

**County of Davie Public Utilities Department  
Water Supply Improvements  
Request for Statement of Qualifications  
5/25/18**

**Background**

Davie County has a population of approximately 41,000 persons distributed across two water supply drainage basins, the Yadkin and the South Yadkin. Within Davie County, the Town of Mocksville has a population of approximately 5,100 persons. Davie County and Mocksville are served by three water treatment facilities:

1. The Sparks Road Water Treatment Plant in Northeast Davie on the Yadkin River;
2. The Cooleemee Water Treatment Plant in Southeastern Davie County on the South Yadkin River.
3. The Lagle Water Treatment Plant in central Davie County withdrawing from Hunting Creek in the South Yadkin River Basin.

The Cooleemee and Lagle facilities are quite old, near the end of their economic life cycles and likely requiring replacement. The Town and County water systems are interconnected through a 12" main and pumping system for the purpose of sharing resources as needed. See the attached excerpts for additional information.

The County and Town wish to Commission an Engineering Feasibility Study to consider two possible water supply scenarios and provide recommendations based on an analysis of 20-year life cycle costs.

**Scenario 1:**

Replace the Cooleemee WTP with a 6 MGD treatment facility using the original intake location on the South Yadkin River, allowing the County to serve water to Mocksville thus permitting the decommissioning of the Lagle Water Treatment facility. Additionally, provide for an emergency water connection to Davidson Water Company's treatment plant near the Hwy 64 Bridge over the Yadkin River in Davie County.

**Scenario 2:**

Provide a robust connection to the Davidson Water Company's treatment facility capable of delivering 6 MGD of finished water to the Davie County System, thus allowing the decommissioning of both the Cooleemee and Mocksville water treatment facilities.

The following issues are to be especially addressed:

1. Interbasin Transfer
2. Water Quality in both systems at the most critical points.
3. The effect of pricing changes for purchased water.

**Requested Qualification Information:**

Davie County requests the following minimum information to evaluate the qualifications of each firm:

1. Specific description the firm's experience related to design of water supply and distribution facilities in the last 5 years.
2. At least 3 references (with contact information) from projects completed by the firm within the past 2 years including a brief project description
3. A list of staff available to work on this analysis with their qualifications
4. A list of the five (5) most recently completed projects of this nature.
5. A sample of the firm's work represented by a Preliminary Feasibility Report or other similar report.

The County will review all submitted qualifications and select up to five firms to interview.

**Deadline and Submission Information:**

Please return 5 copies of the general information requested and 1 copy of the requested sample of the firm's work by August 1, 2018. Please mail all materials to the following address. Faxed copies will not be accepted

Davie County Public Utilities  
298 East Depot Street Suite 200  
Mocksville NC, 27028

**Contact information:** Johnny Lambert, Director of Public Utilities should be contacted only if specific information is needed (336) 753-6091.

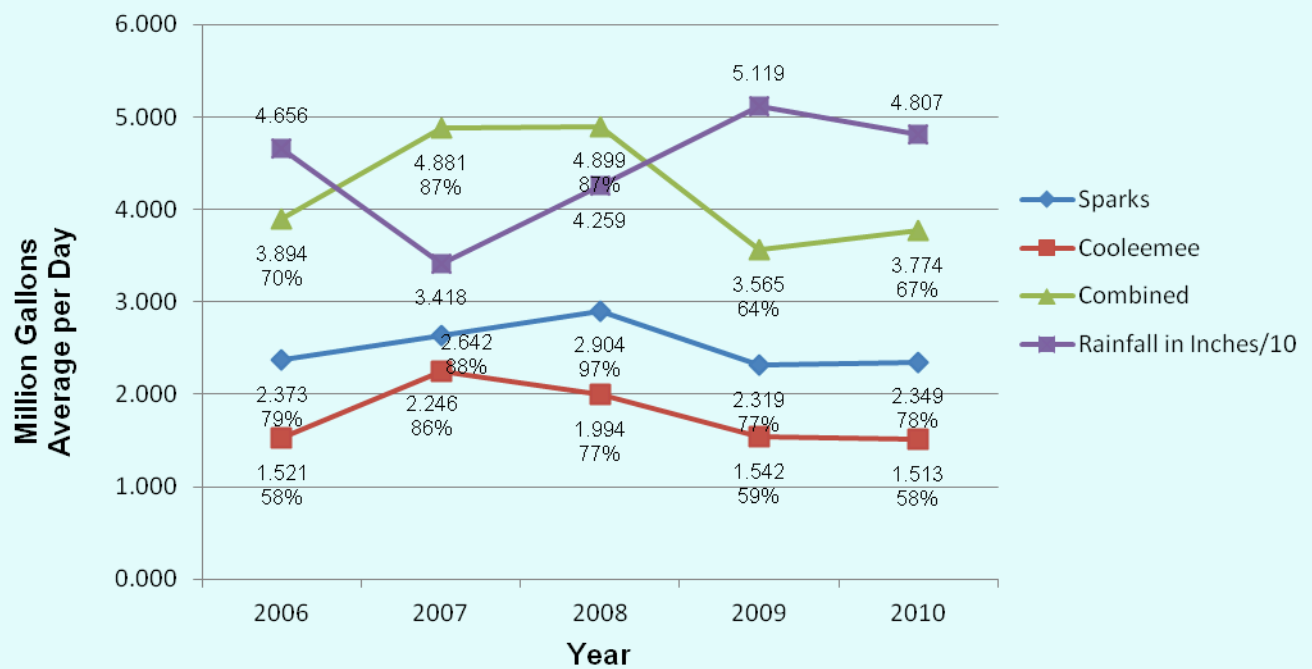
**Excerpts from the 2012 Update to the Davie County  
Water System 50 yr Master Plan  
2/25/2012  
Grey Engineering, Inc.**

**Table 2 - Davie and Mocksville Water Demand Projections**

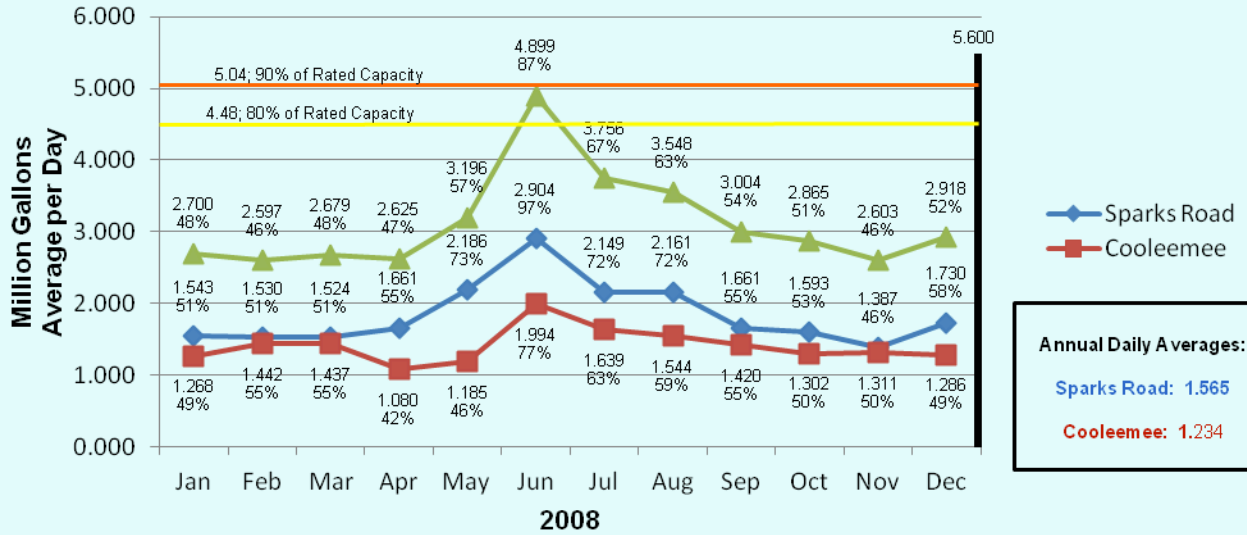
	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>
<b>Population</b>	41,240	43,995	46,893	49,648	52,411	55,166
Town Service Population	4,640	4,619	4,924	5,213	5,503	5,792
County Service Population	36,600	39,376	41,969	44,435	46,908	49,374
County Households at 2.52 persons ea.	14,524	15,625	16,654	17,633	18,614	19,593
New Households		1,102	1,029	979	981	979
Converted Well Customers		140	350	350	350	350
<b>Davie Residential Customers</b>	27,090	30,197	33,651	36,980	40,315	43,643
Resid Cust. Change from 2010		11%	24%	37%	49%	61%
County Pop. Change from 2010		7%	14%	20%	27%	34%
<b>Davie 5 Day Peak Demand (gpd)</b>						
Residential Demand	2.790	3.110	3.466	3.809	4.152	4.495
Industrial Demand	0.155	0.500	0.500	0.500	0.500	0.500
Commercial Demand	0.178	0.190	0.202	0.214	0.226	0.238
Institutional Demand	0.062	0.066	0.070	0.075	0.079	0.083
Demand Sub Total	3.185	3.866	4.239	4.598	4.957	5.316
Unbilled Flow (10%)	0.319	0.387	0.424	0.460	0.496	0.532
Highest 5 Day Avg in Wet Yr (gpd)	3.504	4.253	4.663	5.058	5.453	5.848
Dry Weather Allowance (30%)	1.051	1.276	1.399	1.517	1.636	1.754
Highest 5 Day Avg in Dry Year	4.555	5.529	6.062	6.575	7.089	7.602
<b>Davie Peak Capacity Needed (mgd)</b>	<b>4.6</b>	<b>5.5</b>	<b>6.1</b>	<b>6.6</b>	<b>7.1</b>	<b>7.6</b>
Plant Capacity Available (mgd)	5.6	5.6	5.6	5.6	5.6	5.6
<b>Add. Davie Peak Capacity Needed (mgd)</b>	<b>0</b>	<b>0</b>	<b>0.5</b>	<b>1.0</b>	<b>1.5</b>	<b>2.0</b>
Davie Average Demand (mgd)	3.5	4.3	4.7	5.1	5.5	5.8
Davie Peak Demand (mgd)	4.6	5.5	6.1	6.6	7.1	7.6
Mocksville Average Demand (mgd)	0.7	0.7	0.7	0.8	0.8	0.9
Mocksville Peak Demand (mgd)	1.2	1.2	1.3	1.3	1.4	1.5
Davie+Mocksville Average Demand (mgd)	4.4	5.2	5.6	6.1	6.5	7.0
Davie+Mocksville Peak Demand (mgd)	5.8	6.7	7.3	7.9	8.5	9.1
<b>Add. Req. for Davie+Mocksville Avg. (mgd)</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.5</b>	<b>0.9</b>	<b>1.4</b>
Add. Req. for Davie Peak Only (mgd)	0.0	0.0	0.5	1.0	1.5	2.0
<b>Add. Req. for Davie+Mocksville Peak (mgd)</b>	<b>0.2</b>	<b>1.1</b>	<b>1.7</b>	<b>2.3</b>	<b>2.9</b>	<b>3.5</b>

Table 3 – Est. Available Supply With Demand Projections (mgd)		
Intake Location	Safe planning Yield	Estimated 2035 Peak Demand
Hunting Creek at Mocksville	3.6	1.5
South Yadkin at Cooleemee	10.2	3.6
Yadkin at Sparks	63.9	3.0
Yadkin at Hwy 64 (Davidson)	76.6	2.5

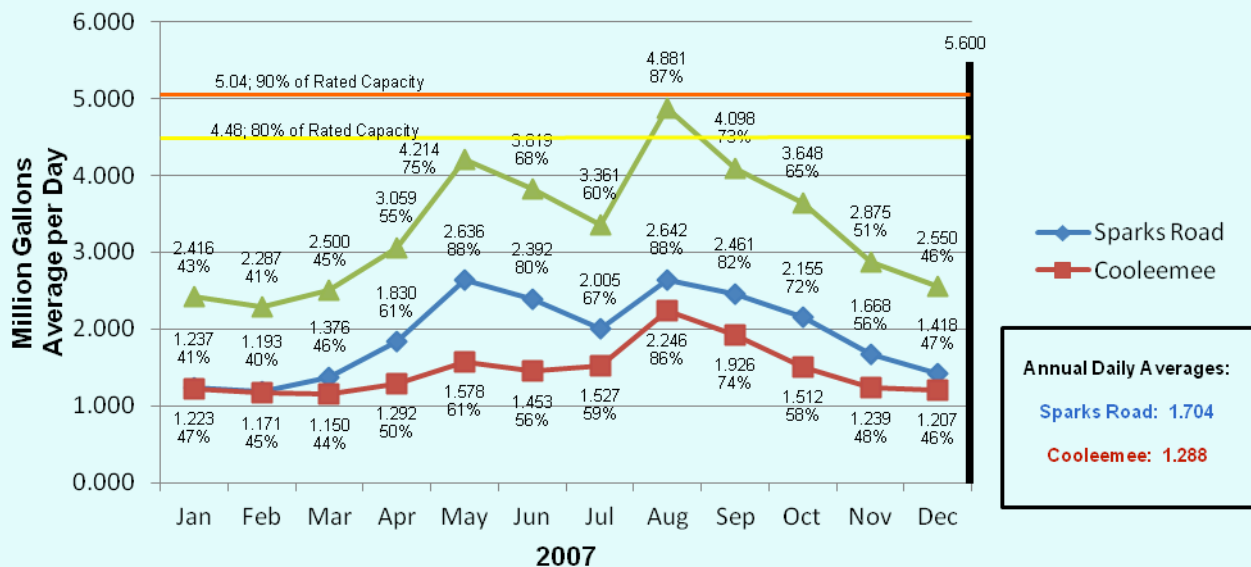
**Exhibit 2: 5 Consecutive Day Maximum Daily Water Use With Percentage of Rated Plant Capacities**



**Exhibit 3: 5 Consecutive Day Maximum Daily Water Use With Percentage of Rated Plant Capacities**

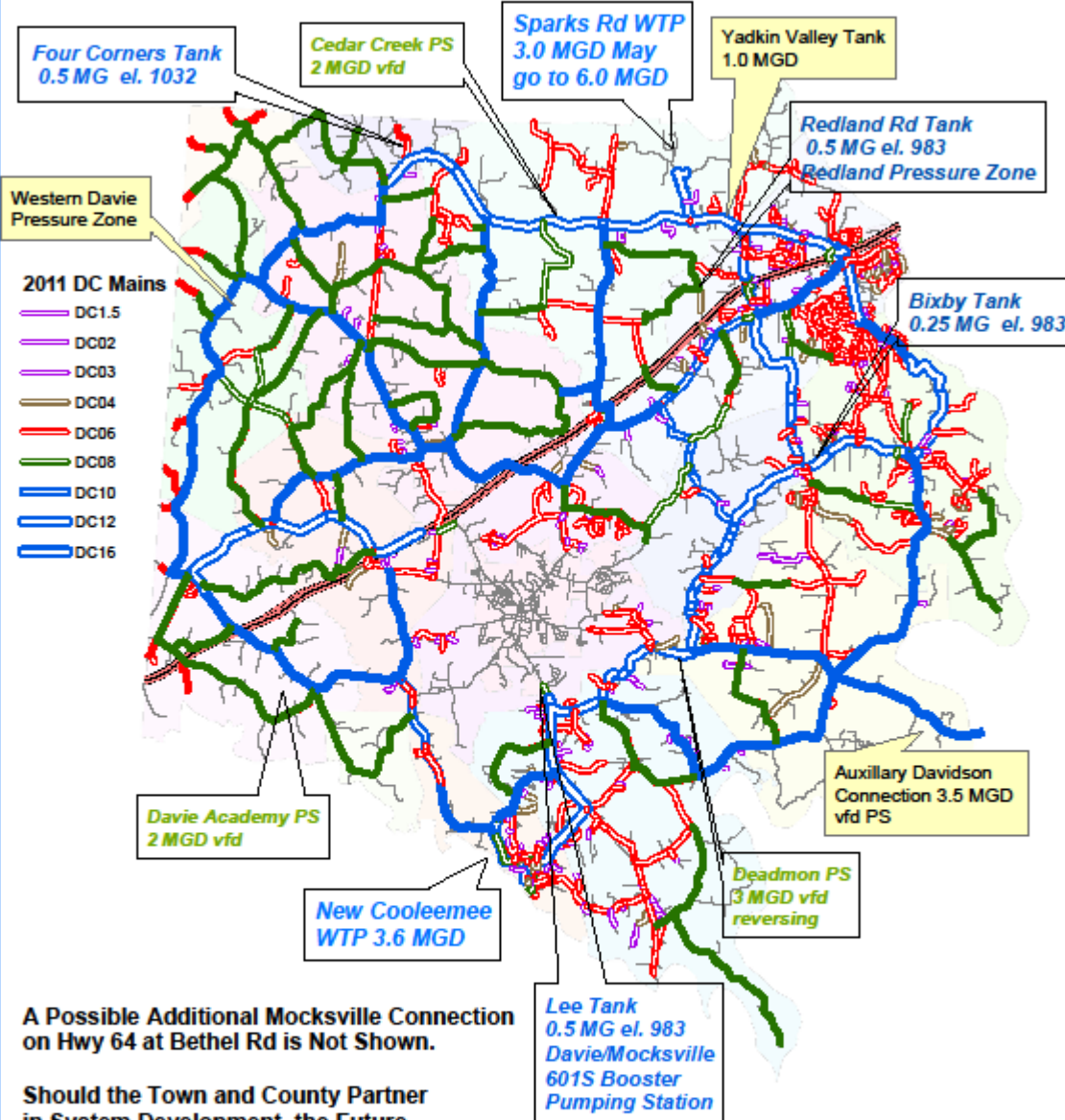


**Exhibit 4: 5 Consecutive Day Maximum Daily Water Use With Percentage of Rated Plant Capacities**



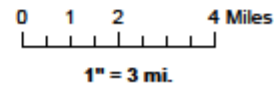
## Figure 2: Existing and Proposed Water System

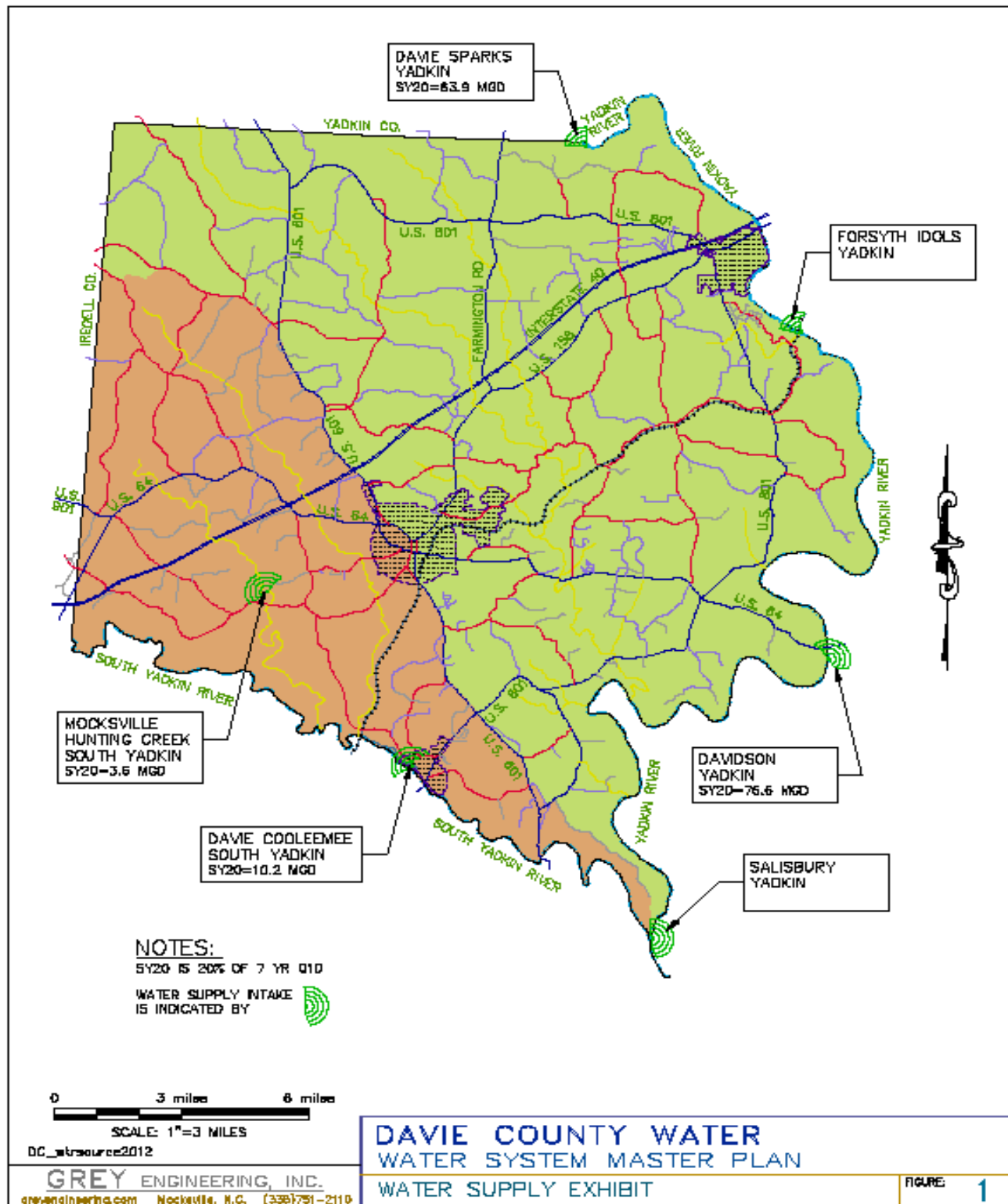
Showing Future 6", 8" and 12" Additions as Solid Lines

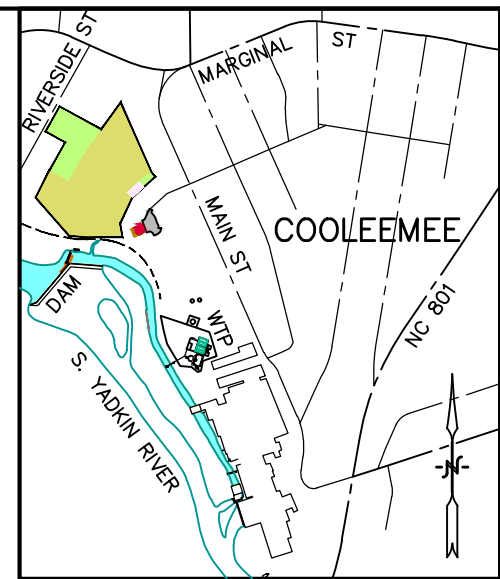
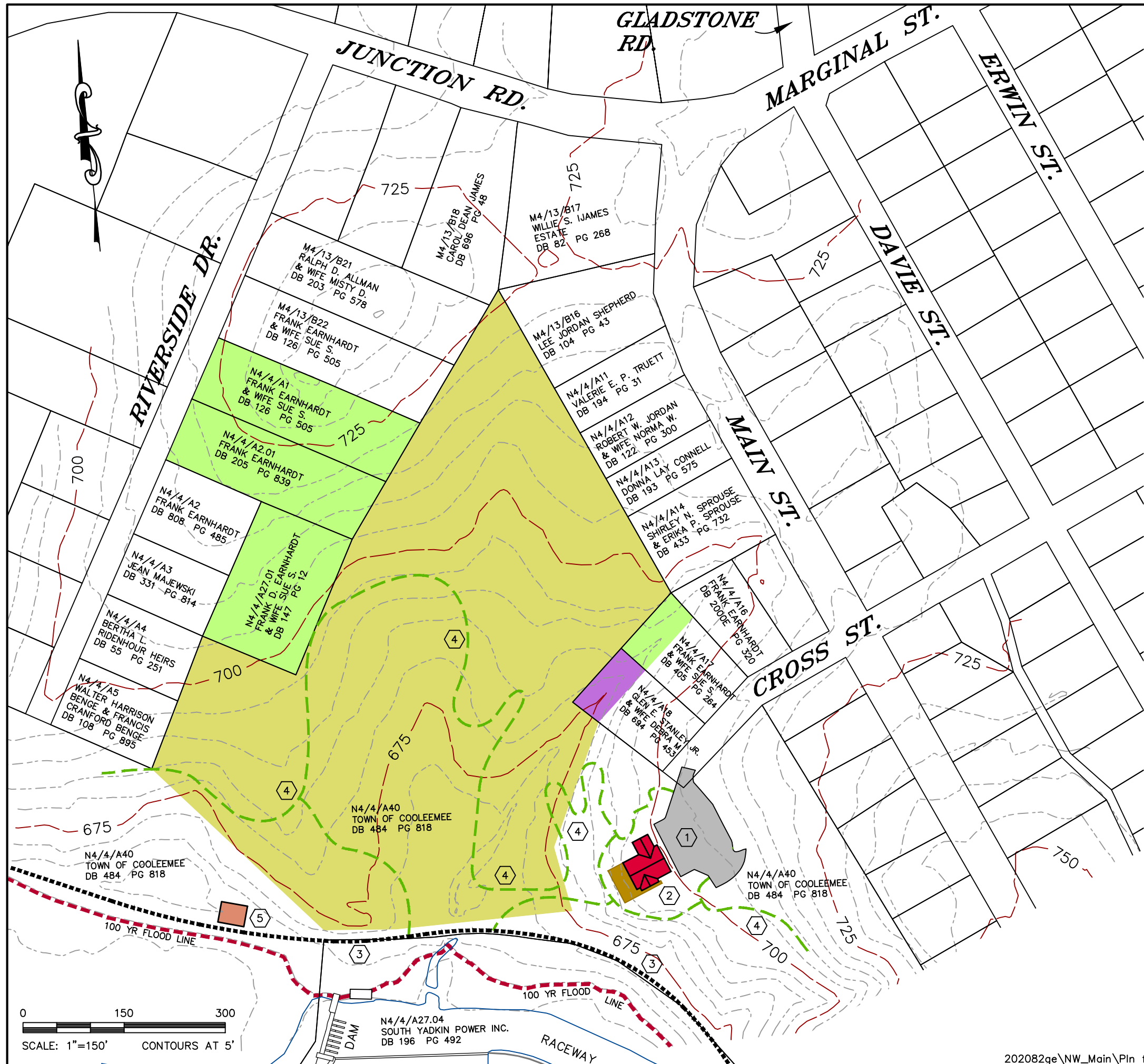


A Possible Additional Mocksville Connection on Hwy 64 at Bethel Rd is Not Shown.

Should the Town and County Partner in System Development, the Future Distribution System Map will Change Dramatically.







**VICINITY MAP**  
SCALE: 1" = 1/4 MILE

**PROPERTY TABLE**

AS OF FEBRUARY 2012

OWNER	ACRES
EARNHARDT	2.284 AC.
STANLEY	0.117 AC.
TOWN OF COOLEEMEE	8.672 AC.

**DATA SOURCE**

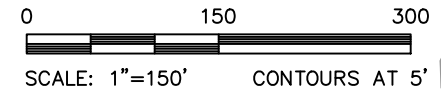
PARCEL BOUNDARY, TOPOGRAPHY & PROPERTY INFORMATION FROM DAVIE COUNTY GIS.

100 YEAR FLOOD LINE FROM FEMA FIRM PANEL 3710-5735J.

MASTERPLAN RIVERPARK AT COOLEEMEE FALLS JUNE 2006 FROM WEST FOURTH LANDSCAPE ARCHITECTURE, P.A., WINSTON-SALEM, N.C.

**RIVERPARK KEYNOTES**

POTENTIAL FEATURES	
1	PARKING
2	EDUCATIONAL BUILDING
3	ACCESS ROAD
4	HIKING TRAIL
5	BATHROOM



**DAVIE COUNTY WATER**  
**WATER SYSTEM MASTER PLAN**  
**POTENTIAL NEW WATER TREATMENT PLANT**

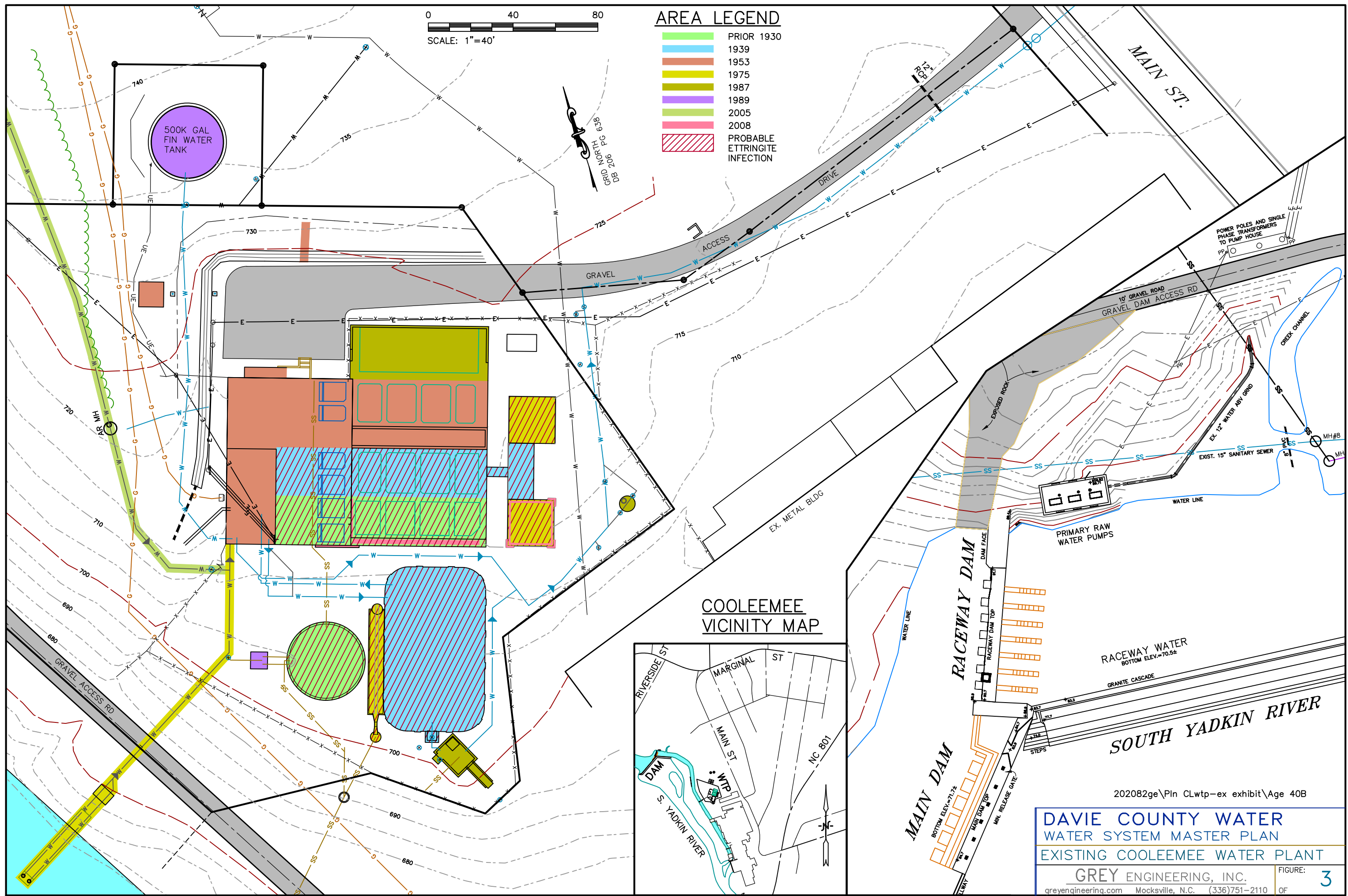
GREY ENGINEERING, INC.  
 greyengineering.com Mocksville, N.C. (336)751-2110

FIGURE: **1**  
OF

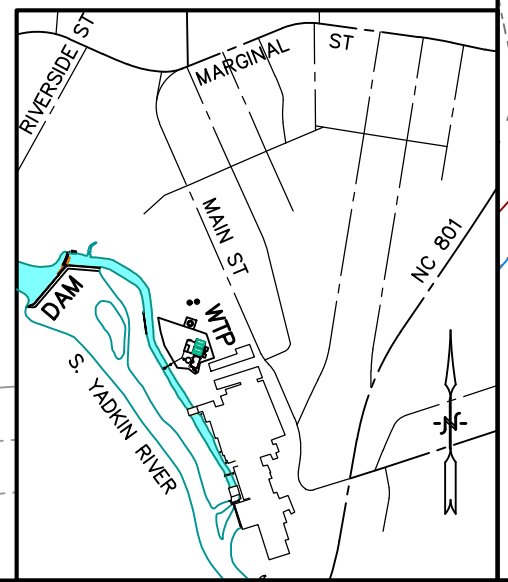
0 40 80  
SCALE: 1"=40'

**AREA LEGEND**

- PRIOR 1930
- 1939
- 1953
- 1975
- 1987
- 1989
- 2005
- 2008
- PROBABLE ETTRINGITE INFECTION



**COOLEEMEE VICINITY MAP**



202082ge\Pin CLwtp-ex exhibit\Age 40B

**DAVIE COUNTY WATER  
WATER SYSTEM MASTER PLAN  
EXISTING COOLEEMEE WATER PLANT**

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