Sites in Reuse
Calhoun Park Area Site

Calhoun at Concord Street, Charleston, SC 29401



Images from left to right: South Carolina Aquarium, playground in Gadsenborough Park and Fort Sumter Visitor Education Center.

Site Size: About 18 acres on the east side of the Charleston peninsula, near the Charleston Harbor.

Current Site Uses: Dominion Energy South Carolina, Inc. (formerly South Carolina Electric & Gas) owns and operates an electrical substation that provides electricity to most of downtown Charleston. The site also includes a 1,100-space parking garage, retail shopping, the South Carolina Aquarium, the dock for the National Park Service ferry to Fort Sumter, Fort Sumter Visitor Education Center and parks with historic and recreational features.

INTRODUCTION

Clean up of the Calhoun Park Area site provided the opportunity for the redevelopment of several waterfront properties on the eastern side of the Charleston peninsula. EPA, SCE&G and the city of Charleston worked to combine cleanup activities and redevelopment plans into a single work plan. The new Calhoun Park Area provides commercial and recreational opportunities as well as improved access to ecological, residential and community resources. The Calhoun Park Area won a Phoenix Award at the 2002 EPA Brownfields Conference in recognition of the site's successful cleanup and reuse and the city of Charleston was awarded EPA Region 4's "Excellence in Site Reuse" award in 2012.

SITE HISTORY

The 18-acre Calhoun Park Area site includes properties along Calhoun, Concord, Charlotte and Washington streets. Areas neighboring the site include waterfront property between the Cooper River and the Charleston Harbor.

A wood-treating facility began operating at the Calhoun Park Area site in the 1800s. Later, in 1855, a manufactured gas plant began operating at the site, producing gas for heating, lighting and cooking. Operations heated coal or oil to separate out the flammable gas and then stored the gas in large holding tanks before distributing it to area homes and business.

In 1991, EPA and the South Carolina Department of Health and Environmental Control (SCDHEC) identified contamination from manufactured gas plant operations in soil, sediment and groundwater at the site. At the time contamination was discovered, South Carolina Electric & Gas (SCE&G) owned and operated the electrical substation on site. Since SCE&G's predecessor companies owned and operated the MGP, SCE&G took on full responsibility for site investigations and cleanup. SCE&G's parent company

SCANA was acquired by Dominion Energy in 2019. SCE&G remains the responsible party for the Site and is now known as Dominion Energy South Carolina, Inc.

To support site redevelopment construction activities, several early cleanup actions were conducted before final remedy selection for operable unit 1 (OU1), which addresses dense non-aqueous phase liquid (DNAPL) source areas and shallow groundwater and soil contamination. Early cleanup actions included installing several sediment containment structures to minimize resuspension of contaminated sediment during redevelopment, addressing contaminated stormwater discharges by upgrading a Calhoun Street storm drain that had been transporting contaminants from the Site to the Cooper River and installing a subsurface sheet piling wall to prevent the new drain from acting as a preferential pathway for groundwater to the river, and investigating and responding to an oily sheen and seeps observed on the river at the end of Charlotte Street.

Contaminated soil and source areas were removed in eight phases from 1998 to 2004. The remedy is focused on removal of source contamination, namely the DNAPL that has impacted soil and leached to contaminate groundwater and sediment. Excavated areas were backfilled with clean soil and residual groundwater contamination is being addressed through filtration and phytoremediation. DNAPL extraction is ongoing with the objectives of removing or treating DNAPL to the maximum extent practicable and to contain any potentially non-restorable source areas. EPA, SCDHEC, the city of Charleston and SCE&G worked together to conduct remedial activities in a way that would support redevelopment at the site.

An educational exhibit at the South Carolina Aquarium.

In 1992, the Site received a Hazard Ranking System score sufficient for National Priorities List (NPL) listing, but listing was suspended based on cooperation by SCE&G (the PRP). Site cleanup was conducted under an alternative approach.

REUSE PLANNING PROCESS

EPA selected remedies for OU1 (source materials, including DNAPL, soil and shallow groundwater contamination) in 1998 and for OU2 (intermediate groundwater and sediment contamination) in 2002. The South Carolina Aquarium had expressed interest in reusing a part of the site property for a new, state-of-the-art aquarium facility and the city of Charleston wanted to improve availability of parking to support additional development in the area.

EPA worked with SCDHEC, the city of Charleston and SCG&E on a phased cleanup approach that would support these reuse interests. During initial phases of cleanup, remedial contractors removed targeted areas of soil contamination, and installed source contamination extraction wells and groundwater monitoring wells in the locations of the planned redevelopment projects.

Construction of the South Carolina Aquarium was coordinated with remedy construction, which allowed the aquarium to open after removal of source contamination in soil and shallow groundwater finished in 2000. The aquarium has become a major draw for other area development activities, attracting a new shopping mall and the ferry terminal for the National Park Service ferry to Fort Sumter. The South Carolina Aquarium is as

a major tourist attraction and the aquarium's education efforts encourage people to reduce, reuse and recycle and practice eco-friendly living.

With new and growing businesses on the site, EPA, SCDHEC, the city of Charleston and SCE&G needed to coordinate the remaining remedial phases to complete cleanup in a way that would allow future development of the site, while also causing minimal disturbance for the site reuses already underway. Due to existing infrastructure, including electrical equipment, buildings and streets, some contamination at the site was located in areas that were difficult to access. To address this challenge, SCE&G used innovative techniques to remove contamination from groundwater and conduct necessary remedial activities.

The remedy included the installation of a DNAPL collection and recovery trench with over 50 contamination source recovery wells around the perimeter of the site. SCE&G also installed additional recovery wells in areas where contamination sources were not easy to access and began implementing a contamination monitoring plan. The recovery well system interconnected the new wells with the inaccessible wells using a gravel trench to collect contamination.

SCE&G also worked with the U.S. Geological Survey to use trees at the site to remove contamination from the subsurface. SCE&G planted trees near the site to take up contaminated groundwater through their root systems. The utility estimates that the trees take up as much as 105,000 gallons of contaminated groundwater over an eight-month growing season. In recognition for these innovative approaches to groundwater cleanup, SCE&G received the Southern Gas Association's Environmental Excellence Award in Technology.

In addition, SCE&G's remedial activities in the Cooper River addressed contaminated sediment. Many businesses are located on the properties along the Cooper River and SCE&G took these property owners' interests into consideration. As a result, the remedy included a cap over contaminated sediments in the Cooper River. It also included restoration efforts to leave an attractive

Trees used at the site to remove contamination.

natural shoreline that would allow for ecological habitat to reestablish in the area. SCE&G followed South Carolina Oyster Restoration and Enhancement (SCORE) Program guidelines to create a shellfish habitat area, extend the oyster research study area and provide additional protection against erosion.

Today, the Calhoun Park Area site includes a 1,100-space parking garage, the South Carolina Aquarium, a shopping center, several parks and mixed-use developments, the ferry terminal to Fort Sumter, Fort Sumter Visitor Education Center and open green space used for various community events such as festivals. SCE&G also owns and continues to operate an electrical substation at the site that provides electricity to most of downtown Charleston.

The site highlights the range of cultural and historical activities that make the area unique. The Sumter Visitor Education Center at Liberty Square includes interpretive and visual exhibits on the events leading up to the start of the Civil War. The International African American Museum, expected to open in 2021, will share the history of Charleston as an arrival point for nearly half of all enslaved Africans in the U.S. with visitors. Charlotte Street Park, which opened in 2013, recognizes the rich history

An exhibit at Liberty Square.

The South Carolina Irish Memorial.

and contributions of Irish immigrants in Charleston, including the "South Carolina Irish Memorial", a large concrete pier stretching over the water and a large carved granite map of Ireland. Charlotte Street Park is the end point of the city's Harbor Walk. Eventually, trails will run all the way around the Charleston peninsula's southern tip from Brittlebank Park to Charlotte Street.

Recreational spaces support community activities.The sale of part of the former Ansonborough Homes property to developers raised money to help fund Gadsdenboro Park. The 5-acre park opened to the public in 2015. It includes a playground, sculptures, soccer fields, a nautical-themed playground, game tables and a bocce court.

Mixed-use housing became part of the redevelopment when the city sold 3.5 acres of the property for redevelopment in 2007. As part of the $16 million plan, the buyer committed to include affordable housing in its plans. Development of the former Ansonborough Homes property includes subsidized and market rate housing units, commercial offices, retail areas and restaurants. Williams Terrace Senior Housing, built in 2016, is the first dedicated housing for low-income seniors in Charleston. Office buildings on site include Concord Park, a LEED-certified green building completed in 2011, and a second building home to education facilities and businesses such as The College of Charleston's Computer Science Department, Raymond James & Associates, Rapid Ocean Response Corporation and the Charleston Schooner Pride.

The Calhoun Park Area site demonstrates how integrating site cleanup and redevelopment activities can create a wide range of opportunities for communities. As of December 2019, EPA had data on 30 site businesses that employed 200 people and generated nearly $36 million in annual sales revenue.

The EPA's 2019 five-year review concluded that the site remedy is protective in the short term. DNAPL recovery efforts continue with groundwater monitoring and institutional controls in place to protect the remedy in the long term and to prevent exposure to contamination. Continued collaboration between EPA, SCDHEC, the city of Charleston and SCE&G has enabled implementation of a protective remedy and facilitated the beneficial reuse of the site.

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