Keith Golden, P.E., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

May 30, 2014

Mr. Glen Behrend, Program Manager
Georgia Department of Natural Resources
Environmental Protection Division
2 MLK, Jr., Drive SW, Suite 1462
Atlanta, GA 30334
Attention: Ms. Jan Sammons

Re: Application for a 25-foot Vegetative Buffer Encroachment for GDOT Project BRST0-0076-01(036), Columbia and Lincoln Counties

Dear Mr. Behrend:

The Georgia Department of Transportation (GDOT) wishes to apply for a 25-foot vegetative buffer encroachment upon GDOT Project BRST0-0076-01(036), P.I. No. 232310 (Bridge Replacement on State Route 47 over the Little River / Clarks Hill Lake) in Columbia and Lincoln Counties. The proposed project would begin approximately at Lincoln County mile post (MP) 16.25 and would end approximately at Columbia County MP 0.85. The overall project length is approximately 1.35 miles. The project corridor begins at 33.3985˚ N and 82.3431˚ W and ends at 33.6808˚N and 82.3345˚ W, with the project midpoint at 33.6927˚ N and 82.3385˚ W. The project study corridor is located on the Leah, United States Geological Survey (USGS) topographic map. The proposed project is located in Hydrologic Unit Code (HUC) 03060105 – Little Watershed, within the Savannah River Basin.

Implementation of the proposed project would result in approximately 88,826.81 square feet (4,949 linear feet) of non-exempt permanent impacts to the buffer of Open Water 3 (O/W 3). Of that total, 48,852.93 square feet (3,350 linear feet) of permanent impacts would be applied for under Criterion (a), because those impacts are associated with construction of the replacement bridge and they are not associated with a Clean Water Act (CWA) Section 404 permit. In addition, 39,973.88 square feet (1,599 linear feet) of permanent impacts would be applied for under Criterion (h), because those impacts are associated with a CWA Section 404 permit.

Enclosed are the materials necessary in order to process the application. Thank you for your attention to this matter. If you should have any questions or need additional information, feel free to contact Mr. Doug Chamblin at (404) 631-1447, or Ms. Meghan Hedeen at (404) 631-1812.

Sincerely,

Hiral Patel

Hiral Patel, P.E.
State Environmental Administrator

HP/HDC/mb

Enclosures

cc: Marlo Clowers, GDOT Project Manager
Cindy Treadway, GDOT NEPA Analyst
Eugene Hopkins, GDOT ECB
Lisa Westberry, GDOT Mitigation

GEORGIA DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

REVISED SEPTEMBER 2013

APPLICATION FOR A 25-FOOT VEGETATIVE BUFFER ENCROACHMENT ON DESIGNATED WARM WATERS OF THE STATE

(Required prior to conducting land disturbing activities within the State-mandated 25-foot buffer in accordance with the Erosion and Sedimentation Act of 1975, as amended, O.C.G.A. 12-7-6(b)(15))

Property Owner's Name *(Person)*: Ms. Hiral Patel, P.E., State Environmental Administrator

Company Name *(if applicable)*: Georgia Department of Transportation, Office of Environmental Services

Current Mailing Address: 600 W. Peachtree Street, Atlanta, GA 30308

Telephone: (404) 631-1101 E-Mail: hpatel@dot.ga.gov

Contact Person's Name and Address: Mr. Doug Chamblin

Contact Person's Telephone: (404) 631-1447 E-Mail: dchamblin@dot.ga.gov

Contact Person's Company Name *(if applicable)*: Georgia Department of Transportation, Office of Environmental Services

Project Name: SR 47 Bridge Replacement Over Little River, GDOT Project BRST0-0076-01(036), PI No. 232310

Total Project Disturbed Acreage: 7.83 acres

Type of Project: Bridge Replacement

Buffer Variance Criteria *(391-3-7.05(2)(a) – (k))*: Buffer impacts are occurring to one feature: Open Water 3 (O/W 3). Variance is requested under **Criterion (a)** – buffer impacts due to construction or repair of an existing infrastructure project that, by its nature, must be located within the buffer; and **Criterion (h)** – buffer impacts associated with activities in non-trout waters that require a Section 404 permit from the U.S. Army Corps of Engineers (USACE), and the USACE has approved a mitigation plan as a condition of the permit.

Location of Buffer Impacts:

City *(list only if the buffer impacts are located within jurisdictional boundaries of the municipality)*: Not Applicable

County *(list only if the buffer impacts are located within jurisdictional boundaries of the county)*: Columbia & Lincoln

Coordinates (decimal degrees): Project Midpoint = Latitude: 33.6927 N; Longitude: -82.3385 W

Watershed Name and 8-digit HUC *(Hydrologic Unit Code)*: Little (HUC 03060105)

Detailed Directions to Project *(attach location map and USGS quad sheet)*: From I-20, take Exit 183 (SR 47 / Scott's Ferry Road) north for approximately 9.5 miles, through Appling to Pollard's Corner (at the intersection of SR 47 with SR 104 / SR 150 / Washington Road). Turn left to stay on SR 47 / Washington Road for approximately 6 miles, through Leah, GA to Clarks Hill Lake at the Little River. [SR 47 is known as Augusta Highway north of the Columbia / Lincoln County line, which is the midpoint of the Little River.]

(if unnamed, indicate the first named State water that this tributary flows into)

Total Area of Buffer Disturbance *(square feet)*: 88,826.81 SF [48,852.93 SF = Criterion (a); 39,973.88 SF = Criterion (h)].

Total Length of Buffer Disturbance *(linear feet)*: 4,949 LF [3,350 LF = Criterion (a); 1,599 LF = Criterion (h)].

Signature: Hiral Patel/DC **Date:** 5/30/2014

1) Pursuant to DNR Rule 391-3-7.05, buffer variance applications will be reviewed by the Director only where the applicant provides reasonable evidence that impacts to the buffer have been avoided or minimized to the fullest extent practicable and only for the following criteria:

(a) The project involves the construction or repair of an existing infrastructure project or a structure that, by its nature, must be located within the buffer. Such structures include, but are not limited to dams, public water supply intake structures, detention/retention ponds, waste water discharges, docks including access ways, boat launches including access ways, and stabilization of areas of public access to water; or

(b) The project will result in the restoration or enhancement to improve water quality and/or aquatic habitat quality; or

(c) Buffer intrusion is necessary to provide reasonable access to a property or properties; or

(d) The intrusion is for gravity-flow sewer lines that cannot reasonably be placed outside the buffer, and stream crossings and vegetative disturbance are minimized; or

(e) Crossing for utility lines, including but not limited to gas, liquid, power, telephone, and other pipelines, provided that the number of crossings and the amount of vegetative disturbance are minimized; or

(f) Recreational foot trails and viewing areas, providing that impacts to the buffer are minimal; or

(g) The project involves construction of one (1) single family home for residential use by the owner of the subject property and, at the time of adoption of this rule, there is no opportunity to develop the home under any reasonable design configuration unless a buffer variance is granted. Variances will be considered for such single family homes only if construction is initiated or local government approval is obtained prior to January 10, 2005; or

(h) For non-trout waters, the proposed land disturbing activity within the buffer will require a permit from the United States Army Corps of Engineers under Section 404 of the federal Water Pollution Control Act Amendment of 1972, 33 U.S.C. Section 1344, and the Corps of Engineers has approved a mitigation plan to be implemented as a condition of such a permit; or

(i) For non-trout waters, a plan is provided for buffer intrusion that shows that, even with the proposed land disturbing activity within the buffer, the completed project will result in maintained or improved water quality downstream of the project; or

(ii) For non-trout waters, the project with a proposed land disturbing activity within the buffer is located in, or upstream and within ten linear miles of, a stream segment listed as impaired under Section 303(d) of the federal Water Pollution Control Act Amendment of 1972, 33 U.S.C. Section 1313(d) and a plan is provided that shows that the completed project will result in maintained or improved water quality in such listed stream segment and that the project has no adverse impact relative to the pollutants of concern in such stream segment; or

(iii) The proposed land disturbing activity within the buffer is not eligible for a permit from the United States Army Corps of Engineers under Section 404 of the federal Water Pollution Control Act Amendment of 1972, 33 U.S.C. Section 1344, but includes required mitigation in accordance with the current EPD *Stream Buffer Mitigation Guidance* document, and involves:

(1) piping, filling or re-routing of non-trout waters that are not jurisdictional Waters of the U.S.; or

(2) stream buffer impacts due to new infrastructure projects adjacent to State waters (jurisdictional and non-jurisdictional Waters of the U.S.). This criterion shall not apply to maintenance and/or modification to existing infrastructure, which are covered under 391-3-7.05(2)(a).

NOTE: Projects that include "streambank or shoreline stabilization" (e.g., criterion (a)) or "streambank restoration" (e.g., criterion (b)) should adhere to the most current guidance documents**:** *Streambank and Shoreline Stabilization Guidance*, *Guidelines for Streambank Restoration* and *Streambank and Shoreline Stabilization – Techniques to Control Erosion and Protect Property*.

Projects reviewed under criteria (h), (i), (j) or (k) should adhere to the most current EPD guidance document, *Stream Buffer Mitigation Guidance*, when applicable. All guidance documents are available on the EPD website, www.gaepd.org.

2) Mail completed buffer variance application to: Erosion and Sedimentation Control Unit
Georgia Environmental Protection Division
2 MLK, Jr. Dr. S.W., Suite 1152 East
Atlanta, GA 30334

NOTE: APPLICATIONS MUST BE ON THE MOST CURRENT FORMS PROVIDED BY EPD.

3) Address all items on the attached Buffer Impact Checklist and submit the completed checklist and other pertinent information with the buffer variance application to EPD.

NOTE: INCOMPLETE APPLICATIONS WILL BE RETURNED TO THE APPLICANT.

4) Within 60 days of receipt of a complete buffer variance application, EPD will either provide written comments to the applicant or propose to issue a buffer variance. EPD may request additional information related to the project necessary to effectively evaluate the buffer variance application. When EPD proposes to issue a buffer variance, the application process will continue in the following order:

(a) EPD will send out a public advisory to all citizens and groups that requested to receive advisories.

(b) The applicant will then publish a single public notice in the correct legal organ of each county where the buffer disturbance will occur (www.sos.georgia.gov/corporations/legal_organs.pdf). The applicant's public notice must include the following:

1) Description of proposed buffer encroachment;

2) Location of the project;

3) Location where the public can review site plans; and

4) Statement that public comments should be submitted within 30 days to: Program Manager, NonPoint Source Program, Georgia Environmental Protection Division, 4220 International Pkwy, Suite 101, Atlanta, GA 30354.

NOTE: The applicant can publish a public notice(s) only after EPD has issued a public advisory for the proposed buffer variance.

(c) The applicant must forward the ***"original newspaper sheet with the public notice and published date"*** to EPD to confirm that the public notice has been published. A *"copy of the public notice"* is also acceptable only when accompanied by a sworn affidavit from the legal organ's notary public.

NOTE: Failure by the applicant to complete items 4(b) and 4(c) will delay EPD review and approval.

(d) The public must have 30 days from the date of publication of the public notice in the legal organ to comment on the proposed buffer variance.

BUFFER IMPACT CHECKLIST

Pursuant to DNR Rule 391-3-7.05, all buffer variance applications must include the following information. All narrative descriptions, calculations and documentation must be provided on the Buffer Impact Checklist form below or in a separate report. All plans, letters from Local Issuing Authorities, copies of USACE permit applications and supporting documentation, and site maps should be submitted as attachments:

Y / N / NA

Y (1) Narrative description of the project, with details of the buffer disturbance, including estimated length of time for the disturbance and justification for why the disturbance is necessary**.**

The proposed project is a replacement of the existing State Route (SR) 47 bridge over the Little River / Clarks Hill Lake, which was constructed in 1952. The bridge crossing is located north of Leah, GA in Columbia and Lincoln Counties (**Figure 1**). The functional classification of the roadway is Rural Minor Arterial. The proposed project would begin approximately at Lincoln County mile post (MP) 16.25 and end approximately at Columbia County MP 0.85. The overall project length would be approximately 1.35 miles. The proposed project begins at 33.3985˚ N and -82.3431˚ W and ends at 33.6808˚ N and -82.3345˚ W; the project midpoint is located at 33.6927˚ N and -82.3385˚ W. The study area is located in Hydrologic Unit Code (HUC) 03060105 – Little Watershed, within the Savannah River Basin.

The existing roadway consists of one 12-foot travel lane in each direction with 6-foot rural shoulders. The existing right-of-way (ROW) for SR 47 varies from 100 feet to 530 feet near the existing bridge. The existing bridge over the Little River/Clarks Hill Lake is a 724-foot by 29.5-foot steel truss structure with a concrete deck and steel beams underneath. The vertical clearance of the existing bridge is approximately 14.5 feet above the normal pool elevation (Elevation 329.41). The sufficiency rating of the existing bridge is 49.79, which qualifies the bridge for federal bridge replacement funding.

The proposed alignment of SR 47 would move the bridge alignment to the west, which ties the relocated roadway back into the existing alignment at Station 164+50 (**Attachment A, Construction Plans and Erosion Control Plans**). The existing steel truss structure would be replaced with a 1,925-foot by 40-foot bridge with 8-foot outside shoulders and no median (total deck width approximately 43.25 feet). The proposed structure would be made of pre-stressed concrete beams.

The typical section of the new structure would include one 12-foot travel lane in each direction, with 8-foot outside shoulders and no median. The bridge approaches would be relocated and reconstructed to include one 12-foot travel lane in each direction, with 6-foot rural shoulders (4 feet paved), guardrails, and no median. The replacement bridge would have a minimum vertical clearance of 30 feet above the Elevation 329.41, the Normal Pool Elevation of the lake, and a required minimum horizontal clearance of 90 feet between the central piers. The vertical clearance of the new structure would be increased as requested by the U.S. Army Corps of Engineers (USACE) to allow for navigation of larger vessels farther upstream.

Construction would be staged in order to keep the roadway open to traffic during project implementation. The proposed improvements would require 4.11 acres of new Georgia Department of Transportation (GDOT) right-of-way, as well as 4.38 acres of temporary easements for the construction of slopes, on property located within the Clarks Hill Lake project area. These lands consist of rock embankment fill from SR 47 and open water. The temporary easements would be in effect for a five-year period beginning at the start of construction.

Non-exempt buffer disturbance is required at six locations adjacent to O/W 3 within the proposed project area. In Location 1, permanent disturbance of the buffer would be required for the placement of earthen fill along the existing bridge approach embankment, in order to accommodate the proposed grades of the northbound roadway north of the river (see **Attachment A, Drawings 13-001 and 13-002**). In addition to the permanent buffer disturbance, temporary buffer impacts would be required for access to install and maintain erosion control devices. The erosion control devices would remain in place throughout the approximately 20-month construction period.

In Location 2, permanent buffer disturbance would be required for the placement of earthen fill and construction of a concrete retaining wall along the existing bridge approach embankment, in order to

accommodate the proposed grades of the southbound roadway north of the river (see **Attachment A, Drawing 13-001**). In addition to the permanent buffer disturbance, temporary buffer impacts would be required for access to install and maintain erosion control devices. The erosion control devices would remain in place throughout the approximately 20-month construction period.

In Location 3, permanent buffer disturbance would be required for placement of earthen fill and rock fill/riprap and construction of a concrete retaining wall to accommodate proposed grades of the southbound roadway north of theriver (see **Attachment A, Drawings 13-001 and 13-002).** In addition to the permanent buffer disturbance, temporary buffer impacts would be required for access to install and maintain erosion control devices. The erosion control devices would remain in place throughout the approximately 20-month construction period.

In Location 4, permanent buffer disturbance would be required for excavating the existing earthen embankment, and for construction of a concrete retaining wall, in order to accommodate the proposed grades of the northbound roadway south of the river (see **Attachment A, Drawings 13-004 and 13-005**). In addition to the permanent buffer disturbance, temporary buffer impacts would be required for access to install and maintain erosion control devices. The erosion control devices would remain in place throughout the approximately 20-month construction period.

In Location 5, permanent buffer disturbance would be required for the placement of earthen fill and for construction of a concrete retaining wall, in order to accommodate the proposed grades of the southbound roadway south of the river (see **Attachment A, Drawing 13-004**). In addition to the permanent buffer disturbance, temporary buffer impacts would be required for access to install and maintain erosion control devices. The erosion control devices would remain in place throughout the approximately 20-month construction period.

In Location 6, permanent buffer disturbance would be required for the placement of earthen fill and rock fill / riprap, in order to accommodate the proposed grades of the southbound roadway south of the river (see **Attachment A, Drawings 13-004 and 13-005**). In addition to the permanent buffer disturbance, temporary buffer impacts would be required for access to install and maintain erosion control devices. The erosion control devices would remain in place throughout the approximately 20-month construction period.

Y (2) Calculation of total area (square feet) and length (linear feet) of buffer disturbance.

Implementation of the proposed project would result in approximately 88,826.81 square feet (4,949 linear feet) of non-exempt permanent and temporary impacts to the buffer of O/W 3, at six areas along the project corridor (see **Attachment A, Drawings 13-001 through 13-005)**. Of that total, the project would involve 48,852.93 square feet / 3,350 linear feet of permanent and temporary impacts within Locations 1, 2, 4, and 6. The impacts in Locations 1, 2, 4, and 6 would be applied for under Criterion (a), because they are associated with construction of the replacement bridge, but they are not associated with a Clean Water Act (CWA) Section 404 permit. In addition, 39,973.88 square feet / 1,599 linear feet of permanent and temporary impacts within Locations 3 and 5 would be applied for under Criterion (h), because those impacts would be associated with a CWA Section 404 permit (including a USACE-approved mitigation plan to be implemented as a condition of the permit).

NA (3) Letter from the Local Issuing Authority (LIA), when applicable, stating that the LIA has visited the site and determined the presence of State waters that require a buffer and that a stream buffer variance is required as per the local erosion and sedimentation control ordinance.

NA (4) For projects within the buffer of or upstream and within one **linear** mile of impaired stream segments on Georgia's "305(b)/303(d) List Documents (Final)," documentation that the project will have no adverse impacts relative to the pollutants of concern and if applicable, documentation that the project will be in compliance with the TMDL Implementation Plan(s).

NA (5) For all **minor buffer impacts** (as defined in DNR Rules 391-3-7.01), a **Re-Vegetation Plan** with a descriptive narrative as described in the EPD guidance document, *Streambank and Shoreline Stabilization*, and/or a plan for permanent vegetation as per the *Manual for Erosion and Sedimentation Control in Georgia*.

Y (6) For all **major buffer impacts** (as defined in DNR Rules 391-3-7.01), a **Buffer Mitigation Plan** with a descriptive narrative addressing impacts to critical buffer functions based on an evaluation of existing buffer conditions and predicted post buffer conditions pursuant to DNR Rule 391-3-7.05(7).

Please refer to **Attachment B, Buffer Mitigation Plan**.

Y (7) For variance requests under DNR Rules 391-3-7.05(2)(h),(i), (j) and (k), the application must include documentation that the project will mitigate buffer disturbances based on the EPD guidance document, *Stream Buffer Mitigation Guidance*, addressing post-development total suspended solids (TSS), stormwater runoff reduction, water quality protection and aquatic/buffer habitat protection.

For a discussion of the proposed mitigation of buffer disturbances addressing post-development TSS, stormwater runoff reduction, water quality protection, and aquatic/buffer habitat protection, please refer to Item (15) below and to **Attachment B, Buffer Mitigation Plan and Attachment D, Preliminary Hydrologic Calculations.** The proposed wet swales are designed to remove 80% of TSS, 25% of total phosphorus, 40% of total nitrogen, and 20% of metals.

NA (8) For variance requests under DNR Rules 391-3-7.05(2)(i) and (j), the application must include the following:

(a) Documentation that post-development stormwater management systems conform to the minimum standards for water quality, channel protection, overbank flood protection and extreme flood protection as established in the *Georgia Stormwater Management Manual* or the equivalent and if applicable, the *Coastal Stormwater Supplement to the Georgia Stormwater Management Manual*.

(b) Documentation that existing water quality will be maintained or improved based on predicted pollutant loadings under pre- and post-development conditions as estimated by models accepted by EPD.

(c) For projects within the buffer of or upstream and within ten **linear** miles of impaired stream segments on Georgia's "305(b)/303(d) List Documents (Final)," documentation that the project will have no adverse impacts relative to the pollutants of concern as estimated by models accepted by EPD and if applicable, documentation that the project will be in compliance with the TMDL Implementation Plan(s).

Y (9) For variance requests under DNR Rule 391-3-7.05(2)(h), a copy of the permit application and supporting documentation as submitted to the United States Army Corps of Engineers (USACE) under Section 404 of the federal Water Pollution Control Act Amendment of 1972, 33 U.S.C. Section 1344.

Please refer to **Attachment C, Pre-Construction Notification**.

NA (10) For variance requests under DNR Rule 391-3-7.05(2)(k)(1), the application must include documentation from the USACE verifying the water bodies identified in the application are **non-jurisdictional** Waters of the U.S. under Section 404 of the Clean Water Act.

Y (11) Narrative description of the shape, size, topography, slope, soils, vegetation and other physical characteristics of the property.

The project area lies within the Piedmont Physiographic Province of Georgia, between the Blue Ridge Mountains and the Upper Coastal Plain. The Piedmont Province is composed of hard igneous and metamorphic rocks derived from the re-crystallization of ancient sediments that were once deeply buried and subjected to high temperatures and pressures. The Piedmont also encompasses a plateau that has been formed on the edges of steeply upturned and altered rocks. The topography of the Piedmont consists of low hills and narrow valleys. Rocks in the area are generally overlain by a thick

layer of saprolite (decomposed rock), which is commonly known as Georgia red clay. When vegetative cover is removed, saprolite is highly erodible. The southeastern boundary of the Piedmont is the "fall line" that generally separates the crystalline rocks of the Piedmont from the sedimentary rocks of the Atlantic Coastal Plain. The northwest boundary of the Piedmont is the Blue Ridge Mountains. The proposed project is located in the Little Watershed (HUC 03060105).

The project area is characterized by the 111- square mile Clarks Hill Lake itself (officially known as Lake Strom Thurmond) and the upland plant communities associated with the bridge approaches. Soils in the project area include Grover sandy loam on the north side of the bridge crossing and Wedowee loamy sand south of the crossing. The areas of disturbance are the existing man-made causeway embankments, which are constructed of earth and rock fill.

The plant community in the project study area is characterized by a variety of native and non-native upland species along the existing bridge approach embankments, which are maintained as clear zones planted with grasses and forbs within the project right-of-way. Various shrubs and small saplings also have become established along the embankment. Species identified growing within the 25-foot buffer of the bridge approaches consisted of dog fennel (*Eupatorium capillifolium*), horseweed (*Conzya* sp.), soft rush (*Juncus effusus*), and various sedges. Invasive plant species identified along the bridge approaches included Japanese honeysuckle (*Lonicera japonica*), Chinese privet (*Ligustrum sinense*), kudzu (*Pueraria montana*), Nepalese brown-top (*Microstegium vimineum*), and mimosa (*Albizia julibrissin*).

Y (12) Any other reasonable information related to the project that may be deemed necessary to effectively evaluate the variance request.

The original bridge design was refined in order to minimize the impacts to O/W 3 and its associated 25-foot buffer. The length of the bridge was decreased from 3,600 feet to 1,925 feet, but because the alignment of the replacement bridge was shifted toward the west across the river, the impacts to the resources along the bridge approaches were actually reduced. Also, with the refined roadway design, three retaining walls have been incorporated along the approach embankments, further reducing impacts to O/W 3 and its buffer, and the structural design has been refined to eliminate two additional piers in O/W 3. These design refinements reduced the total impacts to O/W 3 by 0.663 acres, from 3.48 acres of permanent impacts (no temporary impacts) with the previous design, to 2.817 acres (2.803 acres of permanent impacts and 0.014 acre of temporary impacts) with the refined design.

Y (13) **Site Map** that includes locations of all State waters, wetlands, floodplain boundaries and other natural features, as determined by a field survey.

Please refer to **Figures 1 through 6.**

Y (14) **Erosion, Sedimentation and Pollution Control Plan** with a dated and numbered detailed **Site Plan** delineating the locations of all structures, impervious surfaces, and the boundaries of the area of soil disturbance, both inside and outside of the buffer.

Submit only the cover sheet and the sheets of the Erosion, Sedimentation and Pollution Control Plan that pertain to the buffer impacts.

Please refer to **Attachment A, Erosion Control Plans.**

NOTE: THE EXACT AREA OF THE BUFFER TO BE IMPACTED MUST BE ACCURATELY AND CLEARLY INDICATED ON THE PLANS.

Y (15) **Stormwater Control Plan** once site stabilization is achieved, when required by a local stormwater ordinance.

Based on the requirements set forth in the Special Provision 999- Design Build Project, the Columbia County portion of the proposed project is required to meet GDOT's National Pollutant Discharge Elimination Systems (NPDES) Municipal Separate Storm Sewer Systems (MS4) permit. The Lincoln/Columbia County line is located at approximately Station 146+00. The proposed bridge, having a high point at Station 145+33.01, is designed to have a closed drainage system, with the exception of the bridge deck from Station 142+60 RT to Station 145+33.01 RT, which will discharge into proposed enhanced wet swales at Station 134+21 LT to Station 138+81 LT and at

Station 150+53 LT to Station 153+63 LT. From the end of the bridge (Station 153+25) to the end of the proposed paving (Station 164+50), the new pavement will sheet flow off the roadway.

The proposed bridge is exempt from the Stream Buffer Variance criteria for water quality requirements under the NPDES permit. However, the entire bridge (with the exception of Station 146+60 to Station 145+33.01) will be treated for water quality, as mitigation for not providing water quality measures for the section of proposed roadway between Station 120+00 and the begin bridge Station 134+00, and between the end bridge Station 153+25 and the end of proposed paving Station 164+50. The proposed project will achieve the requirements for 80% removal of total suspended solids (TSS) and 60% of pollutants of concern, by incorporating enhanced wet swales as structural stormwater controls per the *Georgia Stormwater Management Manual*, as follows:

An enhanced wet swale is proposed to be constructed at Station 134+21 LT to Station 138+81 LT to capture bridge runoff from the high point (Station 145+33.01) to the begin bridge Station 134+00. A second enhanced wet swale is proposed to be constructed at Station 150+53 LT to Station 153+63 LT to capture the bridge runoff from bridge high point to the end bridge Station 153+25. Also, the existing roadway from Station 174+80 to Station 186+00 (where no pavement replacement is occurring) will be treated for water quality as mitigation for not providing water quality measures as mentioned above. This enhanced wet swale is proposed to be constructed at Station 174+50 RT to Station 177+20 RT.

Summary of Water Quality Mitigation Measures:

- Station 120+00 to Station 133+00
  New Pavement (outside 100' Bridge Exemption Box) = 56,550 SF **untreated**
- Station 154+25 to Station 164+50
  New Pavement (outside 100' Bridge Exemption Box) = 45,646 SF **untreated**
- Station 134+00 to Station 153+25 (with the exception of Station 142+60 to Station 145+33.01 RT)
  New Bridge = 75,564.12 SF **treated**
- Station 174+80 to Station 186+80
  Existing Pavement (outside 100' Bridge Exemption Box) = 30,120 SF **treated**

Total Untreated Surface = 56,550 SF +45,646 SF = 102,196 SF
Total Treated Surface = 75,564.12 SF + 30,120 SF = 105,684.12
Net Added Benefit from Stormwater Treatment = **3,488.12 SF**

FIGURES

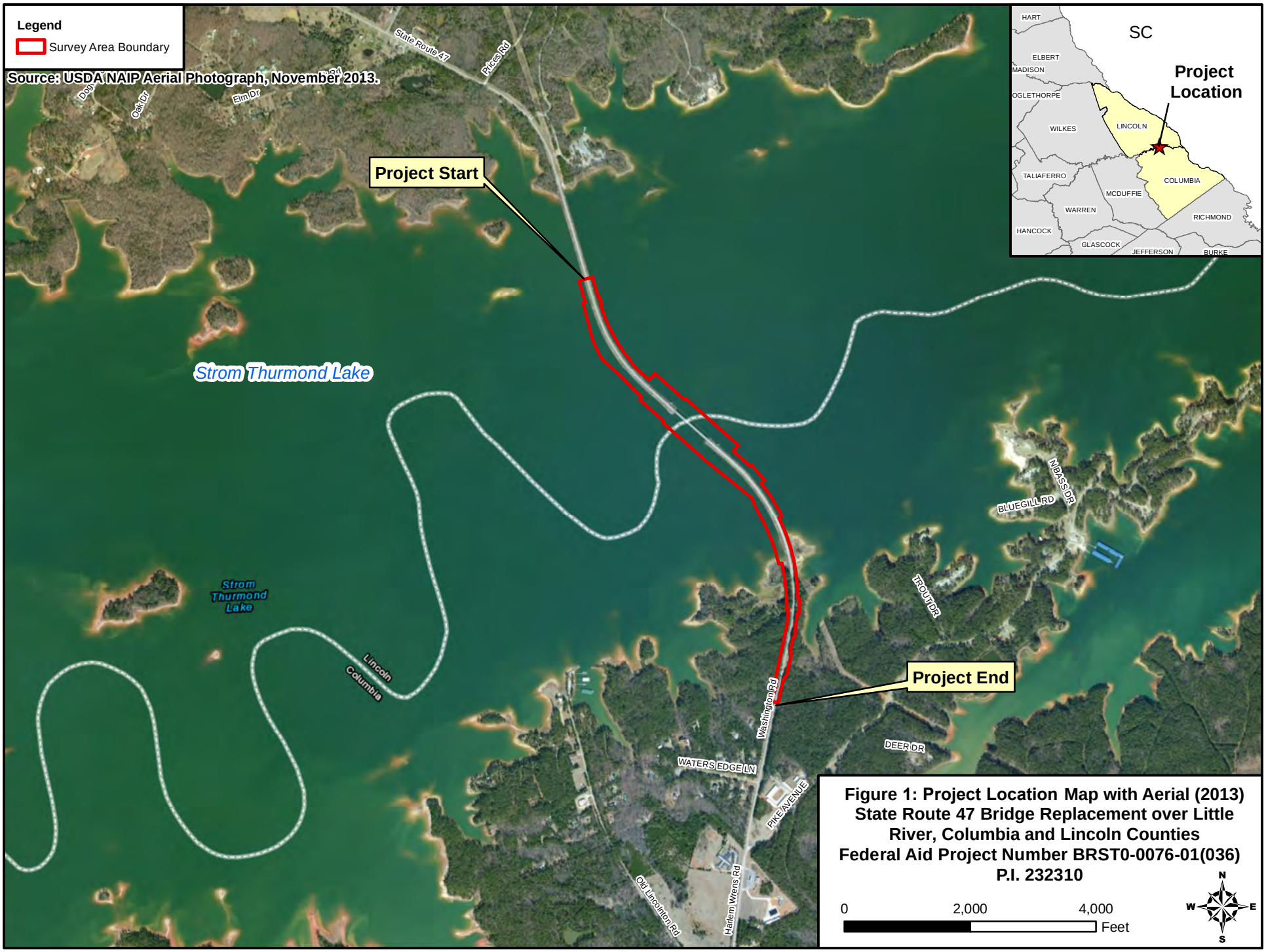
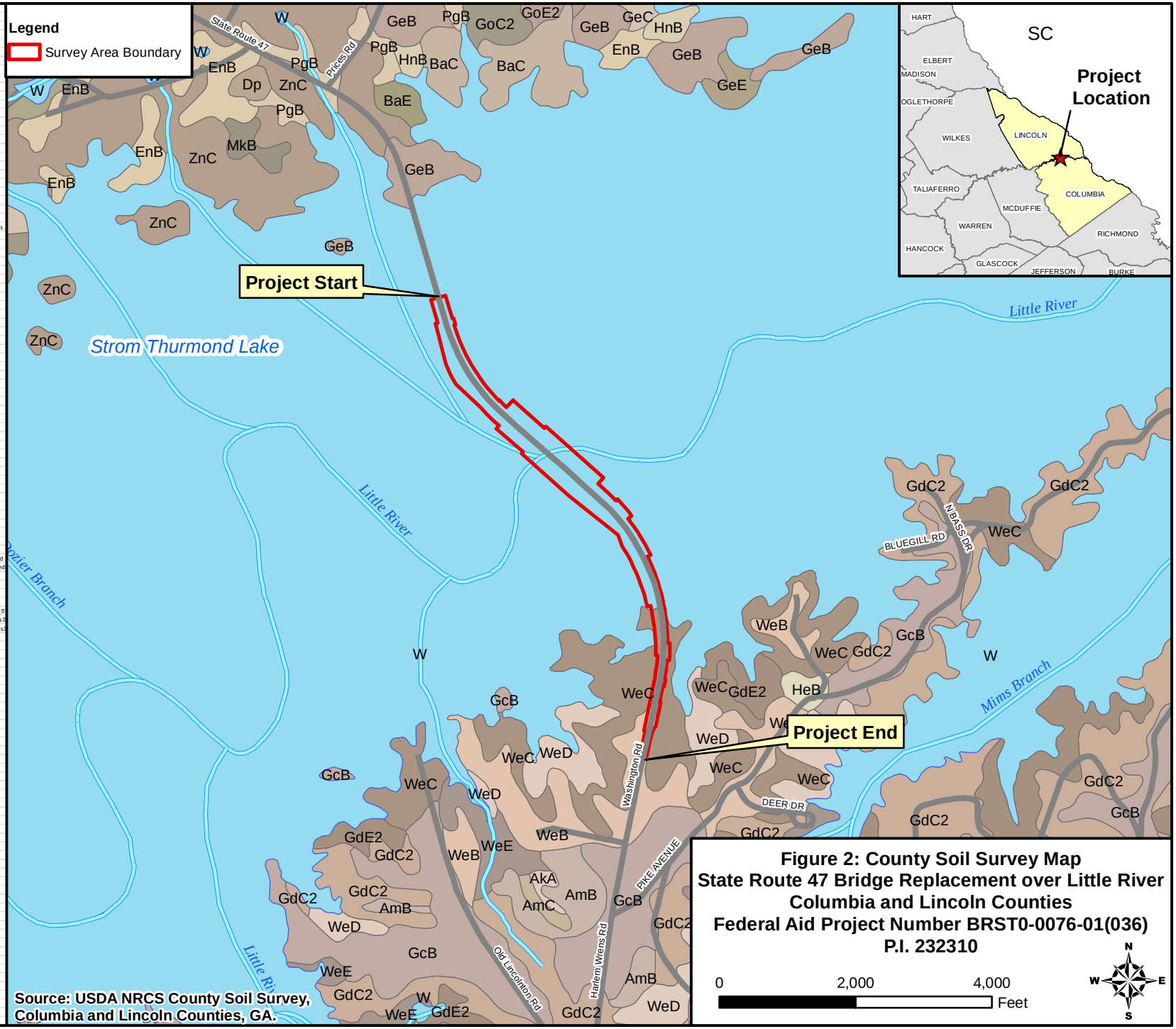


Figure 1: Project Location Map with Aerial (2013)
State Route 47 Bridge Replacement over Little River, Columbia and Lincoln Counties
Federal Aid Project Number BRST0-0076-01(036)
P.I. 232310

Map Unit	Description
AkA	Altavista sandy loam, 0 to 2 percent slopes
AkA	Altavista sandy loam, 0 to 2 percent slopes, rarely flooded
AmB	Appling sandy loam, 2 to 6 percent slopes
AmC	Appling sandy loam, 6 to 10 percent slopes
BaC	Badin silt loam, 2 to 10 percent slopes
BaE	Badin silt loam, 10 to 25 percent slopes
Bh	Bibb silt loam
Ca	Cartecay loam, frequently flooded
CeB	Cecil sandy loam, 2 to 6 percent slopes
CeC	Cecil sandy loam, 6 to 10 percent slopes
CfB2	Cecil sandy clay loam, 2 to 6 percent slopes, eroded
CfC2	Cecil sandy clay loam, 6 to 10 percent slopes, eroded
CfE2	Cecil sandy clay loam, 10 to 25 percent slopes, eroded
CgC	Cecil-Urban land complex, 2 to 10 percent slopes
Ch	Chewacla loam, 0 to 2 percent slopes, frequently flooded
CK	Chewacla and Congaree soils
DgB	Davidson loam, 2 to 6 percent slopes
DhC2	Davidson clay loam, 6 to 10 percent slopes, eroded
DhE2	Davidson clay loam, 10 to 25 percent slopes, eroded
Dp	Dumps-Pits complex
EnB	Enon fine sandy loam, 2 to 6 percent slopes
EnC	Enon fine sandy loam, 6 to 10 percent slopes
EnD	Enon sandy loam, 10 to 15 percent slopes
FdB	Faceville sandy loam, 2 to 6 percent slopes
FmC	Flomaton variant gravelly loamy sand, 2 to 10 percent slopes
FrA	Fork silt loam, 0 to 2 percent slopes, occasionally flooded
GcB	Georgeville fine sandy loam, 2 to 6 percent slopes
GdC2	Georgeville clay loam, 6 to 10 percent slopes, eroded
GdE2	Georgeville clay loam, 10 to 25 percent slopes, eroded
GeB	Grover sandy loam, 2 to 6 percent slopes
GeB	Georgeville silt loam, 2 to 6 percent slopes
GeC	Grover sandy loam, 6 to 10 percent slopes
GeC	Georgeville silt loam, 6 to 10 percent slopes
GeD	Grover sandy loam, 10 to 15 percent slopes
GeE	Georgeville silt loam, 10 to 25 percent slopes
GoC2	Georgeville clay loam, 6 to 10 percent slopes, eroded
GoE2	Georgeville clay loam, 10 to 25 percent slopes, eroded
GuC	Georgeville-Urban land complex, 2 to 10 percent slopes
HeB	Helena loamy coarse sand, 2 to 6 percent slopes
HeB	Helena sandy loam, 2 to 6 percent slopes
HeC	Helena loamy coarse sand, 6 to 10 percent slopes
HeC	Helena sandy loam, 6 to 10 percent slopes
HeD	Helena sandy loam, 10 to 15 percent slopes
HnB	Herndon very fine sandy loam, 2 to 6 percent slopes
HnC	Herndon very fine sandy loam, 6 to 10 percent slopes
LdB	Lloyd loam, 2 to 6 percent slopes
LdC	Lloyd loam, 6 to 10 percent slopes
LeC2	Lloyd clay loam, 6 to 10 percent slopes, eroded
LeE2	Lloyd clay loam, 10 to 25 percent slopes, eroded
LxC	Lloyd-Urban land complex, 2 to 10 percent slopes
MaB	Madison sandy loam, 2 to 6 percent slopes
MaC	Madison sandy loam, 6 to 10 percent slopes
MaE	Madison sandy loam, 10 to 25 percent slopes
MdB	Madison sandy loam, 2 to 6 percent slopes
MdC	Madison sandy loam, 6 to 10 percent slopes
MdC2	Madison sandy clay loam, 6 to 10 percent slopes, eroded
MdE	Madison sandy loam, 10 to 25 percent slopes
MdE2	Madison sandy clay loam, 10 to 25 percent slopes, eroded
MgD	Madison-Grover complex, 6 to 15 percent slopes
MkB	Mecklenburg sandy loam, 2 to 6 percent slopes
MkC	Mecklenburg sandy loam, 6 to 10 percent slopes
MkE	Mecklenburg sandy loam, 10 to 25 percent slopes
MnC2	Mecklenburg sandy clay loam, 6 to 10 percent slopes, eroded
MnE2	Mecklenburg sandy clay loam, 10 to 25 percent slopes, eroded
NhB	Norfolk loamy sand, 2 to 6 percent slopes
NhC	Norfolk loamy sand, 6 to 10 percent slopes
OcB	Orangeburg sandy loam, 2 to 6 percent slopes
OcC	Orangeburg sandy loam, 6 to 10 percent slopes
PaB	Pacolet fine gravelly loamy coarse sand, 2 to 6 percent slopes
PaC	Pacolet fine gravelly loamy coarse sand, 6 to 10 percent slopes
PaE	Pacolet fine gravelly loamy coarse sand, 10 to 25 percent slopes
PcB	Pacolet sandy loam, 2 to 6 percent slopes
PcC	Pacolet sandy loam, 6 to 10 percent slopes
PcE	Pacolet sandy loam, 10 to 25 percent slopes
PeC2	Pacolet sandy clay loam, 6 to 10 percent slopes, eroded
PeE2	Pacolet sandy clay loam, 10 to 25 percent slopes, eroded
PfE	Pacolet-Udorthents complex, 10 to 25 percent slopes
Pg	Pits, gravel
PgB	Pageland silt loam, 0 to 6 percent slopes
Pk	Pits, kaolin
Pm	Pits, quarries
Pr	Pits, quarry
RaE	Rion-Ashlar-Wake complex, 10 to 25 percent slopes
ReC	Rion-Wateree-Wake complex, 2 to 10 percent slopes
Ro	Roanoke silt loam
Ro	Roanoke silt loam, occasionally flooded
Rx	Rock outcrop
Sh	Shellbluff silt loam, occasionally flooded
TfB	Tifton loamy sand, 2 to 6 percent slopes
To	Toccoa loam, occasionally flooded
TsC	Tifton sandy loam, 6 to 10 percent slopes
Tv	Toccoa loam
TwC	Troup sand, 2 to 10 percent slopes
TwE	Troup sand, 10 to 25 percent slopes
Ue	Udorthents, excavated
Ur	Udorthents, loamy
VeB	Vaucluse loamy coarse sand, 2 to 6 percent slopes
VeD	Vaucluse loamy coarse sand, 6 to 15 percent slopes
W	Water
WaB	Wagram loamy sand, 2 to 6 percent slopes
WaC	Wagram loamy sand, 6 to 10 percent slopes
WaD	Wagram loamy sand, 10 to 15 percent slopes
WeB	Wedowee loamy sand, 2 to 6 percent slopes
WeC	Wedowee loamy sand, 6 to 10 percent slopes
WeC	Wedowee sandy loam, 6 to 10 percent slopes
WeD	Wedowee loamy sand, 10 to 15 percent slopes
WeE	Wedowee loamy sand, 15 to 25 percent slopes
WeE	Wedowee sandy loam, 10 to 25 percent slopes
Wf	Wehadkee silt loam
Wf	Wehadkee loam, ponded
WhB	Wickham fine sandy loam, 2 to 6 percent slopes
WhB	Wickham sandy loam, 2 to 6 percent slopes
WkF	Wilkes gravelly loam, 10 to 40 percent slopes, very stony
Wo	Worsham sandy loam
ZnC	Zion silt loam, 2 to 10 percent slopes
ZnE	Zion silt loam, 10 to 25 percent slopes



Source: USDA NRCS County Soil Survey, Columbia and Lincoln Counties, GA.

Figure 2: County Soil Survey Map
State Route 47 Bridge Replacement over Little River
Columbia and Lincoln Counties
Federal Aid Project Number BRST0-0076-01(036)
P.I. 232310

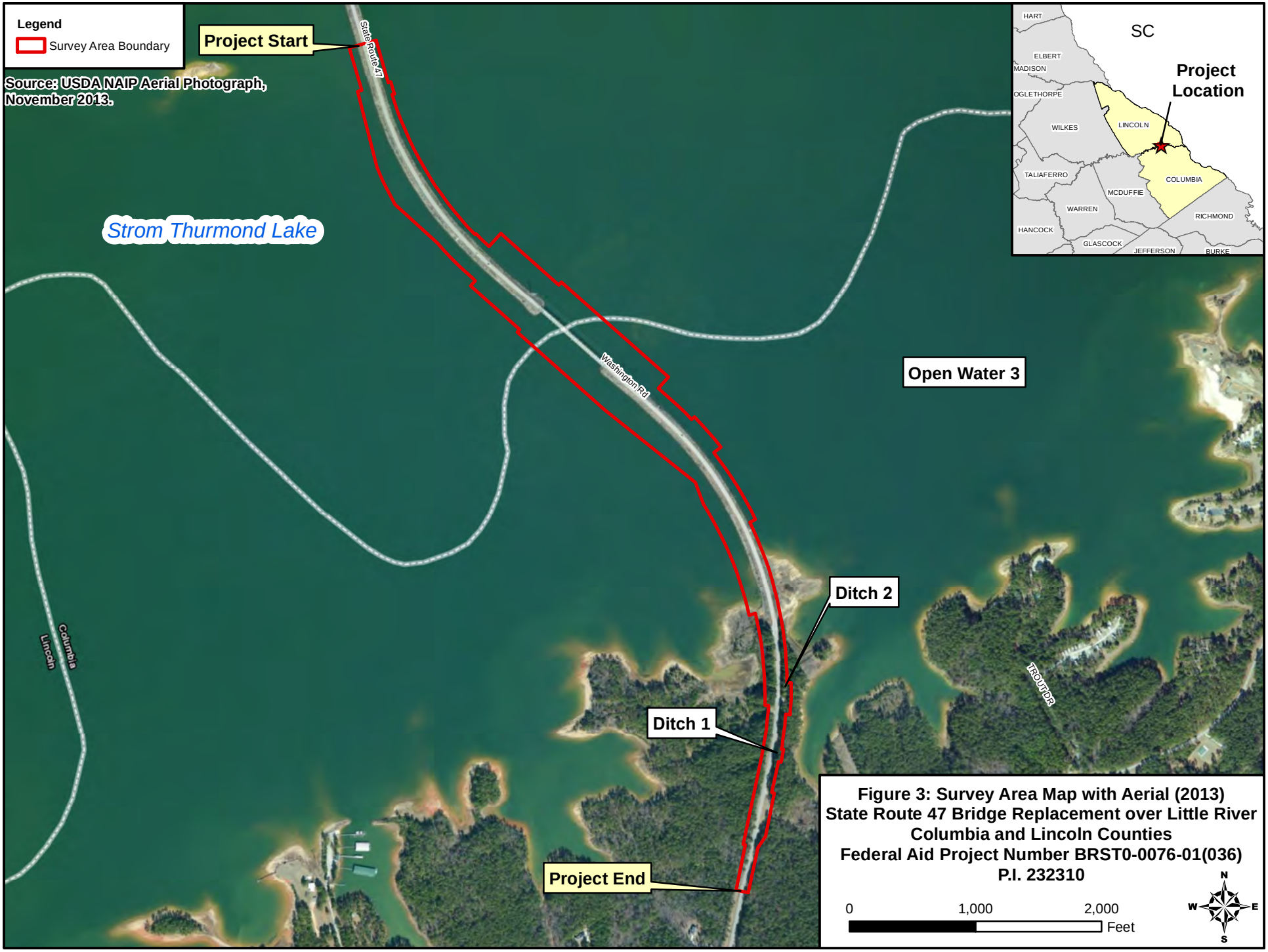


Figure 3: Survey Area Map with Aerial (2013)
State Route 47 Bridge Replacement over Little River
Columbia and Lincoln Counties
Federal Aid Project Number BRST0-0076-01(036)
P.I. 232310

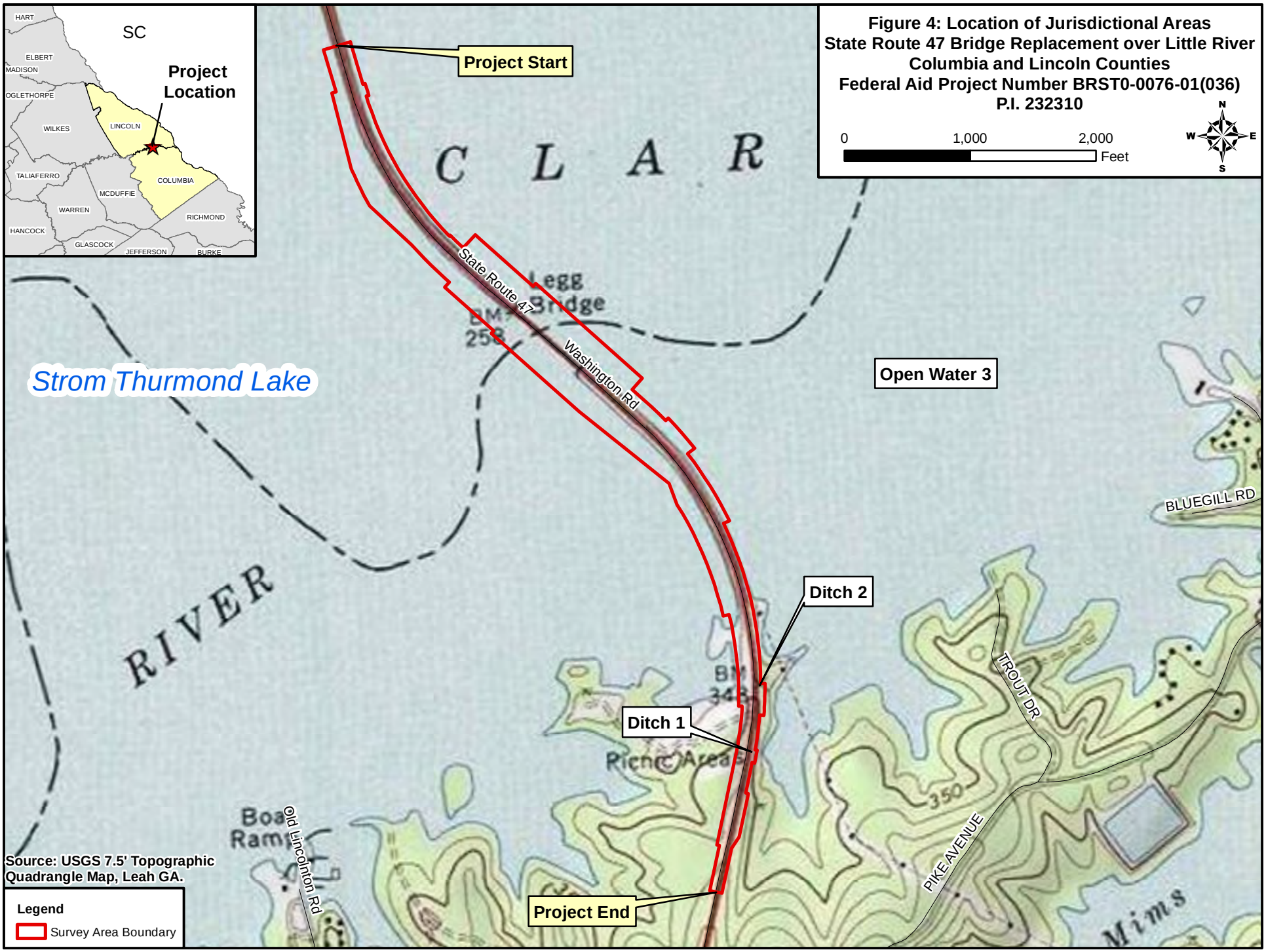


Figure 4: Location of Jurisdictional Areas
State Route 47 Bridge Replacement over Little River
Columbia and Lincoln Counties
Federal Aid Project Number BRST0-0076-01(036)
P.I. 232310
0
1,000
2,000
Feet
N
S
E
W
SC
Project Location
HART
ELBERT
MADISON
OGLETHORPE
WILKES
LINCOLN
TALIAFERRO
COLUMBIA
MCDUFFIE
WARREN
RICHMOND
HANCOCK
GLASCOCK
JEFFERSON
BURKE
Project Start
State Route 47
Washington Rd
Legg Bridge
Strom Thurmond Lake
Open Water 3
BLUEGILL RD
Ditch 2
Ditch 1
TROUT DR
PIKE AVENUE
Old Lincolnton Rd
Project End
Source: USGS 7.5' Topographic Quadrangle Map, Leah GA.
Legend
Survey Area Boundary

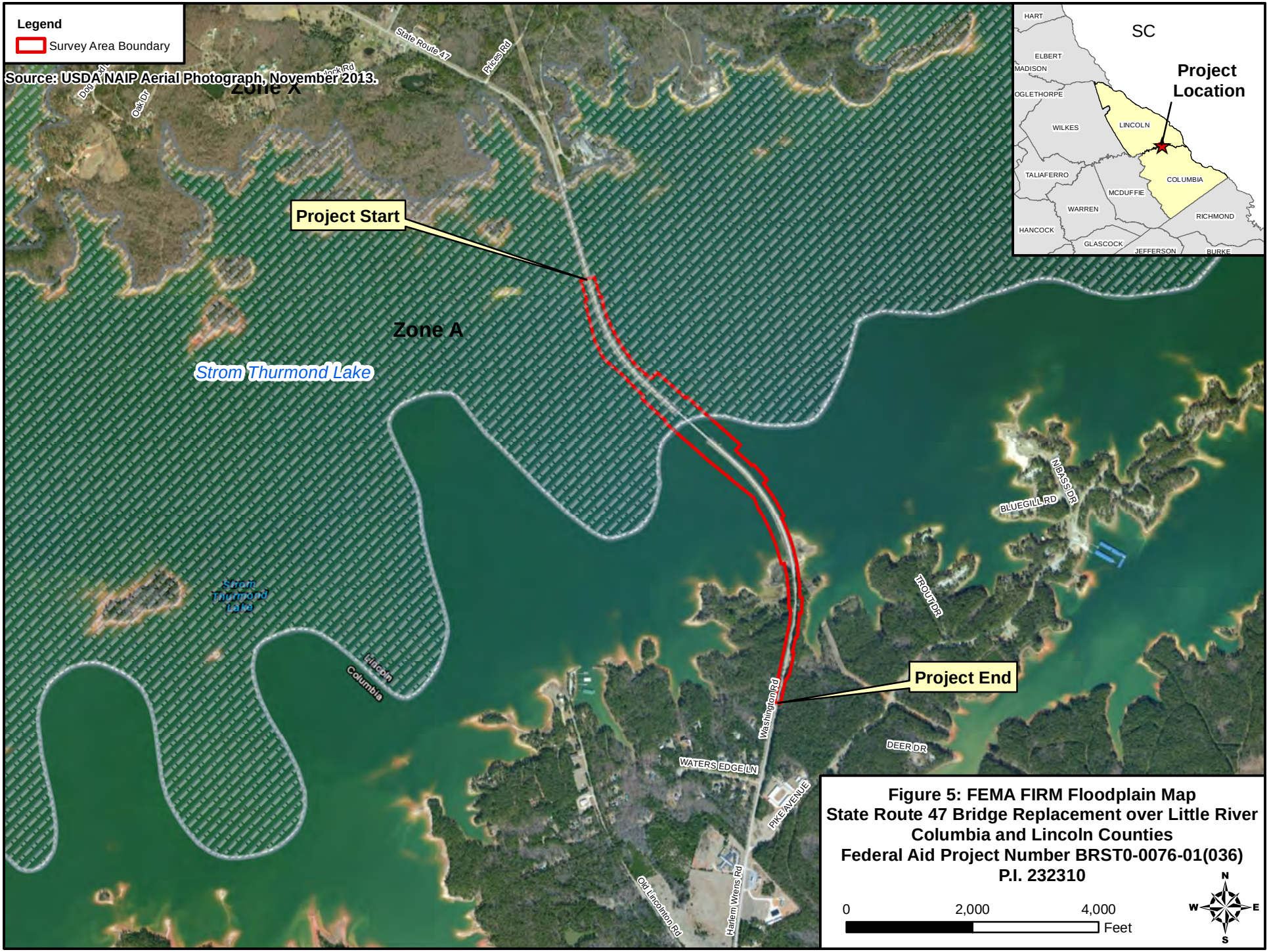
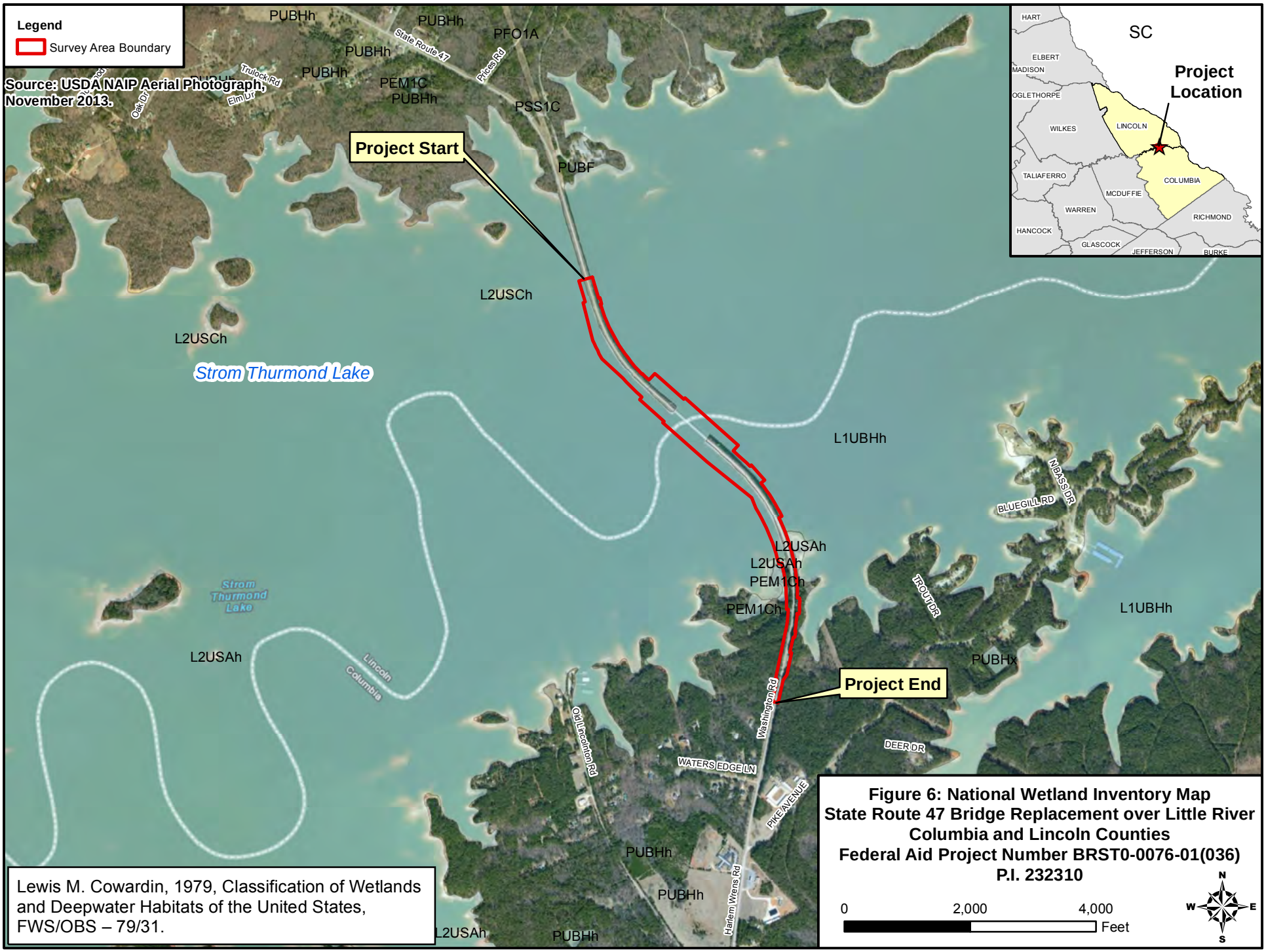


Figure 5: FEMA FIRM Floodplain Map
State Route 47 Bridge Replacement over Little River
Columbia and Lincoln Counties
Federal Aid Project Number BRST0-0076-01(036)
P.I. 232310



Lewis M. Cowardin, 1979, Classification of Wetlands and Deepwater Habitats of the United States, FWS/OBS – 79/31.

Figure 6: National Wetland Inventory Map
State Route 47 Bridge Replacement over Little River
Columbia and Lincoln Counties
Federal Aid Project Number BRST0-0076-01(036)
P.I. 232310

ATTACHMENT A

Construction Plans and Erosion Control Plans

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

PLAN AND PROFILE OF PROPOSED
STATE ROUTE 47 BRIDGE REPLACEMENT OVER LITTLE RIVER

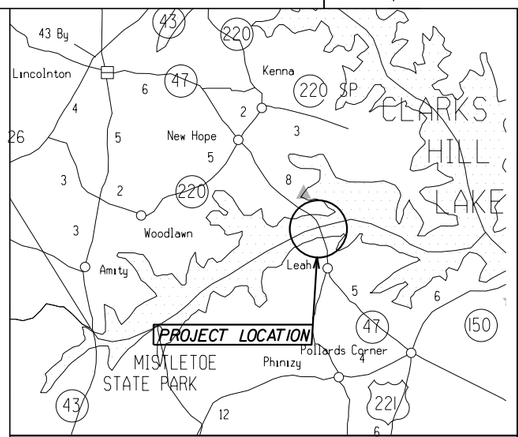
FEDERAL AID PROJECT

BRST0-0076-01(036)
LINCOLN/COLUMBIA COUNTIES

FEDERAL ROUTE # N/A

STATE ROUTE # 47

P.I.NO. 232310



LOCATION SKETCH

DESIGN DATA:
TRAFFIC A.D.T.: 5,850 (2014)
TRAFFIC A.D.T.: 9,000 (2034)
DIRECTIONAL DIST: 60%
K : 9 %
TRUCKS: 8.5 %
24 HR.TRUCKS %: 7.5 %
S.U.: 4 %
COMB.: 3.5 %
SPEED DESIGN: 55 MPH

LOCATION & DESIGN
APPROVAL DATE: 9/1/2006

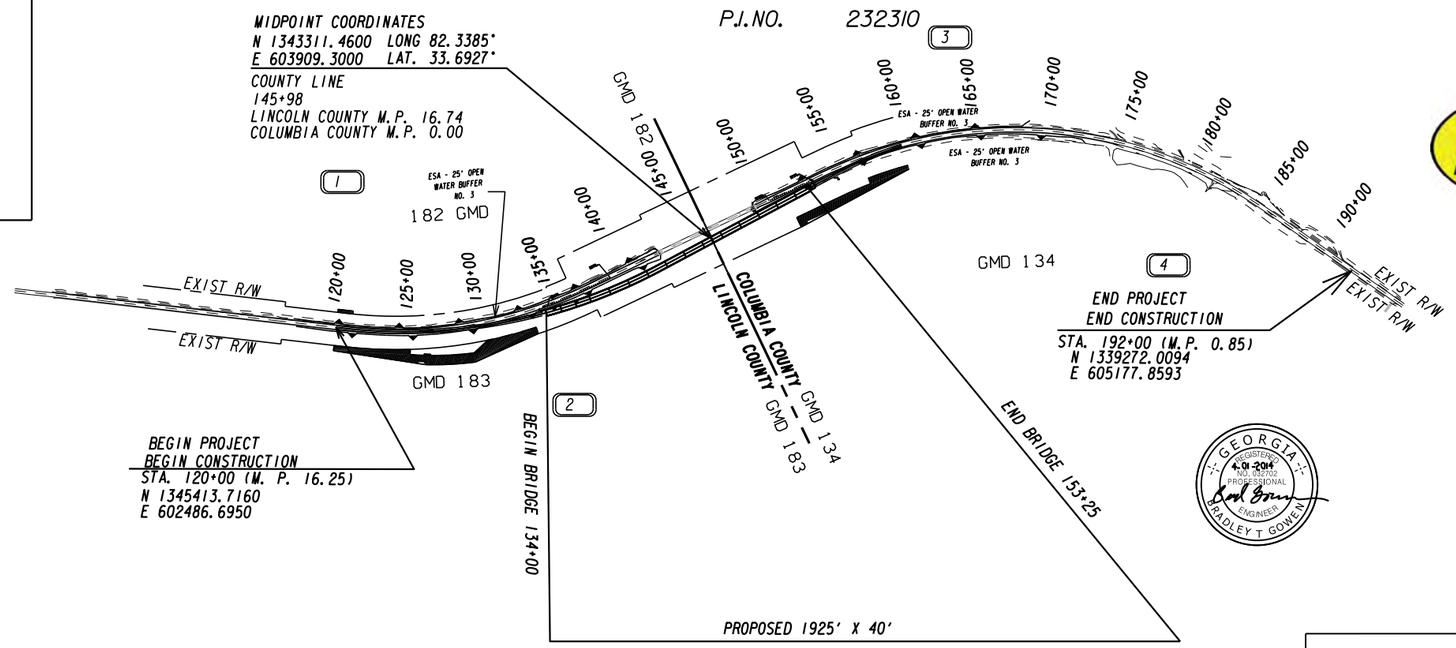
FUNCTIONAL CLASS:
RURAL MINOR ARTERIAL

THIS PROJECT IS 36 % IN LINCOLN COUNTY 64% IN COLUMBIA COUNTY AND IS 100% IN CONG.DIST.NO. 10 .

PROJECT DESIGNATION: FULL OVERSIGHT

PDP CLASSIFICATION: MINOR

THIS PROJECT HAS BEEN PREPARED USING ASSUMED HORIZONTAL CONTROL OF THE EAST ZONE AND THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.



NOTE : ESA - SEE ENVIROMENTAL RESOURCES IMPACT TABLE IN GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS.

NOTE :
ALL REFERENCES IN THIS DOCUMENT,WHICH INCLUDES ALL PAPERS,WRITINGS, DOCUMENTS,DRAWINGS,OR PHOTOGRAPHS USED,OR TO BE USED IN CONNECTION WITH THIS DOCUMENT,TO "STATE HIGHWAY DEPARTMENT OF GEORGIA ","STATE HIGHWAY DEPARTMENT ",GEORGIA STATE HIGHWAY DEPARTMENT "," HIGHWAY DEPARTMENT ",OR "DEPARTMENT "WHEN THE CONTEXT THEREOF MEANS THE STATE HIGHWAY DEPARTMENT OF GEORGIA,AND SHALL BE DEEMED TO MEAN THE DEPARTMENT OF TRANSPORTATION.

OPELIKA Scott Bridge COMPANY ALABAMA

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

GEORGIA REGISTERED PROFESSIONAL ENGINEER 4-01-2014 BRADLEY T. GOWEN

DATE	CHIEF ENGINEER

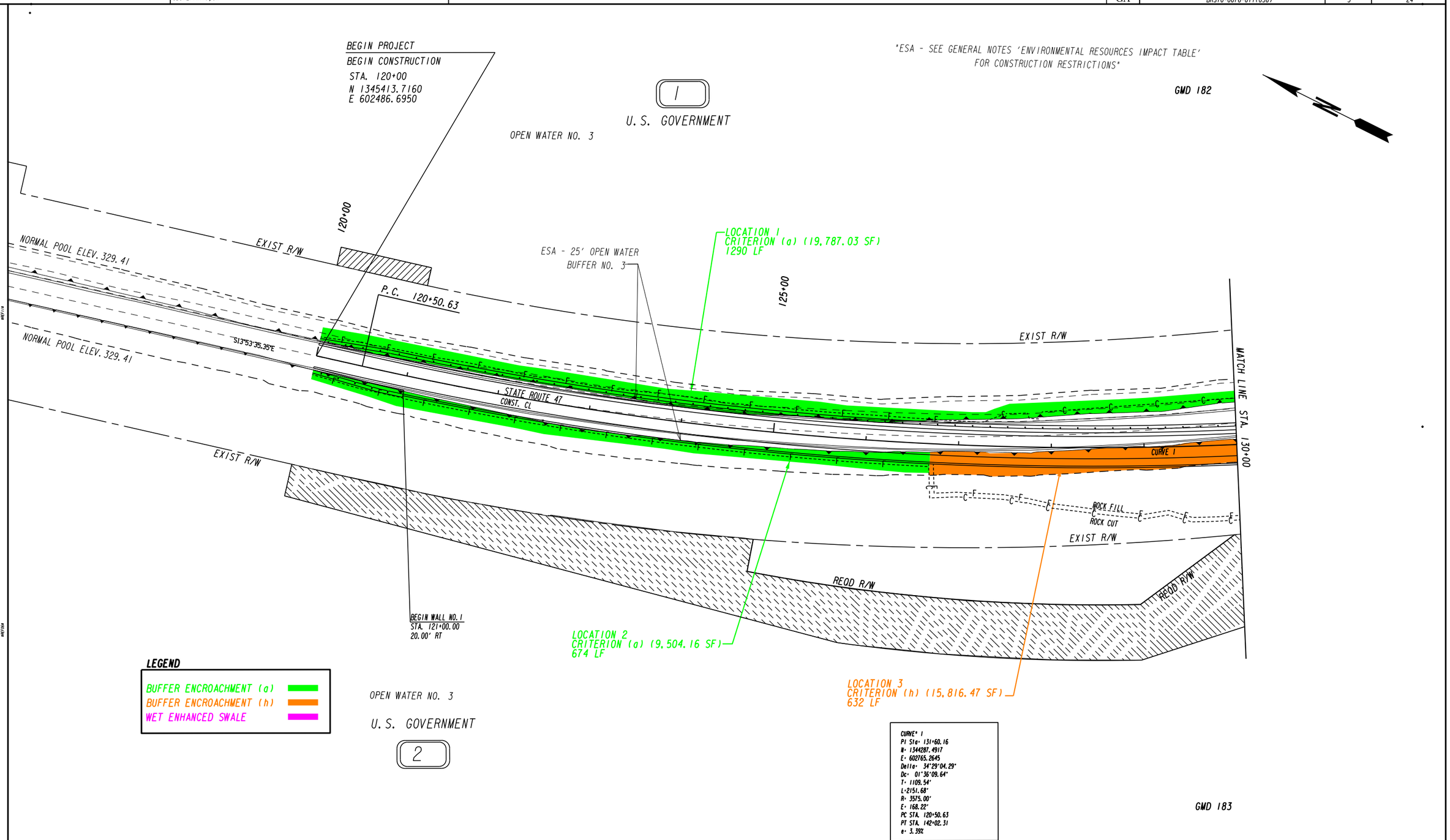
PLANS COMPLETED	- -
REVISIONS	

LENGTH OF PROJECT	COUNTY Nos.181/073 Project No. BRST0-0076-01(036) MILES
NET LENGTH OF ROADWAY	0.999
NET LENGTH OF BRIDGES	0.365
NET LENGTH OF PROJECT	1.364
NET LENGTH OF EXCEPTIONS	0.000
GROSS LENGTH OF PROJECT	1.364

SCALE IN FEET
0 500 1000 2000

THE DATA,TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANYWAY INDICATED THEREBY,WHETHER BY DRAWINGS OR NOTES,OR IN ANY OTHER MANNER,ARE BASED UPON FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER,THE SAME ARE SHOWN AS INFORMATION ONLY,ARE NOT GUARANTEED,AND DO NOT BIND THE DEPARTMENT OF TRANSPORTATION IN ANY WAY. THE ATTENTION OF BIDDER IS SPECIFICALLY DIRECTED TO SUBSECTIONS 102.04,102.05,AND 104.03 OF THE SPECIFICATIONS.

DRAWING No. 01-001



PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS
EASEMENT FOR CONSTR & MAINTENANCE OF DRAINAGE

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3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

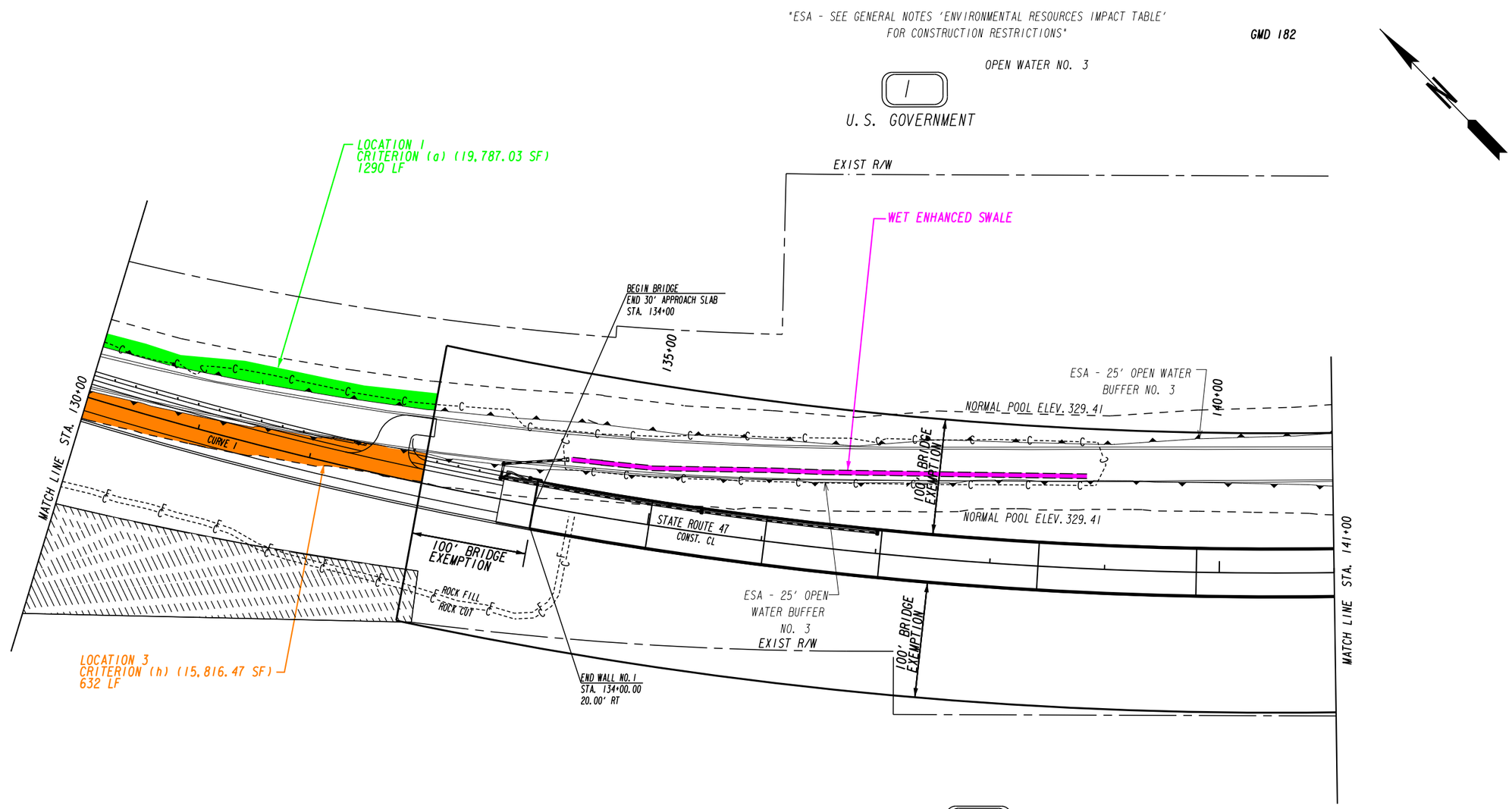
REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

MAINLINE PLAN

LINCOLN/COLUMBIA COUNTY
STA. 120+00 TO STA. 130+00

DRAWING No. 13-001



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Dc= 01°36'09.64"
T= 1109.54'
L=2151.68'
R= 3575.00'
E= 168.22'
PC STA. 120+50.63
PT STA. 142+02.31
e= 3.39%

2

U. S. GOVERNMENT

OPEN WATER NO. 3

GMD 183

LEGEND

- BUFFER ENCROACHMENT (a)
- BUFFER ENCROACHMENT (h)
- WET ENHANCED SWALE

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS
EASEMENT FOR CONSTR & MAINTENANCE OF DRAINAGE

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NORCROSS, GEORGIA 30092
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SCALE IN FEET
0 50 100 200

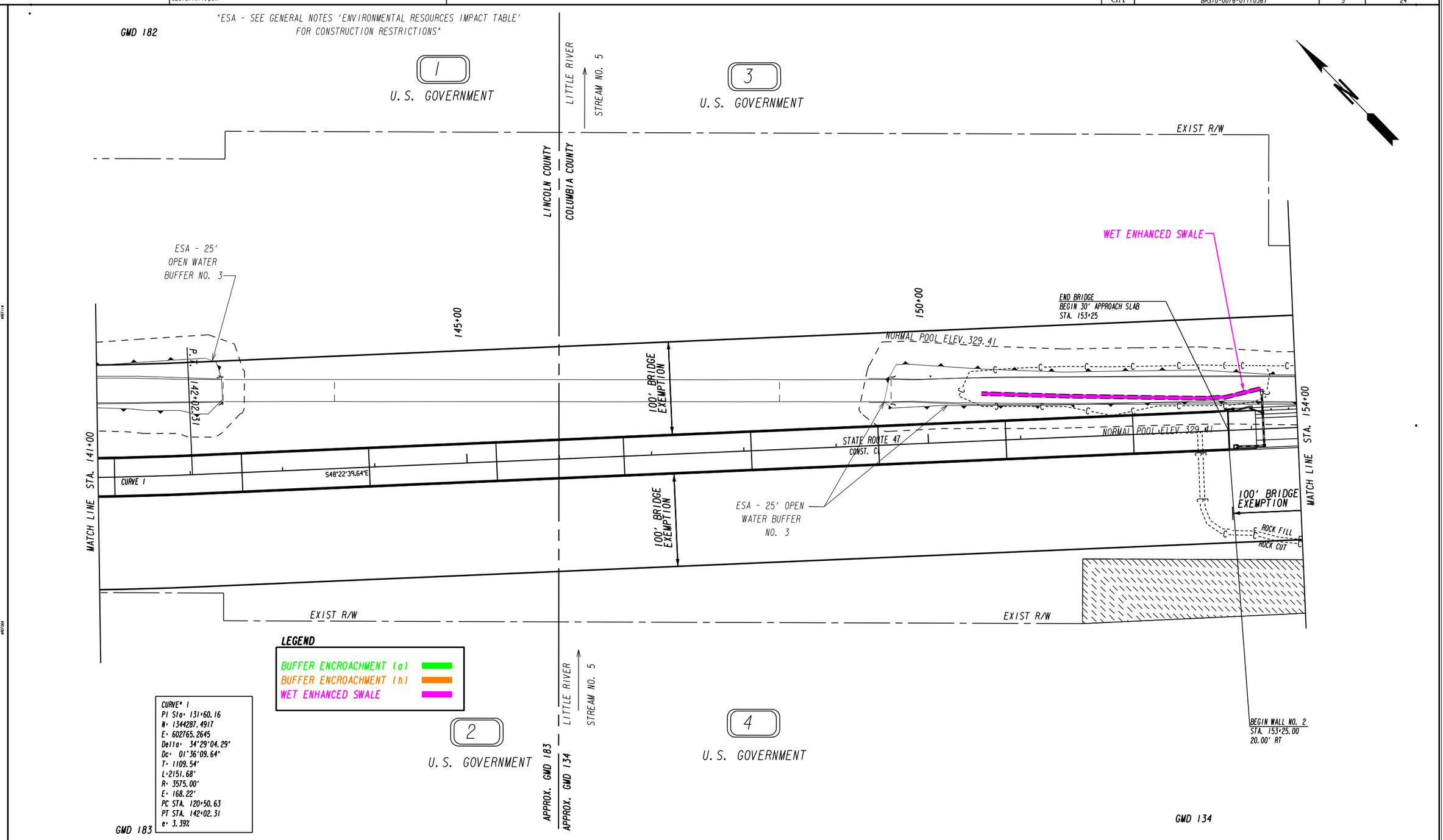
REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

MAINLINE PLAN

LINCOLN/COLUMBIA COUNTY
STA. 130+00 TO STA. 141+00

DRAWING No. 13-002



PROPERTY AND EXISTING R/W LINE	
REQUIRED R/W LINE	
CONSTRUCTION LIMITS	— C — F —
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	
EASEMENT FOR CONSTR OF SLOPES	
EASEMENT FOR CONSTR OF DRIVES	

BEGIN LIMIT OF ACCESS	BLA
END LIMIT OF ACCESS	ELA
LIMIT OF ACCESS	
REQ'D R/W & LIMIT OF ACCESS	
EASEMENT FOR CONSTR & MAINTENANCE OF DRAINAGE	

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SCALE IN FEET
0 50 100 200

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

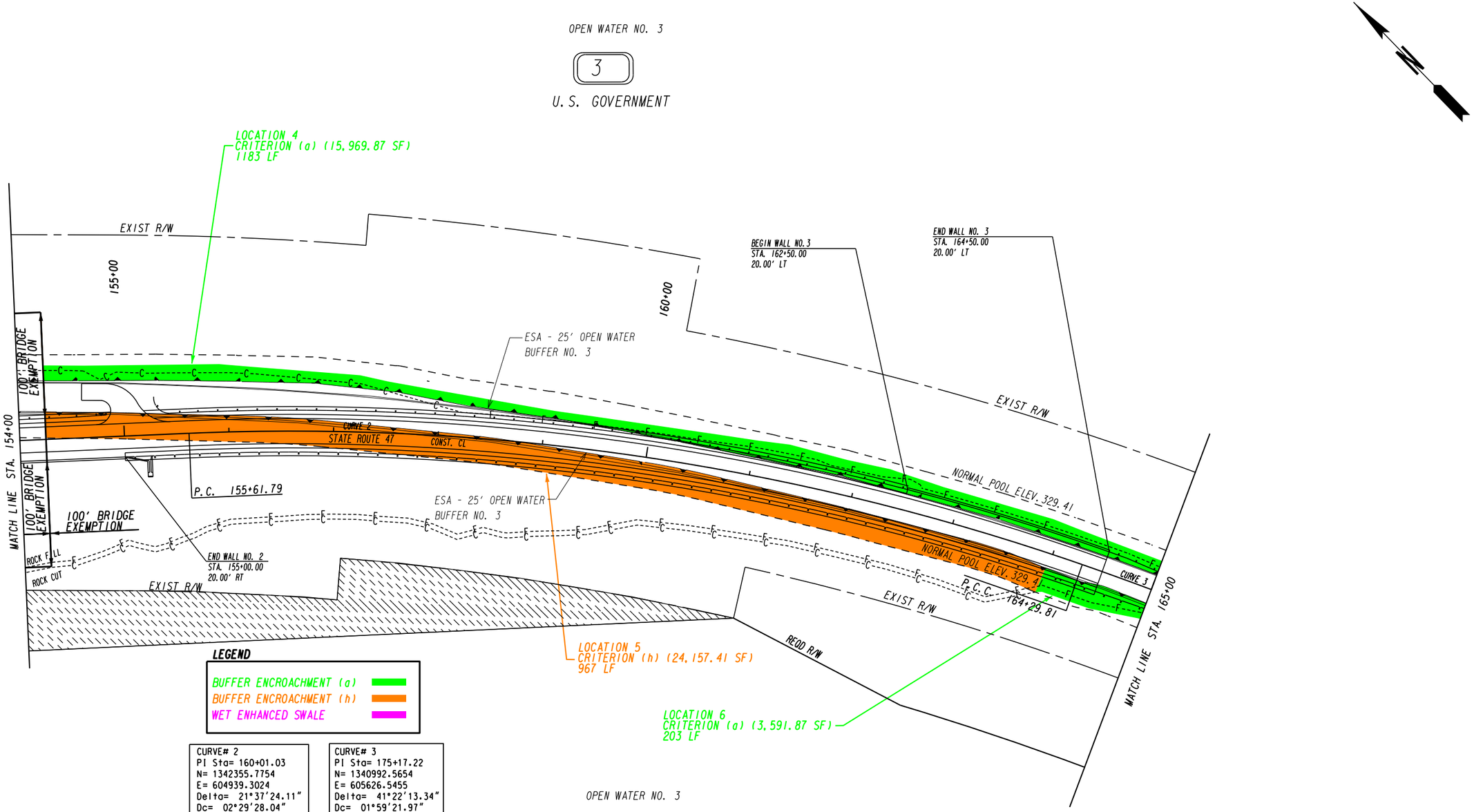
MAINLINE PLAN

LINCOLN/COLUMBIA COUNTY
STA. 141+00 TO STA. 154+00

DRAWING No. 13-003

12/14/2012 GPLW

"ESA - SEE GENERAL NOTES 'ENVIRONMENTAL RESOURCES IMPACT TABLE' FOR CONSTRUCTION RESTRICTIONS"



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Dc= 02°29'28.04"	Dc= 01°59'21.97"
T= 439.23'	T= 1087.41'
L=868.02'	L=2079.50'
R= 2300.00'	R= 2880.00'
E= 41.57'	E= 198.45'
PC STA. 155+61.79	PCC STA. 164+29.81
PCC STA. 164+29.81	PT STA. 185+09.31
e= 4.51%	e= 3.94%

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS
EASEMENT FOR CONSTR & MAINTENANCE OF DRAINAGE

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NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES

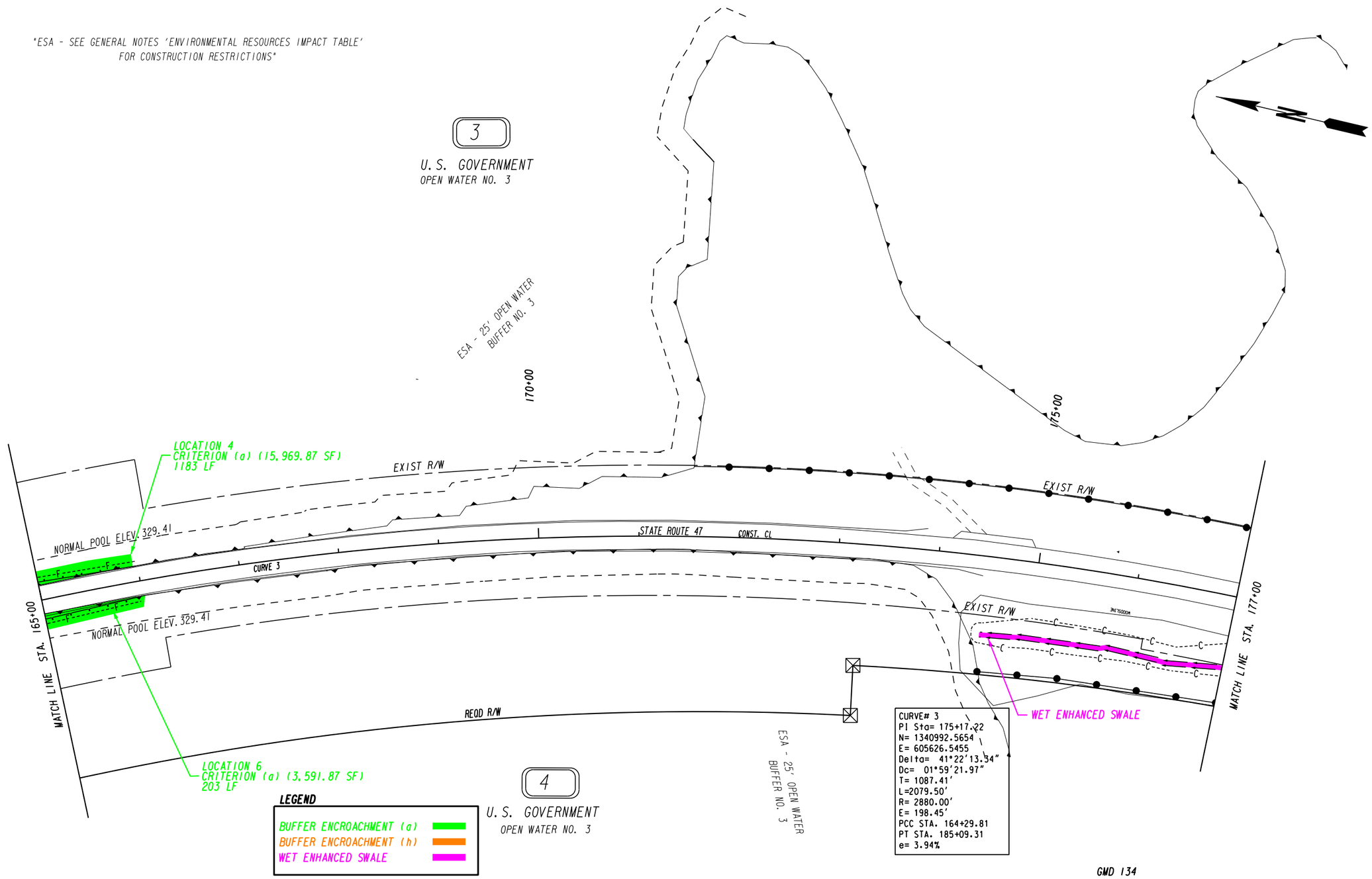
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

MAINLINE PLAN

LINCOLN/COLUMBIA COUNTY
STA. 154+00 TO STA. 165+00

DRAWING No. 13-004

12/14/2012 GPLN



PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS
EASEMENT FOR CONSTR & MAINTENANCE OF DRAINAGE

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES

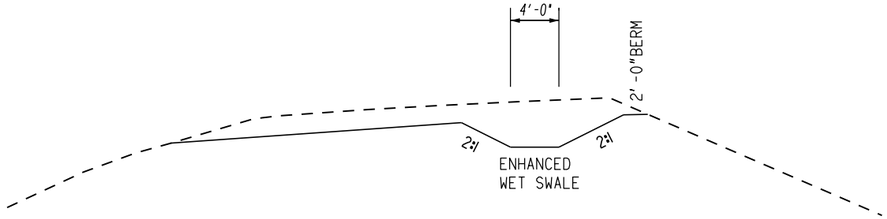
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

MAINLINE PLAN

LINCOLN/COLUMBIA COUNTY
STA. 165+00 TO STA. 177+00

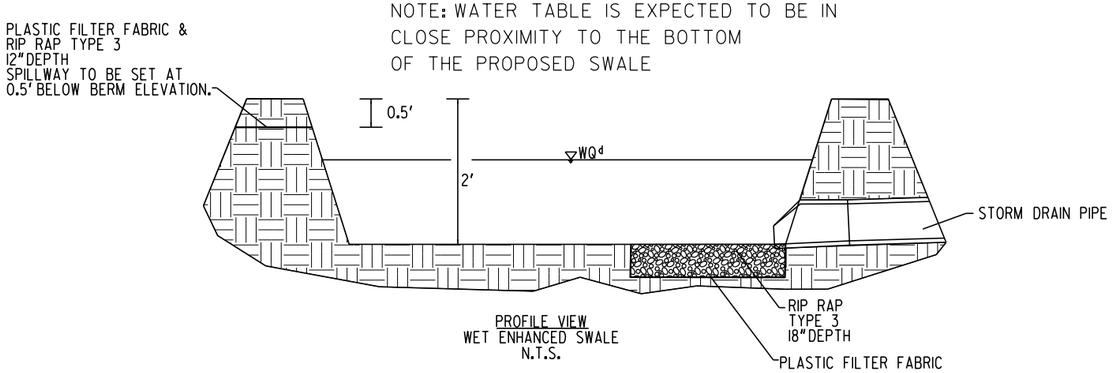
DRAWING No. 13-005

12/14/2012 GPLM

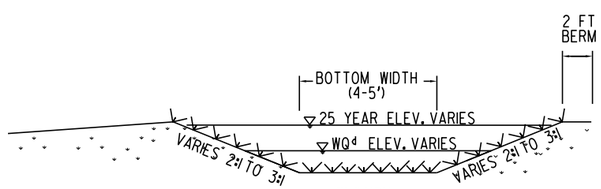


ENHANCED WET SWALE DETAIL #1

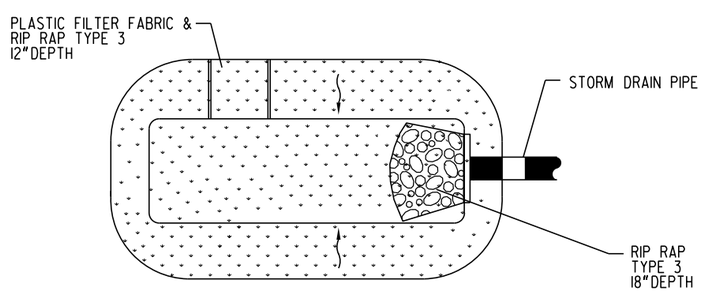
APPLIES TO STA. 134+21 LT. TO STA. 138+81 LT.
APPLIES TO STA. 150+53 LT. TO STA. 153+63 LT.
NOTE: WATER TABLE IS EXPECTED TO BE IN
CLOSE PROXIMITY TO THE BOTTOM
OF THE PROPOSED SWALE



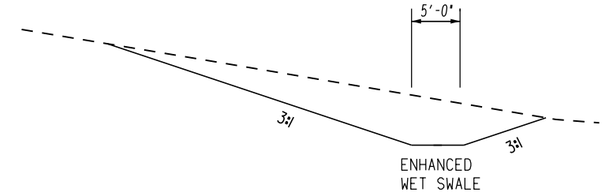
PROFILE VIEW
WET ENHANCED SWALE
N.T.S.



SECTION
WET ENHANCED SWALE
N.T.S.



PLAN VIEW
WET ENHANCED SWALE
N.T.S.

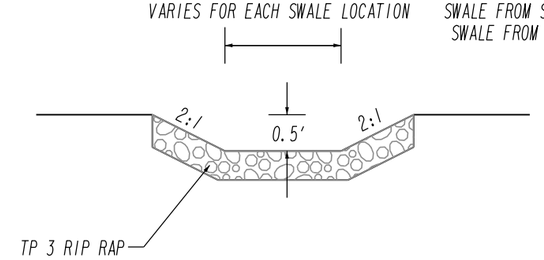


ENHANCED WET SWALE DETAIL #2

APPLIES TO STA. 174+50 RT. TO STA. 177+20 RT.
NOTE: WATER TABLE IS EXPECTED TO BE IN
CLOSE PROXIMITY TO THE BOTTOM
OF THE PROPOSED SWALE

SPILLWAY WIDTH
VARIES FOR EACH SWALE LOCATION

SWALE FROM STA. 134+21 LT. TO STA. 138+81 LT. (SPILLWAY WIDTH = 6')
SWALE FROM STA. 150+53 LT. TO STA. 153+63 LT. (SPILLWAY WIDTH = 4')
SWALE FROM STA. 174+49 RT. TO STA. 177+19 RT. (SPILLWAY WIDTH = 10')



RIPARIAN SEEDING CHART	
COMMON NAME	BOTANICAL NAME
Creeping Bentgrass	Agrostis palustris
Switch Grass	Panicum virgatum
Reed Canary Grass	Phalaris arundinacea
Redtop	Agrostis alba
Limestone Meadow Sedge	Carex granularis
Pennsylvania Sedge	Carex pennsylvanica
Tussock Sedge	Carex stricta

APPLY A VARIETY OF SEED MIXTURE FROM THE ABOVE LIST AT THE SPECIFIED RATE PER THE STANDARD SPECIFICATIONS

ADDITINAL CHOOSES MAYBE FOUND IN THE SECTION 700 OF THE STANDARD SPECIFICATIONS

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

NOT TO SCALE

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

SPECIAL CONSTRUCTION DETAIL

LINCOLN/COLUMBIA COUNTY

DRAWING No. 38-001

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

EROSION, SEDIMENTATION, & POLLUTION CONTROL PLAN
STATE ROUTE 47 BRIDGE REPLACEMENT OVER LITTLE RIVER

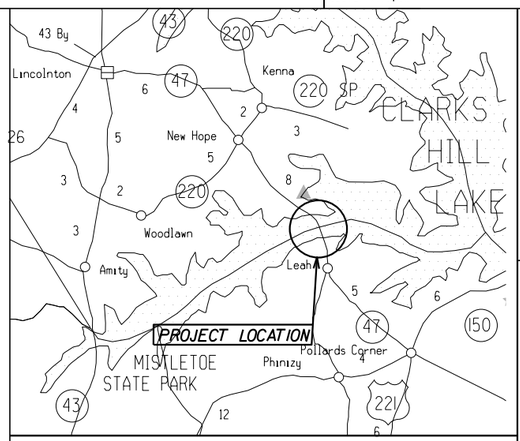
FEDERAL AID PROJECT

BRST0-0076-01(036)
LINCOLN/COLUMBIA COUNTIES

FEDERAL ROUTE # N/A

STATE ROUTE # 47

P.I.NO. 232310



LOCATION SKETCH

"I certify that this Erosion, Sedimentation and Pollution Control Plan has been prepared in accordance with part IV GAR 100002."

"I certify that the permittee's Erosion, Sedimentation and Pollution Control Plan provides for an appropriate and comprehensive system of best management practices required by the Georgia Water Quality Control Act and the document "Manual for Erosion and Sediment Control in Georgia" (Manual) published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land disturbing activity was permitted, provides for the sampling of the receiving water(s) or the sampling of the storm water outfalls and that the designed system of best management practices and sampling methods is expected to meet the requirements contained in the General NPDES Permit No. GAR 100002."

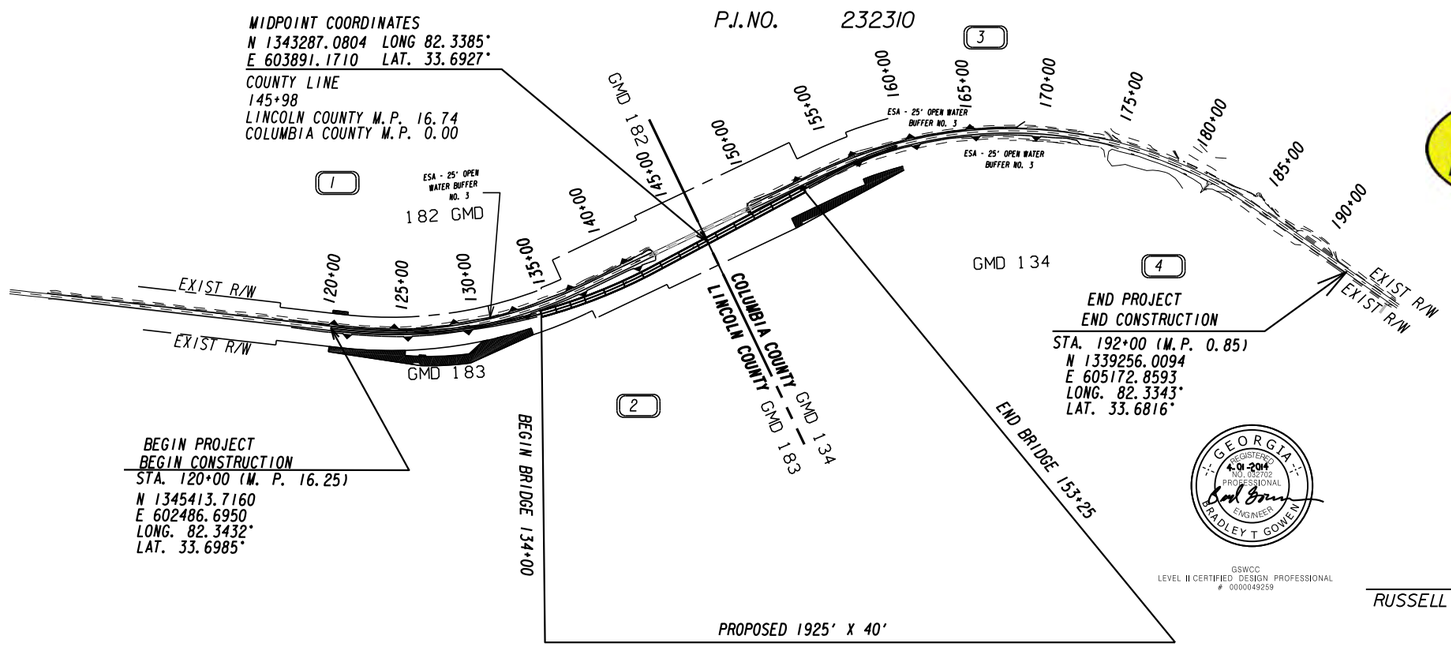
"I certify that the permittee's Erosion, Sedimentation and Pollution Control Plan provides for the monitoring of: (a) all perennial and intermittent streams and other water bodies shown on the USGS topographic map and all other field verified perennial and intermittent streams and other water bodies, or (b) where any such specific identified perennial or intermittent stream and other water body is not proposed to be sampled, I have determined in my professional judgment, utilizing the factors required in the General NPDES Permit No. GAR 100002, that the increase in the turbidity of each specific identified sampled receiving water will be representative of the increase in the turbidity of a specific identified un-sampled receiving water."

I certify under penalty of law that this plan was prepared after a site visit to the location described herein by myself or my authorized agent under my direct supervision.

OPELIKA Scott Bridge COMPANY ALABAMA

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

PRIMARY PERMITTEE:
GEORGIA DEPARTMENT OF TRANSPORTATION
ONE GA CENTER
600 W PEACHTREE ST. NW
ATLANTA, GA 30308
PHONE NUMBER 404-631-1990



GEORGIA REGISTERED PROFESSIONAL ENGINEER BRADLEY T. GOWEN 4-01-2014

GSWCC
LEVEL II CERTIFIED DESIGN PROFESSIONAL
0000049259

RUSSELL McMURRY, GSWCC LEVEL II Certification # 0000012103

NOTE: ESA - SEE ENVIROMENTAL RESOURCES IMPACT TABLE IN GENERAL NOTES FOR CONSTRUCTION RESTRICTIONS.

24 Hour Contact
NAME:
NUMBER:

SCALE IN FEET
0 500 1000 2000

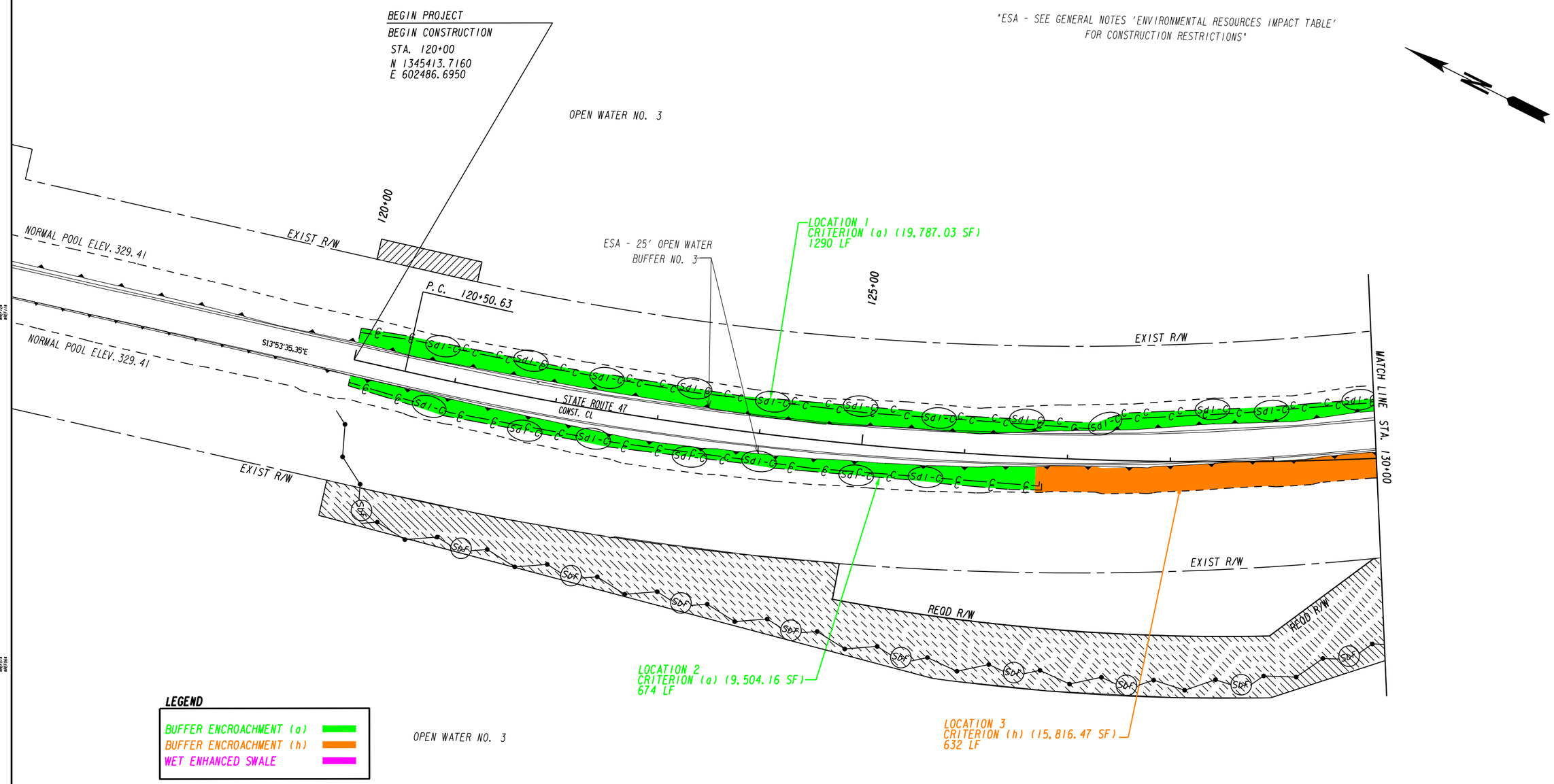
LENGTH OF PROJECT	COUNTY Nos.181/073 Project No. BRST0-0076-01(036) MILES
NET LENGTH OF ROADWAY	0.999
NET LENGTH OF BRIDGES	0.365
NET LENGTH OF PROJECT	1.364
NET LENGTH OF EXCEPTIONS	0.000
GROSS LENGTH OF PROJECT	1.364

PLANS COMPLETED

REVISIONS

DATE	REQUESTED BY	PAGE NUMBER	SIGNATURE	GSWCC LEVEL II #

DRAWING No. 50-001



INITIAL STAGE

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES		

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

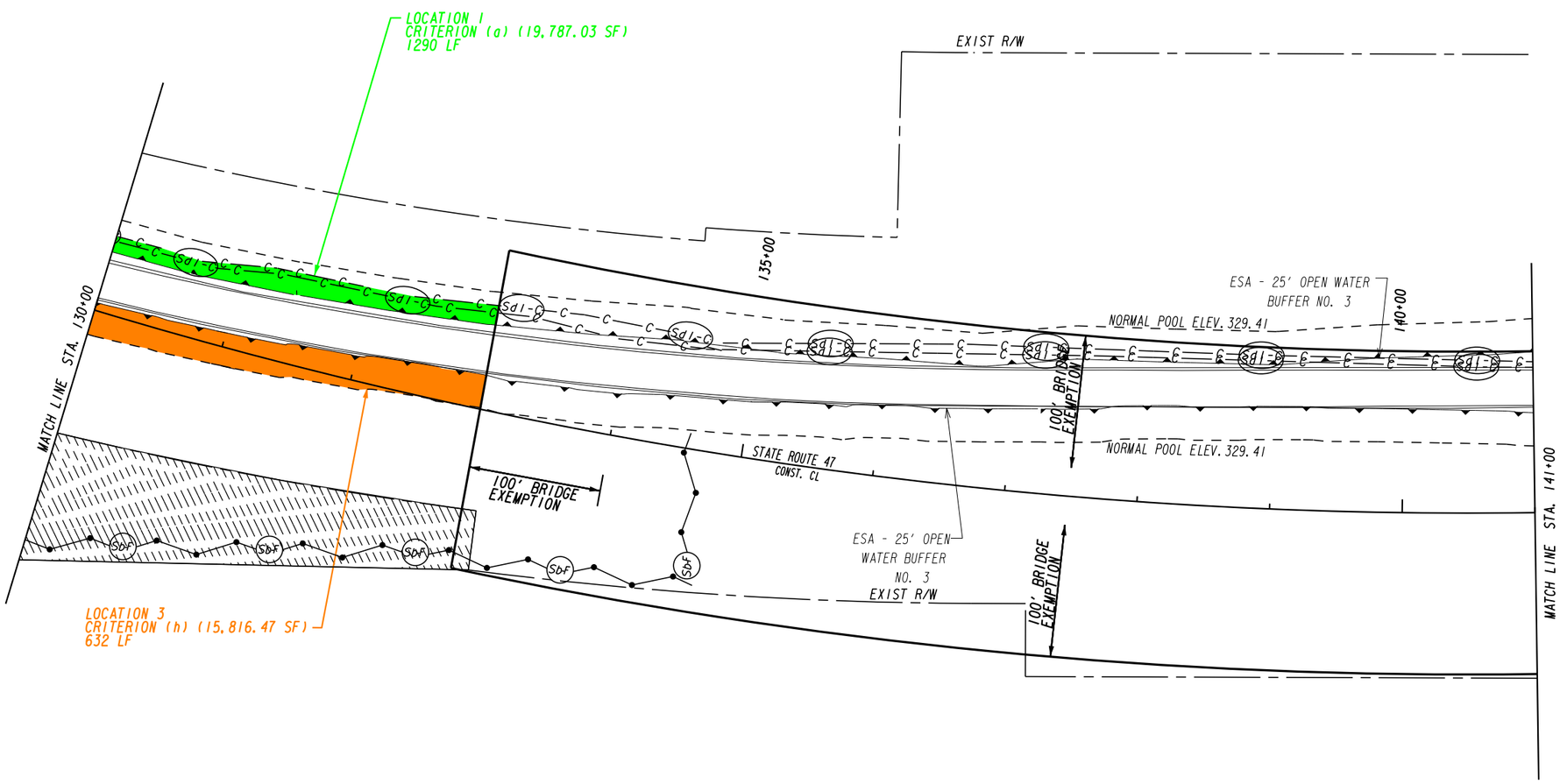
LINCOLN/COLUMBIA COUNTY
STA. 120+00 TO STA. 130+00

DRAWING No. 54-001

12/14/2012 GPLN

"ESA - SEE GENERAL NOTES 'ENVIRONMENTAL RESOURCES IMPACT TABLE' FOR CONSTRUCTION RESTRICTIONS"

OPEN WATER NO. 3



LEGEND

- BUFFER ENCROACHMENT (a)
- BUFFER ENCROACHMENT (h)
- WET ENHANCED SWALE

OPEN WATER NO. 3

INITIAL STAGE

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

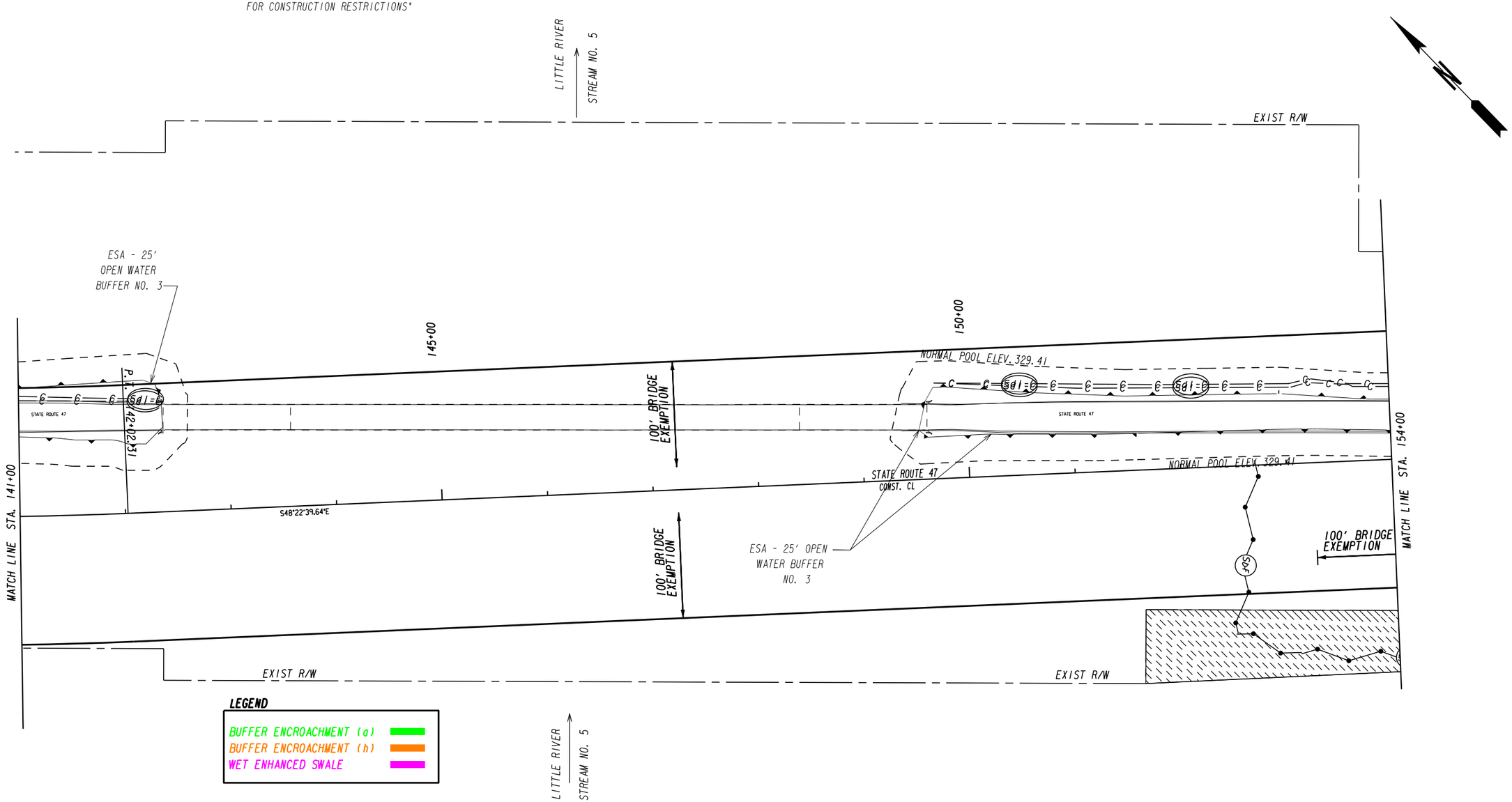
OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 130+00 TO STA. 141+00

DRAWING No. 54-002

12/14/2012 GPLN



INITIAL STAGE

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES		

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

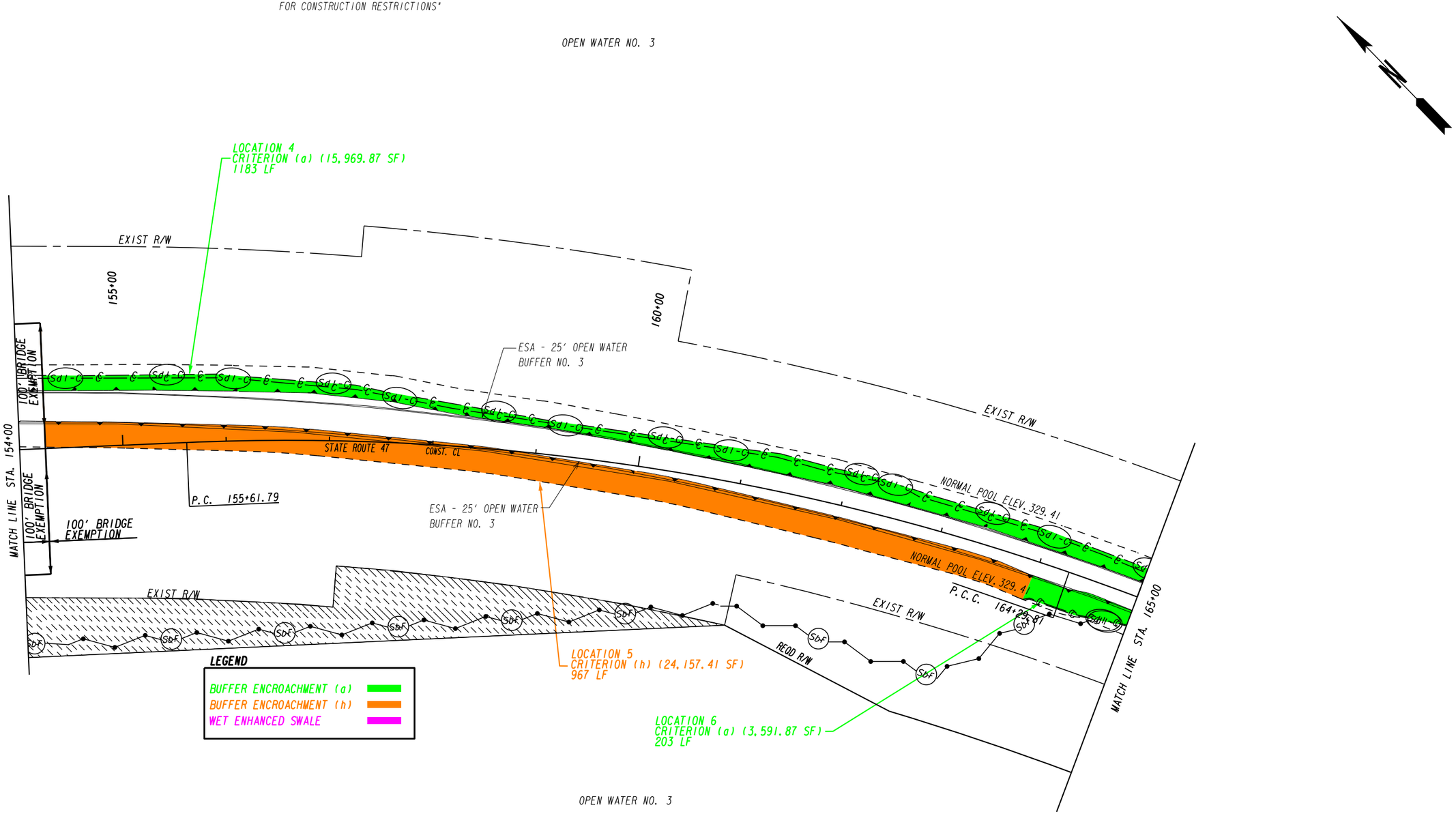
BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 141+00 TO STA. 154+00

DRAWING No. 54-003

12/14/2012 GPLN

"ESA - SEE GENERAL NOTES 'ENVIRONMENTAL RESOURCES IMPACT TABLE' FOR CONSTRUCTION RESTRICTIONS"



INITIAL STAGE

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

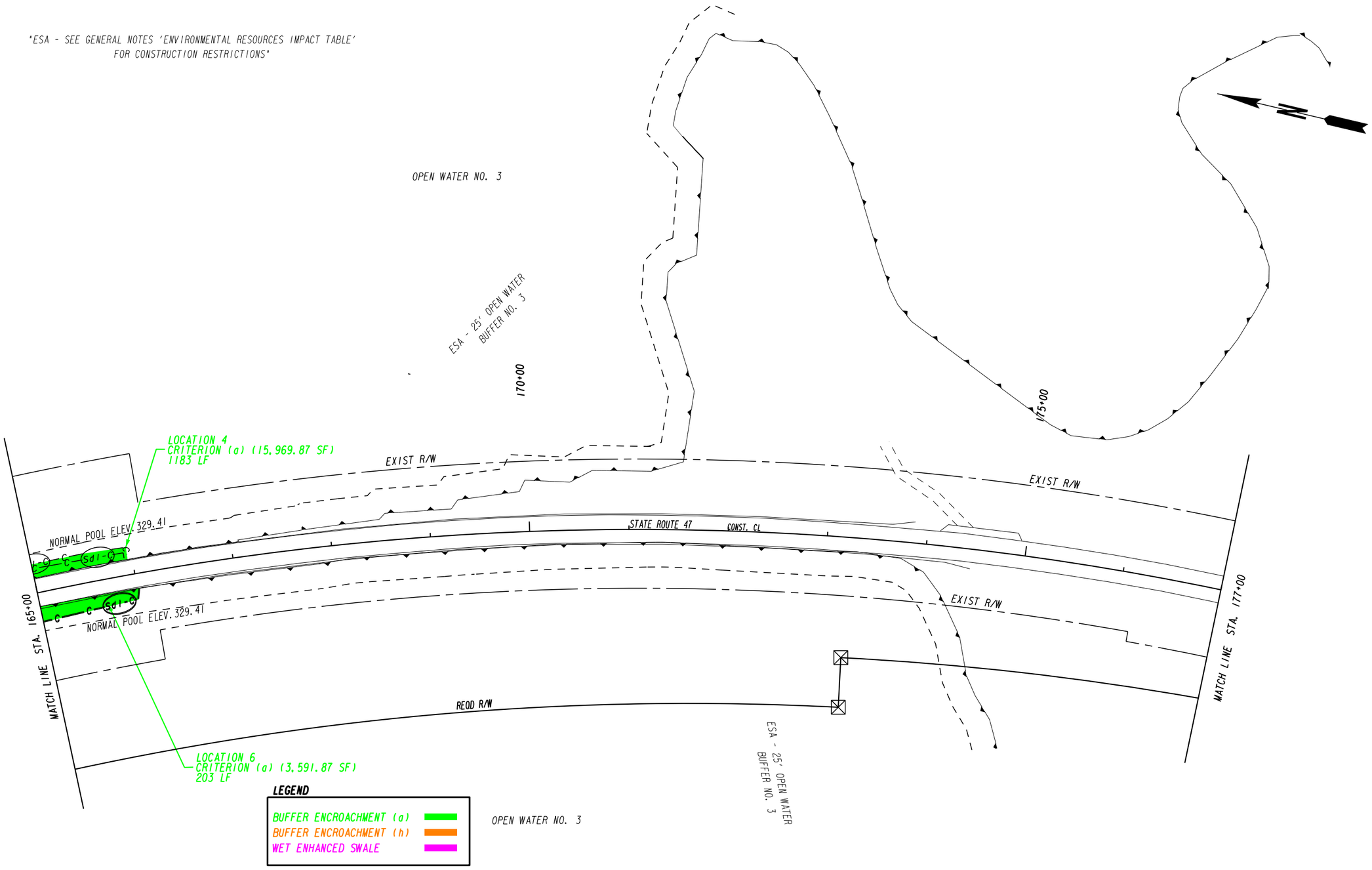
REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 154+00 TO STA. 165+00

DRAWING No. 54-004



INITIAL STAGE

Baker

3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

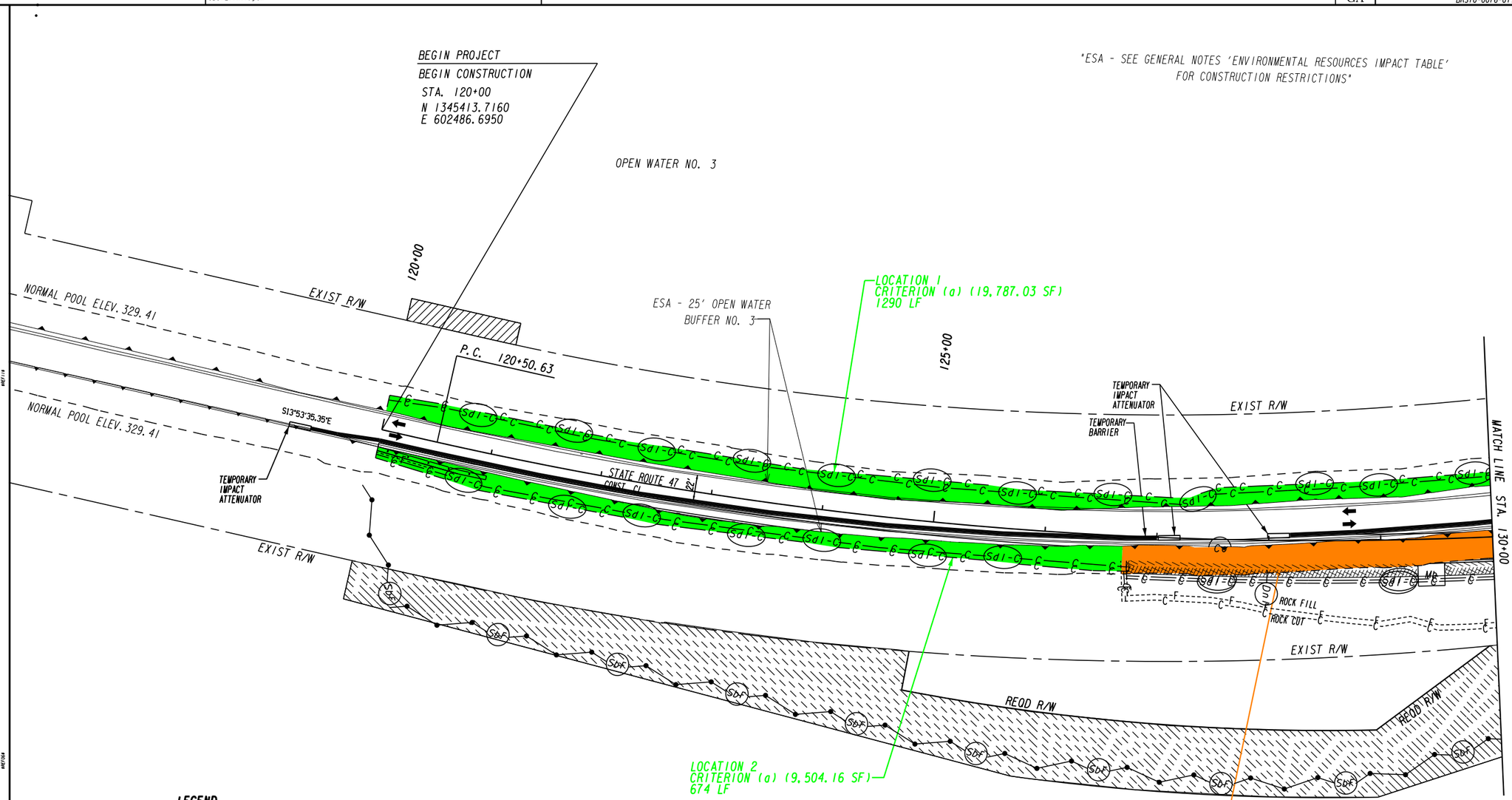
OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 165+00 TO STA. 177+00

DRAWING No. 54-005

12/14/2012 GPLN



LEGEND

- BUFFER ENCROACHMENT (a)
- BUFFER ENCROACHMENT (h)
- WET ENHANCED SWALE

OPEN WATER NO. 3

STAGE 1

1. INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH GDOT SPECIAL PROVISION SECTION 150 AND MOST CURRENT EDITION OF MUTCD.
2. REDUCE SPEED LIMIT TO 45 MPH FOR DURATION OF CONSTRUCTION PERIOD.
3. STRIPE TEMPORARY TRAFFIC LANES. INSTALL TEMPORARY BARRIER ON SR 47 AND SHIFT TRAFFIC TO ACCOMMODATE STAGE 1 CONSTRUCTION AS SHOWN IN THE PLANS.
4. CONSTRUCT BRIDGE WEST OF EXISTING SR 47.
5. CONSTRUCT PROPOSED PAVEMENT UP TO BINDER COURSE ON THE WEST SIDE OF EXISTING SR 47 AS SHOWN IN THE PLANS.

STAGE 1

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

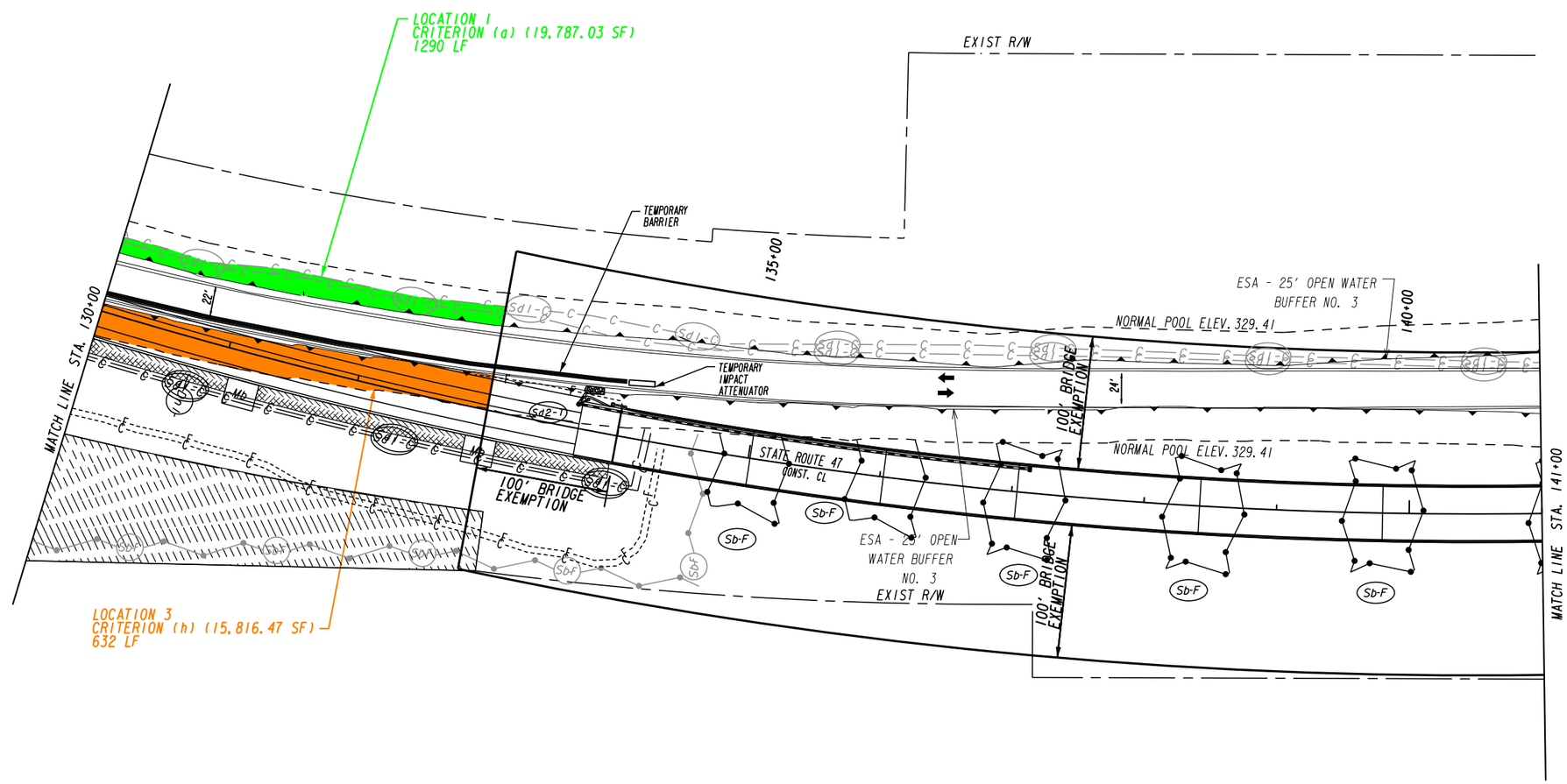
LINCOLN/COLUMBIA COUNTY
STA. 120+00 TO STA. 130+00

DRAWING No. 54-008

12/14/2012 GPLN

"ESA - SEE GENERAL NOTES 'ENVIRONMENTAL RESOURCES IMPACT TABLE' FOR CONSTRUCTION RESTRICTIONS"

OPEN WATER NO. 3



LEGEND

- BUFFER ENCROACHMENT (a)
- BUFFER ENCROACHMENT (h)
- WET ENHANCED SWALE

OPEN WATER NO. 3

STAGE 1

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

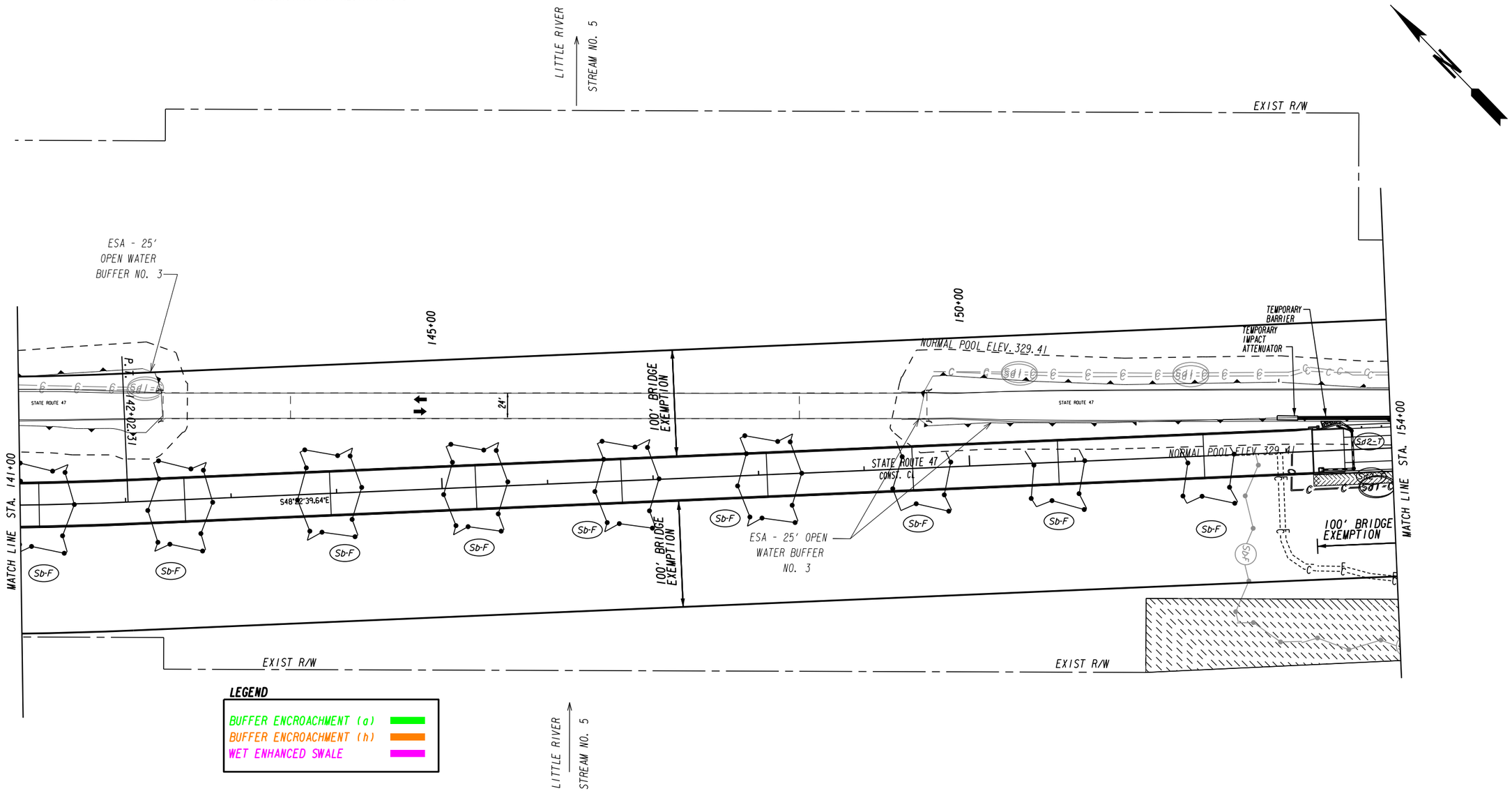
BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 130+00 TO STA. 141+00

DRAWING No. 54-009

12/14/2012 GPLN

ESA - SEE GENERAL NOTES 'ENVIRONMENTAL RESOURCES IMPACT TABLE' FOR CONSTRUCTION RESTRICTIONS



STAGE 1

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES		

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

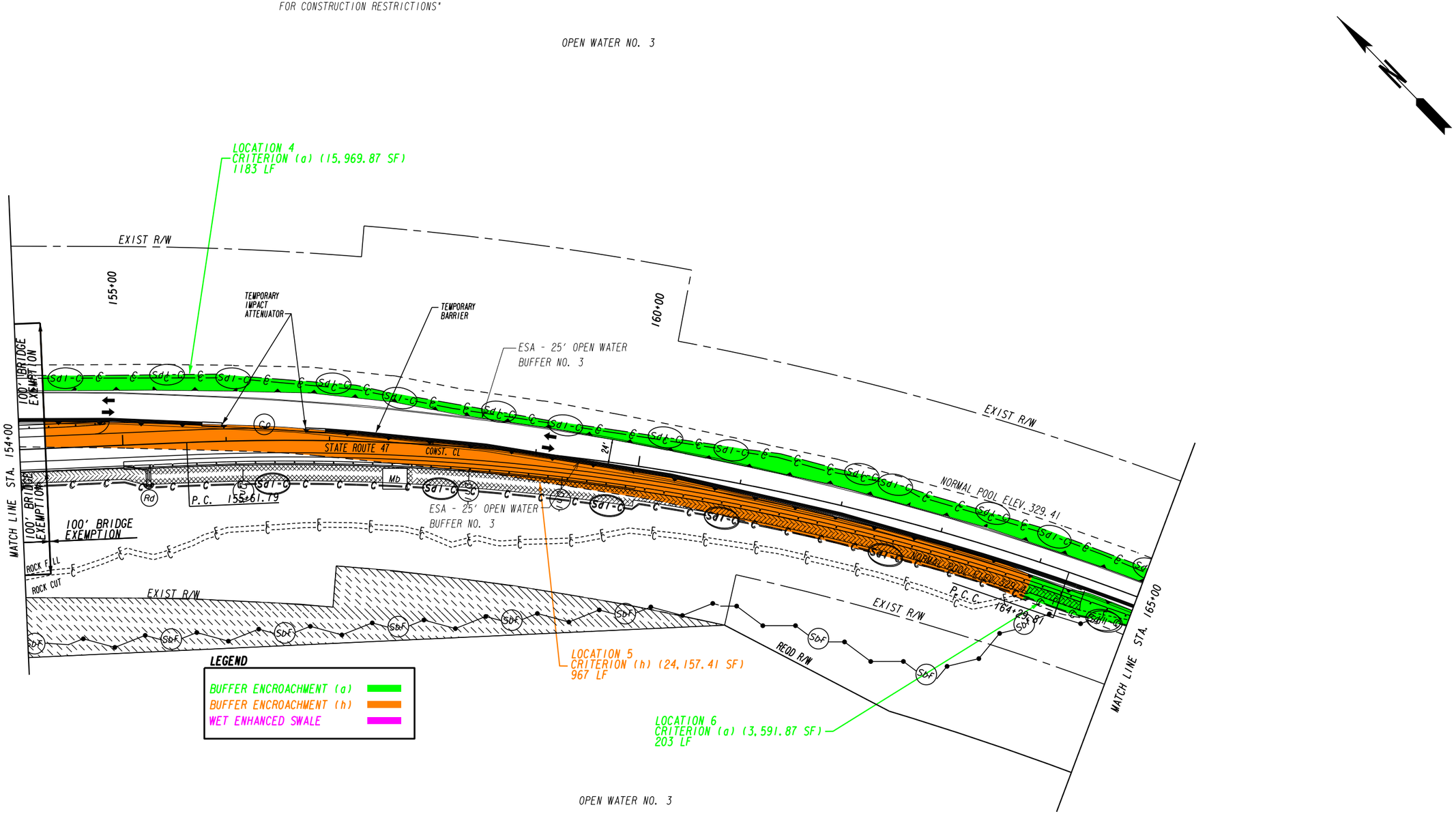
BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 141+00 TO STA. 154+00

DRAWING No. 54-010

12/14/2012 GPLN

"ESA - SEE GENERAL NOTES 'ENVIRONMENTAL RESOURCES IMPACT TABLE' FOR CONSTRUCTION RESTRICTIONS"



STAGE 1

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

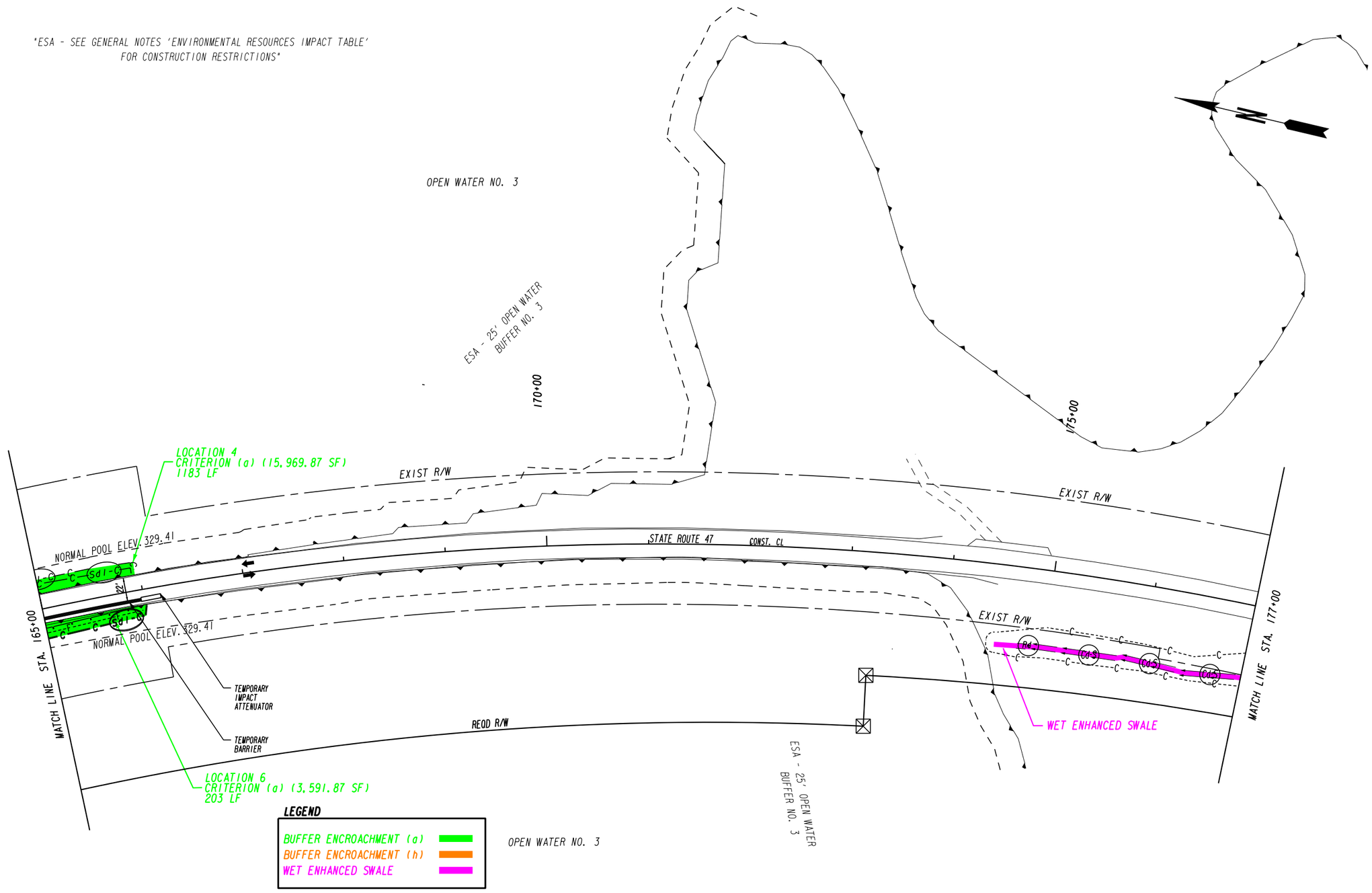
REVISION DATES		

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 154+00 TO STA. 165+00

DRAWING No. 54-011



STAGE 1

Baker

3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

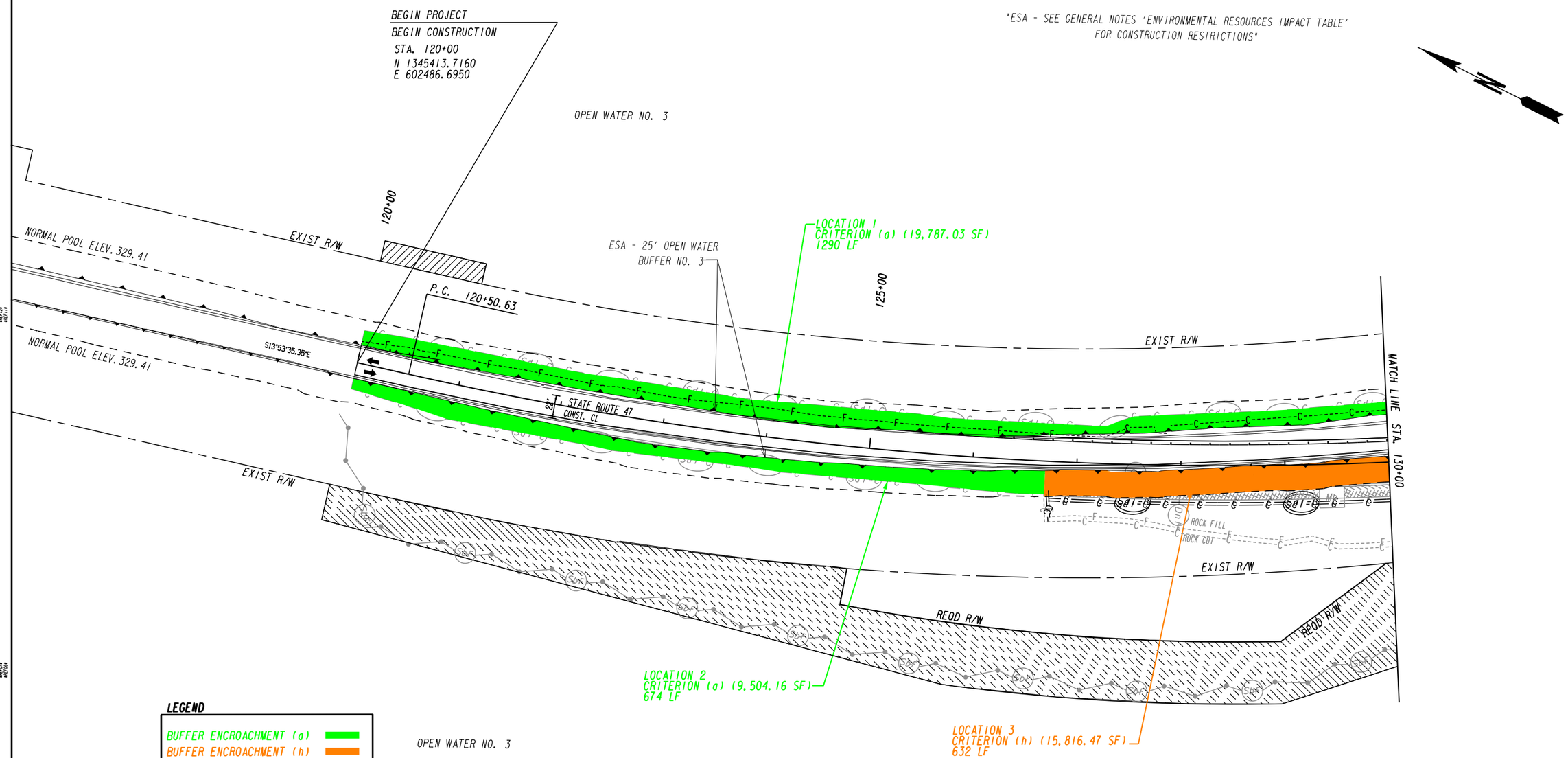
OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 165+00 TO STA. 177+00

DRAWING No. 54-012

12/14/2012 GPLN



LEGEND

- BUFFER ENCROACHMENT (a)
- BUFFER ENCROACHMENT (h)
- WET ENHANCED SWALE

STAGE 2
1. SHIFT TRAFFIC TO THE WEST SIDE OF NEWLY CONSTRUCTED PORTION OF S.R. 47.
2. CONSTRUCT EAST SIDE OF PROPOSED TIE IN LOCATIONS THROUGH LEVELING COURSE ON S.R 47 AS SHOWN ON THE PLANS.
3. CONSTRUCT PARK AREA AT APPROXIMATE STA. 180+40 LT.
4. REMOVE EXISTING BRIDGE.
5. REMOVE EXISTING ROADBED.

STAGE 2

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

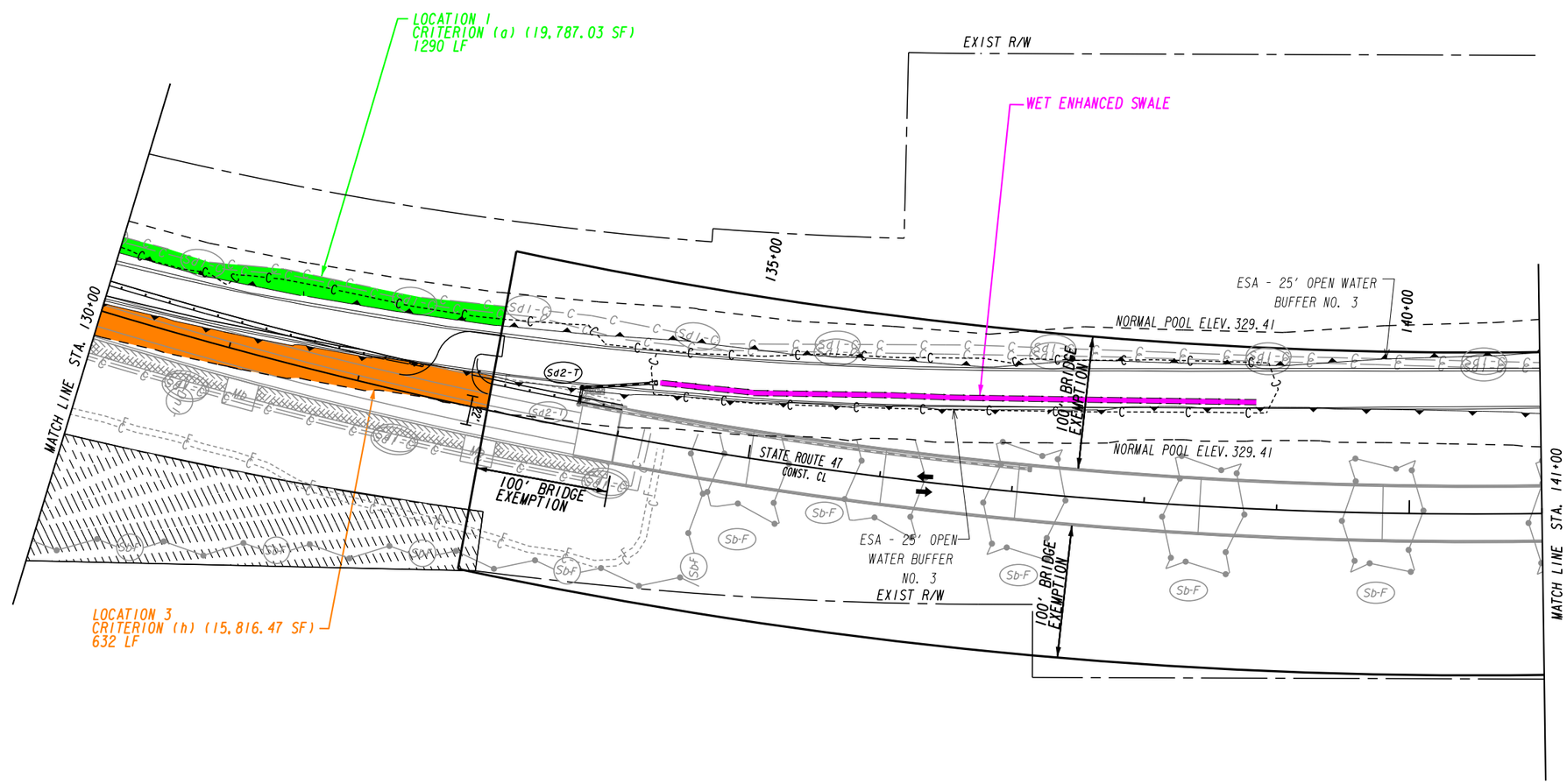
LINCOLN/COLUMBIA COUNTY
STA. 120+00 TO STA. 130+00

DRAWING No. 54-015

12/14/2012 GPLW

"ESA - SEE GENERAL NOTES 'ENVIRONMENTAL RESOURCES IMPACT TABLE' FOR CONSTRUCTION RESTRICTIONS"

OPEN WATER NO. 3



LEGEND

- BUFFER ENCROACHMENT (a)
- BUFFER ENCROACHMENT (h)
- WET ENHANCED SWALE

OPEN WATER NO. 3

STAGE 2

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

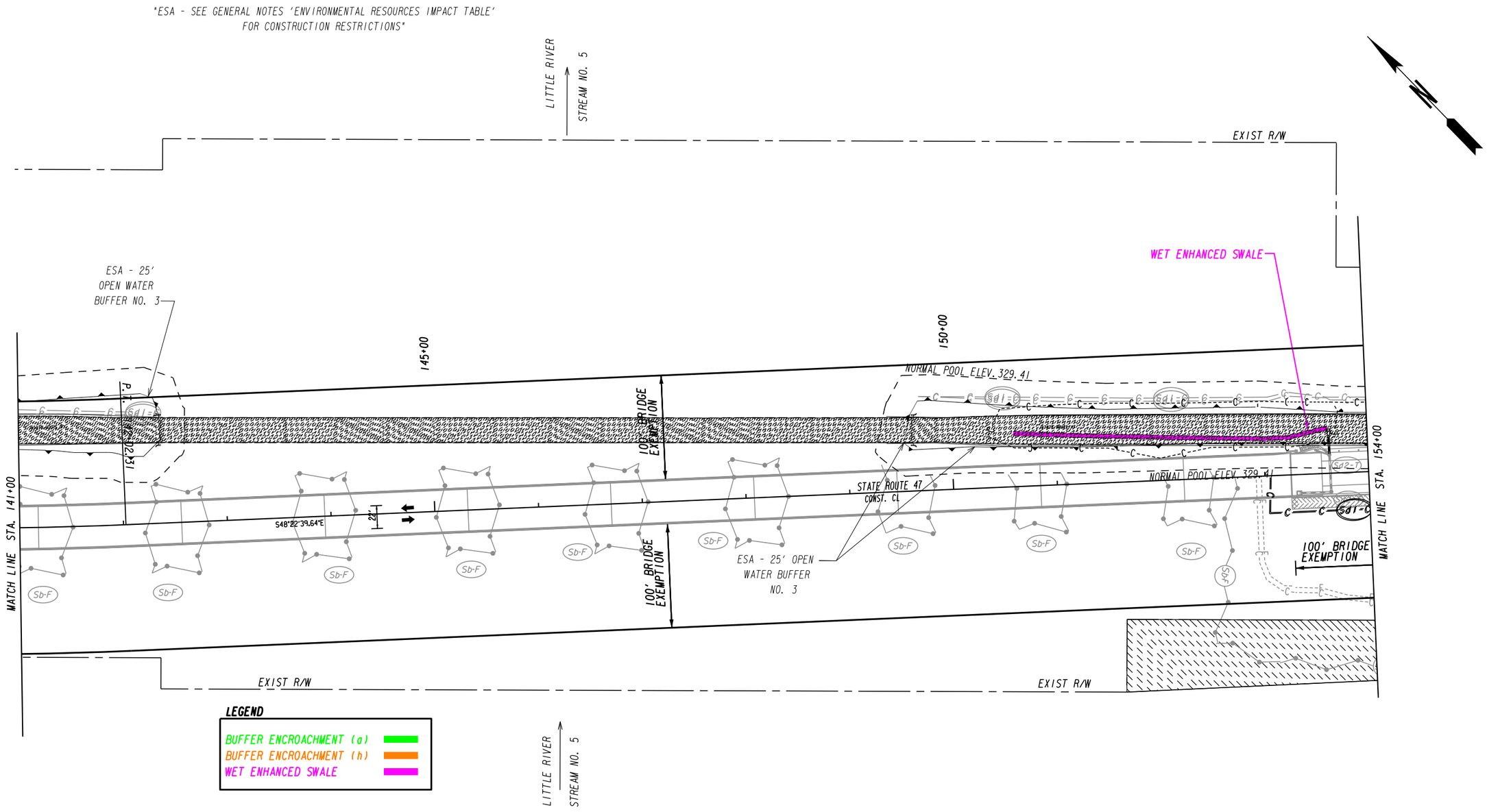
OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 130+00 TO STA. 141+00

DRAWING No. 54-016

12/14/2012 GPLN



STAGE 2

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES

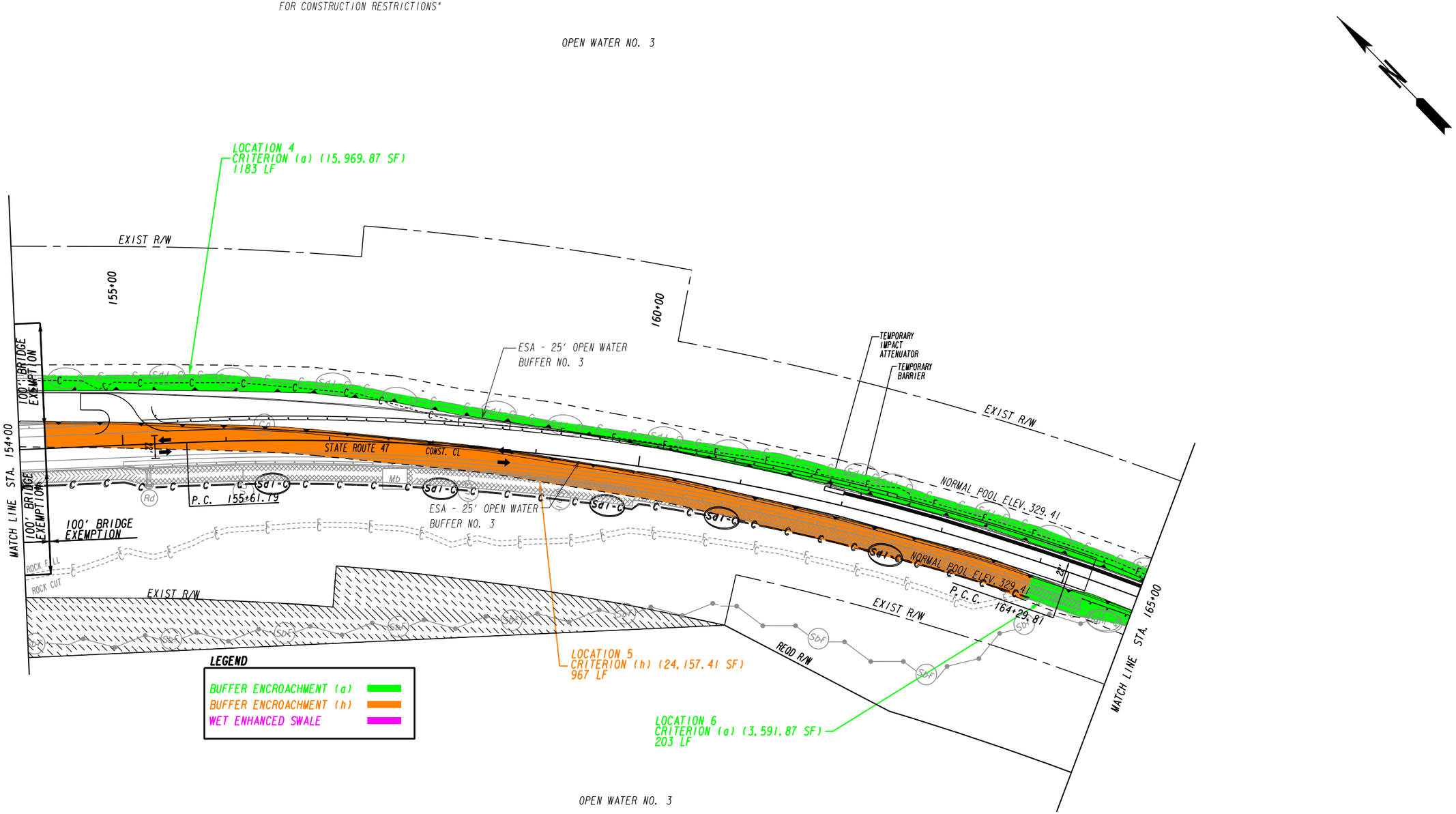
STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 141+00 TO STA. 154+00

DRAWING No. 54-017

"ESA - SEE GENERAL NOTES 'ENVIRONMENTAL RESOURCES IMPACT TABLE' FOR CONSTRUCTION RESTRICTIONS"



STAGE 2

Baker
3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

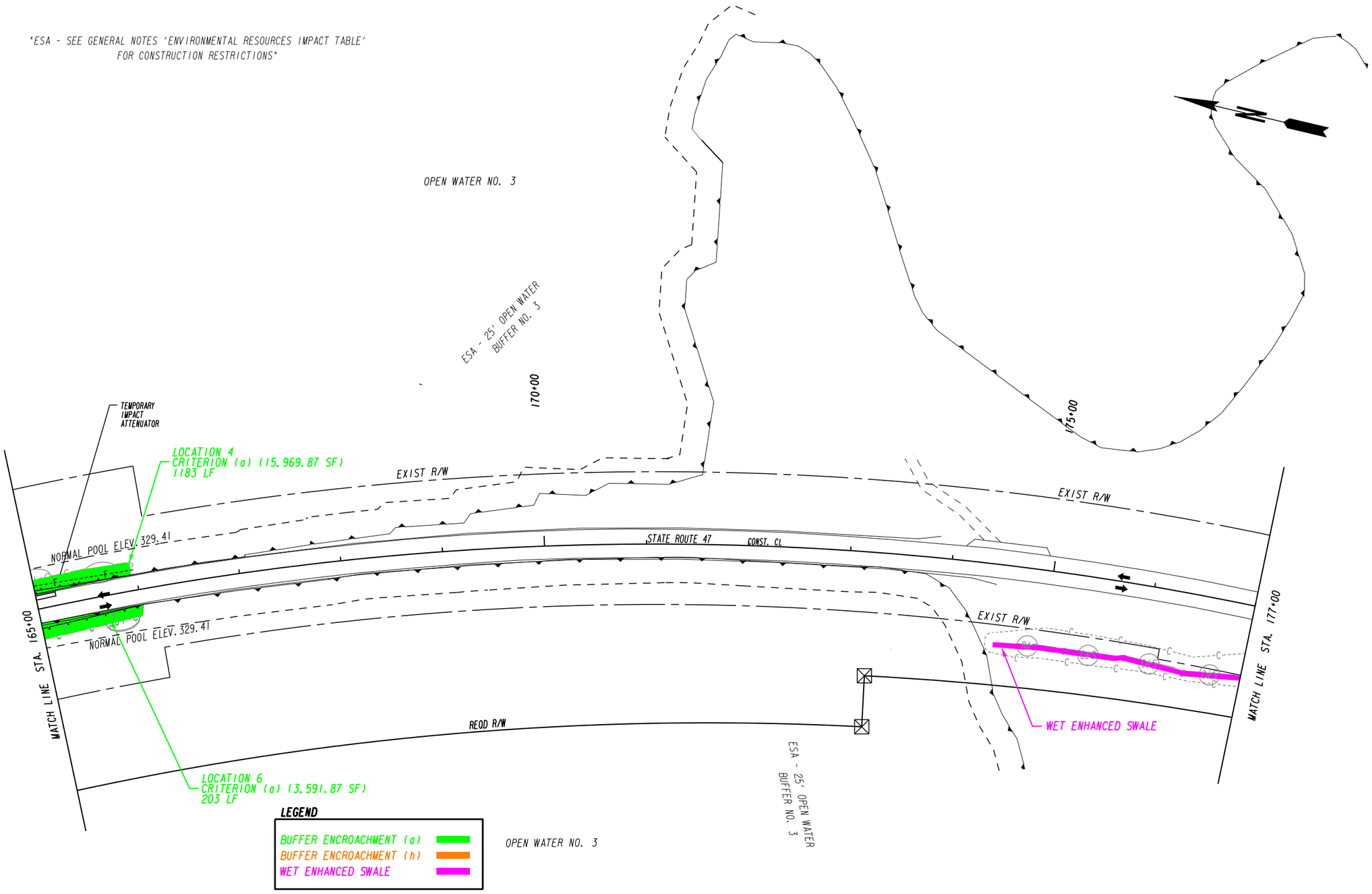
REVISION DATES		

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 154+00 TO STA. 165+00

DRAWING No. 54-018



STAGE 2

Baker

3595 ENGINEERING DRIVE
NORCROSS, GEORGIA 30092
(770) 263-9118

SCALE IN FEET
0 50 100 200

REVISION DATES		

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

OFFICE: INNOVATIVE PROGRAM DELIVERY

BMP LOCATION DETAILS

LINCOLN/COLUMBIA COUNTY
STA. 165+00 TO STA. 177+00

DRAWING No. 54-019

12/14/2012 GPLN

ATTACHMENT B
Buffer Mitigation Plan

BUFFER MITIGATION PLAN

Open Water 3, Buffer Impact Locations 1 - 6: Major impact = 4,949 LF; 88,826.81 SF. Encroachment would be due to filling to accommodate the grades of the northbound roadway, north of the river. Disturbance would occur along existing bridge approach embankments, which consist of earth and rock fill. Best Management Practices (BMPs) for erosion control would include installation and maintenance of perimeter silt fencing, sediment inlet traps, ditch checks, slope mats, riprap, construction exits, mulching, temporary and permanent grassing, temporary pipe slope drains, and enhanced swales. Sediment basins are not proposed to be utilized due to adverse impacts of constructing and removing the basin.

The proposed project includes buffer encroachments and mitigation measures to address the following functional criteria in each of the six buffer impact locations:

1. Temperature control (shading) - Encroachment would occur along the existing embankment, which is vegetated primarily with grasses and forbs that provide no temperature control (shading), and with occasional shrubs and saplings that provide minimal temperature control. In the disturbed areas, native riparian grasses would be planted as specified in GDOT Special Provision 700 – Herbaceous Plant Seeding approved for riparian mitigation. A multi-trophic re-vegetation plan is not practicable, because the areas of encroachment are located within the clear zone of the maintained Right-of-way (ROW). Post-construction buffer conditions would be the same as the existing buffer conditions, and temperature control (shading) would not be affected.
2. Streambank stabilization - Encroachment would occur along the existing embankment, which is vegetated with grasses, forbs and occasional shrubs and saplings. The existing vegetation provides moderate stabilization of the earth and rock fill embankment. In the disturbed areas, native riparian grasses would be planted as specified in GDOT Special Provision 700 – Herbaceous Plant Seeding approved for riparian mitigation. A multi-trophic re-vegetation plan is not practicable, because the areas of encroachment are located within the clear zone of the maintained ROW. Post-construction buffer conditions would be the same as the existing buffer conditions, and streambank stabilization would not be affected.
3. Trapping of Sediments, if any - Encroachment would occur along the existing embankment, which is vegetated with grasses, forbs, and occasional shrubs and saplings. The existing vegetation provides moderate trapping of sediments. In the disturbed areas, native riparian grasses would be planted as specified in GDOT Special Provision 700 – Herbaceous Plant Seeding approved for riparian mitigation. A multi-trophic re-vegetation plan is not practicable, because the areas of encroachment are located within the clear zone of the maintained ROW. Post-construction buffer conditions would be the same as the existing buffer conditions, and trapping of sediments would not be affected.
4. Removal of Nutrients, Heavy Metals, Pesticides, and Other Pollutants - Encroachment would occur along the existing embankment, which is vegetated with grasses, forbs, and occasional shrubs and saplings. The existing vegetation provides moderate removal of nutrients, heavy metals, pesticides, and other pollutants. In the disturbed areas, native riparian grasses would be planted as specified in GDOT Special Provision 700 – Herbaceous Plant Seeding approved for riparian mitigation. A multi-trophic re-vegetation plan is not practicable, because the areas of encroachment are located within the clear zone of the maintained ROW.

Post-construction buffer conditions would be the same as the existing buffer conditions, and removal of nutrients, heavy metals, pesticides, and other pollutants would not be affected.

5. Aquatic Habitat and Food Chain - Encroachment would occur within the existing embankment, which is vegetated with grasses, forbs, and occasional shrubs and saplings. The portion of the buffer between the Normal Pool Elevation (El. 329.41) and the Flood Stage (El. 335.0, or spillway elevation) provides marginal intermittent aquatic habitat during flooding events. In the disturbed areas, native riparian grasses would be planted as specified in GDOT Special Provision 700 – Herbaceous Plant Seeding approved for riparian mitigation. Post-construction buffer conditions would be the same as the existing buffer conditions, and aquatic habitat and food chain would not be affected.

6. Terrestrial Habitat, Food Chain, and Migration Corridor - Encroachment would occur along the existing embankment, which is vegetated with grasses, forbs, and occasional shrubs and saplings. The portion of the buffer between El. 329.41 and El. 335.0 provides marginal terrestrial habitat (except during flooding events) and food chain access, but is not a migration corridor. In the disturbed areas, native riparian grasses would be planted as specified in GDOT Special Provision 700 – Herbaceous Plant Seeding approved for riparian mitigation. A multi-trophic re-vegetation plan is not practicable, because the areas of encroachment are located within the clear zone of the maintained ROW. Post-construction buffer conditions would be the same as the existing buffer conditions, and terrestrial habitat would not be affected.

7. Buffering of Flood Flows - Encroachment would occur along the existing embankment, which is vegetated with grasses, forbs, and occasional shrubs and saplings. The portion of the buffer between El. 329.41 and El. 335.0 provides buffering of flood flows during flooding events. In the disturbed areas, native riparian grasses would be planted as specified in GDOT Special Provision 700 – Herbaceous Plant Seeding approved for riparian mitigation. Post-construction buffer conditions would be the same as the existing buffer conditions, and buffering of flood flows would not be affected.

ATTACHMENT C
Pre-Construction Notification

US ARMY CORPS OF ENGINEERS, SAVANNAH DISTRICT
2012 PRE-CONSTRUCTION NOTIFICATION (PCN) FORM
FOR USE OF CERTAIN NATIONWIDE PERMITS (NWP)

USE OF NWP NUMBER(s) RP 96 **Date** May 23, 2014

APPLICANT/PROPERTY OWNER GDOT, Attn: Hiral Patel, P.E., State Environmental Administrator

Phone(hm/bus) (404) 631-1447 **FAX** (404) 631-1916 **E-Mail** dchamblin@dot.gov

Address 600 W. Peachtree St., NW **City** Atlanta **State** GA **Zip Code** 30308

AGENT/CONSULTANT Mary D. Best, Ph.D., Michael Baker Jr., Inc. (Consultant)

Phone(hm/bus) (678) 966-6613 **FAX** (770) 263-9145 **E-Mail** mdbest@mbakercorp.com

Address 3595 Engineering Drive **City** Norcross **State** GA **Zip Code** 30092

PROJECT LOCATION/ADDRESS State Route 47 at Little River / Clarks Hill Lake

City (near) Augusta **County** Columbia/Lincoln **Subdivision** _____ **Lot** ____

Latitude 33.6927 N **Longitude** -82.338 W **Hydrologic Map Cataloging Unit** 03060105

Nearest Named Stream, River or Other Waterbody Little River / Clarks Hill Lake

PROJECT DESCRIPTION GDOT Project BRST0-0076-01(036) / PI 232310 is the replacement of the existing SR 47 bridge over the Little River / Clarks Hill Lake, which has a sufficiency rating of 48.7. See supplemental information for details (attached).

PROJECT AREA AND IMPACT INFORMATION

	PROJECT AREA		IMPACTS TO US WATERS	
	ACRES	LINEAR FEET	ACRES	LINEAR FEET
TOTAL PROJECT AREA	90	N/A	N/A	N/A
UPLAND	54.2	N/A	N/A	N/A
WETLAND	0.00	N/A	0.00	N/A
OPEN WATER	35.8	N/A	2.817	N/A
PERENNIAL STREAM	N/A	0.00	N/A	0.00
INTERMITTENT STREAM	N/A	0.00	N/A	0.00
EPHEMERAL STREAM	N/A	0.00	N/A	0.00
MAN-MADE DITCHES	N/A	1,200	N/A	N/A

WETLAND/STREAM IMPACT AVOIDANCE/MINIMIZATION (RC C.3)

Bridge impacts were minimized by shifting the proposed alignment further west from the existing bridge alignment to tie into the south approach embankment sooner and by using retaining walls along the bridge approaches to reduce the amount of fill placement required in O/W 3. The bridge design was also refined to reduce the number of spans and thus reduce the number piers needed in O/W 3.

WATER QUALITY MANAGEMENT PLAN STATEMENT (RC C.7) NPDES Permit Nos. GAR100002 and GAR041000 and the GESA buffer variance require water quality management plans.

FLOODPLAIN MANAGEMENT STATEMENT (RC C.8) The project would comply with any applicable FEMA approved state or local floodplain management requirements.

MAPS, DRAWINGS AND OTHER SUPPLEMENTAL INFORMATION. For the following questions include information with the PCN necessary to adequately comply with the referenced RC or explain/address the answer provided.

1. PCN submitted to the Georgia EPD? (RC A and Appendix A)		**Yes** ☒	**No** ☐
2. PCN submitted to the Georgia CRD? (RC A and Appendix A)	**Yes** ☐	**No** ☒	**N/A** ☐
3. Has Georgia EPD or the appropriate Local Issuing Authority (LIA) determined whether or not a buffer variance is required for the project? (RC A and Appendix A)		**Yes** ☒	**No** ☐
4. Are federally protected species present on the project area? (RC C.4)		**Yes** ☐	**No** ☒
5. Will EFH be impacted by the project? (RC C.5)		**Yes** ☐	**No** ☒
6. Are cultural resources located on or near the project area? (RC C.6)		**Yes** ☒	**No** ☐
7. Is the project area located in, adjacent to, or upstream and within 10 linear miles of a 303(d) listed water? (RC C.9)		**Yes** ☐	**No** ☒
8. Is the project area located in or adjacent to a trout stream? (RC C.10)		**Yes** ☐	**No** ☒
9. Is compensatory mitigation required? (RCs C.11 and F.1-9)		**Yes** ☒	**No** ☐
10. Are culverts proposed in streams and/or wetlands? (RC C.12 and E.1-8)		**Yes** ☐	**No** ☒
11. In-stream/wetland storm water management proposed? (RC C.13)		**Yes** ☐	**No** ☒
12. Will the project be phased (additional wetland/stream impacts in the future)?		**Yes** ☐	**No** ☒
13. Have authorized wetland/stream impacts occurred in the project area?		**Yes** ☐	**No** ☒
14. Have unauthorized wetland/stream impacts occurred in the project area?		**Yes** ☐	**No** ☒
15. Is the project area located within 5 miles of an airport?		**Yes** ☐	**No** ☒
16. Is the project area in a USEPA Priority Watershed? http://www.epa.gov/region4/water/watersheds/priority.html)		**Yes** ☐	**No** ☒

IMPORTANT NOTES:

1. Refer to Section "C" of the Savannah District 2012 Nationwide Permit Regional Conditions for a complete list of all information that must be submitted as an attachment to this PCN.

2. All maps and drawings that are attached to this PCN must be submitted on 8 ½ X 11-inch paper. Supplemental maps and drawings larger than 8 ½ X 11 may also be submitted for clarity.

US Army Corps of Engineers, Savannah District
Pre-Construction Notification (PCN) Form
PCN Supplemental Information for Questions 1 through 16

GDOT Project BRST0-0076-01(036), Columbia/Lincoln Counties

Project Description:

The proposed project is a replacement of the existing State Route (SR) 47 bridge over the Little River / Clarks Hill Lake, which was constructed in 1952. The bridge crossing is located in Columbia and Lincoln Counties, Georgia. The proposed project would begin approximately at Lincoln County mile post (MP) 16.25 and end approximately at Columbia County MP 0.85. The overall project length would be approximately 1.35 miles. The proposed project corridor is located on the Leah, U.S. Geological Survey (USGS) topographic map. The proposed project begins at 33.3985˚ N and -82.3431˚ W and ends at 33.6808˚ N and -82.3345˚ W, with the project midpoint located at 33.6927˚ N and -82.3385˚ W. The proposed project is located in Hydrologic Unit Code (HUC) 03060105 – Little Watershed, within the Savannah River Basin.

The existing bridge was constructed in 1952 and is approximately 724 feet long and 29.5 feet wide (total deck width). The vertical clearance of the existing bridge is approximately 14.5 feet above the Normal Pool Elevation of the lake (Elevation 329.41). The existing bridge carries one 12-foot travel lane in each direction, with 6-foot outside shoulders and no median. The functional classification of the roadway is Rural Minor Arterial. Existing right-of-way throughout the project corridor varies from 130 to 500 feet.

The proposed replacement bridge would be approximately 1,925 feet long and 43.25 feet wide (total deck width) and would be constructed to the west of the existing bridge. The new structure would consist of one 12-foot travel lane in each direction, with 8-foot outside shoulders and no median. The elevation of the replacement bridge would be raised by 15.5 feet in order to provide a 30-foot vertical clearance between the substructure of the new bridge and the Normal Pool Elevation of Clarks Hill Lake. The replacement bridge would have a required minimum horizontal clearance of 90 feet between the bridge piers. The roadway approaches would be reconstructed to accommodate the new bridge alignment and elevation, to maintain one 12-foot travel lane in each direction and 6-foot shoulders (4 feet paved). The proposed right-of-way varies from 130 to 500 feet.

The original bridge design was refined in order to minimize the impacts to Open Water 3 (O/W 3): the bridge was re-aligned across the river to tie into the south approach embankment sooner than with the original design, and retaining walls were incorporated at three locations along the approach embankments; these measures reduced the amount of fill placement required along the approach embankments. The structural design also was refined, which decreased the number of bridge piers needed from 16 to 14, further reducing the amount of fill in O/W 3. In total, the design refinements reduced the total impacts to O/W 3 by 0.663 acres, from 3.48 acres of permanent impacts (no temporary impacts) with the previous design to 2.817 acres (2.803 acres of permanent impacts and 0.014 acre of temporary impacts) with the current design.

There are no city, county, or state requirements for a water quality management plan other than those associated with the Clean Water Act (CWA) Sections 401 and 402 and the Georgia Erosion and Sedimentation Act. The requirements under those laws are addressed in the PCN, the Notice of Intent for use of the State's National Pollutant Discharge Elimination System (NPDES) General Permit No. GAR100002 (Construction Stormwater Discharges), the Notice of Intent for use of the State's NPDES General Permit No. GAR041000 (Municipal Separate Storm Sewer System), and the Application for a 25-foot Vegetated Buffer Encroachment.

Clarks Hill Lake (officially known as Lake Strom Thurmond) encompasses approximately 111 square miles of surface area upstream of the Thurmond Dam. As shown in **Attachment 3, Figure 5**, the north (Lincoln County) side of the project area is shown as "Zone A – No Base Flood Elevations Determined" on the current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (Map ID No. 13181C0250A), and a portion of the south (Columbia County) side is mapped as "Zone X – Areas determined to be outside the 0.2 percent annual chance floodplain" (Map ID No. 13073C0040D). The FEMA map for the remaining portions of the Columbia County side of the project area (Map ID No. 13073C0050D) is listed by the agency as "Panel Not Printed" (i.e., unavailable). As noted in the 2010 GDOT Hydraulic and Hydrological Report, "… A detailed study with regulatory floodways has not been done for this reach of Little River. Therefore, coordination with FEMA or Lincoln County will not be required." The proposed project has been designed to minimize any filling in the lake, and it is not anticipated to result in any measurable impacts to the floodplain.

3. Has Georgia EPD or the appropriate Local Issuing Authority (LIA) determined whether or not a buffer variance is required for this project? (RC A and Appendix A)

Georgia EPD issued a State Waters Determination dated November 16, 2011, based on a site visit that was conducted on November 9, 2011 (see **Attachment 4, Ecology Addendum #3**). A buffer variance would not be required for the two resources named in the letter ("Ephemeral 1" and "Ephemeral 2," which were later re-named "Ditch 1" and "Ditch 2"). However, Clarks Hill Lake, which is subject to a 25-foot vegetated buffer, was not mentioned in the November 16, 2011 letter. In accordance with Georgia EPD requirements, a copy of the Pre-Construction Notification package, including the Request for Expanded Preliminary Jurisdictional Determination, will be transmitted to the Georgia EPD.

4. Are federally protected species present on the project area? (RC C.4) (NO)

Based on the agency coordination and ecological investigations conducted in 2006, 2008, 2013, and 2014, project implementation would have no effect on the following federally protected species potentially occurring on the project study corridor: pool sprite (*Amphianthus pusillus*), mat-forming quillwort (*Isoetes tegetiformans*), Michaux's sumac (*Rhus michauxii*), and relict trillium (*Trillium reliquum*). The Ecology Addendum of June 2013 reported that project implementation would have no significant adverse effect on Georgia aster (*Symphyotrichum georgianum*), a federal candidate species. There were no changes to the "no-effect" biological determinations issued for pool sprite, mat-forming quillwort, Michaux's sumac, or relict trillium, or to the "no significant adverse effect" determination issued for Georgia aster, between the June 2013 Ecology Addendum and Ecology Addendum #3 (see **Attachment 4**). No additional coordination with the Federal Highway Administration (FHWA) is required for the four federally protected species or the federal candidate species.

Subsequent to the approval of the June 2013 Ecology Addendum, the Georgia Department of Natural Resources – Wildlife Resources Division (GDNR-WRD) listed the red-cockaded woodpecker as potentially occurring in Columbia County. Ecology Addendum #3 reports that due to a lack of suitable habitat for this species within the study area, it is anticipated that project implementation would have no effect on the continued existence of the red-cockaded woodpecker. Concurrence on the biological effect determination for the red-cockaded woodpecker is required from the FHWA.

The June 2013 Ecology Addendum also reported that project implementation would have no effect on critical habitat or Essential Fish Habitat. These determinations have not changed since that report was approved. In addition, the June 2013 Ecology Addendum reported that project implementation is not likely to result in a "take" of a bald eagle (*Haliaeetus leucocephalus*), and that project implementation is not likely to result in adverse impacts to migratory bird habitat. These determinations have not changed

since that report was approved. Special Provision 107.23G for the protection of bald eagles, ospreys (*Pandion haliaetus*), eastern phoebes (*Sayornis phoebe*), barn swallows (*Hirundo rustica*), and cliff swallows (*Petrochelidon pyrrhonota*) would be included as part of the construction contract and would be adhered to throughout the duration of construction and demolition activities.

6. Are cultural resources located on or near the project area? (RC C.6) (YES)

No archaeological resources were identified and one historic property was identified within the proposed project's Area of Potential effect (APE): the SR 47 bridge over the Little River (the Price-Legg Bridge, GDOT Bridge 117-0010-0). This resource was recommended eligible for inclusion in the NRHP in the updated Georgia Historic Bridge Survey and in the Historic Resources Survey Report that was submitted to the SHPO and FHWA in October 2008. The eligible NRHP boundary of the resource corresponds to the bridge footprint. Project implementation would result in the physical destruction of the SR 47 bridge, resulting in a finding of **adverse effect** (see attached SHPO concurrence letter dated April 29, 2010). In a letter dated March 14, 2011, the SHPO confirmed that GDOT's Permanent Archival Record documentation package for the bridge was accepted by the SHPO and that mitigation is considered complete (see attached letter).

9. Is compensatory mitigation required? (RC C.11 and RCs F.1 - 9) (YES)

A total of 17.2 wetland mitigation credits would be required to offset the 2.803 acres of permanent impacts and 0.014 acre of temporary impacts to O/W 3 associated with the bridge pier footings and cofferdams, and with the fill adjacent to the bridge approaches (see **Appendix F of Attachment 4, Ecology Addendum #3**, for the Wetlands and Open Waters Mitigation Worksheet).

WETLANDS AND OPEN WATERS
MITIGATION WORKSHEETS
Columbia & Lincoln Counties P.I. 232310
Bridge Replacement on SR 47 Bridge over the Little River/Clarks Hill Lake

ADVERSE IMPACT FACTORS

Factor	Options						
Dominant Effect	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	O/W 3 (permanent)	O/W 3 (temporary)				
Dominant Effect	2.0	1.4				
Duration of Effect	2.0	0.5				
Existing Condition	1.0	1.0				
Lost Kind	0.5	0.5				
Preventability	0.5	0.5				
Rarity Ranking	0.1	0.1				
Sum of r Factors	R_1 = 6.1	R_2 = 4.0	R_3 =	R_4 =	R_5 =	R_6 =
Impacted Area	AA_1 = 2.803	AA_2 = 0.014	AA_3 =	AA_4 =	AA_5 =	AA_6 =
R × AA =	17.10	0.056				

Total Required Credits = ∑ (R × AA) = 17.2

ATTACHMENT D

Preliminary Hydrologic Calculations

HYDROLOGIC CALCULATIONS | **134+21 LT. TO STA. 138+81 LT.**

Basin Area =	1.15	acres	
Impervious Area =	1.15	acres	
Percent Impervious =	100.0	%	
Q25 =	6.8	cfs	*use Flow Master*
V25 =	7.3	fps	*use Flow Master*

3.2.6.9 Design Forms

ENHANCED SWALE

Design Procedure Form: Enhanced Swales

PRELIMINARY HYDROLOGIC CALCULATIONS				
1	Compute WQv volume requirements			
	Compute Runoff Coefficient, Rv	Rv =	0.950	
	Compute WQv @ 1.2"	WQv =	4,759	ft^3
ENHANCED SWALE DESIGN				
2	Is the use of an enhanced swale appropriate		Yes	
3	Confirm local design criteria and applicability		Yes	
4	Pretreatment Volume	VOLpre Required =	417	ft^3
	VOLpre = I (0.1")(1'/12")	VOLpre Provided =	0	ft^3
5	Determine swale dimensions	Length =	460	ft
		Bottom Width =	4.0	ft
		Avg Ponding Depth =	1.5	ft
		Side Slopes =	2.0	:1
		Volume Required =	4,759	ft^3
		Volume Provided =	4,830	ft^3
		Swale adequately sized:	**Yes**	
6	Compute number of check dams (or similar structures)	Slope =	0.3	%
	required to detain WQv	Depth =	2	ft
		Distance =	666.6667	ft
		Number =	1	each
7	Calculate draw-down time	t =	24	hr
	Require k = 1.5 ft/day for dry swales			
8	Check 25-year velocity erosion potential and freeboard	Vmin =	7.3	fps
	Requires separate computer analysis for velocity			
	~~Overflow weir (use weir equation)~~	~~Head =~~	~~0.1~~	~~ft~~
	~~Use weir equeation for slot length (Q25 = CLH^1.5)~~	~~Weir Length =~~	~~69.4~~	~~ft~~
~~9~~	~~Design low flow orifice at headwall~~			
	~~Area of orifice from orifice equation~~	~~Area =~~	~~0.037~~	~~ft^2~~
	~~Q = CA(2gh)^0.5~~	~~Diameter =~~	~~2.6~~	~~inch~~
		~~Use Diamter =~~	~~3.0~~	~~inch~~
10	Design inlets, sediment forebays, outlet structures		See civil plans	
	maintenance access, and safety feature			
11	Attach landscaping plan (incl. wetland vegetation)		See Dwg 38-001	

HYDROLOGIC CALCULATIONS | **153+63 LT. TO STA. 150+53 LT.**

Basin Area =	0.77	acres	
Impervious Area =	0.77	acres	
Percent Impervious =	100.0	%	
Q25 =	4.2	cfs	*use Flow Master*
V25 =	8.3	fps	*use Flow Master*

3.2.6.9 Design Forms

ENHANCED SWALE

Design Procedure Form: Enhanced Swales

PRELIMINARY HYDROLOGIC CALCULATIONS

1	Compute WQv volume requirements			
	Compute Runoff Coefficient, Rv	Rv =	0.950	
	Compute WQv @ 1.2"	WQv =	3,186	ft^3

ENHANCED SWALE DESIGN

2	Is the use of an enhanced swale appropriate		Yes	
3	Confirm local design criteria and applicability		Yes	
4	Pretreatment Volume	VOLpre Required =	280	ft^3
	VOLpre = I (0.1")(1'/12")	VOLpre Provided =	0	ft^3
5	Determine swale dimensions	Length =	310	ft
		Bottom Width =	4.0	ft
		Avg Ponding Depth =	1.5	ft
		Side Slopes =	2.0	:1
		Volume Required =	3,186	ft^3
		Volume Provided =	3,255	ft^3
		Swale adequately sized:	**Yes**	
6	Compute number of check dams (or similar structures)	Slope =	0.3	%
	required to detain WQv	Depth =	2	ft
		Distance =	666.6667	ft
		Number =	0	each
7	Calculate draw-down time	t =	24	hr
	Require k = 1.5 ft/day for dry swales			
8	Check 25-year velocity erosion potential and freeboard	Vmin =	8.3	fps
	Requires separate computer analysis for velocity			
	~~Overflow weir (use weir equation)~~	~~Head =~~	~~0.1~~	~~ft~~
	~~Use weir equeation for slot length (Q25 = CLH^1.5)~~	~~Weir Length =~~	~~42.8~~	~~ft~~
~~9~~	~~Design low flow orifice at headwall~~			
	~~Area of orifice from orifice equation~~	~~Area =~~	~~0.025~~	~~ft^2~~
	~~Q = CA(2gh)^0.5~~	~~Diameter =~~	~~2.1~~	~~inch~~
		~~Use Diamter =~~	~~3.0~~	~~inch~~
10	Design inlets, sediment forebays, outlet structures		See civil plans	
	maintenance access, and safety feature			
11	Attach landscaping plan (incl. wetland vegetation)		See Dwg. 38-001	

HYDROLOGIC CALCULATIONS | **174+50 RT. TO STA. 177+20 RT.**

Basin Area =	2.31	acres	
Impervious Area =	0.69	acres	
Percent Impervious =	30.0	%	
Q25 =	10.0	cfs	*use Flow Master*
V25 =	3.7	fps	*use Flow Master*

3.2.6.9 Design Forms

ENHANCED SWALE

Design Procedure Form: Enhanced Swales

PRELIMINARY HYDROLOGIC CALCULATIONS				
1	Compute WQv volume requirements			
	Compute Runoff Coefficient, Rv	Rv =	0.320	
	Compute WQv @ 1.2"	WQv =	3,212	ft^3
ENHANCED SWALE DESIGN				
2	Is the use of an enhanced swale appropriate		Yes	
3	Confirm local design criteria and applicability		Yes	
4	Pretreatment Volume	VOLpre Required =	251	ft^3
	VOLpre = I (0.1")(1'/12")	VOLpre Provided =	0	ft^3
5	Determine swale dimensions	Length =	270	ft
		Bottom Width =	5.0	ft
		Avg Ponding Depth =	1.5	ft
		Side Slopes =	2.0	:1
		Volume Required =	3,212	ft^3
		Volume Provided =	3,240	ft^3
		Swale adequately sized:	**Yes**	
6	Compute number of check dams (or similar structures)	Slope =	0.8	%
	required to detain WQv	Depth =	2	ft
		Distance =	250	ft
		Number =	2	each
7	Calculate draw-down time	t =	24	hr
	Require k = 1.5 ft/day for dry swales			
8	Check 25-year velocity erosion potential and freeboard	Vmin =	3.7	fps
	Requires separate computer analysis for velocity			
	~~Overflow weir (use weir equation)~~	~~Head =~~	~~0.1~~	~~ft~~
	~~Use weir equeation for slot length (Q25 = CLH^1.5)~~	~~Weir Length =~~	~~102.0~~	~~ft~~
~~9~~	~~Design low flow orifice at headwall~~			
	~~Area of orifice from orifice equation~~	~~Area =~~	~~0.025~~	~~ft^2~~
	~~Q = CA(2gh)^0.5~~	~~Diameter =~~	~~2.2~~	~~inch~~
		~~Use Diamter =~~	~~3.0~~	~~inch~~
10	Design inlets, sediment forebays, outlet structures		See civil plans	
	maintenance access, and safety feature			
11	Attach landscaping plan (incl. wetland vegetation)		See Dwg. 38-001	