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ARCHBOLD BIOLOGICAL STATION AT RED HILL
HIGHLANDS COUNTY, FLORIDA
DESCRIPTION

SUMMARY PARAGRAPH

The Archbold Biological Station at Red Hill, originally the Roebing Red Hill Estate, consists of four Masonry Vernacular concrete buildings that surround a central plaza and a small concrete storage shed. All of these resources were constructed between 1931 and 1935. The largest of the buildings is the Storehouse (Main Building #1), constructed 1931, which originally contained a two-story residence and workshops and bays to store furniture and building materials. This building now contains research laboratories, offices, and serves other functions as well. East of the main building across the plaza is a one-story former garage (Rand Building #2) that was constructed in stages between 1932 and 1935; nine of the original eleven bays were converted into offices in 1995. The generator building (#3), located on the north side of the plaza was completed c. 1931 and provided electrical power to the other buildings via a diesel generator. The pump house (#4), found south of the plaza, was constructed in 1933 and provided potable water for the residents and contained a fire engine. This building continues to fulfill its original function. The former explosives storage shed (#5), located near the center of the plaza, was constructed 1931-1933 and accommodated both explosives used for demolition and dangerous combustible materials. The shed is now used only for the storage of reagent alcohol. The detached Annex building found immediately north of the Storehouse was constructed in 1986 and does not contribute to the historic character of the Archbold Biological Station. It is located outside the boundaries of the property.

SETTING

The Archbold Biological Station at Red Hill is located in rural Highlands County in the vicinity of the town of Venus, Florida, about eight miles south of Lake Placid, Florida. The entrance gate lies just 1.8 miles south on Old State Road 8. Archbold Biological Station is an independent, nonprofit research facility, devoted to long-term ecological research and conservation. The station consists of four major buildings and a storage shed surrounding a central plaza, a number of wood frame residences occupied by station personnel and visiting researchers, plus several other buildings supporting the operations of the station. The primary focus of Archbold Biological Station is the study the organisms and environments of the nearby Lake Wales Ridge, and adjacent central Florida. The Station also owns and manages 8,841 acres of globally significant natural preserve and other ecologically significant properties. The station lies approximately 110 miles south of Tampa and 70 miles northeast of Fort Myers.

DESCRIPTION

1. The Old Storehouse (Main Building) [FMS #HG00863]

Located on the west side of the central plaza (Photo 1), this 86,053 square foot building is the nerve center of the Archbold Biological Station and consists of the original six unit storehouse wing and attached two-story former residence whose construction was completed in 1931, plus the dining room addition on the south which was added in 1941. The residence wing exhibits conventional stylistic features for the period, having a hipped

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main roof, hipped roof dormers and conventional door and window openings. The six segments of the former storehouse are composed rectangular warehouse bays joined at connecting interior wall, but each segment is covered with a complicated roof structure that features enormous dormers that crown the clipped gable roofs the warehouse segments below. The dormers have north-facing window walls that originally provided ample natural light to the storage bays and workshops. The construction of rooms in the attic area in the 1940s ended the skylight function of these structures. Each section of the building now serves particular functions. Moving from south to north (Photo 2) these are A) the dining room wing; B-D) the former two-story residence which serves as the visitors' center, lounge, main office and education center; E) avian ecology lab; F) vertebrate lab; G) invertebrate lab; H) plant ecology lab; I) library and computer center; and J) multi-purpose classroom and multi-user lab.

Roebling Era Construction: Construction of the building began in 1930 (Photos 3-4) and was complete by December 22, 1931 (Photo 5). Construction supplies were delivered via a railroad siding constructed by the Atlantic Coast Line Railroad along the western side of the storehouse building (Photo 6). It housed workshops, a machine shop, rooms to store tools and materials for the construction of future buildings (Photos 7-9) The two-story dwelling unit attached to the south end of the building (Photo 10) was occupied by Alexander Blair who was the supervising engineer who oversaw construction of all the buildings and other improvements that to be made to the property. The two-story residence included, offices, kitchen, dining room, bedrooms, and bathrooms. Alterations to the building during the Roebling era (1930-1941) were mainly limited to changes in doors and windows.

Archbold Biological Station Era Modifications: The east porch roof over the walkway and the dining room were added in 1941 (Photos 11-12). In the early 1940s, typical passage doors were added to the east, and probably west openings. These were replaced by sliding glass doors when units became air-conditioned, c. 1950s-1981. The doors on the east side were later replaced by aluminum storefront doors, except for the west door of the Avian Ecology Lab. An entrance for what is presently the lounge at the south end of the building was enclosed by Archbold. The east section of Unit B was open to the weather until early 1980s, when windows and air-conditioning added and the space became the Education Office. The former Storehouse houses the main office and several administrative offices, a library (Photo 13), the computer information center, four large research laboratories (bird, vertebrate, invertebrate, and plant), the education office, a multi-use classroom (Photo 14) and multi-purpose lab (Photo 15), the herbarium, the insect collection, darkroom, chemistry lab, several dormitory rooms, kitchen, dining room, lounge, and storage areas. A detached annex building containing an auditorium and two conference rooms was constructed north of the original storehouse in 1986. It is connected to the original building by a covered walkway.

Attic floors were added to the bases of the overhead girders for five storage units during the 1940s or 1950s (Photo 9). The attic over Unit B (south end), a former tool storage unit, was converted to dormitory space by Archbold during the 1950s, then renovated during 1970s (Photo 10), and again during late 1990s. A portion of

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Unit B (south end) was converted to a photography dark room, chemistry lab, and bathrooms, ca. 1950s, modified during late 1960s and in 1983. In 1997, the attic over the library was converted to offices. Attics over the four remaining labs were converted to offices in 2005. The North Unit (J), formerly the machine shop, was first converted to a classroom in 1983, and in 2000-2001 modified to be used as a classroom and laboratory. Unit 5 from the north (J) was converted in 1967 to the Vertebrate Lab. In 1983, Unit 3 from north (H) was converted from a carpenter shop to the Plant Ecology Lab.

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2. Garage (Rand Building) [Site File Number HG00866]

The Garage was constructed between 1932 and 1933 and consisted of nine vehicle bays opening on the west side of the building (Photos 16-17). Two more bays were added at the north end of the building between 1934 and 1935. During late 1960s, the three units at the south end were enclosed and used as animal observation rooms. In 1995, the nine units at the south end were converted to offices and renamed the Rand Building (Photo 18). Concrete was added to bring the floors 15" above grade, and standard commercial aluminum windows and doors were added to the west openings. The remaining original Roebling steel roll-down doors still function and retain their original mechanisms and fittings. The offices have been fitted with standard dry wall, drop ceilings, and wall-to-wall carpeting. The roof dormers still provide exterior light to the offices below.

3. Generator Building. [Site File Number HG00865]

The generator building was constructed between 1931 and 1932 (Photo 19). The walls consist of poured concrete and feature metal frame outward swinging hopper windows over fixed metal frame sashes. The ground plan is square and the building is covered by a pyramidal roof with a monitor vent at the peak of the main roof. Hopper windows similar to those found on the main facade are also found in the other elevations. The entrance to the building consists of double, wood panel and glass doors. A small light fixture hangs over the entranceway. Power to the buildings of the complex was originally provided by a diesel generator and storage batteries (Photo 20). No major changes have been made to the building since it was completed c. 1932 (Photos 21-22). The generator system was upgraded in the 1970s and in 2005.

4. Pump House. [Site File Number HG00867]

The pump house is similar in construction to the generator building and was completed in 1933 (Photo 23). The building features a fire engine bay and houses a mechanism to pump water from a deep well found immediately beneath the building. The water from the well is used solely for fire protection. No other uses are allowed by the State Department of Environmental Protection. No major changes have been made to the building since it was completed in 1933 (Photos 24-25).

6. Explosives and Flammable Materials Storehouse.

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This small windowless concrete shed was constructed some time between 1931 and 1933. It is set slightly below grade and is accessed by a short concrete ramp. It is covered with a shed roof. Originally intended to store explosive materials such as dynamite and combustibles, it was used to store a variety of chemicals. It was cleared of all chemicals in 2002 and is now used solely for the storage of reagent-grade alcohol.

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SIGNIFICANCE

SUMMARY PARAGRAPH

The Archbold Biological Station at Red Hill is significant statewide under Criteria A, B, and C in the areas of Conservation, Science, and Architecture. In the areas of Conservation and Science, Archbold Biological Station is significant as an independent, non-profit research facility, devoted to long-term ecological research into the preservation of natural habitats for both plants and animals. The Station is funded principally by proceeds from an endowment overseen by Archbold Expeditions, a non-profit operating foundation founded by Richard Archbold, who is significant under Criterion B for his contributions to the study of ecology and the preservation of the natural environment. In the area of Architecture, the group of buildings represent an attempt to counter the risks of damage from hurricane-force winds and other factors associated with the humid subtropical, climate of Central Florida. The most important of the buildings is the Red Hill Storehouse—now the main research building and headquarters of the Archbold Biological Station—which was designed to maximize the use of natural light in the interior through its unusual dormer forms. The group of buildings were designed in 1929 by Alexander Blair, who was hired by John A. Roebling II to be the designer/builder of his Red Hill Estate, intended to be a winter residence for him and his wife. Even though the death of his wife in 1930 caused Roebling to abandon his plans to use the property for his private use, construction on the estate continued from 1930 to 1941, when Roebling decided to donate the buildings and surrounding 1,050 acres of land to Richard Archbold, a world famous aviator and explorer, who founded the present research station.

HISTORICAL CONTEXT

Much of Central Florida remained essentially isolated up until the end of the nineteenth century. There were no serviceable roads and few rail lines. Henry Flagler and Henry Plant were making their way slowly down the east and west coasts of the state, but the interior of the Florida peninsula had attracted little railroad building activity. The present town of Lake Placid drew the attention of several settlers in the immediate post-Civil War period but its isolation discouraged agricultural or commercial development. A Manatee County resident, Thomas Knight, acquired a small tract of land in the present-day area of Lake Placid, built a house and established an orange grove on the property. After Knight died in 1881, the property was purchased by Joseph Lastinger, who increased the size of the grove. Following the Great Freeze of the winter of 1894-1895, which devastated many of the citrus groves in Central Florida, the property was subsequently taken over by a Sumter County grower named S.D. Steel, who found that the trees in the region had survived the freeze, and he began planting additional groves.

The development of what was then Desoto County moved at a more rapid pace with the founding of the city of Sebring by George Sebring (1859-1927), a pottery manufacturer from Ohio. He had built himself a winter residence in Daytona Beach in 1909 and shortly afterwards began to formulate plans to develop a community in the central highlands section of the state based on citrus cultivation. George Sebring's search for an appropriate site for the community ended in 1911, when A.G. Smith from Wauchula accompanied him on a

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fishing trip to Lake Jackson, the beauty of whose surrounding countryside deeply impressed Sebring. Immediately after acquiring 9,000 acres of land for a town site, Sebring began planning for the new settlement which he intended to name Sebring.¹

Construction of the Atlantic Coast Line Railroad southward from Sebring opened the southern part of the county to agricultural development and settlement. In 1916, the line reached the small settlement on the shore of Lake Stearns and built a station, which it called Weco. Two years later, the Lake Grove Company purchased a large tract of land in the area, including property in Weco, renaming the community Lake Stearns. A Lakeland civil engineer, Ossian Drane, drew a plat for the Town of Lake Stearns in early 1919. The town began to grow during the Florida Land Boom of the early 1920s, but when the boom collapsed in 1926, property sales dropped dramatically in the town.

Attempts to reenergize the growth of Lake Stearns attracted the attention of Melville Dewey (1851-1931), the inventor of the Dewey Decimal System, who in the winter of 1927 had come to Lake Stearns to purchase a hotel as a winter destination for the members of the Lake Placid Club. In 1895, Dewey had founded the Lake Placid Club in Lake Placid, New York, as a social and recreational club. Dewey renamed the hotel the Lake Placid Club Lodge and persuaded the Florida Legislature to change the name of the settlement and a nearby lake (formerly Lake Childs) to Lake Placid. Dewey had the hotel enlarged and constructed resort buildings on the north shore of the lake. Accompanying Dewey on his trip was John A. Roebling II, the son of Washington Augustus Roebling (1837-1926), the builder of the Brooklyn Bridge and grandson of John Augustus Roebling (1806-1869), a German engineer, who had constructed numerous suspension bridges in the northeastern United States between 1845 and 1869.²

John A. Roebling II, Founder of Red Hill Estate

John A. Roebling II was born in Muhlhausen, Germany, where his father had gone to complete research in completing work on the Brooklyn Bridge. During 1870-1883, the Roebling family lived in Columbia Heights, Brooklyn, New York, and John A. Roebling II first attended the Collegiate School in Manhattan, and later the Brooklyn Boy's Preparatory School in Brooklyn. In 1883, when the Brooklyn Bridge was completed, the Roebling family moved to Troy, New York, where John entered Rensselaer Polytechnic Institute in 1884. He graduated in 1888 as the president of his class and with a degree in civil engineering. He was later awarded a Master's degree in chemistry. For the 1900 census, when John Roebling was living in Asheville, North Carolina, he listed his occupation as "Civil Engineer." Construction and engineering were his heritage and training, but they never dominated his life, much of which was devoted to philanthropic interests. In 1930,

¹ Olausen, pp. 6-7.

² The Brooklyn Bridge project was actually begun by John Augustus Roebling in 1869 and completed by Washington Roebling in 1883.

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when he was 62, and he began a construction project in rural Florida, the Red Hill Estate. Roebling was attracted to the area by its natural beauty and thought the mild winter climate might be healthful to his wife, Margaret Shippen Roebling, who suffered from tuberculosis.

Margaret Shippen Roebling (1867-1930) was born in Trenton, New Jersey. She married John A. Roebling II in 1889. Less than 10 years after her marriage, she developed tuberculosis and spent several years in Arizona whose dry cool climate in the mountains was thought to be more healthful for sufferers of lung diseases. From there, she spent several years in the hills of North Carolina before moving back to New Jersey. Margaret Roebling became the driving force behind the establishment of the Red Hill Estate. She had been a student of botany and a fervent supporter of preserving and studying wilderness areas. Between 1929 and 1930 the Roeblings purchased 1,050 acres of land about eight miles south of the Town of Lake Placid on which to build a country estate that would be self-sufficient but preserve the natural beauty and character of the surrounding area.

John Roebling and his wife further demonstrated their interest in conserving wilderness areas in Florida at the same time that construction was underway on their Red Hill Estate. In 1930, Margaret Roebling donated the \$50,000 needed by a local group of citizens to purchase a 500-acre, pristine cabbage palm-live oak forest, Hooker Hammock, located near Sebring in Highlands County, Florida. A private, non-profit corporation, the Tropical Florida Parks Association, was formed to manage the park. Margaret Roebling was a charter member of the corporation, and the Red Hill Estate Engineer, Alexander Blair, was a Vice-President of the corporation, and also Mrs. Roebling's representative. After the death of his wife on October 24, 1930, John A. Roebling continued support of the park's development and maintenance (fencing, and construction of roads, paths, and water-control structures), contributing a further \$300,000 during 1931-1934, when his Red Hill Estate engineer, Alexander Blair, was also the supervisory engineer for the park. In 1935 the land was donated to the state of Florida as the nascent Highlands Hammock State Park, one of a handful of newly-created state parks. At the transfer of property John A. Roebling also donated another \$25,000 for maintenance.³

John Roebling had intended to construct a winter home on the high point of Red Hill, about 210 feet above sea level, but first wanted to construct support buildings that could provide him and his wife some of the amenities of civilization. These included a storehouse to hold the necessary building materials and other satellite buildings to provide electricity, fresh water, and house motor vehicles for transportation and construction work on the property. He also arranged for the Atlantic Coast line Railroad to construct a railroad spur along the western side of the storehouse to facilitate the delivery of building materials and supplies that the workforce would need to realize his vision of the winter estate. Roebling hired a construction engineer, Alexander Blair, to oversee the construction, and the building of the storehouse began in August 1930. Unfortunately, Mrs. Roebling died at the family home in Bernardsville, New Jersey, on October 24, 1930. John Roebling remarried

³ A. Altwater, 1979. Highlands Hammock. Sebring, Florida, Sebring Historical Society.

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soon thereafter and lost interest in constructing the mansion on Red Hill. Nevertheless, construction of the support buildings continued through 1933, with modifications to the buildings continuing through 1935. The United States was struggling under the Great Depression and John Roebling seemed to consider the continued development of the property his own WPA⁴ project. He employed about 100 men and insisted that all work be done by hand; eschewing any mechanized labor-saving machinery wherever possible, so that he could employ a large number of men. The storehouse and support buildings were designed to test construction methods that might withstand the destructive force of hurricane winds. Two major hurricanes had swept over South Florida during the late 1920s, killing over 1,000 people. The building of a hurricane-proof building, therefore, was important to Roebling. In 1935, John Roebling's son Donald used the storehouse to manufacture his "Alligator," an amphibious vehicle that was the prototype of the military landing craft used by the U.S. military in World War II.⁵

Alexander Blair, Builder of Red Hill Estate

Alexander Blair (1877-1975), was the resident engineer who designed and supervised the construction of Red Value Estate for John A. Roebling II during the period 1930-1941. Blair was born in Cheshire, England, and studied civil engineering at Liverpool Institute. He worked as a surveyor's assistant while studying engineering in England and served with the British Royal Engineer Corps in England and France during World War I. He immigrated to the United States in 1919 and took a job with the New Jersey Highway Department, Bridge Division and later became City Engineer for Westfield, New Jersey, where he worked until 1927. In 1929, he was hired by Roebling to fulfill his dream of a building a country estate near Lake Placid, Florida. Blair designed and constructed all of the major buildings, fences, roads, and a railroad siding to provide the estate with electric power and fresh water. He also provided for several temporary wooden construction buildings (no longer extant), 6 poured-concrete buildings and a 75,000-gallon water-storage tank. Blair belonged to a number of professional organizations, including the American Association of Engineers, and served for a time as president of the Florida Engineering Society. He also served as president of the Highlands Hammock State Park Advisory Council for 35 years (1935-1970) and was a member of the Board of Directors of the Environmental Council of Highlands County, Steering Committee.⁶

Richard Archbold and The Founding of the Archbold Biological Station

With the death of Margaret Roebling, neither John Roebling nor anyone else in the family seemed interested in fully realizing the development of the Red Hill property. John Roebling wanted the estate to go to someone who would be "sensitive to the unspoiled beauty of the land." It was Donald Roebling (1908-1959), a school-

⁴ Works Progress Administration, 1935-1943, a work relief program that provided jobs income to the unemployed during the Great Depression.

⁵ Roebling's Amphibian, <http://www.globalsecurity.org/military/library/report/1987/RRW.htm>.

⁶ "Placid Pioneer Dies," The Sebring News, April 24, 1975.

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time friend of Richard Archbold, who facilitated the donation of his father's Red Hill Estate to Richard Archbold, a world famous aviator and explorer. Richard Archbold (1907-1976) was the grandson of John Dustin Archbold (1848-1916), who headed the Standard Oil of New Jersey for John D. Rockefeller. Richard Archbold spent much of his youth on his family's plantation near Thomasville, Georgia. He was educated at various private schools and took courses at Columbia University, studying anatomy. At the age of twenty-one, he served as an assistant mammologist and photographer on an internationally funded expedition to Madagascar. Five years later, he organized and funded Archbold Expeditions, a non-profit organization affiliated with the American Museum of Natural History in New York City. Archbold led four biological expeditions between 1929-1939, the first to Madagascar and then three to the interior of New Guinea. The expeditions resulted in numerous scientific reports, articles in popular publications, and important geographical and anthropological discoveries. The trips documented and gathered invaluable plant and animal specimens, many of which had been completely unknown to the Western World. These expeditions are still famous for their comprehensiveness and significance to science. They included the discovery of a major human civilization in the New Guinea highlands, previously unknown to the outside world.⁷

In 1940, when deteriorating political conditions in the western Pacific prevented a planned fourth expedition to New Guinea, Richard Archbold led a successful six-month biological expedition to southeastern Arizona to "collect facts instead of specimens." It was in Arizona that the importance of a good physical plant for a field station was re-enforced in Richard's mind. After the Arizona expedition, a chance meeting occurred between Richard Archbold and Donald Roebing in New York City. It was there that the son of John A. Roebing II learned of Archbold's desire to keep his team of research biologists together during the post-New Guinea period. Donald, mindful of his father's plan to donate his Red Hill Estate for a non-profit use, told Richard of the existence of the Red Hill Estate. Richard visited Red Hill and saw its potential for a biological field station.⁸

CRITERION A, SCIENCE, CONSERVATION

The Archbold Biological Station is significant for being a research center that studies the natural environment and its interaction with human activity. On July 21, 1941, John A. Roebing and his second wife, Helen Price Roebing, donated the 1,058-acre Red Hill Estate (which included five concrete buildings and a steel water-storage tank) to Richard Archbold who founded and sustained the Archbold Biological Station where scientists could conduct research on the ecology of native plants and animals of central Florida.⁹ The Roebing Storehouse became the station's Main Building. It had seven independent storage units and a two-story dwelling at its south end. Archbold converted the units to suit his research goals. These uses have developed and changed along with the goals of the research center over the subsequent decades.

⁷ Fred A. Lohrer, "Richard Archbold, Patron of Science," <http://www.archbold-station.org/ABS/archbold/archbold.htm>.

⁸ "Founding of the Archbold Biological Station," <http://www.archbold-station.org/ABS/archbold/legacyRoebingArchbold.htm>

⁹ Archbold Biological Station Archives.

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CRITERION B, RICHARD ARCHBOLD

Richard Archbold lived in the two-story residential section of the storehouse until his death in 1976. After taking possession of the property in 1941, Archbold constructed six wood frame "housekeeping" cottages on property just east of the core Roebling buildings. During World War II, these were used to house employees, but after the war some became available to visiting scientists.

Following World War II, Archbold continued to support biological explorations in New Guinea and Australia, but he remained in his residence at the research station for the rest of his life. Living at the Station, he became an active member of the Lake Placid community, assisting countless service organizations. He helped bring electricity to the rural regions of Highlands County. He worked constantly at improving the Station's facilities, collections, and library, and personally supported the research and living costs of every scientific visitor. The Station's excellent facilities and abundant protected land soon attracted a steady stream of biologists conducting research in ecology, behavior, physiology, and taxonomy.¹⁰

Throughout the succeeding decades Richard Archbold was the Station's resident manager working continually to improve facilities and to provide logistical support, and taking a keen interest in the research projects of visiting and resident scientists and how he could facilitate them. In 1973, he added 3,000 acres of adjacent native habitat to the Station. Richard Archbold died of cancer on August 1, 1976. He left his estate, Archbold Expeditions, to provide permanent core funding for the unique biological station that bears his name.¹¹ The original 1,058 acres of pristine pine and oak forest transferred by John Roebling to Richard Archbold grew with the acquisition in 1973 of 2,773 acres of undisturbed forest land. Further additions in the 1980s and 1990s provided the Archbold Biological Station with its present 8,841 acres of forest land, pastures, and native animal habitats. Today, the Archbold Biological Station is a center for the study of field biology whose aim is the intelligent use of natural resources and serves as a guide toward preserving and maintaining the natural diversity and environmental processes on which all life on earth depends.¹²

CRITERION C, ARCHITECTURE

The Red Hill Storehouse: The major influences on the design of the Red Hill Storehouse were railroad access, natural light, and hurricane-force winds. Other factor influencing the design of the estate buildings included the risks of fire from the surrounding pine-oak-palmetto landscape, termite attacks on wooden structures, and mold and mildew in still, humid sub-tropical air. A 2006 review of the Red Hill papers (Storehouse Design folder)

¹⁰ The science of classifying plants, animals, and microorganisms into increasingly broader categories based on shared features.

¹¹ "Richard Archbold and the Archbold Biological Station," <http://www.archbold-station.org/abs/Biennial97/R7Education/R7RArchboldBio.htm>.

¹² Maria Minno and Ronald Myers, "Archbold Biological Station, Its History and Its Biology," *The Palmetto*, Vol. 6, No. 4 (Winter 1986), pp. 5-7.

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reveals some aspects of the design process. On December 17, 1929, Alexander Blair apparently visited a railroad storehouse of the Atlantic Coast Line Railroad in Jacksonville, Florida, to obtain measurements to ensure that the Red Hill Storehouse would be compatible with the loading and unloading of railroad boxcars. The dimension of the storehouse units, 40 feet square with a central door on the side walls and elevated above grade, matches exactly the dimensions of a string of railroad boxcars lined up along the long wall of the storehouse. The sawtooth roof design created by the large dormers was dictated by the need for natural light inside the building. The design of the storehouse contrasted greatly with the rather conventional appearance of the residence wing, with its hipped roof, hipped dormers and ordinary window and door arrangement. The two major hurricanes, Miami in 1926 and Lake Okeechobee in 1928, which had destroyed many hundreds of buildings and caused a great loss of human life in southern Florida, were a major consideration in Blair's plans for the design of the storehouse. Blair also used existing published warehouse design details for the Red Hill Storehouse, corresponding with manufacturers of steel trusses, windows, and other building elements to arrive at the most suitable design. The storehouse design was refined based on manufacturer's recommendations, especially concerning ventilation and the maximization of natural light inside the storehouse.

John A. Roebling II wanted to build an enduring set of estate buildings, "like the castles on the Rhine." The history of reoccurring structural fires in wooden buildings at the Roebling wire mills in Trenton, New Jersey, certainly proved the necessity of concrete construction at the Roebling Red Hill Estate. And one drawing by Alexander Blair from the Red Hill papers (October 1929), indicates that Roebling himself selected, from several drawings, the building's existing sawtooth roof design.

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ARCHBOLD BIOLOGICAL STATION AT RED HILL
HIGHLANDS COUNTY, FLORIDA
MAJOR BIBLIOGRAPHICAL REFERENCES

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ARCHBOLD BIOLOGICAL STATION AT RED HILL
HIGHLANDS COUNTY, FLORIDA
GEOGRAPHICAL DATA

Verbal Boundary Description

The boundaries of the Archbold Biological Station are those shown on the accompanying site map, approximately two acres.

Boundary Justification

The boundary line encompasses the major buildings, storage shed and central plaza that comprise the historic headquarters of the Archbold Biological Station.

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ARCHBOLD BIOLOGICAL STATION AT RED HILL
HIGHLANDS COUNTY, FLORIDA
LIST OF PHOTOGRAPHS

1. Archbold Biological Station at Red Hill
2. 123 Main Drive, Venus (Highlands County), Florida
3. Unknown
4. c. 1939
5. Archives, Archbold Biological Station
6. Aerial View Looking West toward Plaza and Surrounding Buildings
7. Photo 1 of 26

Items 1-2 and 5 are the same for the remaining photographs.

1. Main Building, (Storehouse)
3. Unknown
4. April 2005
6. East Elevation, View from Water Tower, Looking West
7. Photo 2 of 26

1. Main Building (Storehouse)
3. Unknown
4. c. 1930
6. East and South Elevations, Looking Northwest
7. Photo 3 of 26

1. Main Building (Storehouse)
3. Unknown
4. c.1930
6. East Elevation, Looking Southwest
7. Photo 4 of 26

1. Main Building (Storehouse)
3. Unknown
4. c.1931
6. East and North Elevations, Looking Southwest
7. Photo 5 of 26

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ARCHBOLD BIOLOGICAL STATION AT RED HILL
HIGHLANDS COUNTY, FLORIDA
LIST OF PHOTOGRAPHS

1. Main Building (Storehouse)
3. Unknown
4. c. 1939-1941
6. South and West Elevations, Looking North
7. Photo 6 of 26

1. Main Building (Storehouse)
3. Unknown
4. c. 1939
6. Interior, Typical Storage Unit, Looking East
7. Photo 7 of 26

1. Main Building (Storehouse)
3. Unknown
4. c. 1939
6. Interior, Storage Unit B, Looking West
7. Photo 8 of 26

1. Main Building (Storehouse)
3. Unknown
4. c. 1939
6. Interior, Storehouse Workshop, Looking Northeast
7. Photo 9 of 26

1. Main Building (Storehouse)
3. Unknown
4. c. 1939-1941
6. Residence Wing, Looking Northwest
7. Photo 10 of 26

1. Main Building (Storehouse)
3. Fred H. Lohrer, Information Manager
4. 2005
6. Dining Room and Main Offices, Looking Northwest
7. Photo 11 of 26

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ARCHBOLD BIOLOGICAL STATION AT RED HILL
HIGHLANDS COUNTY, FLORIDA
LIST OF PHOTOGRAPHS

1. Main Building (Storehouse)
3. Fred H. Lohrer, Information Manager
4. 2005
6. North End of 26Building, Looking Southwest along Exterior Walkway
7. Photo 12 of 26

1. Main Building (Storehouse)
3. Fred H. Lohrer, Information Manager
4. 2005
6. Interior, Library, Looking Northwest
7. Photo 13 of 26

1. Main Building (Storehouse)
3. Fred H. Lohrer, Information Manager
4. 2005
6. Interior, Multi-use Classroom, Looking Northwest
7. Photo 14 of 26

1. Main Building (Storehouse)
3. Fred H. Lohrer, Information Manager
4. 2005
6. Multi-purpose Laboratory, Looking West
7. Photo 15 of 26

1. Garage (Rand Building)
3. Unknown
4. c. 1932
6. Main, West Elevation, Looking Southeast
7. Photo 16 of 26

1. Garage (Rand Building)
3. Unknown
4. c. 1939
6. Interior, Vehicle Bays, Looking Northwest
7. Photo 17 of 26

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ARCHBOLD BIOLOGICAL STATION AT RED HILL
HIGHLANDS COUNTY, FLORIDA
LIST OF PHOTOGRAPHS

1. Garage (Rand Building)
3. Fred H. Lohrer, Information Manager
4. 2005
6. Main (West) Facade, Looking Southeast
7. Photo 18 of 26

1. Generator Building
3. Unknown
4. c. 1931
6. South Elevation, Looking Northwest
7. Photo 19 of 26

1. Generator Building
3. Unknown
4. c. 1939
6. Interior, Storage Batteries, Looking North
7. Photo 20 of 26

1. Generator Building
3. Unknown
4. c. 1939
6. Main (West) Facade and North Elevation, Looking Southeast
7. Photo 21 of 26

1. Generator Building
3. Fred H. Lohrer, Information Manager
4. 2005
6. Main (West) Facade and North Elevation, Looking Southeast
7. Photo 22 of 26

1. Pump House
3. Unknown
4. c. 1933
6. Main (West) Facade and South Elevation, Looking Northeast
7. Photo 23 of 26

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ARCHBOLD BIOLOGICAL STATION AT RED HILL
HIGHLANDS COUNTY, FLORIDA
LIST OF PHOTOGRAPHS

1. Pump House
3. Unknown
4. c. 1939
6. Main (West) Facade and North Elevation, Looking Southeast
7. Photo 24 of 26

1. Pump House
3. Fred H. Lohrer, Information Specialist
4. 2005
6. Main (West) Facade and North Elevation, Looking Southeast
7. Photo 25 of 26

1. Explosives Shed
3. Unknown
4. c. 1939
6. North Elevation, Looking South
7. Photo 26 of 26