



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
100 WEST OGLETHORPE AVENUE
SAVANNAH, GEORGIA 31401-3640

APRIL 28 2015

Regulatory Division
SAS-2014-00862

**JOINT PUBLIC NOTICE
Savannah District/State of Georgia**

The Savannah District has received an application for a Department of the Army permit, pursuant to Section 404 of the Clean Water Act (33 United States Code 1344), as follows:

Application Number: SAS-2014-00862

Applicant: Ms. Hiral Patel, P.E.
State Environmental Administrator
Georgia Department of Transportation
Office of Environmental Services
One Georgia Center, 16th Floor, 600 W. Peachtree Street, NW
Atlanta, Georgia 30308-3607

Location of Proposed Work: The project corridor is located along U.S. Highway 84 from the City of Homerville in Clinch County to the City of Waycross in Ware County. Total length of the project is approximately 24.4 miles with a project midpoint at (Latitude 31.1173, Longitude -82.5475). The project is located in the Suwannee and Satilla River Watersheds, Hydrologic Unit Codes 03110201 and 03070201.

Description of Work Subject to the Jurisdiction of the U.S. Army Corps of Engineers: The proposed Georgia Department of Transportation (GDOT) projects EDS00-0084-00(023)(026), HPPNE-0084-00(027), and BHN00-0007-03(025)(028) would provide for traffic capacity and safety improvements for a segment of State Route 38/US Route 84 (SR 38/US 84) in Clinch and Ware Counties as part of the Governor's Road Improvement Program (GRIP). The total project area is approximately 628 acres. The project would impact 134.64 acres of wetlands through clearing and filling. These impacts include approximately 0.89 acre of fill in open water ponds located along the corridor. Approximately 121 linear feet of intermittent stream would be impacted through the extension of existing culverts. All perennial streams would be clear-spanned to avoid impacts.

The project consists of widening the existing 2-lane roadway to a 4-lane divided highway using an urban 20-foot raised median, a rural 44-foot median and a

32-foot grassed median. In order to minimize impacts to jurisdictional resources, the project would incorporate the construction of new location bridges at each mapped stream location and employ 32-foot grassed median in areas where large wetlands are found adjacent to the existing roadway. Additionally, the project proposes to construct a 1.7-mile new location bypass to the north of the Argyle Community and a 3.3-mile new location bypass to the south of the Wahoma Community. The typical section for the new Argyle Bypass would consist of a two-lane roadway with a 32-foot depressed median and 10-foot outside shoulders. Two roundabout intersections will be added at the Argyle Bypass. The area is dominated by stream/bottomland hardwood forest, planted pine forests, open/agricultural fields, and light residential/commercial/ industrial habitats. It is located in the Suwannee and Satilla River Watersheds (03070201 and 03110201 HUC) and crosses various streams, including; Cane Creek, Peters Branch, Box Creek, Suwannee Creek, Little Suwannee Creek, Suwannee River, Greasy Branch, Alligator Creek, Little Alligator Creek, Kettle Creek, Woodyard Creek.

GDOT proposes to debit 41.58 wetland credits from GDOT's Echols Tract Mitigation Site located in Pierce County in HUC 03070201. The Echols Tract was approved as mitigation for SAS-1994-09213 for impacts associated with the widening of US 1/SR 4 in Ware/Bacon Counties. The approved plan states that any remaining credits can be used for upcoming GDOT project(s) with relatively modest impacts on a case by case basis. The remaining 12.99 credits would be purchased from one of the following mitigation banks; Broadfield, Hog Creek, Musket Bay, Offerman, and/or Satilla River. Approximately 880.38 credits would be needed in HUC 03110201 and would be obtained from the Cecil Bay Mitigation Bank. There are no stream credits available in the primary or secondary service areas to compensate for the proposed impacts so the Georgia Land Trust In Lieu Fee Program would be used to provide the 363 stream credits.

BACKGROUND

This Joint Public Notice announces a request for authorizations from both the Corps and the State of Georgia. The applicant's proposed work may also require local governmental approval.

This project is federally funded and the Federal Highway Administration (FHWA) is the lead federal agency responsible for coordination and consultation under Section 7(a)(2) of the Endangered Species Act and Section 106 of the National Historic Preservation Act of 1966, as amended.

The wetland boundaries shown on the project drawings have not yet been verified by the Corps. If the Corps determines that the boundaries of the wetlands/waters are substantially inaccurate, a new public notice may be published.

STATE OF GEORGIA

Water Quality Certification: The Georgia Department of Natural Resources, Environmental Protection Division, intends to certify this project at the end of 30 days in accordance with the provisions of Section 401 of the Clean Water Act, which is required for a Federal Permit to conduct activity in, on, or adjacent to the waters of the State of Georgia. Copies of the application and supporting documents relative to a specific application will be available for review and copying at the office of the Georgia Department of Natural Resources, Environmental Protection Division, Watershed Protection Branch, 2 Martin Luther King Jr. Drive, Suite 1152 East, Atlanta, Georgia 30334, during regular office hours. A copier machine is available for public use at a charge of 25 cents per page. Any person who desires to comment, object, or request a public hearing relative to State Water Quality Certification must do so within 30 days of the State's receipt of application in writing and state the reasons or basis of objections or request for a hearing. The application can be reviewed in the Savannah District, U.S. Army Corps of Engineers, Regulatory Division, 100 West Oglethorpe Avenue, Savannah, Georgia 31401-3640.

State-owned Property and Resources: The applicant may also require assent from the State of Georgia, which may be in the form of a license, easement, lease, permit or other appropriate instrument.

U.S. ARMY CORPS OF ENGINEERS

The Savannah District must consider the purpose and the impacts of the applicant's proposed work, prior to a decision on issuance of a Department of the Army permit.

Cultural Resources Assessment:

The FHWA, as the lead federal agency, has reviewed this project in compliance with Section 106 of the National Historic Preservation Act of 1966 and amendments thereto, the proposed project corridor was surveyed for archaeological and historic resources, listed in or eligible for inclusion in the National Register of Historic Places (NRHP). The survey boundary and methodology were established using the GDOT/FHWA Cultural Resource Survey Guidelines. The projects were originally windshield surveyed for historic properties in 1994 and 1997. An early shift in alignment was made to avoid physical impact to two resources located on the north and south sides of the existing alignment in Ruskin. Also, during the concept development process, three alignments were proposed in an effort to bypass the community of Argyle. The projects were surveyed for historic resources in April 2000 and March 2002, and a northern bypass of Argyle was selected. The community of Wahoma is also being bypassed to the south due to Environmental Justice compliance. In August 2003, a report was prepared that identified 32 resources that included new and previously recorded resources located

within the area of potential effect (APE) of the proposed projects. These resources were evaluated, and 8 were determined eligible for listing in the NRHP.

Once the preferred alignment was selected, Assessment of Effects documents were prepared in 2004 and 2005. The 2004 document reported findings of No Adverse Effect to Resource C10, Resource C21, and Resource A, and a finding of Adverse Effect to Resource P (Old Ruskin Church). The 2005 document reported findings of No Adverse Effect to the Manor Church (Site 29), Site 4, Site 5, and Site 7. A Memorandum of Agreement mitigating the adverse effects to Resource P (Old Ruskin Church) was ratified in December 2005.

The FHWA, as lead federal agency for this proposed road improvement project, has responsibility to ensure that the project complies with Section 106 of the National Historic Preservation Act of 1966 and subsequent amendments. Also, if cultural resources are identified on the project site, FHWA would be required to complete coordination/consultation pursuant to Section 106 of the NHPA. Based on this, the Corps did not make an effect determination with regards to Section 106 of the NHPA for the proposed project.

Endangered Species: The FHWA, the lead federal agency, has reviewed this project in accordance with Section 7 of the Endangered Species Act (ESA). Coordination with the US Fish and Wildlife Service (USFWS) and Georgia Department of Natural Resources (Georgia DNR) was undertaken to identify any species or habitats of concern. Informal Section 7 consultation was initiated by FHWA with the USFWS on November 25, 2014. The Georgia DNR Natural Heritage Database was reviewed to determine any known occurrences of protected species within three miles of the project area. Lastly, field observations were conducted within the project area during numerous site visits between March 2014 and June 2014. Current and prior coordination resulted in the following species and determinations: may effect, not likely to adversely effect the wood stork (*Mycteria americana*), red-cockaded woodpecker (*Picoides borealis*), and the frosted flatwoods salamander (*Ambystoma cingulatum*); no significant adverse effect on the striped newt (*Notophthalmus perstriatus*); no effect for the indigo snake (*Drymarchon couperi*) and the gopher tortoise (*Gopherus Polyphemus*). Special Provision 107.23.G will be implemented to protect these species from harm.

The FHWA, as lead federal agency for this proposed action, would meet all lead federal agency responsibilities pursuant to Section 7 of the ESA. Therefore, the Corps did not make an effects determination with regard to Section 7 of the ESA for the proposed project.

Public Interest Review: The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors, which may be relevant to the proposal will be considered

including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and in general, the needs and welfare of the people.

A copy of the Environmental Assessment approved by the FHWA for the subject project is available for review at the Federal Highway Administration, Atlanta Federal Center, 61 Forsyth Street, SW., Suite 17th Floor, Atlanta, Georgia 30303-8821 and GDOT's Office of Environmental Services, One Georgia Center, 16th Floor, 600 West Peachtree Street, NW, Atlanta, Georgia 30808-3607.

Consideration of Public Comments: The Corps is soliciting comments from the public; federal, state, and local agencies and officials; Native American Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Application of Section 404(b)(1) Guidelines: The proposed activity involves the discharge of dredged or fill material into the waters of the United States. The Savannah District's evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency, under the authority of Section 404(b) of the Clean Water Act.

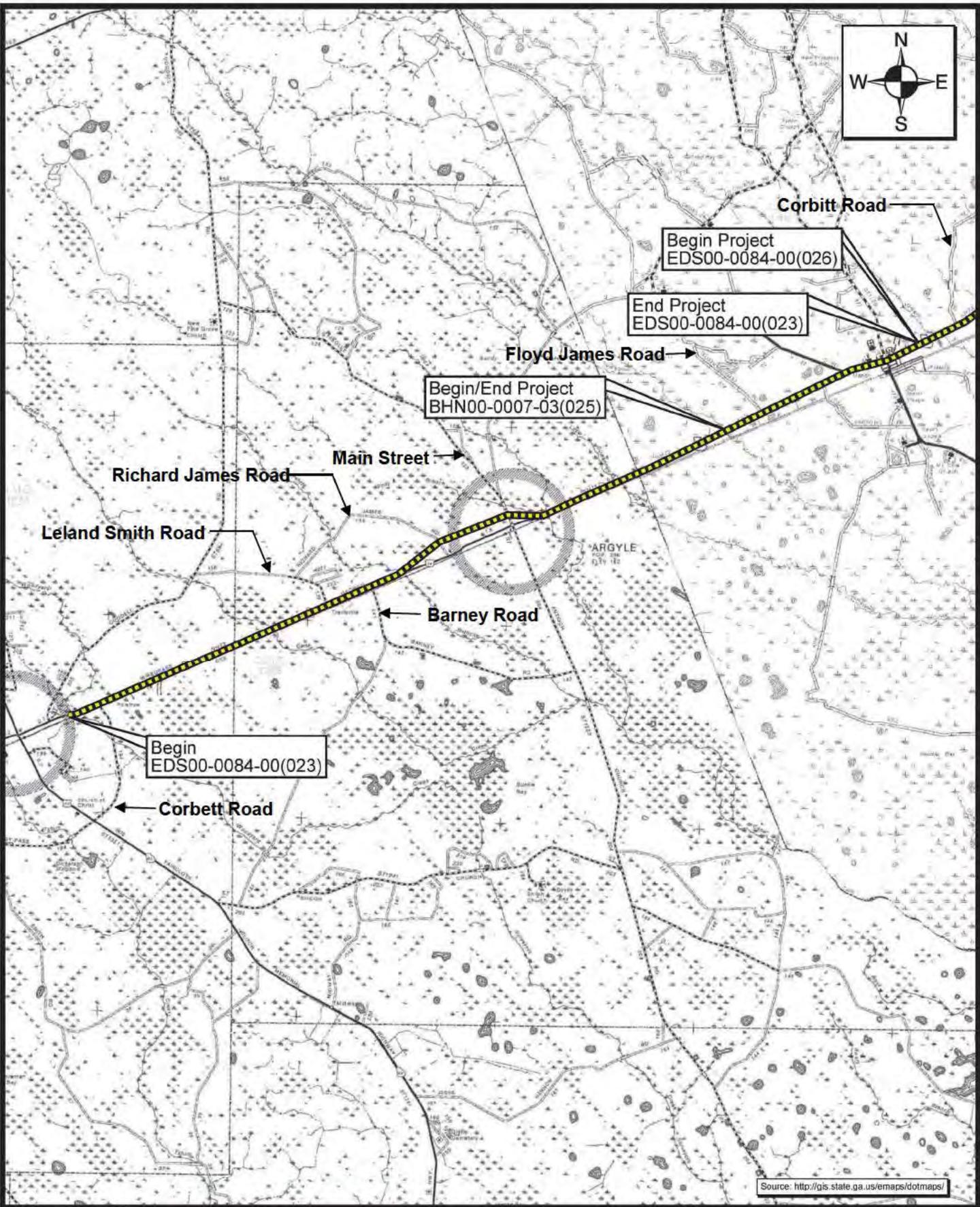
Public Hearing: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application for a Department of the Army permit. Requests for public hearings shall state, with particularity, the reasons for requesting a public hearing. The decision whether to hold a public hearing is at the discretion of the District Engineer, or his designated appointee, based on the need for additional substantial information necessary in evaluating the proposed project.

Comment Period: Anyone wishing to comment on this application for a Department of the Army permit should submit comments in writing to the Commander, U.S. Army Corps of Engineers, Savannah District, Attention: Mr. William M. Rutlin, 100 West Oglethorpe Avenue Savannah, Georgia 31401-3640, no later than 30 days from the date of this notice. Please refer to the applicant's name and the application number in your comments.

If you have any further questions concerning this matter, please contact Mr. William M. Rutlin, Project Manager, Coastal Branch, at 912-652-5893.

4 Encls

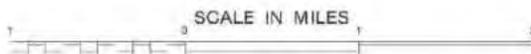
1. Site Location Map (2 pages)
2. State and Federal Waters Map (25 pages)
3. Summary of Jurisdictional Wetlands, Open Waters, and Ephemeral Streams (8 pages)
4. Compensatory Mitigation Worksheets (13 pages)



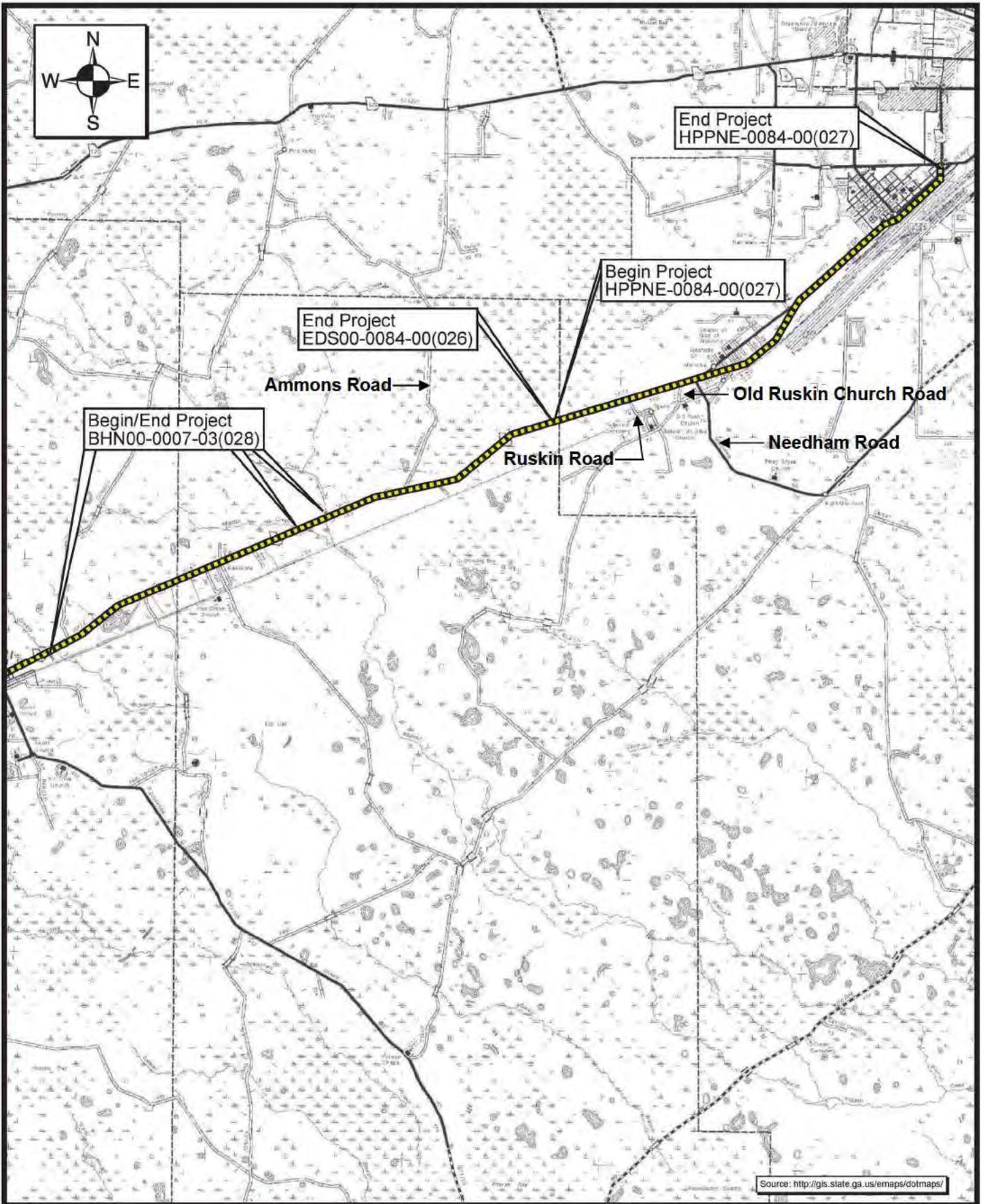
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Figure 1.1 - Site Location Map



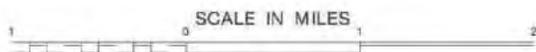
**Proposed SR 38/US 84 Widening from
Homerville to Waycross
GDOT Project EDS00-0084-00(023)
P.I. No. 422120
Clinch and Ware Counties, Georgia**



50506-052_EnvDoc_Grphs.fh11



Figure 1.2 - Site Location Map



**Proposed SR 38/US 84 Widening from
Homerville to Waycross
GDOT Project EDS00-0084-00(023)
P.I. No. 422120
Clinch and Ware Counties, Georgia**

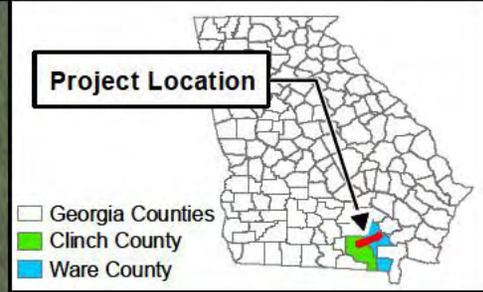
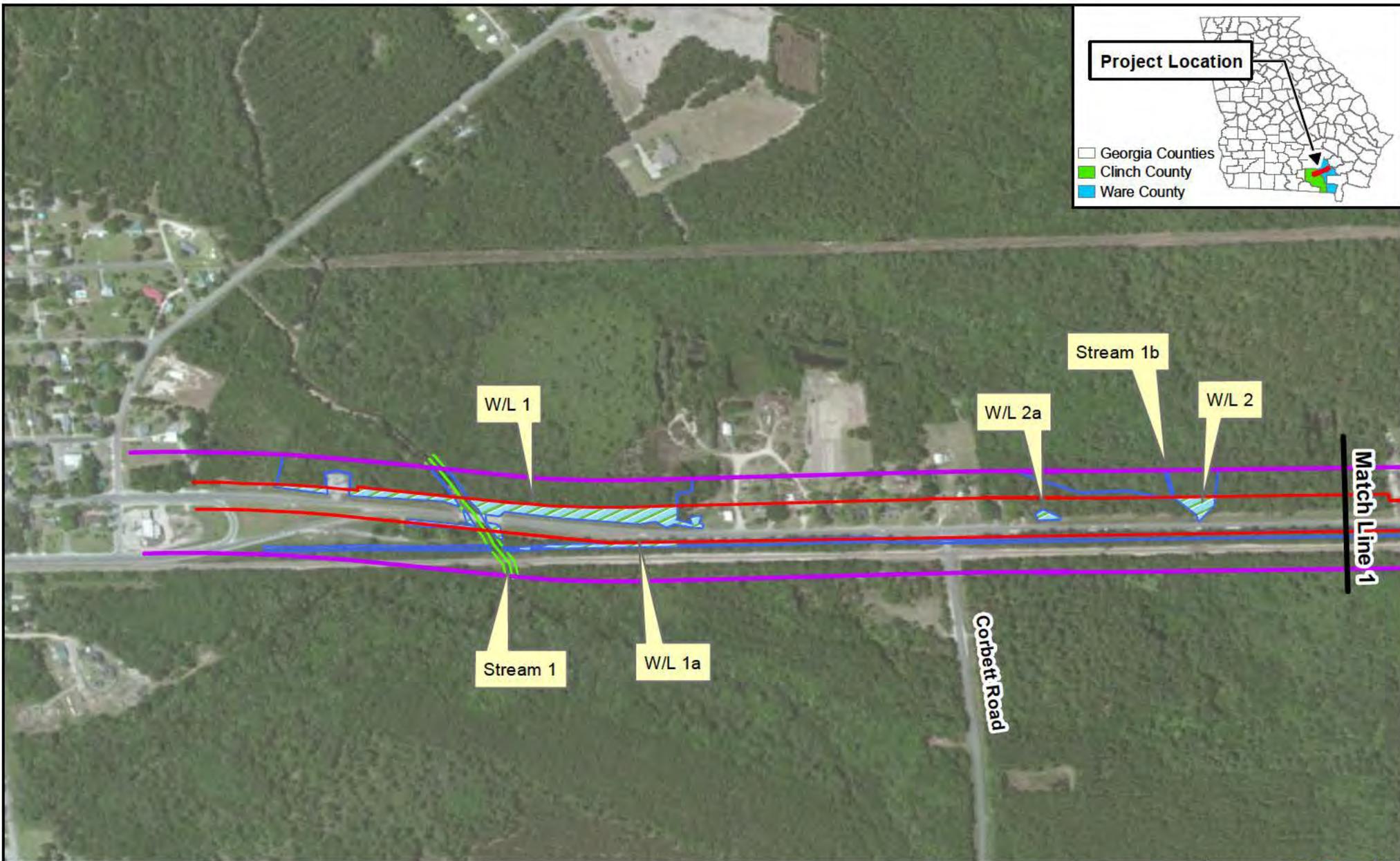
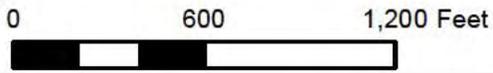


Figure 4.1: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water



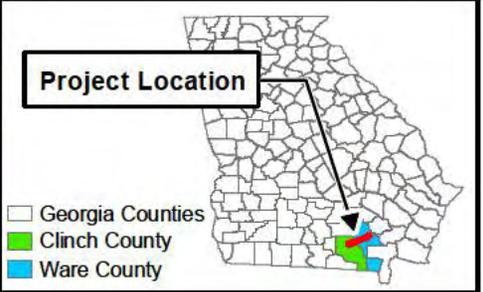
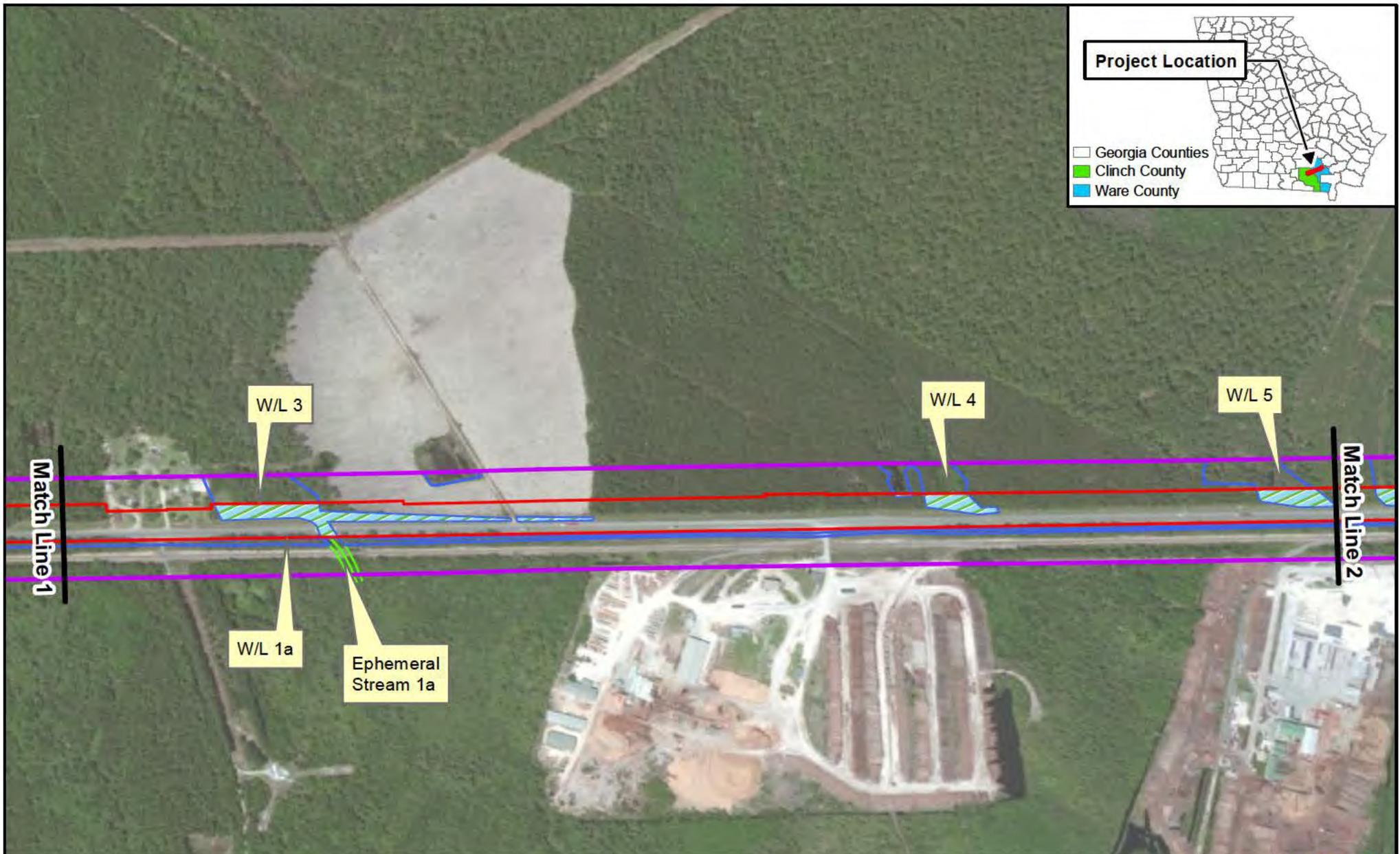
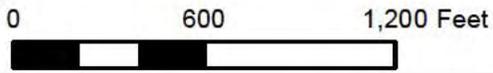


Figure 4.2: State and Federal Waters Map
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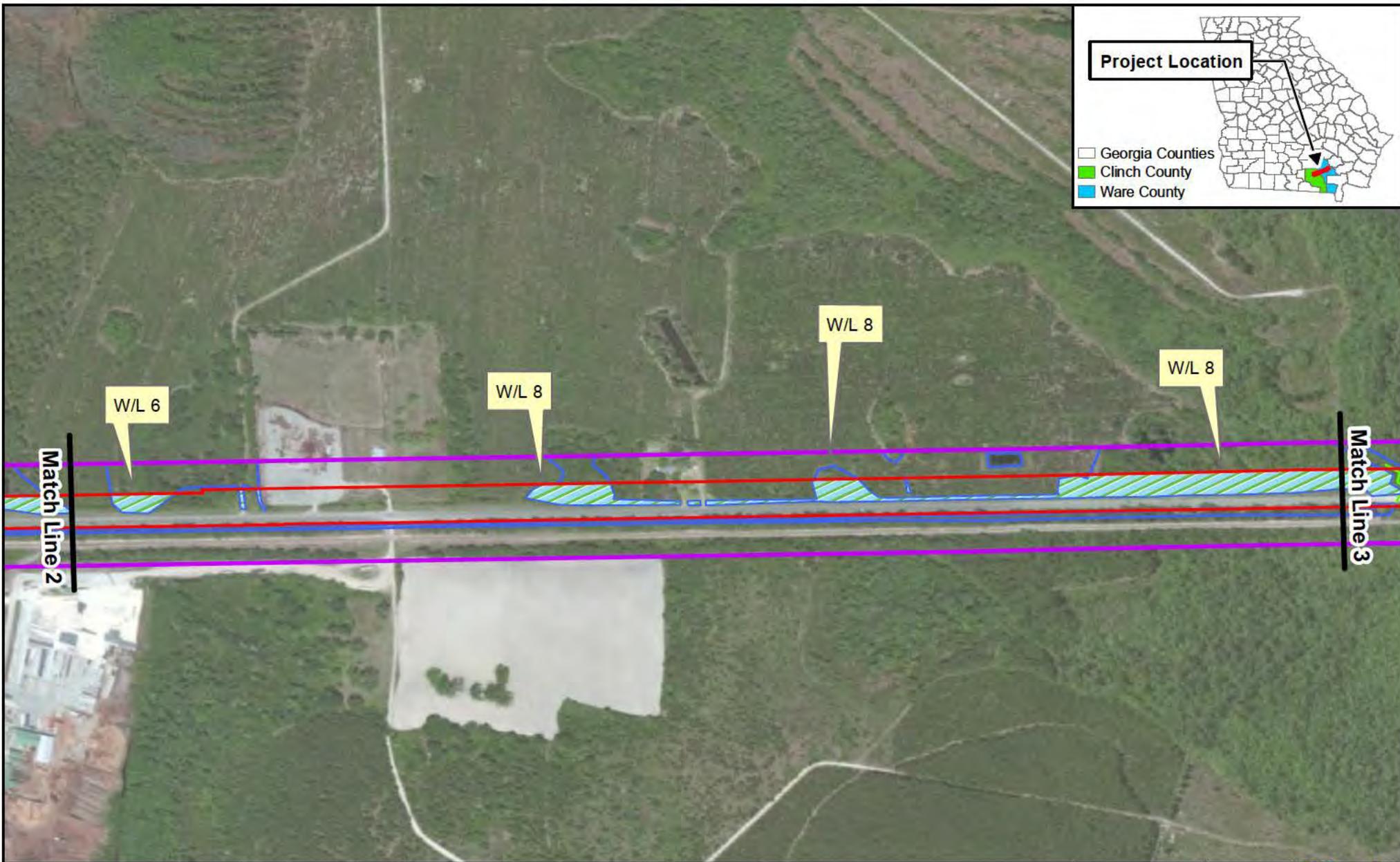
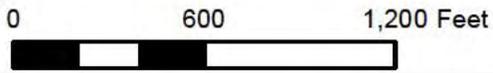


Figure 4.3: State and Federal Waters Map
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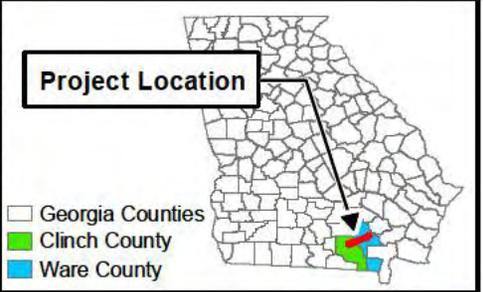
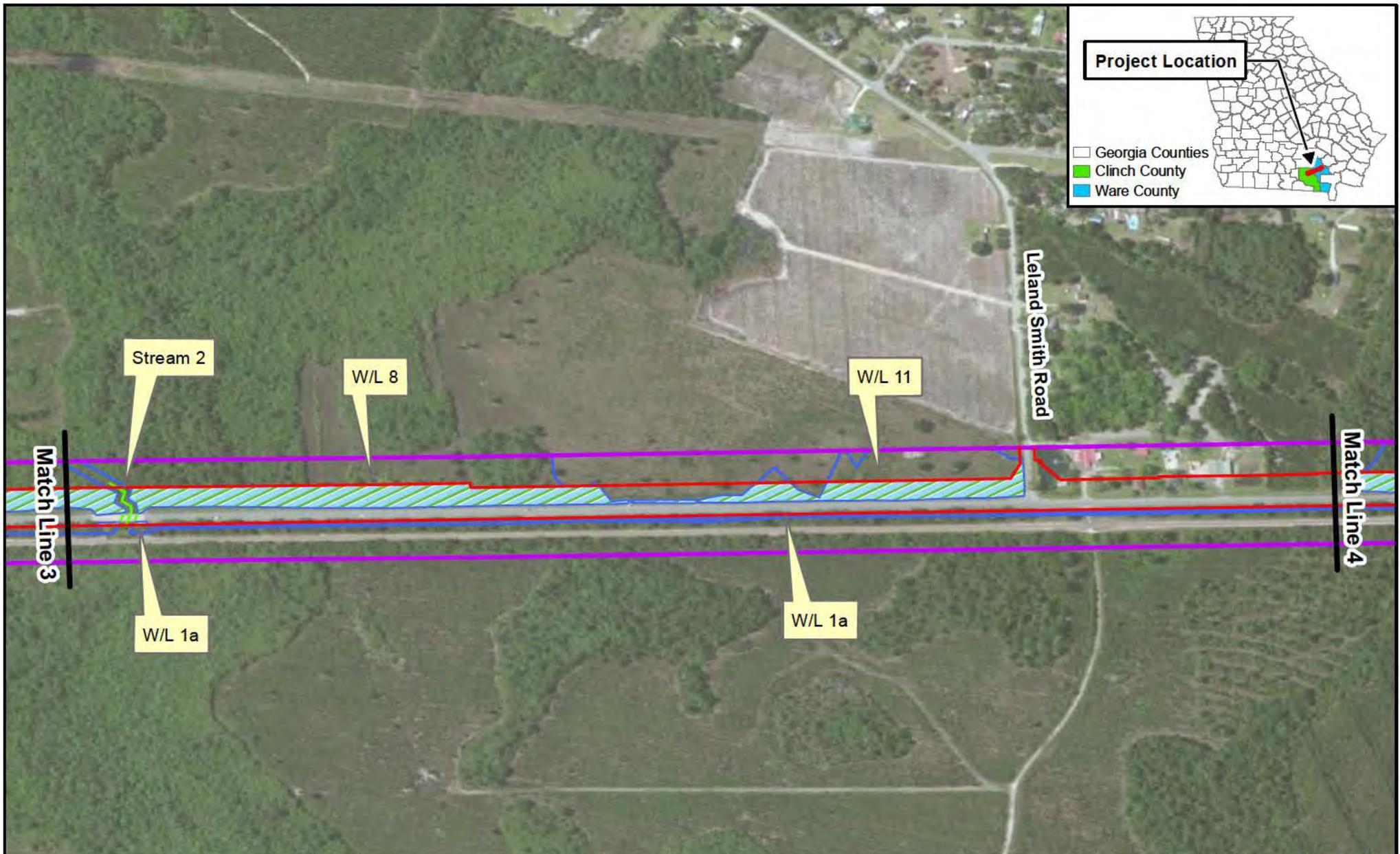
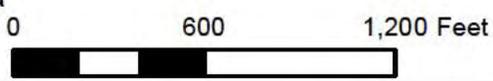


Figure 4.4: State and Federal Waters Map
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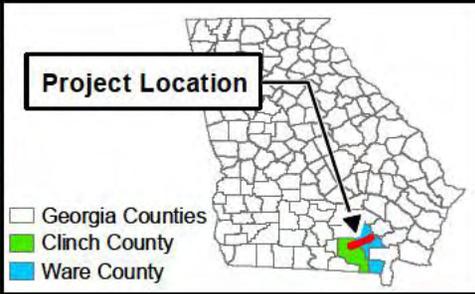
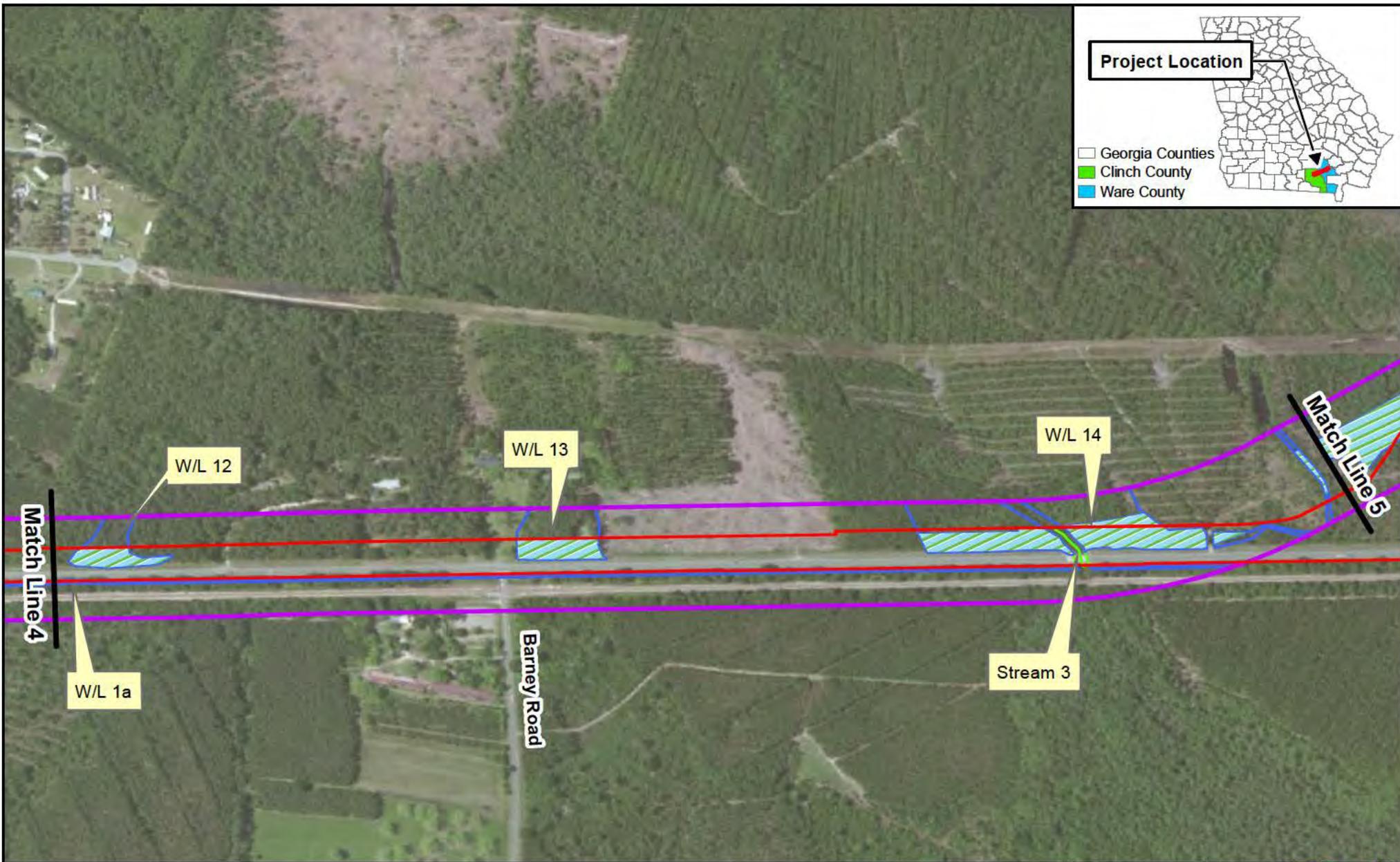
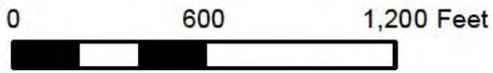


Figure 4.5: State and Federal Waters Map
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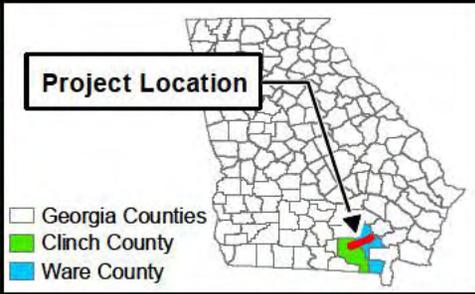
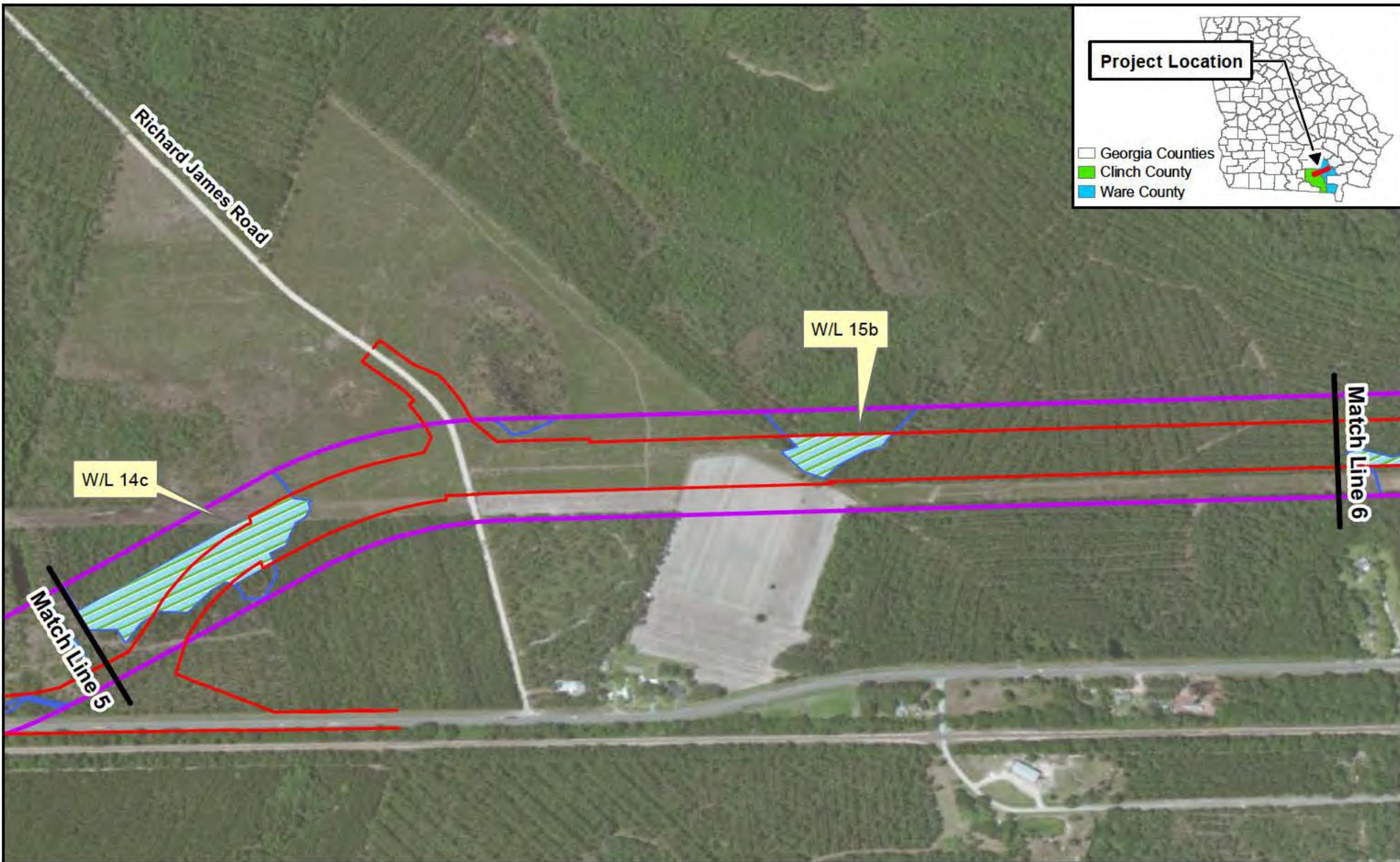
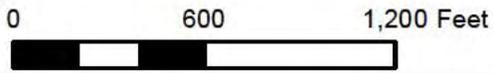


Figure 4.6: State and Federal Waters Map
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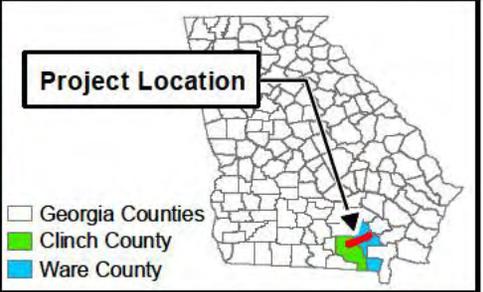
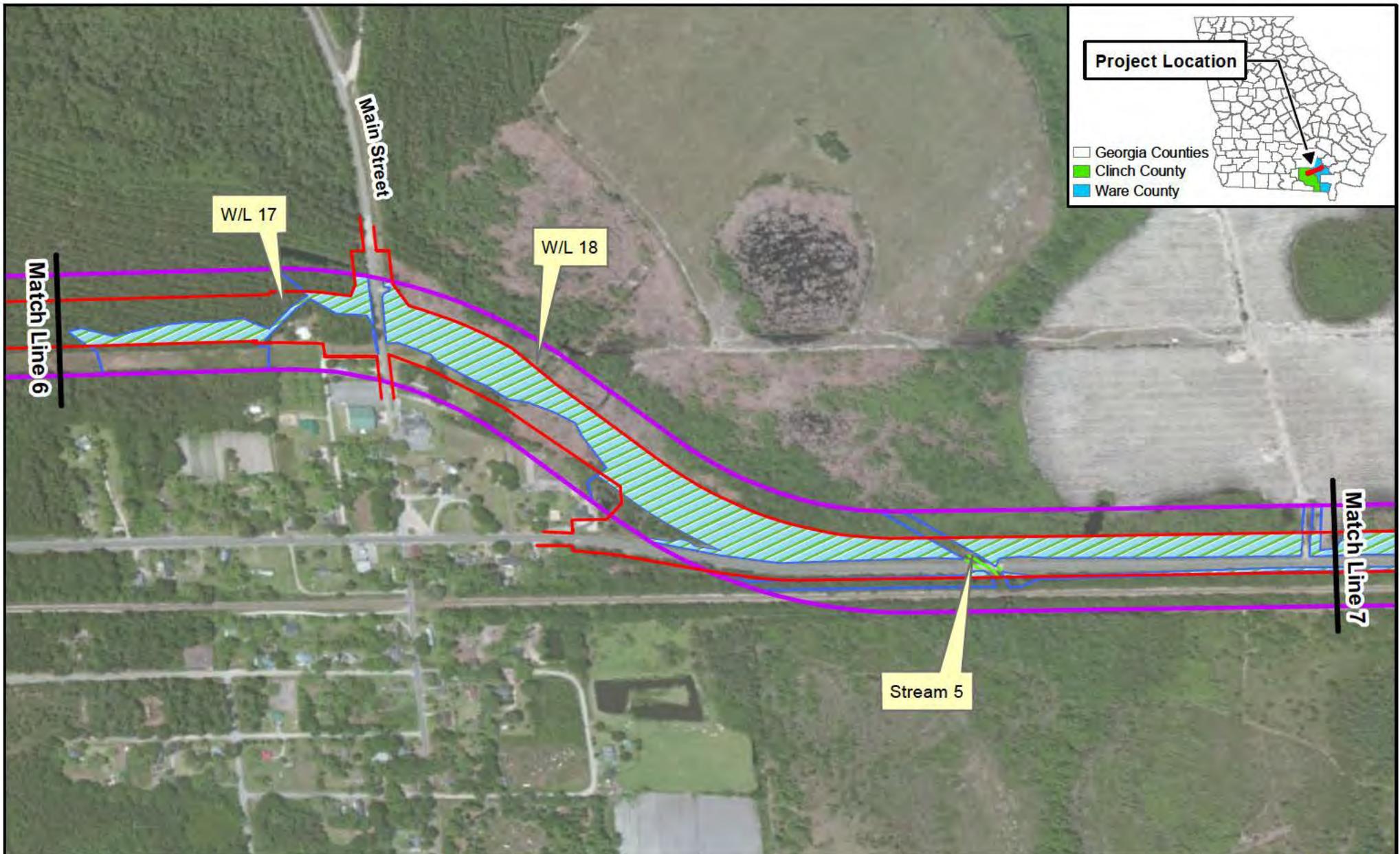
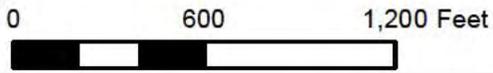


Figure 4.7: State and Federal Waters Map
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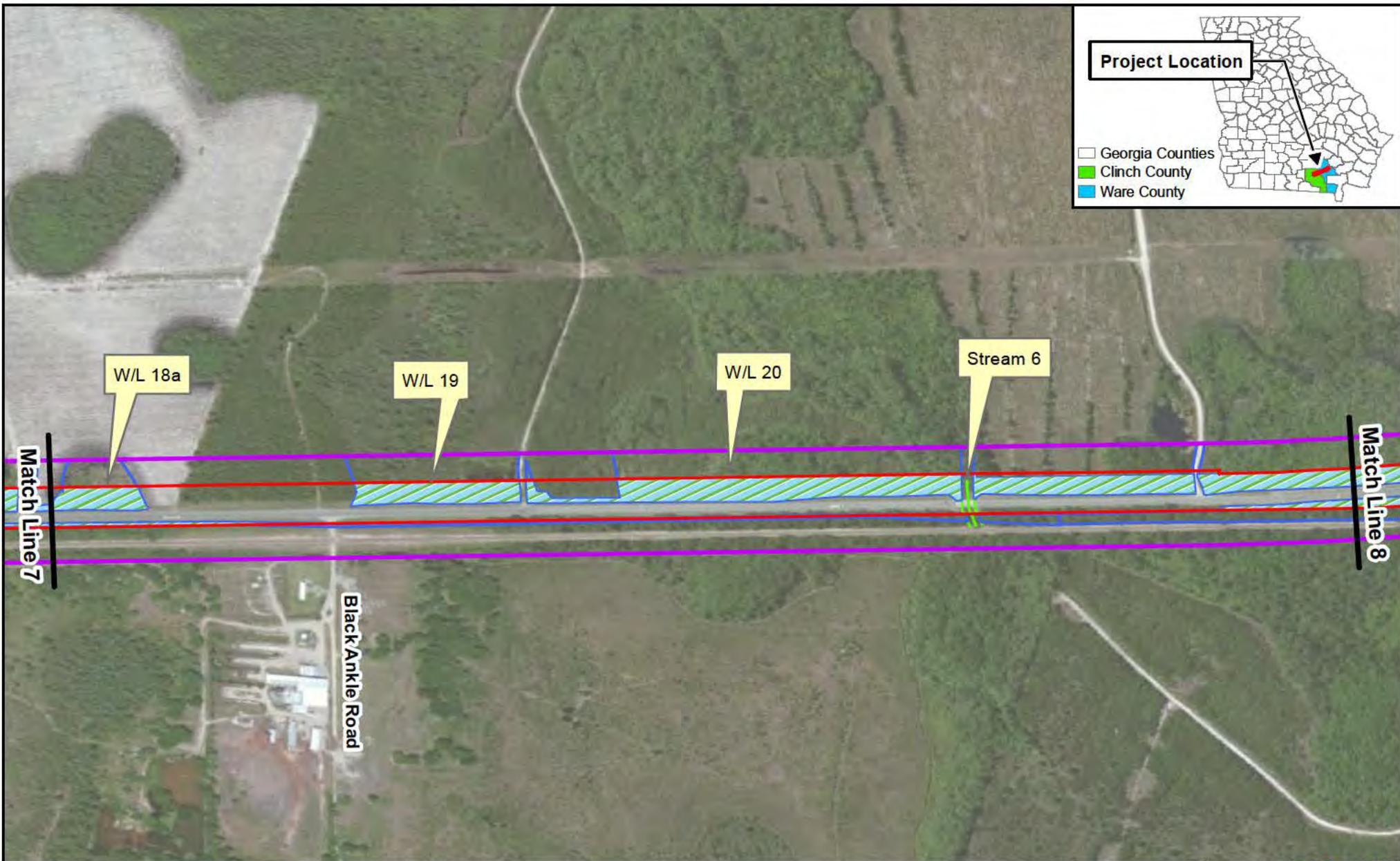
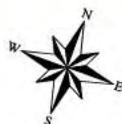
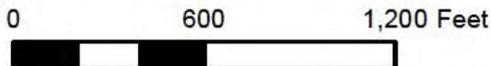


Figure 4.8: State and Federal Waters Map
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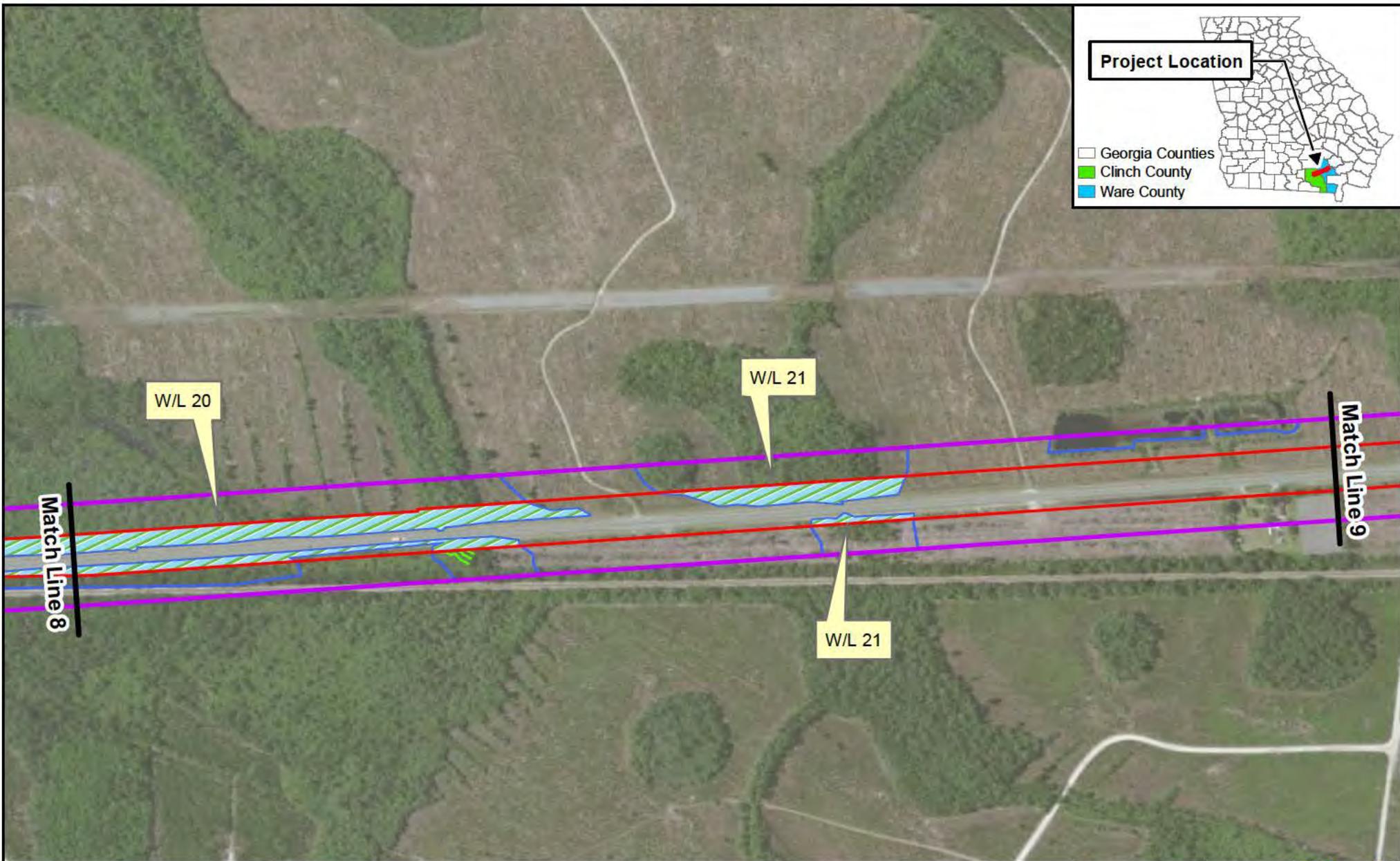
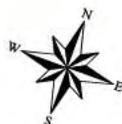
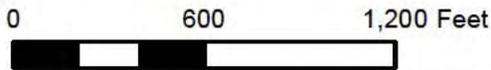


Figure 4.9: State and Federal Waters Map
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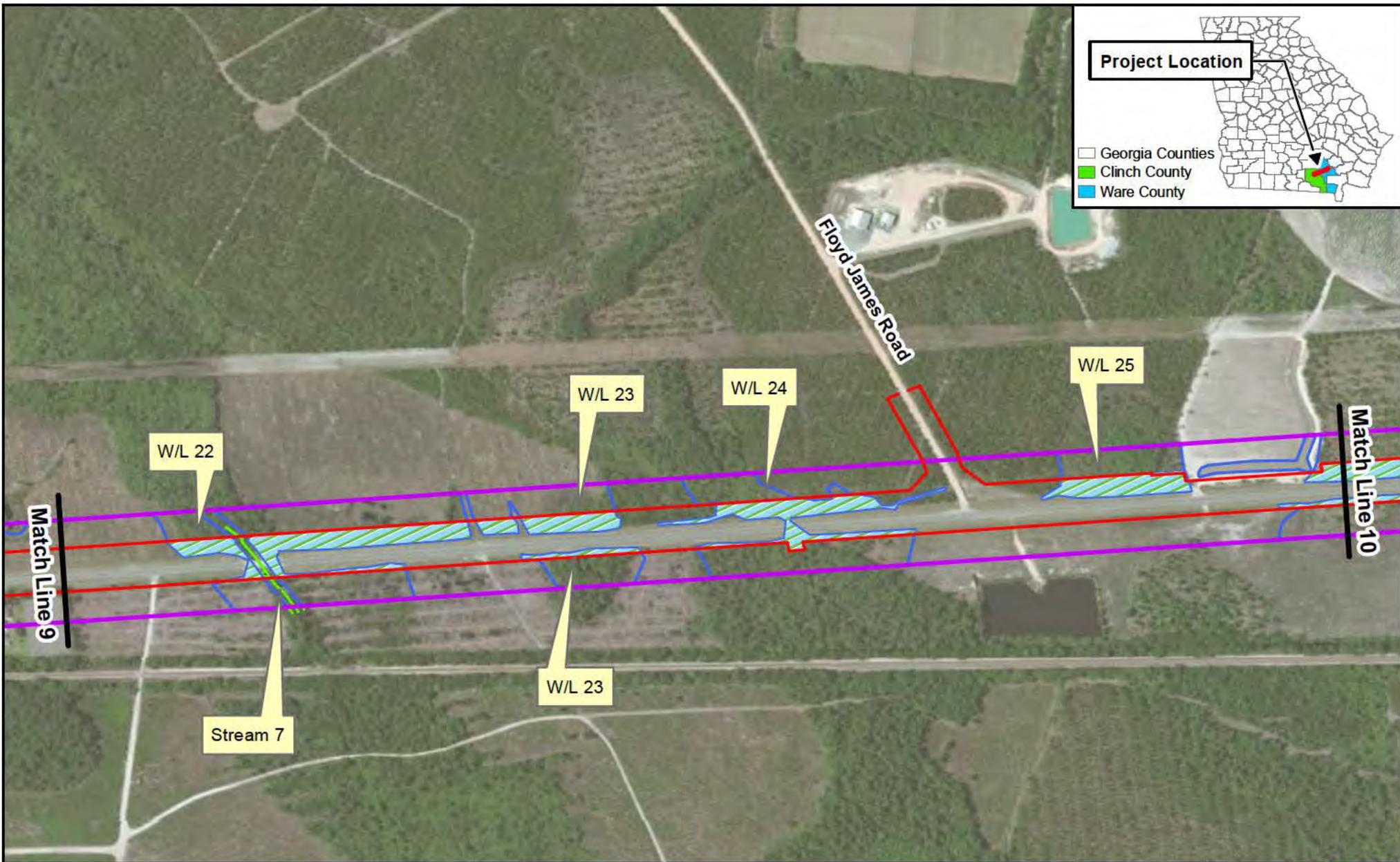
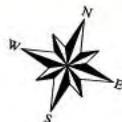
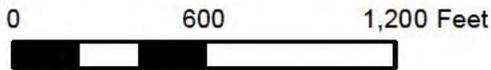


Figure 4.10: State and Federal Waters Map
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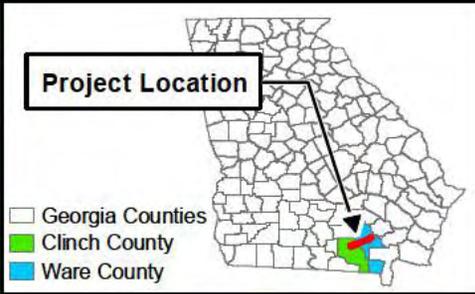
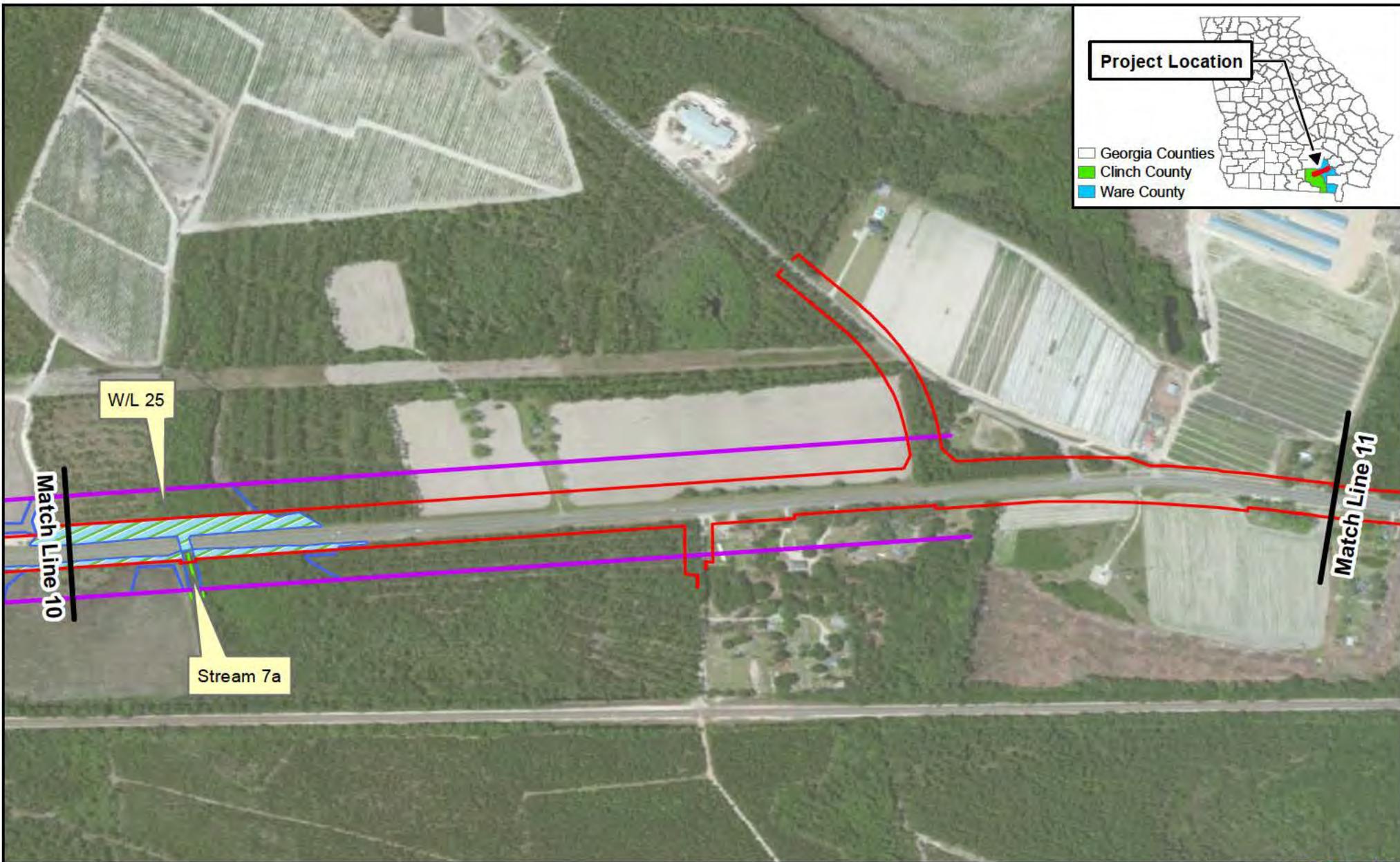
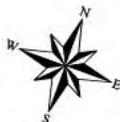
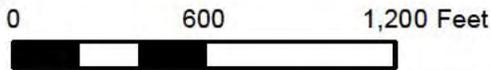


Figure 4.11: State and Federal Waters Map
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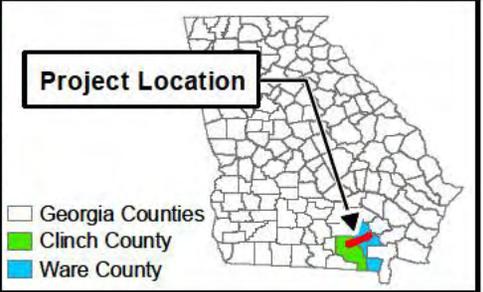
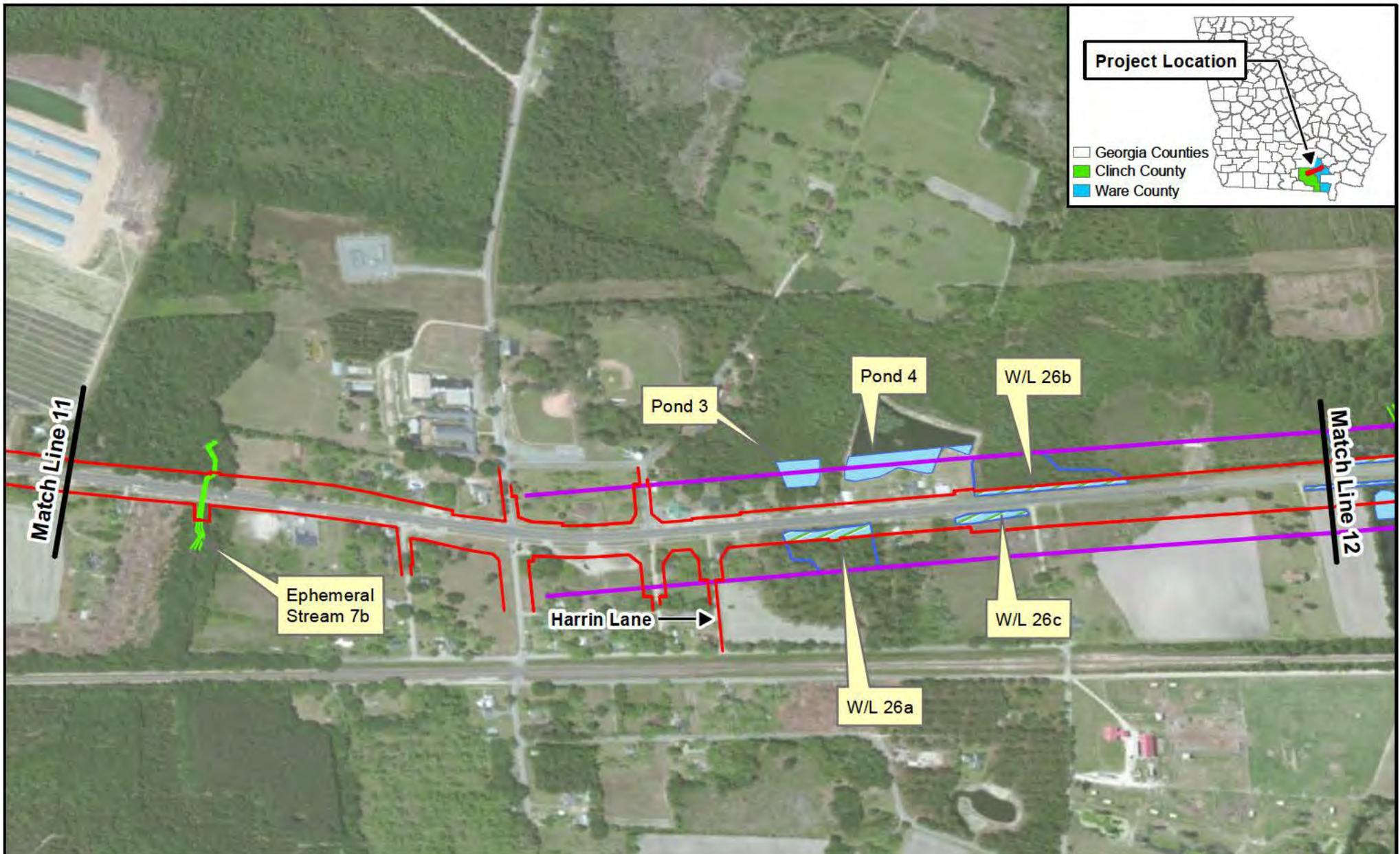
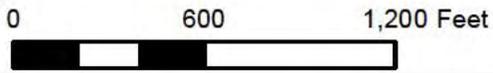


Figure 4.12: State and Federal Waters Map
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- Wetland Outside Req. ROW
- Open Water



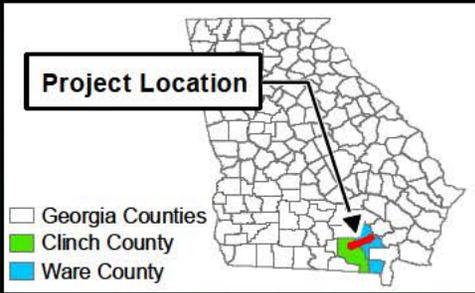
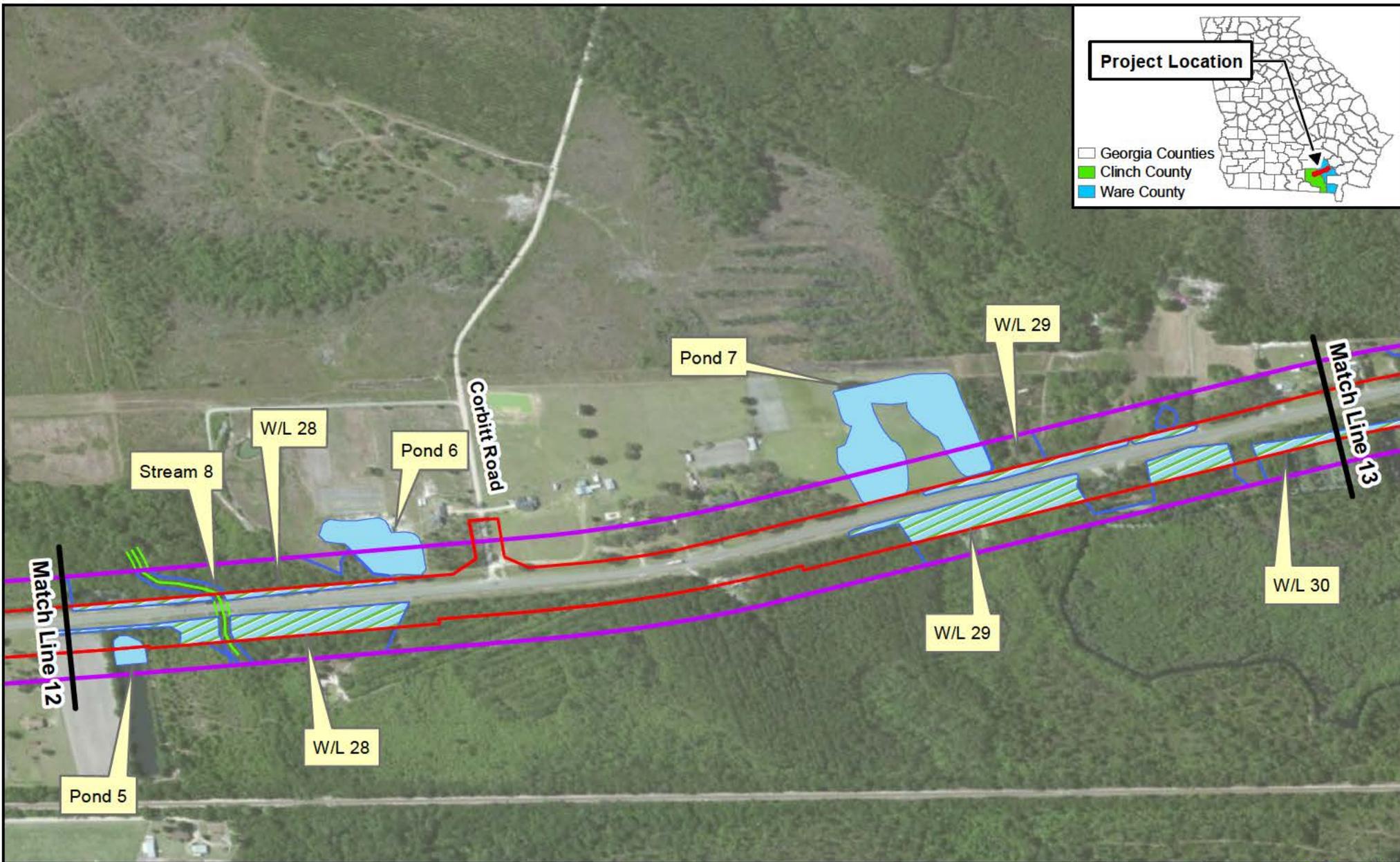
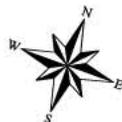
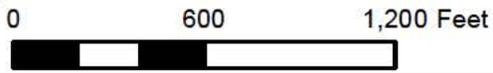


Figure 4.13: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water



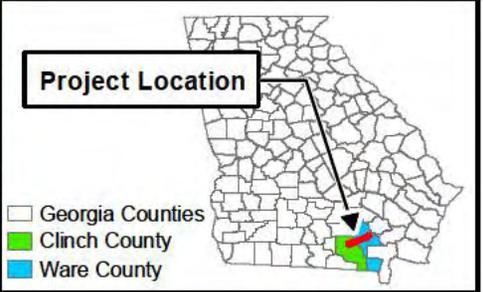
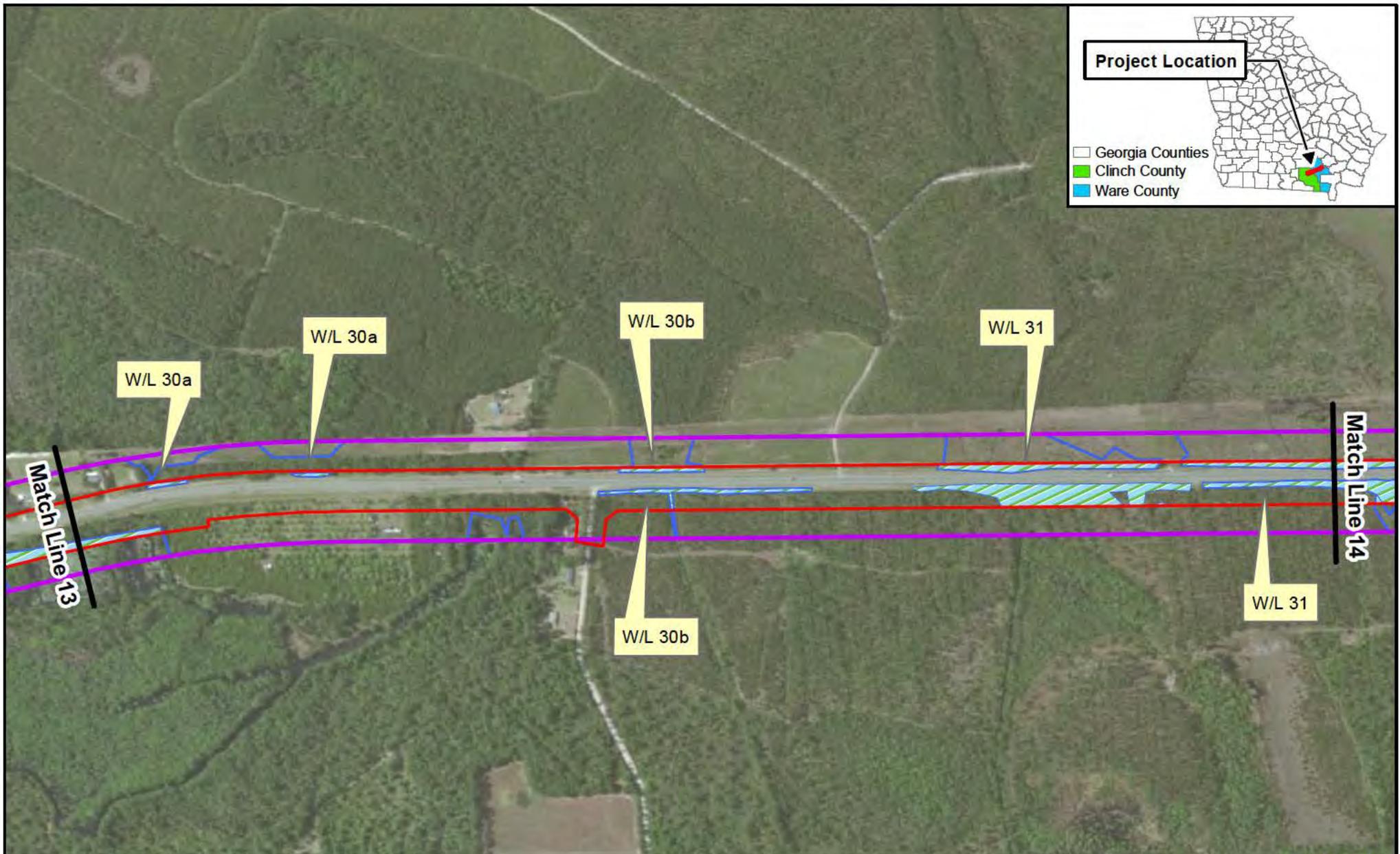
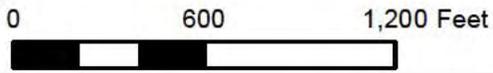


Figure 4.14: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water



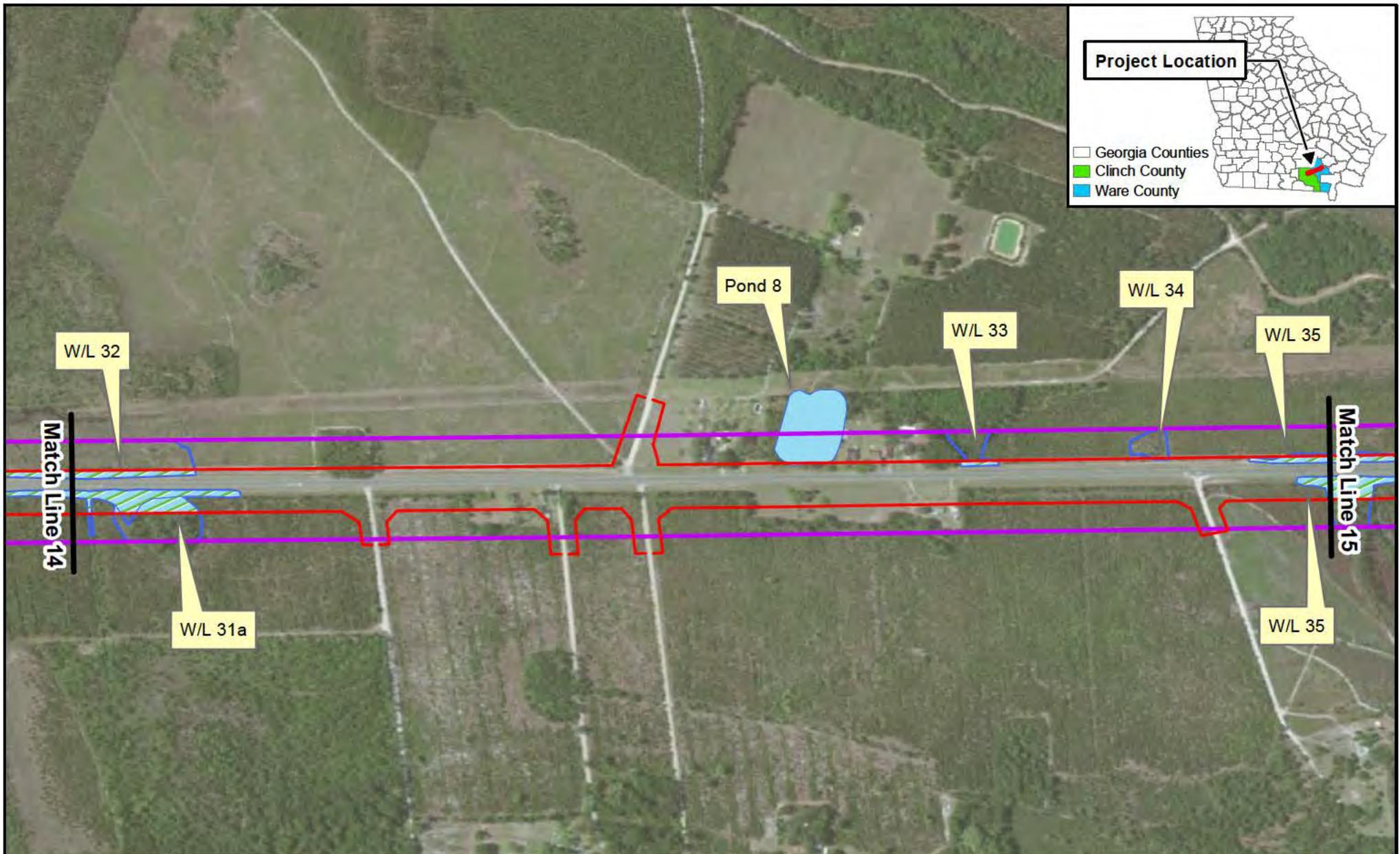
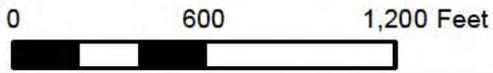


Figure 4.15: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water



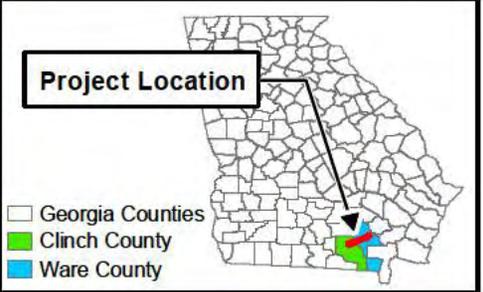
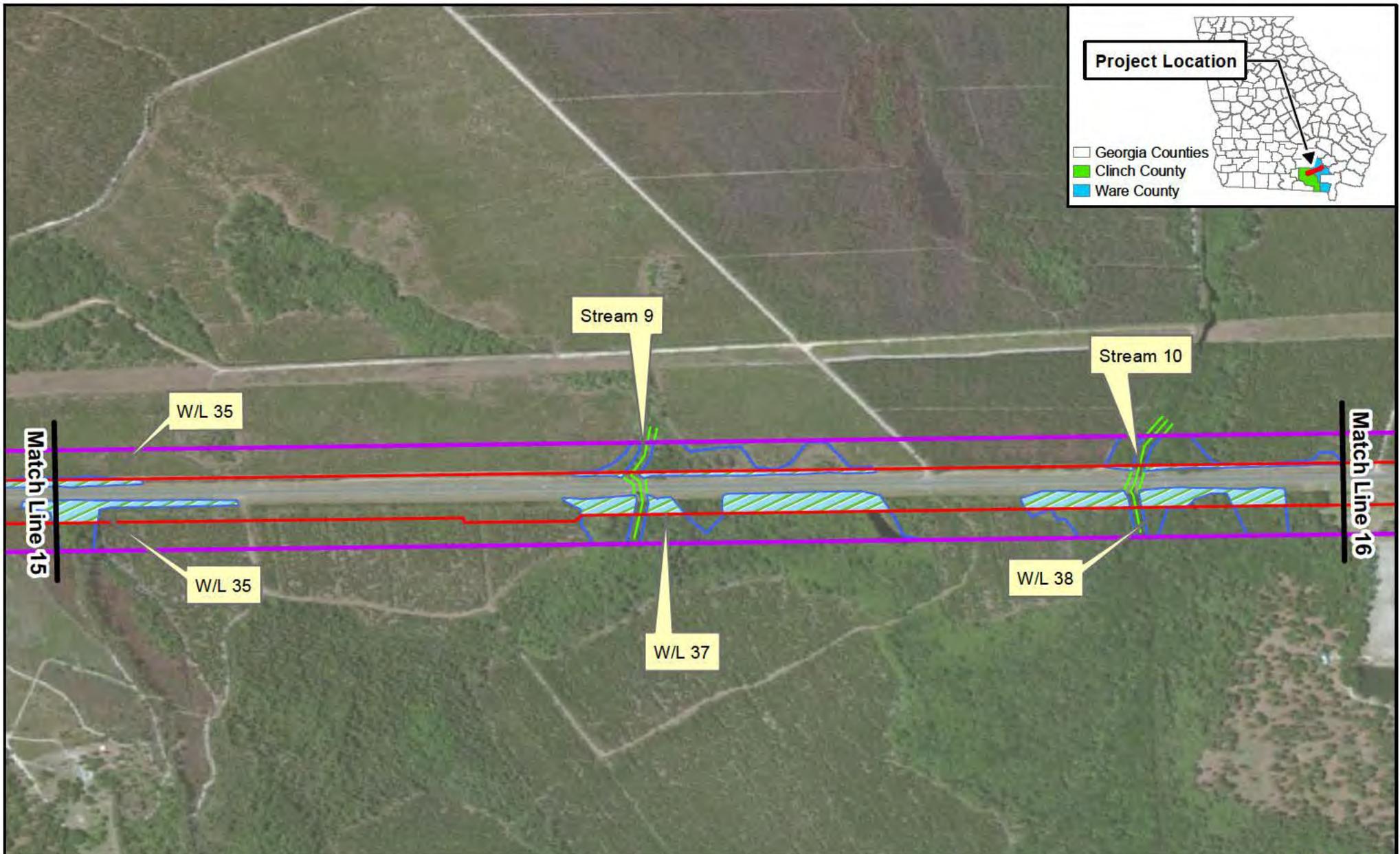
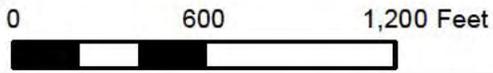


Figure 4.16: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water



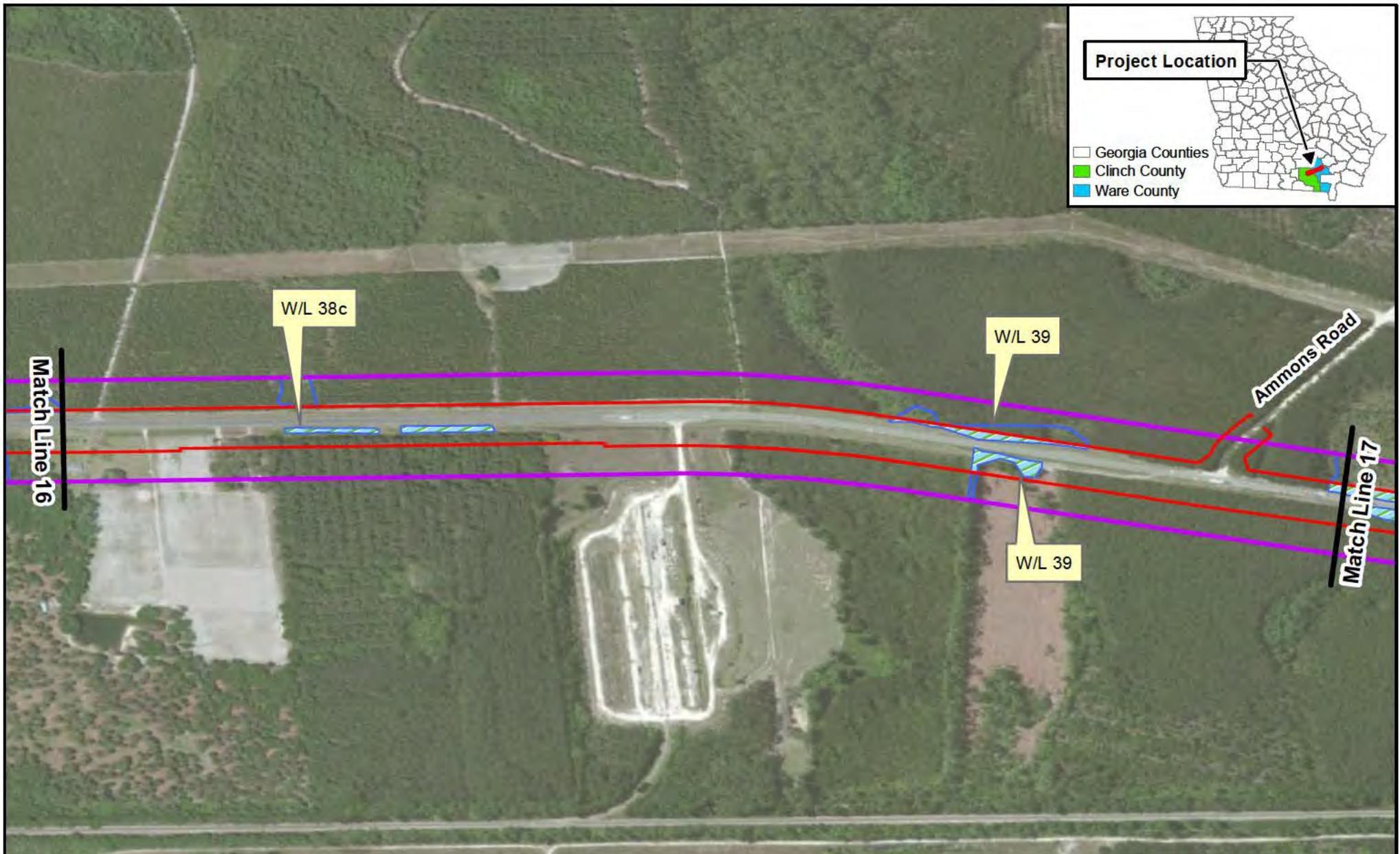
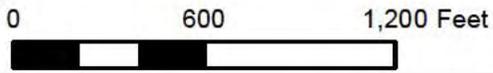


Figure 4.17: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water



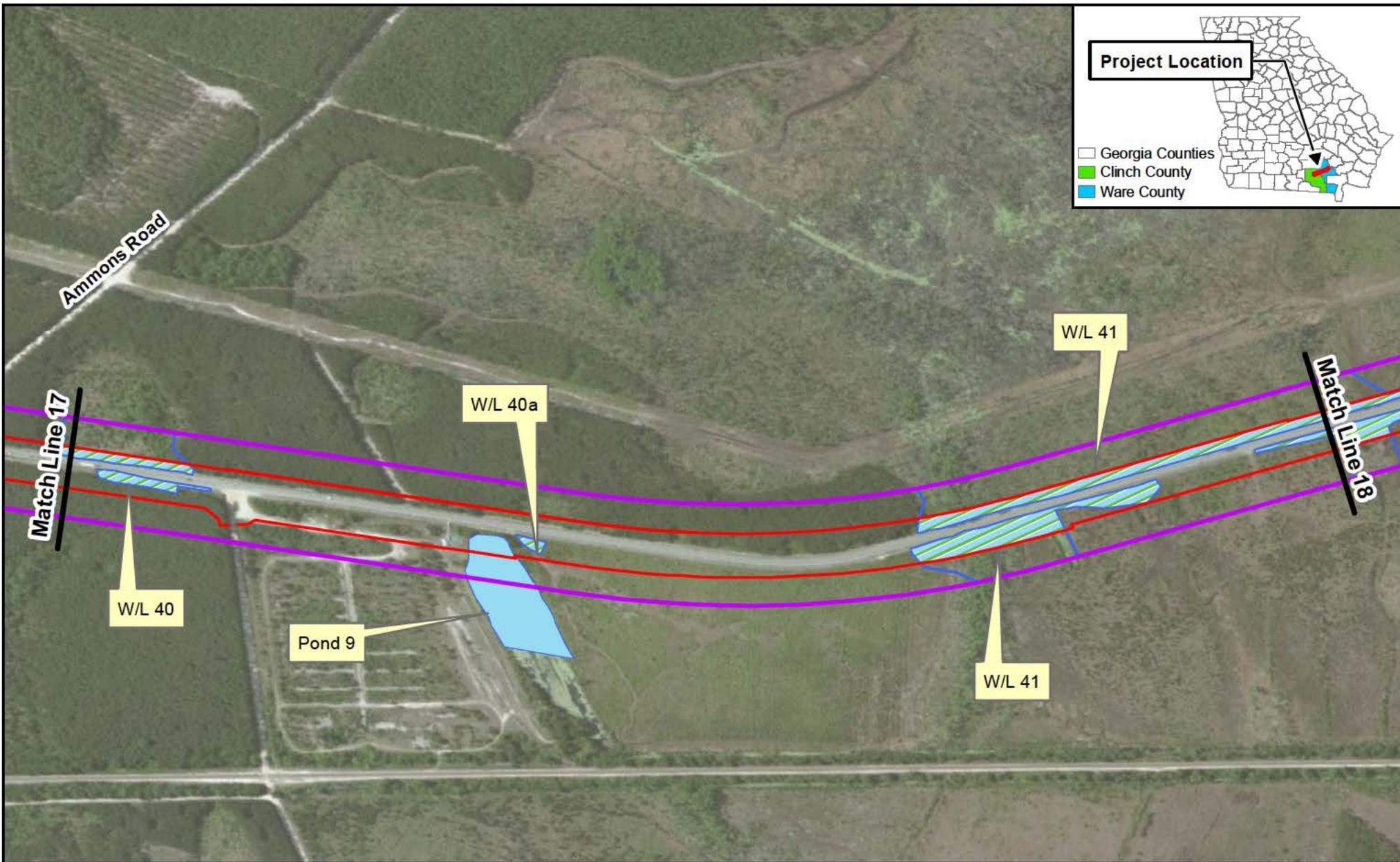
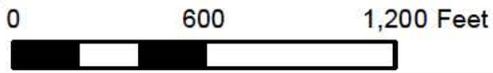


Figure 4.18: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water



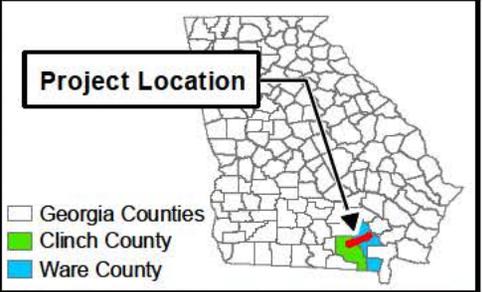
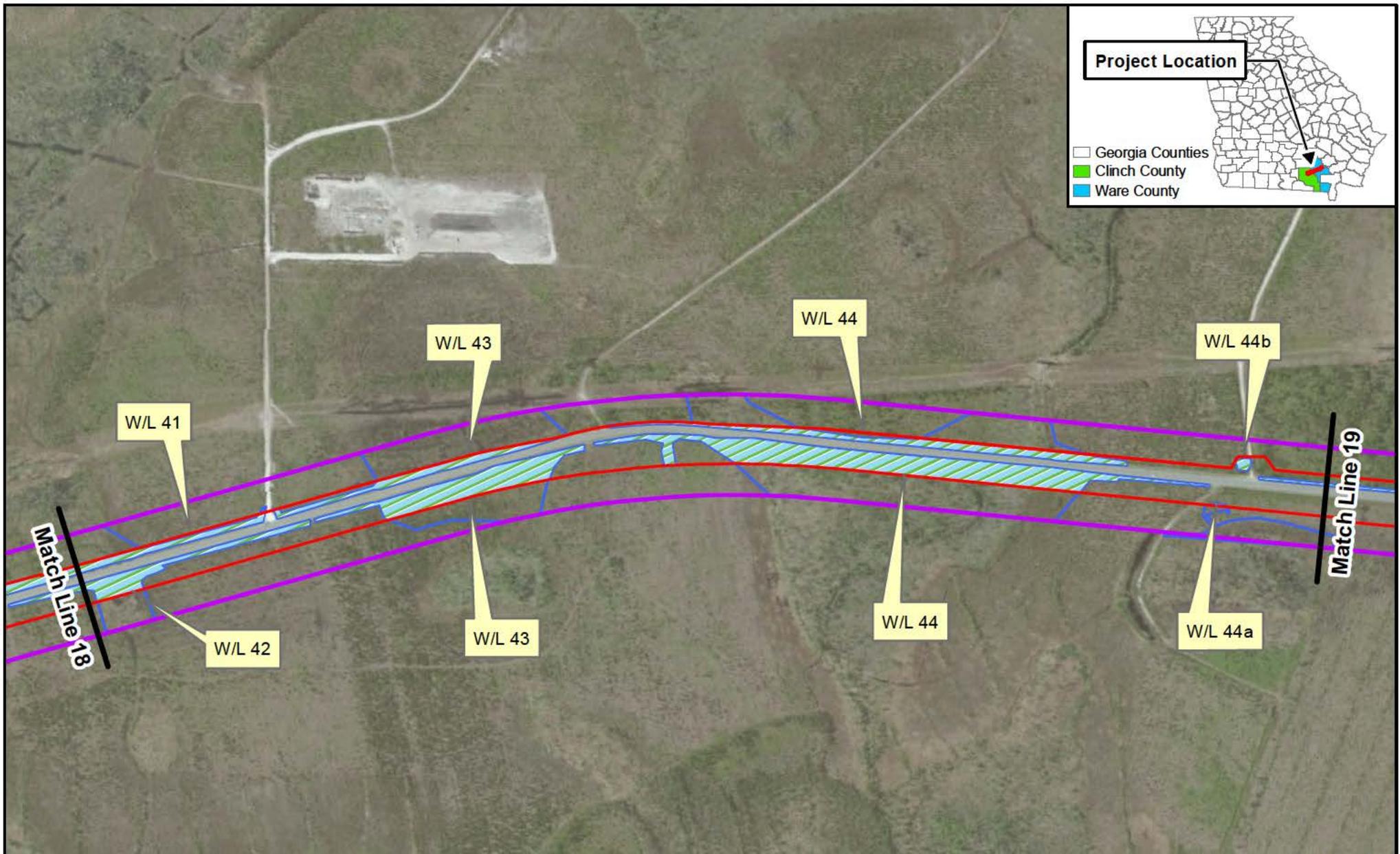
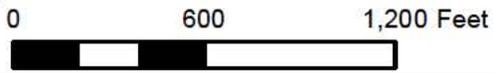


Figure 4.19: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water



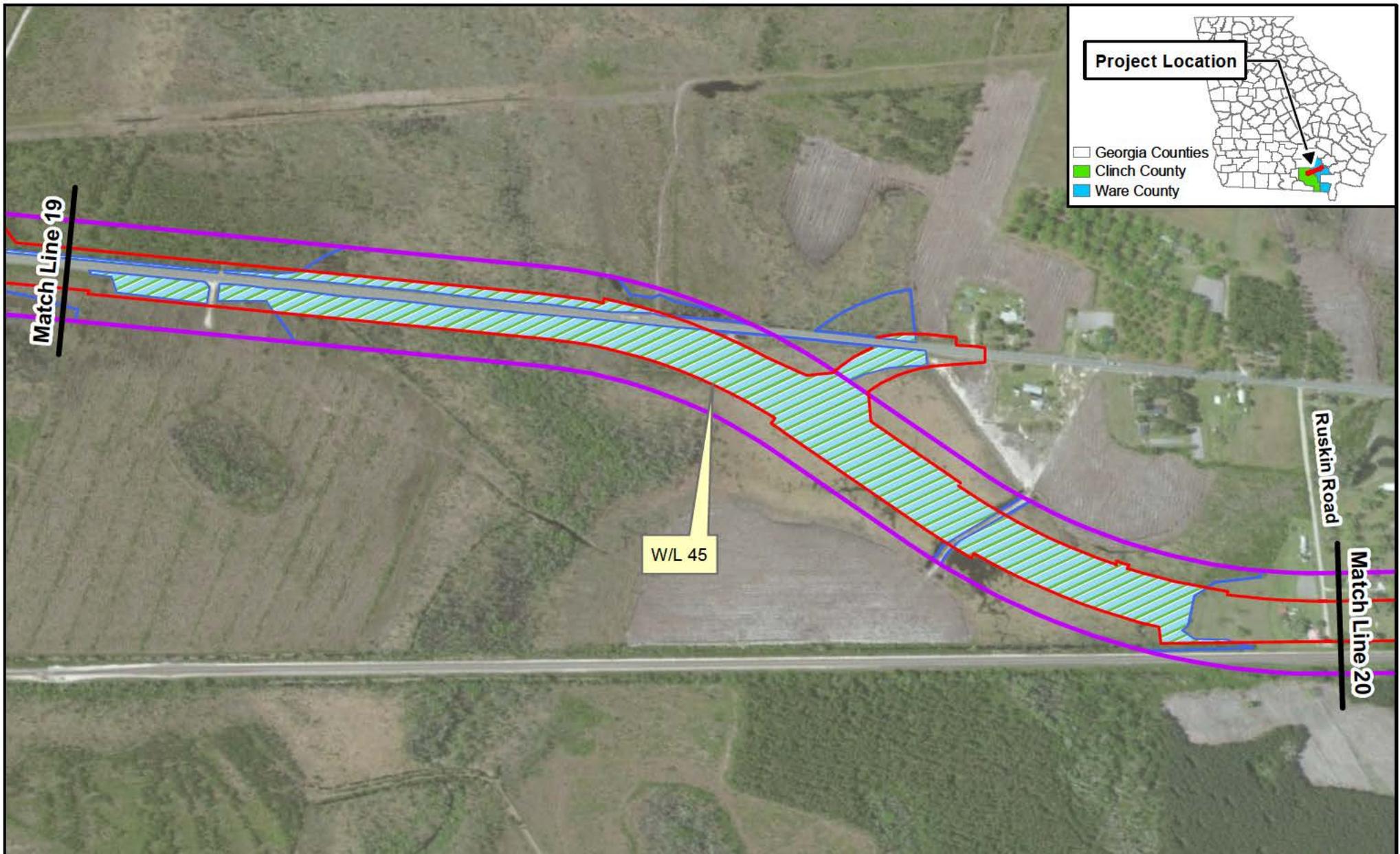
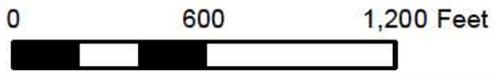


Figure 4.20: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water



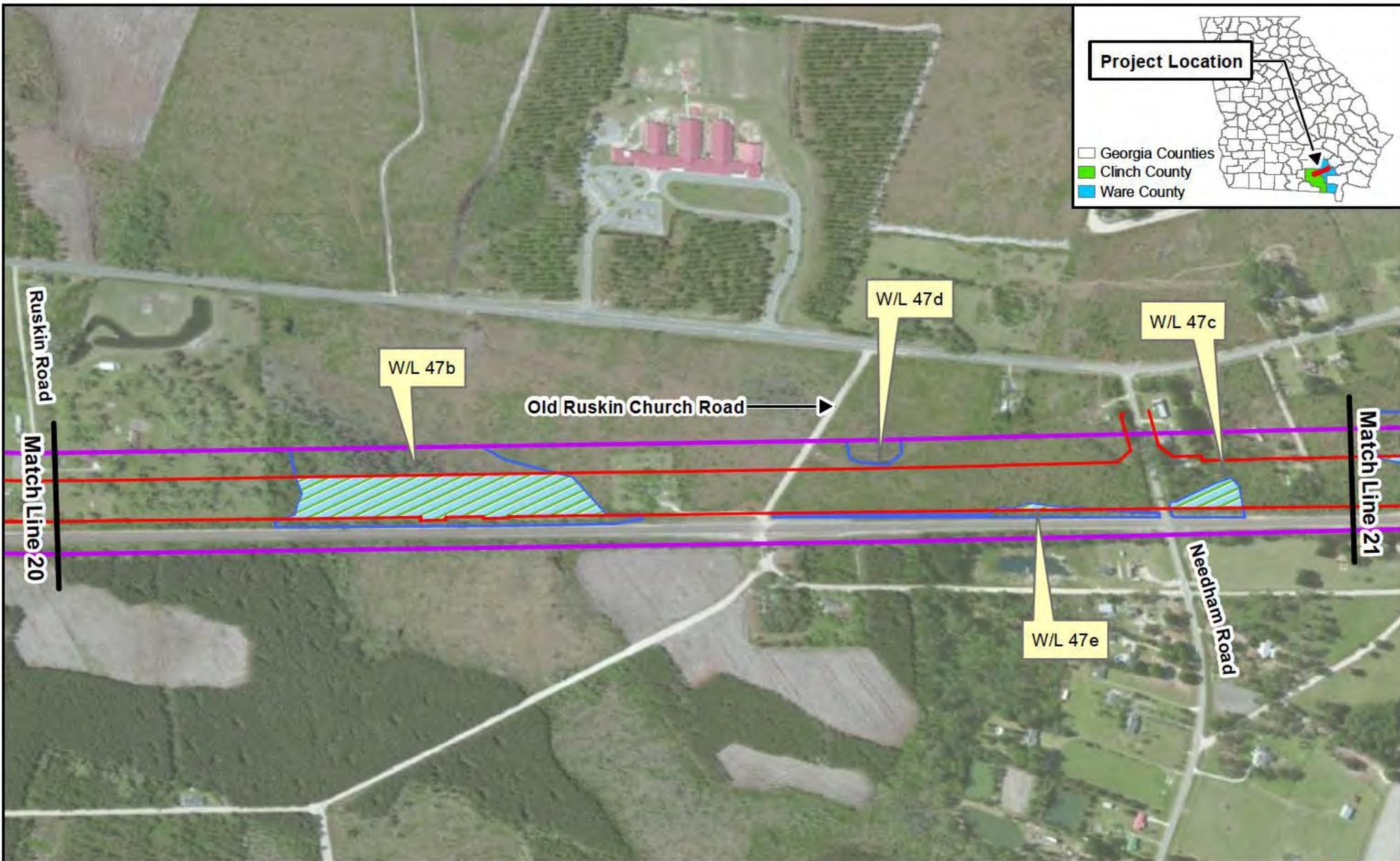
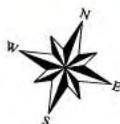
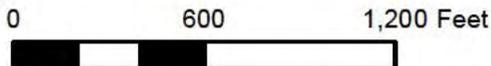


Figure 4.21: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water

Figure Extents



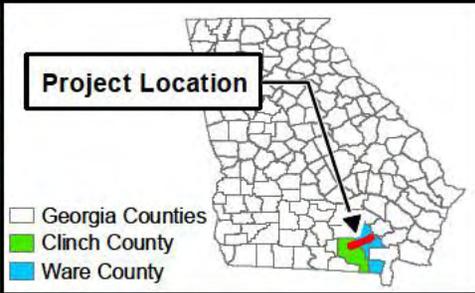
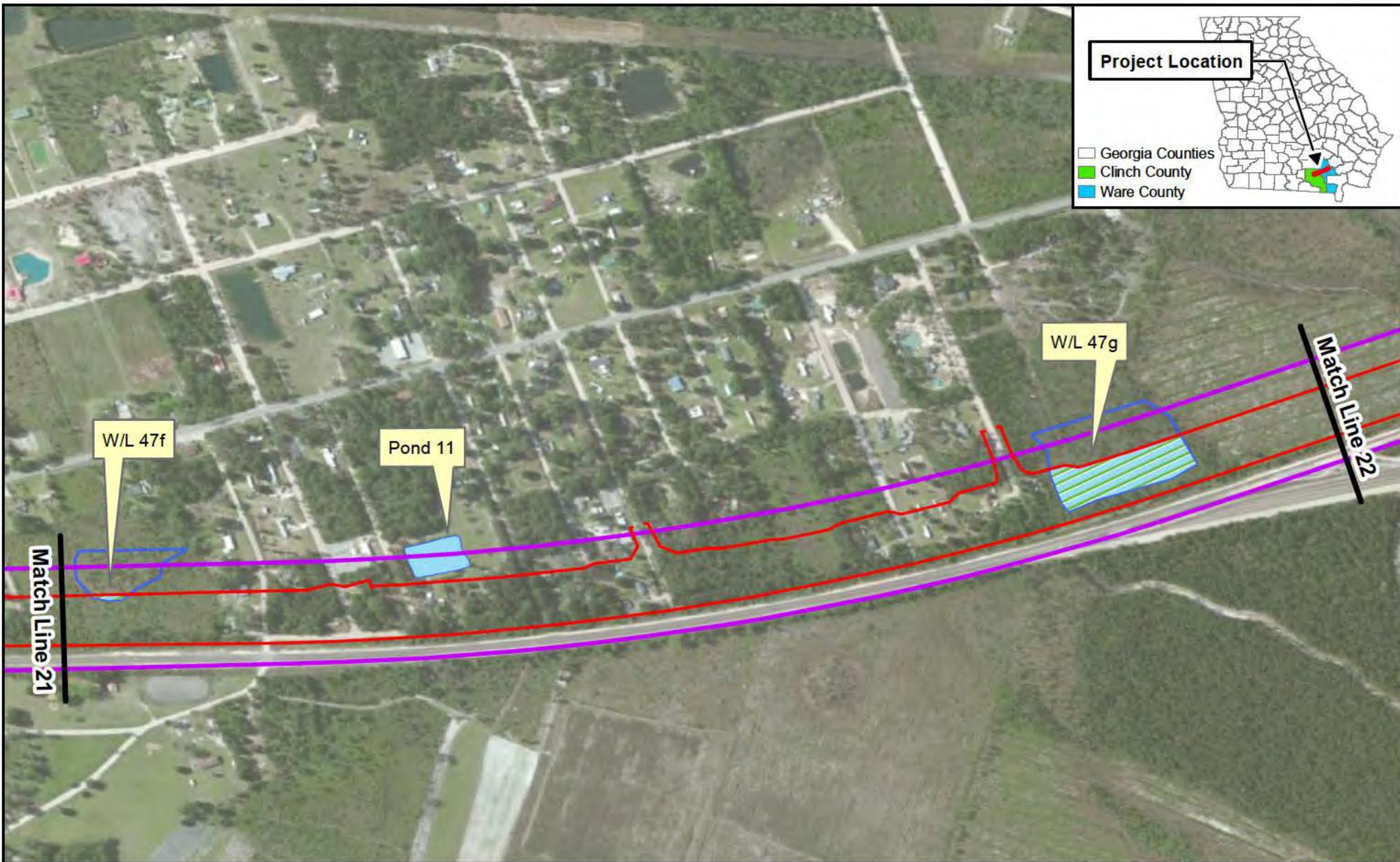
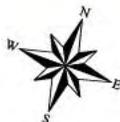
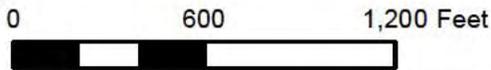


Figure 4.22: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water



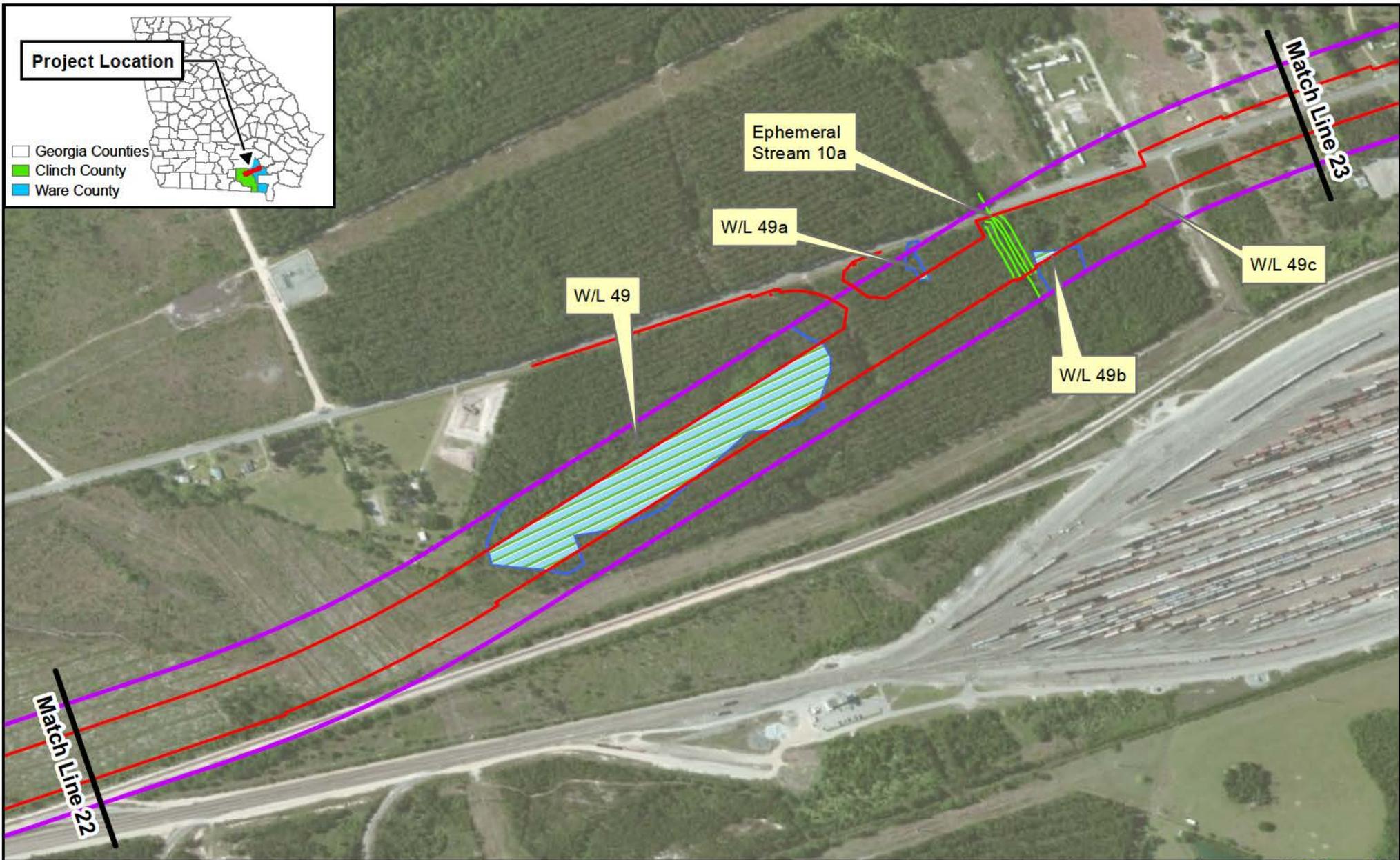
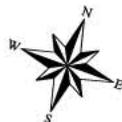
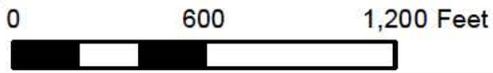


Figure 4.23: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water



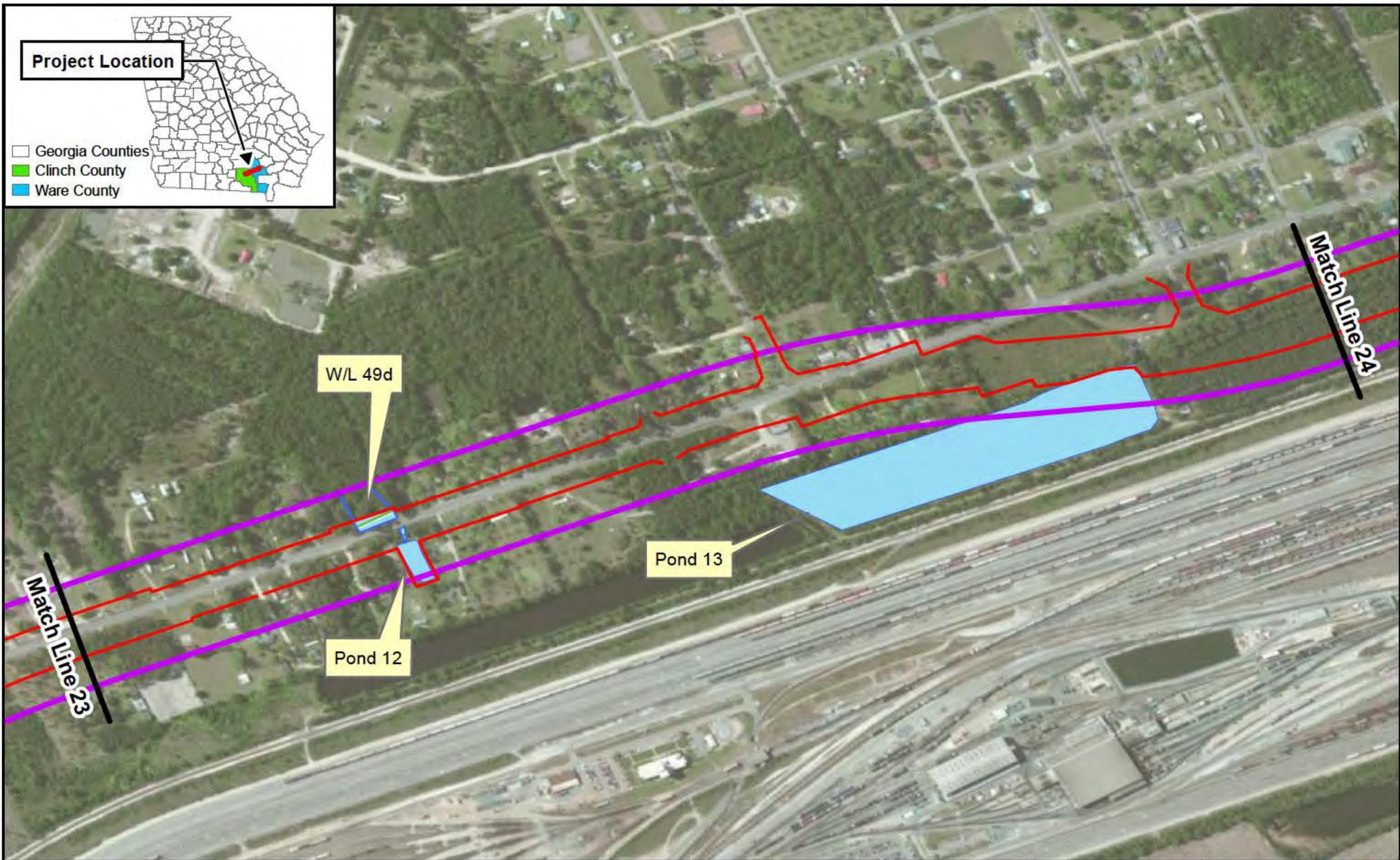
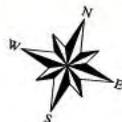
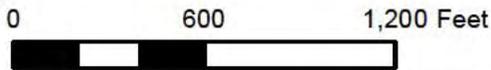


Figure 4.24: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

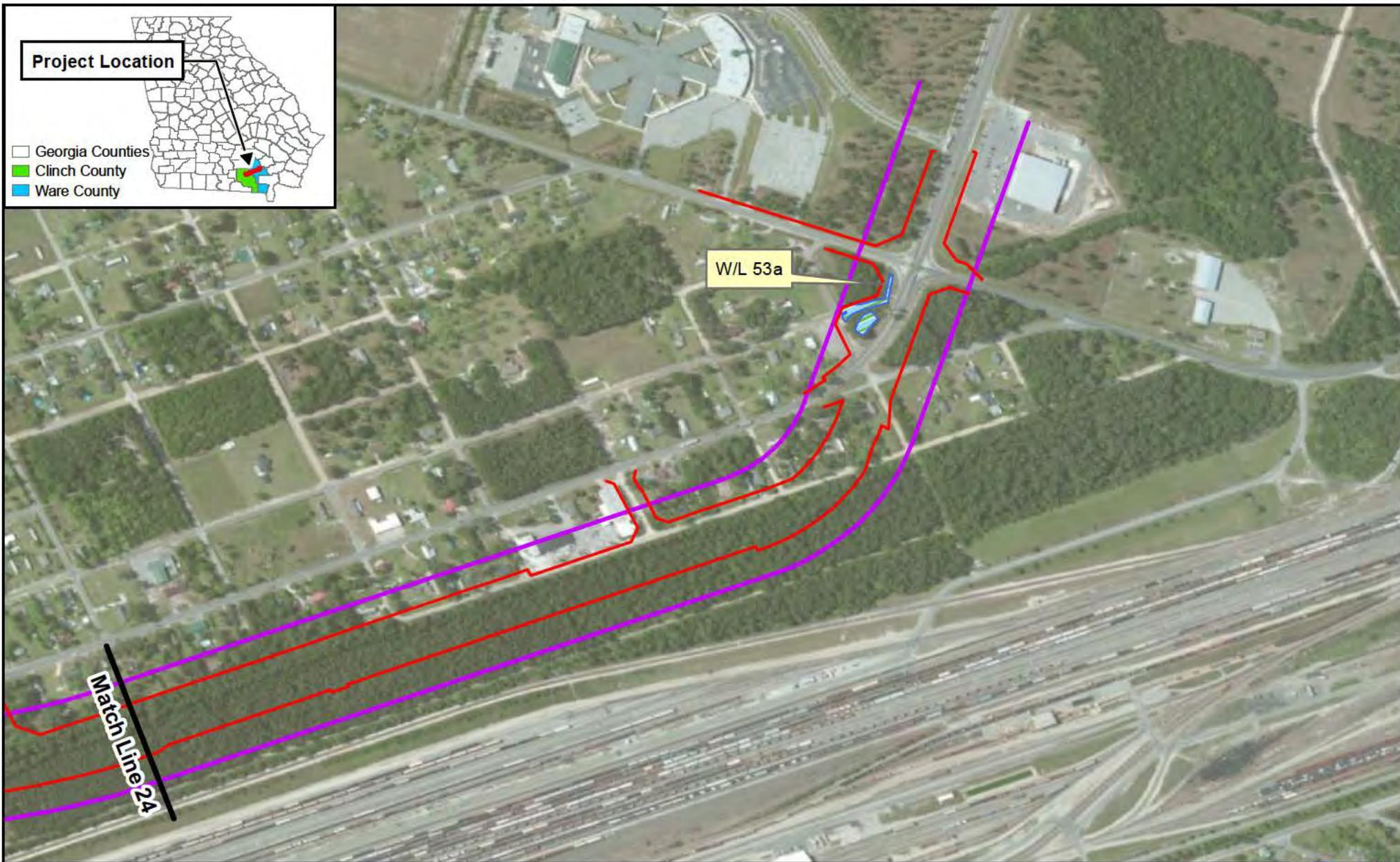
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- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- Wetland Within Req. ROW
- Wetland Outside Req. ROW
- Open Water

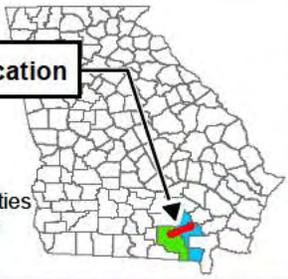
Figure Extents





Project Location

- Georgia Counties
- Clinch County
- Ware County

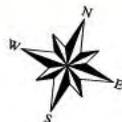
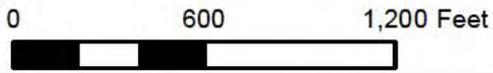


W/L 53a

Match Line 24

Figure 4.25: State and Federal Waters Map
 Proposed SR 38/US 84 Widening from
 Homerville to Waycross
 P.I. Nos. 0012845, 422120, 422125,
 522770, 522775, 522780
 Clinch and Ware Counties, Georgia

1 inch = 600 feet



- Match Line
- Project Boundary
- Required ROW
- Existing Stream
- ▨ Wetland Within Req. ROW
- ▨ Wetland Outside Req. ROW
- ▨ Open Water

Figure Extents



Summary of Jurisdictional Wetlands, Open Waters, and Ephemeral Streams

Wetland	Cowardin Classification	Water Regime	Drainage Association	Description	Area and Type of Temporary Impact (acres)	Area and Type of Permanent Impact (acres)
W/L 1	PFO1B	Saturated	Woodyard Creek	Part of larger wetland system over 50 acres, located north of US 84.	1.18 clearing	0.44 fill
W/L 1a	PEM1H	Permanently flooded	Woodyard Creek/Cane Creek/Peters Branch	Linear depression area created when CSX Railroad was built. Occurs between US 84 and the railroad.	3.27 clearing	1.34 fill
W/L 2	PFO13C	Saturated	Woodyard Creek	Medium quality wetland associated with Woodyard Creek.	0.10 clearing	0.10 fill
W/L 2a	PFO1B	Saturated	Woodyard Creek	Low quality wetland located along roadway embankment	0.00 clearing	0.06 fill
W/L 3	PFO1B	Saturated	Woodyard Creek	Medium quality wetland associated with Woodyard Creek.	0.34 clearing	0.84 fill
Ephemeral 1a	N/A	Irregularly flooded	Woodyard Creek	Tributary to Woodyard Creek; strongly braided channel; 3 to 6 foot channel width, with 1-3 water depth..	0.00 clearing	0.00 fill
W/L 4	PFO1B	Saturated	Woodyard Creek	Approximately 3 acre wetland located in planted pine stand.	0.09 clearing	0.30 fill
W/L 5	PFO1H	Permanently flooded	Woodyard Creek	Large wetland approximately 60 acres in size associated with Woodyard Creek.	0.11 clearing	0.32 fill
W/L 6	PFO1H	Permanently flooded	Woodyard Creek	Three-acre wetland pocket located within an agricultural field.	0.11 clearing	0.29 fill
W/L 8	PFO1H	Permanently flooded	Cane Creek	Combined W/L 8, W/L 9, and W/L 10.	3.01 clearing	5.40 fill
W/L 11	PFO1	Permanently flooded	Cane Creek	Medium quality wetland along the north side of US 84.	0.57 clearing	1.58 fill
W/L 12	PFO1B	Saturated	Peters Branch	One-acre wetland pocket.	0.12 clearing	0.43 fill

Wetland	Cowardin Classification	Water Regime	Drainage Association	Description	Area and Type of Temporary Impact (acres)	Area and Type of Permanent Impact (acres)
W/L 13	PFO1B	Saturated	Peters Branch	Wetland pocket approximately 1.5 acres in size.	0.14 clearing	0.55 fill
W/L 14	PFO3B	Permanently flooded	Peters Branch	Combination of W/L 14 and W/L 14b; associated with Peters Branch wetland system.	0.51 clearing	2.10 fill
W/L 14c	PFO1H	Permanently flooded	Peters Branch	Wetland approximately 60 acres in size.	0.64 clearing	1.74 fill
W/L 15b	PFO1C	Saturated	Polly Branch	Associated with the Polly Branch (Stream 5) wetland system.	0.45 clearing	0.57 fill
W/L 17	PFO1B	Saturated	Polly Branch	Associated with the Polly Branch (Stream 5) wetland system.	0.78 clearing	1.08 fill
W/L 18	PFO1B	Saturated	Polly Branch	Polly Branch flows through this wetland.	4.86 clearing	9.81 fill
W/L 18a	PFO1H	Permanently flooded	Polly Branch	Associated with the Polly Branch system	0.35 clearing	0.56 fill
W/L 19	PFO1H	Permanently flooded	Little Suwannee Creek	Part of a 60-acre wetland associated with Little Suwannee Creek.	0.58 clearing	0.84 fill
W/L 20	PFO1H	Permanently flooded	Little Suwannee Creek	The main wetland system of Little Suwannee Creek.	4.48 clearing	7.03 fill
W/L 21	PFO1B	Saturated	Little Suwannee Creek	Part of the Little Suwannee Creek wetland system, which is over 100 acres.	0.82 clearing	0.98 fill

Wetland	Cowardin Classification	Water Regime	Drainage Association	Description	Area and Type of Temporary Impact (acres)	Area and Type of Permanent Impact (acres)
W/L 22	PFO1B	Saturated	Suwannee Creek	Directly associated with Suwannee Creek.	1.21 clearing	1.17 fill
W/L 23	PFO1B	Saturated	Suwannee Creek	Part of the Suwannee Creek system and approximately 40 acres in size.	0.58 clearing	0.56 fill
W/L 24	PFO1H	Permanently flooded	Suwannee Creek	Part of the Suwannee Creek system and approximately 60 acres in size.	0.59 clearing	0.98 fill
W/L 25	PFO1H	Permanently flooded	Suwannee Creek	Wetland area approximately 30 acres in size.	1.36 clearing	2.46 fill
Ephemeral 7b	N/A	Irregularly flooded	Alligator Creek	Roadway outfall ditch that drains stormwater across US 84 to the railroad ditch	0.00 clearing	0.03 fill
Pond 3	L1OW4	Permanently flooded	N/A	Man-made recreational/farm pond outside of project corridor	0.00 clearing	0.00 fill
Pond 4	L1OW4	Permanently flooded	N/A	Man-made recreational/farm pond outside of project corridor	0.00 clearing	0.00 fill
W/L 26a	PFO1H	Permanently flooded	Greasy Branch	Small wetland approximately 2 acres in size	0.09 clearing	0.22 fill
W/L 26b	PFO1B	Saturated	Greasy Branch	Small palustrine wetland located approximately 300 feet northeast of W/L 26a.	0.09 clearing	0.13 fill
W/L 26c	PFO1H	Permanently flooded	Greasy Branch	Small wetland located in close proximity to W/L 26b.	0.00 clearing	0.21 fill
Pond 5	L1OW4	Permanently flooded	N/A	Man-made recreational pond; approximately 1.71 acres.	0.10 clearing	0.10 fill
W/L 28	PFO1	Saturated	Greasy Branch	Greasy Branch (Stream 8) flows through this wetland.	0.72 clearing	1.99 fill
Pond 6	L1OW4	Permanently flooded	N/A	Man-made recreational/farm pond outside of project corridor	0.00 clearing	0.00 fill
Pond 7	L1OW4	Permanently flooded	N/A	Bald cypress pond; approximately 3.10 acres.	0.00 clearing	0.00 fill

Wetland	Cowardin Classification	Water Regime	Drainage Association	Description	Area and Type of Temporary Impact (acres)	Area and Type of Permanent Impact (acres)
W/L 29	PFO1	Saturated	Greasy Branch	Part of the Greasy Branch system, which is over 100 acres in size.	0.18 clearing	3.13 fill
W/L 30	PFO1	Saturated	Greasy Branch	Part of the Greasy Branch system, which is over 100 acres in size.	0.15 clearing	0.32 fill
W/L 30a	PFO1	Saturated	Greasy Branch	Forested wetland with some emergent portions. Associated with greasy Branch system.	0.00 clearing	0.07 fill
W/L 30b	PFO1	Saturated	Greasy Branch	Emergent wetland located on both sides of US 84. Part of Greasy Branch system.	0.08 clearing	0.32 fill
W/L 31	PFO1	Saturated	Greasy Branch/Little Alligator Creek	Appears to be halfway between the Greasy Branch system and the Little Alligator Creek system; approximately 170 acres in size.	0.34 clearing	2.99 fill
W/L 31a	PFO1	Saturated	Greasy Branch/Little Alligator Creek	This area now appears to be incorporated into Wetland 31.	0.00 clearing	0.00 fill
Pond 8	L1OW4	Permanently flooded	N/A	Man-made recreational/farm pond outside of project corridor	0.00 clearing	0.00 fill
W/L 32	PEM1	Saturated	Greasy Branch/Little Alligator Creek	Palustrine emergent wetland; appears to be part of the same wetland system as W/L 31.	0.25 clearing	0.25 fill
W/L 33	PFO1	Saturated	Little Alligator Creek	Part of the Little Alligator Creek wetland system, which exceeds 100 acres in size.	0.02 clearing	0.03 fill
W/L 34	PFO1	Saturated	Little Alligator Creek	Part of the Little Alligator Creek wetland system, which exceeds 100 acres in size.	0.03 clearing	0.00 fill
W/L 35	PFO1	Saturated	Little Alligator Creek	Part of the Little Alligator Creek wetland system, which exceeds 100 acres in size.	0.12 clearing	1.02 fill

Wetland	Cowardin Classification	Water Regime	Drainage Association	Description	Area and Type of Temporary Impact (acres)	Area and Type of Permanent Impact (acres)
W/L 37	PFO1	Saturated	Little Alligator Creek	Part of the Little Alligator Creek wetland system, which exceeds 100 acres in size.	0.60 clearing	1.38 fill
W/L 38	PFO1	Saturated	Alligator Creek	Part of the Alligator Creek wetland system, which exceeds 100 acres in size.	0.31 clearing	0.99 fill
W/L 38c	PFO1	Saturated	Alligator Creek	Small roadside wetland.	0.00 clearing	0.40 fill
W/L 39	PFO1	Saturated	Alligator Creek	Part of the Alligator Creek wetland system, which exceeds 100 acres in size.	0.13 clearing	0.56 fill
W/L 40	PFO1	Saturated	Cloughs Bay	Associated with the Cloughs Bay system, which is over 500 acres in size.	0.09 clearing	0.63 fill
Pond 9	L1OW4	Permanently flooded	N/A	Man-made recreational pond; approximately 4.2 acres.	0.09 clearing	0.22 fill
W/L 40a	PFO1	Saturated	Cloughs Bay	Small wetland approximately 0.02 acre.	0.00 clearing	0.10 fill
W/L 41	PEM1	Saturated	Cloughs Bay	Associated with the Cloughs Bay system, which is over 500 acres in size.	0.92 clearing	2.85 fill
W/L 42	PEM1	Saturated	Cloughs Bay	Associated with the Cloughs Bay system, which is over 500 acres in size.	0.03 clearing	0.89 fill
W/L 42a	PEM1	Saturated	Cloughs Bay	Roadside wetland pocket that is part of W/L 43.	0.00 clearing	0.00 fill
W/L 43	PEM1	Saturated	Cloughs Bay	Associated with the Cloughs Bay system, which is over 500 acres in size.	0.42 clearing	1.95 fill

Wetland	Cowardin Classification	Water Regime	Drainage Association	Description	Area and Type of Temporary Impact (acres)	Area and Type of Permanent Impact (acres)
W/L 44	PFO1H	Permanently flooded	Cloughs Bay	Associated with the Cloughs Bay system, which is over 500 acres in size.	0.40 clearing	4.26 fill
W/L 44a	PEM1B	Saturated	Cloughs Bay	Small palustrine wetland primarily emergent with some forested areas.	0.00 clearing	0.00 fill
W/L 44b	PEM1B	Saturated	Cloughs Bay	Small roadside wetland pocket, approximately 0.5 acre in size.	0.03 clearing	0.02 fill
W/L 45	PFO1	Saturated	Cloughs Bay/Kettle Creek	Combination of W/L 45 and 46; associated with Cloughs Bay and Kettle Creek.	5.72 clearing	15.27 fill
W/L 47b	PFO1	Saturated	Kettle Creek	Emergent wetland adjacent to CSX Railroad; approximately 60 acres.	0.99 clearing	3.93 fill
W/L 47c	PFO1	Saturated	Kettle Creek	Emergent wetland approximately two acres in size located adjacent to CSX railroad.	0.23 clearing	0.36 fill
W/L 47d	PFO1	Saturated	Kettle Creek	Small emergent wetland located near Old Ruskin Church Road.	0.00 clearing	0.00 fill
W/L 47e	PFO1	Saturated	Kettle Creek	Linear wetland adjacent to CSX Railroad.	0.12 clearing	0.01 fill
W/L 47f	PFO1	Saturated	Kettle Creek	Small emergent wetland.	0.06 clearing	0.002 fill
Pond 11	L1OW4	Permanently flooded	N/A	Man-made recreational/farm pond outside of project corridor	0.00 clearing	0.00 fill

Wetland	Cowardin Classification	Water Regime	Drainage Association	Description	Area and Type of Temporary Impact (acres)	Area and Type of Permanent Impact (acres)
W/L 47g	PFO1	Saturated	Kettle Creek	Palustrine wetland located adjacent to CSX railroad near 9 th Street.	0.31 clearing	1.82 fill
W/L 49	PFO1	Saturated	Kettle Creek	Palustrine wetland approximately 14 acres in size.	1.81 clearing	5.10 fill
W/L 49a	PFO1	Saturated	Kettle creek	Small 0.60-acre wetland located 550 feet northeast of W/L 49.	0.02 clearing	0.00 fill
Eph 10a	N/A	Irregularly flooded	Kettle Creek	Cut ditch that drains water from the railroad beds into Kettle Creek.	0.00 clearing	0.03 fill
W/L 49b	PFO1	Saturated	Kettle Creek	Wetland approximately 5 acres in size.	0.04 clearing	0.03 fill
W/L 49c	PEM1	Saturated	Kettle Creek	1.5-acre ponded wetland in utility ROW.	0.00 clearing	0.00 fill
W/L 49d	PEM1	Saturated	Lees Branch	Drains into network of channelized streams; contains same species as W/L 49a.	0.00 clearing	0.19 fill
W/L 53a	PEM1	Saturated	Lees Branch	Small wetland located at the end of the project corridor.	0.06 clearing	0.13 fill
Pond 12	L1OW4	Permanently flooded	Lees Branch	Man-made recreational pond approximately 0.36 acres.	0.00 clearing	0.31 fill
Pond 13	L1OW4	Permanently flooded	N/A	Man-made pond/borrow pit approximately 10 acres.	0.00 clearing	0.07 fill
Total Clear and Fill Impact					40.80	93.84
Total Impacts					134.64	

W/L = Wetland Eph = Ephemeral PFO = Palustrine Forested PEM = Palustrine Emergent L1OW = Open Water (Pond)

Stream	Drainage Association	HUC	303 (d) List	Lost Type	SBV Required	Description	Impact Area (acre)
Stream 1	Woodyard Creek	03110201	No	Perennial	No	Moderately sinuous with 1-2 foot high stable sloping banks; approx. 10-20 feet wide and 1-5 feet deep; sand substrate	None
Stream 1a	Woodyard Creek	03110201	No	Ephemeral	No	Moderately sinuous with stable sloping banks; approx. 25-30 feet wide and 1-3 feet deep; sand substrate	None
Stream 1b	Woodyard Creek	03110201	No	Intermittent	No	Moderately sinuous with stable sloping banks; approx. 25-30 feet wide and 1-4 feet deep; sand substrate	79 feet culvert
Stream 2	Cane Creek	03110201	Yes	Perennial	No	Moderately sinuous with 2-7 foot high stable sloping banks; approx. 10-100 feet wide and 1-3 feet deep; sand substrate	None
Stream 3	Peters Branch	03110201	No	Perennial	No	Moderately sinuous with 2-7 foot high stable sloping banks; approx. 10-100 feet wide and 1-4 feet deep; sand, silt substrate	None
Stream 5	Box Creek	02110201	No	Perennial	No	Moderately sinuous with 1-2 foot high stable sloping banks; approx. 20-100 feet wide and 1-3 feet deep; sand, silt, clay substrate	None
Stream 6	Little Suwannee Creek	03110201	No	Perennial	No	Moderately sinuous with 1-2 foot high stable sloping banks; approx. 10-15 feet wide and 1-3 feet deep; sand, silt, clay substrate	None
Stream 7	Suwannee Creek	03110201	No	Perennial	No	Moderately sinuous with 1-2 foot stable banks; approx. 10-30 feet wide and 1-4 feet deep; sand, silt, clay substrate	None
Stream 7a	Suwannee Creek	03110201	No	Intermittent	No	Naturalized cut ditch; straight morphology with 1-2 foot high stable banks; approx. 3-10 feet wide and 3-53 feet deep; sand, silt, clay substrate	42 feet culvert
Stream 7b	Suwannee Creek	03110201	No	Ephemeral	No	Roadway outfall ditch with low sinuosity; approx. 4-6 feet wide and 3-4 inches deep; mud substrate	0.03 acre
Stream 8	Greasy Branch	03110201	Yes	Perennial	No	Moderately sinuous with 2-3 foot high stable sloping banks; approx. 10-20 feet wide and 1-4 feet deep; sand, silt, clay substrate	None
Stream 9	Little Alligator Creek	03110201	No	Perennial	No	Moderately sinuous with stable sloping banks; approx. 25-30 feet wide and 1-2 feet deep; sand, silt, clay substrate	None
Stream 10	Alligator Creek	03110201	No	Perennial	No	Moderately sinuous with 1-2 foot stable banks; approx. 10-30 feet wide and 1-5 feet deep; sand, silt, clay substrate	None
Stream 10a	Kettle Creek	03070201	No	Ephemeral	No	Cut ditch moderately sinuous; approx. 6-8 feet wide and 2-3 feet deep; mud substrate	None

WETLANDS AND OPEN WATERS MITIGATION WORKSHEETS

ADVERSE IMPACT FACTORS

Factor	Options						
	Fill 2.0	Dredge 1.8	Impound 1.6	Drain 1.4	Flood 1.2	Clear 1.0	Shade 0.5
Duration of Effects	7+ years 2.0	5-7 years 1.5	3-5 years 1.0	1-3 years 0.5	< 1 year 0.1		
Existing Condition	Class 1 2.0	Class 2 1.5	Class 3 1.0	Class 4 0.5	Class 5 0.1		
Lost Kind	Kind A 2.0	Kind B 1.5	Kind C 1.0	Kind D 0.5	Kind E 0.1		
Preventability	High 2.0	Moderate 1.0	Low 0.5	None 0			
Rarity Ranking	Rare 2.0	Uncommon 0.5	Common 0.1				

† These factors are determined on a case-by-case basis.

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 1	W/L 1	W/L 1a	W/L 1a	W/L 2	W/L 2
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	2.0	2.0	0.5	2.0	2.0
Existing Condition	1.5	1.5	0.5	0.5	2.0	2.0
Lost Kind	2.0	2.0	0.5	0.5	2.0	2.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₁ = 8.1	R ₂ = 7.1	R ₃ = 5.6	R ₄ = 3.1	R ₅ = 8.6	R ₆ = 7.6
Impacted Area	AA ₁ = 0.44	AA ₂ = 1.18	AA ₃ = 1.34	AA ₄ = 3.27	AA ₅ = 0.10	AA ₆ = 0.10
R × AA =	3.56	8.38	7.50	10.14	0.86	0.76

Total Required Credits = $\Sigma (R \times AA) =$

31.20

WETLANDS AND OPEN WATERS MITIGATION WORKSHEETS

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 2a	W/L 2a	W/L 3	W/L 3	W/L 4	W/L 4
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	0.5	0.5	1.5	1.5	1.0	1.0
Lost Kind	2.0	2.0	2.0	2.0	1.0	1.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	$R_5 = 7.1$	$R_6 = 6.1$	$R_1 = 8.1$	$R_2 = 7.1$	$R_3 = 6.6$	$R_4 = 5.6$
Impacted Area	$AA_5 = 0.06$	$AA_6 = 0.00$	$AA_1 = 0.84$	$AA_2 = 0.34$	$AA_3 = 0.30$	$AA_4 = 0.09$
$R \times AA =$	0.43	0.00	6.80	2.41	1.98	0.50

Total Required Credits = $\sum (R \times AA) =$

12.12

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 5	W/L 5	W/L 6	W/L 6	W/L 8	W/L 8
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	0.5	0.5	1.0	1.0	2.0	2.0
Lost Kind	1.0	1.0	1.5	1.5	2.0	2.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	$R_5 = 6.1$	$R_6 = 5.1$	$R_1 = 7.1$	$R_2 = 6.1$	$R_5 = 8.6$	$R_6 = 7.6$
Impacted Area	$AA_5 = 0.32$	$AA_6 = 0.11$	$AA_1 = 0.29$	$AA_2 = 0.11$	$AA_5 = 5.40$	$AA_6 = 3.01$
$R \times AA =$	1.95	0.56	2.06	0.67	46.44	22.88

Total Required Credits = $\sum (R \times AA) =$

74.56

**WETLANDS AND OPEN WATERS
MITIGATION WORKSHEETS**

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 11	W/L 11	W/L 12	W/L 12	W/L 13	W/L 13
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	0.5	2.0	2.0	2.0	2.0
Existing Condition	0.5	0.5	1.0	1.0	1.0	1.0
Lost Kind	1.5	1.5	1.5	1.5	1.5	1.5
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₁ = 6.6	R ₂ = 4.1	R ₅ = 7.1	R ₆ = 6.1	R ₁ = 7.1	R ₂ = 6.1
Impacted Area	AA ₁ = 1.58	AA ₂ = 0.57	AA ₅ = 0.43	AA ₆ = 0.12	AA ₁ = 0.55	AA ₂ = 0.14
R × AA =	10.43	2.34	3.05	0.73	3.91	0.85

Total Required Credits = Σ (R × AA) = **21.31**

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 14	W/L 14	W/L 14c	W/L 14c	W/L 15b	W/L 15b
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	1.5	1.5	1.5	1.5	1.0	1.0
Lost Kind	2.0	2.0	1.5	1.5	2.0	2.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₃ = 8.1	R ₄ = 7.1	R ₅ = 7.6	R ₆ = 6.6	R ₁ = 7.6	R ₂ = 6.6
Impacted Area	AA ₃ = 2.10	AA ₄ = 0.51	AA ₅ = 1.74	AA ₆ = 0.64	AA ₁ = 0.57	AA ₂ = 0.45
R × AA =	17.01	3.62	13.22	4.22	4.33	2.97

Total Required Credits = Σ (R × AA) = **45.37**

WETLANDS AND OPEN WATERS MITIGATION WORKSHEETS

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 17	W/L 17	W/L 18	W/L 18	W/L 18a	W/L 18a
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	1.5	1.5	1.5	1.5	1.5	1.5
Lost Kind	2.0	2.0	2.0	2.0	1.5	1.5
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₃ = 8.1	R ₄ = 7.1	R ₅ = 8.1	R ₆ = 7.1	R ₁ = 7.6	R ₂ = 6.6
Impacted Area	AA ₃ = 1.08	AA ₄ = 0.78	AA ₅ = 9.81	AA ₆ = 4.86	AA ₁ = 0.56	AA ₂ = 0.35
R × AA =	8.75	5.54	79.46	34.51	4.26	2.31

Total Required Credits = Σ (R × AA) =

134.83

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 19	W/L 19	W/L 20	W/L 20	W/L 21	W/L 21
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	1.0	1.0	1.0	1.0	1.0	1.0
Lost Kind	1.0	1.0	2.0	2.0	1.5	1.5
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₃ = 6.6	R ₄ = 5.6	R ₅ = 7.6	R ₆ = 6.6	R ₁ = 7.1	R ₂ = 6.1
Impacted Area	AA ₃ = 0.84	AA ₄ = 0.58	AA ₅ = 7.03	AA ₆ = 4.48	AA ₁ = 0.98	AA ₂ = 0.82
R × AA =	5.54	3.25	53.43	29.57	6.96	5.00

Total Required Credits = Σ (R × AA) =

103.75

WETLANDS AND OPEN WATERS MITIGATION WORKSHEETS

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 22	W/L 22	W/L 23	W/L 23	W/L 24	W/L 24
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	1.0	1.0	1.0	1.0	1.0	1.0
Lost Kind	2.0	2.0	1.0	1.0	1.5	1.5
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	$R_3 = 7.6$	$R_4 = 6.6$	$R_5 = 6.6$	$R_6 = 5.6$	$R_1 = 7.1$	$R_2 = 6.1$
Impacted Area	$AA_3 = 1.17$	$AA_4 = 1.21$	$AA_5 = 0.56$	$AA_6 = 0.58$	$AA_1 = 0.98$	$AA_2 = 0.59$
$R \times AA =$	8.89	7.99	3.70	3.25	6.96	3.60

Total Required Credits = $\Sigma (R \times AA) =$

34.39

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 25	W/L 25	Ephemeral Stream 7b	W/L 26a	W/L 26a	W/L 26b	W/L 26b
Dominant Effect	2.0	1.0	2.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	1.0	1.0	0.1	1.5	1.5	1.0	1.0
Lost Kind	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Preventability	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	$R_3 = 7.1$	$R_4 = 6.1$	$R_6 = 6.2$	$R_1 = 7.6$	$R_2 = 6.6$	$R_3 = 7.1$	$R_4 = 6.1$
Impacted Area	$AA_3 = 2.46$	$AA_4 = 1.36$	$AA_6 = 0.03$	$AA_1 = 0.22$	$AA_2 = 0.09$	$AA_3 = 0.13$	$AA_4 = 0.09$
$R \times AA =$	17.47	8.30	0.19	1.67	0.59	0.92	0.55

Total Required Credits = $\Sigma (R \times AA) =$

29.69

WETLANDS AND OPEN WATERS MITIGATION WORKSHEETS

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 26c	W/L 26c	Pond 5	Pond 5	W/L 28	W/L 28
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	0.5	2.0	0.5	2.0	2.0
Existing Condition	0.5	0.5	0.5	0.5	1.5	1.5
Lost Kind	1.5	1.5	0.5	0.5	2.0	2.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₃ = 6.6	R ₄ = 4.1	R ₆ = 5.6	R ₆ = 3.1	R ₁ = 8.1	R ₂ = 7.1
Impacted Area	AA ₃ = 0.21	AA ₄ = 0.00	AA ₆ = 0.10	AA ₆ = 0.10	AA ₁ = 1.99	AA ₂ = 0.72
R × AA =	1.39	0.00	0.56	0.31	16.12	5.11

Total Required Credits = Σ (R × AA) =

23.49

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	Pond 7	Pond 7	W/L 29	W/L 29	W/L 30	W/L 30
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	0.5	2.0	2.0	2.0	2.0
Existing Condition	0.5	0.5	0.5	0.5	1.0	1.0
Lost Kind	0.5	0.5	1.5	1.5	1.0	1.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₆ = 5.6	R ₆ = 3.1	R ₃ = 6.6	R ₄ = 5.6	R ₅ = 6.6	R ₆ = 5.6
Impacted Area	AA ₆ = 0.00	AA ₆ = 0.00	AA ₃ = 3.13	AA ₄ = 0.18	AA ₅ = 0.32	AA ₆ = 0.15
R × AA =	0.00	0.00	20.66	1.01	2.11	0.84

Total Required Credits = Σ (R × AA) =

24.62

WETLANDS AND OPEN WATERS MITIGATION WORKSHEETS

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 30a	W/L 30a	W/L 30b	W/L 30b	W/L 31	W/L 31
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	0.5	2.0	0.5	2.0	2.0
Existing Condition	0.5	0.5	0.5	0.5	0.5	0.5
Lost Kind	1.0	1.0	1.0	1.0	1.5	1.5
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₁ = 6.1	R ₁ = 3.6	R ₂ = 6.1	R ₃ = 3.6	R ₄ = 6.6	R ₅ = 5.6
Impacted Area	AA ₁ = 0.07	AA ₁ = 0.00	AA ₂ = 0.32	AA ₃ = 0.08	AA ₄ = 2.99	AA ₅ = 0.34
R × AA =	0.43	0.00	1.95	0.29	19.73	1.90

Total Required Credits = $\sum (R \times AA) =$

24.30

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 32	W/L 32	W/L 33	W/L 33	W/L 34	W/L 34
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	0.5	2.0	2.0	2.0	2.0
Existing Condition	1.0	1.0	1.0	1.0	1.0	1.0
Lost Kind	1.0	1.0	1.5	1.5	1.5	1.5
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₆ = 6.6	R ₁ = 4.1	R ₁ = 7.1	R ₅ = 6.1	R ₁ = 7.1	R ₆ = 6.1
Impacted Area	AA ₆ = 0.25	AA ₁ = 0.25	AA ₁ = 0.03	AA ₅ = 0.02	AA ₁ = 0.00	AA ₆ = 0.03
R × AA =	1.65	1.03	0.21	0.12	0.00	0.18

Total Required Credits = $\sum (R \times AA) =$

3.19

WETLANDS AND OPEN WATERS MITIGATION WORKSHEETS

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 35	W/L 35	W/L 37	W/L 37	W/L 38	W/L 38	W/L 38c
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0	2.0
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	0.5	0.5	2.0	2.0	2.0	2.0	0.5
Lost Kind	1.5	1.5	2.0	2.0	2.0	2.0	1.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	$R_1 = 6.6$	$R_2 = 5.6$	$R_3 = 8.6$	$R_4 = 7.6$	$R_5 = 8.6$	$R_4 = 7.6$	$R_6 = 6.1$
Impacted Area	$AA_1 = 1.02$	$AA_2 = 0.12$	$AA_3 = 1.38$	$AA_4 = 0.60$	$AA_5 = 0.99$	$AA_4 = 0.31$	$AA_6 = 0.40$
$R \times AA =$	6.73	0.67	11.87	4.56	8.51	2.36	2.44

Total Required Credits = $\sum (R \times AA) =$

37.14

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 39	W/L 39	W/L 40	W/L 40	Pond 9	Pond 9	W/L 40a
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0	2.0
Duration of Effect	2.0	2.0	2.0	2.0	2.0	0.5	2.0
Existing Condition	1.0	1.0	1.0	1.0	0.5	0.5	0.1
Lost Kind	1.5	1.5	1.5	1.5	0.5	0.5	0.1
Preventability	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	$R_1 = 7.1$	$R_2 = 6.1$	$R_3 = 7.1$	$R_4 = 6.1$	$R_5 = 5.6$	$R_6 = 3.1$	$R_6 = 4.8$
Impacted Area	$AA_1 = 0.56$	$AA_2 = 0.13$	$AA_3 = 0.63$	$AA_4 = 0.09$	$AA_5 = 0.22$	$AA_6 = 0.09$	$AA_6 = 0.10$
$R \times AA =$	3.98	0.79	4.47	0.55	1.23	0.28	0.48

Total Required Credits = $\sum (R \times AA) =$

11.78

**WETLANDS AND OPEN WATERS
MITIGATION WORKSHEETS**

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 40a	W/L 41	W/L 41	W/L 42	W/L 42	W/L 43
Dominant Effect	1.0	2.0	1.0	2.0	1.0	2.0
Duration of Effect	2.0	2.0	0.5	2.0	0.5	2.0
Existing Condition	0.1	1.0	1.0	0.5	0.5	0.1
Lost Kind	0.1	1.5	1.5	1.5	1.5	1.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₁ = 3.8	R ₂ = 7.1	R ₃ = 4.6	R ₄ = 6.6	R ₅ = 4.1	R ₁ = 5.7
Impacted Area	AA ₁ = 0.00	AA ₂ = 2.85	AA ₃ = 0.92	AA ₄ = 0.89	AA ₅ = 0.03	AA ₁ = 1.95
R × AA =	0.00	20.24	4.23	5.87	0.12	11.12

Total Required Credits = Σ (R × AA) = **41.58**

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 43	W/L 44	W/L 44	W/L 44a	W/L 44b	W/L 44b
Dominant Effect	1.0	2.0	1.0	1.0	2.0	1.0
Duration of Effect	0.5	2.0	2.0	0.5	2.0	0.5
Existing Condition	0.1	1.0	1.0	1.0	1.0	1.0
Lost Kind	1.0	1.5	1.5	1.5	1.0	1.0
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₂ = 3.2	R ₃ = 7.1	R ₄ = 6.1	R ₅ = 4.6	R ₄ = 6.6	R ₆ = 4.1
Impacted Area	AA ₂ = 0.42	AA ₃ = 4.26	AA ₄ = 0.40	AA ₅ = 0.00	AA ₄ = 0.02	AA ₆ = 0.03
R × AA =	1.34	30.25	2.44	0.00	0.13	0.12

Total Required Credits = Σ (R × AA) = **34.28**

WETLANDS AND OPEN WATERS MITIGATION WORKSHEETS

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 45	W/L 45	W/L 47b	W/L 47b	W/L 47c	W/L 47c
Dominant Effect	2.0	1.0	2.0	1.0	2.0	1.0
Duration of Effect	2.0	2.0	2.0	0.5	2.0	0.5
Existing Condition	1.0	1.0	1.0	1.0	1.0	1.0
Lost Kind	1.5	1.5	1.5	1.5	1.5	1.5
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	$R_1 = 7.1$	$R_2 = 6.1$	$R_3 = 7.1$	$R_4 = 4.6$	$R_5 = 7.1$	$R_6 = 4.6$
Impacted Area	$AA_1 = 15.27$	$AA_2 = 5.72$	$AA_3 = 3.93$	$AA_4 = 0.99$	$AA_5 = 0.36$	$AA_6 = 0.23$
R × AA =	108.42	34.89	27.90	4.55	2.56	1.06

Total Required Credits = $\sum (R \times AA) =$

179.38

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 47d	W/L 47e	W/L 47e	W/L 47f	W/L 47f	W/L 47g
Dominant Effect	1.0	2.0	1.0	2.0	1.0	2.0
Duration of Effect	0.5	2.0	0.5	2.0	0.5	2.0
Existing Condition	1.0	1.0	1.0	1.0	1.0	1.0
Lost Kind	1.5	1.5	1.5	1.5	1.5	1.5
Preventability	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	$R_1 = 4.6$	$R_2 = 7.1$	$R_3 = 4.6$	$R_4 = 7.1$	$R_5 = 4.6$	$R_6 = 7.1$
Impacted Area	$AA_1 = 0.00$	$AA_2 = 0.01$	$AA_3 = 0.12$	$AA_4 = 0.002$	$AA_5 = 0.06$	$AA_6 = 1.82$
R × AA =	0.00	0.07	0.55	0.01	0.28	12.92

Total Required Credits = $\sum (R \times AA) =$

13.83

**WETLANDS AND OPEN WATERS
MITIGATION WORKSHEETS**

Factor	W/L 47g	W/L 49	W/L 49	W/L 49a	W/L 49a	Ephemeral 10a	W/L 49b
Dominant Effect	1.0	2.0	1.0	2.0	1.0	2.0	2.0
Duration of Effect	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Existing Condition	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Kind	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Preventability	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sum of r Factors	R ₁ = 6.1	R ₂ = 7.1	R ₃ = 6.1	R ₄ = 7.1	R ₅ = 6.1	R ₆ = 7.1	R ₁ = 7.1
Impacted Area	AA ₁ = 0.31	AA ₂ = 5.10	AA ₃ = 1.81	AA ₄ = 0.00	AA ₅ = 0.02	AA ₆ = 0.03	AA ₁ = 0.03
R × AA =	1.89	36.21	11.04	0.00	0.12	0.21	0.21

Total Required Credits = Σ (R × AA) =

49.68

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	W/L 49b	W/L 49c	W/L 49d	W/L 49d	W/L 53a	W/L 53a	
Dominant Effect	1.0	1.0	2.0	1.0	2.0	1.0	
Duration of Effect	2.0	0.5	2.0	0.5	2.0	0.5	
Existing Condition	1.0	0.5	0.5	0.5	0.1	0.1	
Lost Kind	1.5	1.0	1.0	1.0	1.0	1.0	
Preventability	0.5	0.5	0.5	0.5	0.5	0.5	
Rarity Ranking	0.1	0.1	0.1	0.1	0.1	0.1	
Sum of r Factors	R ₁ = 6.10	R ₂ = 3.1	R ₃ = 6.1	R ₄ = 3.6	R ₅ = 5.7	R ₆ = 3.2	
Impacted Area	AA ₁ = 0.04	AA ₂ = 0.00	AA ₃ = 0.19	AA ₄ = 0.00	AA ₅ = 0.13	AA ₆ = 0.06	
R × AA =	0.24	0.00	1.16	0.00	0.74	0.19	

Total Required Credits = Σ (R × AA) =

2.33

**WETLANDS AND OPEN WATERS
MITIGATION WORKSHEETS**

Factor	Pond 12	Pond 13					
Dominant Effect	2.0	2.0					
Duration of Effect	2.0	2.0					
Existing Condition	0.5	0.5					
Lost Kind	0.5	0.5					
Preventability	0.5	0.5					
Rarity Ranking	0.1	0.1					
Sum of r Factors	$R_1 = 5.6$	$R_3 = 5.6$					
Impacted Area	$AA_1 = 0.31$	$AA_3 = 0.07$					
$R \times AA =$	1.74	0.39					

Total Required Credits = $\sum (R \times AA) =$

2.13

Total Required Mitigation Credits =

934.95

**WETLANDS AND OPEN WATERS
STREAM MITIGATION WORKSHEETS**

WORKSHEET 1: ADVERSE IMPACT FACTORS FOR RIVERINE SYSTEMS WORKSHEET

Stream Type Impacted	Intermittent 0.1			Perennial Stream > 15' in width 0.4			Perennial Stream < 15' in width 0.8		
Priority Area	Tertiary 0.5			Secondary 0.8			Primary 1.5		
Existing Condition	Fully Impaired 0.25			Somewhat Impaired 0.5			Fully Functional 1.0		
Duration	Temporary 0.05			Recurrent 0.1			Permanent 0.2		
Dominant Impact	Shade/Clear 0.05	Utility X-ing 0.4	Bank Armor 0.7	Detention 1.5	Stream Crossing (< 100') 1.7	Impound 2.7	Morphologic Change 2.7	Pipe >100' 3.0	Fill 3.0
Scaling Factor (Based on # linear feet impacted)	< 100' impact 0	100-200' impact 0.05	201-500' impact 0.1	501-1000' impact 0.2	> 1000' impact 0.4 for each 1000' feet of impact (round impacts to the nearest 1000') (example: 2,200' of impact – scaling factor = 0.8; 2,800' of impact – scaling factor = 1.2)				

Resources encountered by more than one alternative alignment are identified by an asterisk behind the resource number (i.e. Stream A1*).

Reaches to Be Impacted	Reach 1	Reach 2	Reach 3	Reach 4
	Complete the Following for Each Reach to Be Impacted			
Simon Channel Evolution Stage	N/A	N/A		
Rosgen Stream Type/D50	N/A	N/A		
Criteria for Selecting Existing Condition for Each Reach	Visual	Visual		
Bankfull Width and Depth	Width: 3-6 ft. Depth: 1-2 ft	Width: 7 ft Depth: 1-2 ft	Width: Depth:	Width: Depth:
Bankfull Indicators (attach photograph showing bankfull for each reach)				
Factors	Stream 1b	Stream 7a		
Stream Type Impacted	0.1	0.1		
Priority Area	0.5	0.5		
Existing Condition	0.5	0.5		
Duration	0.2	0.2		
Dominant Impact	1.7	1.7		
Scaling Factor	0.0	0.0		
Sum of Factors M =	3.0	3.0		
Feet Stream in Reach Impacted LF =	79	42.0		
M X LF =	237	126.0		

Total Mitigation Credits Required = (M X LF) = 363