

The background is a light blue gradient with several realistic water droplets of various sizes scattered across it. The droplets have highlights and shadows, giving them a three-dimensional appearance. The text is centered in the middle of the page.

WATER SUPPLY PROJECT

STATUS UPDATE

PUBLIC MEETING

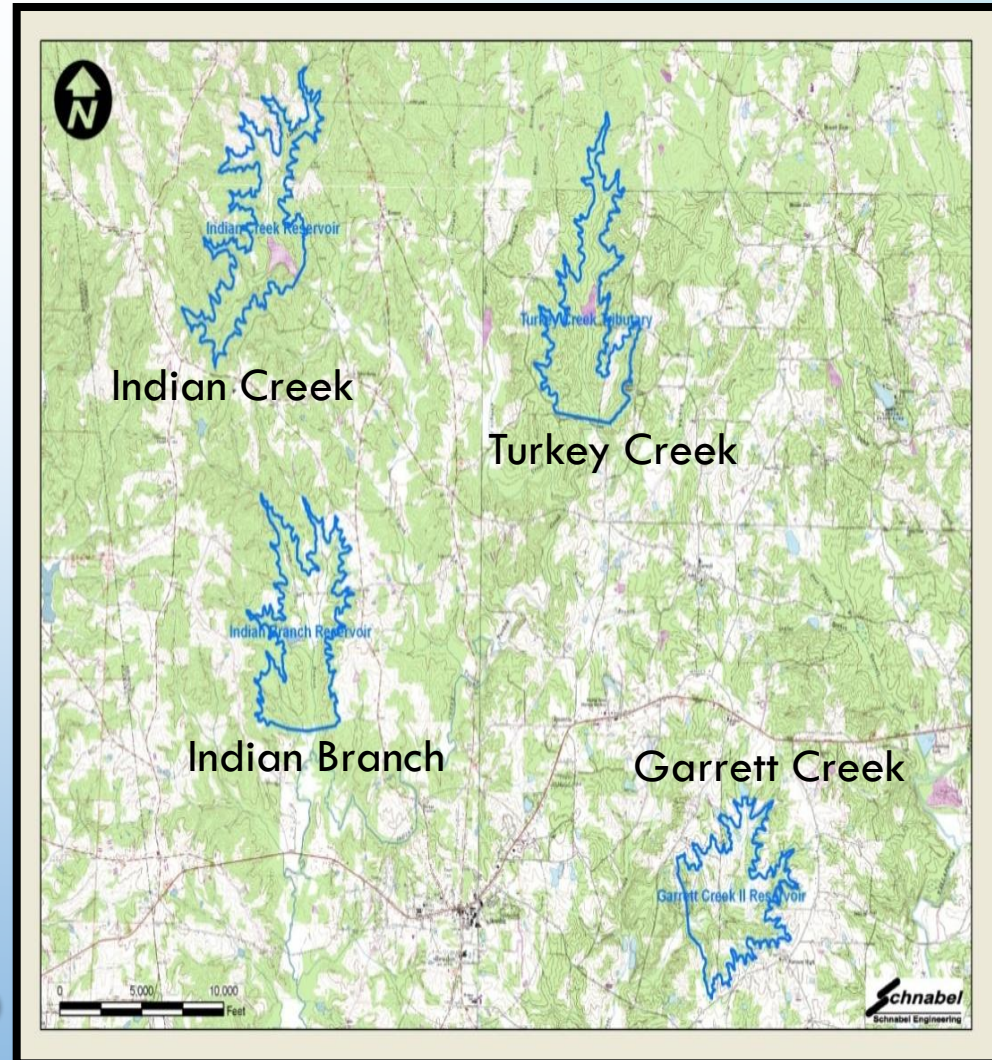
NOVEMBER 6, 2017

PRESENTATION TOPICS

- PERMITTING HISTORY
- ORIGINAL PROJECT OVERVIEW
- UPDATED ALTERNATIVES ANALYSIS
- NEXT STEPS TO RE-FILE 404 PERMIT APPLICATION

PERMITTING HISTORY

- 2007 – CCWA COMMISSIONED A STUDY TO DETERMINE THE UNMET 2060 WATER SUPPLY NEED IN CCWA TALLAPOOSA BASIN SERVICE AREA
 - 18 MILLION GALLONS PER DAY (MGD) UNMET WATER NEED
- OCTOBER 4, 2007 – CCWA PUBLIC WORK SESSION TO DISCUSS EVALUATION PROCESS
- 2007-2008 – 8 RESERVOIR SITES WERE REVIEWED AND 4 WERE SELECTED FOR CLOSER EVALUATION



PERMITTING HISTORY

- APRIL – AUGUST 2008 - PERFORMED SITE-SPECIFIC ANALYSIS ON FOUR SHORT-LISTED SITES
 - EVALUATED IMPACTS TO:
 - STREAMS AND WETLANDS
 - CULTURAL RESOURCES
 - INFRASTRUCTURE
 - THREATENED AND ENDANGERED SPECIES
 - DOWNSTREAM FLOWS
 - PROPERTY OWNERS
 - PROJECTED PROJECT COSTS
- AUGUST 8, 2008 - CCWA PUBLIC WORK SESSION TO REVIEW RESULTS

PERMITTING HISTORY

- SEPTEMBER 18, 2008
 - CCWA SELECTED INDIAN CREEK AS THE PREFERRED ALTERNATIVE
- DECEMBER 28, 2008
 - § 404 PERMIT APPLICATION SUBMITTED TO THE U.S. ARMY CORPS OF ENGINEERS (USACE)
- AUGUST 19, 2009 – EPD CERTIFIED NEED FOR PROJECT
 - 18 MGD WITH SERVICE AREA LIMITED TO THE TALLAPOOSA BASIN

PERMITTING HISTORY

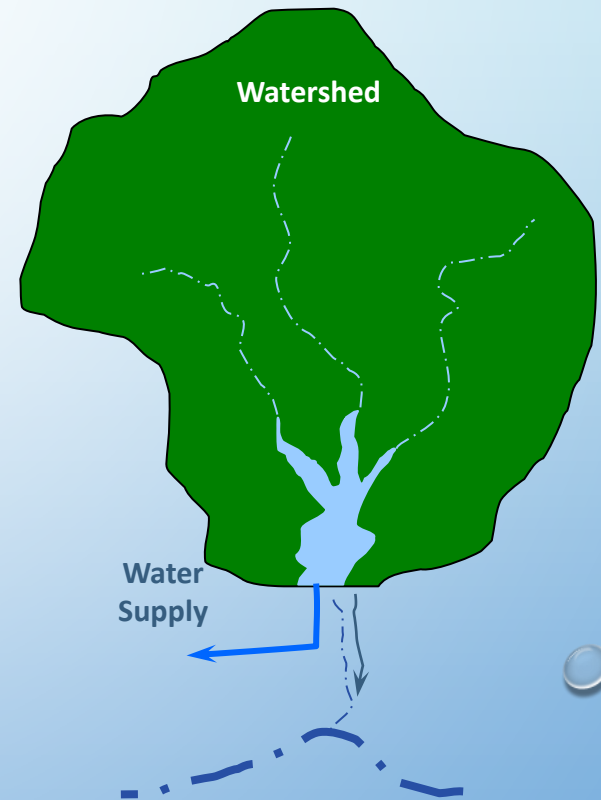
- 2010 – 2015 NEGOTIATED WITH AGENCIES AND COMPLETED THE FOLLOWING:
 - PUBLIC MEETINGS
 - JURISDICTIONAL DETERMINATIONS FOR RESERVOIR, MITIGATION SITE AND PIPELINE ROUTES
 - CULTURAL RESOURCE STUDIES
 - ENDANGERED SPECIES STUDIES
 - DOWNSTREAM FLOW STUDY
 - MITIGATION PLAN

The background features a light blue gradient that transitions from a pale, almost white hue at the top to a deeper blue at the bottom. Scattered across this gradient are numerous water droplets of various sizes and shapes. Some droplets are large and prominent, while others are small and delicate. Each droplet is rendered with realistic shading, showing highlights and shadows that give them a three-dimensional appearance. The overall aesthetic is clean, fresh, and serene.

ORIGINAL PROJECT OVERVIEW

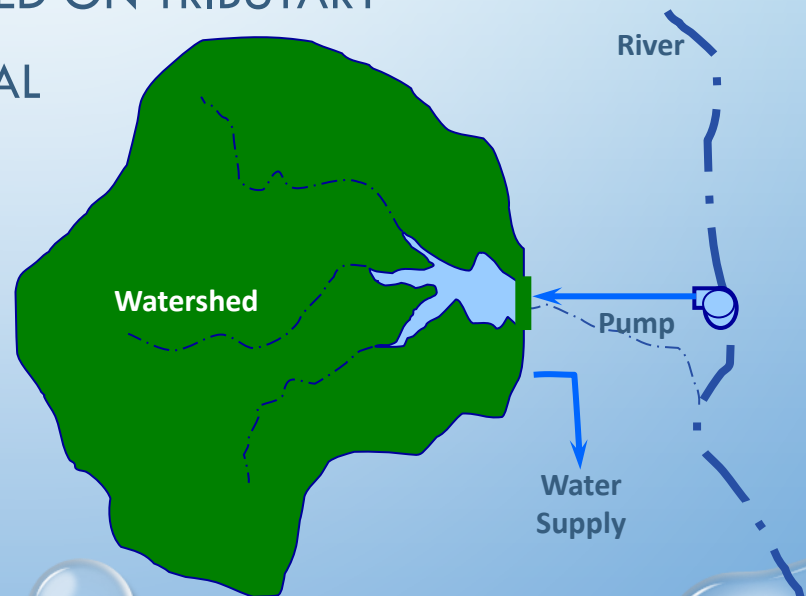
ON-STREAM RESERVOIRS

- RESERVOIR STORAGE SUPPLEMENTS WATER SUPPLY DURING LOW FLOWS
- RESERVOIR IS REFILLED BY FLOWS FROM WITHIN THE WATERSHED
- TYPICAL OF MOST RESERVOIRS IN GEORGIA (EX. LAKE CARROLL, SNAKE CREEK)

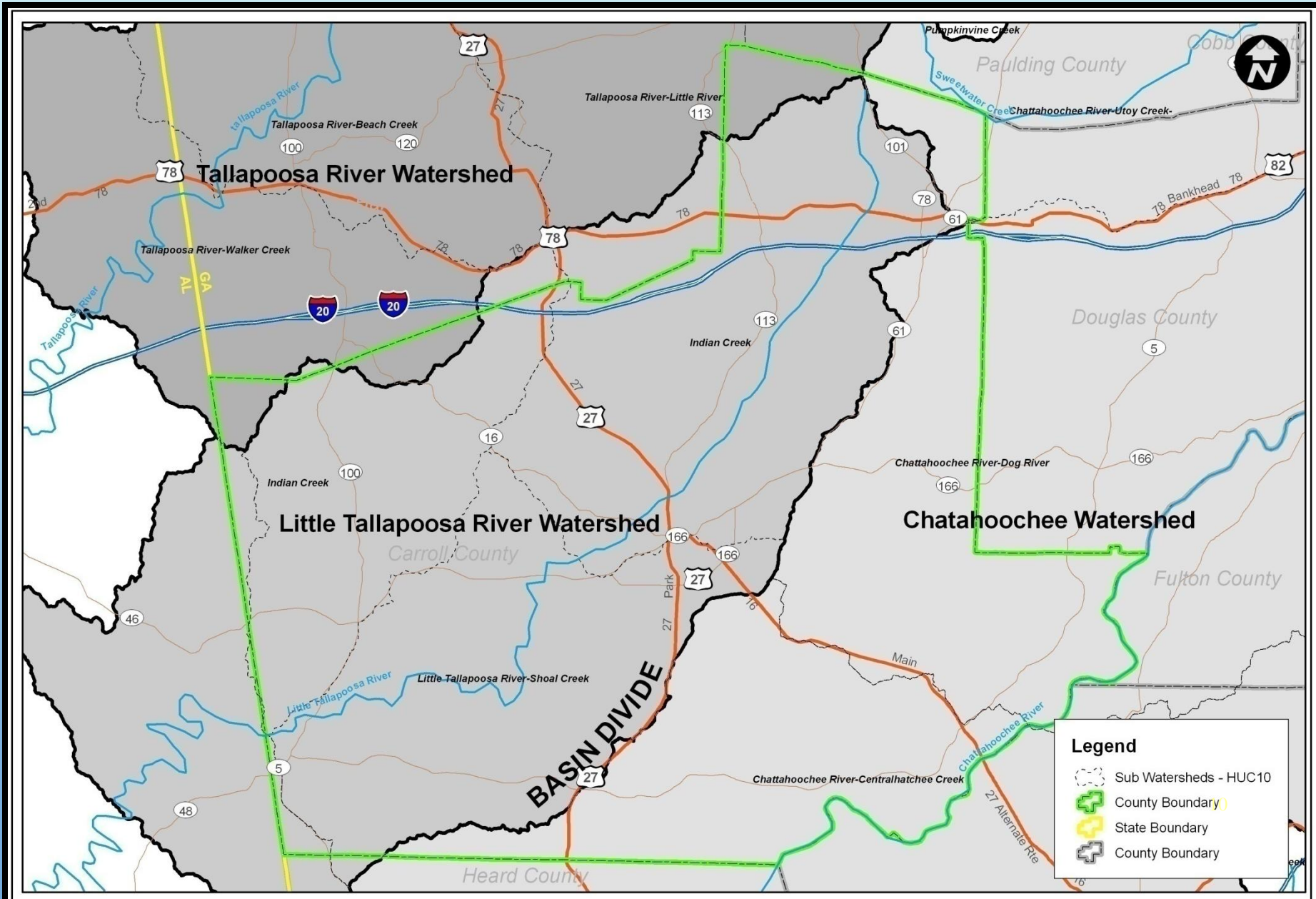


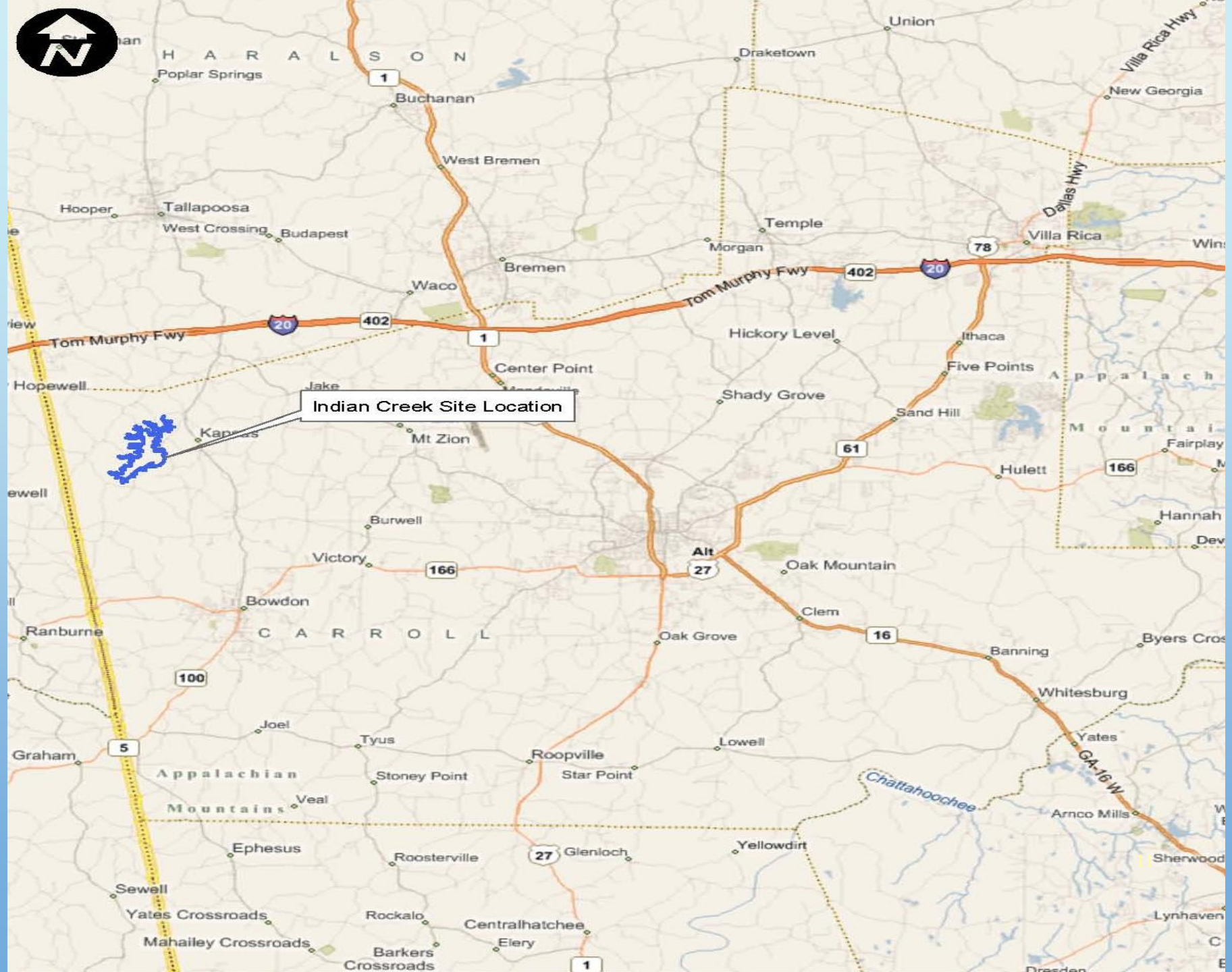
PUMP-DIVERSION RESERVOIRS

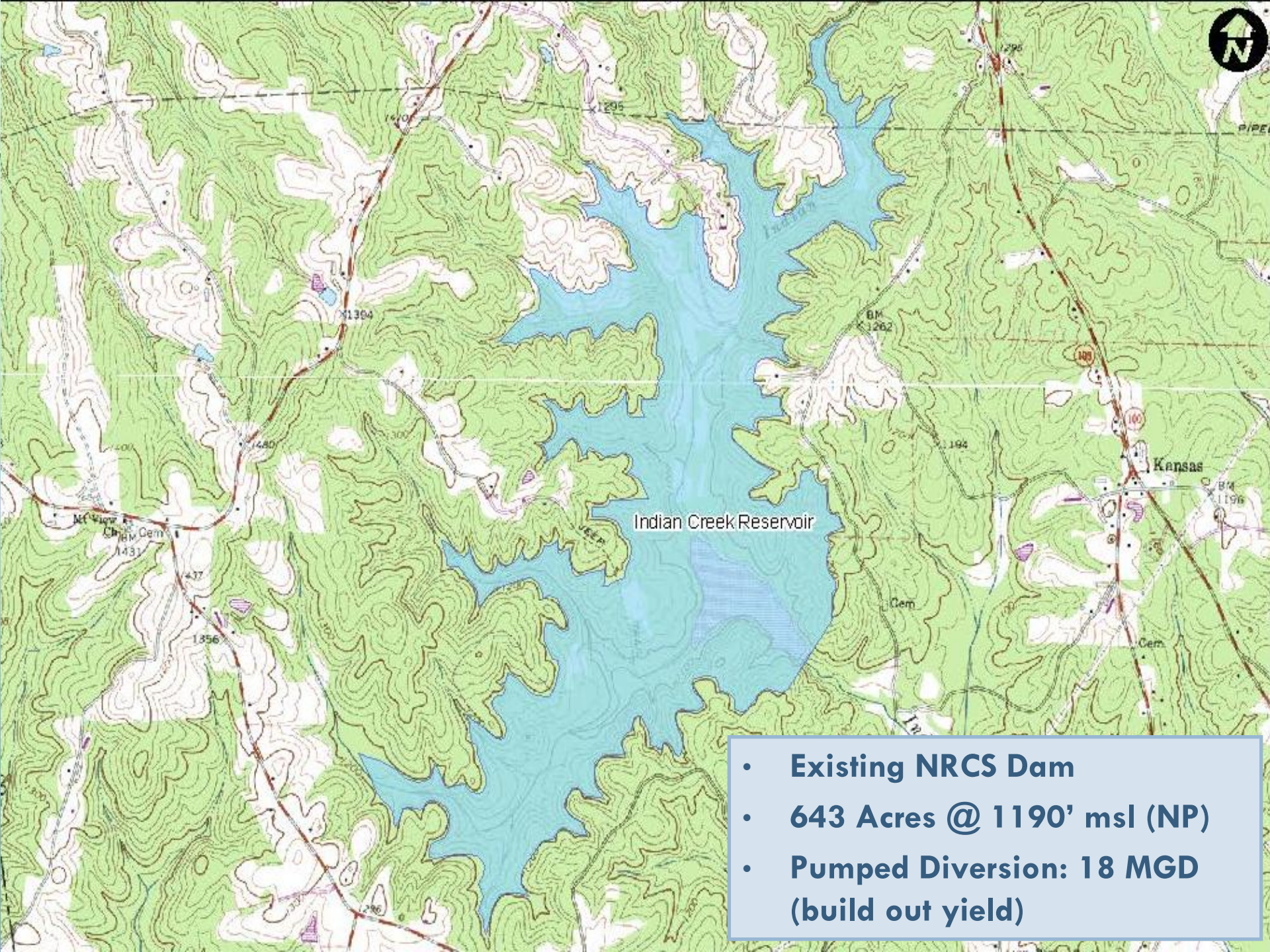
- RIVER DIVERSIONS SUPPLEMENT RESERVOIR YIELD
- RESERVOIRS TYPICALLY ARE SITED ON TRIBUTARY STREAMS (LESS ENVIRONMENTAL AND DOWNSTREAM IMPACTS)



CARROLL COUNTY RIVER BASINS







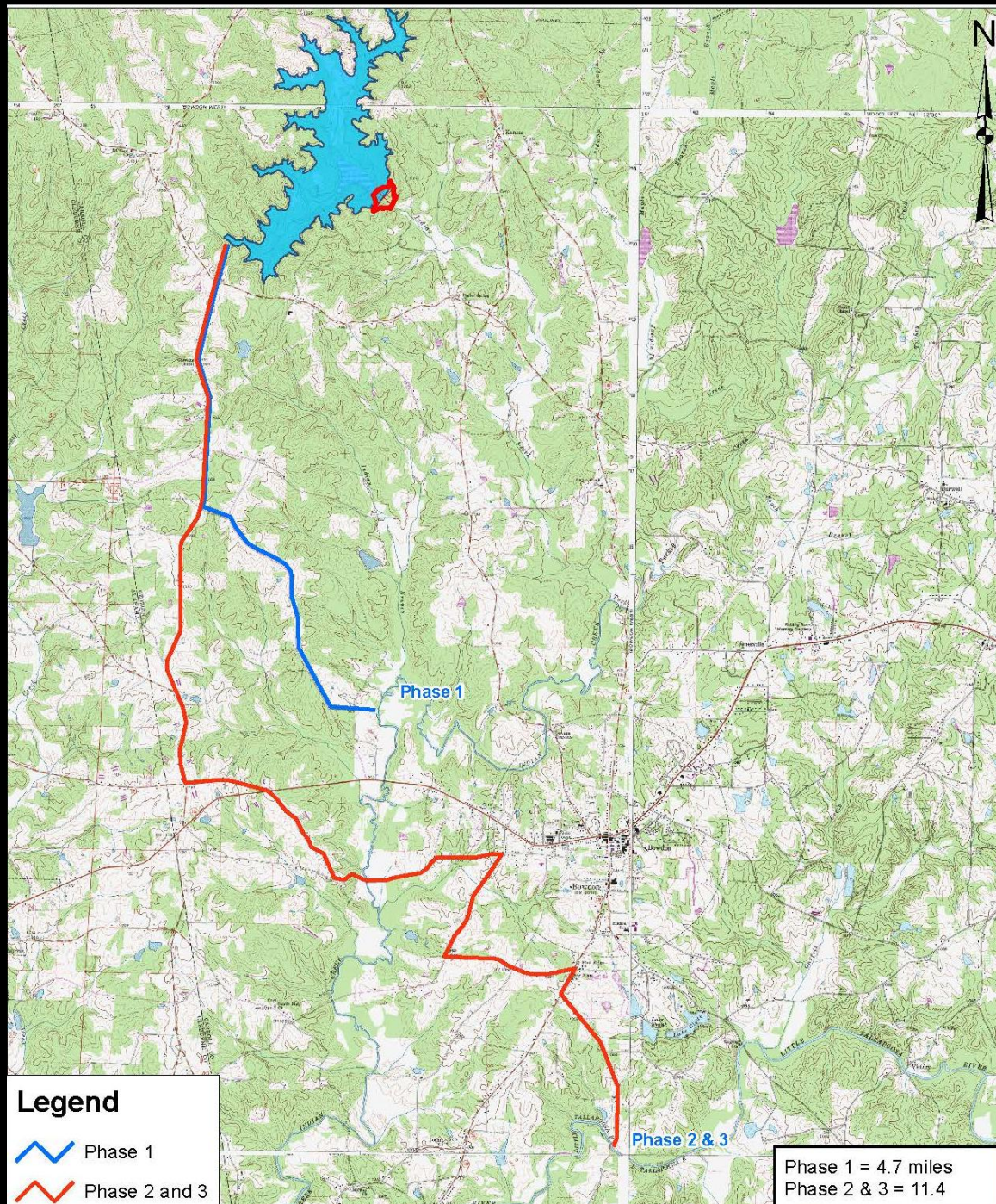
Indian Creek Reservoir

Kansas

- Existing NRCS Dam
- 643 Acres @ 1190' msl (NP)
- Pumped Diversion: 18 MGD (build out yield)

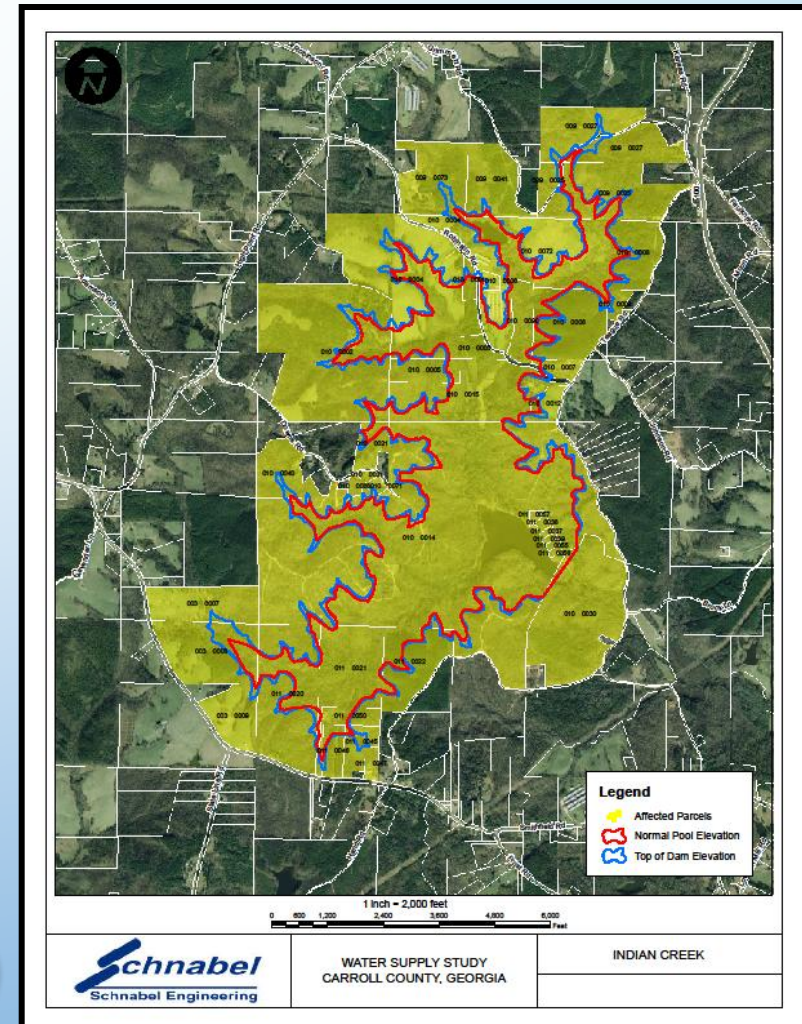
Phased Pumped Diversion

- Phase I (blue):
 - 6 MGD
 - Intake: Indian Creek at Ozier Rd
 - 4.7 miles of pipeline
- Phase II & III (red):
 - 12 MGD to 18 MGD
 - Additional Intake: Little Tallapoosa at Reavesville Rd
 - 11.4 miles of pipeline



LAND ACQUISITION

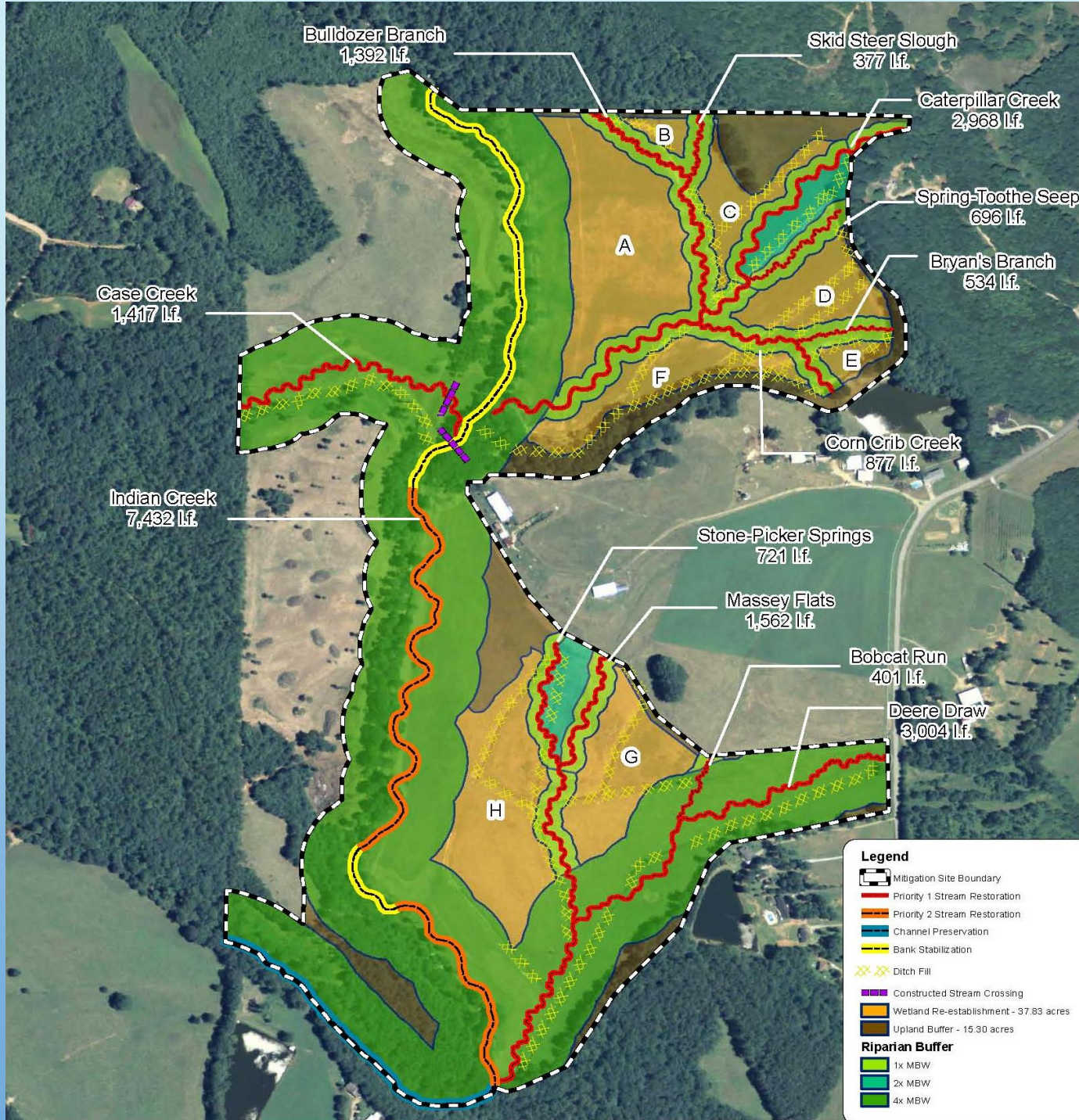
- CCWA OWNS OVER 70% OF PROPERTY REQUIRED INCLUDING THE DAM SITE AND A MITIGATION SITE ON BIG INDIAN CREEK
- 1,150 ACRES ACQUIRED



Big Indian Creek Mitigation Site



- 174-acre site on Watts Road
- Purchased in 2012 (additional 2 acre parcel added in 2014)
- Generates the stream and wetland credits needed per the USACE's 2004 SOP
- Three agency site visits all yielded favorable reviews
- Wetland reference sites approved in 2012
- Last mitigation plan was submitted in November 2013

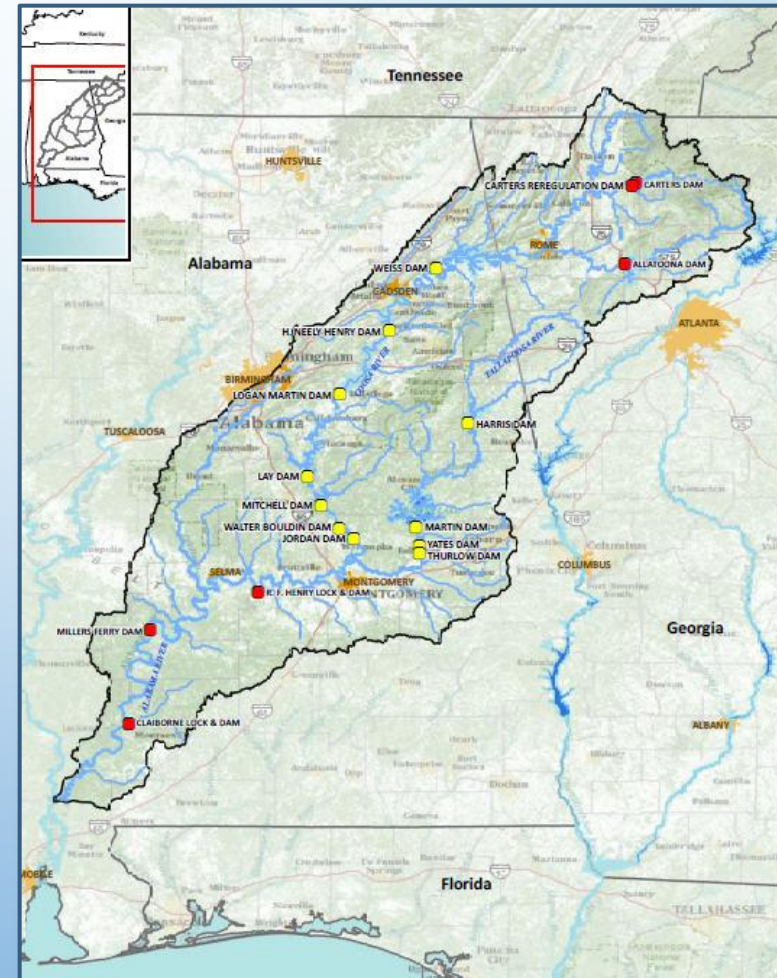


CULTURAL RESOURCES & ENDANGERED SPECIES

- PHASE I AND II CULTURAL RESOURCE STUDIES COMPLETED
 - AGENCIES CONCUR THAT THERE ARE NO IMPACTS TO CULTURAL RESOURCES
 - NO ADDITIONAL STUDIES OR ARCHEOLOGICAL WORK REQUIRED
- MUSSEL SURVEY CONDUCTED
 - NO MUSSELS FOUND
- BAT SURVEY COMPLETED
 - NO BATS CAPTURED BUT BAT CALLS RECORDED
 - STUDY BEING REVIEWED BY FISH & WILDLIFE SERVICE
 - MAY BE REQUIRED TO CLEAR TREES DURING WINTER MONTHS

DOWNSTREAM MODELING

- DECEMBER 11, 2014 – CCWA PARTNERED WITH PAULDING COUNTY AND ETOWAH WATER AUTHORITY TO COMMISSION AN ALABAMA-COOSA-TALLAPOOSA (“ACT”) RIVER BASIN IMPACTS REPORT BY HYDROLOGICS.
- JUNE 2015 – USACE APPROVED THE STUDY AND FOUND THAT THE THREE PROJECTS HAVE MINIMAL IMPACTS TO DOWNSTREAM FLOWS



PROJECT COST

- CCWA HAS INVESTED OVER \$7.5 MILLION IN SECURING FUTURE WATER SUPPLY FOR CARROLL COUNTY AND ITS CITIZENS SINCE 2007
 - DESIGN AND PERMITTING: \$2.8M
 - LAND ACQUISITION: \$4.8M
- THE ORIGINAL PROJECT TO SUPPLY 18 MGD WAS ESTIMATED TO COST:
 - PHASE I: \$60M
 - TOTAL PROJECT (PHASE I, II, & III): \$110M
 - WATER TREATMENT AND DISTRIBUTION SYSTEM IMPROVEMENTS ARE NOT INCLUDED IN ABOVE TOTALS

STATE FUNDING

- AUGUST 27, 2013- AWARDED \$9,070,000 LOAN UNDER GOVERNOR'S WATER SUPPLY PROGRAM TO ACQUIRE RESERVOIR LAND
- NOVEMBER 6, 2013- SELECTED FOR STATE DIRECT INVESTMENT FUNDS UNDER THE GOVERNOR'S WATER SUPPLY PROGRAM
- AUGUST 26, 2014 – AWARDED \$10,000,000 LOAN UNDER GOVERNOR'S WATER SUPPLY PROGRAM
- AUGUST 22, 2017 – AWARDED ADDITIONAL \$21,000,000 LOAN UNDER GOVERNOR'S WATER SUPPLY PROGRAM

NEED CERTIFICATION

- AUGUST 19, 2009 – EPD CERTIFIES NEED FOR PROJECT, 18 MGD WITH SERVICE AREA LIMITED TO THE TALLAPOOSA BASIN
- 2010 - GOVERNOR'S OFFICE OF PLANNING AND BUDGET ("OPB") RELEASED COUNTY POPULATION PROJECTIONS
- 2013 – OPB RELEASED NEW COUNTY POPULATION PROJECTIONS; CCWA REQUIRED TO UPDATE ITS PROJECTIONS
- FEBRUARY 21, 2014 – EPD CERTIFIES REVISED POPULATION PROJECTIONS BASED ON 2013 OPB PROJECTIONS
- MAY 2015 – OPB RELEASED NEW POPULATION PROJECTIONS; CCWA REQUIRED TO UPDATE ITS PROJECTIONS

POPULATION PROJECTIONS

Source	Year Projected	Carroll County Population
2009 EPD-implied approval (estimates from Brown & Caldwell)	2060	416,613
2010 OPB	2030	198,891
2013 OPB	2030	144,699
2014 EPD-certified (estimates by Ross+associates)	2060	354,743
2015 OPB	2050	172,143
2016 EPD-certified (estimates by Carl Vinson Institute)	2065	196,000

NEED CERTIFICATION (CONTINUED)

- JANUARY 28, 2016 – EPD CERTIFIED A 2065 NEED OF 6 MGD WITH A COUNTY-WIDE SERVICE AREA BASED ON NEW OPB PROJECTIONS
- AUGUST 10, 2017 – EPD ISSUED SUPPLEMENTAL NEED LETTER LIMITING THE LOCATION OF WATER SUPPLY STORAGE REQUIRED TO MEET THE 6 MGD TO THE TALLAPOOSA BASIN. THE COUNTY-WIDE SERVICE AREA REMAINS

404 PERMIT

- FEBRUARY 9, 2016 – USACE GAVE 15-DAY DEADLINE TO SUBMIT A REVISED 404 APPLICATION TAKING INTO ACCOUNT THE REDUCED NEED OR ADMINISTRATIVELY WITHDRAW THE PERMIT APPLICATION
- FEBRUARY 22, 2016 – CCWA ADMINISTRATIVELY WITHDREW THE PERMIT APPLICATION
- MARCH 7, 2016 – USACE ACCEPTED CCWA'S WITHDRAWAL REQUEST

The background features a light blue to white gradient. Scattered across the top and bottom edges are several realistic water droplets of various sizes, rendered with highlights and shadows to give them a three-dimensional appearance.

UPDATED ALTERNATIVES ANALYSIS

RECENT ACTIVITY

- 2016-2017 – PERMITTING TEAM EVALUATED WATER SUPPLY OPTIONS TO MEET THE REDUCED NEED OF 6 MGD
- CCWA MUST SELECT THE “LEAST ENVIRONMENTALLY DAMAGING, PRACTICABLE ALTERNATIVE CAPABLE OF MEETING THE PROJECT PURPOSE”

SITE IDENTIFICATION

SCHNABEL ENGINEERING IDENTIFIED 12 POTENTIAL RESERVOIR SITES IN THE LITTLE TALLAPOOSA BASIN THAT COULD YIELD 6 MGD

- INDIAN CREEK TRIBUTARY
- TURKEY CREEK
- INDIAN CREEK
- JUMPIN IN CREEK UPPER
- LITTLE BUCK CREEK
- INDIAN BRANCH UPPER
- HOLLAND CREEK
- JUMPIN IN CREEK LOWER
- MOUNTAIN CREEK LOWER
- INDIAN BRANCH LOWER
- GARRETT CREEK LOWER
- BUCK CREEK

ALTERNATIVES ANALYSIS FIRST CUT

- NARROWED ALTERNATIVES FOR CONSIDERATION BASED ON EXISTING NRCS DAM AT THE NEW PROPOSED DAM SITE
 - FEWER ENVIRONMENTAL IMPACTS ARE ASSOCIATED WITH AN ALREADY BIFURCATED STREAM SYSTEM
 - REVIEWING AGENCIES PREFER EXPANSION PROJECTS TO NEW PROJECTS
- RESULTED IN 6 MID-LISTED SITES:

INDIAN CREEK

INDIAN CREEK TRIBUTARY

INDIAN BRANCH UPPER

INDIAN BRANCH LOWER

TURKEY CREEK

JUMPIN IN CREEK LOWER

REVIEW OF MID-LISTED SITES

- 6 SITES EVALUATED FOR ABILITY TO MEET THE PROJECT PURPOSE WHICH IS:
 - PROVIDE A RELIABLE YIELD OF 6 MGD IN 2065
- TO PROVIDE A RELIABLE YIELD OF 6 MGD IN 2065, SITES MUST:
 - BE RESILIENT TO STREAM FLOW CHANGES
 - HAVE ADEQUATE STORAGE
 - HAVE REASONABLE PUMPING RATES

RESILIENCY ASSESSMENT

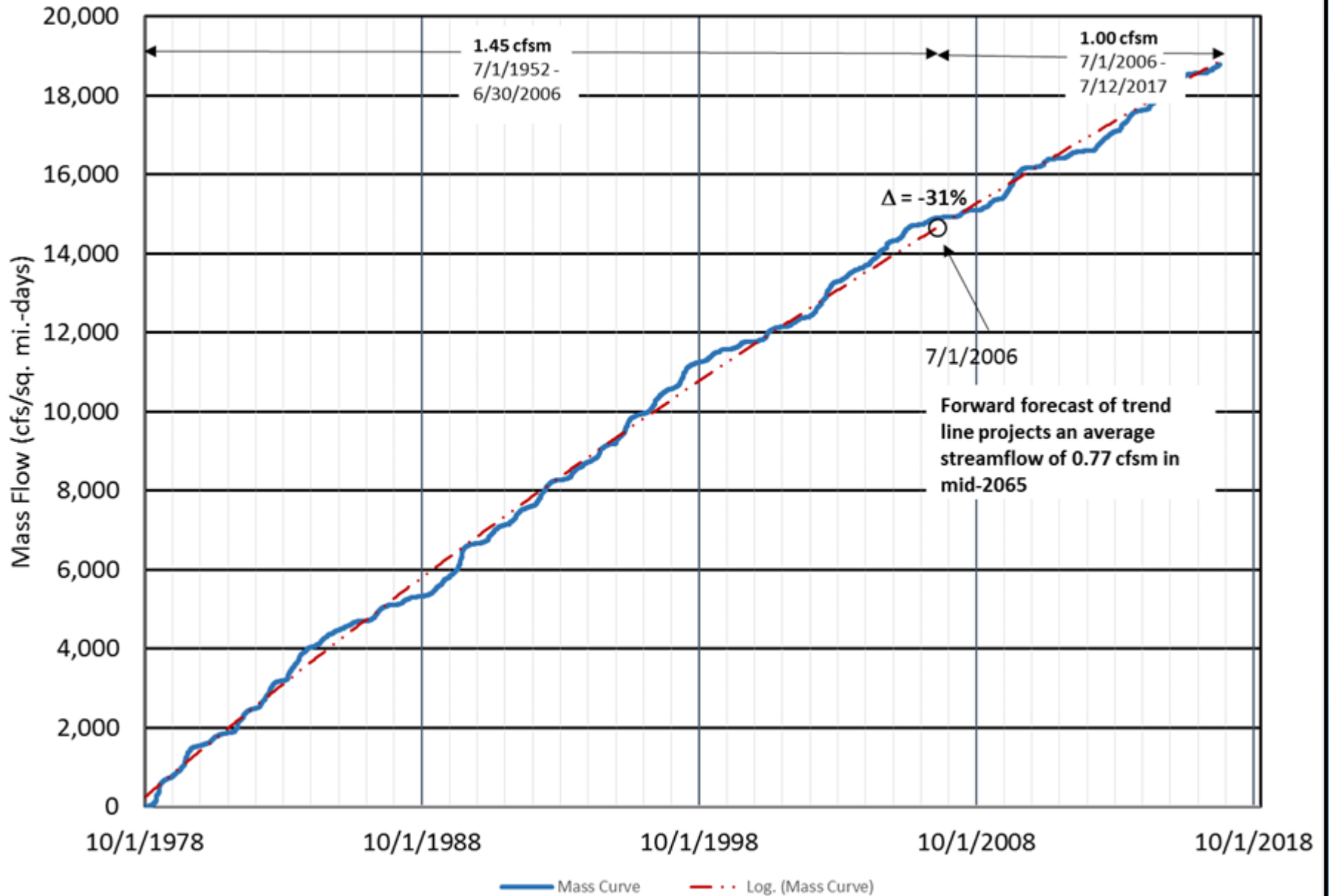
CHANGE IN STREAM FLOW EVALUATION

- STUDIED RIVER GAGES NEAREST THE TALLAPOOSA BASIN PORTION OF CARROLL COUNTY WITH AT LEAST 20 YEARS OF DATA AND A DRAINAGE AREA BETWEEN 100-400 SQUARE MILES
- RESULTS:
 - 31% DECREASE IN TALLAPOOSA RIVER FLOWS BETWEEN THE PERIOD 1952-2006 AND THE PERIOD 2006-2017 (HEFLIN GAGE)
 - 24% DECREASE IN SWEETWATER CREEK FLOWS BETWEEN THE PERIOD 1937-2006 AND THE PERIOD 2006-2017
 - 23% DECREASE IN NEW RIVER BETWEEN THE PERIOD 1978-2006 AND THE PERIOD 2006 - 2017

Mass Curve Tallapoosa @ Heflin, AL

$$y = 46541 \ln(x) - 477594$$

$$R^2 = 0.9981$$



RESILIENCY REQUIREMENTS

- MUST BE ABLE TO WITHSTAND A 25% DECREASE IN STREAM FLOWS OVER THE 50-YEAR PLANNING PERIOD
- TO RELIABLY YIELD 6 MGD IN 2065, A RESERVOIR IN 2017 MUST BE DESIGNED TO YIELD 8 MGD WITH AT LEAST 5 BILLION GALLONS (BG) OF STORAGE

REVIEW OF MID-LIST SITES

Table 1: Required Minimum Reservoir Elevation and Diversion Pumping to Meet Sate Yield Criteria

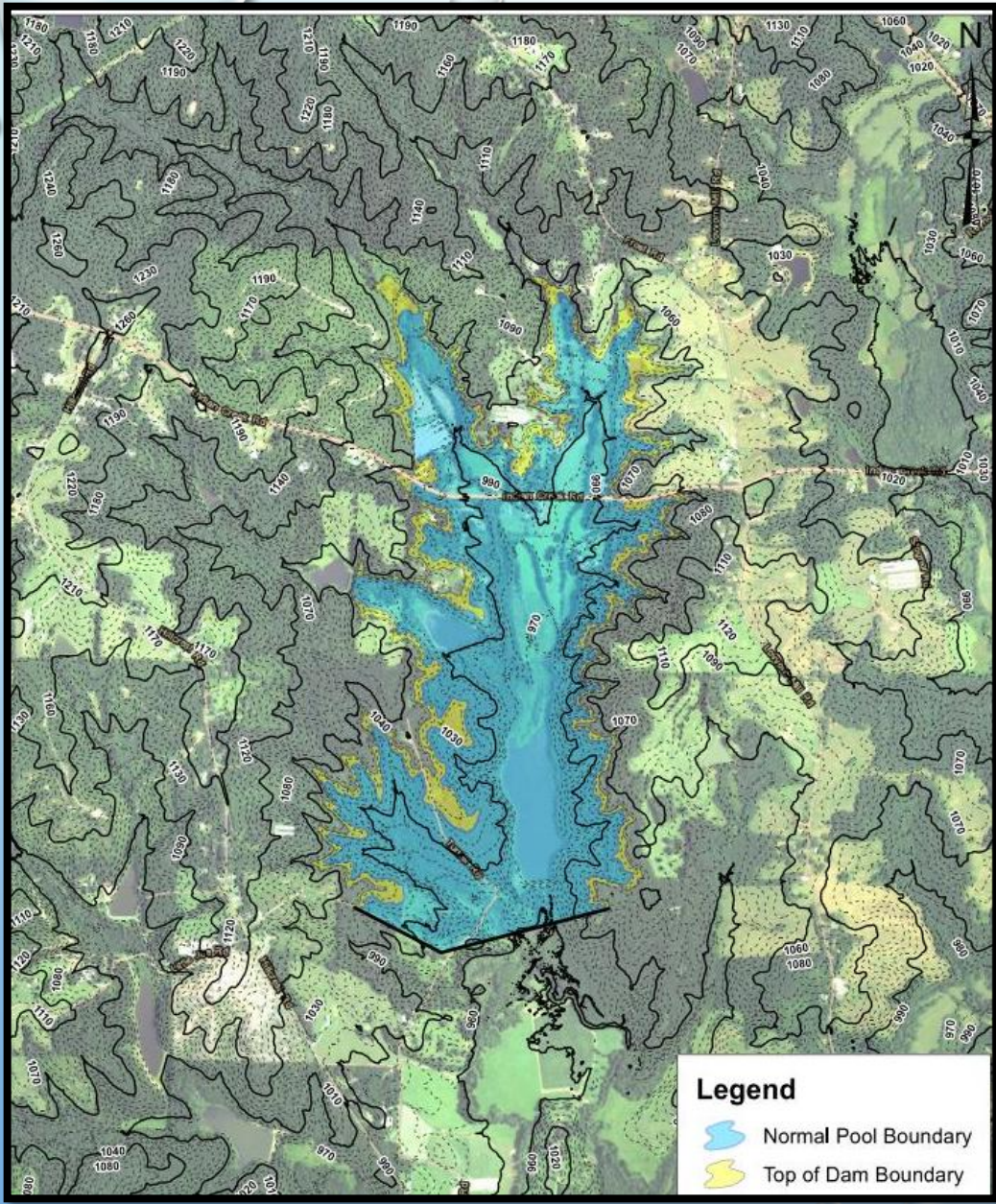
Site	Required Project Parameters			
	Top of Dam EL	Reservoir NP EL	Reservoir Storage (BG)	Diversion Pumping (mgd)
Indian Branch Lower	1035.5	1025.5	5.3	21.0
Indian Branch Upper	1062.5	1052.5	5.2	21.0
Indian Creek	1171	1161	5.1	19.4
Indian Creek Tributary ¹	1072	1062	3.2 ²	>50 ³
Jumpin In Lower	1123	1113	5.7	19.0
Turkey Creek ¹	1120	1110	3.6 ²	27.1 ³

1. Eliminated from further consideration.
2. Maximum storage available at site. Fails to meet minimum reservoir storage requirements.
3. Fails to meet resilient pumping utilization rate.

NOTE: ELEVATIONS, STORAGE AND PUMPING RATES ARE SUBJECT TO CHANGE PENDING MORE DETAILED ANALYSIS.

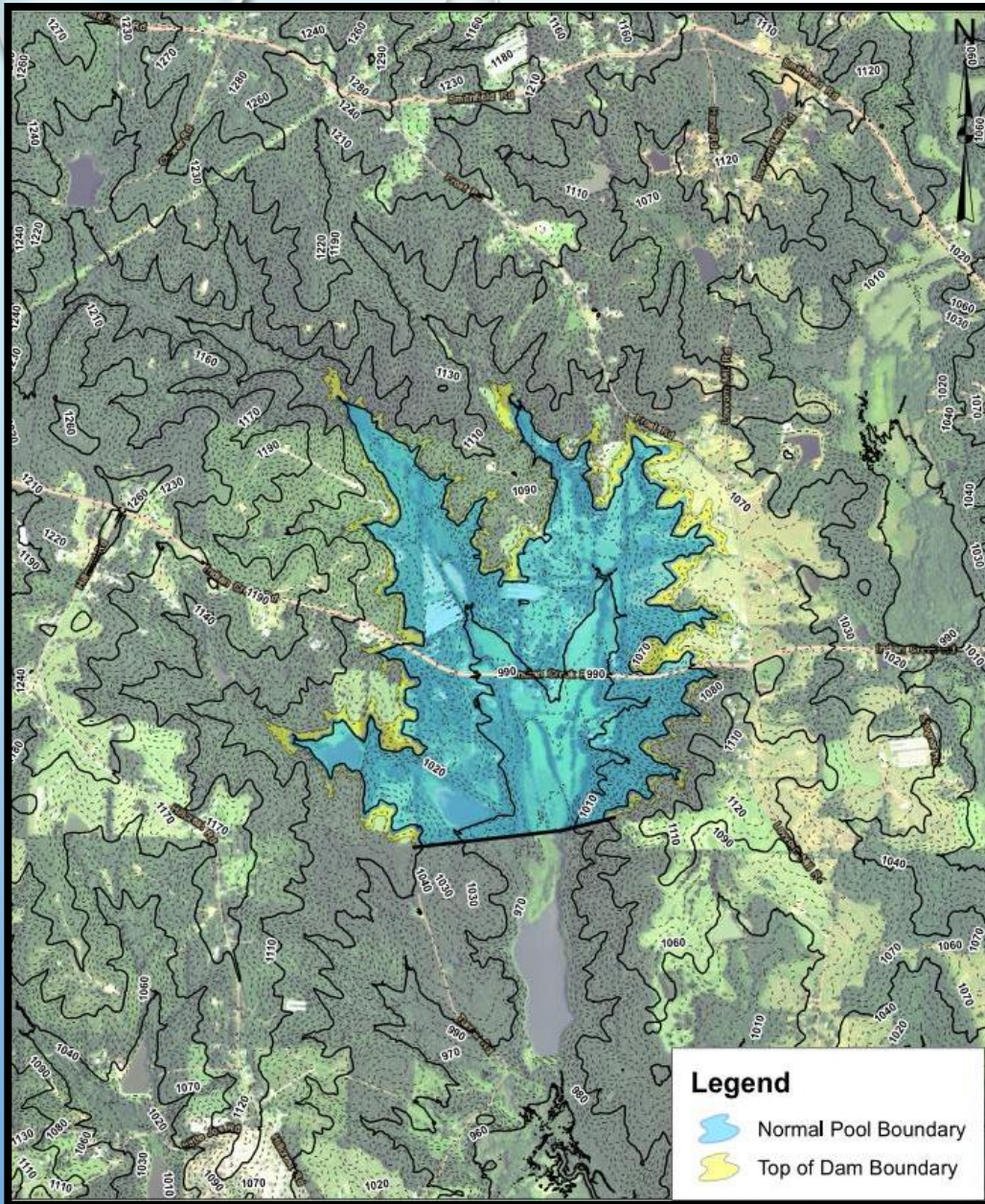
MID-LIST SITES NARROWED

- OF THE SIX SITES EVALUATED, BOTH TURKEY CREEK AND INDIAN CREEK TRIBUTARY WERE NOT ABLE TO MEET THE RESILIENCY CRITERIA AND WERE ELIMINATED FROM FURTHER REVIEW
- RESULTED IN FOUR REMAINING SITES:
 - INDIAN BRANCH LOWER
 - INDIAN BRANCH UPPER
 - INDIAN CREEK
 - JUMPIN IN CREEK LOWER
- THE FOUR REMAINING SITES WERE EVALUATED BASED ON:
 - PRACTICABILITY FACTORS
 - ENVIRONMENTAL FACTORS



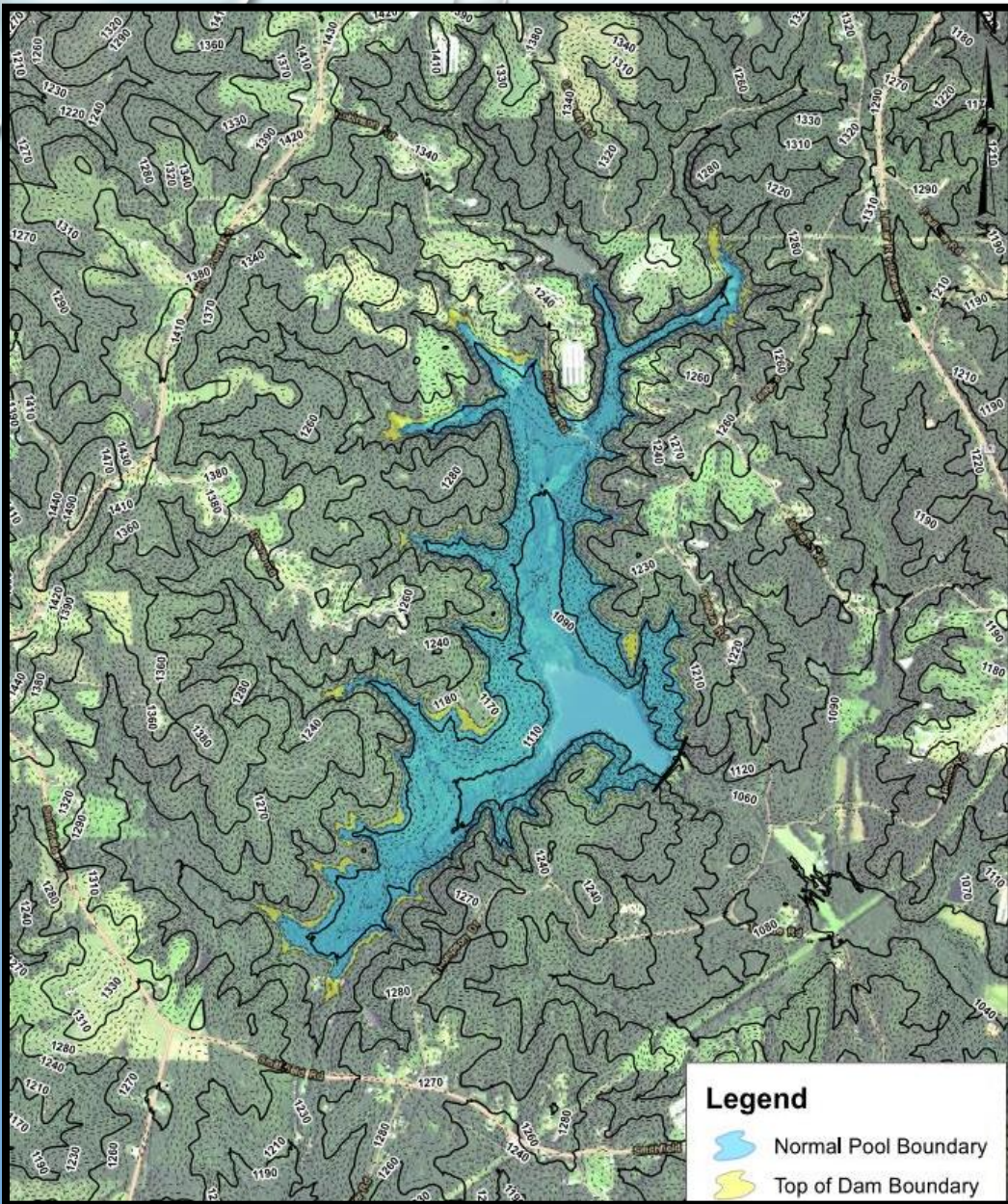
Indian Branch Lower

- Normal Pool: 1025.5' msl
- Top of Dam: 1035.5' msl
- 680 acres
- 5.3 BG Storage
- 21 MGD diversion pumping from Little Tallapoosa River



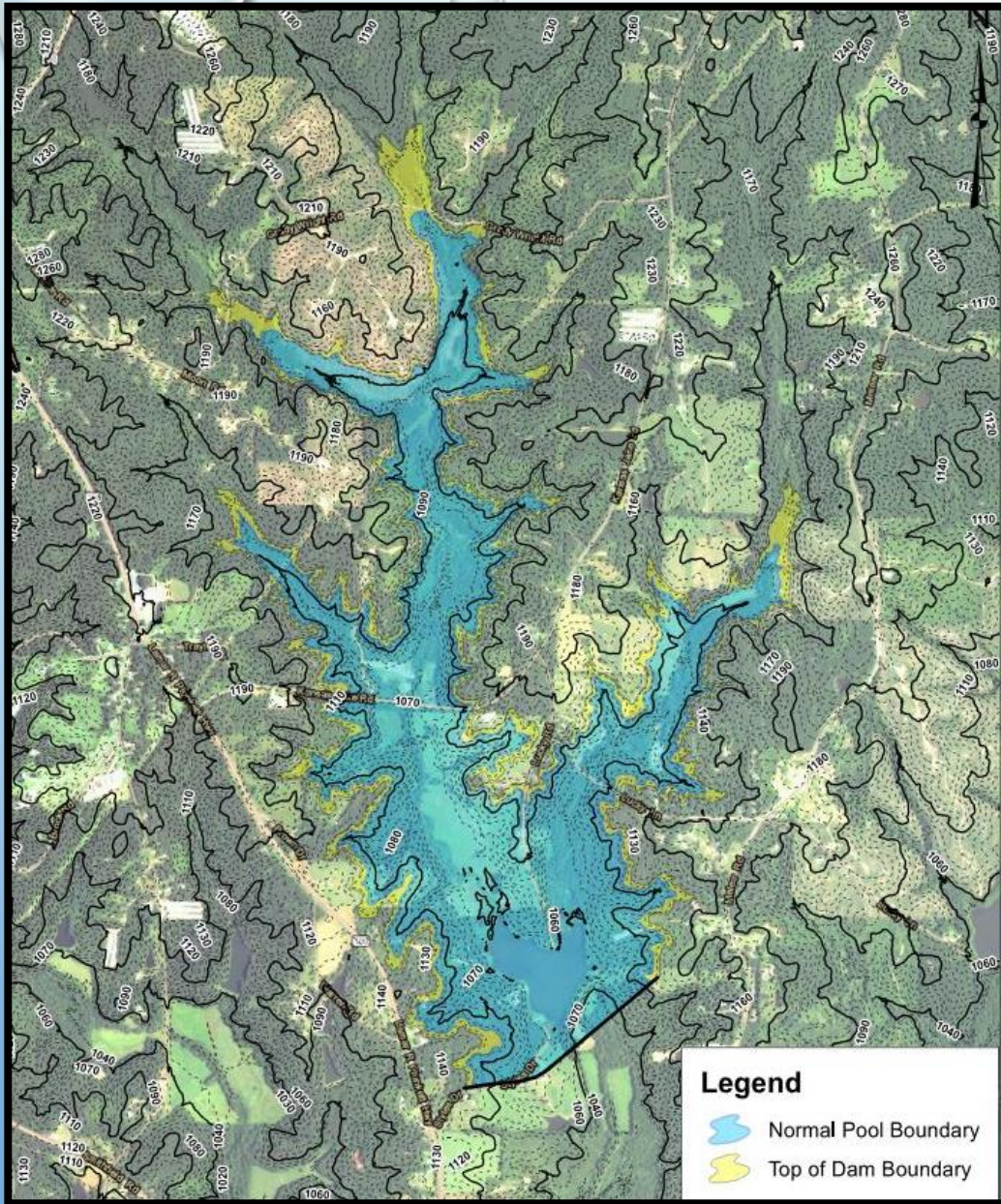
Indian Branch Upper

- Normal Pool: 1052.5' msl
- Top of Dam: 1062.5' msl
- 590 acres
- 5.2 BG Storage
- 21 MGD diversion pumping from Little Tallapoosa River



Indian Creek

- Normal Pool: 1161' msl
- Top of Dam: 1171' msl
- 480 acres
- 5.1 BG Storage
- 19.4 MGD diversion pumping from Little Tallapoosa River



Jumpin In Creek Lower

- Normal Pool: 1113' msl
- Top of Dam: 1123' msl
- 810 acres
- 5.7 BG Storage
- 19 MGD diversion pumping from Little Tallapoosa River

ENVIRONMENTAL FACTORS

EVALUATION CRITERIA

- IMPACTS TO LINEAR FEET STREAM
- IMPACTS TO ACRES OF WETLAND
- QUALITY OF EXISTING WATERSHED
 - LISTED AS IMPAIRED ON EPD 303D LIST
 - PERCENTAGE OF FOREST COVER

RANKING SYSTEM

- 1-5 RANKINGS ASSIGNED BASED ON THE RANGE OF DATA FOR EACH CRITERIA
- 1 BEST RATING
- 5 WORST RATING

ENVIRONMENTAL RATINGS

Alternative	Watershed Health		Aquatic Resources		Average Environmental Impact Rating
	Watershed Landcover Rating	EPD 303d Listing Rating	Stream Impact Rating	Wetland Impact Rating	
Indian Branch Lower	4	3	1	5	3.25
Indian Branch Upper	1	3	1	1	1.50
Indian Creek	3	1	1	1	1.50
Jumpin In Creek Lower	5	3	5	2	3.75

PRACTICABILITY FACTORS

EVALUATION CRITERIA

- IMPACTS TO INFRASTRUCTURE
 - ROADS
 - UTILITIES
 - STRUCTURES
- RELATIVE COST
- RAW WATER QUALITY
- STORAGE EXPANDABILITY

RANKING SYSTEM

- 1-5 RANKINGS ASSIGNED BASED ON THE RANGE OF DATA FOR EACH CRITERIA
- 1 BEST RATING
- 5 WORST RATING

PRACTICABILITY RATINGS

Site	<u>Ratings</u>				Practicability Score
	<u>Infrastructure Impacts</u>	<u>Construction Cost</u>	<u>Raw Water Quality</u>	<u>Expandability</u>	
Indian Branch Lower	3	4	3	5	15
Indian Branch Upper	4	3	2	5	14
Indian Creek	1	3	1	1	6
Jumpin In Creek Lower	5	5	5	5	20

RANKINGS

ENVIRONMENTAL:

1. INDIAN CREEK
2. INDIAN BRANCH UPPER
3. INDIAN BRANCH LOWER
4. JUMPIN IN CREEK LOWER

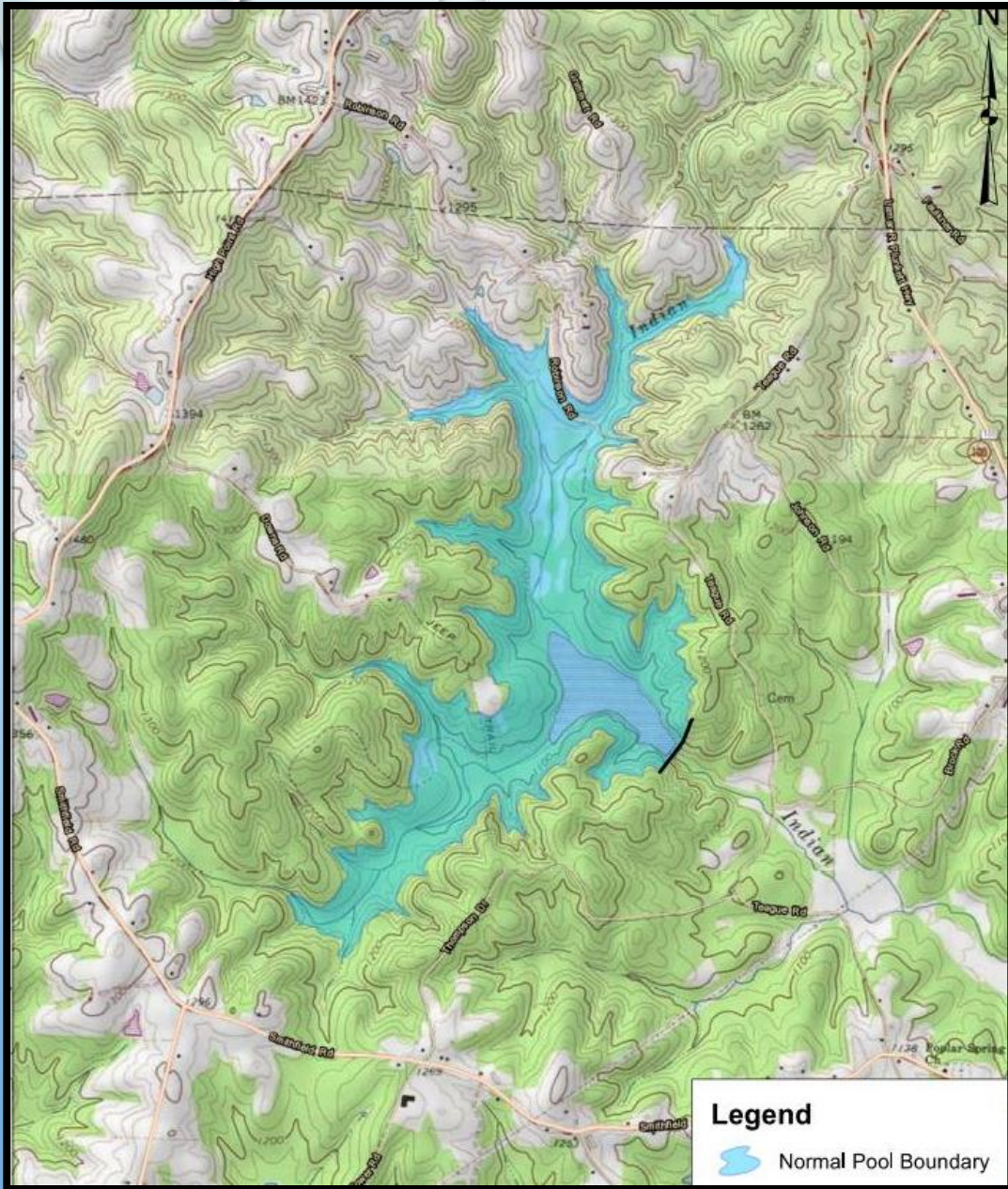
PRACTICABILITY:

1. INDIAN CREEK
2. INDIAN BRANCH UPPER
3. INDIAN BRANCH LOWER
4. JUMPIN IN CREEK LOWER

SHORT-LIST

3 SITES SELECTED FOR DETAILED STUDY BASED ON RANKINGS:

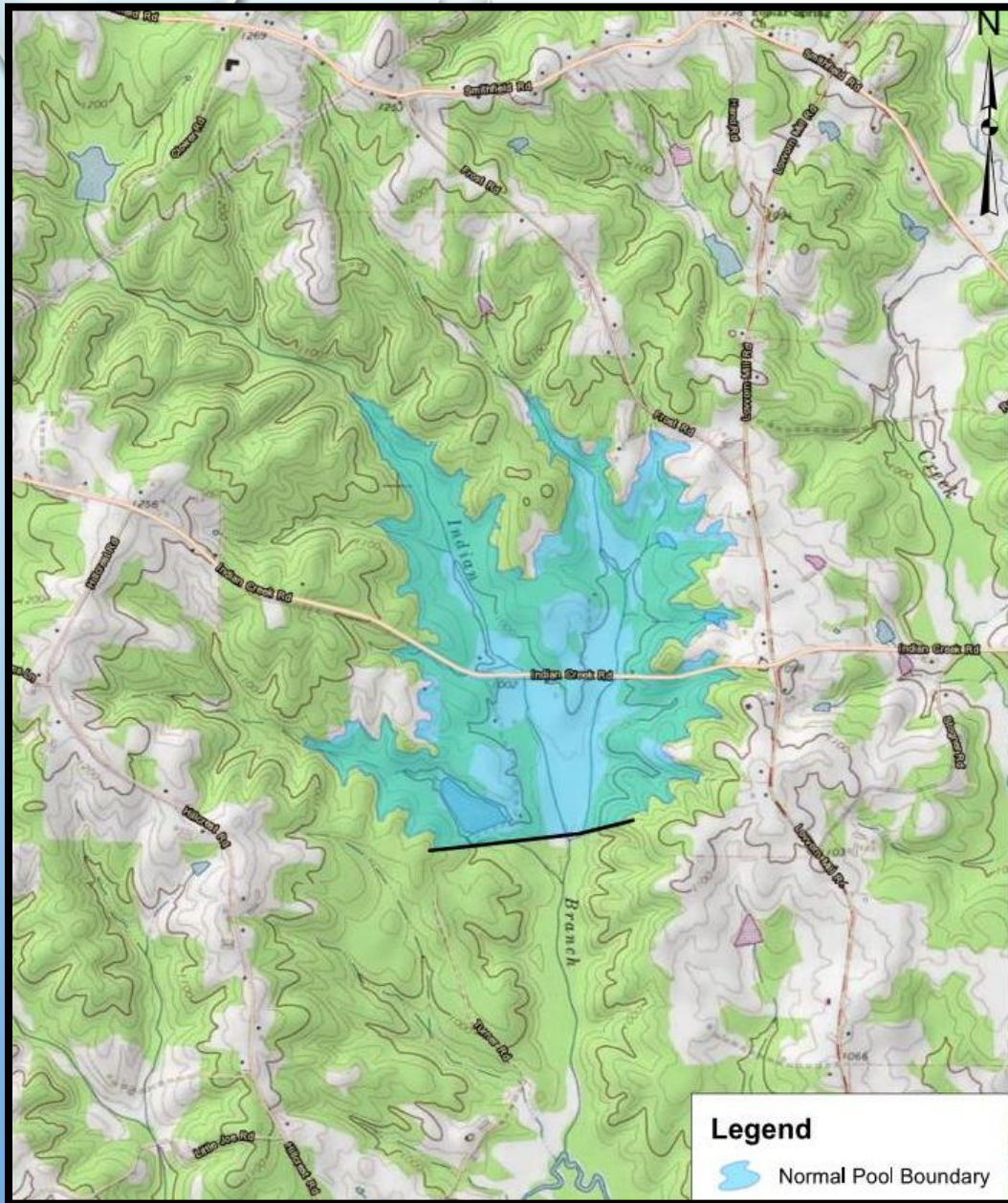
1. INDIAN CREEK
2. INDIAN BRANCH UPPER
3. INDIAN BRANCH LOWER



Rank #1

Indian Creek

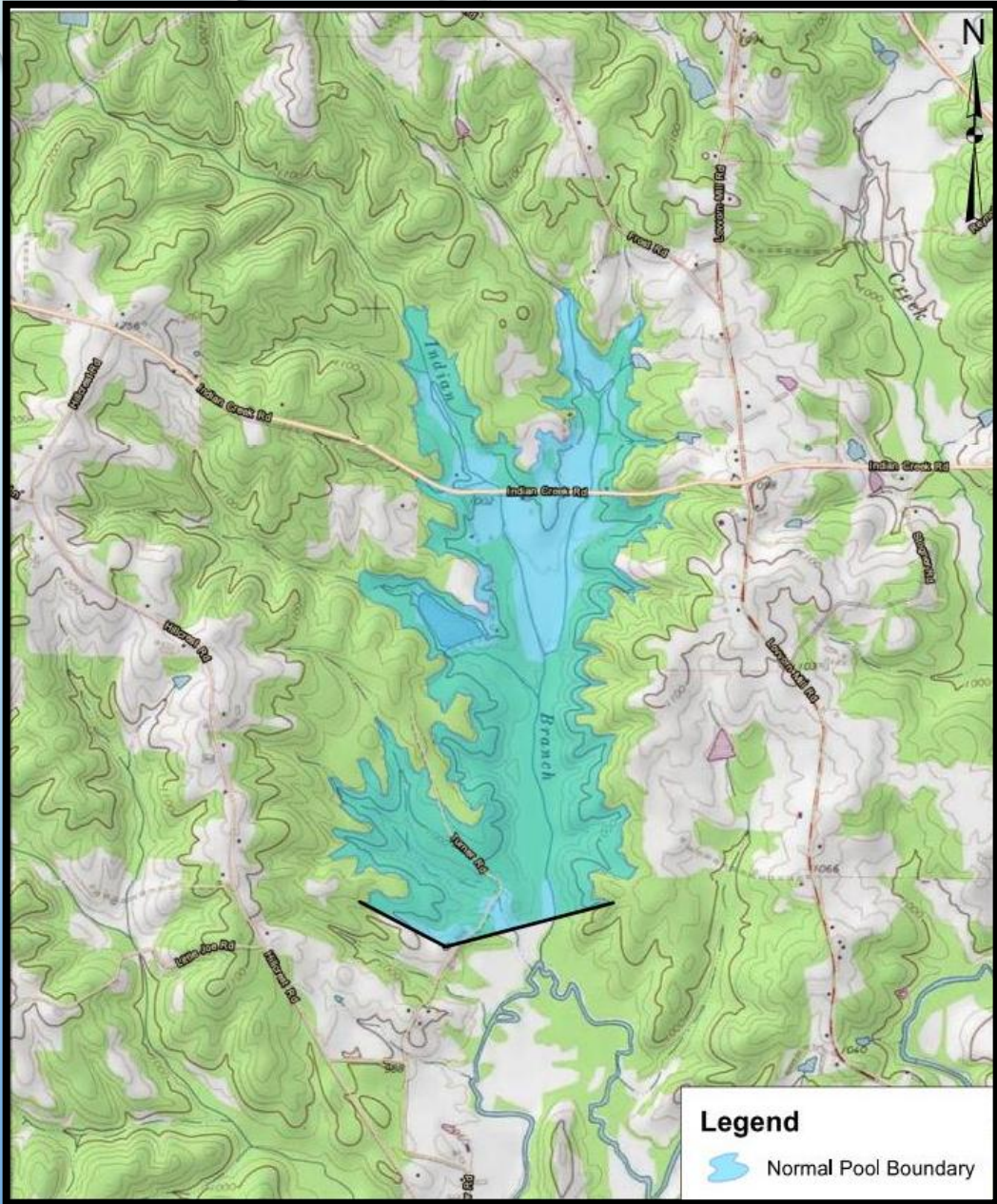
- Normal Pool: 1161' msl
- Top of Dam: 1171' msl
- 480 acres
- Greatest potential for expansion (up to 10 BG total)
- Least impacts to infrastructure
- Highest raw water quality
- Low environmental impacts
- Comparable cost



Rank #2

Indian Branch Upper

- Normal Pool: 1052.5' msl
- Top of Dam: 1062.5' msl
- 590 acres
- Minimal potential for expansion
- Greatest impacts to infrastructure
- Comparable raw water quality
- Low environmental impacts
- Comparable cost



Rank #3

Indian Branch Lower

Normal Pool: 1025.5' msl

- Top of Dam: 1035.5' msl
- 680 acres
- Minimal potential for expansion
- Considerable impacts to infrastructure
- Comparable raw water quality
- More environmental impacts (high wetland impacts)
- Highest cost

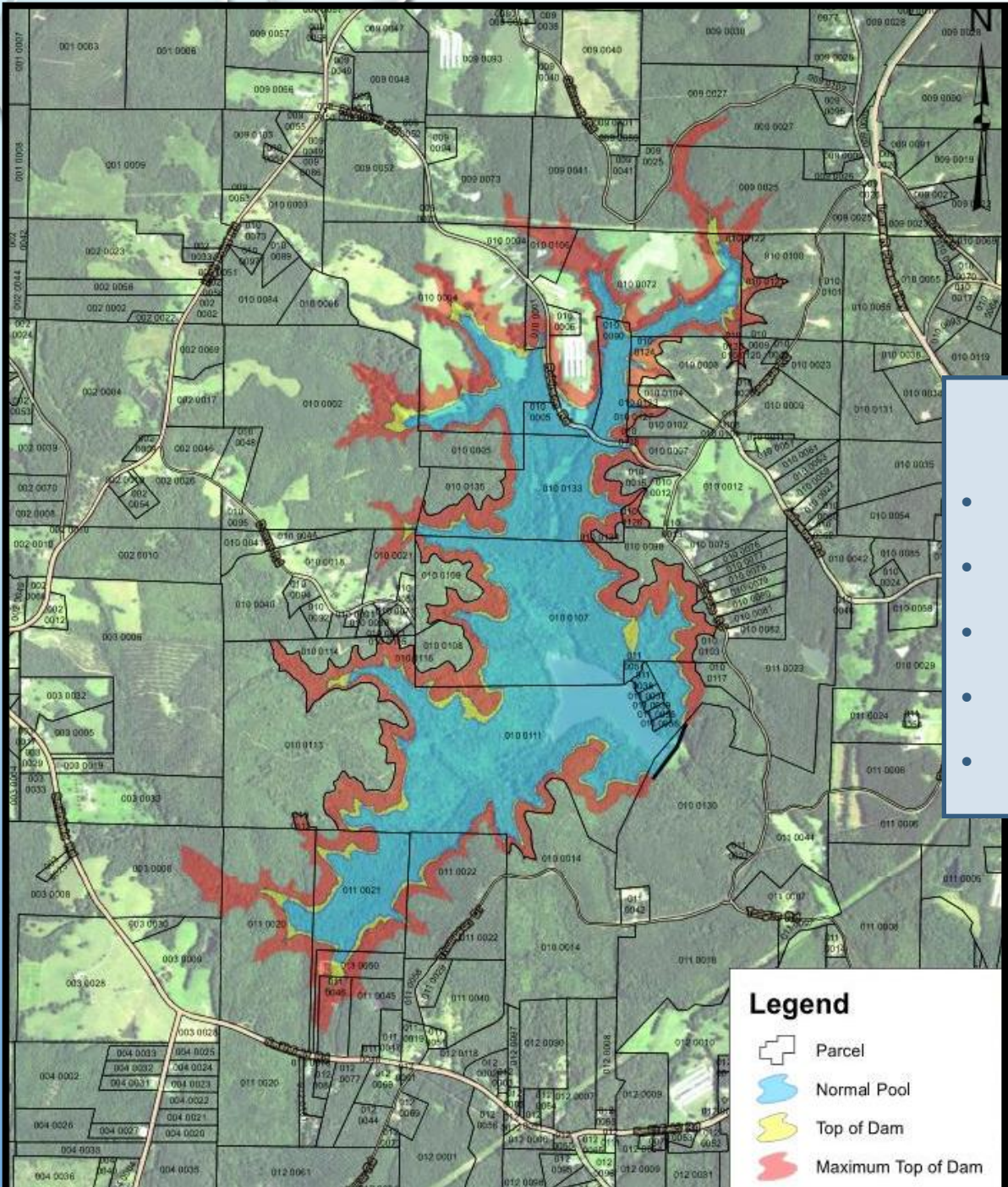
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NEXT STEPS TO RE-FILE 404 PERMIT APPLICATION

DETAILED ALTERNATIVES ANALYSIS

TO DETERMINE THE PREFERRED ALTERNATIVE, THE TEAM WILL:

- CONDUCT MORE SITE-SPECIFIC STUDIES ON 3 ALTERNATIVES:
 - FIELD VERIFICATION OF STREAM AND WETLAND IMPACTS
 - LITERATURE REVIEW OF CULTURAL RESOURCES
 - STREAM FLOW EVALUATION
 - DETAILED COST ANALYSIS
- PREPARE FINAL ALTERNATIVES ANALYSIS REPORT

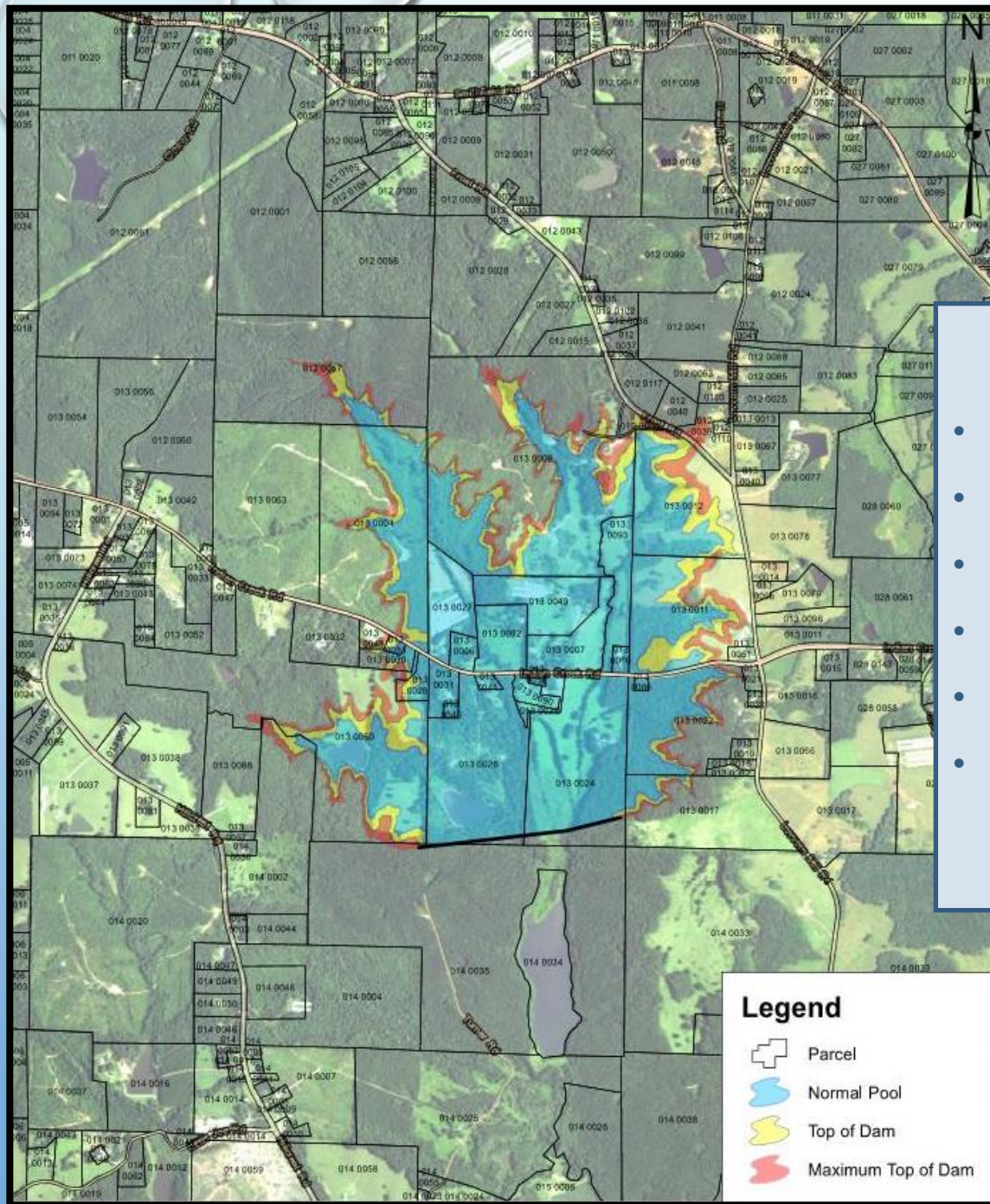


Indian Creek

- Normal Pool: 1161' msl
- Top of Dam: 1171' msl
- Max Top of Dam: 1205' msl
- 69 Parcels
- 31 Property Owners

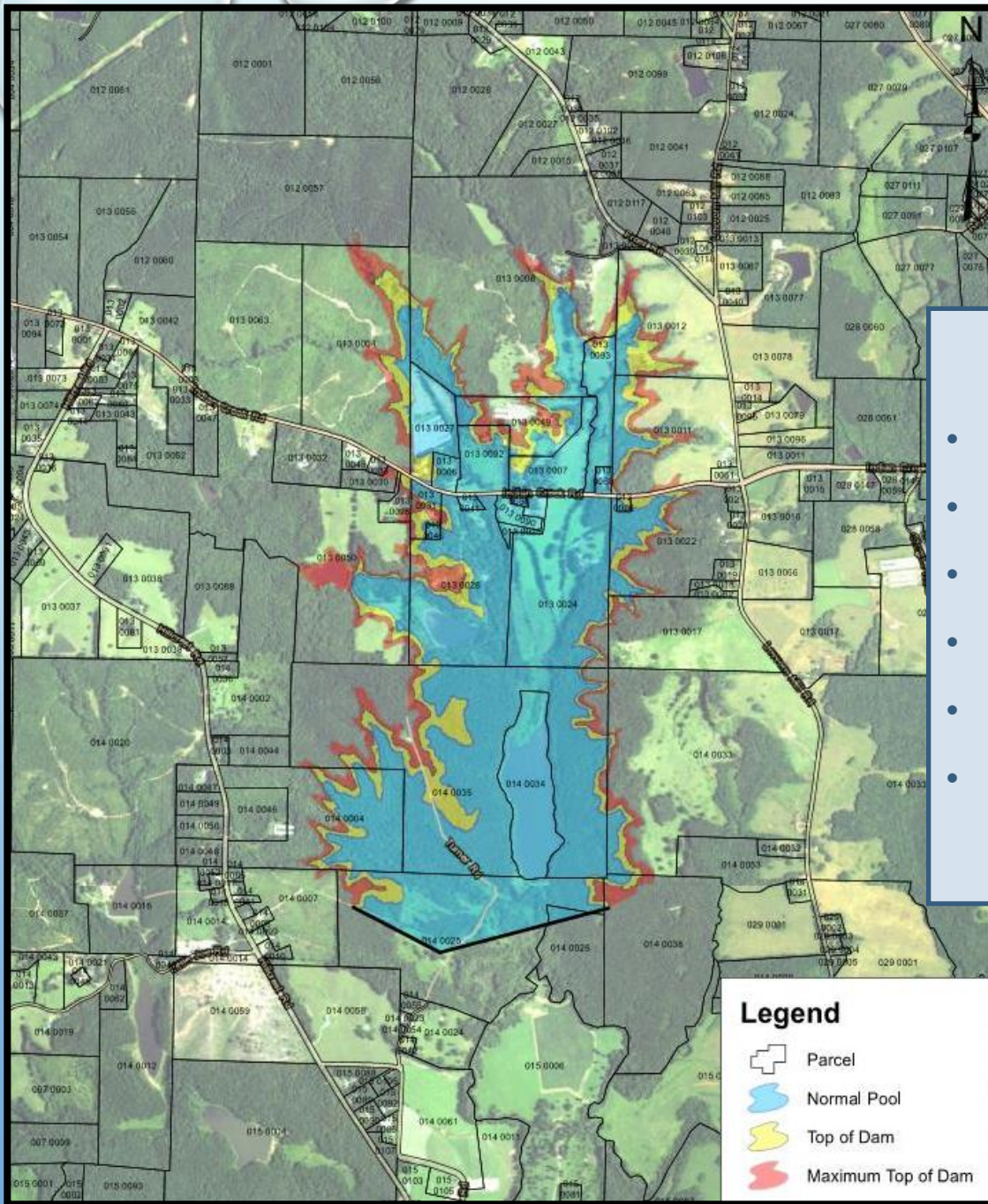
Legend

-  Parcel
-  Normal Pool
-  Top of Dam
-  Maximum Top of Dam



Indian Branch Upper

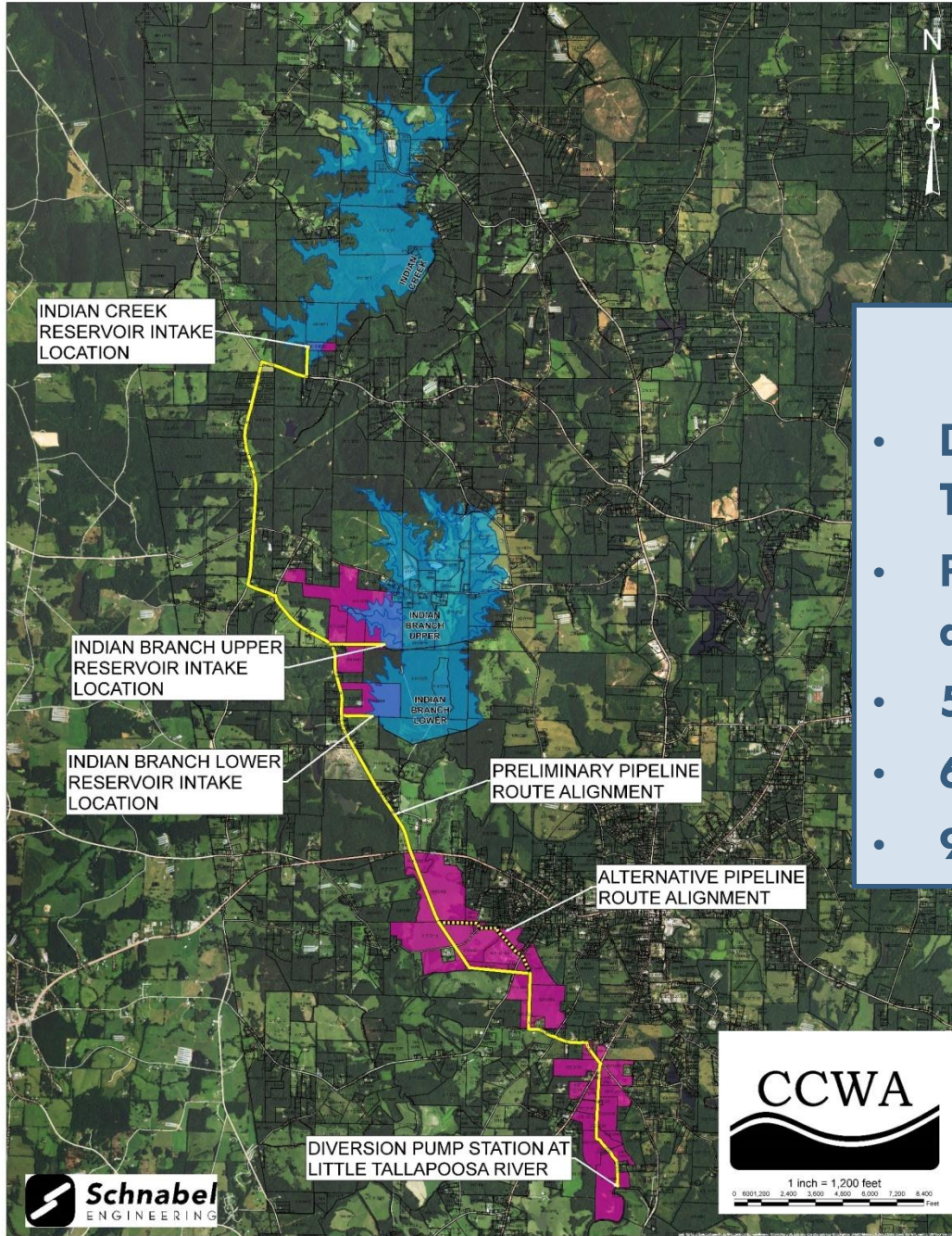
- Normal Pool: 1052.5' msl
- Top of Dam: 1062.5' msl
- Max Top of Dam: 1071' msl
- 36 Parcels
- 32 Property Owners
- **30 Parcels overlap with Indian Branch Lower



- ## Indian Branch Lower
- Normal Pool: 1025.5' msl
 - Top of Dam: 1035.5' msl
 - Max Top of Dam: 1045' msl
 - 36 Parcels
 - 31 Property Owners
 - ** 29 Parcels Overlap with Indian Branch Upper



Carroll County Water Authority Reservoir Project



Raw Water Pipeline

- Diversion Pump Station on Little Tallapoosa River
- Preliminary pipeline route alignment shown
- 5.5 miles to Indian Branch Lower
- 6.3 miles to Indian Branch Upper
- 9.3 miles to Indian Creek

ACTION ITEMS AND SCHEDULE

- TEAM CONTINUES DESKTOP SITE EVALUATIONS AND REPORTS
- COMPLETE ALTERNATIVES ANALYSIS AND SELECT PREFERRED ALTERNATIVE IN DECEMBER 2017
- FILE 404 PERMIT APPLICATION IN JANUARY 2018

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QUESTION AND ANSWER SESSION