

The Virginia Agricultural BMPs Cost-Share Program:

Using Geographical Information Systems (GIS)
to examine field attributes of
Colonial District farms

Research & Presentation by Jay Abolofia

Why are Field Attributes Important?

- Examining potential fields for cost-share
 - Greatest increase in water quality per dollar
- Examining cost-share applicants
 - Decision-making when funding is scarce

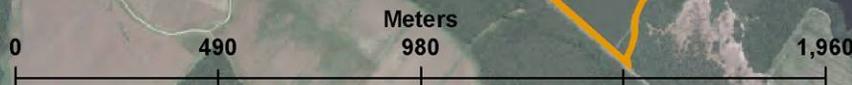
Farm Field Attributes

- Historical cost-share BMP data
- Watershed
- Soil types
- Slopes
- Distance to water body
- Distance to impaired water body
- Distance to coastline

New Kent Farm

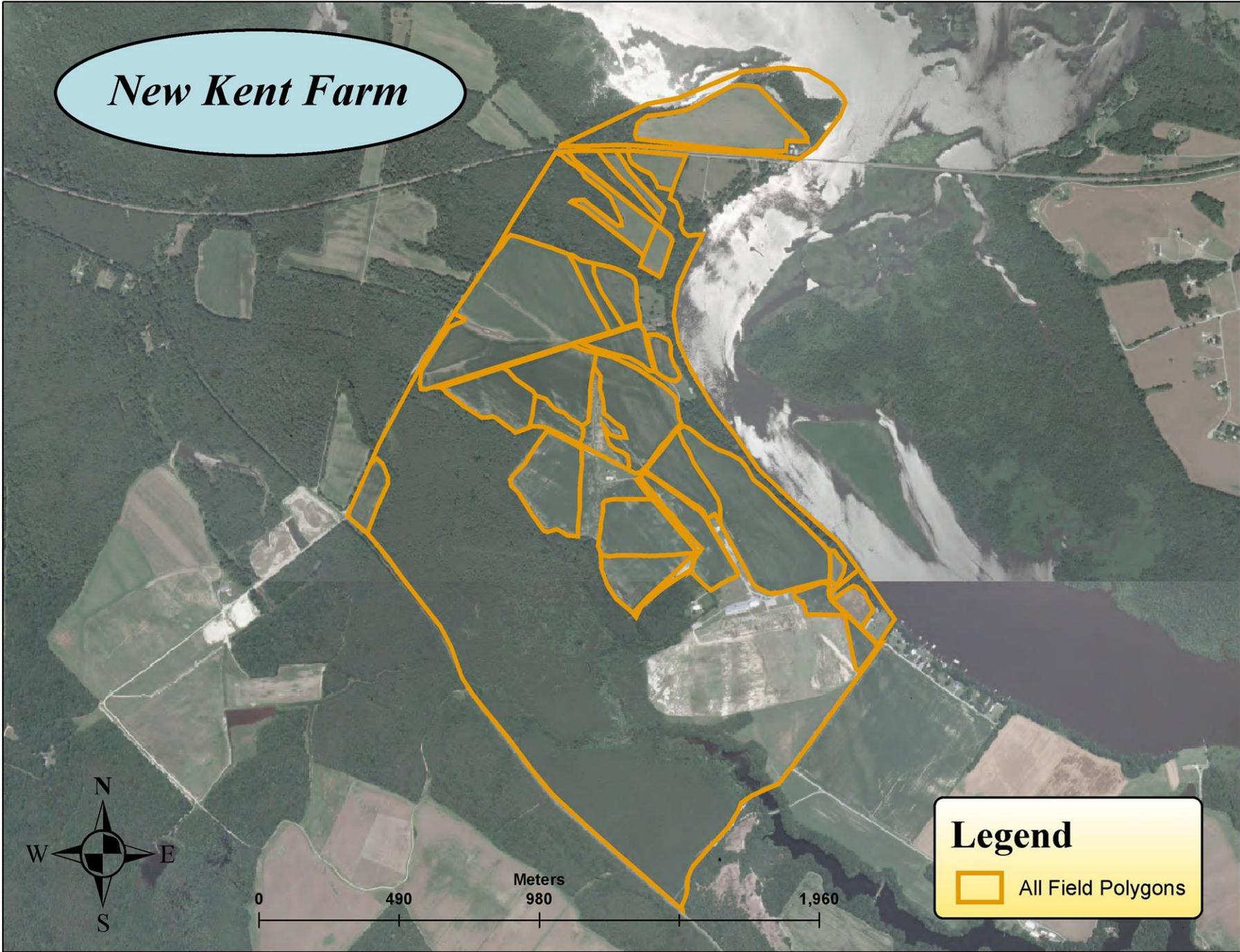


New Kent Farm



Legend

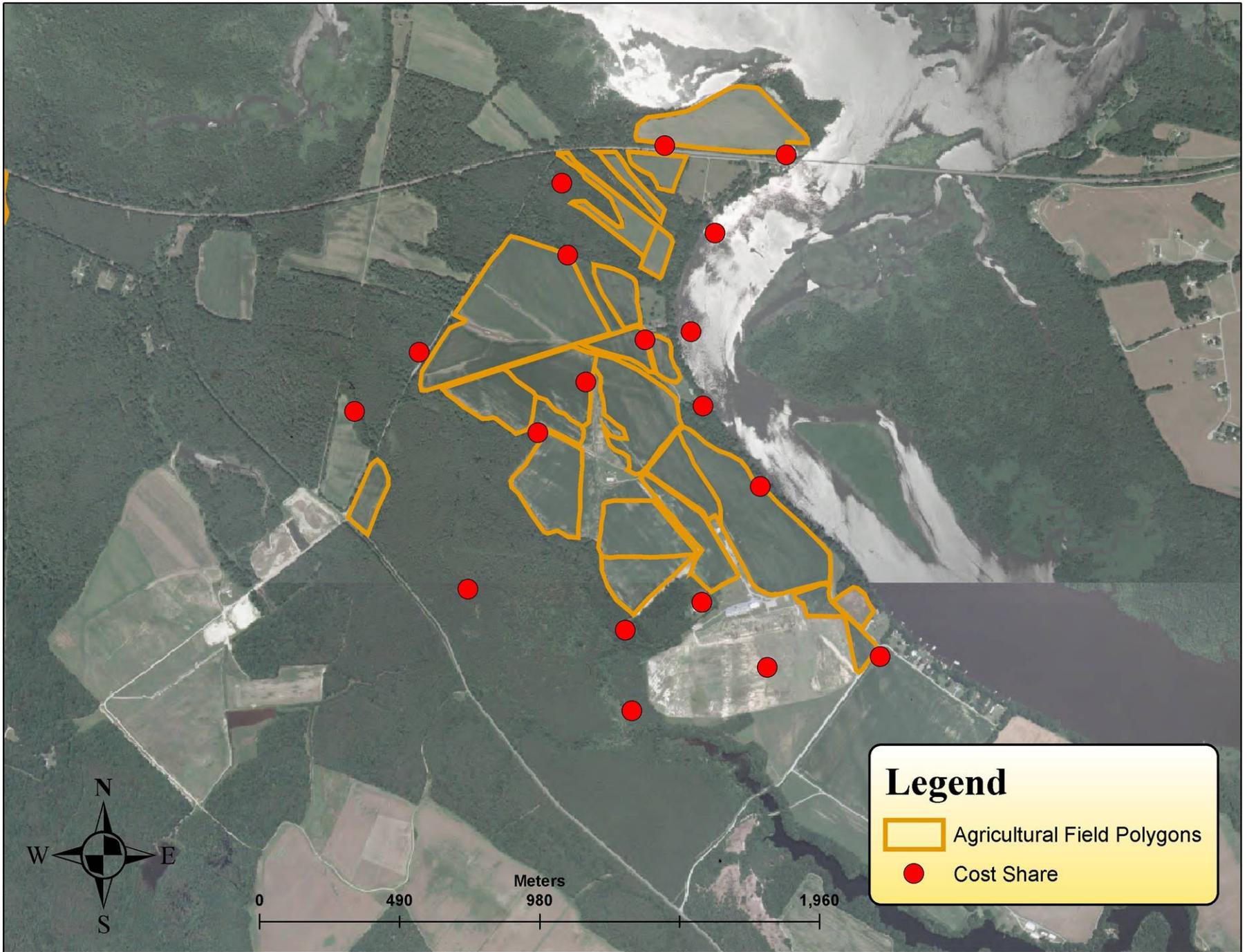
 All Field Polygons

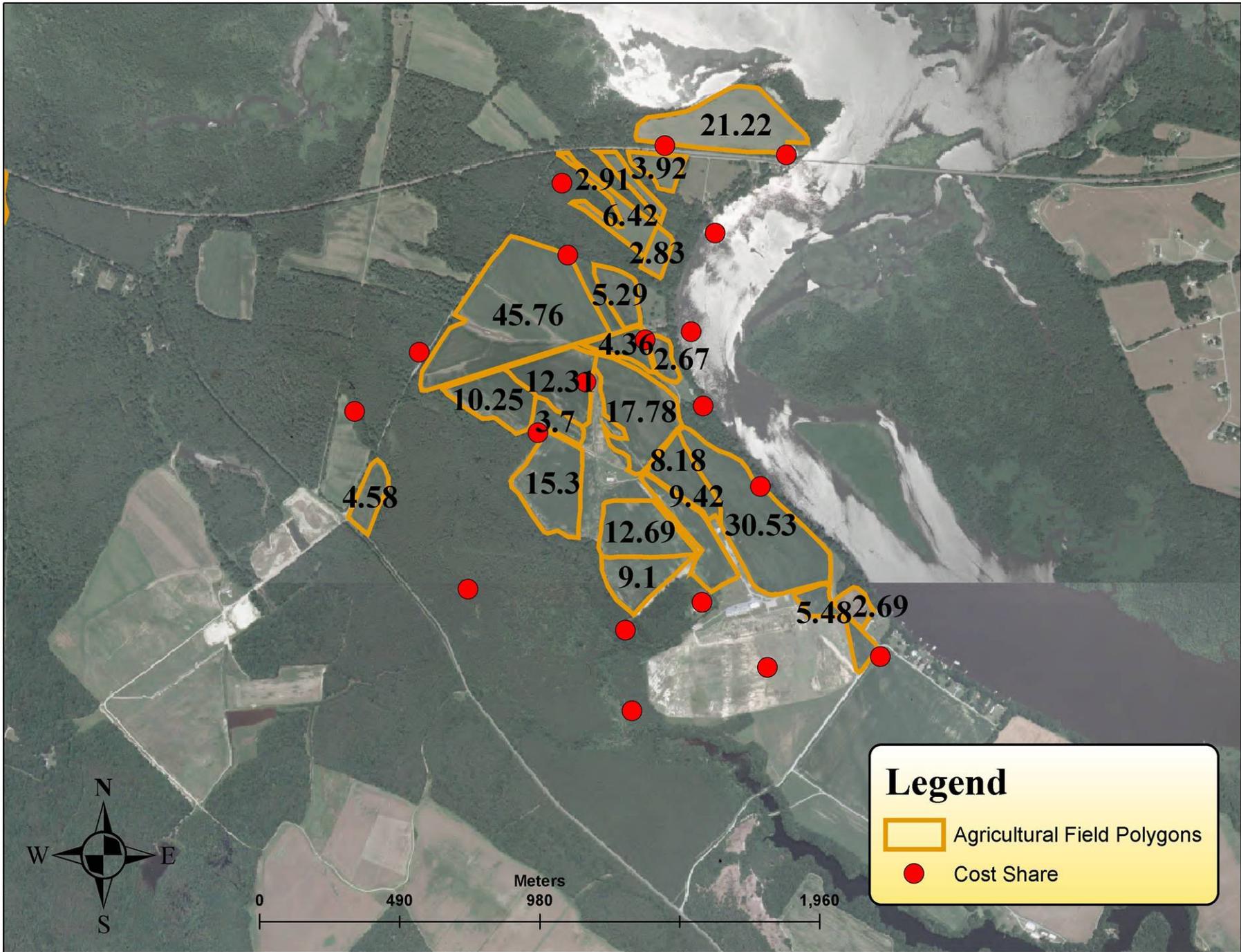


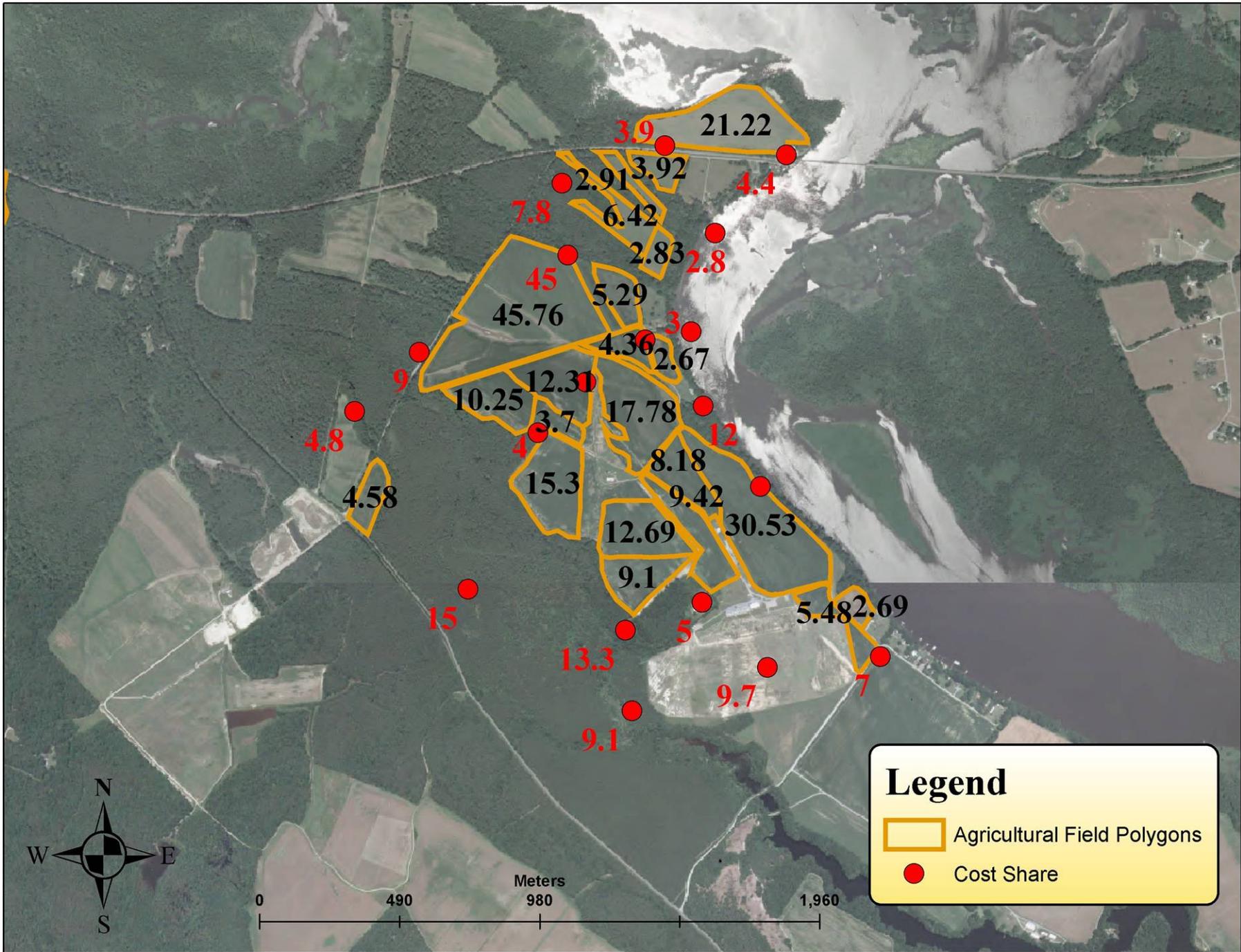


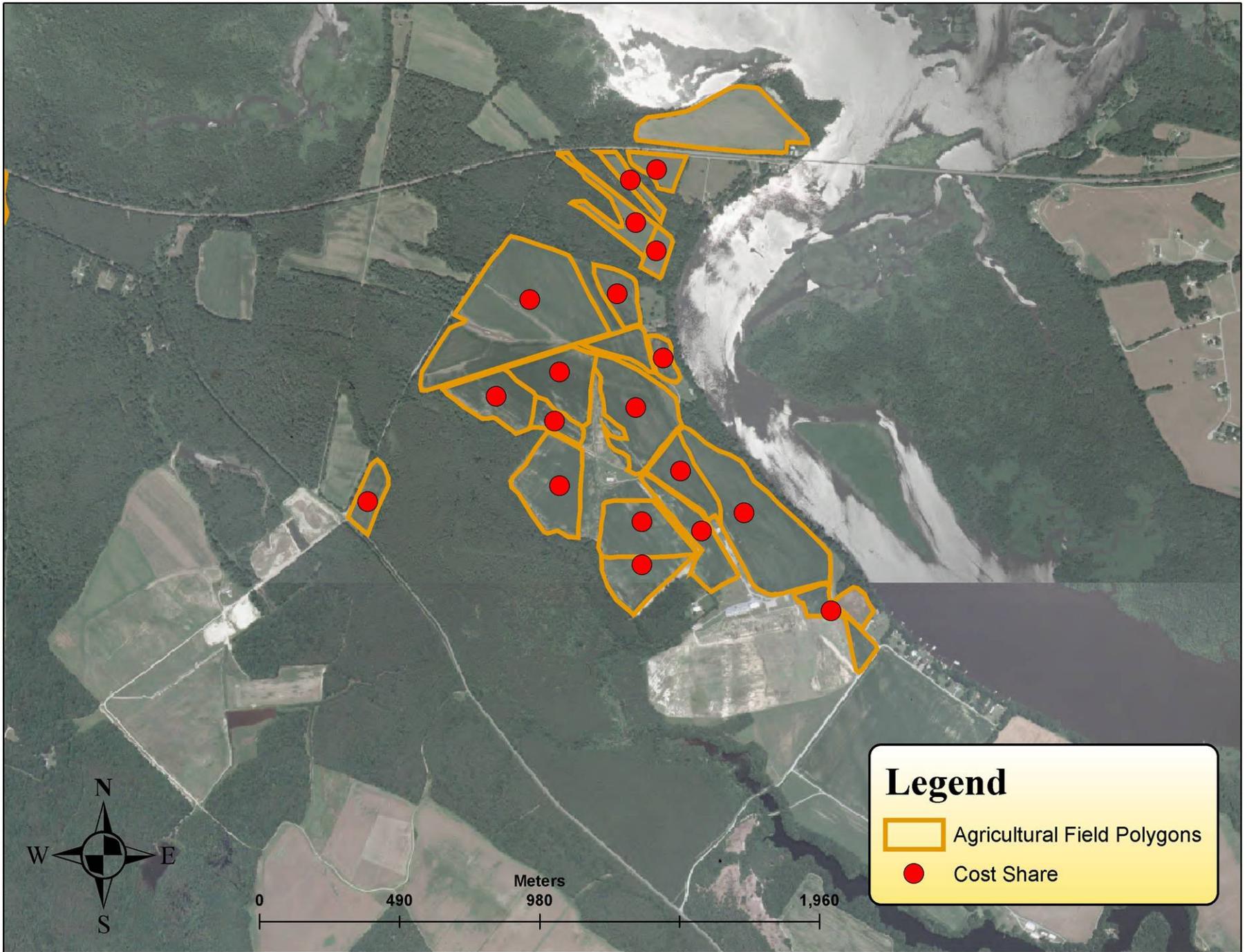
Legend

 Agricultural Field Polygons

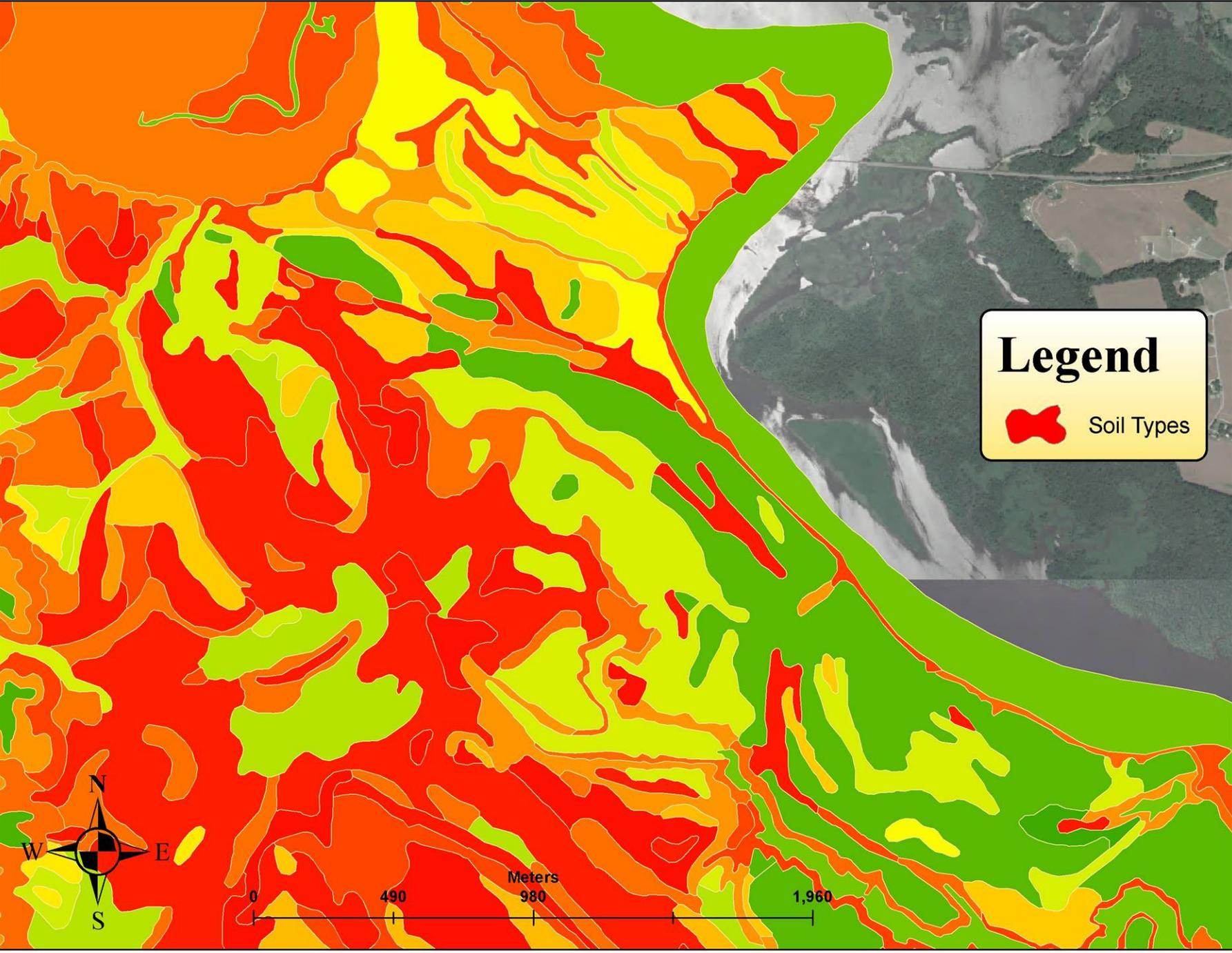






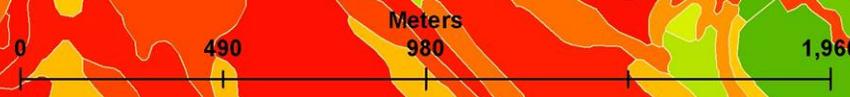
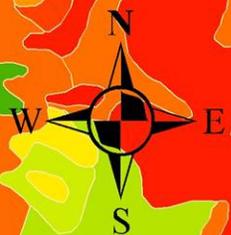


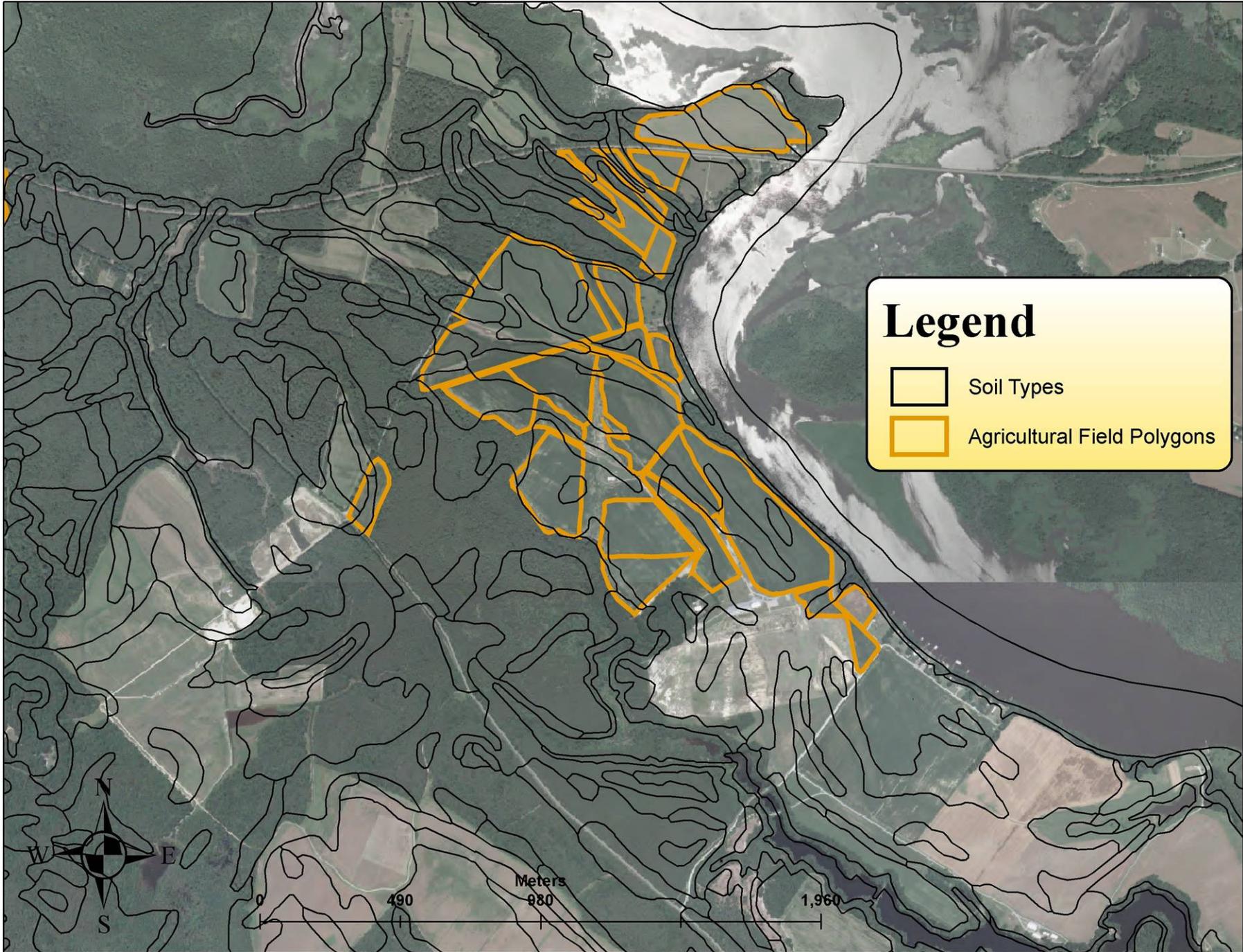


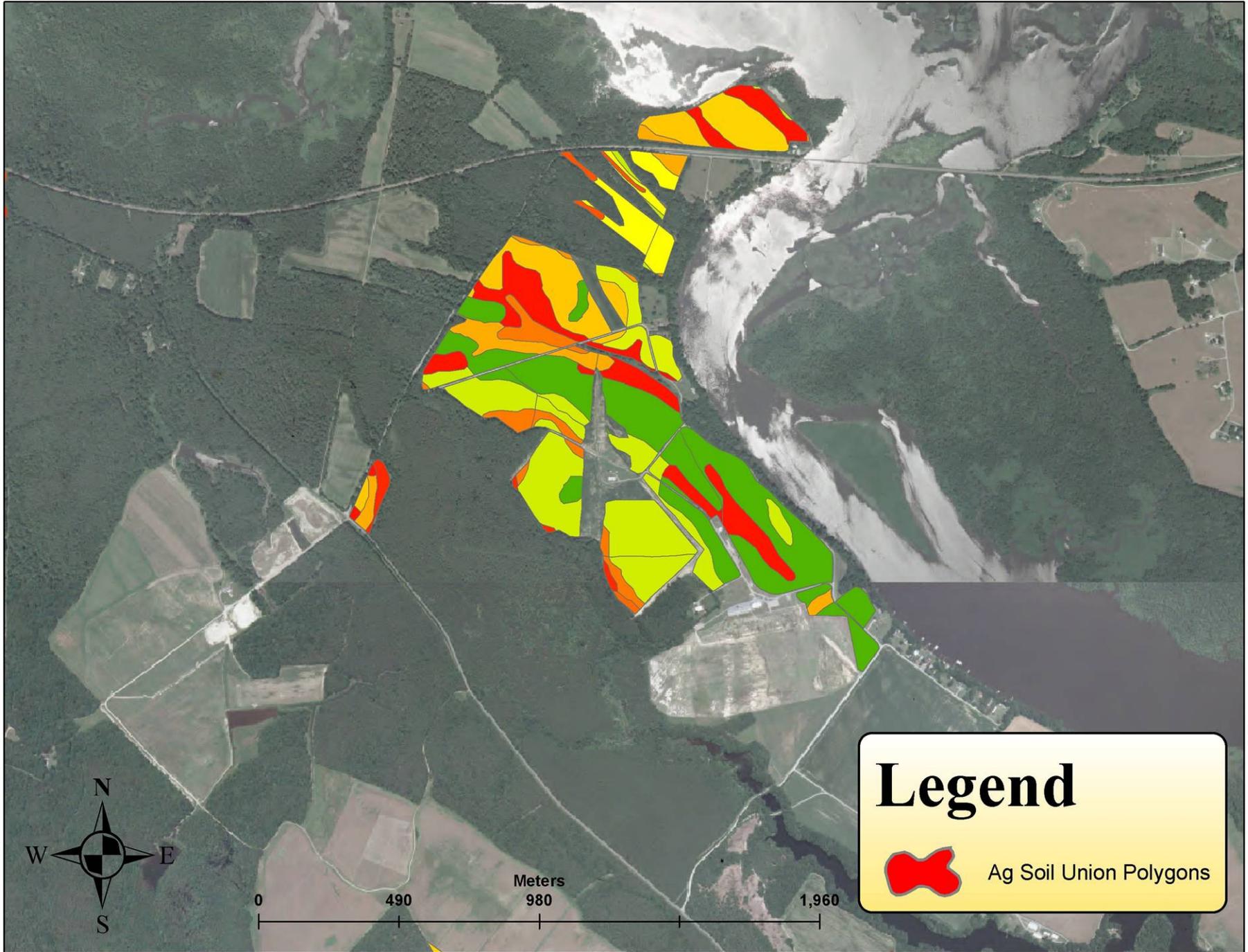


Legend

 Soil Types







Legend

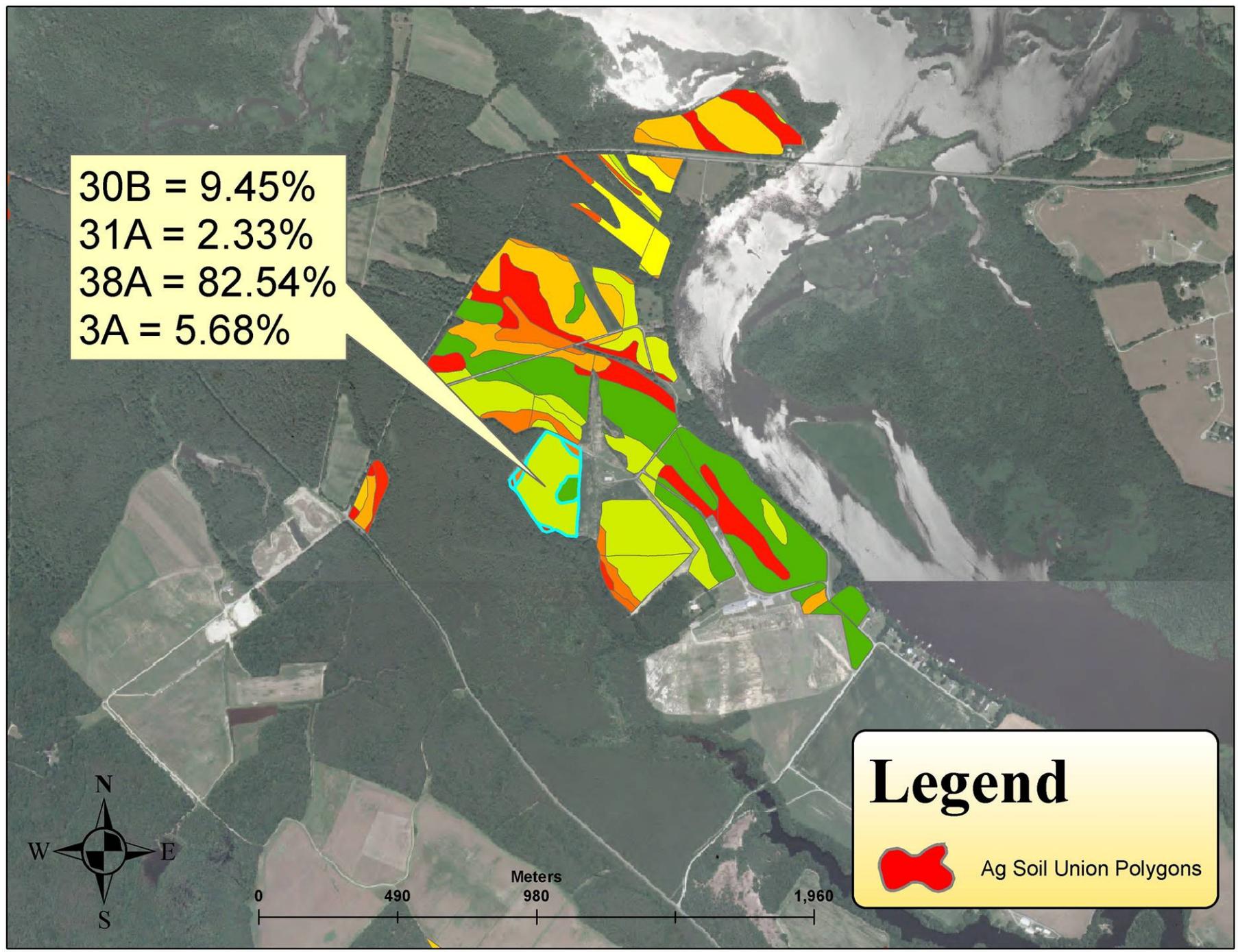


Ag Soil Union Polygons

30B = 9.45%
31A = 2.33%
38A = 82.54%
3A = 5.68%

Legend

 Ag Soil Union Polygons

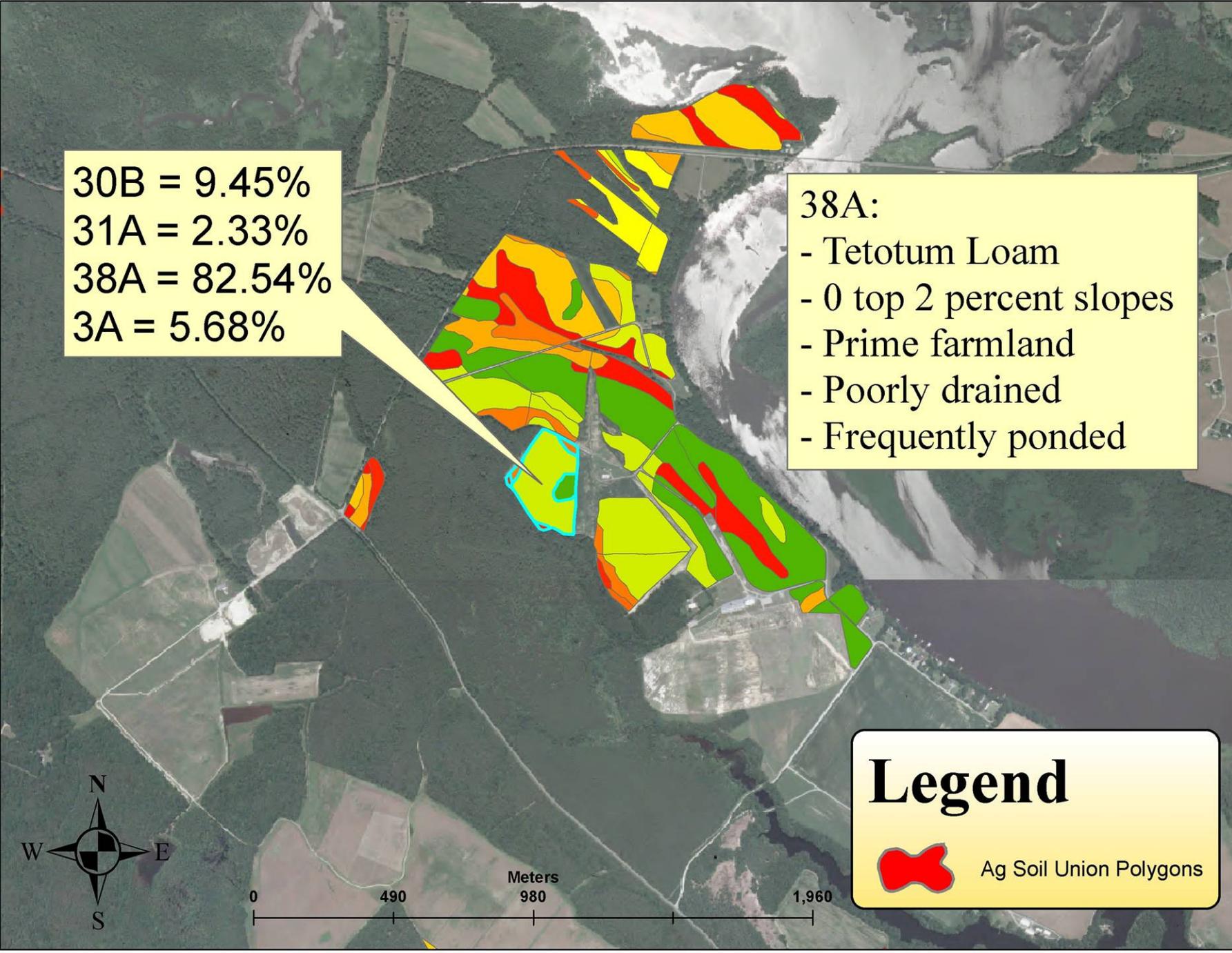
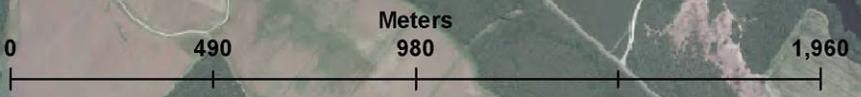


30B = 9.45%
31A = 2.33%
38A = 82.54%
3A = 5.68%

38A:
- Tetotum Loam
- 0 top 2 percent slopes
- Prime farmland
- Poorly drained
- Frequently ponded

Legend

 Ag Soil Union Polygons



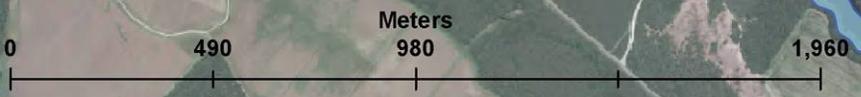






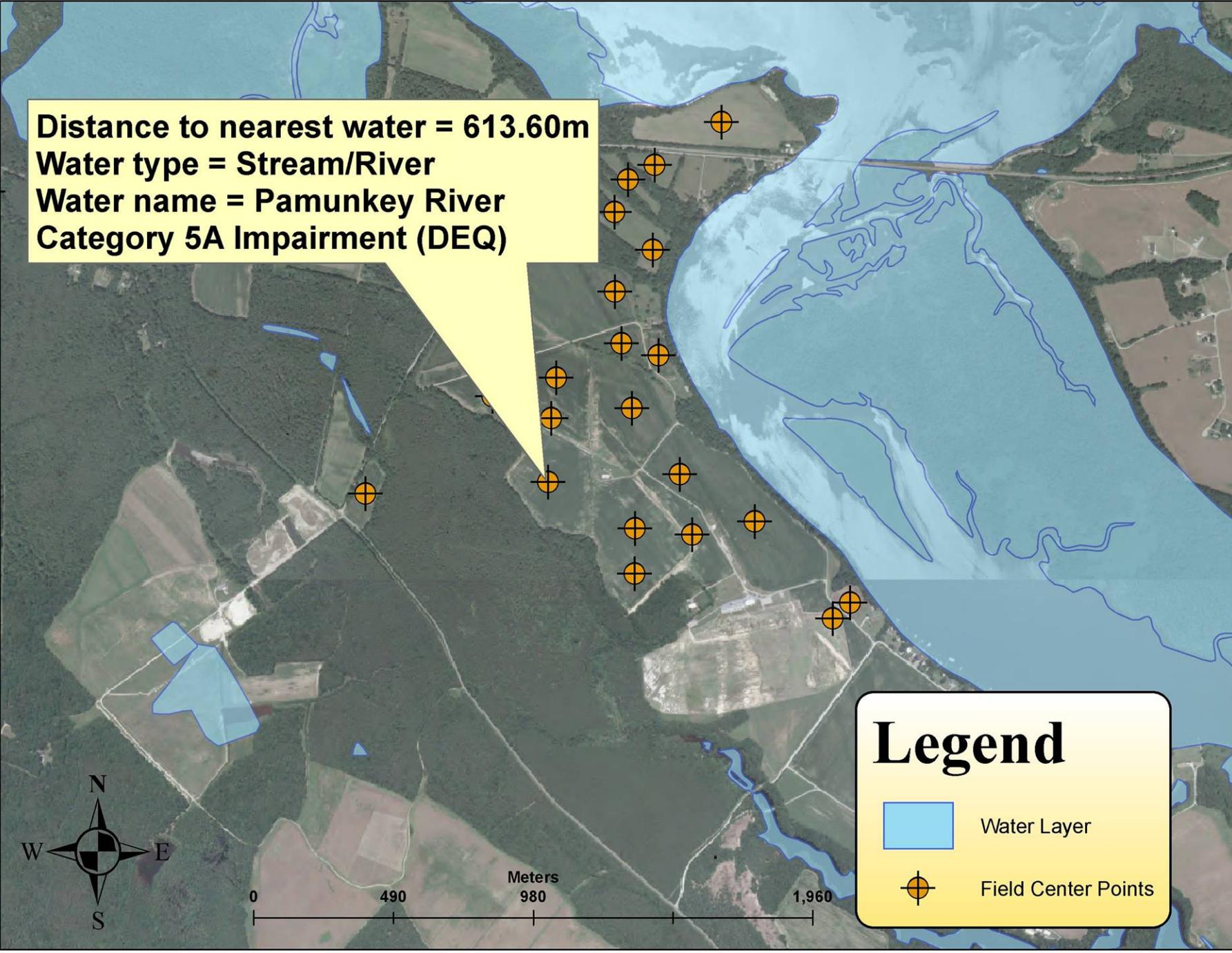


Distance to nearest water = 613.60m
Water type = Stream/River
Water name = Pamunkey River
Category 5A Impairment (DEQ)



Legend

-  Water Layer
-  Field Center Points

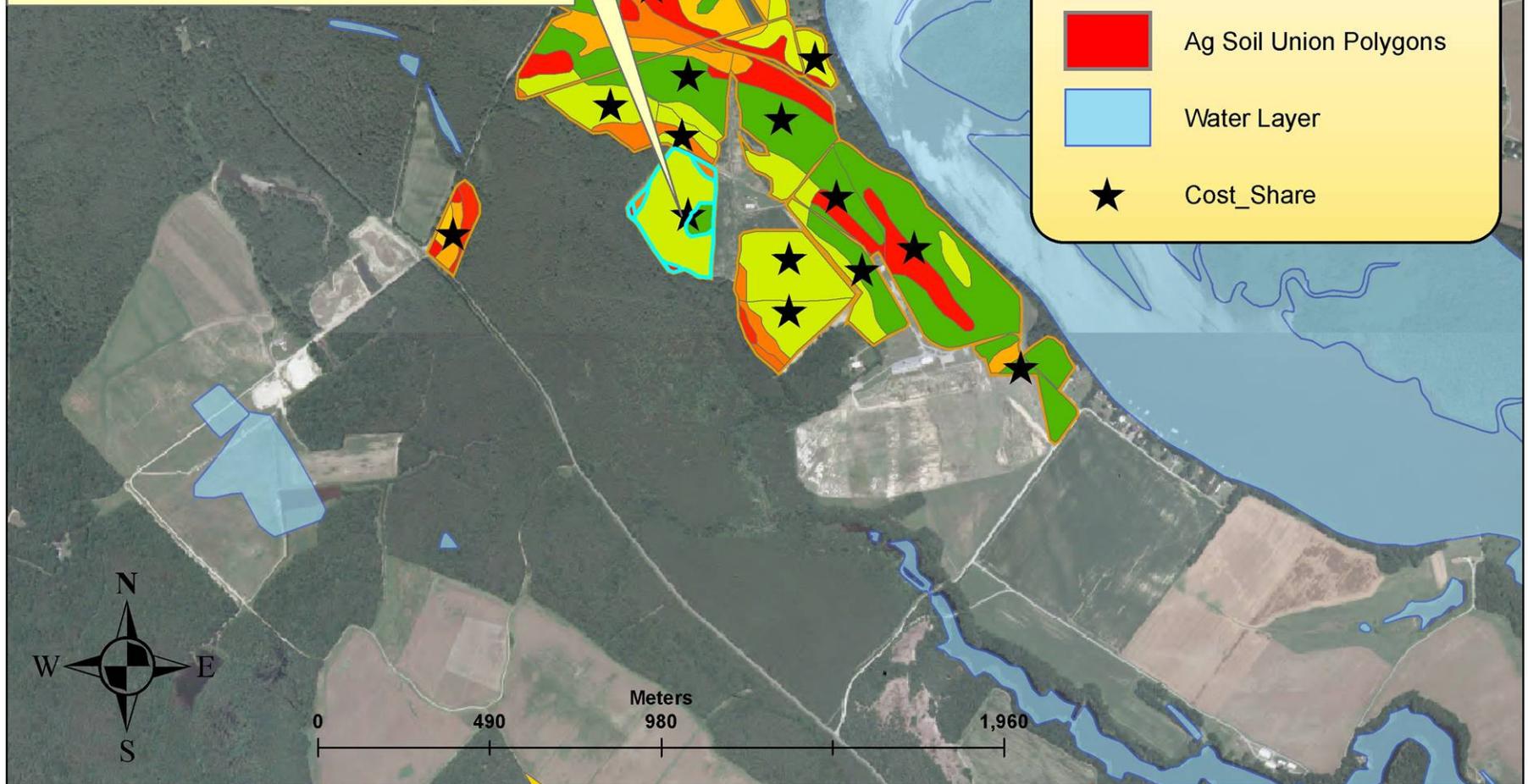


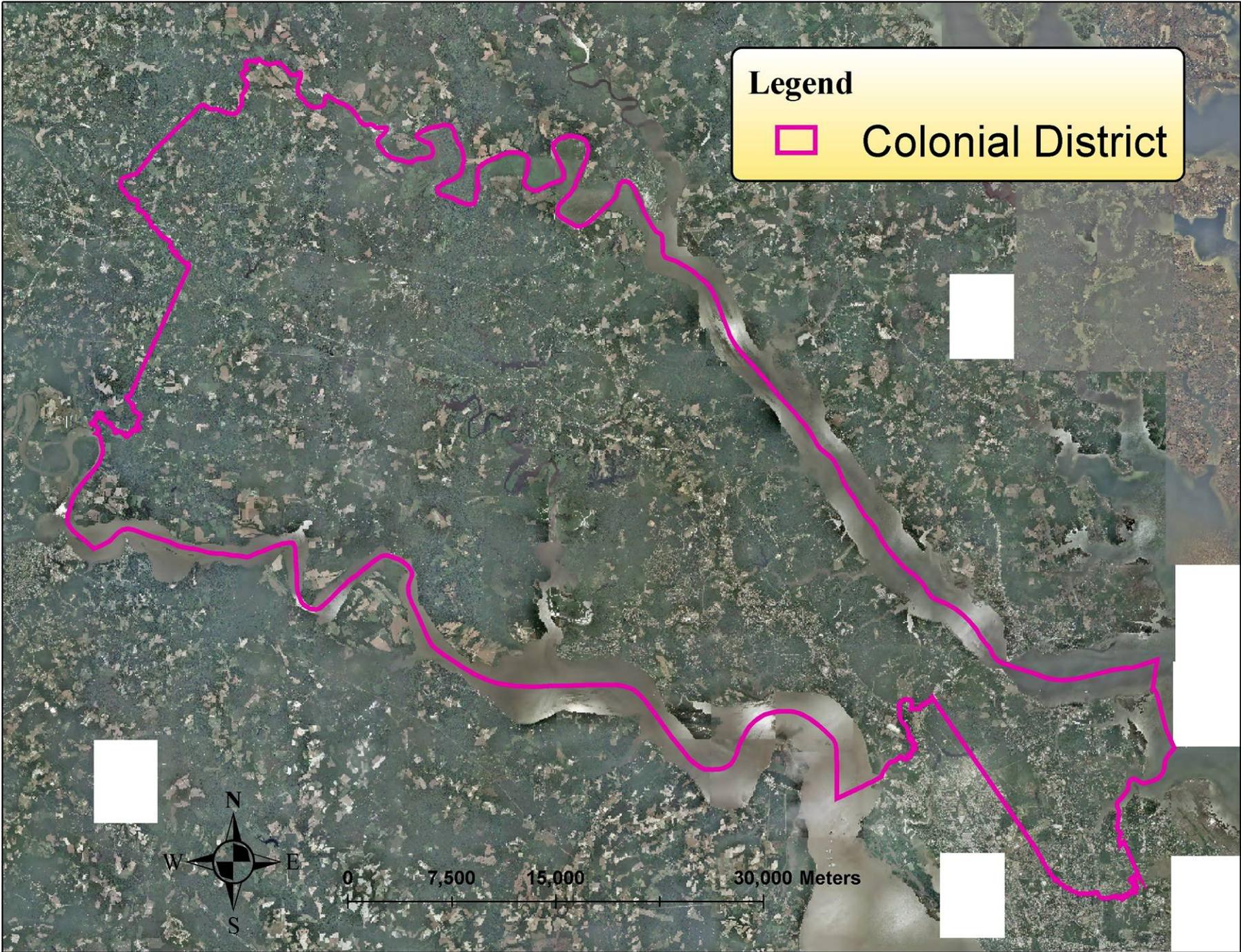


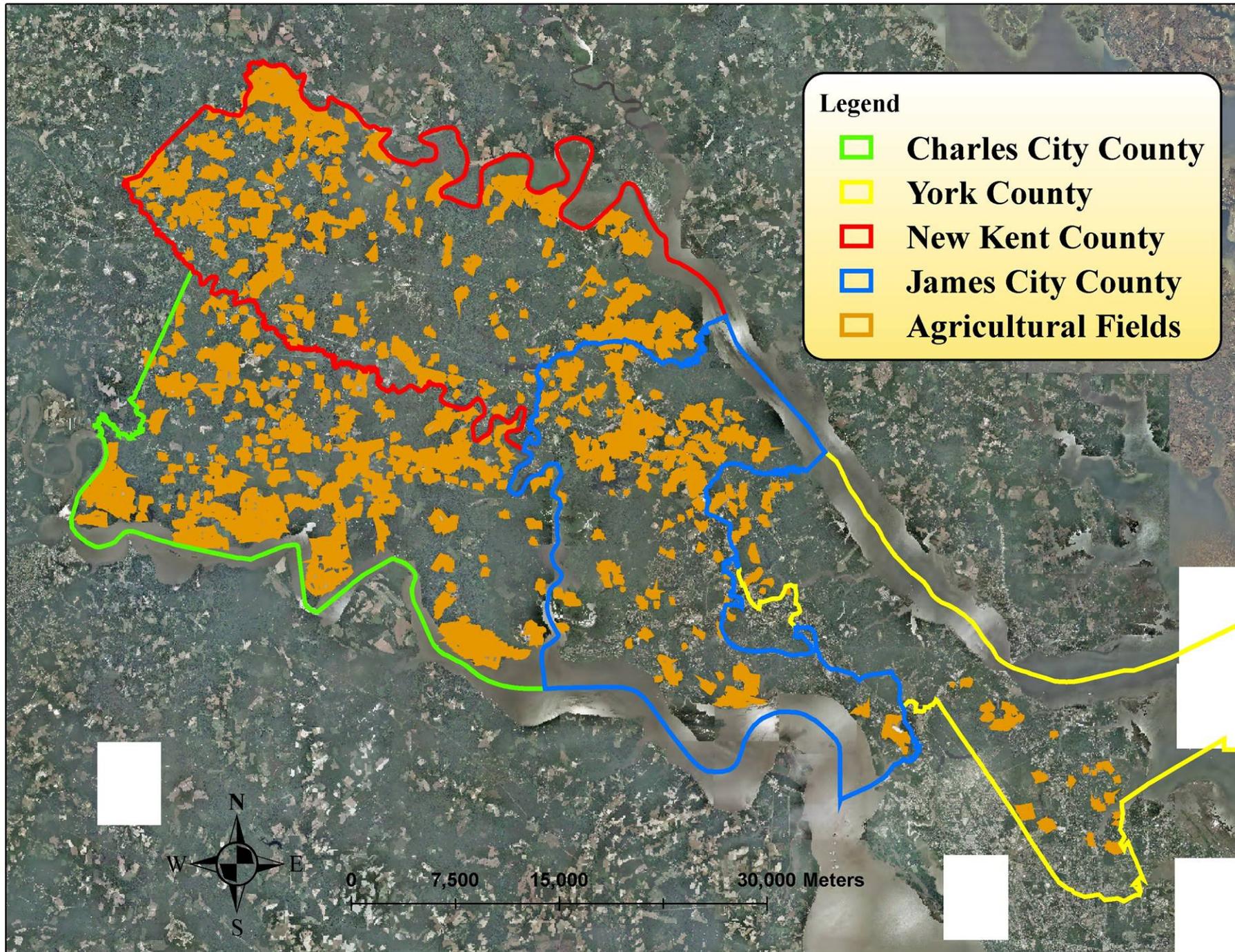
- Unique Join Field ID
- Field Acreage
- County
- Soil Type by Percentage
- Distance to Nearest Water
- Impairment Data
- Hydrological unit code
- Cost Share Data: BMP type, Acres benefitted, Date installed, Actual cost, & Cost share payment

Legend

-  Agricultural Field Polygons
-  Ag Soil Union Polygons
-  Water Layer
-  Cost_Share

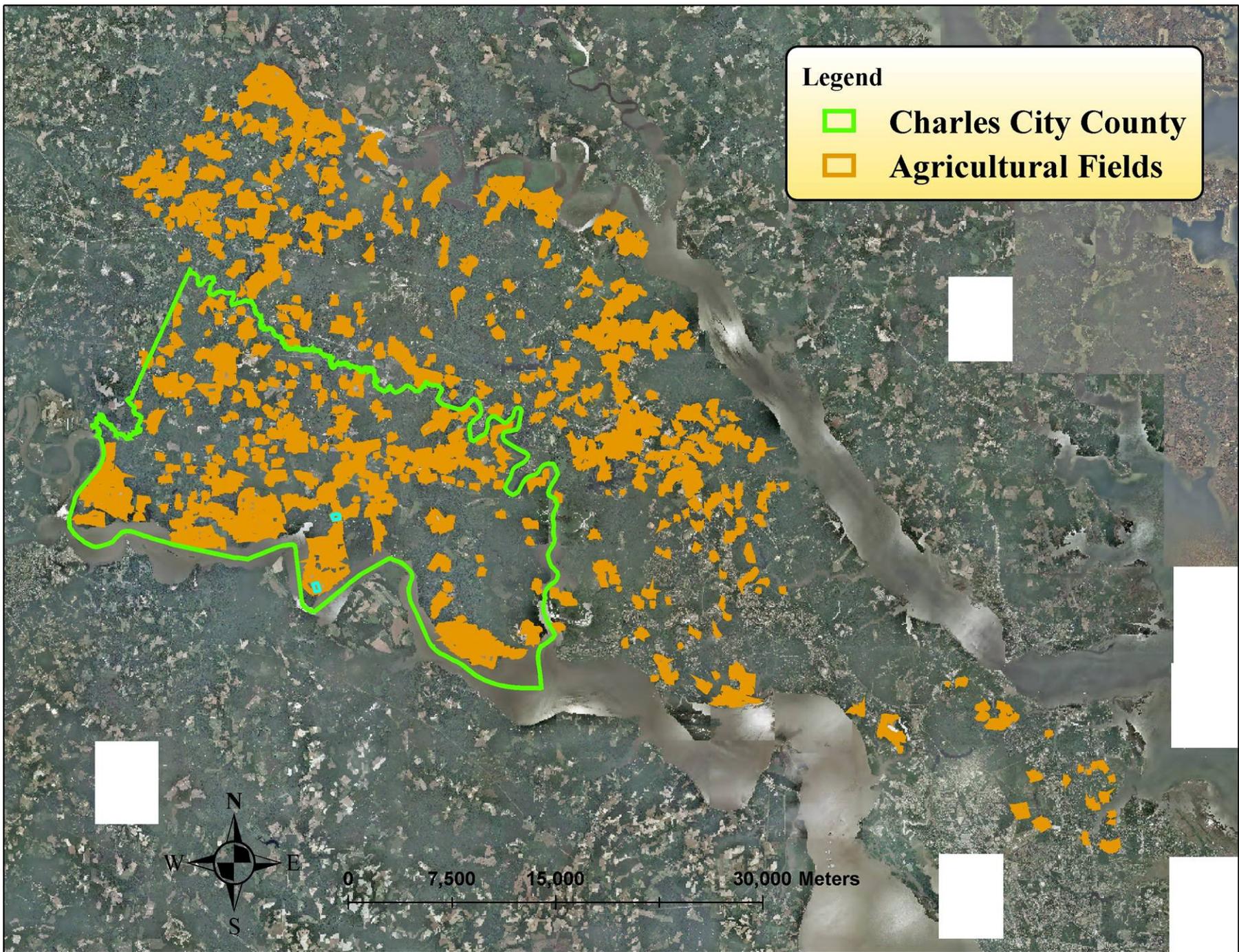


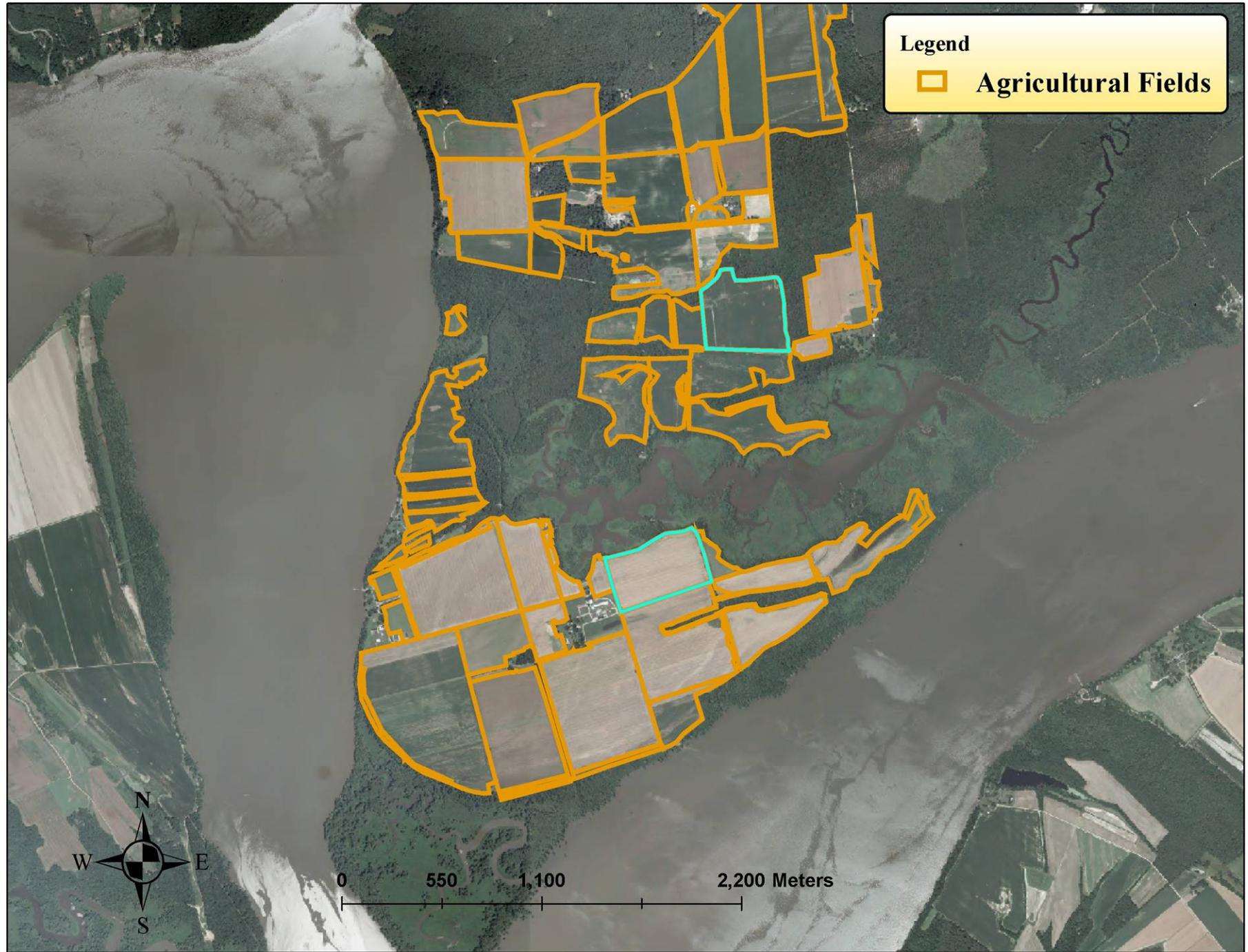




Legend

-  **Charles City County**
-  **Agricultural Fields**









Legend



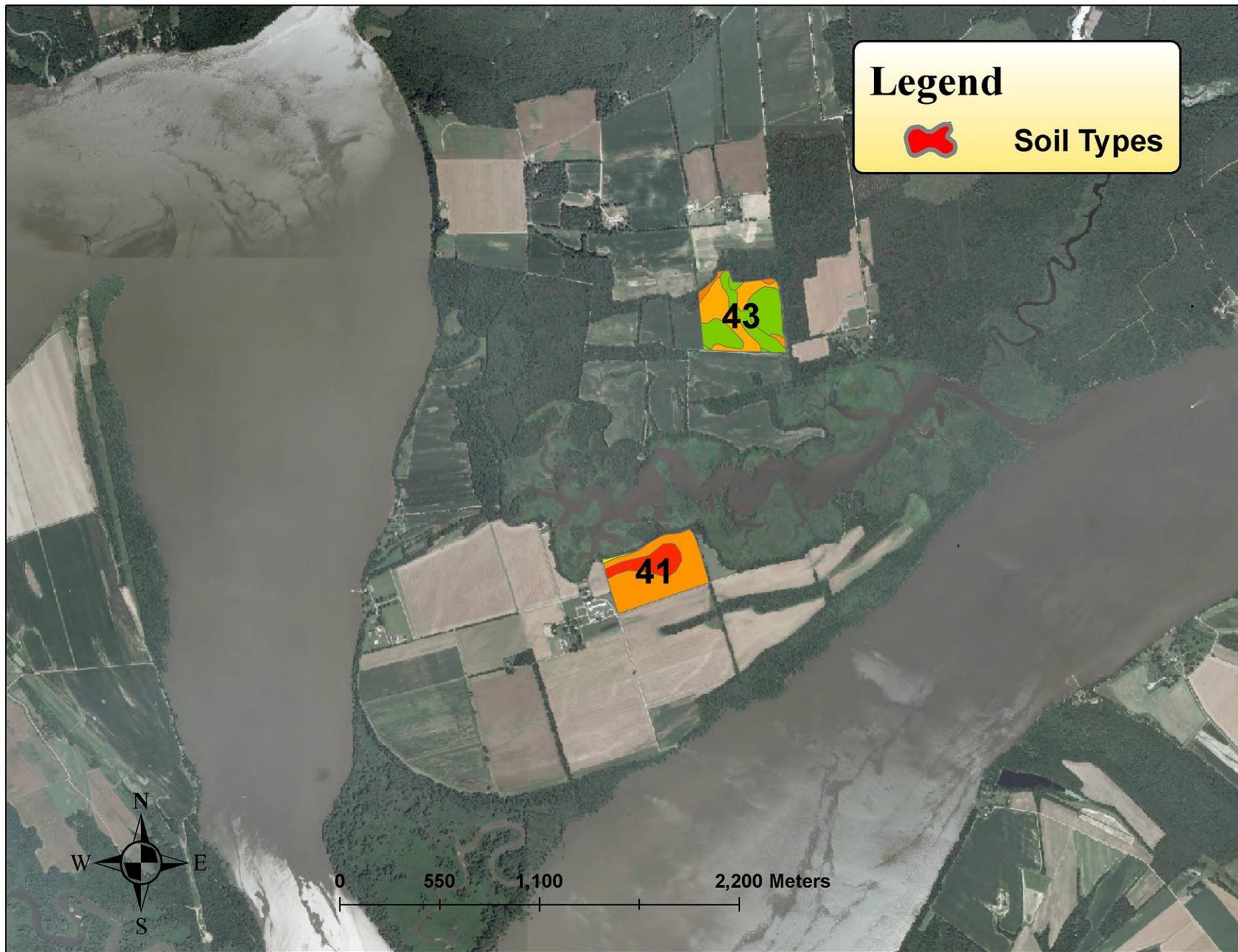
Soil Types

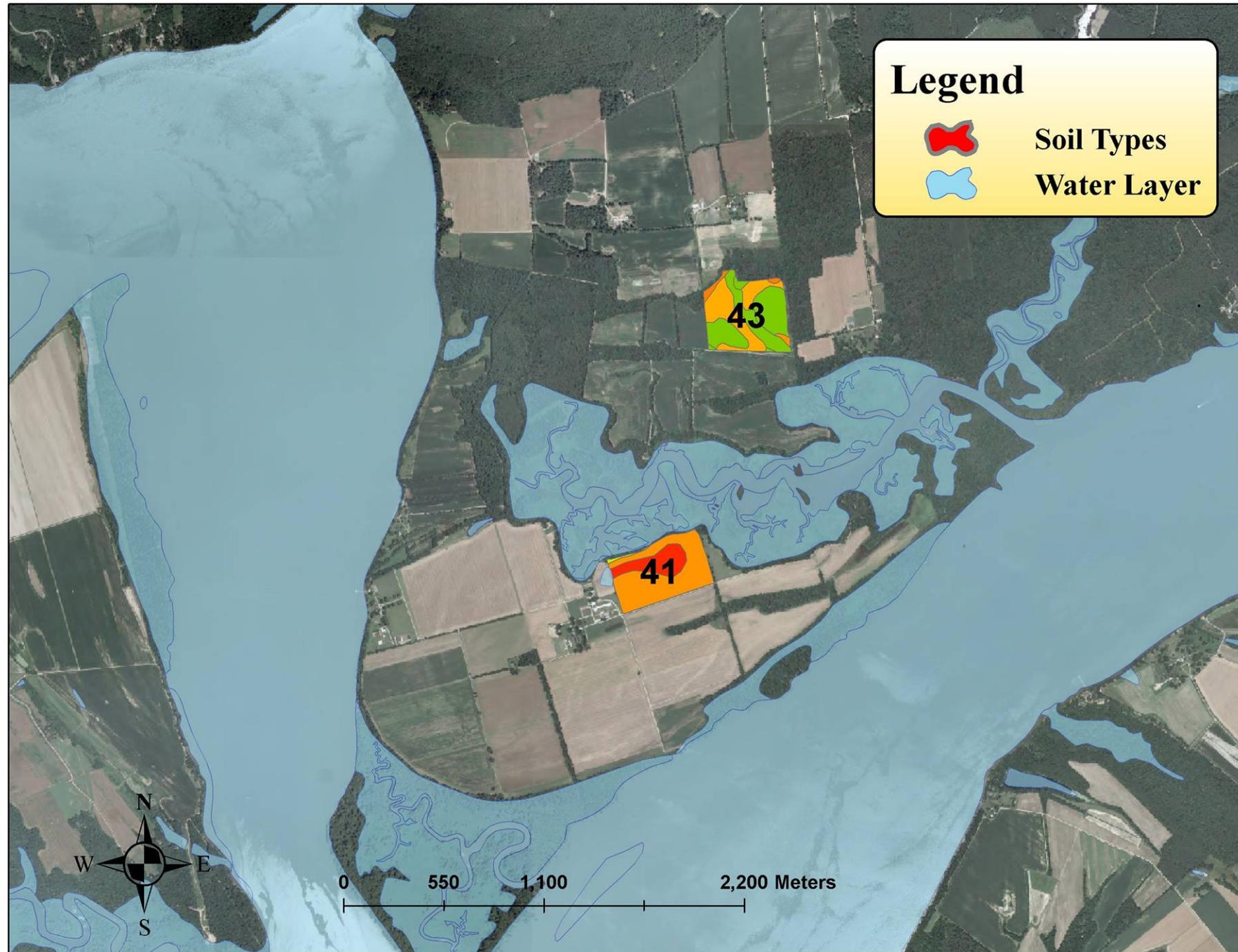
43

41



0 550 1,100 2,200 Meters





- Field Acreage = 43
- Dogue silt loam (0 to 2% slopes) = 39.85%
- New flat silt loam(0 to 2% slopes) = 36.17%
- Poorly drained and frequently flooded, very high surface runoff
- Nearest to Swamp/Marsh = 450m
- Nearest Impaired Stream = 540m
- Nearest Coastline = 802m

Legend

-  Agricultural Fields
-  Soil Types
-  Water Layer

- Field Acreage = 41
- Pamunkey loam (2 to 6% slopes) = 74.11%
- Prime farmland, low surface runoff
- Nearest to Swamp/Marsh = 157m
- Nearest Impaired Stream = 169m
- Nearest Coastline = 197m



0 550 1,100 2,200 Meters

Major Contributions

- Help decision makers better allocate cost-share funding in regard to maximizing water quality in a cost-efficient manner
- Help decision makers target Colonial District fields for cost-share
- Help decision makers better analyze cost-share tradeoffs when funds are scarce
- Help decision makers examine cost-share funding on a field by field basis

THANK YOU!

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Brian Noyes

Tim Russell

Rob Hicks

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