NPS Form 10-900
(Oct. 1990)

NPS/William C. Page, Public Historian, Word Processor Format

OMB No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" on the appropriate line or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name HAZEN, ALLEN, WATER TOWER

other names/site number Municipal Water Tower

2. Location

street & number 4800 Hickman Road N/A not for publication

city or town Des Moines N/A vicinity

state Iowa code IA county Polk code 153 zip code 50310-1190

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this (X nomination _ request for determination of eligibility) meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property (X meets _ does not meet) the National Register criteria. I recommend that this property be considered significant (_ nationally _ statewide X locally). (_ See continuation sheet for additional comments.)

Signature of certifying official/Title STATE HISTORICAL SOCIETY OF IOWA Date June 28, 2004

State or Federal agency and bureau

In my opinion, the property (_ meets _ does not meet) the National Register criteria. (_ See continuation sheet for additional comments.)

Signature of certifying official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is :

- X entered in the National Register.
  - _ See continuation sheet.
- _ determined eligible for the National Register
  - _ See continuation sheet
- _ determined not eligible for the National Register
- _ removed from the National Register.
- _ Other, (Explain)

Signature of Keeper Date of Action

Edson V. Beall 8/11/04

5. Classification

Ownership of Property
(Check as many lines as apply)

_ private
X public-local
_ public-State
_ public-Federal

Category of Property
(Check only one line)

_ building(s)
_ district
_ site
X structure
_ object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
		buildings
		sites
1		structures
		objects
1		Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing)

N/A

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions
(Enter categories from instructions)

INDUSTRY/PROCESSING/EXTRACTION/water tower

Current Functions
(Enter categories from instructions)

INDUSTRY/PROCESSING/EXTRACTION/water tower

7. Description

Architectural Classification
(Enter categories from instructions)

LATE 19TH & 20TH CENTURY REVIVALS
Classical Revival (Neo-Classical Revival)

Materials
(Enter categories from instructions)

foundation Concrete
walls Concrete
roof Metal
other

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets.)

Allen Hazen Water Tower
Name of Property

Polk County, Iowa
County and State

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" on one or more lines for the criteria qualifying the property for National Register listing)

_ **A** Property is associated with events that have made a significant contribution to the broad patterns of our history.

_ **B** Property is associated with the lives of persons significant in our past.

X **C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

_ **D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" on all the lines that apply)
Property is:

_ **A** owned by a religious institution or used for religious purposes.

_ **B** removed from its original location.

_ **C** a birthplace or grave.

_ **D** a cemetery.

_ **E** a reconstructed building, object, or structure.

_ **F** a commemorative property.

_ **G** less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)

ENGINEERING
ARCHITECTURE

Period of Significance

1931

Significant Dates

1931

Significant Person
(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder
Everett & Hazen
Mackenzie, Clinton

Narrative Statement of Significance - (Explain the significance of the property on one or more continuation sheets)

9. Major Bibliography References

Bibliography
(Cite the books, articles and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

_ previous determination of individual listing (36 CFR 67) has been requested
_ previously listed in the National Register
_ previously determined eligible by the National Record
_ designated a National Historic Landmark
_ recorded by American Buildings Survey # _____
_ recorded by Historic American Engineering Record # _____

Primary location of additional data:

X State Historical Preservation Office
_ Other State agency
_ Federal agency
_ Local government
_ University
_ Other

Name of repository
_____

Allen Hazen Water Tower
Name of Property

Polk County, Iowa
County and State

10. Geographical Data

Acreage of Property 5 acres +/-

UTM References
(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing
1	15	443049	4607196
2			
3			
4			

Verbal Boundary Description
(Describe the boundaries of the property on a continuation sheet)

Boundary Justification
(Explain why the boundaries were selected on a continuation sheet)

11. Form Prepared By

name/title William C. Page, Public Historian

organization AT&T Wireless Services, Inc. date January 10, 2004

street & number 520 East Sheridan Ave. (Page) telephone 515-243-5740

city or town Des Moines state IA zip code 50313-5017

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs - Representative **black and white photographs** of the property.

Additional items - (Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of SHPO or FPO.)

name Des Moines Water Works

street & number 2201 Valley Drive telephone 515-283-8700

city or town Des Moines state IA zip code 50321

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Section number 7 Page 1

CFN-259-1116

Allen Hazen Water Tower, Polk County, Iowa.

GENERAL DESCRIPTION

Located in the northwest quadrant of Des Moines and at one of the highest elevations in the city, the Allen Hazen Water Tower is a massive water storage and pressure facility completed in 1931 from a design by Everett & Hazen, Consulting Engineers of New York City. The water tower stands at 973' above sea level. The structure rises 100' above this grade and is situated on five acres of parkland. The integrity of the tower is excellent, having been well maintained since its original construction and with only a few alterations discussed below. It remains in service to the present day as one of four storage and pressure facilities within the system of the Des Moines Water Works.

WATER TOWER

The Allen Hazen Water Tower possesses four component parts: a concrete base; a reinforced concrete pedestal surrounded by15 concrete columns and entablature; a steel tank; and an antenna.

The construction of the tower began in 1929. Writing after its completion in 1931, a contemporary professional journal concisely described its physical characteristics:

> It holds 2,000,000 gallons of water, is 100 feet high above foundations, has a diameter of 110 ft. and depth of 19 ft. There are fifteen columns supporting the tank, each having a diameter of 6 ft. 2 in. and a height of 50 ft.
>
> The structure is of concrete up to the base of the steel tank. The tank has a flat bottom and is of the ordinary oil tank type of construction. By special butt jointing and countersunk riveting the outside is left perfectly smooth.
>
> The tank rests on a concrete deck supported by the outer columns and the center concrete cylinder, which is 50 ft. in diameter. The entire structure is carried on a foundation of Raymond concrete piles varying in length from 25 to 35 ft. (*Water Works and Sewerage*: 129)

A concrete platform is situated above these supports. This round platform measures about 110' in diameter. Four concrete steps lead from the grade to this platform.

The pedestal is cylindrical in shape and constructed of reinforced concrete. It measures 50' in diameter and about 60 ' in height. The entrance to the tower faces to the northeast. Fifteen slightly tapering columns capped with Doric capitals surround the pedestal. They are constructed of

reinforced concrete and 50' in height and support a frieze and cornice. The frieze is plain. Both the frieze and the cornice conform to the shape of the drum of the tank, as described below. A narrow walkway is situated above the cornice. It surrounds the base of water tank, provides inspection and service access, and features a metal railing with classically inspired detailing. The pedestal and columns together support the huge weight of the water tank and its contents.

The 2,000,000 gallon steel tank is as described above. The tank rests on the pedestal and columns without further attachment--as the superstructure of a house on a plate. Although drum-shaped and appearing to be round from grade, the side of the tank is actually constructed of15 steel panels. These panels are fixed together by lapped and riveted joints then welded to close the seams. The joints form vertical "fins," which are visible from the street. The panels themselves are situated so that their vertical seams are centered on the supporting columns below. The roof of the tank tapers slightly downward from the center to the perimeter. In the 1930s, a directional arrow was painted in yellow on the roof to guide airplanes to the Des Moines airport. This arrow is nonextant. The tank today is painted silver.

The weight of the water tower is prodigious:

Steel tank	300 tons
Steel reinforcing	175 tons
Concrete	10,185 tons*
Water (2 million gallons)	8,340 tons
Total weight on piling	19,000 tons*

* Approximate

Source: Des Moines Water Works

In the late 1940s, a radio antenna was installed on top of the tank at its center. This antenna provided radio communications for water works service vehicles. (See Continuation Sheet 7-12.) A little later, the Iowa Power & Light Company installed a separate transmission relay on this antenna to communicate with their mobile units. The antenna was subsequently extended to a height of 145'. Then, in 2001, the antenna was extended for a second time and reached a height of 167' to provide a relay station for cellular telephones. This new construction was surmounted by a lightening rod and stabilized by a series of 20' guy wires. (See Continuation Sheet 7-13.) To comply with Section 106 Review and Compliance, this extension was subsequently reduced in height.

The interior of the pedestal contains a spiral staircase, which accesses the roof of the water tank through a cylindrical shaft. The shaft is built of concrete to the height of the exterior frieze; the shaft then becomes encased in steel as it penetrates the interior of the tank. A trap door leads from the stairs to the roof. From there, maintenance personal can access the walkway around the exterior of the tank by walking to the ledge of the roof and climbing down a ladder fixed to the west side of the tank. This has never been a public access. (H. King Dawson Interview)

The interior also possesses a value vault to regulate the flow of water from the tower, but the regulation of this flow can be operated from the water works plant on Fleur Drive. A shop or shelter room is located on the west side of the interior.

Presently the Des Moines Water Works plans several minor changes to the water tower. These include the installation of several drainage spouts to replace a series of rain gullets, which presently feed run-off water from the roof into the tank itself. A ladder, which is situated on the west side of the tank, will also be replaced to provide safer access from the roof to the walkway around the base of the tank.

SITE

The Allen Hazen Water Tower is situated on Lot 1 of the Franklin Plaza addition to the City of Des Moines, Iowa. Lot 1 measures 633.3' x 334.1' and contains about five acres. The water tower stands on the high point on this tract, one of the highest points in the City of Des Moines. A chain link fence now surrounds the tower, and public access to its concrete platform is restricted. The site is landscaped with lawn and mature and semi-mature deciduous and coniferous trees. Concrete pedestrian walks edge the site on the north and east.

In about 1990, an auxiliary pumping station was installed on the site. This included a 20' x 30' x 15', underground, concrete vault located on the east side of the tower. Only three, small concrete boxes to house equipment for this pumping station are visible. A chain link fence surrounds this area and the tower itself. A gravel drive for service vehicles accesses this restricted area from Hickman Road on the north.

The feeling of the surrounding neighborhood is of mixed use. Single-family dwellings edge the property on the east and the north. Tower Park, a municipally owned park operated and maintained by the Des Moines Park and Recreation Department, is situated nearby to the west. The former Franklin Junior High School, now converted and expanded into the First Federated Church at 4801 Franklin Avenue, is located directly to the south with a large parking lot separating the church building and the Allen Hazen Water Tower. Hickman Road is an arterial street running east and west across the west side of the city.

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NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

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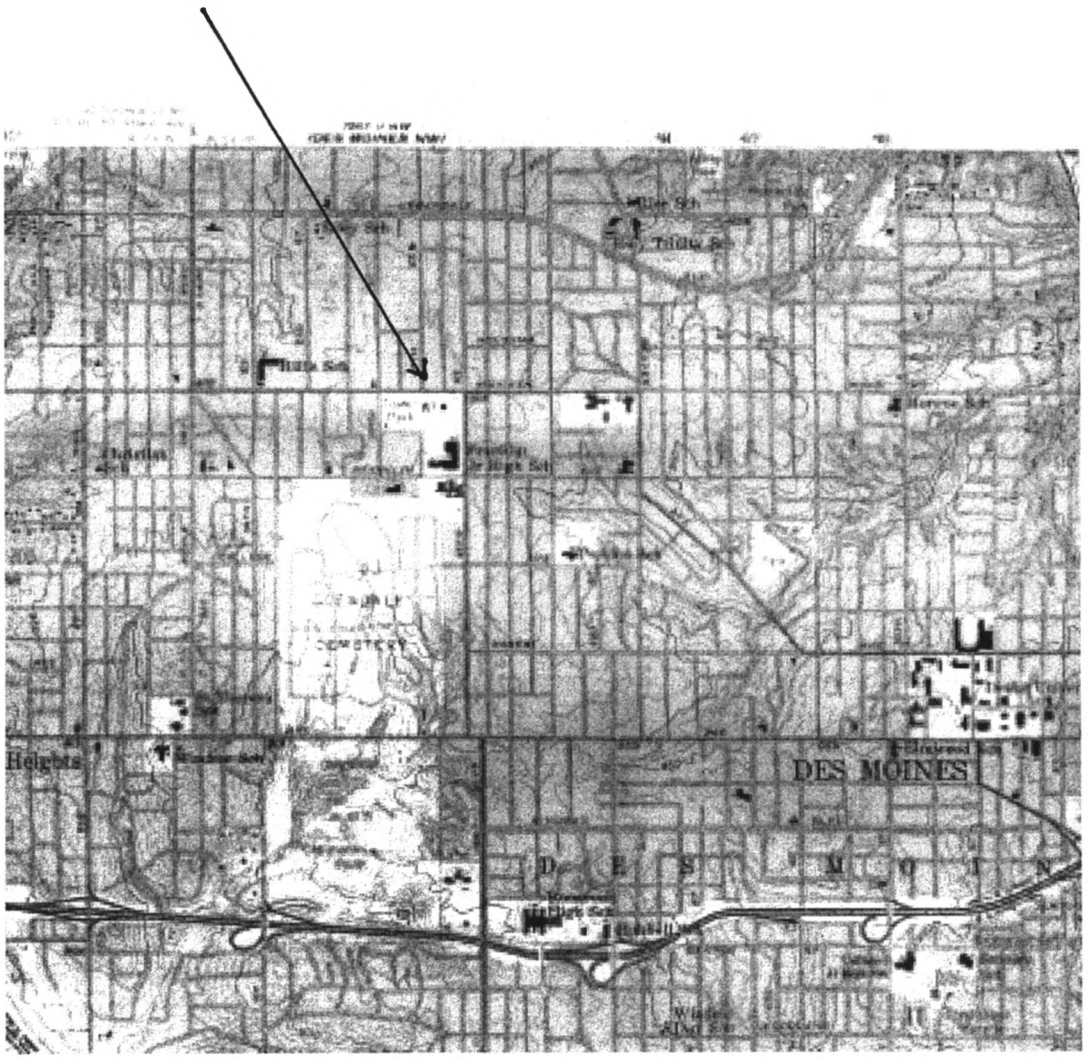
CFN-259-1116

Allen Hazen Water Tower, Polk County, Iowa.

SITE MAP

ARROW LOCATES PROPERTY



The properties marked "Tower Park" and "Franklin Jr High Sch" do not form a part of the Allen Hazen Water Tower ("WT") site.

Source: U.S.G.S. Map (7.5 Minute Series), Des Moines SW Quadrangle, 1984.

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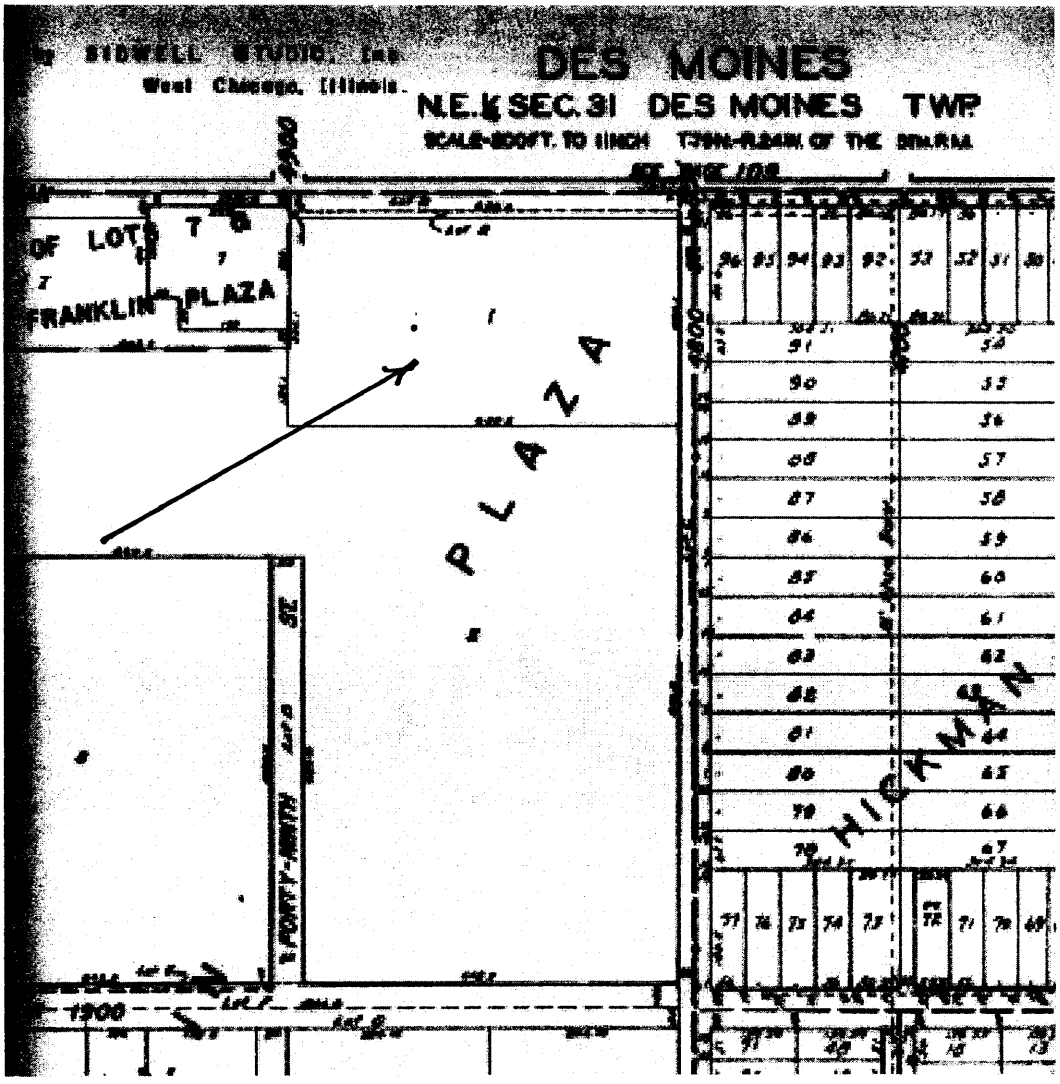
CFN-259-1116

Allen Hazen Water Tower, Polk County, Iowa.

PLAT MAP 1953

ARROW LOCATES LOT 1, SITE OF THE TOWER



Source: Sidwell Studio, *Aer-O-Plat Atlas of Polk County, Iowa*, p. 119.

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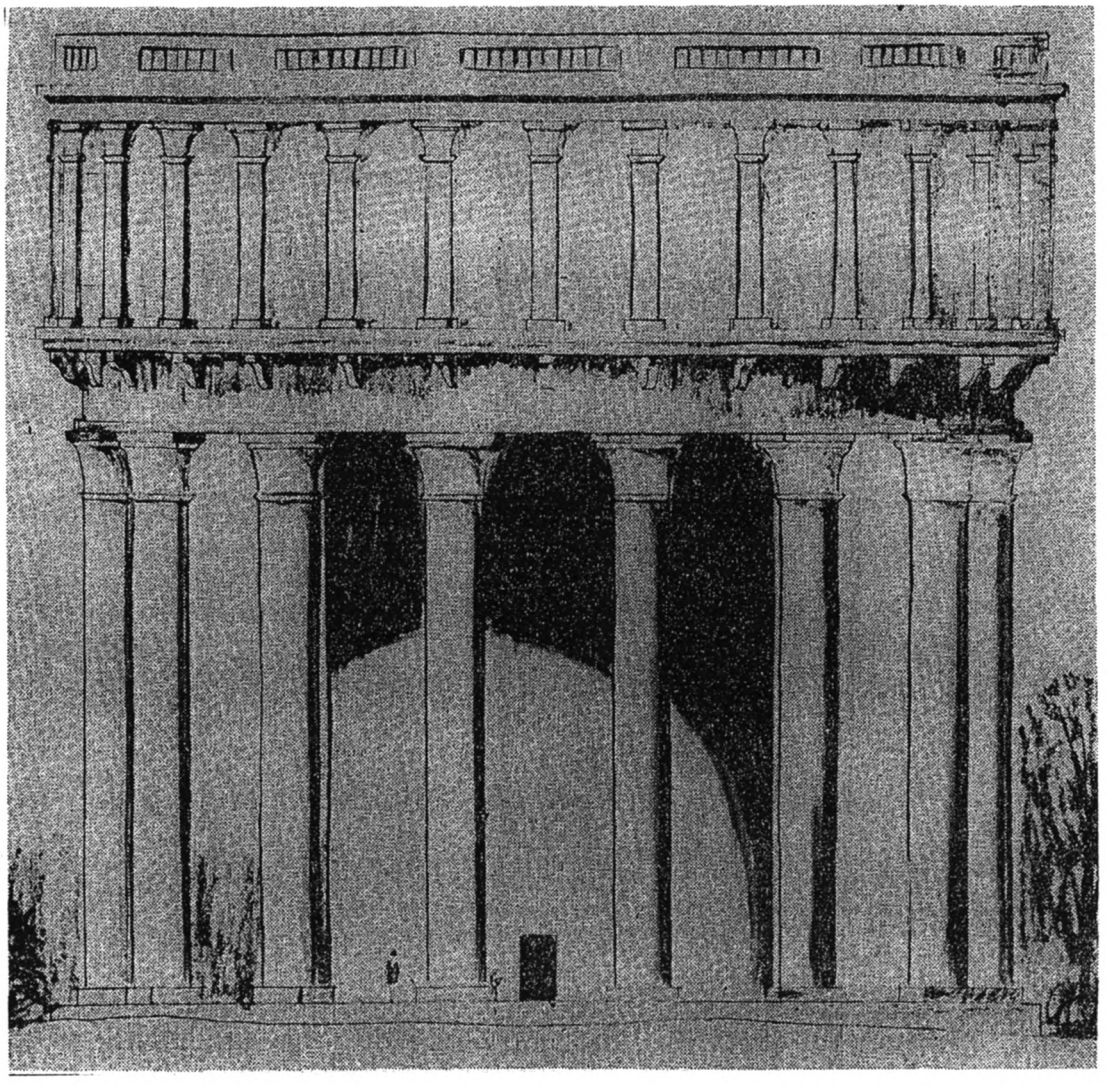
Allen Hazen Water Tower, Polk County, Iowa.

INITIAL DESIGN

1929



This is the first published proposal for the tower. A revision (see below) simplified the design.

Source: Undated clipping, Community Development Department scrapbook, City of Des Moines, *Des Moines Tribune*, Early summer 1929 (likely).

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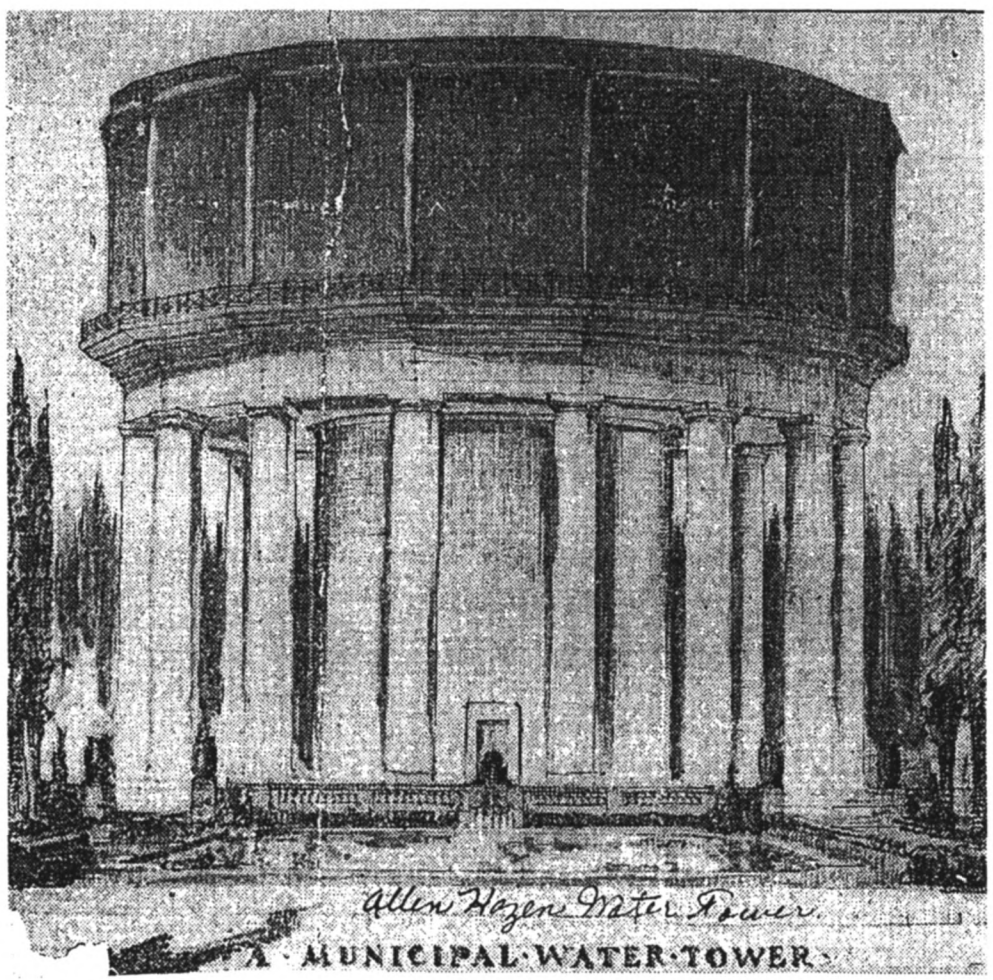
Allen Hazen Water Tower, Polk County, Iowa.

REVISED DESIGN

1930



This design eliminates the upper colonnade above the entablature and leaves the steel tank unadorned.

Source: Undated clipping, Public Library of Des Moines Vertical Files, *Des Moines Tribune*, June 13, 1930 (likely).

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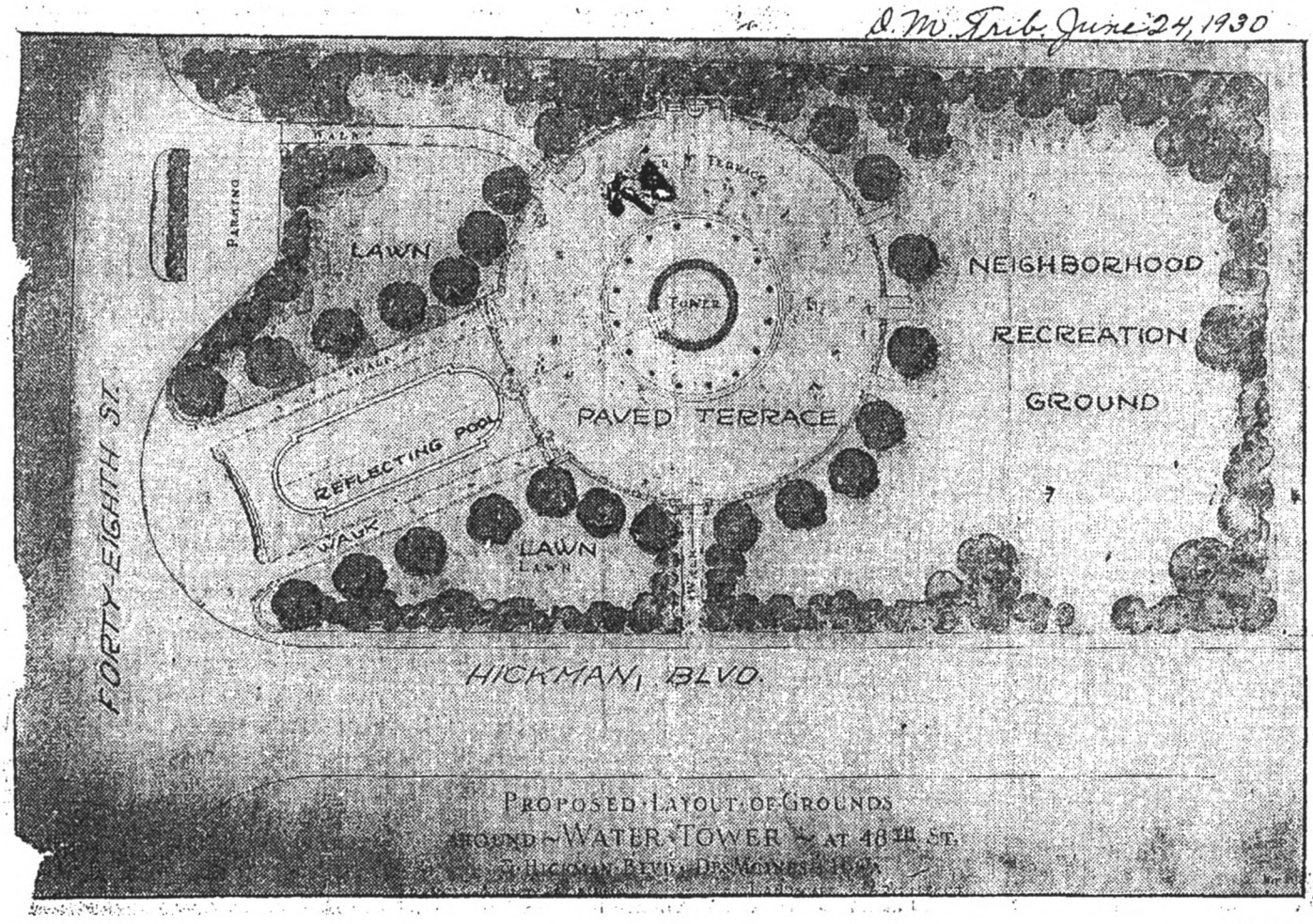
Allen Hazen Water Tower, Polk County, Iowa.

LANDSCAPE ARCHITECTURE PLAN

1930



Des Moines landscape architect Francis Asbury Robinson prepared this plan for the site in 1930.

Source: *Des Moines Tribune*, June 24, 1930.

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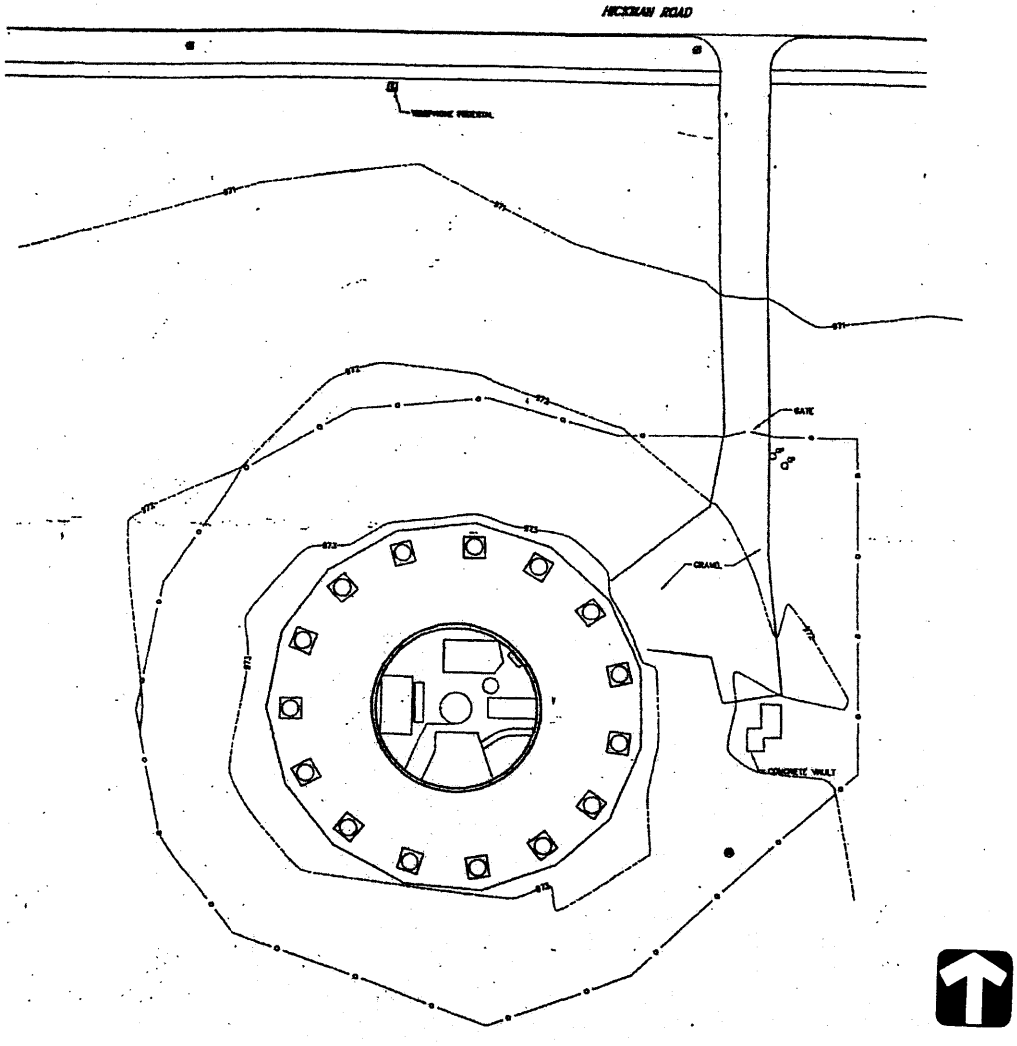
Allen Hazen Water Tower, Polk County, Iowa.

SITE PLAN

2000



Line-and-dots (arrow) mark the chain link fence surrounding the tower.
The vehicular drive runs north from the tower to Hickman Road

Source: Shive-Hattery, 2000.

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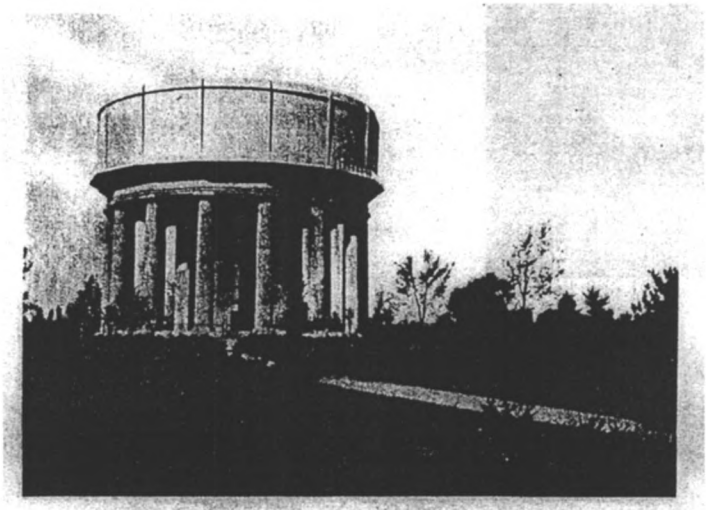
CFN-259-1116

Allen Hazen Water Tower, Polk County, Iowa.

HISTORIC PHOTOGRAPH

1932



Allen Hazen Water Tower, Des Moines, Ia.

This photograph of the Allen Hazen Water Tower appeared in a nationally distributed professional journal in 1932.

Source: *Water Works and Sewerage*, 1932, p. 129.

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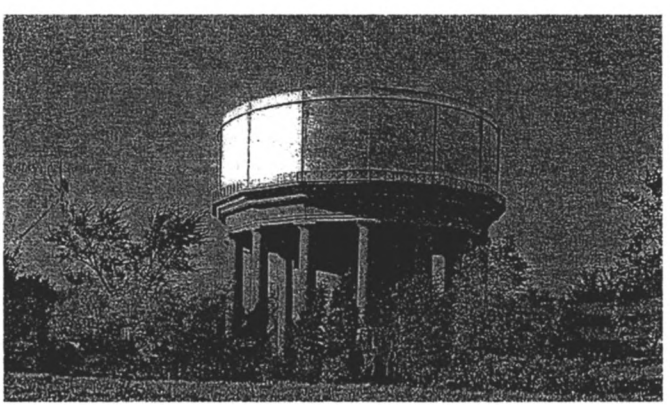
Allen Hazen Water Tower, Polk County, Iowa.

HISTORIC PHOTOGRAPH
1949



This photograph pictures the tower shortly before a radio antenna was erected on top of it.

Source: Register file photo reprint in the *Des Moines Register*, May 10, 2001.

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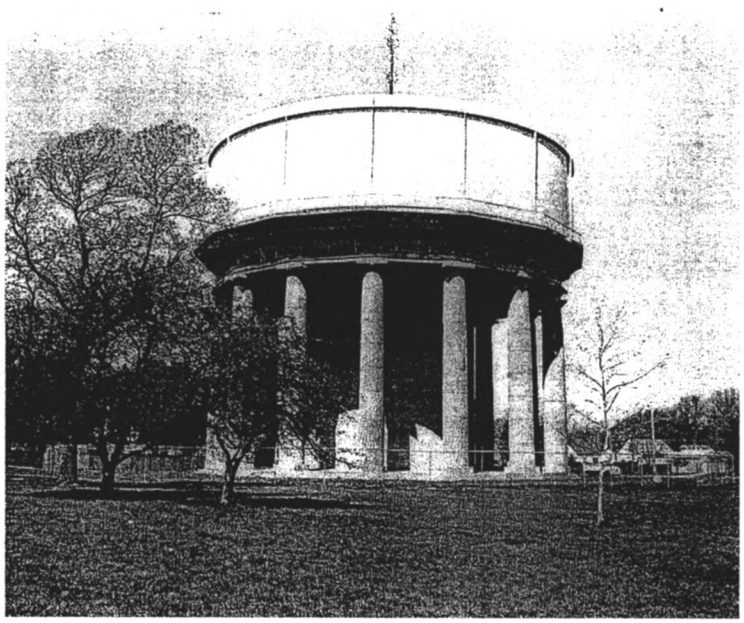
Allen Hazen Water Tower, Polk County, Iowa.

HISTORIC PHOTOGRAPH
1987



Source: Iowa Site Inventory Form 77-05376, State Historical Society of Iowa.

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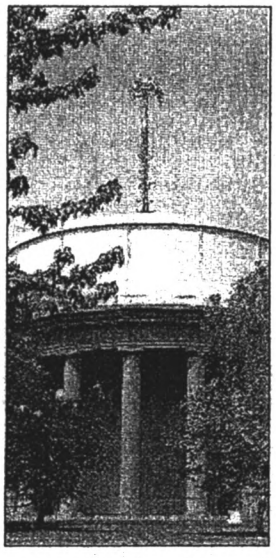
CFN-259-1116

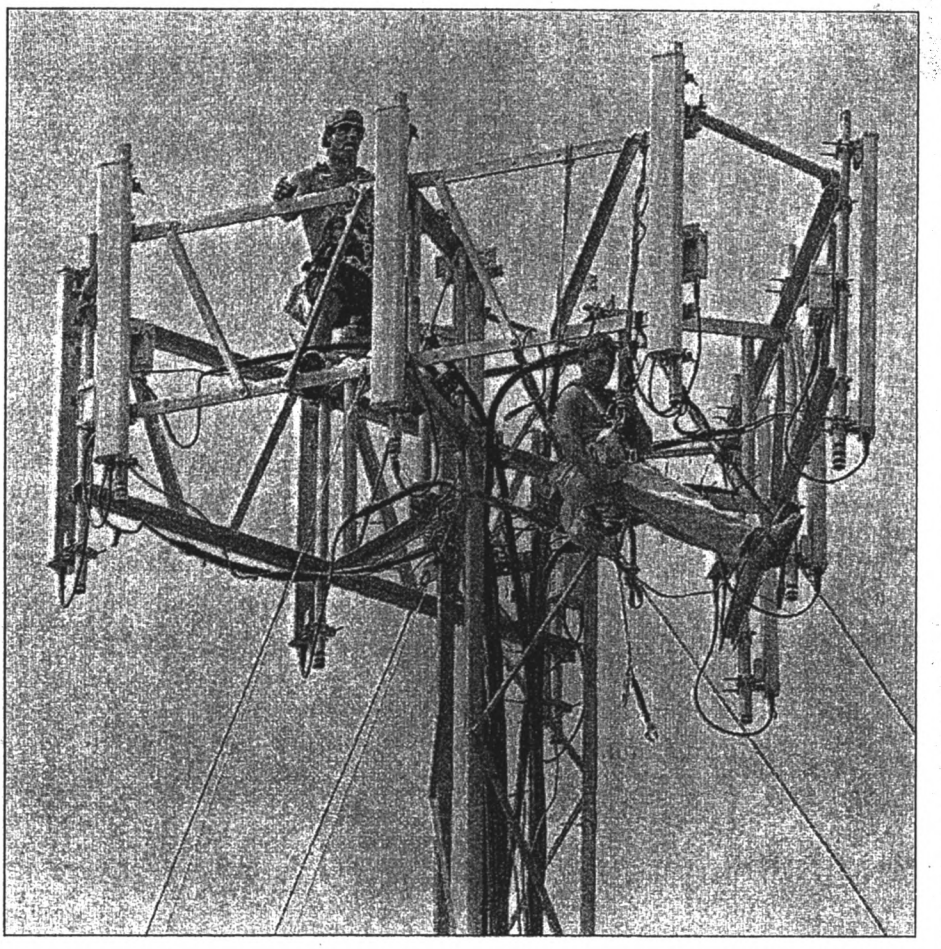
Allen Hazen Water Tower, Polk County, Iowa.

CELLULAR RELAY SINCE REMOVED
2001

A job with a view



Des Moines Register May 19, 2001



DOUG WELLS/REGISTER PHOTOS

Ty Elmone, left, and James Sledge of MidWestern Wireless Inc. of Little Rock, Ark., perform testing and maintenance atop a cellular phone tower on the standpipe in Tower Park in Des Moines on Friday.

Source: *Des Moines Register*, May 19, 2001.

Turner Construction Company, New York

SUMMARY OF SIGNIFICANCE

Completed and first placed in service in 1931, the Allen Hazen Water Tower is locally significant, under National Register Criterion C. The Neo-Classical Revival styling of the tower evinces a masterful use of reinforced concrete for decorative and utilitarian effect. A central pedestal surrounded by fifteen massive Doric columns (a weight totaling approximately 10,000 tons) supports a steel tank with a capacity of 2,000,000 gallons of water. This massive and classically influenced design consciously associates itself with the water systems and engineering triumphs of Ancient Rome.

The Hazen Water Tower calls attention, under Criterion C, to Allen Hazen, whose career as a civil engineer pioneered the modernization of American public water supplies. As a partner in Everett & Hazen of New York City, one of the nation's leading civil engineering firms during the early 20th century, Hazen served in the 1920s as consulting engineer to the Des Moines Water Works. Clinton Mackenzie, a member of the Everett & Hazen firm, designed the tower, and Hazen personally supervised its construction. Hazen died shortly before the tower was completed, and the structure was named in his honor. A professional journal subsequently noted, "The structure is a fitting memorial to an engineer-chemist who contributed so much toward developing American Water Works Practice." (*Water Works and Sewerage*: 129)

The period of significance, under Criterion C, for the Allen Hazen Water Tower is 1931, the year in which the water tower was completed and first placed in service.

The property contains one resource for this nomination: the water tower, which is classified as a structure and contributes to this nomination.

BACKGROUND

Des Moines Water Works

The Allen Hazen Water Tower is one among several improvements undertaken by the Des Moines Water Works during the 1920s to modernize its physical plant. In 1922, the water works constructed a new pumping station and treatment plant to replace its antiquated facilities. The Allen Hazen Water Tower was begun a few years later as part of this modernization program to provide adequate service to the burgeoning city.

Originally, the Des Moines Waterworks Company (as then styled) was the creation of Jefferson S. Polk and Frederick M. Hubbell. In 1871, the firm of Polk & Hubbell formed the corporation with capital of $300,000 and built a new plant to replace cisterns in the city's streets, which hitherto had supplied public water to the city.

The first water works pumping station was located at 17th and Walnut Streets, built in 1871. The waterworks employed the Holly System to purify water. Large chambers excavated under the bed of the Raccoon River provided storage for river water, which was pumped as needed from the chambers through the city's water mains. (Mills: 96) At the time, the station's pumps were considered a marvel for sightseers. (Everett & Company)

In 1881, the waterworks corporation was reorganized as a stock company with Polk and Hubbell as primary shareholders. Six years later, the two men dissolved their partnership amid friction. It required two years to separate their entwined business interests. (Mills: 100) In 1888, Hubbell incorporated the F. M. Hubbell & Son Company, Inc., to manage his holdings, including his stock in the Des Moines Waterworks along with Polk's shares in the firm, which he had acquired. Then, in 1895, Hubbell sold a portion of his stock in the waterworks. An eastern syndicate, headed by C. H. Payson of Portland, Maine, subsequently held the majority of the company's stock. (Mills: 153)

Throughout the early 20th century, the City of Des Moines debated whether to acquire the Des Moines Water Works as a public facility. The matter was finally resolved in 1919 by a referendum; 2,744 residents voted yes to acquire the property; 1,885 voted no. The city purchased the facility for $3,450,000. (Mills: 153)

The Denman family of Des Moines played a significant role in the history of the city's water works. Augustus N. Denman managed the water works from 1880 to 1896. Charles Sing Denman, his son, served as its general manager from 1920 until his death in 1933.

Charles S. Denman is largely responsible for modernizing the Des Moines Water Works. Prior to his administration, the facility had declined as the population of Des Moines burgeoned and technology advanced. Denman, who was known for his autocratic style, launched an ambitious program of improvement. Using the Chicago civil engineering firm of Alford, Burdick & Howson as consultant planners, a new plant was constructed in 1922 at its present site. The Allen Hazen Water Tower was constructed to provide reserve storage and stabilize water pressure for the city's entire system. John W. Alford, a senior partner in the Chicago firm, had served as Chief Engineer for Buildings and Grounds at the World's Columbian Exposition in Chicago in 1893. (www.abhengineers.com) He undoubtedly knew Allen Hazen, who served at the same time as the chief administrator of sewage disposal at the fair. It is likely that Alford provided the link between Denman in Des Moines and Hazen in New York City.

Denman was largely responsible for the development of Water Works Park. His fascination with the automobile led him to promote the construction of a network of roads, which still provides a venue for touring in the park. To honor his memory, the Water Works' board of directors named this tract of land "Charles Sing Denman Woods." When used, this name is frequently shortened to "Denman Woods," but the public today often continues to call the area "Water Works Park." Denman's style was evident in his administration of its grounds. The approval of the general manager was required for the public to use them. (H. King Dawson Interview)

Today the Des Moines Water Works remains a publicly owned facility, governed by a board of trustees appointed by the mayor of the City of Des Moines, and administered by a general manager and professional staff. The Great Flood of 1993 overwhelmed the Des Moines Water Works and for twelve days the city was without water—the largest American city to experience such a disaster in modern history. Both the residents of Des Moines and the employees of the Des Moines Water Works gained international notoriety from the media for their successful response to the challenge. L. D. McMullen, the waterworks C.E.O. and general manager, became a folk hero.

National and State Context

The United States experienced a great expansion of public water supply during the late 19th and early 20th centuries. As Allen Hazen noted, "In this 50-year period every city in the country has built or has improved its water-works," including New York City, Boston, Chicago, and other large cities. "There is a temptation to follow down the list, but to do it would be practically to make a catalog of the cities of the country." (Hazen 1924:697)

Hazen sought to promote the filtration of river water to improve the nation's health. Writing in his pioneering book *The Filtration of Public Water-Supplies* (Third Edition 1903), he noted:

> Many years ago, when the whole subject of water-supply was still comparatively new in this country, filtration was considered [by J. P. Kirkwood, engineer of the St. Louis Water Board in the 1860s] as a means for rendering the waters of our rivers suitable for the purpose of domestic water-supply. . .
>
> Unfortunately the interest in the subject was not maintained in America, but was allowed to lag for many years; it was cheaper to use the water in its raw state than it was to purify it; the people became indifferent to the danger of such use, and the disastrous epidemics of cholera and typhoid fever, as well as of minor diseases, which so often resulted from the use of polluted water, were attributed to other causes.

> The one unfortunate feature is the question of cost. . . we have been so long accustomed to obtain drinking-water without expense other than pumping that any cost tending to improved quality seems excessive, thus affording a change for the installation of inferior filters, which by failing to produce the promised results tend to bring the whole process into disrepute. (Hazen 1903: iv)

Hazen continued:

> there are hundreds of other cities, including some among the largest in the country, which supply their citizens with turbid and unhealthy waters which cannot be regarded as anything else than a national disgrace and a menace to our prosperity. (*Ibid.*: 2)

Judging from Hazen's book, Des Moines was among these cities. By 1896 more than 150 American cities purified their public water supplies by mechanical filter systems. These included both major metropolitan areas and smaller cities as well. Indeed, Hazen's list included the following eight Iowa cities:

IOWA CITIES AND TOWNS USING MECHANICAL FILTERS BY 1896

City	1890 Population	Filters First Installed
Dubuque	30,311	1892
Davenport	26,872	1891
Burlington	22,565	1894
Cedar Rapids	18,020	1896
Keokuk	14,101	1893
Creston	7,200	1891
Waterloo	6,674	1891
Mount Pleasant	3,997	1888

Source: Hazen 1903: 247-248.

Des Moines did not appear on this list.

Hazen's book also examined the incidence of typhoid fever in relationship to the public water purification systems used by American cities. Hazen surveyed more than fifty American cities with

populations of 50,000 or more and found that "the places using filtered water have, in general, extremely low death-rates from typhoid fever . . . Filtration properly carried out removes bacteria promptly and thoroughly and at a reasonable expense." (*Ibid.*: 212) Hazen compiled mortality statistics from these 50 cities to prove his point. Surprisingly, Des Moines was one of only four cities across the nation, which did not report. What prevented these statistics from appearing?

The efforts of Charles S. Denman and the Des Moines Water Works as a publicly owned facility should be evaluated within the context of this turn-of-the-20th century movement to improve the nation's public water supplies. Although that story is beyond the scope of this National Register nomination, it provides the setting for the erection of the Allen Hazen Water Tower and calls attention to Denman's drive to establish a modern system for Des Moines.

ARCHITECTURE

The Allen Hazen Water Tower is locally significant under Criterion C as an outstanding example of Neo-Classical Revival styling united with utilitarian technology in a public works facility. The base of the tower features Doric-styled columns, a frieze, and cornice constructed of massive quantities of reinforced concrete. This supports a simple, metal water tank shaped like a drum. This union of classicism and utility results in an aesthetically pleasing composition of monumental proportion. At the same time, the open spaces between the tower's columns and pedestal punctuate the structure's massing with light and air to dispel a feeling of oppressive weight.

Architectural historian Alan Gowans has noted that "majesty" is an appropriate word to describe such a structure:

> Utilitarian public works on occasion can command a kind of majesty, when the directness of utilitarian building produces effects of substantiality appropriate to structures that form the physical foundations of society. One familiar example would be those tall and dramatic watertowers of metal or concrete that often so dominate the approaches or skyline of small towns as to constitute monuments to their community enterprise. (Gowans: 5)

The architectural design of this tower is unique in Des Moines. When the Des Moines Water Works later constructed three additional above-ground water tanks, their construction was motivated solely by engineering utility.

Clinton MacKenzie of the Everett & Hazen firm signed preliminary plans for the water tower. (See Continuation Sheet 7-6.) These plans were subsequently revised and simplified. The water tower's

main columns were reduced in number from 16 to 15. A colonnade with pillars 21' in height and 3' in diameter, which was to surround the tank were deleted along with a concrete parapet, which capped it. The tank became completely exposed in the redesign rather than veiled by the colonnade. Other decorative features were also deleted, including the removal of brackets as part of the cornice and astragal molding at the base of the capitals. (See Continuation Sheet 7-7.) In this writer's opinion, such simplification improved the design. The tank speaks now for what it is. The colonnade would have added undue weight to the overall design and trivialized the main columns. As built, the tank's lapped joints carry up the vertical lines of the columns, add a sleek, Moderne look to the structure, and accent its base.

The firm of Everett & Hazen consciously chose classical styling for this tower because of its references to the water works of Ancient Rome. Writing only a few years before the Allen Hazen Water Tower was designed, Hazen acknowledged his respect for Roman engineering and expressed the hope that America might be served as well:

> The Roman reservoirs still standing are evidence of the skill of their builders. May the water-works structures now building in America last as long! (Hazen 1924: 697)

The architectural design of the Allen Hazen Water Tower should be viewed against the backdrop of growing resistance to unadorned utilitarian structures emerging in the United States during the affluent 1920s. In 1929, for example, the Society of Arts and Sciences in New York City sought to improve the city's skyline by encouraging the construction of beautiful water towers. As reported by wire service to the *Des Moines Register* in 1929, this organization launched a program to recognize projects that achieved such a goal.

> Artists Say They're Blot on Skyline.
>
> Something has got to be done about what the secretary of arts and sciences here calls the "amazing skyline of upper New York," where the amazement of the artistically inclined is centered at the moment upon the water tanks. The skyline as a skyline is art. But the water tanks and there's no use trying to conceal the awful truth, are a blot on the escutcheon of architecture. (*Des Moines Register* 1929)

Enlisting the aid of the National Sculpture Society to appoint judges to serve on juries to make the awards, "The Society of Arts and Sciences is dedicating a parchment scroll to such buildings as tastefully enclose the pretty generally unenclosed water tanks, and they are doing this as an appropriate gesture." (*Ibid.*)

Although it is true that this story referred to water towers on top of private buildings and not public water works towers, the fact that the *Des Moines Register* chose to print it at the time of the Water Works controversy indicates local interest in related design issues.

While it is also true that Des Moines did not launch juried awards, the architectural design of the new Allen Hazen Water Tower was met with praise. According to one editorial:

> The standpipe was a necessary utilitarian structure.
>
> It could have been as ugly as sin, and it could have been cramped into just enough space to accommodate it. The result would have been an eyesore and a serious depressant on residence property values in the whole district.
>
> What we have is a fairly attractive architectural structure—not as handsome as an Athenian temple but certainly not without charm—situated in a generous park area that will be in only a year of two a delightful spot rich in tress and shrubs and walks and presumably flowers. . .
>
> Beauty CAN be combined with utility and without harm to efficient management. Quite the contrary as to the effect on management. (*Des Moines Tribune* 1931)

National publications concurred with local opinion. "This architecturally beautiful structure was designed, and its construction supervised, by Mr. Hazen and his partner, Mr. Chester M. Everett of New York City." (*Water Works and Sewerage*: 129)

The use of reinforced concrete was still new at the time. Some civil engineers perceived the use of concrete in the construction of such facilities to be a safeguard against earthquake. In 1932, for example, *Engineering News* reported a monumental water tower designed by A. Lindsay against earthquakes and located in Spokane, Washington. This example featured a steel tank incased in concrete. (*Engineering News* 1932:282)

The cost to build the Allen Hazen Tower exceeded by almost three times its original estimate. The original estimate was $100,000. The actual cost totaled $276,638.21. (Fact Sheet, Des Moines Water Works) This huge overrun likely accounts for the decision to omit the more ambitious elements of Francis Asbury Robinson's landscape design for the grounds.

At the time of its initial plan, an outcry of opposition from neighborhood residents greeted the proposed construction of the Allen Hazen Water Tower. It was originally to be located at 1707 46th Street in Des Moines. Residents objected to its design—a 115 foot high structure equal in height

to a ten story building—and asserted that it would "cast a shadow miles long on adjacent property" at certain times of the day. "Site for Water Tower is Cause for a Tempest" headlined a local newspaper story about a joint public meeting of the city council, water works board, city plan commission, and board of adjustment to discuss the matter. "Residents Protest Spot Chosen; Council Hears, Does Nothing," read the sub-line. (*Des Moines Tribune* 1929) To satisfy these objections, the Des Moines Water Works purchased five acres of land for $15,000 at 48th and Hickman Road to relocate the tower. This new site provided a deep setback for the tower and the opportunity to improve the site as spacious parkland.

Today, the Allen Hazen Tower is one among a series of above-ground water tanks owned and operated by the Des Moines Water Works. Collectively they store about 12 million gallons of water for the metropolitan area. The Hazen Water Tower stores two million gallons. The other tanks are standpipes, not towers. They were erected following World War II and include the Norman Wilchinski Standpipe on Park Avenue (2 million gallons), the Morris Tenney Standpipe on Merle Hay Road (4 million gallons), and the Henry Nollen Standpipe on Hull Avenue (4 million gallons). The Louise P. Moon Storage Facility at 2860 NW 150th Street in Clive (6 million gallons) and the Polk County Storage Facility at 6701 NE 14th Street (5 million gallons) are more recent improvements. Many of these facilities were named to honor service to the Des Moines Water Works. Tenney served as the third general manager of the Des Moines Water Works, while Wilchinski, Nollen, and Moon were long-serving members of its board of directors. Hazen, the only nonresident of the city, was the first to receive this honor.

When the Allen Hazen Water Tower was built, the Des Moines Water Works a commissioned Francis Asbury Robinson, a landscape architect of Des Moines, to design a plan for its five-acre site. The plan was intended to provide a park setting for the surrounding residential section of Des Moines and to further the Des Moines Water Works' intent to create such settings for their facilities. Although not all of Robinson's design was implemented, the plan succeeded in creating a neighborhood park with the water tower as its focus.

Robinson's beautification plan, as published in the *Des Moines Tribune* in 1930, was ambitious. Its chief feature was a main entrance to the grounds at the intersection of 48th Street and Hickman Road ("Boulevard" on the plan) which featured a reflecting pool flanked by pedestrian walks running diagonally to a paved terrace surrounding the outside perimeter of the tower's colonnades. The plan also provided for a vehicular parking area on the west side of 48th Street and a pedestrian walk to the paved terrace; a pedestrian walk mid-block from Hickman Road; lawns; and a "Neighborhood Recreation Ground" on the west side of the site. Trees were to edge the site on all four sides. (See Continuation Sheet 7-8.)

The basics of Robinson's plan were implemented. The entrance to the interior of the tower faced diagonally to the northeast and the intersection of Hickman Road and 48th Street and formed a terminus

of the vista from that intersection. An historic photograph of the water tower shows that a concrete pedestrian walk was constructed from this entrance to the intersection of the streets. (See Continuation Sheet 7-10.) (This pedestrian walk is nonextant.) A terrace, extending from the water tower's concrete platform was not implemented, although shown on Robinson's plan for the site. Trees and shrubbery were planted, and a wrought iron fence surrounded the entire site with an entrance at 48th and Hickman Road. Other site amenities as devised in the plan were left unimplemented. As noted above, the construction cost of the tower alone exceeded its estimate by almost 200% and undoubtedly affected site improvement plans. By 1932, Des Moines, as the rest of the nation, felt the effects of the Great Depression. The iron fence around the site was removed in the 1960s or 1970s to discourage inappropriate use of the park.

Many efforts in Des Moines during the first half of the 20th century sought to improve the city with the construction of parks and other amenities. Waterworks Park is the largest and most developed of the parks developed by the Des Moines Water Works. The park is located in the flood plain of the Raccoon River directly south of downtown Des Moines within a section of the city of mixed land use. The park features miles of scenic roads for touring, holding ponds for water, and the Aerie den Boer collection of Crab Apple tree varietals. The administration building, pumping station, and other waterworks facilities are also located in Waterworks Park.

By way of contrast, the Allen Hazen Water Tower and park provide a representative example of a landscape designed for a residential neighborhood. Rather than functioning for recreational or intensive human use, the park provides a visual amenity. The vast expanse of its lawn frames the monumental structure and thereby lends further dignity to it.

Charles S. Denman was largely responsible for these efforts to beautify water works property. Although his efforts were initially met with criticism, public opinion subsequently shifted:

> it may be appropriate to note what a change of sentiment has come about in the last few years with respect to the main waterworks plant on Twenty-first street.
>
> Whereas at one time there was considerable criticism of the zeal that was being shown in beautifying that place, the city has grown into a legitimate pride in the results of that zeal. (*Des Moines Tribune* 1931)

For two decades following the construction of the Allen Hazen Water Tower, a full-time park custodian provided general maintenance for the water tower and park. He mowed and trimmed the lawn and provided minor maintenance for the tower, like exterior painting. His shop was located in

the pedestal of the tower. This operational expense became prohibitive following World War II, and the position was subsequently terminated. (H. King Dawson Interview)

The Park and Recreation Department of the City of Des Moines subsequently recognized the public need for a nearby park for recreation, acquired a tract of land adjacent to the Alan Hazen Water Tower, and developed it as Tower Park. This park serves as a neighborhood park and provides a picnic pavilion and playgrounds for nearby residents. Tower Park is not included in this nomination.

ALLEN HAZEN

Allen Hazen (1869-1930) was one of America's foremost civil engineers, whose pioneering work in public water supply and sewage disposal ushered the nation into the modern age of public water utility service.

Born in Hartford, Vermont, Hazen showed prodigious capability as a scientist. He studied at the Massachusetts Institute of Technology for two semesters in 1888 before leaving to become a sanitary chemist for the Massachusetts State Board of Health in Lawrence, Massachusetts, at the age of 19.

Hazen's intellect, vitality, and ambition quickly led him to the forefront of his profession. He served as the chief administrator of sewage disposal at the World's Columbian Exposition in Chicago in 1893. The following year he entered private practice in Boston, where he remained until relocating to New York City in 1897. There he partnered with several other civil engineers, including the firm of Hazen & Whipple, Inc., Civil Engineers, and subsequently Chester M. Everett in the firm of Everett & Hazen, where Hazen practiced until his death in 1930.

Hazen pioneered the filtration of water through sand and gravel to reduce typhoid and other germs in America. This method remains in use to the present day. His civil engineering projects included the design of water filtration systems for Brisbane (Australia), Toronto (Canada), Washington, D. C., and other cities in the United States, Canada, South America, and Australia. Hazen's design for the Albany filtration system, which featured a vaulted masonry plant, was the third and at the time the largest such system constructed in the United States, when completed in 1898-1899. (*Engineering News* Vol. 39: 91, 40: 254; Hazen 1903: 254) Hazen also advocated water chlorination to reduce bacteria in public water supplies.

Hazen specialized in sewage disposal, hydraulics, and water supply. Throughout his life, he remained interested in the academic problems concerning his speciality. His scientific publications included the titles on the following page:

The Filtration of Public Water Supplies (1895)
Hydraulic Tables, with Gardner S. Williams (1905)
Clean Water (1907)
Meter Rates for Water Works (1917)

Hazen also authored many articles in scholarly and professional journals on water supply and sewage disposal. In 1924, Hazen published an historical sketch of public water supplies as part of a 50-year celebration of the *Engineering News-Record.* This work shows Hazen's interest in the historical evolution of his profession. *The Filtration of Public Water Supplies* appeared in its third edition in 1903.

The Hazen and Williams formula to gauge flowing water has stood the test of time. According to one authority:

> Although the Darcy-Weisbach/Colebrook method (on which the tables in this book are based) offers a rational mathematical solution to friction loss calculations (since it can be applied to any liquid except plastics and those carrying suspended solids) some engineers prefer to use one of the many empirical formulas that have been developed for water flowing under turbulent conditions.
>
> Of these, the most widely used and accepted is the *Hazen and Williams* empirical formula since it is convenient to use and experience has shown that it produces reliable results. In a convenient form it reads:
>
> $$h_f = 0.002083\ L\left(\frac{100}{C}\right)^{1.85} \times \frac{gpm^{1.85}}{d^{4.8655}}$$
>
> (Heald: 3-7)

In 1929, President Herbert Hoover honored Allen Hazen by appointing him to represent the American Society of Civil Engineers at an international engineering conference in Tokyo, Japan. (*Des Moines Tribune,* November 14, 1930) As a noted civil engineer himself, Hoover was personally qualified to judge Hazen's professional abilities.

The Des Moines Water Works first selected Hazen as a consulting engineer around 1920, a time when the population of the City of Des Moines was expanding and the city's municipal water works needed to keep pace with this development. Hazen remained the consulting engineer for Des Moines until his death. In the fall of 1929, Hazen visited the city to follow up on earlier recommendations for a new water tower in the northwest quadrant of the city to maintain the area's

water pressure and augment its supply. Hazen's planning for this new facility extended into 1930, and newspapers kept residents apprised of its progress. (See Continuation Sheets 7-6 and 7-7.) Construction of the tower began in 1930. Hazen reportedly supervised it, although death prevented him from seeing the completion of the tower. (*Water Works and Sewerage*: 129)

Hazen maintained a personal association with Des Moines. Charles S. Denman, the general manager of the Des Moines Municipal Water Company, and Hazen became personal friends. They subsequently planned a vacation trip to the West. While on that trip, Hazen suffered a heart attack when the pair reached Yellowstone National Park. "He was put on a train to be returned to New York but was taken off shortly afterward and died after being rushed to a hospital." (*Ibid.* May 17, 1930)

In recognition of Hazen's service to Des Moines, the board of directors of the Water Works voted to name "the tower then being erected at Forty-eighth Street and Hickman Road the Allen Hazen Tower" as a "testimonial of the beneficial service Mr. Hazen had rendered to the Des Moines Water Works." (Quoted in McLaughlin 1976)

REPRESENTATION IN OTHER CULTURAL RESOURCES SURVEYS

A series of cultural resources surveys, prepared for the State Historical Society of Iowa, have focused on the Allen Hazen Water Tower. They include the John Maves survey of Des Moines, conducted in 1975, which found the tower's style "Classical" and its architectural condition "Non-conforming, of possible architectural significance"; and the Barbara Beving Long survey of 1987 in conjunction with her survey for the City Beautiful Movement in Des Moines, which found the structure not eligible under National Register Criterion A but left its potential under Criterion C undetermined. The State Historical Society of Iowa verified the position of the water tower in 2001. That same year, the agency rendered an Opinion of Eligibility for it as part of its Section 106 evaluation of the property in conjunction with the construction of a cellular tower installed on top of the tower. (Review & Compliance # 001177029) The Long survey noted that the park setting of the water tower contributed to its significance. Iowa Site Inventory Forms for the tower bear the numbers 77-05376 and 77-020-528.

POTENTIAL FOR HISTORICAL ARCHAEOLOGY

The site's potential for archaeological significance was evaluated in 2001 by the State Historical Society of Iowa. Criterion D was found not be applicable to the Allen Hazen Water Tower.

RECOMMENDATIONS FOR FURTHER RESEARCH

As more is learned about the firm of Everett & Hazen, this information should be used to place the Allen Hazen Water Tower in Des Moines within the context of the firm's opus.

As more is learned about Allen Hazen and the role of the Allen Hazen Water Tower in his career, this information might warrant the claim that the structure is National Register eligible under Criterion B.

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ORAL HISTORY

Beavers, Randy R., P.E.; and Gary Benjamin, P.E.; January 14, 2004, with William C. Page. Beavers has served as Assistant Manager of the Des Moines Water Works for twenty years. Benjamin serves as Director of Engineering Services. They shared information about the Des Moines Water Works, the Allen Hazen Water Tower, including its recent renovations and some improvements needed in the future, and asked questions about what National Register status would mean for the facility and the Des Moines Water Works.

Bowers, Martha, January 28 and 30, 2004, with William C. Page. Bowers, who is an historic preservation consultant with Louis Berger, Inc., shared her expertise about American water works systems.

Dawson, H. King, January 26, 2004, with William C. Page. Dawson, who began his 45-year career at the Des Moines Water Works in 1935 and worked his way up to become general manager, shared information about the Allen Hazen Water Tower and the Des Moines Water Works from his long experience.

Moon, Louise, February 1, 2004, with William C. Page. Moon, a long-time trustee of the Des Moines Water Works, shared information from her historical research of the institution.

Soloman, Larry, March 30, 2003, with William C. Page. Soloman worked for the Des Moines Water Works for 37 years, and has collected memorabilia about the Allen Hazen Water Tower.

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Allen Hazen Water Tower, Polk County, Iowa.

VERBAL BOUNDARY DESCRIPTION

Lot 1 of Franklin Plaza in the City of Des Moines, Iowa.

BOUNDARY JUSTIFICATION

Contains all land historically associated with the resource.

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Allen Hazen Water Tower, Polk County, Iowa.

LIST OF PHOTOGRAPHS

1. Allen Hazen Water Tower
   4800 Hickman Road
   Des Moines, IA 50310
   Looking southwest
   William C. Page, Photographer
   March 30, 2003

2. Allen Hazen Water Tower
   4800 Hickman Road
   Des Moines, IA 50310
   Looking west
   William C. Page, Photographer
   March 30, 2003

3. Allen Hazen Water Tower
   4800 Hickman Road
   Des Moines, IA 50310
   Looking east
   William C. Page, Photographer
   March 30, 2003

4. Allen Hazen Water Tower
   4800 Hickman Road
   Des Moines, IA 50310
   Looking north
   William C. Page, Photographer
   March 30, 2003

5. Allen Hazen Water Tower
   4800 Hickman Road
   Des Moines, IA 50310
   Looking west
   William C. Page, Photographer
   March 30, 2003