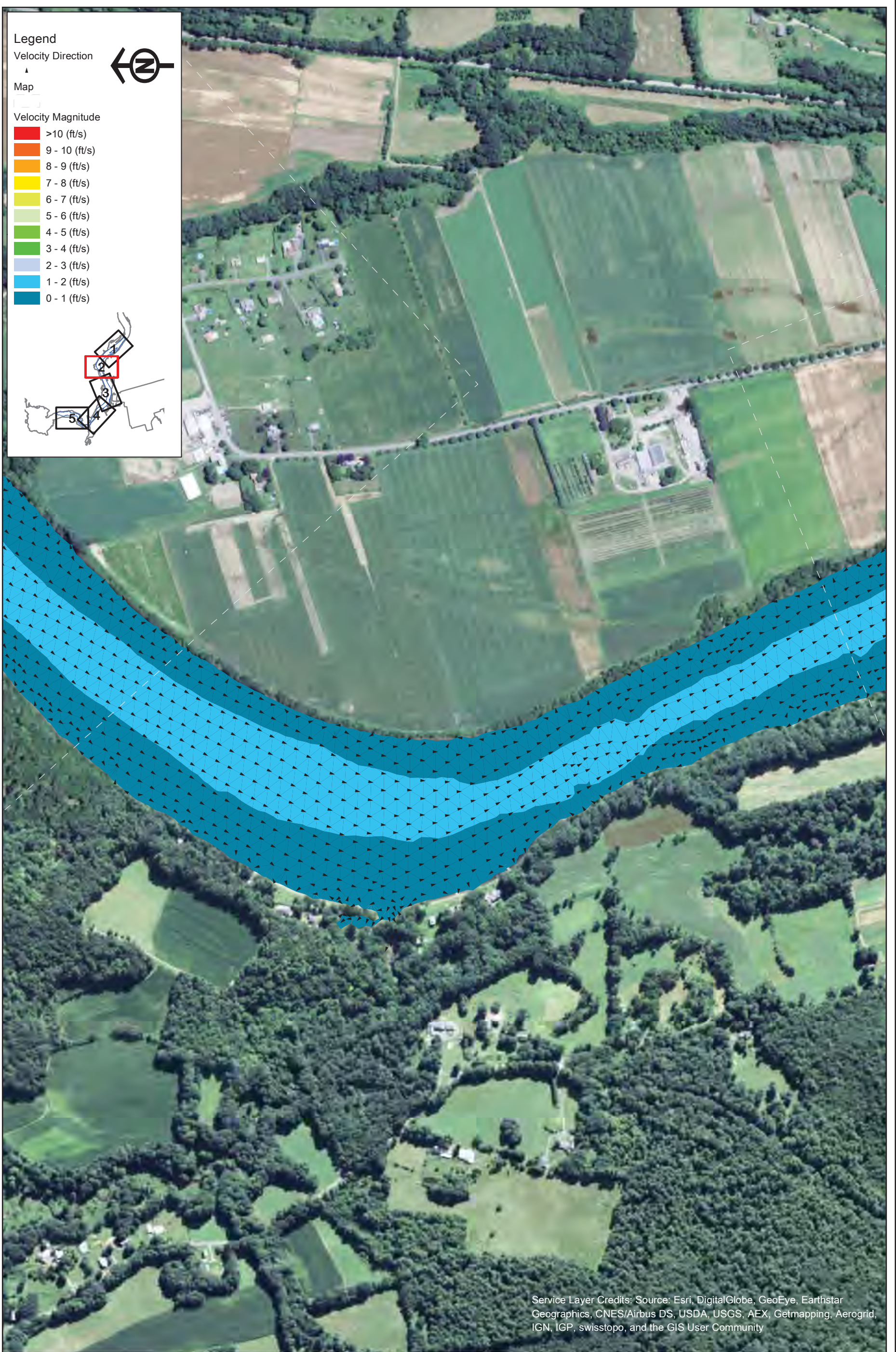
STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 53 - Map 1
25% Exceedance Flow (15,700 cfs), 2 Units
Generating (10,000 cfs), 181.3 WSEL at Dam



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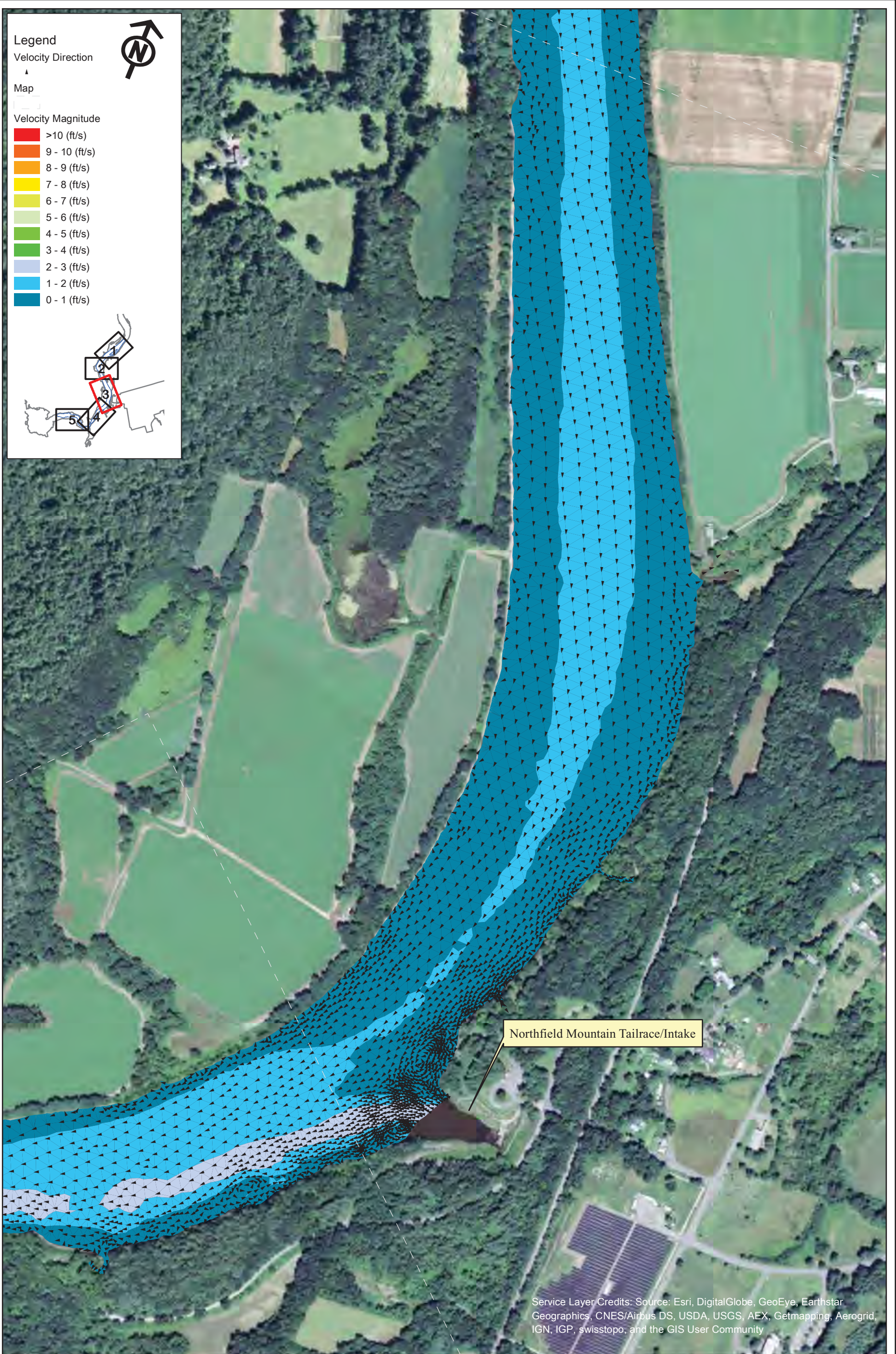


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 53 - Map 2
 25% Exceedance Flow (15,700 cfs), 2 Units
 Generating (10,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

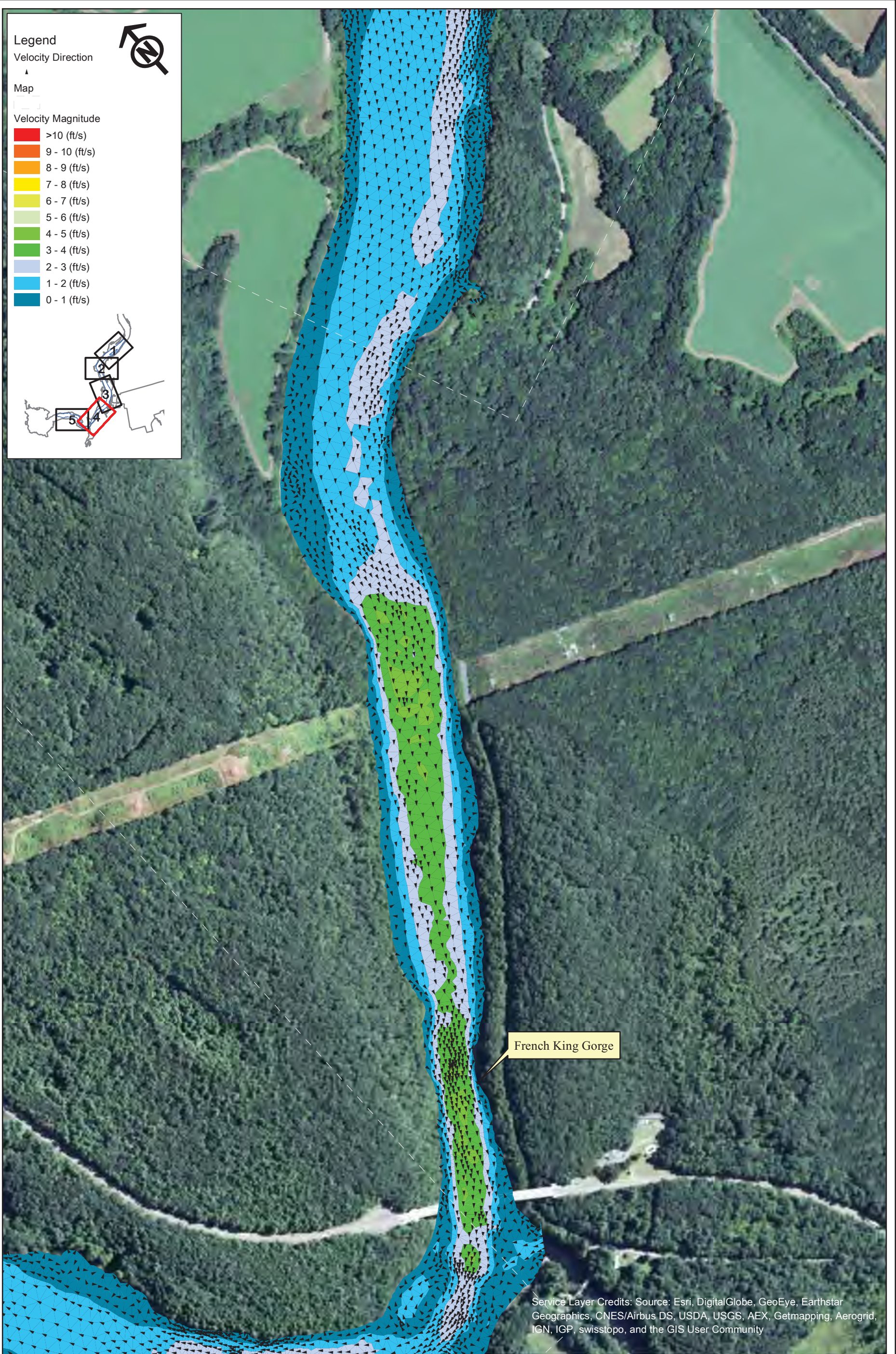


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 53 - Map 3
25% Exceedance Flow (15,700 cfs), 2 Units
Generating (10,000 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

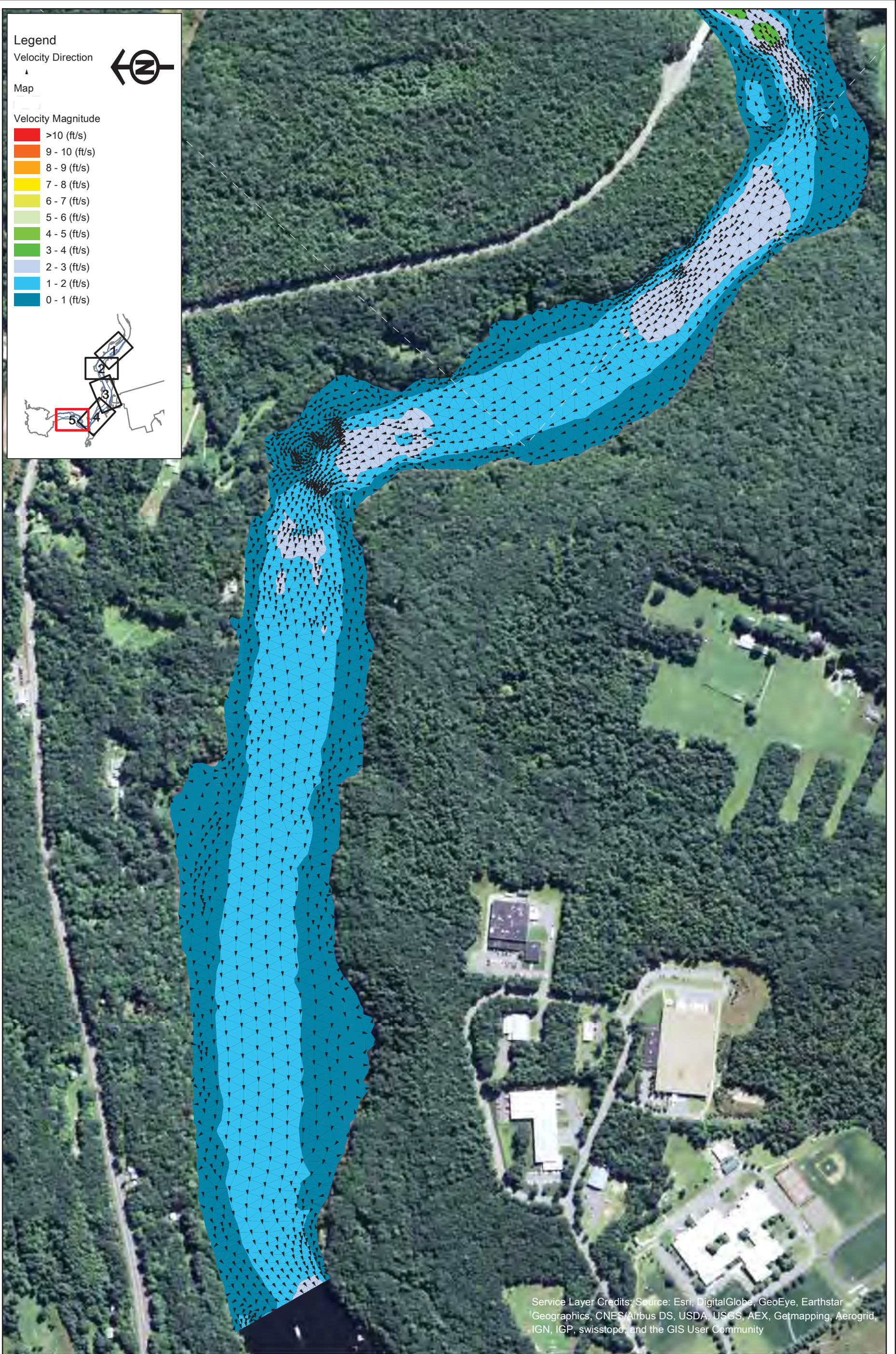
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace

Scenario 53 - Map 4
25% Exceedance Flow (15,700 cfs), 2 Units
Generating (10,000 cfs), 181.3 WSEL at
Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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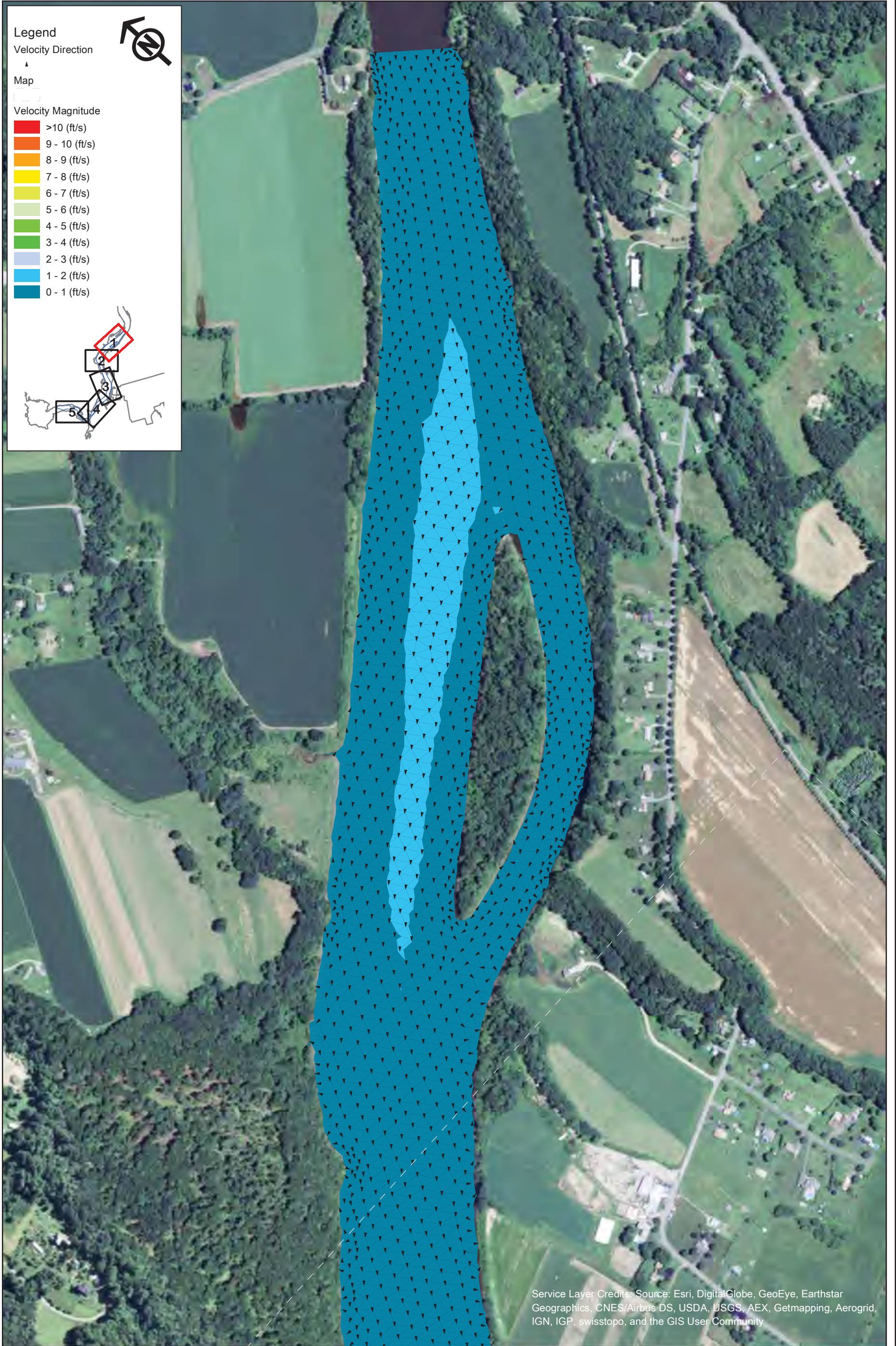


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
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Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 53 - Map 5
 25% Exceedance Flow (15,700 cfs), 2 Units
 Generating (10,000 cfs), 181.3 WSEL at Dam



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

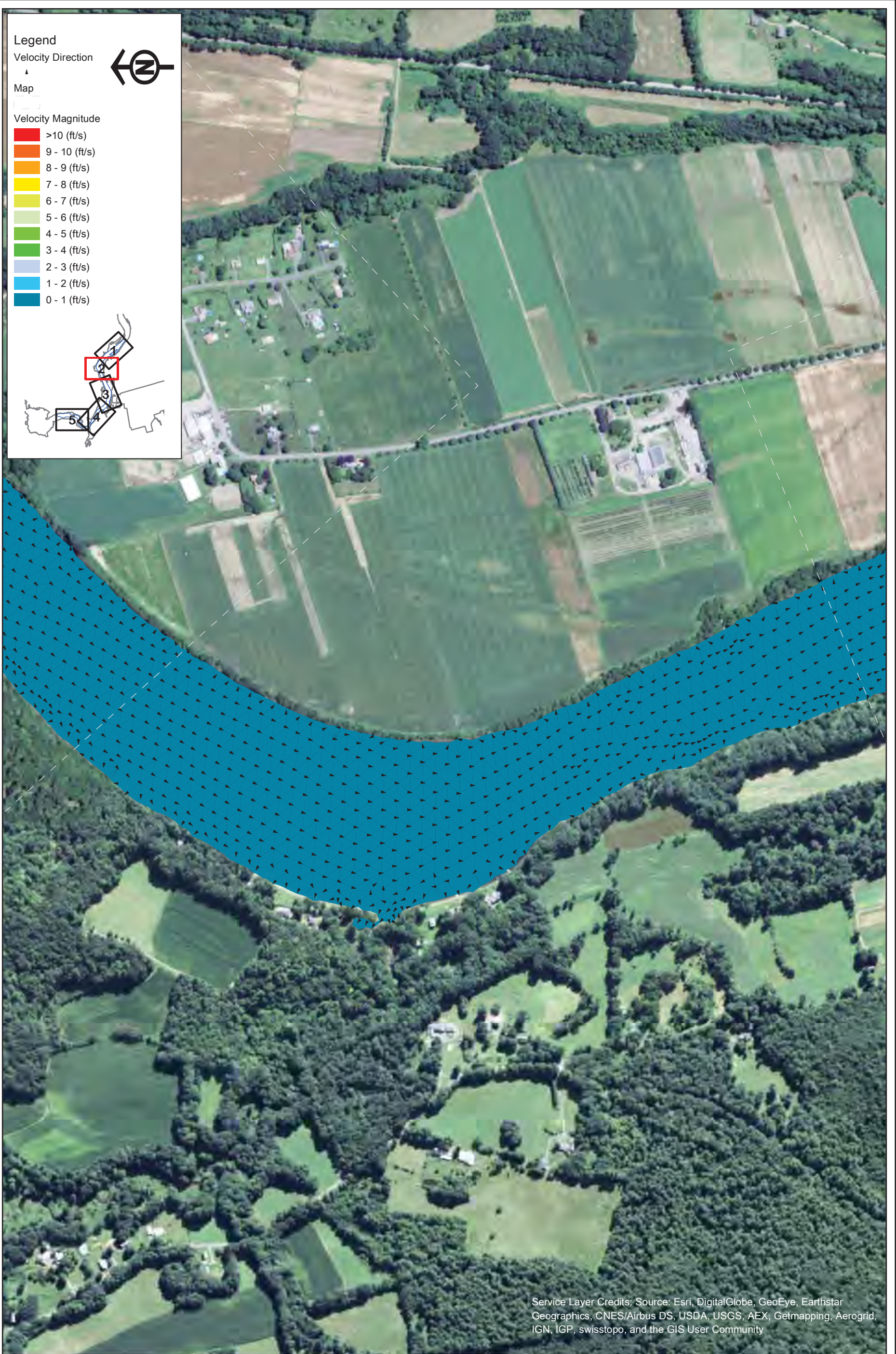


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)


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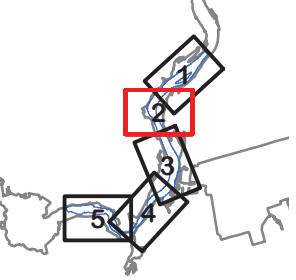


Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 54 - Map 1
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

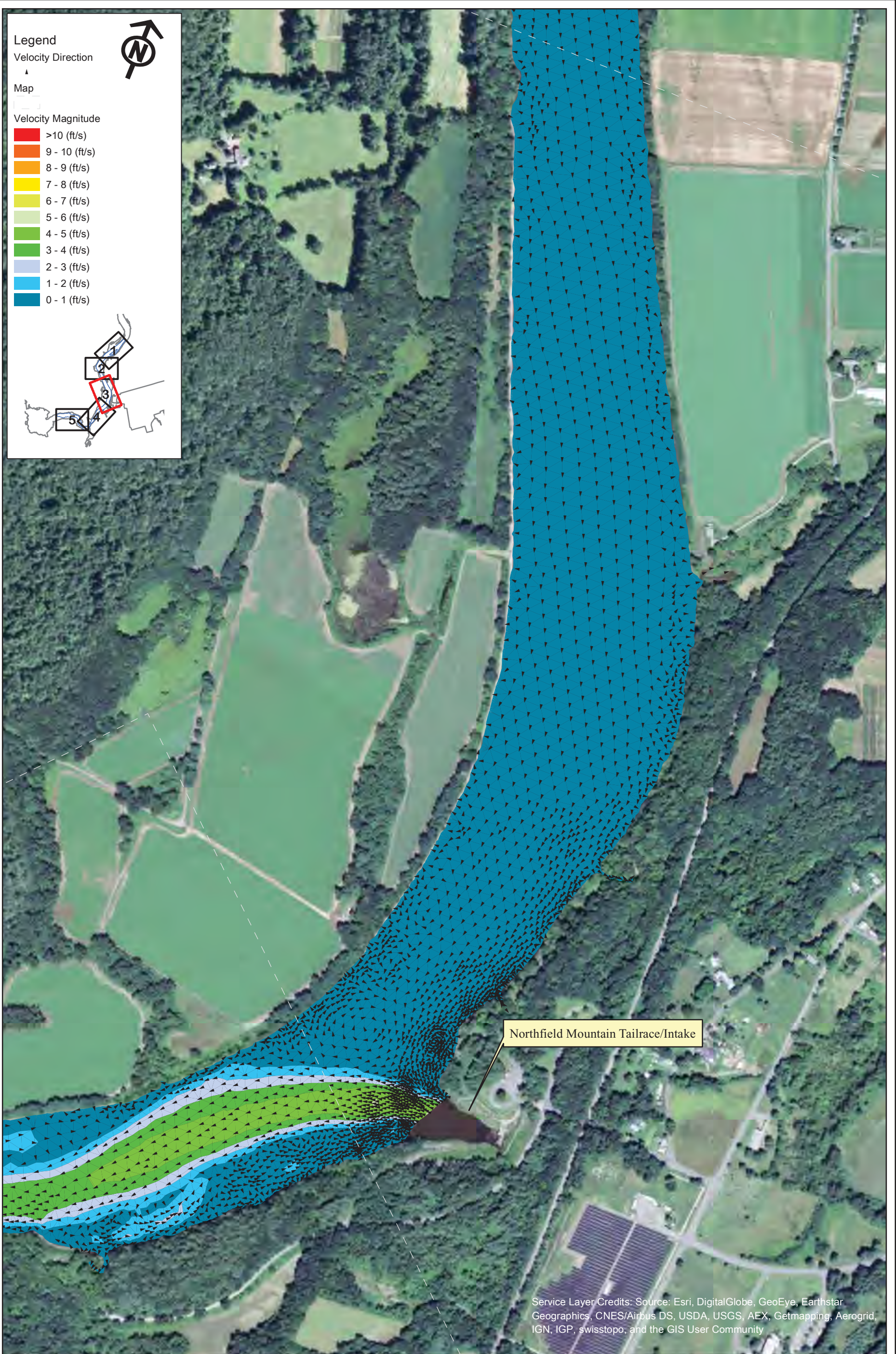


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 54 - Map 2
 25% Exceedance Flow (15,700 cfs), 4 Units
 Generating (20,000 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

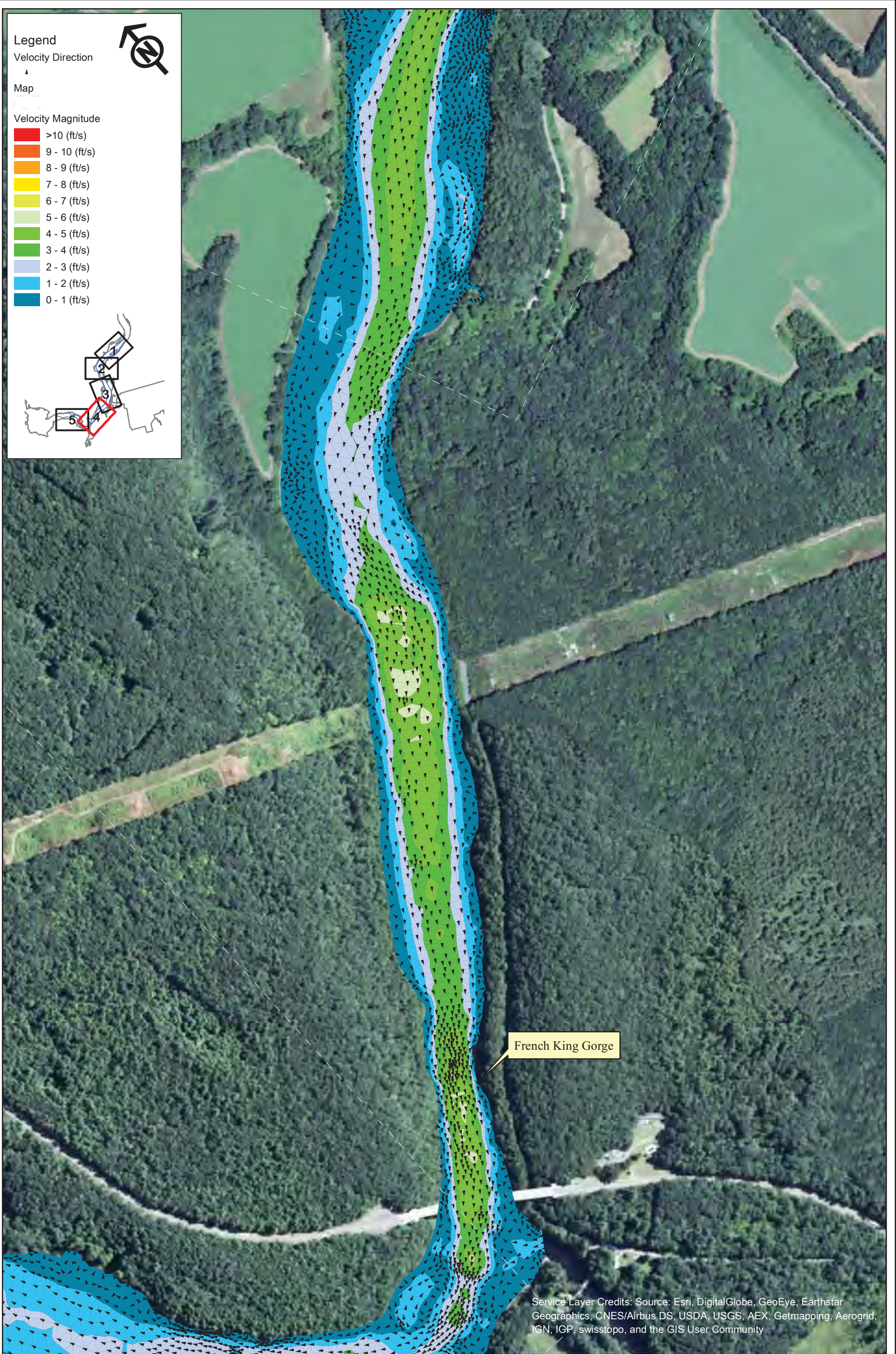
STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 54 - Map 3
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 181.3 WSEL at Dam



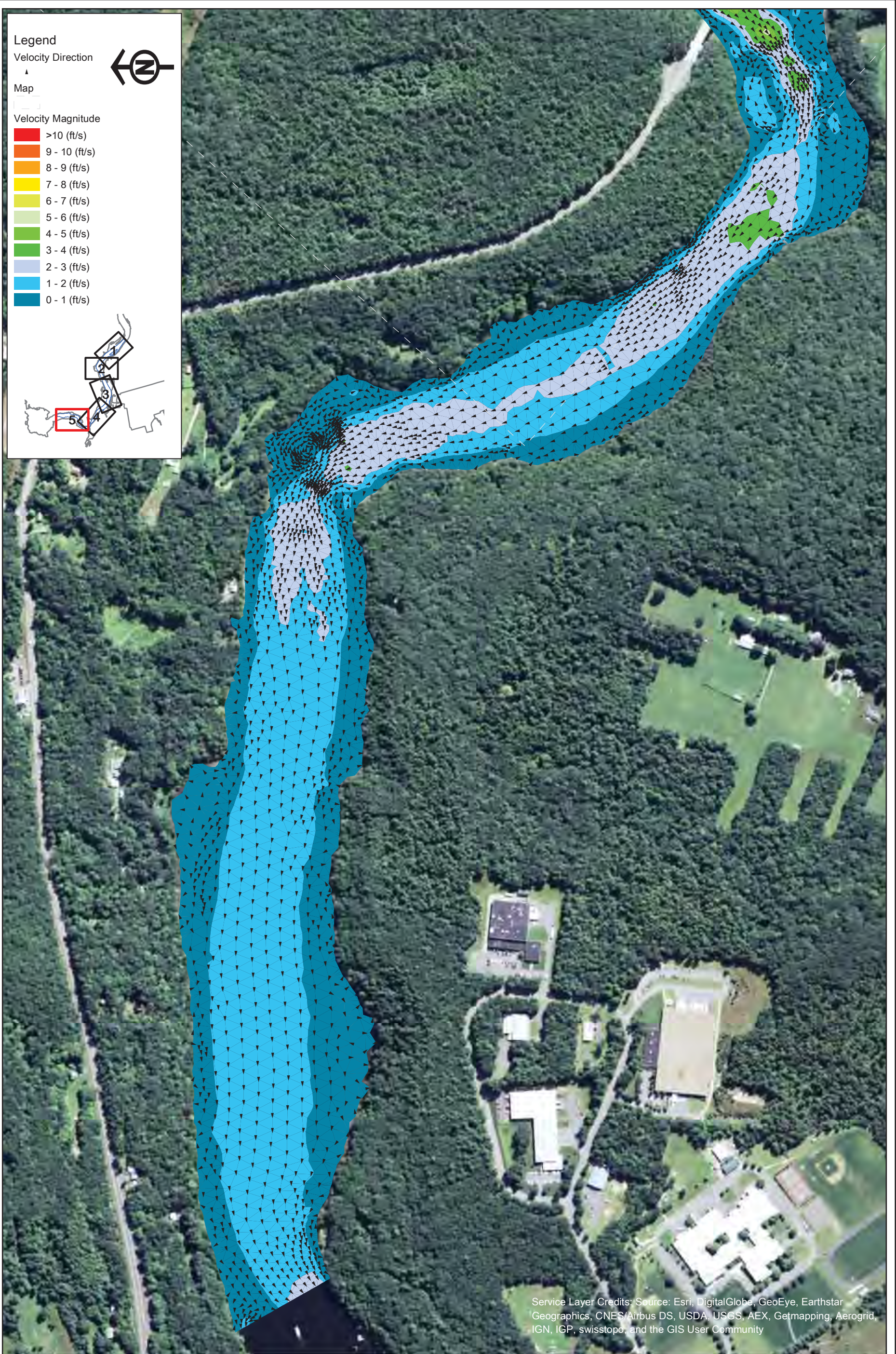


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace
Scenario 54 - Map 4
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 181.3 WSEL at
Dam



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



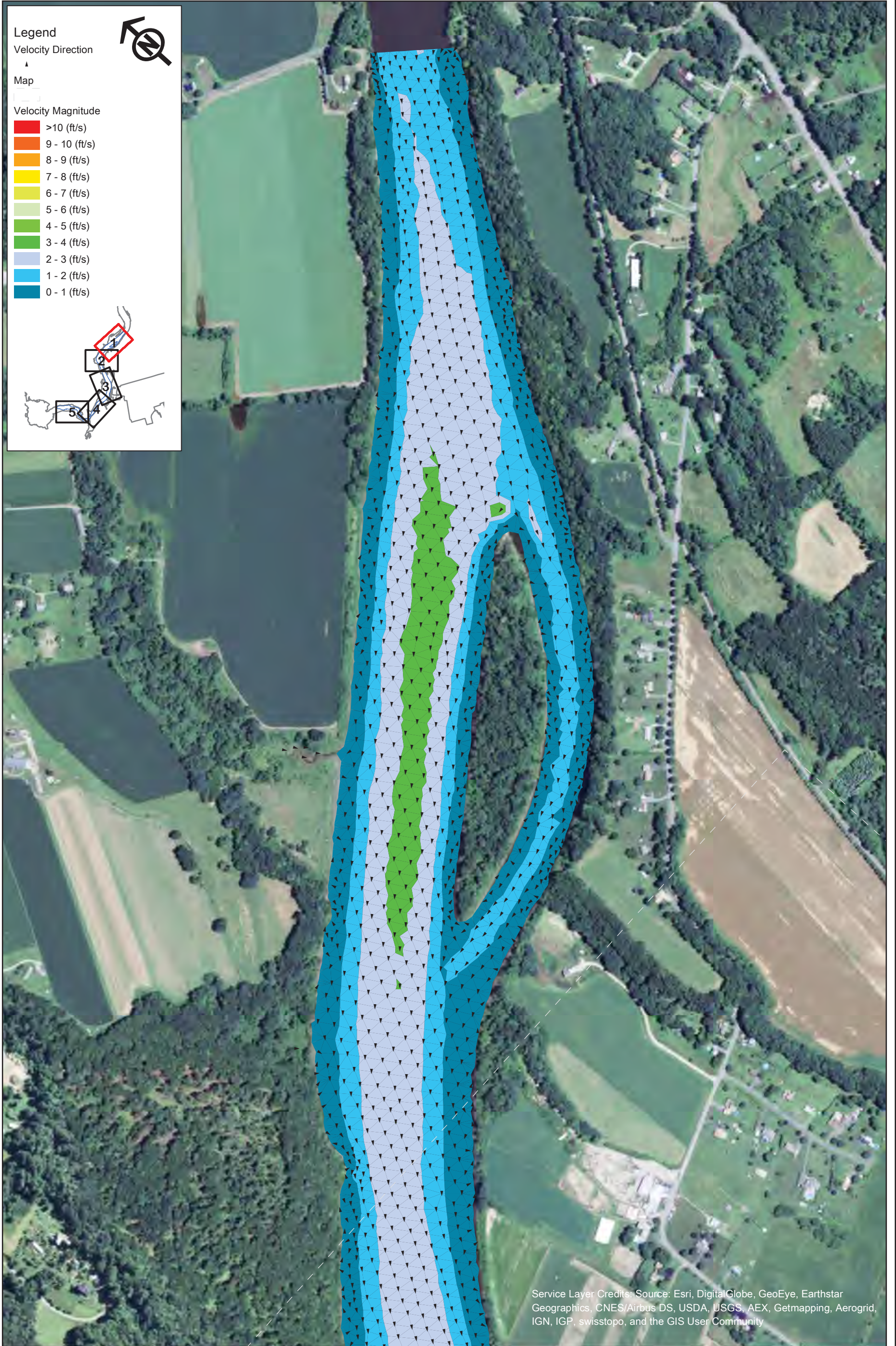
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 54 - Map 5
25% Exceedance Flow (15,700 cfs), 4 Units
Generating (20,000 cfs), 181.3 WSEL at
Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

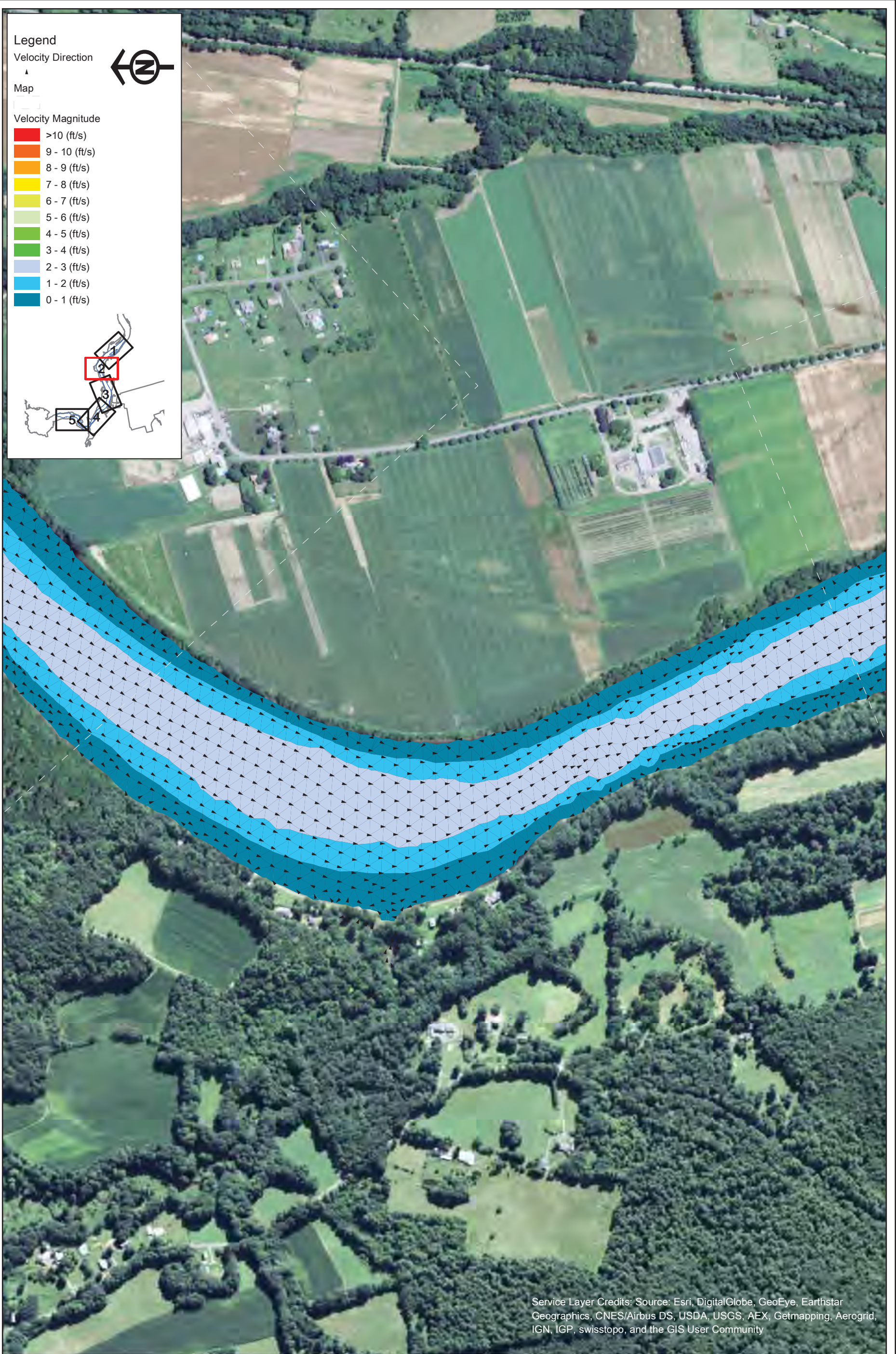
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 55 - Map 1
25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

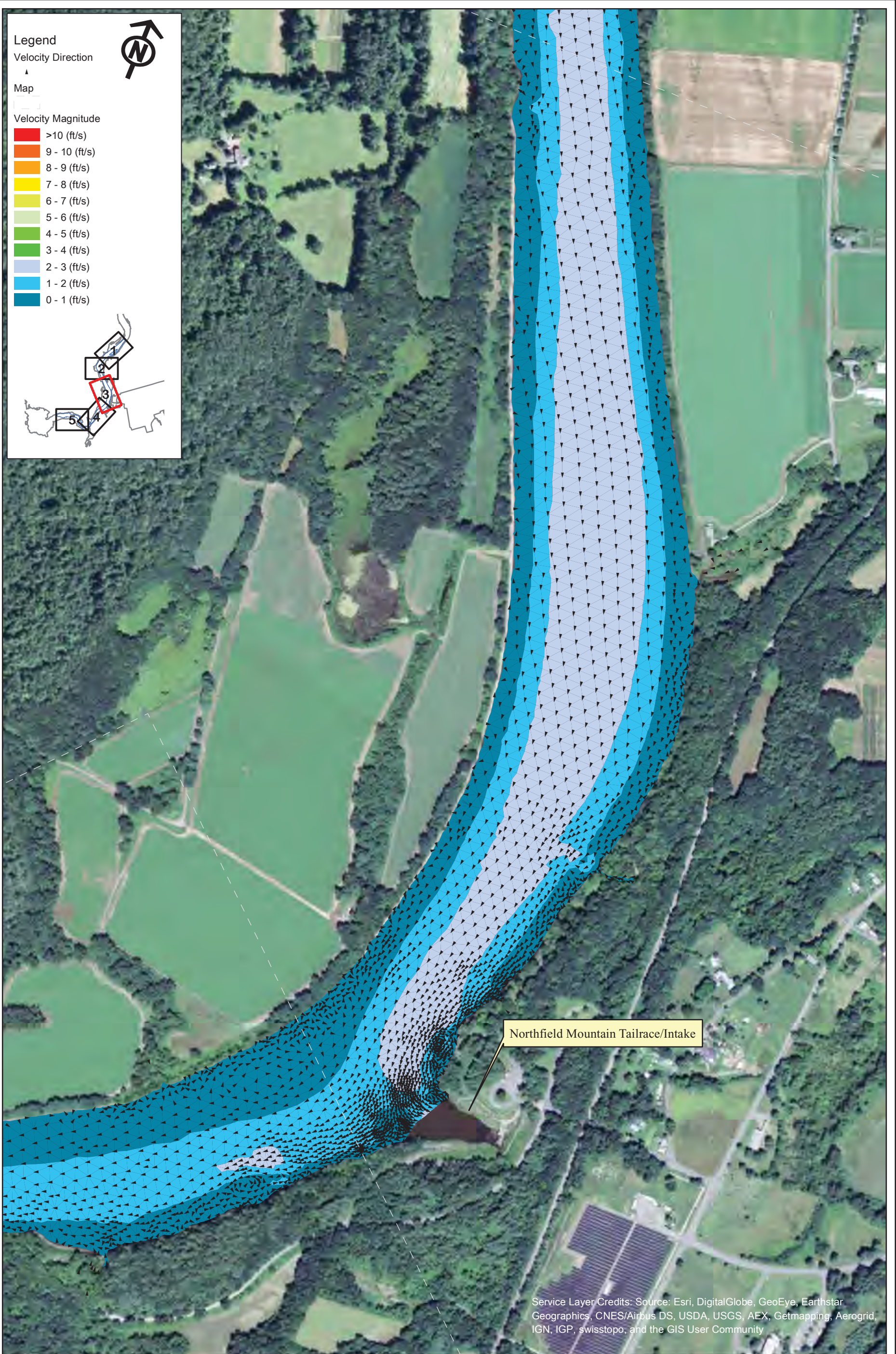


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 55 - Map 2
 25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

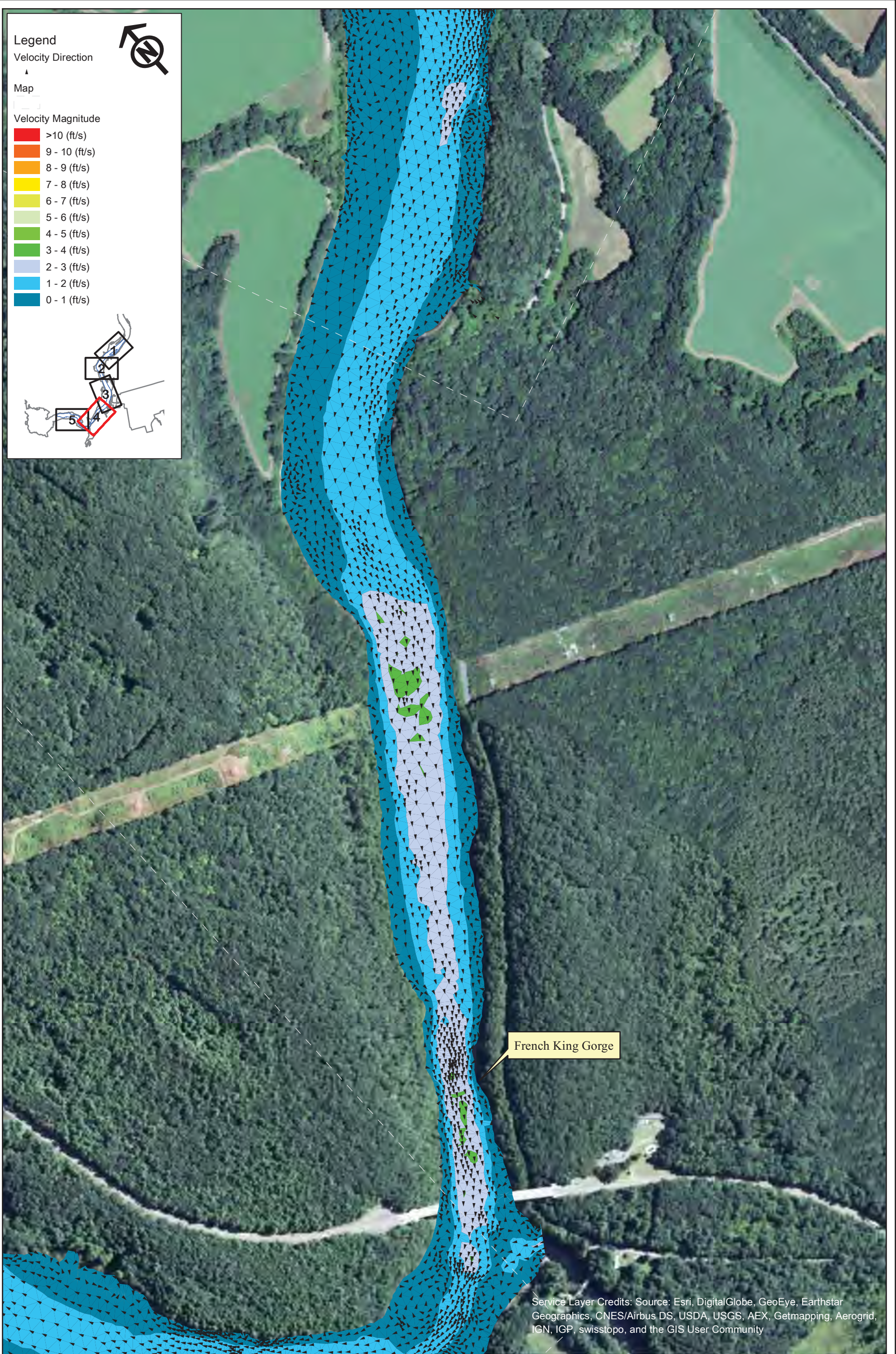


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 55 - Map 3
25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

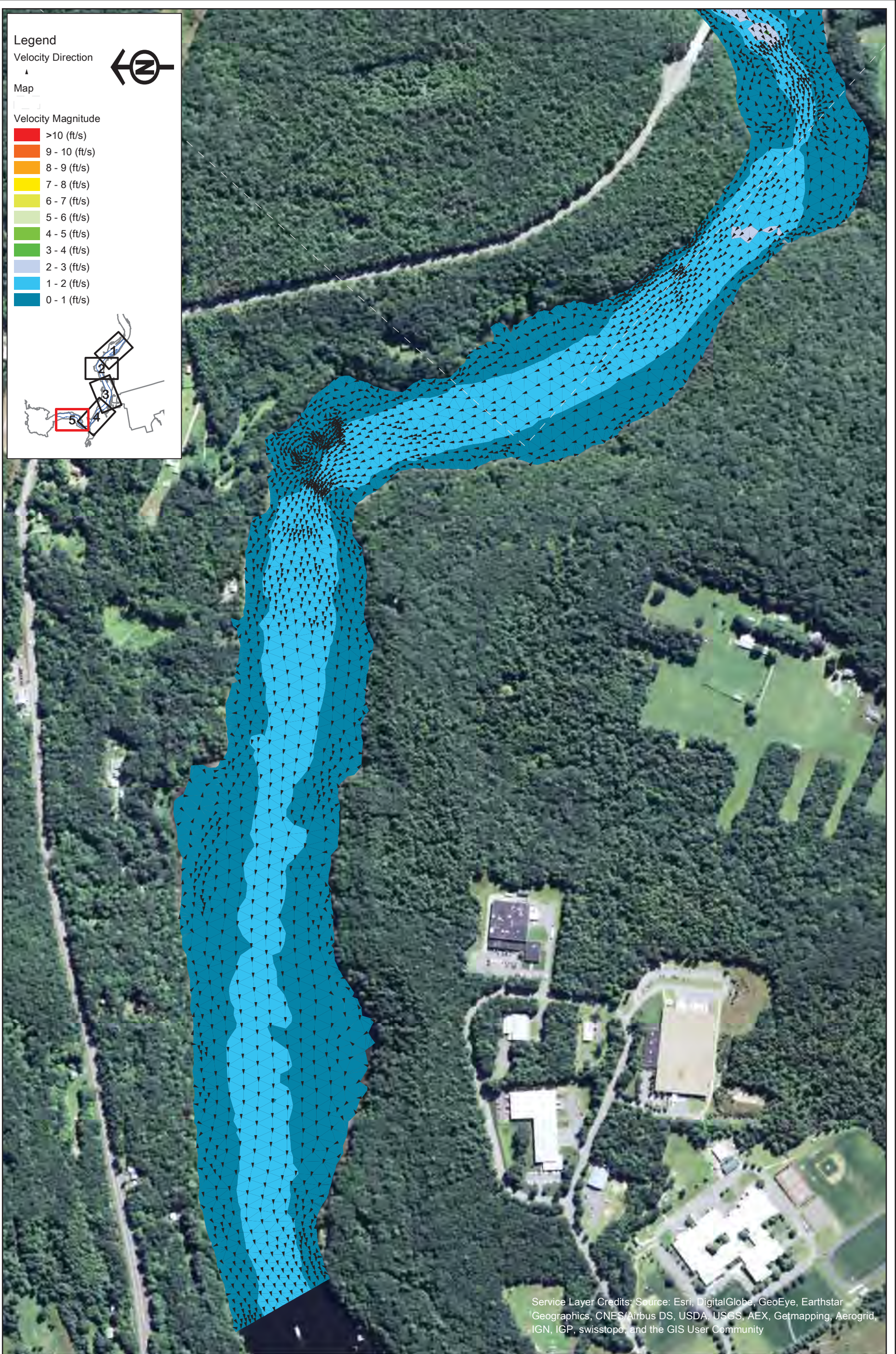
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 55 - Map 4
25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam





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



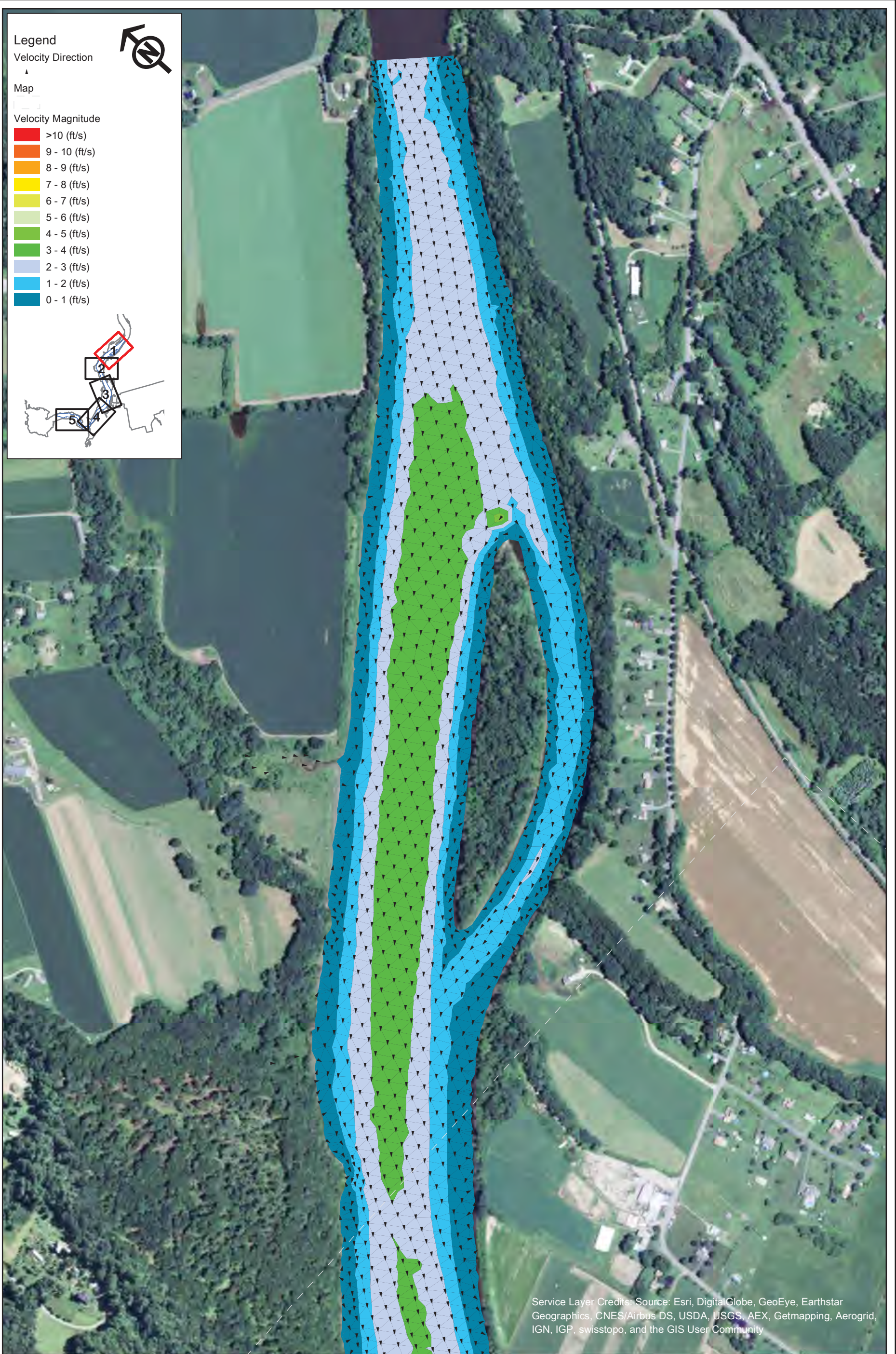
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 55 - Map 5
25% Exceedance Flow (15,700 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

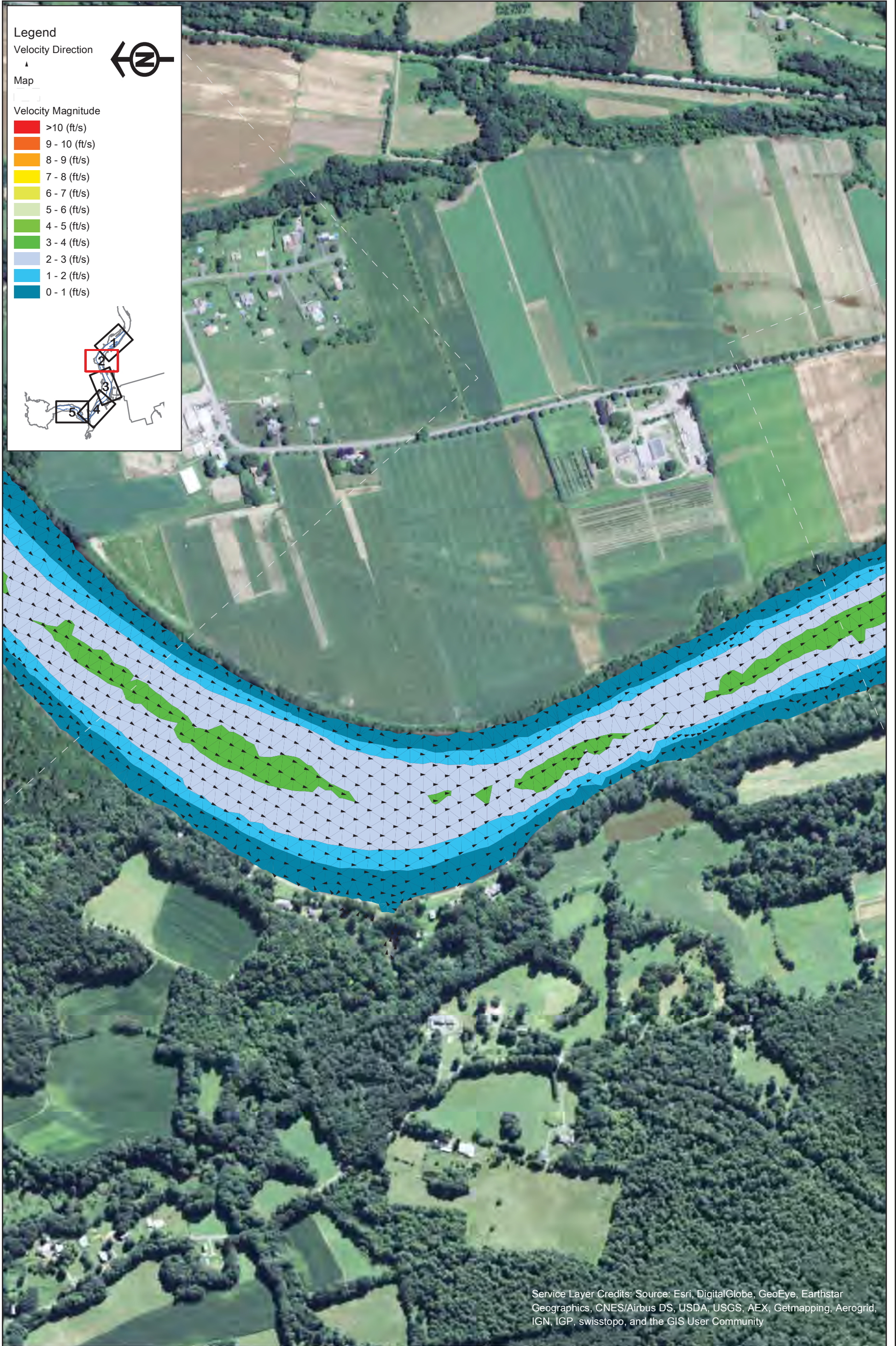
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 56 - Map 1
25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

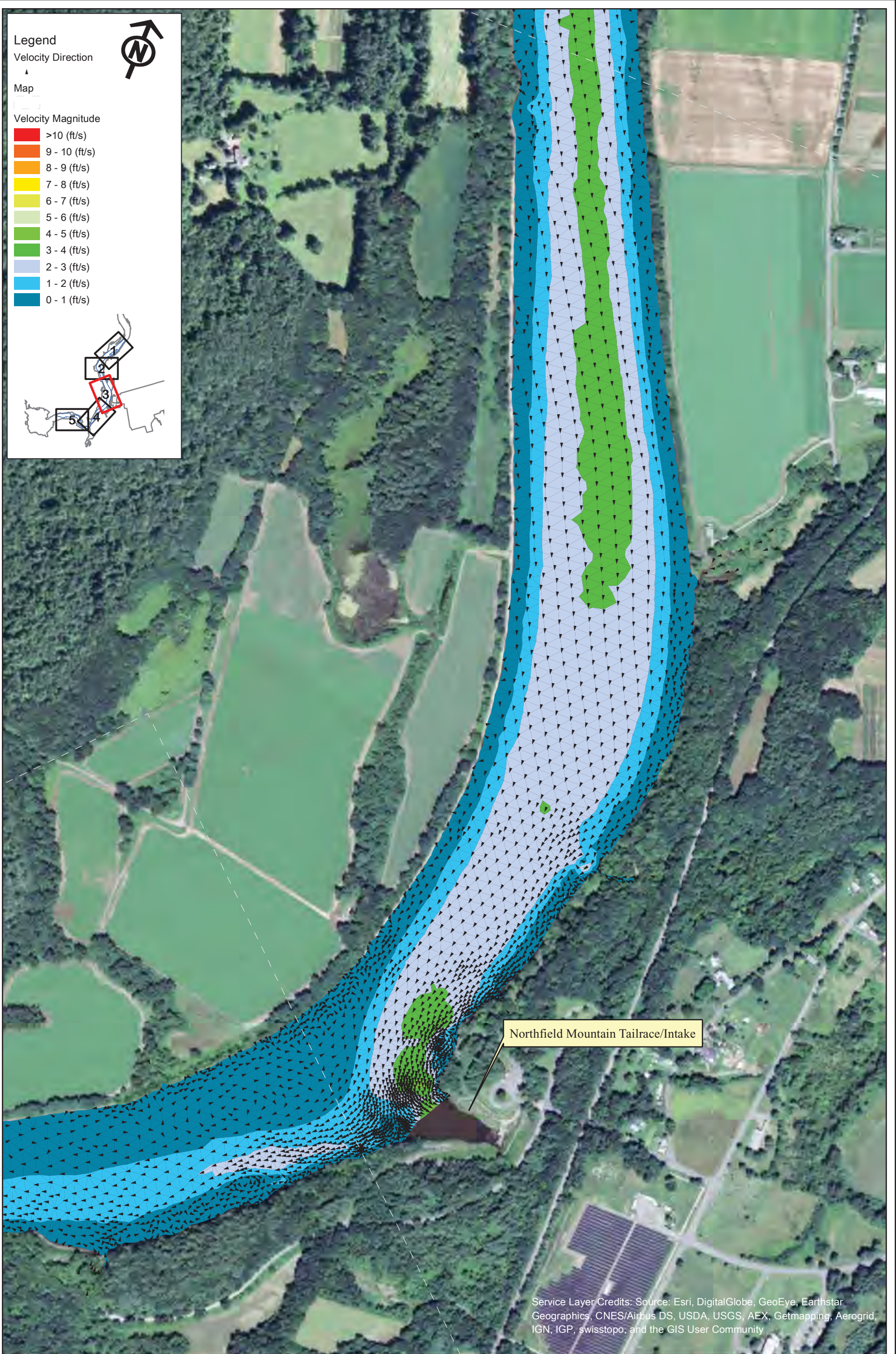


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 56 - Map 2
 25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam

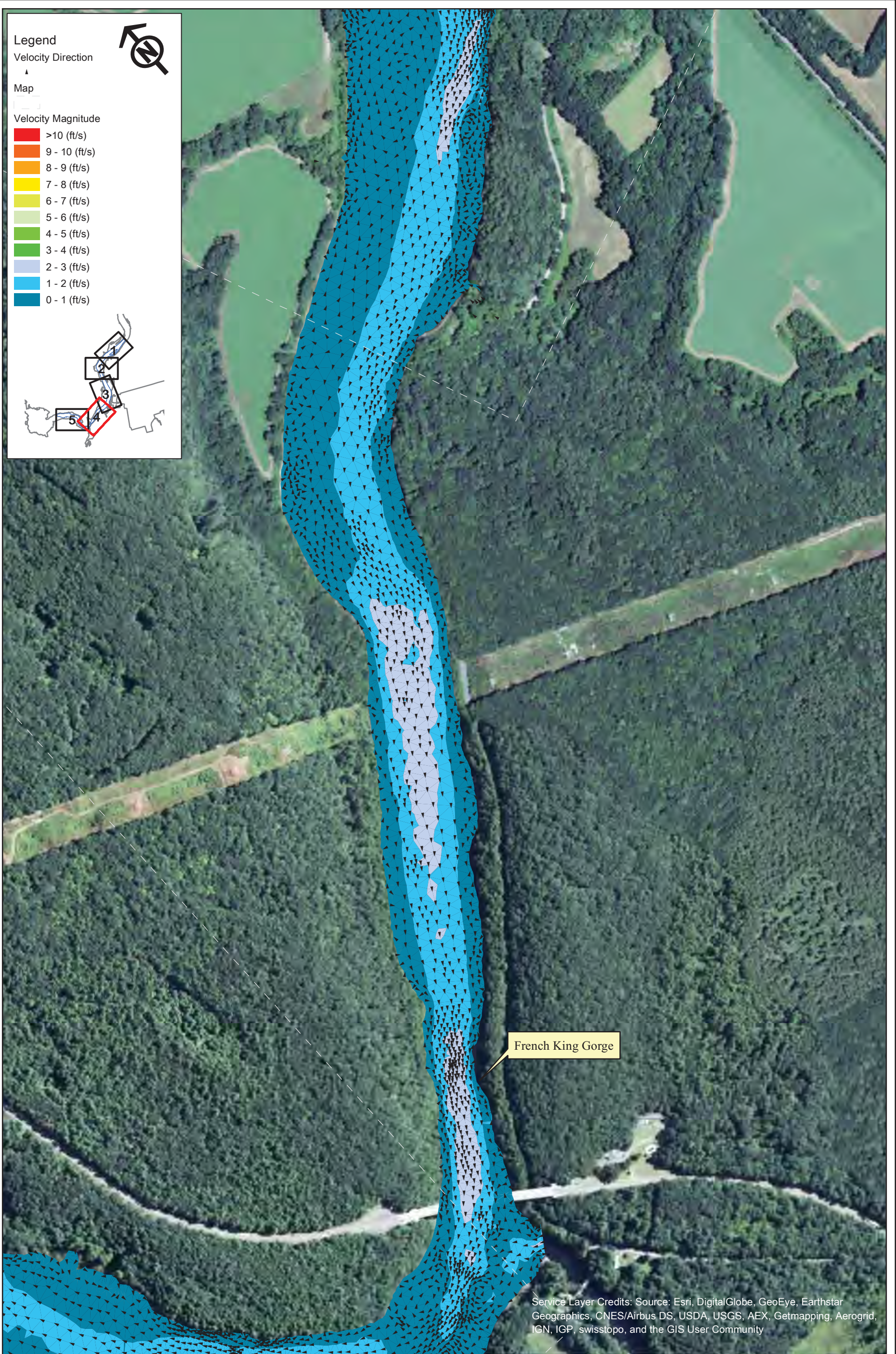


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 56 - Map 3
25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

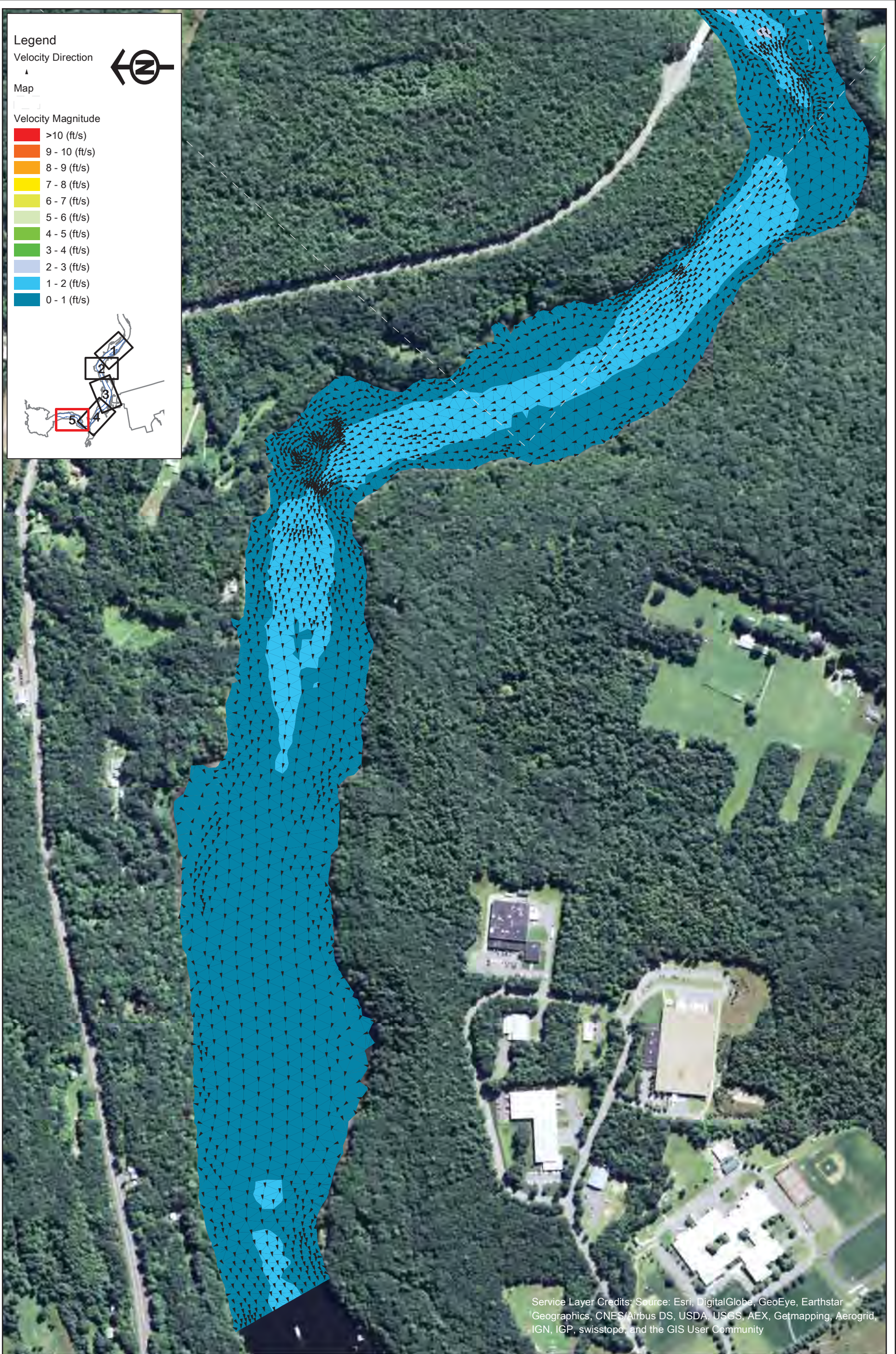
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace

Scenario 56 - Map 4
25% Exceedance Flow (15,700 cfs), 4 Units
Pumping (15,200 cfs), 181.3 WSEL at Dam





Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

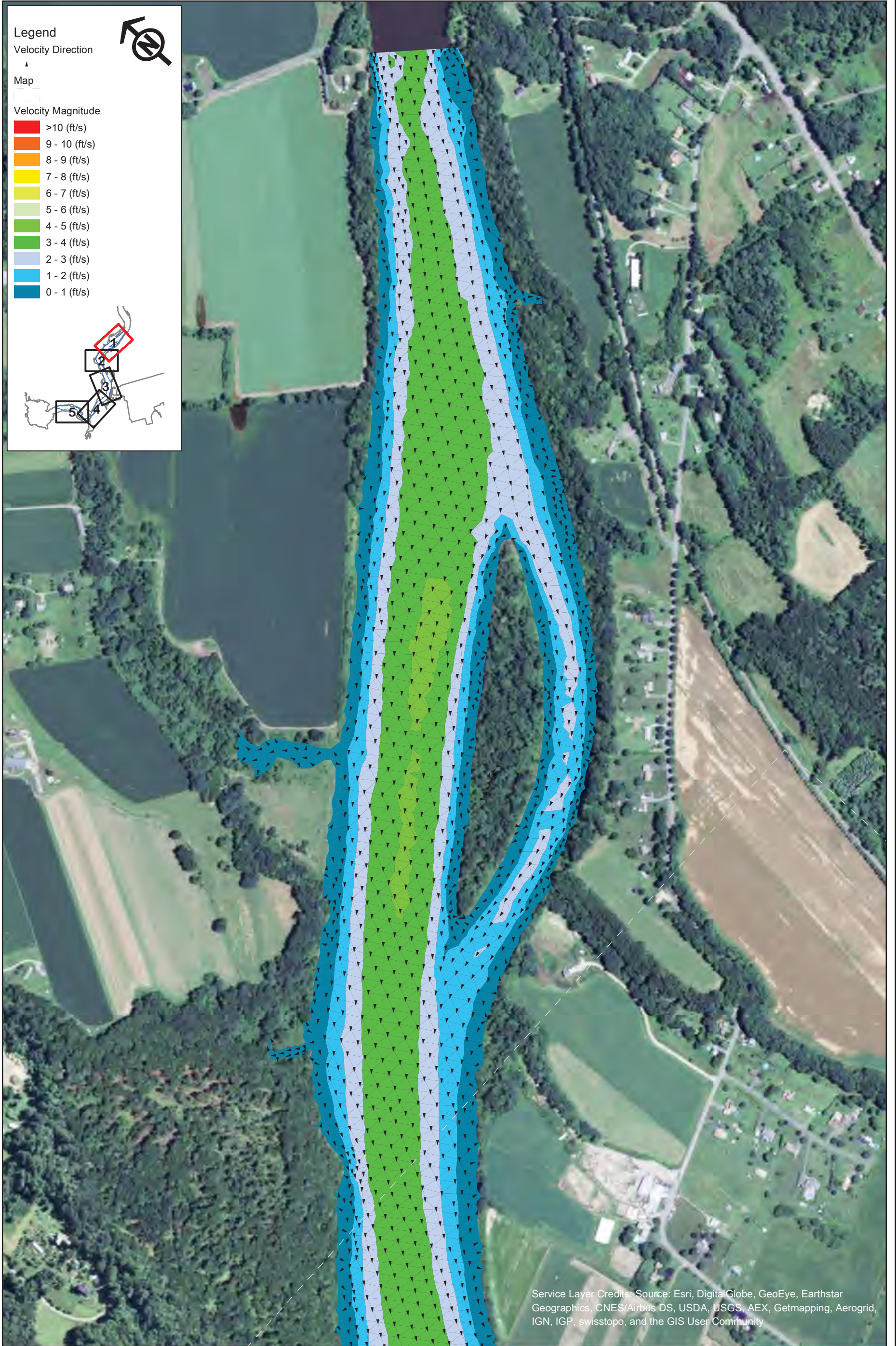


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 56 - Map 5
 25% Exceedance Flow (15,700 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Map

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

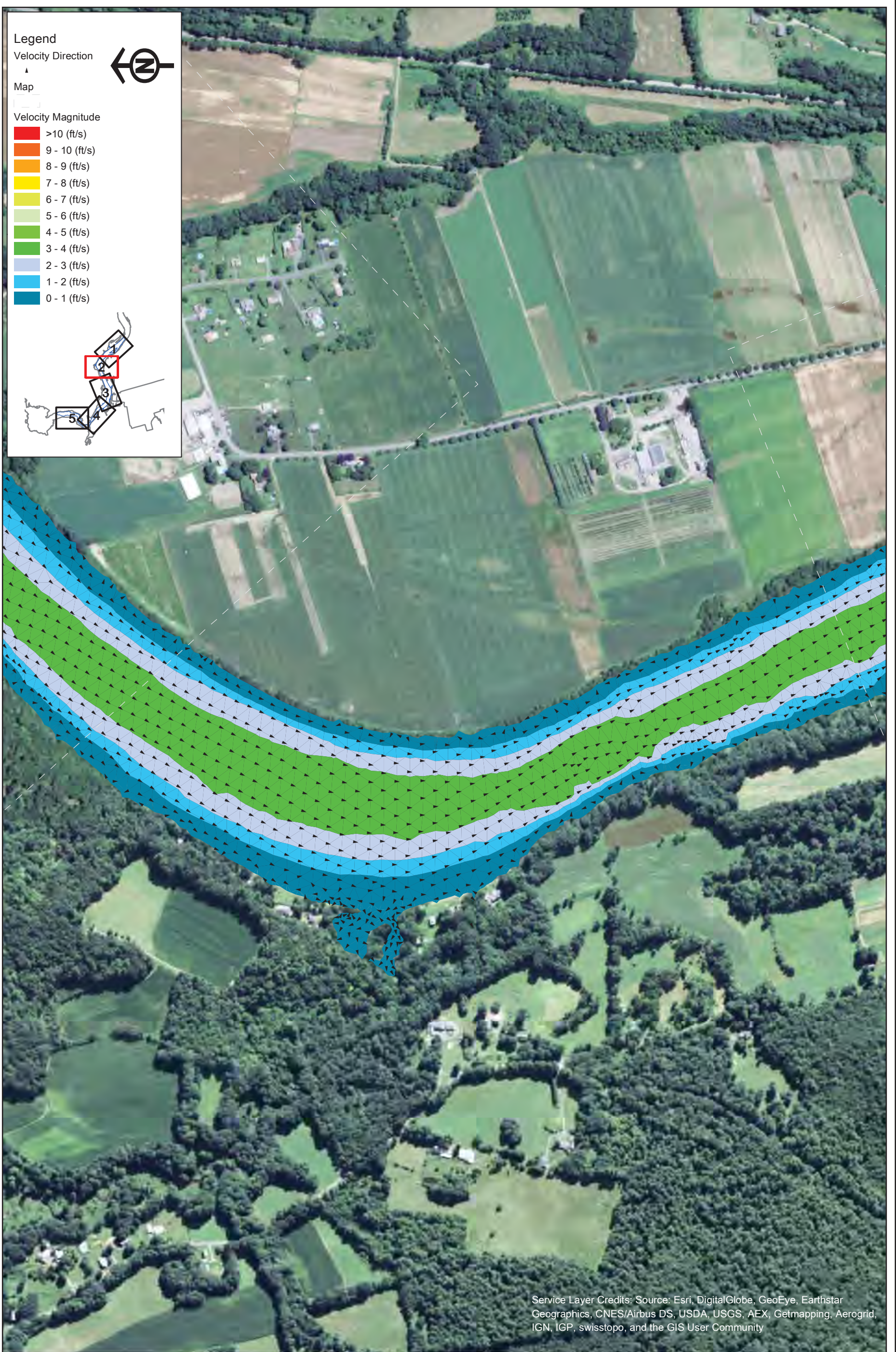


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 57 - Map 1
5% Exceedance Flow (40,100 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



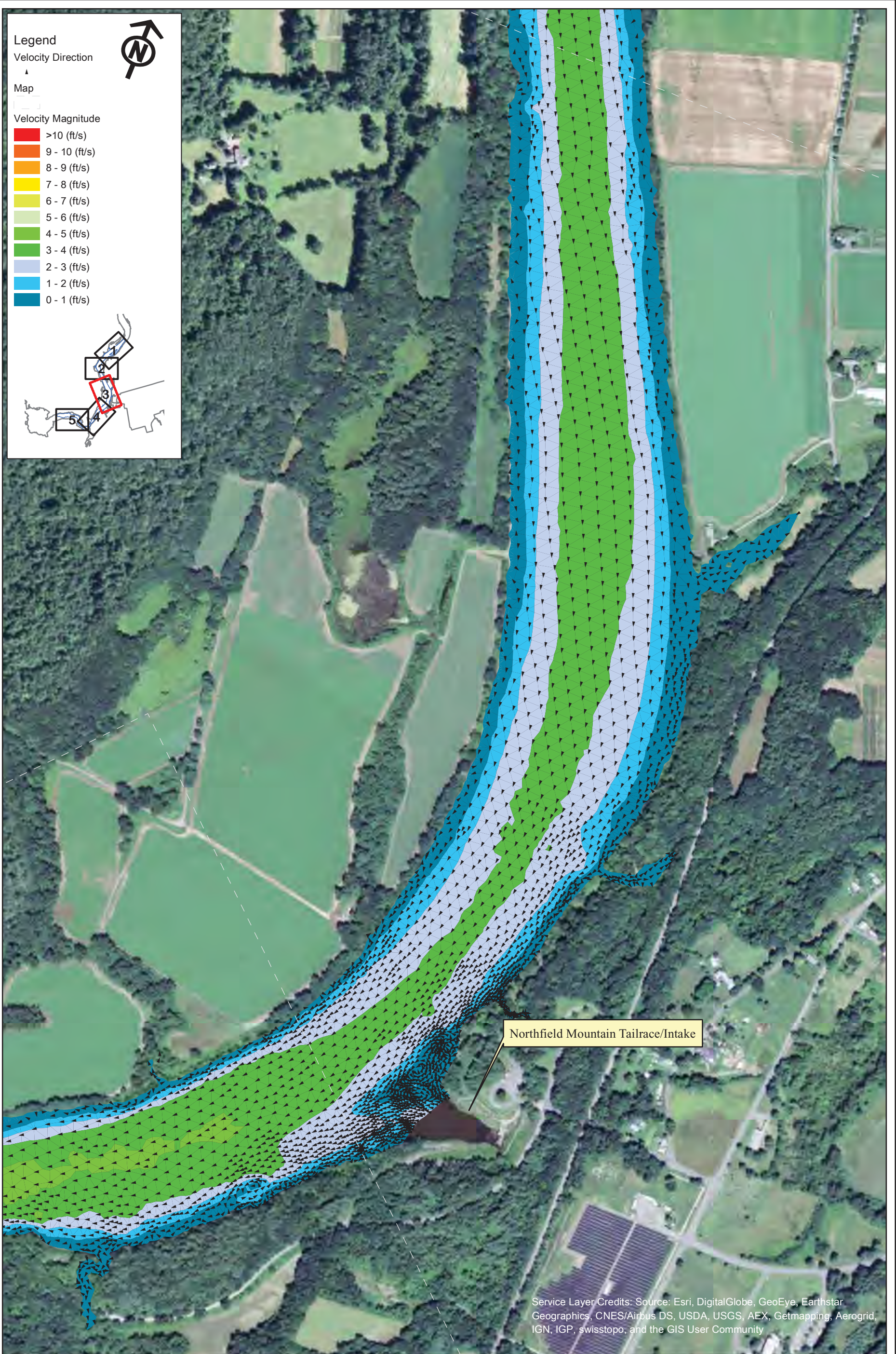
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 57 - Map 2
5% Exceedance Flow (40,100 cfs), 2 Units
Generating (10,000 cfs), 181.3 WSEL at
Dam



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

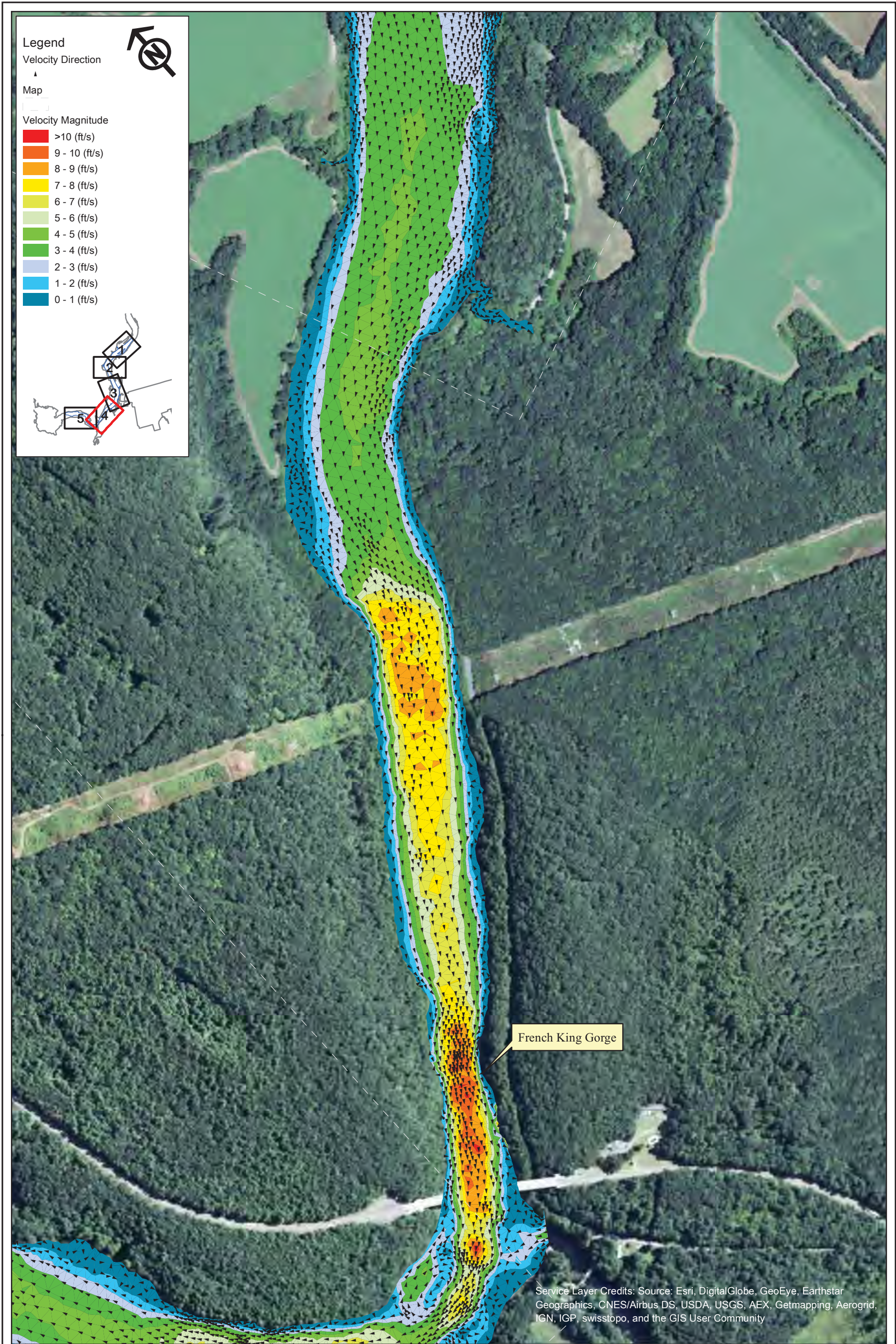


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 57 - Map 3
5% Exceedance Flow (40,100 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



French King Gorge

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

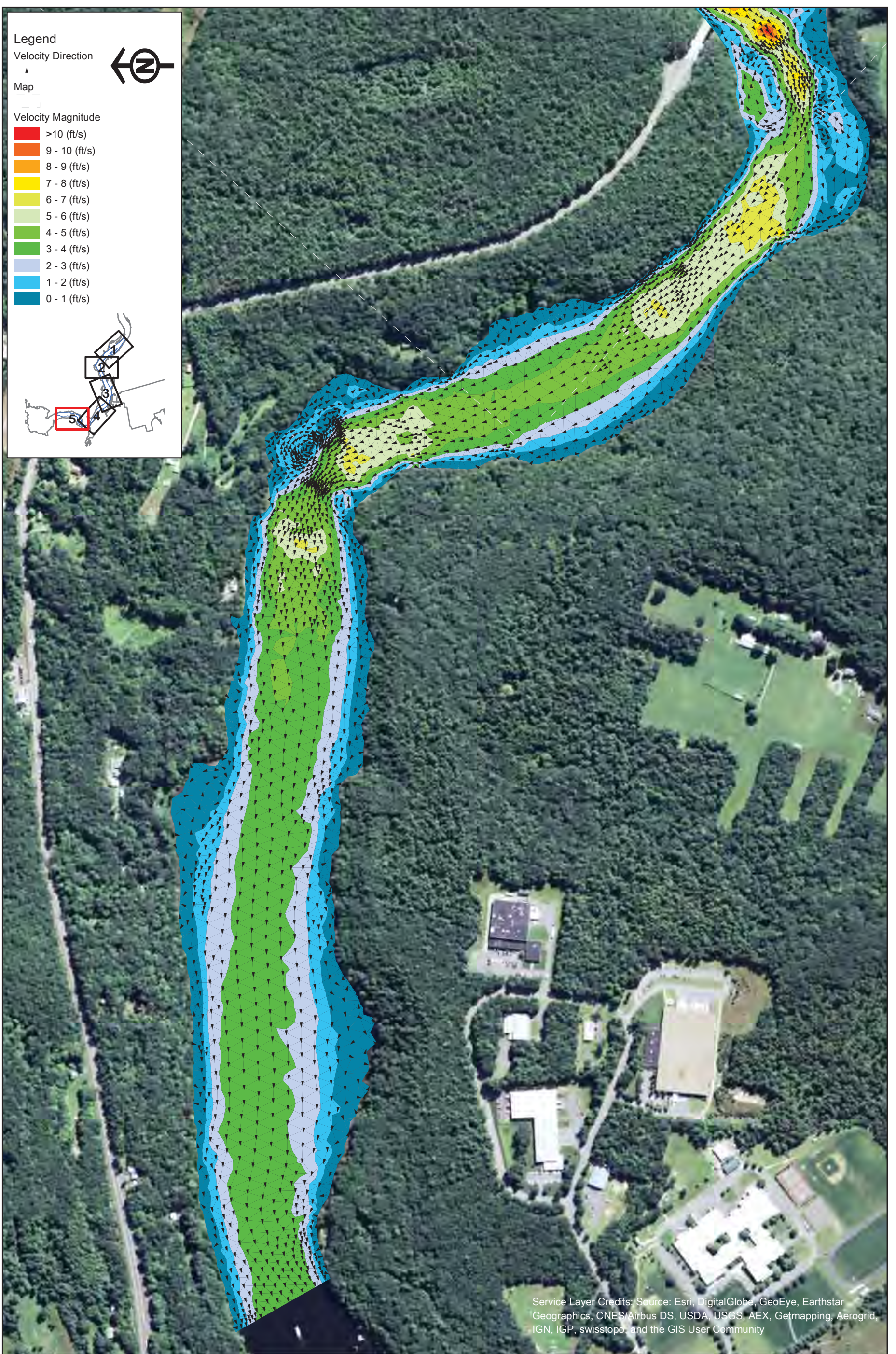


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 57 - Map 4
5% Exceedance Flow (40,100 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

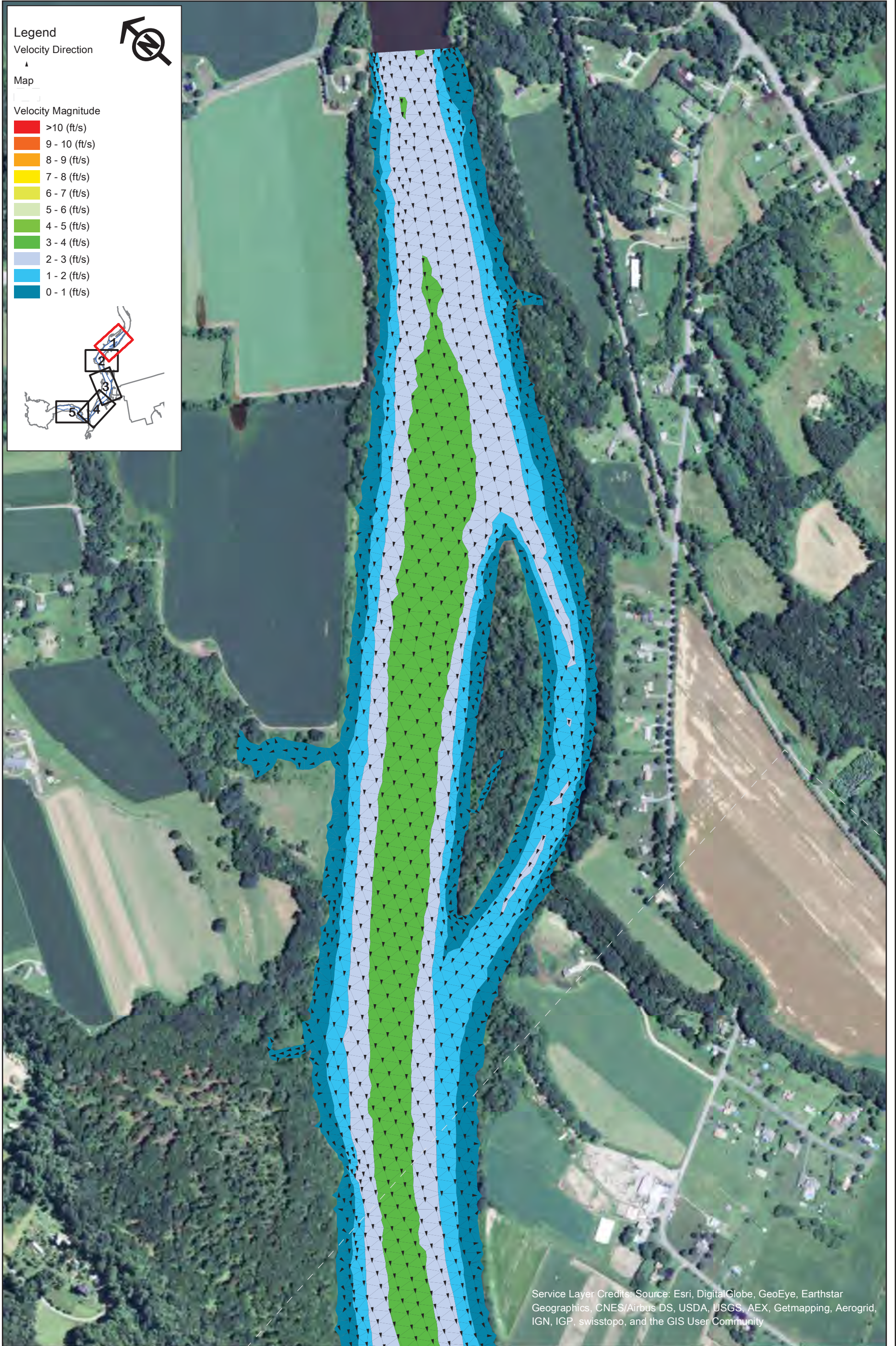


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 57 - Map 5
 5% Exceedance Flow (40,100 cfs), 2 Units Generating (10,000 cfs), 181.3 WSEL at Dam



Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

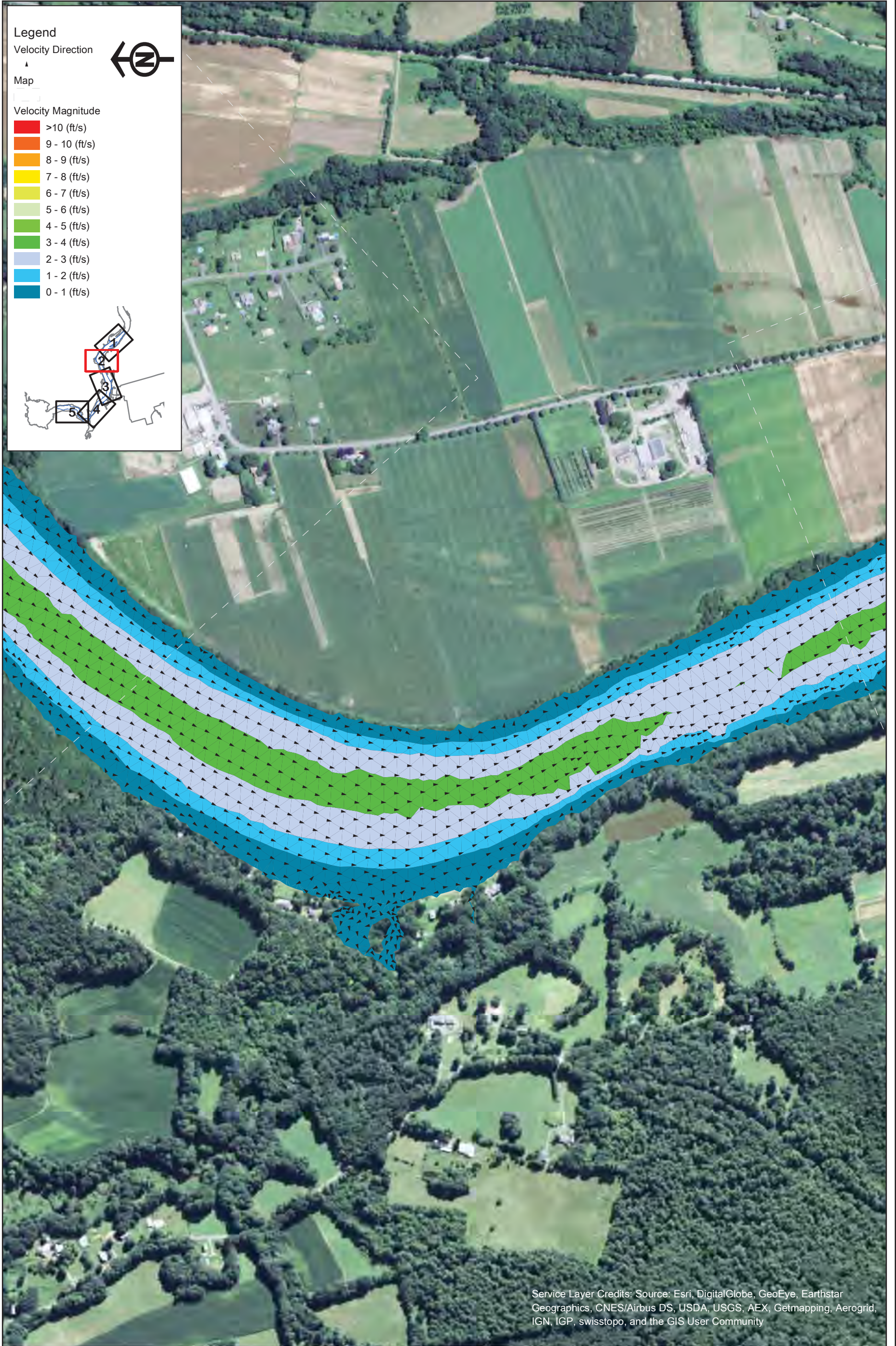
STUDY REPORT
RELICENSING STUDY 3.3.9

0 250 500 1,000
Feet

Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 58 - Map 1
5% Exceedance Flow (40,100 cfs), 4 Units
Generating (20,000 cfs), 181.3 WSEL at
Dam





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

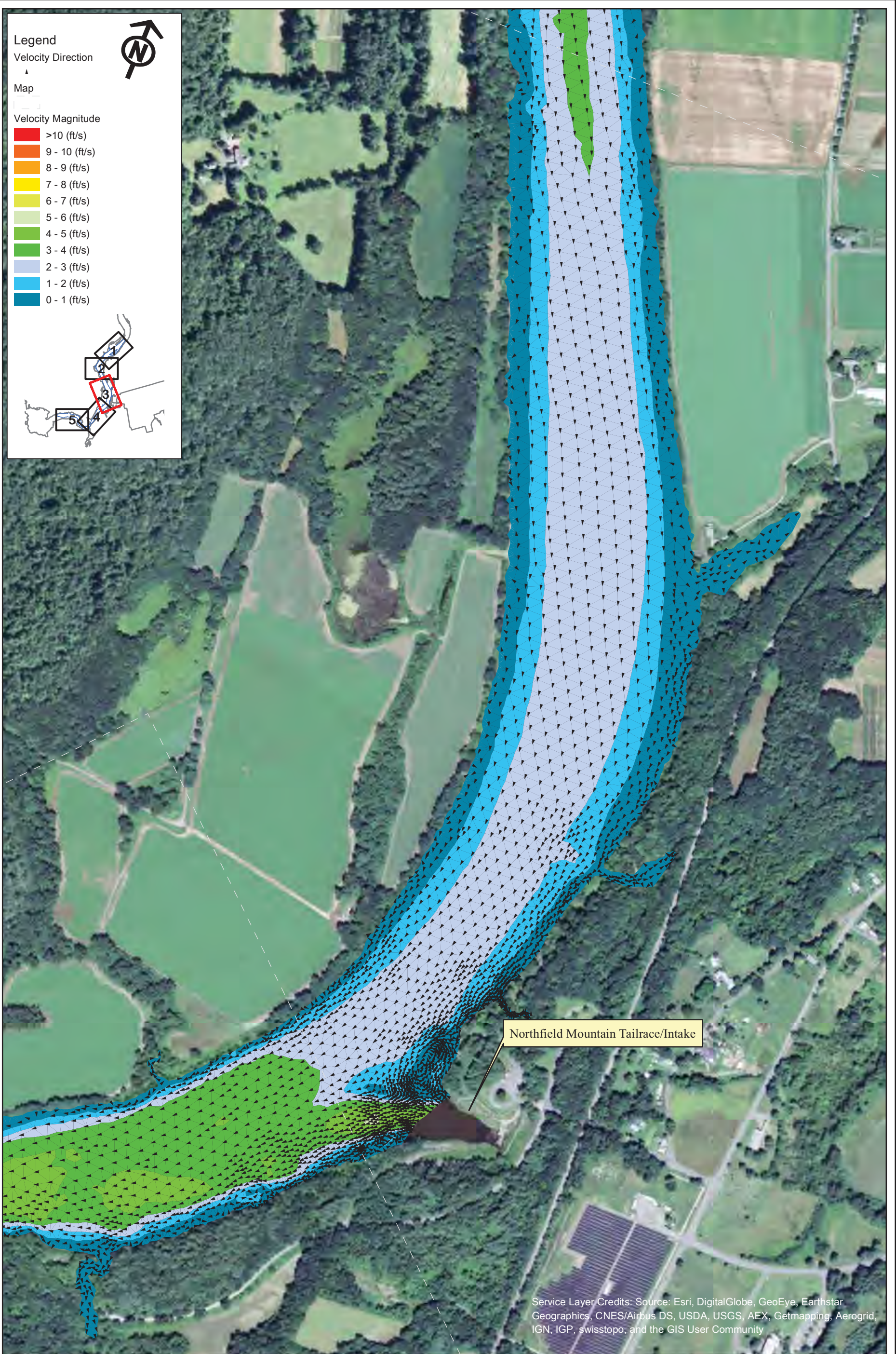


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 58 - Map 2
 5% Exceedance Flow (40,100 cfs), 4 Units
 Generating (20,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

Northfield Mountain Tailrace/Intake

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

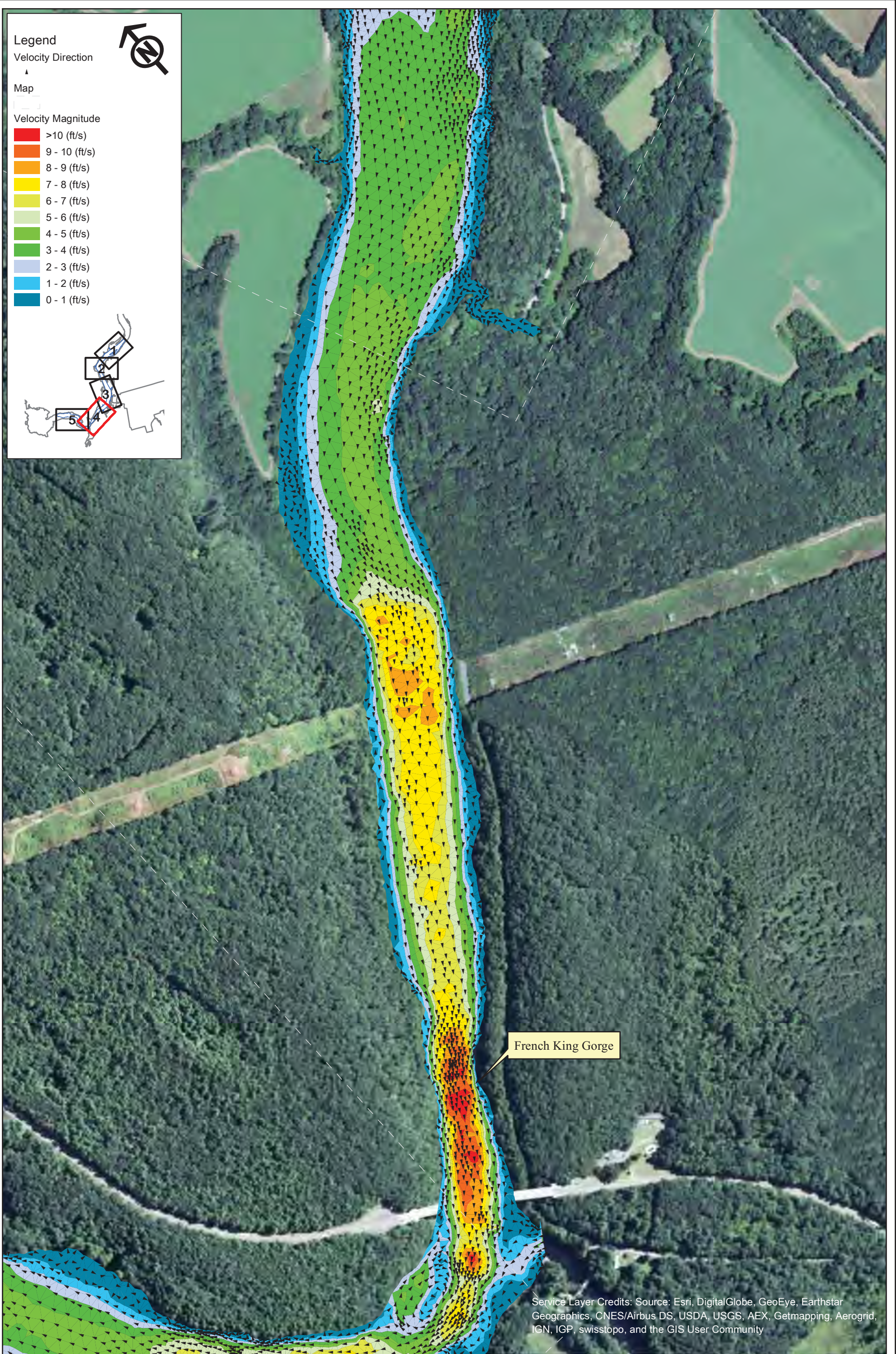


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 58 - Map 3
5% Exceedance Flow (40,100 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



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

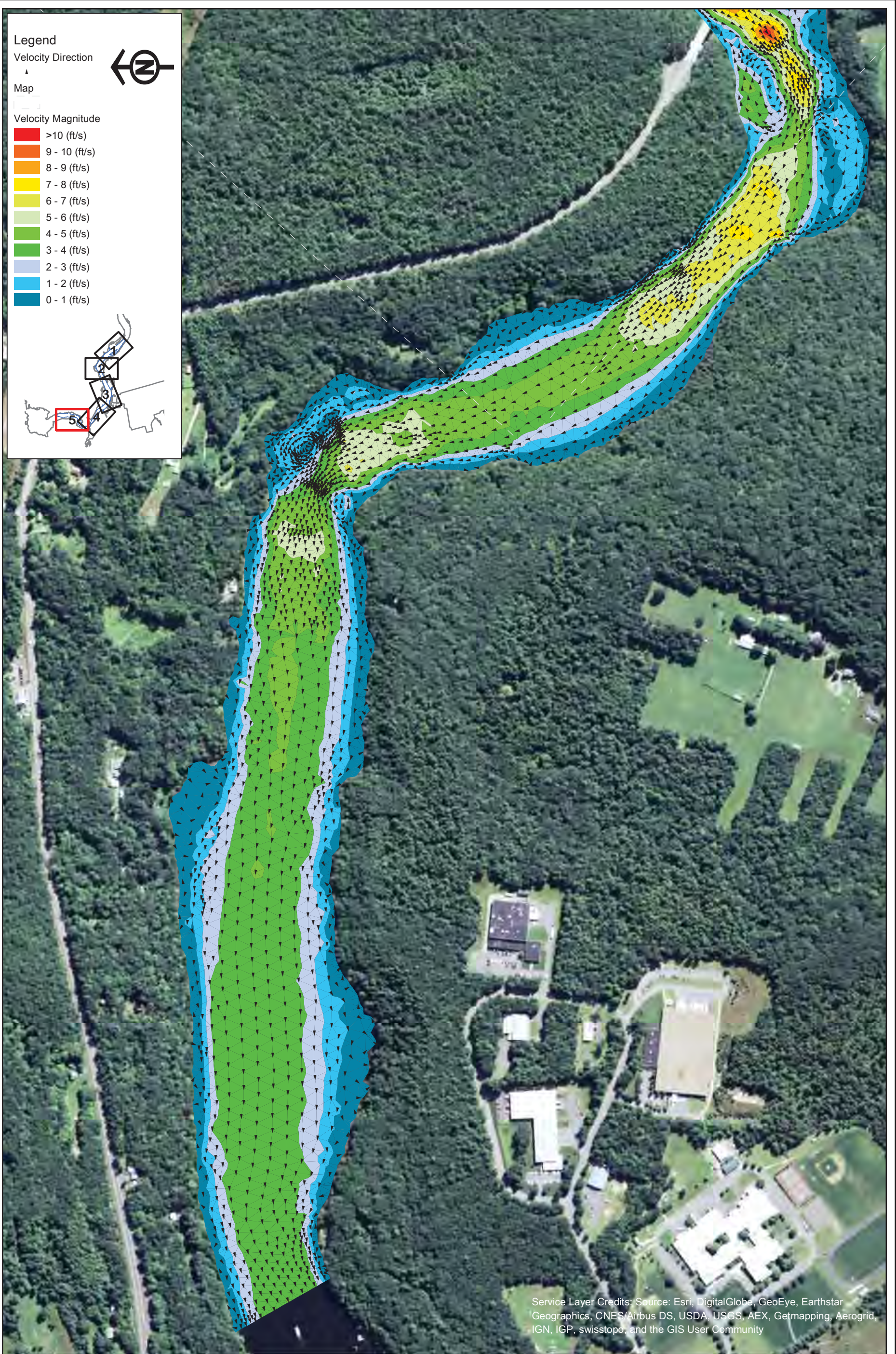


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 58 - Map 4
5% Exceedance Flow (40,100 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



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

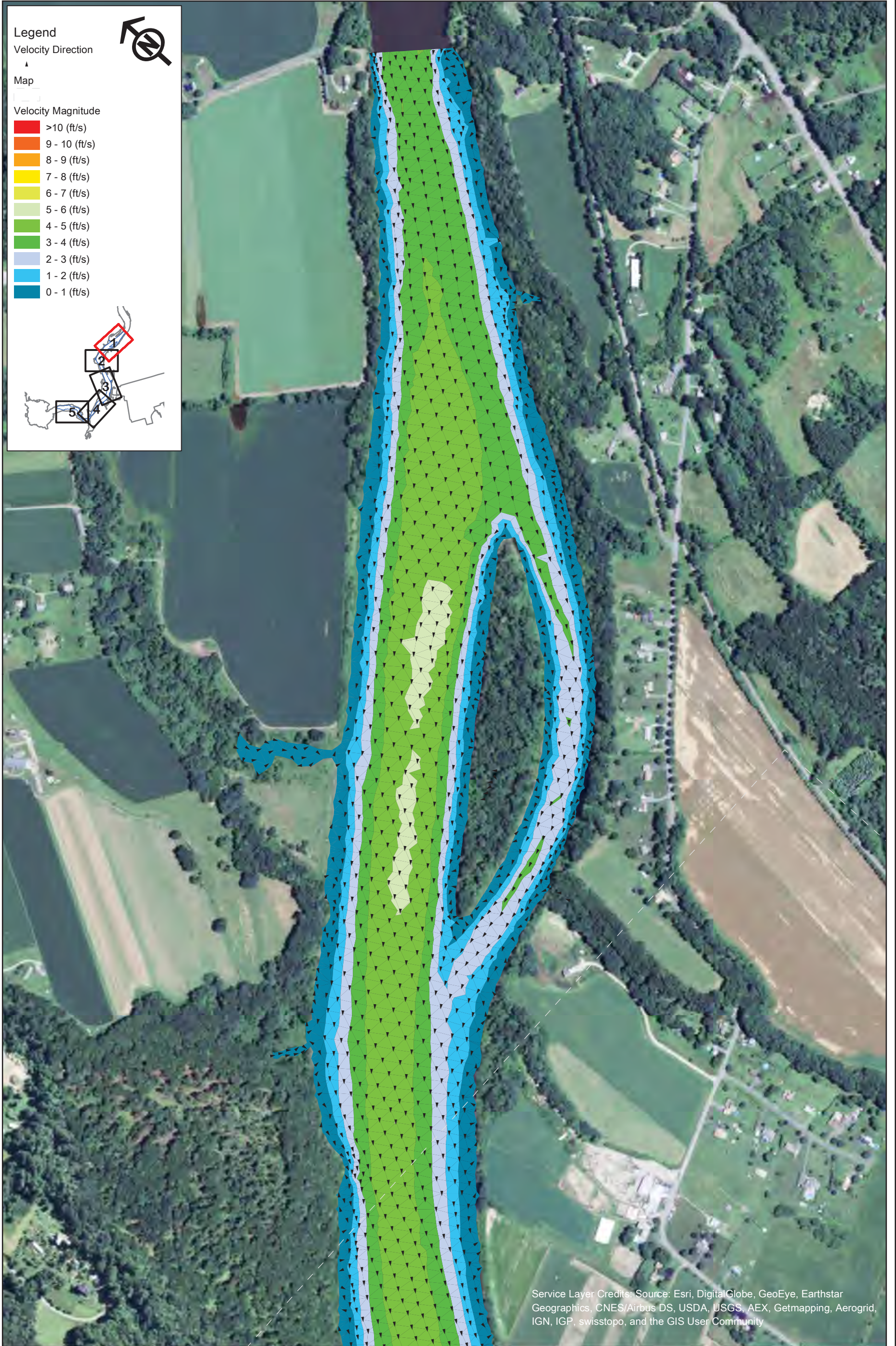


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 58 - Map 5
5% Exceedance Flow (40,100 cfs), 4 Units Generating (20,000 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

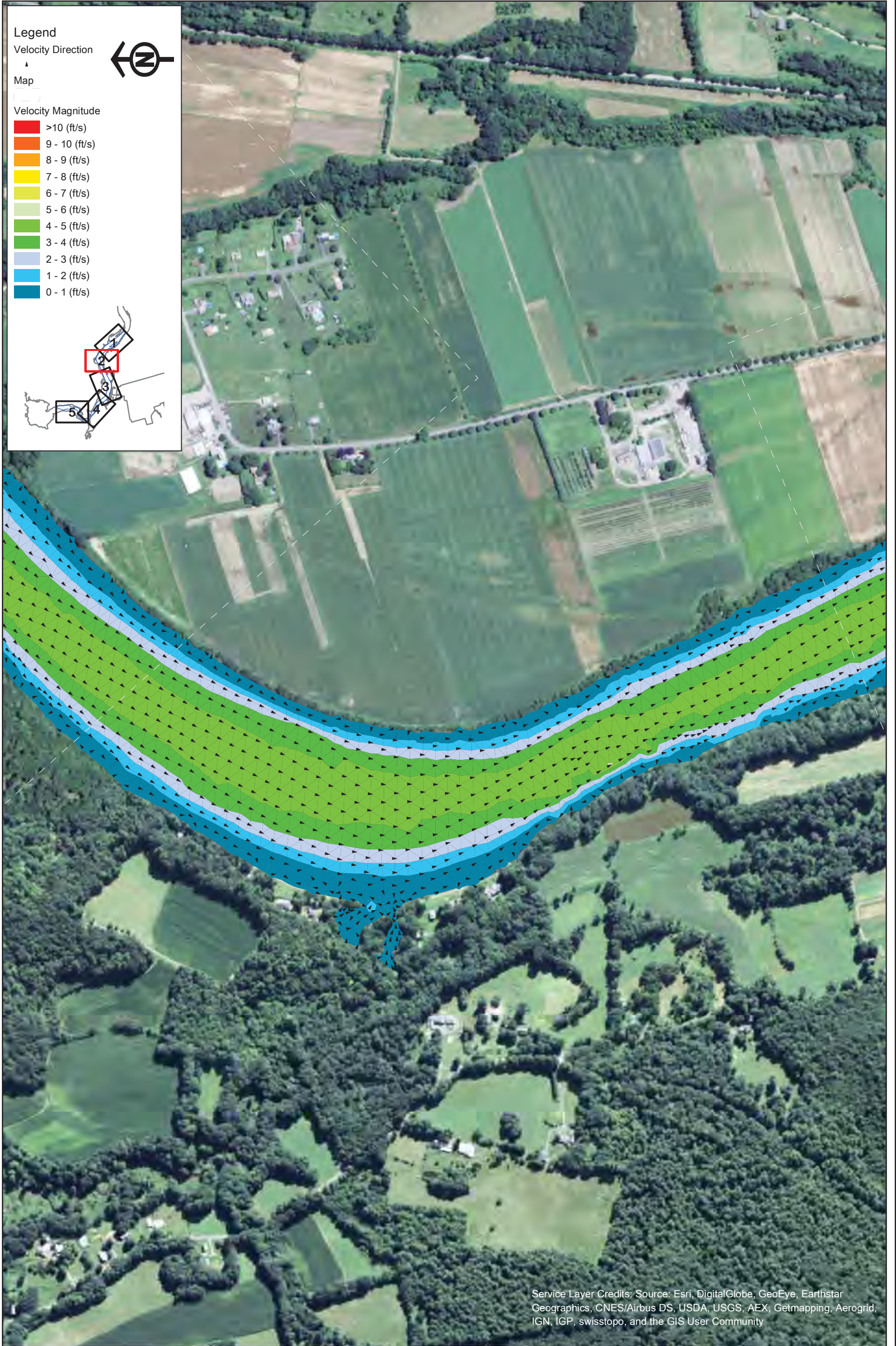


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 59 - Map 1
5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- █ >10 (ft/s)
- █ 9 - 10 (ft/s)
- █ 8 - 9 (ft/s)
- █ 7 - 8 (ft/s)
- █ 6 - 7 (ft/s)
- █ 5 - 6 (ft/s)
- █ 4 - 5 (ft/s)
- █ 3 - 4 (ft/s)
- █ 2 - 3 (ft/s)
- █ 1 - 2 (ft/s)
- █ 0 - 1 (ft/s)

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

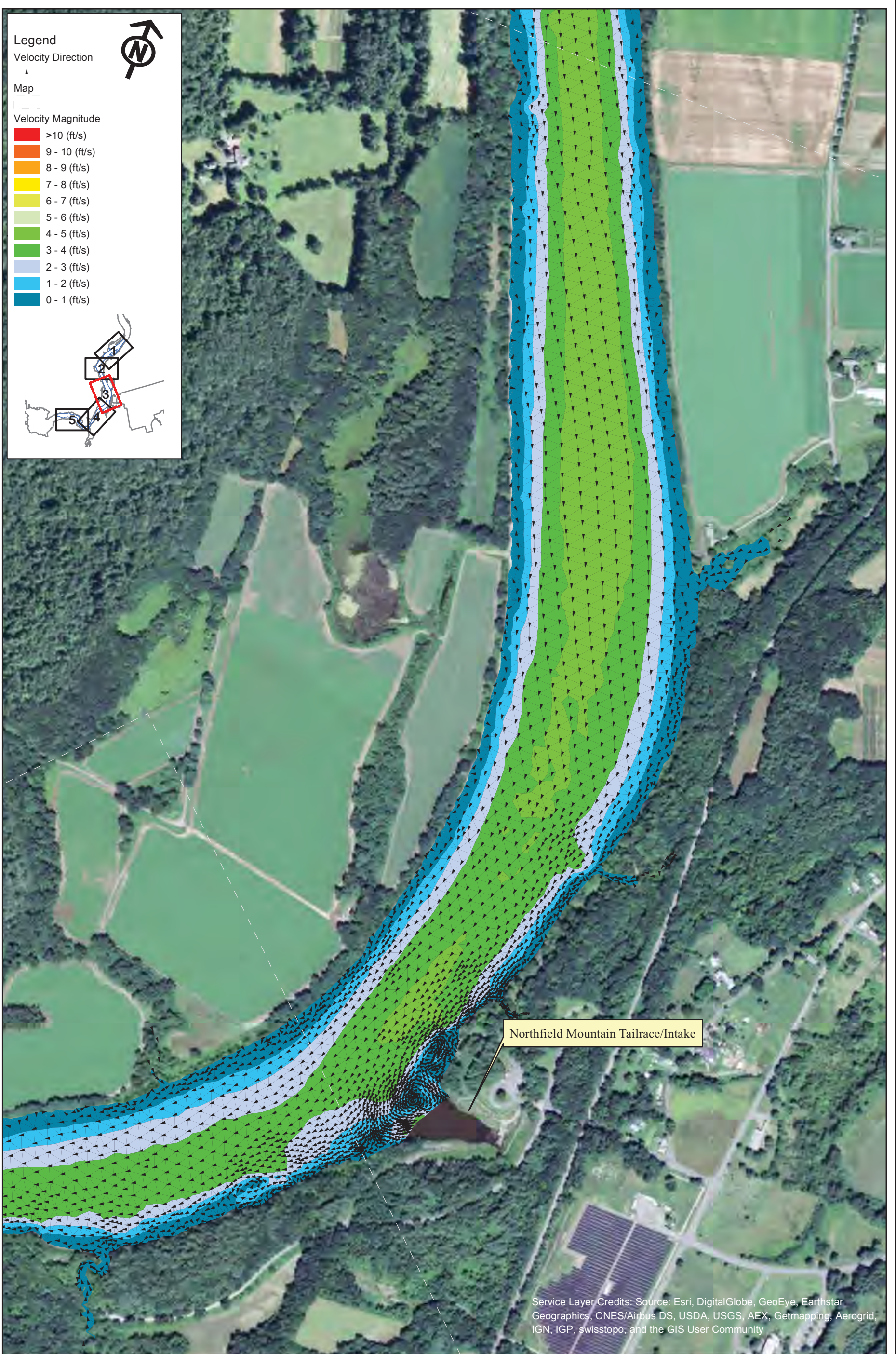


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 59 - Map 2
 5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



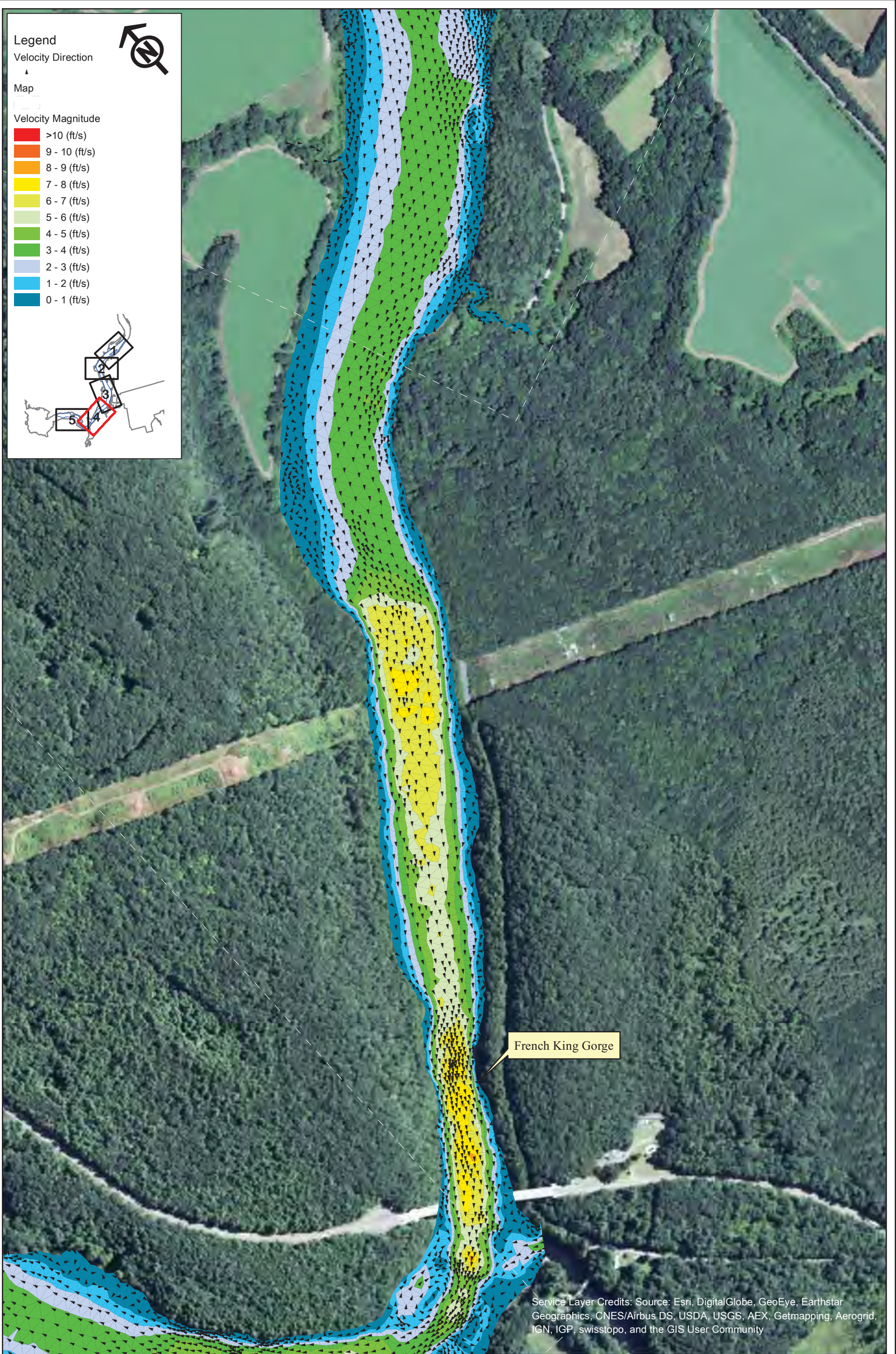
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 59 - Map 3
5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



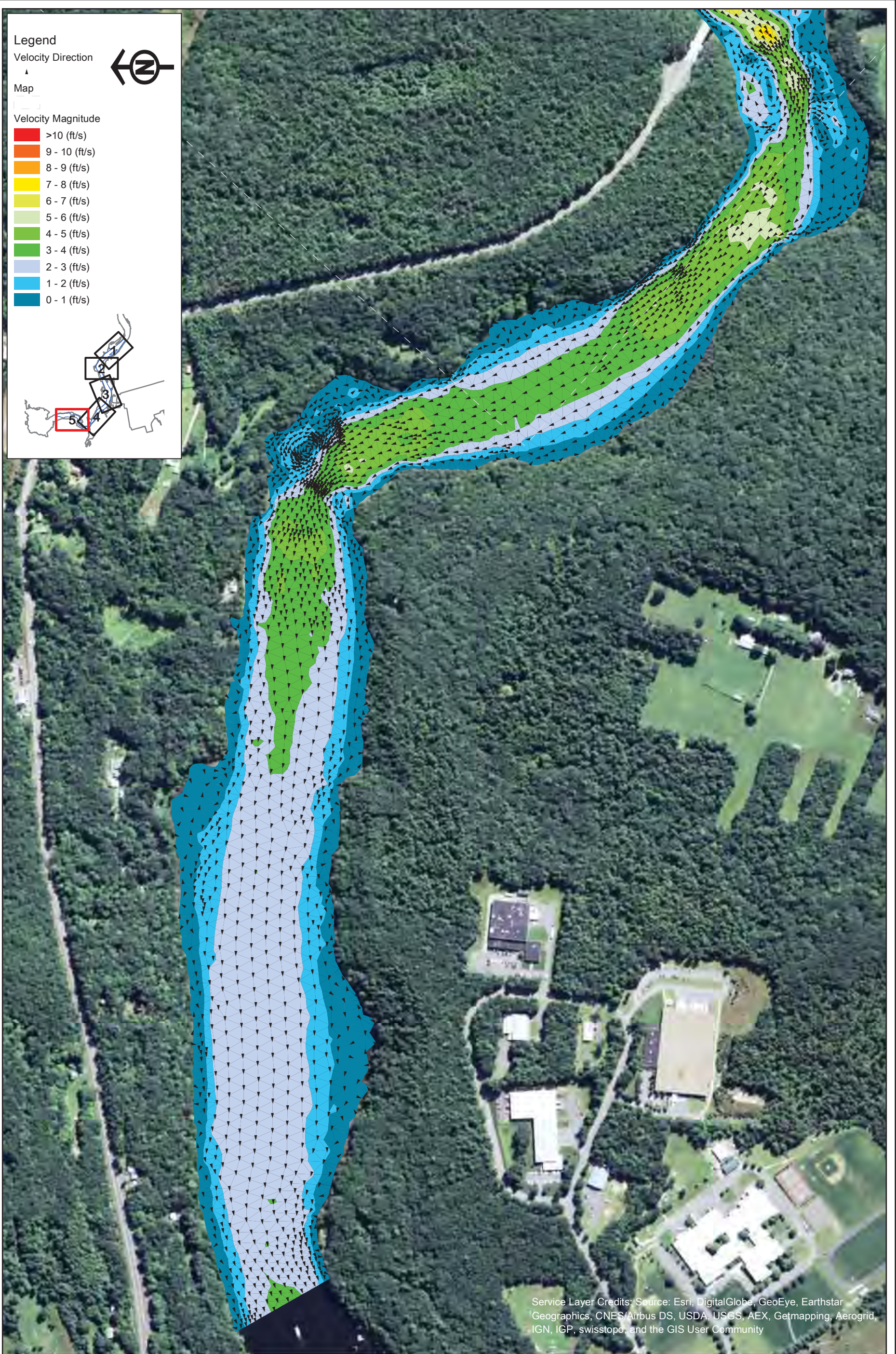


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls
Impoundment 5 km Upstream and 5 km
Downstream of the Northfield Tailrace
Scenario 59 - Map 4
5% Exceedance Flow (40,100 cfs), 2 Units
Pumping (7,600 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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

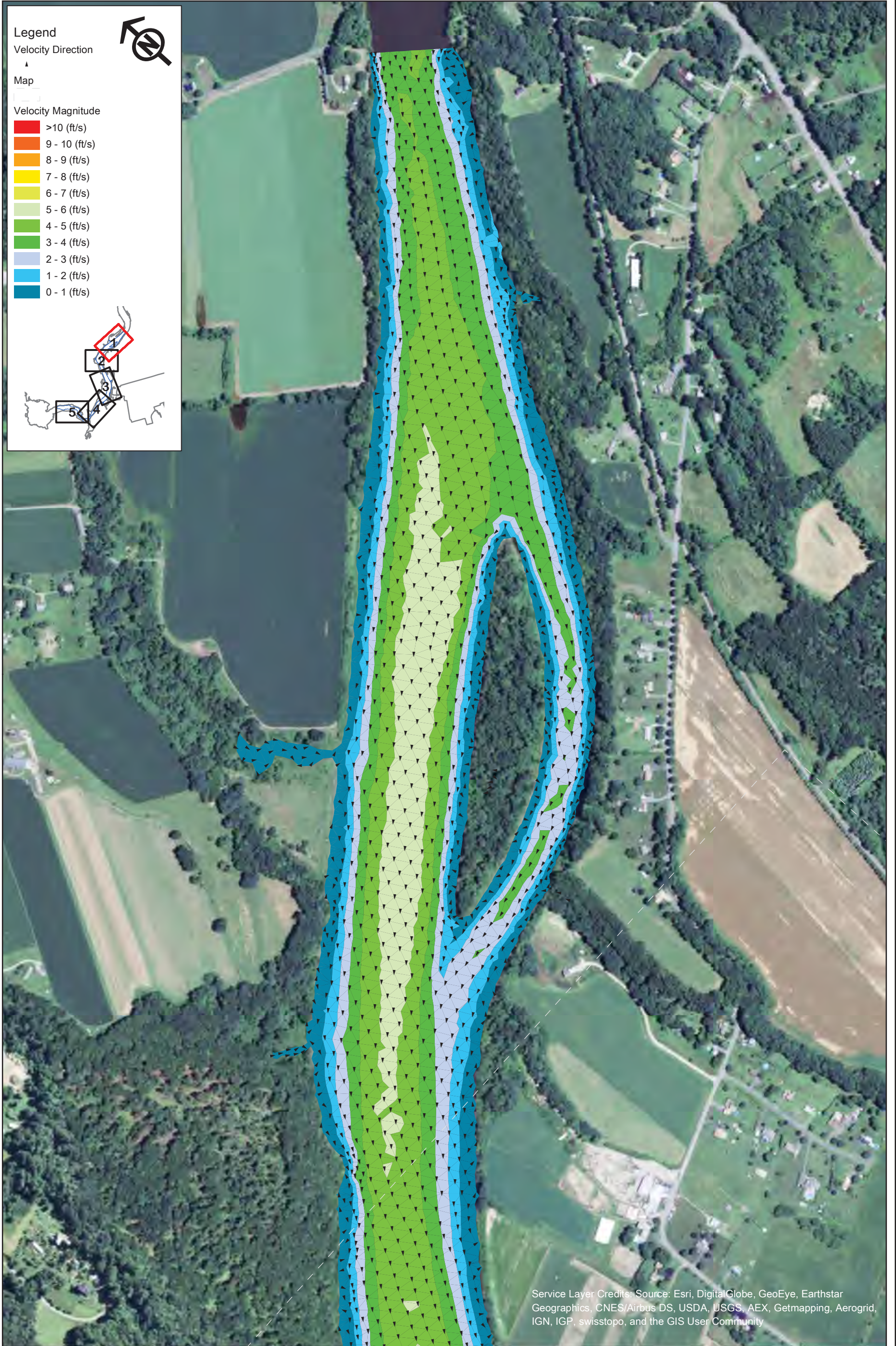


Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 59 - Map 5
 5% Exceedance Flow (40,100 cfs), 2 Units Pumping (7,600 cfs), 181.3 WSEL at Dam



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



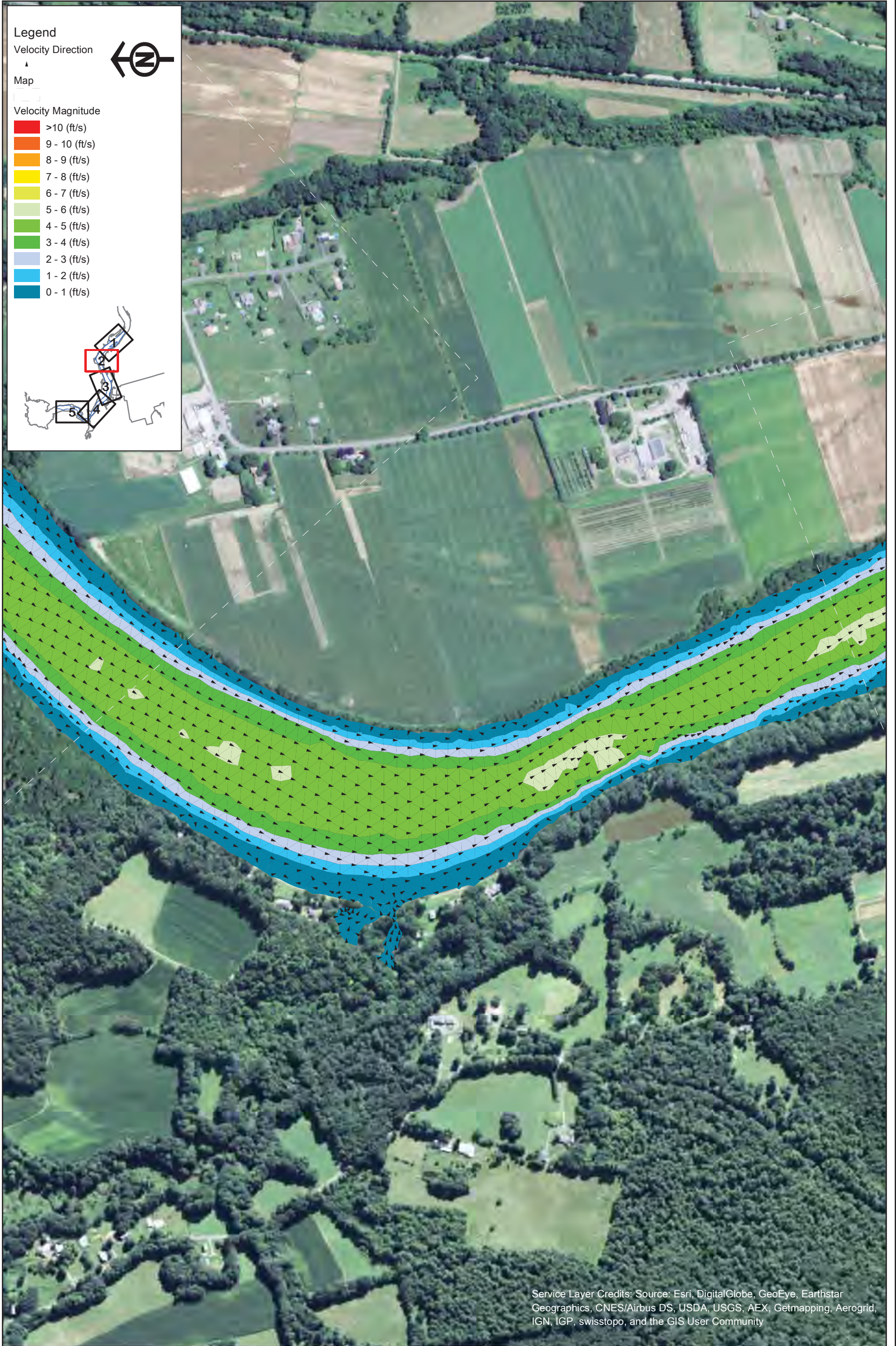
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 60 - Map 1
5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



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

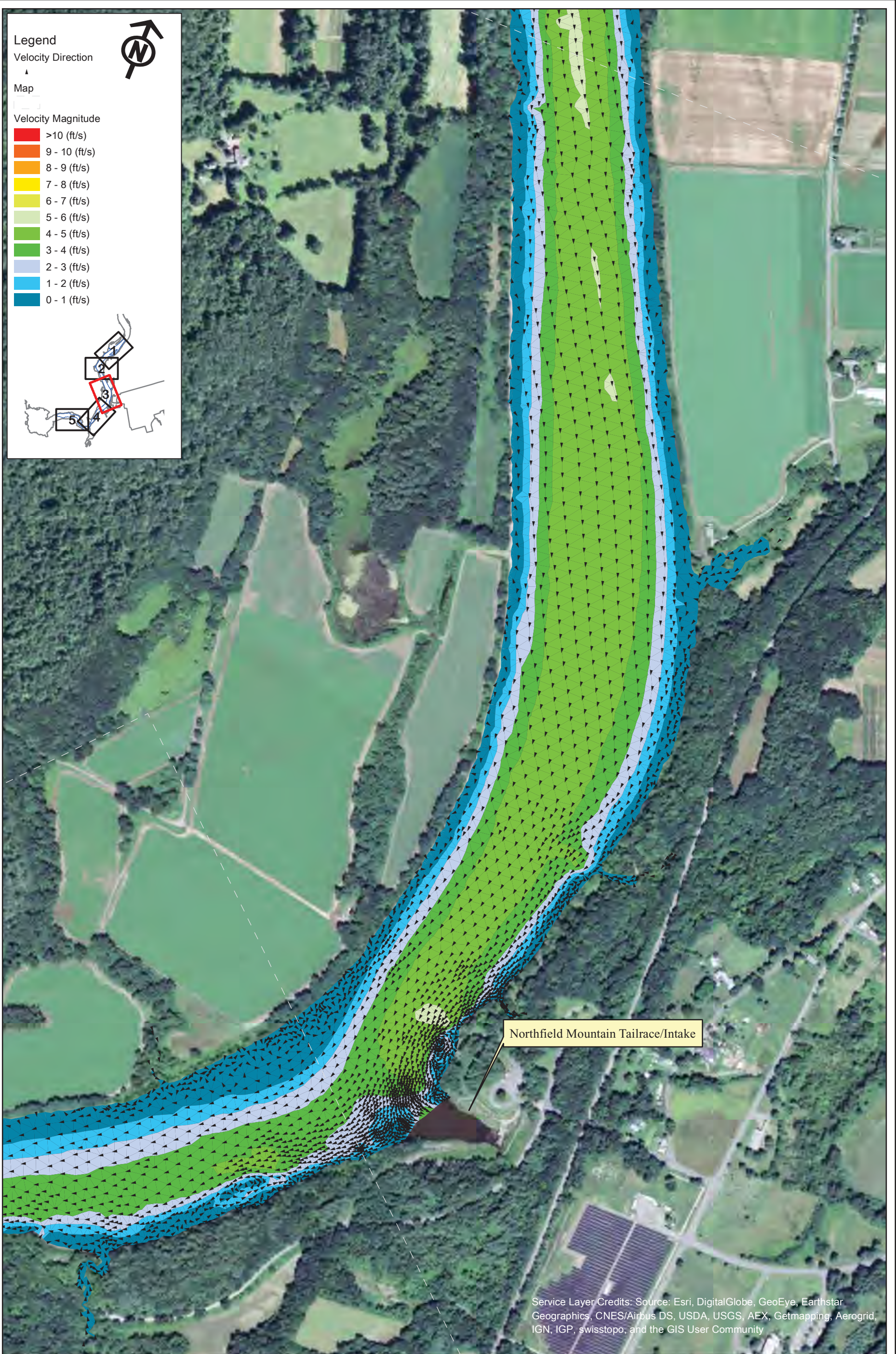


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 60 - Map 2
5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



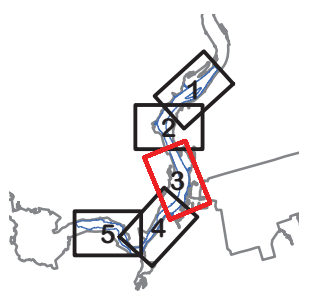
Legend

Velocity Direction
▲

Map

Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)



Northfield Mountain Tailrace/Intake

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

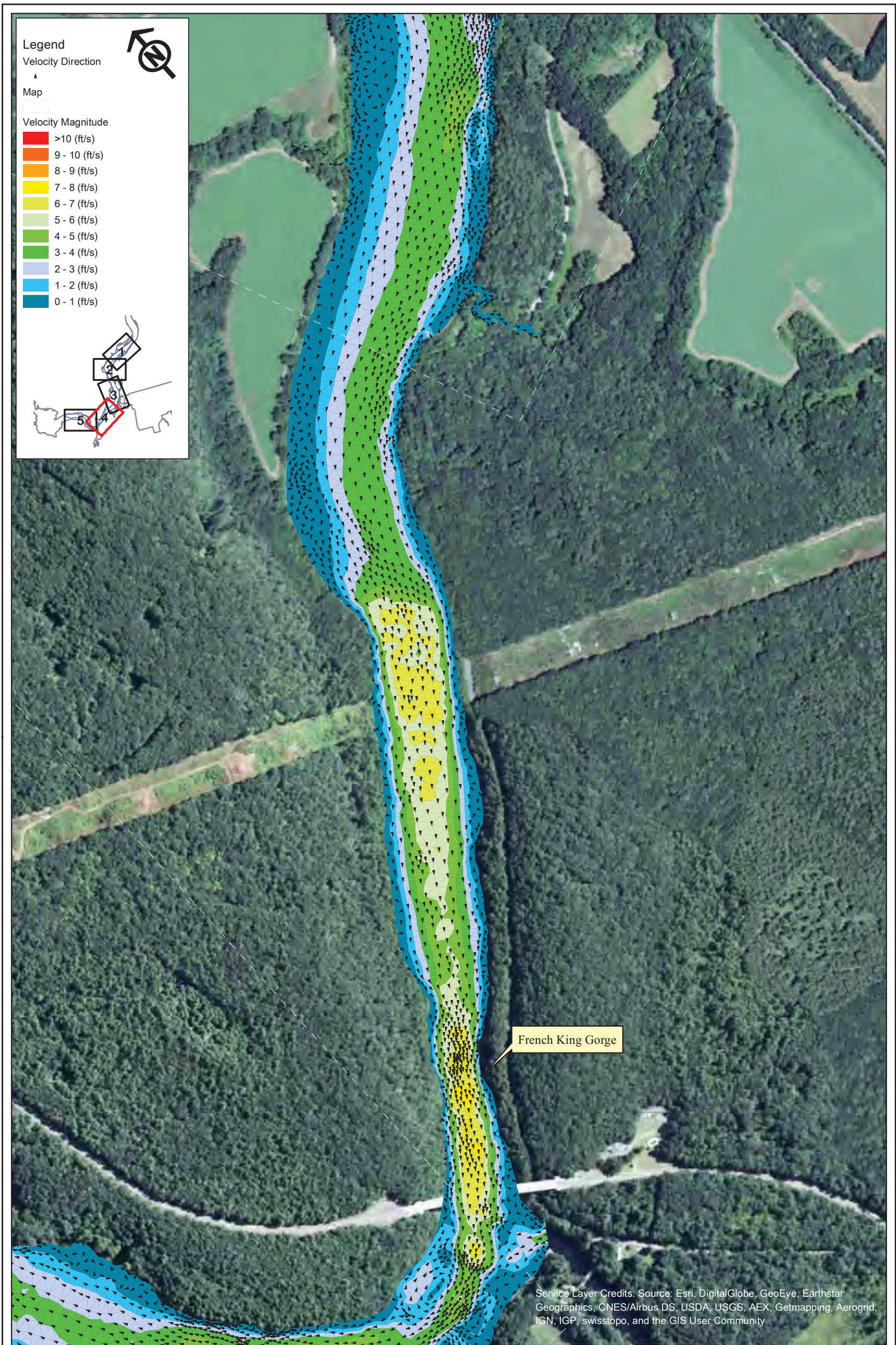


Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
Scenario 60 - Map 3
5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



French King Gorge

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



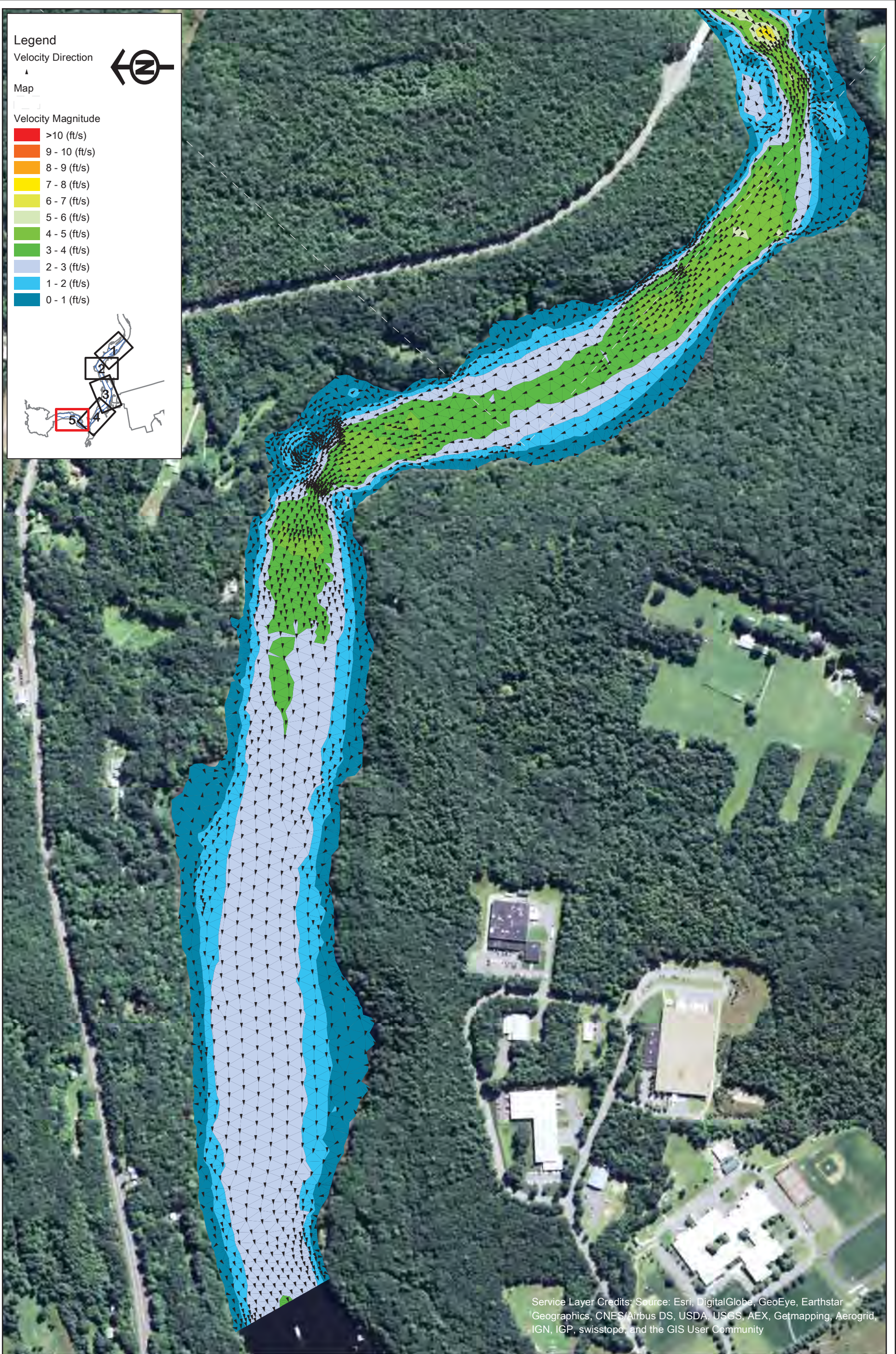
Northfield Mountain Pumped Storage Project (No. 2485)
and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
RELICENSING STUDY 3.3.9


0 250 500 1,000
Feet

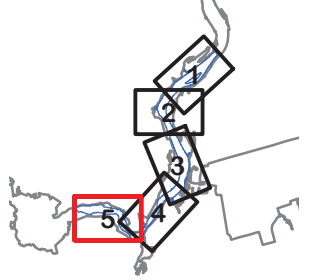
Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace

Scenario 60 - Map 4
5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam



Legend

Velocity Direction


Map


Velocity Magnitude

- >10 (ft/s)
- 9 - 10 (ft/s)
- 8 - 9 (ft/s)
- 7 - 8 (ft/s)
- 6 - 7 (ft/s)
- 5 - 6 (ft/s)
- 4 - 5 (ft/s)
- 3 - 4 (ft/s)
- 2 - 3 (ft/s)
- 1 - 2 (ft/s)
- 0 - 1 (ft/s)

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



Northfield Mountain Pumped Storage Project (No. 2485)
 and Turners Falls Hydroelectric Project (No. 1889)

STUDY REPORT
 RELICENSING STUDY 3.3.9



Appendix B - Velocity in the Turner Falls Impoundment 5 km Upstream and 5 km Downstream of the Northfield Tailrace
 Scenario 60 - Map 5
 5% Exceedance Flow (40,100 cfs), 4 Units Pumping (15,200 cfs), 181.3 WSEL at Dam

Document Content(s)

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