

**FLOODPLAINS AND WETLANDS STATEMENT OF FINDINGS IN  
COMPLIANCE WITH**

**Executive Order 11988 (Floodplain Management)**

**And**

**Executive Order 11990 (Protection of Wetlands)**

**For**

**Georgia Department of Transportation Project  
SR 120/Abbotts Bridge Road Improvements from SR 141/Medlock Bridge Road  
to Peachtree Industrial Boulevard  
within the  
Abbotts Bridge Unit of the Chattahoochee River National Recreation Area  
Fulton and Gwinnett Counties, Georgia**

Recommended:

\_\_\_\_\_  
Superintendent, Chattahoochee River National Recreation Area

\_\_\_\_\_  
Date

Certified for Technical Accuracy and Servicewide Consistency:

\_\_\_\_\_  
Acting Chief, Water Resources Division

\_\_\_\_\_  
Date

Approved:

\_\_\_\_\_  
Regional Director, Interior Region 2

\_\_\_\_\_  
Date

# INTRODUCTION

Executive Order 11988 ("Floodplain Management") and Executive Order 11990 ("Protection of Wetlands") require the National Park Service (NPS) and other agencies to evaluate the likely impacts of actions in floodplains and wetlands. It is NPS policy to preserve floodplain and wetland values and minimize potentially hazardous conditions associated with flooding, including threats to human health and safety and risk to NPS capital investment. The proposed Georgia Department of Transportation (GDOT) project, State Route (SR) 120/Abbotts Bridge Road from Peachtree Industrial Boulevard (PIB) to SR 141/Medlock Bridge Road, requires right-of-way and land disturbing activity within the boundaries of the NPS's Abbotts Bridge Unit of the Chattahoochee River National Recreation Area, including wetlands and the floodplain of the Chattahoochee River. Therefore, according to NPS policy a formal Statement of Findings (SOF) must be prepared. The NPS *Procedural Manual #77-2, Floodplain Management* and *#77-1, Wetland Protection* provides direction for the preparation of a floodplain and wetland SOF. This SOF has been prepared to comply with EO 11988 and EO 11990, and with Procedural Manual #77-2 and #77-1.

## PROPOSED ACTION

### Project Description

The proposed GDOT Project P.I. Nos. 721000- and 0021239, located in Fulton and Gwinnett Counties, proposes to widen SR 120/Abbotts Bridge Road from SR 141/Medlock Bridge Road to PIB from two through lanes to four through lanes (see Attachment 1, Figure 1: Project Vicinity Map and Figure 2: Project Overview Map). The existing bridge would be widened/reconstructed across the Chattahoochee River.

The scope of this SOF is limited to project activities occurring within the boundaries of the NPS Abbotts Bridge Unit of the Chattahoochee River National Recreation Area (CRNRA). Within NPS lands, relevant project elements include roadway widening along the existing alignment, grading and fill within the adjacent floodplain of the Chattahoochee River, installation of bank stabilization (riprap), use of short-term rock jetties, and modification of drainage features. These drainage modifications include the relocation and piping of Intermittent Stream 06 to accommodate the roadway widening. Impacts to wetlands within NPS lands include clearing and grubbing of Wetland 06A associated with construction access. These activities would result in permanent impacts to 86 linear feet (0.004 acre) of Intermittent Stream 06, 194 linear feet (0.164 acre) of the Chattahoochee River (Perennial Stream 08), as well as short-term impacts to 190 linear feet (0.43 acre) of the Chattahoochee River (Perennial Stream 08).

The existing bridge over the Chattahoochee River is 304.5 feet long and 34 feet wide. The proposed bridge would be 324 feet long and 107 feet wide. The existing bridge over the Chattahoochee River has 3 bents over the river, supported by 2 piers each, for a total of 6 footings in the river. The new bridge would have 2 bents over the river supported by 5 piers each for a total of 10 footings in the river. Bridge replacement would occur at the existing crossing of the river. The bridge is owned and maintained by GDOT and is not an NPS-owned asset; however, construction activities, including in-water work and bank armoring, occur within the Chattahoochee River (Perennial Stream 08), which is classified as a wetland and occurs within NPS jurisdiction.



Floodplain impacts within NPS jurisdiction occur where the existing roadway and bridge approaches intersect the 100-Year floodplain. These impacts are limited to areas immediately adjacent to the existing alignment. The project has been designed to minimize fill within the floodplain and maintain hydraulic performance, including achieving a no-rise condition in regulatory flood elevations.

The original project programmed P.I. No. 721000-, the widening of SR 120/Abbotts Bridge Road from SR 141/Medlock Bridge Road to PIB from two to four lanes, is being split into two segments. The revised limits for P.I. No. 721000- will be SR 120/Abbotts Bridge Road from Johns Creek Commons to south of Boles Road for an approximate length of 1.72 miles. The limits for the new project, P.I. No. 0021239, will be SR 120/Abbotts Bridge Road from south of Boles Road to River Mill Drive, southeast of PIB, for an approximate length of 1.27 miles. This segment will include the improvements and widening of the bridge along SR 120/Abbotts Bridge Road over the Chattahoochee River. Splitting the project will allow P.I. No. 721000- to be constructed first while avoiding impacts to NPS property and wetlands. The P.I. No. 721000- phase is programmed to begin construction in 2026 while the P.I. No. 0021239 phase is programmed to begin right-of-way negotiations with NPS in 2026 for parcels 51, 54, 57, and 58, and begin construction in 2028. Additional project details are provided in the roadway plans (Attachment 2) and right-of-way plans (Attachment 3).

## **Statement of Need**

There is a need to address capacity and operational deficiencies along the SR 120/Abbotts Bridge Road corridor from PIB to SR 141/Medlock Bridge Road, where Level of Service (LOS) is anticipated to be “level F” in the future no-build conditions (2042), while accommodating up to 34,750 vehicles per day. A LOS of F is defined as “volume exceeds capacity, lengthy delays occur.” This section of the SR 120/Abbotts Bridge Road corridor should be considered for capacity improvements to address the anticipated capacity deficiency of LOS F, as well as to address the need to reduce the frequency of crashes along this segment. For the most part, the crash rate for the project corridor is below the statewide average for similar facilities during the same time period. However, the majority of crashes are rear-end collisions, which are common in areas with traffic congestion. These types of crashes can often be attributed to the lack of left and right turn lanes, where turning vehicles must slow down and wait in the travel lane for an opportunity to turn. The addition of raised medians and turning lanes can help reduce the opportunity for rear-end collisions by removing turning vehicles from the through travel lanes. Additional capacity can also help reduce rear-end collisions by decreasing the lengths of queues in terms of time and size. There is also a need for improved pedestrian and bicycle access and connectivity throughout the corridor, as well as for shoulder width on the bridge over the Chattahoochee River. Both the city of Johns Creek and Gwinnett County have multi-use paths and/or bike lanes planned along the SR 120/Abbotts Bridge corridor.

## **Site Description**

The CRNRA was established by Congress on August 15, 1978. The CRNRA consists of the Chattahoochee River and adjacent land beginning at Buford Dam and ending at Peachtree Creek. It functions as a natural resource-based park facility, and encompasses approximately 5,500 acres divided into 16 separate, non-contiguous land units. The unit affected by the proposed project is the Abbotts Bridge Unit. Abbotts Bridge Unit abuts SR 120/Abbotts Bridge Road along the northeast, southeast, and southwest sides of the Chattahoochee River. This unit includes a walking trail, fishing access, restrooms, picnic tables, parking facilities, and a boat launching area for motorized boats, canoes, kayaks, and rafts. There are 3 NPS

parcels that occur on the project corridor. The 3 parcels occur approximately 1.4 miles from the begin point of the project on the eastern and western side of SR 120/Abbotts Bridge Road to the north and south of the Chattahoochee River.

The construction of the proposed project would require a total of approximately 0.7 acres of permanent easement and 0.1 acre of temporary easement on NPS CRNRA property.

## **FLOODPLAINS AND WETLANDS**

### **Floodplains**

General values and benefits of the floodplain of the Chattahoochee River include flood mitigation, groundwater recharge, wildlife habitat, nutrient cycling, and water storage. The floodplain acts as a natural filter, removing excess nutrients like nitrogen and phosphorus from the water to reduce the risk of harmful algal blooms downstream and maintaining water quality for human, agricultural, and industrial use. As floodwaters spread across the floodplain, the slower-moving water allows sediments to settle out, which improves water clarity and reduces sediment loads downstream. The floodplain enhances groundwater recharge, which is essential for maintaining water supply, especially during dry periods. The floodplain provides breeding, spawning, and feeding grounds for fish, birds, amphibians, and other wildlife. Vegetation in the floodplain provides bank stabilization to reduce erosion in addition to wildlife habitat.

The Chattahoochee River is one of America's oldest and most stable rivers (NPS 2022). The river is largely controlled by bedrock vertically and laterally constrained to the Brevard Zone Fault. Lateral migration is limited in part due to the resistivity of the adjacent bedrock in the Brevard Zone and in modern times from the alteration of the natural hydrograph and reduction in peak flows from Buford Dam. As the Chattahoochee River has incised from both natural and anthropogenic processes, its access to a floodplain is somewhat limited, with a regulatory flood elevation of 899.6 feet just upstream of the SR 120/Abbotts Bridge Road crossing (see *Determination of Action Class and Regulatory Floodplain*, below, for detailed Regulatory Floodplain discussion). Natural sand levees deposited during the pre-Buford Dam further limit the frequency and duration of inundation having been deposited at significantly higher peak flow. This process and relic geomorphic features are found throughout the Chattahoochee River and are not limited to the project site. Given the relative infrequency of activation this floodplain exhibits low levels of ecologic function and biogeochemical processes relative to other floodplain features that are inundated at or near the ordinary high-water mark.

The proposed roadway is being raised above the profile of the existing roadway profile to meet GDOT's hydraulic clearance requirements and the proposed bridge section allows the 100-Year storm to pass beneath the structure without over-topping it. The facility is designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60). A Hydraulic and Hydrological Study for this site was completed in 2017 by Calyx (currently NV5 Company) to receive a "no-rise" certification by the floodplain administrator (Attachment 6).

In the Hydraulic and Hydrological Study prepared for the project, David Bocker, P.E., registered in Georgia, certified on January 4, 2017 that the proposed construction of the bridge replacement over the Chattahoochee River will not create any increase to the 100-Year Regulatory flood elevations, Regulatory floodway elevations, and Regulatory floodway widths

within acceptable tolerances on the Chattahoochee River at the published sections in the Current Flood Insurance Study for Fulton County and Gwinnett County, Georgia, and will not create any increase in the Regulatory 100-Year flood and floodway elevations and floodway widths within acceptable tolerances at unpublished cross-sections in the vicinity of the project outside the GDOT Right of Way. Floodplains within the proposed project area are depicted on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) for both Fulton and Gwinnett Counties. The Fulton County side of the project is depicted on FIRM panel 13121C0093G (effective date September 18, 2013). The Gwinnett County side of the project is depicted on FIRM panel 13135C0040H (effective date March 4, 2013). The effective regulatory 100-year floodplain within the proposed project area is depicted on Attachment 1, Figure 4: Floodplain Impact Map. Because the project achieved a no-rise condition, no revised floodplain boundary was developed as part of the Hydraulic and Hydrological Study. Floodplain impacts within CRNRA Parcels 51, 54, 57, and 58 are limited to roadway widening, localized grading and fill, bank stabilization, and associated construction activities adjacent to the existing roadway and bridge crossing.

The pre-existing road alignment for SR 120/Abbotts Bridge Road transverses the Chattahoochee River floodplain. The fill required for the project has been minimized to the extent possible while still allowing for an engineering design that meets currently required engineering standards. In order to accomplish the objectives established for this project to widen and improve the existing roadway, actions must occur in the adjacent floodplain. The project corridor would be closed and traffic redirected as needed in the event of flooding.

## **Determination of Action Class and Regulatory Floodplain**

Following PM 77-2, an evaluation of the three action classes was conducted for its application to the SR 120/Abbotts Road Bridge replacement project. The three possible action classes are:

1. Class I Actions (i.e., non-critical actions), which include location or construction of administrative, residential, warehouse, and maintenance buildings; non-excepted parking lots; or other man-made features, which by their nature entice or require individuals to occupy the site, are prone to flood damage, or result in impacts to natural floodplain values.
2. Class II Actions (i.e., critical actions), which include any activity for which even a slight chance of flooding is too great, such as construction of schools, medical facilities, emergency services, hazardous material storage, and records/collections storage.
3. Class III Actions, which include any action that involves human occupation or substantial human exposure to high hazard areas, such as drainages subject to flash flooding.

This project meets the definition of a Class I Action. The proposed SR 120/Abbotts Road bridge replacement project is a public transportation improvement project involving a man-made feature that results in impacts to natural floodplain values.

NPS typically requests current Floodplain SOF adhere to the Federal Flood Risk Management Standard (FFRMS), which takes anticipated future conditions into consideration when defining the regulatory floodplain and assessing proposed actions. However, because this proposed action has been an on-going process for several years (prior to the implementation of the FFRMS), NPS will accept the regulatory floodplain defined by the 100-year flood or the base flood. The regulatory floodplain for this Floodplain SOF for

Class I actions is the 1-percent annual exceedance probability flood, also referred to as the 100-year flood or the base flood, per DO #77-2.

## **Justification for Use of the Floodplain**

The project is needed in order to address safety and operational deficiencies, improving the ability of SR 120/Abbotts Bridge Road to handle future traffic efficiently. By widening and improving the existing SR 120/Abbotts Bridge Road corridor, the project would not only address needs related to future traffic operations and safety but would also address the need for pedestrian and bicycle connectivity to other regional multiuse paths and bike lanes planned in the City of Johns Creek and Gwinnett County.

Additionally, the existing bridge (built in 1959) on SR 120/Abbotts Bridge Road over the Chattahoochee River lacks adequate shoulder width. The lack of shoulder width on the bridge makes it difficult to avoid a crash or object on the roadway ahead. Furthermore, the lack of shoulders provides inadequate space for storage of disabled vehicles, emergency response, and maintenance activities, and does not accommodate pedestrians or bicyclists. Due to the age and low sufficiency rating of the bridge, full replacement is recommended.

The proposed project requires fill being placed within the floodplain in order to replace the bridge and improve safety and traffic operations along SR 120/Abbotts Bridge Road. Several alternatives were explored; however, alternatives as presented in the NEPA Environmental Assessment focused on the intersections of SR 120 at SR 141 and SR 120 at PIB. Due to the high volumes of traffic on the side roads, failing LOS was encountered in the existing and future traffic years. The alternatives developed for the proposed project maintained the existing alignment and focused on the avoidance and minimization of as many obstacles as possible. In addition to the environmental resources analyzed including floodplains, obstacles adjacent to the proposed project include existing residential and commercial development, particularly at the project's northern limit.

The proposed project improvements keep the existing alignment of SR 120/Abbotts Bridge Road, which reduces fill impacts to the existing floodplain. There are no practicable non-floodplain sites or other feasible options to upgrade the SR 120/Abbotts Bridge Road corridor without impacting existing floodplain present on the Abbotts Bridge Unit along the Chattahoochee River.

## **Description of Site-Specific Flood Hazard**

Flood hazards in this area result in depths of flow within the floodplain of a maximum of 4.9 feet for the 100-year storm event. The average overland velocity within this area of the floodplain is 1.1 feet per second for the 100-year storm event. The existing channel velocity at the project site for the 100-year storm flow is 3.51 ft/s. The natural velocity for the 100-year flood is 3.38 ft/s. The proposed channel velocity for the 100-year flood is 3.52 ft/s.

Scour calculations were performed using the US Army Corps of Engineers' Hydrologic Engineering Center River Analysis System (HEC-RAS) scour routine and checked using the HEC-RAS output and a separate calculation sheet. The scour calculations were done for the 100-year storm. The maximum calculated local scour depth in the channel for bent 2 and 3 is 13.26 ft and 13.24 ft respectively, for the 100-year storm.

## Description of Site-Specific Flood Risk

Since this is a day use facility for recreational access along the Chattahoochee River with no anticipated permanent occupancy, risk to human health and safety is present, but no higher than adjacent recreational areas along the river downstream of the Buford Dam. There is no risk to NPS capital investment associated with the roadway and bridge improvements. No impacts to floodplain function or increased risks to NPS-owned and maintained resources are anticipated, as the project has been designed to avoid increases in regulatory flood elevations and to maintain existing floodplain conveyance and storage characteristics. It should be noted that the project does necessitate the need to relocate an intermittent stream due to roadway widening (See Attachment 1, Figure 4). The bridge deck is located above the regulatory floodplain; therefore, NPS visitors traveling across the bridge would not be within the flood risk zone. Potential risks to NPS visitors within the floodplain include temporary exposure to flood events within adjacent recreational areas, which are consistent with conditions elsewhere along the river corridor. Conditions within the floodplain could experience 4.9 feet of water at a velocity of 1.1 feet per second which is sufficient to cause harm; but harm is unlikely as egress is readily available. It should be noted that the water depth and velocities within the floodplain are an existing condition for which the SR 120 project improvements do not adversely impact. The proposed roadway alignment does not adversely affect existing NPS trails or infrastructure, and no additional risk to visitors or park facilities is anticipated. Ample notice of severe weather is provided by the National Weather Service and other agencies, which makes warning and evacuating the site a practical option for protecting human life, minimizing the risk to human health and safety.

## Wetlands

The project area was surveyed for wetlands using criteria outlined in the current version of NPS *Director's Orders #77-1: Wetland Protection* (January 2016). Four (4) wetlands occur on CRNRA property within the project limits. Three would be impacted directly by land disturbing activity, and the fourth occurs immediately adjacent to planned limits of disturbance (see Attachment 1, Figure 3: Wetland Impact Map). These features include Intermittent Stream 06, Wetland 06A, Perennial Stream 08/Chattahoochee River, and Wetland 09A, all of which are classified as wetlands under the Cowardin Classification of Wetlands and Deepwater Habitats used by the NPS. Data forms for these features can be found in Attachment 4.

## Wetland Functions and Values

General values and benefits of the wetlands identified include minor groundwater recharge, wildlife habitat, dissipation of erosive force, minor sediment and nutrient retention, and water quality improvement. The functions and values of the wetlands identified on CRNRA property within the project limits are detailed below.

### ***Biotic Functions***

The wetlands consist of a layered strata of an overstory of trees, an understory of young trees and shrubs, and an herbaceous layer. The species of vegetation are included in each water feature described below (see Description of Wetland Resources and Impacts). Invasive plant species, such as Chinese privet (*Ligustrum sinense*), Japanese stiltgrass (*Microstegium vimineum*), and Japanese honeysuckle (*Lonicera japonica*), are predominant in the wetlands identified and the surrounding buffers. A diversity of fauna is present that could use the wetlands for habitat and food. Riparian zones, stream banks, and the ecotones between

wetlands can provide a variety of habitat types for aquatic and terrestrial species. Two federally protected species and one state protected species have suitable habitat that is located within the project area. All trees can provide habitat for the federally proposed endangered tricolored bat (*Perimyotis subflavus*), and therefore suitable habitat exists within the entire project area. One tricolored bat was captured in mist nets on CRNRA lands within 0.5 kilometers of the project area on July 17, 2014. Tricolored bat is being assumed present in the project area. The proposed actions have been assessed in accordance with the *December 2023 Collaborative Programmatic Agreement for Federally Listed and State Protected Bat Species in Georgia (BPA)*. It was determined that the project “may affect, and is likely to adversely affect” the tricolored bat within the project action area. On January 29, 2025, the U.S. Fish and Wildlife Service (USFWS) concurred that the project is consistent with the BPA for the effect determination for the proposed endangered tricolored bat. On December 10, 2024, the USFWS announced their proposal to list the monarch butterfly (*Danaus plexippus*) as threatened under the Endangered Species Act. Although the presence of suitable monarch butterfly habitat was not assessed, potentially suitable monarch butterfly habitat occurs statewide and may be present within existing and proposed GDOT rights-of-way. The lead Federal Agency and GDOT have determined a Section 7 conference is not warranted. Based on the scope of the action compared to the range and distribution of this species, the action, as proposed, is not likely to jeopardize the continued existence of the monarch butterfly. USFWS concurred with this determination on January 29, 2025.

Intermittent Stream 06 and the Chattahoochee River (Perennial Stream 08) provide suitable habitat for the state threatened Chattahoochee crayfish (*Cambarus howardi*). No Chattahoochee crayfish individuals were found during the protected aquatic species survey completed in September 2014. No Chattahoochee crayfish element occurrences have been recorded within the survey area by the USFWS or the Georgia Department of Natural Resources. Due to the time passed since the 2014 aquatic survey and presence of suitable habitat, presence of the Chattahoochee crayfish is assumed within Intermittent Stream 06 and the Chattahoochee River (Perennial Stream 08). Impacts to the Chattahoochee crayfish and its habitat would be minimized by implementing GDOT Special Provisions 107.23H “Protection of Federal and State Protected Species” and 165.3.05 “Maintenance of Temporary Erosion and Sedimentation Control Devices”; therefore, the project would have “no significant adverse effect” on the species. GDOT Special Provisions 107.23H and 165.3.05 can be found in Attachment 7 and are described below.

Avoidance and minimization measures for protection of listed species include the use of orange barrier fence to minimize impacts to suitable habitat where practicable. Additionally, GDOT Special Provision 107.23H and Special Provision 165.3.05 would be implemented during construction to protect the species and their habitat during any activities that are in close proximity to the known locations of these species. Special provisions include requiring that all project personnel are advised about the potential presence and appearance of the Chattahoochee crayfish and tricolored bat. Pictures and habitat information of protected species shall be placed in a conspicuous location in the project field office. Protections for the Chattahoochee crayfish include enhanced erosion and pollution control best management practices. The measures imposed by these Special Provisions include, but are not limited to: placement of erodible stockpiled materials and excavation spoil at least 200 feet away from streams, if feasible; on-site provision of secondary containment and spill response procedures for all heavy equipment within 200 feet of streams; omission of lime and fertilizer application within 200 feet of streams; and, cleaning of sediment from temporary erosion control devices within 200 feet of streams when one-third the capacity by volume has been reached. An inspection of the entirety of the bridge at the Chattahoochee River for actively roosting bats or signs of actively roosting bats would be conducted no more than 14 calendar

days prior to the start of construction activities on the structure.

### ***Hydrologic Functions***

The wetlands in the project area function as flood water storage and wildlife habitat. Impacts to the hydrologic function for the wetlands have been minimized by replacing the bridge over the Chattahoochee River (Perennial Stream 08) on existing alignment. A rock jetty hydraulic analysis was completed for the project in June 2023 to ensure that potential increased floodstage elevations during construction do not exceed the limits of the U.S. Army Corps of Engineers (USACE) flowage easement for the river and to ensure that the rock jetty will be stable during high flow events. Results of the jetty analysis show that the effects of the jetties do not adversely impact the water surface elevations as compared to the Ordinary High Water Mark (OHWM) of 890.39. The OHWM is below the 2 year storm event; however results show that the various jetties in-place during construction do not raise the water surface elevations for the non-overtopping flow by more than 0.71' for the non-overtopping flow event (well below the OHWM). To minimize impacts from flash flooding or heavy storm events, GDOT would conduct regular inspections of the rock jetties during construction to assess the integrity of the jetties and monitor and abate sediment buildup. GDOT would be responsible for any remediation required at the project site or downstream as a result of a storm event and generation events. Pre- and post-construction bathymetric surveys of the bed and bank of the river in the area potentially impacted from the jetties will be completed.

### ***Cultural Values***

The CRNRA Abbotts Bridge Unit is an important resource to an urban population numbering over 6 million people (ca. 2020) in the Atlanta Metropolitan area (NPS 2022). The water and surrounding land provide an abundant variety of outdoor and recreational opportunities. A parking lot, overflow parking, pavilion, restroom facilities, walking trail, and a boat ramp are available for public use. The Chattahoochee River corridor provides 70% of the public green space in the greater Atlanta area (NPS 2022).

Archaeological surveys performed in the project area identified no archaeological resources that were determined eligible for the National Register of Historic Places. The State Historic Preservation Office concurred with the findings on September 27, 2016. Historic resources surveys were conducted in the project area and no properties were identified within the proposed project's area of potential effects that were determined eligible for the National Register of Historic Places. The State Historic Preservation Office concurred with these findings on September 15, 2015.

### ***Scientific Values***

Similar type and functioning wetlands to the ones impacted by the subject project occur along the Chattahoochee River at various locations within the 48-mile stretch of the CRNRA. The wetlands in the project area do not offer unique scientific value.

### ***Economic Values***

More than 3 million people visit the CRNRA park annually and more than one-third of visits engage in river-based recreation (National Park Service 2018). The designated parking lot and boat ramp provide access to the Chattahoochee River for kayakers, rafters, paddle boarders, and tubers. Access to the boat ramp is south of the project limits and would be maintained for use by the public. During construction, short-term rock jetties would reduce the

area of river available for use at these locations; however, the phased construction of the jetties would allow access to the river even when jetties are present. Special Provision 150.6 would be implemented, which states that the Contractor shall maintain access to the Chattahoochee River Park by recreational users and ensure that the river access is open to recreational users between the months of May 1 through September 30. No jetties would be allowed from May 1 through September 30.

## Description of Wetland Resources and Impacts

### Intermittent Stream 06

Intermittent Stream 06 is classified as riverine, intermittent, streambed, sand (R4SB4) under the Cowardin System for Classification of Wetlands and Deepwater Habitats (Image 1). It is located east of SR 120/Abbotts Bridge Road and north of the Chattahoochee River. It flows south through the CRNRA property, then out of CRNRA property and into the SR 120/Abbotts Bridge Road right-of-way (ROW), where it turns southeast and flows parallel to the roadway and into the Chattahoochee River. It is approximately 3-4 feet wide. This stream is somewhat impaired and significantly entrenched within the ROW. The riparian buffer consists of green ash (*Fraxinus pennsylvanica*), red maple (*Acer rubrum*), tulip poplar (*Liriodendron tulipifera*), water oak (*Quercus nigra*), sweetgum (*Liquidambar styraciflua*), American sycamore (*Platanus occidentalis*), loblolly pine (*Pinus taeda*), common hackberry (*Celtis occidentalis*), ebony spleenwort (*Asplenium platyneuron*), netted chainfern (*Woodwardia areolata*), and wingstem (*Verbesina alternifolia*). The tree stratum varies in age by location and varies from approximately 40 to 60+ years old. The riparian buffer extends greater than 50 feet from the point of wrested vegetation. A portion of this stream within existing SR 120/Abbotts Bridge Road ROW would be relocated to the east onto CRNRA property within a construction easement. This is necessary in order to complete the widening of SR 120/Abbotts Bridge Road. The proposed project would permanently impact approximately 86 linear feet (0.004 acre) of Intermittent Stream 06 within the limits of NPS CRNRA lands due to channel relocation and piping (Table 1). The impacts to Intermittent Stream 06 cannot be avoided without shifting the proposed road widening to the west, which would incur greater impact to Perennial Stream 05 and Wetland 07, resources that are located on the west side of SR 120/Abbotts Bridge Road.



Image 1: Looking upstream of Intermittent Stream 06 (July 31, 2024)



#### Wetland 06A

Wetland 06A is classified as palustrine, forested, broad-leaved deciduous, seasonally flooded/saturated (PFO1E) under the Cowardin Classification System of Wetlands and Deepwater Habitats (Image 2). It is located east of SR 120/Abbotts Bridge Road along the banks of the Chattahoochee River (Perennial Stream 08) within CRNRA property. The dominant species in this wetland include tulip poplar, sycamore, willow oak (*Quercus phellos*), red maple, netted chainfern, green ash, Japanese stiltgrass, and wingstem (*Verbesina alternifolia*). The proposed project would impact 0.01 acre of Wetland 06A for permanent clearing and grubbing (Table 1). Impacts from project construction have been minimized to the maximum extent practicable but could not be avoided due to the location of the wetland within an area that is required for maintenance of slopes and utilities. Orange barrier fence will be erected to avoid incidental impacts to the wetland outside of the construction limits.



Image 2: Looking north from Wetland 06A (July 31, 2024)

#### Chattahoochee River (Perennial Stream 08)

The Chattahoochee River is classified as riverine, lower perennial, unconsolidated bottom, permanently-flooded waterway (R2UBH) under the Cowardin Classification System of Wetlands and Deepwater Habitats (Image 3). Since the maximum depth of the river is within 2.5 meters at typical low water, the entirety of the waterway within the project limits is considered to be wetlands.

The Chattahoochee River on the CRNRA lands at the SR 120/Abbotts Bridge Road GDOT right-of-way (ROW) crossing is approximately 185 feet wide as measured to the Ordinary High-Water Mark. Along the riverbanks are mature forested riparian zones extending up 100 feet, or greater, from the river's edge. The riparian zones are dominated by trees of 40 to 60 years in age, including American sycamore, red maple, loblolly pine, oak (*Quercus* spp.), hickory (*Carya* spp.), sweetgum, tulip poplar, green ash, common hackberry, and invasive Chinese privet (*Ligustrum sinense*). The primary substrate of the riverbed includes bedrock, sand, silt, and mud. The river supports a variety of aquatic organisms ranging from macroinvertebrates to molluscs and several species of fish. The river not only provides breeding habitat for fish and amphibians, but also nesting and foraging opportunities for migratory birds including waterfowl and raptors. Additionally, the Chattahoochee River provides suitable habitat for protected species such as the state threatened Chattahoochee crayfish. The SR 120/Abbotts Bridge Road bridge over the Chattahoochee River provides suitable roosting habitat for bats, including the federally proposed endangered tricolored bat. Riparian corridors provide an abundance of food and shelter for small mammals and provide critical connectivity for larger species.

The proposed project would reconstruct and widen the existing SR 120/Abbotts Bridge Road bridge over the Chattahoochee River, which is 304.5-feet-long by 34-feet-wide, 4-span, steel beam bridge with concrete deck and superstructure. The substructure of the existing bridge includes concrete column bents with riprapped abutments. The proposal is to replace the bridge with a 324-feet-long by 107-feet-wide concrete bridge centered on the existing alignment. The proposed bridge will be reduced from the existing condition of four spans down to three pre-stressed concrete spans: the north span 90 feet long, the center span 134 feet long, and the south span 100 feet long, on concrete columns standing on drilled caissons in the bedrock found at the site. Within the Chattahoochee River riverbed, the proposed project would result in the placement of drilled caisson footings for the proposed bridge and bank armoring under the bridge on either bank to prevent erosion. The existing bridge over the Chattahoochee River has three (3) bents over the river, supported by two (2) concrete piles each, on a total of six (6) footings in the riverbed, each 6.75 square feet in size; for a total of 40.5 square feet. The new bridge would have two (2) bents over the river supported by five (5) 4-foot-wide concrete piles each on a total of ten (10) footings in the river. The ten (10) cylindrical drilled caisson footings, with a footprint of approximately 15.9 square feet each, would result in 159 square feet (0.004 acre) of permanent impact to the Chattahoochee River. Permanent impacts also include 194 linear feet (0.16 acre) of bank armoring with riprap along the length of each of the banks to the limits of construction activity (Table 1). Short-term rock jetties would be installed in the river channel for construction access and for removal of the existing center bridge bent. Bridge construction would include three stages for in-water work. Short-term impacts include 190 linear feet (0.43 acre) due to rock jetties for demolition and new bridge construction and a temporary cofferdam to remove existing pilings (Table 1). Stage one would include placement of rock jetties on both sides of the Chattahoochee River. Traffic would be maintained on the existing alignment while the southern portion of the bridge is constructed. Stage two of bridge construction would remove the rock jetties from stage one, and a rock jetty would be added to remove the existing center bent. Stage three would consist of removal of the rock jetty from stage two and then rock jetties would be placed on both sides of the Chattahoochee River while the remainder of the bridge is constructed. Other alternatives to rock jetties (barges, work bridges) were explored but none were deemed feasible. Barges are not feasible for access due to substantial water fluctuations. Driven pile temporary bridges are not feasible due to the apparent bedrock of the Chattahoochee River's substrate at the project site. Permanent and temporary impacts to the Chattahoochee River have been minimized to the greatest practicable extent in the design through efforts to clearly evaluate the minimum requirements for construction of the new widened facility while minimizing impacts to public trust resources. Preliminary coordination with the USACE to reach concurrence on this was concluded on November 21, 2023, with a letter of concurrence received at GDOT from the USACE.



Image 3: Chattahoochee River (Perennial Stream 08)-looking east (April 19, 2016)

#### Wetland 09A

Wetland 09A is classified as palustrine, forested, broad-leaved deciduous seasonally flooded/saturated (PFO1E) under the Cowardin Classification System of Wetlands and Deepwater Habitats (Image 4). It is located east of SR 120/Abbotts Bridge Road approximately 700 feet south of the Chattahoochee River within CRNRA property. The dominant species in this wetland include black willow (*Salix nigra*), American sycamore, common rush (*Juncus effusus*), greater bladder sedge (*Carex intumescens*), and deer tongue grass (*Dichanthelium clandestinum*). This resource would not be impacted by the proposed project. While Wetland 09A occurs on a CRNRA parcel from which ROW acquisition would be required, impacts from project construction have been avoided through design considerations to limit the footprint of the project. Orange barrier fence will be erected to indicate the presence of the resource so that incidental activity does not impact it during the construction work.



Image 4: Wetland 09A-looking east (July 31, 2024)

Table 1: Wetland Impacts

| Water Feature                             | Wetland Type   | Temporary/Short-Term Impact Area (acre) | Permanent Impact Area (acre) |
|-------------------------------------------|----------------|-----------------------------------------|------------------------------|
| Intermittent Stream 06                    | R4SB4          | 0.001                                   | 0.004                        |
| Wetland 06A                               | PFO1E          | 0                                       | 0.01                         |
| Chattahoochee River (Perennial Stream 08) | R2UBH          | 0.43                                    | 0.164                        |
| Wetland 09A                               | PFO1E          | 0                                       | 0                            |
| <b>Total</b>                              | <b>Impacts</b> | <b>0.43</b>                             | <b>0.18</b>                  |

## Justification for Use of the Wetlands

The need for this project is to address safety and operation deficiencies, improving the ability of SR 120/Abbotts Bridge Road to handle future traffic efficiently. By widening and improving the existing SR 120/Abbotts Bridge Road corridor, the project would not only address needs related to future traffic operations and safety but would also address the need for pedestrian and bicycle connectivity to other regional multiuse paths and bike lanes planned in the City of Johns Creek and Gwinnett County.

The existing bridge (built in 1959) on SR 120/Abbotts Bridge Road over the Chattahoochee River lacks adequate shoulder width. The lack of shoulder width on the bridge makes it difficult to avoid a crash or object on the roadway ahead. Furthermore, the lack of shoulders provides inadequate space for storage of disabled vehicles, emergency response, and maintenance activities, and does not accommodate pedestrians or bicyclists. Due to the age and low sufficiency rating of the bridge, full replacement is recommended.

## Investigation of Alternative Sites

No practicable alternative alignment for the SR 120/Abbotts Bridge Road widening and bridge replacement project could be constructed without crossing the Chattahoochee River and impacting wetlands within the CRNRA.

A Practical Alternatives Review (Attachment 5) was completed for the proposed project on November 21, 2023, with a letter of concurrence received at GDOT from the US Army Corps of Engineers (USACE), which included coordination on the analysis of practicable alternatives for the project. Agencies including the NPS, USACE, the US Fish and Wildlife Service, GDOT, and the Federal Highway Administration were party to the review process. Three alternatives were considered, including Alternative 1 (Preferred) on existing alignment, Alternative 2 shifted east of existing alignment, and Alternative 3 (No Build).

Alternative 1 would meet the project need and purpose while minimizing impacts to NPS property. The major difference between Alternative 1 and Alternative 2 is Alternative 2 includes a shift of the alignment approximately 70 feet east into NPS property, with the new bridge being constructed adjacent to the existing bridge instead of in the same location. Alternative 2 would incur greater costs and a longer schedule. Alternative 2 would require shifting the alignment, which would be more complicated for construction access and require increased clearing, grubbing, and grading needs. Impact quantities for rock jetties would be the same for Alternative 1 and Alternative 2.

With a No Build Alternative, there would be no impacts to streams, wetlands, or NPS property. However, the No Build Alternative would fail to meet the need and purpose of the proposed

project. Without the proposed project improvements to this corridor, traffic studies have projected that congestion will worsen, and the number and frequency of accidents will increase. Furthermore, there would be no accommodation for future improvements to bicycle and pedestrian access and connectivity throughout the corridor.

## MITIGATIVE ACTION

Mitigation would be provided by incorporating methods for protecting life and minimizing damage through appropriate procedures. Mitigation procedures would include sustainable design principles, elevations for the finished roadway and bridge that allow passage of the 100-Year flood event without upstream rise or threat to structures already present in the area, and implementation of Best Management Practices during and after construction, which is stipulated in the Manual for Erosion and Sediment Control in Georgia as published by the Georgia Soil and Water Conservation Commission. Furthermore, operational safety for the facility is managed by the GDOT District 1 Maintenance personnel. In accordance with GDOT maintenance protocols, road closures and traffic redirections are triggered by real-time monitoring of USGS stream gauge data and National Weather Service river stage predictions. In the event of a predicted overtopping or high-hazard flood event, pre-established emergency detour routes would be implemented to redirect traffic at major intersections.

The bridge and roadway widening would be designed to minimize scouring, deposition, and other damage to wetlands and floodplains. Placement of fill in the river will be minimized to the maximum extent practicable. Free natural drainage and natural contours would be preserved to the extent practicable in the design and when constructing the roadway and bridge.

Because the roadway and bridge are not owned or maintained by NPS, there is no risk to NPS infrastructure associated with these project elements. The widened roadway would not encroach upon or adversely affect existing NPS trails, parking areas, or other visitor-use facilities within the Abbotts Bridge Unit. Therefore, no new or increased risks to NPS visitors or NPS-owned infrastructure are anticipated beyond existing conditions. Egress is readily available to visitors that unexpectedly experience flooding conditions in the area (though flash or rapid rise situations are not anticipated for this site).

Existing bridge foundation elements would be cut off at the riverbed elevation, which would minimize disturbance of the riverbed and offset the impacts to stream hydrology and flow from the construction of new piers and minimize safety hazards for people using the river. Impacts to wetlands for this project will require a Regional Permit 34 and purchase of mitigation credits from an approved mitigation bank per the USACE, Savannah District's 2018 *Standard Operating Procedure for Compensatory Mitigation*. Mitigation credits would be purchased from an appropriate USACE approved mitigation bank located within the same 8-digit Hydrologic Unit as the impacted resources.

To compensate for the temporary and permanent wetland impact, GDOT will donate funds for purchasing property that contain wetlands for the CRNRA and ensure there is a no-net-loss of wetlands within the CRNRA. GDOT will provide a one-time in-lieu fee donation of \$173, 883.53 to the National Park Foundation (NPF) for the acquisition of wetland property that will be transferred to the park. These funds will be transferred following the execution of the de minimis impact determination. The NPF will be responsible for acquiring and conveying real property containing wetlands to the NPS. Any acquisition by NPS will be completed in accordance with applicable federal land acquisition requirements, including the

Uniform Relocation Assistance and Real Property Acquisition Policies Act and federal appraisal standards. The acquisition of wetland property will provide compensatory mitigation at a 3:1 ratio, ensuring no-net-loss of wetlands while accounting for the potential for minor increases in project-related wetland impacts and the possibility that acquired wetlands may have lower functional value than impacted wetlands. Potential priority acquisition areas are depicted in Attachment 1, Figure 5: Proposed Wetland Compensation Sites. The locations shown represent properties containing wetlands based on the USFWS National Wetlands Inventory within the authorized CRNRA boundary. The properties are adjacent to lands owned by the park and that have been identified by the park as priorities for acquisition. Multiple sites are shown because land acquisition is contingent upon the availability of willing sellers, and it is not known which property will be acquired. A wetland delineation will be performed as part of the acquisition process and provided to NPS.

## **COMPLIANCE**

The bridge associated with the SR 120/Abbotts Bridge Road project would be constructed on bridge pilings located within the Chattahoochee River impacting the bed of the river through temporary rock jetty fill operations during construction, and permanent impacts associated with drilled caisson concrete bridge pilings required for the bridge. There would be no adverse impact to the floodplain along the river or changes in the ability of the floodplain to convey and store floodwaters. The proposed widening of the roadway and bridge would not contribute to flooding. Intermittent Stream 06 would be partially piped and longitudinally displaced in a new ditch parallel to the east of its present location. Wetland 06A would be impacted by clearing and grubbing for construction access. Wetland 09A would be avoided by construction activity. Section 404 of the Clean Water Act requires a permit for any activity that results in wetland or stream impacts or the discharge of dredged or fill material into navigable waters. Therefore, a Section 404 permit and mitigation would be required for this project.

## **CONCLUSION**

The protection of people, natural resources, and property is of concern to the Abbotts Bridge unit of the CRNRA of the NPS. Portions of the proposed roadway widening and bridge replacement would be constructed on NPS property, including the Chattahoochee River. The NPS and FHWA conclude that there is no other practicable alternative for the proposed project. With the roadway and its bridge designed to prevent flood damage, and with compensatory mitigation for the displacement of resources at Intermittent Stream 06, Wetland 06A, and the Chattahoochee River (Perennial Stream 08), the risk to life and property would be minimized, and wetland losses would be suitably compensated for with the net gain of protected wetland resources within the park. The in-lieu fee payment is consistent with the no net loss of wetlands goal. The project would include good design through sustainable design principles, appropriate site planning, and Best Management Practices during and after construction, as well as the removal of features associated with the old bridge. Therefore, the NPS finds that the proposed project is acceptable under the requirements of Executive Order 11990, Protection of Wetlands, and under Executive Order 11988, Floodplain Management.

## **Preparer Qualifications**

In accordance with DO 77-2 and PM 77-2, I, David Bocker, the author of this FSO, affirm I am a civil engineer and am technically qualified to prepare this document. I am the Director

of Engineering Services with NV5, which is a pre-qualified consultant to GDOT in the area of Hydraulics and Hydrological Studies (Bridges). I am a Civil Engineer with 26+ years of experience in the hydraulics, hydrology, and riverine/floodplain modeling field. I graduated with a B.S. in Civil Engineering from the University of North Carolina at Charlotte (1999). I am a licensed Engineer (No. PE035794) in the State of Georgia. In addition to preparing this document (in conjunction with Mr. Blake Ellett and Mrs. Kathryn Thompson Wong, noted below), I performed the hydraulic modeling of the bridge over the Chattahoochee River within the area of the proposed project.

Mr. Blake Ellett, the Director of Environmental Services with NV5, assisted with the preparation of this document, as well as performed the delineations of the wetland locations and boundaries within the area of the proposed project. NV5 is a pre-qualified consultant to GDOT in the area of Ecology. Mr. Ellett is an environmental scientist with 12+ years of experience in field ecology surveys and data collection. He graduated with a B.A. in Natural Resource and Environmental Management with a Biology minor (2012) from The University of Alabama and has a Masters in Natural Resources (2016) from Virginia Tech University. Mr. Ellett is certified as a Professional Wetland Scientist (No. 3208) from the Society of Wetland Scientists.

Mrs. Kathryn Thompson Wong, Senior Environmental Scientist with NV5, also assisted with the preparation of this document, as well as assisted in performing the delineations of the wetland locations and boundaries within the area of the proposed project. Mrs. Wong has 6+ years of experience in field ecology surveys and data collection. She graduated from the University of Georgia in 2019 with a Bachelor of Science in Ecology and a Bachelor of Science in Biology. She has completed training in Basic Wetland Delineation, Hydrophytic Vegetation of the Piedmont, Hydrophytic Vegetation of the Coastal Plain, Interagency Consultation for Endangered Species, Georgia Department of Natural Resources Bats in Bridges, North Carolina Division of Water Quality Stream Identification Methodology, and Advanced Hydric Soils, Hydrology, and Regional Indicators of the Coastal Plain.

## REFERENCES

Executive Order (EO) 11988, Floodplain Management (1977)

EO 11990, Protection of Wetlands (1977)

National Park Service (NPS) Procedural Manual 77-2 Floodplain Management (2011)

NPS Procedural Manual 77-1 Wetland Protection (Reissued June 21, 2016)

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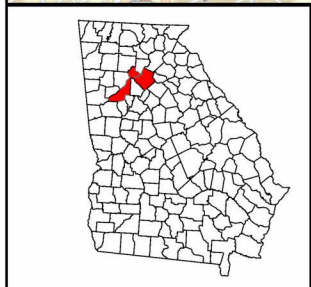
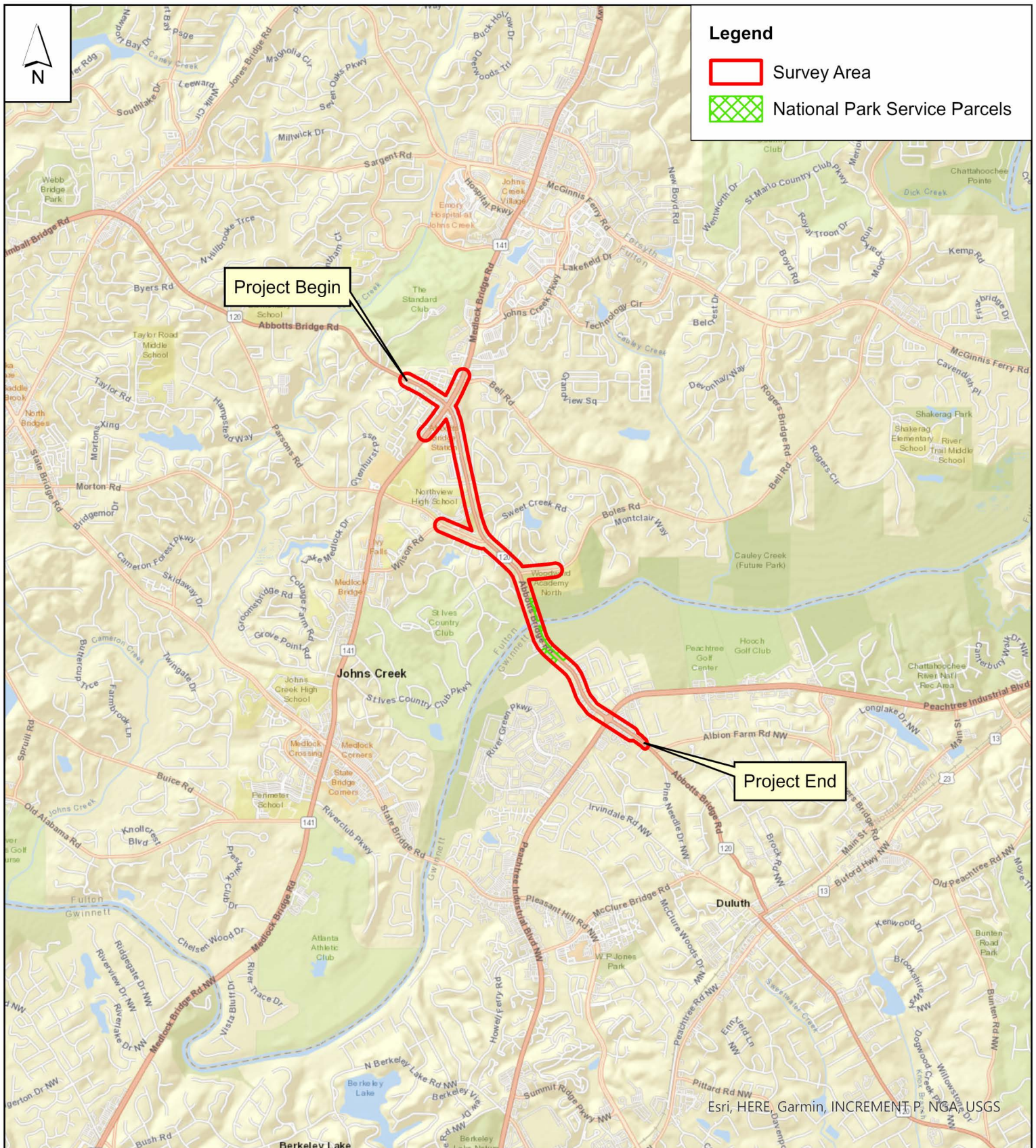
Thornberry-Ehrlich, T. Chattahoochee River National Recreation Area: Geologic resources inventory report. Natural Resource Report NPS/NRSS/GRD/NRR—2022/2470. National Park Service, Fort Collins, Colorado. <https://doi.org/10.36967/2294835>. (2022)

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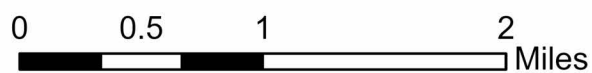
## **Attachment 1: Figures**



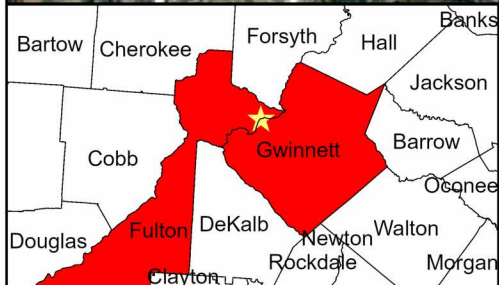
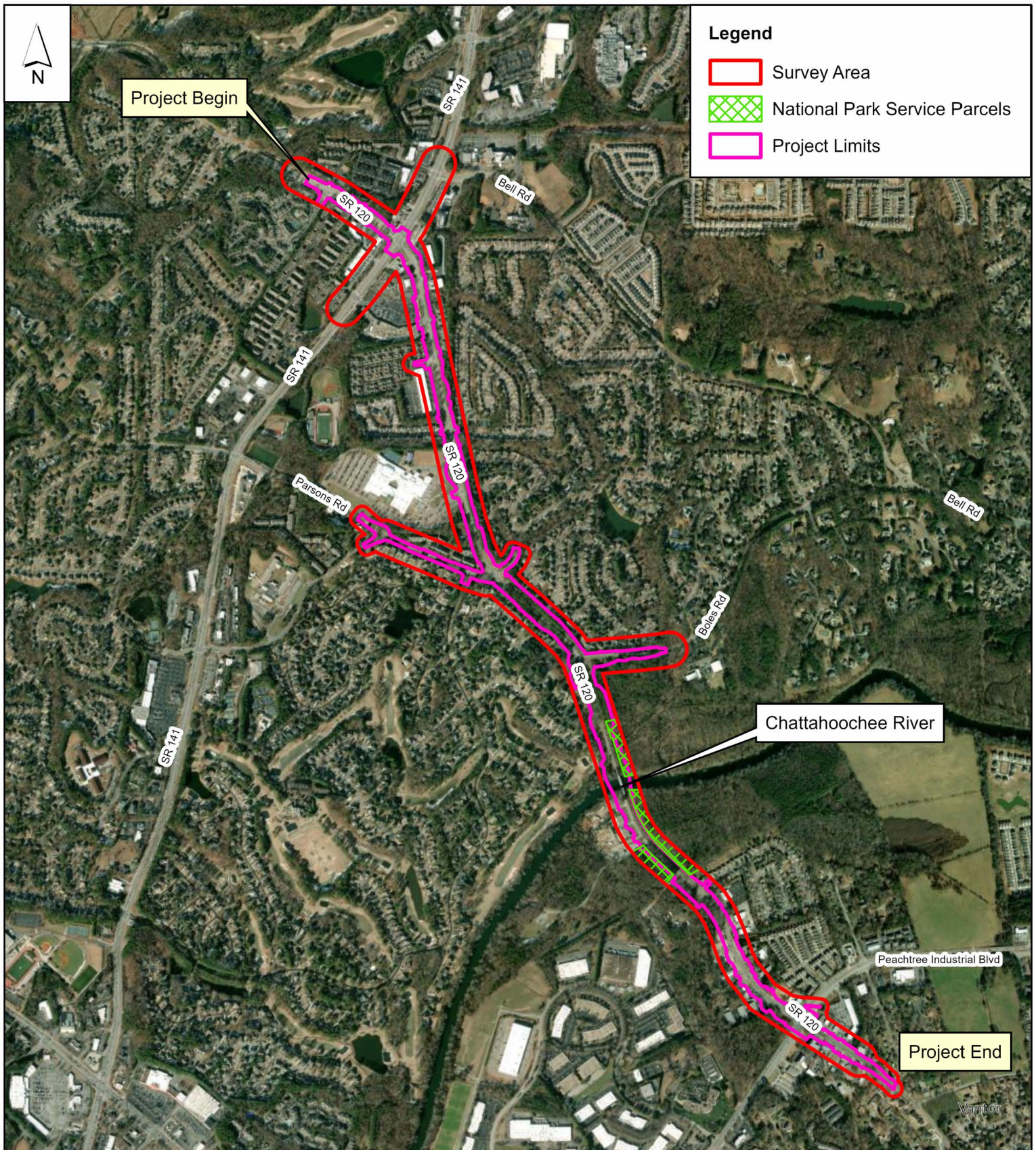


**Figure 1 - Project Vicinity Map**

SR 120 Improvements from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard  
P.I. No. 721000- and 0021239  
Fulton & Gwinnett Counties, Georgia



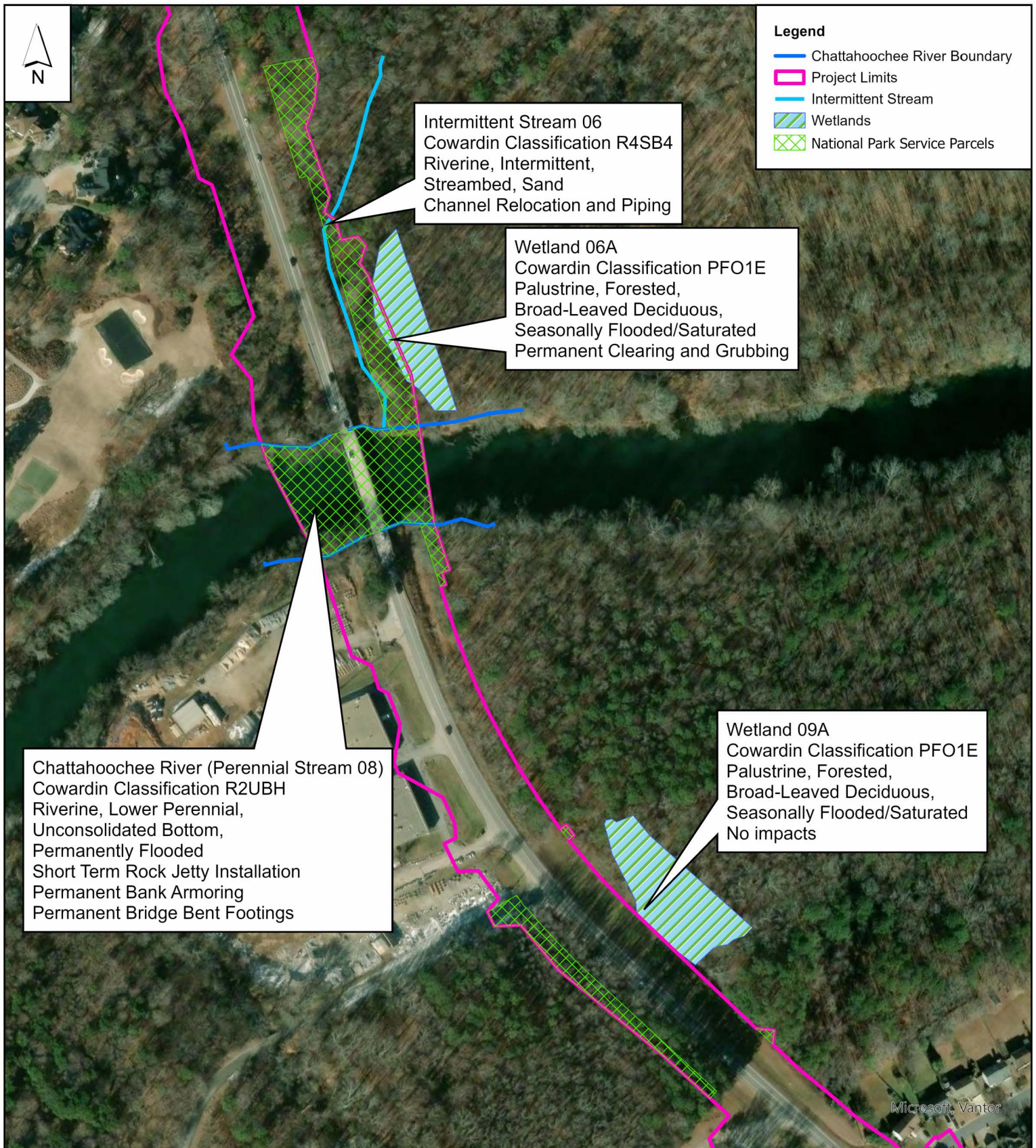




**Figure 2 - Project Overview Map**  
 SR 120 Improvements from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard  
 P.I. No. 721000- and 0021239  
 Fulton & Gwinnett Counties, Georgia





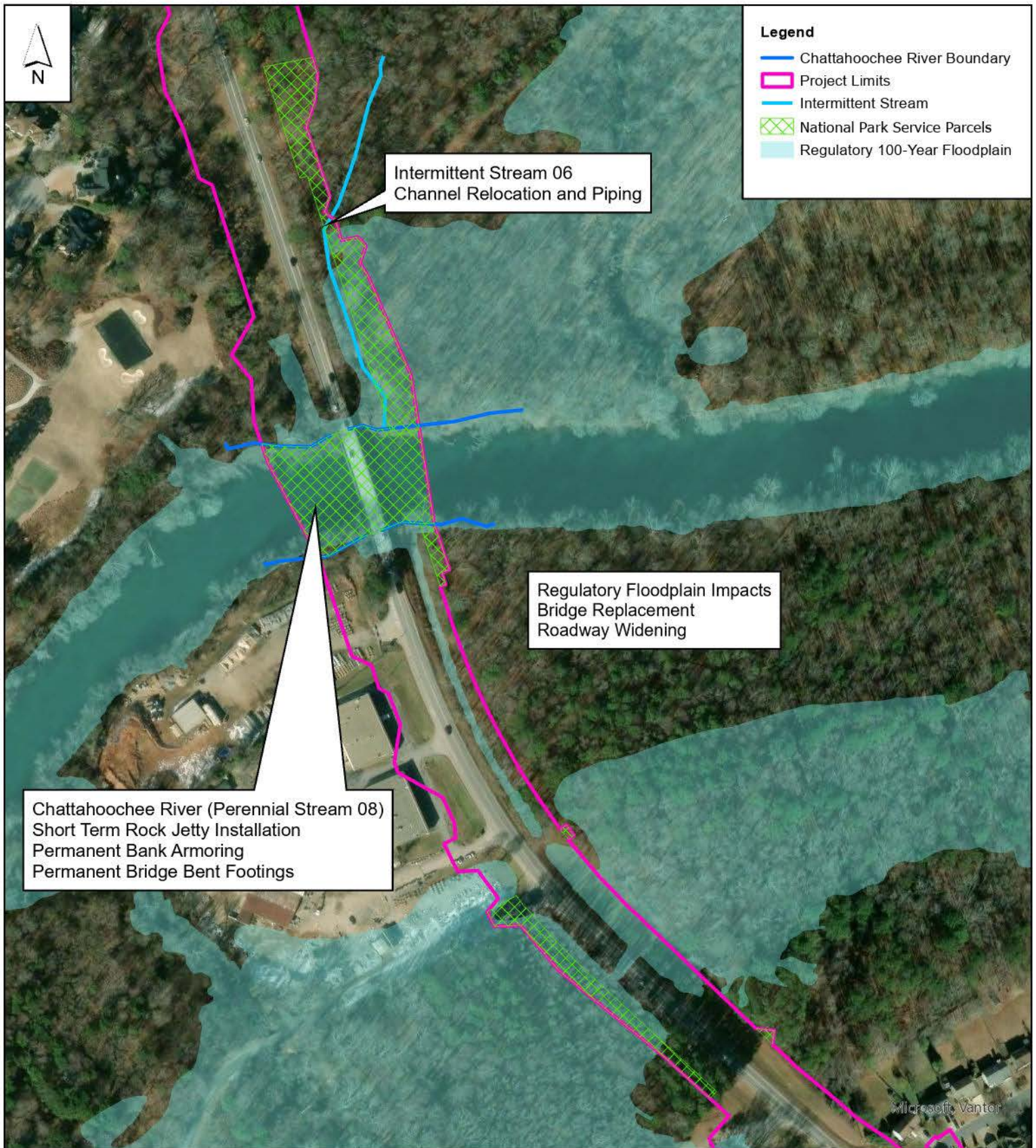


**Figure 3 - Wetland Impact Map**

SR 120 Improvements from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard  
P.I. No. 721000- and 0021239  
Fulton & Gwinnett Counties, Georgia

0 0.04 0.07 0.15 Miles



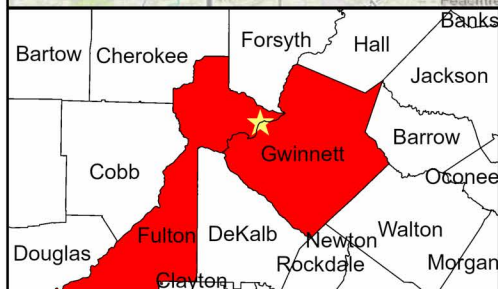
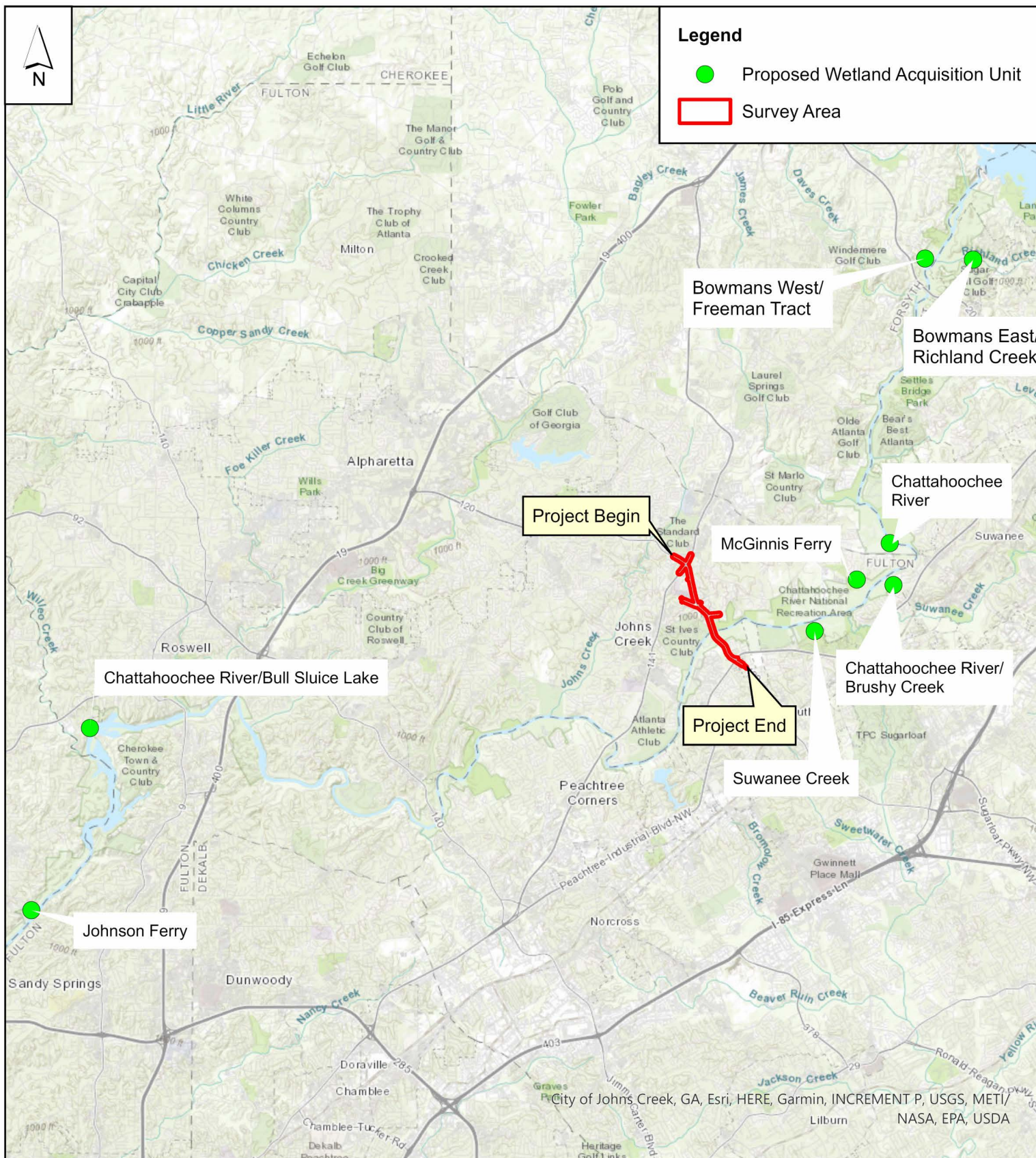


**Figure 4 - Floodplain Impact Map**

SR 120 Improvements from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard  
P.I. No. 721000- and 0021239  
Fulton & Gwinnett Counties, Georgia

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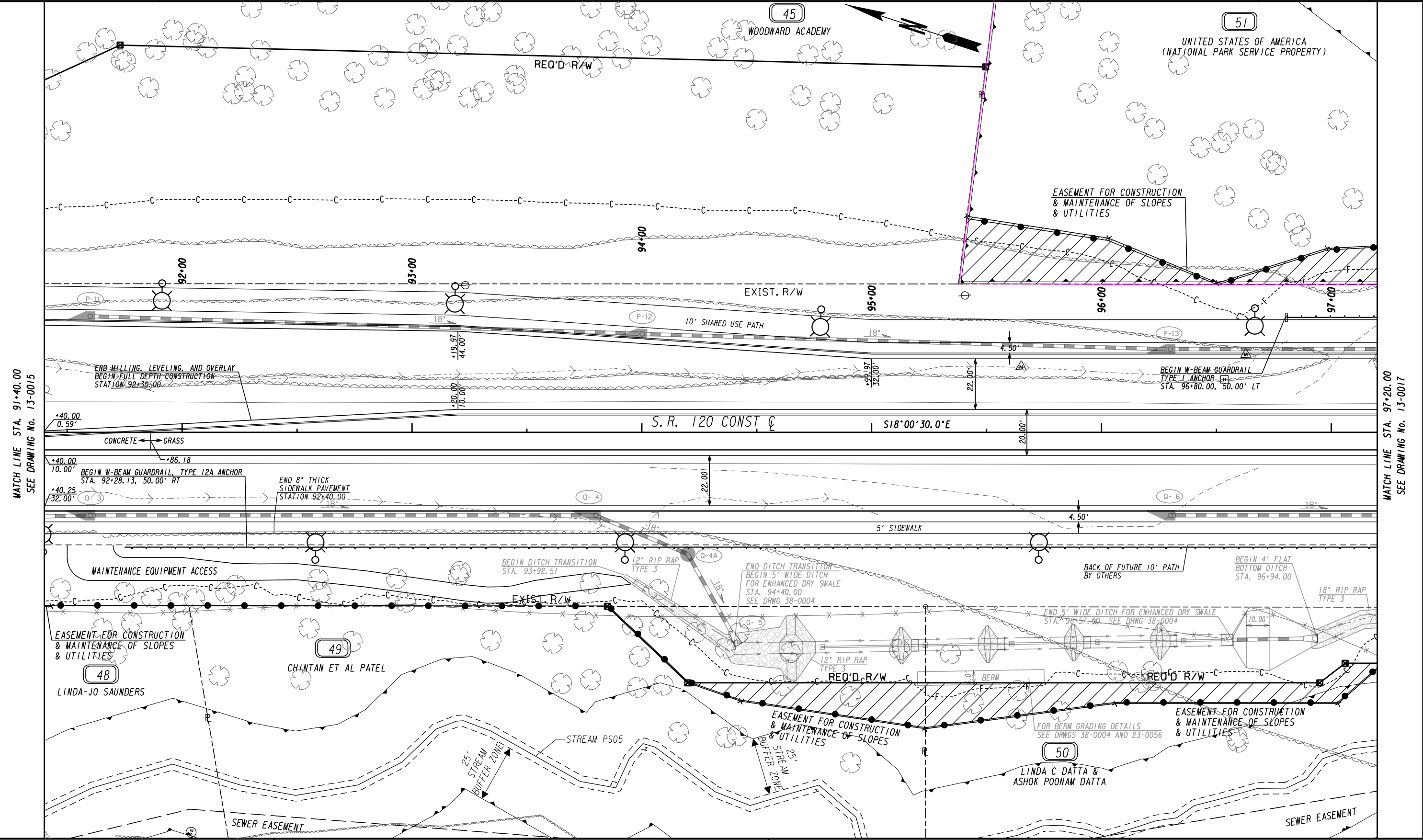
**Figure 5 - Proposed Wetland Compensation Sites**

SR 120 Improvements from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard  
 STP00-0189-01(010), P.I. No. 721000  
 Fulton & Gwinnett Counties, Georgia



## **Attachment 2: Roadway Plans**





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  
ORANGE BARRIER FENCE  
ESA - ENV. SENSITIVE AREA  
(SEE ERIT TABLE)

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REVISION DATES

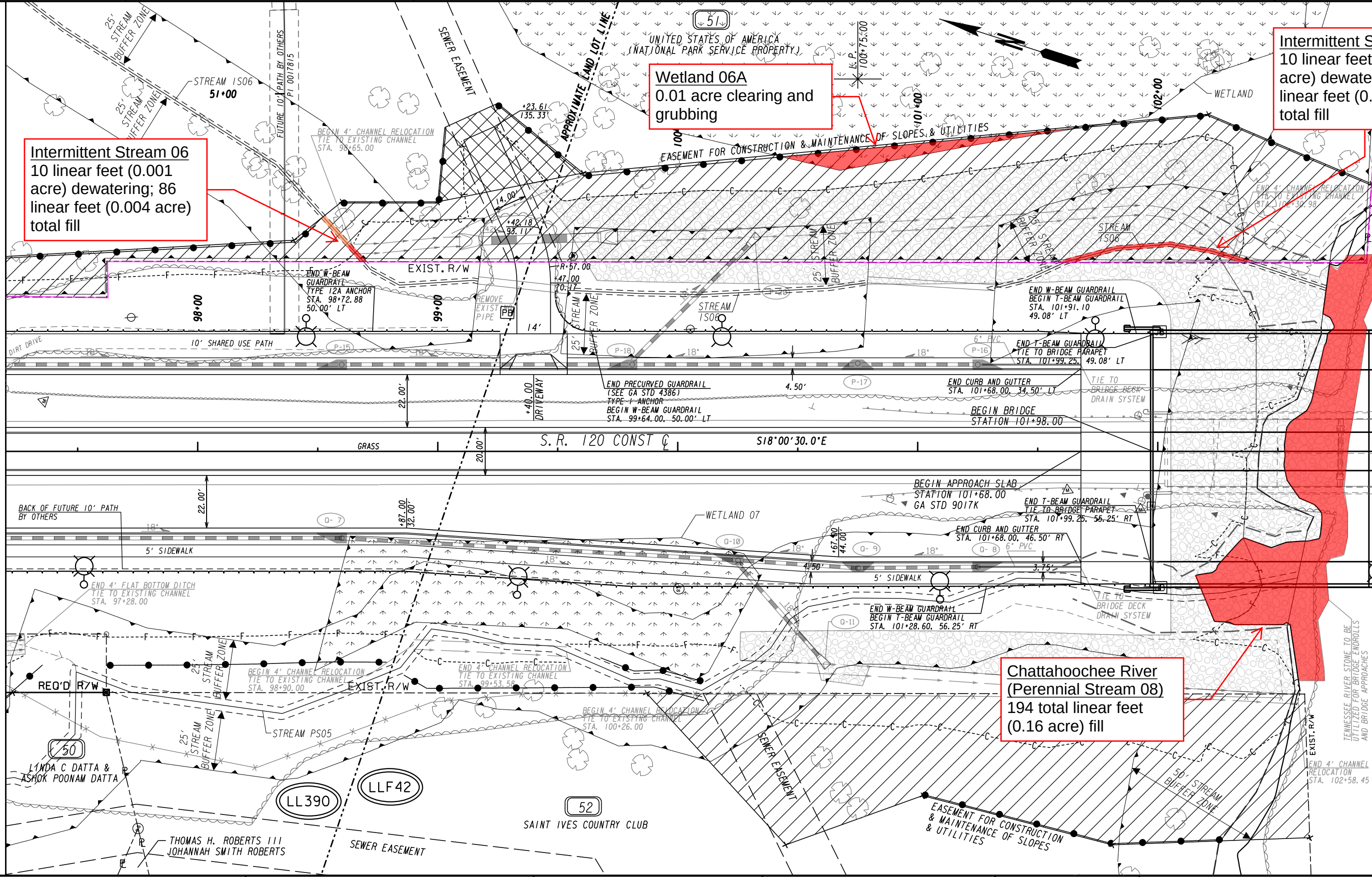
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Intermittent Stream 06  
10 linear feet (0.001  
acre) dewatering; 86  
linear feet (0.004 acre)  
total fill

Wetland 06A  
0.01 acre clearing and  
grubbing

Intermittent Stream 06  
10 linear feet (0.001  
acre) dewatering; 86  
linear feet (0.004 acre)  
total fill

Chattahoochee River  
(Perennial Stream 08)  
194 total linear feet  
(0.16 acre) fill

PROPERTY AND EXISTING R/W LINE  
REQUIRED R/W LINE  
CONSTRUCTION LIMITS  
EASEMENT FOR CONSTR  
& MAINTENANCE OF SLOPES  
EASEMENT FOR CONSTR OF SLOPES  
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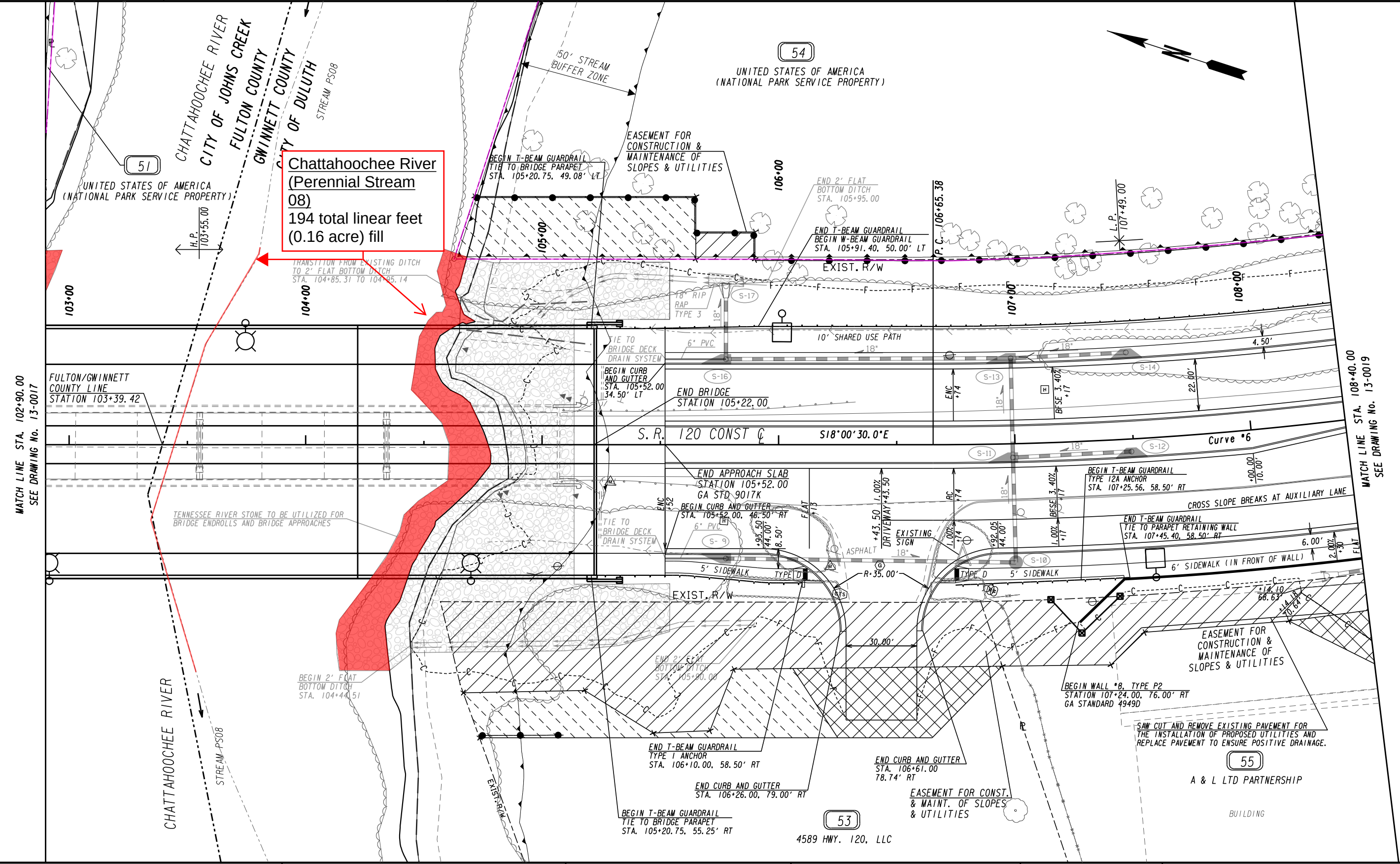
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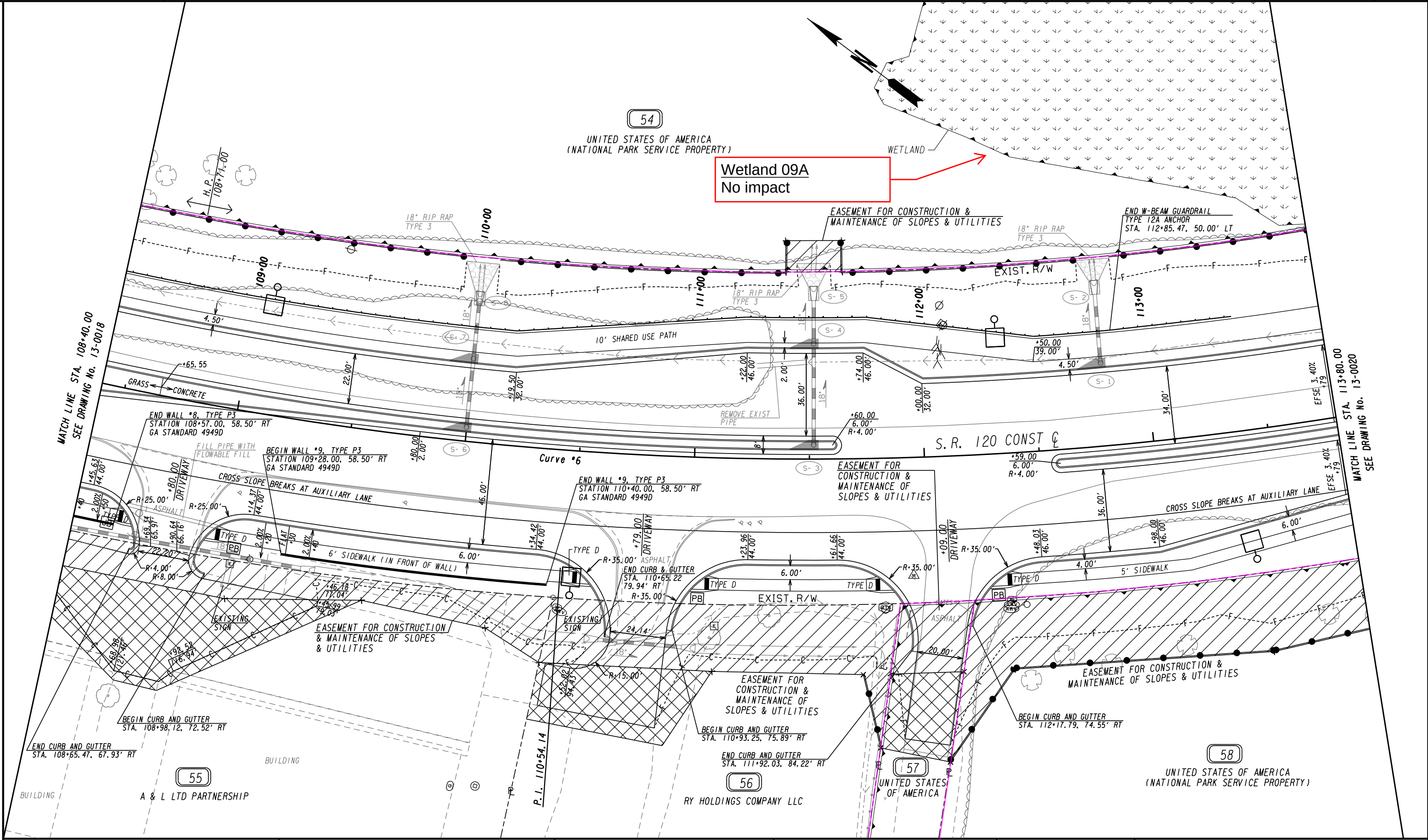
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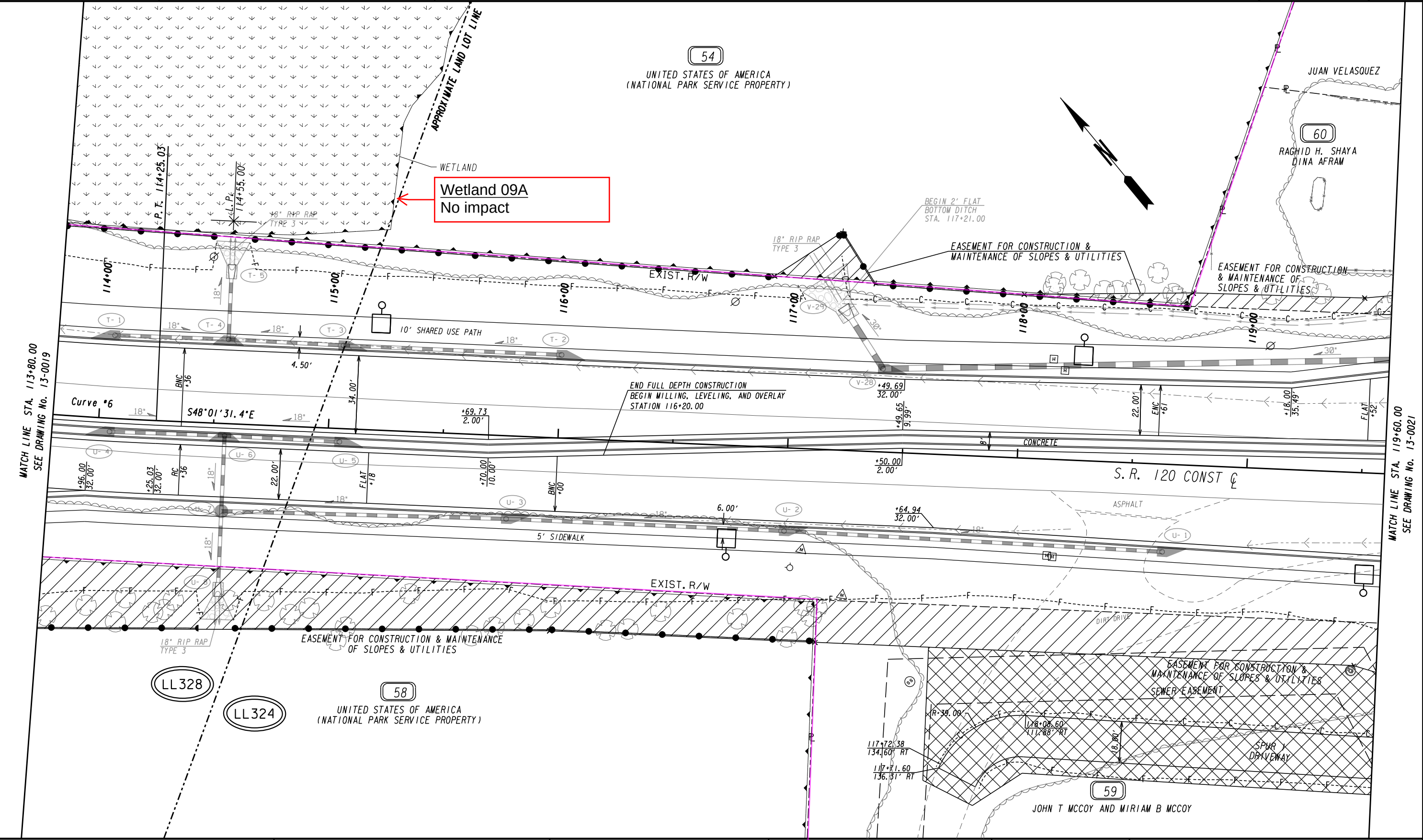
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DRAWING No.  
13-0020

7/31/2015 GPLN



Perennial Stream 08  
86 linear feet short  
term fill

1. TRAFFIC TO BE MAINTAINED ONSITE THROUGHOUT CONSTRUCTION. SEE THE 19 SERIES SECTION OF THE PLANS FOR FULL ROADWAY STAGING DETAILS, AND THE 35 SERIES FOR DETAILS OF BRIDGE STAGING SEQUENCES.
2. STAGE 1 CONSTRUCTION CONSTRUCTS THE SOUTHERN PORTION OF THE PROPOSED BRIDGE. TRAFFIC IS MAINTAINED ON THE EXISTING ROADWAY. CRANE ACCESS TO BE DETERMINED BY CONTRACTOR.
3. ROCK JETTIES ARE TO BE PLACED AS SHOWN IN THE SE AND SW QUADRANTS AND RIVER SIGNS PLACED ACCORDINGLY AS SHOWN. DURING PEAK RECREATIONAL IN SEASON TIMES (MAY-SEPTEMBER) NO JETTIES ARE ALLOWED. JETTIES CAN BE PLACED IN NON-PEAK TIMES ONLY.
4. THE CONTRACTOR IS TO COORDINATE AND OBTAIN THE RELEASE SCHEDULE WITH DAM RELEASES. ATTENTION IS DRAWN SPECIFICALLY TO WORK ON THE JETTIES AND TO ENSURE EQUIPMENT IS CLEAR OF RISING WATERS.
5. THE CHATTAHOOCHEE RIVER SIGNS ARE TO BE MAINTAINED UNTIL ALL BRIDGE WORK IS COMPLETED.
6. TEMPORARY FILL (JETTIES/ETC) WITHIN WATERS OF THE UNITED STATES ARE PERMITTED AT THIS LOCATION.

## ROCK JETTY

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 —  
ORANGE BARRIER FENCE —  
ESA - ENV. SENSITIVE AREA —  
(SEE ERIT TABLE)

**N | V | 5**

SCALE IN FEET

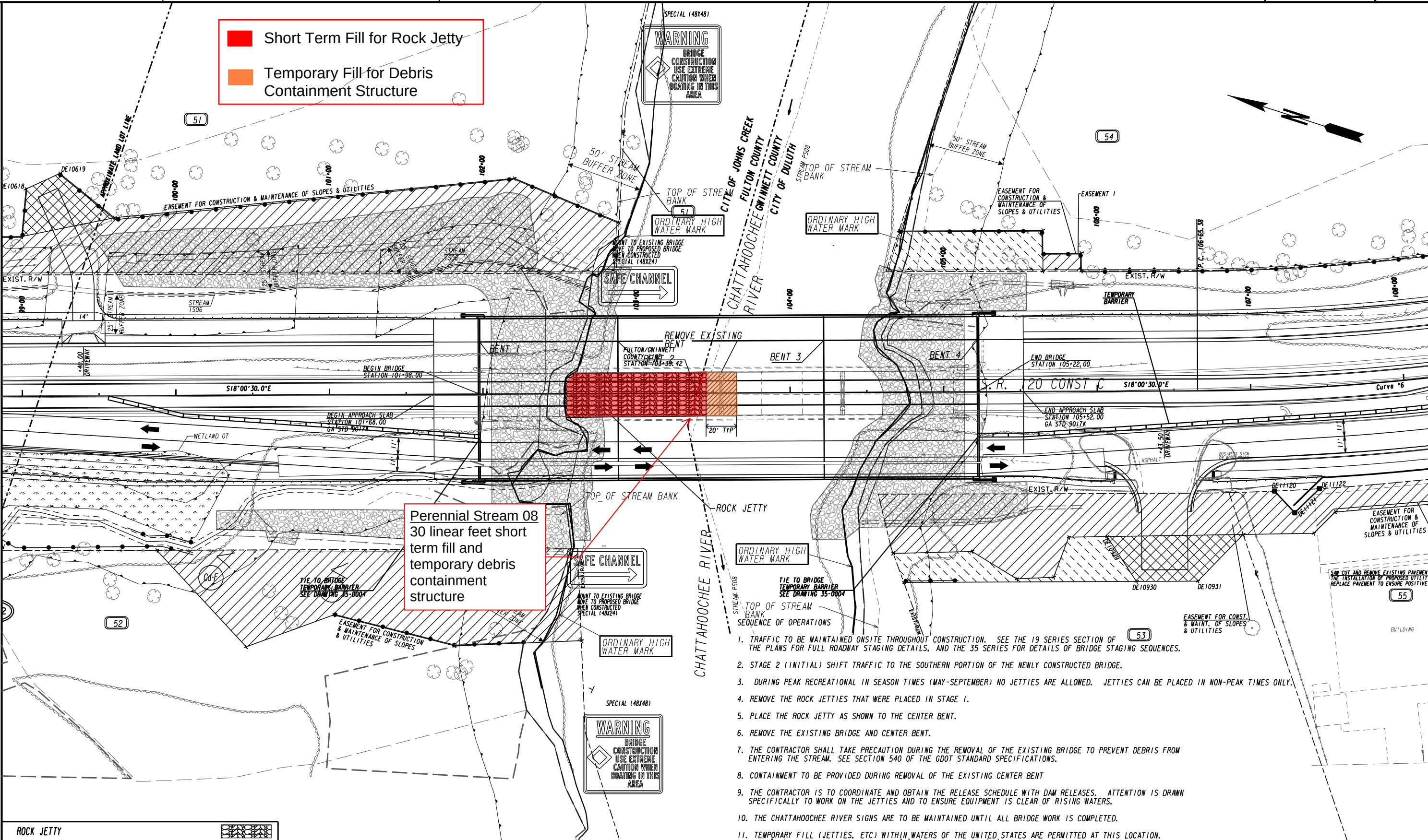
### REVISION DATES

### BRIDGE CONSTRUCTION ACCESS

S. R. 120 BRIDGE  
STAGE 1

|              |  |       |  |                            |
|--------------|--|-------|--|----------------------------|
| CHECKED:     |  | DATE: |  | DRAWING No.<br><br>20-0001 |
| BACKCHECKED: |  | DATE: |  |                            |
| CORRECTED:   |  | DATE: |  |                            |
| VERIFIED:    |  | DATE: |  |                            |





Perennial Stream 08  
30 linear feet short  
term fill and  
temporary debris  
containment  
structure

- SEQUENCE OF OPERATIONS
1. TRAFFIC TO BE MAINTAINED ONSITE THROUGHOUT CONSTRUCTION. SEE THE 19 SERIES SECTION OF THE PLANS FOR FULL ROADWAY STAGING DETAILS, AND THE 35 SERIES FOR DETAILS OF BRIDGE STAGING SEQUENCES.
  2. STAGE 2 (INITIAL) SHIFT TRAFFIC TO THE SOUTHERN PORTION OF THE NEWLY CONSTRUCTED BRIDGE.
  3. DURING PEAK RECREATIONAL IN SEASON TIMES (MAY-SEPTEMBER) NO JETTIES ARE ALLOWED. JETTIES CAN BE PLACED IN NON-PEAK TIMES ONLY.
  4. REMOVE THE ROCK JETTIES THAT WERE PLACED IN STAGE 1.
  5. PLACE THE ROCK JETTY AS SHOWN TO THE CENTER BENT.
  6. REMOVE THE EXISTING BRIDGE AND CENTER BENT.
  7. THE CONTRACTOR SHALL TAKE PRECAUTION DURING THE REMOVAL OF THE EXISTING BRIDGE TO PREVENT DEBRIS FROM ENTERING THE STREAM. SEE SECTION 540 OF THE GDOT STANDARD SPECIFICATIONS.
  8. CONTAINMENT TO BE PROVIDED DURING REMOVAL OF THE EXISTING CENTER BENT
  9. THE CONTRACTOR IS TO COORDINATE AND OBTAIN THE RELEASE SCHEDULE WITH DAM RELEASES. ATTENTION IS DRAWN SPECIFICALLY TO WORK ON THE JETTIES AND TO ENSURE EQUIPMENT IS CLEAR OF RISING WATERS.
  10. THE CHATTAHOOCHEE RIVER SIGNS ARE TO BE MAINTAINED UNTIL ALL BRIDGE WORK IS COMPLETED.
  11. TEMPORARY FILL (JETTIES, ETC) WITHIN WATERS OF THE UNITED STATES ARE PERMITTED AT THIS LOCATION.

|                                             |  |
|---------------------------------------------|--|
| ROCK JETTY                                  |  |
| 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                 |  |
| ORANGE BARRIER FENCE                        |  |
| ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)  |  |

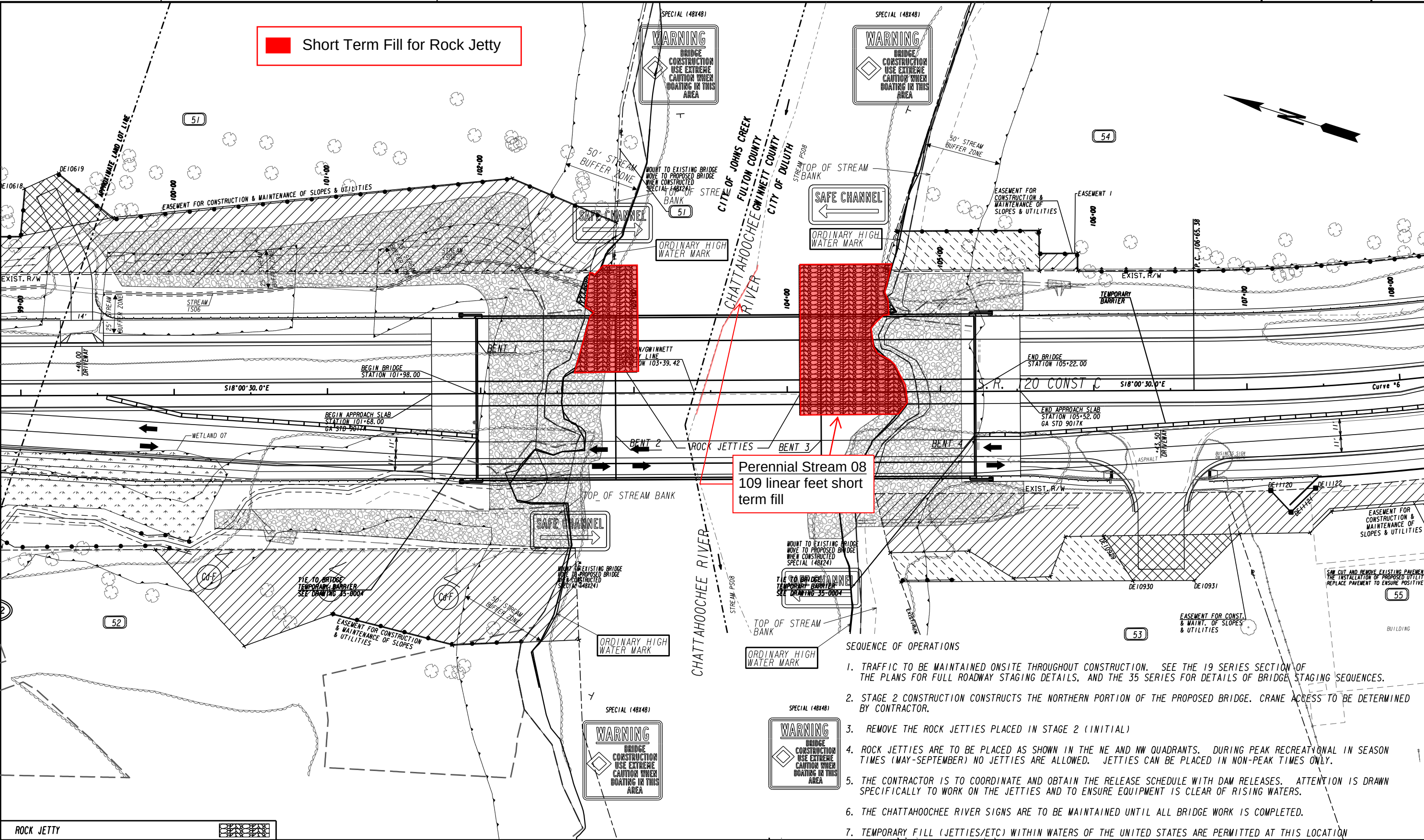
N|V|5

SCALE IN FEET  
0 30 60 120

| REVISION DATES |  |
|----------------|--|
|                |  |
|                |  |
|                |  |
|                |  |
|                |  |
|                |  |
|                |  |
|                |  |
|                |  |

| BRIDGE CONSTRUCTION ACCESS |       |
|----------------------------|-------|
| S.R. 120 BRIDGE            |       |
| STAGE 2 (INITIAL)          |       |
| CHECKED:                   | DATE: |
| BACKCHECKED:               | DATE: |
| CORRECTED:                 | DATE: |
| VERIFIED:                  | DATE: |
| DRAWING No.                |       |
| 20-0002                    |       |





ROCK JETTY

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

ORANGE BARRIER FENCE

ESA - ENV. SENSITIVE AREA (SEE ERIT TABLE)

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N|V|5

SCALE IN FEET  
0 30 60 120

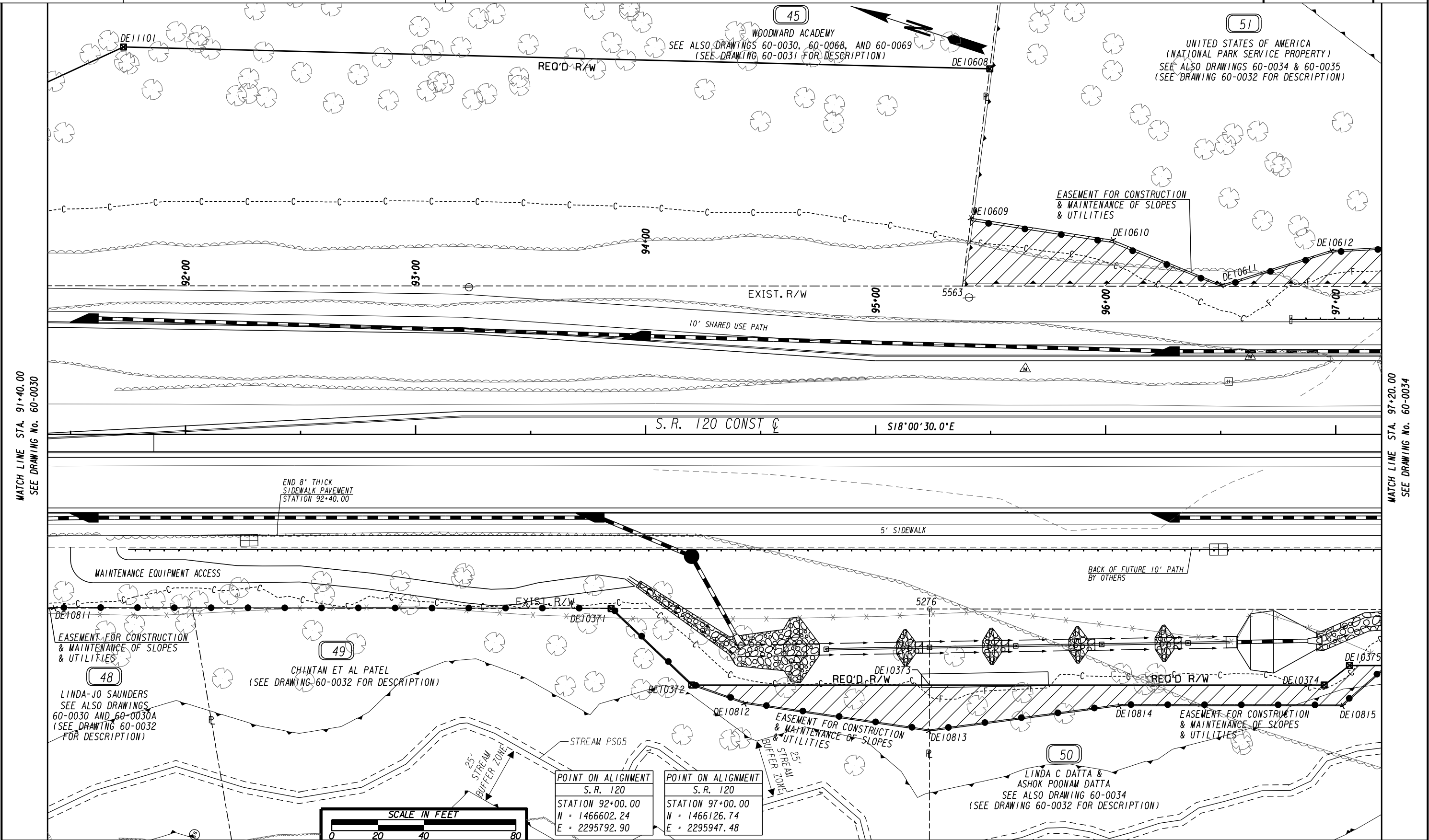
| REVISION DATES |  |
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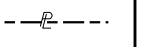
| BRIDGE CONSTRUCTION ACCESS |  |       |  |
|----------------------------|--|-------|--|
| S. R. 120 BRIDGE           |  |       |  |
| STAGE 2 (FINAL)            |  |       |  |
| CHECKED:                   |  | DATE: |  |
| BACKCHECKED:               |  | DATE: |  |
| CORRECTED:                 |  | DATE: |  |
| VERIFIED:                  |  | DATE: |  |

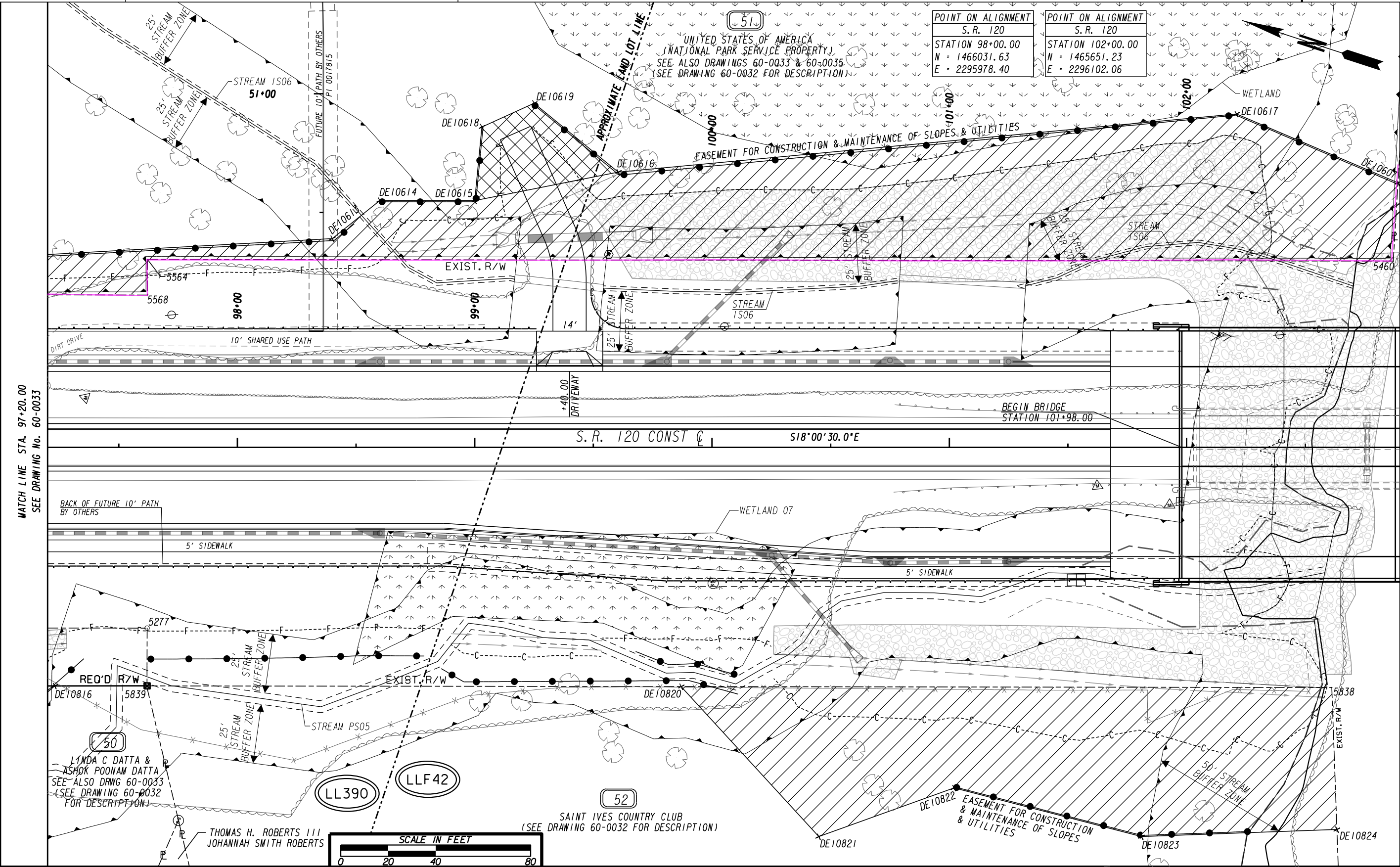
DRAWING No.  
20-0003



**Attachment 3:  
Right-of-Way Plans**

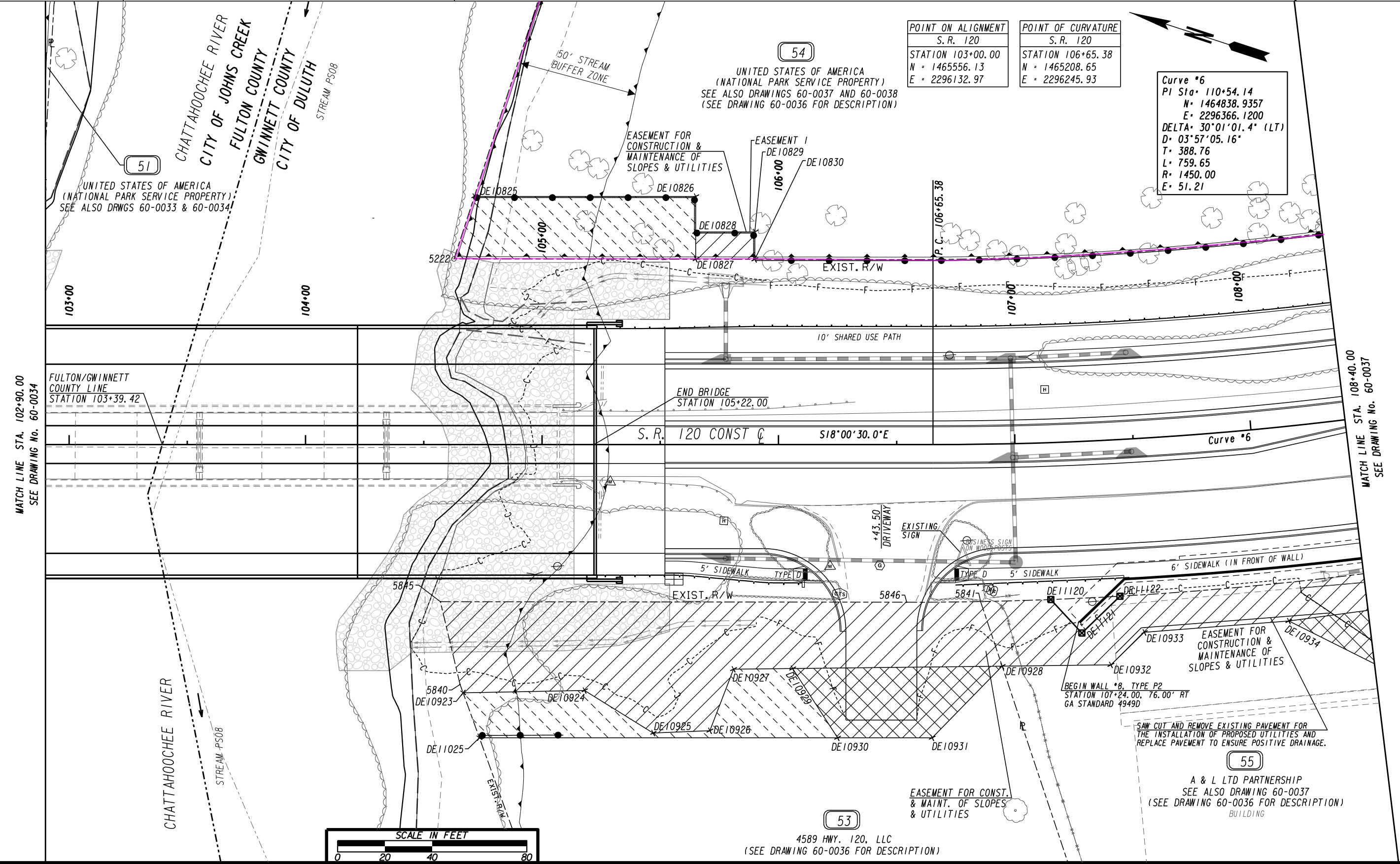


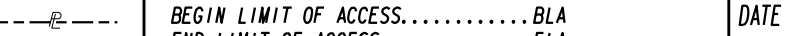
|                                                                                                                                                                                                |                                                                                     |                                |                                                                                       |            |                                                                          |      |           |                                                  |                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------------------------------------------|------------|--------------------------------------------------------------------------|------|-----------|--------------------------------------------------|----------------------------|
| PROPERTY AND EXISTING R/W LINE<br>REQUIRED R/W LINE<br>CONSTRUCTION LIMITS<br>EASEMENT FOR CONSTR<br>& MAINTENANCE OF SLOPES<br>EASEMENT FOR CONSTR OF SLOPES<br>EASEMENT FOR CONSTR OF DRIVES |  | BEGIN LIMIT OF ACCESS.....BLA  |  | DATE       | REVISIONS                                                                | DATE | REVISIONS | STATE OF GEORGIA<br>DEPARTMENT OF TRANSPORTATION |                            |
|                                                                                                                                                                                                |                                                                                     | END LIMIT OF ACCESS.....ELA    |                                                                                       | 06/30/2021 | PARCEL 45; REVISED REQUIRED RIGHT OF WAY TO INCLUDE ALL EASEMENTS        |      |           | RIGHT OF WAY MAP                                 |                            |
|                                                                                                                                                                                                |                                                                                     | EXISTING LIMIT OF ACCESS       |                                                                                       | 05/01/2024 | PARCEL 51; REVISED REQ'D EASEMENT                                        |      |           | PROJECT NO: STP00-0189-01(010)                   |                            |
|                                                                                                                                                                                                |                                                                                     | REQ'D LIMIT OF ACCESS          |                                                                                       | 08/09/2024 | PARCEL 51; REVISED EXISTING PROPERTY BOUNDARY AND REVISED REQ'D EASEMENT |      |           | COUNTY: FULTON                                   |                            |
|                                                                                                                                                                                                |                                                                                     | EXISTING LIMIT OF ACCESS & R/W |                                                                                       |            |                                                                          |      |           | LAND LOT NO: 390                                 |                            |
|                                                                                                                                                                                                |                                                                                     | REQ'D LIMIT OF ACCESS & R/W    |                                                                                       |            |                                                                          |      |           |                                                  | DRAWING No.<br><br>60-0033 |
|                                                                                                                                                                                                |                                                                                     | ORANGE BARRIER FENCE           |                                                                                       |            |                                                                          |      |           | LAND DISTRICT: I                                 |                            |
|                                                                                                                                                                                                |                                                                                     | ESA - ENV. SENSITIVE AREA      |                                                                                       |            |                                                                          |      |           | GWD 842                                          |                            |
|                                                                                                                                                                                                |                                                                                     |                                |                                                                                       |            |                                                                          |      |           | DATE 04/03/17 SH 35 OF 71                        |                            |

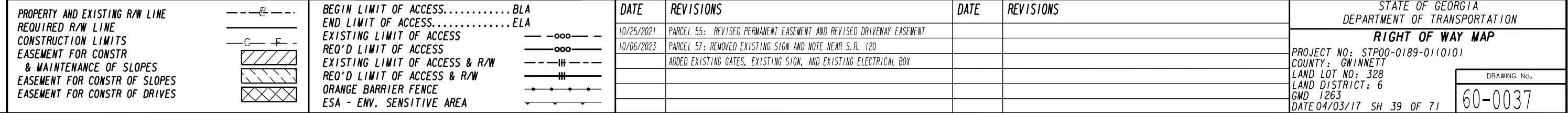


|                                                                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                                                                                                         |                                                                                                                                                 |            |                                                                          |      |           |                                                                                                                                                                                                                      |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------------------------------------|------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| PROPERTY AND EXISTING R/W LINE<br>REQUIRED R/W LINE<br>CONSTRUCTION LIMITS<br>EASEMENT FOR CONSTR<br>& MAINTENANCE OF SLOPES<br>EASEMENT FOR CONSTR OF SLOPES<br>EASEMENT FOR CONSTR OF DRIVES | <div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div> | BEGIN LIMIT OF ACCESS.....BLA<br>END LIMIT OF ACCESS.....ELA<br>EXISTING LIMIT OF ACCESS<br>REQ'D LIMIT OF ACCESS<br>EXISTING LIMIT OF ACCESS & R/W<br>REQ'D LIMIT OF ACCESS & R/W<br>ORANGE BARRIER FENCE<br>ESA - ENV. SENSITIVE AREA | <div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div><div><div></div></div></div> | DATE       | REVISIONS                                                                | DATE | REVISIONS | STATE OF GEORGIA<br>DEPARTMENT OF TRANSPORTATION<br><b>RIGHT OF WAY MAP</b><br>PROJECT NO: STP00-0189-01(010)<br>COUNTY: FULTON<br>LAND LOT NO: 390, F42<br>LAND DISTRICT: I<br>GMD 842<br>DATE 04/03/17 SH 36 OF 71 |         |
|                                                                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                                                                                                         |                                                                                                                                                 | 05/01/2024 | PARCEL 51; REVISED REQ'D EASEMENT                                        |      |           |                                                                                                                                                                                                                      |         |
|                                                                                                                                                                                                |                                                                                                                                                 |                                                                                                                                                                                                                                         |                                                                                                                                                 | 08/09/2024 | PARCEL 51; REVISED EXISTING PROPERTY BOUNDARY AND REVISED REQ'D EASEMENT |      |           | DRAWING No.                                                                                                                                                                                                          | 60-0034 |

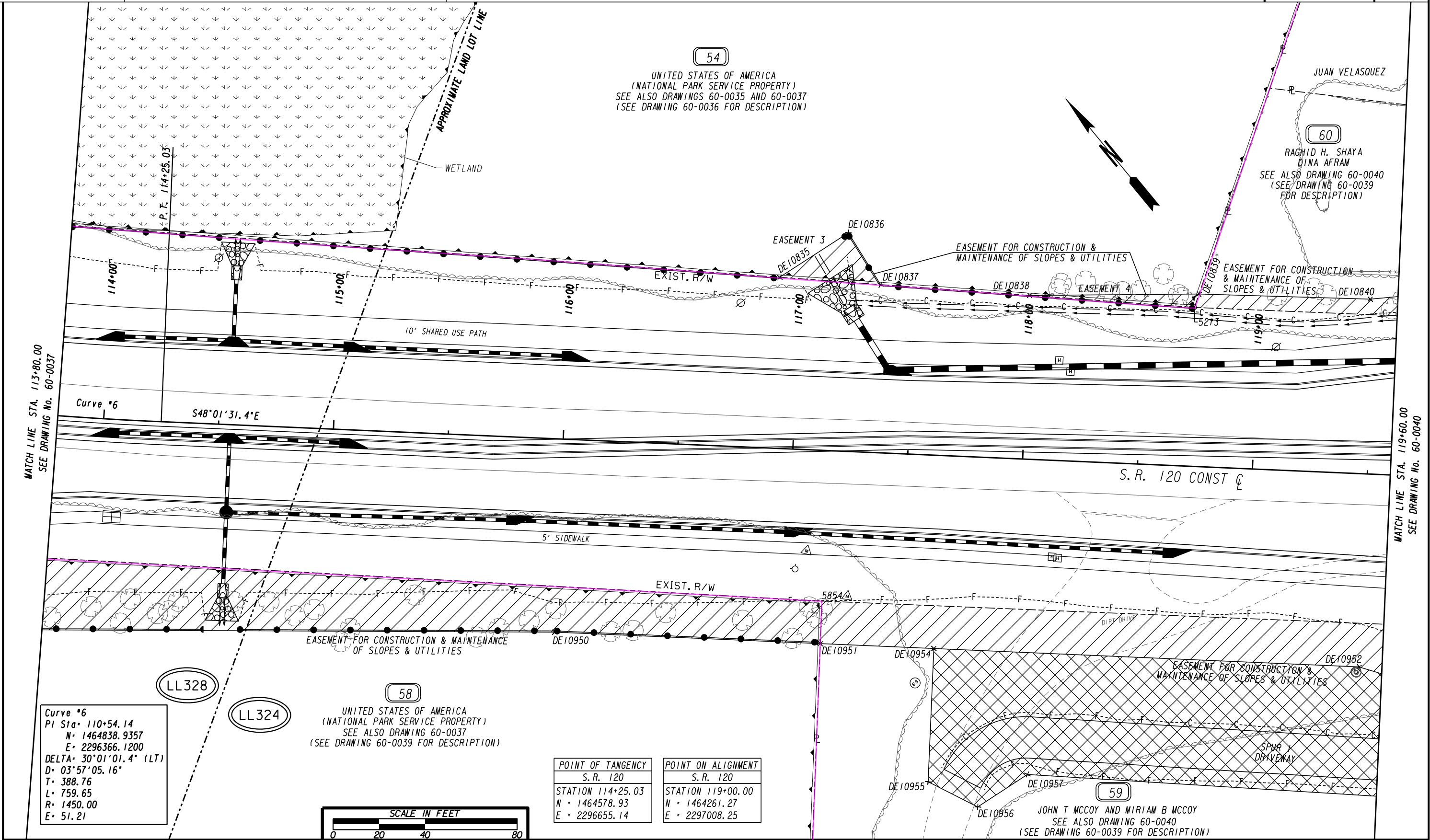




|                                                                                                                                                                                                |                                                                                      |                                |            |                                                                     |      |           |                                                                                                                                                                                                                    |                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------|------------|---------------------------------------------------------------------|------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| PROPERTY AND EXISTING R/W LINE<br>REQUIRED R/W LINE<br>CONSTRUCTION LIMITS<br>EASEMENT FOR CONSTR<br>& MAINTENANCE OF SLOPES<br>EASEMENT FOR CONSTR OF SLOPES<br>EASEMENT FOR CONSTR OF DRIVES |  | BEGIN LIMIT OF ACCESS.....BLA  | DATE       | REVISIONS                                                           | DATE | REVISIONS | STATE OF GEORGIA<br>DEPARTMENT OF TRANSPORTATION<br><b>RIGHT OF WAY MAP</b><br>PROJECT NO: STP00-0189-01(010)<br>COUNTY: GWINNETT<br>LAND LOT NO: 328<br>LAND DISTRICT: 6<br>GWD 1263<br>DATE 04/03/17 SH 37 OF 71 | DRAWING No.<br><b>60-0035</b> |
|                                                                                                                                                                                                |                                                                                      | END LIMIT OF ACCESS.....ELA    | 10/25/2021 | PARCEL 55: REVISED PERMANENT EASEMENT AND REVISED DRIVEWAY EASEMENT |      |           |                                                                                                                                                                                                                    |                               |
|                                                                                                                                                                                                |                                                                                      | EXISTING LIMIT OF ACCESS       | 03/27/2023 | PARCEL 53: CHANGED PROPERTY OWNER NAME                              |      |           |                                                                                                                                                                                                                    |                               |
|                                                                                                                                                                                                |                                                                                      | REQ'D LIMIT OF ACCESS          | 08/09/2024 | PARCEL 51: REVISED EXISTING PROPERTY BOUNDARY                       |      |           |                                                                                                                                                                                                                    |                               |
|                                                                                                                                                                                                |                                                                                      | EXISTING LIMIT OF ACCESS & R/W |            |                                                                     |      |           |                                                                                                                                                                                                                    |                               |
| REQ'D LIMIT OF ACCESS & R/W                                                                                                                                                                    |                                                                                      |                                |            |                                                                     |      |           |                                                                                                                                                                                                                    |                               |
| ORANGE BARRIER FENCE                                                                                                                                                                           |                                                                                      |                                |            |                                                                     |      |           |                                                                                                                                                                                                                    |                               |
| ESA - ENV. SENSITIVE AREA                                                                                                                                                                      |                                                                                      |                                |            |                                                                     |      |           |                                                                                                                                                                                                                    |                               |







|                                                                                                                                                                                                |  |                                                                                                                                                                                                                                         |                    |                                                            |      |           |                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------|------|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROPERTY AND EXISTING R/W LINE<br>REQUIRED R/W LINE<br>CONSTRUCTION LIMITS<br>EASEMENT FOR CONSTR<br>& MAINTENANCE OF SLOPES<br>EASEMENT FOR CONSTR OF SLOPES<br>EASEMENT FOR CONSTR OF DRIVES |  | BEGIN LIMIT OF ACCESS.....BLA<br>END LIMIT OF ACCESS.....ELA<br>EXISTING LIMIT OF ACCESS<br>REQ'D LIMIT OF ACCESS<br>EXISTING LIMIT OF ACCESS & R/W<br>REQ'D LIMIT OF ACCESS & R/W<br>ORANGE BARRIER FENCE<br>ESA - ENV. SENSITIVE AREA | DATE<br>03/10/2023 | REVISIONS<br>PARCEL 59: REVISED REQUIRED DRIVEWAY EASEMENT | DATE | REVISIONS | STATE OF GEORGIA<br>DEPARTMENT OF TRANSPORTATION<br><b>RIGHT OF WAY MAP</b><br>PROJECT NO: STP00-0189-01(010)<br>COUNTY: GWINNETT<br>LAND LOT NO: 324, 328<br>LAND DISTRICT: 6<br>GWD 1263<br>DATE 04/03/17 SH 40 OF 71 |
|                                                                                                                                                                                                |  |                                                                                                                                                                                                                                         |                    |                                                            |      |           |                                                                                                                                                                                                                         |



## **Attachment 4: Data Forms**

NC Division of Water Quality –Methodology for Identification of Intermittent and  
Perennial Streams and Their Origins v. 4.11

NC DWQ Stream Identification Form Version 4.11

IS06

|                                                                                                   |                                                                       |                          |
|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------|
| Date: 2-6-14                                                                                      | Project/Site: 5A120 IS06                                              | Latitude: 34.029423      |
| Evaluator: BE/DO                                                                                  | County: Fulton                                                        | Longitude: -84.168136    |
| Total Points:<br>Stream is at least intermittent<br>if $\geq 19$ or perennial if $\geq 30^*$ 23.5 | Stream Determination (circle one)<br>Ephemeral Intermittent Perennial | Other<br>e.g. Quad Name: |

A. Geomorphology (Subtotal = 18)

|                                                                           | Absent | Weak | Moderate | Strong |
|---------------------------------------------------------------------------|--------|------|----------|--------|
| 1 <sup>a</sup> Continuity of channel bed and bank                         | 0      | 1    | 2        | (3)    |
| 2. Sinuosity of channel along thalweg                                     | 0      | (1)  | 2        | 3      |
| 3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence | 0      | (1)  | 2        | 3      |
| 4. Particle size of stream substrate                                      | 0      | 1    | (2)      | 3      |
| 5. Active/relict floodplain                                               | 0      | 1    | 2        | (3)    |
| 6. Depositional bars or benches                                           | 0      | (1)  | 2        | 3      |
| 7. Recent alluvial deposits                                               | 0      | 1    | (2)      | 3      |
| 8. Headcuts                                                               | (0)    | 1    | 2        | 3      |
| 9. Grade control                                                          | 0      | 0.5  | (1)      | 1.5    |
| 10. Natural valley                                                        | 0      | 0.5  | (1)      | 1.5    |
| 11. Second or greater order channel                                       | No = 0 |      | Yes = 3  |        |

<sup>a</sup> artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 3.5)

|                                              |        |     |         |     |
|----------------------------------------------|--------|-----|---------|-----|
| 12. Presence of Baseflow                     | 0      | 1   | (2)     | 3   |
| 13. Iron oxidizing bacteria                  | (0)    | 1   | 2       | 3   |
| 14. Leaf litter                              | 1.5    | 1   | (0.5)   | 0   |
| 15. Sediment on plants or debris             | 0      | 0.5 | (1)     | 1.5 |
| 16. Organic debris lines or piles            | (0)    | 0.5 | 1       | 1.5 |
| 17. Soil-based evidence of high water table? | No = 0 |     | Yes = 3 |     |

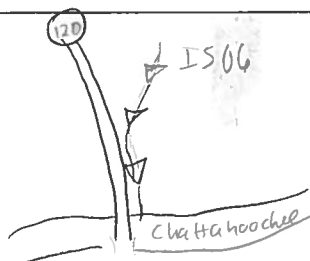
C. Biology (Subtotal = 2)

|                                                       |                                  |     |     |     |
|-------------------------------------------------------|----------------------------------|-----|-----|-----|
| 18. Fibrous roots in streambed                        | 3                                | 2   | (1) | 0   |
| 19. Rooted upland plants in streambed                 | 3                                | 2   | (1) | 0   |
| 20. Macroinvertebrates (note diversity and abundance) | (0)                              | 1   | 2   | 3   |
| 21. Aquatic Mollusks                                  | (0)                              | 1   | 2   | 3   |
| 22. Fish                                              | (0)                              | 0.5 | 1   | 1.5 |
| 23. Crayfish                                          | (0)                              | 0.5 | 1   | 1.5 |
| 24. Amphibians                                        | (0)                              | 0.5 | 1   | 1.5 |
| 25. Algae                                             | (0)                              | 0.5 | 1   | 1.5 |
| 26. Wetland plants in streambed                       | FACW = 0.75; OBL = 1.5 Other = 0 |     |     |     |

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:



NC Division of Water Quality –Methodology for Identification of Intermittent and  
Perennial Streams and Their Origins v. 4.11

NC DWQ Stream Identification Form Version 4.11

Chattahoochee river

PS08

|                                                                                                   |                                                                       |                          |
|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------|
| Date: 2-5-14                                                                                      | Project/Site: SR120 PS08                                              | Latitude:                |
| Evaluator: BE/ DU                                                                                 | County: Fulton/Gwinnett                                               | Longitude:               |
| Total Points:<br>Stream is at least intermittent<br>if $\geq 19$ or perennial if $\geq 30^*$ 42.5 | Stream Determination (circle one)<br>Ephemeral Intermittent Perennial | Other<br>e.g. Quad Name: |

A. Geomorphology (Subtotal = 22.5)

|                                                                           | Absent | Weak | Moderate | Strong |
|---------------------------------------------------------------------------|--------|------|----------|--------|
| 1 <sup>a</sup> . Continuity of channel bed and bank                       | 0      | 1    | 2        | (3)    |
| 2. Sinuosity of channel along thalweg                                     | 0      | 1    | 2        | (3)    |
| 3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence | 0      | 1    | 2        | (3)    |
| 4. Particle size of stream substrate                                      | 0      | 1    | 2        | (3)    |
| 5. Active/relict floodplain                                               | 0      | 1    | (2)      | 3      |
| 6. Depositional bars or benches                                           | 0      | 1    | (2)      | 3      |
| 7. Recent alluvial deposits                                               | 0      | (1)  | 2        | 3      |
| 8. Headcuts                                                               | (0)    | 1    | 2        | 3      |
| 9. Grade control                                                          | 0      | 0.5  | (1)      | 1.5    |
| 10. Natural valley                                                        | 0      | 0.5  | 1        | (1.5)  |
| 11. Second or greater order channel                                       | No = 0 |      | Yes = 3  |        |

<sup>a</sup> artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = 10.5)

|                                              |        |     |         |     |
|----------------------------------------------|--------|-----|---------|-----|
| 12. Presence of Baseflow                     | 0      | 1   | 2       | (3) |
| 13. Iron oxidizing bacteria                  | 0      | (1) | 2       | 3   |
| 14. Leaf litter                              | (1.5)  | 1   | 0.5     | 0   |
| 15. Sediment on plants or debris             | 0      | 0.5 | (1)     | 1.5 |
| 16. Organic debris lines or piles            | 0      | 0.5 | (1)     | 1.5 |
| 17. Soil-based evidence of high water table? | No = 0 |     | Yes = 3 |     |

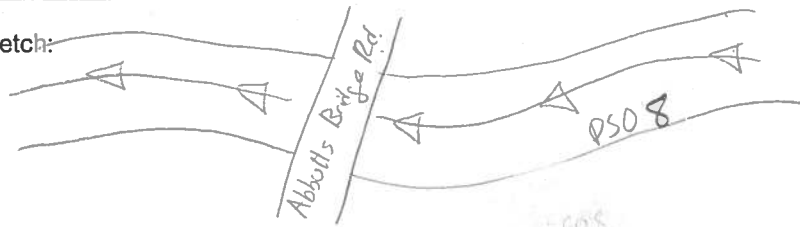
C. Biology (Subtotal = 9.5)

|                                                       |                                  |     |     |       |
|-------------------------------------------------------|----------------------------------|-----|-----|-------|
| 18. Fibrous roots in streambed                        | (3)                              | 2   | 1   | 0     |
| 19. Rooted upland plants in streambed                 | (3)                              | 2   | 1   | 0     |
| 20. Macroinvertebrates (note diversity and abundance) | (0)                              | 1   | 2   | 3     |
| 21. Aquatic Mollusks                                  | 0                                | (1) | 2   | 3     |
| 22. Fish                                              | 0                                | 0.5 | 1   | (1.5) |
| 23. Crayfish                                          | (0)                              | 0.5 | 1   | 1.5   |
| 24. Amphibians                                        | 0                                | 0.5 | (1) | 1.5   |
| 25. Algae                                             | (0)                              | 0.5 | 1   | 1.5   |
| 26. Wetland plants in streambed                       | FACW = 0.75; OBL = 1.5 Other = 0 |     |     |       |

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:





# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SR 120 City/County: Fulton Sampling Date: 5/13/2014  
 Applicant/Owner: GDOT State: GA Sampling Point: WL09A  
 Investigator(s): Mark Ray Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): gently sloping Local relief (concave, convex, none): concave Slope (%): 3  
 Subregion (LRR or MLRA): LRR P Lat: 34.026472 Long: -84.166306 Datum: NAD83  
 Soil Map Unit Name: (Aka) Altavista fine sandy loam, 0-2% slopes & (AuA) Augusta soils NWI classification: PFO  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

|                                                                                                                                                         |                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Hydrophytic Vegetation Present? Yes <u>X</u> No _____<br>Hydric Soil Present? Yes <u>X</u> No _____<br>Wetland Hydrology Present? Yes <u>X</u> No _____ | Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ |
| Remarks:<br>NCWAM<br>HGM Code<br>Waters Type                                                                                                            |                                                             |

Resource delineation verified by KT  
on 7/31/24 and WL limits expanded  
for FGDC Wetlands Classification  
Standard

## HYDROLOGY

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetland Hydrology Indicators:</b><br><u>Primary Indicators (minimum of one is required; check all that apply)</u><br><input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14)<br><input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1)<br><input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)<br><input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4)<br><input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br><input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7)<br><input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks)<br><input type="checkbox"/> Iron Deposits (B5)<br><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br><input checked="" type="checkbox"/> Water-Stained Leaves (B9)<br><input type="checkbox"/> Aquatic Fauna (B13) |                                                  | <u>Secondary Indicators (minimum of two required)</u><br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)<br><input type="checkbox"/> Drainage Patterns (B10)<br><input type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input type="checkbox"/> Stunted or Stressed Plants (D1)<br><input checked="" type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input type="checkbox"/> Microtopographic Relief (D4)<br><input type="checkbox"/> FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u><br>Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u><br>Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>0</u><br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Wetland Hydrology Present? Yes <u>X</u> No _____ |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**VEGETATION (Five Strata) – Use scientific names of plants.**

 Sampling Point: WL09A

| Tree Stratum (Plot size: <u>30 ft</u> )                       | Absolute<br>% Cover | Dominant<br>Species? | Indicator<br>Status |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------|---------------------|----------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <u>Salix nigra</u>                                         | 30                  | X                    | OBL                 | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>4</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2. <u>Platanus occidentalis</u>                               | 10                  | X                    | FACW                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 3. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 5. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 6. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <u>40</u> = Total Cover                                       |                     |                      |                     | <b>Prevalence Index worksheet:</b><br>Total % Cover of: _____ Multiply by:<br>OBL species _____ x 1 = _____<br>FACW species _____ x 2 = _____<br>FAC species _____ x 3 = _____<br>FACU species _____ x 4 = _____<br>UPL species _____ x 5 = _____<br>Column Totals: _____ (A) _____ (B)<br><br>Prevalence Index = B/A = _____                                                                                                                                                                                                                                                                                                                                                                                                           |
| 50% of total cover: <u>20</u> 20% of total cover: <u>8</u>    |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Sapling Stratum (Plot size: <u>30 ft</u> )                    |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 1. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 3. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 5. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 6. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| _____ = Total Cover                                           |                     |                      |                     | <b>Hydrophytic Vegetation Indicators:</b><br>___ 1 - Rapid Test for Hydrophytic Vegetation<br><input checked="" type="checkbox"/> 2 - Dominance Test is >50%<br>___ 3 - Prevalence Index is ≤3.0 <sup>1</sup><br>___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)<br>___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)<br><br><sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.                                                                                                                                                                                                                      |
| 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>     |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Shrub Stratum (Plot size: <u>30 ft</u> )                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 1. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 3. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 5. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 6. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| _____ = Total Cover                                           |                     |                      |                     | <b>Definitions of Five Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).<br><br><b>Sapling</b> – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.<br><br><b>Shrub</b> – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.<br><br><b>Woody vine</b> – All woody vines, regardless of height. |
| 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>     |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Herb Stratum (Plot size: <u>30 ft</u> )                       |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 1. <u>Juncus effusus</u>                                      | 40                  | X                    | FACW                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2. <u>Dichanthelium clandestinum</u>                          | 20                  | X                    | FAC                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 3. <u>Carex intumescens</u>                                   | 10                  |                      | FACW                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 5. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 6. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 7. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 8. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 9. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 10. _____                                                     |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 11. _____                                                     |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <u>70</u> = Total Cover                                       |                     |                      |                     | <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 50% of total cover: <u>35</u> 20% of total cover: <u>14</u>   |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Woody Vine Stratum (Plot size: <u>30 ft</u> )                 |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 1. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 3. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 4. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 5. _____                                                      |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| _____ = Total Cover                                           |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>     |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Remarks: (Include photo numbers here or on a separate sheet.) |                     |                      |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## SOIL

Sampling Point: WL09**A**

[illegible]



# WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Resource  
delineation verified  
by KT on 7/31/24

Project/Site: SR 120 City/County: Gwinnett County Sampling Date: 5/13/2014  
 Applicant/Owner: GDOT State: GA Sampling Point: UPL09A  
 Investigator(s): Mark Ray Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): gently sloping Local relief (concave, convex, none): concave Slope (%): 2  
 Subregion (LRR or MLRA): LRR P Lat: 34.026472 Long: -84.166389 Datum: NAD83  
 Soil Map Unit Name: Augusta soils NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

|                                                       |                                                             |
|-------------------------------------------------------|-------------------------------------------------------------|
| Hydrophytic Vegetation Present? Yes _____ No <u>X</u> | Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> |
| Hydric Soil Present? Yes _____ No <u>X</u>            |                                                             |
| Wetland Hydrology Present? Yes _____ No <u>X</u>      |                                                             |
| Remarks:                                              |                                                             |

## HYDROLOGY

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Wetland Hydrology Indicators:</b><br><u>Primary Indicators (minimum of one is required; check all that apply)</u><br>___ Surface Water (A1)      ___ True Aquatic Plants (B14)<br>___ High Water Table (A2)      ___ Hydrogen Sulfide Odor (C1)<br>___ Saturation (A3)      ___ Oxidized Rhizospheres on Living Roots (C3)<br>___ Water Marks (B1)      ___ Presence of Reduced Iron (C4)<br>___ Sediment Deposits (B2)      ___ Recent Iron Reduction in Tilled Soils (C6)<br>___ Drift Deposits (B3)      ___ Thin Muck Surface (C7)<br>___ Algal Mat or Crust (B4)      ___ Other (Explain in Remarks)<br>___ Iron Deposits (B5)<br>___ Inundation Visible on Aerial Imagery (B7)<br>___ Water-Stained Leaves (B9)<br>___ Aquatic Fauna (B13) |                                                         | <u>Secondary Indicators (minimum of two required)</u><br>___ Surface Soil Cracks (B6)<br>___ Sparsely Vegetated Concave Surface (B8)<br>___ Drainage Patterns (B10)<br>___ Moss Trim Lines (B16)<br>___ Dry-Season Water Table (C2)<br>___ Crayfish Burrows (C8)<br>___ Saturation Visible on Aerial Imagery (C9)<br>___ Stunted or Stressed Plants (D1)<br>___ Geomorphic Position (D2)<br>___ Shallow Aquitard (D3)<br>___ Microtopographic Relief (D4)<br>___ FAC-Neutral Test (D5) |
| <b>Field Observations:</b><br>Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____<br>Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____<br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

**VEGETATION (Five Strata) – Use scientific names of plants.**

 Sampling Point: UPL09A

| Tree Stratum (Plot size: <u>30 sq ft</u> )                    | Absolute % Cover | Dominant Species? | Indicator Status |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
|---------------------------------------------------------------|------------------|-------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------|----------------------|----------------|-----------------------|-----------------|------------------------|------------------|-------------------------|------------------|----------------------|-------------|-------------------------------|------------------|
| 1. <u>Quercus nigra</u>                                       | <u>80</u>        | <u>X</u>          | <u>FAC</u>       | <b>Dominance Test worksheet:</b><br>Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A)<br><br>Total Number of Dominant Species Across All Strata: <u>6</u> (B)<br><br>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 2. <u>Juglans nigra</u>                                       | <u>20</u>        | <u>X</u>          | <u>FACU</u>      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 3. <u>Betula nigra</u>                                        | <u>5</u>         |                   | <u>FACW</u>      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 4. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 5. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 6. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| <u>105</u> = Total Cover                                      |                  |                   |                  | <b>Prevalence Index worksheet:</b><br><table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>5</u></td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species <u>195</u></td> <td>x 3 = <u>585</u></td> </tr> <tr> <td>FACU species <u>140</u></td> <td>x 4 = <u>560</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: <u>340</u> (A)</td> <td><u>1,155</u> (B)</td> </tr> </table> Prevalence Index = B/A = <u>3.39705882</u>                                                                                     | Total % Cover of: | Multiply by: | OBL species <u>0</u> | x 1 = <u>0</u> | FACW species <u>5</u> | x 2 = <u>10</u> | FAC species <u>195</u> | x 3 = <u>585</u> | FACU species <u>140</u> | x 4 = <u>560</u> | UPL species <u>0</u> | x 5 = _____ | Column Totals: <u>340</u> (A) | <u>1,155</u> (B) |
| Total % Cover of:                                             | Multiply by:     |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| OBL species <u>0</u>                                          | x 1 = <u>0</u>   |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| FACW species <u>5</u>                                         | x 2 = <u>10</u>  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| FAC species <u>195</u>                                        | x 3 = <u>585</u> |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| FACU species <u>140</u>                                       | x 4 = <u>560</u> |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| UPL species <u>0</u>                                          | x 5 = _____      |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| Column Totals: <u>340</u> (A)                                 | <u>1,155</u> (B) |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 50% of total cover: <u>53</u> 20% of total cover: <u>21</u>   |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| <b>Sapling Stratum (Plot size: <u>30 sq ft</u> )</b>          |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 1. <u>Acer negundo</u>                                        | <u>40</u>        | <u>X</u>          | <u>FAC</u>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 2. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 3. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 4. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 5. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 6. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| <u>40</u> = Total Cover                                       |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 50% of total cover: <u>20</u> 20% of total cover: <u>8</u>    |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| <b>Shrub Stratum (Plot size: _____ )</b>                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 1. <u>Ligustrum sinense</u>                                   | <u>25</u>        | <u>X</u>          | <u>FACU</u>      | <b>Hydrophytic Vegetation Indicators:</b><br><input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation<br><input type="checkbox"/> 2 - Dominance Test is >50%<br><input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup><br><input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)<br><input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)                                                                                                                                                                                                                                                                   |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 2. <u>Quercus nigra</u>                                       | <u>15</u>        | <u>X</u>          | <u>FAC</u>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 3. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 4. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 5. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 6. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| <u>40</u> = Total Cover                                       |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 50% of total cover: <u>20</u> 20% of total cover: <u>8</u>    |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| <b>Herb Stratum (Plot size: <u>30 sq ft</u> )</b>             |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 1. <u>Ligustrum sinense</u>                                   | <u>95</u>        | <u>X</u>          | <u>FACU</u>      | <b>Definitions of Five Vegetation Strata:</b><br><br><b>Tree</b> – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).<br><br><b>Sapling</b> – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.<br><br><b>Shrub</b> – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.<br><br><b>Herb</b> – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.<br><br><b>Woody vine</b> – All woody vines, regardless of height. |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 2. <u>Vitis rotundifolia</u>                                  | <u>20</u>        |                   | <u>FAC</u>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 3. <u>Lonicera japonica</u>                                   | <u>15</u>        |                   | <u>FAC</u>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 4. <u>Smilax tamnoides</u>                                    | <u>15</u>        |                   | <u>FAC</u>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 5. <u>Verbesina alternifolia</u>                              | <u>10</u>        |                   | <u>FAC</u>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 6. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 7. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 8. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 9. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 10. _____                                                     |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 11. _____                                                     |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| <u>155</u> = Total Cover                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 50% of total cover: <u>77.5</u> 20% of total cover: <u>31</u> |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| <b>Woody Vine Stratum (Plot size: _____ )</b>                 |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 1. _____                                                      |                  |                   |                  | <b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 2. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 3. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 4. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 5. _____                                                      |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| _____                                                         |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| _____ = Total Cover                                           |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>     |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |
| Remarks: (Include photo numbers here or on a separate sheet.) |                  |                   |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |                      |                |                       |                 |                        |                  |                         |                  |                      |             |                               |                  |

## SOIL

Sampling Point: UPL09**A**

[illegible]



**Attachment 5:  
Practical Alternatives Review**



**Russell R. McMurry, P.E., Commissioner**  
One Georgia Center  
600 West Peachtree NW  
Atlanta, GA 30309  
(404) 631-1990 Main Office

May 30, 2023

U.S. Army Corps of Engineers  
Savannah District, Regulatory Division  
100 West Oglethorpe Avenue  
Savannah, GA 31401-3604  
Submittals Inbox: <cesas-rd-gdot-esubmittal@usace.army.mil>  
Attn: Ed Johnson, Chief, Management Branch

Subject: Practical Alternatives Review (PAR) Report Transmittal  
SR 120 Improvements, GDOT PI No. 721000-, Fulton & Gwinnett Counties (federal funding)  
SAS- 2022-00345

Dear Mr. Johnson,

Georgia Department of Transportation (GDOT) Project PI# 721000- proposes to widen State Route (SR) 120 from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard (PIB) from two through lanes to four through lanes. The project is located within the Upper Chattahoochee Watershed (Hydrologic Unit Code 03130001) and the coordinates of the approximate project midpoint are 34.032310 -84.169479.

Enclosed is the Practical Alternatives Review (PAR) Report (Checkpoint 3 of the Local Coordination Procedures) for your review and processing. If you have any questions or need additional information, please contact GDOT Support Services Ecologist Michelle Baldwin at 404-418-5849 (mbaldwin@dot.ga.gov) or GDOT Senior Ecology Team Leader Jaime Collazo at 404-631-1740 (jcollazo@dot.ga.gov).

Sincerely,

A handwritten signature in blue ink that reads "Eric Duff /jmc".

Eric Duff  
State Environmental Administrator

ED/JMC/bm  
Enclosures

SAS-2022-00345  
PI# 721000-, Fulton and Gwinnett Counties  
May 30, 2023

cc:

Eka Okonmkpaeto, GDOT Project Manager  
DJ Fontenot, GDOT Environmental Analyst  
GDOT Environmental Inbox (ENV\_Inbox@dot.ga.gov)  
Daryl Williams, GDOT ECB  
Lisa Westberry, GDOT Mitigation  
EPD-GDOT Inbox ([epd.gdot@dnr.ga.gov](mailto:epd.gdot@dnr.ga.gov))  
Chad Carlson, GDOT Historian  
Ryan Jackson, GDOT History Team Leader  
GDOT Archaeology Inbox (ArchSubmittals@dot.ga.gov)  
Andrew Blank, GDOT Archaeologist  
Ra-Jendra Hunter, DNR EPD, E&S Unit  
Maggie Hunt, DNR WRD  
Meg Hedeon, USFWS  
Laci Pattavina, USFWS  
Eric Sommerville, USEPA  
Aaron Hernandex, FHWA  
Jessica Grannell, FHWA  
Bobby Dollar, Environmental Program Manager  
Sunshine Beba, Environmental Program Manager  
GDOT IOEQ Inbox (IOEQsubmittals@dot.ga.gov)



# **GEORGIA DEPARTMENT OF TRANSPORTATION**

## **PRACTICAL ALTERNATIVES REVIEW REPORT**

***State Route (SR) 120 Improvements from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard***

***SAS- 2022-00345***

***Fulton and Gwinnett Counties***

***PI No. 721000-***

***April 2023***

Attached is a copy of the Practical Alternative Review Report for your review and comment.

**Distribution:**

Federal Highway Administration  
US Army Corps of Engineers  
US Fish & Wildlife Service  
National Park Service  
Environmental Protection Agency  
GDNR Environmental Protection Division

## SECTION I: INTRODUCTION

The proposed Georgia Department of Transportation (GDOT) Project, P.I. No. 721000- proposes to widen State Route (SR) 120 from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard (PIB) from two through lanes to four through lanes (Figure 1: Project Vicinity Map). Total project length is approximately 2.7 miles. This project would be federally funded. The anticipated projected project schedule is as follows:

| <b>Task</b>                 |                    |
|-----------------------------|--------------------|
| <i>ROW Purchase</i>         | <i>In progress</i> |
| <i>Let for Construction</i> | <i>1/2025</i>      |

GDOT and the Interagency Review Team (IRT) met on May 24, 2022 to present the project and Checkpoints 1 and 2 per the Local Coordination Procedures (LCP). Concurrence with Checkpoints 1 and 2 and the decision to proceed to Checkpoint 3, completion of a Practical Alternatives Review (PAR) report, was provided by the United States Army Corps of Engineers (USACE) on September 6, 2022 (see LCP and IRT correspondence in Attachments).

### **A. Project Description:**

The project proposes to widen State Route (SR) 120 from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard (PIB) from two through lanes to four through lanes. It is an urban roadway with curb and gutter and a raised median. The total project length is approximately 2.7 miles, which includes a 1,500-foot tie-in to the existing roadway, west of SR 141, and 1,500-foot tie-in east of PIB. Both Medlock Bridge Road and PIB would be widened/improved for 200 feet in each direction approaching SR 120. Parsons Road would also be widened/improved for 1,900 feet south of SR 120, and Boles Road would be widened/improved for 1,000 feet north of SR 120. All other side roads would be widened/improved to a maximum of 500 feet from SR 120. The existing bridge across the Chattahoochee River would be widened/reconstructed. The project also includes the addition of a roundabout at the intersection of Parsons Road and Wilson Road. All signalized intersections would be modified, but no additional signals would be necessary along the corridor. The existing typical section is two 11-foot travel lanes with no median and rural shoulders. The proposed typical section includes four 11-foot travel lanes with a raised grass median (20-32 feet wide), 16- to 18-foot-wide shoulders (10-foot shared use path on east side of SR 120 and 5-foot sidewalk on west side of SR 120). The existing bridge over the Chattahoochee River is 304.5 feet long and 34 feet wide, and the proposed bridge would be 324 feet long and 107 feet wide. Existing rights-of-way (ROW) within the project corridor are approximately 60 to 130 feet wide. Proposed ROW would be approximately 104 to 140 feet wide.

### **B. Need and Purpose:**

The need for this project is to improve the ability for SR 120 to handle future traffic efficiently. By widening and improving the existing SR 120 corridor, the project would not only address needs related to future traffic conditions but would also improve safety and pedestrian and bicycle connectivity.

The need for congestion relief and the effectiveness of the project for providing that relief are analyzed in this section. There are capacity and operational deficiencies along the SR 120 corridor from PIB to SR 141/Medlock Bridge Road, where Level of Service (LOS) is anticipated to be F in the future no build conditions (2042). The addition of raised medians and turning lanes can help reduce the opportunity for rear-end collisions by removing turning vehicles from the through travel lanes. Additional capacity is also

anticipated to help reduce rear-end collisions by decreasing the lengths of queues in terms of time and size.

In addition, the existing bridge (built in 1959) on SR 120 over the Chattahoochee River lacks adequate shoulder width. The lack of shoulder width on the bridge makes it difficult to avoid a crash or object on the roadway ahead. Furthermore, the lack of shoulders provides inadequate space for storage of disabled vehicles, emergency response, maintenance activities, and does not accommodate pedestrians or bicyclists. Due to the age and low sufficiency rating of the bridge, full replacement is recommended.

The proposed project would address capacity and operational deficiencies and would also improve pedestrian and bicycle access and connectivity throughout the corridor, taking into consideration and accommodating the City of Johns Creek and Gwinnett County multiuse paths and/or bike lanes planned along the SR 120 corridor.

### **C. Logical Termini Evaluation and Determination**

The proposed project would begin at SR 141/Medlock Bridge Road and end at Peachtree Industrial Boulevard. The existing typical section of SR 120 beyond both termini consists of one through lane in each direction, with auxiliary lanes at driveways and side streets. Peachtree Industrial Boulevard is five through lanes south/west of SR 120 and four through lanes north/east of SR 120. SR 141/Medlock Bridge Road is a four-lane divided facility north/east and south/west of SR 120.

For the proposed termini to be logical, they must constitute logical ending points that allow for the consideration of environmental impacts on a sufficiently broad scope, must provide the project with independent utility, and must not restrict the consideration of avoidance alternatives on reasonably foreseeable projects.

This “three-pronged test” has been applied to the proposed termini of this project. The logical termini are SR 141/Medlock Bridge Road to the northwest and PIB to the southeast. The logical termini were approved by FHWA on March 6, 2017. The improvements on SR 120 will not necessitate improvements on other roadways, nor is the project dependent on the construction of other projects in the immediate vicinity to fulfill the need and purpose (i.e., the proposed project has independent utility), and by virtue of widening SR 120, other projects are not required to adhere to a specific type of improvement.

### **D. Predicted Project Impacts and Permit Type**

Environmental field surveys were conducted (2014-2017) to identify ecological, archaeological, and historical resources along the project corridor. Based on the results of the resource surveys, impacts to streams and wetlands would be required for bridge and approach construction of any project alternative, as well as for the required demolition of existing bridge bents and construction of any new bridges. Regional permits cannot be used for the project, as more than 33% of Perennial Stream (PS) 08/Chattahoochee River would be constricted by rock jetties for construction/demolition access to the existing bridge bents (see Bridge Staging Plans showing rock jetties in Attachments). Barges are not feasible for deconstruction access due to substantial water fluctuations. Driven pile temporary bridges are not feasible due to the geotechnical composition of the Chattahoochee River’s substrate. Moreover, due to the amount of impacts to Waters of the United States (WOTUS), a Section 404 Nationwide Permit cannot be utilized with any project alternative. Thus, a Section 404 Individual Permit would be required for both Alternatives 1 and 2.



Jurisdictional WOTUS identified within the project survey area include three ephemeral channels, two intermittent streams, three perennial streams, and two wetlands (See Waters of the US Figures in Attachments).

## **II. Alternatives Considered**

Three alternatives were considered, including Alternative 1 (Preferred) on existing alignment, Alternative 2 shifted east of existing alignment, and Alternative 3 (No Build). A shift west of the existing alignment was not considered because it would cause significant displacements of residential and commercial properties. For each alternative, wetland and stream impacts, non-exempt buffer impact, threatened and endangered species impacts, relocations, and cultural resources impacts were evaluated. None of the alternatives evaluated are anticipated to have significant impacts to state or federally protected species. Special provisions and clearing restrictions would be implemented to protect bats and migratory birds. All alternatives would not have adverse effects to eligible cultural resources.

### **A. Alternative 1 (Preferred)**

Alternative 1 would widen SR 120 from SR 141/Medlock Bridge Road to PIB from two through lanes to four through lanes (see Figure 2: PAR Alternatives Map). Both Medlock Bridge Road and PIB would be widened/improved for 1,000 feet in each direction approaching SR 120. Parsons Road would also be widened/improved for 1,250 feet south of SR 120, and Boles Road would be improved for 1,000 feet north of SR 120. All other side roads would be improved to a maximum of 500 feet from SR 120. The existing bridge would be widened/reconstructed across the Chattahoochee River. Alternative 1 would meet the project need and purpose while minimizing impacts to National Park Service property, and would optimize project costs, schedule, and logistics. Alternative 2 would incur greater costs and a longer schedule because permanent ROW will need to be purchased from NPS. Also, Alternative 2 would require shifting the alignment, which would be more complicated for construction access and cost more due to increased clearing, grubbing, and grading needs. Alternative 1 plans are 95% complete.

- Alternative 1 is not anticipated to have significant impacts to state or federally protected species. Special provisions and clearing restrictions would be implemented to protect bats and migratory birds.
- Permanent impacts of 1,046 linear feet of jurisdictional streams and 0.12 acre of wetland.
  - Avoids impacts to Wetland (WL) 09 [high quality, palustrine forested wetland (PFO)] but would impact WL 07 [low quality, palustrine emergent wetland (PEM)].
- Would require only 0.83 acre of temporary and permanent easement impacts to National Park Service (NPS) property; no permanent ROW required.
- Due to unpredictable flows and bedrock substrate, temporary rock jetties would be needed in PS08/Chattahoochee River for demolition of the existing bridge and for construction of the new bridge. All other alternatives to rock jetties (barges, work bridges) were explored but none were deemed feasible.

Measures to minimize impacts to WOTUS already incorporated into the project design include:

- Utilizing guardrail and 2:1 slopes where possible, as well as placing orange barrier fence (OBF) as close to construction limits as possible to reduce impacts to resources. Avoidance was achieved

where possible by widening to the opposite side of the road from where a resource is located. All resource impacts were further minimized by widening along existing alignment where previous impacts have already occurred.

- Impacts to WL09 have been avoided
- Impacts to PS05, IS06, and WL07 were minimized through the placement of retaining walls and slope reduction, where feasible.
- Impacts to PS08 are unavoidable

## **B. Alternative 2**

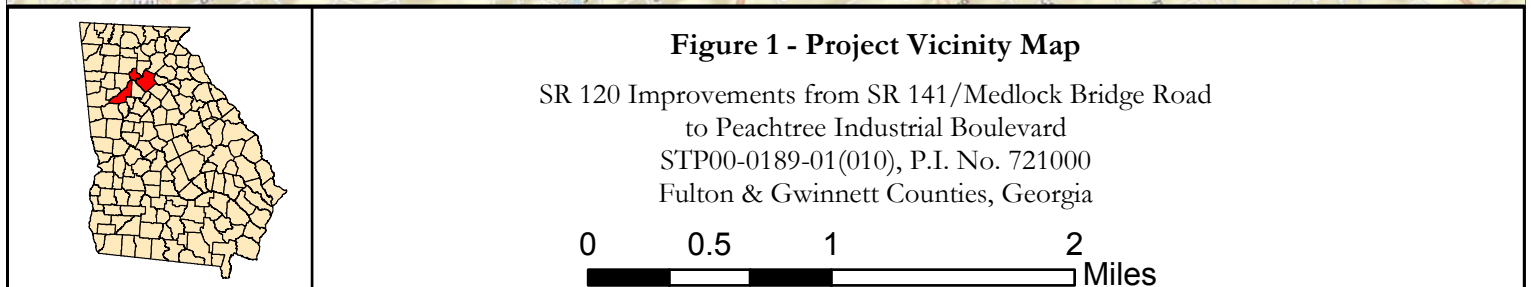
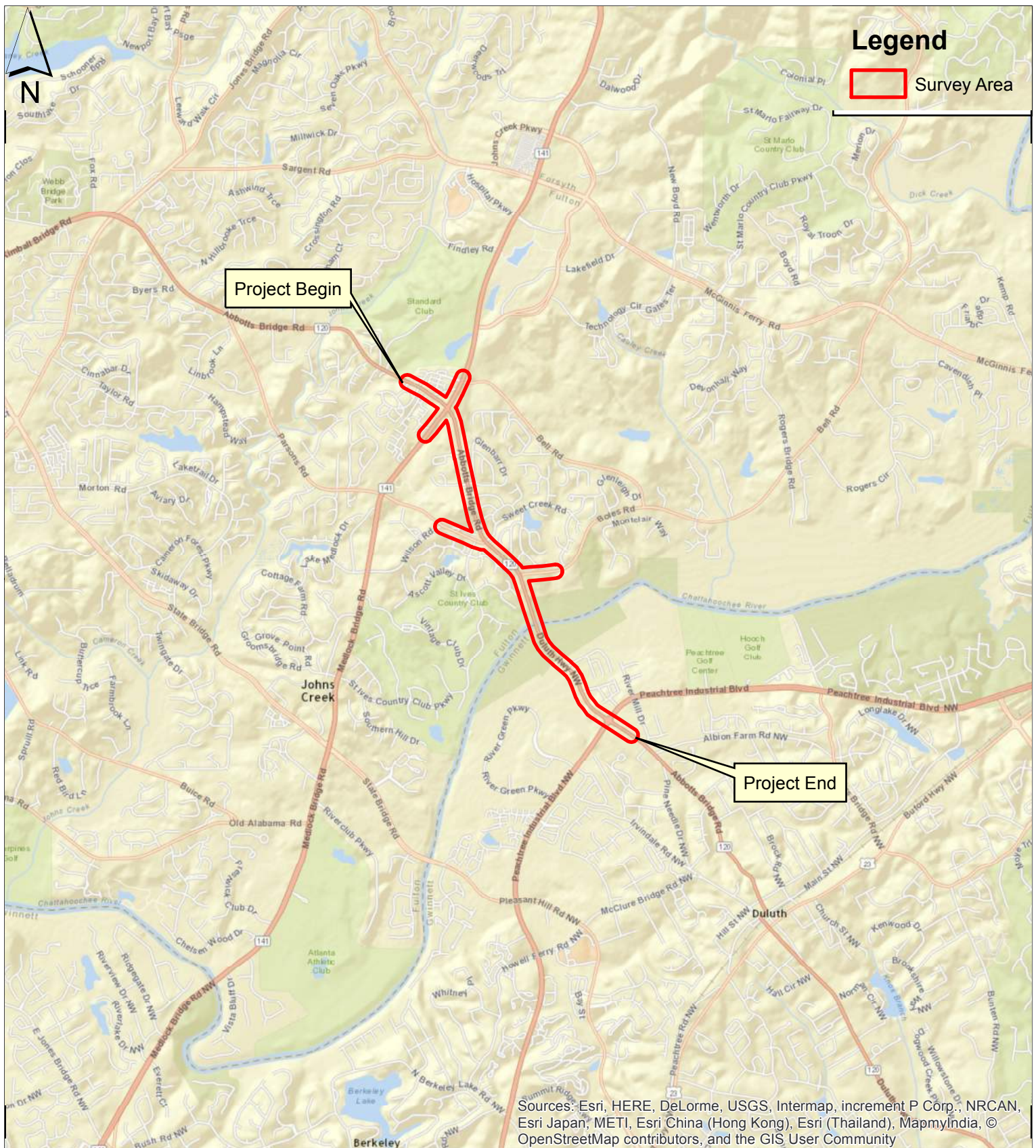
Alternative 2 would widen SR 120 from SR 141/Medlock Bridge Road to PIB from two through lanes to four through lanes. Both Medlock Bridge Road and PIB would be widened/improved for 1,000 feet in each direction approaching SR 120. Parsons Road would also be widened/improved for 1,250 feet south of SR 120, and Boles Road would be improved for 1,000 feet north of SR 120. All other side roads would be improved to a maximum of 500 feet from SR 120. The major difference between Alternative 1 and Alternative 2 is a shift of the alignment approximately 70 feet east into NPS property, with the new bridge being constructed adjacent to the existing bridge instead of in the same location (see Figure 2: PAR Alternatives Map). Alternative 2 plans are only preliminary and impacts would likely slightly increase or change once final plans are developed.

Alternative 2 highlights:

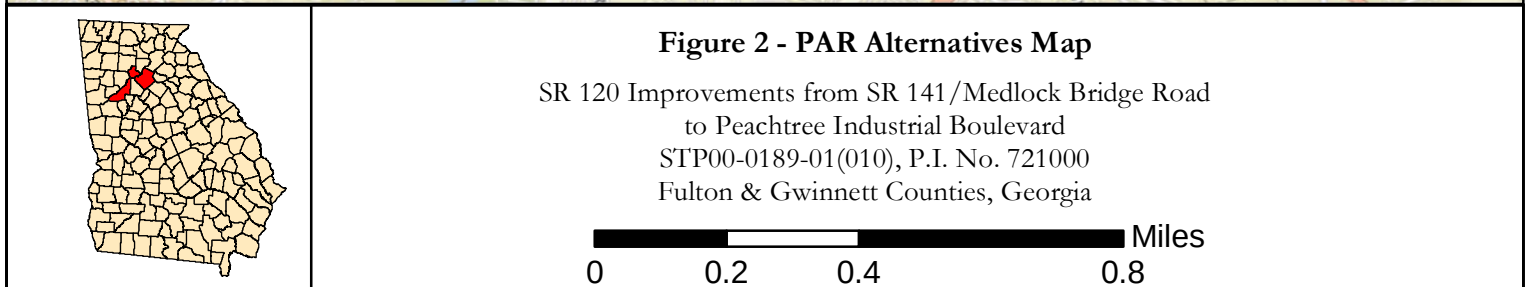
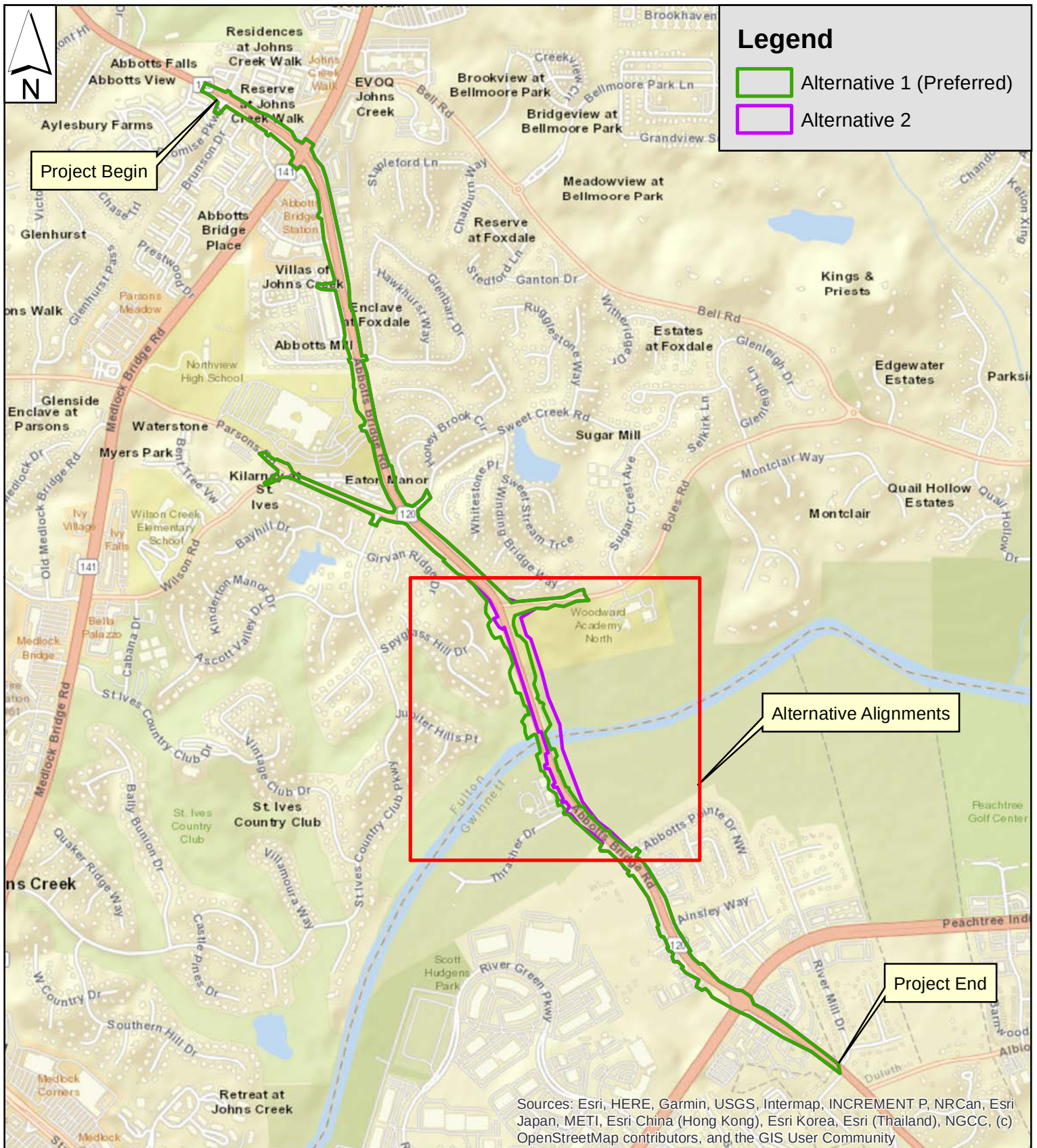
- Alternative 2 is not anticipated to have significant impacts to state or federally protected species. This alternative would involve more tree clearing than Alternative 1 and thus would have more potential to affect bat species and their habitat. Special provisions and clearing restrictions would be implemented to protect bats and migratory birds.
- Permanent impacts of 968 linear feet of jurisdictional stream and 0.02 acre of wetland.
- Less overall impacts to WOTUS than Alternative 1 - specifically by avoiding impacts to PS 05 and WL 07.
  - Alternative 2 avoids impacts to WL 07 (low quality, PEM) but would impact WL 09 (high quality, PFO).
- Would require 3.6 acres of permanent ROW impacts to NPS property (4.3 times greater impacts than Alternative 1, which has 0.84-acre of easement impacts and no permanent ROW)
- Both ROW acquisition costs and construction costs would be increased under Alternative 2, with total project costs approximately 3% greater than under Alternative 1.
- Due to unpredictable flows and bedrock substrate, temporary rock jetties would be needed in PS08/Chattahoochee River for demolition of the existing bridge and for construction of the new bridge. All other alternatives to rock jetties (barges, work bridges) were explored but none were deemed feasible. Impact quantities from rock jetties would be the same as for Alternative 1.

Measures to minimize impacts to WOTUS already incorporated into the project design include:

- Utilizing guardrail and 2:1 slopes where possible, as well as placing orange barrier fence (OBF) as close to construction limits as possible to reduce impacts to resources.
- Impacts to PS05 and WL07 have been avoided by shifting the alignment east of existing.







- Impacts to IS06 and WL09 were minimized through the placement of retaining walls and/or slope reduction, where feasible.
- Impacts to PS08 are unavoidable.

**C. Alternative 3 (No Build)**

With a No Build Alternative, there would be no impacts to streams, wetlands, or NPS property. However, the No Build Alternative would fail to meet the need and purpose of the proposed project. Without the proposed improvements to this corridor, proposed project traffic congestion is expected to worsen. In addition, historic crash incidents indicate that crashes would continue to occur in this section. Furthermore, there would be no accommodation for future improvements to bicycle and pedestrian access and connectivity throughout the corridor.

**Table 1: Jurisdictional Waters Impacts by Alternative and Resource**

|                      | Alternative & Wetland Impacts (acres) |               |                             |
|----------------------|---------------------------------------|---------------|-----------------------------|
|                      | PAR Alternatives                      |               |                             |
|                      | Alternative 1<br>(Preferred)          | Alternative 2 | Alternative 3<br>(No Build) |
| WL 07                | 0.12                                  | 0.0           | 0.0                         |
| WL 09                | 0.0                                   | 0.02          | 0.0                         |
| <b>TOTAL IMPACTS</b> | 0.12                                  | 0.02          | 0.0                         |

|                      | Alternative & Stream Impacts (linear feet) |               |                             |
|----------------------|--------------------------------------------|---------------|-----------------------------|
|                      | PAR Alternatives                           |               |                             |
|                      | Alternative 1<br>(Preferred)               | Alternative 2 | Alternative 3<br>(No Build) |
| EC 01                | 291                                        | 291           | 0                           |
| EC 02                | 0                                          | 0             | 0                           |
| PS 03                | 0                                          | 0             | 0                           |
| EC 04                | 0                                          | 0             | 0                           |
| PS 05                | 264                                        | 0             | 0                           |
| IS 06                | 284                                        | 470           | 0                           |
| PS 08                | 178                                        | 178           | 0                           |
| IS 10                | 29                                         | 29            | 0                           |
| <b>TOTAL IMPACTS</b> | 1,046                                      | 968           | 0                           |



**Table 2: Alternative Summary Table**

| Factor                         | PAR Alternatives                                                                                                                                                    |                                                                                                                                                                         |                                                 |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
|                                | Alternative 1 (Preferred)                                                                                                                                           | Alternative 2                                                                                                                                                           | Alternative 3 (No Build)                        |
| Description                    | Pavement widening from approximately 1200' north of Boles Rd to approximately 100' south of Abbotts Pointe Dr, maintaining existing bridge alignment                | Pavement widening from approximately 1200' north of Boles Rd to approximately 100' south of Abbotts Pointe Dr, shifting bridge alignment approximately 70' east.        | No improvements to existing roadway and bridge. |
| Length of Project              | 0.88 mile                                                                                                                                                           | 0.88 mile                                                                                                                                                               | 0.0 miles                                       |
| Proposed Typical Section Width | Four 11' lanes (two in each direction) with raised grass median. 18' shoulders (10' shared use path on east side of SR 120 and 5' sidewalk on west side of SR 120). | Four 11' lanes (two in each direction) with raised grass median. 18' shoulders (10' shared use path on east side of SR 120 and 5' sidewalk on west side of SR 120).     | Same as exiting roadway.                        |
| Permanent Right-of-Way Needed  | Yes, Alternative 1 would require permanent ROW but not any additional permanent ROW on NPS property.                                                                | Yes, Alternative 2 would require 3.6 acres of permanent ROW acquisition on NPS property.                                                                                | N/A                                             |
| # Parcels Impacted             | 20                                                                                                                                                                  | 20                                                                                                                                                                      | 0                                               |
| Constructability Issues        | Alternative 1 requires permanent and temporary easements on NPS property                                                                                            | Alternative 2 widens into the NPS Property and requires more permanent encroachment into NPS as compared to Alternative 1                                               | N/A                                             |
|                                | A rock jetty is required to access removal of the existing center bridge bent                                                                                       | A rock jetty is required to access removal of the existing center bridge bent                                                                                           | N/A                                             |
| Environmental Restrictions     | N/A [4(f) <i>de minimis</i> determination already issued for proposed impacts to NPS property]                                                                      | 4(f) effect determination for proposed impacts to NPS property not yet made, but unlikely to be <i>de minimis</i> due to extent of impacts and need for ROW acquisition | N/A                                             |
| Cultural Resource Impacts      | No eligible sites present                                                                                                                                           | No eligible sites present                                                                                                                                               | N/A                                             |
| Wetland Impacts                | 0.12 acre                                                                                                                                                           | 0.02 acre                                                                                                                                                               | N/A                                             |
| Stream Impacts (loss)          | 1,046 linear feet                                                                                                                                                   | 968 linear feet                                                                                                                                                         | N/A                                             |
| Construction Time              | Approximately 4 years                                                                                                                                               | Approximately 4 years                                                                                                                                                   | N/A                                             |
| Construction Cost Estimates    | \$10,702,990                                                                                                                                                        | \$10,768,288                                                                                                                                                            | N/A                                             |
| Right of Way Cost Estimate     | \$1,072,265                                                                                                                                                         | \$1,326,573                                                                                                                                                             | N/A                                             |
| Total Cost                     | \$11,775,255                                                                                                                                                        | \$12,094,861                                                                                                                                                            | N/A                                             |

**RECOMMENDATIONS:** Alternative 1 (Preferred) is the recommended alternative as it is the Least Environmentally Damaging Practicable Alternative (LEDPA) considering all environmental factors and project constraints. Impacts to waters of the United States (WOTUS) are similar between both Alternatives 1 and 2, but Alternative 1 would have substantially less impacts to NPS property, which is a valuable natural and recreational resource. Furthermore, Alternative 1 would avoid needing permanent ROW from NPS property, which avoids an Individual Section 4(f) evaluation. Alternative 1 impacts to WOTUS and other environmental resources have been minimized as much as possible and we respectfully request USACE to approve Alternative 1 as the preliminary LEDPA

**ATTACHMENTS:**

*Waters of the US Figures*

*Alternative Displays*

*Staging of Rock Jetties Figures*

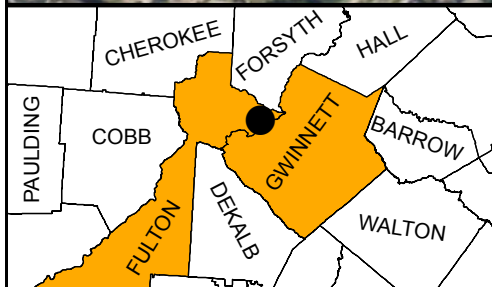
*IRT LCP Checkpoint 1 &2 Meeting Minutes*

*USACE concurrence to proceed to Checkpoint 3*

**PREPARED BY:** *Beau Marshall, NV5 (on behalf of GDOT-OES)*

## **ATTACHMENTS**



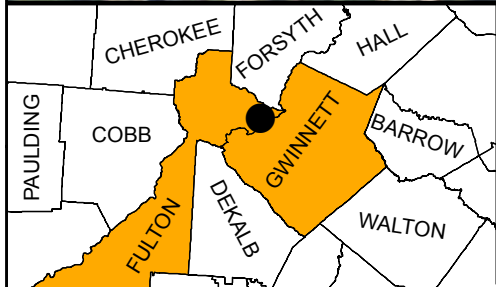


**Figure 5a - State and Federal Waters Map (Aerial)**

SR 120 Improvements from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard  
 STP00-0189-01(010), P.I. No. 721000  
 Fulton\Gwinnett Counties, Georgia

0 100 200 400 600 800  
 Feet



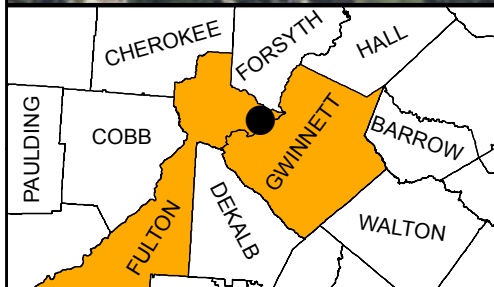


**Figure 5b - State and Federal Waters Map (Aerial)**

SR 120 Improvements from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard  
STP00-0189-01(010), P.I. No. 721000  
Fulton\Gwinnett Counties, Georgia

0 100 200 400 600 800  
Feet



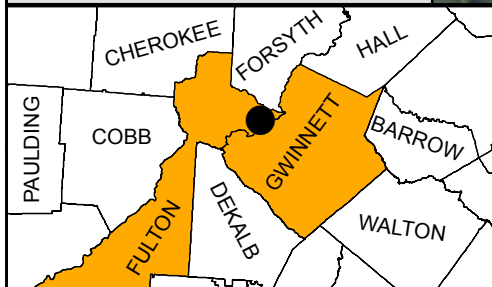
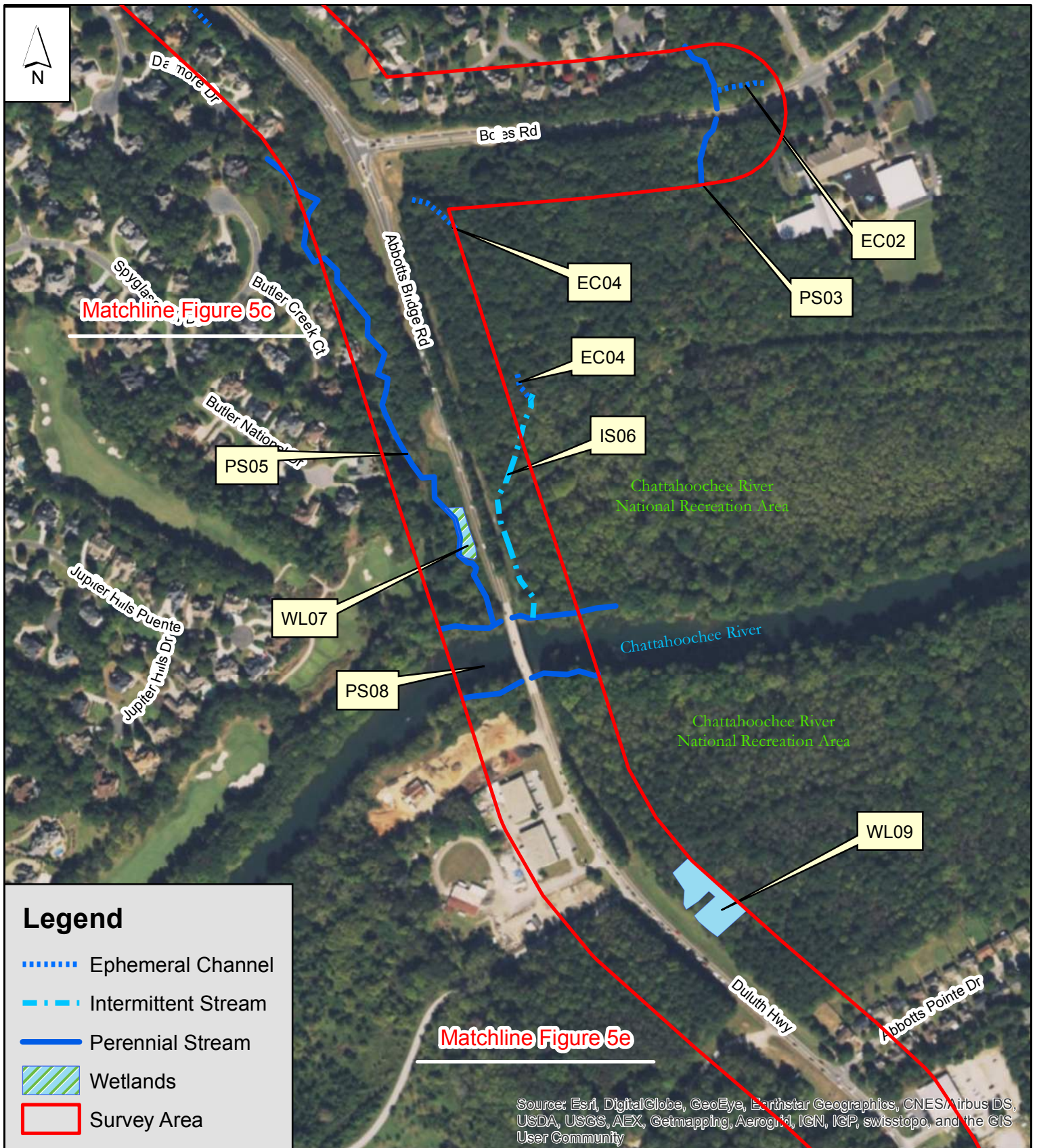


**Figure 5c - State and Federal Waters Map (Aerial)**

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 Fulton\Gwinnett Counties, Georgia

0 100 200 400 600 800  
 Feet



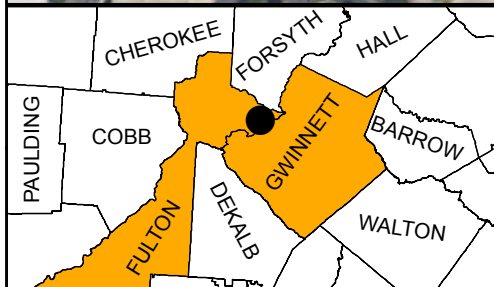


**Figure 5d - State and Federal Waters Map (Aerial)**

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STP00-0189-01(010), P.I. No. 721000  
Fulton\Gwinnett Counties, Georgia

0 100 200 400 600 800  
Feet





**Figure 5e - State and Federal Waters Map (Aerial)**

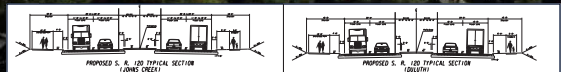
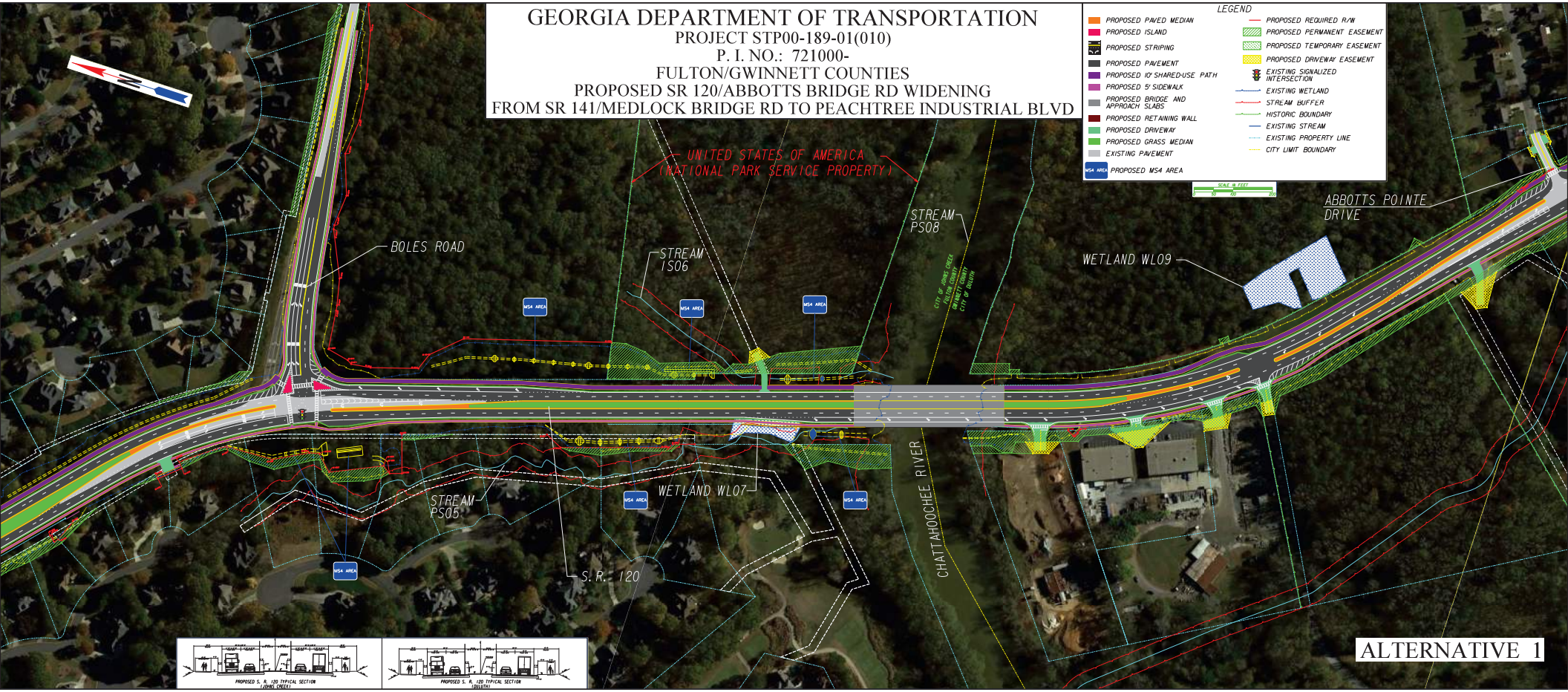
SR 120 Improvements from SR 141/Medlock Bridge Road to Peachtree Industrial Boulevard  
 STP00-0189-01(010), P.I. No. 721000  
 Fulton\Gwinnett Counties, Georgia

0 100 200 400 600 800  
 Feet



GEORGIA DEPARTMENT OF TRANSPORTATION  
PROJECT STP00-189-01(010)  
P. I. NO.: 721000-  
FULTON/GWINNETT COUNTIES  
PROPOSED SR 120/ABBOTTS BRIDGE RD WIDENING  
FROM SR 141/MEDLOCK BRIDGE RD TO PEACHTREE INDUSTRIAL BLVD

|                                    |                                  |
|------------------------------------|----------------------------------|
| PROPOSED PAVED MEDIAN              | PROPOSED REQUIRED R/W            |
| PROPOSED ISLAND                    | PROPOSED PERMANENT EASEMENT      |
| PROPOSED STRIPING                  | PROPOSED TEMPORARY EASEMENT      |
| PROPOSED PAVEMENT                  | PROPOSED DRIVEWAY EASEMENT       |
| PROPOSED 10' SHARED-USE PATH       | EXISTING SIGNALIZED INTERSECTION |
| PROPOSED 5' SIDEWALK               | EXISTING WETLAND                 |
| PROPOSED BRIDGE AND APPROACH SLABS | STREAM BUFFER                    |
| PROPOSED RETAINING WALL            | HISTORIC BOUNDARY                |
| PROPOSED DRIVEWAY                  | EXISTING STREAM                  |
| PROPOSED GRASS MEDIAN              | EXISTING PROPERTY LINE           |
| EXISTING PAVEMENT                  | CITY LIMIT BOUNDARY              |
| MSA AREA                           | PROPOSED MSA AREA                |

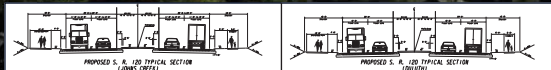
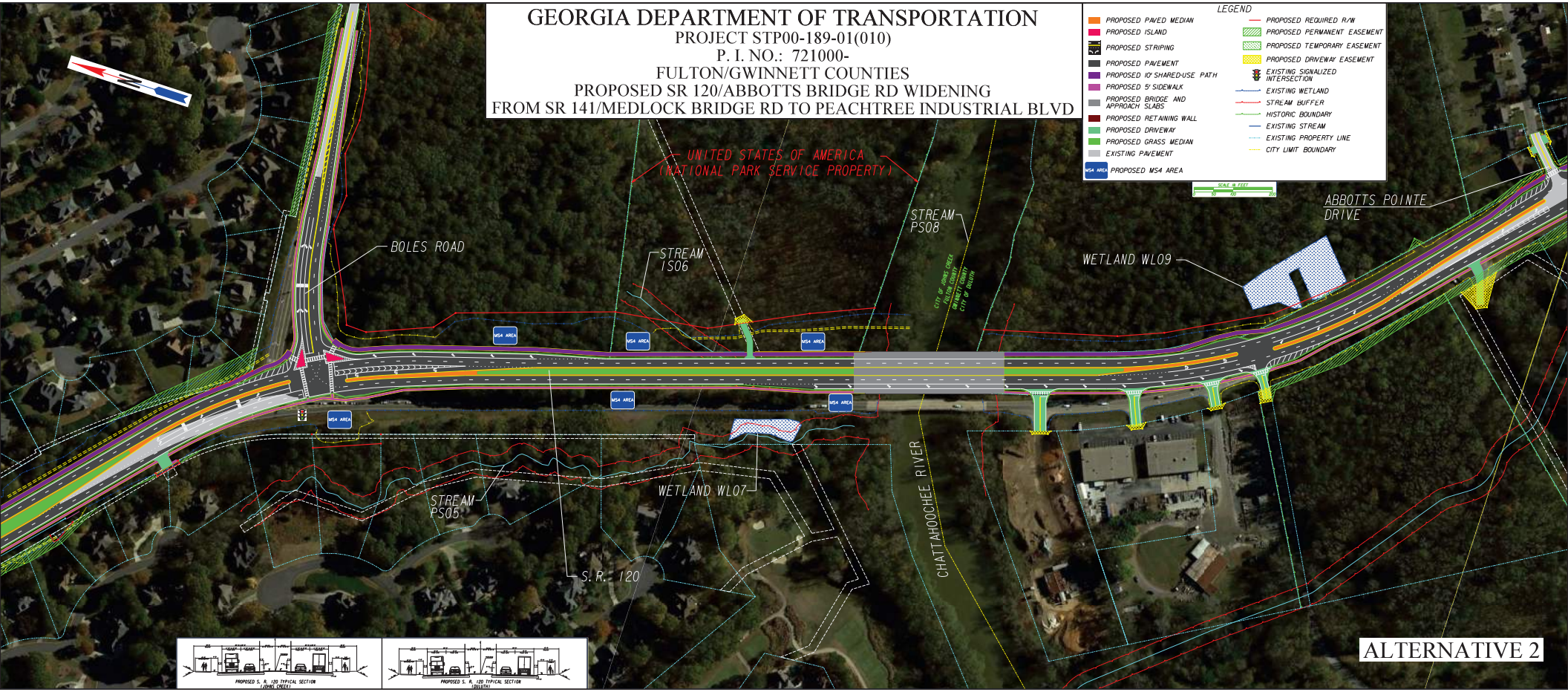


ALTERNATIVE 1



GEORGIA DEPARTMENT OF TRANSPORTATION  
PROJECT STP00-189-01(010)  
P. I. NO.: 721000-  
FULTON/GWINNETT COUNTIES  
PROPOSED SR 120/ABBOTTS BRIDGE RD WIDENING  
FROM SR 141/MEDLOCK BRIDGE RD TO PEACHTREE INDUSTRIAL BLVD

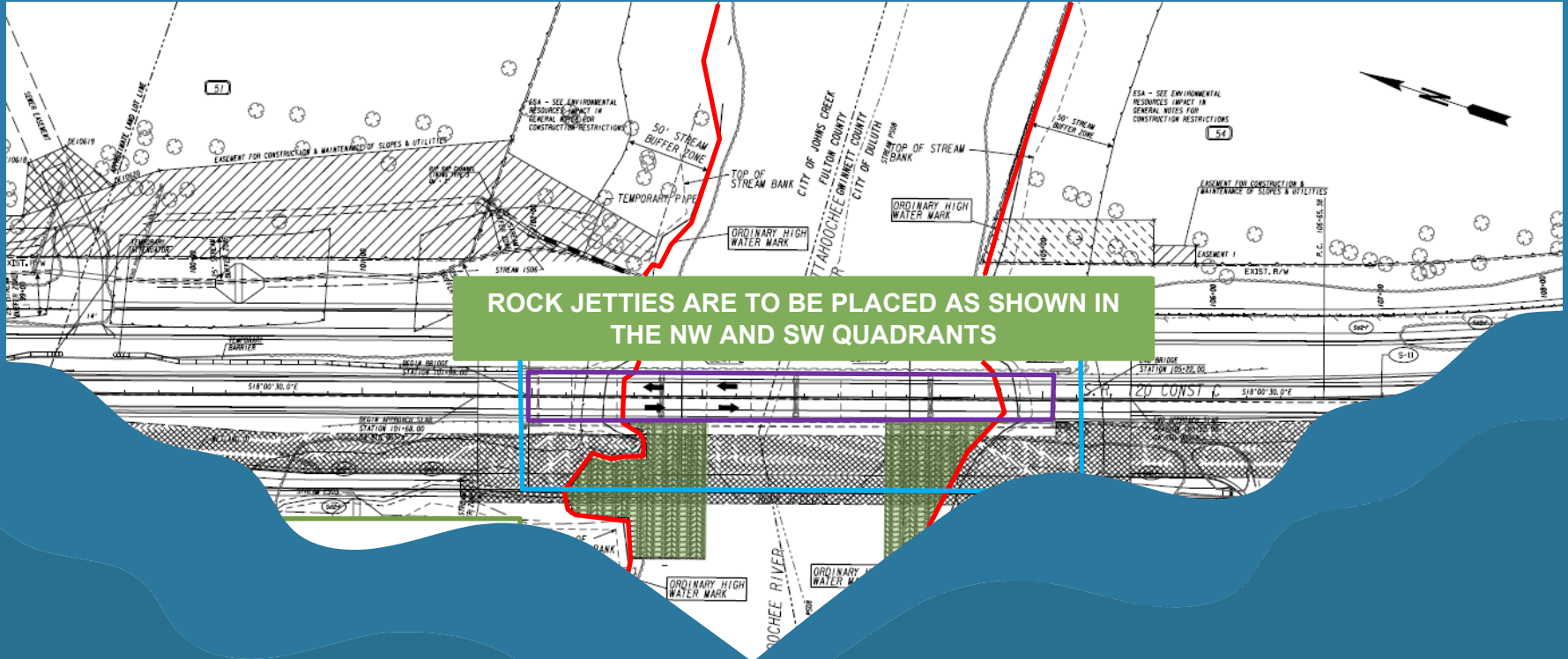
|                                    |                                  |
|------------------------------------|----------------------------------|
| PROPOSED PAVED MEDIAN              | PROPOSED REQUIRED R/W            |
| PROPOSED ISLAND                    | PROPOSED PERMANENT EASEMENT      |
| PROPOSED STRIPING                  | PROPOSED TEMPORARY EASEMENT      |
| PROPOSED PAVEMENT                  | PROPOSED DRIVEWAY EASEMENT       |
| PROPOSED 10' SHARED-USE PATH       | EXISTING SIGNALIZED INTERSECTION |
| PROPOSED 5' SIDEWALK               | EXISTING WETLAND                 |
| PROPOSED BRIDGE AND APPROACH SLABS | STREAM BUFFER                    |
| PROPOSED RETAINING WALL            | HISTORIC BOUNDARY                |
| PROPOSED DRIVEWAY                  | EXISTING STREAM                  |
| PROPOSED GRASS MEDIAN              | EXISTING PROPERTY LINE           |
| EXISTING PAVEMENT                  | CITY LIMIT BOUNDARY              |
| MSA AREA                           |                                  |
| PROPOSED MSA AREA                  |                                  |



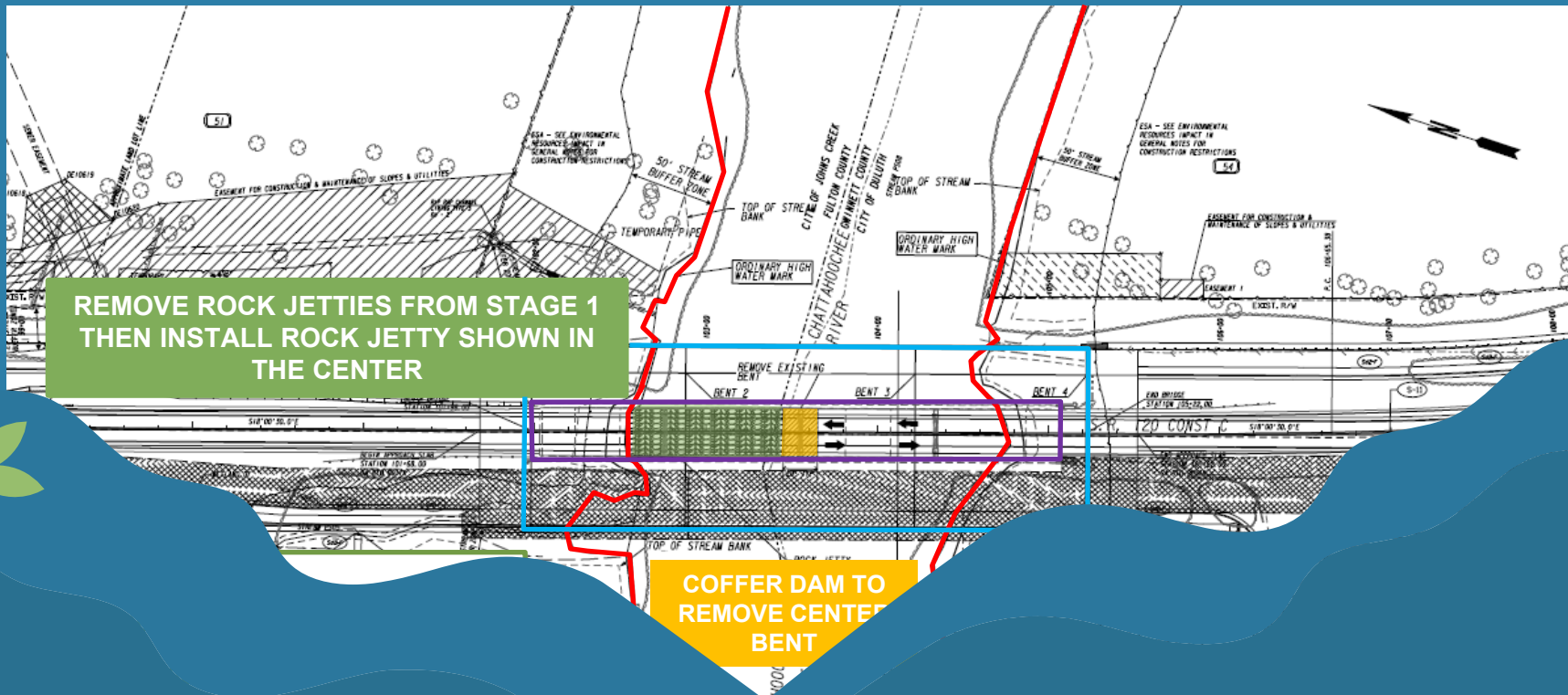
ALTERNATIVE 2



# ALT. 1 STAGE 1 OF BRIDGE CONSTRUCTION



# ALT. 1 STAGE 2 OF BRIDGE CONSTRUCTION

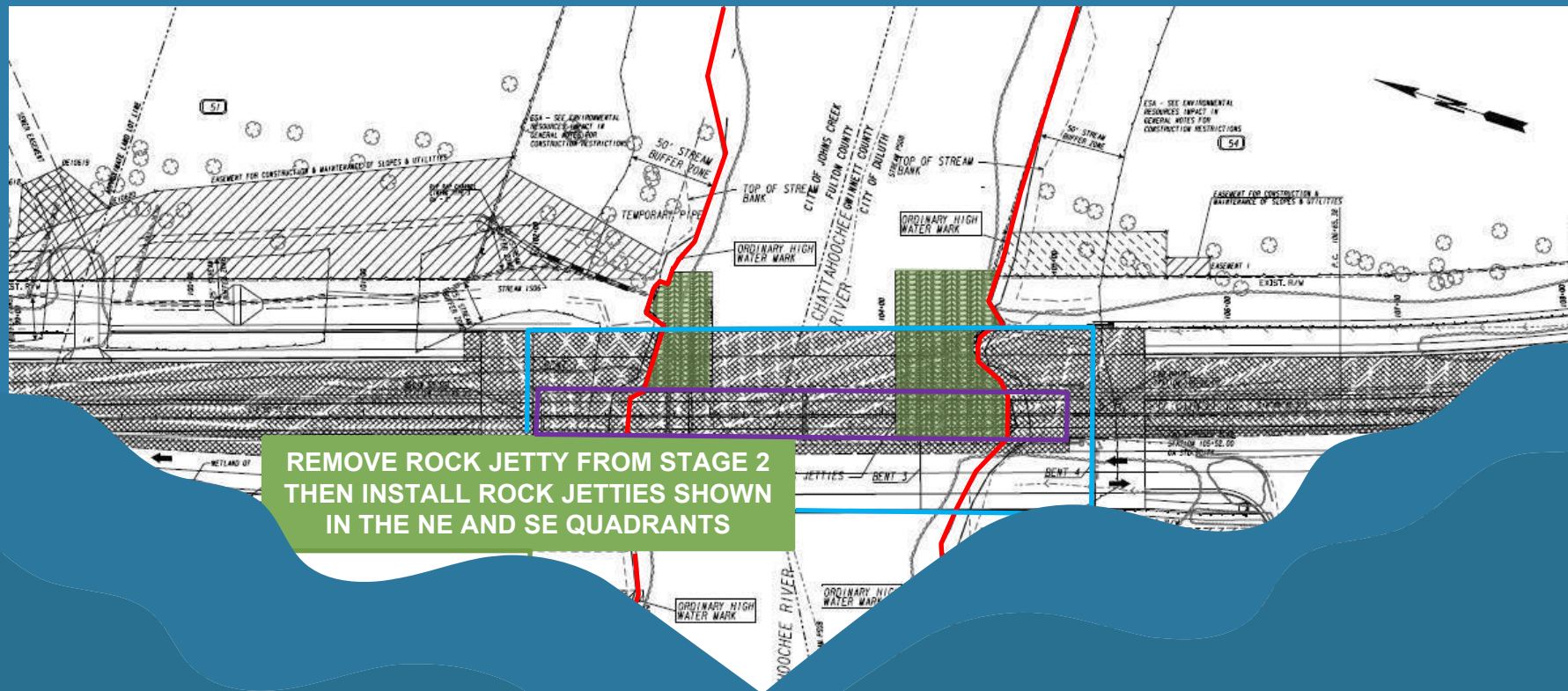


REMOVE ROCK JETTIES FROM STAGE 1  
THEN INSTALL ROCK JETTY SHOWN IN  
THE CENTER

COFFER DAM TO  
REMOVE CENTER  
BENT



# ALT. 1 STAGE 3 OF BRIDGE CONSTRUCTION









**Attachment 6:  
Hydraulic and Hydrological Study**



STP00-0189-01(010)

PI No. 721000

Fulton-Gwinnett Counties, Georgia

SR 120 (Abbotts Bridge Rd) over Chattahoochee River

Hydraulic and Hydrological Study



Community Coordination Only Required

City of Johns Creek & City of Duluth, Georgia

Community No.: 130678 & 130098

January 2017

Prepared by:



For:



1/16/2017

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  - References
  - Engineering "No-Rise" Certification
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  - FEMA Flood Water Surface Elevation Summary Table
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  - Project Photographs
  - FEMA Data
  - Miscellaneous Project Data

# **I. Hydraulic / Hydrologic Report**



**Project - STP00-0189-01(010)**  
**P.I. No.:721000**  
**Fulton/Gwinnett Counties**  
**SR120/Abbotts Bridge Road over Chattahoochee River**

**Introduction**

CALYX Engineers and Consultants prepared this report to provide engineering calculations showing that the proposed bridge replacement at the crossing of Abbotts Bridge Road (SR 120) over the Chattahoochee River in Fulton and Gwinnett Counties, Georgia will meet hydraulic and hydrologic requirements. The Chattahoochee River is a Federal Emergency Management Agency (FEMA) detailed studied waterway with a published regulatory floodway. The proposed bridge replacement will not encroach vertically or horizontally on the current regulatory floodway elevation or width.

Therefore, the proposed construction is consistent with the regulatory floodway due to bridging and excluding fill from the floodway. In accordance with FEMA guidelines and policies, coordination with FEMA is not required. However, since the project site is located within the jurisdiction of both the City of Johns Creek and the City of Duluth, a "no-rise" was obtained and coordination will be done with the community. The design storm is the 50-year storm per the GDOT Drainage Design Manual for a State Route.

The drainage area at the proposed crossing, delineated from the United States Geological Survey (USGS) quadrangle maps for the area is 1160 square miles. However since this water is controlled by power release from the Buford Dam, the design flows were obtained from the Gwinnett County Flood Insurance Study (FIS), dated March 4, 2013. The 100-year flow is 14310 cfs at the bridge location. Further discussion about the Hydrology is contained in Section III.

The existing bridge over Chattahoochee River is a 304.5 foot long, 4 span (2 @ 79'-0" and 2 @ 73'-6") steel beam bridge with a concrete deck and reinforced concrete caps. This bridge substructure has concrete column bents with riprap protected sloping

abutments. The existing clear roadway width is 34.2 feet. The proposed replacement bridge will be 324 feet long on the same alignment. The proposed road typical section consists of 2-12 foot lanes westbound and 3-12 foot lanes eastbound with a 20 foot median and 15 foot multi-use paths, totaling 114 feet wide. The bridge will consist of one 90'-0" long bulb tee 54" PSC beam span, one 134'-0" long bulb tee 72" PSC beam span, and one 100'-0" long bulb tee 54" PSC beam span.

### **Hydraulic Site Visit**

A hydraulic site visit was made at the existing location of Abbots Bridge Road over the Chattahoochee River on May 26, 2016. The upstream and downstream floodplains consist of heavy vegetation with some underbrush. Some commercial property is located southwest of the bridge within the floodplain. Other residential development exists northwest and southeast of the bridge as well. The stream channel has a mild slope with a channel width of approximately 160 ft. Banks are steep, ranging from 1.5:1 to vertical, but appear stable. The upstream and downstream floodplains have similar geometry. There is a 6" gas line and AT&T lines installed on the underside of the bridge. Additionally, power lines are spanning the river approximately 27' upstream of the bridge. The centerline of the creek is a county line so the north side of the bridge is located in Fulton County and the south side is located in Gwinnett County. Photo documentation of the field visit for the site as well as the downstream structure (Pleasant Hill Road Bridge) and upstream structures (Rodgers Bridge Road & McGinnis-Ferry Road Bridge) can be found in the Appendix.

### **Procedure**

The existing detailed study and shapefiles were requested and received from Dewberry Consulting on April 2, 2013. No current Conditional Letter of Map Revision (CLOMRs) were found to exist in the project vicinity at the time of this study. The effective flood study is on panels 0095G of Fulton County and 0040G of Gwinnett County. The

corresponding map numbers are 13121C0095G and 1315C0040G with an effective date of March 18 and March 4, 2013, respectively.

### **General Modeling Considerations**

Because the original model was performed using HEC-RAS 4.1, 4 models were prepared:

- *Published Data* – This only consists of the published data received from FEMA
- *Effective Model* – This consists of input from the model received from Dewberry Consultants/FEMA
- *Duplicate Effective Model 4.1* – In this model, an attempt was made to track the changes from effective HEC-RAS Version 4.1 to duplicate HEC-RAS version 4.1.
- *Corrected Effective Model* – In this model the Duplicate Effective model was built upon by adding cross sections at locations to facilitate analysis of the proposed conditions. Also, any errors that were obvious in the effective model were corrected at this time.
- *Revised Conditions Model* – In this model the proposed conditions were modeled including the proposed roadway

These models were run for the 2, 5, 10, 25, 50, 100 and 500 year flood event, as well as for the 100-yr with approximate floodway or non-encroachment.

The work map prepared for this submittal contains topography obtained from GIS provided by Fulton and Gwinnett counties and supplemental survey data obtained by Calyx Engineers + Consultants. This data was provided on the NAVD 1988 vertical datum. The published data and effective HEC-RAS model are shown on NAVD 88 datum. Therefore, no datum conversion or adjustment was required. All summary tables are shown using the NAVD 1988.

### **Historic Drainage Patterns**

The existing channel velocities at the project site for the 50-year and 100-year storm flows are 3.46 ft/s and 3.51 ft/s, respectively. The natural channel velocities for the 50-year and 100-year floods are 3.32 ft/s and 3.38 ft/s. The backwater for the 50-year and 100-year storms are 0.03 and 0.04 ft/s, respectively, for the existing bridge. The



existing bridge configuration allows the 100-year storm to be conveyed under the bridge without overtopping.

Manning's "n" values obtained from the FEMA FIS were field verified and determined to be appropriate for use on this project.

### **Proposed Drainage Patterns**

The existing roadway will be open during construction; construction will be phased to maintain vehicular traffic. The proposed 324 foot long bridge will be located approximately on the same alignment as the existing bridge. The proposed roadway is being raised above the existing profile to meet GDOT's hydraulic clearance requirements. The proposed bridge section allows the 100-year storm to pass through the structure with no overtopping. The proposed bridge is located in a normal crown section of roadway.

The proposed channel velocities for the 50-year and 100-year floods are 3.46 ft/s and 3.52 ft/s, respectively. The backwater for the 50-year and 100-year storms are both 0.01 ft for the proposed bridge.

Scour calculations were performed using the HEC-RAS scour routine and checked using the HEC-RAS output and a separate calculation sheet. The scour calculations were done for the 100-yr and 500-yr storms. The maximum calculated local scour depth in the channel for bent 2 and 3 is 13.26 ft and 13.24 ft respectively, for the 100-year storm. The maximum local scour depth in the channel for bent 2 and 3 is 15.50 ft and 15.49 ft respectively, for the 500-year storm.

Guide bank calculations and riprap calculations were performed in accordance with the procedures outlined in Hydraulic Engineering Circular No. 23 (HEC-23) *Bridge Scour and Stream Instability Countermeasures* (FHWA NHI 01-003) dated March 2001, Second Edition. Based on these calculations, GDOT Type I riprap is required. HEC-23

was also used to determine that that guide banks are not required at this site. Hydraulic Engineering Circular No. 21 (HEC-21) *Design of Bridge Deck Drainage*, dated May 1993, was used to determine that deck drainage inlets are required. See calculations for riprap, guide bank, and deck drainage in Section 7.

### **Summary**

The appropriate hydraulic and hydrologic procedures were used in this study's development. The proposed bridge replacement will not encroach vertically or horizontally on the current regulatory floodway elevations or widths for the Chattahoochee River. Therefore, proposed construction is consistent with the regulatory floodway and coordination with FEMA is not required. A "No-Rise" certificate was obtained and coordination will be done with both the City of Johns Creek and the City of Duluth.

The results are reasonable and within accepted guidelines for backwater values, velocities and scour depths. The proposed bridge was selected because it is the least cost configuration, maintains traffic during construction, and is the minimum length structure that meets design guidelines.

### **References**

CALYX utilized the following for this study:

- The Current Georgia Department of Transportation Drainage Manual for Highways with Supplemental guidelines for Hydraulic and Hydrological Studies.
- Hydrologic Engineering Center (HEC) River Analysis System (HEC-RAS), Water-Surface Computational Model Version 4.1, dated June 2010.
- Hydrologic Engineering Center (HEC) River Analysis System (HEC-RAS) Users Manual Version 4.1, dated January 2010.
- Hydrologic Engineering Center (HEC) River Analysis System (HEC-RAS) Hydraulic Reference Manual Version 4.1, dated January 2010.

- Hydraulic Engineering Circular No. 18 (HEC-18) Evaluating Scour at Bridges, (FHWA-HIF-12-003), dated April 2012, Fifth Edition.
- Hydraulic Engineering Circular No. 20 (HEC-20) Stream Stability at Highway Structures (FHWA-NHI-01-002) dated April 2012, Fourth Edition.
- Hydraulic Engineering Circular No. 23 (HEC-23) Bridge Scour and Stream Instability Countermeasures (FHWA-NHI-01-003) dated September 2009, Third Edition.



**Engineering "No-Rise" Certification**

**Project - STP00-0189-01(010)**

**P.I. No.:721000**

**SR120/Abbotts Bridge Road over Chattahoochee River**

**Fulton/Gwinnett Counties, Georgia**

This is to certify that I am a duly qualified engineer licensed to practice in the State of Georgia. It is to further certify that the attached technical data supports the fact that the proposed construction of the bridge replacement over the Chattahoochee River will not create any increase to the 100-Year Regulatory flood elevations, Regulatory floodway elevations, and Regulatory floodway widths within acceptable tolerances on the Chattahoochee River at published sections in the Current Flood Insurance Study for Fulton County and Gwinnett County, Georgia, and will not create any increase in the Regulatory 100-Year flood and floodway elevations and floodway widths within acceptable tolerances at unpublished cross-sections in the vicinity of the project outside the GDOT R-O-W.

1/4/2017

Date

David P. Bocker

Signature

Seal:



David P. Bocker, P.E.

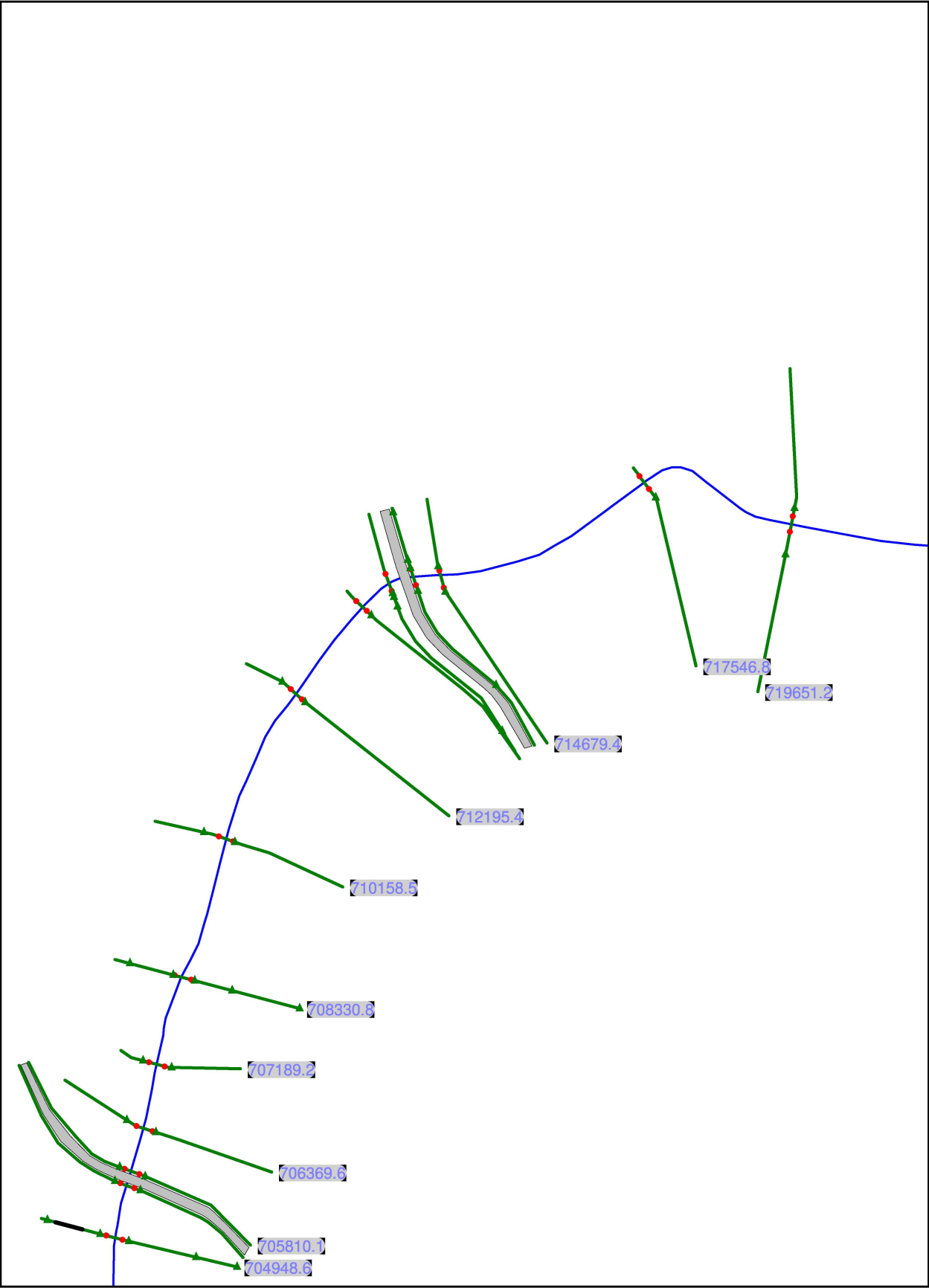
Water Resources Group Manager

CALYX Engineers and Consultants

7500 East Independence Blvd.

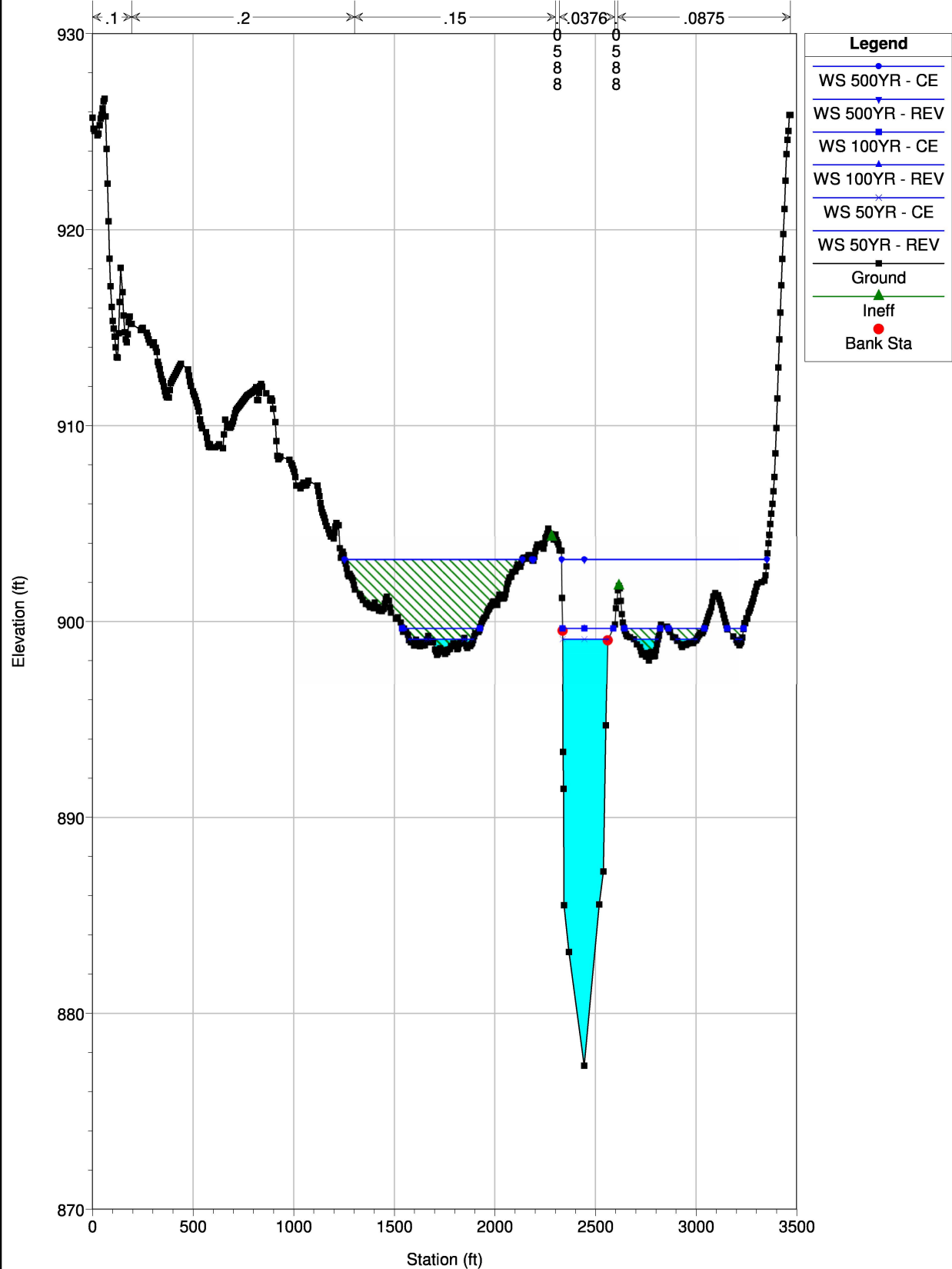
Suite 100

Charlotte, NC 28227

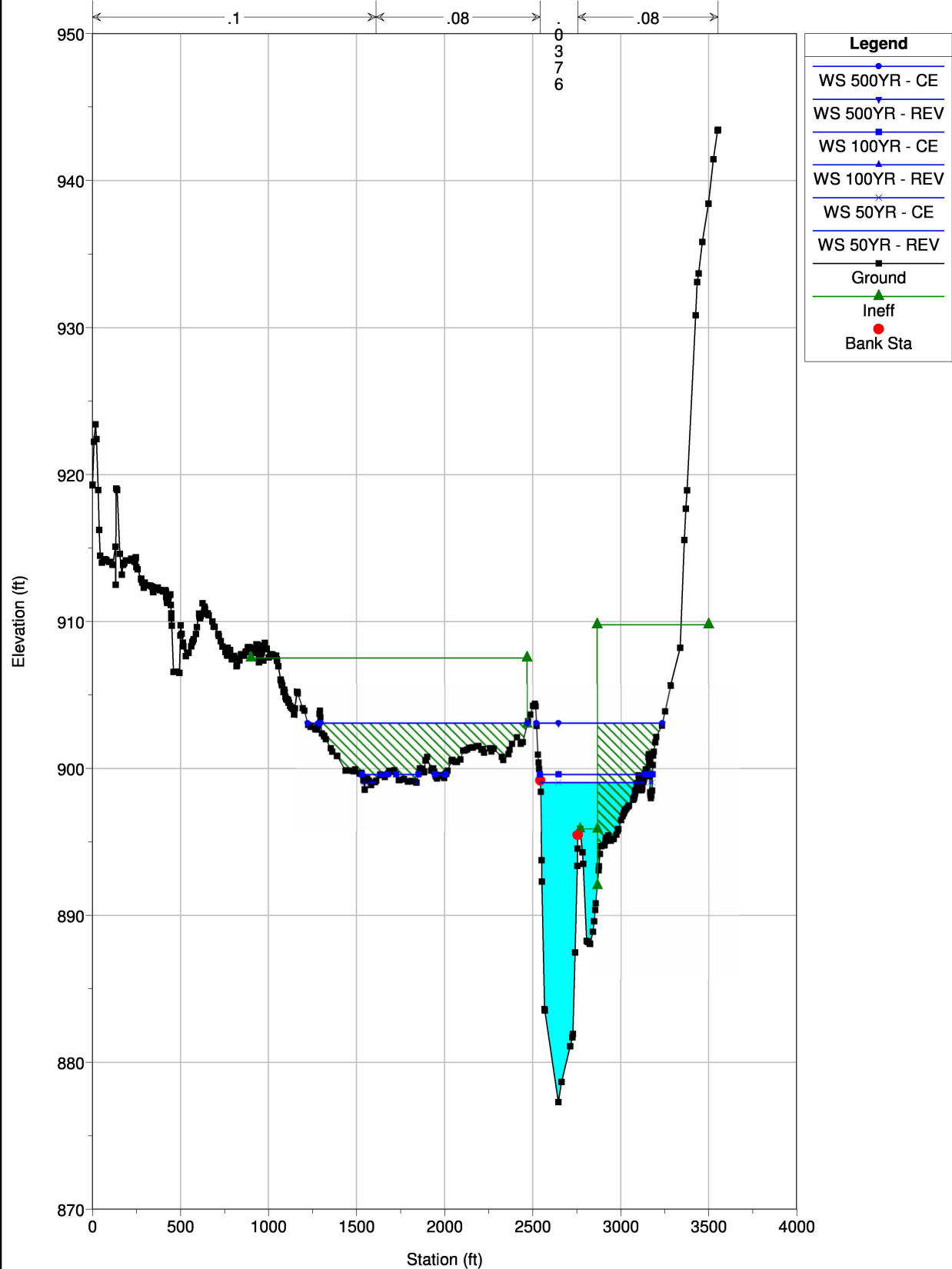


Chattahoochee-CALYX Plan: 1) REV 12/22/2016 2) CE 8/22/2016

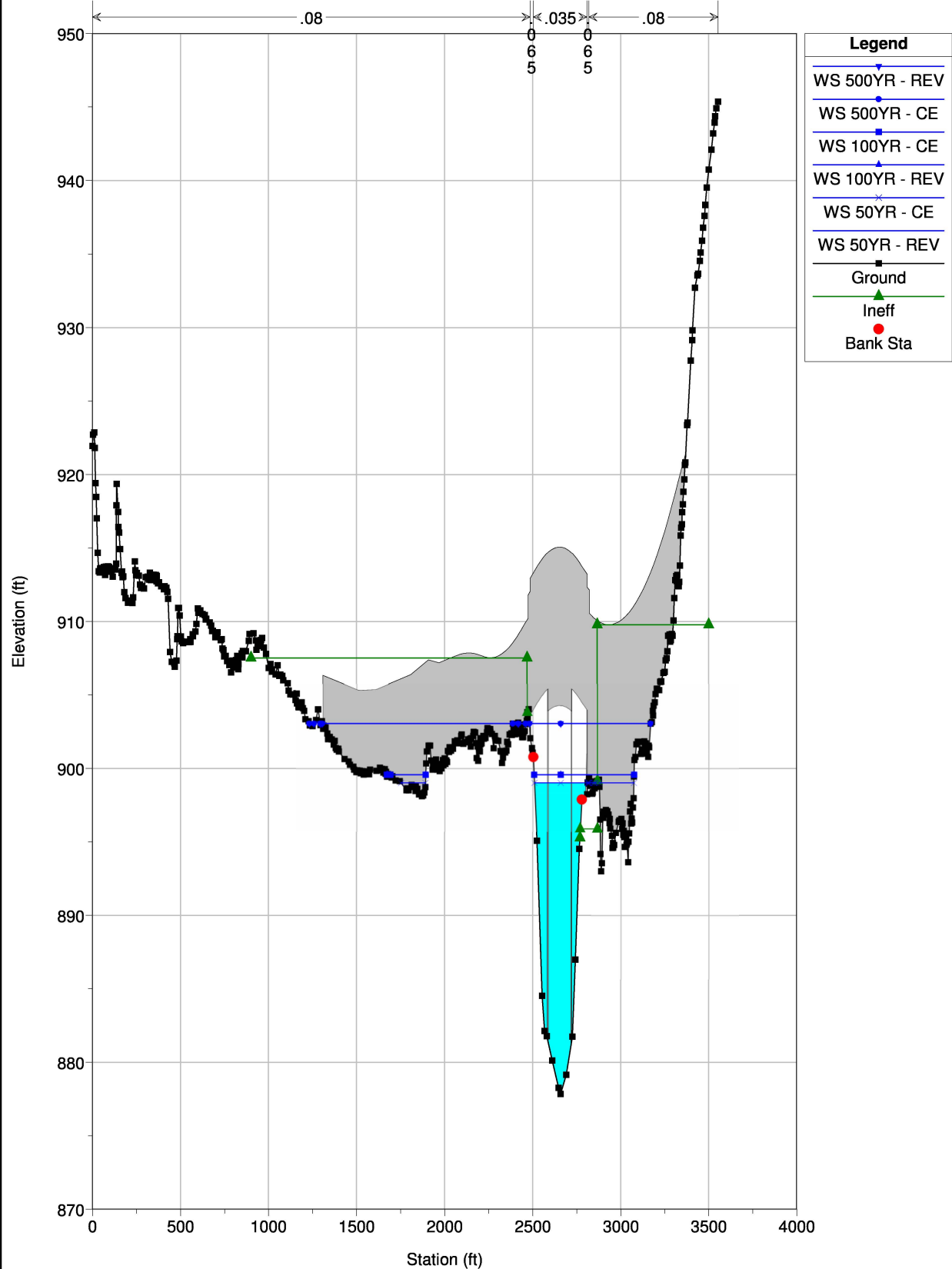
FG Bathymetric Surveyed Channel



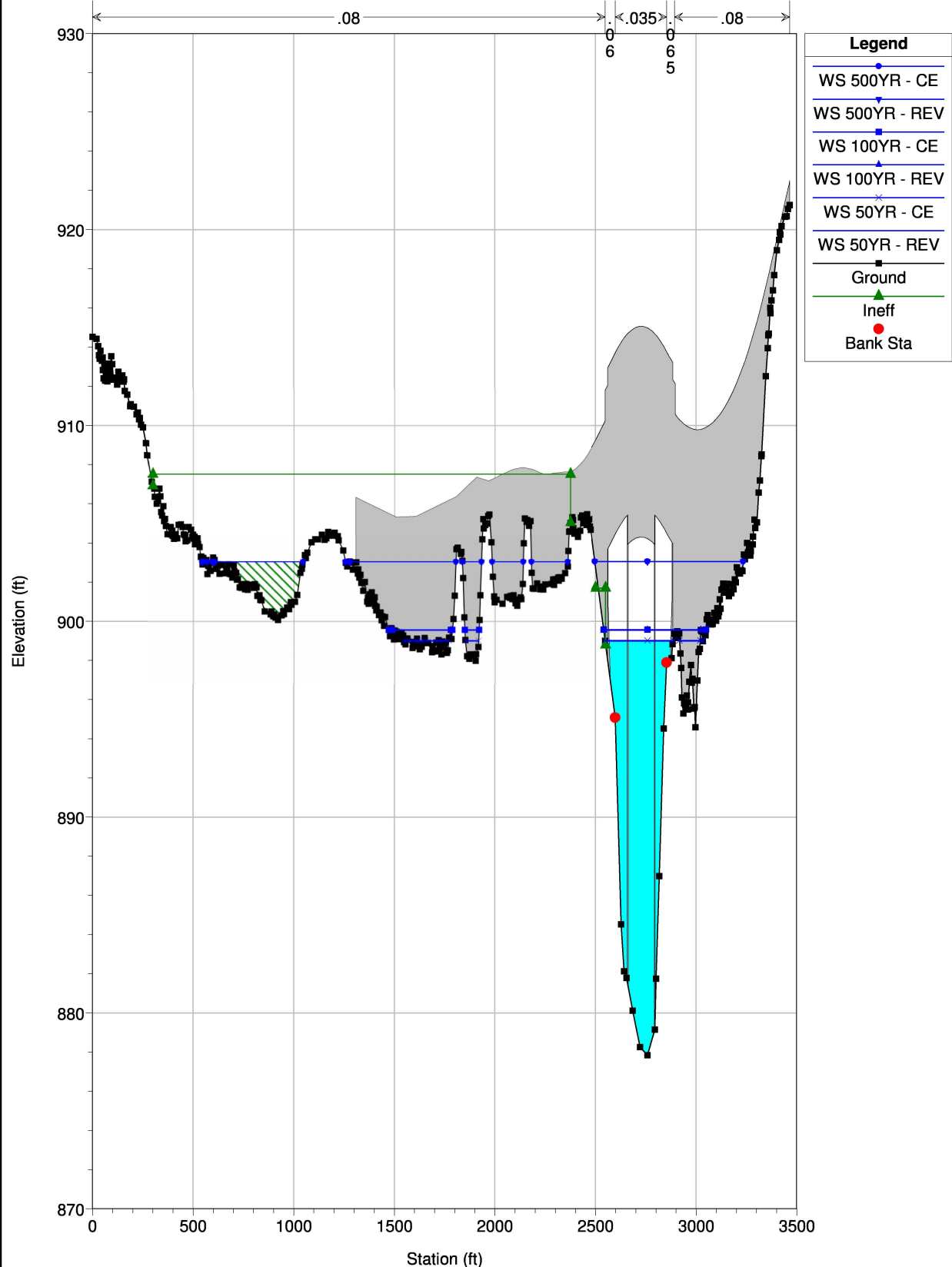




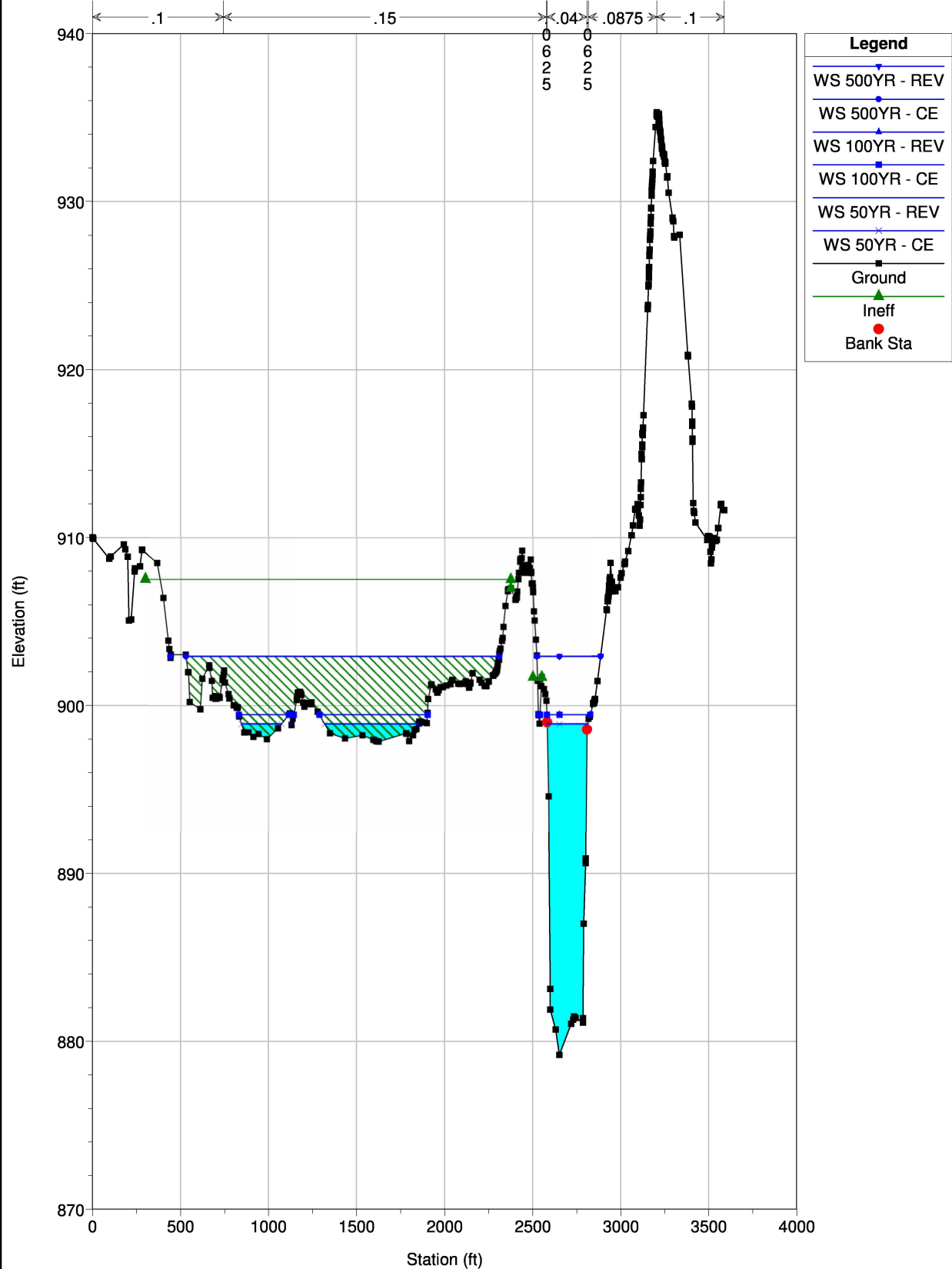
Chattahoochee-CALYX Plan: 1) REV 12/22/2016 2) CE 8/22/2016  
 Abbotts Br idge Road ( 299' Span Bridge )



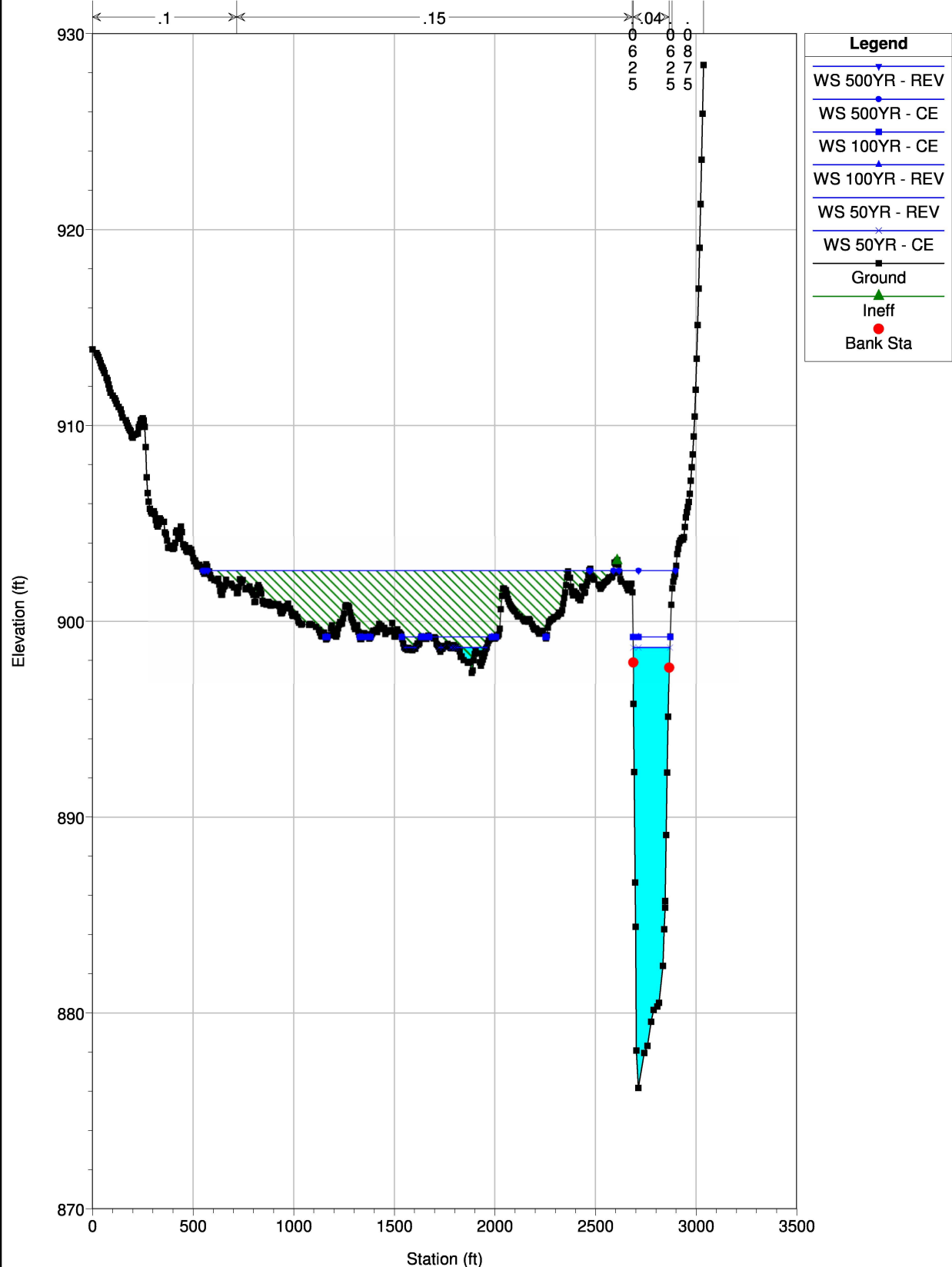
Chattahoochee-CALYX Plan: 1) REV 12/22/2016 2) CE 8/22/2016  
Abbotts Br idge Road ( 299' Span Bridge )







Chattahoochee-CALYX Plan: 1) REV 12/22/2016 2) CE 8/22/2016  
FF Bathymetric Surveyed Channel



## **II. Hydraulic Tables**



## HYDRAULIC TABLE (50-YEAR STORM)

|                                                         | <i>Unconstricted Section<sup>3</sup></i> | <i>Existing Conditions</i> | <i>Proposed Conditions</i> |
|---------------------------------------------------------|------------------------------------------|----------------------------|----------------------------|
| Floodstage Elevation Bridge Section (ft) <sup>1</sup>   | 898.94                                   | 898.94                     | 898.93                     |
| Floodstage Elevation Approach Section (ft) <sup>2</sup> | 899.03                                   | 899.06                     | 899.04                     |
| Area of Opening Under Floodstage (ft <sup>2</sup> )     | --                                       | 4008                       | 4005                       |
| Discharge through Bridge (cfs)                          | --                                       | 13593                      | 13593                      |
| Discharge over Roadway (cfs)                            | --                                       | --                         | --                         |
| Channel Velocity (ft/sec)                               | 3.32                                     | 3.46                       | 3.46                       |
| Mean Velocity thru Bridge (ft/sec)                      | --                                       | 3.39                       | 3.39                       |
| 2-Year Floodstage Elevation Bridge Section (ft)         | 895.99                                   | 895.99                     | 895.98                     |
| Backwater Height (ft)                                   | --                                       | 0.03                       | 0.01                       |

<sup>1</sup> Floodstage Elevation is from the downstream section from bridge.

<sup>2</sup> Approach Section is located upstream of the bridge (Section 714318.7)

<sup>3</sup> Unconstricted Section is the downstream internal section recreated in the natural model (Section 714211.1) in order to provide a consistent comparison location between all three models (Natural, Existing, and Proposed).

## HYDRAULIC TABLE (100-YEAR STORM)

|                                                         | <i>Unconstricted Section</i> <sup>3</sup> | Existing Conditions | Proposed Conditions |
|---------------------------------------------------------|-------------------------------------------|---------------------|---------------------|
| Floodstage Elevation Bridge Section (ft) <sup>1</sup>   | 899.49                                    | 899.49              | 899.48              |
| Floodstage Elevation Approach Section (ft) <sup>2</sup> | 899.58                                    | 899.62              | 899.59              |
| Area of Opening Under Floodstage (ft <sup>2</sup> )     | --                                        | 4167                | 4170                |
| Discharge through Bridge (cfs)                          | --                                        | 14310               | 14310               |
| Discharge over Roadway (cfs)                            | --                                        | --                  | --                  |
| Channel Velocity (ft/sec)                               | 3.38                                      | 3.51                | 3.52                |
| Mean Velocity thru Bridge (ft/sec)                      | --                                        | 3.43                | 3.43                |
| 2-Year Floodstage Elevation Bridge Section (ft)         | 895.99                                    | 895.99              | 895.98              |
| Backwater Height (ft)                                   | --                                        | 0.04                | 0.01                |

<sup>1</sup> Floodstage Elevation is from the downstream section from bridge.

<sup>2</sup> Approach Section is located upstream of the bridge (Section 714318.7)

<sup>3</sup> Unconstricted Section is the downstream internal section recreated in the natural model (Section 714211.1) in order to provide a consistent comparison location between all three models (Natural, Existing, and Proposed).

## HYDRAULIC TABLE (500-YEAR STORM)

|                                                         | <i>Unconstricted Section</i> <sup>3</sup> | Existing Conditions | Proposed Conditions |
|---------------------------------------------------------|-------------------------------------------|---------------------|---------------------|
| Floodstage Elevation Bridge Section (ft) <sup>1</sup>   | 902.98                                    | 902.95              | 902.95              |
| Floodstage Elevation Approach Section (ft) <sup>2</sup> | 903.10                                    | 903.12              | 903.09              |
| Area of Opening Under Floodstage (ft <sup>2</sup> )     | --                                        | 5176                | 5245                |
| Discharge through Bridge (cfs)                          | --                                        | 20316               | 20316               |
| Discharge over Roadway (cfs)                            | --                                        | --                  | --                  |
| Channel Velocity (ft/sec)                               | 3.90                                      | 4.08                | 4.06                |
| Mean Velocity thru Bridge (ft/sec)                      | --                                        | 3.93                | 3.87                |
| 2-Year Floodstage Elevation Bridge Section (ft)         | 895.99                                    | 895.99              | 895.98              |
| Backwater Height (ft)                                   | --                                        | 0.02                | 0                   |

<sup>1</sup> Floodstage Elevation is from the downstream section from bridge.

<sup>2</sup> Approach Section is located upstream of the bridge (Section 714318.7)

<sup>3</sup> Unconstricted Section is the downstream internal section recreated in the natural model (Section 714211.1) in order to provide a consistent comparison location between all three models (Natural, Existing, and Proposed).

## GA-120 over Chattahoochee River

### PROPOSED BRIDGE CLEARANCE

|                                          |               |
|------------------------------------------|---------------|
| MINIMUM PROFILE GRADE ELEVATION          | 910.46        |
| CROSS SLOPE                              | 0.02          |
| DEPTH OF CROSS SLOPE                     | 1.28          |
| DEPTH OF SLAB AND BEAM (54" + 1 FT)      | 5.5           |
| <b>BOTTOM OF BEAM ELEVATION (Bent 4)</b> | <b>903.68</b> |

|                                  |             |
|----------------------------------|-------------|
| MINIMUM BOTTOM OF BEAM ELEVATION | 903.68      |
| 50 YEAR FLOODSTAGE ELEVATION*    | 898.93      |
| <b>CLEARANCE (2 FT REQUIRED)</b> | <b>4.75</b> |

|                                     |             |
|-------------------------------------|-------------|
| MINIMUM BOTTOM OF BEAM ELEVATION    | 903.68      |
| 100 YEAR FLOODSTAGE ELEVATION*      | 899.48      |
| <b>CLEARANCE (1.0 FT) DESIRABLE</b> | <b>4.20</b> |

\* Floodstage taken from proposed conditions model

Note: Bent 3 was checked and the bottom of beam elevation (w/ 72" beam) was found to be higher than at Bent 4.



| BFE & FLOODWAY COMPARISON (NAVD88 DATUM)                                       |          |                              |         |           |          |                         |         |           |          |                                  |         |           |          |                                   |         |           |          |                       |         |           |          |
|--------------------------------------------------------------------------------|----------|------------------------------|---------|-----------|----------|-------------------------|---------|-----------|----------|----------------------------------|---------|-----------|----------|-----------------------------------|---------|-----------|----------|-----------------------|---------|-----------|----------|
| COMMUNITY NAME                                                                 |          |                              |         |           |          |                         |         |           |          | FLOODING SOURCE                  |         |           |          | PROJECT                           |         |           |          | Project ID, Number    |         |           |          |
| Cities of Johns Creek & Duluth; Gwinnett County - SR 120 (Abbotts Bridge Road) |          |                              |         |           |          |                         |         |           |          | Chattahoochee River              |         |           |          | STP00-0189-01(010)                |         |           |          | 721000                |         |           |          |
| X-SECT                                                                         |          | Published                    |         |           |          | Effective (HEC-RAS 4.1) |         |           |          | Duplicate Effective (HECRAS 4.1) |         |           |          | Corrected Effective (HEC-RAS 4.1) |         |           |          | Revised (HEC-RAS 4.1) |         |           |          |
| PUBL                                                                           | Sect No  | BFE                          | FW WSEL | Surcharge | FW Width | BFE                     | FW WSEL | Surcharge | FW Width | BFE                              | FW WSEL | Surcharge | FW Width | BFE                               | FW WSEL | Surcharge | FW Width | BFE                   | FW WSEL | Surcharge | FW Width |
|                                                                                | 703142.4 |                              |         |           |          | 896.81                  | 897.09  | 0.28      | 208.45   | 896.81                           | 897.09  | 0.28      | 208.45   | 896.81                            | 897.09  | 0.28      | 208.45   | 896.81                | 897.09  | 0.28      | 208.45   |
|                                                                                | 704948.6 |                              |         |           |          | 897.23                  | 897.50  | 0.27      | 209.05   | 897.23                           | 897.50  | 0.27      | 209.05   | 897.23                            | 897.50  | 0.27      | 209.05   | 897.23                | 897.50  | 0.27      | 209.05   |
| FD                                                                             | 705623.0 | 897.5                        | 897.7   | 0.2       | 242      | 897.45                  | 897.71  | 0.26      | 241.74   | 897.45                           | 897.71  | 0.26      | 241.74   | 897.45                            | 897.71  | 0.26      | 241.74   | 897.45                | 897.71  | 0.26      | 241.74   |
| Bridge                                                                         | 705714.6 | State Bridge Road            |         |           |          |                         |         |           |          |                                  |         |           |          |                                   |         |           |          |                       |         |           |          |
| US Br                                                                          | 705810.1 |                              |         |           |          | 897.62                  | 897.86  | 0.24      | 212.58   | 897.62                           | 897.86  | 0.24      | 212.58   | 897.62                            | 897.86  | 0.24      | 212.58   | 897.62                | 897.86  | 0.24      | 212.58   |
| FE                                                                             | 706369.6 | 897.8                        | 898.0   | 0.2       | 210      | 897.75                  | 898.00  | 0.25      | 210.05   | 897.75                           | 898.00  | 0.25      | 210.05   | 897.75                            | 898.00  | 0.25      | 210.05   | 897.75                | 898.00  | 0.25      | 210.05   |
|                                                                                | 707189.6 |                              |         |           |          | 897.88                  | 898.14  | 0.26      | 203.31   | 897.88                           | 898.14  | 0.26      | 203.31   | 897.88                            | 898.14  | 0.26      | 203.31   | 897.88                | 898.14  | 0.26      | 203.31   |
|                                                                                | 708330.8 |                              |         |           |          | 898.12                  | 898.38  | 0.26      | 215.82   | 898.12                           | 898.38  | 0.26      | 215.82   | 898.12                            | 898.38  | 0.26      | 215.82   | 898.12                | 898.38  | 0.26      | 215.82   |
|                                                                                | 710158.5 |                              |         |           |          | 898.44                  | 898.72  | 0.28      | 189.01   | 898.44                           | 898.72  | 0.28      | 189.01   | 898.44                            | 898.72  | 0.28      | 189.01   | 898.44                | 898.72  | 0.28      | 189.01   |
|                                                                                | 712195.4 |                              |         |           |          | 898.88                  | 899.17  | 0.29      | 190.44   | 898.88                           | 899.17  | 0.29      | 190.44   | 898.88                            | 899.17  | 0.29      | 190.44   | 898.88                | 899.17  | 0.29      | 190.44   |
| FF                                                                             | 713569.6 | 899.2                        | 899.5   | 0.3       | 179      | 899.21                  | 899.49  | 0.28      | 178.76   | 899.21                           | 899.49  | 0.28      | 178.76   | 899.21                            | 899.49  | 0.28      | 178.76   | 899.21                | 899.49  | 0.28      | 178.76   |
|                                                                                | 714014.2 |                              |         |           |          | Added Section           |         |           |          |                                  |         |           |          | 899.46                            | 899.72  | 0.26      | 226.23   | 899.48                | 899.73  | 0.25      | 204.30   |
| DS Br                                                                          | 714155.2 |                              |         |           |          | 899.57                  | 899.84  | 0.27      | 232.94   | 899.57                           | 899.84  | 0.27      | 232.94   | 899.48                            | 899.75  | 0.27      | 312.75   | Deleted Section       |         |           |          |
| Bridge                                                                         | 714229.6 | SR 120 (Abbotts Bridge Road) |         |           |          |                         |         |           |          |                                  |         |           |          |                                   |         |           |          |                       |         |           |          |
| US Br                                                                          | 714291.7 |                              |         |           |          | 899.61                  | 899.98  | 0.37      | 231.87   | 899.61                           | 899.98  | 0.37      | 231.87   | 899.59                            | 899.85  | 0.26      | 370.50   | Deleted Section       |         |           |          |
|                                                                                | 714318.7 |                              |         |           |          | Added Section           |         |           |          |                                  |         |           |          | 899.62                            | 899.84  | 0.22      | 227.22   | 899.59                | 899.86  | 0.27      | 255.00   |
| FG                                                                             | 714679.4 | 899.7                        | 900.0   | 0.3       | 210      | 899.67                  | 900.03  | 0.36      | 209.71   | 899.67                           | 900.03  | 0.36      | 209.71   | 899.66                            | 899.88  | 0.22      | 249.29   | 899.65                | 899.94  | 0.29      | 249.29   |
|                                                                                | 717546.8 |                              |         |           |          | 900.16                  | 900.52  | 0.36      | 202.38   | 900.16                           | 900.52  | 0.36      | 202.38   | 900.34                            | 900.74  | 0.40      | 202.38   | 900.32                | 900.59  | 0.27      | 202.38   |
| FH                                                                             | 719651.2 | 900.9                        | 901.2   | 0.3       | 196      | 900.62                  | 900.97  | 0.35      | 196.26   | 900.62                           | 900.97  | 0.35      | 196.26   | 900.78                            | 901.17  | 0.39      | 196.26   | 900.77                | 901.04  | 0.27      | 196.26   |
|                                                                                | 722465.4 |                              |         |           |          | 901.16                  | 901.49  | 0.33      | 216.63   | 901.16                           | 901.49  | 0.33      | 216.63   | 901.31                            | 901.68  | 0.37      | 216.90   | 901.30                | 901.55  | 0.25      | 216.85   |
| FI                                                                             | 723016.0 | 901.5                        | 901.9   | 0.4       | 239      | 901.28                  | 901.61  | 0.33      | 238.71   | 901.28                           | 901.61  | 0.33      | 238.71   | 901.43                            | 901.80  | 0.37      | 238.71   | 901.42                | 901.67  | 0.25      | 238.71   |
| FJ                                                                             | 724525.6 | 901.8                        | 902.1   | 0.3       | 206      | 901.56                  | 901.87  | 0.31      | 205.79   | 901.56                           | 901.87  | 0.31      | 205.79   | 901.70                            | 902.05  | 0.35      | 205.82   | 901.68                | 901.93  | 0.25      | 205.81   |
|                                                                                | 727178.7 |                              |         |           |          | 902.24                  | 902.53  | 0.29      | 219.53   | 902.24                           | 902.53  | 0.29      | 219.53   | 902.36                            | 902.69  | 0.33      | 219.53   | 902.35                | 902.58  | 0.23      | 219.53   |
| FK                                                                             | 730384.4 | 903.1                        | 903.4   | 0.3       | 187      | 902.94                  | 903.21  | 0.27      | 187.17   | 902.94                           | 903.21  | 0.27      | 187.17   | 903.05                            | 903.36  | 0.31      | 187.21   | 903.04                | 903.26  | 0.22      | 187.20   |
|                                                                                | 733190.2 |                              |         |           |          | 903.41                  | 903.67  | 0.26      | 223.58   | 903.41                           | 903.67  | 0.26      | 223.58   | 903.51                            | 903.81  | 0.30      | 223.58   | 903.50                | 903.71  | 0.21      | 223.58   |
|                                                                                | 735717.3 |                              |         |           |          | 903.71                  | 903.97  | 0.26      | 218.10   | 903.71                           | 903.97  | 0.26      | 218.10   | 903.80                            | 904.10  | 0.30      | 218.10   | 903.79                | 904.01  | 0.22      | 218.10   |
| FL                                                                             | 738645.7 | 904.1                        | 904.4   | 0.3       | 162      | 904.08                  | 904.34  | 0.26      | 162.42   | 904.08                           | 904.34  | 0.26      | 162.42   | 904.17                            | 904.46  | 0.29      | 162.42   | 904.16                | 904.38  | 0.22      | 162.42   |
|                                                                                | 738953.3 |                              |         |           |          | 904.25                  | 904.51  | 0.26      | 219.95   | 904.25                           | 904.51  | 0.26      | 219.95   | 904.34                            | 904.63  | 0.29      | 219.95   | 904.33                | 904.54  | 0.21      | 219.95   |
| Bridge                                                                         | 739022.1 | McGinnis Ferry Road          |         |           |          |                         |         |           |          |                                  |         |           |          |                                   |         |           |          |                       |         |           |          |
|                                                                                | 739094.9 |                              |         |           |          | 904.29                  | 904.55  | 0.26      | 219.04   | 904.29                           | 904.55  | 0.26      | 219.04   | 904.38                            | 904.67  | 0.29      | 219.08   | 904.37                | 904.59  | 0.22      | 219.08   |

| BFE & FLOODWAY COMPARISON (NAVD88 DATUM)                                       |          |           |         |           |          |                         |         |           |          |                                  |         |           |          |                                   |         |           |          |                       |         |           |          |
|--------------------------------------------------------------------------------|----------|-----------|---------|-----------|----------|-------------------------|---------|-----------|----------|----------------------------------|---------|-----------|----------|-----------------------------------|---------|-----------|----------|-----------------------|---------|-----------|----------|
| COMMUNITY NAME                                                                 |          |           |         |           |          |                         |         |           |          | FLOODING SOURCE                  |         |           |          | PROJECT                           |         |           |          | Project ID. Number    |         |           |          |
| Cities of Johns Creek & Duluth; Gwinnett County - SR 120 (Abbotts Bridge Road) |          |           |         |           |          |                         |         |           |          | Chattahoochee River              |         |           |          | STP00-0189-01(010)                |         |           |          | 721000                |         |           |          |
| X-SECT                                                                         |          | Published |         |           |          | Effective (HEC-RAS 4.1) |         |           |          | Duplicate Effective (HECRAS 4.1) |         |           |          | Corrected Effective (HEC-RAS 4.1) |         |           |          | Revised (HEC-RAS 4.1) |         |           |          |
| PUBL.                                                                          | Secl No  | BFE       | FW WSEL | Surcharge | FW Width | BFE                     | FW WSEL | Surcharge | FW Width | BFE                              | FW WSEL | Surcharge | FW Width | BFE                               | FW WSEL | Surcharge | FW Width | BFE                   | FW WSEL | Surcharge | FW Width |
| FM                                                                             | 739439.5 | 904.3     | 904.6   | 0.3       | 215      | 904.32                  | 904.58  | 0.26      | 215.02   | 904.32                           | 904.58  | 0.26      | 215.02   | 904.41                            | 904.70  | 0.29      | 215.21   | 904.40                | 904.62  | 0.22      | 215.18   |
|                                                                                | 740971.6 |           |         |           |          | 904.57                  | 904.82  | 0.25      | 223.05   | 904.57                           | 904.82  | 0.25      | 223.05   | 904.66                            | 904.94  | 0.28      | 223.15   | 904.65                | 904.86  | 0.21      | 223.13   |
|                                                                                | 741238.0 |           |         |           |          | 904.62                  | 904.86  | 0.24      | 280.50   | 904.62                           | 904.86  | 0.24      | 280.50   | 904.70                            | 904.98  | 0.28      | 280.60   | 904.69                | 904.90  | 0.21      | 280.58   |
| FN                                                                             | 741431.5 | 904.6     | 904.9   | 0.3       | 225      | 904.64                  | 904.89  | 0.25      | 224.70   | 904.64                           | 904.89  | 0.25      | 224.70   | 904.73                            | 905.00  | 0.27      | 224.77   | 904.72                | 904.93  | 0.21      | 224.75   |
| FO                                                                             | 744817.8 | 905.4     | 905.6   | 0.2       | 213      | 905.37                  | 905.58  | 0.21      | 213.49   | 905.37                           | 905.58  | 0.21      | 213.49   | 905.44                            | 905.68  | 0.24      | 213.53   | 905.43                | 905.62  | 0.19      | 213.52   |
|                                                                                | 747909.1 |           |         |           |          | 905.75                  | 905.95  | 0.20      | 322.44   | 905.75                           | 905.95  | 0.20      | 322.44   | 905.82                            | 906.05  | 0.23      | 322.51   | 905.81                | 905.98  | 0.17      | 322.50   |
| FP                                                                             | 749433.3 | 905.9     | 906.1   | 0.2       | 223      | 905.88                  | 906.07  | 0.19      | 222.64   | 905.88                           | 906.07  | 0.19      | 222.64   | 905.94                            | 906.17  | 0.23      | 222.68   | 905.94                | 906.10  | 0.16      | 222.67   |
| FQ                                                                             | 751868.0 | 906.5     | 906.7   | 0.2       | 207      | 906.52                  | 906.70  | 0.18      | 206.80   | 906.52                           | 906.70  | 0.18      | 206.80   | 906.58                            | 906.78  | 0.20      | 206.83   | 906.58                | 906.72  | 0.14      | 206.82   |
|                                                                                | 752673.8 |           |         |           |          | 906.80                  | 906.97  | 0.17      | 255.59   | 906.80                           | 906.97  | 0.17      | 255.59   | 906.86                            | 907.05  | 0.19      | 255.65   | 906.86                | 907.00  | 0.14      | 255.64   |
|                                                                                | 754547.9 |           |         |           |          | 907.28                  | 907.43  | 0.15      | 237.79   | 907.28                           | 907.43  | 0.15      | 237.79   | 907.33                            | 907.50  | 0.17      | 237.82   | 907.33                | 907.46  | 0.13      | 237.82   |
|                                                                                | 755410.3 |           |         |           |          | 907.55                  | 907.69  | 0.14      | 228.59   | 907.55                           | 907.69  | 0.14      | 228.59   | 907.59                            | 907.76  | 0.17      | 228.65   | 907.59                | 907.71  | 0.12      | 228.63   |
| FR                                                                             | 757224.6 | 908.1     | 908.2   | 0.1       | 233      | 908.09                  | 908.22  | 0.13      | 233.24   | 908.09                           | 908.22  | 0.13      | 233.24   | 908.14                            | 908.28  | 0.14      | 233.28   | 908.13                | 908.24  | 0.11      | 233.27   |
|                                                                                |          |           |         |           |          |                         |         |           |          |                                  |         |           |          |                                   |         |           |          |                       |         |           |          |

### **III. Peak Flow Summary**

STP00-0189-01(010)  
 SR-120 (Abbotts Bridge Rd) over Chattahoochee River  
 PI# 721000

|                         |      |
|-------------------------|------|
| DRAINAGE AREA (SQ. MI.) | 1160 |
| REGION NO.              | 1    |

|                     |    |
|---------------------|----|
| IMPERVIOUS AREA (%) | 18 |
|---------------------|----|

|                      |         |
|----------------------|---------|
| USGS GAGE NO.        | 2335000 |
| DRAINAGE AREA @ GAGE | 1170    |
| Q2                   | ---     |
| Q5                   | ---     |
| Q10                  | 8250    |
| Q25                  | ---     |
| Q50                  | 13342   |
| Q100                 | 14480   |
| Q500                 | 18159   |

#### Discharge (cfs)

|      | *REGIONAL | URBANIZED | **FEMA |
|------|-----------|-----------|--------|
| Q2   | 17400     | ---       | 10360  |
| Q5   | 27600     | ---       | 11080  |
| Q10  | 34700     | ---       | 11460  |
| Q25  | 43500     | ---       | 11850  |
| Q50  | 51000     | ---       | 13593  |
| Q100 | 57800     | ---       | 14310  |
| Q500 | 74100     | ---       | 20316  |

\* - Calculated from USGS SIR 2009-5158. Since DA > 458 Sq. Miles, USGS SIR-2014-5030 Methodology does not apply for urban watersheds.

\*\* - FEMA Discharges take into account Gage flows and controlled power release flows from Buford Dam. See FEMA FIS Revision Summary. These FEMA flows are most appropriate and being used for the SR-120 Hydraulics Study.

#### HYDRAULIC SLOPE CALCULATION

*Based on USGS Quad*

|                      |       |    |
|----------------------|-------|----|
| Upstream Elevation   | 900   | ft |
| Downstream Elevation | 880   | ft |
| Horizontal Distance  | 33125 | ft |

Slope = 0.0006 ft/ft



Table 2 – Summary of Discharges (Continued)

| Flooding Source and<br>Location                                                       | Drainage Area<br>(square miles) | 10-Percent-<br>Annual-<br>Chance | 2-Percent-<br>Annual-<br>Chance | Peak Discharges (cubic feet per second) |        |                                |
|---------------------------------------------------------------------------------------|---------------------------------|----------------------------------|---------------------------------|-----------------------------------------|--------|--------------------------------|
|                                                                                       |                                 |                                  |                                 | 1-Percent-<br>Annual- Chance            |        | 0.2-Percent-<br>Annual- Chance |
|                                                                                       |                                 |                                  |                                 | Existing                                | Future |                                |
| CEDAR CREEK                                                                           |                                 |                                  |                                 |                                         |        |                                |
| NORTHWEST TRIBUTARY                                                                   |                                 |                                  |                                 |                                         |        |                                |
| Approximately 0.7 mile<br>upstream of the<br>confluence with Cedar<br>Creek Northwest | 1.380                           | 1,263                            | 1,276                           | 1,279                                   | 1,292  | 1,293                          |
| CEDAR CREEK                                                                           |                                 |                                  |                                 |                                         |        |                                |
| SOUTHEAST                                                                             |                                 |                                  |                                 |                                         |        |                                |
| Just upstream of Indian<br>Shoals Road                                                | 3.290                           | 1,868                            | 3,133                           | 3,442                                   | 4,240  | 4,525                          |
| Approximately 0.3 mile<br>upstream of New Hope<br>Road                                | 1.000                           | 599                              | 1,018                           | 1,146                                   | 1,564  | 1,591                          |
| CENTERVILLE CREEK                                                                     |                                 |                                  |                                 |                                         |        |                                |
| Just upstream of the<br>confluence with Little<br>Yellow River                        | 1.934                           | 2,320                            | 3,564                           | 3,928                                   | 4,189  | 5,187                          |
| Just upstream of Mountain<br>Way Cove                                                 | 1.161                           | 1,535                            | 2,316                           | 2,544                                   | 2,671  | 3,316                          |
| Just upstream of Johnson<br>Drive                                                     | 0.581                           | 914                              | 1,369                           | 1,501                                   | 1,602  | 1,952                          |
| CHATTAHOOCHEE RIVER                                                                   |                                 |                                  |                                 |                                         |        |                                |
| At Holcomb Bridge Road                                                                | 1,210                           | 16,321                           | 20,633                          | 22,337                                  | *      | 27,041                         |
| At State Highway 141                                                                  | 1,170                           | 11,460 <sup>1</sup>              | 13,750                          | 14,418                                  | *      | 20,114                         |
| Just upstream of Suwanee<br>Creek                                                     | 1,140                           | 11,460 <sup>1</sup>              | 12,000 <sup>1</sup>             | 12,000 <sup>1</sup>                     | *      | 13,752                         |
| Just downstream of the<br>confluence of James<br>Creek                                | 1,073                           | 11,460 <sup>1</sup>              | 12,000 <sup>1</sup>             | 12,000 <sup>1</sup>                     | *      | 12,000 <sup>1</sup>            |
| At State Highway 20                                                                   | 1,060                           | 11,460 <sup>1</sup>              | 12,000 <sup>1</sup>             | 12,000 <sup>1</sup>                     | *      | 12,000 <sup>1</sup>            |
| CROOKED CREEK                                                                         |                                 |                                  |                                 |                                         |        |                                |
| Approximately 0.4 mile<br>downstream of Meadow<br>Rue Drive                           | 8.340                           | 3,532                            | 5,024                           | 5,647                                   | 6,201  | 6,832                          |
| Just downstream of the<br>confluence of Crooked<br>Creek Tributary A                  | 7.976                           | 3,465                            | 4,947                           | 5,547                                   | 6,099  | 6,712                          |
| Just downstream of the<br>confluence of Crooked<br>Creek Tributary No. 1              | 5.231                           | 2,000                            | 2,676                           | 2,898                                   | 3,036  | 3,313                          |

\* Data not available

<sup>1</sup> Flows controlled by power release from Buford Dam

The discharges for Little Bear Creek were determined by using flood-frequency relations for urban streams as recommended by the USGS (References 42, 41, and 35).

Discharges for the Chattahoochee River were determined by the log-Pearson Type III statistical analysis at three river gages as outlined by the Water Resources Council (Reference 25). The gages used in this analysis are located at Norcross, Vinings, and Whitesburg, Georgia, nos. 2-3550, 2-3360, and 2-3380, respectively and are operated by the USGS. The period of record on the Norcross gage was from 1902 to 1979, the Vinings gages from 1937 to 1979 continuous with historical peaks from earlier floods included, and the Whitesburg gage from 1938 to 1954, and from 1961 to 1979.

Data from these gages were correlated and missing data estimated using the West Point gage (No. 2-3395) as the base station. The discharges at the gages prior to the completion of Buford Dam were reduced to reflect the reduction due to flood control operations and power releases. These data were then analyzed by standard log-Pearson Type III method (Reference 25).

The USACE, Mobile District performed a reanalysis of the Chattahoochee River reach between State Route 92 (river mile 96) and Holcomb Bridge Road (river mile 229). For this reanalysis, 24 years of gage records were available at the Vinings gage since Buford Dam began operating. Therefore, this analysis yielded a more accurate estimate of the discharge-frequency than previously existed.

Three separate hydrologic analyses were performed. Although the flows at the Vinings gage are highly regulated by Buford Dam, the first approach consisted of an analytical curve (log-Pearson Type III distribution) using a regional skew of zero that fit the plotted data and was adopted for this countywide FIS (Reference 25). The March 1977 flood, which had the highest observed discharge (28,900 cfs) since Buford Dam began operating, would be approximately an 18-year flood on this curve.

As part of the second set of analyses, discharge frequency data for the 410-square mile uncontrolled area above the gage were computed using equations developed by the USGS with allowances for Buford Dam power releases. Because this method is not recommended for areas larger than 100 square miles, it was used only for comparison.

The third set of hydrologic analyses consisted of a comparison of pre- to post-Buford Dam discharges. This comparison was carried out by computing a frequency curve for natural conditions using only the data observed before Buford Dam began operating.

In conjunction with the foregoing gage analyses, the contribution of tributary flow to flood peaks in the river was estimated. The March 1977 and April 1979 floods were selected for analysis because they were pertinent to the restudy, and the flood hydrographs were readily available at several locations.

The flood hydrograph for Peachtree Creek at the Northside Drive gage was routed to the river and increased by the drainage area ratio to estimate Peachtree Creek flow at its mouth. This hydrograph was then added to the Vinings hydrograph, which had been lagged in time to allow for distance between two points. This gave an estimate of the total flow in the river at the confluence of Peachtree Creek.

Frequency discharges for the Chattahoochee River for points between the gaging station were estimated by prorating the difference in adjacent frequency curves by the drainage area ratio method. One exception to this was that the discharge estimates at Marietta Boulevard were obtained using runoff rates computed from the local contribution between the Norcross and Vinings gages, which were higher than those obtained for the local contribution between Vinings and Fairburn. This was done to account for the high degree of urbanization in the Peachtree Creek watershed. Because of the higher flows per unit area adopted at this point, a slight attenuation was required to tie in downstream.

A similar procedure was followed at Sweetwater Creek, which is upstream of the City of Atlanta and characteristically peaks later than the Chattahoochee River. The Sweetwater Creek hydrographs are flatter than those of Peachtree Creek, which causes their effect on the Chattahoochee River to be more consistent and probably less drastic.

Effects of tributaries where no observed data were available were estimated by applying the drainage area ratios to the main stem flow.

The estimated flow distributions on the Chattahoochee River for the March 1977 and April 1979 floods were plotted as discharge versus river mile. The frequency discharges at the upper and lower limits of the restudy reach were left unchanged, but were transitioned within the reach to incorporate the revised frequency curve at Vinings.

The hydrologic analyses for Morning Branch from its mouth to just downstream of Lake Feldwood Dam, and Morning Creek from Buffington to just downstream of Lake Estes, are based on the results of a hydrologic model developed for the watershed. The HEC-1 computer program, using the SCS runoff option, was used to analyze the two reaches (Reference 31). This model allows for the combined storage potential of Lake Feldwood and Lake Estes (Reference 43).

### **Revised Analyses for Countywide FIS**

Information on the methods used to determine peak discharge-frequency relationships for the flooding sources studied as part of this revision is shown below.

## 10.0 Revision Descriptions

This section has been added to provide information regarding significant revisions made since the original Flood Insurance Study (FIS) was printed. Future revisions may be made that do not result in the republishing of the FIS report. To assure that any user is aware of all revisions, it is advisable to contact the community repository for any additional data.

### 10.1 First Revision (June 18, 2010)

This study was revised on June 18, 2010 to incorporate new detailed flood hazard information for Chattahoochee River within Fulton County.

The hydrologic and hydraulic analyses for this restudy were performed by Braswell Engineering, Inc., for the Federal Emergency Management Agency (FEMA), as part of a Physical Map Revision, case no. 09-04-0014S. This work was completed in July 2007.

A final CCO meeting was held for the City of Roswell on July 22, 2009 and was attended by representatives of FEMA and the City of Roswell. All issues raised at that meeting have been addressed by this study. The other communities impacted by this revision were contacted but after discussions with FEMA it was decided that additional meetings were not necessary.

The Chattahoochee River SFHA was revised from Morgan Falls Dam upstream to Buford Dam, a distance of approximately 37 miles. The work affected floodplains of Forsyth County, Gwinnett County, Cobb County, and Fulton County. New hydrologic and hydraulic data was prepared for the Chattahoochee River, between Buford Dam and the crossing with Medlock Bridge at Norcross. Revised discharge values resulted in lower WSELs for much of the area between the noted upstream and downstream study limits. WSELs between Buford Dam and Morgan Falls Dam were redelineated based on more recent topography (References 80 and 81). Profiles of Chattahoochee River Tributaries, Autry Mill Creek and Johns Creek have been appropriately adjusted.

Johns Creek was incorporated on December 1, 2006. It is named for a body of water that runs through the area. The city was created out of the entire unincorporated eastern part of northern Fulton County, bounded by Roswell to the west and south, Alpharetta to the northwest, Forsyth County to the north, and Gwinnett County to the south and east. The 2008 population estimate for the city is 59,431.

Sandy Springs was incorporated in December 2005. It is a suburb just north of Atlanta and is the eighth-largest city in the state and the third-largest city in the Atlanta metropolitan area. According to the US Census Bureau, the 2008 estimated population was 82,674. Sandy Springs is located in north Fulton County, Georgia, just south of Roswell and west of Dunwoody, and is named for the sandy springs that still exist in the city as a protected historic site. It is the second-largest of the three official cities of the Atlanta-Sandy Springs-Marietta, Georgia Metropolitan Statistical Area.



Buford Dam (constructed in 1957) regulates the surface runoff generated in the upper 1,040 square miles of the Chattahoochee River watershed. The maximum peak flow at Norcross over the last 50 years has been 13,200 cfs.

A calibrated HEC-1 model for the 130-square mile watershed downstream of Buford Dam and upstream of Norcross, Georgia was developed (Reference 82). The calibration and verification of the model involved the identification and collection of rainfall and runoff data for 4 storm events that are considered extreme events for the 130 square mile (mi<sup>2</sup>) watershed. The watershed downstream of Buford Dam was divided into sub-basins to account for the geographic distribution of the available precipitation and stream flow data and to aid in the development of the hydrographs. Runoff hydrographs from each sub-basin were generated using the SCS curve number method and the COE's HEC-1 flood hydrograph computer program (Reference 30 and 31). The HEC-1 model was calibrated by determining lag times and curve numbers for the sub-basins that produced flood hydrographs most consistent with observed flows.

If possible, Buford Dam releases are restricted to a single low level turbine during major storm events as outlined in the reservoir regulation manual. Under these operating conditions, the resulting base flow from the dam is 620 cfs and this outflow was added to sub-basin hydrographs.

The calibrated and verified basin models were used to simulate the 1-percent annual chance flood event as well as the 10-, 2- and 0.2-percent annual chance events. A SCS Type II storm distribution for a 24-hour duration was used along with the geographically adjusted rainfall amounts from TP 40 (Reference 28) for each storm. As with the calibration events, runoff hydrographs for each of the sub-basins were generated with the HEC-1 model and then routed to the Norcross Gage using the dynamic routing option in HEC-RAS (Reference 83). The resulting 1-percent annual chance discharge at the Norcross Gage was 14,480 cfs. The 10-, 2- and 0.2-percent annual chance discharges were 8250, 13,342 and 18,159 cfs, respectively (Reference 84).

Water surface elevations for the revised study area of the Chattahoochee River were determined by re-running the previously effective HEC-2 model with the updated discharge values (Reference 34). Floodway encroachment stations remain the same as they were with the previously effective model; however the HEC-2 floodway model was re-run to reflect the revised discharge values. The water surface at Morgan Falls has been mapped to an elevation of 854 feet. This represents the Morgan Falls spillway elevation and the starting water surface elevation of the previously effective HEC-2 model.

Table 6, "Summary of Discharges," and Table 8, "Floodway Data" were revised to reflect the results of the new data. Profiles 01P, 51P through 57P and 103P were revised to reflect the results of the new data.

Revisions to the published FIS(s) for Forsyth, Gwinnett, and Cobb County (References 85, 86, and 87), are being published concurrently with this restudy. These revised studies agree with this restudy.

# WaterWatch

## WaterWatch Streamflow Map

Choose a region and then click "GO" to view a regional map

**(Warning: It may take several minutes to process)**

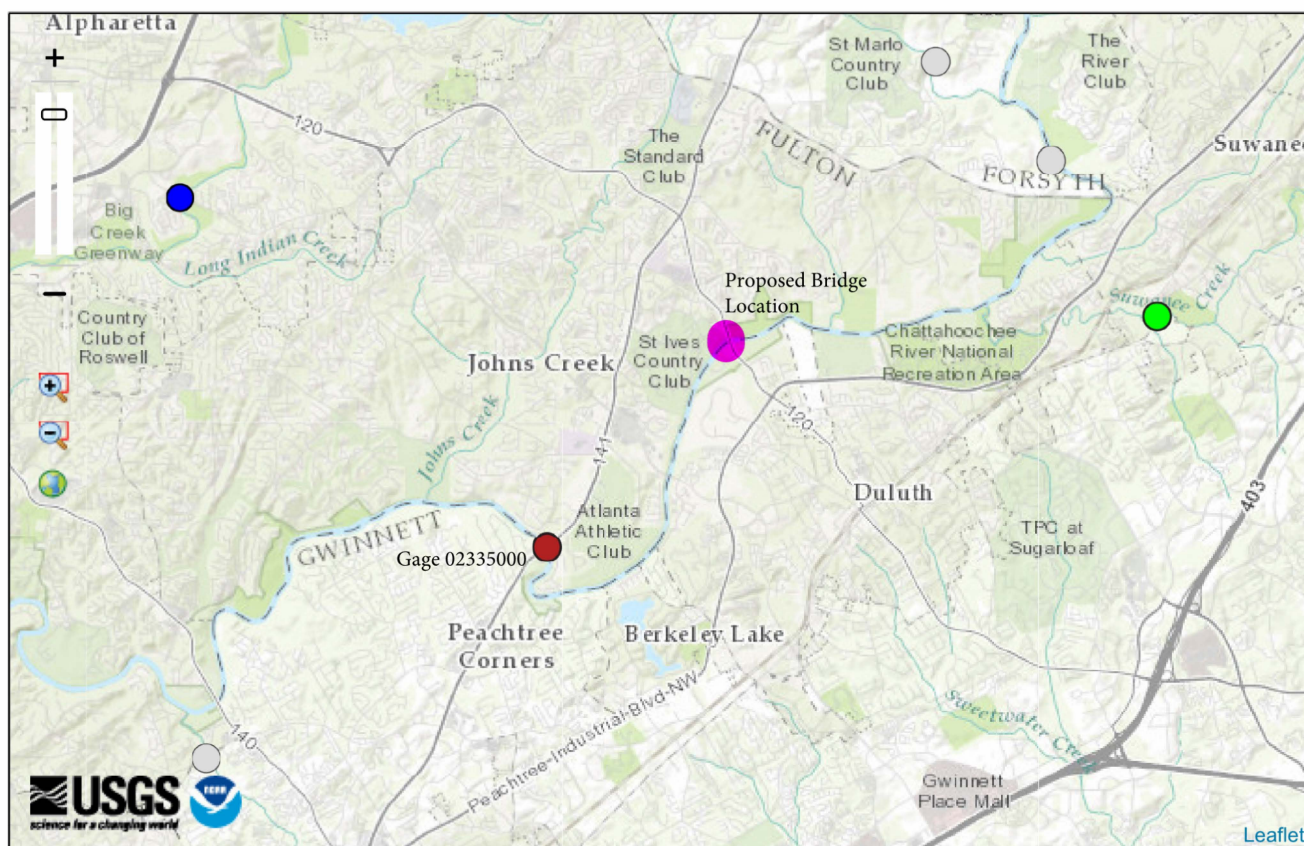
**Map type**  
 Real-Time ▼

**Region:**

☐ Multiple regions

Geographic Area ▼ Water Res. Region ▼
 ☐ Regional map only

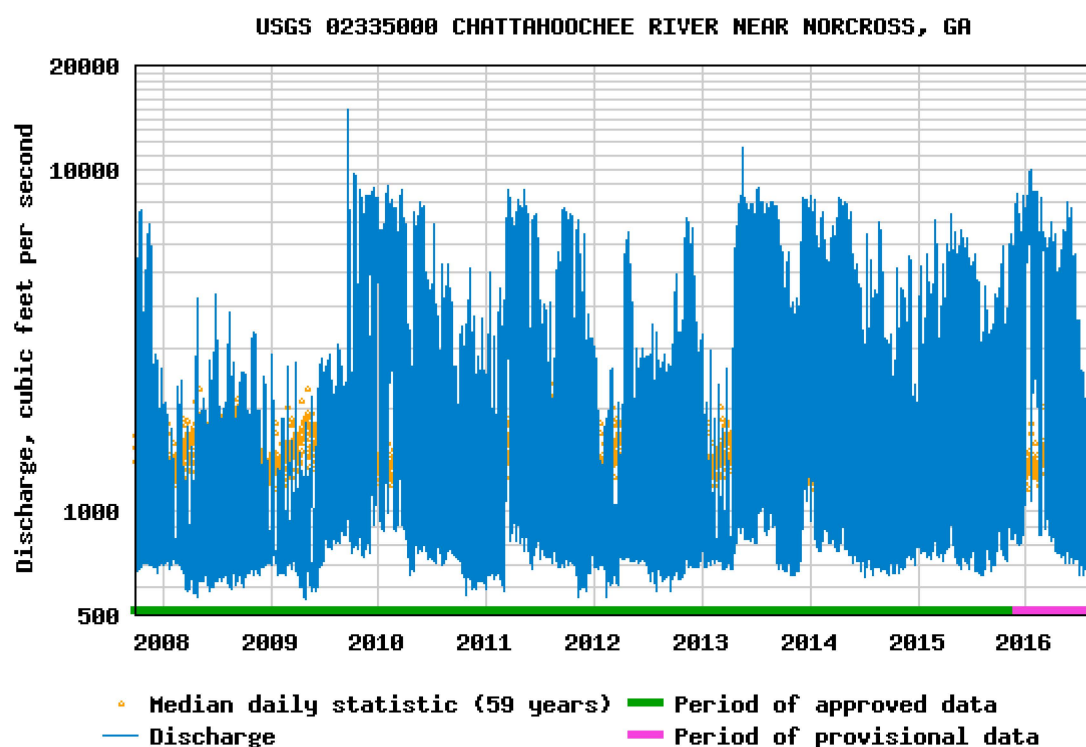
**Wednesday, August 17, 2016 09:30 EDT**



| Explanation - Percentile classes |                          |                       |                 |                       |                          |      |            |
|----------------------------------|--------------------------|-----------------------|-----------------|-----------------------|--------------------------|------|------------|
|                                  |                          |                       |                 |                       |                          |      |            |
| Low                              | <10<br>Much below normal | 10-24<br>Below normal | 25-75<br>Normal | 76-90<br>Above normal | >90<br>Much above normal | High | Not-ranked |

## Discharge, cubic feet per second

Most recent instantaneous value: 909 08-22-2016 13:15 EDT



## Daily discharge, cubic feet per second -- statistics for Aug 22 based on 59 years of record [more](#)

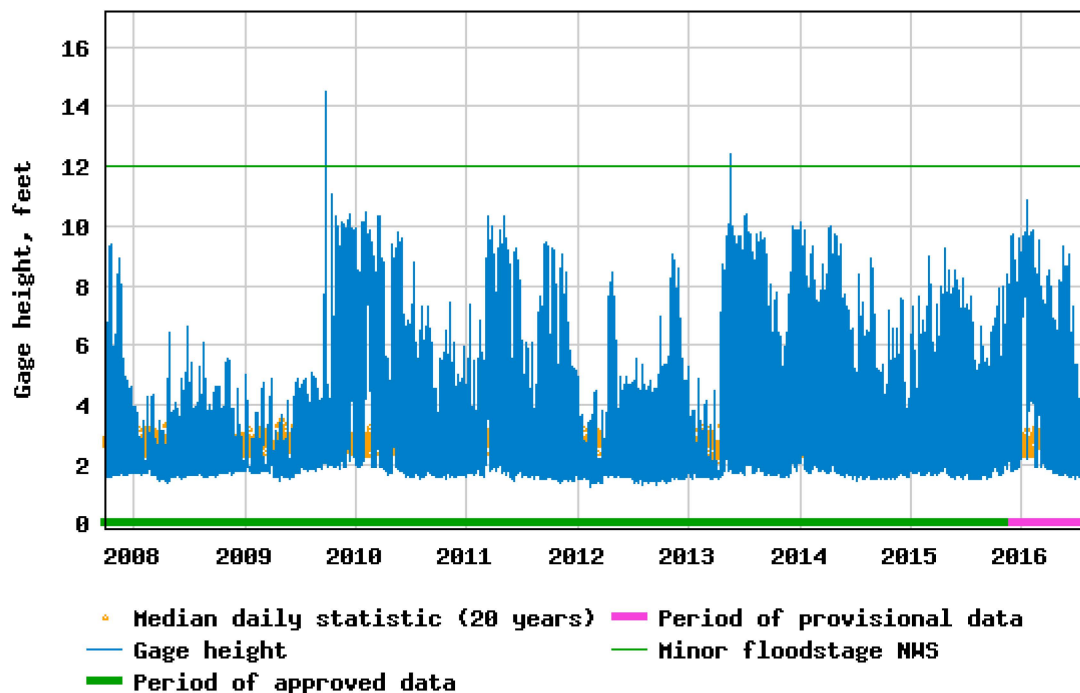
| Min<br>(1957) | Most Recent<br>Instantaneous<br>Value Aug 22 | 25th<br>percen-<br>tile | Median | Mean | 75th<br>percen-<br>tile | Max<br>(1994) |
|---------------|----------------------------------------------|-------------------------|--------|------|-------------------------|---------------|
| 516           | 909                                          | 1290                    | 2210   | 2340 | 3290                    | 5250          |



## Gage height, feet

Most recent instantaneous value: 1.98 08-22-2016 13:15 EDT

USGS 02335000 CHATTAHOOCHEE RIVER NEAR NORCROSS, GA



Daily gage height, feet -- statistics for Aug 22 based on 22 years of record [more](#)

| Min<br>(2012) | Most Recent<br>Instantaneous<br>Value Aug 22 | 25th<br>percen-<br>tile | Median | Mean | 75th<br>percen-<br>tile | Max<br>(1994) |
|---------------|----------------------------------------------|-------------------------|--------|------|-------------------------|---------------|
| 1.90          | 1.98                                         | 2.59                    | 2.91   | 3.51 | 4.27                    | 6.97          |



## **IV. Hydraulics Engineering Field Data**

## HYDRAULIC ENGINEERING FIELD REPORT

### I. HYDRAULIC AND HYDROLOGICAL DATA REQUIRED FOR ALL EXISTING OR PROPOSED BRIDGE STREAM CROSSING PROJECTS

#### A. Project Location

Project No.: STP00-0189-01(010) County: FULTON/GWINNETT District: 7/1  
 P.I. No.: 721000 Stream Name: CHATTAHOOCHEE RIVER Route: 120  
 Surveyed By: LONG ENGINEERING, INC. Date: SPRING 2016

#### B. Site Information

##### Floodplain and Stream Channel description:

1. Flat, rolling, mountainous, etc.: ROLLING
2. Wooded, heavily vegetated, pasture, swampy, etc.: WOODED FLOODPLAIN W/SOME  
COMMERCIAL DEVELOPMENT IN SW QUADRANT
3. Stream channel description: well-defined banks, meandering, debris, etc.  
WELL-DEFINED BANKS, STEEP BUT STABLE. SOME MINOR  
TREE DEBRIS OBSERVED ALONG BANKS
4. Is there any fill in the upstream or downstream floodplain, which will affect the natural drainage or limit the floodplain width at this site?  
NO

#### C. Required Existing Bridge Information at Project Site

1. Bridge Identification No.: 121-0079-0
2. Date Built: 1960
3. Skew angle of bridge bents: 90°
4. Height of curb, parapet or barrier: 1.20' TALL, 2.2' WIDE

##### Substructure Information:

1. Column type (concrete, steel, etc.): CONCRETE
2. Size of columns: 28" x 36"
3. Number of columns per bent: 2
4. Guide Bank (Spur Dike) length, elevation and location (if applicable):  
N/A

5. Note any scour problems at intermediate bents or abutments:

NONE OBSERVED

#### D. Normal Water Surface Data

WS ELEV

884.3 +/-

N/A

N/A

N/A

1. Extreme high water elevation at site: 890.39 Date: \_\_\_\_\_

2. Highest observed tide elevation: N/A Date: ---

3. Location of extreme high water elevation (upstream/downstream face of bridge at the centerline or station and offset if not at bridge): \_\_\_\_\_

NO KNOWLEDGE OF STRUCTURE FLOODING EXPERIENCED AT NEARBY STRUCTURES

N/A

**NONE**

Northings: 1465649.276 Eastings: 2296082.862

3. Physical description: \_\_\_\_\_

**Location 3:**

1. Benchmark Name: \_\_\_\_\_ Elevation: \_\_\_\_\_

2. Location (*project stations/offset*): \_\_\_\_\_

    Northing: \_\_\_\_\_ Easting: \_\_\_\_\_

3. Physical description: \_\_\_\_\_

**G. Upstream and Downstream Structures**

**Structure 1**

1. Structure Type (railroad/highway bridge, culvert): HIGHWAY BRIDGE
2. Route Number (if applicable): STATE BRIDGE ROAD / PLEASANT HILL ROAD
3. Distance from proposed structure along stream centerline: 8,515 FT (DOWNSTREAM)
4. Length of bridge or culvert size: 265' - 5 SPANS @ 53' -- DUAL BRIDGES
5. Superstructure (slab thickness, beam depth): 48" PRESTRESSED CONC. GIRDERS W/ CONC. DECK
6. Substructure information: 4' SQUARE CONCRETE PIERS
7. Column Type (concrete, steel, etc.): CONCRETE
8. Size of Column: 4' SQUARE
9. Number of Columns per bent: 2

**Structure 2**

1. Structure Type (railroad/highway bridge, culvert): BRIDGE
2. Route Number (if applicable): ROGERS BRIDGE ROAD
3. Distance from proposed structure along stream centerline: 7,800 FT (UPSTREAM)
4. Length of bridge or culvert size: 240' +/-
5. Superstructure (slab thickness, beam depth): HISTORIC TRESTLE / TRUSS (STEEL)
6. Substructure information: CONCRETE FILLED STEEL CAISSONS
7. Column Type (concrete, steel, etc.): NONE
8. Size of Column: NONE
9. Number of Columns per bent: NONE

**Structure 3**

1. Structure Type (railroad/highway bridge, culvert): HIGHWAY BRIDGE
2. Route Number (if applicable): MCGINNIS FERRY ROAD
3. Distance from proposed structure along stream centerline: 24,793 FT (UPSTREAM)
4. Length of bridge or culvert size: 302' - 1@ 85', 1@ 144', 1@ 73'
5. Superstructure (slab thickness, beam depth): TYPE III (45") END SPANS & 74" BULB TEE CENTER SPAN
6. Substructure information: 7.5' DIAMETER STEEL CAISSONS FILLED W/ CONCRETE
7. Column Type (concrete, steel, etc.): CONCRETE
8. Size of Column: 5' SQUARE
9. Number of Columns per bent: 5



**NOTE:** The above information is required for all bridges or culverts, which lie within 2000 feet upstream and downstream from the project bridge, unless otherwise directed by the Office of Bridge Hydraulics.

**H. Miscellaneous Information**

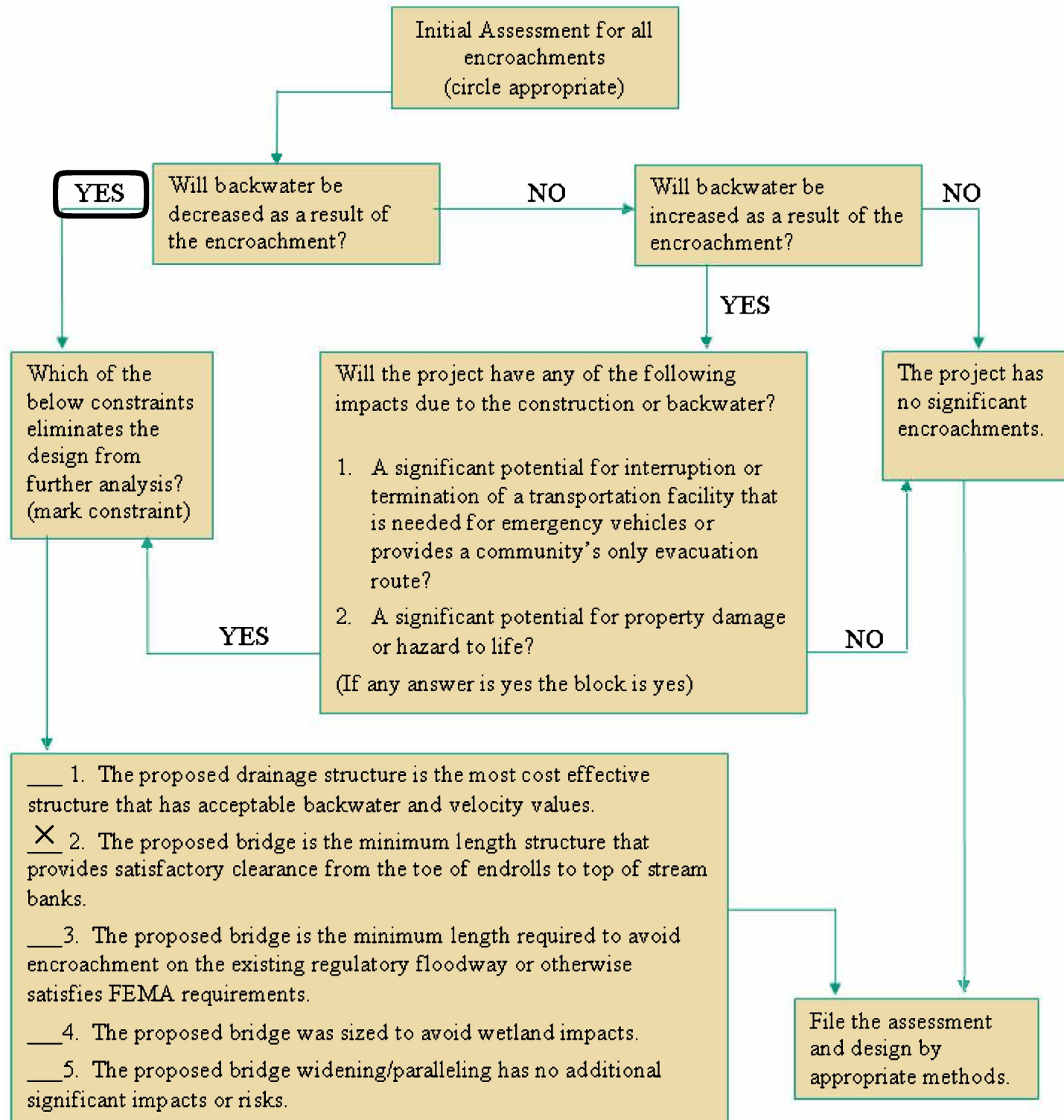
1. Are there water surfaces affected by other factors (high water from other streams, reservoirs, etc.):

WATER SURFACE AT PROJECT SITE NOT AFFECTED BY ANY  
DOWNSTREAM BACKWATER EFFECTS.

2. Give location (horizontal distance to dam or spill way along stream centerline), length, width and elevation of dam and spillway, if applicable:

BUFORD DAM LOCATED APPROXIMATELY 14 MILES UPSTREAM  
FROM SR 120 BRIDGE.

Risk Assessment  
STP-189-01(010) Fulton-Gwinnett Counties, GA  
SR 120 (Abbotts Bridge Road) over Chattahoochee River



# GEORGIA DEPARTMENT OF TRANSPORTATION

## HISTORIC BRIDGE INVENTORY REPORT

Serial #: 121-0079-0



---

County: FULTON Municipality: GDOT District 7 Owner: STATE

Location: 8 MI E OF ALPHARETTA

Bridge Name: UTM: 16 767672 3766877

Facility Carried: ABBOTTS BRIDGE RD

Feature Intersected: CHATTAHOOCHEE RIVER

Type: STRINGER Design: CONTINUOUS

Material: STEEL # Spans: 4 Length: 304 Width: 34.2 # Lanes: 2

Railing Type: STANDARD CONCRETE 2 RAIL HIGH

Date of Construction: 1960 Alteration: Source: GDOT BRIDGE INSPECTION FILE

Designer/Builder: STATE HWY DEPT BRIDGE DEPT

---

Current National Register Status of Bridge: Not Previously Evaluated

Local, Determined Eligible, or NR Historic District/Status:

Inventory NR Recommendation: Not Eligible

---

### Setting/Context:

The bridge carries a 2 lane road over a stream in suburban setting of post-World War II residences.

### Physical Description:

The 4 span continuous, 304'-long steel stringer bridge is supported on concrete column bents and abutments. It has cantilevered deck sections and is finished with standard design open railings.

### Summary of Significance:

The 1960 steel stringer bridge with its 4-span continuous main spans is a later example of the continuous cantilever design initially used by the state highway department in the late 1920s. Prior to World War II, Georgia was a national leader in the use of the design, which allows for a longer clear span with a shallower beam. Starting about 1945 and reflecting a national trend, the department adopted standard designs for even longer continuous design bridges with continuity established over three, four, or more spans by using riveted and later welded splice plates, and the use of longer spans. This bridge has no innovative or distinctive details and is not historically or technologically significant.

### Bibliography:

GADOT. Bridge Inspection File & Plans.

**GEORGIA DEPARTMENT OF TRANSPORTATION**  
**HISTORIC BRIDGE INVENTORY REPORT**

---

**Serial #:** 121-0079-0      **County:** FULTON      **District** 7      **City:**

---

**Reviewed By/ Date:** MEM

**Notes/Comments**



**NO  
ATTACHMENT**

**NO  
ATTACHMENT**

**NO  
ATTACHMENT**

**NO  
ATTACHMENT**

**NO  
ATTACHMENT**

**NO  
ATTACHMENT**

**NO  
ATTACHMENT**



## Bridge Inventory Data Listing



## Parameters: Bridge Serial Num

Structure ID:121-0079-0

Fulton

SUFF. RATING: 64.57

## Location &amp; Geography

**Structure ID:** 121-0079-0  
**200 Bridge Information:** 06  
**\*6A Feature Int:** CHATTAHOOCHEE RIVER  
**\*6B Critical Bridge:** 0  
**\*7A Route No Carried:** SR00120  
**\*7B Facility Carried:** ABBOTTS BRIDGE RD  
**9 Location:** 8 MI E OF ALPHARETTA  
**2 Dot District:** 7  
  
**207 Year Photo:** 2010  
**\*91 Inspection Frequency:** 24 Date: 10/04/2010  
**92A Fract Crit Insp Freq:** 0 Date: 02/01/1901  
**92B Underwater Insp Freq:** 1 Date: 06/21/2011  
**92C Other Spc. Insp Freq:** 0 Date: 02/01/1901  
**\* 4 Place Code:** 42425  
**\*5 Inventory Route(O/U):** 1  
Type: 3  
Designation: 1  
Number: 00120  
Direction: 0  
**\*16 Latitude:** 34 - 01.7460 HMMS Prefix:SR  
**\*17 Longitude:** 84 - 10.0950 HMMS Suffix:00 MP:17.51  
**98 Border Bridge:** 000%Shared:00  
**99 ID Number:** 0000000000000000  
**\*100 STRAHNET:** 0  
**12 Base Highway Network:** 1  
**13A LRS Inventory Route:** 1211012000  
**13B Sub Inventory Route:** 0  
**101 parallel Structure:** N  
**\*102 Direction of Traffic:** 2  
  
**\*264 Road Inventory Mile Post:** 017.17  
**\*208 Inspection Area:** 7 Initials: EFP  
Engineer's Initials: sgm  
**\* Location ID No:** 121-00120D-017.51E

**\*104 Highway System:** 0  
**\*26 Functional Classification:** 16  
**\*204 Federal Route Type:** F No: 01891  
**105 Federal Lands Highway:** 0  
**\*110 Truck Route:** 0  
**2006 School Bus Route:** 0  
**217 Benchmark Elevation:** 0000.00  
**218 Datum:** 0  
  
**\*19 Bypass Length:** 09  
**\*20 Toll:** 3  
**\*21 Maintanance:** 01  
**\*22 Owner:** 01  
**\*31 Design Load:** 6  
**37 Historical Significance:** 5  
**205 Congressional District:** 06  
**27 Year Constructed:** 1960  
**106 Year Reconstructed:** 0000  
**33 Bridge Medium:** 0  
**34 Skew:** 00  
**35 Structure Flared:** 0  
**38 Navigation Control:** 0  
**213 Special Steel Design:** 0  
**267 Type of Paint:** 5  
**\*42 Type of Service On:** 1  
Type of Service Under: 5  
**214 Movable Bridge:** 0  
**203 Type Bridge:** 0  
**259 Pile Encasement** 3  
**\*43 Structure Type Main:** 4 02  
**45 No.Spans Main:** 004  
**44 Structure Type Appr:** 0 00  
**46 No Spans Appr:** 0000  
**226 Bridge Curve Horz** 0 Vert: 0  
**111 pier Protection** 0  
**107 Deck Structure Type:** 1  
**108 Wearing Structure Type:** 1  
  
**Membrane Type:** 0  
**Deck Protection:** 0

## Signs &amp; Attachments

**225 Expansion Joint Type:** 04  
**242 Deck Drains:** 1  
**243 Parapet Location:** 0  
Height: 0  
Width: 0  
**238 Curb Height:** 1  
Curb Material: 1  
**239 Handrail** 11  
**\*240 Medium Barrier Rail:** 0  
**241 Bridge Median Height:** 0  
**\* Bridge Median Width:** 0  
**230 Guardrail Loc. Dir. Rear:** 3  
Fwrd: 3  
Oppo. Dir. Rear: 0  
Oppo. Fwrd: 0  
**244 Approach Slab** 3  
**224 Retaining Wall:** 0  
**233Posted Speed Limit:** 45  
**236 Warning Sign:** 0.00  
**234 Delineator:** 1.00  
**235 Hazzard Boards:** 1  
**237 Utilities Gas:** 22  
Water: 00  
Electric: 00  
Telephone: 21  
Sewer: 00  
**247 Lighting Street:** 0  
  
Navigation: 0  
Aerial: 0  
**\*248 County Continuity No.:** 00

## Bridge Inventory Data Listing



## Parameters: Bridge Serial Num

## Structure ID:121-0079-0

| Programming Data      |                    |                | Measurements:               |                  |                |                              |                     |            |
|-----------------------|--------------------|----------------|-----------------------------|------------------|----------------|------------------------------|---------------------|------------|
| 201 Project No:       | S-0696 (3)         |                | *29ADT                      | 016350           | Year:2010      | 65 Inventory Rating Method:  | 1                   |            |
| 202 Plans Available:  | 4                  |                | 109%Trucks:                 | 0                |                | 63 Operating Rating Method:  | 1                   |            |
| 249 Prop Proj No:     | STP00-0189-01(010) |                | * 28 Lanes On:              | 02               | Under:00       | 66 Inventory Type:           | 2                   | Rating: 42 |
| 250 Approval Status:  | 0000               |                | 210 No. Tracks On:          | 00               | Under:00       | 64 Operating Type:           | 2                   | Rating: 42 |
| 251 PI Number:        | 721000-            |                | * 48 Max. Span Length       | 0079             |                | 231 Calculated Loads:        |                     |            |
| 252 Contract Date:    | 02/01/1901         |                | * 49 Structure Length:      | 304              |                | H-Modified:                  | 21                  | 0          |
| 260 Seismic No:       | 00000              |                | 51 Br. Rwdy. Width          | 27.80            |                | HS-Modified:                 | 30                  | 0          |
| 75 Type Work:         | 00 0               |                | 52 Deck Width:              | 34.20            |                | Type 3:                      | 33                  | 0          |
| 94 Bridge Imp: Cost:  | \$0                |                | * 47 Tot. Horiz. Cl:        | 28               |                | Type 3s2:                    | 40                  | 0          |
| 95 Roadway Imp. Cost: | 0                  |                | 50 Curb / Sidewalk Width    | 2.00 / 2.00      |                | Timber:                      | 37                  | 0          |
| 96 Total Imp Cost:    | 0                  |                | 32 Approach Rdwy. Width     | 028              |                | Piggyback:                   | 40                  | 0          |
| 76 Imp Length:        | 000000             |                | *229 Shoulder Width:        |                  |                | 261 H Inventory Rating:      | 28                  |            |
| 97 Imp Year:          | 0000               |                | Rear Lt:                    | 2.00             | Type:2 Rt:2.00 | 262 H Operating Rating       | 46                  |            |
| 114Future ADT:        | 024525             | Year:2030      | Fwd. Lt:                    | 2.00             | Type:1 Rt:2.00 | 67 Structural Evaluation:    | 6                   |            |
| Hydraulic Data        |                    |                | Permanent Width:            |                  |                | 58 Deck Condition:           | 5                   |            |
| 215Waterway Data:     |                    |                | Rear:                       | 24.00            | Type:2         | 59 Superstructure Condition: | 6                   |            |
| High Water Elev:      | 0000.0             | Year:1900      |                             | 24.00            | Type:2         | * 227 Collision Damage:      | 0                   |            |
| Flood Elev:           | 0000.0             | Freq:00        | Intersection Rear:          | 0                | Fwd: 0         | 60A Substructure Condition:  | 6                   |            |
| Avg Streambed Elev:   | 0000.0             |                | 36Safety Features Br. Rail: | 2                |                | 60B Scour Condition:         | 8                   |            |
| Drainage Area:        | 01160              |                | Transition:                 | 2                |                | 60C Underwater Condition     | 6                   |            |
| Area of Opening:      | 003100             |                | App. G. Rail:               | 1                |                | 71 Waterway Adequacy:        | 6                   |            |
| 113 Scour Critical    | U                  |                | App. Rail End:              | 1                |                | 61 Channel Protection Cond.: | 5                   |            |
| 216Water Depth:       | 08.2               | Br.Height:24.9 | 53 Minimum Cl. Over:        | 99' 99 "         |                | 68 Deck Geometry:            | 3                   |            |
| 222Slope Protection:  | 1                  |                | Under:                      |                  |                | 69 UnderClr. Horz/Vert:      | N                   |            |
| 221Slope Protection   | 0                  | Fwd:0          | *228 Minimum Vertical Cl    |                  |                | 72 Appr. Alignment:          | 8                   |            |
| 219Fender System      | 0                  |                | Act. Odm Dir:.              | 99' 99"          |                | 62 Culvert:                  | N                   |            |
| 220Dolphin:           | 0                  |                | Oppo. Dir:                  | 99' 99"          |                | Posting Data                 |                     |            |
| 223Current Cover:     | 000                |                | Posted Odm. Dir:            | 00' 00"          |                | 70 Bridge Posting Required   | 5                   |            |
| Type:                 | 0                  |                | Oppo. Dir:                  | 00' 00"          |                | 41 Struct Open, Posted, CL:  | A                   |            |
| No. Barrels:          | 0                  |                | 55 Lateral Undercl. Rt:     | N 0 0            |                | * 103 Temporary Structure:   | 0                   |            |
| * Width:              | 0.00               | Height:0.00    | 56 Lateral Undercl. Lt:     | 0.00             |                | 232 Posted Loads             |                     |            |
| * Length:             | 0                  | Apron:0        | *10 Max Min Vert Cl:        | 99' 99" Dir:0    |                | H-Modified:                  | 00                  |            |
| 265 U/W Insp. Area    | 1                  | Diver:WSR      | 39 Nav Vert Cl:             | 000 Horiz:0000   |                | HS-Modified:                 | 00                  |            |
| Location ID No:       | 121-00120D-017.51E |                | 116 Nav Vert Cl Closed:     | 000              |                | Type 3:                      | 00                  |            |
|                       |                    |                | 245 Deck Thickness Main     | 7.50             |                | Type 3s2:                    | 00                  |            |
|                       |                    |                | Deck Thick Approach:        | 0.00             |                | Timber:                      | 00                  |            |
|                       |                    |                | 246 Overlay Thickness:      | 0.00             |                | Piggyback                    | 00                  |            |
|                       |                    |                | 212 Year Last Painted:      | Sup:1994Sub:0000 |                | 253 Notification Date:       | 02/01/1901          |            |
|                       |                    |                |                             |                  |                | 258 Fed Notify Date:         | 2/1/1901 12:00:00AM |            |

# BRIDGE INVENTORY DATA LISTING GEORGIA DEPARTMENT OF TRANSPORTATION

Structure ID: 1-0079-0

Fulton Area 9

SUFF. RATING

53.00

## Location & Geography

\* Structure I.D.No: 121-0079-0  
 200 Bridge Information 06  
 \* 6A Feature Int: CHATTAHOOCHEE RIVER  
 \* 6B Critical Bridge: 0  
 \* 7A Route Number Carried: SR00120  
 \* 7B Facility Carried: ABBOTTS BRIDGE RD  
 \* 9 Location: 8 MI E OF ALPHARETTA  
 2 DOT District: 7  
 207 Year Photo: 2012  
 \* 91 Inspection Frequency: 24 Date: 09/17/2012  
 92A Fract Crit Insp Freq: 00 Date: 02/01/1901  
 92B Underwater Insp Freq: 60 Date: 06/21/2011  
 92C Other Spc. Insp Freq: 00 Date: 02/01/1901  
 \* 4 Place Code: 42425  
 \* 5 Inventory Route (O/L): 1  
 Type: 3  
 Designation: 1  
 Number: 00120  
 Direction: 0  
 \* 16 Latitude: 34-01.7460 HMMS Pre SR  
 \* 17 Longitude: 84-10.0950 HMMS Suf 00 MP: 17.51  
 98 Border Bridge: 000 %Shared: 00  
 99 ID Number: 0000000000000000  
 \* 100 STRAHNET: 0  
 12 Base Highway Network: 1  
 13A LRS Inventory Route: 1211012000  
 13B Sub Inventory Route: 0  
 \* 101 Parallel Structure: N  
 \* 102 Direction of Traffic: 2  
 \* 264 Road Inventory Mile Post: 017.17  
 \* 208 Inspection Area: 09 Initials: WBR  
 Engineer's Initial: JTB  
 \* Location I.D. No.: 121-00120D-017.51E

\* 104 Highway System: 0  
 \* 26 Functional Classification: 16  
 \* 204 Federal Route Type: F No.: 01891  
 105 Federal Lands Highway: 0  
 \* 110 Truck Route: 0  
 206 School Bus Route: 0  
 217 Benchmark Elevation: 0000.00  
 218 Datum: 0  
 \* 19 Bypass Length: 09  
 \* 20 Toll: 3  
 \* 21 Maintenance: 01  
 \* 22 Owner: 01  
 \* 31 Design Load: 6 Hs 20+ mod  
 37 Historical Significance: 5  
 205 Congressional District: 6  
 27 Year Constructed: 1960  
 106 Year Reconstructed: 0000  
 33 Bridge Median: 0  
 34 Skew: 00  
 35 Structure Flared: 0  
 38 Navigation Control: 0  
 213 Special Steel Design: 0  
 267 Type of Paint: 5  
 \* 42 Type of Service on: 1  
 Under: 5  
 214 Movable Bridge: 0  
 203 Type Bridge: O-O-M-O  
 259 Pile Encasement: 3  
 \* 43 Structure Type Main: 4 02  
 45 No. Spans Main: 004  
 44 Structure Type Appr: 0 00  
 46 No. Spans Appr: 0000  
 226 Bridge Curve Horz: 0 Vert: 0  
 111 Pier Protection: 0  
 107 Deck Structure Type: 1  
 108 Wearing Surface Type: 1  
 Membrane: 0  
 Protection: 0

## Signs & Attachments

225 Expansion Joint Type: 15  
 242 Deck Drains: 1  
 243 Parapet Location: 0  
 Height: 0.00  
 Width: 0.00  
 238 Curb: 1.20 1  
 239 Handrail: 1 1  
 \* 240 Median Barrier Rail: 0  
 241 Bridge Median Height: 0.00  
 Width: 0.00  
 \* 230 Guardrail Loc Dir Rear: 3  
 Fwd: 3  
 Oppo Dir Rear: 0  
 Fwd: 0  
 244 Approach Slab: 3  
 224 Retaining Wall: 0  
 233 Posted Speed Limit: 45  
 236 Warning Sign: 0  
 234 Delineator: 1  
 235 Hazard Boards: 1  
 237 Utilities Gas: 22  
 Water: 00  
 Electric: 00  
 Telephone: 21  
 Sewer: 00  
 247 Lighting Street: 0  
 Navigtion: 0  
 Acrial: 0  
 \* 248 County Continuity No.: 00

# BRIDGE INVENTORY DATA LISTING GEORGIA DEPARTMENT OF TRANSPORTATION

Structure ID: 11-0079-0

Fulton Area 9

SUFF. RATING

53.00

## Programming Data

201 Project No.: S-0696 (3)  
 202 Plans Available: 4  
 249 Prop. Proj. No. STP00-0189-01(010)  
 250 Approval Status: 0000  
 251 P.I. No.: 721000-  
 252 Contract Date: 02/01/1901  
 260 Seismic No.: 00000  
 75 Type Work: 00 0  
 94 Bridge Imp. Cost: \$ 1,188  
 95 Roadway Imp. Cost: \$ 119  
 96 Total Imp Cost: \$ 1,782  
 76 Imp. Length: 000000  
 97 Imp. Year: 2013  
 114 Future ADT: 027405 Year: 2032

## Hydraulic Data

215 Waterway Data  
 Highwater Elev.: 0000.0 Year: 1900  
 Avg. Streambed Elev.: 0000.0 Freq.: 00  
 Drainage Area: 01160  
 Area Of Opening: 003100  
 113 Scour Critical: U  
 216 Water Depth: 07.5 Br. Height: 25.0  
 222 Slope Protection: 1  
 221 Spur Dikes Rear: 0 Fwd: 0  
 219 Fender System: 0  
 220 Dolphin: 0  
 223 Culvert Cover: 000  
 Type: 0  
 No. Barrels: 0  
 Width: 0.00 Height: 0.00  
 Length: 0 Apron: 0  
 \* 265 U/W Insp. Area: 1 Diver: WS  
 \* Location I.D. No.: 121-00120D-017.51E

## Measurements

\* 29 ADT: 018270 Year: 2012  
 109 % Trucks: 0  
 \* 28 Lanes On: 02 Under: 00  
 210 No. Tracks On: 00 Under: 00  
 \* 48 Max. Span Length: 0079  
 \* 49 Structure Length: 304  
 51 Br. Rwdy. Width: 27.80  
 52 Deck Width: 34.20  
 \* 47 Tot. Horz. Cl: 27.80  
 50 Curb/Sdewlk Width: 2.00/2.00  
 32 Approach Rdwy Width: 028  
 \* 229 Shoulder Width:  
 Rear Lt: 2.00 Type: 2 Rt: 2.00  
 Fwd Lt: 2.00 Type: 1 Rt: 2.00  
 Pavement Width:  
 Rear: 24.00 Type: 2  
 Fwd: 24.00 Type: 2  
 Intersection Rear: 0 Fwd: 0  
 36 Safety Features Br. Rail: 2  
 Transition: 2  
 App. G. Rail: 1  
 App. Rail End: 1  
 53 Minimum Cl.Over: 99 ' 99 "  
 Under: N 00 ' 00 "  
 \* 228 Min. Vertical Cl  
 Act. Odm Dir: 99 ' 99 "  
 Oppo. Dir: 99 ' 99 "  
 Posted Odm. Dir: 00 ' 00 "  
 Oppo. Dir: 00 ' 00 "  
 55 Lateral Undercl. Rt: N 0.00  
 56 Lateral Undercl. Lt: 0.00  
 \* 10 Max Min Vert Cl: 99 ' 99 " Dir: 0  
 39 Nav Vert Cl: 000 Horz: 0000  
 116 Nav Vert Cl Closed: 000  
 245 Deck Thickness Main: 7.50  
 Deck Thick Approach: 0.00  
 246 Overlay Thickness: 0.00  
 212 Year Last Painted: Sup: 1994 Sub: 0000

## Ratings

65 Inventory Rating Method: 1 L F  
 63 Inventory Rating Method: 1 L F  
 66 Inventory Type: 2 HS Rating: 42  
 64 Operating Type: 2 HS Rating: 70  
 231 Calculated Loads  
 H-Modified: 21 0  
 HS-Modified: 30 0  
 Type 3: 33 0  
 Type 3s2: 40 0  
 Timber: 37 0  
 Piggyback: 40 0  
 261 H Inventory Rating: 28  
 262 H Operating Rating: 46  
 67 Structural Evaluation: 5  
 58 Deck Condition: 5  
 59 Superstructure Condition: 5  
 \* 227 Collision Damage: 0  
 60A Substructure Condition: 6  
 60B Scour Condition: 5  
 60C Underwater Condition: 6  
 71 Waterway Adequacy: 6  
 61 Channel Protection Cond: 5  
 68 Deck Geometry: 3  
 69 UnderClr. Horz/Vert: N  
 72 Appr. Alignment: 8  
 62 Culvert: N

## Posting Data

70 Bridge Posting Required: 5  
 41 Struct Open, Posted, Cl: A  
 \* 103 Temporary Structure: 0  
 232 Posted Loads H-Modified: 00  
 HS-Modified: 00  
 Type 3: 00  
 Type 3s2: 00  
 Timber: 00  
 Piggyback: 00  
 253 Notification Date 02/01/1901  
 253 Fed Notify Date: 02/01/1901 0



# GEORGIA DEPARTMENT OF TRANSPORTATION

## Bridge Inspection Report

District: 7  
Bridge Inspector: Lejalem Mergia  
Location ID: 121-00120D-017.51E  
Structure ID: 121-0079-0

Inspection Date: 9/17/2012  
Over: CHATTAHOOCHEE RIVER  
County: Fulton Area 9  
Road Name: ABBOTTS BRIDGE RD

Inspection Area: 09  
Bridge Status: 06

### EVALUATION & DEFICIENCIES

#### SubStructure:

Year Painted: 0000

Concrete caps at both abutments founded on steel piles.  
Bents 2 through 4 have concrete caps on (2) concrete columns with web walls founded on spread footings.  
Substructure = H-58 calculated May 2008 by Central Office (Load Factor).

06/21/2011 WSR Waterline to bottom of web wall is 5'. Moderate to heavy scale/abrasion from 4' above the bottom of web wall down.  
Bent 2 has a spall on back face of cap, 2.5' from the edge, 1' wide by 1' high with rebar exposed, no section loss.

Minor cracking in both abutment caps.  
Both abutments have vertical cracking in the cap.  
Each unit has minor deterioration and cracking.  
Bent 2 cap, under beam 5 has 10" x 14" x 3/4" spall with exposed rebar, moderate rust.  
Erosion at abutment 5 is 2.5' deep, 5' long and 1' under the cap. Pile is exposed on the right side. Soil under cap is sloughing 1" beyond limits of noted erosion. A folding rule can be extended up to 2'-10" from face of cap. Bearing seat width = 1'-8".

04/24/2013 Specialized inspection.

No changes noted.

#### SuperStructure:

Year Painted: 1994

4 Span continuous steel beam, (5-W36 X 150) beams per span.  
Round end cover plates (Welded).  
Superstructure = H-28 calculated May 2008 by Central Office (Load Factor).

Paint has failed with minor corrosion through-out the superstructure.

Beam 1 - small areas painted over pitting to web and top flange (1/16"), also to bottom flange (6" x 2").

Original flange 7/8", pitted is 9/16", painted over.

Beam 5 - random areas of pitting, typically 1/16" deep, all painted over.

All bearings have minor corrosion with some pack rust developing.

Minor movement in all bearings at both abutments.

Anchor bolts are missing at the following locations:

Abutment 1, beams 2 and 4, left and right

Abutment 5, beams 2 and 4, left

Light to moderate bottom flange debris build-up at beam 5, bent 2.

Moderate debris with bent beam keeper plates at bent 3 bearings (see photo).

04/24/2013 Specialized inspection.

No changes noted.

# GEORGIA DEPARTMENT OF TRANSPORTATION

## Bridge Inspection Report

District: 7  
Bridge Inspector: Lejalem Mergia  
Location ID: 121-00120D-017.51E  
Structure ID: 121-0079-0

Inspection Date: 9/17/2012  
Over: CHATTAHOOCHEE RIVER  
County: Fulton Area 9  
Road Name: ABBOTTS BRIDGE RD  
EVALUATION & DEFICIENCIES

Inspection Area: 09  
Bridge Status: 06

### Deck:

7 1/2" Concrete slab.  
Armored joints at both abutments has been replaced with 8" Polymer Headers and Evazote joints.  
Joints at bents 2 through 4 are evazote.

Exposed aggregate through-out the deck surface.  
Minor cracking on the top and bottom.  
Joints at both abutments have failed.  
Special Note: The deck is slapping on beam 1 in spans 1 and 4.  
Span 1 26' rear of bent 2 to the cold joint is the worse area.

Minor hairline map cracking, light wear, transverse cracks < 0.06"  
Concrete diaphragms with hairline cracks with occasional light efflorescence. Few small incipient spalls on underside throughout.  
Haunch spalls random throughout.  
Left overhang at abutment 1 has a spall with exposed rebar.  
Right overhang has fine transverse cracks and the occasional small spall throughout.  
Span 2 has transverse cracks on the underside of the deck.  
Span 4 has deck haunch spalls, 3 sq. ft.  
Bent 2, beams 3 & 4, the deck haunch is spalling.  
The top of the deck has map cracking throughout.  
The asphalt overlay on both approach slabs is unraveling. The beginning approach slab is cracking and spalling at the joint.

\*\*\*\*\*  
04/24/2013 Specialized inspection.  
No changes noted.  
\*\*\*\*\*

### General:

# GEORGIA DEPARTMENT OF TRANSPORTATION

## Bridge Inspection Report

District: 7  
Bridge Inspector: Lejalem Mergia  
Location ID: 121-00120D-017.51E  
Structure ID: 121-0079-0

Inspection Date: 9/17/2012  
Over: CHATTAHOOCHEE RIVER  
County: Fulton Area 9  
Road Name: ABBOTTS BRIDGE RD

Inspection Area: 09  
Bridge Status: 06

### EVALUATION & DEFICIENCIES

Built in 1960, Project # S-0696 (3).  
The inventory load capacity = HS-20+M. <-- Design.  
Calculations for this structure done by Central Office May 2008.

Divers report: 06/21/2011 WSR Waterline to bottom of web wall is 5'.  
Moderate to heavy scale/abrasion form 4' above the bottom of web wall down.  
Bent 2 has a spall on back face of cap, 2.5' from the edge, 1' wide by 1' high with rebar exposed, no section loss.  
Special Note: The deck is slapping on beam 1 in spans 1 and 4.  
Span 1 26' rear of bent 2 to the cold joint is the worse area. (MAINTENANCE SHOULD MONITOR THIS SITUATION)  
The asphalt overlay on both approach slabs is unraveling. The beginning approach slab is cracking and spalling at the joint.

11/15/2008 Inspection

Witnessed deck movement on top of beams when traffic passed over. Lowered deck rating to a 5.

Abutment 1, left rail post has a spall with exposed rebar due to collision.  
Forward left guardrail has collision damage approximately 15' from bridge.  
Rear right guardrail connection to safety walk is loose.

\*\*\*\*\*  
\*\*\*\*\*

04/24/2013 Specialized team B inspected bents 2-4 with hydra-platform.

\*\*\*\*\*  
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Recommended Repairs:  
Repair erosion at abutment 5.  
Monitor deck movement.

#### Condition Rating

| Component      | Material | Rating |
|----------------|----------|--------|
| Substructure   | Concrete | 6      |
| Superstructure | Steel    | 5      |
| Deck           | Concrete | 5      |

#### Temp Shored: No

| Truck Type         | Gross/H-Mod | HSMod | Tand | 3-S-2 | Log | Piggy |
|--------------------|-------------|-------|------|-------|-----|-------|
| Calculated Posting | 21          | 30    | 33   | 40    | 37  | 40    |
| Posting Required   | No          | No    | No   | No    | No  | No    |
| Existing Posting   | 00          | 00    | 00   | 00    | 00  | 00    |

Not a School Bus Route.

Structure Does Not Require Posting

# GEORGIA DEPARTMENT OF TRANSPORTATION

## Bridge Component Report

District: 7  
 Bridge Inspector: Lejalem Mergia  
 Location ID: 121-00120D-017.51E  
 Structure ID: 121-0079-0

Inspection Date: 9/17/2012  
 Over: CHATTAHOOCHEE RIVER  
 County: Fulton Area 9  
 Road Name: ABBOTTS BRIDGE RD

Inspection Area: 09

### SubStructure Data

| Bent# | Type | Foundation | Col | #Cols | Piling | #Piles | Sway | CAP | Remarks                |
|-------|------|------------|-----|-------|--------|--------|------|-----|------------------------|
| 1     | A    | DP         |     | 0     |        | 0      |      | C   | Only cap exposed       |
| 2     | B    | SF         | C   | 2     |        | 2      |      | C   | Piles coded for divers |
| 3     | B    | SF         | C   | 2     |        | 2      |      | C   | Piles coded for divers |
| 4     | B    | SF         | C   | 2     |        | 2      |      | C   | Piles coded for divers |
| 5     | A    | DP         |     | 0     |        | 0      |      | C   | Poor                   |

### SuperStructure Data

| Span# | Beam Type | Spacing | Length | #Beams | Remarks   |
|-------|-----------|---------|--------|--------|-----------|
| 1     | Steel     | 6.50    | 73.00  | 5      | W36 X 150 |
| 2     | Steel     | 6.50    | 79.00  | 5      | W36 X 150 |
| 3     | Steel     | 6.50    | 79.00  | 5      | W36 X 150 |
| 4     | Steel     | 6.50    | 73.00  | 5      | W36 X 150 |

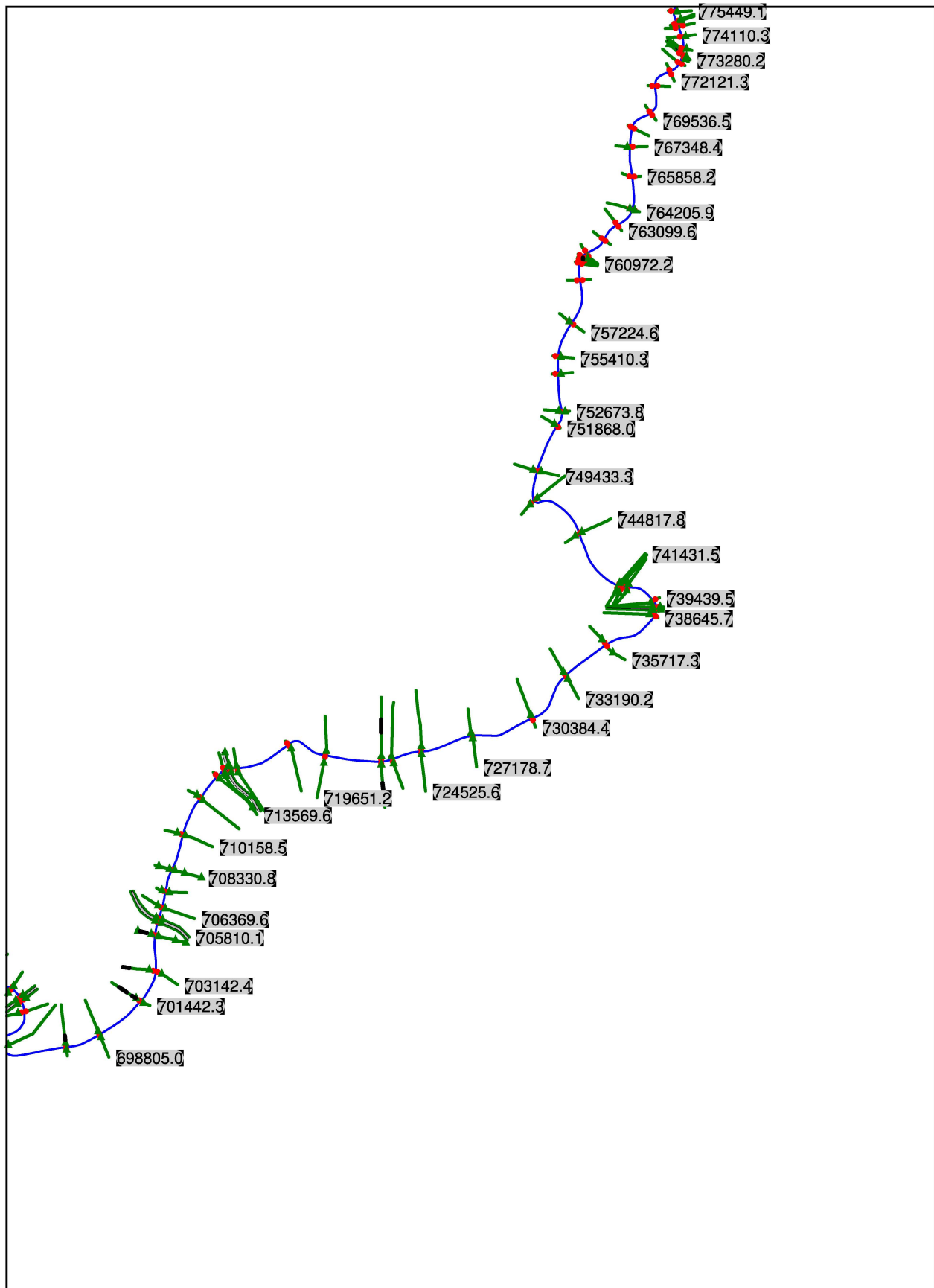
### Bearing Data

| Span# | Rear Type Bearing  | FWD Type Bearing   | Remarks |
|-------|--------------------|--------------------|---------|
| 1     | 01 - Sliding Plate | 10 - Continuous    | Fair    |
| 2     | 01 - Sliding Plate | 10 - Continuous    | Fair    |
| 3     | 02 - Fixed Plate   | 10 - Continuous    | Fair    |
| 4     | 01 - Sliding Plate | 01 - Sliding Plate | Fair    |



## **V. HEC-RAS Model Output**

# HEC-RAS Plan View



# **HEC-RAS Existing Bridge Model**

# Standard Table 1

HEC-RAS Plan: CE Locations: User Defined

| River         | Reach | River Sta          | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|---------------|-------|--------------------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Chattahoochee | Main  | 757224.6 cha_20570 | 2YR     | 10360.00         | 891.31            | 906.02            | 896.72            | 906.23            | 0.000337              | 3.60               | 2879.32              | 227.37            | 0.18         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 10YR    | 11460.00         | 891.31            | 907.02            | 897.02            | 907.24            | 0.000325              | 3.69               | 3108.24              | 230.05            | 0.18         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 50YR    | 12000.00         | 891.31            | 907.93            | 897.16            | 908.13            | 0.000292              | 3.62               | 3316.47              | 232.45            | 0.17         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 100YR   | 12000.00         | 891.31            | 908.13            | 897.16            | 908.33            | 0.000279              | 3.57               | 3365.06              | 233.01            | 0.17         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 500YR   | 12000.00         | 891.31            | 910.58            | 897.16            | 910.73            | 0.000172              | 3.04               | 3944.21              | 242.37            | 0.13         |
| Chattahoochee | Main  | 755410.3 1756      | 2YR     | 10360.00         | 889.96            | 905.36            | 895.81            | 905.57            | 0.000389              | 3.66               | 2829.59              | 223.26            | 0.18         |
| Chattahoochee | Main  | 755410.3 1756      | 10YR    | 11460.00         | 889.96            | 906.39            | 896.12            | 906.60            | 0.000373              | 3.75               | 3059.76              | 225.51            | 0.18         |
| Chattahoochee | Main  | 755410.3 1756      | 50YR    | 12000.00         | 889.96            | 907.36            | 896.28            | 907.57            | 0.000330              | 3.66               | 3279.83              | 227.51            | 0.17         |
| Chattahoochee | Main  | 755410.3 1756      | 100YR   | 12000.00         | 889.96            | 907.59            | 896.28            | 907.79            | 0.000314              | 3.60               | 3333.47              | 228.26            | 0.17         |
| Chattahoochee | Main  | 755410.3 1756      | 500YR   | 12000.00         | 889.96            | 910.26            | 896.28            | 910.40            | 0.000191              | 3.03               | 3955.40              | 239.97            | 0.13         |
| Chattahoochee | Main  | 754547.9 1755      | 2YR     | 10360.00         | 889.32            | 905.03            | 895.12            | 905.22            | 0.000414              | 3.45               | 3005.91              | 232.31            | 0.17         |
| Chattahoochee | Main  | 754547.9 1755      | 10YR    | 11460.00         | 889.32            | 906.07            | 895.44            | 906.26            | 0.000398              | 3.53               | 3248.85              | 234.89            | 0.17         |
| Chattahoochee | Main  | 754547.9 1755      | 50YR    | 12000.00         | 889.32            | 907.08            | 895.57            | 907.27            | 0.000350              | 3.44               | 3487.26              | 237.04            | 0.16         |
| Chattahoochee | Main  | 754547.9 1755      | 100YR   | 12000.00         | 889.32            | 907.33            | 895.57            | 907.51            | 0.000332              | 3.38               | 3546.47              | 237.57            | 0.15         |
| Chattahoochee | Main  | 754547.9 1755      | 500YR   | 12000.00         | 889.32            | 910.10            | 895.57            | 910.23            | 0.000197              | 2.85               | 4216.08              | 245.80            | 0.12         |
| Chattahoochee | Main  | 752673.8 628       | 2YR     | 10360.00         | 887.92            | 904.44            | 893.62            | 904.59            | 0.000268              | 3.08               | 3363.11              | 247.38            | 0.15         |
| Chattahoochee | Main  | 752673.8 628       | 10YR    | 11460.00         | 887.92            | 905.50            | 893.94            | 905.66            | 0.000260              | 3.16               | 3627.49              | 251.04            | 0.15         |
| Chattahoochee | Main  | 752673.8 628       | 50YR    | 12000.00         | 887.92            | 906.58            | 894.10            | 906.73            | 0.000229              | 3.08               | 3900.93              | 254.45            | 0.14         |
| Chattahoochee | Main  | 752673.8 628       | 100YR   | 12000.00         | 887.92            | 906.86            | 894.10            | 907.00            | 0.000216              | 3.02               | 3971.30              | 255.26            | 0.14         |
| Chattahoochee | Main  | 752673.8 628       | 500YR   | 13752.00         | 887.92            | 909.76            | 894.57            | 909.89            | 0.000168              | 2.91               | 4723.54              | 307.71            | 0.12         |
| Chattahoochee | Main  | 751868.0 780       | 2YR     | 10360.00         | 887.32            | 904.11            | 893.80            | 904.31            | 0.000437              | 3.62               | 2863.60              | 203.12            | 0.17         |
| Chattahoochee | Main  | 751868.0 780       | 10YR    | 11460.00         | 887.32            | 905.17            | 894.12            | 905.39            | 0.000426              | 3.72               | 3080.46              | 204.63            | 0.17         |
| Chattahoochee | Main  | 751868.0 780       | 50YR    | 12000.00         | 887.32            | 906.29            | 894.25            | 906.49            | 0.000374              | 3.63               | 3309.89              | 206.22            | 0.16         |
| Chattahoochee | Main  | 751868.0 780       | 100YR   | 12000.00         | 887.32            | 906.58            | 894.25            | 906.78            | 0.000354              | 3.56               | 3369.93              | 206.63            | 0.16         |
| Chattahoochee | Main  | 751868.0 780       | 500YR   | 13752.00         | 887.32            | 909.53            | 894.78            | 909.71            | 0.000279              | 3.45               | 3986.30              | 212.14            | 0.14         |
| Chattahoochee | Main  | 749433.3 2388      | 2YR     | 10360.00         | 885.50            | 903.30            | 892.20            | 903.47            | 0.000272              | 3.31               | 3128.07              | 217.91            | 0.15         |
| Chattahoochee | Main  | 749433.3 2388      | 10YR    | 11460.00         | 885.50            | 904.39            | 892.52            | 904.57            | 0.000265              | 3.40               | 3365.74              | 219.77            | 0.15         |
| Chattahoochee | Main  | 749433.3 2388      | 50YR    | 12000.00         | 885.50            | 905.61            | 892.68            | 905.78            | 0.000229              | 3.30               | 3635.57              | 221.85            | 0.14         |
| Chattahoochee | Main  | 749433.3 2388      | 100YR   | 12000.00         | 885.50            | 905.94            | 892.68            | 906.10            | 0.000215              | 3.24               | 3709.04              | 222.41            | 0.14         |
| Chattahoochee | Main  | 749433.3 2388      | 500YR   | 13752.00         | 885.50            | 909.03            | 893.18            | 909.18            | 0.000168              | 3.12               | 4406.98              | 229.65            | 0.13         |
| Chattahoochee | Main  | 747909.1 1757      | 2YR     | 10360.00         | 884.48            | 903.13            | 890.18            | 903.20            | 0.000103              | 2.18               | 4763.09              | 315.59            | 0.10         |
| Chattahoochee | Main  | 747909.1 1757      | 10YR    | 11460.00         | 884.48            | 904.23            | 890.43            | 904.30            | 0.000101              | 2.24               | 5109.99              | 318.24            | 0.10         |
| Chattahoochee | Main  | 747909.1 1757      | 50YR    | 12000.00         | 884.48            | 905.47            | 890.56            | 905.55            | 0.000087              | 2.18               | 5509.40              | 321.25            | 0.09         |
| Chattahoochee | Main  | 747909.1 1757      | 100YR   | 12000.00         | 884.48            | 905.81            | 890.56            | 905.89            | 0.000082              | 2.14               | 5618.85              | 322.06            | 0.09         |
| Chattahoochee | Main  | 747909.1 1757      | 500YR   | 13752.00         | 884.48            | 908.94            | 890.94            | 909.01            | 0.000067              | 2.07               | 6686.14              | 518.12            | 0.08         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 2YR     | 10360.00         | 882.06            | 902.89            | 889.30            | 902.83            | 0.000142              | 3.00               | 3455.78              | 209.10            | 0.13         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 10YR    | 11460.00         | 882.06            | 903.78            | 889.63            | 903.93            | 0.000143              | 3.11               | 3684.80              | 210.75            | 0.13         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 50YR    | 12000.00         | 882.06            | 905.08            | 889.80            | 905.22            | 0.000126              | 3.03               | 3959.98              | 212.72            | 0.12         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 100YR   | 12000.00         | 882.06            | 905.44            | 889.80            | 905.58            | 0.000118              | 2.97               | 4037.06              | 213.27            | 0.12         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 500YR   | 13752.00         | 882.06            | 908.62            | 890.31            | 908.75            | 0.000096              | 2.91               | 4725.15              | 684.30            | 0.11         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 2YR     | 10360.00         | 886.29            | 901.77            | 892.15            | 901.99            | 0.000523              | 3.77               | 2748.81              | 249.42            | 0.19         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 10YR    | 11460.00         | 886.29            | 902.87            | 892.49            | 903.10            | 0.000497              | 3.83               | 2989.03              | 328.85            | 0.18         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 50YR    | 12000.00         | 886.29            | 904.31            | 892.65            | 904.51            | 0.000401              | 3.63               | 3307.35              | 431.34            | 0.17         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 100YR   | 12000.00         | 886.29            | 904.72            | 892.65            | 904.92            | 0.000368              | 3.53               | 3400.02              | 457.11            | 0.16         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 500YR   | 13752.00         | 886.29            | 908.08            | 893.15            | 908.25            | 0.000261              | 3.30               | 4165.77              | 1075.78           | 0.14         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 2YR     | 10360.00         | 880.46            | 901.71            | 891.54            | 901.88            | 0.000423              | 3.27               | 3166.84              | 408.59            | 0.17         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 10YR    | 11460.00         | 880.46            | 902.83            | 892.15            | 903.00            | 0.000391              | 3.30               | 3469.12              | 572.21            | 0.16         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 50YR    | 12000.00         | 880.46            | 904.28            | 892.37            | 904.43            | 0.000307              | 3.10               | 3869.71              | 629.30            | 0.15         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 100YR   | 12000.00         | 880.46            | 904.70            | 892.37            | 904.84            | 0.000280              | 3.01               | 3986.42              | 639.35            | 0.14         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 500YR   | 13752.00         | 880.46            | 908.07            | 893.29            | 908.19            | 0.000190              | 2.77               | 5076.27              | 1320.04           | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 2YR     | 10360.00         | 879.64            | 901.66            | 886.86            | 901.79            | 0.000204              | 2.86               | 3620.54              | 466.76            | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 10YR    | 11460.00         | 879.64            | 902.78            | 887.23            | 902.91            | 0.000205              | 2.97               | 3860.62              | 491.17            | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 50YR    | 12000.00         | 879.64            | 904.23            | 887.36            | 904.36            | 0.000178              | 2.87               | 4179.73              | 516.27            | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 100YR   | 12000.00         | 879.64            | 904.66            | 887.36            | 904.78            | 0.000167              | 2.81               | 4273.00              | 522.44            | 0.11         |
| Chattahoochee | Main  | 740971.6 2373      | 500YR   | 13752.00         | 879.64            | 908.03            | 887.93            | 908.14            | 0.000138              | 2.72               | 5047.34              | 1091.43           | 0.10         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 2YR     | 10360.00         | 880.43            | 901.36            | 887.39            | 901.51            | 0.000163              | 3.09               | 3355.66              | 202.04            | 0.13         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 10YR    | 11460.00         | 880.43            | 902.47            | 887.75            | 902.63            | 0.000165              | 3.20               | 3581.74              | 205.61            | 0.14         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 50YR    | 12000.00         | 880.43            | 903.97            | 887.91            | 904.12            | 0.000143              | 3.08               | 3894.09              | 211.89            | 0.13         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 100YR   | 12000.00         | 880.43            | 904.41            | 887.91            | 904.55            | 0.000134              | 3.01               | 3987.19              | 213.98            | 0.12         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 500YR   | 13752.00         | 880.43            | 907.82            | 888.45            | 907.95            | 0.000111              | 2.89               | 4758.12              | 235.74            | 0.11         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 2YR     | 10360.00         | 878.45            | 901.32            | 886.89            | 901.45            | 0.000137              | 2.89               | 3610.72              | 227.72            | 0.12         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 10YR    | 11460.00         | 878.45            | 902.43            | 887.26            | 902.57            | 0.000137              | 2.99               | 3866.31              | 232.93            | 0.13         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 50YR    | 12000.00         | 878.45            | 903.93            | 887.42            | 904.06            | 0.000116              | 2.89               | 4222.21              | 240.00            | 0.12         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 100YR   | 12000.00         | 878.45            | 904.37            | 887.42            | 904.50            | 0.000108              | 2.82               | 4328.19              | 242.06            | 0.11         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 500YR   | 13752.00         | 878.45            | 907.80            | 887.97            | 907.91            | 0.000084              | 2.74               | 5184.44              | 258.41            | 0.10         |
| Chattahoochee | Main  | 739022.1 cha_20300 |         | Bridge           |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 2YR     | 10360.00         | 878.63            | 901.27            | 887.19            | 901.40            | 0.000163              | 2.95               | 3530.54              | 229.18            | 0.13         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 10YR    | 11460.00         | 878.63            | 902.38            | 887.58            | 902.52            | 0.000161              | 3.05               | 3787.79              | 234.40            | 0.13         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 50YR    | 12000.00         | 878.63            | 903.89            | 887.75            | 904.02            | 0.000134              | 2.93               | 4149.39              | 244.44            | 0.12         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 100YR   | 12000.00         | 878.63            | 904.33            | 887.75            | 904.46            | 0.000123              | 2.86               | 4258.39              | 247.76            | 0.12         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 500YR   | 13752.00         | 878.63            | 907.76            | 888.34            | 907.88            | 0.000092              | 2.77               | 5152.69              | 451.14            | 0.10         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 2YR     | 10360.00         | 879.18            | 901.08            | 887.06            | 901.31            | 0.000271              | 3.84               | 2696.57              | 157.70            | 0.16         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 10YR    | 11460.00         | 879.18            | 902.18            | 887.50            | 902.43            | 0.000276              | 3.99               | 2870.88              | 159.79            | 0.17         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 50YR    | 12000.00         | 879.18            | 903.71            | 887.73            | 903.94            | 0.000236              | 3.85               | 3117.82              | 162.66            | 0.15         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 100YR   | 12000.00         | 879.18            | 904.16            | 887.73            | 904.38            | 0.000219              | 3.76               | 3191.61              | 163.71            | 0.15         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 500YR   | 13752.00         | 879.18            | 907.61            | 888.43            | 907.82            | 0.000167              | 3.66               | 3771.60              | 274.49            | 0.13         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 2YR     | 10360.00         | 879.57            | 900.5             |                   |                   |                       |                    |                      |                   |              |



HEC-RAS Plan: CE Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|---------------|-------|--------------------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Chattahoochee | Main  | 735717.3 cha_20100 | 10YR    | 11460.00         | 879.57            | 901.69            | 886.40            | 901.83            | 0.000143              | 2.92               | 3942.19              | 227.16            | 0.12         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 50YR    | 12000.00         | 879.57            | 903.31            | 886.56            | 903.44            | 0.000117              | 2.80               | 4314.75              | 232.95            | 0.11         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 100YR   | 12000.00         | 879.57            | 903.80            | 886.56            | 903.92            | 0.000108              | 2.73               | 4428.22              | 234.69            | 0.11         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 500YR   | 13752.00         | 879.57            | 907.85            | 887.07            | 907.46            | 0.000082              | 2.65               | 5344.87              | 291.76            | 0.10         |
| Chattahoochee | Main  | 733190.2 1733      | 2YR     | 10360.00         | 879.28            | 900.19            | 886.03            | 900.32            | 0.000170              | 2.87               | 3612.07              | 223.47            | 0.13         |
| Chattahoochee | Main  | 733190.2 1733      | 10YR    | 11460.00         | 879.28            | 901.30            | 886.37            | 901.44            | 0.000167              | 2.97               | 3863.20              | 229.38            | 0.13         |
| Chattahoochee | Main  | 733190.2 1733      | 50YR    | 12000.00         | 879.28            | 903.00            | 886.54            | 903.12            | 0.000134              | 2.83               | 4259.08              | 250.98            | 0.11         |
| Chattahoochee | Main  | 733190.2 1733      | 100YR   | 12000.00         | 879.28            | 903.51            | 886.54            | 903.62            | 0.000122              | 2.75               | 4381.27              | 281.83            | 0.11         |
| Chattahoochee | Main  | 733190.2 1733      | 500YR   | 13752.00         | 879.28            | 907.13            | 887.06            | 907.24            | 0.000090              | 2.85               | 5315.46              | 1653.51           | 0.10         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 2YR     | 10360.00         | 878.64            | 899.57            | 886.04            | 899.75            | 0.000242              | 3.36               | 3083.87              | 182.23            | 0.14         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 10YR    | 11460.00         | 878.64            | 900.68            | 886.42            | 900.87            | 0.000244              | 3.49               | 3286.65              | 183.94            | 0.15         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 50YR    | 12000.00         | 878.64            | 902.49            | 886.61            | 902.66            | 0.000198              | 3.31               | 3622.81              | 187.86            | 0.13         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 100YR   | 12000.00         | 878.64            | 903.05            | 886.61            | 903.21            | 0.000182              | 3.22               | 3727.14              | 189.23            | 0.13         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 500YR   | 13752.00         | 878.64            | 906.78            | 887.20            | 906.93            | 0.000136              | 3.10               | 4526.42              | 1874.79           | 0.11         |
| Chattahoochee | Main  | 727178.7 695       | 2YR     | 10360.00         | 878.15            | 898.85            | 885.31            | 899.00            | 0.000223              | 3.12               | 3316.32              | 211.34            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 10YR    | 11460.00         | 878.15            | 899.95            | 885.67            | 900.11            | 0.000224              | 3.23               | 3553.27              | 216.58            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 50YR    | 13593.00         | 878.15            | 901.80            | 886.35            | 901.98            | 0.000225              | 3.44               | 3960.31              | 223.66            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 100YR   | 14310.00         | 878.15            | 902.36            | 886.56            | 902.55            | 0.000225              | 3.51               | 4086.33              | 325.31            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 500YR   | 20316.00         | 878.15            | 906.04            | 888.22            | 906.31            | 0.000248              | 4.15               | 4941.93              | 1976.07           | 0.16         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 2YR     | 10360.00         | 877.75            | 898.19            | 885.35            | 898.36            | 0.000254              | 3.31               | 3128.34              | 198.43            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 10YR    | 11460.00         | 877.75            | 899.29            | 885.70            | 899.48            | 0.000257              | 3.42               | 3348.67              | 210.87            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 50YR    | 13593.00         | 877.75            | 901.13            | 886.38            | 901.34            | 0.000258              | 3.65               | 3728.35              | 636.67            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 100YR   | 14310.00         | 877.75            | 901.69            | 886.57            | 901.91            | 0.000260              | 3.73               | 3845.73              | 697.68            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 500YR   | 20316.00         | 877.75            | 905.29            | 888.23            | 905.59            | 0.000290              | 4.43               | 4702.84              | 2728.33           | 0.17         |
| Chattahoochee | Main  | 723016.0 2374      | 2YR     | 10360.00         | 877.68            | 897.93            | 883.87            | 898.05            | 0.000163              | 2.78               | 3726.88              | 231.42            | 0.12         |
| Chattahoochee | Main  | 723016.0 2374      | 10YR    | 11460.00         | 877.68            | 899.02            | 884.20            | 899.15            | 0.000165              | 2.88               | 3984.01              | 236.25            | 0.12         |
| Chattahoochee | Main  | 723016.0 2374      | 50YR    | 13593.00         | 877.68            | 900.87            | 884.85            | 901.01            | 0.000166              | 3.07               | 4437.48              | 271.16            | 0.13         |
| Chattahoochee | Main  | 723016.0 2374      | 100YR   | 14310.00         | 877.68            | 901.43            | 885.05            | 901.58            | 0.000166              | 3.14               | 4580.55              | 355.24            | 0.13         |
| Chattahoochee | Main  | 723016.0 2374      | 500YR   | 20316.00         | 877.68            | 905.00            | 886.60            | 905.22            | 0.000188              | 3.74               | 5560.55              | 3311.79           | 0.14         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 2YR     | 10360.00         | 877.58            | 897.82            | 883.90            | 897.96            | 0.000144              | 3.00               | 3453.80              | 203.12            | 0.13         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 10YR    | 11460.00         | 877.58            | 898.91            | 884.25            | 899.06            | 0.000146              | 3.12               | 3677.84              | 206.45            | 0.13         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 50YR    | 13593.00         | 877.58            | 900.75            | 884.87            | 900.92            | 0.000155              | 3.35               | 4062.52              | 574.24            | 0.13         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 100YR   | 14310.00         | 877.58            | 901.31            | 885.08            | 901.49            | 0.000158              | 3.42               | 4181.37              | 852.01            | 0.14         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 500YR   | 20316.00         | 877.58            | 904.85            | 886.66            | 905.11            | 0.000184              | 4.08               | 5122.21              | 2875.25           | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 2YR     | 10360.00         | 877.35            | 897.32            | 884.20            | 897.49            | 0.000188              | 3.32               | 3118.30              | 219.39            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 10YR    | 11460.00         | 877.35            | 898.42            | 884.57            | 898.60            | 0.000186              | 3.44               | 3333.85              | 244.45            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 50YR    | 13593.00         | 877.35            | 900.23            | 885.25            | 900.44            | 0.000186              | 3.68               | 3701.85              | 614.52            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 100YR   | 14310.00         | 877.35            | 900.78            | 885.47            | 901.00            | 0.000187              | 3.77               | 3815.09              | 993.83            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 500YR   | 20316.00         | 877.35            | 904.33            | 887.18            | 904.59            | 0.000187              | 4.21               | 7945.34              | 2757.07           | 0.15         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 2YR     | 10360.00         | 876.99            | 896.88            | 884.04            | 897.06            | 0.000222              | 3.48               | 2973.47              | 195.89            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 10YR    | 11460.00         | 876.99            | 897.97            | 884.42            | 898.17            | 0.000219              | 3.59               | 3190.75              | 200.08            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 50YR    | 13593.00         | 876.99            | 899.79            | 885.10            | 900.02            | 0.000220              | 3.82               | 3560.81              | 589.34            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 100YR   | 14310.00         | 876.99            | 900.34            | 885.31            | 900.57            | 0.000220              | 3.90               | 3674.16              | 743.97            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 500YR   | 20316.00         | 876.99            | 903.80            | 887.07            | 904.13            | 0.000246              | 4.64               | 4515.54              | 2126.14           | 0.18         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 2YR     | 10360.00         | 877.33            | 896.16            | 886.18            | 896.36            | 0.000275              | 3.58               | 2894.01              | 216.93            | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 10YR    | 11460.00         | 877.33            | 897.28            | 886.53            | 897.49            | 0.000263              | 3.65               | 3138.77              | 219.76            | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 50YR    | 13593.00         | 877.33            | 899.11            | 887.18            | 899.34            | 0.000255              | 3.83               | 3545.84              | 793.11            | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 100YR   | 14310.00         | 877.33            | 899.66            | 887.38            | 899.90            | 0.000253              | 3.90               | 3676.99              | 1078.48           | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 500YR   | 20316.00         | 877.33            | 903.19            | 888.84            | 903.44            | 0.000223              | 4.17               | 7204.47              | 1914.69           | 0.16         |
| Chattahoochee | Main  | 714318.7           | 2YR     | 10360.00         | 877.28            | 896.09            | 885.17            | 896.26            | 0.000230              | 3.40               | 3530.04              | 442.52            | 0.16         |
| Chattahoochee | Main  | 714318.7           | 10YR    | 11460.00         | 877.28            | 897.22            | 885.52            | 897.39            | 0.000213              | 3.43               | 3929.19              | 479.65            | 0.16         |
| Chattahoochee | Main  | 714318.7           | 50YR    | 13593.00         | 877.28            | 899.06            | 886.16            | 899.24            | 0.000200              | 3.55               | 4583.70              | 622.23            | 0.15         |
| Chattahoochee | Main  | 714318.7           | 100YR   | 14310.00         | 877.28            | 899.62            | 886.37            | 899.80            | 0.000197              | 3.60               | 4781.89              | 942.46            | 0.15         |
| Chattahoochee | Main  | 714318.7           | 500YR   | 20316.00         | 877.28            | 903.12            | 888.00            | 903.36            | 0.000201              | 4.11               | 6102.36              | 1953.17           | 0.16         |
| Chattahoochee | Main  | 714229.6 cha_19500 |         | Bridge           |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Chattahoochee | Main  | 714014.2           | 2YR     | 10360.00         | 879.20            | 895.96            | 885.29            | 896.14            | 0.000266              | 3.39               | 3053.26              | 218.23            | 0.16         |
| Chattahoochee | Main  | 714014.2           | 10YR    | 11460.00         | 879.20            | 897.08            | 885.61            | 897.27            | 0.000257              | 3.47               | 3299.84              | 221.30            | 0.16         |
| Chattahoochee | Main  | 714014.2           | 50YR    | 13593.00         | 879.20            | 898.91            | 886.20            | 899.12            | 0.000253              | 3.66               | 3709.65              | 994.74            | 0.16         |
| Chattahoochee | Main  | 714014.2           | 100YR   | 14310.00         | 879.20            | 899.46            | 886.38            | 899.67            | 0.000252              | 3.73               | 3839.32              | 1173.06           | 0.16         |
| Chattahoochee | Main  | 714014.2           | 500YR   | 20316.00         | 879.20            | 902.92            | 887.89            | 903.22            | 0.000269              | 4.37               | 4946.46              | 2142.59           | 0.17         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 2YR     | 10360.00         | 876.17            | 895.73            | 884.77            | 895.99            | 0.000375              | 4.10               | 2527.05              | 173.07            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 10YR    | 11460.00         | 876.17            | 896.85            | 885.19            | 897.12            | 0.000368              | 4.21               | 2722.62              | 176.27            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 50YR    | 13593.00         | 876.17            | 898.67            | 885.91            | 898.97            | 0.000364              | 4.46               | 3048.18              | 417.42            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 100YR   | 14310.00         | 876.17            | 899.21            | 886.13            | 899.53            | 0.000363              | 4.55               | 3148.32              | 677.95            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 500YR   | 20316.00         | 876.17            | 902.60            | 887.91            | 903.05            | 0.000404              | 5.40               | 3858.47              | 2301.84           | 0.21         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 2YR     | 10360.00         | 875.75            | 895.39            | 882.37            | 895.57            | 0.000227              | 3.43               | 3028.21              | 197.53            | 0.15         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 10YR    | 11460.00         | 875.75            | 896.52            | 882.76            | 896.71            | 0.000221              | 3.54               | 3253.61              | 201.19            | 0.15         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 50YR    | 13716.00         | 875.75            | 898.34            | 883.50            | 898.56            | 0.000225              | 3.82               | 3624.21              | 397.37            | 0.16         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 100YR   | 14418.00         | 875.75            | 898.88            | 883.71            | 899.12            | 0.000226              | 3.90               | 3737.56              | 651.57            | 0.16         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 500YR   | 20212.00         | 875.75            | 902.25            | 885.39            | 902.58            | 0.000256              | 4.62               | 4705.51              | 1244.99           | 0.17         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 2YR     | 10360.00         | 875.08            | 894.95            | 881.81            | 895.13            | 0.000208              | 3.34               | 3114.95              | 227.59            | 0.14         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 10YR    | 11460.00         | 875.08            | 896.09            | 882.19            | 896.28            | 0.000206              | 3.46               | 3342.35              | 356.70            | 0.15         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 50YR    | 13716.00         | 875.08            | 897.90            | 882.93            | 898.11            | 0.000214              | 3.74               | 3722.83              | 803.61            | 0.15         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 100YR   | 14418.00         | 875.08            | 898.44            | 883.14            | 898.66            | 0.000215              | 3.82               | 3856.83              | 887.89            | 0.15         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 500YR   | 20212.00         | 875.08            | 901.88            | 884.73            | 902.10            | 0.000191              | 4.01               | 7462.73              | 1343.21           | 0.15         |
| Chattahoochee | Main  | 708330.8 1735      | 2YR     | 10360.00         | 875.96            | 894.62            | 881.65            | 894.76            | 0.000183              | 3.07               | 3385.98              | 266.53            | 0.14         |
| Chattahoochee | Main  | 708330.8 1735      | 10YR    | 11460.00         | 875.96            | 895.77            | 882.00            | 895.92            | 0.000176              | 3.16               | 3646.10              | 289.63            | 0.14         |

HEC-RAS Plan: CE Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|---------------|-------|--------------------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Chattahoochee | Main  | 708330.8 1735      | 50YR    | 13716.00         | 875.96            | 897.56            | 882.67            | 897.74            | 0.000179              | 3.41               | 4091.41              | 638.13            | 0.14         |
| Chattahoochee | Main  | 708330.8 1735      | 100YR   | 14418.00         | 875.96            | 898.12            | 882.87            | 898.30            | 0.000175              | 3.43               | 4867.52              | 832.86            | 0.14         |
| Chattahoochee | Main  | 708330.8 1735      | 500YR   | 20212.00         | 875.96            | 901.57            | 884.37            | 901.77            | 0.000166              | 3.74               | 8810.98              | 1270.18           | 0.14         |
| Chattahoochee | Main  | 707189.2 2375      | 2YR     | 10360.00         | 875.08            | 894.38            | 881.44            | 894.54            | 0.000198              | 3.22               | 3240.88              | 221.17            | 0.14         |
| Chattahoochee | Main  | 707189.2 2375      | 10YR    | 11460.00         | 875.08            | 895.54            | 881.82            | 895.71            | 0.000191              | 3.31               | 3507.59              | 244.88            | 0.14         |
| Chattahoochee | Main  | 707189.2 2375      | 50YR    | 13716.00         | 875.08            | 897.33            | 882.53            | 897.53            | 0.000194              | 3.57               | 4001.61              | 472.32            | 0.15         |
| Chattahoochee | Main  | 707189.2 2375      | 100YR   | 14418.00         | 875.08            | 897.88            | 882.73            | 898.09            | 0.000194              | 3.64               | 4176.09              | 623.77            | 0.15         |
| Chattahoochee | Main  | 707189.2 2375      | 500YR   | 20212.00         | 875.08            | 901.28            | 884.38            | 901.55            | 0.000212              | 4.24               | 5580.88              | 829.42            | 0.16         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 2YR     | 10360.00         | 873.57            | 894.25            | 880.95            | 894.39            | 0.000168              | 3.01               | 3461.33              | 283.98            | 0.13         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 10YR    | 11460.00         | 873.57            | 895.41            | 881.29            | 895.56            | 0.000163              | 3.11               | 3727.45              | 328.99            | 0.13         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 50YR    | 13716.00         | 873.57            | 897.20            | 881.96            | 897.38            | 0.000168              | 3.37               | 4152.63              | 468.49            | 0.13         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 100YR   | 14418.00         | 873.57            | 897.75            | 882.16            | 897.93            | 0.000169              | 3.44               | 4293.67              | 582.90            | 0.14         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 500YR   | 20212.00         | 873.57            | 901.14            | 883.67            | 901.38            | 0.000181              | 3.96               | 6805.88              | 949.09            | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 2YR     | 10360.00         | 874.19            | 894.12            | 881.75            | 894.28            | 0.000206              | 3.23               | 3398.97              | 274.00            | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 10YR    | 11460.00         | 874.19            | 895.28            | 882.07            | 895.45            | 0.000198              | 3.32               | 3723.20              | 282.38            | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 50YR    | 13716.00         | 874.19            | 897.07            | 882.76            | 897.27            | 0.000201              | 3.58               | 4244.39              | 453.52            | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 100YR   | 14418.00         | 874.19            | 897.62            | 882.95            | 897.82            | 0.000201              | 3.64               | 4412.04              | 516.04            | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 500YR   | 20212.00         | 874.19            | 900.98            | 884.49            | 901.25            | 0.000224              | 4.27               | 5540.64              | 971.36            | 0.16         |
| Chattahoochee | Main  | 705714.6 cha_19100 |         | Bridge           |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 2YR     | 10360.00         | 876.28            | 893.95            | 883.23            | 894.17            | 0.000300              | 3.74               | 2814.71              | 231.06            | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 10YR    | 11460.00         | 876.28            | 895.12            | 883.58            | 895.35            | 0.000284              | 3.83               | 3099.71              | 251.72            | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 50YR    | 13716.00         | 876.28            | 896.90            | 884.27            | 897.16            | 0.000283              | 4.10               | 3629.61              | 405.79            | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 100YR   | 14418.00         | 876.28            | 897.45            | 884.46            | 897.71            | 0.000280              | 4.16               | 3815.48              | 428.32            | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 500YR   | 20212.00         | 876.28            | 900.71            | 886.01            | 901.06            | 0.000303              | 4.83               | 4930.15              | 676.93            | 0.18         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 2YR     | 10360.00         | 876.76            | 893.71            |                   | 893.94            | 0.000370              | 3.87               | 2675.17              | 202.23            | 0.19         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 10YR    | 11460.00         | 876.76            | 894.89            |                   | 895.13            | 0.000350              | 3.93               | 2917.17              | 206.91            | 0.18         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 50YR    | 13716.00         | 876.76            | 896.68            |                   | 896.95            | 0.000341              | 4.17               | 3311.58              | 260.59            | 0.19         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 100YR   | 14418.00         | 876.76            | 897.23            |                   | 897.50            | 0.000335              | 4.23               | 3446.74              | 377.92            | 0.18         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 500YR   | 20212.00         | 876.76            | 900.46            |                   | 900.83            | 0.000354              | 4.91               | 4377.68              | 1044.43           | 0.20         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 2YR     | 10360.00         | 874.46            | 893.26            | 881.19            | 893.42            | 0.000213              | 3.25               | 3193.19              | 247.88            | 0.15         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 10YR    | 11460.00         | 874.46            | 894.47            | 881.54            | 894.64            | 0.000203              | 3.33               | 3453.22              | 332.38            | 0.14         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 50YR    | 13716.00         | 874.46            | 896.26            | 882.21            | 896.46            | 0.000206              | 3.59               | 3869.91              | 586.45            | 0.15         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 100YR   | 14418.00         | 874.46            | 896.81            | 882.40            | 897.02            | 0.000206              | 3.66               | 4017.36              | 607.84            | 0.15         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 500YR   | 20212.00         | 874.46            | 900.00            | 883.87            | 900.29            | 0.000234              | 4.33               | 5256.62              | 1419.30           | 0.16         |

Standard Table 2

HEC-RAS Plan: CE Locations: User Defined

| River         | Reach | River Sta          | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|---------------|-------|--------------------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| Chattahoochee | Main  | 757224.6 cha_20570 | 2YR     | 906.23            | 906.02            | 0.20             | 0.66               | 0.00               |                 | 10360.00           |                  | 227.37            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 10YR    | 907.24            | 907.02            | 0.21             | 0.63               | 0.00               |                 | 11460.00           |                  | 230.05            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 50YR    | 908.13            | 907.93            | 0.20             | 0.56               | 0.00               |                 | 12000.00           |                  | 232.45            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 100YR   | 908.33            | 908.13            | 0.20             | 0.54               | 0.00               |                 | 12000.00           |                  | 233.01            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 500YR   | 910.73            | 910.58            | 0.14             | 0.33               | 0.00               |                 | 12000.00           |                  | 242.37            |
| Chattahoochee | Main  | 755410.3 1756      | 2YR     | 905.57            | 905.36            | 0.21             | 0.35               | 0.01               |                 | 10360.00           |                  | 223.26            |
| Chattahoochee | Main  | 755410.3 1756      | 10YR    | 906.60            | 906.39            | 0.22             | 0.33               | 0.01               |                 | 11460.00           |                  | 225.51            |
| Chattahoochee | Main  | 755410.3 1756      | 50YR    | 907.57            | 907.36            | 0.21             | 0.29               | 0.01               |                 | 12000.00           |                  | 227.51            |
| Chattahoochee | Main  | 755410.3 1756      | 100YR   | 907.79            | 907.59            | 0.20             | 0.28               | 0.01               |                 | 12000.00           |                  | 228.26            |
| Chattahoochee | Main  | 755410.3 1756      | 500YR   | 910.40            | 910.26            | 0.14             | 0.17               | 0.01               |                 | 12000.00           |                  | 239.97            |
| Chattahoochee | Main  | 754547.9 1755      | 2YR     | 905.22            | 905.03            | 0.18             | 0.62               | 0.01               |                 | 10360.00           |                  | 232.31            |
| Chattahoochee | Main  | 754547.9 1755      | 10YR    | 906.26            | 906.07            | 0.19             | 0.60               | 0.01               |                 | 11460.00           |                  | 234.89            |
| Chattahoochee | Main  | 754547.9 1755      | 50YR    | 907.27            | 907.08            | 0.18             | 0.52               | 0.01               |                 | 12000.00           |                  | 237.04            |
| Chattahoochee | Main  | 754547.9 1755      | 100YR   | 907.51            | 907.33            | 0.18             | 0.50               | 0.01               |                 | 12000.00           |                  | 237.57            |
| Chattahoochee | Main  | 754547.9 1755      | 500YR   | 910.23            | 910.10            | 0.13             | 0.34               | 0.00               |                 | 12000.00           |                  | 245.80            |
| Chattahoochee | Main  | 752673.8 628       | 2YR     | 904.59            | 904.44            | 0.15             | 0.27               | 0.01               |                 | 10360.00           |                  | 247.38            |
| Chattahoochee | Main  | 752673.8 628       | 10YR    | 905.66            | 905.50            | 0.15             | 0.26               | 0.01               |                 | 11460.00           |                  | 251.04            |
| Chattahoochee | Main  | 752673.8 628       | 50YR    | 906.73            | 906.58            | 0.15             | 0.23               | 0.01               |                 | 12000.00           |                  | 254.45            |
| Chattahoochee | Main  | 752673.8 628       | 100YR   | 907.00            | 906.86            | 0.14             | 0.22               | 0.01               |                 | 12000.00           |                  | 255.26            |
| Chattahoochee | Main  | 752673.8 628       | 500YR   | 909.89            | 909.76            | 0.13             | 0.17               | 0.01               |                 | 13752.00           |                  | 307.71            |
| Chattahoochee | Main  | 751868.0 780       | 2YR     | 904.31            | 904.11            | 0.20             | 0.83               | 0.01               |                 | 10360.00           |                  | 203.12            |
| Chattahoochee | Main  | 751868.0 780       | 10YR    | 905.39            | 905.17            | 0.21             | 0.81               | 0.01               |                 | 11460.00           |                  | 204.63            |
| Chattahoochee | Main  | 751868.0 780       | 50YR    | 906.49            | 906.29            | 0.20             | 0.70               | 0.01               |                 | 12000.00           |                  | 206.22            |
| Chattahoochee | Main  | 751868.0 780       | 100YR   | 906.78            | 906.58            | 0.20             | 0.66               | 0.01               |                 | 12000.00           |                  | 206.63            |
| Chattahoochee | Main  | 751868.0 780       | 500YR   | 909.71            | 909.53            | 0.18             | 0.52               | 0.01               |                 | 13752.00           |                  | 212.14            |
| Chattahoochee | Main  | 749433.3 2388      | 2YR     | 903.47            | 903.30            | 0.17             | 0.24               | 0.03               |                 | 10360.00           |                  | 217.91            |
| Chattahoochee | Main  | 749433.3 2388      | 10YR    | 904.57            | 904.39            | 0.18             | 0.24               | 0.03               |                 | 11460.00           |                  | 219.77            |
| Chattahoochee | Main  | 749433.3 2388      | 50YR    | 905.78            | 905.61            | 0.17             | 0.20               | 0.03               |                 | 12000.00           |                  | 221.85            |
| Chattahoochee | Main  | 749433.3 2388      | 100YR   | 906.10            | 905.94            | 0.16             | 0.19               | 0.03               |                 | 12000.00           |                  | 222.41            |
| Chattahoochee | Main  | 749433.3 2388      | 500YR   | 909.18            | 909.03            | 0.15             | 0.15               | 0.03               |                 | 13752.00           |                  | 229.65            |
| Chattahoochee | Main  | 747909.1 1757      | 2YR     | 903.20            | 903.13            | 0.07             | 0.37               | 0.01               |                 | 10360.00           |                  | 315.59            |
| Chattahoochee | Main  | 747909.1 1757      | 10YR    | 904.30            | 904.23            | 0.08             | 0.37               | 0.01               |                 | 11460.00           |                  | 318.24            |
| Chattahoochee | Main  | 747909.1 1757      | 50YR    | 905.55            | 905.47            | 0.07             | 0.32               | 0.01               |                 | 12000.00           |                  | 321.25            |
| Chattahoochee | Main  | 747909.1 1757      | 100YR   | 905.89            | 905.81            | 0.07             | 0.30               | 0.01               |                 | 12000.00           |                  | 322.06            |
| Chattahoochee | Main  | 747909.1 1757      | 500YR   | 909.01            | 908.94            | 0.07             | 0.24               | 0.01               |                 | 13747.92           | 4.08             | 518.12            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 2YR     | 902.83            | 902.69            | 0.14             | 0.83               | 0.01               |                 | 10360.00           |                  | 209.10            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 10YR    | 903.93            | 903.78            | 0.15             | 0.82               | 0.01               |                 | 11460.00           |                  | 210.75            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 50YR    | 905.22            | 905.08            | 0.14             | 0.70               | 0.01               |                 | 12000.00           |                  | 212.72            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 100YR   | 905.58            | 905.44            | 0.14             | 0.65               | 0.01               |                 | 12000.00           |                  | 213.27            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 500YR   | 908.75            | 908.62            | 0.13             | 0.50               | 0.00               |                 | 13751.82           | 0.18             | 684.30            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 2YR     | 901.99            | 901.77            | 0.22             | 0.09               | 0.02               |                 | 10360.00           |                  | 249.42            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 10YR    | 903.10            | 902.87            | 0.23             | 0.09               | 0.02               |                 | 11460.00           |                  | 328.85            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 50YR    | 904.51            | 904.31            | 0.20             | 0.07               | 0.02               |                 | 12000.00           |                  | 431.34            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 100YR   | 904.92            | 904.72            | 0.19             | 0.06               | 0.02               |                 | 12000.00           |                  | 457.11            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 500YR   | 908.25            | 908.08            | 0.17             | 0.04               | 0.01               |                 | 13752.00           |                  | 1075.78           |
| Chattahoochee | Main  | 741238.0 cha_20400 | 2YR     | 901.88            | 901.71            | 0.17             | 0.08               | 0.01               |                 | 10360.00           |                  | 408.59            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 10YR    | 903.00            | 902.83            | 0.17             | 0.07               | 0.01               |                 | 11460.00           |                  | 572.21            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 50YR    | 904.43            | 904.28            | 0.15             | 0.06               | 0.01               |                 | 12000.00           |                  | 629.30            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 100YR   | 904.84            | 904.70            | 0.14             | 0.06               | 0.01               |                 | 12000.00           |                  | 639.35            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 500YR   | 908.19            | 908.07            | 0.12             | 0.04               | 0.00               | 16.32           | 13735.68           |                  | 1320.04           |
| Chattahoochee | Main  | 740971.6 2373      | 2YR     | 901.79            | 901.66            | 0.13             | 0.28               | 0.00               |                 | 10360.00           |                  | 466.76            |
| Chattahoochee | Main  | 740971.6 2373      | 10YR    | 902.91            | 902.78            | 0.14             | 0.28               | 0.00               |                 | 11460.00           |                  | 491.17            |
| Chattahoochee | Main  | 740971.6 2373      | 50YR    | 904.36            | 904.23            | 0.13             | 0.24               | 0.00               |                 | 12000.00           |                  | 516.27            |
| Chattahoochee | Main  | 740971.6 2373      | 100YR   | 904.78            | 904.66            | 0.12             | 0.23               | 0.00               |                 | 12000.00           |                  | 522.44            |
| Chattahoochee | Main  | 740971.6 2373      | 500YR   | 908.14            | 908.03            | 0.12             | 0.19               | 0.00               | 0.01            | 13751.99           |                  | 1091.43           |
| Chattahoochee | Main  | 739439.5 cha_20320 | 2YR     | 901.51            | 901.36            | 0.15             | 0.05               | 0.01               |                 | 10360.00           |                  | 202.04            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 10YR    | 902.63            | 902.47            | 0.16             | 0.05               | 0.01               |                 | 11460.00           |                  | 205.61            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 50YR    | 904.12            | 903.97            | 0.15             | 0.04               | 0.01               |                 | 12000.00           |                  | 211.89            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 100YR   | 904.55            | 904.41            | 0.14             | 0.04               | 0.01               |                 | 12000.00           |                  | 213.98            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 500YR   | 907.95            | 907.82            | 0.13             | 0.03               | 0.01               |                 | 13752.00           |                  | 235.74            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 2YR     | 901.45            | 901.32            | 0.13             | 0.01               | 0.01               |                 | 10354.43           | 5.58             | 227.72            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 10YR    | 902.57            | 902.43            | 0.14             | 0.01               | 0.01               |                 | 11449.26           | 10.74            | 232.93            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 50YR    | 904.06            | 903.93            | 0.13             | 0.01               | 0.01               |                 | 11980.26           | 19.74            | 240.00            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 100YR   | 904.50            | 904.37            | 0.12             | 0.01               | 0.01               |                 | 11977.38           | 22.62            | 242.06            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 500YR   | 907.91            | 907.80            | 0.12             | 0.01               | 0.01               | 0.01            | 13694.45           | 57.54            | 258.41            |
| Chattahoochee | Main  | 739022.1 cha_20300 |         | Bridge            |                   |                  |                    |                    |                 |                    |                  |                   |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 2YR     | 901.40            | 901.27            | 0.14             | 0.06               | 0.03               |                 | 10352.39           | 7.61             | 229.18            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 10YR    | 902.52            | 902.38            | 0.14             | 0.06               | 0.03               |                 | 11445.27           | 14.73            | 234.40            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 50YR    | 904.02            | 903.89            | 0.13             | 0.05               | 0.03               | 0.22            | 11972.73           | 27.05            | 244.44            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 100YR   | 904.46            | 904.33            | 0.13             | 0.05               | 0.03               | 0.53            | 11968.51           | 30.96            | 247.76            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 500YR   | 907.88            | 907.76            | 0.12             | 0.04               | 0.03               | 11.10           | 13663.08           | 77.82            | 451.14            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 2YR     | 901.31            | 901.08            | 0.23             | 0.56               | 0.03               |                 | 10360.00           |                  | 157.70            |

HEC-RAS Plan: CE Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|---------------|-------|--------------------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| Chattahoochee | Main  | 738645.7 cha_20190 | 10YR    | 902.43            | 902.18            | 0.25             | 0.57               | 0.03               |                 | 11460.00           |                  | 159.79            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 50YR    | 903.94            | 903.71            | 0.23             | 0.47               | 0.03               | 0.00            | 12000.00           |                  | 162.66            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 100YR   | 904.38            | 904.16            | 0.22             | 0.44               | 0.03               | 0.03            | 11999.97           | 0.00             | 163.71            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 500YR   | 907.82            | 907.61            | 0.21             | 0.33               | 0.03               | 1.64            | 13746.73           | 3.63             | 274.49            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 2YR     | 900.71            | 900.59            | 0.12             | 0.39               | 0.00               | 0.03            | 10358.70           | 1.27             | 223.21            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 10YR    | 901.83            | 901.69            | 0.13             | 0.39               | 0.00               | 0.54            | 11455.60           | 3.86             | 227.16            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 50YR    | 903.44            | 903.31            | 0.12             | 0.32               | 0.00               | 2.95            | 11986.69           | 10.36            | 232.95            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 100YR   | 903.92            | 903.80            | 0.12             | 0.29               | 0.00               | 4.08            | 11983.09           | 12.83            | 234.69            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 500YR   | 907.46            | 907.35            | 0.11             | 0.22               | 0.00               | 20.70           | 13675.17           | 56.12            | 291.76            |
| Chattahoochee | Main  | 733190.2 1733      | 2YR     | 900.32            | 900.19            | 0.13             | 0.56               | 0.00               | 0.00            | 10360.00           |                  | 223.47            |
| Chattahoochee | Main  | 733190.2 1733      | 10YR    | 901.44            | 901.30            | 0.14             | 0.56               | 0.01               | 0.50            | 11459.39           | 0.11             | 229.38            |
| Chattahoochee | Main  | 733190.2 1733      | 50YR    | 903.12            | 903.00            | 0.12             | 0.45               | 0.00               | 5.21            | 11993.48           | 1.31             | 250.98            |
| Chattahoochee | Main  | 733190.2 1733      | 100YR   | 903.62            | 903.51            | 0.12             | 0.41               | 0.00               | 7.51            | 11990.35           | 2.14             | 281.83            |
| Chattahoochee | Main  | 733190.2 1733      | 500YR   | 907.24            | 907.13            | 0.11             | 0.31               | 0.00               | 35.54           | 13695.31           | 21.15            | 1653.51           |
| Chattahoochee | Main  | 730384.4 cha_20000 | 2YR     | 899.75            | 899.57            | 0.18             | 0.75               | 0.01               |                 | 10360.00           |                  | 182.23            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 10YR    | 900.87            | 900.68            | 0.19             | 0.75               | 0.01               |                 | 11460.00           |                  | 183.94            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 50YR    | 902.66            | 902.49            | 0.17             | 0.68               | 0.00               | 0.18            | 11999.82           |                  | 187.86            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 100YR   | 903.21            | 903.05            | 0.16             | 0.65               | 0.00               | 0.46            | 11999.54           |                  | 189.23            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 500YR   | 906.93            | 906.78            | 0.15             | 0.61               | 0.01               | 8.05            | 13726.07           | 17.88            | 1874.79           |
| Chattahoochee | Main  | 727178.7 695       | 2YR     | 899.00            | 898.85            | 0.15             | 0.63               | 0.00               |                 | 10360.00           |                  | 211.34            |
| Chattahoochee | Main  | 727178.7 695       | 10YR    | 900.11            | 899.95            | 0.16             | 0.64               | 0.00               | 0.00            | 11460.00           |                  | 216.58            |
| Chattahoochee | Main  | 727178.7 695       | 50YR    | 901.98            | 901.80            | 0.18             | 0.64               | 0.00               | 0.90            | 13592.02           | 0.08             | 223.66            |
| Chattahoochee | Main  | 727178.7 695       | 100YR   | 902.55            | 902.36            | 0.19             | 0.64               | 0.00               | 1.67            | 14307.98           | 0.35             | 325.31            |
| Chattahoochee | Main  | 727178.7 695       | 500YR   | 906.31            | 906.04            | 0.27             | 0.71               | 0.00               | 17.94           | 20285.65           | 12.41            | 1976.07           |
| Chattahoochee | Main  | 724525.6 cha_19900 | 2YR     | 898.36            | 898.19            | 0.17             | 0.30               | 0.02               |                 | 10360.00           |                  | 198.43            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 10YR    | 899.48            | 899.29            | 0.18             | 0.31               | 0.02               |                 | 11460.00           |                  | 210.87            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 50YR    | 901.34            | 901.13            | 0.21             | 0.31               | 0.02               |                 | 13592.40           | 0.60             | 636.67            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 100YR   | 901.91            | 901.69            | 0.22             | 0.31               | 0.02               |                 | 14308.55           | 1.45             | 697.68            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 500YR   | 905.59            | 905.29            | 0.30             | 0.35               | 0.03               | 5.58            | 20273.49           | 36.93            | 2728.33           |
| Chattahoochee | Main  | 723016.0 2374      | 2YR     | 898.05            | 897.93            | 0.12             | 0.08               | 0.00               |                 | 10360.00           |                  | 231.42            |
| Chattahoochee | Main  | 723016.0 2374      | 10YR    | 899.15            | 899.02            | 0.13             | 0.09               | 0.00               |                 | 11460.00           |                  | 236.25            |
| Chattahoochee | Main  | 723016.0 2374      | 50YR    | 901.01            | 900.87            | 0.15             | 0.09               | 0.00               | 4.30            | 13588.56           | 0.14             | 271.16            |
| Chattahoochee | Main  | 723016.0 2374      | 100YR   | 901.58            | 901.43            | 0.15             | 0.09               | 0.00               | 8.66            | 14300.78           | 0.56             | 355.24            |
| Chattahoochee | Main  | 723016.0 2374      | 500YR   | 905.22            | 905.00            | 0.22             | 0.10               | 0.00               | 79.86           | 20212.84           | 23.30            | 3311.79           |
| Chattahoochee | Main  | 722465.4 cha_19800 | 2YR     | 897.96            | 897.82            | 0.14             | 0.46               | 0.00               |                 | 10360.00           |                  | 203.12            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 10YR    | 899.06            | 898.91            | 0.15             | 0.46               | 0.00               |                 | 11460.00           |                  | 206.45            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 50YR    | 900.92            | 900.75            | 0.17             | 0.48               | 0.00               |                 | 13593.00           |                  | 574.24            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 100YR   | 901.49            | 901.31            | 0.18             | 0.48               | 0.00               |                 | 14310.00           |                  | 852.01            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 500YR   | 905.11            | 904.85            | 0.26             | 0.52               | 0.00               | 1.86            | 20252.04           | 62.09            | 2875.25           |
| Chattahoochee | Main  | 719651.2 1734      | 2YR     | 897.49            | 897.32            | 0.17             | 0.43               | 0.00               |                 | 10360.00           | 0.00             | 219.39            |
| Chattahoochee | Main  | 719651.2 1734      | 10YR    | 898.60            | 898.42            | 0.18             | 0.42               | 0.00               | 0.09            | 11459.79           | 0.12             | 244.45            |
| Chattahoochee | Main  | 719651.2 1734      | 50YR    | 900.44            | 900.23            | 0.21             | 0.42               | 0.00               | 2.90            | 13588.71           | 1.39             | 614.52            |
| Chattahoochee | Main  | 719651.2 1734      | 100YR   | 901.00            | 900.78            | 0.22             | 0.43               | 0.00               | 4.95            | 14302.75           | 2.30             | 993.83            |
| Chattahoochee | Main  | 719651.2 1734      | 500YR   | 904.59            | 904.33            | 0.26             | 0.45               | 0.01               | 43.69           | 18900.54           | 1371.77          | 2757.07           |
| Chattahoochee | Main  | 717546.8 cha_19600 | 2YR     | 897.06            | 896.88            | 0.19             | 0.71               | 0.00               |                 | 10360.00           |                  | 195.89            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 10YR    | 898.17            | 897.97            | 0.20             | 0.69               | 0.00               |                 | 11459.91           | 0.09             | 200.08            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 50YR    | 900.02            | 899.79            | 0.23             | 0.68               | 0.00               | 0.09            | 13591.72           | 1.19             | 589.34            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 100YR   | 900.57            | 900.34            | 0.24             | 0.68               | 0.00               | 0.49            | 14307.63           | 1.88             | 743.97            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 500YR   | 904.13            | 903.80            | 0.33             | 0.67               | 0.03               | 56.08           | 20247.32           | 12.60            | 2126.14           |
| Chattahoochee | Main  | 714679.4 cha_19520 | 2YR     | 896.36            | 896.16            | 0.20             | 0.09               | 0.01               |                 | 10360.00           |                  | 216.93            |
| Chattahoochee | Main  | 714679.4 cha_19520 | 10YR    | 897.49            | 897.28            | 0.21             | 0.08               | 0.01               |                 | 11460.00           |                  | 219.76            |
| Chattahoochee | Main  | 714679.4 cha_19520 | 50YR    | 899.34            | 899.11            | 0.23             | 0.08               | 0.01               |                 | 13593.00           | 0.00             | 793.11            |
| Chattahoochee | Main  | 714679.4 cha_19520 | 100YR   | 899.90            | 899.66            | 0.24             | 0.08               | 0.02               | 0.00            | 14307.72           | 2.28             | 1078.48           |
| Chattahoochee | Main  | 714679.4 cha_19520 | 500YR   | 903.44            | 903.19            | 0.25             | 0.08               | 0.00               | 7.88            | 18610.42           | 1697.70          | 1914.69           |
| Chattahoochee | Main  | 714318.7           | 2YR     | 896.26            | 896.09            | 0.17             | 0.01               | 0.00               |                 | 9908.95            | 451.05           | 442.52            |
| Chattahoochee | Main  | 714318.7           | 10YR    | 897.39            | 897.22            | 0.17             | 0.01               | 0.00               |                 | 10817.14           | 642.86           | 479.65            |
| Chattahoochee | Main  | 714318.7           | 50YR    | 899.24            | 899.06            | 0.18             | 0.01               | 0.01               |                 | 12576.66           | 1016.34          | 622.23            |
| Chattahoochee | Main  | 714318.7           | 100YR   | 899.80            | 899.62            | 0.19             | 0.01               | 0.01               | 0.07            | 13169.36           | 1140.57          | 942.46            |
| Chattahoochee | Main  | 714318.7           | 500YR   | 903.36            | 903.12            | 0.24             | 0.01               | 0.01               | 27.28           | 18148.89           | 2139.83          | 1953.17           |
| Chattahoochee | Main  | 714229.6 cha_19500 |         | Bridge            |                   |                  |                    |                    |                 |                    |                  |                   |
| Chattahoochee | Main  | 714014.2           | 2YR     | 896.14            | 895.96            | 0.18             | 0.14               | 0.01               |                 | 10360.00           |                  | 218.23            |
| Chattahoochee | Main  | 714014.2           | 10YR    | 897.27            | 897.08            | 0.19             | 0.14               | 0.01               |                 | 11460.00           |                  | 221.30            |
| Chattahoochee | Main  | 714014.2           | 50YR    | 899.12            | 898.91            | 0.21             | 0.13               | 0.01               |                 | 13592.92           | 0.08             | 994.74            |
| Chattahoochee | Main  | 714014.2           | 100YR   | 899.67            | 899.46            | 0.22             | 0.13               | 0.01               | 0.03            | 14308.69           | 1.28             | 1173.06           |
| Chattahoochee | Main  | 714014.2           | 500YR   | 903.22            | 902.92            | 0.29             | 0.15               | 0.02               | 43.43           | 20162.06           | 110.52           | 2142.59           |
| Chattahoochee | Main  | 713569.6 cha_19390 | 2YR     | 895.99            | 895.73            | 0.26             | 0.39               | 0.02               |                 | 10360.00           |                  | 173.07            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 10YR    | 897.12            | 896.85            | 0.28             | 0.39               | 0.02               |                 | 11460.00           |                  | 176.27            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 50YR    | 898.97            | 898.67            | 0.31             | 0.39               | 0.02               | 0.08            | 13592.46           | 0.46             | 417.42            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 100YR   | 899.53            | 899.21            | 0.32             | 0.39               | 0.03               | 0.35            | 14308.22           | 1.43             | 677.95            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 500YR   | 903.05            | 902.60            | 0.45             | 0.44               | 0.04               | 19.61           | 20258.97           | 37.42            | 2301.84           |
| Chattahoochee | Main  | 712195.4 cha_19300 | 2YR     | 895.57            | 895.39            | 0.18             | 0.44               | 0.00               | 2.66            | 10356.92           | 0.42             | 197.53            |
| Chattahoochee | Main  | 712195.4 cha_19300 | 10YR    | 896.71            | 896.52            | 0.19             | 0.43               | 0.00               | 6.40            | 11451.86           | 1.74             | 201.19            |



HEC-RAS Plan: CE Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|---------------|-------|--------------------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| Chattahoochee | Main  | 712195.4 cha_19300 | 50YR    | 898.56            | 898.34            | 0.23             | 0.45               | 0.00               | 17.59           | 13691.54           | 6.87             | 397.37            |
| Chattahoochee | Main  | 712195.4 cha_19300 | 100YR   | 899.12            | 898.88            | 0.24             | 0.45               | 0.00               | 22.40           | 14386.28           | 9.31             | 651.57            |
| Chattahoochee | Main  | 712195.4 cha_19300 | 500YR   | 902.58            | 902.25            | 0.33             | 0.45               | 0.03               | 88.58           | 20009.70           | 113.72           | 1244.99           |
| Chattahoochee | Main  | 710158.5 cha_19200 | 2YR     | 895.13            | 894.95            | 0.17             | 0.36               | 0.01               |                 | 10350.67           | 9.33             | 227.59            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 10YR    | 896.28            | 896.09            | 0.19             | 0.35               | 0.01               |                 | 11440.22           | 19.78            | 356.70            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 50YR    | 898.11            | 897.90            | 0.22             | 0.36               | 0.01               | 0.42            | 13663.90           | 51.68            | 803.61            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 100YR   | 898.66            | 898.44            | 0.23             | 0.35               | 0.01               | 2.76            | 14349.32           | 65.93            | 887.89            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 500YR   | 902.10            | 901.88            | 0.22             | 0.32               | 0.01               | 2295.55         | 17677.12           | 239.33           | 1343.21           |
| Chattahoochee | Main  | 708330.8 1735      | 2YR     | 894.76            | 894.62            | 0.15             | 0.22               | 0.00               | 1.59            | 10357.20           | 1.21             | 266.53            |
| Chattahoochee | Main  | 708330.8 1735      | 10YR    | 895.92            | 895.77            | 0.15             | 0.21               | 0.00               | 4.62            | 11451.18           | 4.20             | 289.63            |
| Chattahoochee | Main  | 708330.8 1735      | 50YR    | 897.74            | 897.56            | 0.18             | 0.21               | 0.00               | 18.90           | 13683.52           | 13.58            | 638.13            |
| Chattahoochee | Main  | 708330.8 1735      | 100YR   | 898.30            | 898.12            | 0.18             | 0.21               | 0.00               | 209.96          | 14190.51           | 17.53            | 832.86            |
| Chattahoochee | Main  | 708330.8 1735      | 500YR   | 901.77            | 901.57            | 0.20             | 0.21               | 0.01               | 1247.72         | 18222.94           | 741.34           | 1270.18           |
| Chattahoochee | Main  | 707189.2 2375      | 2YR     | 894.54            | 894.38            | 0.16             | 0.15               | 0.01               | 1.31            | 10350.62           | 8.07             | 221.17            |
| Chattahoochee | Main  | 707189.2 2375      | 10YR    | 895.71            | 895.54            | 0.17             | 0.14               | 0.01               | 4.25            | 11434.88           | 20.87            | 244.88            |
| Chattahoochee | Main  | 707189.2 2375      | 50YR    | 897.53            | 897.33            | 0.20             | 0.15               | 0.01               | 30.95           | 13626.52           | 58.54            | 472.32            |
| Chattahoochee | Main  | 707189.2 2375      | 100YR   | 898.09            | 897.88            | 0.20             | 0.15               | 0.01               | 47.19           | 14291.74           | 79.07            | 623.77            |
| Chattahoochee | Main  | 707189.2 2375      | 500YR   | 901.55            | 901.28            | 0.27             | 0.16               | 0.01               | 219.10          | 19590.99           | 401.91           | 829.42            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 2YR     | 894.39            | 894.25            | 0.14             | 0.10               | 0.01               | 6.39            | 10350.74           | 2.87             | 283.99            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 10YR    | 895.56            | 895.41            | 0.15             | 0.10               | 0.01               | 13.76           | 11438.33           | 7.92             | 328.99            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 50YR    | 897.38            | 897.20            | 0.18             | 0.10               | 0.01               | 31.20           | 13662.67           | 22.13            | 468.49            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 100YR   | 897.93            | 897.75            | 0.18             | 0.10               | 0.01               | 42.51           | 14345.75           | 29.74            | 582.90            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 500YR   | 901.38            | 901.14            | 0.23             | 0.11               | 0.01               | 666.42          | 19352.34           | 193.24           | 949.09            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 2YR     | 894.28            | 894.12            | 0.16             | 0.01               | 0.01               | 85.49           | 10260.48           | 14.03            | 274.00            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 10YR    | 895.45            | 895.28            | 0.17             | 0.01               | 0.01               | 138.02          | 11295.68           | 26.30            | 282.38            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 50YR    | 897.27            | 897.07            | 0.19             | 0.01               | 0.01               | 231.86          | 13427.26           | 56.87            | 453.52            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 100YR   | 897.82            | 897.62            | 0.20             | 0.01               | 0.01               | 277.01          | 14071.83           | 69.16            | 516.04            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 500YR   | 901.25            | 900.98            | 0.27             | 0.02               | 0.02               | 654.29          | 19326.73           | 230.98           | 971.36            |
| Chattahoochee | Main  | 705714.6 cha_19100 |         | Bridge            |                   |                  |                    |                    |                 |                    |                  |                   |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 2YR     | 894.17            | 893.95            | 0.22             | 0.22               | 0.00               | 2.81            | 10342.04           | 15.15            | 231.06            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 10YR    | 895.35            | 895.12            | 0.23             | 0.21               | 0.00               | 16.31           | 11414.91           | 28.78            | 251.72            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 50YR    | 897.16            | 896.90            | 0.26             | 0.21               | 0.00               | 58.54           | 13593.55           | 63.91            | 405.79            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 100YR   | 897.71            | 897.45            | 0.27             | 0.21               | 0.00               | 83.84           | 14238.10           | 96.07            | 428.32            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 500YR   | 901.06            | 900.71            | 0.35             | 0.22               | 0.01               | 329.04          | 19481.29           | 401.67           | 676.93            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 2YR     | 893.94            | 893.71            | 0.23             | 0.50               | 0.02               |                 | 10360.00           |                  | 202.23            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 10YR    | 895.13            | 894.89            | 0.24             | 0.47               | 0.02               |                 | 11460.00           |                  | 206.91            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 50YR    | 896.95            | 896.68            | 0.27             | 0.47               | 0.02               | 0.47            | 13710.77           | 4.76             | 260.59            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 100YR   | 897.50            | 897.23            | 0.28             | 0.47               | 0.02               | 1.09            | 14403.75           | 13.17            | 377.92            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 500YR   | 900.83            | 900.46            | 0.37             | 0.51               | 0.03               | 49.04           | 20027.50           | 135.46           | 1044.43           |
| Chattahoochee | Main  | 703142.4 cha_18900 | 2YR     | 893.42            | 893.26            | 0.16             | 0.38               | 0.00               | 0.03            | 10359.73           | 0.23             | 247.88            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 10YR    | 894.64            | 894.47            | 0.17             | 0.36               | 0.00               | 0.92            | 11457.73           | 1.35             | 332.38            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 50YR    | 896.46            | 896.26            | 0.20             | 0.37               | 0.00               | 6.34            | 13700.69           | 8.97             | 586.45            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 100YR   | 897.02            | 896.81            | 0.21             | 0.37               | 0.00               | 9.39            | 14391.33           | 17.28            | 607.84            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 500YR   | 900.29            | 900.00            | 0.29             | 0.42               | 0.00               | 110.08          | 19914.60           | 187.32           | 1419.30           |

# Six Cross Section Profile Table

HEC-RAS Plan: CE Locations: User Defined

| River         | Reach | River Sta               | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Top Width<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Vel Chnl<br>(ft/s) |
|---------------|-------|-------------------------|---------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-----------------|--------------------|------------------|--------------------|
| Chattahoochee | Main  | 757224.6 cha_20570      | 2YR     | 906.23            | 906.02            | 896.72            | 0.66               | 0.00               | 227.37            |                 | 10360.00           |                  | 3.60               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 10YR    | 907.24            | 907.02            | 897.02            | 0.63               | 0.00               | 230.05            |                 | 11460.00           |                  | 3.69               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 50YR    | 908.13            | 907.93            | 897.16            | 0.56               | 0.00               | 232.45            |                 | 12000.00           |                  | 3.62               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 100YR   | 908.33            | 908.13            | 897.16            | 0.54               | 0.00               | 233.01            |                 | 12000.00           |                  | 3.57               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 500YR   | 910.73            | 910.58            | 897.16            | 0.33               | 0.00               | 242.37            |                 | 12000.00           |                  | 3.04               |
| Chattahoochee | Main  | 755410.3 1756           | 2YR     | 905.57            | 905.36            | 895.81            | 0.35               | 0.01               | 223.26            |                 | 10360.00           |                  | 3.66               |
| Chattahoochee | Main  | 755410.3 1756           | 10YR    | 906.60            | 906.39            | 896.12            | 0.33               | 0.01               | 225.51            |                 | 11460.00           |                  | 3.75               |
| Chattahoochee | Main  | 755410.3 1756           | 50YR    | 907.57            | 907.36            | 896.28            | 0.29               | 0.01               | 227.51            |                 | 12000.00           |                  | 3.66               |
| Chattahoochee | Main  | 755410.3 1756           | 100YR   | 907.79            | 907.59            | 896.28            | 0.28               | 0.01               | 228.26            |                 | 12000.00           |                  | 3.60               |
| Chattahoochee | Main  | 755410.3 1756           | 500YR   | 910.40            | 910.26            | 896.28            | 0.17               | 0.01               | 239.97            |                 | 12000.00           |                  | 3.03               |
| Chattahoochee | Main  | 754547.9 1755           | 2YR     | 905.22            | 905.03            | 895.12            | 0.62               | 0.01               | 232.31            |                 | 10360.00           |                  | 3.45               |
| Chattahoochee | Main  | 754547.9 1755           | 10YR    | 906.26            | 906.07            | 895.44            | 0.60               | 0.01               | 234.89            |                 | 11460.00           |                  | 3.53               |
| Chattahoochee | Main  | 754547.9 1755           | 50YR    | 907.27            | 907.08            | 895.57            | 0.52               | 0.01               | 237.04            |                 | 12000.00           |                  | 3.44               |
| Chattahoochee | Main  | 754547.9 1755           | 100YR   | 907.51            | 907.33            | 895.57            | 0.50               | 0.01               | 237.57            |                 | 12000.00           |                  | 3.38               |
| Chattahoochee | Main  | 754547.9 1755           | 500YR   | 910.23            | 910.10            | 895.57            | 0.34               | 0.00               | 245.80            |                 | 12000.00           |                  | 2.85               |
| Chattahoochee | Main  | 752673.8 628            | 2YR     | 904.59            | 904.44            | 893.62            | 0.27               | 0.01               | 247.38            |                 | 10360.00           |                  | 3.08               |
| Chattahoochee | Main  | 752673.8 628            | 10YR    | 905.66            | 905.50            | 893.94            | 0.26               | 0.01               | 251.04            |                 | 11460.00           |                  | 3.16               |
| Chattahoochee | Main  | 752673.8 628            | 50YR    | 906.73            | 906.58            | 894.10            | 0.23               | 0.01               | 254.45            |                 | 12000.00           |                  | 3.08               |
| Chattahoochee | Main  | 752673.8 628            | 100YR   | 907.00            | 906.86            | 894.10            | 0.22               | 0.01               | 255.26            |                 | 12000.00           |                  | 3.02               |
| Chattahoochee | Main  | 752673.8 628            | 500YR   | 909.89            | 909.76            | 894.57            | 0.17               | 0.01               | 307.71            |                 | 13752.00           |                  | 2.91               |
| Chattahoochee | Main  | 751868.0 780            | 2YR     | 904.31            | 904.11            | 893.80            | 0.83               | 0.01               | 203.12            |                 | 10360.00           |                  | 3.62               |
| Chattahoochee | Main  | 751868.0 780            | 10YR    | 905.39            | 905.17            | 894.12            | 0.81               | 0.01               | 204.63            |                 | 11460.00           |                  | 3.72               |
| Chattahoochee | Main  | 751868.0 780            | 50YR    | 906.49            | 906.29            | 894.25            | 0.70               | 0.01               | 206.22            |                 | 12000.00           |                  | 3.63               |
| Chattahoochee | Main  | 751868.0 780            | 100YR   | 906.78            | 906.58            | 894.25            | 0.66               | 0.01               | 206.63            |                 | 12000.00           |                  | 3.56               |
| Chattahoochee | Main  | 751868.0 780            | 500YR   | 909.71            | 909.53            | 894.78            | 0.52               | 0.01               | 212.14            |                 | 13752.00           |                  | 3.45               |
| Chattahoochee | Main  | 749433.3 2388           | 2YR     | 903.47            | 903.30            | 892.20            | 0.24               | 0.03               | 217.91            |                 | 10360.00           |                  | 3.31               |
| Chattahoochee | Main  | 749433.3 2388           | 10YR    | 904.57            | 904.39            | 892.52            | 0.24               | 0.03               | 219.77            |                 | 11460.00           |                  | 3.40               |
| Chattahoochee | Main  | 749433.3 2388           | 50YR    | 905.78            | 905.61            | 892.68            | 0.20               | 0.03               | 221.85            |                 | 12000.00           |                  | 3.30               |
| Chattahoochee | Main  | 749433.3 2388           | 100YR   | 906.10            | 905.94            | 892.68            | 0.19               | 0.03               | 222.41            |                 | 12000.00           |                  | 3.24               |
| Chattahoochee | Main  | 749433.3 2388           | 500YR   | 909.18            | 909.03            | 893.18            | 0.15               | 0.03               | 229.65            |                 | 13752.00           |                  | 3.12               |
| Chattahoochee | Main  | 747909.1 1757           | 2YR     | 903.20            | 903.13            | 890.18            | 0.37               | 0.01               | 315.59            |                 | 10360.00           |                  | 2.18               |
| Chattahoochee | Main  | 747909.1 1757           | 10YR    | 904.30            | 904.23            | 890.43            | 0.37               | 0.01               | 318.24            |                 | 11460.00           |                  | 2.24               |
| Chattahoochee | Main  | 747909.1 1757           | 50YR    | 905.55            | 905.47            | 890.56            | 0.32               | 0.01               | 321.25            |                 | 12000.00           |                  | 2.18               |
| Chattahoochee | Main  | 747909.1 1757           | 100YR   | 905.89            | 905.81            | 890.56            | 0.30               | 0.01               | 322.06            |                 | 12000.00           |                  | 2.14               |
| Chattahoochee | Main  | 747909.1 1757           | 500YR   | 909.01            | 908.94            | 890.94            | 0.24               | 0.01               | 518.12            |                 | 13747.92           | 4.08             | 2.07               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 2YR     | 902.83            | 902.69            | 889.30            | 0.83               | 0.01               | 209.10            |                 | 10360.00           |                  | 3.00               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 10YR    | 903.93            | 903.78            | 889.63            | 0.82               | 0.01               | 210.75            |                 | 11460.00           |                  | 3.11               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 50YR    | 905.22            | 905.08            | 889.80            | 0.70               | 0.01               | 212.72            |                 | 12000.00           |                  | 3.03               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 100YR   | 905.58            | 905.44            | 889.80            | 0.65               | 0.01               | 213.27            |                 | 12000.00           |                  | 2.97               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 500YR   | 908.75            | 908.62            | 890.31            | 0.50               | 0.00               | 684.30            |                 | 13751.82           | 0.18             | 2.91               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 2YR     | 901.99            | 901.77            | 892.15            | 0.09               | 0.02               | 249.42            |                 | 10360.00           |                  | 3.77               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 10YR    | 903.10            | 902.87            | 892.49            | 0.09               | 0.02               | 328.85            |                 | 11460.00           |                  | 3.83               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 50YR    | 904.51            | 904.31            | 892.85            | 0.07               | 0.02               | 431.34            |                 | 12000.00           |                  | 3.63               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 100YR   | 904.92            | 904.72            | 892.85            | 0.06               | 0.02               | 457.11            |                 | 12000.00           |                  | 3.53               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 500YR   | 908.25            | 908.08            | 893.15            | 0.04               | 0.01               | 1075.78           |                 | 13752.00           |                  | 3.30               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 2YR     | 901.88            | 901.71            | 891.54            | 0.08               | 0.01               | 408.59            |                 | 10360.00           |                  | 3.27               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 10YR    | 903.00            | 902.83            | 892.15            | 0.07               | 0.01               | 572.21            |                 | 11460.00           |                  | 3.30               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 50YR    | 904.43            | 904.28            | 892.37            | 0.06               | 0.01               | 629.30            |                 | 12000.00           |                  | 3.10               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 100YR   | 904.84            | 904.70            | 892.37            | 0.06               | 0.01               | 639.35            |                 | 12000.00           |                  | 3.01               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 500YR   | 908.19            | 908.07            | 893.29            | 0.04               | 0.00               | 1320.04           | 16.32           | 13735.68           |                  | 2.77               |
| Chattahoochee | Main  | 740971.6 2373           | 2YR     | 901.79            | 901.66            | 886.86            | 0.28               | 0.00               | 466.76            |                 | 10360.00           |                  | 2.86               |
| Chattahoochee | Main  | 740971.6 2373           | 10YR    | 902.91            | 902.78            | 887.23            | 0.28               | 0.00               | 491.17            |                 | 11460.00           |                  | 2.97               |
| Chattahoochee | Main  | 740971.6 2373           | 50YR    | 904.36            | 904.23            | 887.36            | 0.24               | 0.00               | 516.27            |                 | 12000.00           |                  | 2.87               |
| Chattahoochee | Main  | 740971.6 2373           | 100YR   | 904.78            | 904.66            | 887.36            | 0.23               | 0.00               | 522.44            |                 | 12000.00           |                  | 2.81               |
| Chattahoochee | Main  | 740971.6 2373           | 500YR   | 908.14            | 908.03            | 887.93            | 0.19               | 0.00               | 1091.43           | 0.01            | 13751.99           |                  | 2.72               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 2YR     | 901.51            | 901.36            | 887.39            | 0.05               | 0.01               | 202.04            |                 | 10360.00           |                  | 3.09               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 10YR    | 902.63            | 902.47            | 887.75            | 0.05               | 0.01               | 205.61            |                 | 11460.00           |                  | 3.20               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 50YR    | 904.12            | 903.97            | 887.91            | 0.04               | 0.01               | 211.89            |                 | 12000.00           |                  | 3.08               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 100YR   | 904.55            | 904.41            | 887.91            | 0.04               | 0.01               | 213.98            |                 | 12000.00           |                  | 3.01               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 500YR   | 907.95            | 907.82            | 888.45            | 0.03               | 0.01               | 235.74            |                 | 13752.00           |                  | 2.89               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 2YR     | 901.45            | 901.32            | 886.89            | 0.01               | 0.01               | 227.72            |                 | 10354.43           | 5.58             | 2.89               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 10YR    | 902.57            | 902.43            | 887.26            | 0.01               | 0.01               | 232.93            |                 | 11449.26           | 10.74            | 2.99               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 50YR    | 904.06            | 903.93            | 887.42            | 0.01               | 0.01               | 240.00            |                 | 11980.26           | 19.74            | 2.89               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 100YR   | 904.50            | 904.37            | 887.42            | 0.01               | 0.01               | 242.06            |                 | 11977.38           | 22.62            | 2.82               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 500YR   | 907.91            | 907.80            | 887.97            | 0.01               | 0.01               | 258.41            | 0.01            | 13694.45           | 57.54            | 2.74               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 2YR     | 901.43            | 901.28            | 887.65            | 0.01               | 0.00               | 221.53            |                 | 10349.16           | 10.84            | 3.16               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 10YR    | 902.55            | 902.39            | 888.06            | 0.01               | 0.00               | 225.38            |                 | 11438.98           | 21.02            | 3.26               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 50YR    | 904.05            | 903.90            | 888.25            | 0.01               | 0.00               | 226.23            |                 | 11959.65           | 40.35            | 3.13               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 100YR   | 904.48            | 904.34            | 888.25            | 0.01               | 0.00               | 226.88            |                 | 11954.13           | 45.87            | 3.05               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 500YR   | 907.90            | 907.77            | 888.84            | 0.00               | 0.00               | 232.17            | 0.01            | 13653.82           | 98.16            | 2.94               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 2YR     | 901.42            | 901.27            | 887.81            | 0.01               | 0.01               | 223.18            |                 | 10350.08           | 9.92             | 3.19               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 10YR    | 902.54            | 902.38            | 888.24            | 0.01               | 0.01               | 225.65            |                 | 11440.22           | 19.78            | 3.29               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 50YR    | 904.04            | 903.89            | 888.44            | 0.01               | 0.01               | 229.71            | 0.22            | 11964.09           | 35.69            | 3.15               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 100YR   | 904.48            | 904.33            | 888.44            | 0.01               | 0.01               | 231.73            | 0.64            | 11959.39           | 39.97            | 3.07               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 500YR   | 907.90            | 907.76            | 889.05            | 0.01               | 0.01               | 242.90            | 17.57           | 13654.62           | 79.81            | 2.96               |
| Chattahoochee | Main  | 738953.3 CHA_20200      | 2YR     | 901.40            | 901.27            | 887.19            | 0.06               | 0.03               | 229.18            |                 | 10352.39           | 7.61             | 2.95               |
| Chattahoochee | Main  | 738953.3 CHA_20200      | 10YR    | 902.52            | 902.38            | 887.58            | 0.06               | 0.03               | 234.40            |                 | 11445.27           | 14.73            | 3.05               |

HEC-RAS Plan: CE Locations: User Defined (Continued)

| River         | Reach | River Sta               | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Top Width<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Vel Chnl<br>(ft/s) |
|---------------|-------|-------------------------|---------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-----------------|--------------------|------------------|--------------------|
| Chattahoochee | Main  | 738953.3 CHA_20200      | 50YR    | 904.02            | 903.89            | 887.75            | 0.05               | 0.03               | 244.44            | 0.22            | 11972.73           | 27.05            | 2.93               |
| Chattahoochee | Main  | 738953.3 CHA_20200      | 100YR   | 904.46            | 904.33            | 887.75            | 0.05               | 0.03               | 247.76            | 0.53            | 11968.51           | 30.96            | 2.86               |
| Chattahoochee | Main  | 738953.3 CHA_20200      | 500YR   | 907.88            | 907.76            | 888.34            | 0.04               | 0.03               | 451.14            | 11.10           | 13663.08           | 77.82            | 2.77               |
| Chattahoochee | Main  | 738645.7 cha_20190      | 2YR     | 901.31            | 901.08            | 887.06            | 0.56               | 0.03               | 157.70            |                 | 10360.00           |                  | 3.84               |
| Chattahoochee | Main  | 738645.7 cha_20190      | 10YR    | 902.43            | 902.18            | 887.50            | 0.57               | 0.03               | 159.79            |                 | 11460.00           |                  | 3.99               |
| Chattahoochee | Main  | 738645.7 cha_20190      | 50YR    | 903.94            | 903.71            | 887.73            | 0.47               | 0.03               | 162.66            | 0.00            | 12000.00           |                  | 3.85               |
| Chattahoochee | Main  | 738645.7 cha_20190      | 100YR   | 904.38            | 904.16            | 887.73            | 0.44               | 0.03               | 163.71            | 0.03            | 11999.97           | 0.00             | 3.76               |
| Chattahoochee | Main  | 738645.7 cha_20190      | 500YR   | 907.82            | 907.61            | 888.43            | 0.33               | 0.03               | 274.49            | 1.64            | 13746.73           | 3.63             | 3.66               |
| Chattahoochee | Main  | 735717.3 cha_20100      | 2YR     | 900.71            | 900.59            | 886.05            | 0.39               | 0.00               | 223.21            | 0.03            | 10358.70           | 1.27             | 2.81               |
| Chattahoochee | Main  | 735717.3 cha_20100      | 10YR    | 901.83            | 901.69            | 886.40            | 0.39               | 0.00               | 227.16            | 0.54            | 11455.60           | 3.86             | 2.92               |
| Chattahoochee | Main  | 735717.3 cha_20100      | 50YR    | 903.44            | 903.31            | 886.56            | 0.32               | 0.00               | 232.95            | 2.95            | 11986.69           | 10.36            | 2.80               |
| Chattahoochee | Main  | 735717.3 cha_20100      | 100YR   | 903.92            | 903.80            | 886.56            | 0.29               | 0.00               | 234.69            | 4.08            | 11983.09           | 12.83            | 2.73               |
| Chattahoochee | Main  | 735717.3 cha_20100      | 500YR   | 907.46            | 907.35            | 887.07            | 0.22               | 0.00               | 291.76            | 20.70           | 13675.17           | 56.12            | 2.65               |
| Chattahoochee | Main  | 733190.2 1733           | 2YR     | 900.32            | 900.19            | 886.03            | 0.56               | 0.00               | 223.47            | 0.00            | 10360.00           |                  | 2.87               |
| Chattahoochee | Main  | 733190.2 1733           | 10YR    | 901.44            | 901.30            | 886.37            | 0.56               | 0.01               | 229.38            | 0.50            | 11459.39           | 0.11             | 2.97               |
| Chattahoochee | Main  | 733190.2 1733           | 50YR    | 903.12            | 903.00            | 886.54            | 0.45               | 0.00               | 250.98            | 5.21            | 11993.48           | 1.31             | 2.83               |
| Chattahoochee | Main  | 733190.2 1733           | 100YR   | 903.62            | 903.51            | 886.54            | 0.41               | 0.00               | 281.83            | 7.51            | 11990.35           | 2.14             | 2.75               |
| Chattahoochee | Main  | 733190.2 1733           | 500YR   | 907.24            | 907.13            | 887.06            | 0.31               | 0.00               | 1653.51           | 35.54           | 13695.31           | 21.15            | 2.65               |
| Chattahoochee | Main  | 730384.4 cha_20000      | 2YR     | 899.75            | 899.57            | 886.04            | 0.75               | 0.01               | 182.23            |                 | 10360.00           |                  | 3.36               |
| Chattahoochee | Main  | 730384.4 cha_20000      | 10YR    | 900.87            | 900.68            | 886.42            | 0.75               | 0.01               | 183.94            |                 | 11460.00           |                  | 3.49               |
| Chattahoochee | Main  | 730384.4 cha_20000      | 50YR    | 902.66            | 902.49            | 886.61            | 0.68               | 0.00               | 187.86            | 0.18            | 11999.82           |                  | 3.31               |
| Chattahoochee | Main  | 730384.4 cha_20000      | 100YR   | 903.21            | 903.05            | 886.61            | 0.65               | 0.00               | 189.23            | 0.46            | 11999.54           |                  | 3.22               |
| Chattahoochee | Main  | 730384.4 cha_20000      | 500YR   | 906.93            | 906.78            | 887.20            | 0.61               | 0.01               | 1874.79           | 8.05            | 13726.07           | 17.88            | 3.10               |
| Chattahoochee | Main  | 727178.7 695            | 2YR     | 899.00            | 898.85            | 885.31            | 0.63               | 0.00               | 211.34            |                 | 10360.00           |                  | 3.12               |
| Chattahoochee | Main  | 727178.7 695            | 10YR    | 900.11            | 899.95            | 885.67            | 0.64               | 0.00               | 216.58            | 0.00            | 11460.00           |                  | 3.23               |
| Chattahoochee | Main  | 727178.7 695            | 50YR    | 901.98            | 901.80            | 886.35            | 0.64               | 0.00               | 223.66            | 0.90            | 13592.02           | 0.08             | 3.44               |
| Chattahoochee | Main  | 727178.7 695            | 100YR   | 902.55            | 902.36            | 886.56            | 0.64               | 0.00               | 325.31            | 1.67            | 14307.98           | 0.35             | 3.51               |
| Chattahoochee | Main  | 727178.7 695            | 500YR   | 906.31            | 906.04            | 888.22            | 0.71               | 0.00               | 1976.07           | 17.94           | 20285.65           | 12.41            | 4.15               |
| Chattahoochee | Main  | 724525.6 cha_19900      | 2YR     | 898.36            | 898.19            | 885.35            | 0.30               | 0.02               | 198.43            |                 | 10360.00           |                  | 3.31               |
| Chattahoochee | Main  | 724525.6 cha_19900      | 10YR    | 899.48            | 899.29            | 885.70            | 0.31               | 0.02               | 210.87            |                 | 11460.00           |                  | 3.42               |
| Chattahoochee | Main  | 724525.6 cha_19900      | 50YR    | 901.34            | 901.13            | 886.38            | 0.31               | 0.02               | 636.67            |                 | 13592.40           | 0.60             | 3.65               |
| Chattahoochee | Main  | 724525.6 cha_19900      | 100YR   | 901.91            | 901.69            | 886.57            | 0.31               | 0.02               | 697.68            |                 | 14308.55           | 1.45             | 3.73               |
| Chattahoochee | Main  | 724525.6 cha_19900      | 500YR   | 905.59            | 905.29            | 888.23            | 0.35               | 0.03               | 2728.33           | 5.58            | 20273.49           | 36.93            | 4.43               |
| Chattahoochee | Main  | 723016.0 2374           | 2YR     | 898.05            | 897.93            | 883.87            | 0.08               | 0.00               | 231.42            |                 | 10360.00           |                  | 2.78               |
| Chattahoochee | Main  | 723016.0 2374           | 10YR    | 899.15            | 899.02            | 884.20            | 0.09               | 0.00               | 236.25            |                 | 11460.00           |                  | 2.88               |
| Chattahoochee | Main  | 723016.0 2374           | 50YR    | 901.01            | 900.87            | 884.85            | 0.09               | 0.00               | 271.16            | 4.30            | 13588.56           | 0.14             | 3.07               |
| Chattahoochee | Main  | 723016.0 2374           | 100YR   | 901.58            | 901.43            | 885.05            | 0.09               | 0.00               | 355.24            | 8.66            | 14300.78           | 0.56             | 3.14               |
| Chattahoochee | Main  | 723016.0 2374           | 500YR   | 905.22            | 905.00            | 886.60            | 0.10               | 0.00               | 3311.79           | 79.86           | 20212.84           | 23.30            | 3.74               |
| Chattahoochee | Main  | 722465.4 cha_19800      | 2YR     | 897.96            | 897.82            | 883.90            | 0.46               | 0.00               | 203.12            |                 | 10360.00           |                  | 3.00               |
| Chattahoochee | Main  | 722465.4 cha_19800      | 10YR    | 899.06            | 898.91            | 884.25            | 0.46               | 0.00               | 206.45            |                 | 11460.00           |                  | 3.12               |
| Chattahoochee | Main  | 722465.4 cha_19800      | 50YR    | 900.92            | 900.75            | 884.87            | 0.48               | 0.00               | 574.24            |                 | 13593.00           |                  | 3.35               |
| Chattahoochee | Main  | 722465.4 cha_19800      | 100YR   | 901.49            | 901.31            | 885.08            | 0.48               | 0.00               | 852.01            |                 | 14310.00           |                  | 3.42               |
| Chattahoochee | Main  | 722465.4 cha_19800      | 500YR   | 905.11            | 904.85            | 886.66            | 0.52               | 0.00               | 2875.25           | 1.86            | 20252.04           | 62.09            | 4.08               |
| Chattahoochee | Main  | 719651.2 1734           | 2YR     | 897.49            | 897.32            | 884.20            | 0.43               | 0.00               | 219.39            |                 | 10360.00           | 0.00             | 3.32               |
| Chattahoochee | Main  | 719651.2 1734           | 10YR    | 898.60            | 898.42            | 884.57            | 0.42               | 0.00               | 244.45            | 0.09            | 11459.79           | 0.12             | 3.44               |
| Chattahoochee | Main  | 719651.2 1734           | 50YR    | 900.44            | 900.23            | 885.25            | 0.42               | 0.00               | 614.52            | 2.90            | 13588.71           | 1.39             | 3.68               |
| Chattahoochee | Main  | 719651.2 1734           | 100YR   | 901.00            | 900.78            | 885.47            | 0.43               | 0.00               | 993.83            | 4.95            | 14302.75           | 2.30             | 3.77               |
| Chattahoochee | Main  | 719651.2 1734           | 500YR   | 904.59            | 904.33            | 887.18            | 0.45               | 0.01               | 2757.07           | 43.69           | 18900.54           | 1371.77          | 4.21               |
| Chattahoochee | Main  | 717546.8 cha_19600      | 2YR     | 897.06            | 896.88            | 884.04            | 0.71               | 0.00               | 195.89            |                 | 10360.00           |                  | 3.48               |
| Chattahoochee | Main  | 717546.8 cha_19600      | 10YR    | 898.17            | 897.97            | 884.42            | 0.69               | 0.00               | 200.08            |                 | 11459.91           | 0.09             | 3.59               |
| Chattahoochee | Main  | 717546.8 cha_19600      | 50YR    | 900.02            | 899.79            | 885.10            | 0.68               | 0.00               | 589.34            | 0.09            | 13591.72           | 1.19             | 3.82               |
| Chattahoochee | Main  | 717546.8 cha_19600      | 100YR   | 900.57            | 900.34            | 885.31            | 0.68               | 0.00               | 743.97            | 0.49            | 14307.63           | 1.88             | 3.90               |
| Chattahoochee | Main  | 717546.8 cha_19600      | 500YR   | 904.13            | 903.80            | 887.07            | 0.67               | 0.03               | 2126.14           | 56.08           | 20247.32           | 12.60            | 4.64               |
| Chattahoochee | Main  | 714679.4 cha_19520      | 2YR     | 896.36            | 896.16            | 886.18            | 0.09               | 0.01               | 216.93            |                 | 10360.00           |                  | 3.58               |
| Chattahoochee | Main  | 714679.4 cha_19520      | 10YR    | 897.49            | 897.28            | 886.53            | 0.08               | 0.01               | 219.76            |                 | 11460.00           |                  | 3.65               |
| Chattahoochee | Main  | 714679.4 cha_19520      | 50YR    | 899.34            | 899.11            | 887.18            | 0.08               | 0.01               | 793.11            |                 | 13593.00           | 0.00             | 3.83               |
| Chattahoochee | Main  | 714679.4 cha_19520      | 100YR   | 899.90            | 899.66            | 887.38            | 0.08               | 0.02               | 1078.48           | 0.00            | 14307.72           | 2.28             | 3.90               |
| Chattahoochee | Main  | 714679.4 cha_19520      | 500YR   | 903.44            | 903.19            | 888.84            | 0.08               | 0.00               | 1914.69           | 7.88            | 18610.42           | 1697.70          | 4.17               |
| Chattahoochee | Main  | 714318.7                | 2YR     | 896.26            | 896.09            | 885.17            | 0.01               | 0.00               | 442.52            |                 | 9908.95            | 451.05           | 3.40               |
| Chattahoochee | Main  | 714318.7                | 10YR    | 897.39            | 897.22            | 885.52            | 0.01               | 0.00               | 479.65            |                 | 10817.14           | 642.86           | 3.43               |
| Chattahoochee | Main  | 714318.7                | 50YR    | 899.24            | 899.06            | 886.16            | 0.01               | 0.01               | 622.23            |                 | 12576.66           | 1016.34          | 3.55               |
| Chattahoochee | Main  | 714318.7                | 100YR   | 899.80            | 899.62            | 886.37            | 0.01               | 0.01               | 942.46            | 0.07            | 13169.36           | 1140.57          | 3.60               |
| Chattahoochee | Main  | 714318.7                | 500YR   | 903.36            | 903.12            | 888.00            | 0.01               | 0.01               | 1953.17           | 27.28           | 18148.89           | 2139.83          | 4.11               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | 2YR     | 896.24            | 896.07            | 885.03            | 0.01               | 0.00               | 242.18            |                 | 10360.00           |                  | 3.31               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | 10YR    | 897.37            | 897.19            | 885.37            | 0.01               | 0.00               | 250.84            |                 | 11460.00           |                  | 3.36               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | 50YR    | 899.22            | 899.03            | 886.01            | 0.01               | 0.00               | 283.06            |                 | 13585.92           | 7.09             | 3.50               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | 100YR   | 899.77            | 899.58            | 886.24            | 0.01               | 0.00               | 285.10            |                 | 14295.46           | 14.54            | 3.55               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | 500YR   | 903.32            | 903.06            | 887.84            | 0.01               | 0.00               | 289.79            |                 | 20215.40           | 100.60           | 4.09               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | 2YR     | 896.23            | 896.06            | 884.59            | 0.02               | 0.01               | 251.15            | 1.23            | 10358.77           |                  | 3.24               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | 10YR    | 897.35            | 897.19            | 884.94            | 0.02               | 0.01               | 263.33            | 9.74            | 11450.26           |                  | 3.30               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | 50YR    | 899.20            | 899.02            | 885.59            | 0.02               | 0.01               | 289.10            | 39.14           | 13546.76           | 7.10             | 3.46               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | 100YR   | 899.76            | 899.57            | 885.78            | 0.02               | 0.01               | 289.20            | 50.43           | 14245.27           | 14.30            | 3.51               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | 500YR   | 903.31            | 903.05            | 887.37            | 0.02               | 0.02               | 289.79            | 149.04          | 20069.03           | 97.93            | 4.08               |
| Chattahoochee | Main  | 714014.2                | 2YR     | 896.14            | 895.96            | 885.29            | 0.14               | 0.01               | 218.23            |                 | 10360.00           |                  | 3.39               |
| Chattahoochee | Main  | 714014.2                | 10YR    | 897.27            | 897.08            | 885.61            | 0.14               | 0.01               | 221.30            |                 | 11460.00           |                  | 3.47               |
| Chattahoochee | Main  | 714014.2                | 50YR    | 899.12            | 898.91            | 886.20            | 0.13               | 0.01               | 994.74            |                 | 13592.92           | 0.08             | 3.66               |
| Chattahoochee | Main  | 714014.2                | 100YR   | 899.67            | 899.46            | 886.38            | 0.13               | 0.01               | 1173.06           | 0.03            | 14308.69           | 1.28             | 3.73               |

HEC-RAS Plan: CE Locations: User Defined (Continued)

| River         | Reach | River Sta               | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Top Width<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Vel Chnl<br>(ft/s) |
|---------------|-------|-------------------------|---------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-----------------|--------------------|------------------|--------------------|
| Chattahoochee | Main  | 714014.2                | 500YR   | 903.22            | 902.92            | 887.89            | 0.15               | 0.02               | 2142.59           | 43.43           | 20162.06           | 110.52           | 4.37               |
| Chattahoochee | Main  | 713569.6 cha_19390      | 2YR     | 895.99            | 895.73            | 884.77            | 0.39               | 0.02               | 173.07            |                 | 10360.00           |                  | 4.10               |
| Chattahoochee | Main  | 713569.6 cha_19390      | 10YR    | 897.12            | 896.85            | 885.19            | 0.39               | 0.02               | 176.27            |                 | 11460.00           |                  | 4.21               |
| Chattahoochee | Main  | 713569.6 cha_19390      | 50YR    | 898.97            | 898.67            | 885.91            | 0.39               | 0.02               | 417.42            | 0.08            | 13592.46           | 0.46             | 4.46               |
| Chattahoochee | Main  | 713569.6 cha_19390      | 100YR   | 899.53            | 899.21            | 886.13            | 0.39               | 0.03               | 677.95            | 0.35            | 14308.22           | 1.43             | 4.55               |
| Chattahoochee | Main  | 713569.6 cha_19390      | 500YR   | 903.05            | 902.60            | 887.91            | 0.44               | 0.04               | 2301.84           | 19.61           | 20258.97           | 37.42            | 5.40               |
| Chattahoochee | Main  | 712195.4 cha_19300      | 2YR     | 895.57            | 895.39            | 882.37            | 0.44               | 0.00               | 197.53            | 2.66            | 10356.92           | 0.42             | 3.43               |
| Chattahoochee | Main  | 712195.4 cha_19300      | 10YR    | 896.71            | 896.52            | 882.76            | 0.43               | 0.00               | 201.19            | 6.40            | 11451.86           | 1.74             | 3.54               |
| Chattahoochee | Main  | 712195.4 cha_19300      | 50YR    | 898.56            | 898.34            | 883.50            | 0.45               | 0.00               | 397.37            | 17.59           | 13691.54           | 6.87             | 3.82               |
| Chattahoochee | Main  | 712195.4 cha_19300      | 100YR   | 899.12            | 898.88            | 883.71            | 0.45               | 0.00               | 651.57            | 22.40           | 14386.28           | 9.31             | 3.90               |
| Chattahoochee | Main  | 712195.4 cha_19300      | 500YR   | 902.58            | 902.25            | 885.39            | 0.45               | 0.03               | 1244.99           | 88.58           | 20009.70           | 113.72           | 4.62               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 2YR     | 895.13            | 894.95            | 881.81            | 0.36               | 0.01               | 227.59            |                 | 10350.67           | 9.33             | 3.34               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 10YR    | 896.28            | 896.09            | 882.19            | 0.35               | 0.01               | 356.70            |                 | 11440.22           | 19.78            | 3.46               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 50YR    | 898.11            | 897.90            | 882.93            | 0.36               | 0.01               | 803.61            | 0.42            | 13663.90           | 51.68            | 3.74               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 100YR   | 898.66            | 898.44            | 883.14            | 0.35               | 0.01               | 887.89            | 2.76            | 14349.32           | 65.93            | 3.82               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 500YR   | 902.10            | 901.88            | 884.73            | 0.32               | 0.01               | 1343.21           | 2295.55         | 17677.12           | 239.33           | 4.01               |
| Chattahoochee | Main  | 708330.8 1735           | 2YR     | 894.76            | 894.62            | 881.65            | 0.22               | 0.00               | 266.53            | 1.59            | 10357.20           | 1.21             | 3.07               |
| Chattahoochee | Main  | 708330.8 1735           | 10YR    | 895.92            | 895.77            | 882.00            | 0.21               | 0.00               | 289.63            | 4.62            | 11451.18           | 4.20             | 3.16               |
| Chattahoochee | Main  | 708330.8 1735           | 50YR    | 897.74            | 897.56            | 882.67            | 0.21               | 0.00               | 638.13            | 18.90           | 13683.52           | 13.58            | 3.41               |
| Chattahoochee | Main  | 708330.8 1735           | 100YR   | 898.30            | 898.12            | 882.87            | 0.21               | 0.00               | 832.86            | 209.96          | 14190.51           | 17.53            | 3.43               |
| Chattahoochee | Main  | 708330.8 1735           | 500YR   | 901.77            | 901.57            | 884.37            | 0.21               | 0.01               | 1270.18           | 1247.72         | 18222.94           | 741.34           | 3.74               |
| Chattahoochee | Main  | 707189.2 2375           | 2YR     | 894.54            | 894.38            | 881.44            | 0.15               | 0.01               | 221.17            | 1.31            | 10350.62           | 8.07             | 3.22               |
| Chattahoochee | Main  | 707189.2 2375           | 10YR    | 895.71            | 895.54            | 881.82            | 0.14               | 0.01               | 244.88            | 4.25            | 11434.88           | 20.87            | 3.31               |
| Chattahoochee | Main  | 707189.2 2375           | 50YR    | 897.53            | 897.33            | 882.53            | 0.15               | 0.01               | 472.32            | 30.95           | 13626.52           | 58.54            | 3.57               |
| Chattahoochee | Main  | 707189.2 2375           | 100YR   | 898.09            | 897.88            | 882.73            | 0.15               | 0.01               | 623.77            | 47.19           | 14291.74           | 79.07            | 3.64               |
| Chattahoochee | Main  | 707189.2 2375           | 500YR   | 901.55            | 901.28            | 884.38            | 0.16               | 0.01               | 829.42            | 219.10          | 19590.99           | 401.91           | 4.24               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 2YR     | 894.39            | 894.25            | 880.95            | 0.10               | 0.01               | 283.98            | 6.39            | 10350.74           | 2.87             | 3.01               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 10YR    | 895.56            | 895.41            | 881.29            | 0.10               | 0.01               | 328.99            | 13.76           | 11438.33           | 7.92             | 3.11               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 50YR    | 897.38            | 897.20            | 881.96            | 0.10               | 0.01               | 468.49            | 31.20           | 13662.67           | 22.13            | 3.37               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 100YR   | 897.93            | 897.75            | 882.16            | 0.10               | 0.01               | 582.90            | 42.51           | 14345.75           | 29.74            | 3.44               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 500YR   | 901.38            | 901.14            | 883.67            | 0.11               | 0.01               | 949.09            | 666.42          | 19352.34           | 193.24           | 3.96               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 2YR     | 894.28            | 894.12            | 881.75            | 0.01               | 0.01               | 274.00            | 85.49           | 10260.48           | 14.03            | 3.23               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 10YR    | 895.45            | 895.28            | 882.07            | 0.01               | 0.01               | 282.38            | 138.02          | 11295.68           | 26.30            | 3.32               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 50YR    | 897.27            | 897.07            | 882.76            | 0.01               | 0.01               | 453.52            | 231.86          | 13427.26           | 56.87            | 3.58               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 100YR   | 897.82            | 897.62            | 882.95            | 0.01               | 0.01               | 516.04            | 277.01          | 14071.83           | 69.16            | 3.64               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 500YR   | 901.25            | 900.98            | 884.49            | 0.02               | 0.02               | 971.36            | 654.29          | 19326.73           | 230.98           | 4.27               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 2YR     | 894.26            | 894.08            | 882.01            | 0.05               | 0.02               | 241.19            | 86.92           | 10253.47           | 19.61            | 3.46               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 10YR    | 895.44            | 895.24            | 882.35            | 0.05               | 0.02               | 245.94            | 137.18          | 11285.21           | 37.61            | 3.55               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 50YR    | 897.25            | 897.03            | 883.04            | 0.05               | 0.02               | 251.40            | 237.09          | 13392.92           | 86.00            | 3.82               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 100YR   | 897.80            | 897.57            | 883.25            | 0.05               | 0.02               | 251.52            | 271.63          | 14039.29           | 107.08           | 3.89               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 500YR   | 901.22            | 900.88            | 884.84            | 0.11               | 0.02               | 16.85             | 415.60          | 19474.62           | 321.78           | 4.73               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 2YR     | 894.20            | 893.95            | 883.39            | 0.01               | 0.01               | 219.06            | 5.34            | 10306.62           | 48.05            | 3.97               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 10YR    | 895.37            | 895.12            | 883.76            | 0.01               | 0.01               | 238.62            | 31.89           | 11335.22           | 92.88            | 4.05               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 50YR    | 897.18            | 896.90            | 884.46            | 0.01               | 0.01               | 251.39            | 117.53          | 13369.12           | 229.35           | 4.29               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 100YR   | 897.74            | 897.45            | 884.67            | 0.01               | 0.01               | 251.50            | 151.37          | 13972.53           | 294.10           | 4.35               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 500YR   | 901.09            | 900.71            | 886.28            | 0.02               | 0.02               | 49.47             | 297.47          | 18807.40           | 1107.13          | 5.07               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 2YR     | 894.17            | 893.95            | 883.23            | 0.22               | 0.00               | 231.06            | 2.81            | 10342.04           | 15.15            | 3.74               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 10YR    | 895.35            | 895.12            | 883.58            | 0.21               | 0.00               | 251.72            | 16.31           | 11414.91           | 28.78            | 3.83               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 50YR    | 897.16            | 896.90            | 884.27            | 0.21               | 0.00               | 405.79            | 58.54           | 13593.55           | 63.91            | 4.10               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 100YR   | 897.71            | 897.45            | 884.46            | 0.21               | 0.00               | 428.32            | 83.84           | 14238.10           | 96.07            | 4.16               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 500YR   | 901.06            | 900.71            | 886.01            | 0.22               | 0.01               | 676.93            | 329.04          | 19481.29           | 401.67           | 4.83               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 2YR     | 893.94            | 893.71            |                   | 0.50               | 0.02               | 202.23            |                 | 10360.00           |                  | 3.87               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 10YR    | 895.13            | 894.89            |                   | 0.47               | 0.02               | 206.91            |                 | 11460.00           |                  | 3.93               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 50YR    | 896.95            | 896.68            |                   | 0.47               | 0.02               | 260.59            | 0.47            | 13710.77           | 4.76             | 4.17               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 100YR   | 897.50            | 897.23            |                   | 0.47               | 0.02               | 377.92            | 1.09            | 14403.75           | 13.17            | 4.23               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 500YR   | 900.83            | 900.46            |                   | 0.51               | 0.03               | 1044.43           | 49.04           | 20027.50           | 135.46           | 4.91               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 2YR     | 893.42            | 893.26            | 881.19            | 0.38               | 0.00               | 247.88            | 0.03            | 10359.73           | 0.23             | 3.25               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 10YR    | 894.64            | 894.47            | 881.54            | 0.36               | 0.00               | 332.38            | 0.92            | 11457.73           | 1.35             | 3.33               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 50YR    | 896.46            | 896.26            | 882.21            | 0.37               | 0.00               | 586.45            | 6.34            | 13700.69           | 8.97             | 3.59               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 100YR   | 897.02            | 896.81            | 882.40            | 0.37               | 0.00               | 607.84            | 9.39            | 14391.33           | 17.28            | 3.66               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 500YR   | 900.29            | 900.00            | 883.87            | 0.42               | 0.00               | 1419.30           | 110.08          | 19914.60           | 187.32           | 4.33               |



## Bridge Output Table

Plan: CE Chattahoochee Main RS: 714229.6 Profile: 2YR

|                       |             |                        |              |              |
|-----------------------|-------------|------------------------|--------------|--------------|
| E.G. US. (ft)         | 896.25      | Element                | Inside BR US | Inside BR DS |
| W.S. US. (ft)         | 896.08      | E.G. Elev (ft)         | 896.24       | 896.23       |
| Q Total (cfs)         | 10360.00    | W.S. Elev (ft)         | 896.07       | 896.06       |
| Q Bridge (cfs)        | 10360.00    | Crit W.S. (ft)         | 885.03       | 884.59       |
| Q Weir (cfs)          |             | Max Chl Dpth (ft)      | 18.23        | 18.22        |
| Weir Sta Lft (ft)     |             | Vel Total (ft/s)       | 3.31         | 3.23         |
| Weir Sta Rgt (ft)     |             | Flow Area (sq ft)      | 3130.73      | 3206.87      |
| Weir Submerg          |             | Froude # Chl           | 0.16         | 0.16         |
| Weir Max Depth (ft)   |             | Specif Force (cu ft)   | 24554.58     | 25728.79     |
| Min EI Weir Flow (ft) | 904.39      | Hydr Depth (ft)        | 12.93        | 12.77        |
| Min EI Prs (ft)       | 905.01      | W.P. Total (ft)        | 335.99       | 345.23       |
| Delta EG (ft)         | 0.06        | Conv. Total (cfs)      | 588549.8     | 614858.8     |
| Delta WS (ft)         | 0.09        | Top Width (ft)         | 242.18       | 251.15       |
| BR Open Area (sq ft)  | 5418.70     | Frctn Loss (ft)        | 0.01         | 0.02         |
| BR Open Vel (ft/s)    | 3.31        | C & E Loss (ft)        | 0.00         | 0.01         |
| Coef of Q             |             | Shear Total (lb/sq ft) | 0.18         | 0.16         |
| Br Sel Method         | Energy only | Power Total (lb/ft s)  | 0.00         | 0.00         |

Plan: CE Chattahoochee Main RS: 714229.6 Profile: 10YR

|                       |             |                        |              |              |
|-----------------------|-------------|------------------------|--------------|--------------|
| E.G. US. (ft)         | 897.38      | Element                | Inside BR US | Inside BR DS |
| W.S. US. (ft)         | 897.20      | E.G. Elev (ft)         | 897.37       | 897.35       |
| Q Total (cfs)         | 11460.00    | W.S. Elev (ft)         | 897.19       | 897.19       |
| Q Bridge (cfs)        | 11460.00    | Crit W.S. (ft)         | 885.37       | 884.94       |
| Q Weir (cfs)          |             | Max Chl Dpth (ft)      | 19.35        | 19.35        |
| Weir Sta Lft (ft)     |             | Vel Total (ft/s)       | 3.36         | 3.28         |
| Weir Sta Rgt (ft)     |             | Flow Area (sq ft)      | 3407.27      | 3497.41      |
| Weir Submerg          |             | Froude # Chl           | 0.16         | 0.15         |
| Weir Max Depth (ft)   |             | Specif Force (cu ft)   | 28353.28     | 29619.86     |
| Min EI Weir Flow (ft) | 904.39      | Hydr Depth (ft)        | 13.58        | 13.28        |
| Min EI Prs (ft)       | 905.01      | W.P. Total (ft)        | 351.67       | 364.79       |
| Delta EG (ft)         | 0.06        | Conv. Total (cfs)      | 657429.0     | 688552.2     |
| Delta WS (ft)         | 0.09        | Top Width (ft)         | 250.84       | 263.33       |
| BR Open Area (sq ft)  | 5418.70     | Frctn Loss (ft)        | 0.01         | 0.02         |
| BR Open Vel (ft/s)    | 3.36        | C & E Loss (ft)        | 0.00         | 0.01         |
| Coef of Q             |             | Shear Total (lb/sq ft) | 0.18         | 0.17         |
| Br Sel Method         | Energy only | Power Total (lb/ft s)  | 0.00         | 0.00         |

Plan: CE Chattahoochee Main RS: 714229.6 Profile: 50YR

|                       |          |                      |              |              |
|-----------------------|----------|----------------------|--------------|--------------|
| E.G. US. (ft)         | 899.23   | Element              | Inside BR US | Inside BR DS |
| W.S. US. (ft)         | 899.03   | E.G. Elev (ft)       | 899.22       | 899.20       |
| Q Total (cfs)         | 13593.00 | W.S. Elev (ft)       | 899.03       | 899.02       |
| Q Bridge (cfs)        | 13593.00 | Crit W.S. (ft)       | 886.01       | 885.59       |
| Q Weir (cfs)          |          | Max Chl Dpth (ft)    | 21.19        | 21.18        |
| Weir Sta Lft (ft)     |          | Vel Total (ft/s)     | 3.49         | 3.39         |
| Weir Sta Rgt (ft)     |          | Flow Area (sq ft)    | 3900.14      | 4007.91      |
| Weir Submerg          |          | Froude # Chl         | 0.16         | 0.15         |
| Weir Max Depth (ft)   |          | Specif Force (cu ft) | 35321.97     | 36770.50     |
| Min EI Weir Flow (ft) | 904.39   | Hydr Depth (ft)      | 13.78        | 13.86        |
| Min EI Prs (ft)       | 905.01   | W.P. Total (ft)      | 396.02       | 404.18       |
| Delta EG (ft)         | 0.06     | Conv. Total (cfs)    | 785224.1     | 823683.0     |
| Delta WS (ft)         | 0.09     | Top Width (ft)       | 283.06       | 289.10       |
| BR Open Area (sq ft)  | 5418.70  | Frctn Loss (ft)      | 0.01         | 0.02         |
| BR Open Vel (ft/s)    | 3.49     | C & E Loss (ft)      | 0.00         | 0.01         |

Plan: CE Chattahoochee Main RS: 714229.6 Profile: 50YR (Continued)

|               |             |                        |      |      |
|---------------|-------------|------------------------|------|------|
| Coef of Q     |             | Shear Total (lb/sq ft) | 0.18 | 0.17 |
| Br Sel Method | Energy only | Power Total (lb/ft s)  | 0.00 | 0.00 |

Plan: CE Chattahoochee Main RS: 714229.6 Profile: 100YR

|                       |             |                        |              |              |
|-----------------------|-------------|------------------------|--------------|--------------|
| E.G. US. (ft)         | 899.79      | Element                | Inside BR US | Inside BR DS |
| W.S. US. (ft)         | 899.58      | E.G. Elev (ft)         | 899.77       | 899.76       |
| Q Total (cfs)         | 14310.00    | W.S. Elev (ft)         | 899.58       | 899.57       |
| Q Bridge (cfs)        | 14310.00    | Crit W.S. (ft)         | 886.24       | 885.78       |
| Q Weir (cfs)          |             | Max Chl Dpth (ft)      | 21.74        | 21.73        |
| Weir Sta Lft (ft)     |             | Vel Total (ft/s)       | 3.53         | 3.43         |
| Weir Sta Rgt (ft)     |             | Flow Area (sq ft)      | 4056.50      | 4166.99      |
| Weir Submerg          |             | Froude # Chl           | 0.16         | 0.15         |
| Weir Max Depth (ft)   |             | Specif Force (cu ft)   | 37611.66     | 39119.84     |
| Min EI Weir Flow (ft) | 904.39      | Hydr Depth (ft)        | 14.23        | 14.41        |
| Min EI Prs (ft)       | 905.01      | W.P. Total (ft)        | 401.94       | 408.59       |
| Delta EG (ft)         | 0.06        | Conv. Total (cfs)      | 826853.4     | 867274.8     |
| Delta WS (ft)         | 0.09        | Top Width (ft)         | 285.10       | 289.20       |
| BR Open Area (sq ft)  | 5418.70     | Frctn Loss (ft)        | 0.01         | 0.02         |
| BR Open Vel (ft/s)    | 3.53        | C & E Loss (ft)        | 0.00         | 0.01         |
| Coef of Q             |             | Shear Total (lb/sq ft) | 0.19         | 0.17         |
| Br Sel Method         | Energy only | Power Total (lb/ft s)  | 0.00         | 0.00         |

Plan: CE Chattahoochee Main RS: 714229.6 Profile: 500YR

|                       |             |                        |              |              |
|-----------------------|-------------|------------------------|--------------|--------------|
| E.G. US. (ft)         | 903.34      | Element                | Inside BR US | Inside BR DS |
| W.S. US. (ft)         | 903.07      | E.G. Elev (ft)         | 903.32       | 903.31       |
| Q Total (cfs)         | 20316.00    | W.S. Elev (ft)         | 903.06       | 903.05       |
| Q Bridge (cfs)        | 20316.00    | Crit W.S. (ft)         | 887.84       | 887.37       |
| Q Weir (cfs)          |             | Max Chl Dpth (ft)      | 25.22        | 25.21        |
| Weir Sta Lft (ft)     |             | Vel Total (ft/s)       | 4.01         | 3.93         |
| Weir Sta Rgt (ft)     |             | Flow Area (sq ft)      | 5063.79      | 5175.79      |
| Weir Submerg          |             | Froude # Chl           | 0.17         | 0.16         |
| Weir Max Depth (ft)   |             | Specif Force (cu ft)   | 54501.05     | 56395.93     |
| Min EI Weir Flow (ft) | 904.39      | Hydr Depth (ft)        | 17.47        | 17.86        |
| Min EI Prs (ft)       | 905.01      | W.P. Total (ft)        | 433.06       | 436.49       |
| Delta EG (ft)         | 0.07        | Conv. Total (cfs)      | 1119227.0    | 1158762.0    |
| Delta WS (ft)         | 0.11        | Top Width (ft)         | 289.79       | 289.79       |
| BR Open Area (sq ft)  | 5418.70     | Frctn Loss (ft)        | 0.01         | 0.02         |
| BR Open Vel (ft/s)    | 4.01        | C & E Loss (ft)        | 0.00         | 0.02         |
| Coef of Q             |             | Shear Total (lb/sq ft) | 0.24         | 0.23         |
| Br Sel Method         | Energy only | Power Total (lb/ft s)  | 0.00         | 0.00         |

## Cross Section Output Table

Plan: CE Chattahoochee Main RS: 714229.6BR U Profile: 2YR

|                    |          |                        |         |          |          |
|--------------------|----------|------------------------|---------|----------|----------|
| E.G. Elev (ft)     | 896.24   | Element                | Left OB | Channel  | Right OB |
| Vel Head (ft)      | 0.17     | Wt. n-Val.             |         | 0.035    |          |
| W.S. Elev (ft)     | 896.07   | Reach Len. (ft)        | 37.00   | 37.00    | 37.00    |
| Crit W.S. (ft)     | 885.03   | Flow Area (sq ft)      |         | 3130.73  |          |
| E.G. Slope (ft/ft) | 0.000310 | Area (sq ft)           |         | 3130.73  |          |
| Q Total (cfs)      | 10360.00 | Flow (cfs)             |         | 10360.00 |          |
| Top Width (ft)     | 242.18   | Top Width (ft)         |         | 242.18   |          |
| Vel Total (ft/s)   | 3.31     | Avg. Vel. (ft/s)       |         | 3.31     |          |
| Max Chl Dpth (ft)  | 18.23    | Hydr. Depth (ft)       |         | 12.93    |          |
| Conv. Total (cfs)  | 588549.8 | Conv. (cfs)            |         | 588549.8 |          |
| Length Wtd. (ft)   | 37.00    | Wetted Per. (ft)       |         | 335.99   |          |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       |         | 0.18     |          |
| Alpha              | 1.00     | Stream Power (lb/ft s) | 3552.25 | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.01     | Cum Volume (acre-ft)   | 9563.64 | 51952.14 | 8228.86  |
| C & E Loss (ft)    | 0.00     | Cum SA (acres)         | 2634.09 | 3314.92  | 2696.01  |

Plan: CE Chattahoochee Main RS: 714229.6BR U Profile: 10YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 897.37   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.18     | Wt. n-Val.             |          | 0.035    |          |
| W.S. Elev (ft)     | 897.19   | Reach Len. (ft)        | 37.00    | 37.00    | 37.00    |
| Crit W.S. (ft)     | 885.37   | Flow Area (sq ft)      |          | 3407.27  |          |
| E.G. Slope (ft/ft) | 0.000304 | Area (sq ft)           |          | 3407.27  |          |
| Q Total (cfs)      | 11460.00 | Flow (cfs)             |          | 11460.00 |          |
| Top Width (ft)     | 250.84   | Top Width (ft)         |          | 250.84   |          |
| Vel Total (ft/s)   | 3.36     | Avg. Vel. (ft/s)       |          | 3.36     |          |
| Max Chl Dpth (ft)  | 19.35    | Hydr. Depth (ft)       |          | 13.58    |          |
| Conv. Total (cfs)  | 657429.0 | Conv. (cfs)            |          | 657429.0 |          |
| Length Wtd. (ft)   | 37.00    | Wetted Per. (ft)       |          | 351.67   |          |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       |          | 0.18     |          |
| Alpha              | 1.00     | Stream Power (lb/ft s) | 3552.25  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.01     | Cum Volume (acre-ft)   | 26819.03 | 65489.42 | 26149.73 |
| C & E Loss (ft)    | 0.00     | Cum SA (acres)         | 4294.49  | 3350.26  | 4642.01  |

Plan: CE Chattahoochee Main RS: 714229.6BR U Profile: 50YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 899.22   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.19     | Wt. n-Val.             |          | 0.035    | 0.080    |
| W.S. Elev (ft)     | 899.03   | Reach Len. (ft)        | 37.00    | 37.00    | 37.00    |
| Crit W.S. (ft)     | 886.01   | Flow Area (sq ft)      |          | 3877.52  | 22.62    |
| E.G. Slope (ft/ft) | 0.000300 | Area (sq ft)           |          | 3877.52  | 22.62    |
| Q Total (cfs)      | 13593.00 | Flow (cfs)             |          | 13585.92 | 7.09     |
| Top Width (ft)     | 283.06   | Top Width (ft)         |          | 260.33   | 22.73    |
| Vel Total (ft/s)   | 3.49     | Avg. Vel. (ft/s)       |          | 3.50     | 0.31     |
| Max Chl Dpth (ft)  | 21.19    | Hydr. Depth (ft)       |          | 14.89    | 1.00     |
| Conv. Total (cfs)  | 785224.1 | Conv. (cfs)            |          | 784814.8 | 409.3    |
| Length Wtd. (ft)   | 37.00    | Wetted Per. (ft)       |          | 372.50   | 23.52    |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       |          | 0.19     | 0.02     |
| Alpha              | 1.01     | Stream Power (lb/ft s) | 3552.25  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.01     | Cum Volume (acre-ft)   | 41522.90 | 74720.86 | 42465.36 |
| C & E Loss (ft)    | 0.00     | Cum SA (acres)         | 4946.01  | 3354.78  | 5685.50  |

Plan: CE Chattahoochee Main RS: 714229.6BR U Profile: 100YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 899.77   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.20     | Wt. n-Val.             |          | 0.035    | 0.080    |
| W.S. Elev (ft)     | 899.58   | Reach Len. (ft)        | 37.00    | 37.00    | 37.00    |
| Crit W.S. (ft)     | 886.24   | Flow Area (sq ft)      |          | 4021.36  | 35.14    |
| E.G. Slope (ft/ft) | 0.000300 | Area (sq ft)           |          | 4021.36  | 35.14    |
| Q Total (cfs)      | 14310.00 | Flow (cfs)             |          | 14295.46 | 14.54    |
| Top Width (ft)     | 285.10   | Top Width (ft)         |          | 262.33   | 22.78    |
| Vel Total (ft/s)   | 3.53     | Avg. Vel. (ft/s)       |          | 3.55     | 0.41     |
| Max Chl Dpth (ft)  | 21.74    | Hydr. Depth (ft)       |          | 15.33    | 1.54     |
| Conv. Total (cfs)  | 826853.4 | Conv. (cfs)            |          | 826013.4 | 840.0    |
| Length Wtd. (ft)   | 37.00    | Wetted Per. (ft)       |          | 377.87   | 24.07    |
| Min Ch El (ft)     | 877.84   | Shear (lb/sq ft)       |          | 0.20     | 0.03     |
| Alpha              | 1.01     | Stream Power (lb/ft s) | 3552.25  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.01     | Cum Volume (acre-ft)   | 47663.58 | 78254.97 | 49472.77 |
| C & E Loss (ft)    | 0.00     | Cum SA (acres)         | 5184.25  | 3354.86  | 6037.24  |

Plan: CE Chattahoochee Main RS: 714229.6BR U Profile: 500YR

|                    |           |                        |          |           |          |
|--------------------|-----------|------------------------|----------|-----------|----------|
| E.G. Elev (ft)     | 903.32    | Element                | Left OB  | Channel   | Right OB |
| Vel Head (ft)      | 0.26      | Wt. n-Val.             |          | 0.035     | 0.080    |
| W.S. Elev (ft)     | 903.06    | Reach Len. (ft)        | 37.00    | 37.00     | 37.00    |
| Crit W.S. (ft)     | 887.84    | Flow Area (sq ft)      |          | 4948.69   | 115.10   |
| E.G. Slope (ft/ft) | 0.000329  | Area (sq ft)           |          | 4948.69   | 115.10   |
| Q Total (cfs)      | 20316.00  | Flow (cfs)             |          | 20215.40  | 100.60   |
| Top Width (ft)     | 289.79    | Top Width (ft)         |          | 266.72    | 23.07    |
| Vel Total (ft/s)   | 4.01      | Avg. Vel. (ft/s)       |          | 4.09      | 0.87     |
| Max Chl Dpth (ft)  | 25.22     | Hydr. Depth (ft)       |          | 18.55     | 4.99     |
| Conv. Total (cfs)  | 1119227.0 | Conv. (cfs)            |          | 1113685.0 | 5542.3   |
| Length Wtd. (ft)   | 37.00     | Wetted Per. (ft)       |          | 405.48    | 27.57    |
| Min Ch El (ft)     | 877.84    | Shear (lb/sq ft)       |          | 0.25      | 0.09     |
| Alpha              | 1.03      | Stream Power (lb/ft s) | 3552.25  | 0.00      | 0.00     |
| Frctn Loss (ft)    | 0.01      | Cum Volume (acre-ft)   | 62858.89 | 86413.34  | 66700.48 |
| C & E Loss (ft)    | 0.00      | Cum SA (acres)         | 5835.97  | 3350.29   | 6701.32  |

Plan: CE Chattahoochee Main RS: 714229.6BR D Profile: 2YR

|                    |          |                        |         |          |          |
|--------------------|----------|------------------------|---------|----------|----------|
| E.G. Elev (ft)     | 896.23   | Element                | Left OB | Channel  | Right OB |
| Vel Head (ft)      | 0.16     | Wt. n-Val.             | 0.080   | 0.035    |          |
| W.S. Elev (ft)     | 896.06   | Reach Len. (ft)        | 55.90   | 55.90    | 55.90    |
| Crit W.S. (ft)     | 884.59   | Flow Area (sq ft)      | 6.27    | 3200.59  |          |
| E.G. Slope (ft/ft) | 0.000284 | Area (sq ft)           | 6.27    | 3200.59  |          |
| Q Total (cfs)      | 10360.00 | Flow (cfs)             | 1.23    | 10358.77 |          |
| Top Width (ft)     | 251.15   | Top Width (ft)         | 12.63   | 238.52   |          |
| Vel Total (ft/s)   | 3.23     | Avg. Vel. (ft/s)       | 0.20    | 3.24     |          |
| Max Chl Dpth (ft)  | 18.22    | Hydr. Depth (ft)       | 0.50    | 13.42    |          |
| Conv. Total (cfs)  | 614858.8 | Conv. (cfs)            | 73.0    | 614785.9 |          |
| Length Wtd. (ft)   | 55.90    | Wetted Per. (ft)       | 12.67   | 332.57   |          |
| Min Ch El (ft)     | 877.84   | Shear (lb/sq ft)       | 0.01    | 0.17     |          |
| Alpha              | 1.00     | Stream Power (lb/ft s) | 3465.10 | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.02     | Cum Volume (acre-ft)   | 9563.64 | 51949.46 | 8228.86  |
| C & E Loss (ft)    | 0.01     | Cum SA (acres)         | 2634.08 | 3314.72  | 2696.01  |

Plan: CE Chattahoochee Main RS: 714229.6BR D Profile: 10YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 897.35   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.17     | Wt. n-Val.             | 0.080    | 0.035    |          |
| W.S. Elev (ft)     | 897.19   | Reach Len. (ft)        | 55.90    | 55.90    | 55.90    |
| Crit W.S. (ft)     | 884.94   | Flow Area (sq ft)      | 26.67    | 3470.73  |          |
| E.G. Slope (ft/ft) | 0.000277 | Area (sq ft)           | 26.67    | 3470.73  |          |
| Q Total (cfs)      | 11460.00 | Flow (cfs)             | 9.74     | 11450.26 |          |
| Top Width (ft)     | 263.33   | Top Width (ft)         | 20.22    | 243.12   |          |
| Vel Total (ft/s)   | 3.28     | Avg. Vel. (ft/s)       | 0.37     | 3.30     |          |
| Max Chl Dpth (ft)  | 19.35    | Hydr. Depth (ft)       | 1.32     | 14.28    |          |
| Conv. Total (cfs)  | 688552.2 | Conv. (cfs)            | 585.5    | 687966.8 |          |
| Length Wtd. (ft)   | 55.90    | Wetted Per. (ft)       | 20.76    | 344.03   |          |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       | 0.02     | 0.17     |          |
| Alpha              | 1.01     | Stream Power (lb/ft s) | 3465.10  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.02     | Cum Volume (acre-ft)   | 26819.02 | 65486.50 | 26149.73 |
| C & E Loss (ft)    | 0.01     | Cum SA (acres)         | 4294.48  | 3350.05  | 4642.01  |

Plan: CE Chattahoochee Main RS: 714229.6BR D Profile: 50YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 899.20   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.18     | Wt. n-Val.             | 0.080    | 0.035    | 0.080    |
| W.S. Elev (ft)     | 899.02   | Reach Len. (ft)        | 55.90    | 55.90    | 55.90    |
| Crit W.S. (ft)     | 885.59   | Flow Area (sq ft)      | 63.88    | 3920.70  | 23.33    |
| E.G. Slope (ft/ft) | 0.000272 | Area (sq ft)           | 63.88    | 3920.70  | 23.33    |
| Q Total (cfs)      | 13593.00 | Flow (cfs)             | 39.14    | 13546.76 | 7.10     |
| Top Width (ft)     | 289.10   | Top Width (ft)         | 20.37    | 246.00   | 22.73    |
| Vel Total (ft/s)   | 3.39     | Avg. Vel. (ft/s)       | 0.61     | 3.46     | 0.30     |
| Max Chl Dpth (ft)  | 21.18    | Hydr. Depth (ft)       | 3.14     | 15.94    | 1.03     |
| Conv. Total (cfs)  | 823683.0 | Conv. (cfs)            | 2371.6   | 820881.2 | 430.3    |
| Length Wtd. (ft)   | 55.90    | Wetted Per. (ft)       | 22.60    | 358.00   | 23.58    |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       | 0.05     | 0.19     | 0.02     |
| Alpha              | 1.03     | Stream Power (lb/ft s) | 3465.10  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.02     | Cum Volume (acre-ft)   | 41522.88 | 74717.55 | 42465.34 |
| C & E Loss (ft)    | 0.01     | Cum SA (acres)         | 4946.00  | 3354.57  | 5685.48  |

Plan: CE Chattahoochee Main RS: 714229.6BR D Profile: 100YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 899.76   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.19     | Wt. n-Val.             | 0.080    | 0.035    | 0.080    |
| W.S. Elev (ft)     | 899.57   | Reach Len. (ft)        | 55.90    | 55.90    | 55.90    |
| Crit W.S. (ft)     | 885.78   | Flow Area (sq ft)      | 75.10    | 4056.04  | 35.85    |
| E.G. Slope (ft/ft) | 0.000272 | Area (sq ft)           | 75.10    | 4056.04  | 35.85    |
| Q Total (cfs)      | 14310.00 | Flow (cfs)             | 50.43    | 14245.27 | 14.30    |
| Top Width (ft)     | 289.20   | Top Width (ft)         | 20.42    | 246.00   | 22.78    |
| Vel Total (ft/s)   | 3.43     | Avg. Vel. (ft/s)       | 0.67     | 3.51     | 0.40     |
| Max Chl Dpth (ft)  | 21.73    | Hydr. Depth (ft)       | 3.68     | 16.49    | 1.57     |
| Conv. Total (cfs)  | 867274.8 | Conv. (cfs)            | 3056.2   | 863351.6 | 866.9    |
| Length Wtd. (ft)   | 55.90    | Wetted Per. (ft)       | 23.16    | 361.30   | 24.14    |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       | 0.06     | 0.19     | 0.03     |
| Alpha              | 1.04     | Stream Power (lb/ft s) | 3465.10  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.02     | Cum Volume (acre-ft)   | 47663.55 | 78251.54 | 49472.74 |
| C & E Loss (ft)    | 0.01     | Cum SA (acres)         | 5184.24  | 3354.65  | 6037.22  |



Plan: CE Chattahoochee Main RS: 714229.6BR D Profile: 500YR

|                    |           |                        |          |           |          |
|--------------------|-----------|------------------------|----------|-----------|----------|
| E.G. Elev (ft)     | 903.31    | Element                | Left OB  | Channel   | Right OB |
| Vel Head (ft)      | 0.26      | Wt. n-Val.             | 0.080    | 0.035     | 0.080    |
| W.S. Elev (ft)     | 903.05    | Reach Len. (ft)        | 55.90    | 55.90     | 55.90    |
| Crit W.S. (ft)     | 887.37    | Flow Area (sq ft)      | 146.77   | 4913.29   | 115.74   |
| E.G. Slope (ft/ft) | 0.000307  | Area (sq ft)           | 146.77   | 4913.29   | 115.74   |
| Q Total (cfs)      | 20316.00  | Flow (cfs)             | 149.04   | 20069.03  | 97.93    |
| Top Width (ft)     | 289.79    | Top Width (ft)         | 20.71    | 246.00    | 23.07    |
| Vel Total (ft/s)   | 3.93      | Avg. Vel. (ft/s)       | 1.02     | 4.08      | 0.85     |
| Max Chl Dpth (ft)  | 25.21     | Hydr. Depth (ft)       | 7.09     | 19.97     | 5.02     |
| Conv. Total (cfs)  | 1158762.0 | Conv. (cfs)            | 8500.9   | 1144676.0 | 5585.4   |
| Length Wtd. (ft)   | 55.90     | Wetted Per. (ft)       | 26.65    | 382.21    | 27.63    |
| Min Ch El (ft)     | 877.84    | Shear (lb/sq ft)       | 0.11     | 0.25      | 0.08     |
| Alpha              | 1.07      | Stream Power (lb/ft s) | 3465.10  | 0.00      | 0.00     |
| Frctn Loss (ft)    | 0.02      | Cum Volume (acre-ft)   | 62858.83 | 86409.16  | 66700.38 |
| C & E Loss (ft)    | 0.02      | Cum SA (acres)         | 5835.96  | 3350.07   | 6701.30  |

HEC-RAS Version 4.1.0 Jan 2010  
 U.S. Army Corps of Engineers  
 Hydrologic Engineering Center  
 609 Second Street  
 Davis, California

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X   X   XXXXXX   XXXX   XXXX   XX   XXXX
X   X   X       X   X   X   X   X   X
X   X   X       X   X   X   X   X   X
XXXXXXX XXXX   X   XXX XXXX XXXXXX XXXX
X   X   X       X   X   X   X   X   X
X   X   X       X   X   X   X   X   X
X   X   XXXXXX   XXXX   X   X   X   X   XXXXX

```

## PROJECT DATA

Project Title: Chattahoochee-CALYX  
 Project File : Chattahoochee-CALYX.prj  
 Run Date and Time: 1/3/2017 3:15:31 PM

Project in English units

## Project Description:

Georgia Department of Natural Resources, Chattahoochee River Detailed  
 Hydraulics Study, May 2011, Submitted By Dewberry.

## PLAN DATA

Plan Title: Corrected Effective

Plan File : f:\Project\2013\2013026-00\WR\Hydraulics\Applications\Chattahoochee-CALYX.p02

Geometry Title: Corrected Effective

Geometry File : f:\Project\2013\2013026-00\WR\Hydraulics\Applications\Chattahoochee-CALYX.g02

Flow Title : MultiProfile Flows

Flow File : f:\Project\2013\2013026-00\WR\Hydraulics\Applications\Chattahoochee-CALYX.f06

## Plan Summary Information:

|            |                  |     |                      |   |
|------------|------------------|-----|----------------------|---|
| Number of: | Cross Sections = | 430 | Multiple Openings =  | 0 |
|            | Culverts =       | 0   | Inline Structures =  | 2 |
|            | Bridges =        | 31  | Lateral Structures = | 0 |

## Computational Information

|                                        |       |
|----------------------------------------|-------|
| Water surface calculation tolerance =  | 0.01  |
| Critical depth calculation tolerance = | 0.01  |
| Maximum number of iterations =         | 20    |
| Maximum difference tolerance =         | 0.3   |
| Flow tolerance factor =                | 0.001 |

## Computation Options

Critical depth computed only where necessary  
 Conveyance Calculation Method: At breaks in n values only  
 Friction Slope Method: Average Conveyance  
 Computational Flow Regime: Subcritical Flow

## FLOW DATA

Flow Title: MultiProfile Flows

Flow File : f:\Project\2013\2013026-00\WR\Hydraulics\Applications\Chattahoochee-CALYX.f06

## Flow Data (cfs)

| River         | Reach | RS       | 2YR   | 5YR     | 10YR    | 25YR    | 50YR    | 100YR   |
|---------------|-------|----------|-------|---------|---------|---------|---------|---------|
| Chattahoochee | Main  | 780524.1 | 10360 | 11080   | 11460   | 11850   | 12000   | 12000   |
| 12000         | Main  | 752673.8 | 10360 | 11080   | 11460   | 11850   | 12000   | 12000   |
| 13752         | Main  | 727178.7 | 10360 | 11080   | 11460   | 11850   | 13593   | 14310   |
| 20316         | Main  | 712195.4 | 10360 | 11080   | 11460   | 11850   | 13716   | 14418   |
| 20212         | Main  | 682806.7 | 10748 | 12485   | 13645   | 14735   | 16065   | 17784   |
| 23123         | Main  | 681565.7 | 10840 | 12815   | 14012   | 15414   | 17344   | 18576   |
| 23808         | Main  | 679833.1 | 10931 | 13146   | 14499   | 16093   | 18035   | 19368   |
| 24493         | Main  | 668687.7 | 11022 | 13476   | 14985   | 16772   | 18726   | 20159.4 |
| 25177         | Main  | 666134.9 | 11274 | 14385   | 16321   | 18639   | 20626   | 22337   |
| 27061         | Main  | 662039.3 | 11365 | 14715   | 16908   | 19318   | 21317.4 | 23129.1 |
| 27745.7       | Main  | 637876.7 | 11502 | 15211   | 17537   | 20336   | 22354   | 24317   |
| 28773         | Main  | 630217.3 | 11654 | 15425.9 | 17794   | 20647.8 | 22707.5 | 24713.4 |
| 29276         | Main  | 621564.0 | 13431 | 17933.3 | 20794   | 24285   | 26831.9 | 29337.6 |
| 35144.1       | Main  | 614289.1 | 13844 | 18506.4 | 21478.2 | 25116.3 | 27774.6 | 30394.5 |
| 36485.4       | Main  | 604484.2 | 14040 | 18793   | 21822   | 25532   | 28246   | 30923   |
| 37156         |       |          |       |         |         |         |         |         |

| Chattahoochee-CALYX.rep |      |          |       |       |       |       |       |       |
|-------------------------|------|----------|-------|-------|-------|-------|-------|-------|
| Chattahoochee<br>37398  | Main | 595066.7 | 14113 | 18896 | 21946 | 25682 | 28416 | 31114 |
| Chattahoochee<br>37398  | Main | 593632.2 | 14113 | 18896 | 21946 | 25682 | 28416 | 31114 |
| Chattahoochee<br>40045  | Main | 572761.5 | 14915 | 20027 | 23299 | 27322 | 30277 | 33200 |
| Chattahoochee<br>41494  | Main | 551018.5 | 15354 | 20646 | 24040 | 28221 | 31295 | 34342 |
| Chattahoochee<br>48006  | Main | 530580.5 | 17325 | 23428 | 27368 | 32256 | 35872 | 39474 |
| Chattahoochee<br>48797  | Main | 511960.5 | 17565 | 23766 | 27773 | 32747 | 36429 | 40098 |
| Chattahoochee<br>51043  | Main | 502936.7 | 18244 | 24725 | 28921 | 34138 | 38007 | 41867 |
| Chattahoochee<br>52908  | Main | 480744.7 | 18809 | 25522 | 29874 | 35294 | 39318 | 43337 |
| Chattahoochee<br>63657  | Main | 464225.5 | 22063 | 30115 | 35369 | 41956 | 46873 | 51809 |
| Chattahoochee<br>65309  | Main | 437411.8 | 22563 | 30820 | 36214 | 42980 | 48034 | 53111 |
| Chattahoochee<br>66466  | Main | 432926.8 | 22914 | 31315 | 36806 | 43697 | 48848 | 54023 |
| Chattahoochee<br>69086  | Main | 425572.0 | 23707 | 32434 | 38145 | 45321 | 50688 | 56087 |
| Chattahoochee<br>70193  | Main | 389642.7 | 24042 | 32907 | 38711 | 46007 | 51467 | 56960 |
| Chattahoochee<br>73537  | Main | 382095.1 | 25054 | 34335 | 40420 | 48079 | 53817 | 59595 |
| Chattahoochee<br>74860  | Main | 348509.2 | 25455 | 34901 | 41096 | 48899 | 54747 | 60637 |
| Chattahoochee<br>76399  | Main | 318756.9 | 25921 | 35558 | 41883 | 49853 | 55829 | 61851 |
| Chattahoochee<br>79342  | Main | 315739.0 | 26812 | 36815 | 43387 | 51677 | 57897 | 64170 |
| Chattahoochee<br>82143  | Main | 283380.4 | 27660 | 38012 | 44820 | 53413 | 59866 | 66378 |

#### Boundary Conditions

| River         | Reach | Profile | Upstream | Downstream          |
|---------------|-------|---------|----------|---------------------|
| Chattahoochee | Main  | 2YR     |          | Normal S = 0.001001 |
| Chattahoochee | Main  | 5YR     |          | Normal S = 0.001001 |
| Chattahoochee | Main  | 10YR    |          | Normal S = 0.001001 |
| Chattahoochee | Main  | 25YR    |          | Normal S = 0.001001 |
| Chattahoochee | Main  | 50YR    |          | Normal S = 0.001001 |
| Chattahoochee | Main  | 100YR   |          | Normal S = 0.001001 |
| Chattahoochee | Main  | 500YR   |          | Normal S = 0.001001 |

#### Changes in WS and EG

| River         | Reach | RS            | Profile  | Type  | Value |
|---------------|-------|---------------|----------|-------|-------|
| Chattahoochee | Main  | 595129.0500YR | Known WS | 854.2 |       |
| Chattahoochee | Main  | 595129.0100YR | Known WS | 854.2 |       |
| Chattahoochee | Main  | 595129.050YR  | Known WS | 854.2 |       |
| Chattahoochee | Main  | 595129.025YR  | Known WS | 854.2 |       |
| Chattahoochee | Main  | 595129.010YR  | Known WS | 854.2 |       |
| Chattahoochee | Main  | 595129.05YR   | Known WS | 854.2 |       |
| Chattahoochee | Main  | 595129.02YR   | Known WS | 854.2 |       |

#### SUMMARY OF MANNING'S N VALUES

River:Chattahoochee

| n11  | Reach<br>n12 | River Sta.<br>n13 | n14 | n1<br>n15 | n2<br>n16 | n3<br>n17 | n4<br>n18 | n5<br>n19 | n6   | n7   | n8    | n9 | n10 |
|------|--------------|-------------------|-----|-----------|-----------|-----------|-----------|-----------|------|------|-------|----|-----|
| Main |              | 757224.6          |     | .1        | .06       | .12       | .04       | .1        | .06  | .2   |       |    |     |
| Main |              | 755410.3          |     | .12       | .06       | .12       | .0424     | .1        |      |      |       |    |     |
| Main |              | 754547.9          |     | .1        | .15       | .0472     | .125      |           |      |      |       |    |     |
| Main |              | 752673.8          |     | .12       | .044      | .125      |           |           |      |      |       |    |     |
| Main |              | 751868.0          |     | .15       | .048      | .125      | .06       | .2        | .075 | .06  | .2    |    |     |
| Main |              | 749433.3          |     | .125      | .15       | .06       | .1        | .15       | .06  | .15  | .0424 | .1 | .06 |
| Main | .15          | 747909.1          |     | .08       | .15       | .06       | .05       | .1        | .08  | .15  | .0416 | .1 | .07 |
| Main | .2           | 744817.8          |     | .125      | .15       | .0368     | .075      |           |      |      |       |    |     |
| Main |              | 741431.5          |     | .125      | .08       | .15       | .07       | .15       | .048 | .075 |       |    |     |
| Main |              | 741238.0          |     | .125      | .15       | .08       | .15       | .0472     | .075 |      |       |    |     |
| Main |              | 740971.6          |     | .125      | .08       | .15       | .0472     | .1        |      |      |       |    |     |
| Main |              | 739439.5          |     | .125      | .1        | .0384     | .12       | .06       |      |      |       |    |     |
| Main |              | 739094.9          |     | .125      | .0384     | .125      | .06       |           |      |      |       |    |     |
| Main |              | 739022.1          |     | Bridge    |           |           |           |           |      |      |       |    |     |
| Main |              | 738953.3          |     | .125      | .04       | .0875     | .15       | .06       |      |      |       |    |     |
| Main |              | 738645.7          |     | .12       | .04       | .0875     | .06       | .2        | .06  |      |       |    |     |

| Chattahoochee-CALYX.rep |     |          |          |       |       |       |       |       |       |       |       |
|-------------------------|-----|----------|----------|-------|-------|-------|-------|-------|-------|-------|-------|
| Main                    |     | 735717.3 | .1       | .06   | .05   | .06   | .2    | .06   | .05   | .06   | .2    |
| .06                     | .04 | .06      | .0875    | .15   | .08   | .05   | .2    | .05   |       |       |       |
| Main                    |     | 733190.2 | .1       | .0588 | .0418 | .0875 | .2    |       |       |       |       |
| Main                    |     | 730384.4 | .1       | .06   | .05   | .2    | .06   | .08   | .0675 | .0432 | .0875 |
| .15                     | .2  | 727178.7 | .1       | .08   | .15   | .08   | .15   | .0675 | .0432 | .0675 | .0875 |
| Main                    |     | 724525.6 | .1       | .06   | .15   | .06   | .1    | .0432 | .0875 | .06   | .1    |
| .15                     | .06 | 723016.0 | .1       | .1    | .0588 | .0424 | .0588 | .0875 |       |       | .075  |
| Main                    |     | 722465.4 | .1       | .2    | .075  | .2    | .06   | .12   | .07   | .0376 | .0875 |
| .1                      |     | 719651.2 | .1       | .0638 | .0376 | .0638 | .0875 | .2    |       |       | .06   |
| Main                    |     | 717546.8 | .1       | .06   | .0738 | .0376 | .0738 | .0875 |       |       |       |
| Main                    |     | 714679.4 | .1       | .2    | .15   | .0588 | .0376 | .0588 | .0875 |       |       |
| Main                    |     | 714318.7 | .1       | .08   | .0376 | .08   |       |       |       |       |       |
| Main                    |     | 714291.7 | .1       | .08   | .0376 | .08   |       |       |       |       |       |
| Main                    |     | 714229.6 | Bridge   |       |       |       |       |       |       |       |       |
| Main                    |     | 714155.2 | .1       | .15   | .075  | .0472 | .1    | .1    |       |       |       |
| Main                    |     | 714014.2 | .1       | .15   | .0625 | .04   | .0625 | .0875 | .1    |       |       |
| Main                    |     | 713569.6 | .1       | .15   | .0625 | .04   | .0625 | .0875 |       |       |       |
| Main                    |     | 712195.4 | .1       | .2    | .0375 | .2    | .05   | .075  | .0375 | .06   | .04   |
| .07                     | .2  | 710158.5 | .1       | .03   | .055  | .1    | .04   | .0625 | .0875 | .055  | .15   |
| .15                     | .2  | .06      | 708330.8 | .1    | .1    | .0625 | .04   | .0625 | .0875 | .2    | .0375 |
| Main                    |     | 707189.2 | .1       | .03   | .055  | .15   | .0625 | .04   | .0625 | .0875 |       |
| Main                    |     | 706369.6 | .1       | .055  | .15   | .1    | .0625 | .04   | .0625 | .0875 | .2    |
| .08                     |     | 705810.1 | .1       | .1    | .0408 | .0875 | .05   | .0375 | .05   |       | .0375 |
| Main                    |     | 705714.6 | Bridge   |       |       |       |       |       |       |       |       |
| Main                    |     | 705623.0 | .1       | .05   | .12   | .04   | .0875 |       |       |       |       |
| Main                    | .06 | 704948.6 | .1       | .2    | .03   | .0688 | .12   | .04   | .0625 | .0875 | .2    |
| .2                      |     | 703142.4 | .1       | .08   | .2    | .1    | .2    | .12   | .04   | .0625 | .0875 |
| .045                    | .1  |          |          |       |       |       |       |       |       |       | .2    |

# SUMMARY OF REACH LENGTHS

River: Chattahoochee

| Reach | River Sta. | Left    | Channel | Right   |
|-------|------------|---------|---------|---------|
| Main  | 757224.6   | 1745.37 | 1814.36 | 1915.9  |
| Main  | 755410.3   | 837.9   | 862.33  | 886.19  |
| Main  | 754547.9   | 1890.39 | 1874.1  | 1856.48 |
| Main  | 752673.8   | 900.44  | 805.79  | 686.95  |
| Main  | 751868.0   | 2386.14 | 2434.73 | 2517.8  |
| Main  | 749433.3   | 1324.3  | 1524.26 | 1692.19 |
| Main  | 747909.1   | 3084.37 | 3091.27 | 3036.59 |
| Main  | 744817.8   | 3264.84 | 3386.24 | 3488.06 |
| Main  | 741431.5   | 179.17  | 193.59  | 196.06  |
| Main  | 741238.0   | 236.69  | 266.39  | 301.46  |
| Main  | 740971.6   | 1613.68 | 1532.06 | 1375.73 |
| Main  | 739439.5   | 423.41  | 344.62  | 264.78  |
| Main  | 739094.9   | 146.07  | 141.57  | 147.62  |
| Main  | 739022.1   | Bridge  |         |         |
| Main  | 738953.3   | 383.11  | 307.6   | 247.89  |
| Main  | 738645.7   | 2980.85 | 2928.45 | 2836.8  |
| Main  | 735717.3   | 2533.26 | 2527.06 | 2524.97 |
| Main  | 733190.2   | 2827.31 | 2805.78 | 2702.15 |
| Main  | 730384.4   | 3213.88 | 3205.77 | 3134.57 |
| Main  | 727178.7   | 2690.43 | 2653.08 | 2566.91 |
| Main  | 724525.6   | 1429.01 | 1509.61 | 1545.77 |
| Main  | 723016.0   | 647.42  | 550.58  | 525.49  |
| Main  | 722465.4   | 2832.97 | 2814.23 | 2759.67 |
| Main  | 719651.2   | 1845.95 | 2104.39 | 2240.93 |
| Main  | 717546.8   | 2936.76 | 2867.38 | 2785.38 |
| Main  | 714679.4   | 342.44  | 357.7   | 380.76  |
| Main  | 714318.7   | 27      | 27      | 27      |
| Main  | 714291.7   | 136.5   | 136.5   | 136.5   |
| Main  | 714229.6   | Bridge  |         |         |
| Main  | 714155.2   | 141     | 141     | 141     |
| Main  | 714014.2   | 444.6   | 444.6   | 444.6   |
| Main  | 713569.6   | 1364.62 | 1374.23 | 1380.37 |
| Main  | 712195.4   | 1963.63 | 2036.89 | 2114.66 |
| Main  | 710158.5   | 1808.23 | 1827.75 | 1839.29 |
| Main  | 708330.8   | 1125.95 | 1141.56 | 1145.61 |
| Main  | 707189.2   | 843.08  | 819.6   | 767.88  |
| Main  | 706369.6   | 571.1   | 559.49  | 587.93  |
| Main  | 705810.1   | 184.4   | 187.16  | 177.93  |
| Main  | 705714.6   | Bridge  |         |         |

|      |          |         |         |                         |
|------|----------|---------|---------|-------------------------|
|      |          |         |         | Chattahoochee-CALYX.rep |
| Main | 705623.0 | 650.17  | 674.33  | 707.99                  |
| Main | 704948.6 | 1804.74 | 1806.19 | 1822.48                 |
| Main | 703142.4 | 1756.16 | 1700.1  | 1636.92                 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Chattahoochee

| Reach | River Sta.      | Contr. | Expan. |
|-------|-----------------|--------|--------|
| Main  | 757224.6        | .1     | .3     |
| Main  | 755410.3        | .1     | .3     |
| Main  | 754547.9        | .1     | .3     |
| Main  | 752673.8        | .1     | .3     |
| Main  | 751868.0        | .1     | .3     |
| Main  | 749433.3        | .1     | .3     |
| Main  | 747909.1        | .1     | .3     |
| Main  | 744817.8        | .1     | .3     |
| Main  | 741431.5        | .1     | .3     |
| Main  | 741238.0        | .1     | .3     |
| Main  | 740971.6        | .1     | .3     |
| Main  | 739439.5        | .3     | .5     |
| Main  | 739094.9        | .3     | .5     |
| Main  | 739022.1 Bridge |        |        |
| Main  | 738953.3        | .3     | .5     |
| Main  | 738645.7        | .1     | .3     |
| Main  | 735717.3        | .1     | .3     |
| Main  | 733190.2        | .1     | .3     |
| Main  | 730384.4        | .1     | .3     |
| Main  | 727178.7        | .1     | .3     |
| Main  | 724525.6        | .1     | .3     |
| Main  | 723016.0        | .1     | .3     |
| Main  | 722465.4        | .1     | .3     |
| Main  | 719651.2        | .1     | .3     |
| Main  | 717546.8        | .1     | .3     |
| Main  | 714679.4        | .1     | .3     |
| Main  | 714318.7        | .3     | .5     |
| Main  | 714291.7        | .3     | .5     |
| Main  | 714229.6 Bridge |        |        |
| Main  | 714155.2        | .3     | .5     |
| Main  | 714014.2        | .1     | .3     |
| Main  | 713569.6        | .1     | .3     |
| Main  | 712195.4        | .1     | .3     |
| Main  | 710158.5        | .1     | .3     |
| Main  | 708330.8        | .1     | .3     |
| Main  | 707189.2        | .1     | .3     |
| Main  | 706369.6        | .3     | .5     |
| Main  | 705810.1        | .3     | .5     |
| Main  | 705714.6 Bridge |        |        |
| Main  | 705623.0        | .3     | .5     |
| Main  | 704948.6        | .1     | .3     |
| Main  | 703142.4        | .1     | .3     |



# HEC-RAS Proposed Bridge Model

# Standard Table 1

HEC-RAS Plan: REV Locations: User Defined

| River         | Reach | River Sta          | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|---------------|-------|--------------------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Chattahoochee | Main  | 757224.6 cha_20570 | 2YR     | 10360.00         | 891.31            | 906.02            | 896.72            | 906.22            | 0.000337              | 3.60               | 2879.04              | 227.37            | 0.18         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 10YR    | 11460.00         | 891.31            | 907.02            | 897.02            | 907.23            | 0.000325              | 3.69               | 3107.76              | 230.04            | 0.18         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 50YR    | 12000.00         | 891.31            | 907.92            | 897.16            | 908.13            | 0.000292              | 3.62               | 3315.84              | 232.45            | 0.17         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 100YR   | 12000.00         | 891.31            | 908.13            | 897.16            | 908.33            | 0.000279              | 3.57               | 3364.42              | 233.01            | 0.17         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 500YR   | 12000.00         | 891.31            | 910.58            | 897.16            | 910.72            | 0.000172              | 3.04               | 3942.90              | 242.32            | 0.13         |
| Chattahoochee | Main  | 755410.3 1756      | 2YR     | 10360.00         | 889.96            | 905.36            | 895.81            | 905.57            | 0.000389              | 3.66               | 2829.26              | 223.25            | 0.18         |
| Chattahoochee | Main  | 755410.3 1756      | 10YR    | 11460.00         | 889.96            | 906.38            | 896.12            | 906.60            | 0.000373              | 3.75               | 3059.24              | 225.50            | 0.18         |
| Chattahoochee | Main  | 755410.3 1756      | 50YR    | 12000.00         | 889.96            | 907.35            | 896.28            | 907.56            | 0.000330              | 3.66               | 3279.15              | 227.50            | 0.17         |
| Chattahoochee | Main  | 755410.3 1756      | 100YR   | 12000.00         | 889.96            | 907.59            | 896.28            | 907.79            | 0.000314              | 3.60               | 3332.78              | 228.25            | 0.17         |
| Chattahoochee | Main  | 755410.3 1756      | 500YR   | 12000.00         | 889.96            | 910.25            | 896.28            | 910.39            | 0.000191              | 3.03               | 3954.01              | 239.93            | 0.13         |
| Chattahoochee | Main  | 754547.9 1755      | 2YR     | 10360.00         | 889.32            | 905.03            | 895.12            | 905.21            | 0.000414              | 3.45               | 3005.54              | 232.31            | 0.17         |
| Chattahoochee | Main  | 754547.9 1755      | 10YR    | 11460.00         | 889.32            | 906.07            | 895.44            | 906.26            | 0.000398              | 3.53               | 3248.26              | 234.89            | 0.17         |
| Chattahoochee | Main  | 754547.9 1755      | 50YR    | 12000.00         | 889.32            | 907.08            | 895.57            | 907.26            | 0.000351              | 3.44               | 3486.51              | 237.03            | 0.16         |
| Chattahoochee | Main  | 754547.9 1755      | 100YR   | 12000.00         | 889.32            | 907.33            | 895.57            | 907.51            | 0.000333              | 3.38               | 3545.72              | 237.56            | 0.15         |
| Chattahoochee | Main  | 754547.9 1755      | 500YR   | 12000.00         | 889.32            | 910.10            | 895.57            | 910.22            | 0.000197              | 2.85               | 4214.61              | 245.79            | 0.12         |
| Chattahoochee | Main  | 752673.8 628       | 2YR     | 10360.00         | 887.92            | 904.44            | 893.62            | 904.59            | 0.000268              | 3.08               | 3362.66              | 247.38            | 0.15         |
| Chattahoochee | Main  | 752673.8 628       | 10YR    | 11460.00         | 887.92            | 905.50            | 894.32            | 905.65            | 0.000260              | 3.16               | 3626.77              | 251.03            | 0.15         |
| Chattahoochee | Main  | 752673.8 628       | 50YR    | 12000.00         | 887.92            | 906.58            | 894.10            | 906.73            | 0.000229              | 3.08               | 3900.01              | 254.44            | 0.14         |
| Chattahoochee | Main  | 752673.8 628       | 100YR   | 12000.00         | 887.92            | 906.86            | 894.10            | 907.00            | 0.000217              | 3.02               | 3970.41              | 255.25            | 0.14         |
| Chattahoochee | Main  | 752673.8 628       | 500YR   | 13752.00         | 887.92            | 909.75            | 894.57            | 909.88            | 0.000168              | 2.91               | 4721.85              | 307.37            | 0.12         |
| Chattahoochee | Main  | 751868.0 780       | 2YR     | 10360.00         | 887.32            | 904.11            | 893.80            | 904.31            | 0.000437              | 3.62               | 2863.20              | 203.12            | 0.17         |
| Chattahoochee | Main  | 751868.0 780       | 10YR    | 11460.00         | 887.32            | 905.17            | 894.12            | 905.38            | 0.000427              | 3.72               | 3079.84              | 204.63            | 0.17         |
| Chattahoochee | Main  | 751868.0 780       | 50YR    | 12000.00         | 887.32            | 906.28            | 894.25            | 906.49            | 0.000374              | 3.63               | 3309.12              | 206.21            | 0.16         |
| Chattahoochee | Main  | 751868.0 780       | 100YR   | 12000.00         | 887.32            | 906.58            | 894.25            | 906.77            | 0.000354              | 3.56               | 3369.18              | 206.62            | 0.16         |
| Chattahoochee | Main  | 751868.0 780       | 500YR   | 13752.00         | 887.32            | 909.52            | 894.78            | 909.71            | 0.000279              | 3.45               | 3984.90              | 212.13            | 0.14         |
| Chattahoochee | Main  | 749433.3 2388      | 2YR     | 10360.00         | 885.50            | 903.30            | 892.20            | 903.47            | 0.000272              | 3.31               | 3127.57              | 217.91            | 0.15         |
| Chattahoochee | Main  | 749433.3 2388      | 10YR    | 11460.00         | 885.50            | 904.39            | 892.52            | 904.57            | 0.000265              | 3.41               | 3364.95              | 219.76            | 0.15         |
| Chattahoochee | Main  | 749433.3 2388      | 50YR    | 12000.00         | 885.50            | 905.61            | 892.68            | 905.78            | 0.000229              | 3.30               | 3634.63              | 221.84            | 0.14         |
| Chattahoochee | Main  | 749433.3 2388      | 100YR   | 12000.00         | 885.50            | 905.94            | 892.68            | 906.10            | 0.000215              | 3.24               | 3708.13              | 222.40            | 0.14         |
| Chattahoochee | Main  | 749433.3 2388      | 500YR   | 13752.00         | 885.50            | 909.03            | 893.18            | 909.18            | 0.000168              | 3.12               | 4405.34              | 229.62            | 0.13         |
| Chattahoochee | Main  | 747909.1 1757      | 2YR     | 10360.00         | 884.48            | 903.13            | 890.18            | 903.20            | 0.000103              | 2.18               | 4762.32              | 315.59            | 0.10         |
| Chattahoochee | Main  | 747909.1 1757      | 10YR    | 11460.00         | 884.48            | 904.22            | 890.43            | 904.30            | 0.000101              | 2.24               | 5108.83              | 318.23            | 0.10         |
| Chattahoochee | Main  | 747909.1 1757      | 50YR    | 12000.00         | 884.48            | 905.47            | 890.56            | 905.54            | 0.000088              | 2.18               | 5507.99              | 321.24            | 0.09         |
| Chattahoochee | Main  | 747909.1 1757      | 100YR   | 12000.00         | 884.48            | 905.81            | 890.56            | 905.88            | 0.000082              | 2.14               | 5617.48              | 322.05            | 0.09         |
| Chattahoochee | Main  | 747909.1 1757      | 500YR   | 13752.00         | 884.48            | 908.93            | 890.94            | 909.00            | 0.000067              | 2.07               | 6683.42              | 517.45            | 0.08         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 2YR     | 10360.00         | 882.06            | 902.88            | 889.30            | 902.82            | 0.000142              | 3.00               | 3455.22              | 209.10            | 0.13         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 10YR    | 11460.00         | 882.06            | 903.77            | 889.63            | 903.92            | 0.000143              | 3.11               | 3683.96              | 210.75            | 0.13         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 50YR    | 12000.00         | 882.06            | 905.07            | 889.80            | 905.22            | 0.000126              | 3.03               | 3958.98              | 212.71            | 0.12         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 100YR   | 12000.00         | 882.06            | 905.43            | 889.80            | 905.57            | 0.000118              | 2.97               | 4036.08              | 213.26            | 0.12         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 500YR   | 13752.00         | 882.06            | 908.61            | 890.31            | 908.75            | 0.000096              | 2.91               | 4723.47              | 683.23            | 0.11         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 2YR     | 10360.00         | 886.29            | 901.76            | 892.15            | 901.98            | 0.000524              | 3.77               | 2748.11              | 249.38            | 0.19         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 10YR    | 11460.00         | 886.29            | 902.87            | 892.49            | 903.10            | 0.000498              | 3.84               | 2988.00              | 328.77            | 0.18         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 50YR    | 12000.00         | 886.29            | 904.30            | 892.65            | 904.51            | 0.000401              | 3.63               | 3306.13              | 431.04            | 0.17         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 100YR   | 12000.00         | 886.29            | 904.72            | 892.65            | 904.91            | 0.000369              | 3.53               | 3398.86              | 456.84            | 0.16         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 500YR   | 13752.00         | 886.29            | 908.07            | 893.15            | 908.24            | 0.000261              | 3.30               | 4163.86              | 1046.61           | 0.14         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 2YR     | 10360.00         | 880.46            | 901.71            | 891.54            | 901.88            | 0.000424              | 3.27               | 3165.96              | 408.31            | 0.17         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 10YR    | 11460.00         | 880.46            | 902.82            | 892.15            | 902.99            | 0.000392              | 3.30               | 3467.82              | 572.07            | 0.16         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 50YR    | 12000.00         | 880.46            | 904.28            | 892.37            | 904.43            | 0.000307              | 3.10               | 3668.20              | 629.15            | 0.15         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 100YR   | 12000.00         | 880.46            | 904.69            | 892.37            | 904.83            | 0.000280              | 3.01               | 3984.95              | 639.23            | 0.14         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 500YR   | 13752.00         | 880.46            | 908.06            | 893.29            | 908.18            | 0.000190              | 2.78               | 5072.74              | 1314.34           | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 2YR     | 10360.00         | 879.64            | 901.66            | 886.86            | 901.79            | 0.000204              | 2.86               | 3619.82              | 466.54            | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 10YR    | 11460.00         | 879.64            | 902.77            | 887.23            | 902.91            | 0.000206              | 2.97               | 3859.59              | 491.10            | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 50YR    | 12000.00         | 879.64            | 904.23            | 887.36            | 904.36            | 0.000178              | 2.87               | 4178.53              | 516.20            | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 100YR   | 12000.00         | 879.64            | 904.65            | 887.36            | 904.77            | 0.000167              | 2.81               | 4271.82              | 522.35            | 0.11         |
| Chattahoochee | Main  | 740971.6 2373      | 500YR   | 13752.00         | 879.64            | 908.02            | 887.93            | 908.14            | 0.000138              | 2.73               | 5045.35              | 1091.18           | 0.10         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 2YR     | 10360.00         | 880.43            | 901.36            | 887.39            | 901.51            | 0.000164              | 3.09               | 3354.95              | 202.03            | 0.13         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 10YR    | 11460.00         | 880.43            | 902.47            | 887.75            | 902.63            | 0.000165              | 3.20               | 3580.70              | 205.59            | 0.14         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 50YR    | 12000.00         | 880.43            | 903.96            | 887.91            | 904.11            | 0.000143              | 3.08               | 3892.90              | 211.86            | 0.13         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 100YR   | 12000.00         | 880.43            | 904.40            | 887.91            | 904.54            | 0.000134              | 3.01               | 3986.01              | 213.95            | 0.12         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 500YR   | 13752.00         | 880.43            | 907.82            | 888.45            | 907.95            | 0.000111              | 2.89               | 4756.09              | 235.70            | 0.11         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 2YR     | 10360.00         | 878.45            | 901.32            | 886.89            | 901.45            | 0.000137              | 2.89               | 3609.91              | 227.71            | 0.12         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 10YR    | 11460.00         | 878.45            | 902.42            | 887.26            | 902.56            | 0.000137              | 3.00               | 3865.14              | 232.91            | 0.13         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 50YR    | 12000.00         | 878.45            | 903.93            | 887.42            | 904.06            | 0.000116              | 2.89               | 4220.84              | 239.97            | 0.12         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 100YR   | 12000.00         | 878.45            | 904.37            | 887.42            | 904.49            | 0.000108              | 2.82               | 4326.84              | 242.04            | 0.11         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 500YR   | 13752.00         | 878.45            | 907.79            | 887.97            | 907.91            | 0.000084              | 2.74               | 5182.22              | 258.36            | 0.10         |
| Chattahoochee | Main  | 739022.1 cha_20300 |         | Bridge           |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 2YR     | 10360.00         | 878.63            | 901.26            | 887.19            | 901.40            | 0.000163              | 2.95               | 3529.71              | 229.17            | 0.13         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 10YR    | 11460.00         | 878.63            | 902.37            | 887.58            | 902.52            | 0.000161              | 3.05               | 3786.61              | 234.37            | 0.13         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 50YR    | 12000.00         | 878.63            | 903.88            | 887.75            | 904.02            | 0.000134              | 2.93               | 4148.01              | 244.40            | 0.12         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 100YR   | 12000.00         | 878.63            | 904.33            | 887.75            | 904.45            | 0.000123              | 2.86               | 4257.01              | 247.72            | 0.12         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 500YR   | 13752.00         | 878.63            | 907.76            | 888.34            | 907.87            | 0.000093              | 2.77               | 5150.31              | 449.48            | 0.10         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 2YR     | 10360.00         | 879.18            | 901.08            | 887.06            | 901.31            | 0.000271              | 3.84               | 2695.98              | 157.69            | 0.16         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 10YR    | 11460.00         | 879.18            | 902.17            | 887.50            | 902.42            | 0.000276              | 3.99               | 2870.07              | 159.78            | 0.17         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 50YR    | 12000.00         | 879.18            | 903.71            | 887.73            | 903.94            | 0.000236              | 3.85               | 3116.87              | 162.65            | 0.15         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 100YR   | 12000.00         | 879.18            | 904.16            | 887.73            | 904.38            | 0.000219              | 3.76               | 3190.68              | 163.69            | 0.15         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 500YR   | 13752.00         | 879.18            | 907.60            | 888.43            | 907.81            | 0.000168              | 3.67               | 3770.07              | 273.70            | 0.13         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 2YR     | 10360.00         | 879.57            | 900.59            |                   |                   |                       |                    |                      |                   |              |

HEC-RAS Plan: REV Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|---------------|-------|--------------------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Chattahoochee | Main  | 735717.3 cha_20100 | 10YR    | 11460.00         | 879.57            | 901.69            | 886.40            | 901.82            | 0.000143              | 2.92               | 3940.92              | 227.14            | 0.12         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 50YR    | 12000.00         | 879.57            | 903.31            | 886.56            | 903.43            | 0.000118              | 2.80               | 4313.30              | 232.93            | 0.11         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 100YR   | 12000.00         | 879.57            | 903.79            | 886.56            | 903.91            | 0.000108              | 2.73               | 4426.80              | 234.67            | 0.11         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 500YR   | 13752.00         | 879.57            | 907.34            | 887.07            | 907.45            | 0.000082              | 2.65               | 5342.17              | 291.56            | 0.10         |
| Chattahoochee | Main  | 733190.2 1733      | 2YR     | 10360.00         | 879.28            | 900.19            | 886.03            | 900.31            | 0.000170              | 2.87               | 3611.06              | 223.45            | 0.13         |
| Chattahoochee | Main  | 733190.2 1733      | 10YR    | 11460.00         | 879.28            | 901.29            | 886.37            | 901.43            | 0.000167              | 2.97               | 3861.83              | 229.35            | 0.13         |
| Chattahoochee | Main  | 733190.2 1733      | 50YR    | 12000.00         | 879.28            | 902.99            | 886.54            | 903.11            | 0.000134              | 2.83               | 4257.50              | 250.50            | 0.11         |
| Chattahoochee | Main  | 733190.2 1733      | 100YR   | 12000.00         | 879.28            | 903.50            | 886.54            | 903.62            | 0.000122              | 2.76               | 4379.73              | 281.63            | 0.11         |
| Chattahoochee | Main  | 733190.2 1733      | 500YR   | 13752.00         | 879.28            | 907.12            | 887.06            | 907.23            | 0.000090              | 2.65               | 5312.65              | 1652.40           | 0.10         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 2YR     | 10360.00         | 878.64            | 899.57            | 886.04            | 899.74            | 0.000242              | 3.36               | 3082.94              | 182.22            | 0.14         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 10YR    | 11460.00         | 878.64            | 900.68            | 886.42            | 900.86            | 0.000245              | 3.49               | 3285.43              | 183.93            | 0.15         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 50YR    | 12000.00         | 878.64            | 902.48            | 886.61            | 902.66            | 0.000199              | 3.31               | 3621.46              | 187.84            | 0.13         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 100YR   | 12000.00         | 878.64            | 903.04            | 886.61            | 903.20            | 0.000182              | 3.22               | 3725.83              | 189.21            | 0.13         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 500YR   | 13752.00         | 878.64            | 906.77            | 887.20            | 906.92            | 0.000136              | 3.10               | 4523.88              | 1874.13           | 0.11         |
| Chattahoochee | Main  | 727178.7 695       | 2YR     | 10360.00         | 878.15            | 898.84            | 885.31            | 898.99            | 0.000224              | 3.13               | 3315.10              | 211.30            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 10YR    | 11460.00         | 878.15            | 899.94            | 885.67            | 900.11            | 0.000224              | 3.23               | 3551.60              | 216.56            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 50YR    | 13593.00         | 878.15            | 901.79            | 886.35            | 901.97            | 0.000225              | 3.44               | 3958.47              | 223.63            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 100YR   | 14310.00         | 878.15            | 902.35            | 886.56            | 902.54            | 0.000225              | 3.51               | 4084.58              | 323.25            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 500YR   | 20316.00         | 878.15            | 906.03            | 888.22            | 906.30            | 0.000248              | 4.15               | 4939.23              | 1974.06           | 0.16         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 2YR     | 10360.00         | 877.75            | 898.19            | 885.35            | 898.36            | 0.000254              | 3.31               | 3127.06              | 198.41            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 10YR    | 11460.00         | 877.75            | 899.28            | 885.70            | 899.47            | 0.000257              | 3.42               | 3346.91              | 210.36            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 50YR    | 13593.00         | 877.75            | 901.13            | 886.38            | 901.33            | 0.000258              | 3.65               | 3726.39              | 634.95            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 100YR   | 14310.00         | 877.75            | 901.68            | 886.57            | 901.90            | 0.000260              | 3.73               | 3843.89              | 696.74            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 500YR   | 20316.00         | 877.75            | 905.28            | 888.23            | 905.58            | 0.000291              | 4.43               | 4698.77              | 2724.26           | 0.17         |
| Chattahoochee | Main  | 723016.0 2374      | 2YR     | 10360.00         | 877.68            | 897.92            | 883.87            | 898.04            | 0.000163              | 2.78               | 3725.31              | 231.39            | 0.12         |
| Chattahoochee | Main  | 723016.0 2374      | 10YR    | 11460.00         | 877.68            | 899.01            | 884.20            | 899.14            | 0.000165              | 2.88               | 3981.86              | 236.21            | 0.12         |
| Chattahoochee | Main  | 723016.0 2374      | 50YR    | 13593.00         | 877.68            | 900.86            | 884.85            | 901.01            | 0.000166              | 3.07               | 4434.98              | 271.00            | 0.13         |
| Chattahoochee | Main  | 723016.0 2374      | 100YR   | 14310.00         | 877.68            | 901.42            | 885.05            | 901.57            | 0.000167              | 3.14               | 4578.17              | 354.00            | 0.13         |
| Chattahoochee | Main  | 723016.0 2374      | 500YR   | 20316.00         | 877.68            | 904.99            | 886.60            | 905.21            | 0.000188              | 3.74               | 5556.54              | 3305.32           | 0.14         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 2YR     | 10360.00         | 877.58            | 897.81            | 883.90            | 897.95            | 0.000144              | 3.00               | 3452.20              | 203.11            | 0.13         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 10YR    | 11460.00         | 877.58            | 898.90            | 884.25            | 899.06            | 0.000147              | 3.12               | 3675.70              | 206.42            | 0.13         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 50YR    | 13593.00         | 877.58            | 900.74            | 884.87            | 900.91            | 0.000155              | 3.35               | 4060.39              | 567.54            | 0.14         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 100YR   | 14310.00         | 877.58            | 901.30            | 885.08            | 901.48            | 0.000159              | 3.42               | 4179.36              | 845.74            | 0.14         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 500YR   | 20316.00         | 877.58            | 904.84            | 886.66            | 905.10            | 0.000184              | 4.09               | 5118.29              | 2873.75           | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 2YR     | 10360.00         | 877.35            | 897.32            | 884.20            | 897.49            | 0.000188              | 3.32               | 3116.81              | 219.28            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 10YR    | 11460.00         | 877.35            | 898.41            | 884.57            | 898.59            | 0.000186              | 3.44               | 3331.62              | 244.25            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 50YR    | 13593.00         | 877.35            | 900.22            | 885.25            | 900.43            | 0.000187              | 3.69               | 3699.60              | 609.16            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 100YR   | 14310.00         | 877.35            | 900.77            | 885.47            | 900.99            | 0.000188              | 3.77               | 3812.97              | 983.64            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 500YR   | 20316.00         | 877.35            | 904.32            | 887.18            | 904.58            | 0.000187              | 4.21               | 7918.81              | 2755.65           | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 2YR     | 10360.00         | 876.99            | 896.87            | 884.04            | 897.06            | 0.000222              | 3.49               | 2971.84              | 195.84            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 10YR    | 11460.00         | 876.99            | 897.96            | 884.42            | 898.16            | 0.000220              | 3.59               | 3188.52              | 200.03            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 50YR    | 13593.00         | 876.99            | 899.78            | 885.10            | 900.01            | 0.000220              | 3.82               | 3558.34              | 583.95            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 100YR   | 14310.00         | 876.99            | 900.32            | 885.31            | 900.56            | 0.000220              | 3.90               | 3671.84              | 743.34            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 500YR   | 20316.00         | 876.99            | 903.78            | 887.07            | 904.12            | 0.000246              | 4.64               | 4510.40              | 2125.09           | 0.18         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 2YR     | 10360.00         | 877.33            | 896.15            | 886.18            | 896.35            | 0.000276              | 3.58               | 2891.89              | 216.90            | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 10YR    | 11460.00         | 877.33            | 897.27            | 886.53            | 897.47            | 0.000263              | 3.65               | 3135.91              | 219.73            | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 50YR    | 13593.00         | 877.33            | 899.10            | 887.18            | 899.33            | 0.000256              | 3.84               | 3542.76              | 786.30            | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 100YR   | 14310.00         | 877.33            | 899.65            | 887.38            | 899.88            | 0.000253              | 3.90               | 3673.70              | 1074.41           | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 500YR   | 20316.00         | 877.33            | 903.17            | 888.84            | 903.42            | 0.000224              | 4.18               | 7185.60              | 1912.15           | 0.17         |
| Chattahoochee | Main  | 714318.7           | 2YR     | 10360.00         | 877.28            | 896.07            | 885.17            | 896.24            | 0.000231              | 3.40               | 3454.50              | 442.06            | 0.16         |
| Chattahoochee | Main  | 714318.7           | 10YR    | 11460.00         | 877.28            | 897.20            | 885.51            | 897.37            | 0.000216              | 3.45               | 3813.39              | 478.10            | 0.16         |
| Chattahoochee | Main  | 714318.7           | 50YR    | 13593.00         | 877.28            | 899.04            | 886.17            | 899.22            | 0.000205              | 3.59               | 4403.58              | 613.14            | 0.16         |
| Chattahoochee | Main  | 714318.7           | 100YR   | 14310.00         | 877.28            | 899.59            | 886.36            | 899.78            | 0.000202              | 3.64               | 4582.60              | 930.60            | 0.16         |
| Chattahoochee | Main  | 714318.7           | 500YR   | 20316.00         | 877.28            | 903.09            | 887.99            | 903.34            | 0.000209              | 4.19               | 5765.97              | 1950.71           | 0.16         |
| Chattahoochee | Main  | 714229.6 cha_19500 |         | Bridge           |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Chattahoochee | Main  | 714014.2           | 2YR     | 10360.00         | 879.20            | 895.98            | 885.29            | 896.15            | 0.000265              | 3.39               | 3056.93              | 218.27            | 0.16         |
| Chattahoochee | Main  | 714014.2           | 10YR    | 11460.00         | 879.20            | 897.10            | 885.61            | 897.29            | 0.000256              | 3.47               | 3303.81              | 221.35            | 0.16         |
| Chattahoochee | Main  | 714014.2           | 50YR    | 13593.00         | 879.20            | 898.93            | 886.20            | 899.14            | 0.000252              | 3.66               | 3714.39              | 999.99            | 0.16         |
| Chattahoochee | Main  | 714014.2           | 100YR   | 14310.00         | 879.20            | 899.48            | 886.38            | 899.70            | 0.000251              | 3.73               | 3844.61              | 1178.25           | 0.16         |
| Chattahoochee | Main  | 714014.2           | 500YR   | 20316.00         | 879.20            | 902.95            | 887.89            | 903.25            | 0.000268              | 4.36               | 4958.26              | 2144.15           | 0.17         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 2YR     | 10360.00         | 876.17            | 895.73            | 884.77            | 895.99            | 0.000375              | 4.10               | 2527.05              | 173.07            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 10YR    | 11460.00         | 876.17            | 896.85            | 885.19            | 897.12            | 0.000368              | 4.21               | 2722.62              | 176.27            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 50YR    | 13593.00         | 876.17            | 898.67            | 885.91            | 898.97            | 0.000364              | 4.46               | 3048.18              | 417.42            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 100YR   | 14310.00         | 876.17            | 899.21            | 886.13            | 899.53            | 0.000363              | 4.55               | 3148.32              | 677.95            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 500YR   | 20316.00         | 876.17            | 902.60            | 887.91            | 903.05            | 0.000404              | 5.40               | 3858.47              | 2301.84           | 0.21         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 2YR     | 10360.00         | 875.75            | 895.39            | 882.37            | 895.57            | 0.000227              | 3.43               | 3028.21              | 197.53            | 0.15         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 10YR    | 11460.00         | 875.75            | 896.52            | 882.76            | 896.71            | 0.000221              | 3.54               | 3253.61              | 201.19            | 0.15         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 50YR    | 13716.00         | 875.75            | 898.34            | 883.50            | 898.56            | 0.000225              | 3.82               | 3624.21              | 397.37            | 0.16         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 100YR   | 14418.00         | 875.75            | 898.88            | 883.71            | 899.12            | 0.000226              | 3.90               | 3737.56              | 651.57            | 0.16         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 500YR   | 20212.00         | 875.75            | 902.25            | 885.39            | 902.58            | 0.000256              | 4.62               | 4705.51              | 1244.99           | 0.17         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 2YR     | 10360.00         | 875.08            | 894.95            | 881.81            | 895.13            | 0.000208              | 3.34               | 3114.95              | 227.59            | 0.14         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 10YR    | 11460.00         | 875.08            | 896.09            | 882.19            | 896.28            | 0.000206              | 3.46               | 3342.35              | 356.70            | 0.15         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 50YR    | 13716.00         | 875.08            | 897.90            | 882.93            | 898.11            | 0.000214              | 3.74               | 3722.83              | 803.61            | 0.15         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 100YR   | 14418.00         | 875.08            | 898.44            | 883.14            | 898.66            | 0.000215              | 3.82               | 3856.83              | 887.89            | 0.15         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 500YR   | 20212.00         | 875.08            | 901.88            | 884.73            | 902.10            | 0.000191              | 4.01               | 7462.73              | 1343.21           | 0.15         |
| Chattahoochee | Main  | 708330.8 1735      | 2YR     | 10360.00         | 875.96            | 894.62            | 881.65            | 894.76            | 0.000183              | 3.07               | 3385.98              | 266.53            | 0.14         |
| Chattahoochee | Main  | 708330.8 1735      | 10YR    | 11460.00         | 875.96            | 895.77            | 882.00            | 895.92            | 0.000176              | 3.16               | 3646.10              | 289.63            | 0.           |

HEC-RAS Plan: REV Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|---------------|-------|--------------------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Chattahoochee | Main  | 708330.8 1735      | 50YR    | 13716.00         | 875.96            | 897.56            | 882.67            | 897.74            | 0.000179              | 3.41               | 4091.41              | 638.13            | 0.14         |
| Chattahoochee | Main  | 708330.8 1735      | 100YR   | 14418.00         | 875.96            | 898.12            | 882.87            | 898.30            | 0.000175              | 3.43               | 4867.52              | 832.86            | 0.14         |
| Chattahoochee | Main  | 708330.8 1735      | 500YR   | 20212.00         | 875.96            | 901.57            | 884.37            | 901.77            | 0.000166              | 3.74               | 8810.98              | 1270.18           | 0.14         |
| Chattahoochee | Main  | 707189.2 2375      | 2YR     | 10360.00         | 875.08            | 894.38            | 881.44            | 894.54            | 0.000198              | 3.22               | 3240.88              | 221.17            | 0.14         |
| Chattahoochee | Main  | 707189.2 2375      | 10YR    | 11460.00         | 875.08            | 895.54            | 881.82            | 895.71            | 0.000191              | 3.31               | 3507.59              | 244.88            | 0.14         |
| Chattahoochee | Main  | 707189.2 2375      | 50YR    | 13716.00         | 875.08            | 897.33            | 882.53            | 897.53            | 0.000194              | 3.57               | 4001.61              | 472.32            | 0.15         |
| Chattahoochee | Main  | 707189.2 2375      | 100YR   | 14418.00         | 875.08            | 897.88            | 882.73            | 898.09            | 0.000194              | 3.64               | 4176.09              | 623.77            | 0.15         |
| Chattahoochee | Main  | 707189.2 2375      | 500YR   | 20212.00         | 875.08            | 901.28            | 884.38            | 901.55            | 0.000212              | 4.24               | 5580.88              | 829.42            | 0.16         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 2YR     | 10360.00         | 873.57            | 894.25            | 880.95            | 894.39            | 0.000168              | 3.01               | 3461.33              | 283.98            | 0.13         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 10YR    | 11460.00         | 873.57            | 895.41            | 881.29            | 895.56            | 0.000163              | 3.11               | 3727.45              | 328.99            | 0.13         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 50YR    | 13716.00         | 873.57            | 897.20            | 881.96            | 897.38            | 0.000168              | 3.37               | 4152.63              | 468.49            | 0.13         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 100YR   | 14418.00         | 873.57            | 897.75            | 882.16            | 897.93            | 0.000169              | 3.44               | 4293.67              | 582.90            | 0.14         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 500YR   | 20212.00         | 873.57            | 901.14            | 883.67            | 901.38            | 0.000181              | 3.96               | 6805.88              | 949.09            | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 2YR     | 10360.00         | 874.19            | 894.12            | 881.75            | 894.28            | 0.000206              | 3.23               | 3398.97              | 274.00            | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 10YR    | 11460.00         | 874.19            | 895.28            | 882.07            | 895.45            | 0.000198              | 3.32               | 3723.20              | 282.38            | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 50YR    | 13716.00         | 874.19            | 897.07            | 882.76            | 897.27            | 0.000201              | 3.58               | 4244.39              | 453.52            | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 100YR   | 14418.00         | 874.19            | 897.62            | 882.95            | 897.82            | 0.000201              | 3.64               | 4412.04              | 516.04            | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 500YR   | 20212.00         | 874.19            | 900.98            | 884.49            | 901.25            | 0.000224              | 4.27               | 5540.64              | 971.36            | 0.16         |
| Chattahoochee | Main  | 705714.6 cha_19100 |         | Bridge           |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 2YR     | 10360.00         | 876.28            | 893.95            | 883.23            | 894.17            | 0.000300              | 3.74               | 2814.71              | 231.06            | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 10YR    | 11460.00         | 876.28            | 895.12            | 883.58            | 895.35            | 0.000284              | 3.83               | 3099.71              | 251.72            | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 50YR    | 13716.00         | 876.28            | 896.90            | 884.27            | 897.16            | 0.000283              | 4.10               | 3629.61              | 405.79            | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 100YR   | 14418.00         | 876.28            | 897.45            | 884.46            | 897.71            | 0.000280              | 4.16               | 3815.48              | 428.32            | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 500YR   | 20212.00         | 876.28            | 900.71            | 886.01            | 901.06            | 0.000303              | 4.83               | 4930.15              | 676.93            | 0.18         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 2YR     | 10360.00         | 876.76            | 893.71            |                   | 893.94            | 0.000370              | 3.87               | 2675.17              | 202.23            | 0.19         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 10YR    | 11460.00         | 876.76            | 894.89            |                   | 895.13            | 0.000350              | 3.93               | 2917.17              | 206.91            | 0.18         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 50YR    | 13716.00         | 876.76            | 896.68            |                   | 896.95            | 0.000341              | 4.17               | 3311.58              | 260.59            | 0.19         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 100YR   | 14418.00         | 876.76            | 897.23            |                   | 897.50            | 0.000335              | 4.23               | 3446.74              | 377.92            | 0.18         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 500YR   | 20212.00         | 876.76            | 900.46            |                   | 900.83            | 0.000354              | 4.91               | 4377.68              | 1044.43           | 0.20         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 2YR     | 10360.00         | 874.46            | 893.26            | 881.19            | 893.42            | 0.000213              | 3.25               | 3193.19              | 247.88            | 0.15         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 10YR    | 11460.00         | 874.46            | 894.47            | 881.54            | 894.64            | 0.000203              | 3.33               | 3453.22              | 332.38            | 0.14         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 50YR    | 13716.00         | 874.46            | 896.26            | 882.21            | 896.46            | 0.000206              | 3.59               | 3869.91              | 586.45            | 0.15         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 100YR   | 14418.00         | 874.46            | 896.81            | 882.40            | 897.02            | 0.000206              | 3.66               | 4017.36              | 607.84            | 0.15         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 500YR   | 20212.00         | 874.46            | 900.00            | 883.87            | 900.29            | 0.000234              | 4.33               | 5256.62              | 1419.30           | 0.16         |

Standard Table 2

HEC-RAS Plan: REV Locations: User Defined

| River         | Reach | River Sta          | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|---------------|-------|--------------------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| Chattahoochee | Main  | 757224.6 cha_20570 | 2YR     | 906.22            | 906.02            | 0.20             | 0.66               | 0.00               |                 | 10360.00           |                  | 227.37            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 10YR    | 907.23            | 907.02            | 0.21             | 0.63               | 0.00               |                 | 11460.00           |                  | 230.04            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 50YR    | 908.13            | 907.92            | 0.20             | 0.56               | 0.00               |                 | 12000.00           |                  | 232.45            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 100YR   | 908.33            | 908.13            | 0.20             | 0.54               | 0.00               |                 | 12000.00           |                  | 233.01            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 500YR   | 910.72            | 910.58            | 0.14             | 0.33               | 0.00               |                 | 12000.00           |                  | 242.32            |
| Chattahoochee | Main  | 755410.3 1756      | 2YR     | 905.57            | 905.36            | 0.21             | 0.35               | 0.01               |                 | 10360.00           |                  | 223.25            |
| Chattahoochee | Main  | 755410.3 1756      | 10YR    | 906.60            | 906.38            | 0.22             | 0.33               | 0.01               |                 | 11460.00           |                  | 225.50            |
| Chattahoochee | Main  | 755410.3 1756      | 50YR    | 907.56            | 907.35            | 0.21             | 0.29               | 0.01               |                 | 12000.00           |                  | 227.50            |
| Chattahoochee | Main  | 755410.3 1756      | 100YR   | 907.79            | 907.59            | 0.20             | 0.28               | 0.01               |                 | 12000.00           |                  | 228.25            |
| Chattahoochee | Main  | 755410.3 1756      | 500YR   | 910.39            | 910.25            | 0.14             | 0.17               | 0.01               |                 | 12000.00           |                  | 239.93            |
| Chattahoochee | Main  | 754547.9 1755      | 2YR     | 905.21            | 905.03            | 0.18             | 0.62               | 0.01               |                 | 10360.00           |                  | 232.31            |
| Chattahoochee | Main  | 754547.9 1755      | 10YR    | 906.26            | 906.07            | 0.19             | 0.60               | 0.01               |                 | 11460.00           |                  | 234.89            |
| Chattahoochee | Main  | 754547.9 1755      | 50YR    | 907.26            | 907.08            | 0.18             | 0.52               | 0.01               |                 | 12000.00           |                  | 237.03            |
| Chattahoochee | Main  | 754547.9 1755      | 100YR   | 907.51            | 907.33            | 0.18             | 0.50               | 0.01               |                 | 12000.00           |                  | 237.56            |
| Chattahoochee | Main  | 754547.9 1755      | 500YR   | 910.22            | 910.10            | 0.13             | 0.34               | 0.00               |                 | 12000.00           |                  | 245.79            |
| Chattahoochee | Main  | 752673.8 628       | 2YR     | 904.59            | 904.44            | 0.15             | 0.27               | 0.01               |                 | 10360.00           |                  | 247.38            |
| Chattahoochee | Main  | 752673.8 628       | 10YR    | 905.65            | 905.50            | 0.16             | 0.26               | 0.01               |                 | 11460.00           |                  | 251.03            |
| Chattahoochee | Main  | 752673.8 628       | 50YR    | 906.73            | 906.58            | 0.15             | 0.23               | 0.01               |                 | 12000.00           |                  | 254.44            |
| Chattahoochee | Main  | 752673.8 628       | 100YR   | 907.00            | 906.86            | 0.14             | 0.22               | 0.01               |                 | 12000.00           |                  | 255.25            |
| Chattahoochee | Main  | 752673.8 628       | 500YR   | 909.88            | 909.75            | 0.13             | 0.17               | 0.01               |                 | 13752.00           |                  | 307.37            |
| Chattahoochee | Main  | 751868.0 780       | 2YR     | 904.31            | 904.11            | 0.20             | 0.83               | 0.01               |                 | 10360.00           |                  | 203.12            |
| Chattahoochee | Main  | 751868.0 780       | 10YR    | 905.38            | 905.17            | 0.21             | 0.81               | 0.01               |                 | 11460.00           |                  | 204.63            |
| Chattahoochee | Main  | 751868.0 780       | 50YR    | 906.49            | 906.28            | 0.20             | 0.70               | 0.01               |                 | 12000.00           |                  | 206.21            |
| Chattahoochee | Main  | 751868.0 780       | 100YR   | 906.77            | 906.58            | 0.20             | 0.66               | 0.01               |                 | 12000.00           |                  | 206.62            |
| Chattahoochee | Main  | 751868.0 780       | 500YR   | 909.71            | 909.52            | 0.18             | 0.52               | 0.01               |                 | 13752.00           |                  | 212.13            |
| Chattahoochee | Main  | 749433.3 2388      | 2YR     | 903.47            | 903.30            | 0.17             | 0.24               | 0.03               |                 | 10360.00           |                  | 217.91            |
| Chattahoochee | Main  | 749433.3 2388      | 10YR    | 904.57            | 904.39            | 0.18             | 0.24               | 0.03               |                 | 11460.00           |                  | 219.76            |
| Chattahoochee | Main  | 749433.3 2388      | 50YR    | 905.78            | 905.61            | 0.17             | 0.20               | 0.03               |                 | 12000.00           |                  | 221.84            |
| Chattahoochee | Main  | 749433.3 2388      | 100YR   | 906.10            | 905.94            | 0.16             | 0.19               | 0.03               |                 | 12000.00           |                  | 222.40            |
| Chattahoochee | Main  | 749433.3 2388      | 500YR   | 909.18            | 909.03            | 0.15             | 0.15               | 0.03               |                 | 13752.00           |                  | 229.62            |
| Chattahoochee | Main  | 747909.1 1757      | 2YR     | 903.20            | 903.13            | 0.07             | 0.37               | 0.01               |                 | 10360.00           |                  | 315.59            |
| Chattahoochee | Main  | 747909.1 1757      | 10YR    | 904.30            | 904.22            | 0.08             | 0.37               | 0.01               |                 | 11460.00           |                  | 318.23            |
| Chattahoochee | Main  | 747909.1 1757      | 50YR    | 905.54            | 905.47            | 0.07             | 0.32               | 0.01               |                 | 12000.00           |                  | 321.24            |
| Chattahoochee | Main  | 747909.1 1757      | 100YR   | 905.88            | 905.81            | 0.07             | 0.30               | 0.01               |                 | 12000.00           |                  | 322.05            |
| Chattahoochee | Main  | 747909.1 1757      | 500YR   | 909.00            | 908.93            | 0.07             | 0.25               | 0.01               |                 | 13747.96           | 4.04             | 517.45            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 2YR     | 902.82            | 902.68            | 0.14             | 0.83               | 0.01               |                 | 10360.00           |                  | 209.10            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 10YR    | 903.92            | 903.77            | 0.15             | 0.82               | 0.01               |                 | 11460.00           |                  | 210.75            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 50YR    | 905.22            | 905.07            | 0.14             | 0.70               | 0.01               |                 | 12000.00           |                  | 212.71            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 100YR   | 905.57            | 905.43            | 0.14             | 0.65               | 0.01               |                 | 12000.00           |                  | 213.26            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 500YR   | 908.75            | 908.61            | 0.13             | 0.50               | 0.00               |                 | 13751.82           | 0.18             | 683.23            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 2YR     | 901.98            | 901.76            | 0.22             | 0.09               | 0.02               |                 | 10360.00           |                  | 249.38            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 10YR    | 903.10            | 902.87            | 0.23             | 0.09               | 0.02               |                 | 11460.00           |                  | 328.77            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 50YR    | 904.51            | 904.30            | 0.20             | 0.07               | 0.02               |                 | 12000.00           |                  | 431.04            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 100YR   | 904.91            | 904.72            | 0.19             | 0.06               | 0.02               |                 | 12000.00           |                  | 456.84            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 500YR   | 908.24            | 908.07            | 0.17             | 0.04               | 0.01               |                 | 13752.00           |                  | 1046.61           |
| Chattahoochee | Main  | 741238.0 cha_20400 | 2YR     | 901.88            | 901.71            | 0.17             | 0.08               | 0.01               |                 | 10360.00           |                  | 408.31            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 10YR    | 902.99            | 902.82            | 0.17             | 0.07               | 0.01               |                 | 11460.00           |                  | 572.07            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 50YR    | 904.43            | 904.28            | 0.15             | 0.06               | 0.01               |                 | 12000.00           |                  | 629.15            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 100YR   | 904.83            | 904.69            | 0.14             | 0.06               | 0.01               |                 | 12000.00           |                  | 639.23            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 500YR   | 908.18            | 908.06            | 0.12             | 0.04               | 0.00               | 16.10           | 13735.90           |                  | 1314.34           |
| Chattahoochee | Main  | 740971.6 2373      | 2YR     | 901.79            | 901.66            | 0.13             | 0.28               | 0.00               |                 | 10360.00           |                  | 466.54            |
| Chattahoochee | Main  | 740971.6 2373      | 10YR    | 902.91            | 902.77            | 0.14             | 0.28               | 0.00               |                 | 11460.00           |                  | 491.10            |
| Chattahoochee | Main  | 740971.6 2373      | 50YR    | 904.36            | 904.23            | 0.13             | 0.24               | 0.00               |                 | 12000.00           |                  | 516.20            |
| Chattahoochee | Main  | 740971.6 2373      | 100YR   | 904.77            | 904.65            | 0.12             | 0.23               | 0.00               |                 | 12000.00           |                  | 522.35            |
| Chattahoochee | Main  | 740971.6 2373      | 500YR   | 908.14            | 908.02            | 0.12             | 0.19               | 0.00               | 0.01            | 13751.99           |                  | 1091.18           |
| Chattahoochee | Main  | 739439.5 cha_20320 | 2YR     | 901.51            | 901.36            | 0.15             | 0.05               | 0.01               |                 | 10360.00           |                  | 202.03            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 10YR    | 902.63            | 902.47            | 0.16             | 0.05               | 0.01               |                 | 11460.00           |                  | 205.59            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 50YR    | 904.11            | 903.96            | 0.15             | 0.04               | 0.01               |                 | 12000.00           |                  | 211.86            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 100YR   | 904.54            | 904.40            | 0.14             | 0.04               | 0.01               |                 | 12000.00           |                  | 213.95            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 500YR   | 907.95            | 907.82            | 0.13             | 0.03               | 0.01               |                 | 13752.00           |                  | 235.70            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 2YR     | 901.45            | 901.32            | 0.13             | 0.01               | 0.01               |                 | 10354.44           | 5.56             | 227.71            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 10YR    | 902.56            | 902.42            | 0.14             | 0.01               | 0.01               |                 | 11449.28           | 10.72            | 232.91            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 50YR    | 904.06            | 903.93            | 0.13             | 0.01               | 0.01               |                 | 11980.30           | 19.70            | 239.97            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 100YR   | 904.49            | 904.37            | 0.12             | 0.01               | 0.01               |                 | 11977.42           | 22.58            | 242.04            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 500YR   | 907.91            | 907.79            | 0.12             | 0.01               | 0.01               | 0.01            | 13694.54           | 57.45            | 258.36            |
| Chattahoochee | Main  | 739022.1 cha_20300 |         | Bridge            |                   |                  |                    |                    |                 |                    |                  |                   |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 2YR     | 901.40            | 901.26            | 0.14             | 0.06               | 0.03               |                 | 10352.41           | 7.59             | 229.17            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 10YR    | 902.52            | 902.37            | 0.14             | 0.06               | 0.03               |                 | 11445.30           | 14.70            | 234.37            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 50YR    | 904.02            | 903.88            | 0.13             | 0.05               | 0.03               | 0.21            | 11972.79           | 27.00            | 244.40            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 100YR   | 904.45            | 904.33            | 0.13             | 0.05               | 0.03               | 0.53            | 11968.56           | 30.91            | 247.72            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 500YR   | 907.87            | 907.76            | 0.12             | 0.04               | 0.03               | 11.05           | 13663.25           | 77.70            | 449.48            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 2YR     | 901.31            | 901.08            | 0.23             | 0.57               | 0.03               |                 | 10360.00           |                  | 157.69            |



HEC-RAS Plan: REV Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|---------------|-------|--------------------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| Chattahoochee | Main  | 738645.7 cha_20190 | 10YR    | 902.42            | 902.17            | 0.25             | 0.57               | 0.03               |                 | 11460.00           |                  | 159.78            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 50YR    | 903.94            | 903.71            | 0.23             | 0.47               | 0.03               | 0.00            | 12000.00           |                  | 162.65            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 100YR   | 904.38            | 904.16            | 0.22             | 0.44               | 0.03               | 0.03            | 11999.97           | 0.00             | 163.69            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 500YR   | 907.81            | 907.60            | 0.21             | 0.33               | 0.03               | 1.63            | 13746.76           | 3.60             | 273.70            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 2YR     | 900.71            | 900.59            | 0.12             | 0.40               | 0.00               | 0.03            | 10358.70           | 1.26             | 223.20            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 10YR    | 901.82            | 901.69            | 0.13             | 0.39               | 0.00               | 0.54            | 11455.62           | 3.84             | 227.14            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 50YR    | 903.43            | 903.31            | 0.12             | 0.32               | 0.00               | 2.94            | 11986.73           | 10.33            | 232.93            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 100YR   | 903.91            | 903.79            | 0.12             | 0.29               | 0.00               | 4.07            | 11983.14           | 12.79            | 234.67            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 500YR   | 907.45            | 907.34            | 0.11             | 0.22               | 0.00               | 20.65           | 13675.46           | 55.89            | 291.56            |
| Chattahoochee | Main  | 733190.2 1733      | 2YR     | 900.31            | 900.19            | 0.13             | 0.56               | 0.00               | 0.00            | 10360.00           |                  | 223.45            |
| Chattahoochee | Main  | 733190.2 1733      | 10YR    | 901.43            | 901.29            | 0.14             | 0.56               | 0.01               | 0.50            | 11459.40           | 0.11             | 229.35            |
| Chattahoochee | Main  | 733190.2 1733      | 50YR    | 903.11            | 902.99            | 0.12             | 0.45               | 0.00               | 5.18            | 11993.51           | 1.30             | 250.50            |
| Chattahoochee | Main  | 733190.2 1733      | 100YR   | 903.62            | 903.50            | 0.12             | 0.41               | 0.00               | 7.48            | 11990.39           | 2.13             | 281.63            |
| Chattahoochee | Main  | 733190.2 1733      | 500YR   | 907.23            | 907.12            | 0.11             | 0.31               | 0.00               | 35.46           | 13695.53           | 21.02            | 1652.40           |
| Chattahoochee | Main  | 730384.4 cha_20000 | 2YR     | 899.74            | 899.57            | 0.18             | 0.75               | 0.01               |                 | 10360.00           |                  | 182.22            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 10YR    | 900.86            | 900.68            | 0.19             | 0.75               | 0.01               |                 | 11460.00           |                  | 183.93            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 50YR    | 902.66            | 902.48            | 0.17             | 0.68               | 0.00               | 0.17            | 11999.82           |                  | 187.84            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 100YR   | 903.20            | 903.04            | 0.16             | 0.65               | 0.00               | 0.46            | 11999.54           |                  | 189.21            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 500YR   | 906.92            | 906.77            | 0.15             | 0.61               | 0.01               | 8.00            | 13726.29           | 17.71            | 1874.13           |
| Chattahoochee | Main  | 727178.7 695       | 2YR     | 898.99            | 898.84            | 0.15             | 0.63               | 0.00               |                 | 10360.00           |                  | 211.30            |
| Chattahoochee | Main  | 727178.7 695       | 10YR    | 900.11            | 899.94            | 0.16             | 0.64               | 0.00               | 0.00            | 11460.00           |                  | 216.56            |
| Chattahoochee | Main  | 727178.7 695       | 50YR    | 901.97            | 901.79            | 0.18             | 0.64               | 0.00               | 0.89            | 13592.03           | 0.08             | 223.63            |
| Chattahoochee | Main  | 727178.7 695       | 100YR   | 902.54            | 902.35            | 0.19             | 0.64               | 0.00               | 1.66            | 14308.00           | 0.35             | 323.25            |
| Chattahoochee | Main  | 727178.7 695       | 500YR   | 906.30            | 906.03            | 0.27             | 0.71               | 0.00               | 17.87           | 20285.78           | 12.35            | 1974.06           |
| Chattahoochee | Main  | 724525.6 cha_19900 | 2YR     | 898.36            | 898.19            | 0.17             | 0.30               | 0.02               |                 | 10360.00           |                  | 198.41            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 10YR    | 899.47            | 899.28            | 0.18             | 0.31               | 0.02               |                 | 11460.00           |                  | 210.36            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 50YR    | 901.33            | 901.13            | 0.21             | 0.31               | 0.02               |                 | 13592.41           | 0.59             | 634.95            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 100YR   | 901.90            | 901.68            | 0.22             | 0.31               | 0.02               |                 | 14308.56           | 1.44             | 696.74            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 500YR   | 905.58            | 905.28            | 0.30             | 0.35               | 0.03               | 5.53            | 20273.92           | 36.55            | 2724.26           |
| Chattahoochee | Main  | 723016.0 2374      | 2YR     | 898.04            | 897.92            | 0.12             | 0.08               | 0.00               |                 | 10360.00           |                  | 231.39            |
| Chattahoochee | Main  | 723016.0 2374      | 10YR    | 899.14            | 899.01            | 0.13             | 0.09               | 0.00               |                 | 11460.00           |                  | 236.21            |
| Chattahoochee | Main  | 723016.0 2374      | 50YR    | 901.01            | 900.86            | 0.15             | 0.09               | 0.00               | 4.24            | 13588.63           | 0.14             | 271.00            |
| Chattahoochee | Main  | 723016.0 2374      | 100YR   | 901.57            | 901.42            | 0.15             | 0.09               | 0.00               | 8.58            | 14300.87           | 0.55             | 354.00            |
| Chattahoochee | Main  | 723016.0 2374      | 500YR   | 905.21            | 904.99            | 0.22             | 0.10               | 0.00               | 79.36           | 20213.51           | 23.12            | 3305.32           |
| Chattahoochee | Main  | 722465.4 cha_19800 | 2YR     | 897.95            | 897.81            | 0.14             | 0.46               | 0.00               |                 | 10360.00           |                  | 203.11            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 10YR    | 899.06            | 898.90            | 0.15             | 0.46               | 0.00               |                 | 11460.00           |                  | 206.42            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 50YR    | 900.91            | 900.74            | 0.17             | 0.48               | 0.00               |                 | 13593.00           |                  | 567.54            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 100YR   | 901.48            | 901.30            | 0.18             | 0.48               | 0.00               |                 | 14310.00           |                  | 845.74            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 500YR   | 905.10            | 904.84            | 0.26             | 0.52               | 0.00               | 1.84            | 20252.47           | 61.69            | 2873.75           |
| Chattahoochee | Main  | 719651.2 1734      | 2YR     | 897.49            | 897.32            | 0.17             | 0.43               | 0.00               |                 | 10360.00           | 0.00             | 219.28            |
| Chattahoochee | Main  | 719651.2 1734      | 10YR    | 898.59            | 898.41            | 0.18             | 0.43               | 0.00               | 0.08            | 11459.80           | 0.12             | 244.25            |
| Chattahoochee | Main  | 719651.2 1734      | 50YR    | 900.43            | 900.22            | 0.21             | 0.43               | 0.00               | 2.86            | 13588.75           | 1.38             | 609.16            |
| Chattahoochee | Main  | 719651.2 1734      | 100YR   | 900.99            | 900.77            | 0.22             | 0.43               | 0.00               | 4.91            | 14302.81           | 2.28             | 983.64            |
| Chattahoochee | Main  | 719651.2 1734      | 500YR   | 904.58            | 904.32            | 0.26             | 0.45               | 0.01               | 43.40           | 18913.25           | 1359.35          | 2755.65           |
| Chattahoochee | Main  | 717546.8 cha_19600 | 2YR     | 897.06            | 896.87            | 0.19             | 0.71               | 0.00               |                 | 10360.00           |                  | 195.84            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 10YR    | 898.16            | 897.96            | 0.20             | 0.69               | 0.00               |                 | 11459.91           | 0.09             | 200.03            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 50YR    | 900.01            | 899.78            | 0.23             | 0.68               | 0.00               | 0.09            | 13591.73           | 1.18             | 583.95            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 100YR   | 900.56            | 900.32            | 0.24             | 0.68               | 0.00               | 0.48            | 14307.65           | 1.86             | 743.34            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 500YR   | 904.12            | 903.78            | 0.33             | 0.67               | 0.03               | 54.95           | 20248.51           | 12.54            | 2125.09           |
| Chattahoochee | Main  | 714679.4 cha_19520 | 2YR     | 896.35            | 896.15            | 0.20             | 0.09               | 0.01               |                 | 10360.00           |                  | 216.90            |
| Chattahoochee | Main  | 714679.4 cha_19520 | 10YR    | 897.47            | 897.27            | 0.21             | 0.09               | 0.02               |                 | 11460.00           |                  | 219.73            |
| Chattahoochee | Main  | 714679.4 cha_19520 | 50YR    | 899.33            | 899.10            | 0.23             | 0.08               | 0.02               |                 | 13593.00           | 0.00             | 786.30            |
| Chattahoochee | Main  | 714679.4 cha_19520 | 100YR   | 899.88            | 899.65            | 0.24             | 0.08               | 0.02               | 0.00            | 14307.85           | 2.15             | 1074.41           |
| Chattahoochee | Main  | 714679.4 cha_19520 | 500YR   | 903.42            | 903.17            | 0.25             | 0.08               | 0.00               | 7.80            | 18621.74           | 1686.46          | 1912.15           |
| Chattahoochee | Main  | 714318.7           | 2YR     | 896.24            | 896.07            | 0.17             | 0.01               | 0.00               |                 | 9920.41            | 439.59           | 442.06            |
| Chattahoochee | Main  | 714318.7           | 10YR    | 897.37            | 897.20            | 0.18             | 0.01               | 0.00               |                 | 10861.67           | 598.33           | 478.10            |
| Chattahoochee | Main  | 714318.7           | 50YR    | 899.22            | 899.04            | 0.19             | 0.01               | 0.00               |                 | 12687.13           | 905.87           | 613.14            |
| Chattahoochee | Main  | 714318.7           | 100YR   | 899.78            | 899.59            | 0.19             | 0.01               | 0.00               | 0.06            | 13301.94           | 1008.01          | 930.60            |
| Chattahoochee | Main  | 714318.7           | 500YR   | 903.34            | 903.09            | 0.25             | 0.01               | 0.00               | 24.12           | 18464.08           | 1827.81          | 1950.71           |
| Chattahoochee | Main  | 714229.6 cha_19500 |         | Bridge            |                   |                  |                    |                    |                 |                    |                  |                   |
| Chattahoochee | Main  | 714014.2           | 2YR     | 896.15            | 895.98            | 0.18             | 0.14               | 0.02               |                 | 10360.00           |                  | 218.27            |
| Chattahoochee | Main  | 714014.2           | 10YR    | 897.29            | 897.10            | 0.19             | 0.14               | 0.03               |                 | 11460.00           |                  | 221.35            |
| Chattahoochee | Main  | 714014.2           | 50YR    | 899.14            | 898.93            | 0.21             | 0.13               | 0.03               |                 | 13592.91           | 0.09             | 999.99            |
| Chattahoochee | Main  | 714014.2           | 100YR   | 899.70            | 899.48            | 0.22             | 0.13               | 0.03               | 0.04            | 14308.59           | 1.37             | 1178.25           |
| Chattahoochee | Main  | 714014.2           | 500YR   | 903.25            | 902.95            | 0.29             | 0.14               | 0.05               | 44.24           | 20159.56           | 112.19           | 2144.15           |
| Chattahoochee | Main  | 713569.6 cha_19390 | 2YR     | 895.99            | 895.73            | 0.26             | 0.39               | 0.02               |                 | 10360.00           |                  | 173.07            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 10YR    | 897.12            | 896.85            | 0.28             | 0.39               | 0.02               |                 | 11460.00           |                  | 176.27            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 50YR    | 898.97            | 898.67            | 0.31             | 0.39               | 0.02               | 0.08            | 13592.46           | 0.46             | 417.42            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 100YR   | 899.53            | 899.21            | 0.32             | 0.39               | 0.03               | 0.35            | 14308.22           | 1.43             | 677.95            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 500YR   | 903.05            | 902.60            | 0.45             | 0.44               | 0.04               | 19.61           | 20258.97           | 37.42            | 2301.84           |
| Chattahoochee | Main  | 712195.4 cha_19300 | 2YR     | 895.57            | 895.39            | 0.18             | 0.44               | 0.00               | 2.66            | 10356.92           | 0.42             | 197.53            |
| Chattahoochee | Main  | 712195.4 cha_19300 | 10YR    | 896.71            | 896.52            | 0.19             | 0.43               | 0.00               | 6.40            | 11451.86           | 1.74             | 201.19            |

HEC-RAS Plan: REV Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|---------------|-------|--------------------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| Chattahoochee | Main  | 712195.4 cha_19300 | 50YR    | 898.56            | 898.34            | 0.23             | 0.45               | 0.00               | 17.59           | 13691.54           | 6.87             | 397.37            |
| Chattahoochee | Main  | 712195.4 cha_19300 | 100YR   | 899.12            | 898.88            | 0.24             | 0.45               | 0.00               | 22.40           | 14386.28           | 9.31             | 651.57            |
| Chattahoochee | Main  | 712195.4 cha_19300 | 500YR   | 902.58            | 902.25            | 0.33             | 0.45               | 0.03               | 88.58           | 20009.70           | 113.72           | 1244.99           |
| Chattahoochee | Main  | 710158.5 cha_19200 | 2YR     | 895.13            | 894.95            | 0.17             | 0.36               | 0.01               |                 | 10350.67           | 9.33             | 227.59            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 10YR    | 896.28            | 896.09            | 0.19             | 0.35               | 0.01               |                 | 11440.22           | 19.78            | 356.70            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 50YR    | 898.11            | 897.90            | 0.22             | 0.36               | 0.01               | 0.42            | 13663.90           | 51.68            | 803.61            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 100YR   | 898.66            | 898.44            | 0.23             | 0.35               | 0.01               | 2.76            | 14349.32           | 65.93            | 887.89            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 500YR   | 902.10            | 901.88            | 0.22             | 0.32               | 0.01               | 2295.55         | 17677.12           | 239.33           | 1343.21           |
| Chattahoochee | Main  | 708330.8 1735      | 2YR     | 894.76            | 894.62            | 0.15             | 0.22               | 0.00               | 1.59            | 10357.20           | 1.21             | 266.53            |
| Chattahoochee | Main  | 708330.8 1735      | 10YR    | 895.92            | 895.77            | 0.15             | 0.21               | 0.00               | 4.62            | 11451.18           | 4.20             | 289.63            |
| Chattahoochee | Main  | 708330.8 1735      | 50YR    | 897.74            | 897.56            | 0.18             | 0.21               | 0.00               | 18.90           | 13683.52           | 13.58            | 638.13            |
| Chattahoochee | Main  | 708330.8 1735      | 100YR   | 898.30            | 898.12            | 0.18             | 0.21               | 0.00               | 209.96          | 14190.51           | 17.53            | 832.86            |
| Chattahoochee | Main  | 708330.8 1735      | 500YR   | 901.77            | 901.57            | 0.20             | 0.21               | 0.01               | 1247.72         | 18222.94           | 741.34           | 1270.18           |
| Chattahoochee | Main  | 707189.2 2375      | 2YR     | 894.54            | 894.38            | 0.16             | 0.15               | 0.01               | 1.31            | 10350.62           | 8.07             | 221.17            |
| Chattahoochee | Main  | 707189.2 2375      | 10YR    | 895.71            | 895.54            | 0.17             | 0.14               | 0.01               | 4.25            | 11434.88           | 20.87            | 244.88            |
| Chattahoochee | Main  | 707189.2 2375      | 50YR    | 897.53            | 897.33            | 0.20             | 0.15               | 0.01               | 30.95           | 13626.52           | 58.54            | 472.32            |
| Chattahoochee | Main  | 707189.2 2375      | 100YR   | 898.09            | 897.88            | 0.20             | 0.15               | 0.01               | 47.19           | 14291.74           | 79.07            | 623.77            |
| Chattahoochee | Main  | 707189.2 2375      | 500YR   | 901.55            | 901.28            | 0.27             | 0.16               | 0.01               | 219.10          | 19590.99           | 401.91           | 829.42            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 2YR     | 894.39            | 894.25            | 0.14             | 0.10               | 0.01               | 6.39            | 10350.74           | 2.87             | 283.99            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 10YR    | 895.56            | 895.41            | 0.15             | 0.10               | 0.01               | 13.76           | 11438.33           | 7.92             | 328.99            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 50YR    | 897.38            | 897.20            | 0.18             | 0.10               | 0.01               | 31.20           | 13662.67           | 22.13            | 468.49            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 100YR   | 897.93            | 897.75            | 0.18             | 0.10               | 0.01               | 42.51           | 14345.75           | 29.74            | 582.90            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 500YR   | 901.38            | 901.14            | 0.23             | 0.11               | 0.01               | 666.42          | 19352.34           | 193.24           | 949.09            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 2YR     | 894.28            | 894.12            | 0.16             | 0.01               | 0.01               | 85.49           | 10260.48           | 14.03            | 274.00            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 10YR    | 895.45            | 895.28            | 0.17             | 0.01               | 0.01               | 138.02          | 11295.68           | 26.30            | 282.38            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 50YR    | 897.27            | 897.07            | 0.19             | 0.01               | 0.01               | 231.86          | 13427.26           | 56.87            | 453.52            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 100YR   | 897.82            | 897.62            | 0.20             | 0.01               | 0.01               | 277.01          | 14071.83           | 69.16            | 516.04            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 500YR   | 901.25            | 900.98            | 0.27             | 0.02               | 0.02               | 654.29          | 19326.73           | 230.98           | 971.36            |
| Chattahoochee | Main  | 705714.6 cha_19100 |         | Bridge            |                   |                  |                    |                    |                 |                    |                  |                   |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 2YR     | 894.17            | 893.95            | 0.22             | 0.22               | 0.00               | 2.81            | 10342.04           | 15.15            | 231.06            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 10YR    | 895.35            | 895.12            | 0.23             | 0.21               | 0.00               | 16.31           | 11414.91           | 28.78            | 251.72            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 50YR    | 897.16            | 896.90            | 0.26             | 0.21               | 0.00               | 58.54           | 13593.55           | 63.91            | 405.79            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 100YR   | 897.71            | 897.45            | 0.27             | 0.21               | 0.00               | 83.84           | 14238.10           | 96.07            | 428.32            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 500YR   | 901.06            | 900.71            | 0.35             | 0.22               | 0.01               | 329.04          | 19481.29           | 401.67           | 676.93            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 2YR     | 893.94            | 893.71            | 0.23             | 0.50               | 0.02               |                 | 10360.00           |                  | 202.23            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 10YR    | 895.13            | 894.89            | 0.24             | 0.47               | 0.02               |                 | 11460.00           |                  | 206.91            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 50YR    | 896.95            | 896.68            | 0.27             | 0.47               | 0.02               | 0.47            | 13710.77           | 4.76             | 260.59            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 100YR   | 897.50            | 897.23            | 0.28             | 0.47               | 0.02               | 1.09            | 14403.75           | 13.17            | 377.92            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 500YR   | 900.83            | 900.46            | 0.37             | 0.51               | 0.03               | 49.04           | 20027.50           | 135.46           | 1044.43           |
| Chattahoochee | Main  | 703142.4 cha_18900 | 2YR     | 893.42            | 893.26            | 0.16             | 0.38               | 0.00               | 0.03            | 10359.73           | 0.23             | 247.88            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 10YR    | 894.64            | 894.47            | 0.17             | 0.36               | 0.00               | 0.92            | 11457.73           | 1.35             | 332.38            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 50YR    | 896.46            | 896.26            | 0.20             | 0.37               | 0.00               | 6.34            | 13700.69           | 8.97             | 586.45            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 100YR   | 897.02            | 896.81            | 0.21             | 0.37               | 0.00               | 9.39            | 14391.33           | 17.28            | 607.84            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 500YR   | 900.29            | 900.00            | 0.29             | 0.42               | 0.00               | 110.08          | 19914.60           | 187.32           | 1419.30           |

# Six Cross Section Profile Table

HEC-RAS Plan: REV Locations: User Defined

| River         | Reach | River Sta               | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Top Width<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Vel Chnl<br>(ft/s) |
|---------------|-------|-------------------------|---------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-----------------|--------------------|------------------|--------------------|
| Chattahoochee | Main  | 757224.6 cha_20570      | 2YR     | 906.22            | 906.02            | 896.72            | 0.66               | 0.00               | 227.37            |                 | 10360.00           |                  | 3.60               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 10YR    | 907.23            | 907.02            | 897.02            | 0.63               | 0.00               | 230.04            |                 | 11460.00           |                  | 3.69               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 50YR    | 908.13            | 907.92            | 897.16            | 0.56               | 0.00               | 232.45            |                 | 12000.00           |                  | 3.62               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 100YR   | 908.33            | 908.13            | 897.16            | 0.54               | 0.00               | 233.01            |                 | 12000.00           |                  | 3.57               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 500YR   | 910.72            | 910.58            | 897.16            | 0.33               | 0.00               | 242.32            |                 | 12000.00           |                  | 3.04               |
| Chattahoochee | Main  | 755410.3 1756           | 2YR     | 905.57            | 905.36            | 895.81            | 0.35               | 0.01               | 223.25            |                 | 10360.00           |                  | 3.66               |
| Chattahoochee | Main  | 755410.3 1756           | 10YR    | 906.60            | 906.38            | 896.12            | 0.33               | 0.01               | 225.50            |                 | 11460.00           |                  | 3.75               |
| Chattahoochee | Main  | 755410.3 1756           | 50YR    | 907.56            | 907.35            | 896.28            | 0.29               | 0.01               | 227.50            |                 | 12000.00           |                  | 3.66               |
| Chattahoochee | Main  | 755410.3 1756           | 100YR   | 907.79            | 907.59            | 896.28            | 0.28               | 0.01               | 228.25            |                 | 12000.00           |                  | 3.60               |
| Chattahoochee | Main  | 755410.3 1756           | 500YR   | 910.39            | 910.25            | 896.28            | 0.17               | 0.01               | 239.93            |                 | 12000.00           |                  | 3.03               |
| Chattahoochee | Main  | 754547.9 1755           | 2YR     | 905.21            | 905.03            | 895.12            | 0.62               | 0.01               | 232.31            |                 | 10360.00           |                  | 3.45               |
| Chattahoochee | Main  | 754547.9 1755           | 10YR    | 906.26            | 906.07            | 895.44            | 0.60               | 0.01               | 234.89            |                 | 11460.00           |                  | 3.53               |
| Chattahoochee | Main  | 754547.9 1755           | 50YR    | 907.26            | 907.08            | 895.57            | 0.52               | 0.01               | 237.03            |                 | 12000.00           |                  | 3.44               |
| Chattahoochee | Main  | 754547.9 1755           | 100YR   | 907.51            | 907.33            | 895.57            | 0.50               | 0.01               | 237.56            |                 | 12000.00           |                  | 3.38               |
| Chattahoochee | Main  | 754547.9 1755           | 500YR   | 910.22            | 910.10            | 895.57            | 0.34               | 0.00               | 245.79            |                 | 12000.00           |                  | 2.85               |
| Chattahoochee | Main  | 752673.8 628            | 2YR     | 904.59            | 904.44            | 893.62            | 0.27               | 0.01               | 247.38            |                 | 10360.00           |                  | 3.08               |
| Chattahoochee | Main  | 752673.8 628            | 10YR    | 905.65            | 905.50            | 893.94            | 0.26               | 0.01               | 251.03            |                 | 11460.00           |                  | 3.16               |
| Chattahoochee | Main  | 752673.8 628            | 50YR    | 906.73            | 906.58            | 894.10            | 0.23               | 0.01               | 254.44            |                 | 12000.00           |                  | 3.08               |
| Chattahoochee | Main  | 752673.8 628            | 100YR   | 907.00            | 906.86            | 894.10            | 0.22               | 0.01               | 255.25            |                 | 12000.00           |                  | 3.02               |
| Chattahoochee | Main  | 752673.8 628            | 500YR   | 909.88            | 909.75            | 894.57            | 0.17               | 0.01               | 307.37            |                 | 13752.00           |                  | 2.91               |
| Chattahoochee | Main  | 751868.0 780            | 2YR     | 904.31            | 904.11            | 893.80            | 0.83               | 0.01               | 203.12            |                 | 10360.00           |                  | 3.62               |
| Chattahoochee | Main  | 751868.0 780            | 10YR    | 905.38            | 905.17            | 894.12            | 0.81               | 0.01               | 204.63            |                 | 11460.00           |                  | 3.72               |
| Chattahoochee | Main  | 751868.0 780            | 50YR    | 906.49            | 906.28            | 894.25            | 0.70               | 0.01               | 206.21            |                 | 12000.00           |                  | 3.63               |
| Chattahoochee | Main  | 751868.0 780            | 100YR   | 906.77            | 906.58            | 894.25            | 0.66               | 0.01               | 206.62            |                 | 12000.00           |                  | 3.56               |
| Chattahoochee | Main  | 751868.0 780            | 500YR   | 909.71            | 909.52            | 894.78            | 0.52               | 0.01               | 212.13            |                 | 13752.00           |                  | 3.45               |
| Chattahoochee | Main  | 749433.3 2388           | 2YR     | 903.47            | 903.30            | 892.20            | 0.24               | 0.03               | 217.91            |                 | 10360.00           |                  | 3.31               |
| Chattahoochee | Main  | 749433.3 2388           | 10YR    | 904.57            | 904.39            | 892.52            | 0.24               | 0.03               | 219.76            |                 | 11460.00           |                  | 3.41               |
| Chattahoochee | Main  | 749433.3 2388           | 50YR    | 905.78            | 905.61            | 892.68            | 0.20               | 0.03               | 221.84            |                 | 12000.00           |                  | 3.30               |
| Chattahoochee | Main  | 749433.3 2388           | 100YR   | 906.10            | 905.94            | 892.68            | 0.19               | 0.03               | 222.40            |                 | 12000.00           |                  | 3.24               |
| Chattahoochee | Main  | 749433.3 2388           | 500YR   | 909.18            | 909.03            | 893.18            | 0.15               | 0.03               | 229.62            |                 | 13752.00           |                  | 3.12               |
| Chattahoochee | Main  | 747909.1 1757           | 2YR     | 903.20            | 903.13            | 890.18            | 0.37               | 0.01               | 315.59            |                 | 10360.00           |                  | 2.18               |
| Chattahoochee | Main  | 747909.1 1757           | 10YR    | 904.30            | 904.22            | 890.43            | 0.37               | 0.01               | 318.23            |                 | 11460.00           |                  | 2.24               |
| Chattahoochee | Main  | 747909.1 1757           | 50YR    | 905.54            | 905.47            | 890.56            | 0.32               | 0.01               | 321.24            |                 | 12000.00           |                  | 2.18               |
| Chattahoochee | Main  | 747909.1 1757           | 100YR   | 905.88            | 905.81            | 890.56            | 0.30               | 0.01               | 322.05            |                 | 12000.00           |                  | 2.14               |
| Chattahoochee | Main  | 747909.1 1757           | 500YR   | 909.00            | 908.93            | 890.94            | 0.25               | 0.01               | 517.45            |                 | 13747.96           | 4.04             | 2.07               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 2YR     | 902.82            | 902.68            | 889.30            | 0.83               | 0.01               | 209.10            |                 | 10360.00           |                  | 3.00               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 10YR    | 903.92            | 903.77            | 889.63            | 0.82               | 0.01               | 210.75            |                 | 11460.00           |                  | 3.11               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 50YR    | 905.22            | 905.07            | 889.80            | 0.70               | 0.01               | 212.71            |                 | 12000.00           |                  | 3.03               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 100YR   | 905.57            | 905.43            | 889.80            | 0.65               | 0.01               | 213.26            |                 | 12000.00           |                  | 2.97               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 500YR   | 908.75            | 908.61            | 890.31            | 0.50               | 0.00               | 683.23            |                 | 13751.82           | 0.18             | 2.91               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 2YR     | 901.98            | 901.76            | 892.15            | 0.09               | 0.02               | 249.38            |                 | 10360.00           |                  | 3.77               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 10YR    | 903.10            | 902.87            | 892.49            | 0.09               | 0.02               | 328.77            |                 | 11460.00           |                  | 3.84               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 50YR    | 904.51            | 904.30            | 892.65            | 0.07               | 0.02               | 431.04            |                 | 12000.00           |                  | 3.63               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 100YR   | 904.91            | 904.72            | 892.65            | 0.06               | 0.02               | 456.84            |                 | 12000.00           |                  | 3.53               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 500YR   | 908.24            | 908.07            | 893.15            | 0.04               | 0.01               | 1046.61           |                 | 13752.00           |                  | 3.30               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 2YR     | 901.88            | 901.71            | 891.54            | 0.08               | 0.01               | 408.31            |                 | 10360.00           |                  | 3.27               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 10YR    | 902.99            | 902.82            | 892.15            | 0.07               | 0.01               | 572.07            |                 | 11460.00           |                  | 3.30               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 50YR    | 904.43            | 904.28            | 892.37            | 0.06               | 0.01               | 629.15            |                 | 12000.00           |                  | 3.10               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 100YR   | 904.83            | 904.69            | 892.37            | 0.06               | 0.01               | 639.23            |                 | 12000.00           |                  | 3.01               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 500YR   | 908.18            | 908.06            | 893.29            | 0.04               | 0.00               | 1314.34           | 16.10           | 13735.90           |                  | 2.78               |
| Chattahoochee | Main  | 740971.6 2373           | 2YR     | 901.79            | 901.66            | 886.86            | 0.28               | 0.00               | 466.54            |                 | 10360.00           |                  | 2.86               |
| Chattahoochee | Main  | 740971.6 2373           | 10YR    | 902.91            | 902.77            | 887.23            | 0.28               | 0.00               | 491.10            |                 | 11460.00           |                  | 2.97               |
| Chattahoochee | Main  | 740971.6 2373           | 50YR    | 904.36            | 904.23            | 887.36            | 0.24               | 0.00               | 516.20            |                 | 12000.00           |                  | 2.87               |
| Chattahoochee | Main  | 740971.6 2373           | 100YR   | 904.77            | 904.65            | 887.36            | 0.23               | 0.00               | 522.35            |                 | 12000.00           |                  | 2.81               |
| Chattahoochee | Main  | 740971.6 2373           | 500YR   | 908.14            | 908.02            | 887.93            | 0.19               | 0.00               | 1091.18           | 0.01            | 13751.99           |                  | 2.73               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 2YR     | 901.51            | 901.36            | 887.39            | 0.05               | 0.01               | 202.03            |                 | 10360.00           |                  | 3.09               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 10YR    | 902.63            | 902.47            | 887.75            | 0.05               | 0.01               | 205.59            |                 | 11460.00           |                  | 3.20               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 50YR    | 904.11            | 903.96            | 887.91            | 0.04               | 0.01               | 211.86            |                 | 12000.00           |                  | 3.08               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 100YR   | 904.54            | 904.40            | 887.91            | 0.04               | 0.01               | 213.95            |                 | 12000.00           |                  | 3.01               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 500YR   | 907.95            | 907.82            | 888.45            | 0.03               | 0.01               | 235.70            |                 | 13752.00           |                  | 2.89               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 2YR     | 901.45            | 901.32            | 886.89            | 0.01               | 0.01               | 227.71            |                 | 10354.44           | 5.56             | 2.89               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 10YR    | 902.56            | 902.42            | 887.26            | 0.01               | 0.01               | 232.91            |                 | 11449.28           | 10.72            | 3.00               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 50YR    | 904.06            | 903.93            | 887.42            | 0.01               | 0.01               | 239.97            |                 | 11980.30           | 19.70            | 2.89               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 100YR   | 904.49            | 904.37            | 887.42            | 0.01               | 0.01               | 242.04            |                 | 11977.42           | 22.58            | 2.82               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 500YR   | 907.91            | 907.79            | 887.97            | 0.01               | 0.01               | 258.36            | 0.01            | 13694.54           | 57.45            | 2.74               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 2YR     | 901.43            | 901.27            | 887.65            | 0.01               | 0.00               | 221.51            |                 | 10349.18           | 10.82            | 3.16               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 10YR    | 902.55            | 902.38            | 888.06            | 0.01               | 0.00               | 225.36            |                 | 11439.02           | 20.98            | 3.26               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 50YR    | 904.04            | 903.89            | 888.25            | 0.01               | 0.00               | 226.22            |                 | 11959.72           | 40.28            | 3.13               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 100YR   | 904.48            | 904.33            | 888.25            | 0.01               | 0.00               | 226.87            |                 | 11954.20           | 45.80            | 3.05               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 500YR   | 907.89            | 907.76            | 888.84            | 0.01               | 0.00               | 232.16            | 0.01            | 13653.93           | 98.06            | 2.94               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 2YR     | 901.42            | 901.26            | 887.81            | 0.01               | 0.01               | 223.16            |                 | 10350.10           | 9.90             | 3.19               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 10YR    | 902.54            | 902.37            | 888.24            | 0.01               | 0.01               | 225.65            |                 | 11440.27           | 19.73            | 3.29               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 50YR    | 904.04            | 903.88            | 888.44            | 0.01               | 0.01               | 229.68            | 0.22            | 11964.15           | 35.63            | 3.15               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 100YR   | 904.47            | 904.33            | 888.44            | 0.01               | 0.01               | 231.70            | 0.63            | 11959.45           | 39.92            | 3.07               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 500YR   | 907.89            | 907.75            | 889.05            | 0.01               | 0.01               | 242.90            | 17.50           | 13654.76           | 79.74            | 2.96               |
| Chattahoochee | Main  | 738953.3 CHA_20200      | 2YR     | 901.40            | 901.26            | 887.19            | 0.06               | 0.03               | 229.17            |                 | 10352.41           | 7.59             | 2.95               |
| Chattahoochee | Main  | 738953.3 CHA_20200      | 10YR    | 902.52            | 902.37            | 887.58            | 0.06               | 0.03               | 234.37            |                 | 11445.30           | 14.70            | 3.05               |

HEC-RAS Plan: REV Locations: User Defined (Continued)

| River         | Reach | River Sta               | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Top Width<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Vel Chnl<br>(ft/s) |
|---------------|-------|-------------------------|---------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-----------------|--------------------|------------------|--------------------|
| Chattahoochee | Main  | 738953.3 CHA_20200      | 50YR    | 904.02            | 903.88            | 887.75            | 0.05               | 0.03               | 244.40            | 0.21            | 11972.79           | 27.00            | 2.93               |
| Chattahoochee | Main  | 738953.3 CHA_20200      | 100YR   | 904.45            | 904.33            | 887.75            | 0.05               | 0.03               | 247.72            | 0.53            | 11968.56           | 30.91            | 2.86               |
| Chattahoochee | Main  | 738953.3 CHA_20200      | 500YR   | 907.87            | 907.76            | 888.34            | 0.04               | 0.03               | 449.48            | 11.05           | 13663.25           | 77.70            | 2.77               |
| Chattahoochee | Main  | 738645.7 cha_20190      | 2YR     | 901.31            | 901.08            | 887.06            | 0.57               | 0.03               | 157.69            |                 | 10360.00           |                  | 3.84               |
| Chattahoochee | Main  | 738645.7 cha_20190      | 10YR    | 902.42            | 902.17            | 887.50            | 0.57               | 0.03               | 159.78            |                 | 11460.00           |                  | 3.99               |
| Chattahoochee | Main  | 738645.7 cha_20190      | 50YR    | 903.94            | 903.71            | 887.73            | 0.47               | 0.03               | 162.65            | 0.00            | 12000.00           |                  | 3.85               |
| Chattahoochee | Main  | 738645.7 cha_20190      | 100YR   | 904.38            | 904.16            | 887.73            | 0.44               | 0.03               | 163.69            | 0.03            | 11999.97           | 0.00             | 3.76               |
| Chattahoochee | Main  | 738645.7 cha_20190      | 500YR   | 907.81            | 907.60            | 888.43            | 0.33               | 0.03               | 273.70            | 1.63            | 13746.76           | 3.60             | 3.67               |
| Chattahoochee | Main  | 735717.3 cha_20100      | 2YR     | 900.71            | 900.59            | 886.05            | 0.40               | 0.00               | 223.20            | 0.03            | 10358.70           | 1.26             | 2.81               |
| Chattahoochee | Main  | 735717.3 cha_20100      | 10YR    | 901.82            | 901.69            | 886.40            | 0.39               | 0.00               | 227.14            | 0.54            | 11455.62           | 3.84             | 2.92               |
| Chattahoochee | Main  | 735717.3 cha_20100      | 50YR    | 903.43            | 903.31            | 886.56            | 0.32               | 0.00               | 232.93            | 2.94            | 11986.73           | 10.33            | 2.80               |
| Chattahoochee | Main  | 735717.3 cha_20100      | 100YR   | 903.91            | 903.79            | 886.56            | 0.29               | 0.00               | 234.67            | 4.07            | 11983.14           | 12.79            | 2.73               |
| Chattahoochee | Main  | 735717.3 cha_20100      | 500YR   | 907.45            | 907.34            | 887.07            | 0.22               | 0.00               | 291.56            | 20.65           | 13675.46           | 55.89            | 2.65               |
| Chattahoochee | Main  | 733190.2 1733           | 2YR     | 900.31            | 900.19            | 886.03            | 0.56               | 0.00               | 223.45            | 0.00            | 10360.00           |                  | 2.87               |
| Chattahoochee | Main  | 733190.2 1733           | 10YR    | 901.43            | 901.29            | 886.37            | 0.56               | 0.01               | 229.35            | 0.50            | 11459.40           | 0.11             | 2.97               |
| Chattahoochee | Main  | 733190.2 1733           | 50YR    | 903.11            | 902.99            | 886.54            | 0.45               | 0.00               | 250.50            | 5.18            | 11993.51           | 1.30             | 2.83               |
| Chattahoochee | Main  | 733190.2 1733           | 100YR   | 903.62            | 903.50            | 886.54            | 0.41               | 0.00               | 281.63            | 7.48            | 11990.39           | 2.13             | 2.76               |
| Chattahoochee | Main  | 733190.2 1733           | 500YR   | 907.23            | 907.12            | 887.06            | 0.31               | 0.00               | 1652.40           | 35.46           | 13695.53           | 21.02            | 2.65               |
| Chattahoochee | Main  | 730384.4 cha_20000      | 2YR     | 899.74            | 899.57            | 886.04            | 0.75               | 0.01               | 182.22            |                 | 10360.00           |                  | 3.36               |
| Chattahoochee | Main  | 730384.4 cha_20000      | 10YR    | 900.86            | 900.68            | 886.42            | 0.75               | 0.01               | 183.93            |                 | 11460.00           |                  | 3.49               |
| Chattahoochee | Main  | 730384.4 cha_20000      | 50YR    | 902.66            | 902.48            | 886.61            | 0.68               | 0.00               | 187.84            | 0.17            | 11999.82           |                  | 3.31               |
| Chattahoochee | Main  | 730384.4 cha_20000      | 100YR   | 903.20            | 903.04            | 886.61            | 0.65               | 0.00               | 189.21            | 0.46            | 11999.54           |                  | 3.22               |
| Chattahoochee | Main  | 730384.4 cha_20000      | 500YR   | 906.92            | 906.77            | 887.20            | 0.61               | 0.01               | 1874.13           | 8.00            | 13726.29           | 17.71            | 3.10               |
| Chattahoochee | Main  | 727178.7 695            | 2YR     | 898.99            | 898.84            | 885.31            | 0.63               | 0.00               | 211.30            |                 | 10360.00           |                  | 3.13               |
| Chattahoochee | Main  | 727178.7 695            | 10YR    | 900.11            | 899.94            | 885.67            | 0.64               | 0.00               | 216.56            | 0.00            | 11460.00           |                  | 3.23               |
| Chattahoochee | Main  | 727178.7 695            | 50YR    | 901.97            | 901.79            | 886.35            | 0.64               | 0.00               | 223.63            | 0.89            | 13592.03           | 0.08             | 3.44               |
| Chattahoochee | Main  | 727178.7 695            | 100YR   | 902.54            | 902.35            | 886.56            | 0.64               | 0.00               | 323.25            | 1.66            | 14308.00           | 0.35             | 3.51               |
| Chattahoochee | Main  | 727178.7 695            | 500YR   | 906.30            | 906.03            | 888.22            | 0.71               | 0.00               | 1974.06           | 17.87           | 20285.78           | 12.35            | 4.15               |
| Chattahoochee | Main  | 724525.6 cha_19900      | 2YR     | 898.36            | 898.19            | 885.35            | 0.30               | 0.02               | 198.41            |                 | 10360.00           |                  | 3.31               |
| Chattahoochee | Main  | 724525.6 cha_19900      | 10YR    | 899.47            | 899.28            | 885.70            | 0.31               | 0.02               | 210.36            |                 | 11460.00           |                  | 3.42               |
| Chattahoochee | Main  | 724525.6 cha_19900      | 50YR    | 901.33            | 901.13            | 886.38            | 0.31               | 0.02               | 634.95            |                 | 13592.41           | 0.59             | 3.65               |
| Chattahoochee | Main  | 724525.6 cha_19900      | 100YR   | 901.90            | 901.68            | 886.57            | 0.31               | 0.02               | 696.74            |                 | 14308.56           | 1.44             | 3.73               |
| Chattahoochee | Main  | 724525.6 cha_19900      | 500YR   | 905.58            | 905.28            | 888.23            | 0.35               | 0.03               | 2724.26           | 5.53            | 20273.92           | 36.55            | 4.43               |
| Chattahoochee | Main  | 723016.0 2374           | 2YR     | 898.04            | 897.92            | 883.87            | 0.08               | 0.00               | 231.39            |                 | 10360.00           |                  | 2.78               |
| Chattahoochee | Main  | 723016.0 2374           | 10YR    | 899.14            | 899.01            | 884.20            | 0.09               | 0.00               | 236.21            |                 | 11460.00           |                  | 2.88               |
| Chattahoochee | Main  | 723016.0 2374           | 50YR    | 901.01            | 900.86            | 884.85            | 0.09               | 0.00               | 271.00            | 4.24            | 13588.63           | 0.14             | 3.07               |
| Chattahoochee | Main  | 723016.0 2374           | 100YR   | 901.57            | 901.42            | 885.05            | 0.09               | 0.00               | 354.00            | 8.58            | 14300.87           | 0.55             | 3.14               |
| Chattahoochee | Main  | 723016.0 2374           | 500YR   | 905.21            | 904.99            | 886.80            | 0.10               | 0.00               | 3305.32           | 79.36           | 20213.51           | 23.12            | 3.74               |
| Chattahoochee | Main  | 722465.4 cha_19800      | 2YR     | 897.95            | 897.81            | 883.90            | 0.46               | 0.00               | 203.11            |                 | 10360.00           |                  | 3.00               |
| Chattahoochee | Main  | 722465.4 cha_19800      | 10YR    | 899.06            | 898.90            | 884.25            | 0.46               | 0.00               | 206.42            |                 | 11460.00           |                  | 3.12               |
| Chattahoochee | Main  | 722465.4 cha_19800      | 50YR    | 900.91            | 900.74            | 884.87            | 0.48               | 0.00               | 567.54            |                 | 13593.00           |                  | 3.35               |
| Chattahoochee | Main  | 722465.4 cha_19800      | 100YR   | 901.48            | 901.30            | 885.08            | 0.48               | 0.00               | 845.74            |                 | 14310.00           |                  | 3.42               |
| Chattahoochee | Main  | 722465.4 cha_19800      | 500YR   | 905.10            | 904.84            | 886.66            | 0.52               | 0.00               | 2873.75           | 1.84            | 20252.47           | 61.69            | 4.09               |
| Chattahoochee | Main  | 719651.2 1734           | 2YR     | 897.49            | 897.32            | 884.20            | 0.43               | 0.00               | 219.28            |                 | 10360.00           | 0.00             | 3.32               |
| Chattahoochee | Main  | 719651.2 1734           | 10YR    | 898.59            | 898.41            | 884.57            | 0.43               | 0.00               | 244.25            | 0.08            | 11459.80           | 0.12             | 3.44               |
| Chattahoochee | Main  | 719651.2 1734           | 50YR    | 900.43            | 900.22            | 885.25            | 0.43               | 0.00               | 609.16            | 2.86            | 13588.75           | 1.38             | 3.69               |
| Chattahoochee | Main  | 719651.2 1734           | 100YR   | 900.99            | 900.77            | 885.47            | 0.43               | 0.00               | 983.64            | 4.91            | 14302.81           | 2.28             | 3.77               |
| Chattahoochee | Main  | 719651.2 1734           | 500YR   | 904.58            | 904.32            | 887.18            | 0.45               | 0.01               | 2755.65           | 43.40           | 18913.25           | 1359.35          | 4.21               |
| Chattahoochee | Main  | 717546.8 cha_19600      | 2YR     | 897.06            | 896.87            | 884.04            | 0.71               | 0.00               | 195.84            |                 | 10360.00           |                  | 3.49               |
| Chattahoochee | Main  | 717546.8 cha_19600      | 10YR    | 898.16            | 897.96            | 884.42            | 0.69               | 0.00               | 200.03            |                 | 11459.91           | 0.09             | 3.59               |
| Chattahoochee | Main  | 717546.8 cha_19600      | 50YR    | 900.01            | 899.78            | 885.10            | 0.68               | 0.00               | 583.95            | 0.09            | 13591.73           | 1.18             | 3.82               |
| Chattahoochee | Main  | 717546.8 cha_19600      | 100YR   | 900.56            | 900.32            | 885.31            | 0.68               | 0.00               | 743.34            | 0.48            | 14307.65           | 1.86             | 3.90               |
| Chattahoochee | Main  | 717546.8 cha_19600      | 500YR   | 904.12            | 903.78            | 887.07            | 0.67               | 0.03               | 2125.09           | 54.95           | 20248.51           | 12.54            | 4.64               |
| Chattahoochee | Main  | 714679.4 cha_19520      | 2YR     | 896.35            | 896.15            | 886.18            | 0.09               | 0.01               | 216.90            |                 | 10360.00           |                  | 3.58               |
| Chattahoochee | Main  | 714679.4 cha_19520      | 10YR    | 897.47            | 897.27            | 886.53            | 0.09               | 0.02               | 219.73            |                 | 11460.00           |                  | 3.65               |
| Chattahoochee | Main  | 714679.4 cha_19520      | 50YR    | 899.33            | 899.10            | 887.18            | 0.08               | 0.02               | 786.30            |                 | 13593.00           | 0.00             | 3.84               |
| Chattahoochee | Main  | 714679.4 cha_19520      | 100YR   | 899.88            | 899.65            | 887.38            | 0.08               | 0.02               | 1074.41           | 0.00            | 14307.85           | 2.15             | 3.90               |
| Chattahoochee | Main  | 714679.4 cha_19520      | 500YR   | 903.42            | 903.17            | 888.84            | 0.08               | 0.00               | 1912.15           | 7.80            | 18621.74           | 1686.46          | 4.18               |
| Chattahoochee | Main  | 714318.7                | 2YR     | 896.24            | 896.07            | 885.17            | 0.01               | 0.00               | 442.06            |                 | 9920.41            | 439.59           | 3.40               |
| Chattahoochee | Main  | 714318.7                | 10YR    | 897.37            | 897.20            | 885.51            | 0.01               | 0.00               | 478.10            |                 | 10861.67           | 598.33           | 3.45               |
| Chattahoochee | Main  | 714318.7                | 50YR    | 899.22            | 899.04            | 886.17            | 0.01               | 0.00               | 613.14            |                 | 12687.13           | 905.87           | 3.59               |
| Chattahoochee | Main  | 714318.7                | 100YR   | 899.78            | 899.59            | 886.36            | 0.01               | 0.00               | 930.60            | 0.06            | 13301.94           | 1008.01          | 3.64               |
| Chattahoochee | Main  | 714318.7                | 500YR   | 903.34            | 903.09            | 887.99            | 0.01               | 0.00               | 1950.71           | 24.12           | 18464.08           | 1827.81          | 4.19               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | 2YR     | 896.23            | 896.06            | 885.03            | 0.03               | 0.00               | 242.11            |                 | 10360.00           |                  | 3.31               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | 10YR    | 897.36            | 897.19            | 885.37            | 0.03               | 0.00               | 250.78            |                 | 11460.00           |                  | 3.36               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | 50YR    | 899.21            | 899.02            | 886.01            | 0.03               | 0.00               | 281.29            |                 | 13579.69           | 13.31            | 3.50               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | 100YR   | 899.77            | 899.58            | 886.22            | 0.03               | 0.00               | 284.66            |                 | 14282.36           | 27.64            | 3.55               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | 500YR   | 903.33            | 903.08            | 887.82            | 0.03               | 0.00               | 310.00            | 13.59           | 20079.05           | 223.36           | 4.05               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | 2YR     | 896.20            | 896.03            | 884.64            | 0.04               | 0.00               | 250.64            | 1.44            | 10358.56           |                  | 3.25               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | 10YR    | 897.33            | 897.16            | 884.99            | 0.04               | 0.00               | 267.98            | 11.50           | 11448.50           |                  | 3.31               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | 50YR    | 899.18            | 899.00            | 885.64            | 0.04               | 0.01               | 296.69            | 56.41           | 13529.66           | 6.93             | 3.46               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | 100YR   | 899.74            | 899.55            | 885.86            | 0.04               | 0.01               | 299.49            | 75.40           | 14220.26           | 14.34            | 3.52               |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | 500YR   | 903.30            | 903.05            | 887.47            | 0.04               | 0.01               | 310.00            | 272.84          | 19926.11           | 117.06           | 4.06               |
| Chattahoochee | Main  | 714014.2                | 2YR     | 896.15            | 895.98            | 885.29            | 0.14               | 0.02               | 218.27            |                 | 10360.00           |                  | 3.39               |
| Chattahoochee | Main  | 714014.2                | 10YR    | 897.29            | 897.10            | 885.61            | 0.14               | 0.03               | 221.35            |                 | 11460.00           |                  | 3.47               |
| Chattahoochee | Main  | 714014.2                | 50YR    | 899.14            | 898.93            | 886.20            | 0.13               | 0.03               | 999.99            |                 | 13592.91           | 0.09             | 3.66               |
| Chattahoochee | Main  | 714014.2                | 100YR   | 899.70            | 899.48            | 886.38            | 0.13               | 0.03               | 1178.25           | 0.04            | 14308.59           | 1.37             | 3.73               |

HEC-RAS Plan: REV Locations: User Defined (Continued)

| River         | Reach | River Sta               | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Top Width<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Vel Chnl<br>(ft/s) |
|---------------|-------|-------------------------|---------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-----------------|--------------------|------------------|--------------------|
| Chattahoochee | Main  | 714014.2                | 500YR   | 903.25            | 902.95            | 887.89            | 0.14               | 0.05               | 2144.15           | 44.24           | 20159.56           | 112.19           | 4.36               |
| Chattahoochee | Main  | 713569.6 cha_19390      | 2YR     | 895.99            | 895.73            | 884.77            | 0.39               | 0.02               | 173.07            |                 | 10360.00           |                  | 4.10               |
| Chattahoochee | Main  | 713569.6 cha_19390      | 10YR    | 897.12            | 896.85            | 885.19            | 0.39               | 0.02               | 176.27            |                 | 11460.00           |                  | 4.21               |
| Chattahoochee | Main  | 713569.6 cha_19390      | 50YR    | 898.97            | 898.67            | 885.91            | 0.39               | 0.02               | 417.42            | 0.08            | 13592.46           | 0.46             | 4.46               |
| Chattahoochee | Main  | 713569.6 cha_19390      | 100YR   | 899.53            | 899.21            | 886.13            | 0.39               | 0.03               | 677.95            | 0.35            | 14308.22           | 1.43             | 4.55               |
| Chattahoochee | Main  | 713569.6 cha_19390      | 500YR   | 903.05            | 902.60            | 887.91            | 0.44               | 0.04               | 2301.84           | 19.61           | 20258.97           | 37.42            | 5.40               |
| Chattahoochee | Main  | 712195.4 cha_19300      | 2YR     | 895.57            | 895.39            | 882.37            | 0.44               | 0.00               | 197.53            | 2.66            | 10356.92           | 0.42             | 3.43               |
| Chattahoochee | Main  | 712195.4 cha_19300      | 10YR    | 896.71            | 896.52            | 882.76            | 0.43               | 0.00               | 201.19            | 6.40            | 11451.86           | 1.74             | 3.54               |
| Chattahoochee | Main  | 712195.4 cha_19300      | 50YR    | 898.56            | 898.34            | 883.50            | 0.45               | 0.00               | 397.37            | 17.59           | 13691.54           | 6.87             | 3.82               |
| Chattahoochee | Main  | 712195.4 cha_19300      | 100YR   | 899.12            | 898.88            | 883.71            | 0.45               | 0.00               | 651.57            | 22.40           | 14386.28           | 9.31             | 3.90               |
| Chattahoochee | Main  | 712195.4 cha_19300      | 500YR   | 902.58            | 902.25            | 885.39            | 0.45               | 0.03               | 1244.99           | 88.58           | 20009.70           | 113.72           | 4.62               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 2YR     | 895.13            | 894.95            | 881.81            | 0.36               | 0.01               | 227.59            |                 | 10350.67           | 9.33             | 3.34               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 10YR    | 896.28            | 896.09            | 882.19            | 0.35               | 0.01               | 356.70            |                 | 11440.22           | 19.78            | 3.46               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 50YR    | 898.11            | 897.90            | 882.93            | 0.36               | 0.01               | 803.61            | 0.42            | 13663.90           | 51.68            | 3.74               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 100YR   | 898.66            | 898.44            | 883.14            | 0.35               | 0.01               | 887.89            | 2.76            | 14349.32           | 65.93            | 3.82               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 500YR   | 902.10            | 901.88            | 884.73            | 0.32               | 0.01               | 1343.21           | 2295.55         | 17677.12           | 239.33           | 4.01               |
| Chattahoochee | Main  | 708330.8 1735           | 2YR     | 894.76            | 894.62            | 881.65            | 0.22               | 0.00               | 266.53            | 1.59            | 10357.20           | 1.21             | 3.07               |
| Chattahoochee | Main  | 708330.8 1735           | 10YR    | 895.92            | 895.77            | 882.00            | 0.21               | 0.00               | 289.63            | 4.62            | 11451.18           | 4.20             | 3.16               |
| Chattahoochee | Main  | 708330.8 1735           | 50YR    | 897.74            | 897.56            | 882.67            | 0.21               | 0.00               | 638.13            | 18.90           | 13683.52           | 13.58            | 3.41               |
| Chattahoochee | Main  | 708330.8 1735           | 100YR   | 898.30            | 898.12            | 882.87            | 0.21               | 0.00               | 832.86            | 209.96          | 14190.51           | 17.53            | 3.43               |
| Chattahoochee | Main  | 708330.8 1735           | 500YR   | 901.77            | 901.57            | 884.37            | 0.21               | 0.01               | 1270.18           | 1247.72         | 18222.94           | 741.34           | 3.74               |
| Chattahoochee | Main  | 707189.2 2375           | 2YR     | 894.54            | 894.38            | 881.44            | 0.15               | 0.01               | 221.17            | 1.31            | 10350.62           | 8.07             | 3.22               |
| Chattahoochee | Main  | 707189.2 2375           | 10YR    | 895.71            | 895.54            | 881.82            | 0.14               | 0.01               | 244.88            | 4.25            | 11434.88           | 20.87            | 3.31               |
| Chattahoochee | Main  | 707189.2 2375           | 50YR    | 897.53            | 897.33            | 882.53            | 0.15               | 0.01               | 472.32            | 30.95           | 13626.52           | 58.54            | 3.57               |
| Chattahoochee | Main  | 707189.2 2375           | 100YR   | 898.09            | 897.88            | 882.73            | 0.15               | 0.01               | 623.77            | 47.19           | 14291.74           | 79.07            | 3.64               |
| Chattahoochee | Main  | 707189.2 2375           | 500YR   | 901.55            | 901.28            | 884.38            | 0.16               | 0.01               | 829.42            | 219.10          | 19590.99           | 401.91           | 4.24               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 2YR     | 894.39            | 894.25            | 880.95            | 0.10               | 0.01               | 283.98            | 6.39            | 10350.74           | 2.87             | 3.01               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 10YR    | 895.56            | 895.41            | 881.29            | 0.10               | 0.01               | 328.99            | 13.76           | 11438.33           | 7.92             | 3.11               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 50YR    | 897.38            | 897.20            | 881.96            | 0.10               | 0.01               | 468.49            | 31.20           | 13662.67           | 22.13            | 3.37               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 100YR   | 897.93            | 897.75            | 882.16            | 0.10               | 0.01               | 582.90            | 42.51           | 14345.75           | 29.74            | 3.44               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 500YR   | 901.38            | 901.14            | 883.67            | 0.11               | 0.01               | 949.09            | 666.42          | 19352.34           | 193.24           | 3.96               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 2YR     | 894.28            | 894.12            | 881.75            | 0.01               | 0.01               | 274.00            | 85.49           | 10260.48           | 14.03            | 3.23               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 10YR    | 895.45            | 895.28            | 882.07            | 0.01               | 0.01               | 282.38            | 138.02          | 11295.68           | 26.30            | 3.32               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 50YR    | 897.27            | 897.07            | 882.76            | 0.01               | 0.01               | 453.52            | 231.86          | 13427.26           | 56.87            | 3.58               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 100YR   | 897.82            | 897.62            | 882.95            | 0.01               | 0.01               | 516.04            | 277.01          | 14071.83           | 69.16            | 3.64               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 500YR   | 901.25            | 900.98            | 884.49            | 0.02               | 0.02               | 971.36            | 654.29          | 19326.73           | 230.98           | 4.27               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 2YR     | 894.26            | 894.08            | 882.01            | 0.05               | 0.02               | 241.19            | 86.92           | 10253.47           | 19.61            | 3.46               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 10YR    | 895.44            | 895.24            | 882.35            | 0.05               | 0.02               | 245.94            | 137.18          | 11285.21           | 37.61            | 3.55               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 50YR    | 897.25            | 897.03            | 883.04            | 0.05               | 0.02               | 251.40            | 237.09          | 13392.92           | 86.00            | 3.82               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 100YR   | 897.80            | 897.57            | 883.25            | 0.05               | 0.02               | 251.52            | 271.63          | 14039.29           | 107.08           | 3.89               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 500YR   | 901.22            | 900.88            | 884.84            | 0.11               | 0.02               | 16.85             | 415.60          | 19474.62           | 321.78           | 4.73               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 2YR     | 894.20            | 893.95            | 883.39            | 0.01               | 0.01               | 219.06            | 5.34            | 10306.62           | 48.05            | 3.97               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 10YR    | 895.37            | 895.12            | 883.76            | 0.01               | 0.01               | 238.62            | 31.89           | 11335.22           | 92.88            | 4.05               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 50YR    | 897.18            | 896.90            | 884.46            | 0.01               | 0.01               | 251.39            | 117.53          | 13369.12           | 229.35           | 4.29               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 100YR   | 897.74            | 897.45            | 884.67            | 0.01               | 0.01               | 251.50            | 151.37          | 13972.53           | 294.10           | 4.35               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 500YR   | 901.09            | 900.71            | 886.28            | 0.02               | 0.02               | 49.47             | 297.47          | 18807.40           | 1107.13          | 5.07               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 2YR     | 894.17            | 893.95            | 883.23            | 0.22               | 0.00               | 231.06            | 2.81            | 10342.04           | 15.15            | 3.74               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 10YR    | 895.35            | 895.12            | 883.58            | 0.21               | 0.00               | 251.72            | 16.31           | 11414.91           | 28.78            | 3.83               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 50YR    | 897.16            | 896.90            | 884.27            | 0.21               | 0.00               | 405.79            | 58.54           | 13593.55           | 63.91            | 4.10               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 100YR   | 897.71            | 897.45            | 884.46            | 0.21               | 0.00               | 428.32            | 83.84           | 14238.10           | 96.07            | 4.16               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 500YR   | 901.06            | 900.71            | 886.01            | 0.22               | 0.01               | 676.93            | 329.04          | 19481.29           | 401.67           | 4.83               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 2YR     | 893.94            | 893.71            |                   | 0.50               | 0.02               | 202.23            |                 | 10360.00           |                  | 3.87               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 10YR    | 895.13            | 894.89            |                   | 0.47               | 0.02               | 206.91            |                 | 11460.00           |                  | 3.93               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 50YR    | 896.95            | 896.68            |                   | 0.47               | 0.02               | 260.59            | 0.47            | 13710.77           | 4.76             | 4.17               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 100YR   | 897.50            | 897.23            |                   | 0.47               | 0.02               | 377.92            | 1.09            | 14403.75           | 13.17            | 4.23               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 500YR   | 900.83            | 900.46            |                   | 0.51               | 0.03               | 1044.43           | 49.04           | 20027.50           | 135.46           | 4.91               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 2YR     | 893.42            | 893.26            | 881.19            | 0.38               | 0.00               | 247.88            | 0.03            | 10359.73           | 0.23             | 3.25               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 10YR    | 894.64            | 894.47            | 881.54            | 0.36               | 0.00               | 332.38            | 0.92            | 11457.73           | 1.35             | 3.33               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 50YR    | 896.46            | 896.26            | 882.21            | 0.37               | 0.00               | 586.45            | 6.34            | 13700.69           | 8.97             | 3.59               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 100YR   | 897.02            | 896.81            | 882.40            | 0.37               | 0.00               | 607.84            | 9.39            | 14391.33           | 17.28            | 3.66               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 500YR   | 900.29            | 900.00            | 883.87            | 0.42               | 0.00               | 1419.30           | 110.08          | 19914.60           | 187.32           | 4.33               |



## Bridge Output Table

Plan: REV Chattahoochee Main RS: 714229.6 Profile: 2YR

|                       |             |                        |              |              |
|-----------------------|-------------|------------------------|--------------|--------------|
| E.G. US. (ft)         | 896.24      | Element                | Inside BR US | Inside BR DS |
| W.S. US. (ft)         | 896.07      | E.G. Elev (ft)         | 896.23       | 896.20       |
| Q Total (cfs)         | 10360.00    | W.S. Elev (ft)         | 896.06       | 896.03       |
| Q Bridge (cfs)        | 10360.00    | Crit W.S. (ft)         | 885.03       | 884.64       |
| Q Weir (cfs)          |             | Max Chl Dpth (ft)      | 18.22        | 18.19        |
| Weir Sta Lft (ft)     |             | Vel Total (ft/s)       | 3.31         | 3.25         |
| Weir Sta Rgt (ft)     |             | Flow Area (sq ft)      | 3130.19      | 3191.39      |
| Weir Submerg          |             | Froude # Chl           | 0.16         | 0.16         |
| Weir Max Depth (ft)   |             | Specif Force (cu ft)   | 24574.88     | 25532.53     |
| Min EI Weir Flow (ft) | 906.95      | Hydr Depth (ft)        | 12.93        | 12.73        |
| Min EI Prs (ft)       | 905.43      | W.P. Total (ft)        | 305.49       | 317.98       |
| Delta EG (ft)         | 0.09        | Conv. Total (cfs)      | 626921.6     | 645286.4     |
| Delta WS (ft)         | 0.09        | Top Width (ft)         | 242.11       | 250.64       |
| BR Open Area (sq ft)  | 5537.75     | Frctn Loss (ft)        | 0.03         | 0.04         |
| BR Open Vel (ft/s)    | 3.31        | C & E Loss (ft)        | 0.00         | 0.00         |
| Coef of Q             |             | Shear Total (lb/sq ft) | 0.17         | 0.16         |
| Br Sel Method         | Energy only | Power Total (lb/ft s)  | 0.00         | 0.00         |

Plan: REV Chattahoochee Main RS: 714229.6 Profile: 10YR

|                       |             |                        |              |              |
|-----------------------|-------------|------------------------|--------------|--------------|
| E.G. US. (ft)         | 897.37      | Element                | Inside BR US | Inside BR DS |
| W.S. US. (ft)         | 897.20      | E.G. Elev (ft)         | 897.36       | 897.33       |
| Q Total (cfs)         | 11460.00    | W.S. Elev (ft)         | 897.19       | 897.16       |
| Q Bridge (cfs)        | 11460.00    | Crit W.S. (ft)         | 885.37       | 884.99       |
| Q Weir (cfs)          |             | Max Chl Dpth (ft)      | 19.35        | 19.32        |
| Weir Sta Lft (ft)     |             | Vel Total (ft/s)       | 3.36         | 3.29         |
| Weir Sta Rgt (ft)     |             | Flow Area (sq ft)      | 3407.30      | 3483.88      |
| Weir Submerg          |             | Froude # Chl           | 0.16         | 0.15         |
| Weir Max Depth (ft)   |             | Specif Force (cu ft)   | 28381.67     | 29417.38     |
| Min EI Weir Flow (ft) | 906.95      | Hydr Depth (ft)        | 13.59        | 13.00        |
| Min EI Prs (ft)       | 905.43      | W.P. Total (ft)        | 318.95       | 340.02       |
| Delta EG (ft)         | 0.08        | Conv. Total (cfs)      | 701661.1     | 725372.9     |
| Delta WS (ft)         | 0.10        | Top Width (ft)         | 250.78       | 267.98       |
| BR Open Area (sq ft)  | 5537.75     | Frctn Loss (ft)        | 0.03         | 0.04         |
| BR Open Vel (ft/s)    | 3.36        | C & E Loss (ft)        | 0.00         | 0.00         |
| Coef of Q             |             | Shear Total (lb/sq ft) | 0.18         | 0.16         |
| Br Sel Method         | Energy only | Power Total (lb/ft s)  | 0.00         | 0.00         |

Plan: REV Chattahoochee Main RS: 714229.6 Profile: 50YR

|                       |          |                      |              |              |
|-----------------------|----------|----------------------|--------------|--------------|
| E.G. US. (ft)         | 899.22   | Element              | Inside BR US | Inside BR DS |
| W.S. US. (ft)         | 899.04   | E.G. Elev (ft)       | 899.21       | 899.18       |
| Q Total (cfs)         | 13593.00 | W.S. Elev (ft)       | 899.02       | 899.00       |
| Q Bridge (cfs)        | 13593.00 | Crit W.S. (ft)       | 886.01       | 885.64       |
| Q Weir (cfs)          |          | Max Chl Dpth (ft)    | 21.18        | 21.16        |
| Weir Sta Lft (ft)     |          | Vel Total (ft/s)     | 3.49         | 3.39         |
| Weir Sta Rgt (ft)     |          | Flow Area (sq ft)    | 3898.55      | 4005.30      |
| Weir Submerg          |          | Froude # Chl         | 0.16         | 0.15         |
| Weir Max Depth (ft)   |          | Specif Force (cu ft) | 35362.02     | 36567.03     |
| Min EI Weir Flow (ft) | 906.95   | Hydr Depth (ft)      | 13.86        | 13.50        |
| Min EI Prs (ft)       | 905.43   | W.P. Total (ft)      | 357.32       | 376.69       |
| Delta EG (ft)         | 0.08     | Conv. Total (cfs)    | 841543.3     | 873958.0     |
| Delta WS (ft)         | 0.11     | Top Width (ft)       | 281.29       | 296.69       |
| BR Open Area (sq ft)  | 5537.75  | Frctn Loss (ft)      | 0.03         | 0.04         |
| BR Open Vel (ft/s)    | 3.49     | C & E Loss (ft)      | 0.00         | 0.01         |

Plan: REV Chattahoochee Main RS: 714229.6 Profile: 50YR (Continued)

|               |             |                        |      |      |
|---------------|-------------|------------------------|------|------|
| Coef of Q     |             | Shear Total (lb/sq ft) | 0.18 | 0.16 |
| Br Sel Method | Energy only | Power Total (lb/ft s)  | 0.00 | 0.00 |

Plan: REV Chattahoochee Main RS: 714229.6 Profile: 100YR

|                       |             |                        |              |              |
|-----------------------|-------------|------------------------|--------------|--------------|
| E.G. US. (ft)         | 899.78      | Element                | Inside BR US | Inside BR DS |
| W.S. US. (ft)         | 899.59      | E.G. Elev (ft)         | 899.77       | 899.74       |
| Q Total (cfs)         | 14310.00    | W.S. Elev (ft)         | 899.58       | 899.55       |
| Q Bridge (cfs)        | 14310.00    | Crit W.S. (ft)         | 886.22       | 885.86       |
| Q Weir (cfs)          |             | Max Chl Dpth (ft)      | 21.74        | 21.71        |
| Weir Sta Lft (ft)     |             | Vel Total (ft/s)       | 3.53         | 3.43         |
| Weir Sta Rgt (ft)     |             | Flow Area (sq ft)      | 4054.65      | 4169.76      |
| Weir Submerg          |             | Froude # Chl           | 0.16         | 0.15         |
| Weir Max Depth (ft)   |             | Specif Force (cu ft)   | 37654.26     | 38921.13     |
| Min EI Weir Flow (ft) | 906.95      | Hydr Depth (ft)        | 14.24        | 13.92        |
| Min EI Prs (ft)       | 905.43      | W.P. Total (ft)        | 363.08       | 381.91       |
| Delta EG (ft)         | 0.08        | Conv. Total (cfs)      | 887653.1     | 922469.4     |
| Delta WS (ft)         | 0.11        | Top Width (ft)         | 284.66       | 299.49       |
| BR Open Area (sq ft)  | 5537.75     | Frctn Loss (ft)        | 0.03         | 0.04         |
| BR Open Vel (ft/s)    | 3.53        | C & E Loss (ft)        | 0.00         | 0.01         |
| Coef of Q             |             | Shear Total (lb/sq ft) | 0.18         | 0.16         |
| Br Sel Method         | Energy only | Power Total (lb/ft s)  | 0.00         | 0.00         |

Plan: REV Chattahoochee Main RS: 714229.6 Profile: 500YR

|                       |             |                        |              |              |
|-----------------------|-------------|------------------------|--------------|--------------|
| E.G. US. (ft)         | 903.34      | Element                | Inside BR US | Inside BR DS |
| W.S. US. (ft)         | 903.09      | E.G. Elev (ft)         | 903.33       | 903.30       |
| Q Total (cfs)         | 20316.00    | W.S. Elev (ft)         | 903.08       | 903.05       |
| Q Bridge (cfs)        | 20316.00    | Crit W.S. (ft)         | 887.82       | 887.47       |
| Q Weir (cfs)          |             | Max Chl Dpth (ft)      | 25.24        | 25.21        |
| Weir Sta Lft (ft)     |             | Vel Total (ft/s)       | 3.98         | 3.87         |
| Weir Sta Rgt (ft)     |             | Flow Area (sq ft)      | 5104.98      | 5245.17      |
| Weir Submerg          |             | Froude # Chl           | 0.17         | 0.16         |
| Weir Max Depth (ft)   |             | Specif Force (cu ft)   | 54630.73     | 56355.57     |
| Min EI Weir Flow (ft) | 906.95      | Hydr Depth (ft)        | 16.47        | 16.92        |
| Min EI Prs (ft)       | 905.43      | W.P. Total (ft)        | 406.17       | 411.34       |
| Delta EG (ft)         | 0.09        | Conv. Total (cfs)      | 1224372.0    | 1253826.0    |
| Delta WS (ft)         | 0.14        | Top Width (ft)         | 310.00       | 310.00       |
| BR Open Area (sq ft)  | 5537.75     | Frctn Loss (ft)        | 0.03         | 0.04         |
| BR Open Vel (ft/s)    | 3.98        | C & E Loss (ft)        | 0.00         | 0.01         |
| Coef of Q             |             | Shear Total (lb/sq ft) | 0.22         | 0.21         |
| Br Sel Method         | Energy only | Power Total (lb/ft s)  | 0.00         | 0.00         |

## Cross Section Output Table

Plan: REV Chattahoochee Main RS: 714229.6BR U Profile: 2YR

|                    |          |                        |         |          |          |
|--------------------|----------|------------------------|---------|----------|----------|
| E.G. Elev (ft)     | 896.23   | Element                | Left OB | Channel  | Right OB |
| Vel Head (ft)      | 0.17     | Wt. n-Val.             |         | 0.035    |          |
| W.S. Elev (ft)     | 896.06   | Reach Len. (ft)        | 119.00  | 119.00   | 119.00   |
| Crit W.S. (ft)     | 885.03   | Flow Area (sq ft)      |         | 3130.19  |          |
| E.G. Slope (ft/ft) | 0.000273 | Area (sq ft)           |         | 3130.19  |          |
| Q Total (cfs)      | 10360.00 | Flow (cfs)             |         | 10360.00 |          |
| Top Width (ft)     | 242.11   | Top Width (ft)         |         | 242.11   |          |
| Vel Total (ft/s)   | 3.31     | Avg. Vel. (ft/s)       |         | 3.31     |          |
| Max Chl Dpth (ft)  | 18.22    | Hydr. Depth (ft)       |         | 12.93    |          |
| Conv. Total (cfs)  | 626921.6 | Conv. (cfs)            |         | 626921.6 |          |
| Length Wtd. (ft)   | 119.00   | Wetted Per. (ft)       |         | 305.49   |          |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       |         | 0.17     |          |
| Alpha              | 1.00     | Stream Power (lb/ft s) | 3552.25 | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.03     | Cum Volume (acre-ft)   | 9563.57 | 51955.54 | 8227.93  |
| C & E Loss (ft)    | 0.00     | Cum SA (acres)         | 2634.09 | 3315.23  | 2695.68  |

Plan: REV Chattahoochee Main RS: 714229.6BR U Profile: 10YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 897.36   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.18     | Wt. n-Val.             |          | 0.035    |          |
| W.S. Elev (ft)     | 897.19   | Reach Len. (ft)        | 119.00   | 119.00   | 119.00   |
| Crit W.S. (ft)     | 885.37   | Flow Area (sq ft)      |          | 3407.30  |          |
| E.G. Slope (ft/ft) | 0.000267 | Area (sq ft)           |          | 3407.30  |          |
| Q Total (cfs)      | 11460.00 | Flow (cfs)             |          | 11460.00 |          |
| Top Width (ft)     | 250.78   | Top Width (ft)         |          | 250.78   |          |
| Vel Total (ft/s)   | 3.36     | Avg. Vel. (ft/s)       |          | 3.36     |          |
| Max Chl Dpth (ft)  | 19.35    | Hydr. Depth (ft)       |          | 13.59    |          |
| Conv. Total (cfs)  | 701661.1 | Conv. (cfs)            |          | 701661.1 |          |
| Length Wtd. (ft)   | 119.00   | Wetted Per. (ft)       |          | 318.95   |          |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       |          | 0.18     |          |
| Alpha              | 1.00     | Stream Power (lb/ft s) | 3552.25  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.03     | Cum Volume (acre-ft)   | 26818.97 | 65493.18 | 26148.41 |
| C & E Loss (ft)    | 0.00     | Cum SA (acres)         | 4294.51  | 3350.58  | 4641.63  |

Plan: REV Chattahoochee Main RS: 714229.6BR U Profile: 50YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 899.21   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.19     | Wt. n-Val.             |          | 0.035    | 0.035    |
| W.S. Elev (ft)     | 899.02   | Reach Len. (ft)        | 119.00   | 119.00   | 119.00   |
| Crit W.S. (ft)     | 886.01   | Flow Area (sq ft)      |          | 3878.46  | 20.09    |
| E.G. Slope (ft/ft) | 0.000261 | Area (sq ft)           |          | 3878.46  | 20.09    |
| Q Total (cfs)      | 13593.00 | Flow (cfs)             |          | 13579.69 | 13.31    |
| Top Width (ft)     | 281.29   | Top Width (ft)         |          | 260.32   | 20.97    |
| Vel Total (ft/s)   | 3.49     | Avg. Vel. (ft/s)       |          | 3.50     | 0.66     |
| Max Chl Dpth (ft)  | 21.18    | Hydr. Depth (ft)       |          | 14.90    | 0.96     |
| Conv. Total (cfs)  | 841543.3 | Conv. (cfs)            |          | 840719.3 | 823.9    |
| Length Wtd. (ft)   | 119.00   | Wetted Per. (ft)       |          | 336.17   | 21.15    |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       |          | 0.19     | 0.02     |
| Alpha              | 1.01     | Stream Power (lb/ft s) | 3552.25  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.03     | Cum Volume (acre-ft)   | 41522.41 | 74725.24 | 42463.27 |
| C & E Loss (ft)    | 0.00     | Cum SA (acres)         | 4945.29  | 3355.12  | 5685.00  |

Plan: REV Chattahoochee Main RS: 714229.6BR U Profile: 100YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 899.77   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.20     | Wt. n-Val.             |          | 0.035    | 0.035    |
| W.S. Elev (ft)     | 899.58   | Reach Len. (ft)        | 119.00   | 119.00   | 119.00   |
| Crit W.S. (ft)     | 886.22   | Flow Area (sq ft)      |          | 4022.61  | 32.03    |
| E.G. Slope (ft/ft) | 0.000260 | Area (sq ft)           |          | 4022.61  | 32.03    |
| Q Total (cfs)      | 14310.00 | Flow (cfs)             |          | 14282.36 | 27.64    |
| Top Width (ft)     | 284.66   | Top Width (ft)         |          | 262.32   | 22.34    |
| Vel Total (ft/s)   | 3.53     | Avg. Vel. (ft/s)       |          | 3.55     | 0.86     |
| Max Chl Dpth (ft)  | 21.74    | Hydr. Depth (ft)       |          | 15.33    | 1.43     |
| Conv. Total (cfs)  | 887653.1 | Conv. (cfs)            |          | 885938.3 | 1714.8   |
| Length Wtd. (ft)   | 119.00   | Wetted Per. (ft)       |          | 340.45   | 22.62    |
| Min Ch El (ft)     | 877.84   | Shear (lb/sq ft)       |          | 0.19     | 0.02     |
| Alpha              | 1.01     | Stream Power (lb/ft s) | 3552.25  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.03     | Cum Volume (acre-ft)   | 47662.68 | 78259.53 | 49470.39 |
| C & E Loss (ft)    | 0.00     | Cum SA (acres)         | 5183.44  | 3355.21  | 6036.66  |

Plan: REV Chattahoochee Main RS: 714229.6BR U Profile: 500YR

|                    |           |                        |          |           |          |
|--------------------|-----------|------------------------|----------|-----------|----------|
| E.G. Elev (ft)     | 903.33    | Element                | Left OB  | Channel   | Right OB |
| Vel Head (ft)      | 0.25      | Wt. n-Val.             | 0.065    | 0.035     | 0.035    |
| W.S. Elev (ft)     | 903.08    | Reach Len. (ft)        | 119.00   | 119.00    | 119.00   |
| Crit W.S. (ft)     | 887.82    | Flow Area (sq ft)      | 26.38    | 4954.36   | 124.24   |
| E.G. Slope (ft/ft) | 0.000275  | Area (sq ft)           | 26.38    | 4954.36   | 124.24   |
| Q Total (cfs)      | 20316.00  | Flow (cfs)             | 13.59    | 20079.05  | 223.36   |
| Top Width (ft)     | 310.00    | Top Width (ft)         | 15.46    | 266.72    | 27.82    |
| Vel Total (ft/s)   | 3.98      | Avg. Vel. (ft/s)       | 0.52     | 4.05      | 1.80     |
| Max Chl Dpth (ft)  | 25.24     | Hydr. Depth (ft)       | 1.71     | 18.58     | 4.47     |
| Conv. Total (cfs)  | 1224372.0 | Conv. (cfs)            | 818.9    | 1210092.0 | 13461.2  |
| Length Wtd. (ft)   | 119.00    | Wetted Per. (ft)       | 16.67    | 359.03    | 30.48    |
| Min Ch El (ft)     | 877.84    | Shear (lb/sq ft)       | 0.03     | 0.24      | 0.07     |
| Alpha              | 1.03      | Stream Power (lb/ft s) | 3552.25  | 0.00      | 0.00     |
| Frctn Loss (ft)    | 0.03      | Cum Volume (acre-ft)   | 62851.32 | 86419.18  | 66695.30 |
| C & E Loss (ft)    | 0.00      | Cum SA (acres)         | 5832.52  | 3350.64   | 6700.35  |

Plan: REV Chattahoochee Main RS: 714229.6BR D Profile: 2YR

|                    |          |                        |         |          |          |
|--------------------|----------|------------------------|---------|----------|----------|
| E.G. Elev (ft)     | 896.20   | Element                | Left OB | Channel  | Right OB |
| Vel Head (ft)      | 0.16     | Wt. n-Val.             | 0.060   | 0.035    |          |
| W.S. Elev (ft)     | 896.03   | Reach Len. (ft)        | 148.50  | 148.50   | 148.50   |
| Crit W.S. (ft)     | 884.64   | Flow Area (sq ft)      | 5.90    | 3185.49  |          |
| E.G. Slope (ft/ft) | 0.000258 | Area (sq ft)           | 5.90    | 3185.49  |          |
| Q Total (cfs)      | 10360.00 | Flow (cfs)             | 1.44    | 10358.56 |          |
| Top Width (ft)     | 250.64   | Top Width (ft)         | 12.24   | 238.40   |          |
| Vel Total (ft/s)   | 3.25     | Avg. Vel. (ft/s)       | 0.24    | 3.25     |          |
| Max Chl Dpth (ft)  | 18.19    | Hydr. Depth (ft)       | 0.48    | 13.36    |          |
| Conv. Total (cfs)  | 645286.4 | Conv. (cfs)            | 89.5    | 645196.9 |          |
| Length Wtd. (ft)   | 148.50   | Wetted Per. (ft)       | 12.28   | 305.70   |          |
| Min Ch El (ft)     | 877.84   | Shear (lb/sq ft)       | 0.01    | 0.17     |          |
| Alpha              | 1.00     | Stream Power (lb/ft s) | 3465.10 | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.04     | Cum Volume (acre-ft)   | 9563.56 | 51946.91 | 8227.93  |
| C & E Loss (ft)    | 0.00     | Cum SA (acres)         | 2634.07 | 3314.58  | 2695.68  |

Plan: REV Chattahoochee Main RS: 714229.6BR D Profile: 10YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 897.33   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.17     | Wt. n-Val.             | 0.060    | 0.035    |          |
| W.S. Elev (ft)     | 897.16   | Reach Len. (ft)        | 148.50   | 148.50   | 148.50   |
| Crit W.S. (ft)     | 884.99   | Flow Area (sq ft)      | 27.59    | 3456.29  |          |
| E.G. Slope (ft/ft) | 0.000250 | Area (sq ft)           | 27.59    | 3456.29  |          |
| Q Total (cfs)      | 11460.00 | Flow (cfs)             | 11.50    | 11448.50 |          |
| Top Width (ft)     | 267.98   | Top Width (ft)         | 24.98    | 243.00   |          |
| Vel Total (ft/s)   | 3.29     | Avg. Vel. (ft/s)       | 0.42     | 3.31     |          |
| Max Chl Dpth (ft)  | 19.32    | Hydr. Depth (ft)       | 1.10     | 14.22    |          |
| Conv. Total (cfs)  | 725372.9 | Conv. (cfs)            | 728.0    | 724644.9 |          |
| Length Wtd. (ft)   | 148.50   | Wetted Per. (ft)       | 25.08    | 314.94   |          |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       | 0.02     | 0.17     |          |
| Alpha              | 1.01     | Stream Power (lb/ft s) | 3465.10  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.04     | Cum Volume (acre-ft)   | 26818.93 | 65483.80 | 26148.41 |
| C & E Loss (ft)    | 0.00     | Cum SA (acres)         | 4294.48  | 3349.91  | 4641.63  |

Plan: REV Chattahoochee Main RS: 714229.6BR D Profile: 50YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 899.18   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.19     | Wt. n-Val.             | 0.060    | 0.035    | 0.065    |
| W.S. Elev (ft)     | 899.00   | Reach Len. (ft)        | 148.50   | 148.50   | 148.50   |
| Crit W.S. (ft)     | 885.64   | Flow Area (sq ft)      | 77.90    | 3907.29  | 20.11    |
| E.G. Slope (ft/ft) | 0.000242 | Area (sq ft)           | 77.90    | 3907.29  | 20.11    |
| Q Total (cfs)      | 13593.00 | Flow (cfs)             | 56.41    | 13529.66 | 6.93     |
| Top Width (ft)     | 296.69   | Top Width (ft)         | 29.78    | 246.00   | 20.91    |
| Vel Total (ft/s)   | 3.39     | Avg. Vel. (ft/s)       | 0.72     | 3.46     | 0.34     |
| Max Chl Dpth (ft)  | 21.16    | Hydr. Depth (ft)       | 2.62     | 15.88    | 0.96     |
| Conv. Total (cfs)  | 873958.0 | Conv. (cfs)            | 3626.9   | 869885.7 | 445.4    |
| Length Wtd. (ft)   | 148.50   | Wetted Per. (ft)       | 30.22    | 325.38   | 21.09    |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       | 0.04     | 0.18     | 0.01     |
| Alpha              | 1.04     | Stream Power (lb/ft s) | 3465.10  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.04     | Cum Volume (acre-ft)   | 41522.30 | 74714.61 | 42463.22 |
| C & E Loss (ft)    | 0.01     | Cum SA (acres)         | 4945.25  | 3354.43  | 5684.94  |

Plan: REV Chattahoochee Main RS: 714229.6BR D Profile: 100YR

|                    |          |                        |          |          |          |
|--------------------|----------|------------------------|----------|----------|----------|
| E.G. Elev (ft)     | 899.74   | Element                | Left OB  | Channel  | Right OB |
| Vel Head (ft)      | 0.19     | Wt. n-Val.             | 0.060    | 0.035    | 0.065    |
| W.S. Elev (ft)     | 899.55   | Reach Len. (ft)        | 148.50   | 148.50   | 148.50   |
| Crit W.S. (ft)     | 885.86   | Flow Area (sq ft)      | 94.73    | 4043.01  | 32.02    |
| E.G. Slope (ft/ft) | 0.000241 | Area (sq ft)           | 94.73    | 4043.01  | 32.02    |
| Q Total (cfs)      | 14310.00 | Flow (cfs)             | 75.40    | 14220.26 | 14.34    |
| Top Width (ft)     | 299.49   | Top Width (ft)         | 31.22    | 246.00   | 22.27    |
| Vel Total (ft/s)   | 3.43     | Avg. Vel. (ft/s)       | 0.80     | 3.52     | 0.45     |
| Max Chl Dpth (ft)  | 21.71    | Hydr. Depth (ft)       | 3.03     | 16.43    | 1.44     |
| Conv. Total (cfs)  | 922469.4 | Conv. (cfs)            | 4860.4   | 916684.5 | 924.5    |
| Length Wtd. (ft)   | 148.50   | Wetted Per. (ft)       | 31.77    | 327.58   | 22.56    |
| Min Ch EI (ft)     | 877.84   | Shear (lb/sq ft)       | 0.04     | 0.19     | 0.02     |
| Alpha              | 1.04     | Stream Power (lb/ft s) | 3465.10  | 0.00     | 0.00     |
| Frctn Loss (ft)    | 0.04     | Cum Volume (acre-ft)   | 47662.55 | 78248.52 | 49470.30 |
| C & E Loss (ft)    | 0.01     | Cum SA (acres)         | 5183.40  | 3354.51  | 6036.60  |



Plan: REV Chattahoochee Main RS: 714229.6BR D Profile: 500YR

|                    |           |                        |          |           |          |
|--------------------|-----------|------------------------|----------|-----------|----------|
| E.G. Elev (ft)     | 903.30    | Element                | Left OB  | Channel   | Right OB |
| Vel Head (ft)      | 0.25      | Wt. n-Val.             | 0.060    | 0.035     | 0.065    |
| W.S. Elev (ft)     | 903.05    | Reach Len. (ft)        | 148.50   | 148.50    | 148.50   |
| Crit W.S. (ft)     | 887.47    | Flow Area (sq ft)      | 217.39   | 4903.81   | 123.97   |
| E.G. Slope (ft/ft) | 0.000263  | Area (sq ft)           | 217.39   | 4903.81   | 123.97   |
| Q Total (cfs)      | 20316.00  | Flow (cfs)             | 272.84   | 19926.11  | 117.06   |
| Top Width (ft)     | 310.00    | Top Width (ft)         | 36.18    | 246.00    | 27.82    |
| Vel Total (ft/s)   | 3.87      | Avg. Vel. (ft/s)       | 1.26     | 4.06      | 0.94     |
| Max Chl Dpth (ft)  | 25.21     | Hydr. Depth (ft)       | 6.01     | 19.93     | 4.46     |
| Conv. Total (cfs)  | 1253826.0 | Conv. (cfs)            | 16838.6  | 1229764.0 | 7224.4   |
| Length Wtd. (ft)   | 148.50    | Wetted Per. (ft)       | 39.30    | 341.58    | 30.46    |
| Min Ch El (ft)     | 877.84    | Shear (lb/sq ft)       | 0.09     | 0.24      | 0.07     |
| Alpha              | 1.08      | Stream Power (lb/ft s) | 3465.10  | 0.00      | 0.00     |
| Frctn Loss (ft)    | 0.04      | Cum Volume (acre-ft)   | 62850.99 | 86405.71  | 66694.96 |
| C & E Loss (ft)    | 0.01      | Cum SA (acres)         | 5832.45  | 3349.94   | 6700.28  |

# Chattahoochee-CALYX.rep

HEC-RAS Version 4.1.0 Jan 2010  
U.S. Army Corps of Engineers  
Hydrologic Engineering Center  
609 Second Street  
Davis, California

```

X      X XXXXXX   XXXX      XXXX      XX      XXXX
X      X X      X      X      X      X      X
X      X X      X      X      X      X      X
XXXXXXXX XXXX   X      XXX XXXX   XXXXXX   XXXX
X      X X      X      X      X      X      X
X      X X      X      X      X      X      X
X      X XXXXXX   XXXX      X      X      X      XXXXX

```

## PROJECT DATA

Project Title: Chattahoochee-CALYX  
Project File : Chattahoochee-CALYX.prj  
Run Date and Time: 9/15/2016 10:28:46 AM

Project in English units

## Project Description:

Georgia Department of Natural Resources, Chattahoochee River Detailed  
Hydraulics Study, May 2011, Submitted By Dewberry.

## PLAN DATA

Plan Title: Revised

Plan File : f:\Project\2013\2013026-00\WR\Hydraulics\Applications\Chattahoochee-CALYX.p01

Geometry Title: Revised

Geometry File :

f:\Project\2013\2013026-00\WR\Hydraulics\Applications\Chattahoochee-CALYX.g03

Flow Title : MultiProfile Flows

Flow File :

f:\Project\2013\2013026-00\WR\Hydraulics\Applications\Chattahoochee-CALYX.f06

## Plan Summary Information:

|            |                      |                        |
|------------|----------------------|------------------------|
| Number of: | Cross Sections = 428 | Multiple Openings = 0  |
|            | Culverts = 0         | Inline Structures = 2  |
|            | Bridges = 31         | Lateral Structures = 0 |

## Computational Information

|                                      |         |
|--------------------------------------|---------|
| Water surface calculation tolerance  | = 0.01  |
| Critical depth calculation tolerance | = 0.01  |
| Maximum number of iterations         | = 20    |
| Maximum difference tolerance         | = 0.3   |
| Flow tolerance factor                | = 0.001 |

## Computation Options

|                                                           |
|-----------------------------------------------------------|
| Critical depth computed only where necessary              |
| Conveyance Calculation Method: At breaks in n values only |
| Friction Slope Method: Average Conveyance                 |
| Computational Flow Regime: Subcritical Flow               |

## FLOW DATA

Flow Title: MultiProfile Flows

Flow File : f:\Project\2013\2013026-00\WR\Hydraulics\Applications\Chattahoochee-CALYX.f06

## Flow Data (cfs)

| River         | Reach        | RS       | 2YR     | 5YR     | 10YR    |
|---------------|--------------|----------|---------|---------|---------|
| 25YR          | 50YR         | 100YR    | 500YR   |         |         |
| Bowmans East  | Bowmans East | 3219.17  | 4579.19 | 4868.33 | 5018.98 |
| 5176.19       |              | 5214.38  | 5214.38 |         |         |
| Chattahoochee | Tailrace     | 787681.9 | 10360   | 11080   | 11460   |
| 11850         | 12000        | 12000    |         |         |         |
| Chattahoochee | Bowmans West | 784118.9 | 5780.81 | 6211.67 | 6441.02 |
| 6673.81       | 6785.62      | 6785.62  | 6785.62 |         |         |
| Chattahoochee | Main         | 780524.1 | 10360   | 11080   | 11460   |

| Chattahoochee-CALYX.rep |         |          |         |         |         |
|-------------------------|---------|----------|---------|---------|---------|
| 11850                   | 12000   | 12000    | 12000   |         |         |
| Chattahoochee           | Main    | 752673.8 | 10360   | 11080   | 11460   |
| 11850                   | 12000   | 12000    | 13752   |         |         |
| Chattahoochee           | Main    | 727178.7 | 10360   | 11080   | 11460   |
| 11850                   | 13593   | 14310    | 20316   |         |         |
| Chattahoochee           | Main    | 712195.4 | 10360   | 11080   | 11460   |
| 11850                   | 13716   | 14418    | 20212   |         |         |
| Chattahoochee           | Main    | 682806.7 | 10748   | 12485   | 13645   |
| 14735                   | 16065   | 17784    | 23123   |         |         |
| Chattahoochee           | Main    | 681565.7 | 10840   | 12815   | 14012   |
| 15414                   | 17344   | 18576    | 23808   |         |         |
| Chattahoochee           | Main    | 679833.1 | 10931   | 13146   | 14499   |
| 16093                   | 18035   | 19368    | 24493   |         |         |
| Chattahoochee           | Main    | 668687.7 | 11022   | 13476   | 14985   |
| 16772                   | 18726   | 20159.4  | 25177   |         |         |
| Chattahoochee           | Main    | 666134.9 | 11274   | 14385   | 16321   |
| 18639                   | 20626   | 22337    | 27061   |         |         |
| Chattahoochee           | Main    | 662039.3 | 11365   | 14715   | 16908   |
| 19318                   | 21317.4 | 23129.1  | 27745.7 |         |         |
| Chattahoochee           | Main    | 637876.7 | 11502   | 15211   | 17537   |
| 20336                   | 22354   | 24317    | 28773   |         |         |
| Chattahoochee           | Main    | 630217.3 | 11654   | 15425.9 | 17794   |
| 20647.8                 | 22707.5 | 24713.4  | 29276   |         |         |
| Chattahoochee           | Main    | 621564.0 | 13431   | 17933.3 | 20794   |
| 24285                   | 26831.9 | 29337.6  | 35144.1 |         |         |
| Chattahoochee           | Main    | 614289.1 | 13844   | 18506.4 | 21478.2 |
| 25116.3                 | 27774.6 | 30394.5  | 36485.4 |         |         |
| Chattahoochee           | Main    | 604484.2 | 14040   | 18793   | 21822   |
| 25532                   | 28246   | 30923    | 37156   |         |         |
| Chattahoochee           | Main    | 595066.7 | 14113   | 18896   | 21946   |
| 25682                   | 28416   | 31114    | 37398   |         |         |
| Chattahoochee           | Main    | 593632.2 | 14113   | 18896   | 21946   |
| 25682                   | 28416   | 31114    | 37398   |         |         |
| Chattahoochee           | Main    | 572761.5 | 14915   | 20027   | 23299   |
| 27322                   | 30277   | 33200    | 40045   |         |         |
| Chattahoochee           | Main    | 551018.5 | 15354   | 20646   | 24040   |
| 28221                   | 31295   | 34342    | 41494   |         |         |
| Chattahoochee           | Main    | 530580.5 | 17325   | 23428   | 27368   |
| 32256                   | 35872   | 39474    | 48006   |         |         |
| Chattahoochee           | Main    | 511960.5 | 17565   | 23766   | 27773   |
| 32747                   | 36429   | 40098    | 48797   |         |         |
| Chattahoochee           | Main    | 502936.7 | 18244   | 24725   | 28921   |
| 34138                   | 38007   | 41867    | 51043   |         |         |
| Chattahoochee           | Main    | 480744.7 | 18809   | 25522   | 29874   |
| 35294                   | 39318   | 43337    | 52908   |         |         |
| Chattahoochee           | Main    | 464225.5 | 22063   | 30115   | 35369   |
| 41956                   | 46873   | 51809    | 63657   |         |         |
| Chattahoochee           | Main    | 437411.8 | 22563   | 30820   | 36214   |
| 42980                   | 48034   | 53111    | 65309   |         |         |
| Chattahoochee           | Main    | 432926.8 | 22914   | 31315   | 36806   |
| 43697                   | 48848   | 54023    | 66466   |         |         |
| Chattahoochee           | Main    | 425572.0 | 23707   | 32434   | 38145   |
| 45321                   | 50688   | 56087    | 69086   |         |         |
| Chattahoochee           | Main    | 389642.7 | 24042   | 32907   | 38711   |
| 46007                   | 51467   | 56960    | 70193   |         |         |
| Chattahoochee           | Main    | 382095.1 | 25054   | 34335   | 40420   |
| 48079                   | 53817   | 59595    | 73537   |         |         |
| Chattahoochee           | Main    | 348509.2 | 25455   | 34901   | 41096   |
| 48899                   | 54747   | 60637    | 74860   |         |         |
| Chattahoochee           | Main    | 318756.9 | 25921   | 35558   | 41883   |
| 49853                   | 55829   | 61851    | 76399   |         |         |
| Chattahoochee           | Main    | 315739.0 | 26812   | 36815   | 43387   |
| 51677                   | 57897   | 64170    | 79342   |         |         |
| Chattahoochee           | Main    | 283380.4 | 27660   | 38012   | 44820   |
| 53413                   | 59866   | 66378    | 82143   |         |         |

#### Boundary Conditions

| River<br>Downstream | Reach | Profile | Upstream   |
|---------------------|-------|---------|------------|
| Chattahoochee       | Main  | 2YR     | Normal S = |
| 0.001001            |       |         |            |
| Chattahoochee       | Main  | 5YR     | Normal S = |
| 0.001001            |       |         |            |
| Chattahoochee       | Main  | 10YR    | Normal S = |
| 0.001001            |       |         |            |
| Chattahoochee       | Main  | 25YR    | Normal S = |
| 0.001001            |       |         |            |
| Chattahoochee       | Main  | 50YR    | Normal S = |

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|          |               |      |       |            |
|----------|---------------|------|-------|------------|
| 0.001001 | Chattahoochee | Main | 100YR | Normal S = |
| 0.001001 | Chattahoochee | Main | 500YR | Normal S = |

Changes in WS and EG

| River         | Reach | RS        | Profile        | Type  | Value |
|---------------|-------|-----------|----------------|-------|-------|
| Chattahoochee | Main  | 595129.05 | 000YR Known WS | 854.2 |       |
| Chattahoochee | Main  | 595129.01 | 000YR Known WS | 854.2 |       |
| Chattahoochee | Main  | 595129.05 | 0YR Known WS   | 854.2 |       |
| Chattahoochee | Main  | 595129.02 | 5YR Known WS   | 854.2 |       |
| Chattahoochee | Main  | 595129.01 | 0YR Known WS   | 854.2 |       |
| Chattahoochee | Main  | 595129.05 | YR Known WS    | 854.2 |       |
| Chattahoochee | Main  | 595129.02 | YR Known WS    | 854.2 |       |

SUMMARY OF MANNING'S N VALUES

River: Bowmans East

| Reach        | River Sta. | n1  | n2   | n3  |
|--------------|------------|-----|------|-----|
| Bowmans East | 3219.17    | .15 | .055 | .15 |
| Bowmans East | 2599.32    | .15 | .058 | .15 |
| Bowmans East | 2164.36    | .15 | .055 | .15 |
| Bowmans East | 1571.35    | .15 | .055 | .15 |
| Bowmans East | 1145.32    | .15 | .056 | .15 |
| Bowmans East | 1027.43    | .15 | .055 | .15 |
| Bowmans East | 687.14     | .15 | .055 | .15 |
| Bowmans East | 382.23     | .15 | .055 | .15 |

River: Chattahoochee

| n7<br>Reach<br>n17 | n8<br>n18 | n9<br>River Sta.<br>n19 | n10<br>n10 | n1<br>n11  | n2<br>n12 | n3<br>n13 | n4<br>n14 | n5<br>n15 | n6<br>n16 |
|--------------------|-----------|-------------------------|------------|------------|-----------|-----------|-----------|-----------|-----------|
| Main<br>.2         |           | 757224.6                |            | .1         | .06       | .12       | .04       | .1        | .06       |
| Main               |           | 755410.3                |            | .12        | .06       | .12       | .0424     | .1        |           |
| Main               |           | 754547.9                |            | .1         | .15       | .0472     | .125      |           |           |
| Main               |           | 752673.8                |            | .12        | .044      | .125      |           |           |           |
| Main<br>.06        | .2        | 751868.0                |            | .15        | .048      | .125      | .06       | .2        | .075      |
| Main<br>.15        | .0424     | 749433.3<br>.1          | .06        | .125       | .15       | .06       | .1        | .15       | .06       |
| Main<br>.15        | .0416     | 747909.1<br>.1          | .07        | .08<br>.15 | .15<br>.2 | .06       | .05       | .1        | .08       |
| Main               |           | 744817.8                |            | .125       | .15       | .0368     | .075      |           |           |
| Main<br>.075       |           | 741431.5                |            | .125       | .08       | .15       | .07       | .15       | .048      |
| Main               |           | 741238.0                |            | .125       | .15       | .08       | .15       | .0472     | .075      |
| Main               |           | 740971.6                |            | .125       | .08       | .15       | .0472     | .1        |           |
| Main               |           | 739439.5                |            | .125       | .1        | .0384     | .12       | .06       |           |
| Main               |           | 739094.9                |            | .125       | .0384     | .125      | .06       |           |           |

|       |       |          |                                   |      |       |       |       |       |       |
|-------|-------|----------|-----------------------------------|------|-------|-------|-------|-------|-------|
| Main  |       | 739022.1 | Chattahoochee-CALYX.rep<br>Bridge |      |       |       |       |       |       |
| Main  |       | 738953.3 |                                   | .125 | .04   | .0875 | .15   | .06   |       |
| Main  |       | 738645.7 |                                   | .12  | .04   | .0875 | .06   | .2    | .06   |
| Main  | .05   | 735717.3 |                                   | .1   | .06   | .05   | .06   | .2    | .06   |
| .05   | .06   | .2       | .12                               | .06  | .04   | .06   | .0875 | .15   | .08   |
| .05   | .2    | .05      |                                   |      |       |       |       |       |       |
| Main  |       | 733190.2 |                                   | .1   | .0588 | .0418 | .0875 | .2    |       |
| Main  |       | 730384.4 |                                   | .1   | .06   | .05   | .2    | .06   | .08   |
| .0675 | .0432 | .0875    | .06                               | .15  | .2    |       |       |       |       |
| Main  |       | 727178.7 |                                   | .1   | .08   | .15   | .08   | .15   | .0675 |
| .0432 | .0675 | .0875    | .2                                | .1   |       |       |       |       |       |
| Main  |       | 724525.6 |                                   | .1   | .06   | .15   | .06   | .1    | .0432 |
| .0875 | .06   | .1       | .075                              | .15  | .06   |       |       |       |       |
| Main  |       | 723016.0 |                                   | .1   | .1    | .0588 | .0424 | .0588 | .0875 |
| Main  |       | 722465.4 |                                   | .1   | .2    | .075  | .2    | .06   | .12   |
| .07   | .0376 | .0875    | .06                               | .1   |       |       |       |       |       |
| Main  |       | 719651.2 |                                   | .1   | .0638 | .0376 | .0638 | .0875 | .2    |
| Main  |       | 717546.8 |                                   | .1   | .06   | .0738 | .0376 | .0738 | .0875 |
| Main  |       | 714679.4 |                                   | .1   | .2    | .15   | .0588 | .0376 | .0588 |
| .0875 |       |          |                                   |      |       |       |       |       |       |
| Main  |       | 714318.7 |                                   | .1   | .08   | .0376 | .08   |       |       |
| Main  |       | 714229.6 | Bridge                            |      |       |       |       |       |       |
| Main  |       | 714014.2 |                                   | .1   | .15   | .0625 | .04   | .0625 | .0875 |
| .1    |       |          |                                   |      |       |       |       |       |       |
| Main  |       | 713569.6 |                                   | .1   | .15   | .0625 | .04   | .0625 | .0875 |
| Main  |       | 712195.4 |                                   | .1   | .2    | .0375 | .2    | .05   | .075  |
| .0375 | .06   | .04      | .0875                             | .07  | .2    |       |       |       |       |
| Main  |       | 710158.5 |                                   | .1   | .03   | .055  | .1    | .04   | .0625 |
| .0875 | .055  | .15      | .055                              | .15  | .2    | .06   |       |       |       |
| Main  |       | 708330.8 |                                   | .1   | .1    | .0625 | .04   | .0625 | .0875 |
| .2    | .0375 |          |                                   |      |       |       |       |       |       |
| Main  |       | 707189.2 |                                   | .1   | .03   | .055  | .15   | .0625 | .04   |
| .0625 | .0875 |          |                                   |      |       |       |       |       |       |
| Main  |       | 706369.6 |                                   | .1   | .055  | .15   | .1    | .0625 | .04   |
| .0625 | .0875 | .2       | .0375                             | .08  |       |       |       |       |       |
| Main  |       | 705810.1 |                                   | .1   | .1    | .0408 | .0875 | .05   | .0375 |
| .05   |       |          |                                   |      |       |       |       |       |       |
| Main  |       | 705714.6 | Bridge                            |      |       |       |       |       |       |
| Main  |       | 705623.0 |                                   | .1   | .05   | .12   | .04   | .0875 |       |
| Main  |       | 704948.6 |                                   | .1   | .2    | .03   | .0688 | .12   | .04   |
| .0625 | .0875 | .2       | .0375                             | .2   | .06   |       |       |       |       |
| Main  |       | 703142.4 |                                   | .1   | .08   | .2    | .1    | .2    | .12   |
| .04   | .0625 | .0875    | .2                                | .045 | .1    |       |       |       |       |



# Chattahoochee-CALYX.rep

## SUMMARY OF REACH LENGTHS

River: Bowmans East

| Reach        | River Sta. | Left    | Channel | Right   |
|--------------|------------|---------|---------|---------|
| Bowmans East | 3219.17    | 635.496 | 619.848 | 565.442 |
| Bowmans East | 2599.32    | 440.464 | 434.955 | 428.082 |
| Bowmans East | 2164.36    | 553.99  | 593.016 | 633.29  |
| Bowmans East | 1571.35    | 406.24  | 426.025 | 444.408 |
| Bowmans East | 1145.32    | 128.599 | 117.891 | 108.345 |
| Bowmans East | 1027.43    | 331.315 | 340.29  | 350.149 |
| Bowmans East | 687.14     | 328.083 | 304.914 | 281.272 |
| Bowmans East | 382.23     | 439.36  | 382.228 | 104.044 |

River: Chattahoochee

| Reach | River Sta. | Left    | Channel | Right   |
|-------|------------|---------|---------|---------|
| Main  | 757224.6   | 1745.37 | 1814.36 | 1915.9  |
| Main  | 755410.3   | 837.9   | 862.33  | 886.19  |
| Main  | 754547.9   | 1890.39 | 1874.1  | 1856.48 |
| Main  | 752673.8   | 900.44  | 805.79  | 686.95  |
| Main  | 751868.0   | 2386.14 | 2434.73 | 2517.8  |
| Main  | 749433.3   | 1324.3  | 1524.26 | 1692.19 |
| Main  | 747909.1   | 3084.37 | 3091.27 | 3036.59 |
| Main  | 744817.8   | 3264.84 | 3386.24 | 3488.06 |
| Main  | 741431.5   | 179.17  | 193.59  | 196.06  |
| Main  | 741238.0   | 236.69  | 266.39  | 301.46  |
| Main  | 740971.6   | 1613.68 | 1532.06 | 1375.73 |
| Main  | 739439.5   | 423.41  | 344.62  | 264.78  |
| Main  | 739094.9   | 146.07  | 141.57  | 147.62  |
| Main  | 739022.1   | Bridge  |         |         |
| Main  | 738953.3   | 383.11  | 307.6   | 247.89  |
| Main  | 738645.7   | 2980.85 | 2928.45 | 2836.8  |
| Main  | 735717.3   | 2533.26 | 2527.06 | 2524.97 |
| Main  | 733190.2   | 2827.31 | 2805.78 | 2702.15 |
| Main  | 730384.4   | 3213.88 | 3205.77 | 3134.57 |
| Main  | 727178.7   | 2690.43 | 2653.08 | 2566.91 |
| Main  | 724525.6   | 1429.01 | 1509.61 | 1545.77 |
| Main  | 723016.0   | 647.42  | 550.58  | 525.49  |
| Main  | 722465.4   | 2832.97 | 2814.23 | 2759.67 |
| Main  | 719651.2   | 1845.95 | 2104.39 | 2240.93 |
| Main  | 717546.8   | 2936.76 | 2867.38 | 2785.38 |
| Main  | 714679.4   | 342.44  | 360.7   | 380.76  |
| Main  | 714318.7   | 304.5   | 304.5   | 304.5   |
| Main  | 714229.6   | Bridge  |         |         |
| Main  | 714014.2   | 444.6   | 444.6   | 444.6   |
| Main  | 713569.6   | 1364.62 | 1374.23 | 1380.37 |
| Main  | 712195.4   | 1963.63 | 2036.89 | 2114.66 |
| Main  | 710158.5   | 1808.23 | 1827.75 | 1839.29 |
| Main  | 708330.8   | 1125.95 | 1141.56 | 1145.61 |
| Main  | 707189.2   | 843.08  | 819.6   | 767.88  |
| Main  | 706369.6   | 571.1   | 559.49  | 587.93  |
| Main  | 705810.1   | 184.4   | 187.16  | 177.93  |
| Main  | 705714.6   | Bridge  |         |         |
| Main  | 705623.0   | 650.17  | 674.33  | 707.99  |
| Main  | 704948.6   | 1804.74 | 1806.19 | 1822.48 |
| Main  | 703142.4   | 1756.16 | 1700.1  | 1636.92 |

## SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Bowmans East

| Reach        | River Sta. | Contr. | Expan. |
|--------------|------------|--------|--------|
| Bowmans East | 3219.17    | .1     | .3     |
| Bowmans East | 2599.32    | .1     | .3     |
| Bowmans East | 2164.36    | .1     | .3     |
| Bowmans East | 1571.35    | .1     | .3     |
| Bowmans East | 1145.32    | .1     | .3     |
| Bowmans East | 1027.43    | .1     | .3     |
| Bowmans East | 687.14     | .1     | .3     |
| Bowmans East | 382.23     | .1     | .3     |

River: Chattahoochee

| Reach | River Sta. | Chattahoochee-CALYX.rep<br>Contr. | Expan. |
|-------|------------|-----------------------------------|--------|
| Main  | 757224.6   | .1                                | .3     |
| Main  | 755410.3   | .1                                | .3     |
| Main  | 754547.9   | .1                                | .3     |
| Main  | 752673.8   | .1                                | .3     |
| Main  | 751868.0   | .1                                | .3     |
| Main  | 749433.3   | .1                                | .3     |
| Main  | 747909.1   | .1                                | .3     |
| Main  | 744817.8   | .1                                | .3     |
| Main  | 741431.5   | .1                                | .3     |
| Main  | 741238.0   | .1                                | .3     |
| Main  | 740971.6   | .1                                | .3     |
| Main  | 739439.5   | .3                                | .5     |
| Main  | 739094.9   | .3                                | .5     |
| Main  | 739022.1   | Bridge                            |        |
| Main  | 738953.3   | .3                                | .5     |
| Main  | 738645.7   | .1                                | .3     |
| Main  | 735717.3   | .1                                | .3     |
| Main  | 733190.2   | .1                                | .3     |
| Main  | 730384.4   | .1                                | .3     |
| Main  | 727178.7   | .1                                | .3     |
| Main  | 724525.6   | .1                                | .3     |
| Main  | 723016.0   | .1                                | .3     |
| Main  | 722465.4   | .1                                | .3     |
| Main  | 719651.2   | .1                                | .3     |
| Main  | 717546.8   | .1                                | .3     |
| Main  | 714679.4   | .3                                | .5     |
| Main  | 714318.7   | .3                                | .5     |
| Main  | 714229.6   | Bridge                            |        |
| Main  | 714014.2   | .3                                | .5     |
| Main  | 713569.6   | .1                                | .3     |
| Main  | 712195.4   | .1                                | .3     |
| Main  | 710158.5   | .1                                | .3     |
| Main  | 708330.8   | .1                                | .3     |
| Main  | 707189.2   | .1                                | .3     |
| Main  | 706369.6   | .3                                | .5     |
| Main  | 705810.1   | .3                                | .5     |
| Main  | 705714.6   | Bridge                            |        |
| Main  | 705623.0   | .3                                | .5     |
| Main  | 704948.6   | .1                                | .3     |
| Main  | 703142.4   | .1                                | .3     |

# HEC-RAS Natural Run Model

# Standard Table 1

HEC-RAS Plan: Nat Locations: User Defined

| River         | Reach | River Sta          | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|---------------|-------|--------------------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Chattahoochee | Main  | 757224.6 cha_20570 | 2YR     | 10360.00         | 891.31            | 906.02            | 896.72            | 906.22            | 0.000337              | 3.60               | 2878.64              | 227.36            | 0.18         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 10YR    | 11460.00         | 891.31            | 907.02            | 897.02            | 907.23            | 0.000325              | 3.69               | 3107.30              | 230.04            | 0.18         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 50YR    | 12000.00         | 891.31            | 907.92            | 897.16            | 908.12            | 0.000292              | 3.62               | 3314.71              | 232.43            | 0.17         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 100YR   | 12000.00         | 891.31            | 908.13            | 897.16            | 908.32            | 0.000280              | 3.57               | 3363.10              | 232.99            | 0.17         |
| Chattahoochee | Main  | 757224.6 cha_20570 | 500YR   | 12000.00         | 891.31            | 910.57            | 897.16            | 910.71            | 0.000172              | 3.05               | 3940.66              | 242.24            | 0.13         |
| Chattahoochee | Main  | 755410.3 1756      | 2YR     | 10360.00         | 889.96            | 905.36            | 895.81            | 905.57            | 0.000389              | 3.66               | 2828.79              | 223.25            | 0.18         |
| Chattahoochee | Main  | 755410.3 1756      | 10YR    | 11460.00         | 889.96            | 906.38            | 896.12            | 906.60            | 0.000373              | 3.75               | 3058.70              | 225.50            | 0.18         |
| Chattahoochee | Main  | 755410.3 1756      | 50YR    | 12000.00         | 889.96            | 907.35            | 896.28            | 907.56            | 0.000330              | 3.66               | 3277.87              | 227.49            | 0.17         |
| Chattahoochee | Main  | 755410.3 1756      | 100YR   | 12000.00         | 889.96            | 907.58            | 896.28            | 907.79            | 0.000314              | 3.60               | 3331.32              | 228.23            | 0.17         |
| Chattahoochee | Main  | 755410.3 1756      | 500YR   | 12000.00         | 889.96            | 910.24            | 896.28            | 910.38            | 0.000191              | 3.04               | 3951.62              | 239.86            | 0.13         |
| Chattahoochee | Main  | 754547.9 1755      | 2YR     | 10360.00         | 889.32            | 905.03            | 895.12            | 905.21            | 0.000414              | 3.45               | 3005.02              | 232.30            | 0.17         |
| Chattahoochee | Main  | 754547.9 1755      | 10YR    | 11460.00         | 889.32            | 906.07            | 895.44            | 906.26            | 0.000399              | 3.53               | 3247.66              | 234.88            | 0.17         |
| Chattahoochee | Main  | 754547.9 1755      | 50YR    | 12000.00         | 889.32            | 907.07            | 895.57            | 907.26            | 0.000351              | 3.44               | 3485.11              | 237.02            | 0.16         |
| Chattahoochee | Main  | 754547.9 1755      | 100YR   | 12000.00         | 889.32            | 907.32            | 895.57            | 907.50            | 0.000333              | 3.39               | 3544.10              | 237.55            | 0.15         |
| Chattahoochee | Main  | 754547.9 1755      | 500YR   | 12000.00         | 889.32            | 910.09            | 895.57            | 910.21            | 0.000198              | 2.85               | 4212.09              | 245.76            | 0.12         |
| Chattahoochee | Main  | 752673.8 628       | 2YR     | 10360.00         | 887.92            | 904.44            | 893.62            | 904.58            | 0.000268              | 3.08               | 3362.03              | 247.37            | 0.15         |
| Chattahoochee | Main  | 752673.8 628       | 10YR    | 11460.00         | 887.92            | 905.50            | 893.94            | 905.65            | 0.000260              | 3.16               | 3626.04              | 251.02            | 0.15         |
| Chattahoochee | Main  | 752673.8 628       | 50YR    | 12000.00         | 887.92            | 906.57            | 894.10            | 906.72            | 0.000229              | 3.08               | 3898.33              | 254.42            | 0.14         |
| Chattahoochee | Main  | 752673.8 628       | 100YR   | 12000.00         | 887.92            | 906.85            | 894.10            | 906.99            | 0.000217              | 3.02               | 3968.49              | 255.23            | 0.14         |
| Chattahoochee | Main  | 752673.8 628       | 500YR   | 13752.00         | 887.92            | 909.74            | 894.57            | 909.87            | 0.000169              | 2.91               | 4718.98              | 306.76            | 0.12         |
| Chattahoochee | Main  | 751868.0 780       | 2YR     | 10360.00         | 887.32            | 904.10            | 893.80            | 904.31            | 0.000438              | 3.62               | 2862.65              | 203.11            | 0.17         |
| Chattahoochee | Main  | 751868.0 780       | 10YR    | 11460.00         | 887.32            | 905.17            | 894.12            | 905.38            | 0.000427              | 3.72               | 3079.19              | 204.62            | 0.17         |
| Chattahoochee | Main  | 751868.0 780       | 50YR    | 12000.00         | 887.32            | 906.28            | 894.25            | 906.48            | 0.000375              | 3.63               | 3307.70              | 206.20            | 0.16         |
| Chattahoochee | Main  | 751868.0 780       | 100YR   | 12000.00         | 887.32            | 906.57            | 894.25            | 906.76            | 0.000355              | 3.56               | 3367.55              | 206.61            | 0.16         |
| Chattahoochee | Main  | 751868.0 780       | 500YR   | 13752.00         | 887.32            | 909.51            | 894.78            | 909.69            | 0.000279              | 3.45               | 3982.52              | 212.11            | 0.14         |
| Chattahoochee | Main  | 749433.3 2388      | 2YR     | 10360.00         | 885.50            | 903.30            | 892.20            | 903.47            | 0.000272              | 3.31               | 3126.86              | 217.90            | 0.15         |
| Chattahoochee | Main  | 749433.3 2388      | 10YR    | 11460.00         | 885.50            | 904.38            | 892.52            | 904.56            | 0.000265              | 3.41               | 3364.13              | 219.75            | 0.15         |
| Chattahoochee | Main  | 749433.3 2388      | 50YR    | 12000.00         | 885.50            | 905.60            | 892.68            | 905.77            | 0.000229              | 3.30               | 3632.87              | 221.83            | 0.14         |
| Chattahoochee | Main  | 749433.3 2388      | 100YR   | 12000.00         | 885.50            | 905.93            | 892.68            | 906.09            | 0.000216              | 3.24               | 3706.14              | 222.39            | 0.14         |
| Chattahoochee | Main  | 749433.3 2388      | 500YR   | 13752.00         | 885.50            | 909.01            | 893.18            | 909.16            | 0.000168              | 3.12               | 4402.56              | 229.57            | 0.13         |
| Chattahoochee | Main  | 747909.1 1757      | 2YR     | 10360.00         | 884.48            | 903.12            | 890.18            | 903.20            | 0.000103              | 2.18               | 4761.26              | 315.58            | 0.10         |
| Chattahoochee | Main  | 747909.1 1757      | 10YR    | 11460.00         | 884.48            | 904.22            | 890.43            | 904.30            | 0.000101              | 2.24               | 5107.56              | 318.22            | 0.10         |
| Chattahoochee | Main  | 747909.1 1757      | 50YR    | 12000.00         | 884.48            | 905.46            | 890.56            | 905.54            | 0.000088              | 2.18               | 5505.38              | 321.22            | 0.09         |
| Chattahoochee | Main  | 747909.1 1757      | 100YR   | 12000.00         | 884.48            | 905.80            | 890.56            | 905.87            | 0.000082              | 2.14               | 5614.55              | 322.03            | 0.09         |
| Chattahoochee | Main  | 747909.1 1757      | 500YR   | 13752.00         | 884.48            | 908.92            | 890.94            | 908.99            | 0.000067              | 2.07               | 6678.84              | 516.31            | 0.08         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 2YR     | 10360.00         | 882.06            | 902.88            | 889.30            | 902.82            | 0.000142              | 3.00               | 3454.46              | 209.09            | 0.13         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 10YR    | 11460.00         | 882.06            | 903.77            | 889.63            | 903.92            | 0.000143              | 3.11               | 3683.06              | 210.74            | 0.13         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 50YR    | 12000.00         | 882.06            | 905.06            | 889.80            | 905.21            | 0.000126              | 3.03               | 3957.13              | 212.70            | 0.12         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 100YR   | 12000.00         | 882.06            | 905.42            | 889.80            | 905.56            | 0.000119              | 2.97               | 4034.02              | 213.25            | 0.12         |
| Chattahoochee | Main  | 744817.8 cha_20530 | 500YR   | 13752.00         | 882.06            | 908.60            | 890.31            | 908.73            | 0.000096              | 2.91               | 4720.62              | 681.41            | 0.11         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 2YR     | 10360.00         | 886.29            | 901.76            | 892.15            | 901.98            | 0.000524              | 3.77               | 2747.16              | 249.33            | 0.19         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 10YR    | 11460.00         | 886.29            | 902.86            | 892.49            | 903.09            | 0.000498              | 3.84               | 2986.88              | 328.68            | 0.18         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 50YR    | 12000.00         | 886.29            | 904.29            | 892.65            | 904.50            | 0.000402              | 3.63               | 3303.93              | 430.37            | 0.17         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 100YR   | 12000.00         | 886.29            | 904.71            | 892.65            | 904.90            | 0.000370              | 3.53               | 3396.40              | 456.26            | 0.16         |
| Chattahoochee | Main  | 741431.5 cha_20500 | 500YR   | 13752.00         | 886.29            | 908.05            | 893.15            | 908.22            | 0.000262              | 3.31               | 4160.62              | 1027.75           | 0.14         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 2YR     | 10360.00         | 880.46            | 901.70            | 891.54            | 901.87            | 0.000424              | 3.27               | 3164.74              | 407.94            | 0.17         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 10YR    | 11460.00         | 880.46            | 902.82            | 892.15            | 902.99            | 0.000392              | 3.31               | 3466.37              | 571.92            | 0.16         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 50YR    | 12000.00         | 880.46            | 904.27            | 892.37            | 904.42            | 0.000308              | 3.10               | 3865.39              | 628.88            | 0.15         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 100YR   | 12000.00         | 880.46            | 904.68            | 892.37            | 904.82            | 0.000281              | 3.01               | 3981.86              | 638.99            | 0.14         |
| Chattahoochee | Main  | 741238.0 cha_20400 | 500YR   | 13752.00         | 880.46            | 908.05            | 893.29            | 908.17            | 0.000191              | 2.78               | 5066.75              | 1299.56           | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 2YR     | 10360.00         | 879.64            | 901.66            | 886.86            | 901.78            | 0.000204              | 2.86               | 3618.85              | 466.23            | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 10YR    | 11460.00         | 879.64            | 902.77            | 887.23            | 902.90            | 0.000206              | 2.97               | 3858.44              | 491.01            | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 50YR    | 12000.00         | 879.64            | 904.22            | 887.36            | 904.35            | 0.000178              | 2.87               | 4176.30              | 516.08            | 0.12         |
| Chattahoochee | Main  | 740971.6 2373      | 100YR   | 12000.00         | 879.64            | 904.64            | 887.36            | 904.76            | 0.000167              | 2.81               | 4269.36              | 522.15            | 0.11         |
| Chattahoochee | Main  | 740971.6 2373      | 500YR   | 13752.00         | 879.64            | 908.01            | 887.93            | 908.12            | 0.000139              | 2.73               | 5041.96              | 1090.39           | 0.10         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 2YR     | 10360.00         | 880.43            | 901.35            | 887.39            | 901.50            | 0.000164              | 3.09               | 3353.98              | 202.02            | 0.13         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 10YR    | 11460.00         | 880.43            | 902.46            | 887.75            | 902.62            | 0.000165              | 3.20               | 3579.55              | 205.58            | 0.14         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 50YR    | 12000.00         | 880.43            | 903.95            | 887.91            | 904.10            | 0.000143              | 3.08               | 3890.68              | 211.81            | 0.13         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 100YR   | 12000.00         | 880.43            | 904.39            | 887.91            | 904.53            | 0.000134              | 3.01               | 3983.54              | 213.90            | 0.12         |
| Chattahoochee | Main  | 739439.5 cha_20320 | 500YR   | 13752.00         | 880.43            | 907.80            | 888.45            | 907.93            | 0.000111              | 2.89               | 4752.67              | 235.63            | 0.11         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 2YR     | 10360.00         | 878.45            | 901.31            | 886.89            | 901.44            | 0.000138              | 2.89               | 3608.82              | 227.69            | 0.12         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 10YR    | 11460.00         | 878.45            | 902.42            | 887.26            | 902.56            | 0.000137              | 3.00               | 3863.82              | 232.88            | 0.13         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 50YR    | 12000.00         | 878.45            | 903.92            | 887.42            | 904.05            | 0.000116              | 2.89               | 4218.31              | 239.92            | 0.12         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 100YR   | 12000.00         | 878.45            | 904.36            | 887.42            | 904.48            | 0.000108              | 2.82               | 4324.02              | 241.98            | 0.11         |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 500YR   | 13752.00         | 878.45            | 907.77            | 887.97            | 907.89            | 0.000084              | 2.74               | 5178.45              | 258.29            | 0.10         |
| Chattahoochee | Main  | 739022.1 cha_20300 |         | Bridge           |                   |                   |                   |                   |                       |                    |                      |                   |              |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 2YR     | 10360.00         | 878.63            | 901.26            | 887.19            | 901.39            | 0.000163              | 2.95               | 3528.59              | 229.14            | 0.13         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 10YR    | 11460.00         | 878.63            | 902.37            | 887.58            | 902.51            | 0.000161              | 3.05               | 3785.25              | 234.35            | 0.13         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 50YR    | 12000.00         | 878.63            | 903.87            | 887.75            | 904.01            | 0.000134              | 2.94               | 4145.43              | 244.32            | 0.12         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 100YR   | 12000.00         | 878.63            | 904.32            | 887.75            | 904.44            | 0.000124              | 2.87               | 4254.06              | 247.63            | 0.12         |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 500YR   | 13752.00         | 878.63            | 907.74            | 888.34            | 907.86            | 0.000093              | 2.77               | 5146.32              | 446.70            | 0.10         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 2YR     | 10360.00         | 879.18            | 901.07            | 887.06            | 901.30            | 0.000272              | 3.84               | 2695.19              | 157.68            | 0.16         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 10YR    | 11460.00         | 879.18            | 902.17            | 887.50            | 902.42            | 0.000276              | 3.99               | 2869.11              | 159.77            | 0.17         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 50YR    | 12000.00         | 879.18            | 903.69            | 887.73            | 903.92            | 0.000237              | 3.85               | 3115.12              | 162.63            | 0.15         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 100YR   | 12000.00         | 879.18            | 904.15            | 887.73            | 904.37            | 0.000219              | 3.76               | 3188.69              | 163.66            | 0.15         |
| Chattahoochee | Main  | 738645.7 cha_20190 | 500YR   | 13752.00         | 879.18            | 907.59            | 888.43            | 907.80            | 0.000168              | 3.67               | 3767.50              | 272.37            | 0.13         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 2YR     | 10360.00         | 879.57            | 900.58</          |                   |                   |                       |                    |                      |                   |              |

HEC-RAS Plan: Nat Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | Q Total<br>(cfs) | Min Ch El<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | E.G. Elev<br>(ft) | E.G. Slope<br>(ft/ft) | Vel Chnl<br>(ft/s) | Flow Area<br>(sq ft) | Top Width<br>(ft) | Froude # Chl |
|---------------|-------|--------------------|---------|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|--------------------|----------------------|-------------------|--------------|
| Chattahoochee | Main  | 735717.3 cha_20100 | 10YR    | 11460.00         | 879.57            | 901.68            | 886.40            | 901.81            | 0.000143              | 2.92               | 3939.43              | 227.12            | 0.12         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 50YR    | 12000.00         | 879.57            | 903.30            | 886.56            | 903.42            | 0.000118              | 2.80               | 4310.60              | 232.89            | 0.11         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 100YR   | 12000.00         | 879.57            | 903.78            | 886.56            | 903.90            | 0.000108              | 2.73               | 4423.75              | 234.62            | 0.11         |
| Chattahoochee | Main  | 735717.3 cha_20100 | 500YR   | 13752.00         | 879.57            | 907.32            | 887.07            | 907.43            | 0.000082              | 2.65               | 5337.69              | 291.23            | 0.10         |
| Chattahoochee | Main  | 733190.2 1733      | 2YR     | 10360.00         | 879.28            | 900.18            | 886.03            | 900.31            | 0.000170              | 2.87               | 3609.72              | 223.41            | 0.13         |
| Chattahoochee | Main  | 733190.2 1733      | 10YR    | 11460.00         | 879.28            | 901.29            | 886.37            | 901.42            | 0.000167              | 2.97               | 3860.19              | 229.31            | 0.13         |
| Chattahoochee | Main  | 733190.2 1733      | 50YR    | 12000.00         | 879.28            | 902.98            | 886.54            | 903.10            | 0.000134              | 2.83               | 4254.57              | 249.77            | 0.11         |
| Chattahoochee | Main  | 733190.2 1733      | 100YR   | 12000.00         | 879.28            | 903.49            | 886.54            | 903.60            | 0.000123              | 2.76               | 4376.48              | 281.22            | 0.11         |
| Chattahoochee | Main  | 733190.2 1733      | 500YR   | 13752.00         | 879.28            | 907.10            | 887.06            | 907.21            | 0.000091              | 2.86               | 5307.95              | 1650.41           | 0.10         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 2YR     | 10360.00         | 878.64            | 899.56            | 886.04            | 899.74            | 0.000243              | 3.36               | 3081.73              | 182.21            | 0.14         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 10YR    | 11460.00         | 878.64            | 900.67            | 886.42            | 900.86            | 0.000245              | 3.49               | 3283.96              | 183.91            | 0.15         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 50YR    | 12000.00         | 878.64            | 902.47            | 886.61            | 902.64            | 0.000199              | 3.32               | 3618.94              | 187.81            | 0.13         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 100YR   | 12000.00         | 878.64            | 903.02            | 886.61            | 903.19            | 0.000182              | 3.22               | 3723.08              | 189.17            | 0.13         |
| Chattahoochee | Main  | 730384.4 cha_20000 | 500YR   | 13752.00         | 878.64            | 906.75            | 887.20            | 906.90            | 0.000136              | 3.10               | 4519.61              | 1873.01           | 0.11         |
| Chattahoochee | Main  | 727178.7 695       | 2YR     | 10360.00         | 878.15            | 898.83            | 885.31            | 898.98            | 0.000224              | 3.13               | 3313.50              | 211.25            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 10YR    | 11460.00         | 878.15            | 899.93            | 885.67            | 900.10            | 0.000225              | 3.23               | 3549.62              | 216.52            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 50YR    | 13593.00         | 878.15            | 901.78            | 886.35            | 901.96            | 0.000226              | 3.44               | 3955.10              | 223.59            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 100YR   | 14310.00         | 878.15            | 902.34            | 886.56            | 902.53            | 0.000226              | 3.51               | 4080.87              | 320.04            | 0.14         |
| Chattahoochee | Main  | 727178.7 695       | 500YR   | 20316.00         | 878.15            | 906.01            | 888.22            | 906.28            | 0.000249              | 4.16               | 4934.69              | 1966.13           | 0.16         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 2YR     | 10360.00         | 877.75            | 898.18            | 885.35            | 898.35            | 0.000255              | 3.31               | 3125.37              | 198.39            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 10YR    | 11460.00         | 877.75            | 899.27            | 885.70            | 899.46            | 0.000257              | 3.43               | 3344.81              | 210.22            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 50YR    | 13593.00         | 877.75            | 901.11            | 886.38            | 901.32            | 0.000259              | 3.65               | 3722.84              | 631.84            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 100YR   | 14310.00         | 877.75            | 901.67            | 886.57            | 901.88            | 0.000261              | 3.73               | 3839.98              | 694.74            | 0.15         |
| Chattahoochee | Main  | 724525.6 cha_19900 | 500YR   | 20316.00         | 877.75            | 905.26            | 888.23            | 905.56            | 0.000292              | 4.43               | 4692.28              | 2717.51           | 0.17         |
| Chattahoochee | Main  | 723016.0 2374      | 2YR     | 10360.00         | 877.68            | 897.91            | 883.87            | 898.03            | 0.000164              | 2.78               | 3723.22              | 231.34            | 0.12         |
| Chattahoochee | Main  | 723016.0 2374      | 10YR    | 11460.00         | 877.68            | 899.00            | 884.20            | 899.13            | 0.000165              | 2.88               | 3979.28              | 236.17            | 0.12         |
| Chattahoochee | Main  | 723016.0 2374      | 50YR    | 13593.00         | 877.68            | 900.84            | 884.85            | 900.99            | 0.000167              | 3.08               | 4430.42              | 270.71            | 0.13         |
| Chattahoochee | Main  | 723016.0 2374      | 100YR   | 14310.00         | 877.68            | 901.40            | 885.05            | 901.55            | 0.000167              | 3.14               | 4573.17              | 351.38            | 0.13         |
| Chattahoochee | Main  | 723016.0 2374      | 500YR   | 20316.00         | 877.68            | 904.97            | 886.60            | 905.18            | 0.000189              | 3.74               | 5549.76              | 3285.11           | 0.14         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 2YR     | 10360.00         | 877.58            | 897.80            | 883.90            | 897.94            | 0.000144              | 3.00               | 3450.33              | 203.09            | 0.13         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 10YR    | 11460.00         | 877.58            | 898.89            | 884.25            | 899.04            | 0.000147              | 3.12               | 3673.42              | 206.38            | 0.13         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 50YR    | 13593.00         | 877.58            | 900.72            | 884.87            | 900.90            | 0.000155              | 3.35               | 4056.51              | 556.27            | 0.14         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 100YR   | 14310.00         | 877.58            | 901.28            | 885.08            | 901.46            | 0.000159              | 3.43               | 4175.10              | 832.46            | 0.14         |
| Chattahoochee | Main  | 722465.4 cha_19800 | 500YR   | 20316.00         | 877.58            | 904.82            | 886.66            | 905.08            | 0.000185              | 4.09               | 5111.66              | 2871.96           | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 2YR     | 10360.00         | 877.35            | 897.31            | 884.20            | 897.48            | 0.000189              | 3.33               | 3114.85              | 219.13            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 10YR    | 11460.00         | 877.35            | 898.39            | 884.57            | 898.58            | 0.000187              | 3.44               | 3329.21              | 244.00            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 50YR    | 13593.00         | 877.35            | 900.20            | 885.25            | 900.41            | 0.000187              | 3.69               | 3695.51              | 599.43            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 100YR   | 14310.00         | 877.35            | 900.75            | 885.47            | 900.97            | 0.000188              | 3.77               | 3808.50              | 966.32            | 0.15         |
| Chattahoochee | Main  | 719651.2 1734      | 500YR   | 20316.00         | 877.35            | 904.29            | 887.18            | 904.55            | 0.000188              | 4.22               | 7874.02              | 2753.18           | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 2YR     | 10360.00         | 876.99            | 896.86            | 884.04            | 897.04            | 0.000223              | 3.49               | 2969.70              | 195.77            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 10YR    | 11460.00         | 876.99            | 897.95            | 884.42            | 898.15            | 0.000220              | 3.60               | 3185.88              | 199.98            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 50YR    | 13593.00         | 876.99            | 899.76            | 885.10            | 899.98            | 0.000221              | 3.83               | 3553.87              | 573.25            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 100YR   | 14310.00         | 876.99            | 900.30            | 885.31            | 900.54            | 0.000221              | 3.91               | 3666.97              | 740.61            | 0.16         |
| Chattahoochee | Main  | 717546.8 cha_19600 | 500YR   | 20316.00         | 876.99            | 903.76            | 887.07            | 904.09            | 0.000248              | 4.65               | 4501.72              | 2121.50           | 0.18         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 2YR     | 10360.00         | 877.33            | 896.14            | 886.18            | 896.33            | 0.000276              | 3.59               | 2889.17              | 216.87            | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 10YR    | 11460.00         | 877.33            | 897.25            | 886.53            | 897.46            | 0.000264              | 3.66               | 3132.56              | 219.69            | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 50YR    | 13593.00         | 877.33            | 899.07            | 887.18            | 899.30            | 0.000257              | 3.84               | 3537.21              | 773.80            | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 100YR   | 14310.00         | 877.33            | 899.62            | 887.38            | 899.86            | 0.000255              | 3.91               | 3667.15              | 1064.12           | 0.17         |
| Chattahoochee | Main  | 714679.4 cha_19520 | 500YR   | 20316.00         | 877.33            | 903.14            | 888.84            | 903.39            | 0.000225              | 4.19               | 7152.72              | 1908.42           | 0.17         |
| Chattahoochee | Main  | 714318.7           | 2YR     | 10360.00         | 877.28            | 896.06            | 885.17            | 896.24            | 0.000234              | 3.42               | 3589.96              | 441.83            | 0.16         |
| Chattahoochee | Main  | 714318.7           | 10YR    | 11460.00         | 877.28            | 897.19            | 885.52            | 897.36            | 0.000216              | 3.45               | 4106.01              | 477.58            | 0.16         |
| Chattahoochee | Main  | 714318.7           | 50YR    | 13593.00         | 877.28            | 899.03            | 886.16            | 899.21            | 0.000199              | 3.53               | 5083.54              | 611.24            | 0.15         |
| Chattahoochee | Main  | 714318.7           | 100YR   | 14310.00         | 877.28            | 899.58            | 886.38            | 899.76            | 0.000195              | 3.57               | 5414.06              | 927.75            | 0.15         |
| Chattahoochee | Main  | 714318.7           | 500YR   | 20316.00         | 877.28            | 903.10            | 887.99            | 903.30            | 0.000184              | 3.93               | 7756.92              | 1951.21           | 0.15         |
| Chattahoochee | Main  | 714014.2           | 2YR     | 10360.00         | 879.20            | 895.96            | 885.29            | 896.14            | 0.000266              | 3.39               | 3053.26              | 218.23            | 0.16         |
| Chattahoochee | Main  | 714014.2           | 10YR    | 11460.00         | 879.20            | 897.08            | 885.61            | 897.27            | 0.000257              | 3.47               | 3299.84              | 221.30            | 0.16         |
| Chattahoochee | Main  | 714014.2           | 50YR    | 13593.00         | 879.20            | 898.91            | 886.20            | 899.12            | 0.000253              | 3.66               | 3709.85              | 994.74            | 0.16         |
| Chattahoochee | Main  | 714014.2           | 100YR   | 14310.00         | 879.20            | 899.46            | 886.38            | 899.67            | 0.000252              | 3.73               | 3839.32              | 1173.06           | 0.16         |
| Chattahoochee | Main  | 714014.2           | 500YR   | 20316.00         | 879.20            | 902.92            | 887.89            | 903.22            | 0.000269              | 4.37               | 4946.46              | 2142.59           | 0.17         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 2YR     | 10360.00         | 876.17            | 895.73            | 884.77            | 895.99            | 0.000375              | 4.10               | 2527.05              | 173.07            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 10YR    | 11460.00         | 876.17            | 896.85            | 885.19            | 897.12            | 0.000368              | 4.21               | 2722.62              | 176.27            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 50YR    | 13593.00         | 876.17            | 898.67            | 885.91            | 898.97            | 0.000364              | 4.46               | 3048.18              | 417.42            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 100YR   | 14310.00         | 876.17            | 899.21            | 886.13            | 899.53            | 0.000363              | 4.55               | 3148.32              | 677.95            | 0.19         |
| Chattahoochee | Main  | 713569.6 cha_19390 | 500YR   | 20316.00         | 876.17            | 902.80            | 887.91            | 903.05            | 0.000404              | 5.40               | 3858.47              | 2301.84           | 0.21         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 2YR     | 10360.00         | 875.75            | 895.39            | 882.37            | 895.57            | 0.000227              | 3.43               | 3028.21              | 197.53            | 0.15         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 10YR    | 11460.00         | 875.75            | 896.52            | 882.76            | 896.71            | 0.000221              | 3.54               | 3253.61              | 201.19            | 0.15         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 50YR    | 13716.00         | 875.75            | 898.34            | 883.50            | 898.56            | 0.000225              | 3.82               | 3624.21              | 397.37            | 0.16         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 100YR   | 14418.00         | 875.75            | 898.88            | 883.71            | 899.12            | 0.000226              | 3.90               | 3737.56              | 651.57            | 0.16         |
| Chattahoochee | Main  | 712195.4 cha_19300 | 500YR   | 20212.00         | 875.75            | 902.25            | 885.39            | 902.58            | 0.000256              | 4.62               | 4705.51              | 1244.99           | 0.17         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 2YR     | 10360.00         | 875.08            | 894.95            | 881.81            | 895.13            | 0.000208              | 3.34               | 3114.95              | 227.59            | 0.14         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 10YR    | 11460.00         | 875.08            | 896.09            | 882.19            | 896.28            | 0.000206              | 3.46               | 3342.35              | 356.70            | 0.15         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 50YR    | 13716.00         | 875.08            | 897.90            | 882.93            | 898.11            | 0.000214              | 3.74               | 3722.83              | 803.61            | 0.15         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 100YR   | 14418.00         | 875.08            | 898.44            | 883.14            | 898.66            | 0.000215              | 3.82               | 3856.83              | 887.89            | 0.15         |
| Chattahoochee | Main  | 710158.5 cha_19200 | 500YR   | 20212.00         | 875.08            | 901.88            | 884.73            | 902.10            | 0.000191              | 4.01               | 7462.73              | 1343.21           | 0.15         |
| Chattahoochee | Main  | 708330.8 1735      | 2YR     | 10360.00         | 875.96            | 894.62            | 881.65            | 894.76            | 0.000183              | 3.07               | 3385.98              | 266.53            | 0.14         |
| Chattahoochee | Main  | 708330.8 1735      | 10YR    | 11460.00         | 875.96            | 895.77            | 882.00            | 895.92            | 0.000176              | 3.16               | 3646.10              | 289.63            | 0.14         |
| Chattahoochee | Main  | 708330.8 1735      | 50YR    | 13716.00         | 875.96            | 897.56            | 882.              |                   |                       |                    |                      |                   |              |



HEC-RAS Plan: Nat Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | Q Total  | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---------------|-------|--------------------|---------|----------|-----------|-----------|-----------|-----------|------------|----------|-----------|-----------|--------------|
|               |       |                    |         | (cfs)    | (ft)      | (ft)      | (ft)      | (ft)      | (ft/ft)    | (ft/s)   | (sq ft)   | (ft)      |              |
| Chattahoochee | Main  | 708330.8 1735      | 500YR   | 20212.00 | 875.96    | 901.57    | 884.37    | 901.77    | 0.000166   | 3.74     | 8810.98   | 1270.18   | 0.14         |
| Chattahoochee | Main  | 707189.2 2375      | 2YR     | 10360.00 | 875.08    | 894.38    | 881.44    | 894.54    | 0.000198   | 3.22     | 3240.88   | 221.17    | 0.14         |
| Chattahoochee | Main  | 707189.2 2375      | 10YR    | 11460.00 | 875.08    | 895.54    | 881.82    | 895.71    | 0.000191   | 3.31     | 3507.59   | 244.88    | 0.14         |
| Chattahoochee | Main  | 707189.2 2375      | 50YR    | 13716.00 | 875.08    | 897.33    | 882.53    | 897.53    | 0.000194   | 3.57     | 4001.61   | 472.32    | 0.15         |
| Chattahoochee | Main  | 707189.2 2375      | 100YR   | 14418.00 | 875.08    | 897.88    | 882.73    | 898.09    | 0.000194   | 3.64     | 4176.09   | 623.77    | 0.15         |
| Chattahoochee | Main  | 707189.2 2375      | 500YR   | 20212.00 | 875.08    | 901.28    | 884.38    | 901.55    | 0.000212   | 4.24     | 5580.88   | 829.42    | 0.16         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 2YR     | 10360.00 | 873.57    | 894.25    | 880.95    | 894.39    | 0.000168   | 3.01     | 3461.33   | 283.98    | 0.13         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 10YR    | 11460.00 | 873.57    | 895.41    | 881.29    | 895.56    | 0.000163   | 3.11     | 3727.45   | 328.99    | 0.13         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 50YR    | 13716.00 | 873.57    | 897.20    | 881.96    | 897.38    | 0.000168   | 3.37     | 4152.63   | 468.49    | 0.13         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 100YR   | 14418.00 | 873.57    | 897.75    | 882.16    | 897.93    | 0.000169   | 3.44     | 4293.67   | 582.90    | 0.14         |
| Chattahoochee | Main  | 706369.6 cha_19120 | 500YR   | 20212.00 | 873.57    | 901.14    | 883.67    | 901.38    | 0.000181   | 3.96     | 6805.88   | 949.09    | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 2YR     | 10360.00 | 874.19    | 894.12    | 881.75    | 894.28    | 0.000206   | 3.23     | 3398.97   | 274.00    | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 10YR    | 11460.00 | 874.19    | 895.28    | 882.07    | 895.45    | 0.000198   | 3.32     | 3723.20   | 282.38    | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 50YR    | 13716.00 | 874.19    | 897.07    | 882.76    | 897.27    | 0.000201   | 3.58     | 4244.39   | 453.52    | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 100YR   | 14418.00 | 874.19    | 897.62    | 882.95    | 897.82    | 0.000201   | 3.64     | 4412.04   | 516.04    | 0.14         |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 500YR   | 20212.00 | 874.19    | 900.98    | 884.49    | 901.25    | 0.000224   | 4.27     | 5540.64   | 971.36    | 0.16         |
| Chattahoochee | Main  | 705714.6 cha_19100 |         | Bridge   |           |           |           |           |            |          |           |           |              |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 2YR     | 10360.00 | 876.28    | 893.95    | 883.23    | 894.17    | 0.000300   | 3.74     | 2814.71   | 231.06    | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 10YR    | 11460.00 | 876.28    | 895.12    | 883.58    | 895.35    | 0.000284   | 3.83     | 3099.71   | 251.72    | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 50YR    | 13716.00 | 876.28    | 896.90    | 884.27    | 897.16    | 0.000283   | 4.10     | 3629.61   | 405.79    | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 100YR   | 14418.00 | 876.28    | 897.45    | 884.46    | 897.71    | 0.000280   | 4.16     | 3815.48   | 428.32    | 0.17         |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 500YR   | 20212.00 | 876.28    | 900.71    | 886.01    | 901.06    | 0.000303   | 4.83     | 4930.15   | 676.93    | 0.18         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 2YR     | 10360.00 | 876.76    | 893.71    |           | 893.94    | 0.000370   | 3.87     | 2675.17   | 202.23    | 0.19         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 10YR    | 11460.00 | 876.76    | 894.89    |           | 895.13    | 0.000350   | 3.93     | 2917.17   | 206.91    | 0.18         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 50YR    | 13716.00 | 876.76    | 896.68    |           | 896.95    | 0.000341   | 4.17     | 3311.58   | 260.59    | 0.19         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 100YR   | 14418.00 | 876.76    | 897.23    |           | 897.50    | 0.000335   | 4.23     | 3446.74   | 377.92    | 0.18         |
| Chattahoochee | Main  | 704948.6 cha_18990 | 500YR   | 20212.00 | 876.76    | 900.46    |           | 900.83    | 0.000354   | 4.91     | 4377.68   | 1044.43   | 0.20         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 2YR     | 10360.00 | 874.46    | 893.26    | 881.19    | 893.42    | 0.000213   | 3.25     | 3193.19   | 247.88    | 0.15         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 10YR    | 11460.00 | 874.46    | 894.47    | 881.54    | 894.64    | 0.000203   | 3.33     | 3453.22   | 332.38    | 0.14         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 50YR    | 13716.00 | 874.46    | 896.26    | 882.21    | 896.46    | 0.000206   | 3.59     | 3869.91   | 586.45    | 0.15         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 100YR   | 14418.00 | 874.46    | 896.81    | 882.40    | 897.02    | 0.000206   | 3.66     | 4017.36   | 607.84    | 0.15         |
| Chattahoochee | Main  | 703142.4 cha_18900 | 500YR   | 20212.00 | 874.46    | 900.00    | 883.87    | 900.29    | 0.000234   | 4.33     | 5256.62   | 1419.30   | 0.16         |

Standard Table 2

HEC-RAS Plan: Nat Locations: User Defined

| River         | Reach | River Sta          | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|---------------|-------|--------------------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| Chattahoochee | Main  | 757224.6 cha_20570 | 2YR     | 906.22            | 906.02            | 0.20             | 0.66               | 0.00               |                 | 10360.00           |                  | 227.36            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 10YR    | 907.23            | 907.02            | 0.21             | 0.63               | 0.00               |                 | 11460.00           |                  | 230.04            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 50YR    | 908.12            | 907.92            | 0.20             | 0.56               | 0.00               |                 | 12000.00           |                  | 232.43            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 100YR   | 908.32            | 908.13            | 0.20             | 0.54               | 0.00               |                 | 12000.00           |                  | 232.99            |
| Chattahoochee | Main  | 757224.6 cha_20570 | 500YR   | 910.71            | 910.57            | 0.14             | 0.33               | 0.00               |                 | 12000.00           |                  | 242.24            |
| Chattahoochee | Main  | 755410.3 1756      | 2YR     | 905.57            | 905.36            | 0.21             | 0.35               | 0.01               |                 | 10360.00           |                  | 223.25            |
| Chattahoochee | Main  | 755410.3 1756      | 10YR    | 906.60            | 906.38            | 0.22             | 0.33               | 0.01               |                 | 11460.00           |                  | 225.50            |
| Chattahoochee | Main  | 755410.3 1756      | 50YR    | 907.56            | 907.35            | 0.21             | 0.29               | 0.01               |                 | 12000.00           |                  | 227.49            |
| Chattahoochee | Main  | 755410.3 1756      | 100YR   | 907.79            | 907.58            | 0.20             | 0.28               | 0.01               |                 | 12000.00           |                  | 228.23            |
| Chattahoochee | Main  | 755410.3 1756      | 500YR   | 910.38            | 910.24            | 0.14             | 0.17               | 0.01               |                 | 12000.00           |                  | 239.86            |
| Chattahoochee | Main  | 754547.9 1755      | 2YR     | 905.21            | 905.03            | 0.18             | 0.62               | 0.01               |                 | 10360.00           |                  | 232.30            |
| Chattahoochee | Main  | 754547.9 1755      | 10YR    | 906.26            | 906.07            | 0.19             | 0.60               | 0.01               |                 | 11460.00           |                  | 234.88            |
| Chattahoochee | Main  | 754547.9 1755      | 50YR    | 907.26            | 907.07            | 0.18             | 0.53               | 0.01               |                 | 12000.00           |                  | 237.02            |
| Chattahoochee | Main  | 754547.9 1755      | 100YR   | 907.50            | 907.32            | 0.18             | 0.50               | 0.01               |                 | 12000.00           |                  | 237.55            |
| Chattahoochee | Main  | 754547.9 1755      | 500YR   | 910.21            | 910.09            | 0.13             | 0.34               | 0.00               |                 | 12000.00           |                  | 245.76            |
| Chattahoochee | Main  | 752673.8 628       | 2YR     | 904.58            | 904.44            | 0.15             | 0.27               | 0.01               |                 | 10360.00           |                  | 247.37            |
| Chattahoochee | Main  | 752673.8 628       | 10YR    | 905.65            | 905.50            | 0.16             | 0.26               | 0.01               |                 | 11460.00           |                  | 251.02            |
| Chattahoochee | Main  | 752673.8 628       | 50YR    | 906.72            | 906.57            | 0.15             | 0.23               | 0.01               |                 | 12000.00           |                  | 254.42            |
| Chattahoochee | Main  | 752673.8 628       | 100YR   | 906.99            | 906.85            | 0.14             | 0.22               | 0.01               |                 | 12000.00           |                  | 255.23            |
| Chattahoochee | Main  | 752673.8 628       | 500YR   | 909.87            | 909.74            | 0.13             | 0.17               | 0.01               |                 | 13752.00           |                  | 306.76            |
| Chattahoochee | Main  | 751868.0 780       | 2YR     | 904.31            | 904.10            | 0.20             | 0.83               | 0.01               |                 | 10360.00           |                  | 203.11            |
| Chattahoochee | Main  | 751868.0 780       | 10YR    | 905.38            | 905.17            | 0.22             | 0.81               | 0.01               |                 | 11460.00           |                  | 204.62            |
| Chattahoochee | Main  | 751868.0 780       | 50YR    | 906.48            | 906.28            | 0.20             | 0.70               | 0.01               |                 | 12000.00           |                  | 206.20            |
| Chattahoochee | Main  | 751868.0 780       | 100YR   | 906.76            | 906.57            | 0.20             | 0.66               | 0.01               |                 | 12000.00           |                  | 206.61            |
| Chattahoochee | Main  | 751868.0 780       | 500YR   | 909.69            | 909.51            | 0.19             | 0.52               | 0.01               |                 | 13752.00           |                  | 212.11            |
| Chattahoochee | Main  | 749433.3 2388      | 2YR     | 903.47            | 903.30            | 0.17             | 0.24               | 0.03               |                 | 10360.00           |                  | 217.90            |
| Chattahoochee | Main  | 749433.3 2388      | 10YR    | 904.56            | 904.38            | 0.18             | 0.24               | 0.03               |                 | 11460.00           |                  | 219.75            |
| Chattahoochee | Main  | 749433.3 2388      | 50YR    | 905.77            | 905.60            | 0.17             | 0.20               | 0.03               |                 | 12000.00           |                  | 221.83            |
| Chattahoochee | Main  | 749433.3 2388      | 100YR   | 906.09            | 905.93            | 0.16             | 0.19               | 0.03               |                 | 12000.00           |                  | 222.39            |
| Chattahoochee | Main  | 749433.3 2388      | 500YR   | 909.16            | 909.01            | 0.15             | 0.15               | 0.03               |                 | 13752.00           |                  | 229.57            |
| Chattahoochee | Main  | 747909.1 1757      | 2YR     | 903.20            | 903.12            | 0.07             | 0.37               | 0.01               |                 | 10360.00           |                  | 315.58            |
| Chattahoochee | Main  | 747909.1 1757      | 10YR    | 904.30            | 904.22            | 0.08             | 0.37               | 0.01               |                 | 11460.00           |                  | 318.22            |
| Chattahoochee | Main  | 747909.1 1757      | 50YR    | 905.54            | 905.46            | 0.07             | 0.32               | 0.01               |                 | 12000.00           |                  | 321.22            |
| Chattahoochee | Main  | 747909.1 1757      | 100YR   | 905.87            | 905.80            | 0.07             | 0.30               | 0.01               |                 | 12000.00           |                  | 322.03            |
| Chattahoochee | Main  | 747909.1 1757      | 500YR   | 908.99            | 908.92            | 0.07             | 0.25               | 0.01               |                 | 13748.02           | 3.98             | 516.31            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 2YR     | 902.82            | 902.68            | 0.14             | 0.83               | 0.01               |                 | 10360.00           |                  | 209.09            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 10YR    | 903.92            | 903.77            | 0.15             | 0.82               | 0.01               |                 | 11460.00           |                  | 210.74            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 50YR    | 905.21            | 905.06            | 0.14             | 0.70               | 0.01               |                 | 12000.00           |                  | 212.70            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 100YR   | 905.56            | 905.42            | 0.14             | 0.65               | 0.01               |                 | 12000.00           |                  | 213.25            |
| Chattahoochee | Main  | 744817.8 cha_20530 | 500YR   | 908.73            | 908.60            | 0.13             | 0.51               | 0.00               |                 | 13751.83           | 0.17             | 681.41            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 2YR     | 901.98            | 901.76            | 0.22             | 0.09               | 0.02               |                 | 10360.00           |                  | 249.33            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 10YR    | 903.09            | 902.86            | 0.23             | 0.09               | 0.02               |                 | 11460.00           |                  | 328.68            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 50YR    | 904.50            | 904.29            | 0.20             | 0.07               | 0.02               |                 | 12000.00           |                  | 430.37            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 100YR   | 904.90            | 904.71            | 0.19             | 0.06               | 0.02               |                 | 12000.00           |                  | 456.26            |
| Chattahoochee | Main  | 741431.5 cha_20500 | 500YR   | 908.22            | 908.05            | 0.17             | 0.04               | 0.01               |                 | 13752.00           |                  | 1027.75           |
| Chattahoochee | Main  | 741238.0 cha_20400 | 2YR     | 901.87            | 901.70            | 0.17             | 0.08               | 0.01               |                 | 10360.00           |                  | 407.94            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 10YR    | 902.99            | 902.82            | 0.17             | 0.07               | 0.01               |                 | 11460.00           |                  | 571.92            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 50YR    | 904.42            | 904.27            | 0.15             | 0.06               | 0.01               |                 | 12000.00           |                  | 628.88            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 100YR   | 904.82            | 904.68            | 0.14             | 0.06               | 0.01               |                 | 12000.00           |                  | 638.99            |
| Chattahoochee | Main  | 741238.0 cha_20400 | 500YR   | 908.17            | 908.05            | 0.12             | 0.04               | 0.00               | 15.87           | 13736.13           |                  | 1299.56           |
| Chattahoochee | Main  | 740971.6 2373      | 2YR     | 901.78            | 901.66            | 0.13             | 0.28               | 0.00               |                 | 10360.00           |                  | 466.23            |
| Chattahoochee | Main  | 740971.6 2373      | 10YR    | 902.90            | 902.77            | 0.14             | 0.28               | 0.00               |                 | 11460.00           |                  | 491.01            |
| Chattahoochee | Main  | 740971.6 2373      | 50YR    | 904.35            | 904.22            | 0.13             | 0.24               | 0.00               |                 | 12000.00           |                  | 516.08            |
| Chattahoochee | Main  | 740971.6 2373      | 100YR   | 904.76            | 904.64            | 0.12             | 0.23               | 0.00               |                 | 12000.00           |                  | 522.15            |
| Chattahoochee | Main  | 740971.6 2373      | 500YR   | 908.12            | 908.01            | 0.12             | 0.19               | 0.00               | 0.01            | 13751.99           |                  | 1090.39           |
| Chattahoochee | Main  | 739439.5 cha_20320 | 2YR     | 901.50            | 901.35            | 0.15             | 0.05               | 0.01               |                 | 10360.00           |                  | 202.02            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 10YR    | 902.62            | 902.46            | 0.16             | 0.05               | 0.01               |                 | 11460.00           |                  | 205.58            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 50YR    | 904.10            | 903.95            | 0.15             | 0.04               | 0.01               |                 | 12000.00           |                  | 211.81            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 100YR   | 904.53            | 904.39            | 0.14             | 0.04               | 0.01               |                 | 12000.00           |                  | 213.90            |
| Chattahoochee | Main  | 739439.5 cha_20320 | 500YR   | 907.93            | 907.80            | 0.13             | 0.03               | 0.01               |                 | 13752.00           |                  | 235.63            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 2YR     | 901.44            | 901.31            | 0.13             | 0.01               | 0.01               |                 | 10354.45           | 5.55             | 227.69            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 10YR    | 902.56            | 902.42            | 0.14             | 0.01               | 0.01               |                 | 11449.31           | 10.69            | 232.88            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 50YR    | 904.05            | 903.92            | 0.13             | 0.01               | 0.01               |                 | 11980.37           | 19.63            | 239.92            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 100YR   | 904.48            | 904.36            | 0.12             | 0.01               | 0.01               |                 | 11977.50           | 22.50            | 241.98            |
| Chattahoochee | Main  | 739094.9 CHA_20310 | 500YR   | 907.89            | 907.77            | 0.12             | 0.01               | 0.01               | 0.01            | 13694.69           | 57.30            | 258.29            |
| Chattahoochee | Main  | 739022.1 cha_20300 |         | Bridge            |                   |                  |                    |                    |                 |                    |                  |                   |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 2YR     | 901.39            | 901.26            | 0.14             | 0.06               | 0.03               |                 | 10352.43           | 7.57             | 229.14            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 10YR    | 902.51            | 902.37            | 0.14             | 0.06               | 0.03               |                 | 11445.34           | 14.66            | 234.35            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 50YR    | 904.01            | 903.87            | 0.13             | 0.05               | 0.03               | 0.21            | 11972.88           | 26.91            | 244.32            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 100YR   | 904.44            | 904.32            | 0.13             | 0.05               | 0.03               | 0.52            | 11968.68           | 30.80            | 247.63            |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 500YR   | 907.86            | 907.74            | 0.12             | 0.04               | 0.03               | 10.98           | 13663.53           | 77.49            | 446.70            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 2YR     | 901.30            | 901.07            | 0.23             | 0.57               | 0.03               |                 | 10360.00           |                  | 157.68            |

HEC-RAS Plan: Nat Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|---------------|-------|--------------------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| Chattahoochee | Main  | 738645.7 cha_20190 | 10YR    | 902.42            | 902.17            | 0.25             | 0.57               | 0.03               |                 | 11460.00           |                  | 159.77            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 50YR    | 903.92            | 903.69            | 0.23             | 0.47               | 0.03               | 0.00            | 12000.00           |                  | 162.63            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 100YR   | 904.37            | 904.15            | 0.22             | 0.44               | 0.03               | 0.03            | 11999.97           | 0.00             | 163.66            |
| Chattahoochee | Main  | 738645.7 cha_20190 | 500YR   | 907.80            | 907.59            | 0.21             | 0.33               | 0.03               | 1.62            | 13746.81           | 3.57             | 272.37            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 2YR     | 900.70            | 900.58            | 0.12             | 0.40               | 0.00               | 0.03            | 10358.71           | 1.26             | 223.18            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 10YR    | 901.81            | 901.68            | 0.13             | 0.39               | 0.00               | 0.53            | 11455.64           | 3.83             | 227.12            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 50YR    | 903.42            | 903.30            | 0.12             | 0.32               | 0.00               | 2.91            | 11986.81           | 10.27            | 232.89            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 100YR   | 903.90            | 903.78            | 0.12             | 0.29               | 0.00               | 4.03            | 11983.24           | 12.72            | 234.62            |
| Chattahoochee | Main  | 735717.3 cha_20100 | 500YR   | 907.43            | 907.32            | 0.11             | 0.22               | 0.00               | 20.56           | 13675.94           | 55.50            | 291.23            |
| Chattahoochee | Main  | 733190.2 1733      | 2YR     | 900.31            | 900.18            | 0.13             | 0.57               | 0.00               | 0.00            | 10360.00           |                  | 223.41            |
| Chattahoochee | Main  | 733190.2 1733      | 10YR    | 901.42            | 901.29            | 0.14             | 0.56               | 0.01               | 0.49            | 11459.41           | 0.10             | 229.31            |
| Chattahoochee | Main  | 733190.2 1733      | 50YR    | 903.10            | 902.98            | 0.12             | 0.45               | 0.00               | 5.13            | 11993.58           | 1.29             | 249.77            |
| Chattahoochee | Main  | 733190.2 1733      | 100YR   | 903.60            | 903.49            | 0.12             | 0.42               | 0.00               | 7.42            | 11990.48           | 2.10             | 281.22            |
| Chattahoochee | Main  | 733190.2 1733      | 500YR   | 907.21            | 907.10            | 0.11             | 0.31               | 0.00               | 35.31           | 13695.88           | 20.81            | 1650.41           |
| Chattahoochee | Main  | 730384.4 cha_20000 | 2YR     | 899.74            | 899.56            | 0.18             | 0.75               | 0.01               |                 | 10360.00           |                  | 182.21            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 10YR    | 900.86            | 900.67            | 0.19             | 0.75               | 0.01               |                 | 11460.00           |                  | 183.91            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 50YR    | 902.64            | 902.47            | 0.17             | 0.68               | 0.00               | 0.17            | 11999.83           |                  | 187.81            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 100YR   | 903.19            | 903.02            | 0.16             | 0.65               | 0.00               | 0.45            | 11999.55           |                  | 189.17            |
| Chattahoochee | Main  | 730384.4 cha_20000 | 500YR   | 906.90            | 906.75            | 0.15             | 0.61               | 0.01               | 7.93            | 13726.64           | 17.43            | 1873.01           |
| Chattahoochee | Main  | 727178.7 695       | 2YR     | 898.98            | 898.83            | 0.15             | 0.63               | 0.00               |                 | 10360.00           |                  | 211.25            |
| Chattahoochee | Main  | 727178.7 695       | 10YR    | 900.10            | 899.93            | 0.16             | 0.64               | 0.00               | 0.00            | 11460.00           |                  | 216.52            |
| Chattahoochee | Main  | 727178.7 695       | 50YR    | 901.96            | 901.78            | 0.18             | 0.64               | 0.00               | 0.87            | 13592.05           | 0.08             | 223.59            |
| Chattahoochee | Main  | 727178.7 695       | 100YR   | 902.53            | 902.34            | 0.19             | 0.64               | 0.00               | 1.63            | 14308.03           | 0.33             | 320.04            |
| Chattahoochee | Main  | 727178.7 695       | 500YR   | 906.28            | 906.01            | 0.27             | 0.71               | 0.00               | 17.75           | 20286.01           | 12.24            | 1966.13           |
| Chattahoochee | Main  | 724525.6 cha_19900 | 2YR     | 898.35            | 898.18            | 0.17             | 0.30               | 0.02               |                 | 10360.00           |                  | 198.39            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 10YR    | 899.46            | 899.27            | 0.18             | 0.31               | 0.02               |                 | 11460.00           |                  | 210.22            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 50YR    | 901.32            | 901.11            | 0.21             | 0.31               | 0.02               |                 | 13592.43           | 0.57             | 631.84            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 100YR   | 901.88            | 901.67            | 0.22             | 0.31               | 0.02               |                 | 14308.60           | 1.40             | 694.74            |
| Chattahoochee | Main  | 724525.6 cha_19900 | 500YR   | 905.56            | 905.26            | 0.30             | 0.35               | 0.03               | 5.44            | 20274.65           | 35.91            | 2717.51           |
| Chattahoochee | Main  | 723016.0 2374      | 2YR     | 898.03            | 897.91            | 0.12             | 0.08               | 0.00               |                 | 10360.00           |                  | 231.34            |
| Chattahoochee | Main  | 723016.0 2374      | 10YR    | 899.13            | 899.00            | 0.13             | 0.09               | 0.00               |                 | 11460.00           |                  | 236.17            |
| Chattahoochee | Main  | 723016.0 2374      | 50YR    | 900.99            | 900.84            | 0.15             | 0.09               | 0.00               | 4.13            | 13588.74           | 0.13             | 270.71            |
| Chattahoochee | Main  | 723016.0 2374      | 100YR   | 901.55            | 901.40            | 0.15             | 0.09               | 0.00               | 8.42            | 14301.05           | 0.53             | 351.38            |
| Chattahoochee | Main  | 723016.0 2374      | 500YR   | 905.18            | 904.97            | 0.22             | 0.10               | 0.00               | 78.53           | 20214.65           | 22.82            | 3285.11           |
| Chattahoochee | Main  | 722465.4 cha_19800 | 2YR     | 897.94            | 897.80            | 0.14             | 0.46               | 0.00               |                 | 10360.00           |                  | 203.09            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 10YR    | 899.04            | 898.89            | 0.15             | 0.46               | 0.00               |                 | 11460.00           |                  | 206.38            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 50YR    | 900.90            | 900.72            | 0.17             | 0.48               | 0.00               |                 | 13593.00           |                  | 556.27            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 100YR   | 901.46            | 901.28            | 0.18             | 0.49               | 0.00               |                 | 14310.00           |                  | 832.46            |
| Chattahoochee | Main  | 722465.4 cha_19800 | 500YR   | 905.08            | 904.82            | 0.26             | 0.52               | 0.00               | 1.80            | 20253.18           | 61.02            | 2871.96           |
| Chattahoochee | Main  | 719651.2 1734      | 2YR     | 897.48            | 897.31            | 0.17             | 0.43               | 0.00               |                 | 10360.00           | 0.00             | 219.13            |
| Chattahoochee | Main  | 719651.2 1734      | 10YR    | 898.58            | 898.39            | 0.18             | 0.43               | 0.00               | 0.08            | 11459.81           | 0.11             | 244.00            |
| Chattahoochee | Main  | 719651.2 1734      | 50YR    | 900.41            | 900.20            | 0.21             | 0.43               | 0.00               | 2.81            | 13588.83           | 1.36             | 599.43            |
| Chattahoochee | Main  | 719651.2 1734      | 100YR   | 900.97            | 900.75            | 0.22             | 0.43               | 0.00               | 4.83            | 14302.93           | 2.24             | 966.32            |
| Chattahoochee | Main  | 719651.2 1734      | 500YR   | 904.55            | 904.29            | 0.26             | 0.45               | 0.01               | 42.92           | 18934.67           | 1338.42          | 2753.18           |
| Chattahoochee | Main  | 717546.8 cha_19600 | 2YR     | 897.04            | 896.86            | 0.19             | 0.71               | 0.00               |                 | 10360.00           |                  | 195.77            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 10YR    | 898.15            | 897.95            | 0.20             | 0.69               | 0.00               |                 | 11459.92           | 0.08             | 199.98            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 50YR    | 899.98            | 899.76            | 0.23             | 0.68               | 0.00               | 0.08            | 13591.76           | 1.16             | 573.25            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 100YR   | 900.54            | 900.30            | 0.24             | 0.68               | 0.00               | 0.46            | 14307.71           | 1.83             | 740.61            |
| Chattahoochee | Main  | 717546.8 cha_19600 | 500YR   | 904.09            | 903.76            | 0.33             | 0.68               | 0.03               | 53.06           | 20250.51           | 12.43            | 2121.50           |
| Chattahoochee | Main  | 714679.4 cha_19520 | 2YR     | 896.33            | 896.14            | 0.20             | 0.09               | 0.01               |                 | 10360.00           |                  | 216.87            |
| Chattahoochee | Main  | 714679.4 cha_19520 | 10YR    | 897.46            | 897.25            | 0.21             | 0.09               | 0.01               |                 | 11460.00           |                  | 219.69            |
| Chattahoochee | Main  | 714679.4 cha_19520 | 50YR    | 899.30            | 899.07            | 0.23             | 0.08               | 0.02               |                 | 13593.00           | 0.00             | 773.80            |
| Chattahoochee | Main  | 714679.4 cha_19520 | 100YR   | 899.86            | 899.62            | 0.24             | 0.08               | 0.02               | 0.00            | 14308.08           | 1.92             | 1064.12           |
| Chattahoochee | Main  | 714679.4 cha_19520 | 500YR   | 903.39            | 903.14            | 0.25             | 0.07               | 0.01               | 7.66            | 18641.46           | 1666.88          | 1908.42           |
| Chattahoochee | Main  | 714318.7           | 2YR     | 896.24            | 896.06            | 0.18             | 0.01               | 0.00               |                 | 9969.19            | 390.81           | 441.83            |
| Chattahoochee | Main  | 714318.7           | 10YR    | 897.36            | 897.19            | 0.17             | 0.01               | 0.00               |                 | 10850.28           | 609.72           | 477.58            |
| Chattahoochee | Main  | 714318.7           | 50YR    | 899.21            | 899.03            | 0.18             | 0.00               | 0.00               |                 | 12488.59           | 1104.41          | 611.24            |
| Chattahoochee | Main  | 714318.7           | 100YR   | 899.76            | 899.58            | 0.18             | 0.00               | 0.00               | 0.05            | 13059.78           | 1250.17          | 927.75            |
| Chattahoochee | Main  | 714318.7           | 500YR   | 903.30            | 903.10            | 0.21             | 0.00               | 0.00               | 25.59           | 17316.45           | 2973.96          | 1951.21           |
| Chattahoochee | Main  | 714014.2           | 2YR     | 896.14            | 895.96            | 0.18             | 0.14               | 0.01               |                 | 10360.00           |                  | 218.23            |
| Chattahoochee | Main  | 714014.2           | 10YR    | 897.27            | 897.08            | 0.19             | 0.14               | 0.01               |                 | 11460.00           |                  | 221.30            |
| Chattahoochee | Main  | 714014.2           | 50YR    | 899.12            | 898.91            | 0.21             | 0.13               | 0.01               |                 | 13592.92           | 0.08             | 994.74            |
| Chattahoochee | Main  | 714014.2           | 100YR   | 899.67            | 899.46            | 0.22             | 0.13               | 0.01               | 0.03            | 14308.69           | 1.28             | 1173.06           |
| Chattahoochee | Main  | 714014.2           | 500YR   | 903.22            | 902.92            | 0.29             | 0.15               | 0.02               | 43.43           | 20162.06           | 110.52           | 2142.59           |
| Chattahoochee | Main  | 713569.6 cha_19390 | 2YR     | 895.99            | 895.73            | 0.26             | 0.39               | 0.02               |                 | 10360.00           |                  | 173.07            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 10YR    | 897.12            | 896.85            | 0.28             | 0.39               | 0.02               |                 | 11460.00           |                  | 176.27            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 50YR    | 898.97            | 898.67            | 0.31             | 0.39               | 0.02               | 0.08            | 13592.46           | 0.46             | 417.42            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 100YR   | 899.53            | 899.21            | 0.32             | 0.39               | 0.03               | 0.35            | 14308.22           | 1.43             | 677.95            |
| Chattahoochee | Main  | 713569.6 cha_19390 | 500YR   | 903.05            | 902.60            | 0.45             | 0.44               | 0.04               | 19.61           | 20258.97           | 37.42            | 2301.84           |
| Chattahoochee | Main  | 712195.4 cha_19300 | 2YR     | 895.57            | 895.39            | 0.18             | 0.44               | 0.00               | 2.66            | 10356.92           | 0.42             | 197.53            |
| Chattahoochee | Main  | 712195.4 cha_19300 | 10YR    | 896.71            | 896.52            | 0.19             | 0.43               | 0.00               | 6.40            | 11451.86           | 1.74             | 201.19            |
| Chattahoochee | Main  | 712195.4 cha_19300 | 50YR    | 898.56            | 898.34            | 0.23             | 0.45               | 0.00               | 17.59           | 13691.54           | 6.87             | 397.37            |
| Chattahoochee | Main  | 712195.4 cha_19300 | 100YR   | 899.12            | 898.88            | 0.24             | 0.45               | 0.00               | 22.40           | 14386.28           | 9.31             | 651.57            |

HEC-RAS Plan: Nat Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Vel Head<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Top Width<br>(ft) |
|---------------|-------|--------------------|---------|-------------------|-------------------|------------------|--------------------|--------------------|-----------------|--------------------|------------------|-------------------|
| Chattahoochee | Main  | 712195.4 cha_19300 | 500YR   | 902.58            | 902.25            | 0.33             | 0.45               | 0.03               | 88.58           | 20009.70           | 113.72           | 1244.99           |
| Chattahoochee | Main  | 710158.5 cha_19200 | 2YR     | 895.13            | 894.95            | 0.17             | 0.36               | 0.01               |                 | 10350.67           | 9.33             | 227.59            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 10YR    | 896.28            | 896.09            | 0.19             | 0.35               | 0.01               |                 | 11440.22           | 19.78            | 356.70            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 50YR    | 898.11            | 897.90            | 0.22             | 0.36               | 0.01               | 0.42            | 13663.90           | 51.68            | 803.61            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 100YR   | 898.66            | 898.44            | 0.23             | 0.35               | 0.01               | 2.76            | 14349.32           | 65.93            | 887.89            |
| Chattahoochee | Main  | 710158.5 cha_19200 | 500YR   | 902.10            | 901.88            | 0.22             | 0.32               | 0.01               | 2295.55         | 17677.12           | 239.33           | 1343.21           |
| Chattahoochee | Main  | 708330.8 1735      | 2YR     | 894.76            | 894.62            | 0.15             | 0.22               | 0.00               | 1.59            | 10357.20           | 1.21             | 266.53            |
| Chattahoochee | Main  | 708330.8 1735      | 10YR    | 895.92            | 895.77            | 0.15             | 0.21               | 0.00               | 4.62            | 11451.18           | 4.20             | 289.63            |
| Chattahoochee | Main  | 708330.8 1735      | 50YR    | 897.74            | 897.56            | 0.18             | 0.21               | 0.00               | 18.90           | 13683.52           | 13.58            | 638.13            |
| Chattahoochee | Main  | 708330.8 1735      | 100YR   | 898.30            | 898.12            | 0.18             | 0.21               | 0.00               | 209.96          | 14190.51           | 17.53            | 832.86            |
| Chattahoochee | Main  | 708330.8 1735      | 500YR   | 901.77            | 901.57            | 0.20             | 0.21               | 0.01               | 1247.72         | 18222.94           | 741.34           | 1270.18           |
| Chattahoochee | Main  | 707189.2 2375      | 2YR     | 894.54            | 894.38            | 0.16             | 0.15               | 0.01               | 1.31            | 10350.62           | 8.07             | 221.17            |
| Chattahoochee | Main  | 707189.2 2375      | 10YR    | 895.71            | 895.54            | 0.17             | 0.14               | 0.01               | 4.25            | 11434.88           | 20.87            | 244.88            |
| Chattahoochee | Main  | 707189.2 2375      | 50YR    | 897.53            | 897.33            | 0.20             | 0.15               | 0.01               | 30.95           | 13626.52           | 58.54            | 472.32            |
| Chattahoochee | Main  | 707189.2 2375      | 100YR   | 898.09            | 897.88            | 0.20             | 0.15               | 0.01               | 47.19           | 14291.74           | 79.07            | 623.77            |
| Chattahoochee | Main  | 707189.2 2375      | 500YR   | 901.55            | 901.28            | 0.27             | 0.16               | 0.01               | 219.10          | 19590.99           | 401.91           | 829.42            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 2YR     | 894.39            | 894.25            | 0.14             | 0.10               | 0.01               | 6.39            | 10350.74           | 2.87             | 283.98            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 10YR    | 895.56            | 895.41            | 0.15             | 0.10               | 0.01               | 13.76           | 11438.33           | 7.92             | 328.99            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 50YR    | 897.38            | 897.20            | 0.18             | 0.10               | 0.01               | 31.20           | 13662.67           | 22.13            | 468.49            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 100YR   | 897.93            | 897.75            | 0.18             | 0.10               | 0.01               | 42.51           | 14345.75           | 29.74            | 582.90            |
| Chattahoochee | Main  | 706369.6 cha_19120 | 500YR   | 901.38            | 901.14            | 0.23             | 0.11               | 0.01               | 666.42          | 19352.34           | 193.24           | 949.09            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 2YR     | 894.28            | 894.12            | 0.16             | 0.01               | 0.01               | 85.49           | 10260.48           | 14.03            | 274.00            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 10YR    | 895.45            | 895.28            | 0.17             | 0.01               | 0.01               | 138.02          | 11295.68           | 26.30            | 282.38            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 50YR    | 897.27            | 897.07            | 0.19             | 0.01               | 0.01               | 231.86          | 13427.26           | 56.87            | 453.52            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 100YR   | 897.82            | 897.62            | 0.20             | 0.01               | 0.01               | 277.01          | 14071.83           | 69.16            | 516.04            |
| Chattahoochee | Main  | 705810.1 CHA_19110 | 500YR   | 901.25            | 900.98            | 0.27             | 0.02               | 0.02               | 654.29          | 19326.73           | 230.98           | 971.36            |
| Chattahoochee | Main  | 705714.6 cha_19100 |         | Bridge            |                   |                  |                    |                    |                 |                    |                  |                   |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 2YR     | 894.17            | 893.95            | 0.22             | 0.22               | 0.00               | 2.81            | 10342.04           | 15.15            | 231.06            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 10YR    | 895.35            | 895.12            | 0.23             | 0.21               | 0.00               | 16.31           | 11414.91           | 28.78            | 251.72            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 50YR    | 897.16            | 896.90            | 0.26             | 0.21               | 0.00               | 58.54           | 13593.55           | 63.91            | 405.79            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 100YR   | 897.71            | 897.45            | 0.27             | 0.21               | 0.00               | 83.84           | 14238.10           | 96.07            | 428.32            |
| Chattahoochee | Main  | 705623.0 CHA_19000 | 500YR   | 901.06            | 900.71            | 0.35             | 0.22               | 0.01               | 329.04          | 19481.29           | 401.67           | 676.93            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 2YR     | 893.94            | 893.71            | 0.23             | 0.50               | 0.02               |                 | 10360.00           |                  | 202.23            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 10YR    | 895.13            | 894.89            | 0.24             | 0.47               | 0.02               |                 | 11460.00           |                  | 206.91            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 50YR    | 896.95            | 896.68            | 0.27             | 0.47               | 0.02               | 0.47            | 13710.77           | 4.76             | 260.59            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 100YR   | 897.50            | 897.23            | 0.28             | 0.47               | 0.02               | 1.09            | 14403.75           | 13.17            | 377.92            |
| Chattahoochee | Main  | 704948.6 cha_18990 | 500YR   | 900.83            | 900.46            | 0.37             | 0.51               | 0.03               | 49.04           | 20027.50           | 135.46           | 1044.43           |
| Chattahoochee | Main  | 703142.4 cha_18900 | 2YR     | 893.42            | 893.26            | 0.16             | 0.38               | 0.00               | 0.03            | 10359.73           | 0.23             | 247.88            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 10YR    | 894.64            | 894.47            | 0.17             | 0.36               | 0.00               | 0.92            | 11457.73           | 1.35             | 332.38            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 50YR    | 896.46            | 896.26            | 0.20             | 0.37               | 0.00               | 6.34            | 13700.69           | 8.97             | 586.45            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 100YR   | 897.02            | 896.81            | 0.21             | 0.37               | 0.00               | 9.39            | 14391.33           | 17.28            | 607.84            |
| Chattahoochee | Main  | 703142.4 cha_18900 | 500YR   | 900.29            | 900.00            | 0.29             | 0.42               | 0.00               | 110.08          | 19914.60           | 187.32           | 1419.30           |

# Six Cross Section Profile Table

HEC-RAS Plan: Nat Locations: User Defined

| River         | Reach | River Sta               | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Top Width<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Vel Chnl<br>(ft/s) |
|---------------|-------|-------------------------|---------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-----------------|--------------------|------------------|--------------------|
| Chattahoochee | Main  | 757224.6 cha_20570      | 2YR     | 906.22            | 906.02            | 896.72            | 0.66               | 0.00               | 227.36            |                 | 10360.00           |                  | 3.60               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 10YR    | 907.23            | 907.02            | 897.02            | 0.63               | 0.00               | 230.04            |                 | 11460.00           |                  | 3.69               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 50YR    | 908.12            | 907.92            | 897.16            | 0.56               | 0.00               | 232.43            |                 | 12000.00           |                  | 3.62               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 100YR   | 908.32            | 908.13            | 897.16            | 0.54               | 0.00               | 232.99            |                 | 12000.00           |                  | 3.57               |
| Chattahoochee | Main  | 757224.6 cha_20570      | 500YR   | 910.71            | 910.57            | 897.16            | 0.33               | 0.00               | 242.24            |                 | 12000.00           |                  | 3.05               |
| Chattahoochee | Main  | 755410.3 1756           | 2YR     | 905.57            | 905.36            | 895.81            | 0.35               | 0.01               | 223.25            |                 | 10360.00           |                  | 3.66               |
| Chattahoochee | Main  | 755410.3 1756           | 10YR    | 906.60            | 906.38            | 896.12            | 0.33               | 0.01               | 225.50            |                 | 11460.00           |                  | 3.75               |
| Chattahoochee | Main  | 755410.3 1756           | 50YR    | 907.56            | 907.35            | 896.28            | 0.29               | 0.01               | 227.49            |                 | 12000.00           |                  | 3.66               |
| Chattahoochee | Main  | 755410.3 1756           | 100YR   | 907.79            | 907.58            | 896.28            | 0.28               | 0.01               | 228.23            |                 | 12000.00           |                  | 3.60               |
| Chattahoochee | Main  | 755410.3 1756           | 500YR   | 910.38            | 910.24            | 896.28            | 0.17               | 0.01               | 239.86            |                 | 12000.00           |                  | 3.04               |
| Chattahoochee | Main  | 754547.9 1755           | 2YR     | 905.21            | 905.03            | 895.12            | 0.62               | 0.01               | 232.30            |                 | 10360.00           |                  | 3.45               |
| Chattahoochee | Main  | 754547.9 1755           | 10YR    | 906.26            | 906.07            | 895.44            | 0.60               | 0.01               | 234.88            |                 | 11460.00           |                  | 3.53               |
| Chattahoochee | Main  | 754547.9 1755           | 50YR    | 907.26            | 907.07            | 895.57            | 0.53               | 0.01               | 237.02            |                 | 12000.00           |                  | 3.44               |
| Chattahoochee | Main  | 754547.9 1755           | 100YR   | 907.50            | 907.32            | 895.57            | 0.50               | 0.01               | 237.55            |                 | 12000.00           |                  | 3.39               |
| Chattahoochee | Main  | 754547.9 1755           | 500YR   | 910.21            | 910.09            | 895.57            | 0.34               | 0.00               | 245.76            |                 | 12000.00           |                  | 2.85               |
| Chattahoochee | Main  | 752673.8 628            | 2YR     | 904.58            | 904.44            | 893.62            | 0.27               | 0.01               | 247.37            |                 | 10360.00           |                  | 3.08               |
| Chattahoochee | Main  | 752673.8 628            | 10YR    | 905.65            | 905.50            | 893.94            | 0.26               | 0.01               | 251.02            |                 | 11460.00           |                  | 3.16               |
| Chattahoochee | Main  | 752673.8 628            | 50YR    | 906.72            | 906.57            | 894.10            | 0.23               | 0.01               | 254.42            |                 | 12000.00           |                  | 3.08               |
| Chattahoochee | Main  | 752673.8 628            | 100YR   | 906.99            | 906.85            | 894.10            | 0.22               | 0.01               | 255.23            |                 | 12000.00           |                  | 3.02               |
| Chattahoochee | Main  | 752673.8 628            | 500YR   | 909.87            | 909.74            | 894.57            | 0.17               | 0.01               | 306.76            |                 | 13752.00           |                  | 2.91               |
| Chattahoochee | Main  | 751868.0 780            | 2YR     | 904.31            | 904.10            | 893.80            | 0.83               | 0.01               | 203.11            |                 | 10360.00           |                  | 3.62               |
| Chattahoochee | Main  | 751868.0 780            | 10YR    | 905.38            | 905.17            | 894.12            | 0.81               | 0.01               | 204.62            |                 | 11460.00           |                  | 3.72               |
| Chattahoochee | Main  | 751868.0 780            | 50YR    | 906.48            | 906.28            | 894.25            | 0.70               | 0.01               | 206.20            |                 | 12000.00           |                  | 3.63               |
| Chattahoochee | Main  | 751868.0 780            | 100YR   | 906.76            | 906.57            | 894.25            | 0.66               | 0.01               | 206.61            |                 | 12000.00           |                  | 3.56               |
| Chattahoochee | Main  | 751868.0 780            | 500YR   | 909.69            | 909.51            | 894.78            | 0.52               | 0.01               | 212.11            |                 | 13752.00           |                  | 3.45               |
| Chattahoochee | Main  | 749433.3 2388           | 2YR     | 903.47            | 903.30            | 892.20            | 0.24               | 0.03               | 217.90            |                 | 10360.00           |                  | 3.31               |
| Chattahoochee | Main  | 749433.3 2388           | 10YR    | 904.56            | 904.38            | 892.52            | 0.24               | 0.03               | 219.75            |                 | 11460.00           |                  | 3.41               |
| Chattahoochee | Main  | 749433.3 2388           | 50YR    | 905.77            | 905.60            | 892.68            | 0.20               | 0.03               | 221.83            |                 | 12000.00           |                  | 3.30               |
| Chattahoochee | Main  | 749433.3 2388           | 100YR   | 906.09            | 905.93            | 892.68            | 0.19               | 0.03               | 222.39            |                 | 12000.00           |                  | 3.24               |
| Chattahoochee | Main  | 749433.3 2388           | 500YR   | 909.16            | 909.01            | 893.18            | 0.15               | 0.03               | 229.57            |                 | 13752.00           |                  | 3.12               |
| Chattahoochee | Main  | 747909.1 1757           | 2YR     | 903.20            | 903.12            | 890.18            | 0.37               | 0.01               | 315.58            |                 | 10360.00           |                  | 2.18               |
| Chattahoochee | Main  | 747909.1 1757           | 10YR    | 904.30            | 904.22            | 890.43            | 0.37               | 0.01               | 318.22            |                 | 11460.00           |                  | 2.24               |
| Chattahoochee | Main  | 747909.1 1757           | 50YR    | 905.54            | 905.46            | 890.56            | 0.32               | 0.01               | 321.22            |                 | 12000.00           |                  | 2.18               |
| Chattahoochee | Main  | 747909.1 1757           | 100YR   | 905.87            | 905.80            | 890.56            | 0.30               | 0.01               | 322.03            |                 | 12000.00           |                  | 2.14               |
| Chattahoochee | Main  | 747909.1 1757           | 500YR   | 908.99            | 908.92            | 890.94            | 0.25               | 0.01               | 516.31            |                 | 13748.02           | 3.98             | 2.07               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 2YR     | 902.82            | 902.68            | 889.30            | 0.83               | 0.01               | 209.09            |                 | 10360.00           |                  | 3.00               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 10YR    | 903.92            | 903.77            | 889.63            | 0.82               | 0.01               | 210.74            |                 | 11460.00           |                  | 3.11               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 50YR    | 905.21            | 905.06            | 889.80            | 0.70               | 0.01               | 212.70            |                 | 12000.00           |                  | 3.03               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 100YR   | 905.56            | 905.42            | 889.80            | 0.65               | 0.01               | 213.25            |                 | 12000.00           |                  | 2.97               |
| Chattahoochee | Main  | 744817.8 cha_20530      | 500YR   | 908.73            | 908.60            | 890.31            | 0.51               | 0.00               | 681.41            |                 | 13751.83           | 0.17             | 2.91               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 2YR     | 901.98            | 901.76            | 892.15            | 0.09               | 0.02               | 249.33            |                 | 10360.00           |                  | 3.77               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 10YR    | 903.09            | 902.86            | 892.49            | 0.09               | 0.02               | 328.68            |                 | 11460.00           |                  | 3.84               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 50YR    | 904.50            | 904.29            | 892.65            | 0.07               | 0.02               | 430.37            |                 | 12000.00           |                  | 3.63               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 100YR   | 904.90            | 904.71            | 892.65            | 0.06               | 0.02               | 456.26            |                 | 12000.00           |                  | 3.53               |
| Chattahoochee | Main  | 741431.5 cha_20500      | 500YR   | 908.22            | 908.05            | 893.15            | 0.04               | 0.01               | 1027.75           |                 | 13752.00           |                  | 3.31               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 2YR     | 901.87            | 901.70            | 891.54            | 0.08               | 0.01               | 407.94            |                 | 10360.00           |                  | 3.27               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 10YR    | 902.99            | 902.82            | 892.15            | 0.07               | 0.01               | 571.92            |                 | 11460.00           |                  | 3.31               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 50YR    | 904.42            | 904.27            | 892.37            | 0.06               | 0.01               | 628.88            |                 | 12000.00           |                  | 3.10               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 100YR   | 904.82            | 904.68            | 892.37            | 0.06               | 0.01               | 638.99            |                 | 12000.00           |                  | 3.01               |
| Chattahoochee | Main  | 741238.0 cha_20400      | 500YR   | 908.17            | 908.05            | 893.29            | 0.04               | 0.00               | 1299.56           | 15.87           | 13736.13           |                  | 2.78               |
| Chattahoochee | Main  | 740971.6 2373           | 2YR     | 901.78            | 901.66            | 886.86            | 0.28               | 0.00               | 466.23            |                 | 10360.00           |                  | 2.86               |
| Chattahoochee | Main  | 740971.6 2373           | 10YR    | 902.90            | 902.77            | 887.23            | 0.28               | 0.00               | 491.01            |                 | 11460.00           |                  | 2.97               |
| Chattahoochee | Main  | 740971.6 2373           | 50YR    | 904.35            | 904.22            | 887.36            | 0.24               | 0.00               | 516.08            |                 | 12000.00           |                  | 2.87               |
| Chattahoochee | Main  | 740971.6 2373           | 100YR   | 904.76            | 904.64            | 887.36            | 0.23               | 0.00               | 522.15            |                 | 12000.00           |                  | 2.81               |
| Chattahoochee | Main  | 740971.6 2373           | 500YR   | 908.12            | 908.01            | 887.93            | 0.19               | 0.00               | 1090.39           | 0.01            | 13751.99           |                  | 2.73               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 2YR     | 901.50            | 901.35            | 887.39            | 0.05               | 0.01               | 202.02            |                 | 10360.00           |                  | 3.09               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 10YR    | 902.62            | 902.46            | 887.75            | 0.05               | 0.01               | 205.58            |                 | 11460.00           |                  | 3.20               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 50YR    | 904.10            | 903.95            | 887.91            | 0.04               | 0.01               | 211.81            |                 | 12000.00           |                  | 3.08               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 100YR   | 904.53            | 904.39            | 887.91            | 0.04               | 0.01               | 213.90            |                 | 12000.00           |                  | 3.01               |
| Chattahoochee | Main  | 739439.5 cha_20320      | 500YR   | 907.93            | 907.80            | 888.45            | 0.03               | 0.01               | 235.63            |                 | 13752.00           |                  | 2.89               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 2YR     | 901.44            | 901.31            | 886.89            | 0.01               | 0.01               | 227.69            |                 | 10354.45           | 5.55             | 2.89               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 10YR    | 902.56            | 902.42            | 887.26            | 0.01               | 0.01               | 232.88            |                 | 11449.31           | 10.69            | 3.00               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 50YR    | 904.05            | 903.92            | 887.42            | 0.01               | 0.01               | 239.92            |                 | 11980.37           | 19.63            | 2.89               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 100YR   | 904.48            | 904.36            | 887.42            | 0.01               | 0.01               | 241.98            |                 | 11977.50           | 22.50            | 2.82               |
| Chattahoochee | Main  | 739094.9 CHA_20310      | 500YR   | 907.89            | 907.77            | 887.97            | 0.01               | 0.01               | 258.29            | 0.01            | 13694.69           | 57.30            | 2.74               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 2YR     | 901.42            | 901.27            | 887.65            | 0.01               | 0.00               | 221.49            |                 | 10349.21           | 10.79            | 3.16               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 10YR    | 902.54            | 902.38            | 888.06            | 0.01               | 0.00               | 225.34            |                 | 11439.08           | 20.92            | 3.26               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 50YR    | 904.03            | 903.88            | 888.25            | 0.01               | 0.00               | 226.20            |                 | 11959.85           | 40.15            | 3.13               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 100YR   | 904.47            | 904.32            | 888.25            | 0.01               | 0.00               | 226.85            |                 | 11954.35           | 45.65            | 3.05               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | 500YR   | 907.88            | 907.75            | 888.84            | 0.01               | 0.00               | 232.13            | 0.01            | 13654.10           | 97.89            | 2.94               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 2YR     | 901.42            | 901.26            | 887.81            | 0.01               | 0.01               | 223.14            |                 | 10350.13           | 9.87             | 3.19               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 10YR    | 902.53            | 902.36            | 888.24            | 0.01               | 0.01               | 225.65            |                 | 11440.32           | 19.68            | 3.29               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 50YR    | 904.03            | 903.87            | 888.44            | 0.01               | 0.01               | 229.64            | 0.21            | 11964.26           | 35.53            | 3.15               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 100YR   | 904.46            | 904.31            | 888.44            | 0.01               | 0.01               | 231.65            | 0.62            | 11959.58           | 39.80            | 3.08               |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | 500YR   | 907.87            | 907.74            | 889.05            | 0.01               | 0.01               | 242.90            | 17.39           | 13655.00           | 79.61            | 2.96               |
| Chattahoochee | Main  | 738953.3 CHA_20200      | 2YR     | 901.39            | 901.26            | 887.19            | 0.06               | 0.03               | 229.14            |                 | 10352.43           | 7.57             | 2.95               |
| Chattahoochee | Main  | 738953.3 CHA_20200      | 10YR    | 902.51            | 902.37            | 887.58            | 0.06               | 0.03               | 234.35            |                 | 11445.34           | 14.66            | 3.05               |



HEC-RAS Plan: Nat Locations: User Defined (Continued)

| River         | Reach | River Sta          | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Top Width<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Vel Chnl<br>(ft/s) |
|---------------|-------|--------------------|---------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-----------------|--------------------|------------------|--------------------|
| Chattahoochee | Main  | 738953.3 CHA_20200 | 50YR    | 904.01            | 903.87            | 887.75            | 0.05               | 0.03               | 244.32            | 0.21            | 11972.88           | 26.91            | 2.94               |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 100YR   | 904.44            | 904.32            | 887.75            | 0.05               | 0.03               | 247.63            | 0.52            | 11968.68           | 30.80            | 2.87               |
| Chattahoochee | Main  | 738953.3 CHA_20200 | 500YR   | 907.86            | 907.74            | 888.34            | 0.04               | 0.03               | 446.70            | 10.98           | 13663.53           | 77.49            | 2.77               |
| Chattahoochee | Main  | 738645.7 cha_20190 | 2YR     | 901.30            | 901.07            | 887.06            | 0.57               | 0.03               | 157.68            |                 | 10360.00           |                  | 3.84               |
| Chattahoochee | Main  | 738645.7 cha_20190 | 10YR    | 902.42            | 902.17            | 887.50            | 0.57               | 0.03               | 159.77            |                 | 11460.00           |                  | 3.99               |
| Chattahoochee | Main  | 738645.7 cha_20190 | 50YR    | 903.92            | 903.69            | 887.73            | 0.47               | 0.03               | 162.63            | 0.00            | 12000.00           |                  | 3.85               |
| Chattahoochee | Main  | 738645.7 cha_20190 | 100YR   | 904.37            | 904.15            | 887.73            | 0.44               | 0.03               | 163.66            | 0.03            | 11999.97           | 0.00             | 3.76               |
| Chattahoochee | Main  | 738645.7 cha_20190 | 500YR   | 907.80            | 907.59            | 888.43            | 0.33               | 0.03               | 272.37            | 1.62            | 13746.81           | 3.57             | 3.67               |
| Chattahoochee | Main  | 735717.3 cha_20100 | 2YR     | 900.70            | 900.58            | 886.05            | 0.40               | 0.00               | 223.18            | 0.03            | 10358.71           | 1.26             | 2.81               |
| Chattahoochee | Main  | 735717.3 cha_20100 | 10YR    | 901.81            | 901.68            | 886.40            | 0.39               | 0.00               | 227.12            | 0.53            | 11455.64           | 3.83             | 2.92               |
| Chattahoochee | Main  | 735717.3 cha_20100 | 50YR    | 903.42            | 903.30            | 886.56            | 0.32               | 0.00               | 232.89            | 2.91            | 11986.81           | 10.27            | 2.80               |
| Chattahoochee | Main  | 735717.3 cha_20100 | 100YR   | 903.90            | 903.78            | 886.56            | 0.29               | 0.00               | 234.62            | 4.03            | 11983.24           | 12.72            | 2.73               |
| Chattahoochee | Main  | 735717.3 cha_20100 | 500YR   | 907.43            | 907.32            | 887.07            | 0.22               | 0.00               | 291.23            | 20.56           | 13675.94           | 55.50            | 2.65               |
| Chattahoochee | Main  | 733190.2 1733      | 2YR     | 900.31            | 900.18            | 886.03            | 0.57               | 0.00               | 223.41            | 0.00            | 10360.00           |                  | 2.87               |
| Chattahoochee | Main  | 733190.2 1733      | 10YR    | 901.42            | 901.29            | 886.37            | 0.56               | 0.01               | 229.31            | 0.49            | 11459.41           | 0.10             | 2.97               |
| Chattahoochee | Main  | 733190.2 1733      | 50YR    | 903.10            | 902.98            | 886.54            | 0.45               | 0.00               | 249.77            | 5.13            | 11993.58           | 1.29             | 2.83               |
| Chattahoochee | Main  | 733190.2 1733      | 100YR   | 903.60            | 903.49            | 886.54            | 0.42               | 0.00               | 281.22            | 7.42            | 11990.48           | 2.10             | 2.76               |
| Chattahoochee | Main  | 733190.2 1733      | 500YR   | 907.21            | 907.10            | 887.06            | 0.31               | 0.00               | 1650.41           | 35.31           | 13695.88           | 20.81            | 2.66               |
| Chattahoochee | Main  | 730384.4 cha_20000 | 2YR     | 899.74            | 899.56            | 886.04            | 0.75               | 0.01               | 182.21            |                 | 10360.00           |                  | 3.36               |
| Chattahoochee | Main  | 730384.4 cha_20000 | 10YR    | 900.86            | 900.67            | 886.42            | 0.75               | 0.01               | 183.91            |                 | 11460.00           |                  | 3.49               |
| Chattahoochee | Main  | 730384.4 cha_20000 | 50YR    | 902.64            | 902.47            | 886.61            | 0.68               | 0.00               | 187.81            | 0.17            | 11999.83           |                  | 3.32               |
| Chattahoochee | Main  | 730384.4 cha_20000 | 100YR   | 903.19            | 903.02            | 886.61            | 0.65               | 0.00               | 189.17            | 0.45            | 11999.55           |                  | 3.22               |
| Chattahoochee | Main  | 730384.4 cha_20000 | 500YR   | 906.90            | 906.75            | 887.20            | 0.61               | 0.01               | 1873.01           | 7.93            | 13726.64           | 17.43            | 3.10               |
| Chattahoochee | Main  | 727178.7 695       | 2YR     | 898.98            | 898.83            | 885.31            | 0.63               | 0.00               | 211.25            |                 | 10360.00           |                  | 3.13               |
| Chattahoochee | Main  | 727178.7 695       | 10YR    | 900.10            | 899.93            | 885.67            | 0.64               | 0.00               | 216.52            | 0.00            | 11460.00           |                  | 3.23               |
| Chattahoochee | Main  | 727178.7 695       | 50YR    | 901.96            | 901.78            | 886.35            | 0.64               | 0.00               | 223.59            | 0.87            | 13592.05           | 0.08             | 3.44               |
| Chattahoochee | Main  | 727178.7 695       | 100YR   | 902.53            | 902.34            | 886.56            | 0.64               | 0.00               | 320.04            | 1.63            | 14308.03           | 0.33             | 3.51               |
| Chattahoochee | Main  | 727178.7 695       | 500YR   | 906.28            | 906.01            | 888.22            | 0.71               | 0.00               | 1966.13           | 17.75           | 20286.01           | 12.24            | 4.16               |
| Chattahoochee | Main  | 724525.6 cha_19900 | 2YR     | 898.35            | 898.18            | 885.35            | 0.30               | 0.02               | 198.39            |                 | 10360.00           |                  | 3.31               |
| Chattahoochee | Main  | 724525.6 cha_19900 | 10YR    | 899.46            | 899.27            | 885.70            | 0.31               | 0.02               | 210.22            |                 | 11460.00           |                  | 3.43               |
| Chattahoochee | Main  | 724525.6 cha_19900 | 50YR    | 901.32            | 901.11            | 886.38            | 0.31               | 0.02               | 631.84            |                 | 13592.43           | 0.57             | 3.65               |
| Chattahoochee | Main  | 724525.6 cha_19900 | 100YR   | 901.88            | 901.67            | 886.57            | 0.31               | 0.02               | 694.74            |                 | 14308.60           | 1.40             | 3.73               |
| Chattahoochee | Main  | 724525.6 cha_19900 | 500YR   | 905.56            | 905.26            | 888.23            | 0.35               | 0.03               | 2717.51           | 5.44            | 20274.65           | 35.91            | 4.43               |
| Chattahoochee | Main  | 723016.0 2374      | 2YR     | 898.03            | 897.91            | 883.87            | 0.08               | 0.00               | 231.34            |                 | 10360.00           |                  | 2.78               |
| Chattahoochee | Main  | 723016.0 2374      | 10YR    | 899.13            | 899.00            | 884.20            | 0.09               | 0.00               | 236.17            |                 | 11460.00           |                  | 2.88               |
| Chattahoochee | Main  | 723016.0 2374      | 50YR    | 900.99            | 900.84            | 884.85            | 0.09               | 0.00               | 270.71            | 4.13            | 13588.74           | 0.13             | 3.08               |
| Chattahoochee | Main  | 723016.0 2374      | 100YR   | 901.55            | 901.40            | 885.05            | 0.09               | 0.00               | 351.38            | 8.42            | 14301.05           | 0.53             | 3.14               |
| Chattahoochee | Main  | 723016.0 2374      | 500YR   | 905.18            | 904.97            | 886.80            | 0.10               | 0.00               | 3285.11           | 78.53           | 20214.65           | 22.82            | 3.74               |
| Chattahoochee | Main  | 722465.4 cha_19800 | 2YR     | 897.94            | 897.80            | 883.90            | 0.46               | 0.00               | 203.09            |                 | 10360.00           |                  | 3.00               |
| Chattahoochee | Main  | 722465.4 cha_19800 | 10YR    | 899.04            | 898.89            | 884.25            | 0.46               | 0.00               | 206.38            |                 | 11460.00           |                  | 3.12               |
| Chattahoochee | Main  | 722465.4 cha_19800 | 50YR    | 900.90            | 900.72            | 884.87            | 0.48               | 0.00               | 556.27            |                 | 13593.00           |                  | 3.35               |
| Chattahoochee | Main  | 722465.4 cha_19800 | 100YR   | 901.46            | 901.28            | 885.08            | 0.49               | 0.00               | 832.46            |                 | 14310.00           |                  | 3.43               |
| Chattahoochee | Main  | 722465.4 cha_19800 | 500YR   | 905.08            | 904.82            | 886.66            | 0.52               | 0.00               | 2871.96           | 1.80            | 20253.18           | 61.02            | 4.09               |
| Chattahoochee | Main  | 719651.2 1734      | 2YR     | 897.48            | 897.31            | 884.20            | 0.43               | 0.00               | 219.13            |                 | 10360.00           | 0.00             | 3.33               |
| Chattahoochee | Main  | 719651.2 1734      | 10YR    | 898.58            | 898.39            | 884.57            | 0.43               | 0.00               | 244.00            | 0.08            | 11459.81           | 0.11             | 3.44               |
| Chattahoochee | Main  | 719651.2 1734      | 50YR    | 900.41            | 900.20            | 885.25            | 0.43               | 0.00               | 599.43            | 2.81            | 13588.83           | 1.36             | 3.69               |
| Chattahoochee | Main  | 719651.2 1734      | 100YR   | 900.97            | 900.75            | 885.47            | 0.43               | 0.00               | 966.32            | 4.83            | 14302.93           | 2.24             | 3.77               |
| Chattahoochee | Main  | 719651.2 1734      | 500YR   | 904.55            | 904.29            | 887.18            | 0.45               | 0.01               | 2753.18           | 42.92           | 18934.67           | 1338.42          | 4.22               |
| Chattahoochee | Main  | 717546.8 cha_19600 | 2YR     | 897.04            | 896.86            | 884.04            | 0.71               | 0.00               | 195.77            |                 | 10360.00           |                  | 3.49               |
| Chattahoochee | Main  | 717546.8 cha_19600 | 10YR    | 898.15            | 897.95            | 884.42            | 0.69               | 0.00               | 199.98            |                 | 11459.92           | 0.08             | 3.60               |
| Chattahoochee | Main  | 717546.8 cha_19600 | 50YR    | 899.98            | 899.76            | 885.10            | 0.68               | 0.00               | 573.25            | 0.08            | 13591.76           | 1.16             | 3.83               |
| Chattahoochee | Main  | 717546.8 cha_19600 | 100YR   | 900.54            | 900.30            | 885.31            | 0.68               | 0.00               | 740.61            | 0.46            | 14307.71           | 1.83             | 3.91               |
| Chattahoochee | Main  | 717546.8 cha_19600 | 500YR   | 904.09            | 903.76            | 887.07            | 0.68               | 0.03               | 2121.50           | 53.06           | 20250.51           | 12.43            | 4.65               |
| Chattahoochee | Main  | 714679.4 cha_19520 | 2YR     | 896.33            | 896.14            | 886.18            | 0.09               | 0.01               | 216.87            |                 | 10360.00           |                  | 3.59               |
| Chattahoochee | Main  | 714679.4 cha_19520 | 10YR    | 897.46            | 897.25            | 886.53            | 0.09               | 0.01               | 219.69            |                 | 11460.00           |                  | 3.66               |
| Chattahoochee | Main  | 714679.4 cha_19520 | 50YR    | 899.30            | 899.07            | 887.18            | 0.08               | 0.02               | 773.80            |                 | 13593.00           | 0.00             | 3.84               |
| Chattahoochee | Main  | 714679.4 cha_19520 | 100YR   | 899.86            | 899.62            | 887.38            | 0.08               | 0.02               | 1064.12           | 0.00            | 14308.08           | 1.92             | 3.91               |
| Chattahoochee | Main  | 714679.4 cha_19520 | 500YR   | 903.39            | 903.14            | 888.84            | 0.07               | 0.01               | 1908.42           | 7.66            | 18641.46           | 1666.88          | 4.19               |
| Chattahoochee | Main  | 714318.7           | 2YR     | 896.24            | 896.06            | 885.17            | 0.01               | 0.00               | 441.83            |                 | 9969.19            | 390.81           | 3.42               |
| Chattahoochee | Main  | 714318.7           | 10YR    | 897.36            | 897.19            | 885.52            | 0.01               | 0.00               | 477.58            |                 | 10850.28           | 609.72           | 3.45               |
| Chattahoochee | Main  | 714318.7           | 50YR    | 899.21            | 899.03            | 886.16            | 0.00               | 0.00               | 611.24            |                 | 12488.59           | 1104.41          | 3.53               |
| Chattahoochee | Main  | 714318.7           | 100YR   | 899.76            | 899.58            | 886.38            | 0.00               | 0.00               | 927.75            | 0.05            | 13059.78           | 1250.17          | 3.57               |
| Chattahoochee | Main  | 714318.7           | 500YR   | 903.30            | 903.10            | 887.99            | 0.00               | 0.00               | 1951.21           | 25.59           | 17316.45           | 2973.96          | 3.93               |
| Chattahoochee | Main  | 714014.2           | 2YR     | 896.14            | 895.96            | 885.29            | 0.14               | 0.01               | 218.23            |                 | 10360.00           |                  | 3.39               |
| Chattahoochee | Main  | 714014.2           | 10YR    | 897.27            | 897.08            | 885.61            | 0.14               | 0.01               | 221.30            |                 | 11460.00           |                  | 3.47               |
| Chattahoochee | Main  | 714014.2           | 50YR    | 899.12            | 898.91            | 886.20            | 0.13               | 0.01               | 994.74            |                 | 13592.92           | 0.08             | 3.66               |
| Chattahoochee | Main  | 714014.2           | 100YR   | 899.67            | 899.46            | 886.38            | 0.13               | 0.01               | 1173.06           | 0.03            | 14308.69           | 1.28             | 3.73               |
| Chattahoochee | Main  | 714014.2           | 500YR   | 903.22            | 902.92            | 887.89            | 0.15               | 0.02               | 2142.59           | 43.43           | 20162.06           | 110.52           | 4.37               |
| Chattahoochee | Main  | 713569.6 cha_19390 | 2YR     | 895.99            | 895.73            | 884.77            | 0.39               | 0.02               | 173.07            |                 | 10360.00           |                  | 4.10               |
| Chattahoochee | Main  | 713569.6 cha_19390 | 10YR    | 897.12            | 896.85            | 885.19            | 0.39               | 0.02               | 176.27            |                 | 11460.00           |                  | 4.21               |
| Chattahoochee | Main  | 713569.6 cha_19390 | 50YR    | 898.97            | 898.67            | 885.91            | 0.39               | 0.02               | 417.42            | 0.08            | 13592.46           | 0.46             | 4.46               |
| Chattahoochee | Main  | 713569.6 cha_19390 | 100YR   | 899.53            | 899.21            | 886.13            | 0.39               | 0.03               | 677.95            | 0.35            | 14308.22           | 1.43             | 4.55               |
| Chattahoochee | Main  | 713569.6 cha_19390 | 500YR   | 903.05            | 902.60            | 887.91            | 0.44               | 0.04               | 2301.84           | 19.61           | 20258.97           | 37.42            | 5.40               |
| Chattahoochee | Main  | 712195.4 cha_19300 | 2YR     | 895.57            | 895.39            | 882.37            | 0.44               | 0.00               | 197.53            | 2.66            | 10356.92           | 0.42             | 3.43               |
| Chattahoochee | Main  | 712195.4 cha_19300 | 10YR    | 896.71            | 896.52            | 882.76            | 0.43               | 0.00               | 201.19            | 6.40            | 11451.86           | 1.74             | 3.54               |
| Chattahoochee | Main  | 712195.4 cha_19300 | 50YR    | 898.56            | 898.34            | 883.50            | 0.45               | 0.00               | 397.37            | 17.59           | 13691.54           | 6.87             | 3.82               |
| Chattahoochee | Main  | 712195.4 cha_19300 | 100YR   | 899.12            | 898.88            | 883.71            | 0.45               | 0.00               | 651.57            | 22.40           | 14386.28           | 9.31             | 3.90               |

HEC-RAS Plan: Nat Locations: User Defined (Continued)

| River         | Reach | River Sta               | Profile | E.G. Elev<br>(ft) | W.S. Elev<br>(ft) | Crit W.S.<br>(ft) | Frctn Loss<br>(ft) | C & E Loss<br>(ft) | Top Width<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Vel Chnl<br>(ft/s) |
|---------------|-------|-------------------------|---------|-------------------|-------------------|-------------------|--------------------|--------------------|-------------------|-----------------|--------------------|------------------|--------------------|
| Chattahoochee | Main  | 712195.4 cha_19300      | 500YR   | 902.58            | 902.25            | 885.39            | 0.45               | 0.03               | 1244.99           | 88.58           | 20009.70           | 113.72           | 4.62               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 2YR     | 895.13            | 894.95            | 881.81            | 0.36               | 0.01               | 227.59            |                 | 10350.67           | 9.33             | 3.34               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 10YR    | 896.28            | 896.09            | 882.19            | 0.35               | 0.01               | 356.70            |                 | 11440.22           | 19.78            | 3.46               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 50YR    | 898.11            | 897.90            | 882.93            | 0.36               | 0.01               | 803.61            | 0.42            | 13663.90           | 51.68            | 3.74               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 100YR   | 898.66            | 898.44            | 883.14            | 0.35               | 0.01               | 887.89            | 2.76            | 14349.32           | 65.93            | 3.82               |
| Chattahoochee | Main  | 710158.5 cha_19200      | 500YR   | 902.10            | 901.88            | 884.73            | 0.32               | 0.01               | 1343.21           | 2295.55         | 17677.12           | 239.33           | 4.01               |
| Chattahoochee | Main  | 708330.8 1735           | 2YR     | 894.76            | 894.62            | 881.65            | 0.22               | 0.00               | 266.53            | 1.59            | 10357.20           | 1.21             | 3.07               |
| Chattahoochee | Main  | 708330.8 1735           | 10YR    | 895.92            | 895.77            | 882.00            | 0.21               | 0.00               | 289.63            | 4.62            | 11451.18           | 4.20             | 3.16               |
| Chattahoochee | Main  | 708330.8 1735           | 50YR    | 897.74            | 897.56            | 882.67            | 0.21               | 0.00               | 638.13            | 18.90           | 13683.52           | 13.58            | 3.41               |
| Chattahoochee | Main  | 708330.8 1735           | 100YR   | 898.30            | 898.12            | 882.87            | 0.21               | 0.00               | 832.86            | 209.96          | 14190.51           | 17.53            | 3.43               |
| Chattahoochee | Main  | 708330.8 1735           | 500YR   | 901.77            | 901.57            | 884.37            | 0.21               | 0.01               | 1270.18           | 1247.72         | 18222.94           | 741.34           | 3.74               |
| Chattahoochee | Main  | 707189.2 2375           | 2YR     | 894.54            | 894.38            | 881.44            | 0.15               | 0.01               | 221.17            | 1.31            | 10350.62           | 8.07             | 3.22               |
| Chattahoochee | Main  | 707189.2 2375           | 10YR    | 895.71            | 895.54            | 881.82            | 0.14               | 0.01               | 244.88            | 4.25            | 11434.88           | 20.87            | 3.31               |
| Chattahoochee | Main  | 707189.2 2375           | 50YR    | 897.53            | 897.33            | 882.53            | 0.15               | 0.01               | 472.32            | 30.95           | 13626.52           | 58.54            | 3.57               |
| Chattahoochee | Main  | 707189.2 2375           | 100YR   | 898.09            | 897.88            | 882.73            | 0.15               | 0.01               | 623.77            | 47.19           | 14291.74           | 79.07            | 3.64               |
| Chattahoochee | Main  | 707189.2 2375           | 500YR   | 901.55            | 901.28            | 884.38            | 0.16               | 0.01               | 829.42            | 219.10          | 19590.99           | 401.91           | 4.24               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 2YR     | 894.39            | 894.25            | 880.95            | 0.10               | 0.01               | 283.98            | 6.39            | 10350.74           | 2.87             | 3.01               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 10YR    | 895.56            | 895.41            | 881.29            | 0.10               | 0.01               | 328.99            | 13.78           | 11438.33           | 7.92             | 3.11               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 50YR    | 897.38            | 897.20            | 881.96            | 0.10               | 0.01               | 468.49            | 31.20           | 13662.67           | 22.13            | 3.37               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 100YR   | 897.93            | 897.75            | 882.16            | 0.10               | 0.01               | 582.90            | 42.51           | 14345.75           | 29.74            | 3.44               |
| Chattahoochee | Main  | 706369.6 cha_19120      | 500YR   | 901.38            | 901.14            | 883.67            | 0.11               | 0.01               | 949.09            | 666.42          | 19352.34           | 193.24           | 3.96               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 2YR     | 894.28            | 894.12            | 881.75            | 0.01               | 0.01               | 274.00            | 85.49           | 10260.48           | 14.03            | 3.23               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 10YR    | 895.45            | 895.28            | 882.07            | 0.01               | 0.01               | 282.38            | 138.02          | 11295.68           | 26.30            | 3.32               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 50YR    | 897.27            | 897.07            | 882.76            | 0.01               | 0.01               | 453.52            | 231.86          | 13427.26           | 56.87            | 3.58               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 100YR   | 897.82            | 897.62            | 882.95            | 0.01               | 0.01               | 516.04            | 277.01          | 14071.83           | 69.16            | 3.64               |
| Chattahoochee | Main  | 705810.1 CHA_19110      | 500YR   | 901.25            | 900.98            | 884.49            | 0.02               | 0.02               | 971.36            | 654.29          | 19326.73           | 230.98           | 4.27               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 2YR     | 894.26            | 894.08            | 882.01            | 0.05               | 0.02               | 241.19            | 86.92           | 10253.47           | 19.61            | 3.46               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 10YR    | 895.44            | 895.24            | 882.35            | 0.05               | 0.02               | 245.94            | 137.18          | 11285.21           | 37.61            | 3.55               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 50YR    | 897.25            | 897.03            | 883.04            | 0.05               | 0.02               | 251.40            | 237.09          | 13392.92           | 86.00            | 3.82               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 100YR   | 897.80            | 897.57            | 883.25            | 0.05               | 0.02               | 251.52            | 271.63          | 14039.29           | 107.08           | 3.89               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | 500YR   | 901.22            | 900.88            | 884.84            | 0.11               | 0.02               | 16.85             | 415.60          | 19474.62           | 321.78           | 4.73               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 2YR     | 894.20            | 893.95            | 883.39            | 0.01               | 0.01               | 219.06            | 5.34            | 10306.62           | 48.05            | 3.97               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 10YR    | 895.37            | 895.12            | 883.76            | 0.01               | 0.01               | 238.62            | 31.89           | 11335.22           | 92.88            | 4.05               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 50YR    | 897.18            | 896.90            | 884.46            | 0.01               | 0.01               | 251.39            | 117.53          | 13369.12           | 229.35           | 4.29               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 100YR   | 897.74            | 897.45            | 884.67            | 0.01               | 0.01               | 251.50            | 151.37          | 13972.53           | 294.10           | 4.35               |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | 500YR   | 901.09            | 900.71            | 886.28            | 0.02               | 0.02               | 49.47             | 297.47          | 18807.40           | 1107.13          | 5.07               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 2YR     | 894.17            | 893.95            | 883.23            | 0.22               | 0.00               | 231.06            | 2.81            | 10342.04           | 15.15            | 3.74               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 10YR    | 895.35            | 895.12            | 883.58            | 0.21               | 0.00               | 251.72            | 16.31           | 11414.91           | 28.78            | 3.83               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 50YR    | 897.16            | 896.90            | 884.27            | 0.21               | 0.00               | 405.79            | 58.54           | 13593.55           | 63.91            | 4.10               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 100YR   | 897.71            | 897.45            | 884.46            | 0.21               | 0.00               | 428.32            | 83.84           | 14238.10           | 96.07            | 4.16               |
| Chattahoochee | Main  | 705623.0 CHA_19000      | 500YR   | 901.06            | 900.71            | 886.01            | 0.22               | 0.01               | 676.93            | 329.04          | 19481.29           | 401.67           | 4.83               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 2YR     | 893.94            | 893.71            |                   | 0.50               | 0.02               | 202.23            |                 | 10360.00           |                  | 3.87               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 10YR    | 895.13            | 894.89            |                   | 0.47               | 0.02               | 206.91            |                 | 11460.00           |                  | 3.93               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 50YR    | 896.95            | 896.68            |                   | 0.47               | 0.02               | 260.59            | 0.47            | 13710.77           | 4.76             | 4.17               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 100YR   | 897.50            | 897.23            |                   | 0.47               | 0.02               | 377.92            | 1.09            | 14403.75           | 13.17            | 4.23               |
| Chattahoochee | Main  | 704948.6 cha_18990      | 500YR   | 900.83            | 900.46            |                   | 0.51               | 0.03               | 1044.43           | 49.04           | 20027.50           | 135.46           | 4.91               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 2YR     | 893.42            | 893.26            | 881.19            | 0.38               | 0.00               | 247.88            | 0.03            | 10359.73           | 0.23             | 3.25               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 10YR    | 894.64            | 894.47            | 881.54            | 0.36               | 0.00               | 332.38            | 0.92            | 11457.73           | 1.35             | 3.33               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 50YR    | 896.46            | 896.26            | 882.21            | 0.37               | 0.00               | 586.45            | 6.34            | 13700.69           | 8.97             | 3.59               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 100YR   | 897.02            | 896.81            | 882.40            | 0.37               | 0.00               | 607.84            | 9.39            | 14391.33           | 17.28            | 3.66               |
| Chattahoochee | Main  | 703142.4 cha_18900      | 500YR   | 900.29            | 900.00            | 883.87            | 0.42               | 0.00               | 1419.30           | 110.08          | 19914.60           | 187.32           | 4.33               |

## **VI. FEMA Model Output**

## **Published Floodway**

| FLOODING SOURCE        |                       | FLOODWAY                     |                                     |                                          | 1-PERCENT-ANNUAL-CHANCE FLOOD<br>WATER SURFACE ELEVATION |                                     |                                                              |                                                           |                    |
|------------------------|-----------------------|------------------------------|-------------------------------------|------------------------------------------|----------------------------------------------------------|-------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------|--------------------|
| CROSS SECTION          | DISTANCE <sup>1</sup> | WIDTH <sup>2</sup><br>(FEET) | SECTION<br>AREA<br>(SQUARE<br>FEET) | MEAN<br>VELOCITY<br>(FEET PER<br>SECOND) | EXISTING<br>CONDITIONS<br>(FEET NAVD)                    | FUTURE<br>CONDITIONS<br>(FEET NAVD) | EXISTING<br>CONDITIONS<br>WITHOUT<br>FLOODWAY<br>(FEET NAVD) | EXISTING<br>CONDITIONS<br>WITH<br>FLOODWAY<br>(FEET NAVD) | INCREASE<br>(FEET) |
| CHATTAHOOCHEE<br>RIVER |                       |                              |                                     |                                          |                                                          |                                     |                                                              |                                                           |                    |
| EV                     | 125.54                | 217\117                      | 4,568                               | 4.9                                      | 884.0                                                    | -                                   | 884.0                                                        | 884.4                                                     | 0.4                |
| EW                     | 127.63                | 294\102                      | 4,814                               | 4.0                                      | 887.9                                                    | -                                   | 887.9                                                        | 888.3                                                     | 0.4                |
| EX                     | 128.66                | 425\119                      | 6,881                               | 2.8                                      | 889.6                                                    | -                                   | 889.6                                                        | 890.0                                                     | 0.4                |
| EY                     | 128.97                | 254\132                      | 3,915                               | 4.7                                      | 890.0                                                    | -                                   | 890.0                                                        | 890.3                                                     | 0.3                |
| EZ                     | 129.32                | 296\175                      | 4,588                               | 3.9                                      | 890.7                                                    | -                                   | 890.7                                                        | 891.0                                                     | 0.3                |
| FA                     | 130.68                | 212\91                       | 3,752                               | 3.8                                      | 892.8                                                    | -                                   | 892.8                                                        | 893.1                                                     | 0.3                |
| FB                     | 130.94                | 208\146                      | 3,856                               | 3.7                                      | 893.2                                                    | -                                   | 893.2                                                        | 893.4                                                     | 0.2                |
| FC                     | 132.01                | 191\84                       | 3,444                               | 4.2                                      | 895.3                                                    | -                                   | 895.3                                                        | 895.5                                                     | 0.2                |
| FD                     | 133.64                | 242\99                       | 3,710                               | 3.9                                      | 897.5                                                    | -                                   | 897.5                                                        | 897.7                                                     | 0.2                |
| FE                     | 133.78                | 210\85                       | 4,226                               | 3.4                                      | 897.8                                                    | -                                   | 897.8                                                        | 898.0                                                     | 0.2                |
| FF                     | 135.15                | 179\93                       | 3,194                               | 4.5                                      | 899.2                                                    | -                                   | 899.2                                                        | 899.5                                                     | 0.3                |
| FG                     | 135.36                | 210\191                      | 4,204                               | 3.4                                      | 899.7                                                    | -                                   | 899.7                                                        | 900.0                                                     | 0.3                |
| FH                     | 136.30                | 196\102                      | 3,881                               | 3.7                                      | 900.9                                                    | -                                   | 900.9                                                        | 901.2                                                     | 0.3                |
| FI                     | 136.93                | 239\139                      | 4,659                               | 3.1                                      | 901.5                                                    | -                                   | 901.5                                                        | 901.9                                                     | 0.4                |
| FJ                     | 137.22                | 206\115                      | 3,917                               | 3.7                                      | 901.8                                                    | -                                   | 901.8                                                        | 902.1                                                     | 0.3                |
| FK                     | 138.33                | 187\83                       | 3,784                               | 3.2                                      | 903.1                                                    | -                                   | 903.1                                                        | 903.4                                                     | 0.3                |
| FL                     | 139.90                | 162\44                       | 3,221                               | 3.7                                      | 904.1                                                    | -                                   | 904.1                                                        | 904.4                                                     | 0.3                |
| FM                     | 140.05                | 215\117                      | 4,025                               | 3.0                                      | 904.3                                                    | -                                   | 904.3                                                        | 904.6                                                     | 0.3                |
| FN                     | 140.42                | 225\100                      | 3,438                               | 3.5                                      | 904.6                                                    | -                                   | 904.6                                                        | 904.9                                                     | 0.3                |
| FO                     | 141.06                | 213\62                       | 4,069                               | 3.0                                      | 905.4                                                    | -                                   | 905.4                                                        | 905.6                                                     | 0.2                |
| FP                     | 141.94                | 223\88                       | 3,739                               | 3.2                                      | 905.9                                                    | -                                   | 905.9                                                        | 906.1                                                     | 0.2                |
| FQ                     | 142.40                | 207\38                       | 3,395                               | 3.5                                      | 906.5                                                    | -                                   | 906.5                                                        | 906.7                                                     | 0.2                |
| FR                     | 143.41                | 233\117                      | 3,386                               | 3.5                                      | 908.1                                                    | -                                   | 908.1                                                        | 908.2                                                     | 0.1                |
| FS                     | 144.00                | 198\79                       | 2,836                               | 4.2                                      | 908.6                                                    | -                                   | 908.6                                                        | 908.7                                                     | 0.1                |
| FT                     | 144.08                | 297\110                      | 6,132                               | 2.0                                      | 908.9                                                    | -                                   | 908.9                                                        | 909.1                                                     | 0.2                |

<sup>1</sup> Miles from West Point Dam

<sup>2</sup> Total Width\Width Inside the County

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

**GWINNETT COUNTY, GA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**CHATTAHOOCHEE RIVER**



## **Duplicate Effective (DE) Model Floodway**

HEC-RAS Plan: Dup Eff FW Locations: User Defined

| River         | Reach | River Sta               | Profile  | W.S. Elev<br>(ft) | Prof Delta WS<br>(ft) | E.G. Elev<br>(ft) | Top Width Act<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Enc Sta L<br>(ft) | Ch Sta L<br>(ft) | Ch Sta R<br>(ft) | Enc Sta R<br>(ft) |
|---------------|-------|-------------------------|----------|-------------------|-----------------------|-------------------|-----------------------|-----------------|--------------------|------------------|-------------------|------------------|------------------|-------------------|
| Chattahoochee | Main  | 757224.6 cha_20570      | EX_100YR | 908.09            |                       | 908.29            | 232.90                |                 | 12000.00           |                  |                   | 640.33           | 640.33           | 892.10            |
| Chattahoochee | Main  | 757224.6 cha_20570      | Floodway | 908.22            | 0.13                  | 908.42            | 233.24                |                 | 12000.00           |                  |                   | 640.33           | 640.33           | 892.10            |
| Chattahoochee | Main  | 755410.3 1756           | EX_100YR | 907.55            |                       | 907.75            | 228.10                |                 | 12000.00           |                  |                   | 655.87           | 655.87           | 917.59            |
| Chattahoochee | Main  | 755410.3 1756           | Floodway | 907.69            | 0.14                  | 907.89            | 228.59                |                 | 12000.00           |                  |                   | 655.87           | 655.87           | 917.59            |
| Chattahoochee | Main  | 754547.9 1755           | EX_100YR | 907.28            |                       | 907.46            | 237.47                |                 | 12000.00           |                  |                   | 601.71           | 601.71           | 858.55            |
| Chattahoochee | Main  | 754547.9 1755           | Floodway | 907.43            | 0.15                  | 907.61            | 237.79                |                 | 12000.00           |                  |                   | 601.71           | 601.71           | 858.55            |
| Chattahoochee | Main  | 752673.8 628            | EX_100YR | 906.80            |                       | 906.95            | 255.10                |                 | 12000.00           |                  |                   | 218.66           | 218.66           | 493.49            |
| Chattahoochee | Main  | 752673.8 628            | Floodway | 906.97            | 0.17                  | 907.11            | 255.59                |                 | 12000.00           |                  |                   | 218.66           | 218.66           | 493.49            |
| Chattahoochee | Main  | 751868.0 780            | EX_100YR | 906.52            |                       | 906.72            | 206.55                |                 | 12000.00           |                  |                   | 105.27           | 105.27           | 320.49            |
| Chattahoochee | Main  | 751868.0 780            | Floodway | 906.70            | 0.18                  | 906.89            | 206.80                |                 | 12000.00           |                  |                   | 105.27           | 105.27           | 320.49            |
| Chattahoochee | Main  | 749433.3 2388           | EX_100YR | 905.88            |                       | 906.04            | 222.30                |                 | 12000.00           |                  |                   | 978.34           | 978.34           | 1237.90           |
| Chattahoochee | Main  | 749433.3 2388           | Floodway | 906.07            | 0.20                  | 906.23            | 222.64                |                 | 12000.00           |                  |                   | 978.34           | 978.34           | 1237.90           |
| Chattahoochee | Main  | 747909.1 1757           | EX_100YR | 905.75            |                       | 905.82            | 321.90                |                 | 12000.00           |                  |                   | 1818.22          | 1818.22          | 2173.94           |
| Chattahoochee | Main  | 747909.1 1757           | Floodway | 905.95            | 0.20                  | 906.02            | 322.44                |                 | 12000.00           |                  |                   | 1818.22          | 1818.22          | 2173.94           |
| Chattahoochee | Main  | 744817.8 cha_20530      | EX_100YR | 905.37            |                       | 905.51            | 213.16                |                 | 12000.00           |                  |                   | 1658.02          | 1658.02          | 1878.62           |
| Chattahoochee | Main  | 744817.8 cha_20530      | Floodway | 905.58            | 0.22                  | 905.72            | 213.49                |                 | 12000.00           |                  |                   | 1658.02          | 1658.02          | 1878.62           |
| Chattahoochee | Main  | 741431.5 cha_20500      | EX_100YR | 904.64            |                       | 904.84            | 224.10                |                 | 12000.00           |                  |                   | 1979.32          | 1979.32          | 2219.30           |
| Chattahoochee | Main  | 741431.5 cha_20500      | Floodway | 904.89            | 0.24                  | 905.08            | 224.70                |                 | 12000.00           |                  |                   | 1979.32          | 1979.32          | 2219.30           |
| Chattahoochee | Main  | 741238.0 cha_20400      | EX_100YR | 904.62            |                       | 904.76            | 279.59                |                 | 12000.00           |                  |                   | 1858.52          | 1858.52          | 2155.55           |
| Chattahoochee | Main  | 741238.0 cha_20400      | Floodway | 904.86            | 0.25                  | 905.00            | 280.50                |                 | 12000.00           |                  |                   | 1858.52          | 1858.52          | 2155.55           |
| Chattahoochee | Main  | 740971.6 2373           | EX_100YR | 904.57            |                       | 904.70            | 222.24                |                 | 12000.00           |                  |                   | 1589.60          | 1589.60          | 1827.71           |
| Chattahoochee | Main  | 740971.6 2373           | Floodway | 904.82            | 0.25                  | 904.94            | 223.05                |                 | 12000.00           |                  |                   | 1589.60          | 1589.60          | 1827.71           |
| Chattahoochee | Main  | 739439.5 cha_20320      | EX_100YR | 904.32            |                       | 904.46            | 213.57                |                 | 12000.00           |                  |                   | 215.49           | 215.49           | 462.48            |
| Chattahoochee | Main  | 739439.5 cha_20320      | Floodway | 904.58            | 0.26                  | 904.72            | 215.02                |                 | 12000.00           |                  |                   | 215.49           | 215.49           | 462.48            |
| Chattahoochee | Main  | 739094.9 CHA_20310      | EX_100YR | 904.29            |                       | 904.41            | 241.66                |                 | 11977.96           | 22.04            |                   | 228.30           | 228.30           | 451.22            |
| Chattahoochee | Main  | 739094.9 CHA_20310      | Floodway | 904.55            | 0.26                  | 904.67            | 219.04                |                 | 12000.00           |                  |                   | 228.30           | 228.30           | 451.22            |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | EX_100YR | 904.25            |                       | 904.40            | 226.75                |                 | 11955.20           | 44.80            |                   | 228.30           | 228.30           | 451.22            |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | Floodway | 904.51            | 0.26                  | 904.65            | 209.99                |                 | 12000.00           |                  |                   | 228.30           | 228.30           | 451.22            |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | EX_100YR | 904.25            |                       | 904.39            | 231.33                | 0.54            | 11960.32           | 39.14            |                   | 231.27           | 231.27           | 451.22            |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | Floodway | 904.50            | 0.26                  | 904.65            | 211.70                |                 | 12000.00           |                  |                   | 231.27           | 231.27           | 451.22            |
| Chattahoochee | Main  | 738953.3 CHA_20200      | EX_100YR | 904.25            |                       | 904.38            | 247.12                | 0.46            | 11969.36           | 30.18            |                   | 231.27           | 231.27           | 451.22            |
| Chattahoochee | Main  | 738953.3 CHA_20200      | Floodway | 904.51            | 0.26                  | 904.63            | 219.95                |                 | 12000.00           |                  |                   | 231.27           | 231.27           | 451.22            |
| Chattahoochee | Main  | 738645.7 cha_20190      | EX_100YR | 904.08            |                       | 904.30            | 163.48                | 0.02            | 11999.98           | 0.00             |                   | 125.74           | 125.74           | 288.16            |
| Chattahoochee | Main  | 738645.7 cha_20190      | Floodway | 904.34            | 0.26                  | 904.55            | 162.42                |                 | 12000.00           |                  |                   | 125.74           | 125.74           | 288.16            |
| Chattahoochee | Main  | 735717.3 cha_20100      | EX_100YR | 903.71            |                       | 903.82            | 234.35                | 3.85            | 11983.82           | 12.33            |                   | 1128.78          | 1128.78          | 1346.88           |
| Chattahoochee | Main  | 735717.3 cha_20100      | Floodway | 903.97            | 0.26                  | 904.08            | 218.10                |                 | 12000.00           |                  |                   | 1128.78          | 1128.78          | 1346.88           |
| Chattahoochee | Main  | 733190.2 1733           | EX_100YR | 903.41            |                       | 903.53            | 239.32                | 7.04            | 11991.00           | 1.96             |                   | 1187.24          | 1187.24          | 1410.82           |
| Chattahoochee | Main  | 733190.2 1733           | Floodway | 903.67            | 0.26                  | 903.79            | 223.58                |                 | 12000.00           |                  |                   | 1187.24          | 1187.24          | 1410.82           |
| Chattahoochee | Main  | 730384.4 cha_20000      | EX_100YR | 902.94            |                       | 903.10            | 188.96                | 0.40            | 11999.60           |                  |                   | 367.53           | 367.53           | 557.01            |
| Chattahoochee | Main  | 730384.4 cha_20000      | Floodway | 903.21            | 0.27                  | 903.37            | 187.17                |                 | 12000.00           |                  |                   | 367.53           | 367.53           | 557.01            |
| Chattahoochee | Main  | 727178.7 695            | EX_100YR | 902.24            |                       | 902.43            | 224.96                | 1.49            | 14308.23           | 0.28             |                   | 1461.93          | 1461.93          | 1681.46           |
| Chattahoochee | Main  | 727178.7 695            | Floodway | 902.53            | 0.29                  | 902.72            | 219.53                |                 | 14310.00           |                  |                   | 1461.93          | 1461.93          | 1681.46           |
| Chattahoochee | Main  | 724525.6 cha_19900      | EX_100YR | 901.56            |                       | 901.78            | 210.83                |                 | 14308.79           | 1.21             |                   | 1863.22          | 1863.22          | 2069.24           |
| Chattahoochee | Main  | 724525.6 cha_19900      | Floodway | 901.87            | 0.31                  | 902.08            | 205.79                |                 | 14310.00           |                  |                   | 1863.22          | 1863.22          | 2069.24           |
| Chattahoochee | Main  | 723016.0 2374           | EX_100YR | 901.28            |                       | 901.44            | 256.98                | 7.49            | 14302.08           | 0.43             |                   | 1405.84          | 1405.84          | 1644.55           |
| Chattahoochee | Main  | 723016.0 2374           | Floodway | 901.61            | 0.32                  | 901.76            | 238.71                |                 | 14310.00           |                  |                   | 1405.84          | 1405.84          | 1644.55           |
| Chattahoochee | Main  | 722465.4 cha_19800      | EX_100YR | 901.16            |                       | 901.35            | 214.58                |                 | 14310.00           |                  |                   | 2149.94          | 2149.94          | 2369.24           |
| Chattahoochee | Main  | 722465.4 cha_19800      | Floodway | 901.49            | 0.33                  | 901.67            | 216.63                |                 | 14310.00           |                  |                   | 2149.94          | 2149.94          | 2369.24           |
| Chattahoochee | Main  | 719651.2 1734           | EX_100YR | 900.62            |                       | 900.85            | 207.80                | 4.35            | 14303.61           | 2.03             |                   | 2042.87          | 2042.87          | 2239.13           |
| Chattahoochee | Main  | 719651.2 1734           | Floodway | 900.97            | 0.35                  | 901.18            | 196.26                |                 | 14310.00           |                  |                   | 2042.87          | 2042.87          | 2239.13           |
| Chattahoochee | Main  | 717546.8 cha_19600      | EX_100YR | 900.16            |                       | 900.40            | 208.60                | 0.31            | 14308.02           | 1.67             |                   | 2304.43          | 2304.43          | 2506.81           |
| Chattahoochee | Main  | 717546.8 cha_19600      | Floodway | 900.52            | 0.36                  | 900.75            | 202.38                |                 | 14310.00           |                  |                   | 2304.43          | 2304.43          | 2506.81           |
| Chattahoochee | Main  | 714679.4 cha_19520      | EX_100YR | 899.67            |                       | 899.85            | 222.18                | 1.40            | 14300.11           | 8.48             |                   | 2374.92          | 2374.92          | 2584.63           |
| Chattahoochee | Main  | 714679.4 cha_19520      | Floodway | 900.03            | 0.37                  | 900.21            | 209.71                |                 | 14310.00           |                  |                   | 2374.92          | 2374.92          | 2584.63           |
| Chattahoochee | Main  | 714291.7 CHA_19510      | EX_100YR | 899.61            |                       | 899.79            | 338.72                | 77.25           | 14135.89           | 96.87            |                   | 2544.00          | 2544.00          | 2760.73           |
| Chattahoochee | Main  | 714291.7 CHA_19510      | Floodway | 899.98            | 0.37                  | 900.16            | 231.87                | 0.17            | 14227.63           | 82.20            |                   | 2543.79          | 2543.79          | 2760.73           |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | EX_100YR | 899.60            |                       | 899.78            | 283.48                | 124.73          | 13894.22           | 291.05           |                   | 2544.00          | 2544.00          | 2760.73           |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | Floodway | 899.77            | 0.17                  | 899.95            | 222.87                | 2.77            | 14038.00           | 269.23           |                   | 2543.79          | 2544.00          | 2760.73           |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | EX_100YR | 899.58            |                       | 899.77            | 271.43                | 0.14            | 14251.09           | 58.77            |                   | 2598.82          | 2598.82          | 2830.81           |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | Floodway | 899.84            | 0.26                  | 900.03            | 209.03                | 0.09            | 14307.44           | 2.47             |                   | 2598.36          | 2598.82          | 2830.81           |
| Chattahoochee | Main  | 714155.2 CHA_19400      | EX_100YR | 899.57            |                       | 899.75            | 338.88                | 0.14            | 14254.76           | 55.10            |                   | 2598.82          | 2598.82          | 2830.81           |
| Chattahoochee | Main  | 714155.2 CHA_19400      | Floodway | 899.84            | 0.27                  | 900.01            | 232.94                | 0.05            | 14309.57           | 0.38             |                   | 2598.36          | 2598.82          | 2830.81           |
| Chattahoochee | Main  | 713569.6 cha_19390      | EX_100YR | 899.21            |                       | 899.53            | 185.47                | 0.35            | 14308.22           | 1.43             |                   | 2686.40          | 2686.40          | 2865.16           |
| Chattahoochee | Main  | 713569.6 cha_19390      | Floodway | 899.49            | 0.28                  | 899.80            | 178.76                |                 | 14310.00           |                  |                   | 2686.40          | 2686.40          | 2865.16           |
| Chattahoochee | Main  | 712195.4 cha_19300      | EX_100YR | 898.88            |                       | 899.12            | 208.84                | 22.40           | 14386.28           | 9.31             |                   | 2347.83          | 2347.84          | 2538.27           |
| Chattahoochee | Main  | 712195.4 cha_19300      | Floodway | 899.17            | 0.29                  | 899.40            | 190.44                | 0.00            | 14418.00           |                  |                   | 2347.83          | 2347.84          | 2538.27           |
| Chattahoochee | Main  | 710158.5 cha_19200      | EX_100YR | 898.44            |                       | 898.66            | 256.44                | 2.76            | 14349.32           | 65.93            |                   | 1488.94          | 1488.94          | 1677.95           |
| Chattahoochee | Main  | 710158.5 cha_19200      | Floodway | 898.72            | 0.28                  | 898.95            | 189.01                |                 | 14418.00           |                  |                   | 1488.94          | 1488.94          | 1677.95           |
| Chattahoochee | Main  | 708330.8 1735           | EX_100YR | 898.12            |                       | 898.30            | 644.77                | 209.96          | 14190.51           | 17.53            |                   | 1404.77          | 1404.77          | 1620.59           |
| Chattahoochee | Main  | 708330.8 1735           | Floodway | 898.38            | 0.26                  | 898.57            | 215.82                |                 | 14418.00           |                  |                   | 1404.77          | 1404.77          | 1620.59           |

HEC-RAS Plan: Dup Eff FW Locations: User Defined (Continued)

| River         | Reach | River Sta               | Profile  | W.S. Elev<br>(ft) | Prof Delta WS<br>(ft) | E.O. Elev<br>(ft) | Top Width Act<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Enc Sta L<br>(ft) | Ch Sta L<br>(ft) | Ch Sta R<br>(ft) | Enc Sta R<br>(ft) |
|---------------|-------|-------------------------|----------|-------------------|-----------------------|-------------------|-----------------------|-----------------|--------------------|------------------|-------------------|------------------|------------------|-------------------|
| Chattahoochee | Main  | 707189.2 2375           | EX_100YR | 897.88            |                       | 898.09            | 321.61                | 47.19           | 14291.74           | 79.07            |                   | 950.44           | 1153.75          |                   |
| Chattahoochee | Main  | 707189.2 2375           | Floodway | 898.14            | 0.26                  | 898.34            | 203.31                |                 | 14418.00           |                  | 950.44            | 950.44           | 1153.75          | 1153.75           |
| Chattahoochee | Main  | 706369.6 cha_19120      | EX_100YR | 897.75            |                       | 897.93            | 273.44                | 42.51           | 14345.75           | 29.74            |                   | 1575.56          | 1785.59          |                   |
| Chattahoochee | Main  | 706369.6 cha_19120      | Floodway | 898.00            | 0.25                  | 898.18            | 210.05                |                 | 14418.00           | 0.00             | 1575.56           | 1575.56          | 1785.59          | 1785.61           |
| Chattahoochee | Main  | 705810.1 CHA_19110      | EX_100YR | 897.62            |                       | 897.82            | 306.83                | 277.01          | 14071.83           | 69.16            |                   | 1680.43          | 1877.11          |                   |
| Chattahoochee | Main  | 705810.1 CHA_19110      | Floodway | 897.86            | 0.24                  | 898.07            | 212.58                | 11.71           | 14355.42           | 50.87            | 1676.55           | 1680.43          | 1877.11          | 1889.13           |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | EX_100YR | 897.57            |                       | 897.80            | 251.52                | 271.63          | 14039.29           | 107.08           |                   | 1680.43          | 1877.11          |                   |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | Floodway | 897.82            | 0.24                  | 898.05            | 200.58                | 33.00           | 14289.94           | 95.06            | 1676.55           | 1680.43          | 1877.11          | 1889.13           |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | EX_100YR | 897.45            |                       | 897.74            | 251.50                | 151.37          | 13972.53           | 294.10           |                   | 1641.35          | 1829.00          |                   |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | Floodway | 897.71            | 0.26                  | 897.99            | 229.74                | 122.22          | 13976.13           | 319.64           | 1616.24           | 1641.35          | 1829.00          | 1857.98           |
| Chattahoochee | Main  | 705623.0 CHA_19000      | EX_100YR | 897.45            |                       | 897.71            | 340.19                | 83.84           | 14238.10           | 96.07            |                   | 1641.35          | 1829.00          |                   |
| Chattahoochee | Main  | 705623.0 CHA_19000      | Floodway | 897.71            | 0.26                  | 897.97            | 241.74                | 55.61           | 14271.09           | 91.31            | 1616.24           | 1641.35          | 1829.00          | 1857.98           |
| Chattahoochee | Main  | 704948.6 cha_18990      | EX_100YR | 897.23            |                       | 897.50            | 248.48                | 1.09            | 14403.75           | 13.17            |                   | 1475.33          | 1684.28          |                   |
| Chattahoochee | Main  | 704948.6 cha_18990      | Floodway | 897.50            | 0.27                  | 897.77            | 209.05                |                 | 14417.98           | 0.02             | 1475.33           | 1475.33          | 1684.28          | 1684.38           |
| Chattahoochee | Main  | 703142.4 cha_18900      | EX_100YR | 896.81            |                       | 897.02            | 273.84                | 9.39            | 14391.33           | 17.28            |                   | 1216.58          | 1424.95          |                   |
| Chattahoochee | Main  | 703142.4 cha_18900      | Floodway | 897.09            | 0.28                  | 897.29            | 208.45                | 0.01            | 14417.99           |                  | 1216.50           | 1216.58          | 1424.95          | 1424.95           |

## **Corrected Effective (CE) Model Floodway**

HEC-RAS Plan: CE FW Locations: User Defined

| River         | Reach | River Sta               | Profile  | W.S. Elev<br>(ft) | Prof Delta WS<br>(ft) | E.O. Elev<br>(ft) | Top Width Act<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Enc Sta L<br>(ft) | Ch Sta L<br>(ft) | Ch Sta R<br>(ft) | Enc Sta R<br>(ft) |
|---------------|-------|-------------------------|----------|-------------------|-----------------------|-------------------|-----------------------|-----------------|--------------------|------------------|-------------------|------------------|------------------|-------------------|
| Chattahoochee | Main  | 757224.6 cha_20570      | EX_100YR | 908.13            |                       | 908.33            | 233.01                |                 | 12000.00           |                  |                   |                  |                  |                   |
| Chattahoochee | Main  | 757224.6 cha_20570      | Floodway | 908.23            | 0.10                  | 908.43            | 233.28                |                 | 12000.00           |                  | 640.33            | 640.33           | 892.10           | 892.10            |
| Chattahoochee | Main  | 755410.3 1756           | EX_100YR | 907.59            |                       | 907.79            | 228.26                |                 | 12000.00           |                  |                   | 655.87           | 917.59           |                   |
| Chattahoochee | Main  | 755410.3 1756           | Floodway | 907.71            | 0.11                  | 907.90            | 228.65                |                 | 12000.00           |                  | 655.87            | 655.87           | 917.59           | 917.59            |
| Chattahoochee | Main  | 754547.9 1755           | EX_100YR | 907.33            |                       | 907.51            | 237.57                |                 | 12000.00           |                  |                   | 601.71           | 858.55           |                   |
| Chattahoochee | Main  | 754547.9 1755           | Floodway | 907.45            | 0.12                  | 907.63            | 237.82                |                 | 12000.00           |                  | 601.71            | 601.71           | 858.55           | 858.55            |
| Chattahoochee | Main  | 752673.8 628            | EX_100YR | 906.86            |                       | 907.00            | 255.26                |                 | 12000.00           |                  |                   | 218.66           | 493.49           |                   |
| Chattahoochee | Main  | 752673.8 628            | Floodway | 906.99            | 0.13                  | 907.13            | 255.65                |                 | 12000.00           |                  | 218.66            | 218.66           | 493.49           | 493.49            |
| Chattahoochee | Main  | 751868.0 780            | EX_100YR | 906.58            |                       | 906.78            | 206.63                |                 | 12000.00           |                  |                   | 105.27           | 320.49           |                   |
| Chattahoochee | Main  | 751868.0 780            | Floodway | 906.72            | 0.14                  | 906.91            | 206.83                |                 | 12000.00           |                  | 105.27            | 105.27           | 320.49           | 320.49            |
| Chattahoochee | Main  | 749433.3 2388           | EX_100YR | 905.94            |                       | 906.10            | 222.41                |                 | 12000.00           |                  |                   | 978.34           | 1237.90          |                   |
| Chattahoochee | Main  | 749433.3 2388           | Floodway | 906.10            | 0.16                  | 906.26            | 222.68                |                 | 12000.00           |                  | 978.34            | 978.34           | 1237.90          | 1237.90           |
| Chattahoochee | Main  | 747909.1 1757           | EX_100YR | 905.81            |                       | 905.89            | 322.06                |                 | 12000.00           |                  |                   | 1818.22          | 2173.94          |                   |
| Chattahoochee | Main  | 747909.1 1757           | Floodway | 905.97            | 0.16                  | 906.04            | 322.51                |                 | 12000.00           |                  | 1818.22           | 1818.22          | 2173.94          | 2173.94           |
| Chattahoochee | Main  | 744817.8 cha_20530      | EX_100YR | 905.44            |                       | 905.58            | 213.27                |                 | 12000.00           |                  |                   | 1658.02          | 1878.62          |                   |
| Chattahoochee | Main  | 744817.8 cha_20530      | Floodway | 905.61            | 0.17                  | 905.74            | 213.53                |                 | 12000.00           |                  | 1658.02           | 1658.02          | 1878.62          | 1878.62           |
| Chattahoochee | Main  | 741431.5 cha_20500      | EX_100YR | 904.72            |                       | 904.92            | 224.30                |                 | 12000.00           |                  |                   | 1979.32          | 2219.30          |                   |
| Chattahoochee | Main  | 741431.5 cha_20500      | Floodway | 904.92            | 0.19                  | 905.11            | 224.77                |                 | 12000.00           |                  | 1979.32           | 1979.32          | 2219.30          | 2219.30           |
| Chattahoochee | Main  | 741238.0 cha_20400      | EX_100YR | 904.70            |                       | 904.84            | 279.89                |                 | 12000.00           |                  |                   | 1858.52          | 2155.55          |                   |
| Chattahoochee | Main  | 741238.0 cha_20400      | Floodway | 904.89            | 0.19                  | 905.03            | 280.60                |                 | 12000.00           |                  | 1858.52           | 1858.52          | 2155.55          | 2155.55           |
| Chattahoochee | Main  | 740971.6 2373           | EX_100YR | 904.66            |                       | 904.78            | 222.51                |                 | 12000.00           |                  |                   | 1589.60          | 1827.71          |                   |
| Chattahoochee | Main  | 740971.6 2373           | Floodway | 904.85            | 0.20                  | 904.97            | 223.15                |                 | 12000.00           |                  | 1589.60           | 1589.60          | 1827.71          | 1827.71           |
| Chattahoochee | Main  | 739439.5 cha_20320      | EX_100YR | 904.41            |                       | 904.55            | 213.98                |                 | 12000.00           |                  |                   | 215.49           | 462.48           |                   |
| Chattahoochee | Main  | 739439.5 cha_20320      | Floodway | 904.61            | 0.20                  | 904.75            | 215.21                |                 | 12000.00           |                  | 215.49            | 215.49           | 462.48           | 462.48            |
| Chattahoochee | Main  | 739094.9 CHA_20310      | EX_100YR | 904.37            |                       | 904.50            | 242.06                |                 | 11977.38           | 22.62            |                   | 228.30           | 451.22           |                   |
| Chattahoochee | Main  | 739094.9 CHA_20310      | Floodway | 904.58            | 0.20                  | 904.70            | 219.08                |                 | 12000.00           |                  | 228.30            | 228.30           | 451.22           | 451.22            |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | EX_100YR | 904.34            |                       | 904.48            | 226.88                |                 | 11954.13           | 45.87            |                   | 228.30           | 451.22           |                   |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | Floodway | 904.54            | 0.20                  | 904.68            | 210.04                |                 | 12000.00           |                  | 228.30            | 228.30           | 451.22           | 451.22            |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | EX_100YR | 904.33            |                       | 904.48            | 231.73                | 0.64            | 11959.39           | 39.97            |                   | 231.27           | 451.22           |                   |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | Floodway | 904.53            | 0.20                  | 904.68            | 211.70                |                 | 12000.00           |                  | 231.27            | 231.27           | 451.22           | 451.22            |
| Chattahoochee | Main  | 738953.3 CHA_20200      | EX_100YR | 904.33            |                       | 904.46            | 247.76                | 0.53            | 11968.51           | 30.96            |                   | 231.27           | 451.22           |                   |
| Chattahoochee | Main  | 738953.3 CHA_20200      | Floodway | 904.53            | 0.20                  | 904.66            | 219.95                |                 | 12000.00           |                  | 231.27            | 231.27           | 451.22           | 451.22            |
| Chattahoochee | Main  | 738645.7 cha_20190      | EX_100YR | 904.16            |                       | 904.38            | 163.71                | 0.03            | 11999.97           | 0.00             |                   | 125.74           | 288.16           |                   |
| Chattahoochee | Main  | 738645.7 cha_20190      | Floodway | 904.37            | 0.21                  | 904.58            | 162.42                |                 | 12000.00           |                  | 125.74            | 125.74           | 288.16           | 288.16            |
| Chattahoochee | Main  | 735717.3 cha_20100      | EX_100YR | 903.80            |                       | 903.92            | 234.69                | 4.08            | 11983.09           | 12.83            |                   | 1128.78          | 1346.88          |                   |
| Chattahoochee | Main  | 735717.3 cha_20100      | Floodway | 904.00            | 0.20                  | 904.11            | 218.10                |                 | 12000.00           |                  | 1128.78           | 1128.78          | 1346.88          | 1346.88           |
| Chattahoochee | Main  | 733190.2 1733           | EX_100YR | 903.51            |                       | 903.62            | 239.70                | 7.51            | 11990.35           | 2.14             |                   | 1187.24          | 1410.82          |                   |
| Chattahoochee | Main  | 733190.2 1733           | Floodway | 903.70            | 0.20                  | 903.82            | 223.58                |                 | 12000.00           |                  | 1187.24           | 1187.24          | 1410.82          | 1410.82           |
| Chattahoochee | Main  | 730384.4 cha_20000      | EX_100YR | 903.05            |                       | 903.21            | 189.23                | 0.46            | 11999.54           |                  |                   | 367.53           | 557.01           |                   |
| Chattahoochee | Main  | 730384.4 cha_20000      | Floodway | 903.25            | 0.20                  | 903.40            | 187.21                |                 | 12000.00           |                  | 367.53            | 367.53           | 557.01           | 557.01            |
| Chattahoochee | Main  | 727178.7 695            | EX_100YR | 902.36            |                       | 902.55            | 225.32                | 1.67            | 14307.98           | 0.35             |                   | 1461.93          | 1681.46          |                   |
| Chattahoochee | Main  | 727178.7 695            | Floodway | 902.57            | 0.21                  | 902.76            | 219.53                |                 | 14310.00           |                  | 1461.93           | 1461.93          | 1681.46          | 1681.46           |
| Chattahoochee | Main  | 724525.6 cha_19900      | EX_100YR | 901.69            |                       | 901.91            | 211.31                |                 | 14308.55           | 1.45             |                   | 1863.22          | 2069.24          |                   |
| Chattahoochee | Main  | 724525.6 cha_19900      | Floodway | 901.92            | 0.22                  | 902.13            | 205.82                |                 | 14310.00           |                  | 1863.22           | 1863.22          | 2069.24          | 2069.24           |
| Chattahoochee | Main  | 723016.0 2374           | EX_100YR | 901.43            |                       | 901.58            | 257.82                | 8.66            | 14300.78           | 0.56             |                   | 1405.84          | 1644.55          |                   |
| Chattahoochee | Main  | 723016.0 2374           | Floodway | 901.66            | 0.23                  | 901.81            | 238.71                |                 | 14310.00           |                  | 1405.84           | 1405.84          | 1644.55          | 1644.55           |
| Chattahoochee | Main  | 722465.4 cha_19800      | EX_100YR | 901.31            |                       | 901.49            | 215.51                |                 | 14310.00           |                  |                   | 2149.94          | 2369.24          |                   |
| Chattahoochee | Main  | 722465.4 cha_19800      | Floodway | 901.54            | 0.23                  | 901.72            | 216.90                |                 | 14310.00           |                  | 2149.94           | 2149.94          | 2369.24          | 2369.24           |
| Chattahoochee | Main  | 719651.2 1734           | EX_100YR | 900.78            |                       | 901.00            | 208.43                | 4.95            | 14302.75           | 2.30             |                   | 2042.87          | 2239.13          |                   |
| Chattahoochee | Main  | 719651.2 1734           | Floodway | 901.02            | 0.24                  | 901.23            | 196.26                |                 | 14310.00           |                  | 2042.87           | 2042.87          | 2239.13          | 2239.13           |
| Chattahoochee | Main  | 717546.8 cha_19600      | EX_100YR | 900.34            |                       | 900.57            | 209.28                | 0.49            | 14307.63           | 1.88             |                   | 2304.43          | 2506.81          |                   |
| Chattahoochee | Main  | 717546.8 cha_19600      | Floodway | 900.58            | 0.24                  | 900.81            | 202.38                |                 | 14310.00           |                  | 2304.43           | 2304.43          | 2506.81          | 2506.81           |
| Chattahoochee | Main  | 714679.4 cha_19520      | EX_100YR | 899.66            |                       | 899.90            | 250.89                | 0.00            | 14307.72           | 2.28             |                   | 2335.34          | 2559.77          |                   |
| Chattahoochee | Main  | 714679.4 cha_19520      | Floodway | 899.92            | 0.26                  | 900.15            | 249.29                |                 | 14303.81           | 6.19             | 2335.34           | 2335.34          | 2559.77          | 2584.63           |
| Chattahoochee | Main  | 714318.7                | EX_100YR | 899.62            |                       | 899.80            | 360.98                | 0.07            | 13169.36           | 1140.57          |                   | 2542.78          | 2756.52          |                   |
| Chattahoochee | Main  | 714318.7                | Floodway | 899.84            | 0.23                  | 900.07            | 227.22                |                 | 14276.65           | 33.35            | 2542.78           | 2542.78          | 2756.52          | 2770.00           |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | EX_100YR | 899.58            |                       | 899.77            | 285.10                |                 | 14295.46           | 14.54            |                   | 2503.04          | 2778.76          |                   |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | Floodway | 899.85            | 0.27                  | 900.04            | 286.10                |                 | 14291.59           | 18.41            | 2497.50           | 2503.04          | 2778.76          | 2868.00           |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | EX_100YR | 899.57            |                       | 899.76            | 289.20                | 50.43           | 14245.27           | 14.30            |                   | 2597.76          | 2852.76          |                   |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | Floodway | 899.84            | 0.27                  | 900.02            | 275.31                | 23.98           | 14267.95           | 18.06            | 2591.25           | 2597.76          | 2852.76          | 2904.00           |
| Chattahoochee | Main  | 714014.2                | EX_100YR | 899.46            |                       | 899.67            | 245.83                | 0.03            | 14308.69           | 1.28             |                   | 2581.05          | 2807.28          |                   |
| Chattahoochee | Main  | 714014.2                | Floodway | 899.73            | 0.28                  | 899.94            | 226.23                |                 | 14310.00           |                  | 2581.05           | 2581.05          | 2807.28          | 2807.28           |
| Chattahoochee | Main  | 713569.6 cha_19390      | EX_100YR | 899.21            |                       | 899.53            | 185.47                | 0.35            | 14308.22           | 1.43             |                   | 2686.40          | 2865.16          |                   |
| Chattahoochee | Main  | 713569.6 cha_19390      | Floodway | 899.49            | 0.28                  | 899.80            | 178.76                |                 | 14310.00           |                  | 2686.40           | 2686.40          | 2865.16          | 2865.16           |
| Chattahoochee | Main  | 712195.4 cha_19300      | EX_100YR | 898.88            |                       | 899.12            | 208.84                | 22.40           | 14386.28           | 9.31             |                   | 2347.84          | 2538.27          |                   |
| Chattahoochee | Main  | 712195.4 cha_19300      | Floodway | 899.17            | 0.29                  | 899.40            | 190.44                | 0.00            | 14418.00           |                  | 2347.83           | 2347.84          | 2538.27          | 2538.27           |
| Chattahoochee | Main  | 710158.5 cha_19200      | EX_100YR | 898.44            |                       | 898.66            | 256.44                | 2.76            | 14349.32           | 65.93            |                   | 1488.94          | 1677.95          |                   |
| Chattahoochee | Main  | 710158.5 cha_19200      | Floodway | 898.72            | 0.28                  | 898.95            | 189.01                |                 | 14418.00           |                  | 1488.94           | 1488.94          | 1677.95          | 1677.95           |
| Chattahoochee | Main  | 708330.8 1735           | EX_100YR | 898.12            |                       | 898.30            | 644.77                | 209.96          | 14190.51           | 17.53            |                   | 1404.77          | 1620.59          |                   |
| Chattahoochee | Main  | 708330.8 1735           | Floodway | 898.38            | 0.26                  | 898.57            | 215.82                |                 | 14418.00           |                  | 1404.77           | 1404.77          | 1620.59          | 1620.59           |

HEC-RAS Plan: CE FW Locations: User Defined (Continued)

| River         | Reach | River Sta               | Profile  | W.S. Elev<br>(ft) | Prof Delta WS<br>(ft) | E.O. Elev<br>(ft) | Top Width Act<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Enc Sta L<br>(ft) | Ch Sta L<br>(ft) | Ch Sta R<br>(ft) | Enc Sta R<br>(ft) |
|---------------|-------|-------------------------|----------|-------------------|-----------------------|-------------------|-----------------------|-----------------|--------------------|------------------|-------------------|------------------|------------------|-------------------|
| Chattahoochee | Main  | 707189.2 2375           | EX_100YR | 897.88            |                       | 898.09            | 321.61                | 47.19           | 14291.74           | 79.07            |                   | 950.44           | 1153.75          |                   |
| Chattahoochee | Main  | 707189.2 2375           | Floodway | 898.14            | 0.26                  | 898.34            | 203.31                |                 | 14418.00           |                  | 950.44            | 950.44           | 1153.75          | 1153.75           |
| Chattahoochee | Main  | 706369.6 cha_19120      | EX_100YR | 897.75            |                       | 897.93            | 273.44                | 42.51           | 14345.75           | 29.74            |                   | 1575.56          | 1785.59          |                   |
| Chattahoochee | Main  | 706369.6 cha_19120      | Floodway | 898.00            | 0.25                  | 898.18            | 210.05                |                 | 14418.00           | 0.00             | 1575.56           | 1575.56          | 1785.59          | 1785.61           |
| Chattahoochee | Main  | 705810.1 CHA_19110      | EX_100YR | 897.62            |                       | 897.82            | 306.83                | 277.01          | 14071.83           | 69.16            |                   | 1680.43          | 1877.11          |                   |
| Chattahoochee | Main  | 705810.1 CHA_19110      | Floodway | 897.86            | 0.24                  | 898.07            | 212.58                | 11.71           | 14355.42           | 50.87            | 1676.55           | 1680.43          | 1877.11          | 1889.13           |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | EX_100YR | 897.57            |                       | 897.80            | 251.52                | 271.63          | 14039.29           | 107.08           |                   | 1680.43          | 1877.11          |                   |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | Floodway | 897.82            | 0.24                  | 898.05            | 200.58                | 33.00           | 14289.94           | 95.06            | 1676.55           | 1680.43          | 1877.11          | 1889.13           |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | EX_100YR | 897.45            |                       | 897.74            | 251.50                | 151.37          | 13972.53           | 294.10           |                   | 1641.35          | 1829.00          |                   |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | Floodway | 897.71            | 0.26                  | 897.99            | 229.74                | 122.22          | 13976.13           | 319.64           | 1616.24           | 1641.35          | 1829.00          | 1857.98           |
| Chattahoochee | Main  | 705623.0 CHA_19000      | EX_100YR | 897.45            |                       | 897.71            | 340.19                | 83.84           | 14238.10           | 96.07            |                   | 1641.35          | 1829.00          |                   |
| Chattahoochee | Main  | 705623.0 CHA_19000      | Floodway | 897.71            | 0.26                  | 897.97            | 241.74                | 55.61           | 14271.09           | 91.31            | 1616.24           | 1641.35          | 1829.00          | 1857.98           |
| Chattahoochee | Main  | 704948.6 cha_18990      | EX_100YR | 897.23            |                       | 897.50            | 248.48                | 1.09            | 14403.75           | 13.17            |                   | 1475.33          | 1684.28          |                   |
| Chattahoochee | Main  | 704948.6 cha_18990      | Floodway | 897.50            | 0.27                  | 897.77            | 209.05                |                 | 14417.98           | 0.02             | 1475.33           | 1475.33          | 1684.28          | 1684.38           |
| Chattahoochee | Main  | 703142.4 cha_18900      | EX_100YR | 896.81            |                       | 897.02            | 273.84                | 9.39            | 14391.33           | 17.28            |                   | 1216.58          | 1424.95          |                   |
| Chattahoochee | Main  | 703142.4 cha_18900      | Floodway | 897.09            | 0.28                  | 897.29            | 208.45                | 0.01            | 14417.99           |                  | 1216.50           | 1216.58          | 1424.95          | 1424.95           |



## **Revised (RE) Model Floodway**

HEC-RAS Plan: Rev FW Locations: User Defined

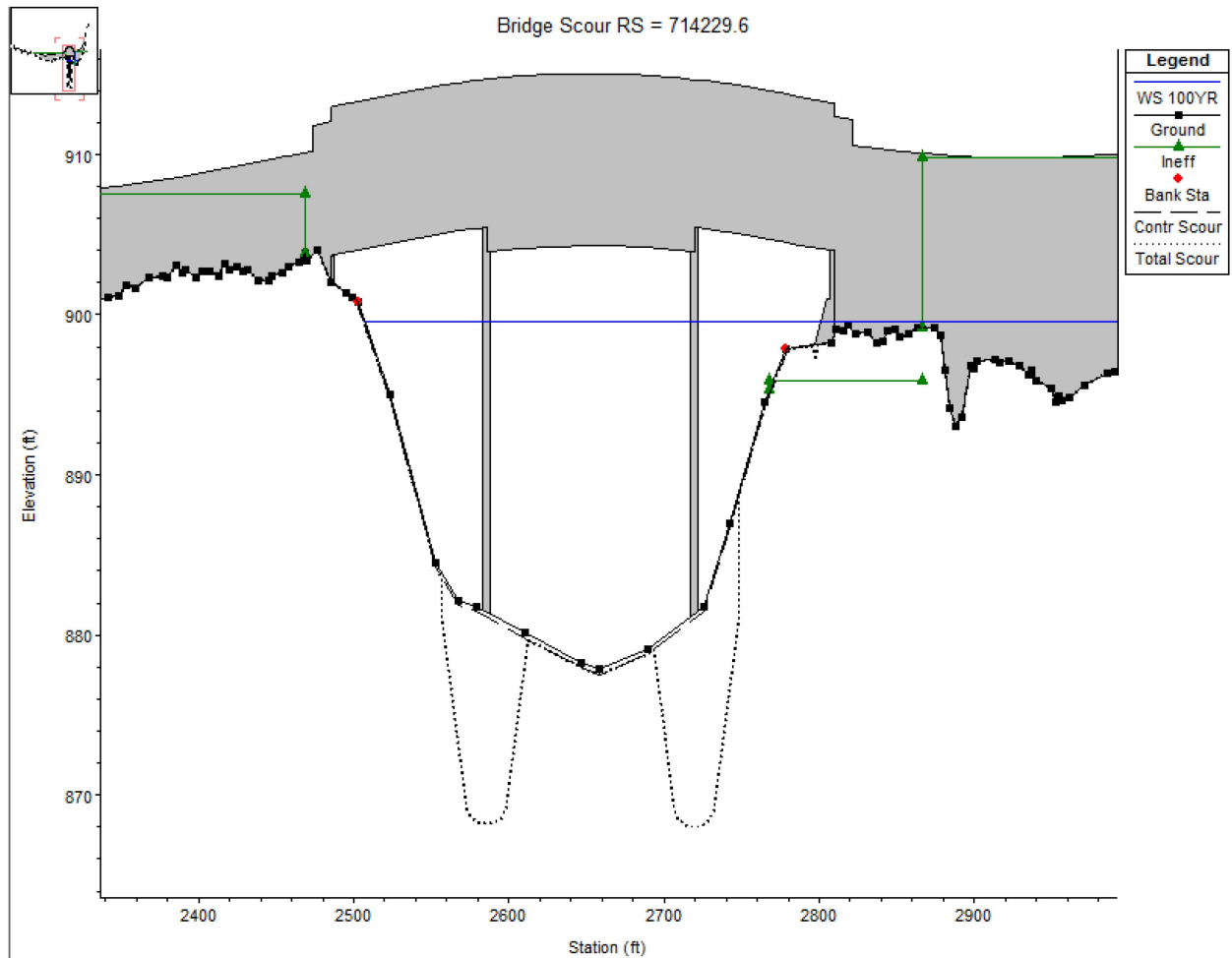
| River         | Reach | River Sta               | Profile  | W.S. Elev<br>(ft) | Prof Delta WS<br>(ft) | E.G. Elev<br>(ft) | Top Width Act<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Enc Sta L<br>(ft) | Ch Sta L<br>(ft) | Ch Sta R<br>(ft) | Enc Sta R<br>(ft) |
|---------------|-------|-------------------------|----------|-------------------|-----------------------|-------------------|-----------------------|-----------------|--------------------|------------------|-------------------|------------------|------------------|-------------------|
| Chattahoochee | Main  | 757224.6 cha_20570      | EX_100YR | 908.13            |                       | 908.33            | 233.01                |                 | 12000.00           |                  |                   |                  |                  |                   |
| Chattahoochee | Main  | 757224.6 cha_20570      | Floodway | 908.24            | 0.11                  | 908.43            | 233.29                |                 | 12000.00           |                  | 640.33            | 640.33           | 892.10           | 892.10            |
| Chattahoochee | Main  | 755410.3 1756           | EX_100YR | 907.59            |                       | 907.79            | 228.25                |                 | 12000.00           |                  |                   | 655.87           | 917.59           |                   |
| Chattahoochee | Main  | 755410.3 1756           | Floodway | 907.71            | 0.12                  | 907.91            | 228.66                |                 | 12000.00           |                  | 655.87            | 655.87           | 917.59           | 917.59            |
| Chattahoochee | Main  | 754547.9 1755           | EX_100YR | 907.33            |                       | 907.51            | 237.56                |                 | 12000.00           |                  |                   | 601.71           | 858.55           |                   |
| Chattahoochee | Main  | 754547.9 1755           | Floodway | 907.46            | 0.13                  | 907.63            | 237.84                |                 | 12000.00           |                  | 601.71            | 601.71           | 858.55           | 858.55            |
| Chattahoochee | Main  | 752673.8 628            | EX_100YR | 906.86            |                       | 907.00            | 255.25                |                 | 12000.00           |                  |                   | 218.66           | 493.49           |                   |
| Chattahoochee | Main  | 752673.8 628            | Floodway | 907.00            | 0.14                  | 907.14            | 255.67                |                 | 12000.00           |                  | 218.66            | 218.66           | 493.49           | 493.49            |
| Chattahoochee | Main  | 751868.0 780            | EX_100YR | 906.58            |                       | 906.77            | 206.62                |                 | 12000.00           |                  |                   | 105.27           | 320.49           |                   |
| Chattahoochee | Main  | 751868.0 780            | Floodway | 906.72            | 0.15                  | 906.92            | 206.83                |                 | 12000.00           |                  | 105.27            | 105.27           | 320.49           | 320.49            |
| Chattahoochee | Main  | 749433.3 2388           | EX_100YR | 905.94            |                       | 906.10            | 222.40                |                 | 12000.00           |                  |                   | 978.34           | 1237.90          |                   |
| Chattahoochee | Main  | 749433.3 2388           | Floodway | 906.10            | 0.17                  | 906.26            | 222.69                |                 | 12000.00           |                  | 978.34            | 978.34           | 1237.90          | 1237.90           |
| Chattahoochee | Main  | 747909.1 1757           | EX_100YR | 905.81            |                       | 905.88            | 322.05                |                 | 12000.00           |                  |                   | 1818.22          | 2173.94          |                   |
| Chattahoochee | Main  | 747909.1 1757           | Floodway | 905.98            | 0.17                  | 906.05            | 322.53                |                 | 12000.00           |                  | 1818.22           | 1818.22          | 2173.94          | 2173.94           |
| Chattahoochee | Main  | 744817.8 cha_20530      | EX_100YR | 905.43            |                       | 905.57            | 213.26                |                 | 12000.00           |                  |                   | 1658.02          | 1878.62          |                   |
| Chattahoochee | Main  | 744817.8 cha_20530      | Floodway | 905.62            | 0.18                  | 905.75            | 213.54                |                 | 12000.00           |                  | 1658.02           | 1658.02          | 1878.62          | 1878.62           |
| Chattahoochee | Main  | 741431.5 cha_20500      | EX_100YR | 904.72            |                       | 904.91            | 224.29                |                 | 12000.00           |                  |                   | 1979.32          | 2219.30          |                   |
| Chattahoochee | Main  | 741431.5 cha_20500      | Floodway | 904.93            | 0.21                  | 905.11            | 224.79                |                 | 12000.00           |                  | 1979.32           | 1979.32          | 2219.30          | 2219.30           |
| Chattahoochee | Main  | 741238.0 cha_20400      | EX_100YR | 904.69            |                       | 904.83            | 279.87                |                 | 12000.00           |                  |                   | 1858.52          | 2155.55          |                   |
| Chattahoochee | Main  | 741238.0 cha_20400      | Floodway | 904.90            | 0.21                  | 905.04            | 280.63                |                 | 12000.00           |                  | 1858.52           | 1858.52          | 2155.55          | 2155.55           |
| Chattahoochee | Main  | 740971.6 2373           | EX_100YR | 904.65            |                       | 904.77            | 222.49                |                 | 12000.00           |                  |                   | 1589.60          | 1827.71          |                   |
| Chattahoochee | Main  | 740971.6 2373           | Floodway | 904.86            | 0.21                  | 904.98            | 223.17                |                 | 12000.00           |                  | 1589.60           | 1589.60          | 1827.71          | 1827.71           |
| Chattahoochee | Main  | 739439.5 cha_20320      | EX_100YR | 904.40            |                       | 904.54            | 213.95                |                 | 12000.00           |                  |                   | 215.49           | 462.48           |                   |
| Chattahoochee | Main  | 739439.5 cha_20320      | Floodway | 904.62            | 0.22                  | 904.76            | 215.27                |                 | 12000.00           |                  | 215.49            | 215.49           | 462.48           | 462.48            |
| Chattahoochee | Main  | 739094.9 CHA_20310      | EX_100YR | 904.37            |                       | 904.49            | 242.04                |                 | 11977.42           | 22.58            |                   | 228.30           | 451.22           |                   |
| Chattahoochee | Main  | 739094.9 CHA_20310      | Floodway | 904.59            | 0.22                  | 904.71            | 219.10                |                 | 12000.00           |                  | 228.30            | 228.30           | 451.22           | 451.22            |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | EX_100YR | 904.33            |                       | 904.48            | 226.87                |                 | 11954.20           | 45.80            |                   | 228.30           | 451.22           |                   |
| Chattahoochee | Main  | 739022.1 cha_20300 BR U | Floodway | 904.55            | 0.22                  | 904.69            | 210.05                |                 | 12000.00           |                  | 228.30            | 228.30           | 451.22           | 451.22            |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | EX_100YR | 904.33            |                       | 904.47            | 231.70                | 0.63            | 11959.45           | 39.92            |                   | 231.27           | 451.22           |                   |
| Chattahoochee | Main  | 739022.1 cha_20300 BR D | Floodway | 904.54            | 0.22                  | 904.69            | 211.70                |                 | 12000.00           |                  | 231.27            | 231.27           | 451.22           | 451.22            |
| Chattahoochee | Main  | 738953.3 CHA_20200      | EX_100YR | 904.33            |                       | 904.45            | 247.72                | 0.53            | 11968.56           | 30.91            |                   | 231.27           | 451.22           |                   |
| Chattahoochee | Main  | 738953.3 CHA_20200      | Floodway | 904.54            | 0.22                  | 904.67            | 219.95                |                 | 12000.00           |                  | 231.27            | 231.27           | 451.22           | 451.22            |
| Chattahoochee | Main  | 738645.7 cha_20190      | EX_100YR | 904.16            |                       | 904.38            | 163.69                | 0.03            | 11999.97           | 0.00             |                   | 125.74           | 288.16           |                   |
| Chattahoochee | Main  | 738645.7 cha_20190      | Floodway | 904.38            | 0.22                  | 904.59            | 162.42                |                 | 12000.00           |                  | 125.74            | 125.74           | 288.16           | 288.16            |
| Chattahoochee | Main  | 735717.3 cha_20100      | EX_100YR | 903.79            |                       | 903.91            | 234.67                | 4.07            | 11983.14           | 12.79            |                   | 1128.78          | 1346.88          |                   |
| Chattahoochee | Main  | 735717.3 cha_20100      | Floodway | 904.01            | 0.22                  | 904.12            | 218.10                |                 | 12000.00           |                  | 1128.78           | 1128.78          | 1346.88          | 1346.88           |
| Chattahoochee | Main  | 733190.2 1733           | EX_100YR | 903.50            |                       | 903.62            | 239.67                | 7.48            | 11990.39           | 2.13             |                   | 1187.24          | 1410.82          |                   |
| Chattahoochee | Main  | 733190.2 1733           | Floodway | 903.71            | 0.21                  | 903.83            | 223.58                |                 | 12000.00           |                  | 1187.24           | 1187.24          | 1410.82          | 1410.82           |
| Chattahoochee | Main  | 730384.4 cha_20000      | EX_100YR | 903.04            |                       | 903.20            | 189.21                | 0.46            | 11999.54           |                  |                   | 367.53           | 557.01           |                   |
| Chattahoochee | Main  | 730384.4 cha_20000      | Floodway | 903.26            | 0.22                  | 903.41            | 187.23                |                 | 12000.00           |                  | 367.53            | 367.53           | 557.01           | 557.01            |
| Chattahoochee | Main  | 727178.7 695            | EX_100YR | 902.35            |                       | 902.54            | 225.30                | 1.66            | 14308.00           | 0.35             |                   | 1461.93          | 1681.46          |                   |
| Chattahoochee | Main  | 727178.7 695            | Floodway | 902.58            | 0.23                  | 902.77            | 219.53                |                 | 14310.00           |                  | 1461.93           | 1461.93          | 1681.46          | 1681.46           |
| Chattahoochee | Main  | 724525.6 cha_19900      | EX_100YR | 901.68            |                       | 901.90            | 211.28                |                 | 14308.56           | 1.44             |                   | 1863.22          | 2069.24          |                   |
| Chattahoochee | Main  | 724525.6 cha_19900      | Floodway | 901.93            | 0.25                  | 902.14            | 205.83                |                 | 14310.00           |                  | 1863.22           | 1863.22          | 2069.24          | 2069.24           |
| Chattahoochee | Main  | 723016.0 2374           | EX_100YR | 901.42            |                       | 901.57            | 257.77                | 8.58            | 14300.87           | 0.55             |                   | 1405.84          | 1644.55          |                   |
| Chattahoochee | Main  | 723016.0 2374           | Floodway | 901.67            | 0.25                  | 901.82            | 238.71                |                 | 14310.00           |                  | 1405.84           | 1405.84          | 1644.55          | 1644.55           |
| Chattahoochee | Main  | 722465.4 cha_19800      | EX_100YR | 901.30            |                       | 901.48            | 215.45                |                 | 14310.00           |                  |                   | 2149.94          | 2369.24          |                   |
| Chattahoochee | Main  | 722465.4 cha_19800      | Floodway | 901.55            | 0.26                  | 901.73            | 216.99                |                 | 14310.00           |                  | 2149.94           | 2149.94          | 2369.24          | 2369.24           |
| Chattahoochee | Main  | 719651.2 1734           | EX_100YR | 900.77            |                       | 900.99            | 208.39                | 4.91            | 14302.81           | 2.28             |                   | 2042.87          | 2239.13          |                   |
| Chattahoochee | Main  | 719651.2 1734           | Floodway | 901.04            | 0.27                  | 901.25            | 196.26                |                 | 14310.00           |                  | 2042.87           | 2042.87          | 2239.13          | 2239.13           |
| Chattahoochee | Main  | 717546.8 cha_19600      | EX_100YR | 900.32            |                       | 900.56            | 209.23                | 0.48            | 14307.65           | 1.86             |                   | 2304.43          | 2506.81          |                   |
| Chattahoochee | Main  | 717546.8 cha_19600      | Floodway | 900.59            | 0.27                  | 900.82            | 202.38                |                 | 14310.00           |                  | 2304.43           | 2304.43          | 2506.81          | 2506.81           |
| Chattahoochee | Main  | 714679.4 cha_19520      | EX_100YR | 899.65            |                       | 899.88            | 250.30                | 0.00            | 14307.85           | 2.15             |                   | 2335.34          | 2559.77          |                   |
| Chattahoochee | Main  | 714679.4 cha_19520      | Floodway | 899.94            | 0.30                  | 900.17            | 249.29                |                 | 14303.48           | 6.52             | 2335.34           | 2335.34          | 2559.77          | 2564.63           |
| Chattahoochee | Main  | 714318.7                | EX_100YR | 899.59            |                       | 899.78            | 326.73                | 0.06            | 13301.94           | 1008.01          |                   | 2542.78          | 2756.52          |                   |
| Chattahoochee | Main  | 714318.7                | Floodway | 899.86            | 0.27                  | 900.09            | 227.22                |                 | 14276.48           | 33.52            | 2542.78           | 2542.78          | 2756.52          | 2770.00           |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | EX_100YR | 899.58            |                       | 899.77            | 284.66                |                 | 14282.36           | 27.64            |                   | 2503.04          | 2778.76          |                   |
| Chattahoochee | Main  | 714229.6 cha_19500 BR U | Floodway | 899.86            | 0.28                  | 900.07            | 218.22                |                 | 14310.00           |                  | 2542.78           | 2503.04          | 2778.76          | 2770.00           |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | EX_100YR | 899.55            |                       | 899.74            | 299.49                | 75.40           | 14220.26           | 14.34            |                   | 2597.76          | 2852.76          |                   |
| Chattahoochee | Main  | 714229.6 cha_19500 BR D | Floodway | 899.75            | 0.20                  | 900.02            | 199.80                | 67.69           | 14242.31           |                  | 2581.05           | 2597.76          | 2852.76          | 2785.35           |
| Chattahoochee | Main  | 714014.2                | EX_100YR | 899.48            |                       | 899.70            | 246.44                | 0.04            | 14308.59           | 1.37             |                   | 2581.05          | 2807.28          |                   |
| Chattahoochee | Main  | 714014.2                | Floodway | 899.73            | 0.25                  | 899.96            | 204.30                |                 | 14310.00           |                  | 2581.05           | 2581.05          | 2807.28          | 2785.35           |
| Chattahoochee | Main  | 713569.6 cha_19390      | EX_100YR | 899.21            |                       | 899.53            | 185.47                | 0.35            | 14308.22           | 1.43             |                   | 2686.40          | 2865.16          |                   |
| Chattahoochee | Main  | 713569.6 cha_19390      | Floodway | 899.49            | 0.28                  | 899.80            | 178.76                |                 | 14310.00           |                  | 2686.40           | 2686.40          | 2865.16          | 2865.16           |
| Chattahoochee | Main  | 712195.4 cha_19300      | EX_100YR | 898.88            |                       | 899.12            | 208.84                | 22.40           | 14386.28           | 9.31             |                   | 2347.83          | 2538.27          |                   |
| Chattahoochee | Main  | 712195.4 cha_19300      | Floodway | 899.17            | 0.29                  | 899.40            | 190.44                | 0.00            | 14418.00           |                  | 2347.83           | 2347.84          | 2538.27          | 2538.27           |
| Chattahoochee | Main  | 710158.5 cha_19200      | EX_100YR | 898.44            |                       | 898.66            | 256.44                | 2.76            | 14349.32           | 65.93            |                   | 1488.94          | 1677.95          |                   |
| Chattahoochee | Main  | 710158.5 cha_19200      | Floodway | 898.72            | 0.28                  | 898.95            | 189.01                |                 | 14418.00           |                  | 1488.94           | 1488.94          | 1677.95          | 1677.95           |
| Chattahoochee | Main  | 708330.8 1735           | EX_100YR | 898.12            |                       | 898.30            | 644.77                | 209.96          | 14190.51           | 17.53            |                   | 1404.77          | 1620.59          |                   |
| Chattahoochee | Main  | 708330.8 1735           | Floodway | 898.38            | 0.26                  | 898.57            | 215.82                |                 | 14418.00           |                  | 1404.77           | 1404.77          | 1620.59          | 1620.59           |

HEC-RAS Plan: Rev FW Locations: User Defined (Continued)

| River         | Reach | River Sta               | Profile  | W.S. Elev<br>(ft) | Prof Delta WS<br>(ft) | E.O. Elev<br>(ft) | Top Width Act<br>(ft) | Q Left<br>(cfs) | Q Channel<br>(cfs) | Q Right<br>(cfs) | Enc Sta L<br>(ft) | Ch Sta L<br>(ft) | Ch Sta R<br>(ft) | Enc Sta R<br>(ft) |
|---------------|-------|-------------------------|----------|-------------------|-----------------------|-------------------|-----------------------|-----------------|--------------------|------------------|-------------------|------------------|------------------|-------------------|
| Chattahoochee | Main  | 707189.2 2375           | EX_100YR | 897.88            |                       | 898.09            | 321.61                | 47.19           | 14291.74           | 79.07            |                   | 950.44           | 1153.75          |                   |
| Chattahoochee | Main  | 707189.2 2375           | Floodway | 898.14            | 0.26                  | 898.34            | 203.31                |                 | 14418.00           |                  | 950.44            | 950.44           | 1153.75          | 1153.75           |
| Chattahoochee | Main  | 706369.6 cha_19120      | EX_100YR | 897.75            |                       | 897.93            | 273.44                | 42.51           | 14345.75           | 29.74            |                   | 1575.56          | 1785.59          |                   |
| Chattahoochee | Main  | 706369.6 cha_19120      | Floodway | 898.00            | 0.25                  | 898.18            | 210.05                |                 | 14418.00           | 0.00             | 1575.56           | 1575.56          | 1785.59          | 1785.61           |
| Chattahoochee | Main  | 705810.1 CHA_19110      | EX_100YR | 897.62            |                       | 897.82            | 306.83                | 277.01          | 14071.83           | 69.16            |                   | 1680.43          | 1877.11          |                   |
| Chattahoochee | Main  | 705810.1 CHA_19110      | Floodway | 897.86            | 0.24                  | 898.07            | 212.58                | 11.71           | 14355.42           | 50.87            | 1676.55           | 1680.43          | 1877.11          | 1889.13           |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | EX_100YR | 897.57            |                       | 897.80            | 251.52                | 271.63          | 14039.29           | 107.08           |                   | 1680.43          | 1877.11          |                   |
| Chattahoochee | Main  | 705714.6 cha_19100 BR U | Floodway | 897.82            | 0.24                  | 898.05            | 200.58                | 33.00           | 14289.94           | 95.06            | 1676.55           | 1680.43          | 1877.11          | 1889.13           |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | EX_100YR | 897.45            |                       | 897.74            | 251.50                | 151.37          | 13972.53           | 294.10           |                   | 1641.35          | 1829.00          |                   |
| Chattahoochee | Main  | 705714.6 cha_19100 BR D | Floodway | 897.71            | 0.26                  | 897.99            | 229.74                | 122.22          | 13976.13           | 319.64           | 1616.24           | 1641.35          | 1829.00          | 1857.98           |
| Chattahoochee | Main  | 705623.0 CHA_19000      | EX_100YR | 897.45            |                       | 897.71            | 340.19                | 83.84           | 14238.10           | 96.07            |                   | 1641.35          | 1829.00          |                   |
| Chattahoochee | Main  | 705623.0 CHA_19000      | Floodway | 897.71            | 0.26                  | 897.97            | 241.74                | 55.61           | 14271.09           | 91.31            | 1616.24           | 1641.35          | 1829.00          | 1857.98           |
| Chattahoochee | Main  | 704948.6 cha_18990      | EX_100YR | 897.23            |                       | 897.50            | 248.48                | 1.09            | 14403.75           | 13.17            |                   | 1475.33          | 1684.28          |                   |
| Chattahoochee | Main  | 704948.6 cha_18990      | Floodway | 897.50            | 0.27                  | 897.77            | 209.05                |                 | 14417.98           | 0.02             | 1475.33           | 1475.33          | 1684.28          | 1684.38           |
| Chattahoochee | Main  | 703142.4 cha_18900      | EX_100YR | 896.81            |                       | 897.02            | 273.84                | 9.39            | 14391.33           | 17.28            |                   | 1216.58          | 1424.95          |                   |
| Chattahoochee | Main  | 703142.4 cha_18900      | Floodway | 897.09            | 0.28                  | 897.29            | 208.45                | 0.01            | 14417.99           |                  | 1216.50           | 1216.58          | 1424.95          | 1424.95           |

## **VII. Scour Summary and Miscellaneous Calculations**

## Proposed 100-yr



## Hydraulic Design Data

### Contraction Scour

|                           | Left  | Channel  | Right |
|---------------------------|-------|----------|-------|
| Input Data                |       |          |       |
| Average Depth (ft):       | 0.06  | 17.43    | 0.30  |
| Approach Velocity (ft/s): | 0.09  | 3.90     | 0.28  |
| Br Average Depth (ft):    |       | 15.33    | 1.43  |
| BR Opening Flow (cfs):    |       | 14282.69 | 27.64 |
| BR Top WD (ft):           |       | 262.32   | 22.34 |
| Grain Size D50 (mm):      | 0.37  | 0.37     | 0.37  |
| Approach Flow (cfs):      | 0.00  | 14307.85 | 2.15  |
| Approach Top WD (ft):     | 0.19  | 224.43   | 25.69 |
| K1 Coefficient:           | 0.590 | 0.690    | 0.590 |

### Results

|                           |      |      |
|---------------------------|------|------|
| Scour Depth Ys (ft):      | 0.30 | 0.00 |
| Critical Velocity (ft/s): | 1.92 | 0.98 |

Equation:

Live

Clear

### Pier Scour

Pier: #1 (CL = 2585.58)

#### Input Data

Pier Shape: Round nose  
Pier Width (ft): 5.50  
Grain Size D50 (mm): 0.37000  
Depth Upstream (ft): 18.14  
Velocity Upstream (ft/s): 3.64  
K1 Nose Shape: 1.00  
Pier Angle: 5.00  
Pier Length (ft): 119.00  
K2 Angle Coef: 1.59  
K3 Bed Cond Coef: 1.10  
Grain Size D90 (mm): 0.47000  
K4 Armouring Coef: 1.00  
Set K1 value to 1.0 because angle > 5 degrees

#### Results

Scour Depth Ys (ft): 12.94  
Froude #: 0.15  
Equation: CSU equation

Pier: #2 (CL = 2719.58)

#### Input Data

Pier Shape: Round nose  
Pier Width (ft): 5.50  
Grain Size D50 (mm): 0.37000  
Depth Upstream (ft): 18.30  
Velocity Upstream (ft/s): 3.64  
K1 Nose Shape: 1.00  
Pier Angle: 5.00  
Pier Length (ft): 119.00  
K2 Angle Coef: 1.59  
K3 Bed Cond Coef: 1.10  
Grain Size D90 (mm): 0.47000  
K4 Armouring Coef: 1.00  
Set K1 value to 1.0 because angle > 5 degrees

#### Results

Scour Depth Ys (ft): 12.96  
Froude #: 0.15



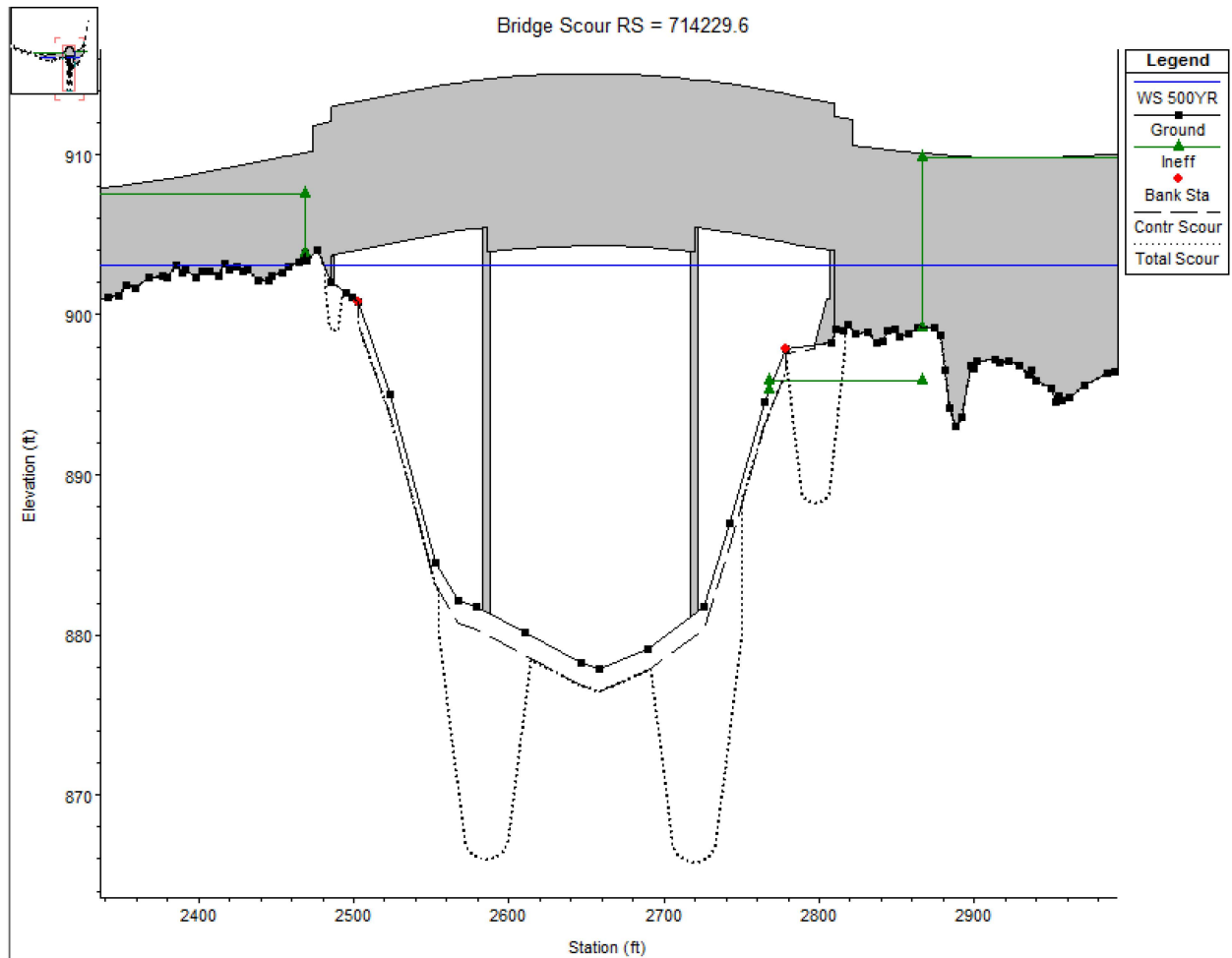
Equation: CSU equation

#### Combined Scour Depths

Pier : #1 (CL = 2577.58) (Contr + Pier) (ft): 13.24

Pier : #2 (CL = 2727.58) (Contr + Pier) (ft): 13.26

## Proposed 500-yr



## Hydraulic Design Data

### Contraction Scour

|                           | Left  | Channel  | Right   |
|---------------------------|-------|----------|---------|
| Input Data                |       |          |         |
| Average Depth (ft):       | 1.99  | 21.10    | 3.44    |
| Approach Velocity (ft/s): | 0.80  | 4.18     | 0.62    |
| Br Average Depth (ft):    | 1.71  | 18.58    | 4.47    |
| BR Opening Flow (cfs):    | 13.59 | 20079.05 | 223.36  |
| BR Top WD (ft):           | 15.46 | 266.72   | 27.82   |
| Grain Size D50 (mm):      | 0.37  | 0.37     | 0.37    |
| Approach Flow (cfs):      | 7.80  | 18621.74 | 1686.46 |
| Approach Top WD (ft):     | 4.86  | 224.43   | 791.22  |
| K1 Coefficient:           | 0.640 | 0.690    | 0.640   |

### Results

|                           |      |      |      |
|---------------------------|------|------|------|
| Scour Depth Ys (ft):      | 0.00 | 1.40 | 0.27 |
| Critical Velocity (ft/s): | 1.34 | 1.99 | 1.47 |

Equation: Clear Live Clear

#### Pier Scour

Pier: #1 (CL = 2585.58)

##### Input Data

Pier Shape: Round nose  
Pier Width (ft): 5.50  
Grain Size D50 (mm): 0.37000  
Depth Upstream (ft): 21.64  
Velocity Upstream (ft/s): 4.19  
K1 Nose Shape: 1.00  
Pier Angle: 5.00  
Pier Length (ft): 119.00  
K2 Angle Coef: 1.59  
K3 Bed Cond Coef: 1.10  
Grain Size D90 (mm): 0.47000  
K4 Armouring Coef: 1.00  
Set K1 value to 1.0 because angle > 5 degrees

##### Results

Scour Depth Ys (ft): 14.09  
Froude #: 0.16  
Equation: CSU equation

Pier: #2 (CL = 2719.58)

##### Input Data

Pier Shape: Round nose  
Pier Width (ft): 5.50  
Grain Size D50 (mm): 0.37000  
Depth Upstream (ft): 21.80  
Velocity Upstream (ft/s): 4.19  
K1 Nose Shape: 1.00  
Pier Angle: 5.00  
Pier Length (ft): 119.00  
K2 Angle Coef: 1.59  
K3 Bed Cond Coef: 1.10  
Grain Size D90 (mm): 0.47000  
K4 Armouring Coef: 1.00  
Set K1 value to 1.0 because angle > 5 degrees

##### Results

Scour Depth Ys (ft): 14.10  
Froude #: 0.16  
Equation: CSU equation

## Combined Scour Depths

Pier : #1 (CL = 2577.58) (Contr + Pier) (ft): 15.49  
Pier : #2 (CL = 2727.58) (Contr + Pier) (ft): 15.50

**GA-120 (Abbotts Bridge Road) over Chattahoochee River**  
**STP-0189-01(010) Fulton-Gwinnett Counties, GA**

**ENDROLL RIPRAP CALCULATIONS (100 YEAR STORM)**

Method in HEC-18, "Evaluating Scour at Bridges"

|                                             |           |           |
|---------------------------------------------|-----------|-----------|
| Bridge Abutment Location                    | 101+98.00 | 105+22.00 |
| Set Back Length (ft)                        | 22        | 29        |
| Main Channel Area @ Bridge (sq ft)          | 30850.2   | 30850.2   |
| Top Width of Main Channel @ Bridge (ft)     | 265       | 265       |
| Average Depth of Main Channel @ Bridge (ft) | 15        | 15        |
| Set Back Ratio                              | 1.47      | 1.93      |
| Characteristic Avg Velocity Calculations    |           |           |
| Discharge @ Abutment (cfs)                  | 71        | 19        |
| Area @ Abutment (sq ft)                     | 262.9     | 99.0      |
| Average Velocity, V (fps)                   | 0.27      | 0.19      |
| Area of Overbank Flow @ Bridge (sq ft)      | 263       | 99        |
| Length of Overbank Flow @ Bridge (ft)       | 97.00     | 55        |
| Average Depth of Overbank Flow (ft)         | 2.71      | 1.8       |
| Froude Number                               | 0.03      | 0.03      |
| D50, If Froude Number $\leq 0.80$           | 0.0012    | 0.0006    |
| D50, If Froude Number $\geq 0.80$           | 0.5420    | 0.3464    |
| Median Stone Diameter Required, D50=        | 0.012     | 0.0006    |
| Type of Riprap Required                     | TYPE 1    | TYPE 1    |

GA-120 (Abbotts Bridge Road) over Chattahoochee River  
STP-0189-01(010) Fulton-Gwinnett Counties, GA

GUIDE BANK CALCULATIONS - 100 YEAR STORM  
Method in HEC-23, "Bridge Scour and Stream Instability"

Total Discharge of Stream for 100 Year storm (at Floodstage)

Q (cfs) 14310

Lateral/Floodplain discharge of floodplain intercepted by embankment (XS 714318.7)

|             | LEFT | RIGHT   |
|-------------|------|---------|
| $Q_f$ (cfs) | 0.06 | 1008.01 |

Discharge in 100 feet of stream adjacent to abutment (XS 714318.7)

$Q_{100}$  (cfs) 13301.94

|               | LEFT | RIGHT |
|---------------|------|-------|
| $Q_f/Q_{100}$ | 0.00 | 0.076 |

Cross-sectional flow area at the bridge at normal stage (Floodstage)

$A_{n2}$  (ft<sup>2</sup>) 4170.0

Average velocity through bridge opening

$Q/A_{n2}=V_{n2}$  (ft/s) 3.43

Projected length of guide bank (Using Figure 10.3, HEC-23)

L (ft) N/A (Lower than obtainable from chart)



Calc By: TBS (Heath & Lineback Engineers)  
 Date: 8/29/2016  
 Project: 2013.010 SR 120 over Chattahoochee River (Left Side)

Deck Drainage Calculation for Constant Grade Deck

t-storm = 5 mins

|           |              |                                                                 |
|-----------|--------------|-----------------------------------------------------------------|
| i         | 7.26 in/hr   | Rainfall Intensity for 5min-10yr storm                          |
| Wp        | 51.000 ft    | Bridge Width for runoff                                         |
| T         | 4.000 ft     | Allowable Spread                                                |
| n         | 0.016        | mannings coefficient                                            |
| C         | 0.9          | runoff coefficient (paved)                                      |
| Sx        | 0.02 ft/ft   | Bridge Cross-Slope                                              |
| SL        | 0.0126 ft/ft | Bridge Long. Slope                                              |
| to        | 1.26 min     | Time of Overland Flow                                           |
| tg        | 0.46 min     | Time of Gutter Flow                                             |
| tc=to+tg  | 1.72 min     | Check Time of concentration, tc < t-storm<br><b>Ok, proceed</b> |
| Q         | 0.231 cfs    | Runoff                                                          |
| Lo        | 30.3 ft      | Dist. To Initial Inlet                                          |
| Bridge L  | 167 ft       | Check Lo > Bridge L<br><b>Add Deck Drainage Inlets</b>          |
| Q req'd   | 1.278 cfs    | Runoff                                                          |
| T req'd   | 7.60 ft      | Spread                                                          |
| T-Allowed | 4.000        | Check T req'd ≤ T-Allowed<br><b>Add Deck Drainage Inlets</b>    |

Equations are per HEC 21:

$$to = kw * (Wp * n)^{0.6} / [(Ci)^{0.4} * S^{0.3}]$$

$$tg = 484 * Sx * T^2 / (Ci * Wp)$$

$$tc = to + tg$$

$$Q = 0.56 / n * Sx^{1.67} * SL^{0.5} * T^{2.67}$$

$$Lo = 43560 * Q / (Ci * Wp)$$

$$Q \text{ req'd} = L * Ci * Wp / 43560$$

$$T \text{ req'd} = [Qn / (0.56 * Sx^{1.67} * SL^{0.5})]^{0.375}$$

Calc By: TBS (Heath & Lineback Engineers)  
 Date: 8/29/2016  
 Project: 2013.010 SR 120 over Chattahoochee River (Right Side)

Deck Drainage Calculation for Constant Grade Deck

t-storm = 5 mins

|           |              |                                                                 |
|-----------|--------------|-----------------------------------------------------------------|
| i         | 7.26 in/hr   | Rainfall Intensity for 5min-10yr storm                          |
| Wp        | 63.000 ft    | Bridge Width for runoff                                         |
| T         | 4.000 ft     | Allowable Spread                                                |
| n         | 0.016        | manning's coefficient                                           |
| C         | 0.9          | runoff coefficient (paved)                                      |
| Sx        | 0.02 ft/ft   | Bridge Cross-Slope                                              |
| SL        | 0.0126 ft/ft | Bridge Long. Slope                                              |
| to        | 1.43 min     | Time of Overland Flow                                           |
| tg        | 0.38 min     | Time of Gutter Flow                                             |
| tc=to+tg  | 1.80 min     | Check Time of concentration, tc < t-storm<br><b>Ok, proceed</b> |
| Q         | 0.231 cfs    | Runoff                                                          |
| Lo        | 24.5 ft      | Dist. To Initial Inlet                                          |
| Bridge L  | 167 ft       | Check Lo > Bridge L<br><b>Add Deck Drainage Inlets</b>          |
| Q req'd   | 1.578 cfs    | Runoff                                                          |
| T req'd   | 8.23 ft      | Spread                                                          |
| T-Allowed | 4.000        | Check T req'd ≤ T-Allowed<br><b>Add Deck Drainage Inlets</b>    |

Equations are per HEC 21:

$$to = kw * (Wp * n)^{0.6} / [(Ci)^{0.4} * S^{0.3}]$$

$$tg = 484 * Sx * T^2 / (Ci * Wp)$$

$$tc = to + tg$$

$$Q = 0.56 / n * Sx^{1.67} * SL^{0.5} * T^{2.67}$$

$$Lo = 43560 * Q / (Ci * Wp)$$

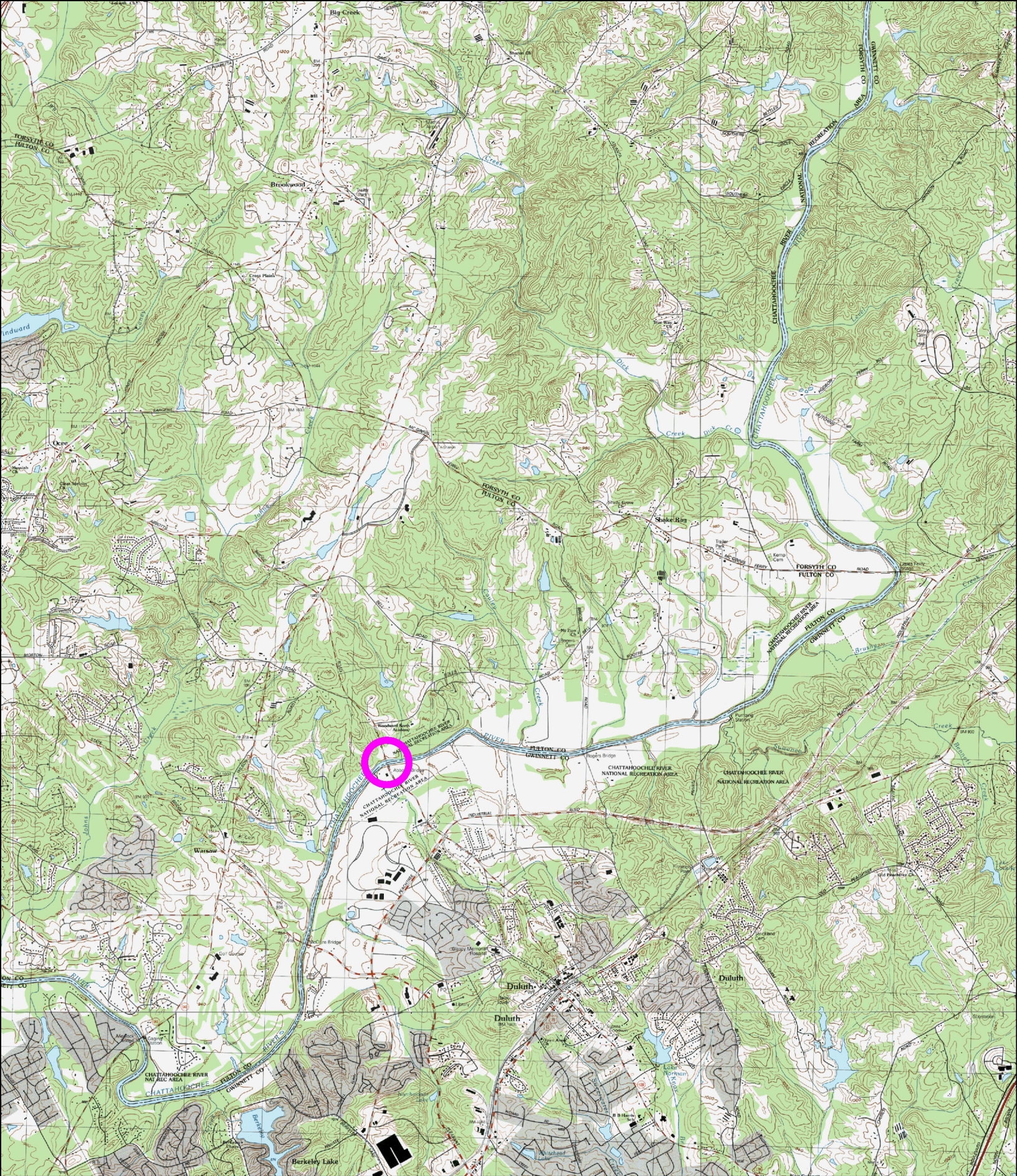
$$Q \text{ req'd} = L * Ci * Wp / 43560$$

$$T \text{ req'd} = [Qn / (0.56 * Sx^{1.67} * SL^{0.5})]^{.375}$$

## VIII. Appendix

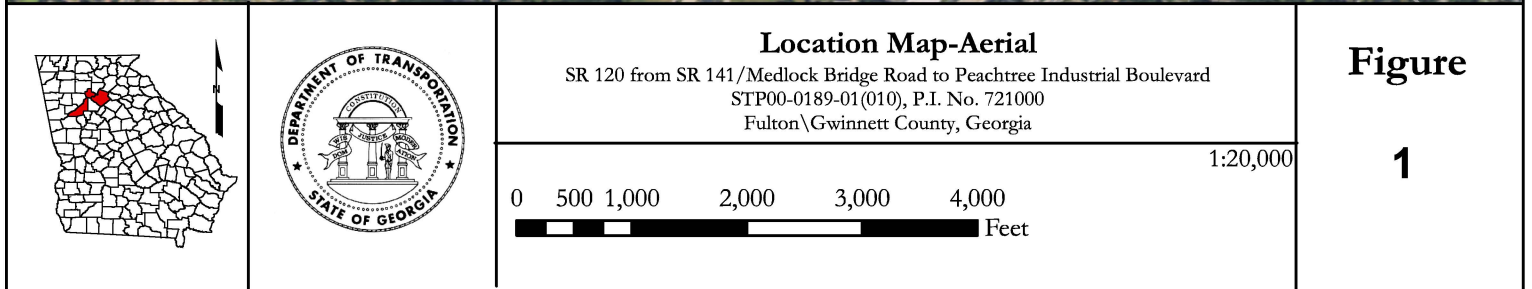
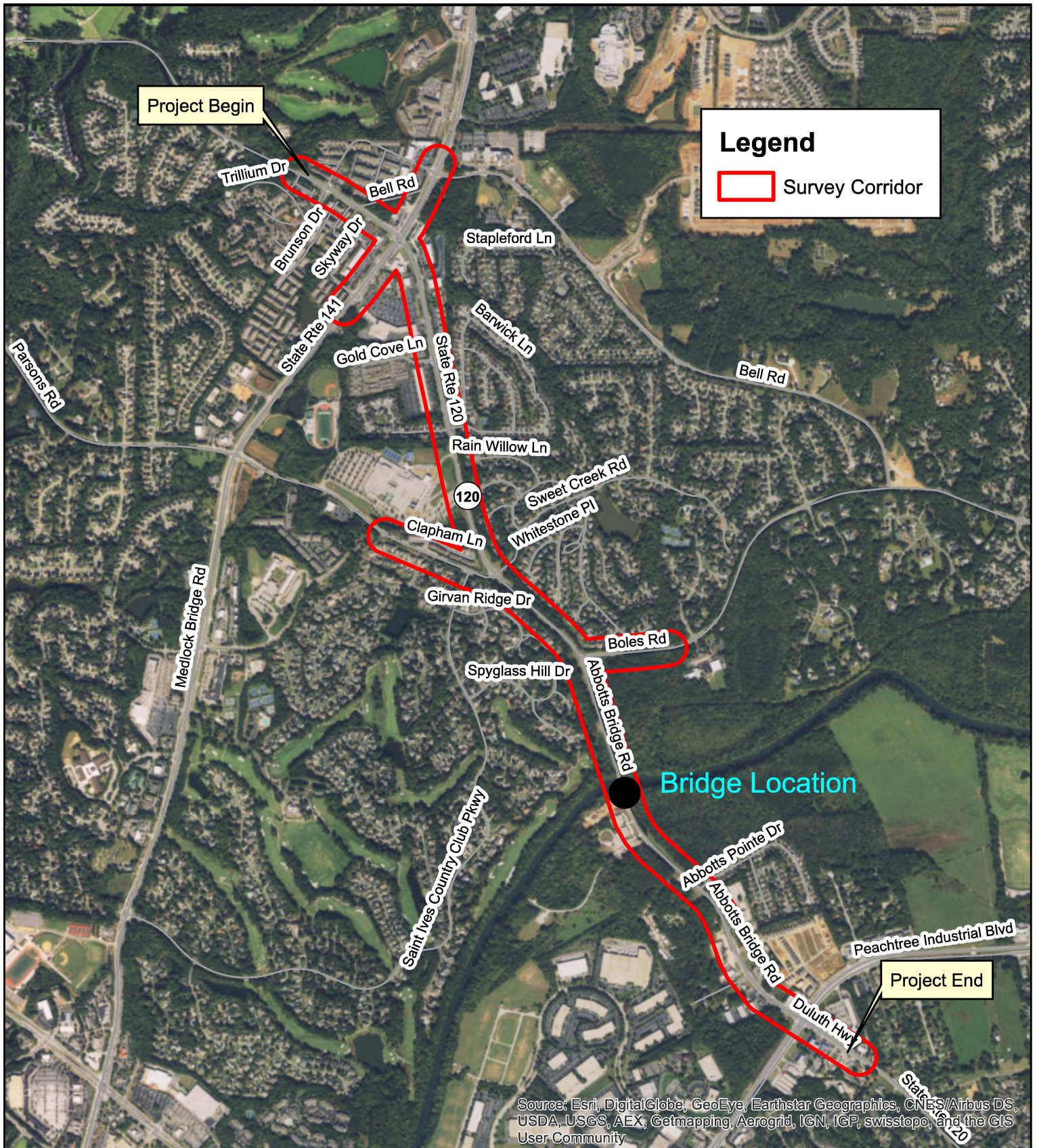
## Location Maps





**STP00-189-01(010)**  
**SR 120 (Abbotts Bridge Rd) Over Chattahoochee River**  
**Fulton-Gwinnett Counties, Georgia**







## Project Photographs

## PHOTO DOCUMENTATION



Picture of piers, looking North across the river.



Upstream Side of bridge, looking North across the river.



Traffic coming off the bridge, looking north up Duluth Highway.



Looking upstream at the Chattahoochee River.





Looking downstream at the Chattahoochee River.



Looking south on Duluth Highway across the bridge.



Upstream Bridge at McGinnis-Ferry Road



Upstream pipe crossing/trestle at Rogers Bridge Road





Downstream bridge at State Bridge Road/Pleasant Hill Road



## FEMA Data

Table 2 – Summary of Discharges (Continued)

| Flooding Source and<br>Location                                                       | Drainage Area<br>(square miles) | 10-Percent-<br>Annual-<br>Chance | 2-Percent-<br>Annual-<br>Chance | Peak Discharges (cubic feet per second) |        |                                |
|---------------------------------------------------------------------------------------|---------------------------------|----------------------------------|---------------------------------|-----------------------------------------|--------|--------------------------------|
|                                                                                       |                                 |                                  |                                 | 1-Percent-<br>Annual- Chance            |        | 0.2-Percent-<br>Annual- Chance |
|                                                                                       |                                 |                                  |                                 | Existing                                | Future |                                |
| CEDAR CREEK                                                                           |                                 |                                  |                                 |                                         |        |                                |
| NORTHWEST TRIBUTARY                                                                   |                                 |                                  |                                 |                                         |        |                                |
| Approximately 0.7 mile<br>upstream of the<br>confluence with Cedar<br>Creek Northwest | 1.380                           | 1,263                            | 1,276                           | 1,279                                   | 1,292  | 1,293                          |
| CEDAR CREEK                                                                           |                                 |                                  |                                 |                                         |        |                                |
| SOUTHEAST                                                                             |                                 |                                  |                                 |                                         |        |                                |
| Just upstream of Indian<br>Shoals Road                                                | 3.290                           | 1,868                            | 3,133                           | 3,442                                   | 4,240  | 4,525                          |
| Approximately 0.3 mile<br>upstream of New Hope<br>Road                                | 1.000                           | 599                              | 1,018                           | 1,146                                   | 1,564  | 1,591                          |
| CENTERVILLE CREEK                                                                     |                                 |                                  |                                 |                                         |        |                                |
| Just upstream of the<br>confluence with Little<br>Yellow River                        | 1.934                           | 2,320                            | 3,564                           | 3,928                                   | 4,189  | 5,187                          |
| Just upstream of Mountain<br>Way Cove                                                 | 1.161                           | 1,535                            | 2,316                           | 2,544                                   | 2,671  | 3,316                          |
| Just upstream of Johnson<br>Drive                                                     | 0.581                           | 914                              | 1,369                           | 1,501                                   | 1,602  | 1,952                          |
| CHATTAHOOCHEE RIVER                                                                   |                                 |                                  |                                 |                                         |        |                                |
| At Holcomb Bridge Road                                                                | 1,210                           | 16,321                           | 20,633                          | 22,337                                  | *      | 27,041                         |
| At State Highway 141                                                                  | 1,170                           | 11,460 <sup>1</sup>              | 13,750                          | 14,418                                  | *      | 20,114                         |
| Just upstream of Suwanee<br>Creek                                                     | 1,140                           | 11,460 <sup>1</sup>              | 12,000 <sup>1</sup>             | 12,000 <sup>1</sup>                     | *      | 13,752                         |
| Just downstream of the<br>confluence of James<br>Creek                                | 1,073                           | 11,460 <sup>1</sup>              | 12,000 <sup>1</sup>             | 12,000 <sup>1</sup>                     | *      | 12,000 <sup>1</sup>            |
| At State Highway 20                                                                   | 1,060                           | 11,460 <sup>1</sup>              | 12,000 <sup>1</sup>             | 12,000 <sup>1</sup>                     | *      | 12,000 <sup>1</sup>            |
| CROOKED CREEK                                                                         |                                 |                                  |                                 |                                         |        |                                |
| Approximately 0.4 mile<br>downstream of Meadow<br>Rue Drive                           | 8.340                           | 3,532                            | 5,024                           | 5,647                                   | 6,201  | 6,832                          |
| Just downstream of the<br>confluence of Crooked<br>Creek Tributary A                  | 7.976                           | 3,465                            | 4,947                           | 5,547                                   | 6,099  | 6,712                          |
| Just downstream of the<br>confluence of Crooked<br>Creek Tributary No. 1              | 5.231                           | 2,000                            | 2,676                           | 2,898                                   | 3,036  | 3,313                          |

\* Data not available

<sup>1</sup> Flows controlled by power release from Buford Dam

| FLOODING SOURCE        |                       | FLOODWAY                     |                                     |                                          | 1-PERCENT-ANNUAL-CHANCE FLOOD<br>WATER SURFACE ELEVATION |                                     |                                                              |                                                           |                    |
|------------------------|-----------------------|------------------------------|-------------------------------------|------------------------------------------|----------------------------------------------------------|-------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------|--------------------|
| CROSS SECTION          | DISTANCE <sup>1</sup> | WIDTH <sup>2</sup><br>(FEET) | SECTION<br>AREA<br>(SQUARE<br>FEET) | MEAN<br>VELOCITY<br>(FEET PER<br>SECOND) | EXISTING<br>CONDITIONS<br>(FEET NAVD)                    | FUTURE<br>CONDITIONS<br>(FEET NAVD) | EXISTING<br>CONDITIONS<br>WITHOUT<br>FLOODWAY<br>(FEET NAVD) | EXISTING<br>CONDITIONS<br>WITH<br>FLOODWAY<br>(FEET NAVD) | INCREASE<br>(FEET) |
| CHATTAHOOCHEE<br>RIVER |                       |                              |                                     |                                          |                                                          |                                     |                                                              |                                                           |                    |
| EV                     | 125.54                | 217\117                      | 4,568                               | 4.9                                      | 884.0                                                    | -                                   | 884.0                                                        | 884.4                                                     | 0.4                |
| EW                     | 127.63                | 294\102                      | 4,814                               | 4.0                                      | 887.9                                                    | -                                   | 887.9                                                        | 888.3                                                     | 0.4                |
| EX                     | 128.66                | 425\119                      | 6,881                               | 2.8                                      | 889.6                                                    | -                                   | 889.6                                                        | 890.0                                                     | 0.4                |
| EY                     | 128.97                | 254\132                      | 3,915                               | 4.7                                      | 890.0                                                    | -                                   | 890.0                                                        | 890.3                                                     | 0.3                |
| EZ                     | 129.32                | 296\175                      | 4,588                               | 3.9                                      | 890.7                                                    | -                                   | 890.7                                                        | 891.0                                                     | 0.3                |
| FA                     | 130.68                | 212\91                       | 3,752                               | 3.8                                      | 892.8                                                    | -                                   | 892.8                                                        | 893.1                                                     | 0.3                |
| FB                     | 130.94                | 208\146                      | 3,856                               | 3.7                                      | 893.2                                                    | -                                   | 893.2                                                        | 893.4                                                     | 0.2                |
| FC                     | 132.01                | 191\84                       | 3,444                               | 4.2                                      | 895.3                                                    | -                                   | 895.3                                                        | 895.5                                                     | 0.2                |
| FD                     | 133.64                | 242\99                       | 3,710                               | 3.9                                      | 897.5                                                    | -                                   | 897.5                                                        | 897.7                                                     | 0.2                |
| FE                     | 133.78                | 210\85                       | 4,226                               | 3.4                                      | 897.8                                                    | -                                   | 897.8                                                        | 898.0                                                     | 0.2                |
| FF                     | 135.15                | 179\93                       | 3,194                               | 4.5                                      | 899.2                                                    | -                                   | 899.2                                                        | 899.5                                                     | 0.3                |
| FG                     | 135.36                | 210\191                      | 4,204                               | 3.4                                      | 899.7                                                    | -                                   | 899.7                                                        | 900.0                                                     | 0.3                |
| FH                     | 136.30                | 196\102                      | 3,881                               | 3.7                                      | 900.9                                                    | -                                   | 900.9                                                        | 901.2                                                     | 0.3                |
| FI                     | 136.93                | 239\139                      | 4,659                               | 3.1                                      | 901.5                                                    | -                                   | 901.5                                                        | 901.9                                                     | 0.4                |
| FJ                     | 137.22                | 206\115                      | 3,917                               | 3.7                                      | 901.8                                                    | -                                   | 901.8                                                        | 902.1                                                     | 0.3                |
| FK                     | 138.33                | 187\83                       | 3,784                               | 3.2                                      | 903.1                                                    | -                                   | 903.1                                                        | 903.4                                                     | 0.3                |
| FL                     | 139.90                | 162\44                       | 3,221                               | 3.7                                      | 904.1                                                    | -                                   | 904.1                                                        | 904.4                                                     | 0.3                |
| FM                     | 140.05                | 215\117                      | 4,025                               | 3.0                                      | 904.3                                                    | -                                   | 904.3                                                        | 904.6                                                     | 0.3                |
| FN                     | 140.42                | 225\100                      | 3,438                               | 3.5                                      | 904.6                                                    | -                                   | 904.6                                                        | 904.9                                                     | 0.3                |
| FO                     | 141.06                | 213\62                       | 4,069                               | 3.0                                      | 905.4                                                    | -                                   | 905.4                                                        | 905.6                                                     | 0.2                |
| FP                     | 141.94                | 223\88                       | 3,739                               | 3.2                                      | 905.9                                                    | -                                   | 905.9                                                        | 906.1                                                     | 0.2                |
| FQ                     | 142.40                | 207\38                       | 3,395                               | 3.5                                      | 906.5                                                    | -                                   | 906.5                                                        | 906.7                                                     | 0.2                |
| FR                     | 143.41                | 233\117                      | 3,386                               | 3.5                                      | 908.1                                                    | -                                   | 908.1                                                        | 908.2                                                     | 0.1                |
| FS                     | 144.00                | 198\79                       | 2,836                               | 4.2                                      | 908.6                                                    | -                                   | 908.6                                                        | 908.7                                                     | 0.1                |
| FT                     | 144.08                | 297\110                      | 6,132                               | 2.0                                      | 908.9                                                    | -                                   | 908.9                                                        | 909.1                                                     | 0.2                |

<sup>1</sup> Miles from West Point Dam

<sup>2</sup> Total Width\Width Inside the County

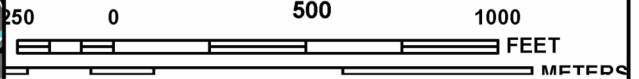
TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

**GWINNETT COUNTY, GA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**CHATTAHOOCHEE RIVER**



# NATIONAL FLOOD INSURANCE PROGRAM

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

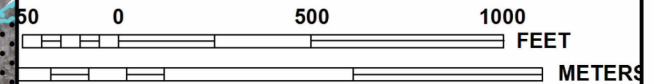




National Flood Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 500'



NFIP

PANEL 0040H

**FIRM**

**FLOOD INSURANCE RATE MAP**

**GWINNETT COUNTY,  
GEORGIA  
AND INCORPORATED AREAS**

**PANEL 40 OF 155**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

| COMMUNITY       | NUMBER | PANEL | SUFFIX |
|-----------------|--------|-------|--------|
| DULUTH, CITY OF | 130098 | 0040  | H      |
| GWINNETT COUNTY | 130322 | 0040  | H      |

Notice to User: The Map Number shown below should be used when placing map orders, the Community Number shown above should be used on insurance applications for the subject community.

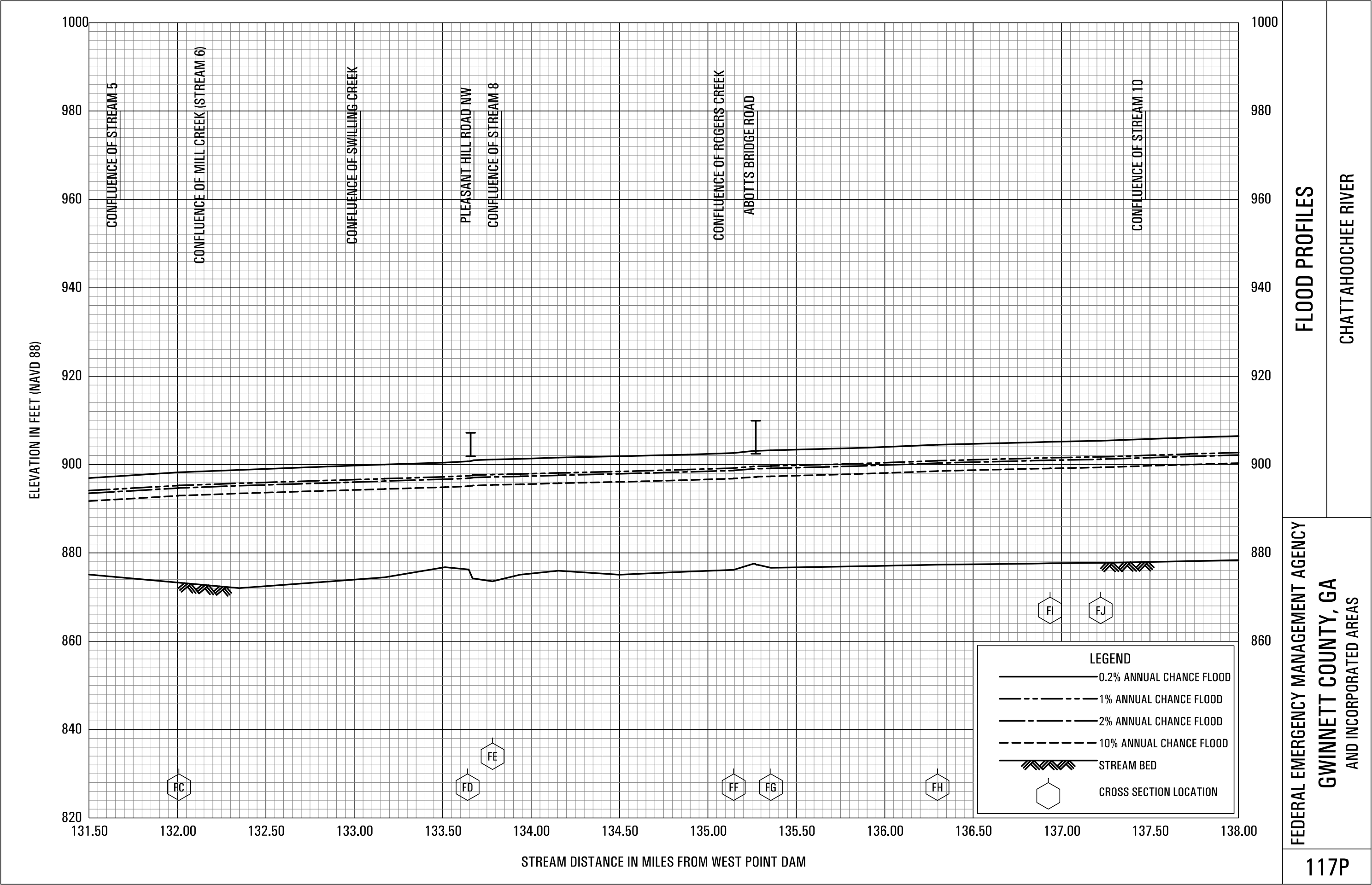


**MAP NUMBER  
13135C0040H**

**MAP REVISED  
MARCH 4, 2013**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)





## Miscellaneous Project Data

DESIGN DATA

SPECIFICATIONS ----- AASHTO LRFD 7TH EDITION, 2014  
DESIGN VEHICLE LIVE LOAD ----- HL-93  
FUTURE PAVING ALLOWANCE ----- 30 LBS PER SQ FT

TRAFFIC DATA

TRAFFIC ----- ADT = 30,850 (2022)  
ADT = 41,400 (2042)  
DESIGN SPEED ----- 45 MPH  
TRUCKS ----- 3 %  
24 HR TRUCKS ----- 3 %  
DIRECTIONAL ----- 55 %

EXISTING UTILITIES

GAS ----- SOUTHERN GAS  
TELEPHONE ----- AT&T  
POWER LINES LOCATED APPROXIMATELY 27 FEET  
UPSTREAM FROM THE EXISTING BRIDGE.

PROPOSED UTILITIES

6" DIA. GAS MAIN ----- SOUTHERN GAS  
4 - 4" CONDUITS ----- AT&T

BRIDGE CONSISTS OF

- 1 - 90'-0" 54" BULB TEE, PSC BEAM SPAN ----- SPECIAL DESIGN
- 1 - 134'-0" 72" BULB TEE, PSC BEAM SPAN ----- SPECIAL DESIGN
- 1 - 100'-0" 54" BULB TEE, PSC BEAM SPAN ----- SPECIAL DESIGN
- 2 - PILE END BENTS ----- SPECIAL DESIGN
- 2 - CONCRETE INTERMEDIATE BENTS ----- SPECIAL DESIGN
- ONE PIPE ALUMINUM HANDRAILING --- GA. STD. 3626 (10-22-85)
- 24" TYPE I RIPRAP

NOTES:

1. \* SLOPE NORMAL TO END BENT.
2. \*\* STATIONS AND ELEVATIONS ARE ALONG PROFILE GRADE LINE AT THE INTERSECTION OF PROFILE GRADE LINE AND B.F.P.R. OR  $\mathcal{C}$  BENT.
3. PROPOSED BRIDGE HAS A NORMAL CROWN WITH A SLOPE OF 2%.
4. PROPOSED BRIDGE SHALL HAVE A MINIMUM BOTTOM OF BEAM ELEVATION NO LOWER THAN 900.93 FT.
5. PROPOSED BRIDGE BOTTOM OF BEAM ELEVATION IS 903.78 FT.
6. ALL BENTS ARE PARALLEL.
7. REMOVE EXISTING BRIDGE AND EXISTING SUBSTRUCTURE AS PER THE SPECIFICATIONS.
8. A CLOSED DRAINAGE SYSTEM IS REQUIRED.

EXISTING BRIDGE SERIAL NO. 121-0079-0  
EXISTING BRIDGE I.D. NO. 121-00120D-017-51E  
PROJECT P.J. NO. 721000-  
BRIDGE NO. 1

**Heath & Lineback Engineers**  
INCORPORATED  
2390 CANTON ROAD, BUILDING 200  
MARIETTA, GEORGIA 30066-5393  
(770)424-1668

**CALYX**  
ENGINEERS + CONSULTANTS

GEORGIA  
DEPARTMENT OF TRANSPORTATION  
ENGINEERING DIVISION-OFFICE OF BRIDGES AND STRUCTURES

PRELIMINARY LAYOUT  
SR 120 (ABBOTS BRIDGE ROAD)  
OVER CHATTAHOOCHEE RIVER  
FULTON/GWINNETT COUNTIES STP00-0189-01(010)

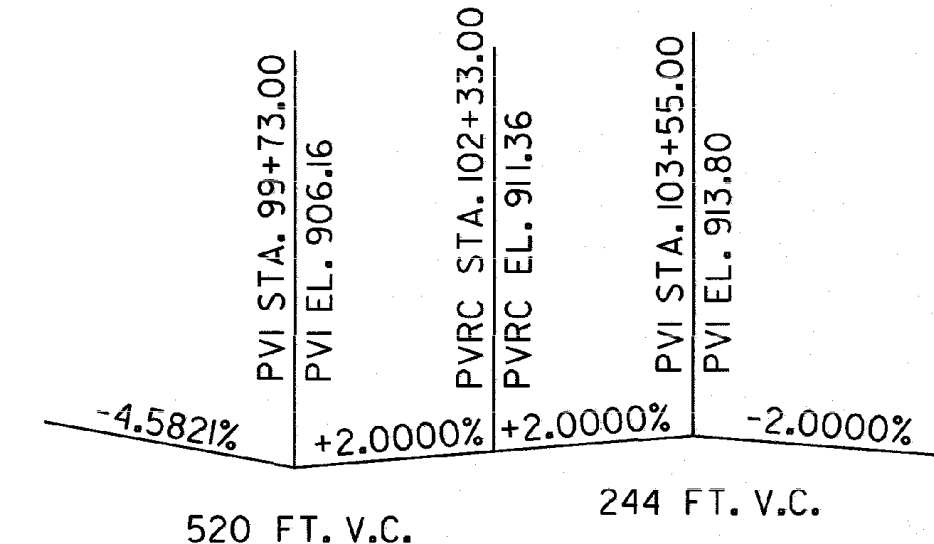
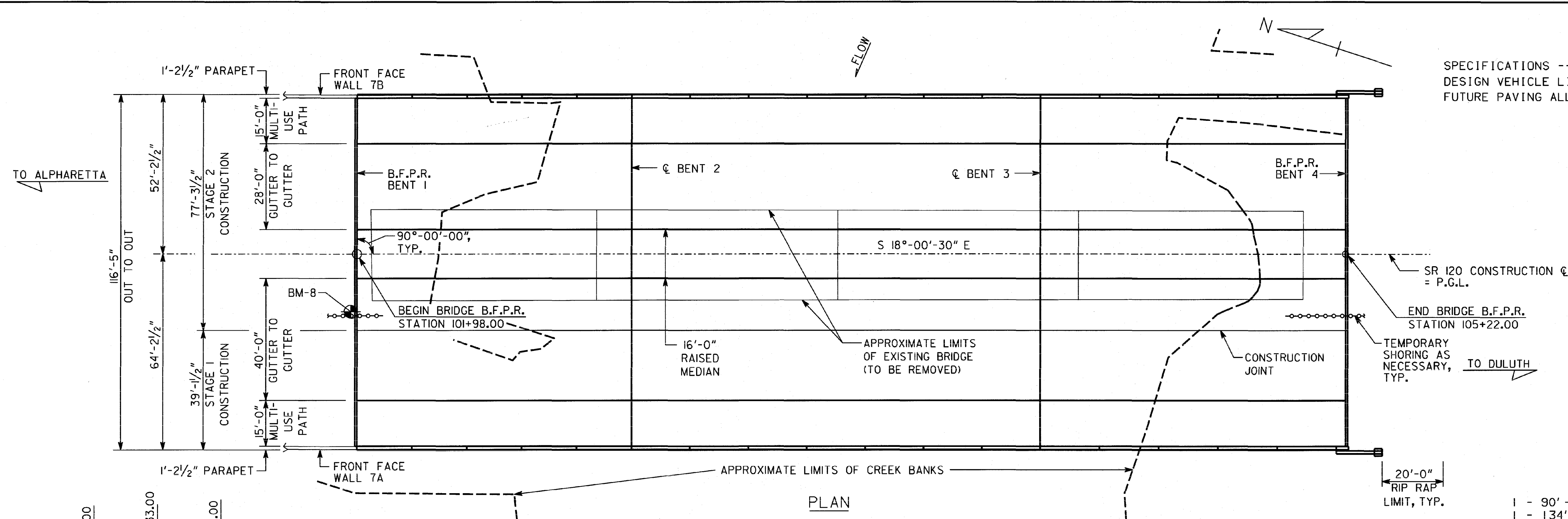
SCALE: 1" = 20'-0", UNLESS NOTED OTHERWISE JANUARY 2017

DESIGNED TBS CHECKED RLF/MS REVIEWED DLC/SKG  
DRAWN TBS DESIGN GROUP STB APPROVED WMD

DRAWING NO.  
35-0001

BRIDGE SHEET  
1 OF 2

1 INCH WHEN PRINTED FULL SIZE



| BERM ELEVATION (*) |           |
|--------------------|-----------|
| LOCATION           | ELEVATION |
| BENT 1 LT.         | 903.04    |
| BENT 1 RT.         | 902.80    |
| BENT 4 LT.         | 901.77    |
| BENT 4 RT.         | 901.53    |

(\*) FOR BRIDGE ENDROLL STAKING PURPOSES ONLY.

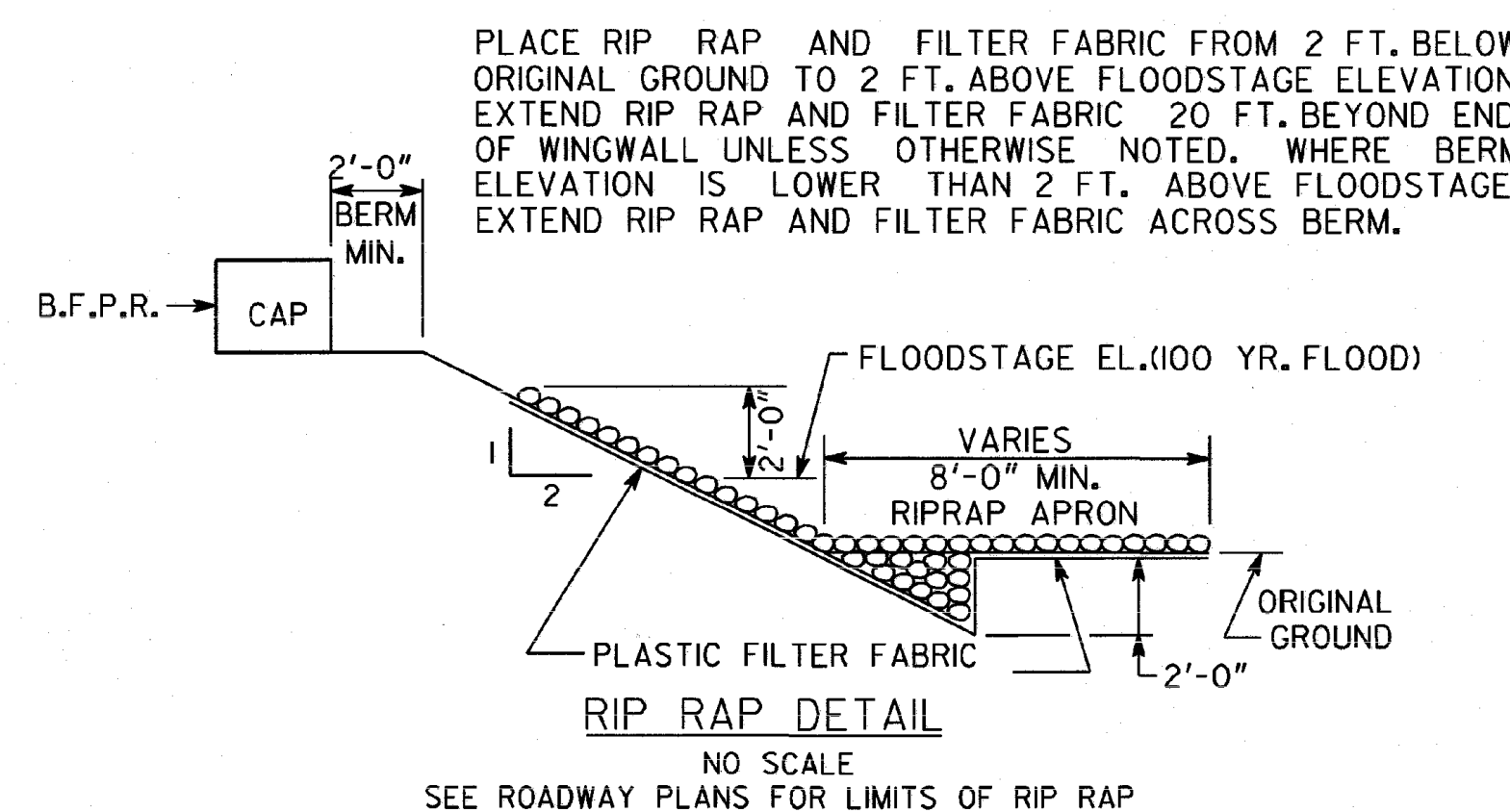
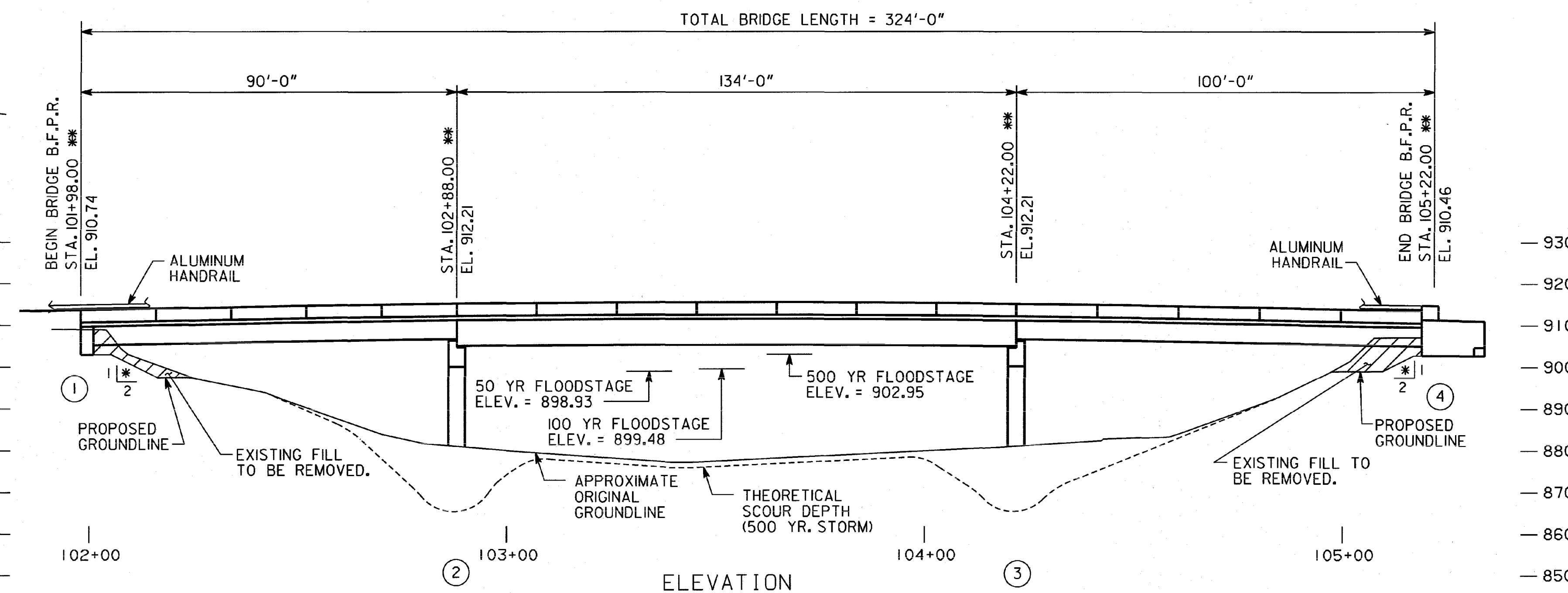
BENCHMARK DATA

BM-8, CHISELED SQUARE AT THE NORTHWEST CORNER OF BRIDGE ON HANDRAIL  
STA. 101+95.95  
OFFSET 18.86' RT.  
ELEV. = 912.55  
N = 1465649.276  
E = 2296082.862

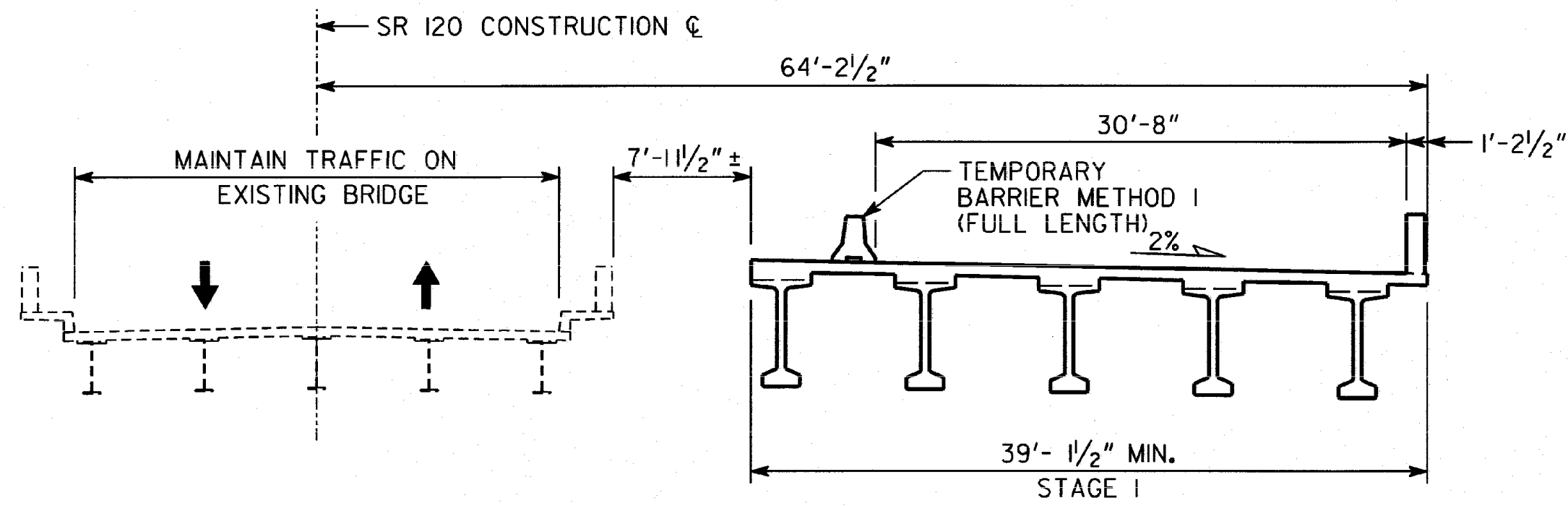
DRAINAGE DATA

| DRAINAGE AREA ----- 1160 SQ MILES |                 |               |                                  |           |  |
|-----------------------------------|-----------------|---------------|----------------------------------|-----------|--|
| FLOOD FREQUENCY                   | TOTAL DISCHARGE | MEAN VELOCITY | AREA OF OPENING BELOW FLOODSTAGE | BACKWATER |  |
| 50 YEAR                           | 13,593 CFS      | 3.39 FPS      | 4,005 SQ FT                      | 0.01 FT   |  |
| 100 YEAR                          | 14,310 CFS      | 3.43 FPS      | 4,170 SQ FT                      | 0.01 FT   |  |
| 500 YEAR                          | 20,316 CFS      | 3.87 FPS      | 5,245 SQ FT                      | 0.00 FT   |  |

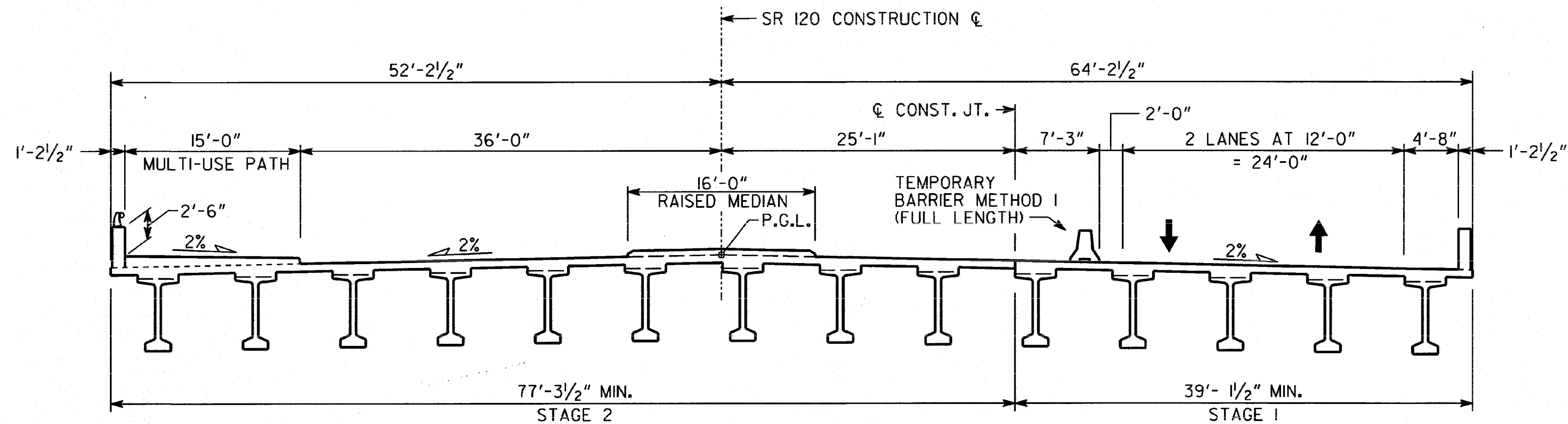
| THEORETICAL SCOUR DEPTH (FT) |                |       |       |                |       |       |
|------------------------------|----------------|-------|-------|----------------|-------|-------|
| BENT LOCATION                | 100 YEAR STORM |       |       | 500 YEAR STORM |       |       |
|                              | GENERAL        | LOCAL | TOTAL | GENERAL        | LOCAL | TOTAL |
| BENT 2                       | 0.30           | 12.96 | 13.26 | 1.40           | 14.10 | 15.50 |
| CHANNEL                      | 0.30           | -     | 0.30  | 1.40           | -     | 1.40  |
| BENT 3                       | 0.30           | 12.94 | 13.24 | 1.40           | 14.09 | 15.49 |



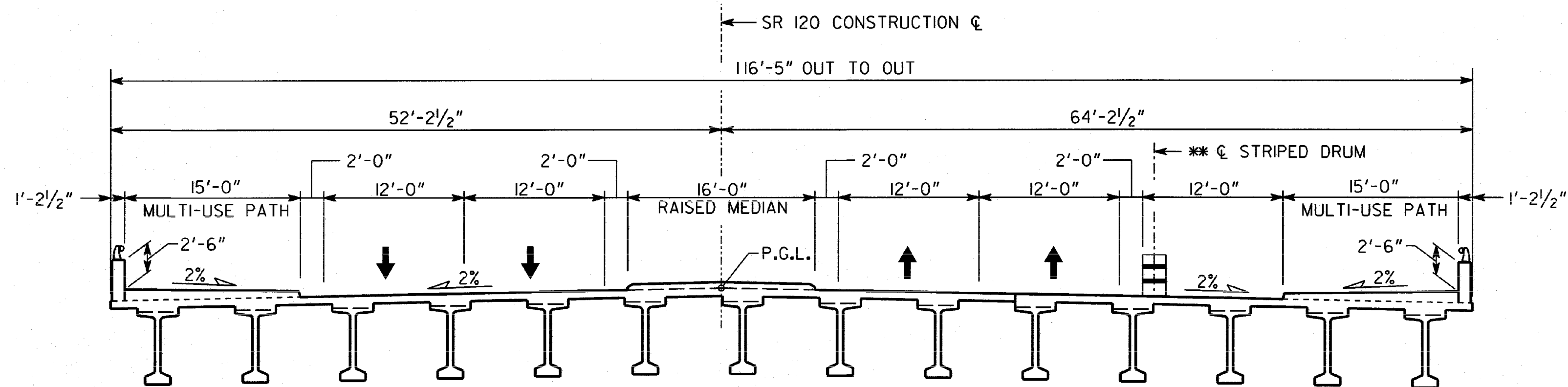




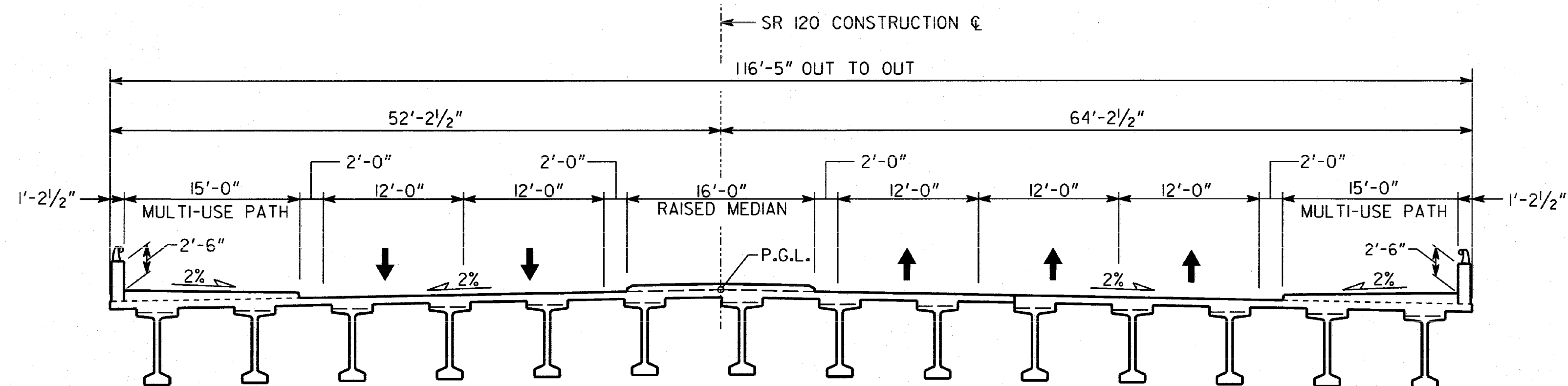
TYPICAL SECTION - STAGE 1  
LOOKING AHEAD



TYPICAL SECTION - STAGE 2  
LOOKING AHEAD



TYPICAL SECTION - STAGE 3  
LOOKING AHEAD



TYPICAL SECTION - FINAL  
LOOKING AHEAD

## CONSTRUCTION SEQUENCE

- STAGE 1:
- PLACE TEMPORARY SHORING AS NECESSARY.
  - MAINTAIN TRAFFIC ON EXISTING BRIDGE.
  - CONSTRUCT STAGE 1 ACCORDING TO PLANS.
  - PLACE TEMPORARY BARRIER AS SHOWN.
- STAGE 2:
- SHIFT TRAFFIC TO STAGE 1 CONSTRUCTION AND MAINTAIN TWO 12'-0" TRAFFIC LANES.
  - REMOVE THE EXISTING BRIDGE.
  - CONSTRUCT STAGE 2 ACCORDING TO PLANS.
  - REMOVE TEMPORARY BARRIER.
- STAGE 3:
- SHIFT TRAFFIC TO STAGE 2 CONSTRUCTION AND MAINTAIN TWO 12'-0" TRAFFIC LANES IN EACH DIRECTION.
  - PLACE STRIPED DRUMS AS SHOWN.
  - CONSTRUCT MULTI-USE PATH ALONG RIGHT EDGE.
  - REMOVE STRIPED DRUMS AND OPEN COMPLETED BRIDGE TO TRAFFIC.

\*\* SEE GA STANDARD 9107 FOR LANE CLOSURE DETAILS.

NOTE TO CONTRACTOR:  
THE AFOREMENTIONED SEQUENCE SHALL BE COORDINATED WITH ROADWAY OPERATIONS, SEE ROADWAY PLANS. IN LIEU OF THE ABOVE CONSTRUCTION SEQUENCE, THE CONTRACTOR MAY SUBMIT A PROPOSED CONSTRUCTION SEQUENCE FOR APPROVAL.

BRIDGE NO. 1

**Heath & Lineback Engineers**  
INCORPORATED  
2390 CANTON ROAD, BUILDING 200  
MARIETTA, GEORGIA 30066-5393  
(770)424-1668

**CALYX**  
ENGINEERS + CONSULTANTS

GEORGIA  
**DEPARTMENT OF TRANSPORTATION**  
ENGINEERING DIVISION-OFFICE OF BRIDGES AND STRUCTURES

**CONSTRUCTION SEQUENCE**  
SR 120 (ABBOTS BRIDGE ROAD)  
OVER CHATTAHOOCHEE RIVER  
FULTON/GWINNETT COUNTIES STP00-0189-01(010)

SCALE: 1/8" = 1'-0"

JANUARY 2017

|                        |                 |                     |                     |
|------------------------|-----------------|---------------------|---------------------|
| DRAWING NO.<br>35-0002 | DESIGNED<br>TBS | CHECKED<br>RLF/MS   | REVIEWED<br>DLC/SKG |
| BRIDGE SHEET<br>2 OF 2 | DRAWN<br>TBS    | DESIGN GROUP<br>STB | APPROVED<br>WMD     |

1 INCH WHEN PRINTED FULL SIZE



| SHEET NO.           | DESCRIPTION                                 |
|---------------------|---------------------------------------------|
| 1                   | COVER SHEET                                 |
| 2                   | TYPICAL SECTION                             |
| 3-4                 | SUMMARY OF QUANTITIES                       |
| 5-7                 | PLAN AND PROFILE                            |
| 8                   | PIT LOCATION AND OVERHAUL CHART             |
| 9                   | BRIDGE SHEET                                |
| 10                  | PLAN AND ELEVATION                          |
| 11                  | DECK DETAILS                                |
| 12                  | MISC. DETAILS                               |
| 13                  | BEAM AND END BENT DETAILS                   |
| 14                  | PIER DETAILS                                |
| 15                  | BAR REINFORCEMENT DETAIL                    |
| 16                  | GA. STD. NO. 1018-A SAND CEMENT BAG RIP RAP |
| 17                  | 1030-A PIPE CULVERT                         |
| 18                  | 3616 CONCRETE HANDRAILING                   |
| 19                  | 3900 BAR BENDING DETAIL                     |
| 20                  | 4032-A DEEP BEAM HIGHWAY GUARD RAIL         |
| 21                  | 4033-A GUARD RAIL POST                      |
| 21-A                | 4034 LOCATION OF GUARD RAIL AT BRIDGE END   |
| 22                  | 9003 R/W & F. R. P. MARKERS                 |
| 23                  | 9017-A PAINF. CONC. APPROACH SLAB           |
| 24                  | 9017-B CONC. SPILLWAYS FOR APPROACH SLABS   |
| 25                  | 9028-A S.E. AND HIDENING OF CURVES          |
| 25-A                | 9029-A 6" PERFORATED PIPE UNDERDRAIN        |
| 26                  | 9031-H CONSTRUCTION DETAILS                 |
| 27-31               | CROSS SECTIONS EARTHWORK                    |
| TOTAL NO. SHEETS 33 |                                             |

STATE OF GEORGIA  
STATE HIGHWAY DEPARTMENT OF GEORGIA

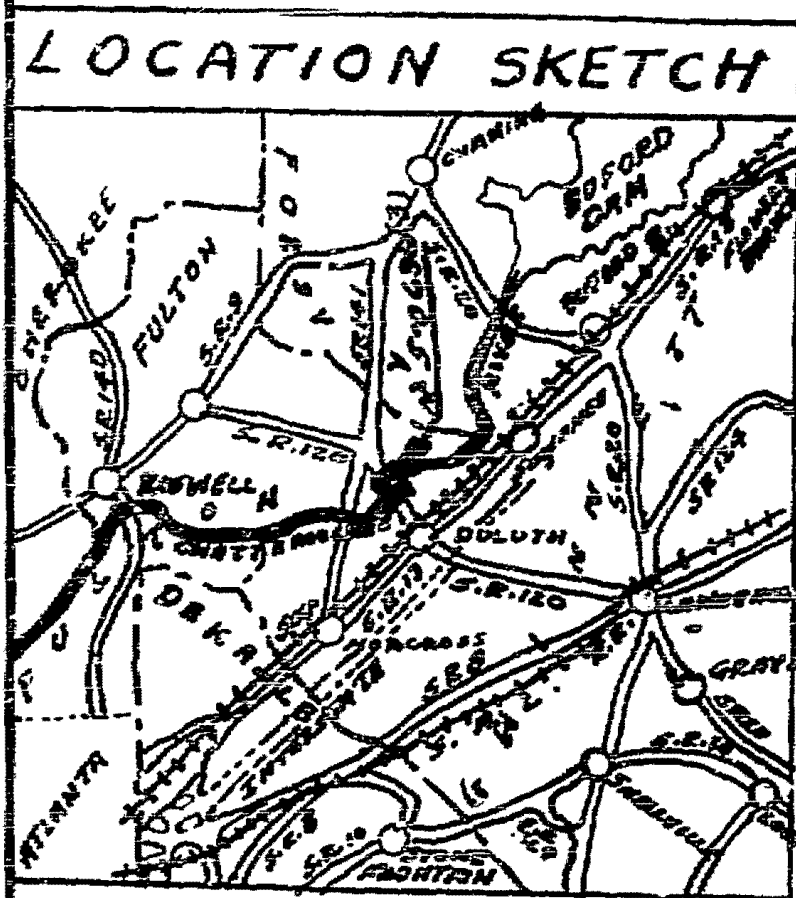
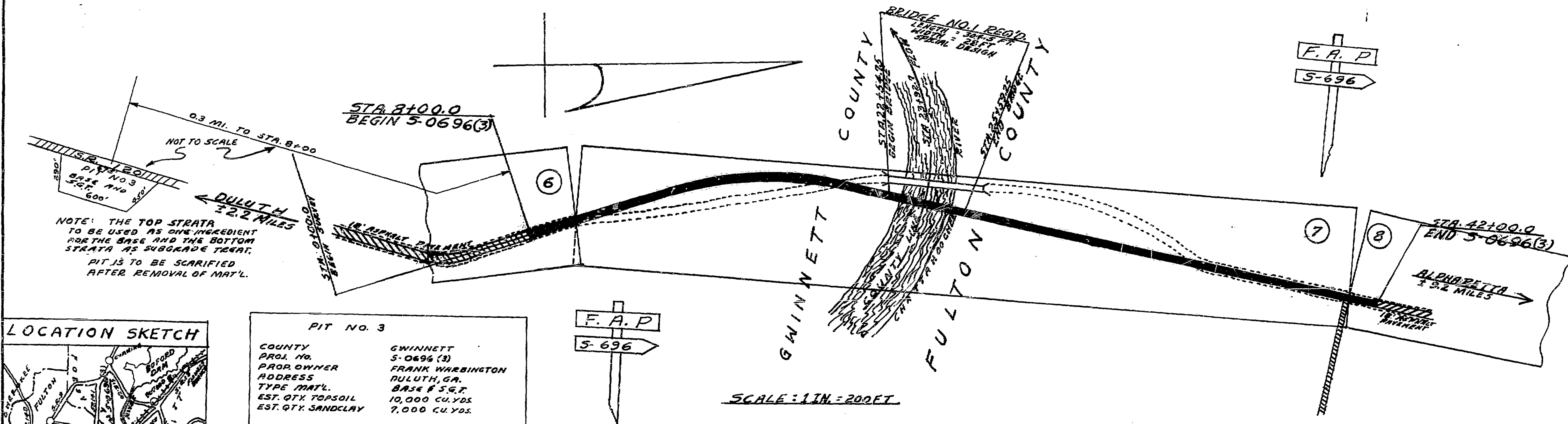
PLAN AND PROFILE OF PROPOSED  
STATE HIGHWAY  
FEDERAL AID PROJECT  
5-0696(3)  
ALPHARETTA - DULUTH  
GWINNETT - FULTON COUNTIES

FEDERAL ROUTE # 5-0696  
STATE ROUTE # 120

SCALES: PLAN: 1 IN. = 100 FT.  
PROFILE, HOR.: 1 IN. = 100 FT., VERT.: 1 IN. = 20 FT.

CONVENTIONAL SIGNS

|                          |                              |
|--------------------------|------------------------------|
| STATE AND NATIONAL LINE  | LEVEE                        |
| COUNTY LINE              | CULVERTS                     |
| CITY, VILLAGE OR BOROUGH | DROP INLET                   |
| TOWNSHIP LINE            | TROLLEY POLE                 |
| SECTION LINE             | POWER POLE                   |
| GRANT LINE               | TELEPHONE OR TELEGRAPH POLES |
| FENCE LINE               | MARSH                        |
| GUARD RAIL               | HEDGE                        |
| UNFENCED PROPERTY        | GROUND ELEVATION             |
| RIGHT OF WAY LINE        | GRADE ELEVATION              |
| TRAVELED WAY             | RIGHT OF WAY MARKER          |
| RAILROADS                | F. A. P. MARKER              |
| RETAINING WALL           |                              |
| BASE OR SURVEY LINE      |                              |



| PIT NO. 3               |                                 |
|-------------------------|---------------------------------|
| COUNTY                  | GWINNETT                        |
| PROJ. NO.               | 5-0696(3)                       |
| PROP. OWNER             | FRANK WARBINGTON                |
| ADDRESS                 | DULUTH, GA.                     |
| TYPE MAT'L.             | BASE & S.G.P.                   |
| EST. QTY. TOPSOIL       | 10,000 CU. YDS.                 |
| EST. QTY. SANDCLAY      | 7,000 CU. YDS.                  |
| DEPTH OVERBURDEN        | NONE                            |
| AVG. DEP. TOP STRATA    | 11"                             |
| AVG. DEP. BOTTOM STRATA | 10"                             |
| PIT AREA                | 6.5 ACS.                        |
| C&G REQ'D.              | 2 ACS.                          |
| PRICE                   | 10¢ CU. YD. \$1.00 AC. IF CULT. |
| DATE OPT. OBTAINED      | 6-15-59                         |
| DATE OPT. EXPIRES       | 12-31-60                        |

| LENGTH OF PROJECT     |       |
|-----------------------|-------|
|                       | MILES |
| NET LENGTH ROADWAY    | 0.586 |
| NET LENGTH BRIDGES    | 0.057 |
| NET LENGTH PROJECT    | 0.643 |
| NET LENGTH EXCEPTIONS | 0.000 |
| GROSS LENGTH PROJECT  | 0.643 |

ESTIMATED FUTURE TRAFFIC 1900 V.P.D.  
SPEED DESIGN 60 M.P.H.

|                 |                |
|-----------------|----------------|
| PLANS COMPLETED | JUNE 23, 1959  |
| PLANS REVISED   | JUNE 30, 1959  |
| PLANS REVISED   | JULY 3, 1959   |
| PLANS REVISED   | AUG. 29, 1959  |
| PLANS REVISED   | SEPT. 8, 1959  |
| PLANS REVISED   | SEPT. 15, 1959 |

SUBMITTED FOR APPROVAL

DATE \_\_\_\_\_

STATE HIGHWAY ENGINEER OF GEORGIA

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_

CHAIRMAN-STATE HIGHWAY DEPARTMENT OF GEORGIA

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_

DISTRICT ENGINEER  
BUREAU OF PUBLIC ROADS  
DEPARTMENT OF COMMERCE

NOTE: ALL WORK TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE STATE HIGHWAY DEPARTMENT OF GEORGIA, DATED MAY 1, 1956

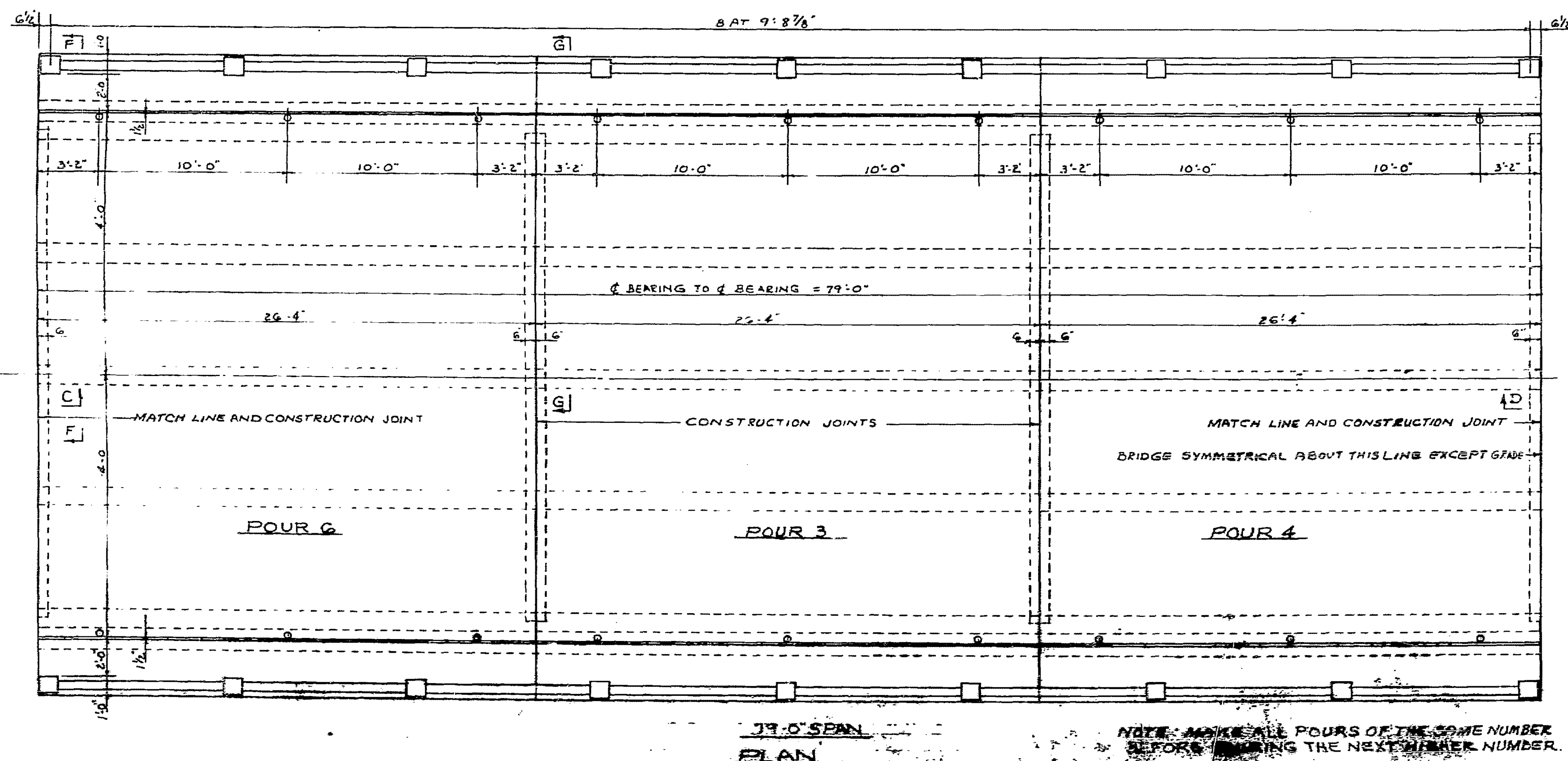
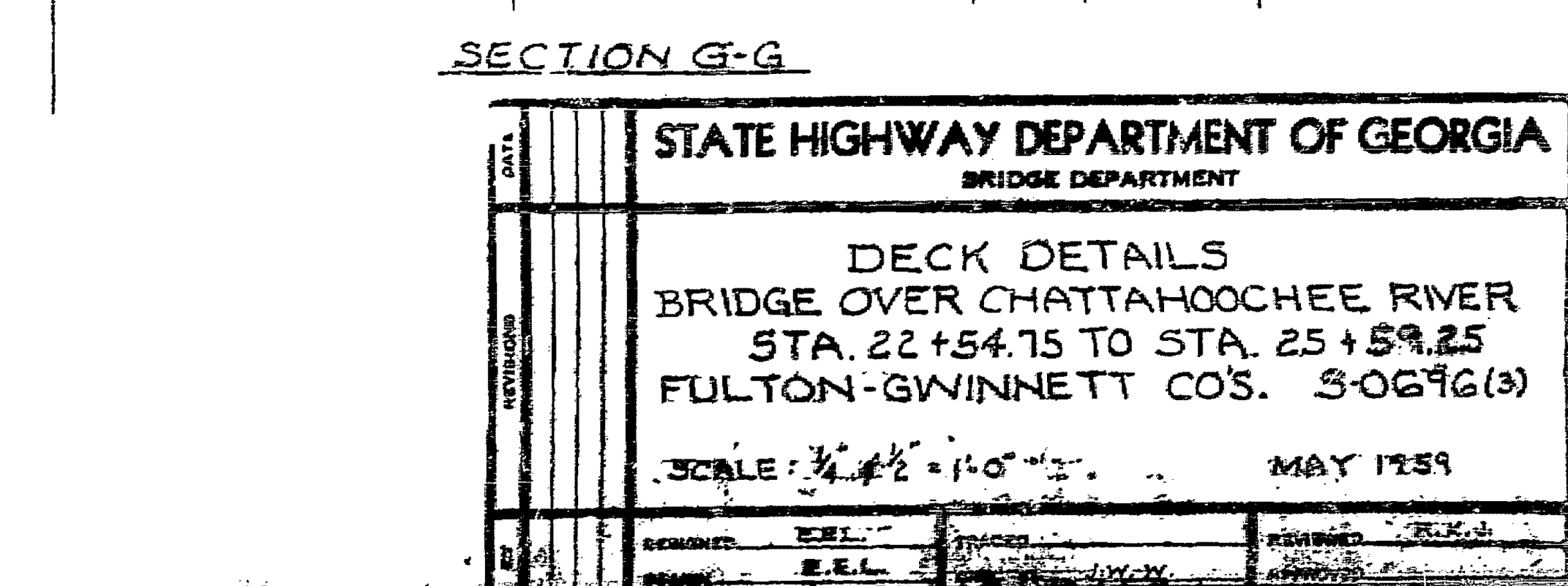
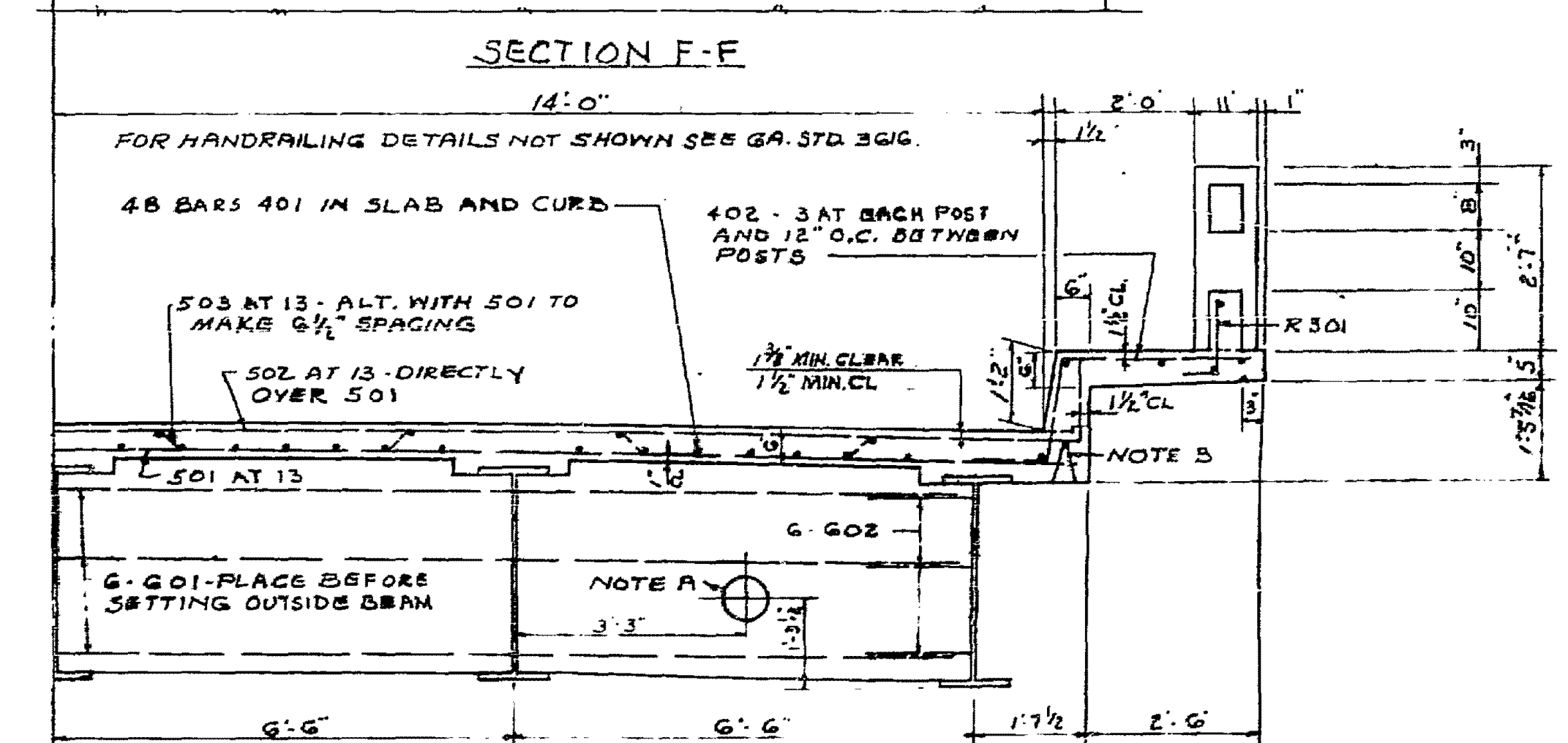
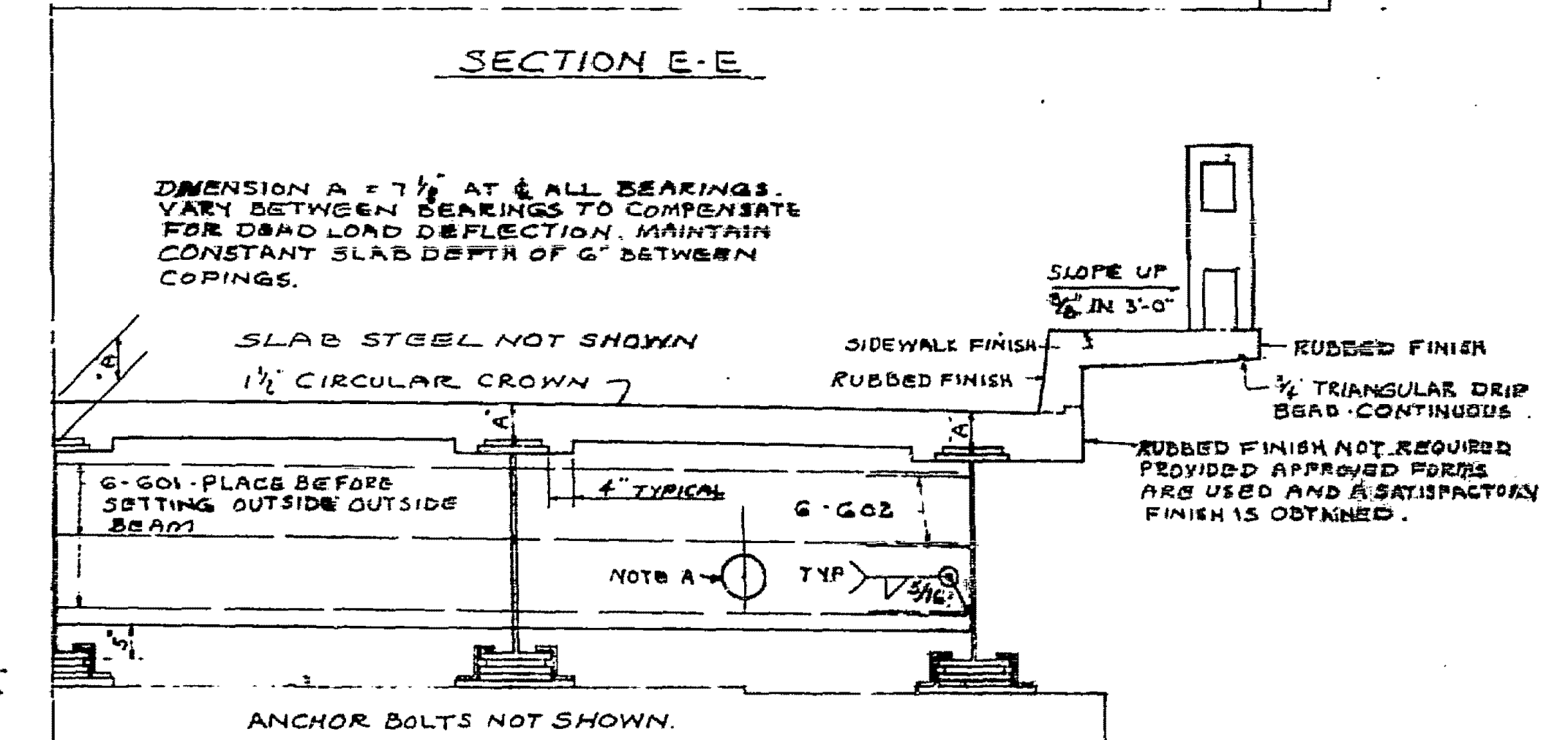
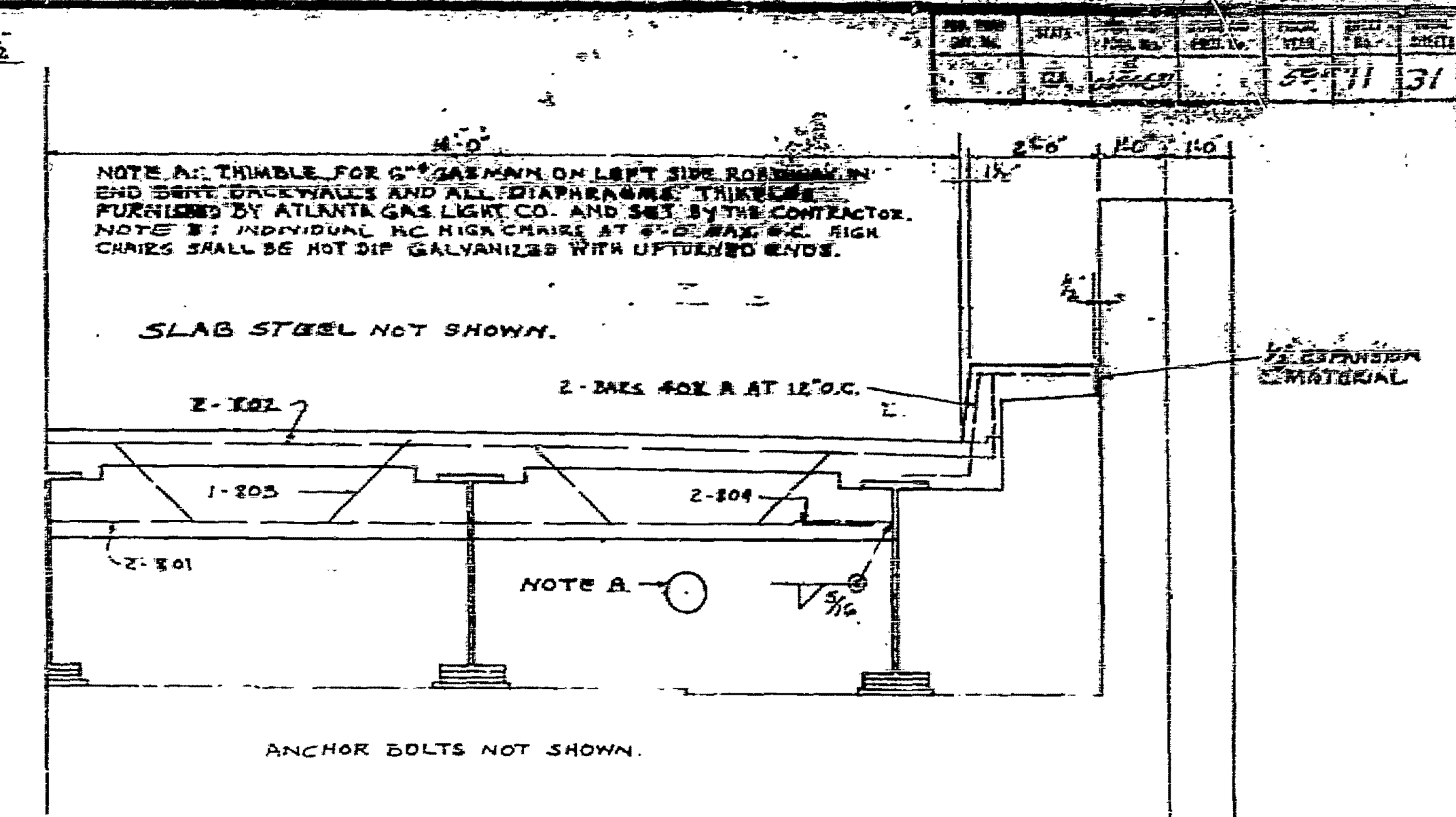
APPROVED BY BUREAU OF PUBLIC ROADS  
Nov. 9, 1956 AND REVISIONS  
SUBMITTED FOR PROJECT.

**5-0696(3)**







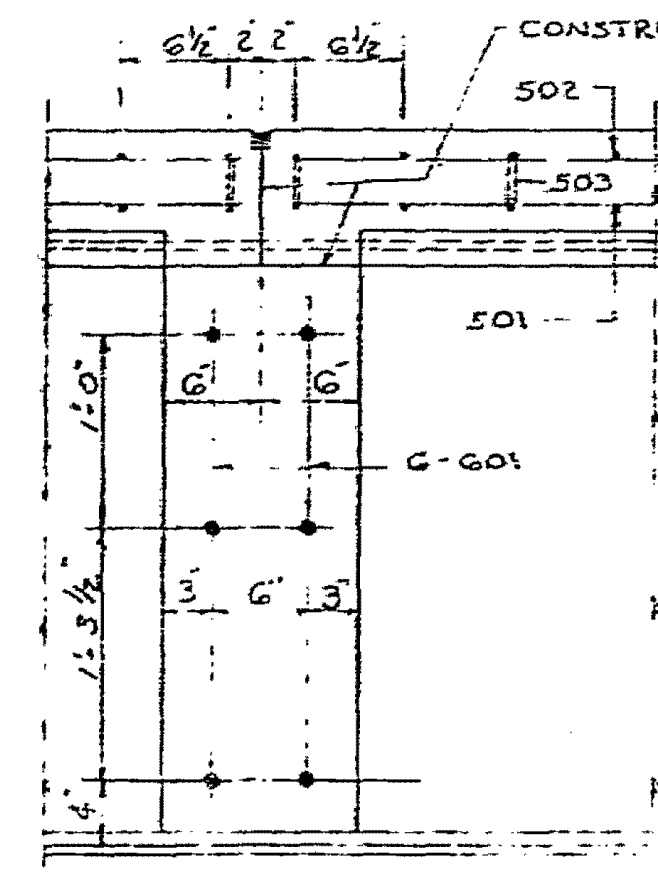




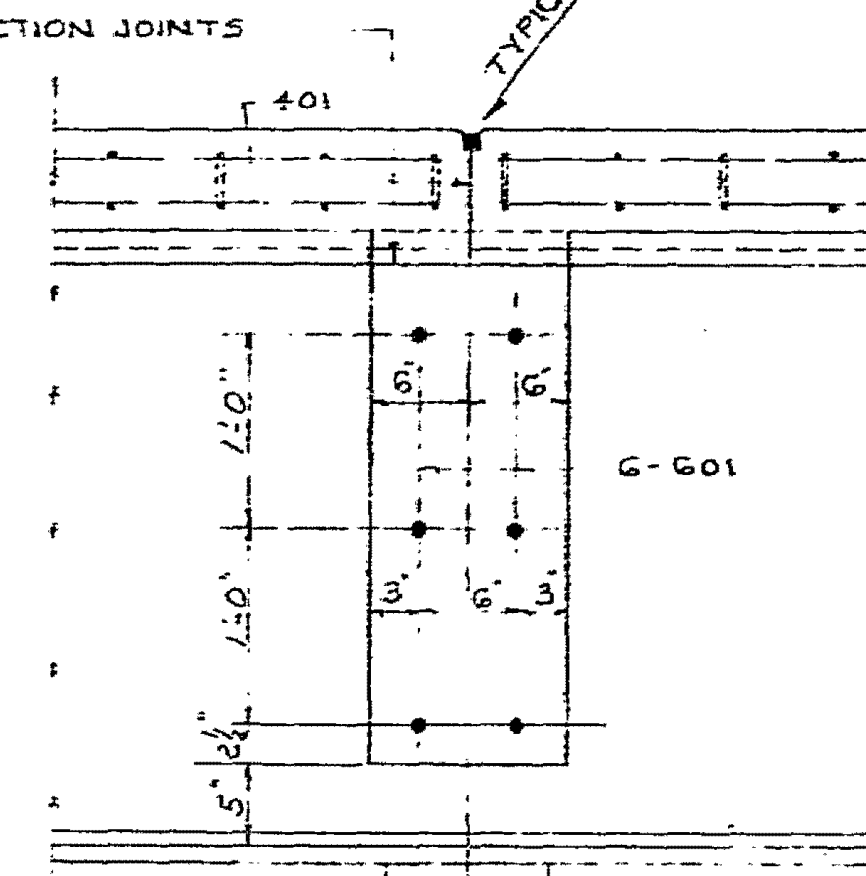
1' x 1' x 26'-0" POURED RUBBER SEALING COMPOUND

NOTE: POUR 24 HOURS IN

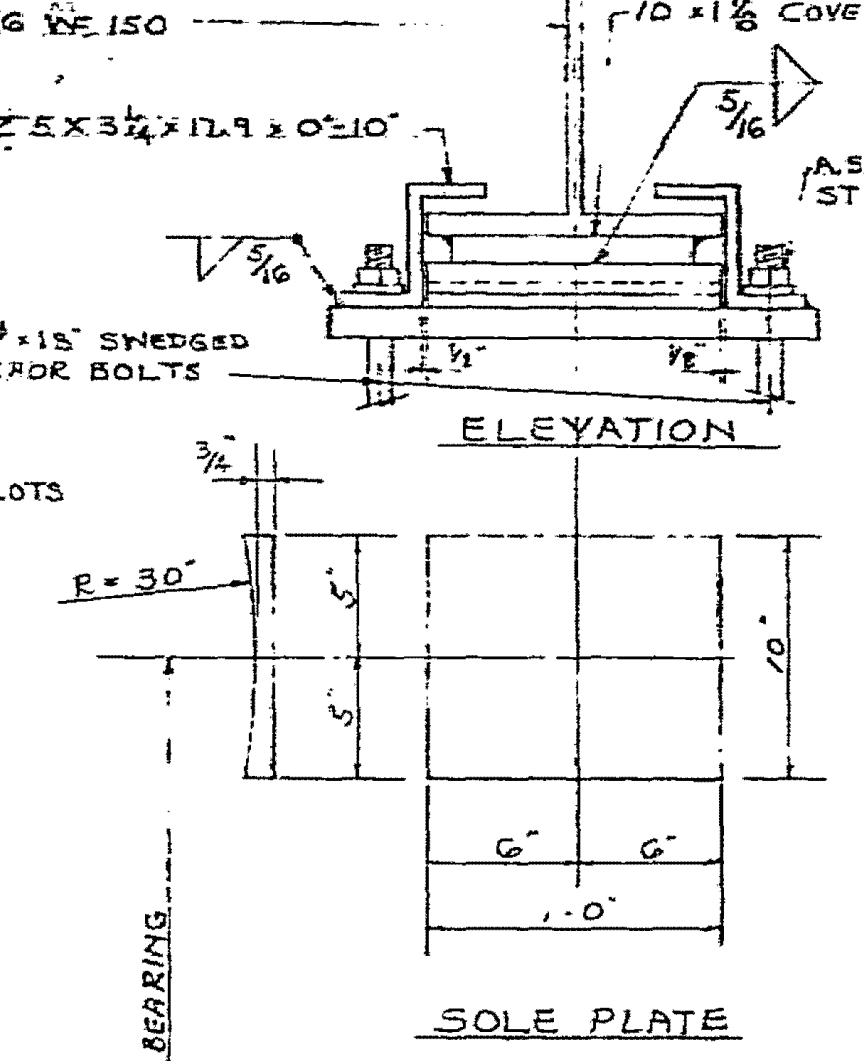
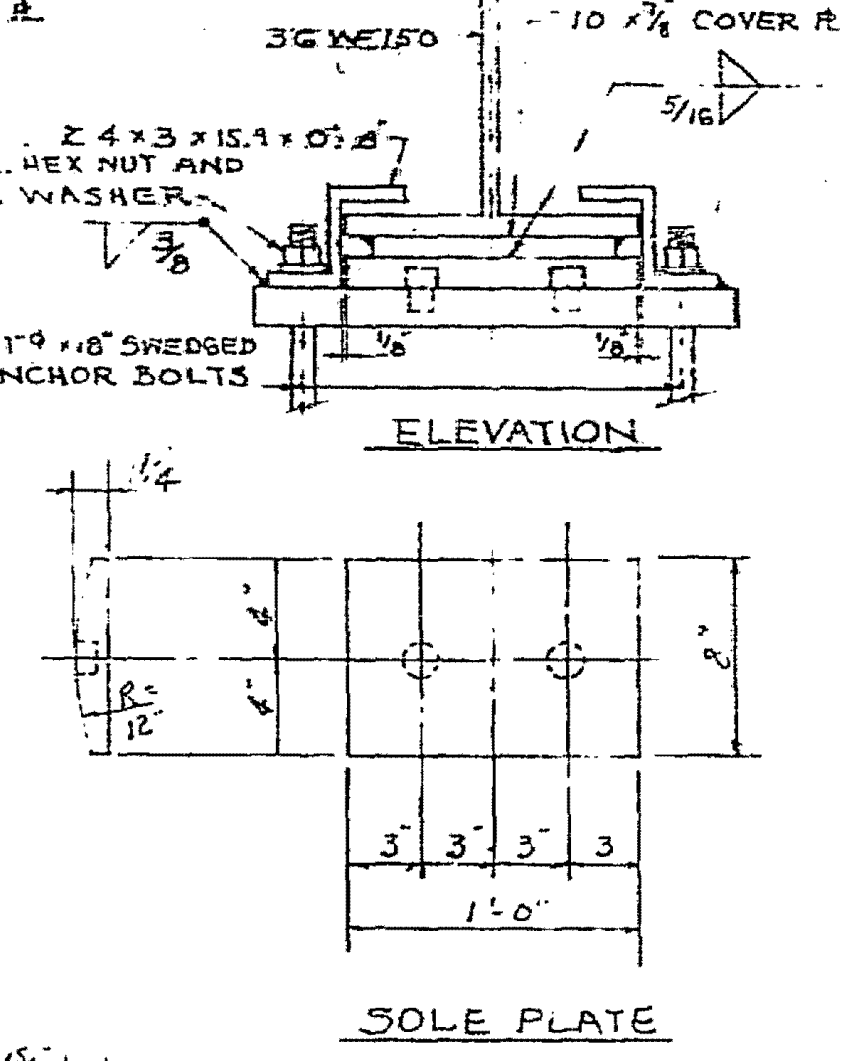
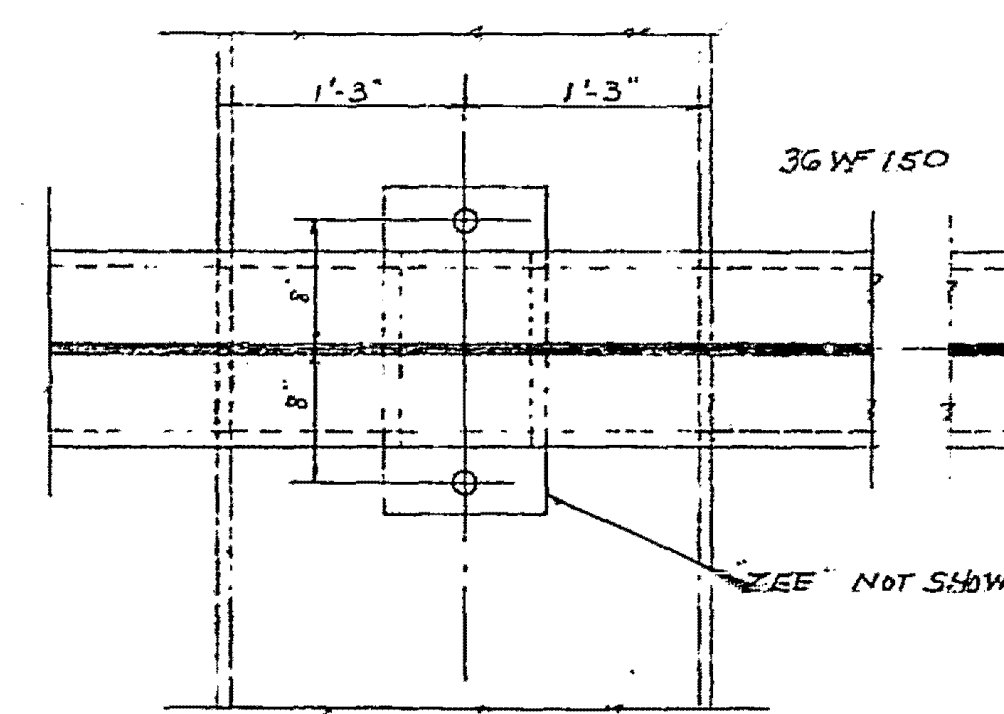
PLANE TOP SIDE OF ALL BEARING PLATES OR NOT STRAIGHTENED LUBRITE PLATES SHALL BE ROLLED BRONZE ALLOY - ASTM B100-52 ALLOY 1 (LUBRITE OR EQUAL). IN THE EVENT ZEE SHAPES ARE NOT AVAILABLE FABRICATOR MAY SUBMIT DETAILS FOR FABRICATION FROM ANGLES FOR APPROVAL.



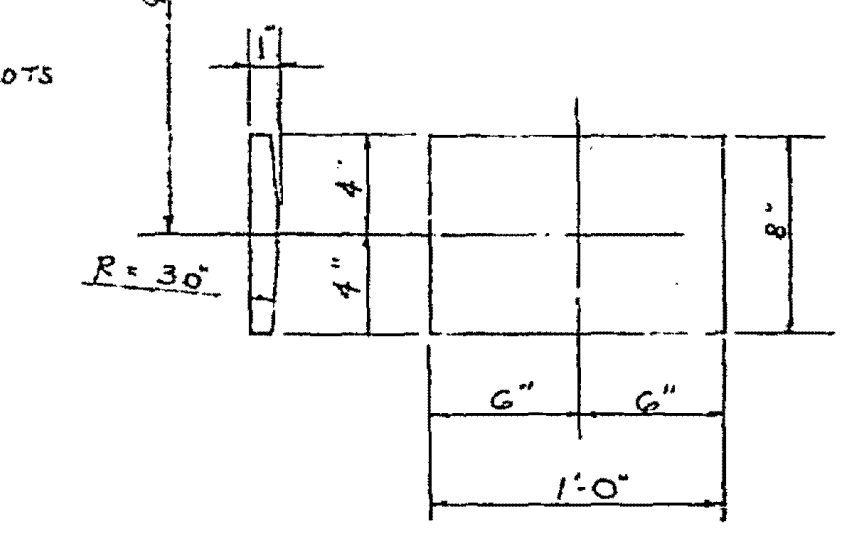
SECTION B-B



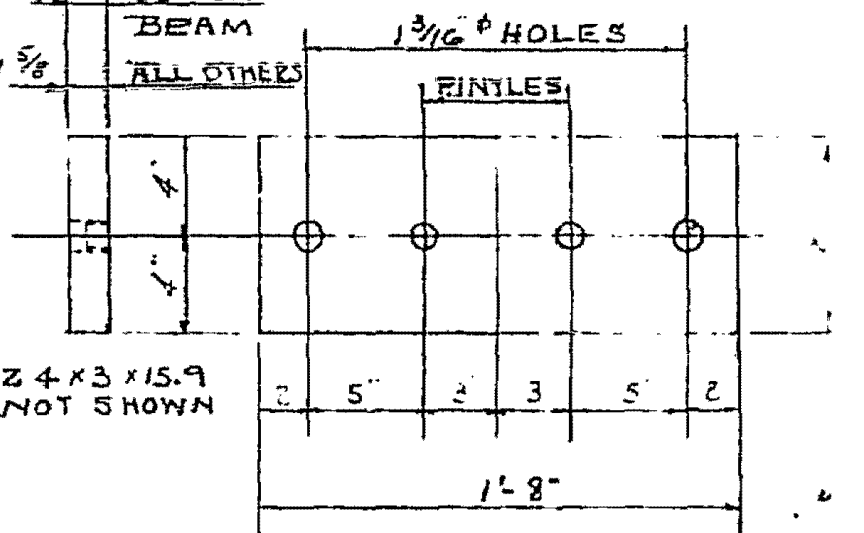
SECTION D-D

ELEVATIONELEVATION

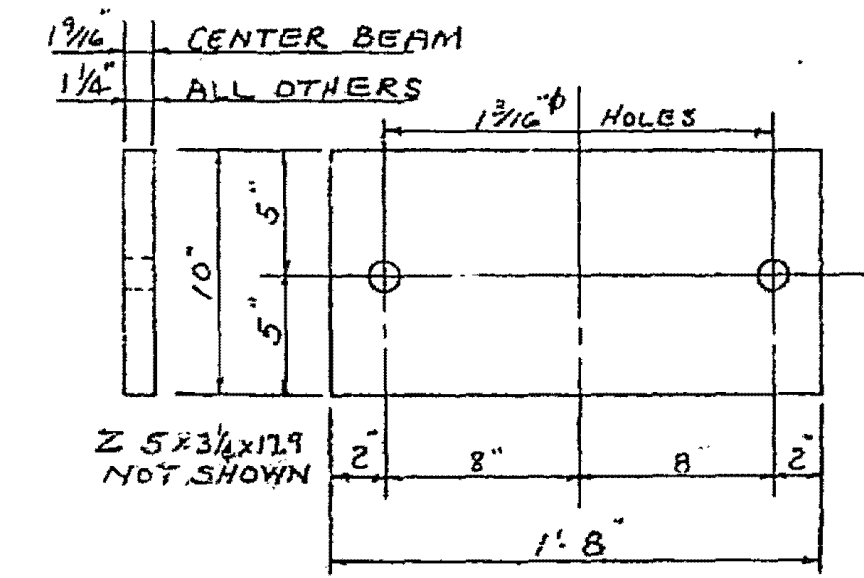
PIER 3 . . .



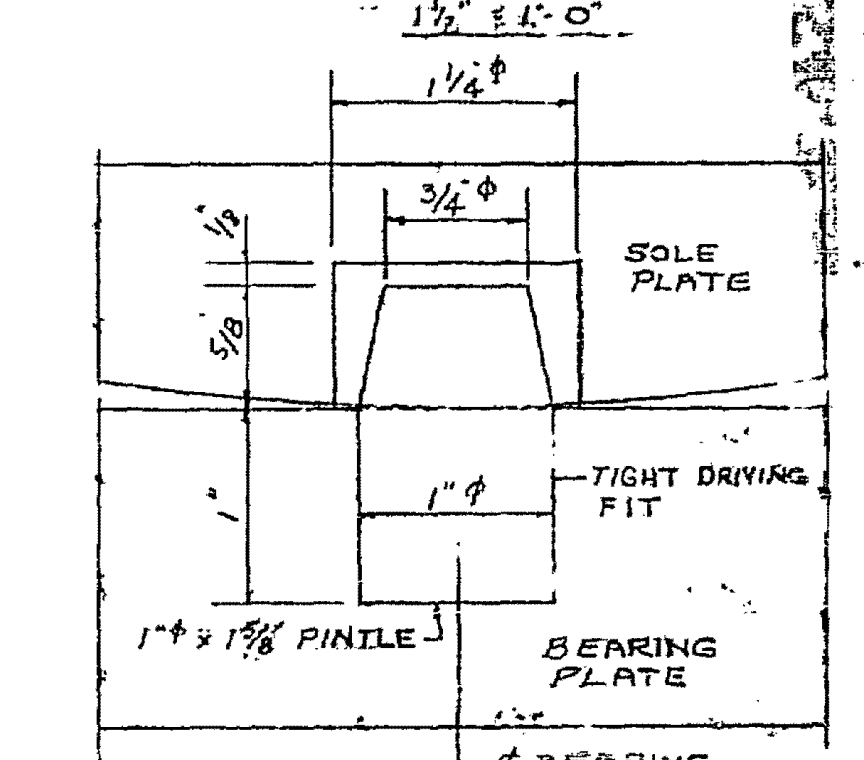
LUBRITE PLATE



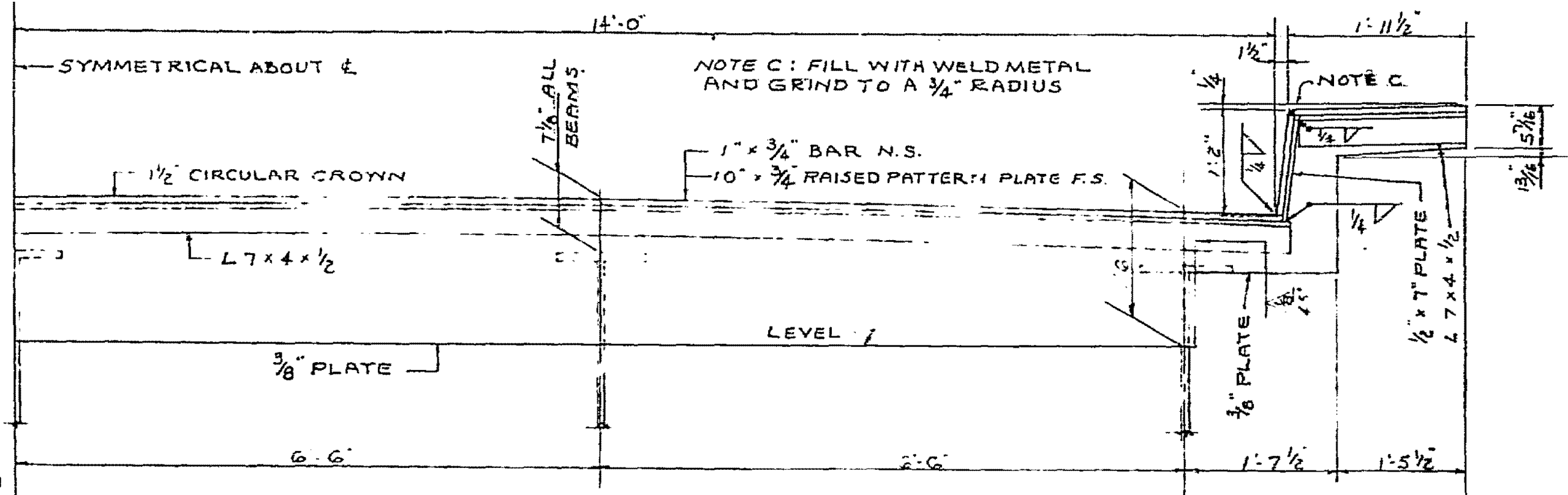
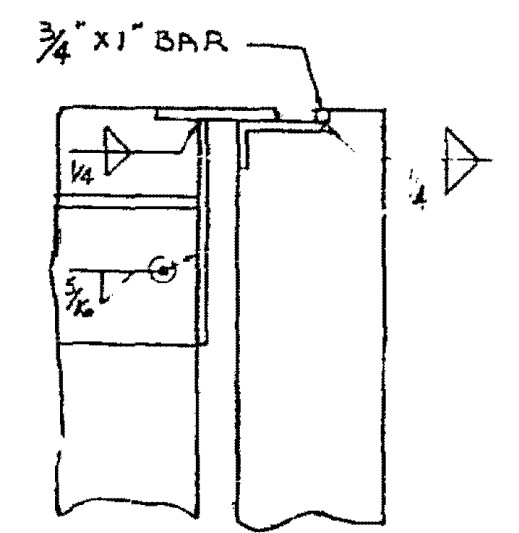
BEARING PLATE



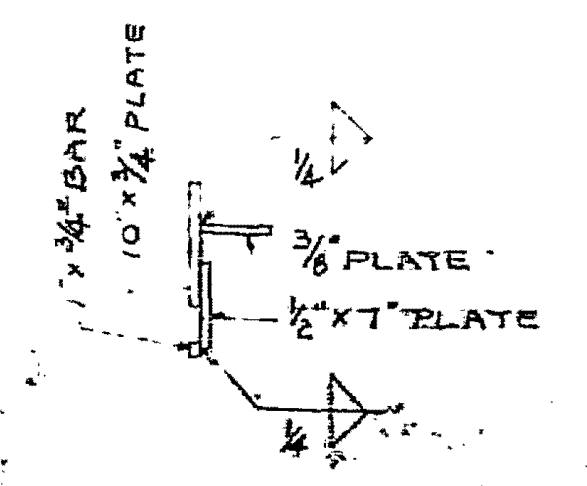
BEARING PLATE



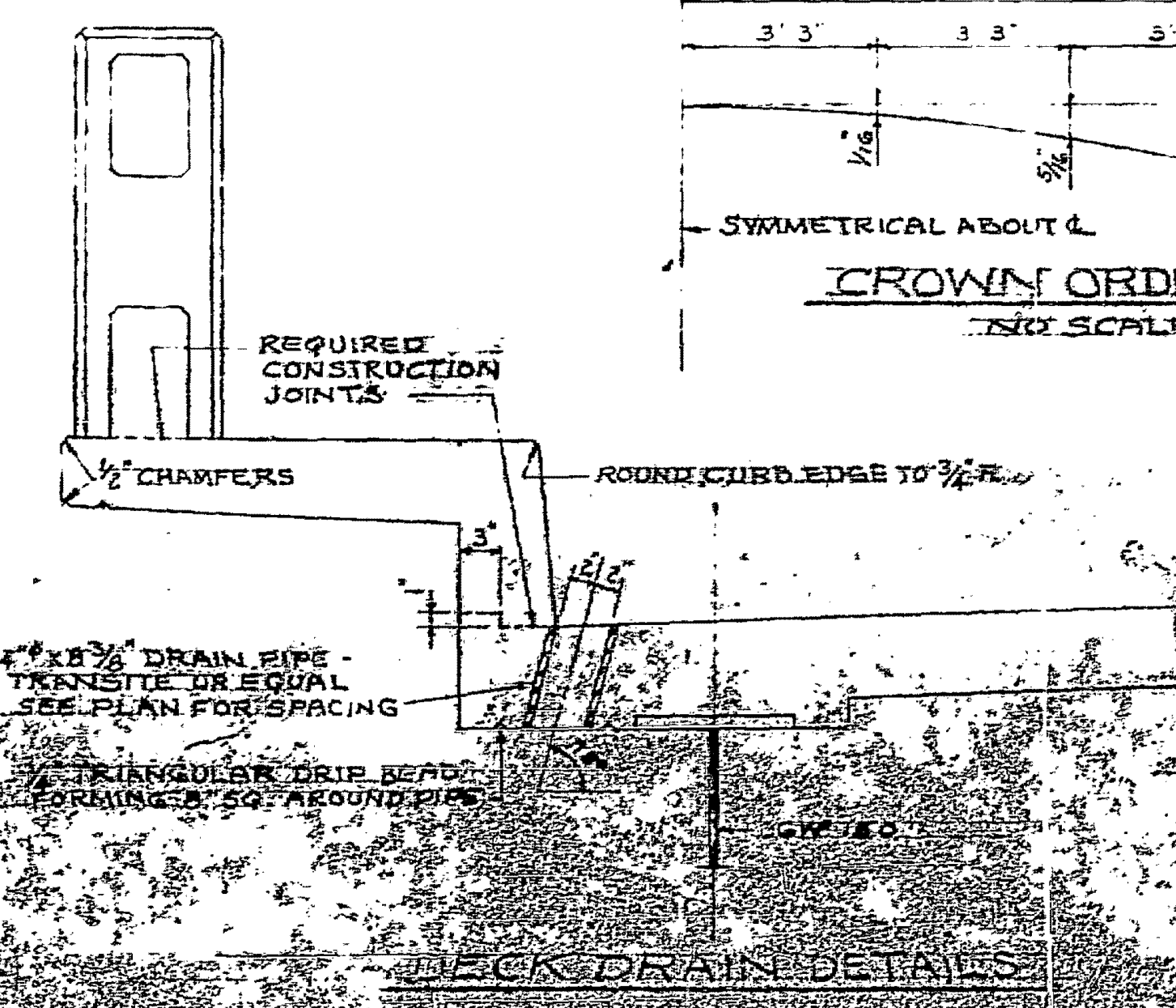
PINTLE DETAIL  
FULL SIZE  
BEARINGS - PIER 3

ELEVATION

NELSON STUDS NOT SHOWN  
SEE SECTION A-A.

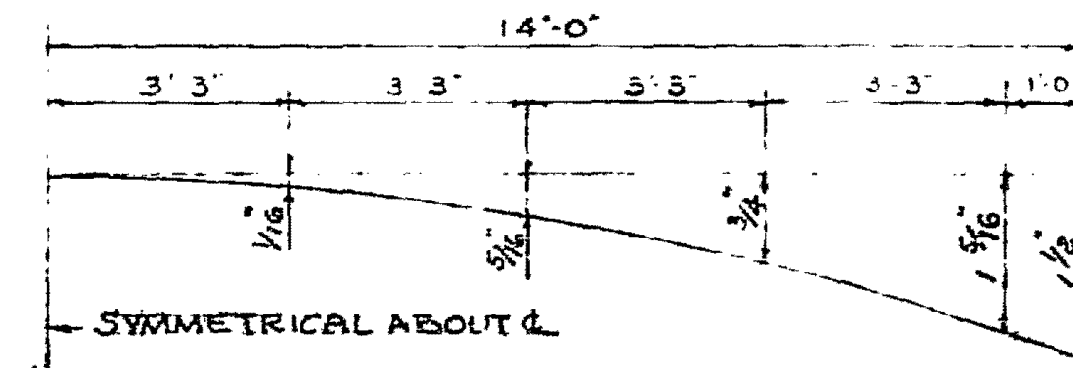


SECTION THROUGH  
VERT. PART OF CURB



REQUIRED  
CONSTRUCTION  
JOINTS

CROWN ORDINATES  
NO SCALE



CROWN ORDINATES  
NO SCALE

NOTE: PAINT EDGES OF BEAM FLANGS AND SOLE PLATES BEFORE PLACING ZEE BARS

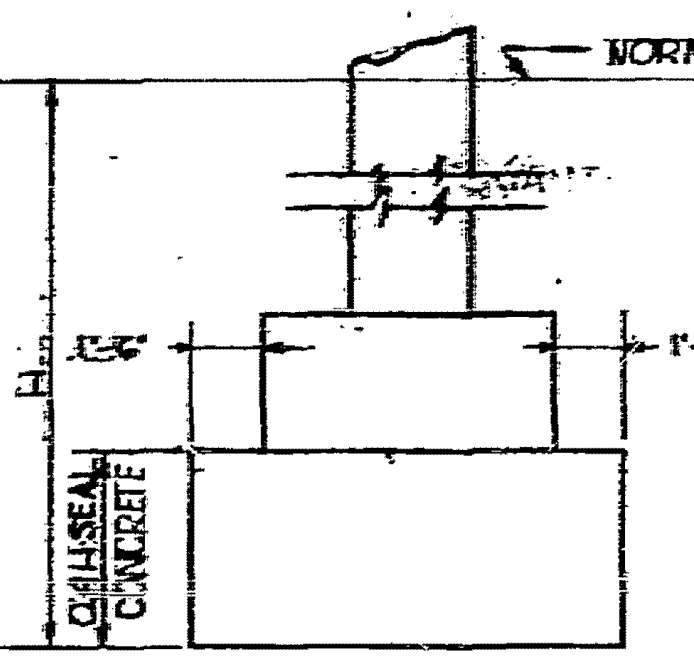
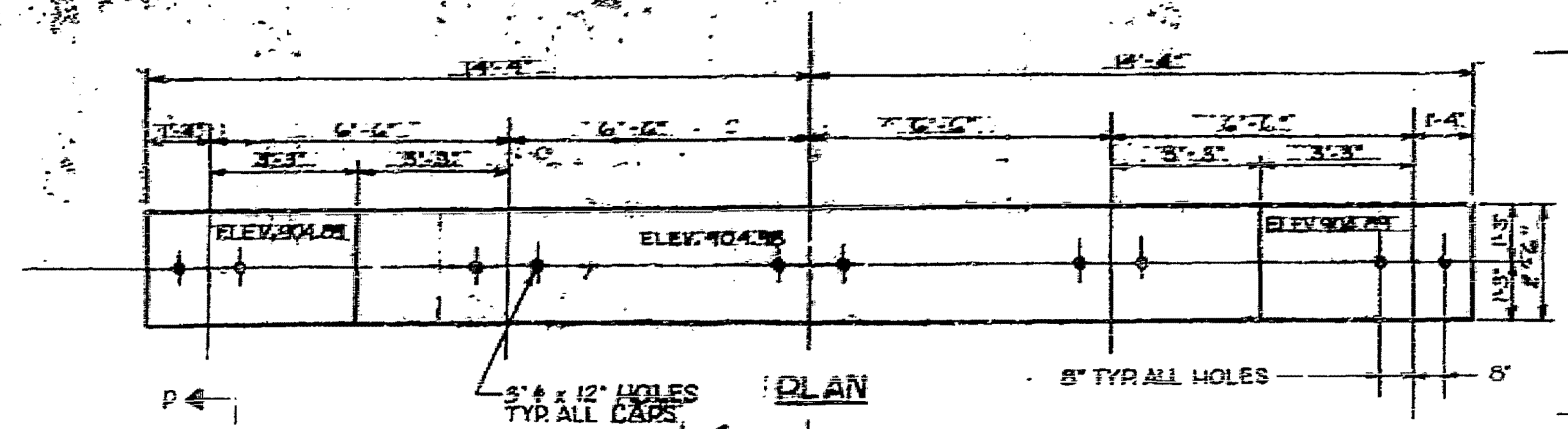
|             |                                     |            |                 |
|-------------|-------------------------------------|------------|-----------------|
| DATE        | STATE HIGHWAY DEPARTMENT OF GEORGIA |            |                 |
|             | BRIDGE DEPARTMENT                   |            |                 |
| PROJECT NO. | MISCELLANEOUS DETAILS               |            |                 |
|             | BRIDGE OVER CHATTAHOOCHEE RIVER     |            |                 |
| DRAWN BY    | STA 22+54.75 TO STA 25+57.25        |            |                 |
|             | FULL 36' SWINNEY T. COB. 3-00960    |            |                 |
| CHECKED BY  | SCALE: UNLESS NOTED                 |            | DATE: MAY, 1954 |
|             | APPROVED BY                         |            |                 |
| DESIGNED BY | APPROVED BY                         | CHECKED BY | DATE            |
| DESIGNED BY | APPROVED BY                         | CHECKED BY | DATE            |





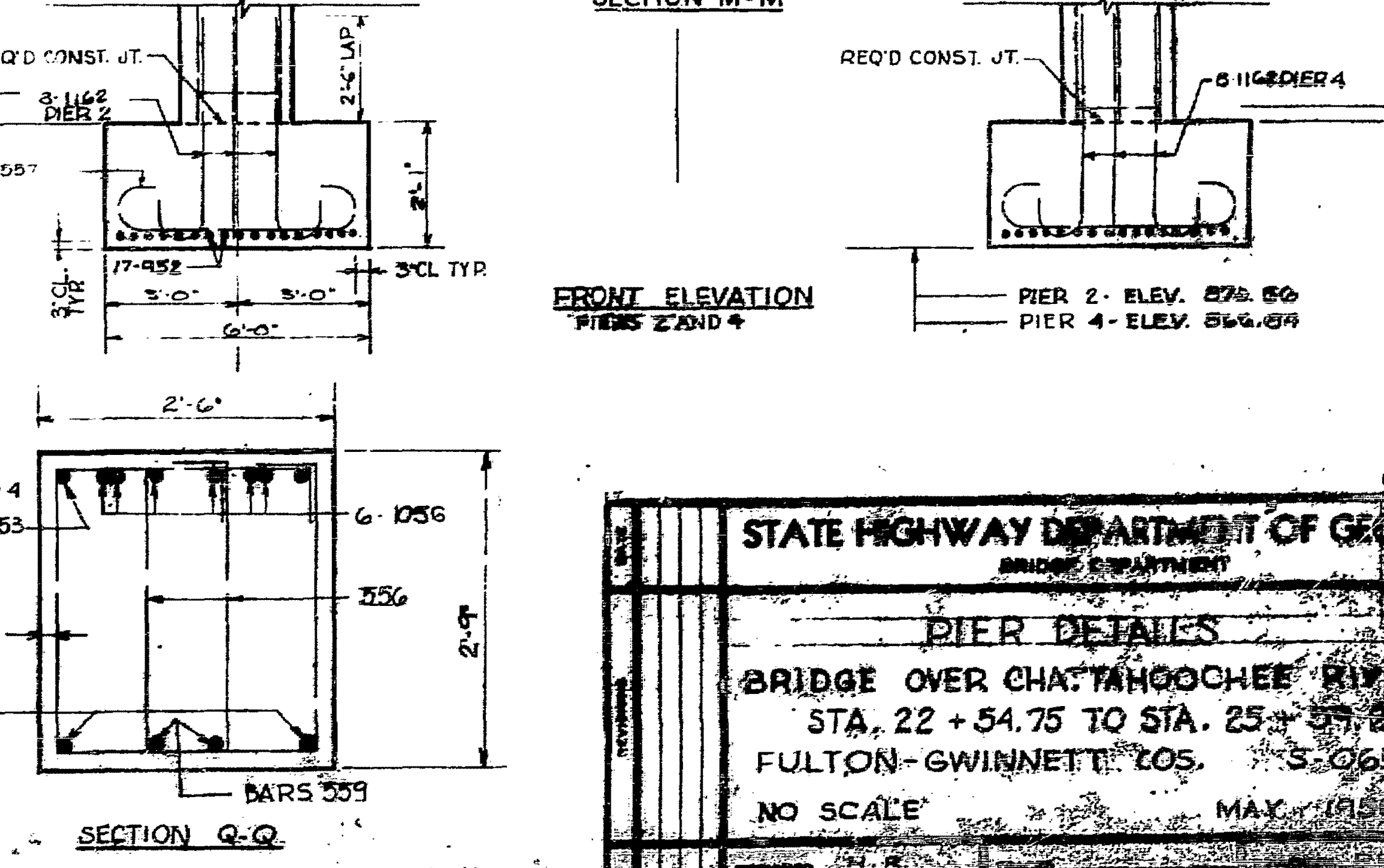
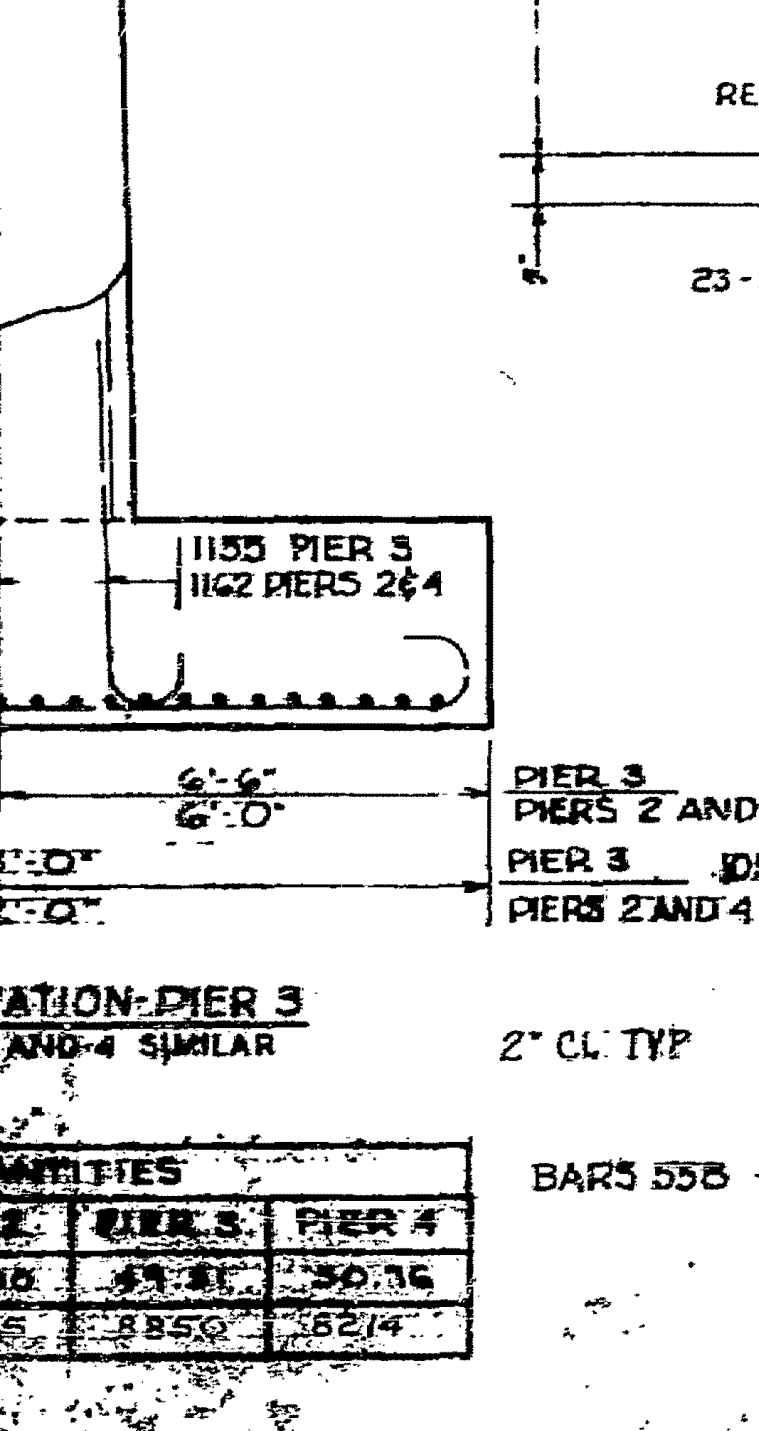
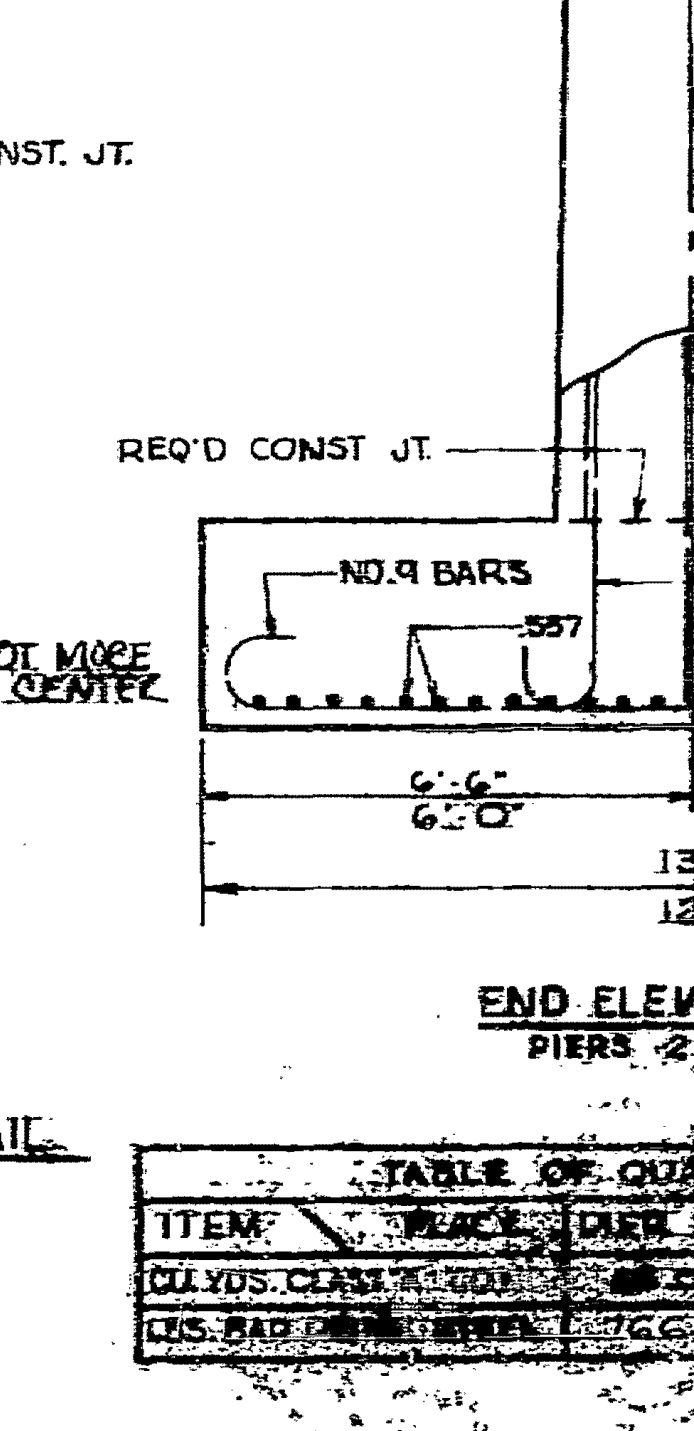
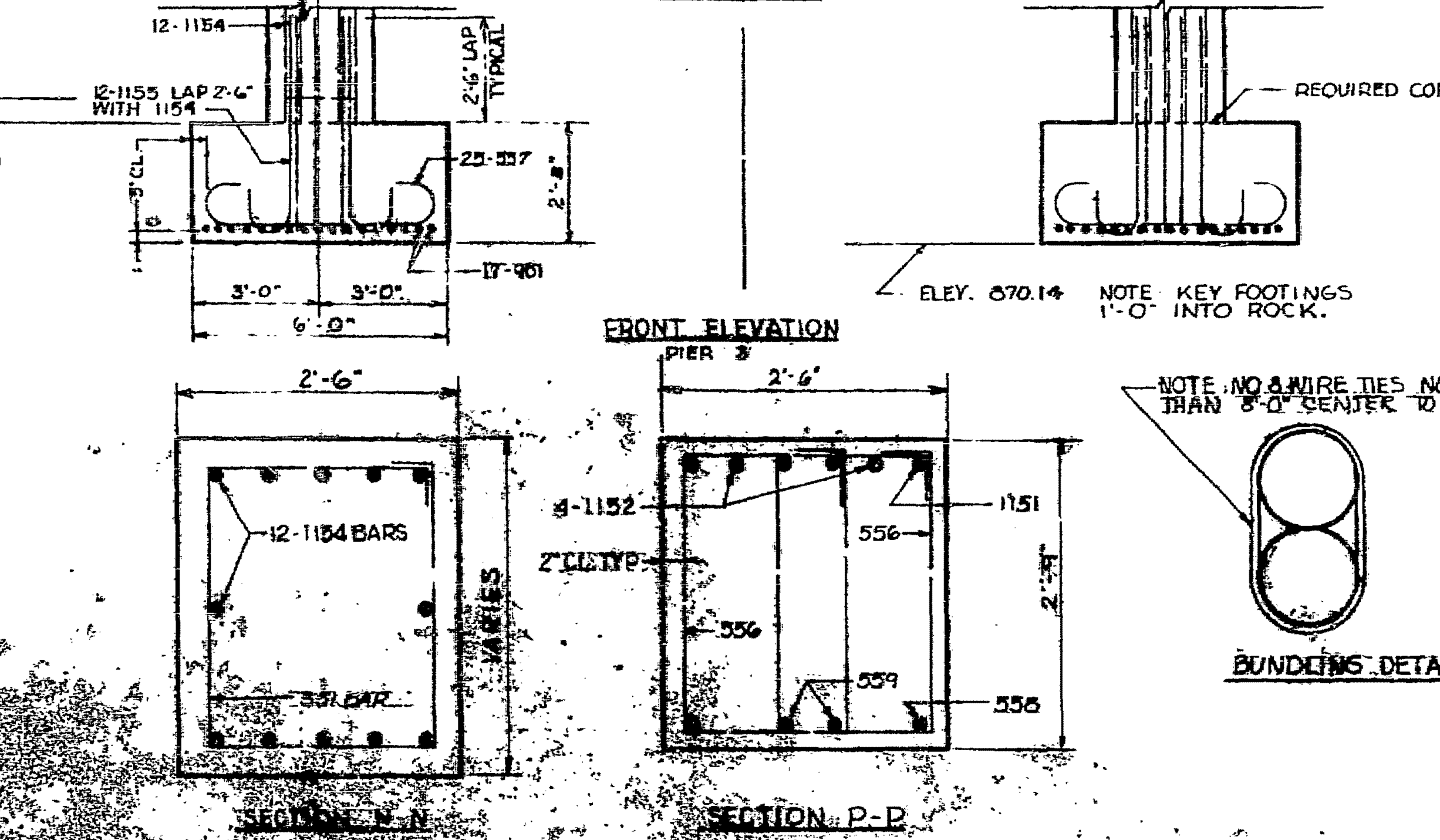
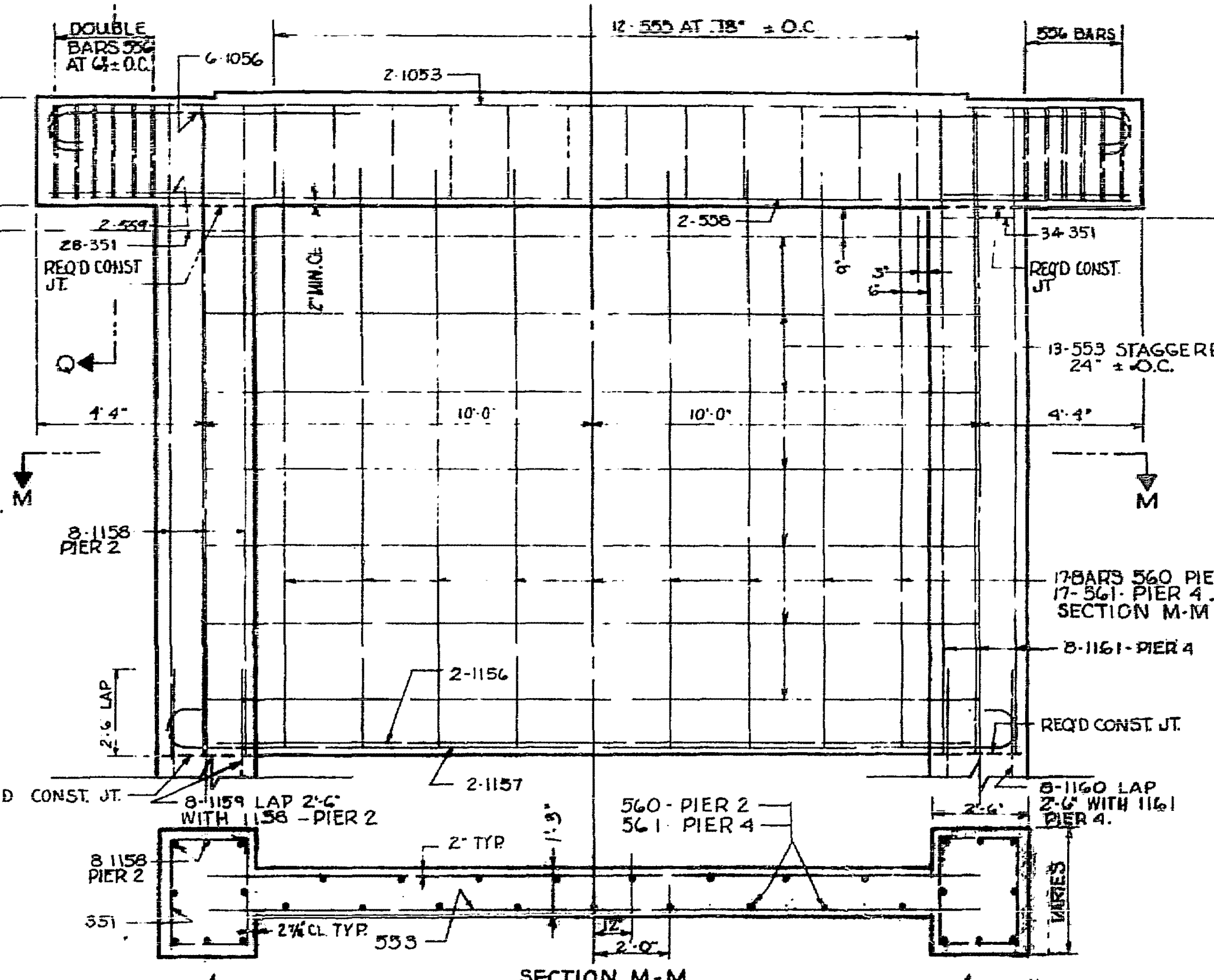
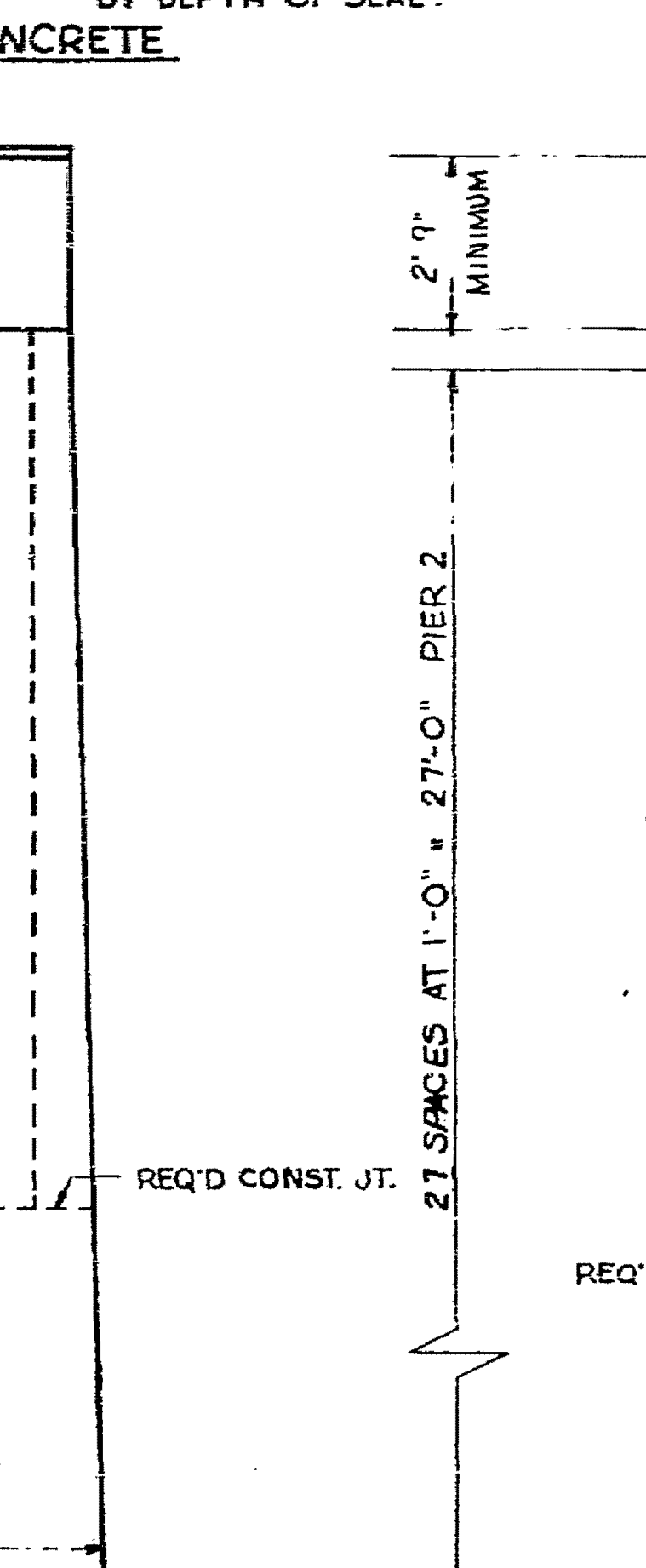
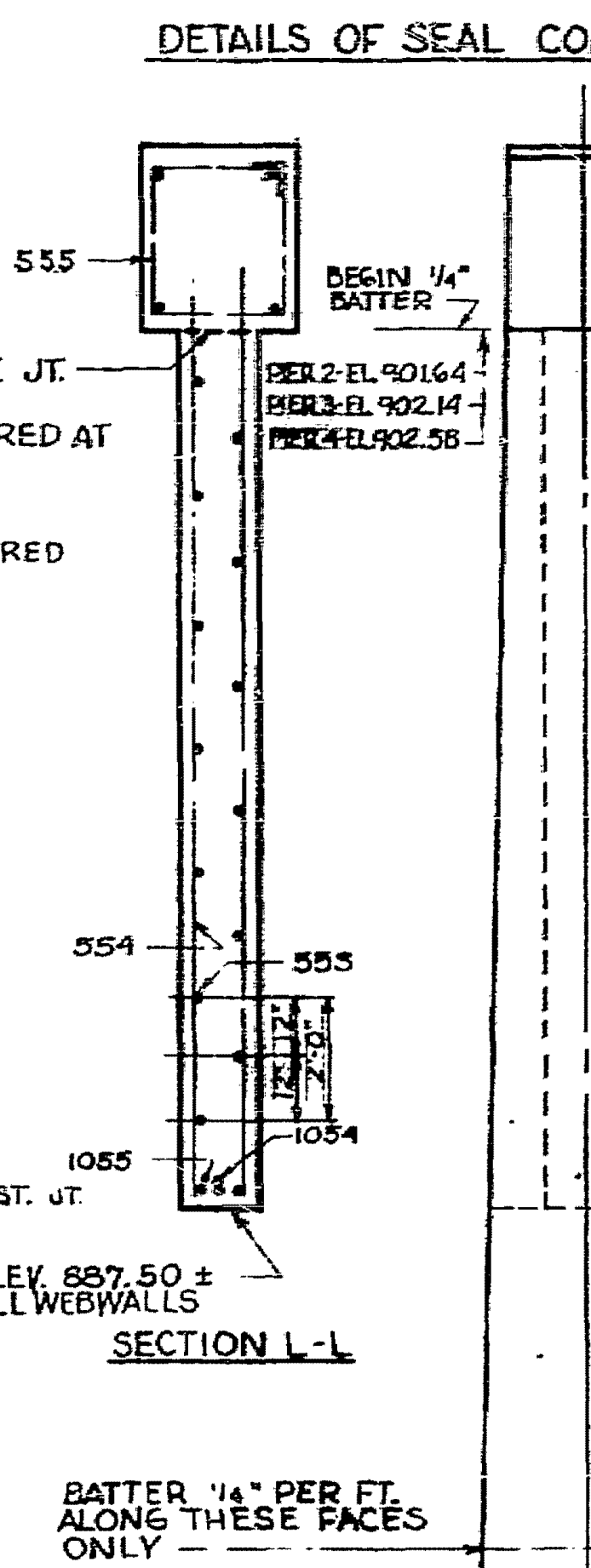
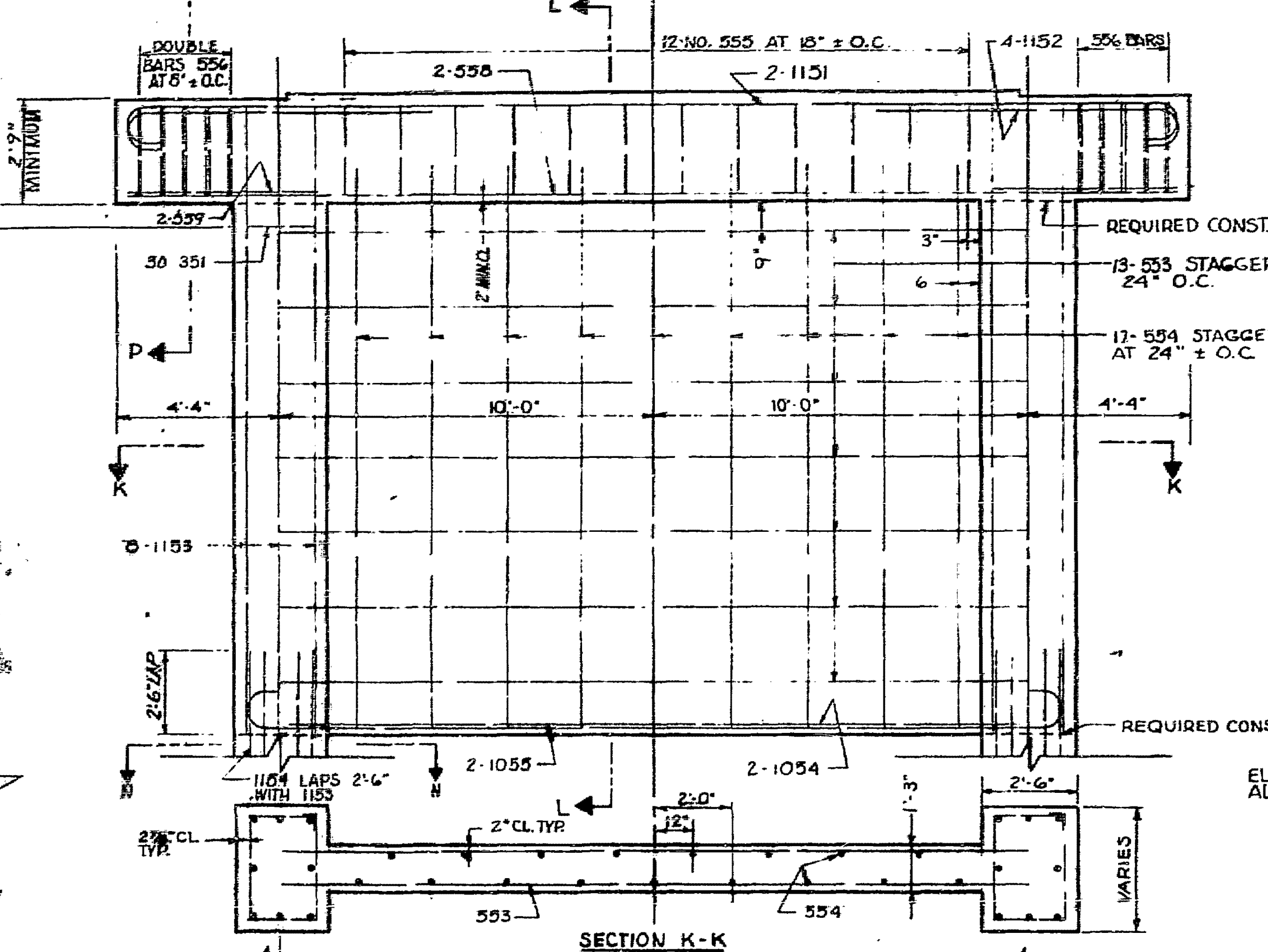
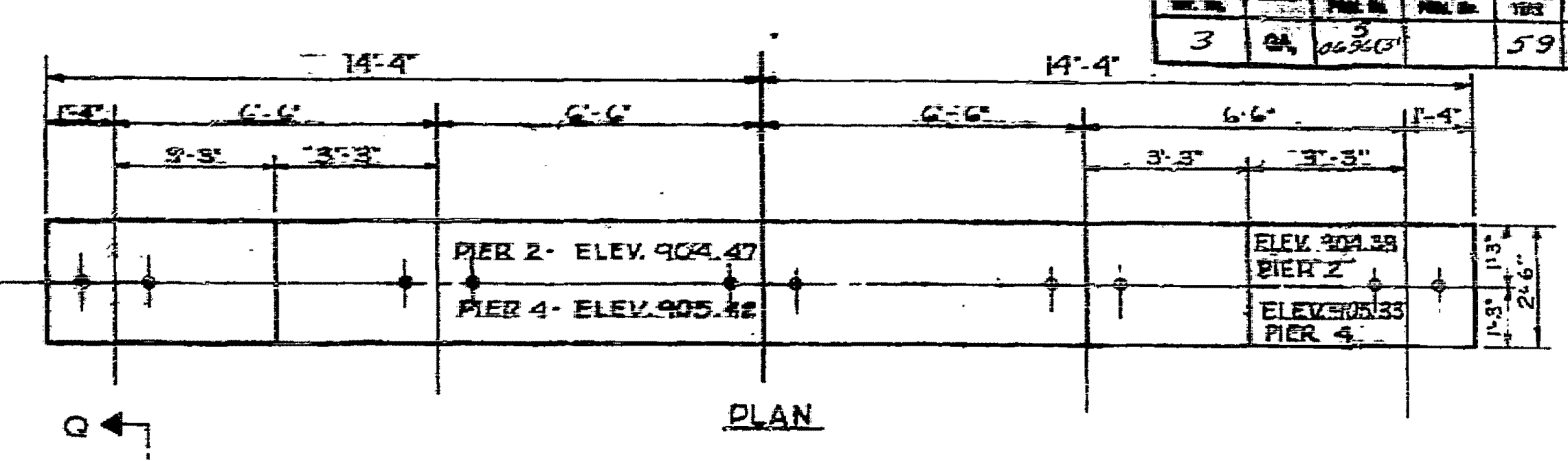


| NO. | DATE | BY       | CHKD. | APP'D. |
|-----|------|----------|-------|--------|
| 3   | 04   | 06/20/57 | 59    | 14 31  |



NOTE: THE CONTRACTOR WILL BE REQUIRED TO PROVIDE A MINIMUM PUMPING CAPACITY OF 2000 GAL. PER MINUTE AND EVERY EFFORT SHALL BE MADE TO POUR FOOTINGS WITHOUT SEALS. IN THE EVENT COFFER DAMS CANNOT BE UNWATERED, OR IN THE OPINION OF THE ENGINEER SEAL CONCRETE IS NECESSARY, THE FOOTINGS SHALL BE POURED AS SHOWN ABOVE.

NOTE: IF SEAL CONCRETE IS USED SHORTEN LOWER COLUMN BARS BY DEPTH OF SEAL.



END ELEVATION: PIER 3  
PIERS 2 AND 4 SIMILAR

| ITEM       | PIER 2 | PIER 3 | PIER 4 |
|------------|--------|--------|--------|
| CUYUS CLAM | 25.50  | 25.50  | 25.50  |
| CUYUS CLAM | 25.50  | 25.50  | 25.50  |

STATE HIGHWAY DEPARTMENT OF GEORGIA

BRIDGE DIVISION

PIER DETAILS

BRIDGE OVER CHATTAHOOCHEE RIVER

STA. 22 + 54.75 TO STA. 25 + 57.25

FULTON-GWINNETT COS. S. 065 (3)

NO SCALE

MAY 1957



**Attachment 7:**  
**Special Provisions 107.23H and 165.3.05**



# DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

## SPECIAL PROVISION

PI # 721000-  
Fulton County

### Section 107—Legal Regulations and Responsibility to the Public

---

*Add the following to Subsection 107.23:*

#### **H. Protection of Federal and State Protected Species**

The following conditions are intended as a minimum to protect this species and its habitat during any activities that are in close proximity to the known location(s) of this species.

1. All Project personnel shall be advised about the potential presence and appearance of the state protected Chattahoochee crayfish (*Cambarus howardi*). Pictures and habitat information shall be posted in a conspicuous location in the Project field office until such time that Project activity has been completed and time charges have stopped. In addition, the Contractor shall be responsible for maintaining one set of pictures and habitat information on the Project site that is easily accessible at all times. If a Project field office is not present, a copy of the pictures and habitat information shall be supplied to the Project personnel to be kept on the Project during construction activities. All personnel shall be advised that there are civil and criminal penalties for harassing, harming, pursuing, hunting, shooting, wounding, killing, capturing, or collecting of the above species in knowing violation of the Endangered Species Act of 1973 and the Georgia Endangered Wildlife Act of 1973.
2. Erodible stockpiled materials and excavation spoil shall be placed at least 200 feet away from streams, wetlands, and open waters, if feasible. All disturbed soil located within 200 feet of a stream, wetland, or open water shall be covered with anionic polyacrylamide tackifier or covered with erosion control mats until work in such areas has been completed. If mulch is necessary, mulch with tackifiers or soil stabilizers that are anionic, non-oil based (e.g., granular PAM) shall be used to reduce turbidity and increase longevity. Erosion and sediment control devices (e.g., compost filter socks or silt fence) shall be installed around erodible stockpiles within 200 feet of a stream, wetland, or open water.
3. Within 200 feet of a stream, wetland, or open water, secondary containment and spill response procedures shall be provided on site for all heavy equipment to prevent the spread of pollutants during oil changes, refueling, and equipment maintenance. When feasible, mineral based hydraulic fluids shall be replaced with synthetic biodegradable hydraulic fluid.

**SP 107.23H – Protection of Federal and State Protected Species**

---

4. Fertilizers shall be applied in a manner that minimizes the potential for excess fertilizer to runoff into nearby streams, wetlands, and open waters.
5. In the event any incident occurs that causes injury to the above species along the Project corridor, the Contractor shall report the incident immediately to the Engineer who in turn will notify the State Environmental Administrator, Georgia Department of Transportation, Office of Environmental Services at (404) 631-1101. With the exception of traffic control and erosion control, all activity shall cease pending consultation by the Department with the Fish and Wildlife Service, Georgia Department of Natural Resources Wildlife Resources Division, and the lead Federal Agency (FHWA).
6. The Contractor shall keep a log detailing any incidents that cause harm or injury to the above species until such time that Project activity has been completed and time charges have stopped. Within thirty (30) days of Project completion, the log and a report summarizing any incidents that caused harm to these species shall be submitted by the Contractor to the Engineer, and via email to the GDOT Office of Environmental Services ([ecology\\_submittals@dot.ga.gov](mailto:ecology_submittals@dot.ga.gov)) with the PI number in the subject line of the email. GDOT in turn will provide copies of the report to the Fish and Wildlife Service, Georgia Department of Natural Resources Wildlife Resources Division, and the lead Federal Agency (FHWA).
7. All costs pertaining to any requirement contained herein shall be included in the overall bid submitted unless such requirement is designated as a separate Pay Item in the Proposal.

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**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**SPECIAL PROVISION  
P.I. No. 721000-  
Fulton County**

**Section 165— Maintenance of Temporary Erosion and  
Sedimentation Control Devices**

---

*Delete the opening text of Subsection 165.3.05 and replace with the following and retain lettered subsections:*

As a minimum, clean sediment from all temporary erosion control devices (except temporary sediment basins) installed on the project when:

- One-third the capacity by volume, as measured by depth, has been reached when the erosion control device is within 200 feet of Perennial Stream (PS) 05, Intermittent Stream 06, and the Chattahoochee River (PS 08) (see Environmental Resource Impact Table [ERIT] for station numbers) for added protection of ecological resources (see Special Provision 107.23H); or
- One-half the capacity by volume, as measured by depth, has been reached otherwise for all other erosion control devices (except temporary sediment basins).

Clean sediment from all temporary sediment basins installed on a project when one-third the capacity of the storage volume has been filled.

Handle excavated sediment from any erosion or sediment control device in one of the following ways:

- Remove sediment from the immediate area and immediately stabilize it to prevent the material from refilling any erosion or sediment control device.
- Place and mix it in the roadway embankment or waste it in an area approved by the Engineer.

Repair or replace at no cost to the Department any erosion or sediment control device that is not functioning properly or is damaged due to negligence or abuse.

# DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

## SPECIAL PROVISION

PI # 0021239

Fulton and Gwinnett Counties

### Section 107—Legal Regulations and Responsibility to the Public

---

*Add the following to Subsection 107.23:*

#### **H. Protection of Federal and State Protected Species**

The following conditions are intended as a minimum to protect these species and their habitat during any activities that are in close proximity to the known location(s) of these species.

1. All Project personnel shall be advised about the potential presence and appearance of the state/federal protected Chattahoochee crayfish (*Cambarus howardi*) and tricolored bat (*Perimyotis subflavus*). Pictures and habitat information shall be posted in a conspicuous location in the Project field office until such time that Project activity has been completed and time charges have stopped. In addition, the Contractor shall be responsible for maintaining one set of pictures and habitat information on the Project site that is easily accessible at all times. If a Project field office is not present, a copy of the pictures and habitat information shall be supplied to the Project personnel to be kept on the Project during construction activities. All personnel shall be advised that there are civil and criminal penalties for harassing, harming, pursuing, hunting, shooting, wounding, killing, capturing, or collecting of the above species in knowing violation of the Endangered Species Act of 1973 and the Georgia Endangered Wildlife Act of 1973. Additionally, all bats are protected under Georgia state law (Official Code of Georgia § 27-1-28).
2. Erodible stockpiled materials and excavation spoil shall be placed at least 200 feet away from streams, wetlands, and open waters, if feasible. All disturbed soil located within 200 feet of a stream, wetland, or open water shall be covered with anionic polyacrylamide tackifier or covered with erosion control mats until work in such areas has been completed. If mulch is necessary, mulch with tackifiers or soil stabilizers that are anionic, non-oil based (e.g., granular PAM) shall be used to reduce turbidity and increase longevity. Erosion and sediment control devices (e.g., compost filter socks or silt fence) shall be installed around erodible stockpiles within 200 feet of a stream, wetland, or open water.
3. Within 200 feet of a stream, wetland, or open water, secondary containment and spill response procedures shall be provided on site for all heavy equipment to prevent the spread of pollutants during oil changes, refueling, and equipment maintenance. When feasible, mineral based hydraulic fluids shall be replaced with synthetic biodegradable hydraulic fluid.

**SP 107.23H – Protection of Federal and State Protected Species**

---

4. Fertilizers shall be applied in a manner that minimizes the potential for excess fertilizer to runoff into nearby streams, wetlands, and open waters.
5. An ecologist pre-qualified in Area Class 1.06(h) or an ecologist prequalified in Area Class 1.06(e) with documented completion of the Georgia Department of Natural Resources' "Bats in Bridges" training shall be employed to conduct an inspection of the entirety of the bridge at the Chattahoochee River (Perennial Stream [PS] 08) no more than 14 calendar days prior to the start of construction activities on the structure.
  - a. If the contract ecologist observes roosting bats or signs of roosting bats on the bridge, then he/she shall notify the Engineer who in turn will notify the State Environmental Administrator, Georgia Department of Transportation, Office of Environmental Services at (404) 631-1101 and Ecology\_submittals@dot.ga.gov with the PI No. in the subject line of the email. No demolition activities shall commence until GDOT has consulted with the Federal Highway Administration, U.S. Fish and Wildlife Service, and Georgia Department of Natural Resources, and until written authorization to proceed with demolition is provided by the GDOT Office of Environmental Services.
  - b. If the contract ecologist does not observe actively roosting bats or signs of actively roosting bats on the bridge, then demolition activities on that bridge may proceed.
  - c. The contract ecologist shall keep a log detailing the findings of their initial inspection and fill out a Georgia Bats and Bridges Data Sheet. Within two (2) business days of completing each inspection, the contract ecologist shall submit a copy of the inspection form to the State Environmental Administrator, Georgia Department of Transportation, Office of Environmental Services via the Ecology submittals inbox (Ecology\_submittals@dot.ga.gov). This email shall be formatted with "Bat Inspection Report: PI No. 0021239" in the subject line. The State Environmental Administrator in turn will provide the inspection form to U.S. Fish and Wildlife Services, Georgia Department of Natural Resources, and the lead Federal Agency within five (5) business days of receipt.
6. In the event any incident occurs that causes injury to the above species along the Project corridor, the Contractor shall report the incident immediately to the Engineer who in turn will notify the State Environmental Administrator, Georgia Department of Transportation, Office of Environmental Services at (404) 631-1101. With the exception of traffic control and erosion control, all activity shall cease pending consultation by the Department with the Fish and Wildlife Service, Georgia Department of Natural Resources Wildlife Resources Division, and the lead Federal Agency (FHWA).
7. The Contractor shall keep a log detailing any incidents that cause harm or injury to the above species until such time that Project activity has been completed and time charges have stopped. Within thirty (30) days of Project completion, the log and a report summarizing any incidents that caused harm to these species shall be submitted by the Contractor to the Engineer, and via email to the GDOT Office of Environmental Services (ecology\_submittals@dot.ga.gov) with the PI number in the subject line of the email. GDOT in turn will provide copies of the report to the Fish and Wildlife Service, Georgia Department of Natural Resources Wildlife Resources Division, and the lead Federal Agency (FHWA).
8. All costs pertaining to any requirement contained herein shall be included in the overall bid submitted unless such requirement is designated as a separate Pay Item in the Proposal.



---

# DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

## SPECIAL PROVISION P.I. No. 0021239 Fulton and Gwinnett Counties

### Section 165— Maintenance of Temporary Erosion and Sedimentation Control Devices

---

*Delete the opening text of Subsection 165.3.05 and replace with the following and retain lettered subsections:*

As a minimum, clean sediment from all temporary erosion control devices (except temporary sediment basins) installed on the project when:

- One-third the capacity by volume, as measured by depth, has been reached when the erosion control device is within 200 feet of Perennial Stream (PS) 03, PS 05, Intermittent Stream (IS) 06, the Chattahoochee River (PS 08), and IS 10 (see Environmental Resource Impact Table [ERIT] for station numbers) for added protection of ecological resources (see Special Provision 107.23H); or
- One-half the capacity by volume, as measured by depth, has been reached otherwise for all other erosion control devices (except temporary sediment basins).

Clean sediment from all temporary sediment basins installed on a project when one-third the capacity of the storage volume has been filled.

Handle excavated sediment from any erosion or sediment control device in one of the following ways:

- Remove sediment from the immediate area and immediately stabilize it to prevent the material from refilling any erosion or sediment control device.
- Place and mix it in the roadway embankment or waste it in an area approved by the Engineer.

Repair or replace at no cost to the Department any erosion or sediment control device that is not functioning properly or is damaged due to negligence or abuse.