
FINAL

**Building 170
Parts/Drop Hammer Structures**

**Historic American Buildings Survey
Level II/III**

**2701 North Harbor Drive,
San Diego, California 92101**

Prepared for
**San Diego Unified Port District (SDUPD)
San Diego County Regional Airport Authority**

April 2010

CH2MHILL

HISTORIC AMERICAN BUILDINGS SURVEY
 RYAN AERONAUTICAL COMPANY HISTORIC DISTRICT
 BUILDING 170 - PARTS/DROP HAMMER STRUCTURES

<u>Location:</u>	2701 North Harbor Drive, San Diego, CA 92101, USA
<u>Present Owner/Occupant:</u>	San Diego County Regional Airport Authority
<u>Present Use:</u>	Vacant
<u>Significance:</u>	<p>Building 170 is located within the boundaries of the Ryan Aeronautical Company Historic District, a 46-acre complex containing 17 contributing resources and 30 non-contributing resources. The district is eligible on the local and national levels for the National Register of Historic Places (NRHP) under Criteria A, B, and C and for the California Register of Historical Resources (CRHR) under Criteria 1, 2 and 3. The historic district is eligible under NRHP Criterion A (CRHR 1) for its association with the contribution of aircraft manufacturers at Lindbergh Field to World War II defense production. It is also eligible for its association with Cold War research, development projects, and defense manufacturing. Under Criterion NRHP B (CRHR 2) the district is eligible for its association with aviation pioneer T. Claude Ryan and his aircraft aerospace manufacturing businesses. Ryan Aeronautical Company, under Mr. Ryan's leadership, made significant contributions to national defense production during World War II, as well as important developments in aerospace research and development in the 1950s and 1960s. The historic district is eligible under NRHP Criterion C (CRHR 3) for its representation of industrial architecture associated with the 1930s and World War II. The district embodies the distinctive architectural characteristics of aircraft manufacturing buildings of the period in Southern California. The building and structures in the district illustrate the design fabrication concepts common to aircraft manufacturing plants from the 1930s to the 1960s. During this period, the aerospace industry played a dominant role in the economy of the region (URS Corporation, 2008).</p> <p>Building 170 is a non-contributing resource to the Ryan Aeronautical Company Historic District.</p>

Historian: Jessica Feldman

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date of erection: c. 1950s
2. Architect: Unknown

3. Original and subsequent owners: Ryan Aeronautical Company signed a 50-year lease in 1939. Ryan Aeronautical Company sold to Teledyne Inc. in 1969, and the combined company became Teledyne-Ryan Aeronautical Company (TDY Industries). TDY Industries merged with Allegheny Ludlum Corporation in 1996, and Northrop Grumman Corporation acquired TDY Industries from Allegheny in 1999. Presently, the property is leased by the San Diego County Regional Airport and is under the Jurisdiction of the San Diego Unified Port District.

4. Original plans and construction: Building 170 is a one-story rectangular building located along the east elevation of Building 120 and the south elevation of Buildings 110/112. The floor plan of Building 170 is approximately 44 feet by 55 feet (San Diego County Regional Airport Authority, 2005). Building 170 is composed of corrugated sheet metal cladding and has a flat roof (URS Corporation, 2009). The roof is built-up on wood sheathing (San Diego County Regional Airport Authority, 2005). The building has hanging doors along the south elevation, a single-entry personnel door with glass insets along the east elevation, and multi-paned steel-framed awning windows also along the east elevation (URS Corporation, 2009).

5. Alterations and additions: Metal cladding from the west wall has been removed (San Diego County Regional Airport Authority, 2005).

B. Historical Context:

1. San Diego's Aviation History:

During the first three decades of the 20th century, the aviation industry was established in San Diego and it became a focal point of San Diego's activities and reputation. In 1912, the Army founded an air base and the first year-round military aviation school at Rockwell Field on Naval Air Station North Island, San Diego (Macaulay, 1928; Moore, 1960). The creation of the military air bases helped establish aviation in the region during the industry's pioneering years. In 1928, the Army and Navy had invested \$5,500,000 in the air bases at North Island (Macaulay, 1928). The high profile attained by aviation in the local community during these years resulted in an awareness of the potential future of the industry by the inhabitants of the region. San Diego became the first U.S. city to establish a Municipal Board of Air Control in 1926, and was also the first to issue a complete set of air ordinances (Macaulay, 1928).

In 1922, T. Claude Ryan, an aviation pioneer who began his career as an Army pilot, left the Army and moved to San Diego, where he began giving airplane rides and flying instructions. He soon established the Ryan Flying Company at the Dutch Flats Airfield in San Diego, which later became Ryan Airport. Dutch Flats Airfield was located at present-day Barnett Avenue and Midway Drive, off the current San Diego airport site and not within the current historic district boundaries. In the 1920s, Ryan Airport was the focal point for Ryan's expanding aeronautical enterprises (flying school, flying service, and an airplane manufacturing company). In the late 1920s, the use of the airport expanded as civil aviation came of age with other companies using Ryan's field to operate air services. With the help of T. Claude Ryan, civilian aviation flourished in San Diego County during these decades.

In the mid-1920s, the Chamber of Commerce promoted San Diego as the "Air Capital of the West." The development of what is now Lindbergh Field would be the central effort in this campaign. The committee realized that in order to maintain a leadership role in aviation, San Diego must have an adequate municipal airport. They wanted the location of the airport to be a place that would combine facilities for the operation of land and seaplanes, and be as near to the

city of San Diego as possible. They selected an area at the north end of San Diego Bay on City-owned tideland; however, this area did not contain enough area to meet government requirements. Negotiations were made with the United States Navy to provide portions of the Marine Corps-owned tidelands for the airport expansion (URS Corporation, 2009).

Ryan was instrumental in the development of Lindbergh Field, San Diego's nascent municipal airport, which was established in 1928. In 1929, 4,755 planes and over 20,000 passengers arrived or departed from the Dutch Flats Airfield (Leiser, 2000). Within a few years, the majority of these activities would move to Lindbergh Field. In 1939, Ryan established a manufacturing site on airport grounds, which is the location of the historic district.

2. Ryan Aeronautical Company:

T. Claude Ryan was born in Parsons, Kansas in 1898, but moved with his family to Orange, California in 1912. Ryan began a lifelong relationship with the aviation industry when, around the age of 19, he enrolled at the American School of Aviation in Los Angeles. In 1919, Ryan began studying mechanical engineering at Oregon State College. While in school, he applied to the Army for aviation cadet training and was accepted, but left the Army by January 1922 in hopes of flying as a civilian (National Aviation Hall of Fame, 2009). Ryan moved to San Diego to establish the Ryan Flying Company. The Ryan Flying Company changed its name to Ryan Airlines, Inc. when it was reorganized in 1924 to begin operating the first year-round, scheduled airline service in the United States from Dutch Flats (URS Corporation, 2009). Around the same time, in the mid-1920s, Ryan entered the aircraft manufacturing business with partner Frank Mahoney and created the Ryan M-1 Monoplane, which became one of the best-known air mail carriers in the country. A modified Ryan Monoplane became the *Spirit of St. Louis*, the plane Charles Lindbergh flew from New York to Paris in May 1927 on the first solo flight across the Atlantic Ocean. Ryan sold the company to Mahoney in 1926 and established the Ryan Aeronautical Corporation for the sale and manufacture of aircraft engines. The company changed its name to the Ryan Aeronautical Company in 1934.

Ryan Aeronautical Company signed a 50-year lease, starting in 1939, on land at the southeastern edge of Lindbergh Field along North Harbor Drive. Three buildings from the site of the previous company were relocated to this new location. The Ryan plant was one of several aircraft manufacturers located at Lindbergh Field that contributed to the nation's war effort in the 1940s. At peak wartime production, the Ryan plant had 8,500 employees and annual production exceeded \$55 million. Following the war, workforce was reduced to 1,200 and annual production to \$8 million (URS Corporation, 2009).

The Korean conflict provided the Ryan Aeronautical Company the opportunity to work with electronics for aerospace applications. The role in aerospace electronics led to the development of a variety of aircraft navigation and positioning equipment, including helicopter hovering devices, altimeters, and remote sensors (URS Corporation, 2009).

In 1947, the United States Navy awarded Ryan a contract to research the feasibility of reaction controls for jet aircraft. With jet engines and reaction controls handled by remote control, a Ryan vertical test rig lifted itself off the ground for the first time in 1950. In 1953, the Air Force awarded Ryan a contract to design and build two manned vertical takeoff jet research planes and 2 years later, the Ryan X-13 Vertijet was constructed. In the 1960s, Ryan continued target

drone and electronic systems production and vertical takeoff and landing research (URS Corporation, 2009).

In 1969, the company was sold for \$128 million to Teledyne Inc. and became known as Teledyne-Ryan Aeronautical Company (TDY Industries). T. Claude Ryan remained with the company as chairman until his death in 1982. In 1996, TDY Industries merged with Allegheny Ludlum Corporation, and then later became a subsidiary of that company. In 1999, Northrop Grumman Corporation acquired TDY Industries from Allegheny and relocated the plant to a site in Ranch Bernardo, California, leaving the former plant site vacant. The site continues to be mostly vacant, with only a small portion of Building 100 used for administrative offices and several other buildings used for storage.

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural Character: Building 170 is an industrial-style building located within an industrial facility and lacks distinctive features and characteristics (URS Corporation, 2009). It is one-story in height with a rectangular footprint, flat roof, and exterior corrugated sheet metal cladding. There are steel-framed multi-pane windows on the east elevation and hanging sliding doors on the south and east elevations. Large mechanical equipment is located near the southwest corner of the building.
2. Condition of Building Material: Building 170 is in fair condition.

B. Description of Exterior:

1. Overall Dimensions: Building 170 is approximately 44 feet by 55 feet.
2. Foundations: There is no visible foundation, although the building has poured concrete flooring.
3. Walls: Building 170 has corrugated sheet metal cladding. The walls have wood framing (San Diego County Regional Airport Authority, 2005).
4. Structural System: The structural system of Building 170 is independent of adjacent Buildings 120 and 110/112. The gravity system is comprised of wood joists and diagonal sheathing. The roof of Building 170 has a single pitch and is supported on 5-inch-diameter pipe columns (or built-up columns) comprised of three 3-inch-by-6-inch members (San Diego County Regional Airport Authority, 2005).
5. Openings:
 - a. Doorways: Building 170 has sliding hanging doors along the south elevation and a single-entry personnel door with glass insets along the east elevation. One part of the sliding hanging door to the left of the single-entry door appears to be missing, creating an open portal.
 - b. Windows: Building 170 has two multi-paned steel-framed windows on the east elevation. The window near the southeast corner is four-over-five with square panes, with a center pivoting section. The window toward the center of the east

elevation is six-over-three, with rectangular panes and a hopper style section in the center of the upper two rows of lights.

6. Roof: Building 170 has a flat roof, built-up over wood sheathing.

C. Description of Interior:

Floor Plans: The floor plan of Building 170 is approximately 44 feet by 55 feet (San Diego County Regional Airport Authority, 2005). It is located along the east elevation of Building 120 and the south elevation of Buildings 110/112. Building 170 is composed of corrugated sheet metal cladding and has a flat roof (URS Corporation, 2009). The roof is built-up on wood sheathing (San Diego County Regional Airport Authority, 2005). The building has sliding hanging doors along the south elevation, a single-entry personnel door with glass insets along the east elevation, and multi-paned steel-framed windows also along the east elevation (URS Corporation, 2009).

D. Site:

Historic Landscape Design: None

PART III. SOURCES OF INFORMATION

A. Early Views: N/A

B. Interviews: N/A

C. Bibliography

1. Primary and Unpublished Sources:

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San Diego Unified Port District. 1977. *San Diego Unified District Annual Report: 1976-77*. Carl Reusch Collection, San Diego Historical Society, San Diego, CA.



Building 170 - Parts/Drop Hammer Structures, South Elevation, San Diego, California, October 2009.



Building 170 - Parts/Drop Hammer Structures, Southwest Oblique, San Diego, California, October 2009.



Building 170 - Parts/Drop Hammer Structures, Southeast Elevation, San Diego, California, October 2009.



Building 170 - Parts/Drop Hammer Structures, Northwest Oblique, San Diego, California, October 2009.



Building 170 - Parts/Drop Hammer Structures, Northeast Oblique, San Diego, California, October 2009.



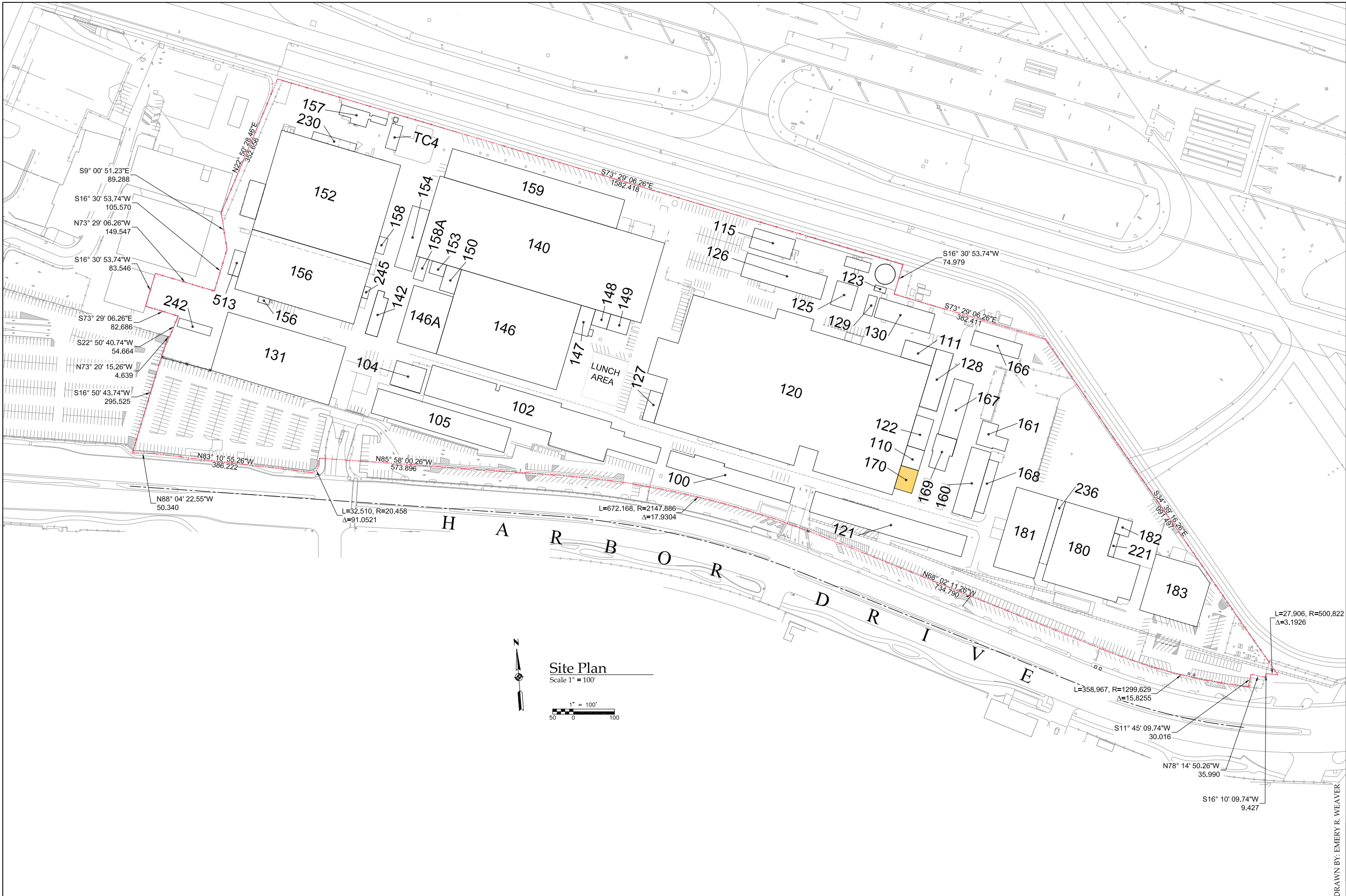
Building 170 - Parts/Drop Hammer Structures Interior, facing Southwest, San Diego, California, October 2009.




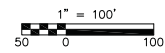
Building 170 - Parts/Drop Hammer Structures, Interior Northeast Elevation, San Diego, California, October 2009.



Building 170 - Parts/Drop Hammer Structures Interior, ceiling detail, San Diego, California, October 2009.





Site Plan
 Scale 1" = 100'


Library of Congress Index Number	HISTORIC AMERICAN BUILDINGS SURVEY	SURVEY NO.	SHEET 1 OF 4 SHEETS
NAME AND LOCATION OF STRUCTURE		SAN DIEGO COUNTY	
BUILDING 170 - PARTS/DROP HAMMER STRUCTURES		SAN DIEGO, CALIFORNIA	
2701 N. HARBOR DRIVE		SAN DIEGO COUNTY	
DRAWN BY: EMERY R. WEAVER		RYAN AERONAUTICAL COMPANY HISTORIC DISTRICT JANUARY 2010	