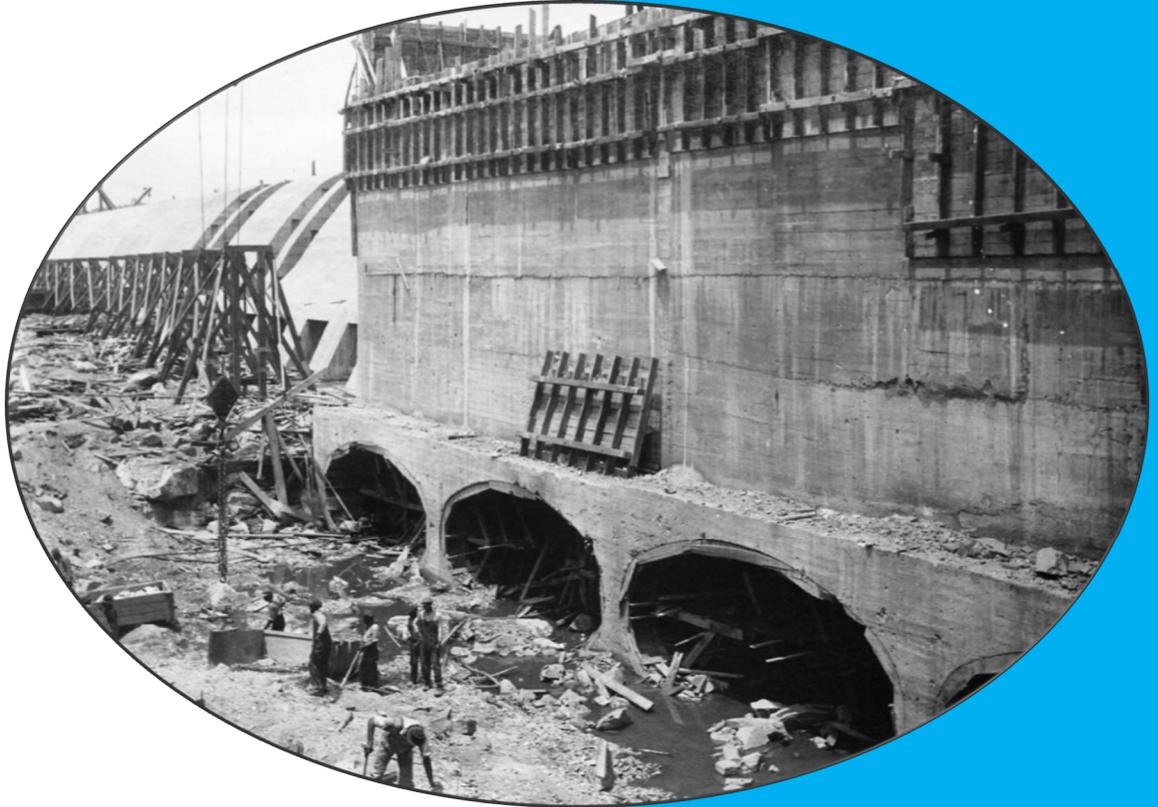




## History of the Broad River Development From Henderson Island to Hampton Island



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## INTRODUCTION

The existing Federal Energy Regulatory Commission (FERC) license for the Parr Hydroelectric Project (FERC Project No. 1894) expires on June 30, 2020. As a result, cultural resources investigations were conducted to assist the South Carolina Electric & Gas Company (SCE&G) in complying with the FERC relicensing process for the Parr Hydroelectric Project.



The Parr Hydroelectric Project is located in central South Carolina along the Broad River in eastern Newberry County and western Fairfield County. The project includes both the Parr Shoals Development and the Fairfield Pumped Storage Facility Development. The total project area encompasses 4,400 acres on the Broad River and its tributaries between Henderson Island to the north and Hampton Island to the south, and Monticello Reservoir.

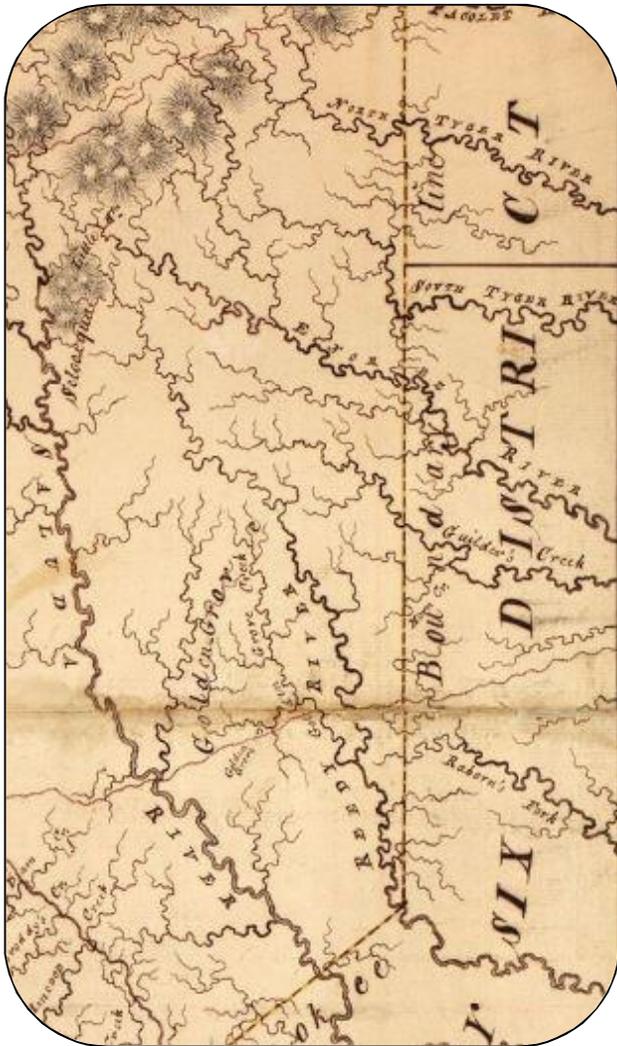
As part of the FERC relicensing process, a Phase I cultural resources survey of the Parr Hydroelectric Project was completed in 2013 and 2014. Additional Phase II archaeological investigations were conducted in 2016 at two archaeological sites, 38NE8 and 38NE10. As a result of these investigations, four resources were identified as being eligible for inclusion in the National Register of Historic Places (NRHP): the Parr Shoals Development, the Fairfield Pumped Storage Facility, Lyles Ford; and archaeological site 38NE8. The following report provides a brief history of the region and hydroelectric development, and a description of the three historic sites. Archaeological site 38NE8 is not discussed in this report as its location is protected by federal law.



# INTRODUCTION

## DEVELOPMENTAL HISTORY

During the early eighteenth century, many of South Carolina's European immigrants initially settled in the state's low country. These coastal areas developed into structured societies with local governments and amenities such as courts, schools, and churches. It was not until Governor Robert Johnson's township program, which began in the 1740s, that immigrants began to settle the midland section of the state. Johnson's program provided fifty acres of land for each family member, funding for food and transportation, and exemption from land rents for ten years. The program sought to encourage population growth to help provide a buffer against Native American and Spanish invasion and to balance the increasing slave population. Eleven settlements formed between the Broad River and Saluda Rivers, including present day Newberry, Laurens, Union, and Spartanburg Counties. The area, which had once been hunting grounds for the Cherokee, enticed large numbers of settlers with its landscape rich in forests of hickory, oak, and pine trees.



Map showing Land Ceded to South Carolina by the Cherokees (1777)

The wave of settlement along the Broad River prompted conflict with the Cherokee, an Iroquoian-speaking people who occupied the lands from the Blue Ridge Mountains to Abbeville County and southeast to the Broad River. During the late 1750s, the Cherokee began attacking the upcountry settlements because of encroachment on their lands. The attacks became such a frequent occurrence over the subsequent decades that the state legislature began to discourage people from inhabiting the area.

In May 1760, Colonel Archibald Montgomery and an army of 1,200 men marched to the upcountry from Charleston. They sought to expel the Cherokee from the Midlands, but were ambushed and forced to retreat from the area after suffering a handful of losses. Settlers fled the upcountry for Saxe Gotha Township near Columbia following Montgomery's retreat. The following year, Colonel James Grant led another campaign against the Cherokee, raiding their lands and setting fire to camps, leaving 15 villages in ruin (Revels 2003:9). The Cherokee War ended in 1761 with a treaty drafted by Lieutenant Governor William Bull and Chief Attakullakulla, which imposed a boundary forty miles south of Keowee. The Cherokee were barred from crossing the boundary without a white escort or order from the state government (A Treaty of Peace and Friendship 1761).

## DEVELOPMENTAL HISTORY

South Carolina's backcountry residents, like their coastal neighbors, were concerned by a number of issues pertaining to British rule over the colonies including the latent establishment of circuit courts, the lack of fair representation, and the failure of state leaders to provide schools and churches. Due to their distance from the politics of the coast, many of the backcountry residents remained loyal to the King, especially those who had received large land grants (Revels 2003). Many of the settlers in the areas surrounding the Broad River itself were included among those who had received the land grants. As many of these residents were not of English heritage, especially on the western side of the river where German and Swiss-German families composed the majority of the population, they felt a certain indebtedness towards the monarchy (Nagle and Carpini 2014:17–18).

For the majority of the Revolutionary War, loyalties along the Broad River were generally split along county lines, with residents of Fairfield County rallying behind the American cause and those of Newberry County preferring to remain neutral (Nagle and Carpini 2014:18). The backcountry loyalists were not persuaded to join the war effort until the capture of Charleston by the British in May 1780. Backcountry residents became fearful of British Forces, as stories of their cruelty in confrontations like the Hayes Station Massacre gathered attention. On November 19, 1781, Maj. William "Bloody Bill" Cunningham and a group of about 300 Loyalists attacked Patriot forces at the

home of Col. Joseph Hayes. Hayes and his men managed to escape to a small block house, but Cunningham set fire to the building forcing Hayes to surrender. After surrendering many of the men were hanged (The American Revolution in South Carolina 2009).



Map of South Carolina in 1776

More battles were fought in South Carolina during the Revolutionary War than in almost any other state. With over 250 battles, many of South Carolina's counties were affected (Revels 2003:12). Both Newberry and Fairfield counties had multiple battles fought within their boundaries between 1780 and 1782 (Nagle and Carpini 2014:18). Lyles Ford was used by multiple detachments fighting during this time as a crossing point on the Broad River. Further, it was

reported that several patriots camped at the plantation of Colonel James Lyles, located east of the Broad River (Russell 2000:158). Patriot victories at Kings Mountain on October 7, 1780, and Cowpens on January 17, 1781, began to bolster the cause against the British. In 1781, Major General Nathaniel Greene drove the main British force out of South Carolina into Virginia.

## DEVELOPMENTAL HISTORY

The backcountry remained isolated after the Revolutionary War, but the introduction of the cotton gin in the late 1790s allowed backcountry farmers to grow short staple cotton, a variety of cotton that was easier to grow. By 1826, cotton became the area's primary crop. Cotton production appealed to many of Fairfield and Newberry counties' residents, as the crop required little capital investment. One acre of land could yield anywhere from 150 to 250 pounds of cotton. As a result of the wealth generated by cotton, many of the region's residents became slaveholders. The number of African-American residents grew quickly (Revels 2003:14). Between 1800 and 1810 alone, the slave population grew from 1,968 to 4,034 in Fairfield County and from 2,204 to 4,006 in Newberry County (Nagle and Carpini 2014:20).

# CIVIL WAR

The inauguration of Abraham Lincoln as President in 1860 inspired worry among South Carolinians as they feared an end to their newfound wealth if the slaves were freed. The Columbia Convention, which was a statewide convention, was held at the First Baptist Church in Columbia on December 17, 1860. Delegates from districts throughout South Carolina unanimously voted to draft an Ordinance of Secession. The convention was reconvened in Charleston following an outbreak of smallpox in Columbia, where the ordinance was signed on December 20, 1860. Arguments over implementing the Ordinance of Secession into a draft of the South Carolina's State Constitution continued for several months, and it wasn't until April 1861 that it was finally passed. Nine days later, the first shots were fired by Citadel cadets at Fort Sumter.



*Sketch of General Sherman and his army crossing the Broad River*

The area surrounding the Broad River was indirectly affected for the majority of the war, as actual fighting did not occur in the vicinity until 1865. Men from both Newberry and Fairfield counties began enlisting in the army in 1861. One notable resident of Fairfield County, Thomas Minter Lyles, Jr., served as Lieutenant Colonel along with five of his sons during the war.

## DEVELOPMENTAL HISTORY

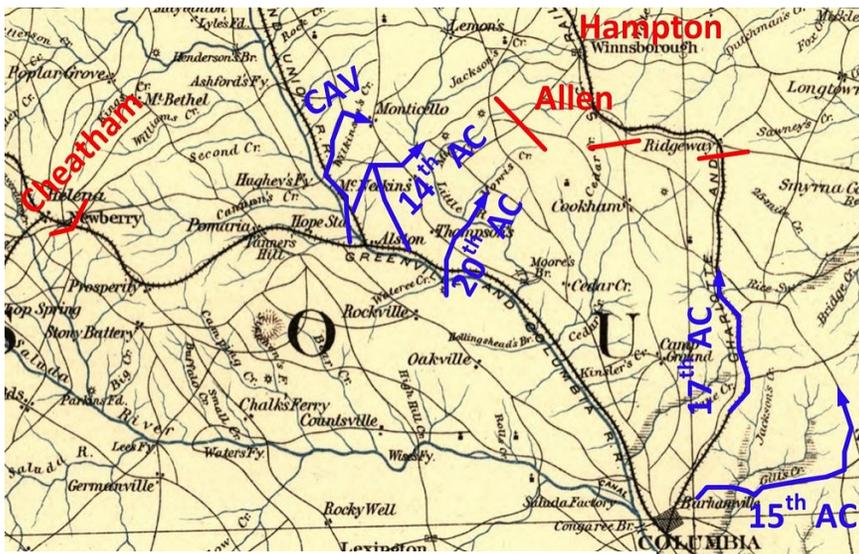
The Civil War was nearing its end as General William T. Sherman's march north from Savannah approached Columbia. On February 17, 1865, Sherman's right wing closed in on the city. They watched as the Confederates burned the bridge over the Broad River to try and slow the Union momentum into the city. Sherman's forces were undeterred and created a pontoon bridge across the river. At 10 a.m. on the morning of the 17<sup>th</sup> the Mayor of Columbia surrendered the city as the Union troops burned its buildings to the ground.

# CIVIL WAR



Sketch of the Burning of Columbia

At the same time Sherman's left wing, consisting of the Fourteenth Corps and the Cavalry Division, looked to cross the Broad River north of Columbia. On February 19<sup>th</sup> and 20<sup>th</sup> the left wing crossed the Broad River at the town of Alston, which is just over a mile south of where the Parr Shoals development is currently located. The right and left wings continued towards Winnsboro destroying bridges and railroads along their way. On



Map showing path of Sherman's forces leaving Columbia.

February 21, 1865, Sherman's forces reached Winnsboro in Fairfield County and pillaged and burned the town (Revels 2003). The key Confederate armies had all surrendered by the spring of 1865. On May 6, 1865, Confederate President Jefferson Davis was captured and the war came to an end (McPherson 2014). After the war, the soldiers came home to bleak conditions. Real estate values had dropped to approximately 25 percent of their pre-war value, houses were decaying, and farmland was left fallow (Revels 2003:23–24).

## DEVELOPMENTAL HISTORY

Life changed for both white and African-American South Carolinians after the Civil War. Formerly enslaved people left in search of family members that had been sold, went to find work in towns and cities throughout the south, or negotiated contracts for wages with their previous owners. These freed people faced difficult choices. In the immediate aftermath of the war the Freedmen's Bureau attempted to help ensure the fairness of contracts between Freedmen and their new employers, but there were never enough agents in the South to fully oversee labor conditions. While many people would have preferred to farm independently, most Freedmen's Bureau agents were imbued with Free Labor ideology and believed wage labor would provide a route toward independence for former slaves. This belief ignored systemic inequalities that would continue to hamper former slaves for many decades. They lacked capital, access to affordable land, and credit was constricted throughout the South after the Civil War. Even where credit was available, it was controlled by whites. While there were some attempts to provide Freedmen with opportunities for land ownership, most notably through the South Carolina Land Commission, these were very limited in scope. Throughout much of the South, including in the Broad River region, wage labor would eventually give way to tenancy and sharecropping, and labor relationships would all too often devolve into endless cycles of debt that would bind Freedmen and their descendants to the land.



*View of Tenant farmhouse in Newberry County*

In the Broad River region, most of the residents continued to farm, but low cotton prices posed problems for those involved with its growth and production. African-American and white tenants moved from farm to farm in search of better arrangements. The tenants were distinguished as either cash renters, who had their own animals and tools, or as sharecroppers, who borrowed everything from the landowner. The area's African-American residents banded together to create their own communities in the face of political and social oppression. Churches helped facilitate community development. The community also began to develop African-American schools, including the Freedman's School on Caldwell Street in Newberry (Revels 2003:25–26).

## DEVELOPMENTAL HISTORY

The post war years saw further development of the state's railway system, which aided the increase of cotton production and the growth of the textile industry. Railroads like the Columbia, Newberry & Laurens Company (CN&L), which was established in 1885, encouraged the growth of towns in Newberry County and other parts of the state. From 1881 through 1886, cotton prices fell steadily, leaving farmers without money or food. As cotton prices decreased, the textile industry increased production to make up for the lost revenue. Manufacturers grew to support sixty-one mills between 1895 and 1907. The Newberry Cotton Mill opened in 1884 as the first fully steam powered textile factory in South Carolina. The original mill featured 6,000 spindles and 200 looms. The mill was further expanded in 1895 and 1910. Mills such as the one in Newberry were a great boon to the employment and economy of the region. Housing for workers was generally built in the areas around the mills creating "mill villages" that helped the growth of existing towns.



*Former Newberry Cotton Mill*

By the 1930s, the agricultural industry in both counties was on the brink of collapse. The county's farmland and agricultural buildings retained only half of their original value. By 1934, eight million acres of former agricultural land were depleted and declared useless. WWII brought an end to the depression, and agricultural production and manufacturing increased. The veterans returned home and many took advantage of the GI Bill, gaining valuable education and emerging as community leaders and business owners (Revel 2003:29).

## HYDROELECTRIC DEVELOPMENT

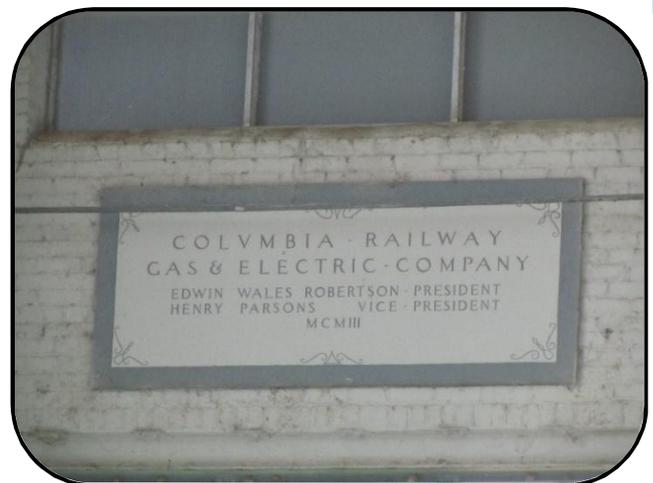
During the late 1800s, the United States saw the development of hydroelectric power. This pioneering stage, which lasted from 1880 to 1895, was marked by significant advances in harnessing hydroelectric power efficiently. The innovation phase spanned from 1895 to 1915 and included the development of new techniques and technologies, which aided in the construction of previously undevelopable sites. After 1920, a period of standardization occurred. Columbia's growing textile industry increased the demands for electricity. As the Columbia Canal's potential had been tapped in the 1890s, forward thinking investors saw the need for new sources of power (Nagle and Carpini 2014:35).



*Bridge across Broad River during Parr Shoals Construction*

Company in 1904 and the Columbia Water Power Company in 1905, the latter of which included the Columbia Canal and Hydroelectric Plant. The company changed its name in 1911 to the Columbia Railway, Gas, and Electric Company. Acquisitions continued, including the Parr Shoals Power Company, and by 1925 the company had 9,000 electric and 5,000 gas customers. That same year, Columbia Railway, Gas, and Electric Company was acquired by the Broad River Power Company. In 1929, the Broad River Power Company was purchased by the Associated Gas and Electric System. Eight years later, in 1937, the company changed its name to the South Carolina Electric and Gas Company (SCE&G) (Nagle and Carpini 2014:35–38).

SCE&G went through numerous acquisitions and consolidations of smaller utility companies throughout its long history. The company began as Columbia Railway, Gas and Electric Company, which was founded in 1891. The Columbia Railway, Gas and Electric Company acquired the Columbia Gas Light

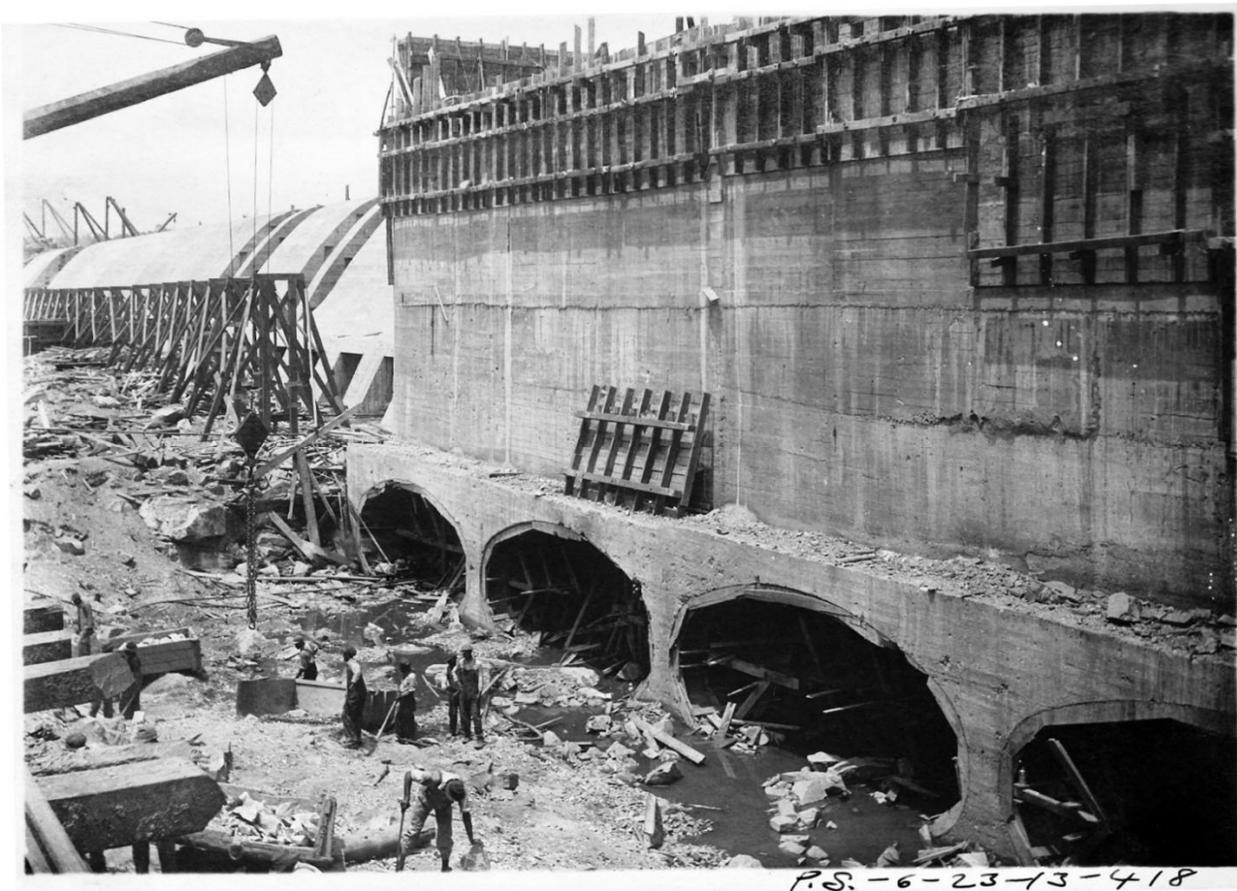


*Columbia Railway Gas & Electric Co. sign*

## HYDROELECTRIC DEVELOPMENT

In 1896, Henry Larkin Parr commissioned a survey of his father's property along the Broad River, which had previously been used for milling operations, to determine if commercial water power was feasible. He enlisted the services of Lockwood Greene and Company. The survey convinced Parr to forgo the canal he had originally envisioned in exchange for a more substantial hydroelectric development. From 1903 to 1904, the engineering firm conducted another survey, this time to determine the development's power generating potential. The Parr Shoals Power Company was organized the following year with the intention of developing a hydropower complex at the north tip of Hampton Island. In 1905, in anticipation of the estimated 25,000 horsepower capacity development, Parr purchased the land and water rights surrounding the site. Two years later he purchased a franchise for a streetcar line in Newberry, which would include three miles of track powered by the dam. Parr worked tirelessly on the project, which was touted as the largest power development to ever be undertaken in the South (Nagle and Carpini 2014:39).

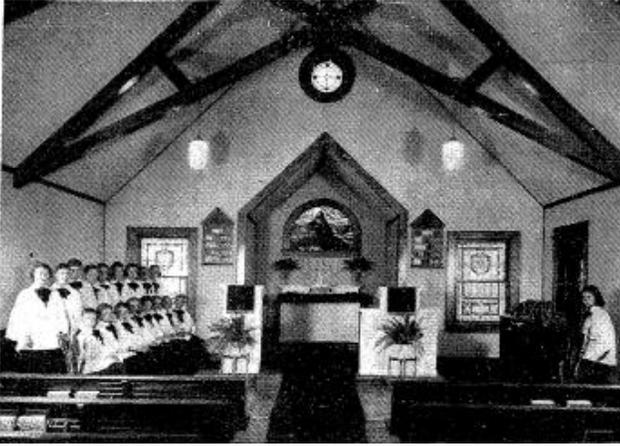
# HYDROELECTRIC DEVELOPMENT



*Parr Shoals under construction*

The project still hadn't acquired financing by 1907, and Alester G. Furman and Associates of Greenville purchased control of Parr's company. Henry Parr, however, continued his involvement with the project. In 1912, control of the company was sold again, this time to a syndicate of Edwin W. Robertson, the president and treasurer of the Columbia Railway, Gas, and Electric Company. Excitement over the project resumed following the purchase (Nagle and Carpini 2014:40).

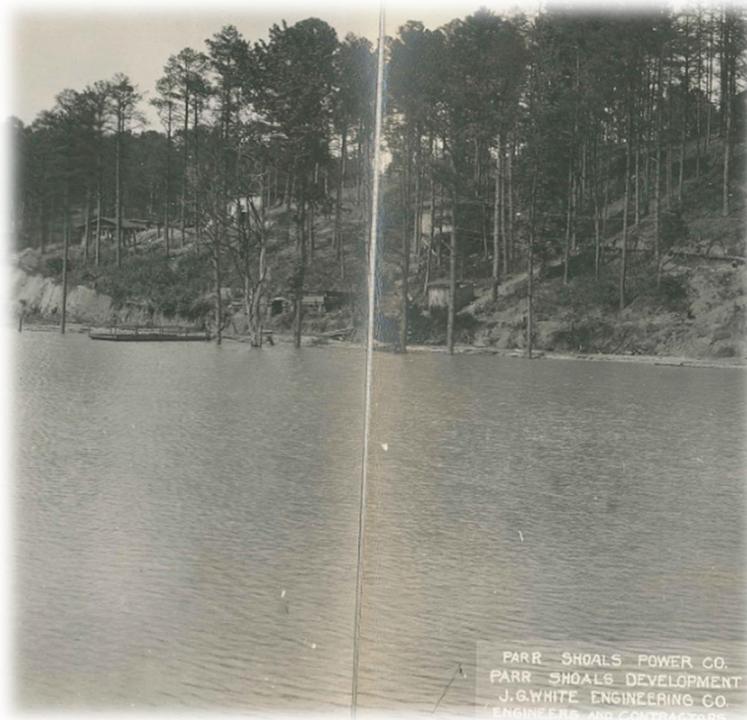
## HYDROELECTRIC DEVELOPMENT



*Photo of Community Church at Parr (1939)*

With the construction of Parr Shoals came development of the surrounding area. As early as 1912, the preliminary plans for the construction of the Parr Hydroelectric Plant and Dam called for the establishment of labor camps for contractors. Known as Parr, the small community was located on the western bank of the Broad River within Fairfield County near the old Parr Steam Plant site and the Parr Hydroelectric Plant. In all, the village was said to have a church, approximately twenty eight residential dwellings, a hotel, swimming pool, tennis courts, and a three-hole golf course. The residential dwellings are said to have been more progressive than those in the surrounding counties because they all had electricity and in-door plumbing. A 1960 article in *The State* indicates that the small church and approximately a dozen houses have a vacant appearance. The Parr Village was evacuated in 1962 for the construction of the Parr Atomic Power Plant. The close knit former residents of the Parr Community were still holding reunions as late as 1976 (Bailey 1976).

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*View of early development of Parr (1914)*

The completion of the Parr dam led to growth of the Midlands and an increasing demand for electricity for both industrial and residential uses. Over the following decades, expansions of the Parr development continued in an effort to meet this growing demand. The first expansion in 1921 included adding a sixth generating unit to the Parr powerhouse, which increased the total power output capability to 14,800-kilowatt (kW). By 1924, the

## HYDROELECTRIC DEVELOPMENT

construction of a new steam plant was underway which included a single 12,500-kW generating unit. This advancement allowed for power from the Parr Steam Plant to supply lights to the City of Columbia for the first time in August 1925. Multiple expansions ensued including a 30,000-kW generating unit in 1926, another 30,000-kW unit in 1929, and an expansion with an additional boiler in 1940 with increased capacity of up to 80,000-kW. Two oil or gas turbine peaking units with 16,000 kW each were added in 1970, and in 1971 two additional gas turbine units were added (Nagle and Carpini 2014:47).

# HYDROELECTRIC DEVELOPMENT



*Excavation for Fairfield Pumped Storage*

The Parr Development was able to supply additional energy to surrounding communities as a result of the increased power output. Towns throughout Calhoun, Edgefield, Fairfield, Lexington, Newberry, Orangeburg, Saluda, and Union counties became the target of new transmission lines, as the Broad River Power Company purchased smaller power companies in these communities (Nagle and Carpini 2014).

## HYDROELECTRIC DEVELOPMENT



*Construction of penstocks for Fairfield Pumped Storage*

In the mid-1960s, SCE&G embarked on a new chapter, as a site near the powerhouse was selected for nuclear development. The development came out of SCE&G's cooperative partnership with Carolina Power and Light Company, Duke Power Company, and the Carolinas Virginia Nuclear Power Associates, Inc. The project utilized a prototype plant to research nuclear energy and electricity. It was the first atomic energy plant in the Southeast. Both the Parr Steam Plant and Parr Nuclear Plant were eventually taken out of service and demolished, but were replaced in the 1970s by V.C Summer Nuclear Facility and the Fairfield Pumped Storage Facility, which used a more sustainable kind of hydroelectric power (Nagle and Carpini 2014:80–82).

## HISTORIC PROPERTIES

Experienced designer, J. G. White Engineering Company, was commissioned to manage the construction of the Parr Shoals project. George G. Shed was the resident engineer and J. T. McLellan was construction superintendent (J. G. White Engineering Corporation 1921). Due to the remote nature of the area at the turn of the 20<sup>th</sup> century, before work could begin on the construction of the facility preliminary work at the site had to be undertaken. The preliminary work included building railroad spurs to the site to bring in the materials, and creation of labor camps to provide housing while the facility was under construction. Construction of the temporary coffer dams began in July 1912. These dams were composed of two wooden structures that were between 6 and 27 feet high. The coffer dams were designed using piers evenly spaced with 12 foot openings between each pier; the openings between the piers were filled with earth, rock, and logs. The upper coffer held back the river and the lower coffer held back the backwater. The water was pumped out of the area between the two coffer dams and the foundation of the dam was anchored to the granite bedrock below (*Sumter Watchman and Southron* April 23, 1913; *The State* May 31, 1914; Shedd 1914a, 1914b).

# PARR SHOALS



*Coffer Dams used during the construction of the Parr Dam (1913)*

In November 1912, the coffer dam spanning the eastern channel of the river was completed. Construction of the powerhouse and dam containing the sluice gates began shortly after. The western coffer dam was built concurrently, allowing for the construction of the main sluiceway sections of the dam. The powerhouse superstructure was constructed and the equipment was connected as the dam construction neared completion. (Nagle and Carpini 2013; Shedd 1914a, 1914b).

## HISTORIC PROPERTIES

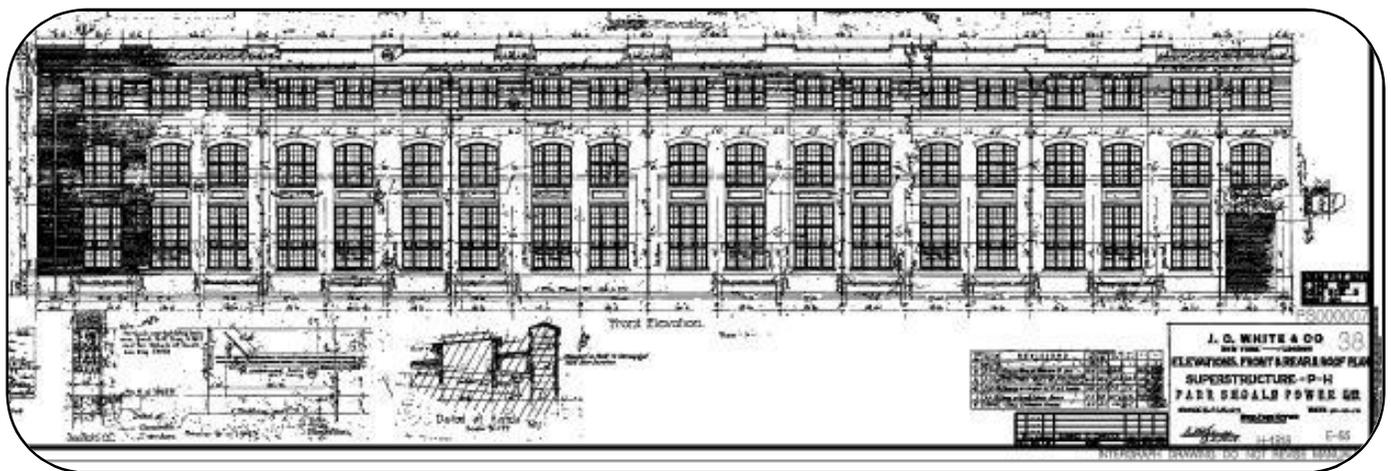
To get the stone used for construction of the dam, a quarry was opened north of the dam site. The rock was mined and transported to stone crushers. This crushed stone was mixed with cement and sand, in a ratio of one part Portland cement, three parts sand, and six parts stone. It is estimated that approximately 1,000 cubic yards of concrete were mixed per day (Shedd 1914b). The dam forms were built on site using a form constructed out of lumber milled on site at the associated mills. The mold for the draft tubes for the turbines was also constructed on site.

# PARR SHOALS



*Parr Dam during Construction (1913)*

The powerhouse and six sluice gates were located on the eastern bank of the river and the tailrace was constructed by “widening and deepening” the east river channel below it (*Columbia Record* 1913; Shedd 1914a). Measuring approximately 2,000 feet, the main dam and spillway section span the western side of the river. A section of non-overflow dam is located east of the powerhouse and an approximate 300 foot earthen dike is located west of the sluiceway. Together, the complex is approximately 2,715 feet in length with an average original average height of 39 feet (SCE&G 1972). Adjacent to the powerhouse, the dam featured six sluiceways. The sluiceways had gates that opened approximately seven feet by nine feet each.



*Front Elevation of the Parr Powerhouse from J.G. White Engineering Company Plans (1912)*

## HISTORIC PROPERTIES

The Parr powerhouse is approximately 300 feet long by 52 feet wide. It has a steel substructure with a brick exterior finish laid in a six-course common bond. The powerhouse rests on the concrete substructure. Centered in the southern elevation of the substructure is a large structural arch with a recessed center; there are no indications that the arch ever served as an entrance to the interior of

# PARR SHOALS



*Plaque on Parr Powerhouse (2016)*

the substructure. The southern elevation features nine bays with three different styles of windows in a row. On this elevation, each window is separated from the other with architectural detailing in the brickwork. The lowest window set is also the largest. It is a steel framed multi-light window typical of the period with awning openings in the center to allow for air circulation. Just above this window set is an arched set of multi-light steel framed windows, these windows do not appear to open. The top set of windows has an overall square shape and is made up of four eight light awning windows. All of the windows have a granite sill and no distinguished lintel. There is also a metal framed garage door type opening on this elevation with a decorative keystone centered at the top. The eastern and western elevations feature two bays with virtually the same window configuration minus the top square windows. The arched windows on the western elevation have been covered. There is a second garage door style opening on the eastern elevation. The majority of the northern elevation is covered with the modern trash rake, a system designed to pull the debris out of the water that gets pinned on the turbine intake racks; however, steel framed multi-light arched windows are visible on this elevation.

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*Lights within the Parr Powerhouse*



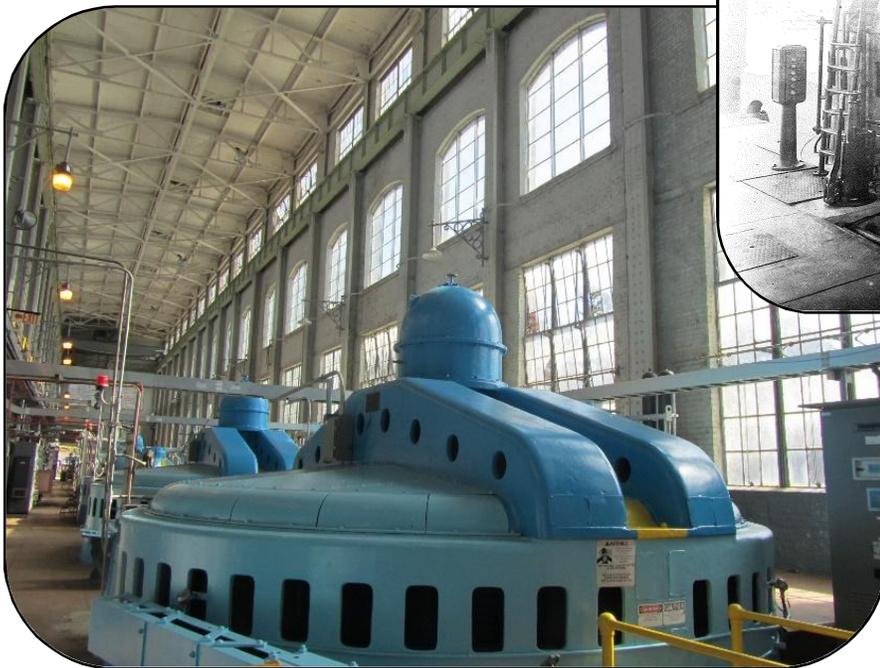
*Parr Powerhouse (2016)*

## HISTORIC PROPERTIES

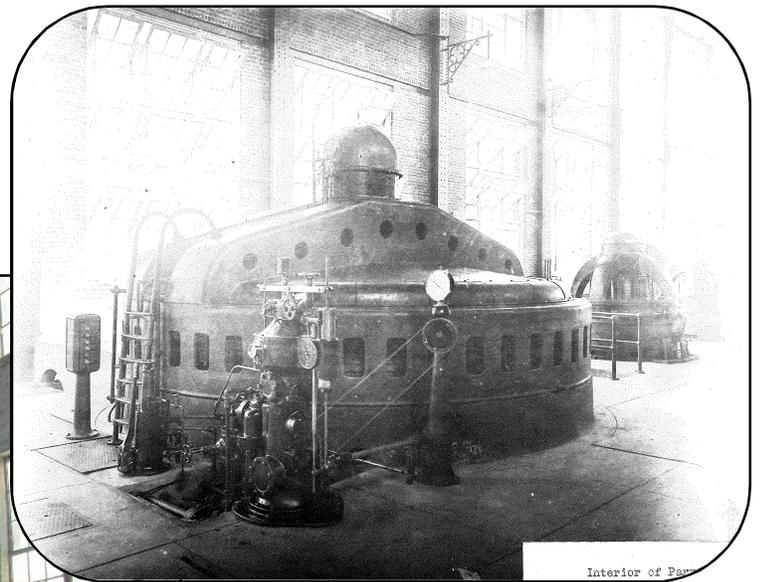
The windows have been closed on the eastern elevation of the electrical bay. Steel trusses and braces are located at the roof level of the interior of the building. There are also decorative scrolled brackets from which the interior lights hang and a metal dedication plaque from 1914 is located on the eastern elevation.

The interior of the powerhouse features a large generator room. This room is a single-story, extending approximately 52 feet in height with a two-story electrical bay at the rear elevation of the powerhouse. This section is approximately 35 feet high. To generate power, water entered the sluice gates and flumes, rushing past the turbines and out through draft tubes into the tailrace. The spinning turbines turn the generators, creating a magnetic field that produces power. Originally Allis-Chalmers Company manufactured the six vertical shaft turbines. Each measured approximately 86 inches in diameter and were designed to run at 100 revolutions per minute (rpm) and supply 3,600 brake horsepower (bhp). Steel gates in the intake structure, which were approximately 14 feet by 25 feet, were operated by a hoist system and controlled the flow of water into the flumes (Nagle and Carpini 2013). The powerhouse was designed to house eight vertical revolving-field generators, which were capable of producing 3,100 kilovolt amperes (kV) at 2,300 volts. Only five units were originally installed. Two 300 kilowatt (kW), 300 rpm, 125 volt vertical rotating exciters were installed to energize the magnetic field of the generators and three transformers, rated at 6,200 kV, were installed to increase the power voltage from 2,300 to 66,000 volts for transmission across long distances (*The State* August 23, 1913; *Columbia Record* 1913).

# PARR SHOALS



*Parr Powerhouse turbine (2016)*



*Parr Powerhouse turbine (1914)*

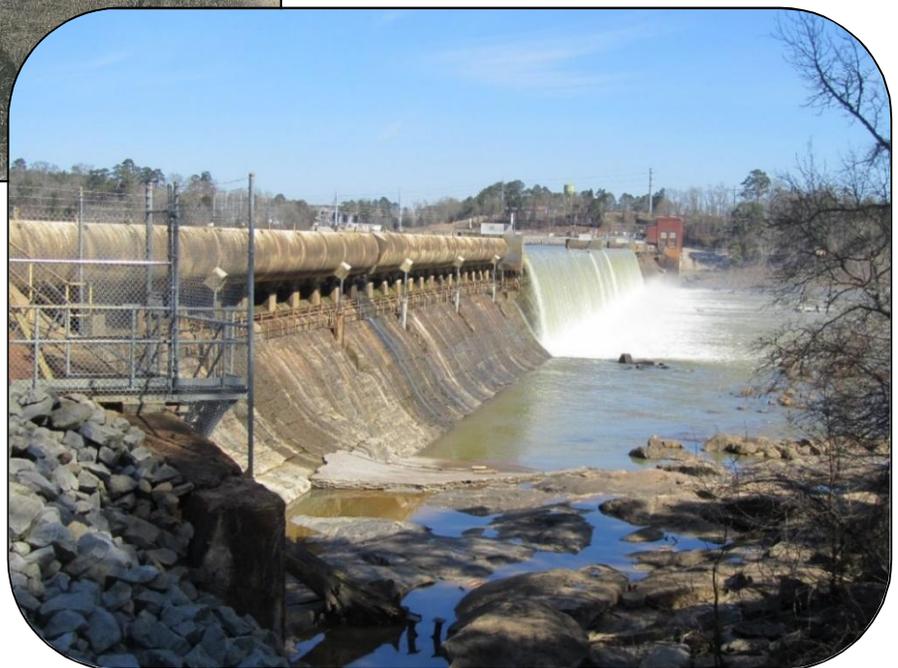
## HISTORIC PROPERTIES

Approximately 30 miles of transmission lines were erected as part of the Parr Shoals Development. Spaced approximately 556 feet apart for an estimated 9.5 towers per mile, galvanized steel, double circuit towers were constructed to carry the electricity to a power substation. The 94 foot by 47 foot power substation was built along the bank of the Congaree River in Columbia. Reducing transformers, rated at 2,500 kV, were installed to convert the power to two separate voltage pressures: 13,500 volts for large power consumers, such as mills, and 3,300 volts for small consumers and lighting; seven circuits were installed in the substation for the higher voltage and 11 for the lower voltage (*Columbia Record* 1913; *Newberry Herald and News* August 29, 1912; *The State* June 28, 1913, August, 4 1913). On May 30, 1914, the dam and hydroelectric plant were officially commissioned and put into service (Nagle and Carpini 2013; *The State* April 7, 1914, May 24, 1914, May 31, 1914).

# PARR SHOALS



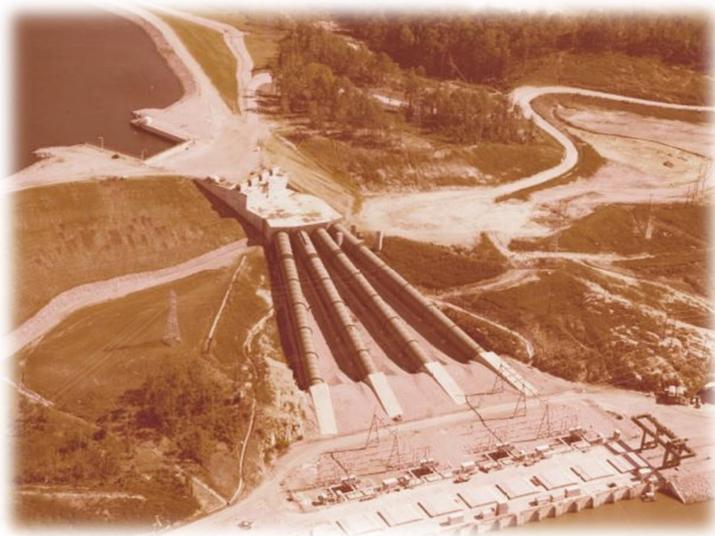
*Parr Dam and Powerhouse (1914)*



*Parr Dam and Powerhouse (2016)*

## HISTORIC PROPERTIES

The Fairfield pump storage facility utilizes two reservoirs for the generation of power; the powerhouse is located between the upper and lower reservoirs. When power is needed the water flows from the upper reservoir through the large penstocks to the powerhouse. The water generates power by driving the turbines in the powerhouse. The water is then discharged into the lower reservoir. During low peak hours, the turbines function as pumps, returning the water to the upper reservoir. This system generates power for approximately eight hours a day and pumps water back into the upper reservoir for approximately nine hours a day (SCE&G 1972).



*Fairfield Pumped Storage Facility after construction*

approximately 6,800 acres. The water level fluctuates approximately 4.5 feet daily with the generating operations (Nagle and Carpini 2013; SCE&G 1972).

The construction of the powerhouse and support structures required moving approximately 12 million cubic yards of soil to prepare the site. The powerhouse is a concrete and steel structure, located primarily below ground. There are eight bays that house the turbines and generators required for the production of power. The powerhouse is approximately 520 feet long, 108 feet tall, and 150 feet wide. Approximately 323,700 cubic yards of poured concrete with approximately 6,570 tons of reinforcement steel was used in the construction of the facility. Water is conveyed to the powerhouse by four steel penstocks that supply the eight units.

Construction of the facility necessitated the building of four dams northeast of the existing facility. The construction of the dams began in May, 1976. The largest dam is approximately 5,000 feet long and 180 feet in height. The other three dams, known as the saddle dams, were constructed to divert the flow of Frees Creek. These dams are approximately 900 feet long, 1,700 feet long, and 3,400 feet long, and are all less than 100 feet in height. The impoundment created by the dams is known as the Monticello Reservoir. The reservoir began filling with water in December 1977, and now covers



*Fairfield Powerhouse construction (1976)*

# FAIRFIELD PUMPED STORAGE

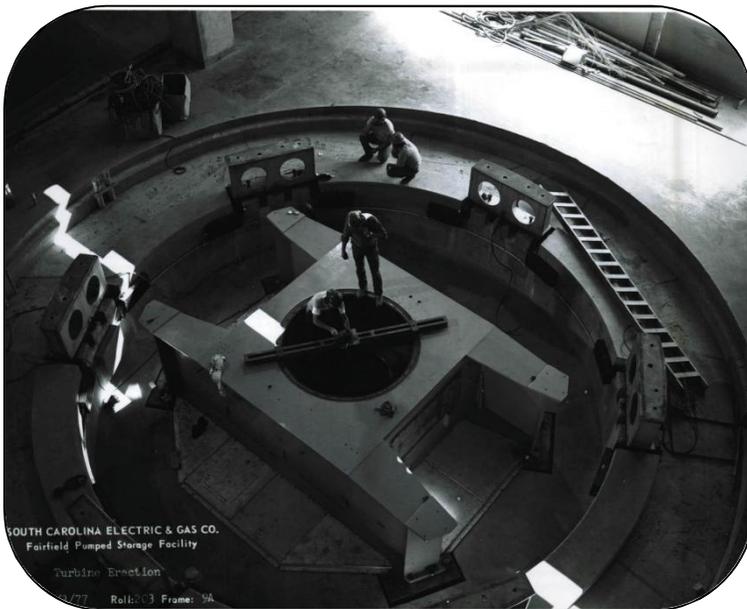
## HISTORIC PROPERTIES

Each penstock is on a 14 degree incline and is approximately 123 feet long and 26 feet in diameter; they extend southwest from the Monticello Reservoir to the powerhouse. Before entering the powerhouse, the penstock divides into two 18.6 foot diameter pipes that carry the water to the turbines. The water enters the turbines at a rate of 21.5 million gallons per minute (Nagle and Carpini 2013; Carrico 2009). Units 1 through 4 were generating for commercial consumption by June 1978, the other four units were online by December 1978.

# FAIRFIELD PUMPED STORAGE



*Filling of Fairfield Tailrace (1977)*



*Fairfield turbine (1977)*

The lower impoundment for the Fairfield facility increased the size of Parr Reservoir. Originally the reservoir was 1,850 acres. After the construction of the Fairfield facility, the Parr Reservoir extended approximately 13 miles upstream from the dam and increased the size of the impoundment to 4,400 acres (SCE&G 1972). Construction of the Fairfield facility necessitated alteration to the Parr Shoals dam. The alterations required that six of the original sluiceways be filled in adjacent to the Parr powerhouse for the installation of 10 Bascule gates. These gates raised the height of the Parr Shoals dam approximately nine feet to 266 feet above mean sea level (SCE&G 1972).

## HISTORIC PROPERTIES

While the majority of the Fairfield facility is located underground, there is a single-story office building associated with the complex. This structure is a late 1970s Brutalist style building. Typical of the style, it is an imposing structure with a textured concrete finish, featuring evenly spaced vertical architectural elements across the elevations. The vertical architectural detailing creates sharp angles across the exterior. The main entrance is an aluminum framed plate-glass door flanked by single light sidelights. There is a small floating canopy covering the entrance. The aluminum framed windows are single light fixed windows above smaller single light single-hung sashes that are located on the elevations between

the vertical architectural elements. The interior is divided into typical office spaces with a front waiting room, offices, storage rooms, mechanical shop, restrooms, and a break room. Access to the powerhouse cannot be gained from this structure.



*Fairfield offices (2016)*

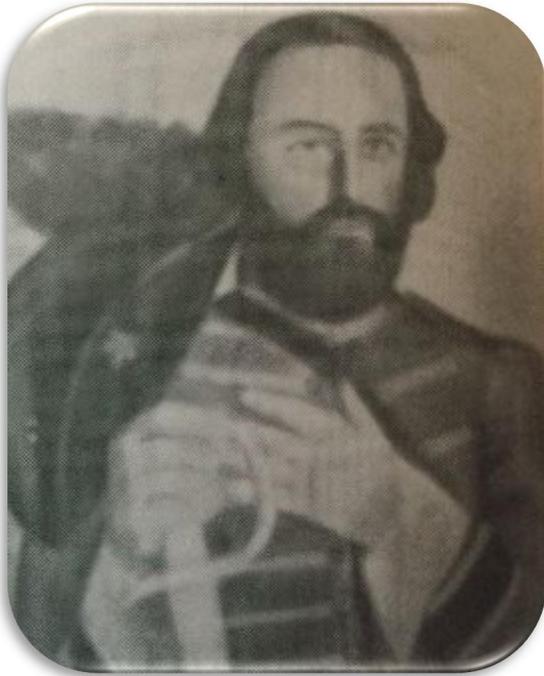
The Fairfield Pumped Storage Facility provides SCE&G the ability to quickly generate electricity, backing up the other systems during peak load hours. The facility can produce approximately 4.6 million kW, or enough power to supply one million homes with power for one hour.



*Fairfield warehouse (2016)*



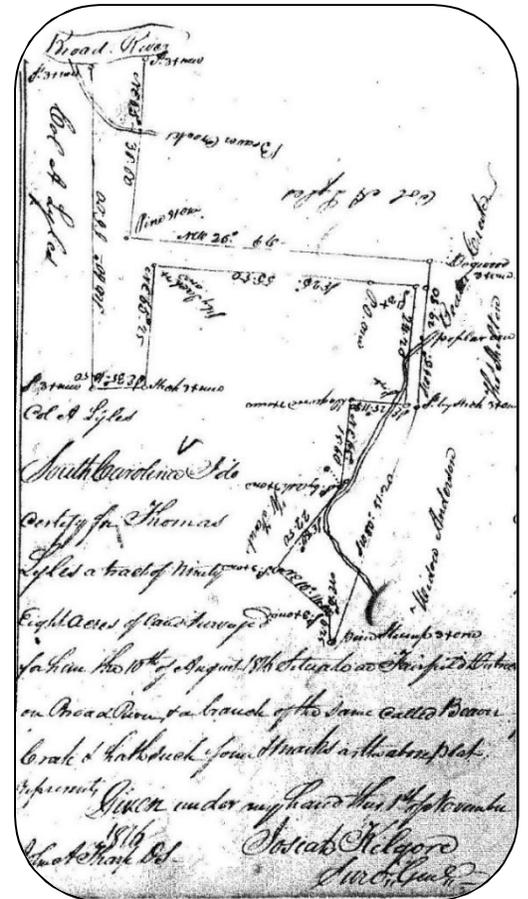
*Fairfield penstocks (2016)*



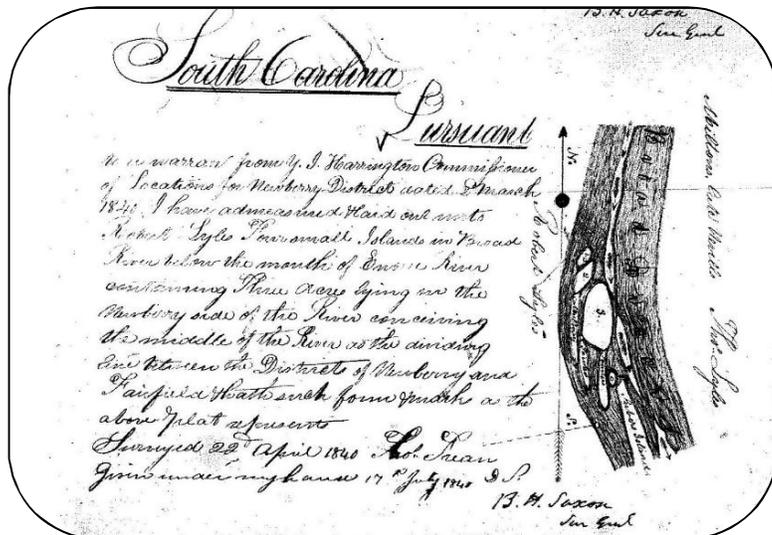
Portrait of John Lyles one of the first settlers along the Broad River in Newberry and Fairfield Counties

While Parr Shoals and Fairfield Pumped Storage were modern developments along the Broad River, improvements had been occurring along the river for centuries by way of the Lyles family. The Lyles family were some of the first settlers in Fairfield and Newberry counties. Originally from Virginia and later North Carolina, they acquired large tracts of land along the Broad River near Beaver Creek. The first of the family to arrive were brothers Ephraim and John in 1745. The Lyles became a well-established family by recognizing the need for commerce along the Broad River. They are believed to have built an early crossing of the river known as Lyles Ford, the location of which is not known with any precision except that

it was below Henderson's Island. Lyles Ford was used during the Revolutionary War by multiple detachments as a crossing point on the Broad River. Further, it was reported that several patriots camped at the plantation of Colonel James Lyles, located east of the Broad River (Russell 2000:158). The Lyles family began to expand around the ford and in 1796 they established a ferry over the Broad River. This ferry is documented as being the most important ferry on the Broad River because it connects the city of Newberry to Winnsboro. The Ashford family took over the ferry's operation in 1807 and ran it for several years after that (Pope: 124-125).



Plat Maps Showing Property at the Broad River and Beaver Creek, in the area of Lyles Ford, From Col. Lyles to Thomas Lyles (1816) and Robert Lyle's Purchase of Four small Islands in the Broad River (1840).



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