

SG 2857

Wisconsin Word Processing Format (Approved 1/92)



United States Department of 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" in the appropriate box 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 Muirdale Tuberculosis Sanatorium
other names/site number

2. Location

street & number 10437 and 10457 Innovation Drive N/A not for publication
city or town Wauwatosa N/A vicinity
state Wisconsin code WI county Milwaukee code 079 zip code 53226

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this 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 meets does not meet the National Register criteria. I recommend that this property be considered significant nationally Statewide locally. (See continuation sheet for additional comments.)

Signature of certifying official/Title Jim Deegan Date 7/16/18
State Historic Preservation Office - Wisconsin
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 commenting official/Title _____ Date _____
State or Federal agency and bureau _____

Name of Property

County and State

4. National Park Service Certification

- I hereby certify that the property is:
 - entered in the National Register.
 - ___ See continuation sheet.
 - ___ determined eligible for the National Register.
 - ___ See continuation sheet.
 - ___ determined not eligible for the National Register.
 - ___ See continuation sheet.
 - ___ removed from the National Register.
 - ___ other, (explain):

Barbara Wyzal
Signature of the Keeper

8-31-18
Date of Action

5. Classification

Ownership of Property (check as many boxes as apply)	Category of Property (Check only one box)	Number of Resources within Property (Do not include previously listed resources in the count)	
<input checked="" type="checkbox"/> private	<input checked="" type="checkbox"/> building(s)	contributing	noncontributing
<input type="checkbox"/> public-local	<input type="checkbox"/> district	2	0 buildings
<input type="checkbox"/> public-State	<input type="checkbox"/> structure		0 sites
<input type="checkbox"/> public-Federal	<input type="checkbox"/> site		0 structures
	<input type="checkbox"/> object		0 objects
		2	0 total

Name of related multiple property listing:
(Enter "N/A" if property 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)

HEALTHCARE: Hospital/Sanatorium

INDUSTRY/PROCESSING/EXTRACTION: Energy facility

Current Functions

(Enter categories from instructions)

COMMERCE/TRADE: Business

INDUSTRY/PROCESSING/EXTRACTION: Energy facility

EDUCATION: School

7. Description

Architectural Classification

(Enter categories from instructions)

LATE 19th and 20th CENTURY REVIVALS: Classical Revival

Materials

(Enter categories from instructions)

foundation Concrete

walls Brick

Stone

roof Vinyl, Asphalt

other

Narrative Description

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

Name of Property

County and State

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for the 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.
- 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" in all the boxes 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)

Health/Medicine (A)

Architecture (C)

Period of Significance

Criterion A: 1915-1969

Criterion C: 1915; 1935

Significant Dates

1915; 1935

Significant Person

(Complete if Criterion B is marked)

N/A

Cultural Affiliation

N/A

Architect/Builder

Robert A. Messmer & Brothers

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

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**National Register of Historic Places
Continuation Sheet**

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Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

DESCRIPTION OF PHYSICAL APPEARANCE

Summary

The Muirdale Tuberculosis Sanatorium Hospital/Administration Building and Powerhouse are two remaining purpose-built facilities constructed in 1915 by Milwaukee County for use as a tuberculosis sanatorium. The buildings flank West Innovation Drive in an area that is currently the Milwaukee County Research Park.

The two buildings were part of a compact and largely vertical sanatorium campus. Most large sanatoria (those serving over 150 patients, according to tuberculosis sanatorium writer and designer Thomas Spees Carrington) that were built during the first two decades of the twentieth century were comprised of several one- to two-story buildings, each designed to house a specific function or use, such as administrative offices, hospital rooms, dining facilities, patient rooms, and other spaces.¹ All buildings were typically spread across a multi-acre campus. Muirdale was unique among sanatoria built in the United States during this time in that it was the first sanatorium campus in the country to be both compact in land coverage for its size and to have buildings taller than two-stories with the majority of services, offices, and other functional uses combined into a single Hospital/Administration Building. Auxiliary buildings at Muirdale were limited to the power house, and housing for patients with mild cases, and staff and nurse dormitories. Muirdale's compact vertical form also became a design standard for later county sanatoria built across Wisconsin.

The Hospital/Administration Building is on the west side of West Innovation Drive and held all of the primary functions of the Muirdale Sanatorium, including the hospital and surgery rooms, exam rooms, research rooms, and main offices. The Hospital/Administration Building consists of five floors and features a U-shaped footprint with its primary facade facing south onto a center courtyard flanked by the building's east and west wings. The building's north end features a long one-story wing. The exterior is of red brick with stone trim. Windows are a mix of grouped and single openings; the historic fenestration remains, although some windows are modern replacements. Inside, the Hospital/Administration Building is generally characterized by wide double-loaded corridors with rooms for specific uses and the use of marble finishes in public spaces.

The Powerhouse is on the east side of West Innovation Drive and provided steam power for the Hospital/Administration Building and the rest of the original campus. The Powerhouse is one-story in

¹ Thomas Spees Carrington wrote several books and articles between 1895 and the 1910s on the subject of sanatorium design. He was a resident of Evanston, Illinois and his books were influential in the design of sanatoria across the United States, including the Chicago Municipal Tuberculosis Sanitarium (1915). See: Thomas Spees Carrington, *Tuberculosis Hospital and Sanatorium Construction* (New York: The National Association for the Study and Prevention of Tuberculosis, 1914) 16.

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height and has an I-shaped footprint. The building is of red brick and set in a running bond, with stone detailing and decorative brick belt courses below window openings on all elevations. Its primary elevation is on its west end and is divided into nine bays, featuring arched openings with a mix of windows and doors.

The Powerhouse's interior is defined by its utilitarian nature and industrial character. It is divided into three sections – the south, center, and north sections, each of which housed a particular function. The interior features exposed brick walls, full volume spaces, metal railings, and a mix of concrete, brick, and tiled floors.

This building is representative of the few remaining examples of a notable property-type – an early-twentieth century tuberculosis sanatorium whose design was a departure from the sprawling campus-type sanatoria most associate with this type of treatment facility. This hospital took on a vertical emphasis with patient treatment rooms, living quarters, and administration offices all located within one building. Other buildings that were part of the campus include staff dormitories and housing for patients with mild cases of tuberculosis. The Muirdale Tuberculosis Sanatorium continues to convey its significance as a tuberculosis treatment hospital. Muirdale Tuberculosis Sanatorium occupied the buildings from 1915 until 1969 when the facility was closed. Since that time, various subsequent owners have demolished the remaining sanatorium buildings and have made use of the two remaining buildings as healthcare and administrative facilities. Despite changes in the ownership and varying uses over time, there have been minimal changes to the overall historic character of the Hospital/Administration Building and Powerhouse.

Setting

The Muirdale Tuberculosis Sanatorium is located in Milwaukee County within the city of Wauwatosa, which is on the western border of the City of Milwaukee. The major thoroughfares of North Mayfield Road and West Watertown Plank Road are just to the north and west of the site.

The roughly 7.27 acre site is within what is now the Milwaukee County Research Park. The Hospital/Administration Building and the Powerhouse are separated by West Innovation Drive, a public right-of-way. A modern fire station is north of the Hospital/Administration Building, on the corner of Watertown Plank Road and West Innovation Drive. A mid-rise Crowne Plaza Hotel is to the northwest of the Hospital/Administration Building at the corner of Watertown Plank Road and Mayfair Road. The Crowne Plaza parking lot connects to the Hospital/Administration Building parking lot.

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The Powerhouse on the east side of West Innovation Drive is immediately surrounded by unimproved lots, open lawn space, low vegetation, and a series of paved driveways. A new roadway opened immediately to the south of the Powerhouse circa 2015.

The Juvenile Justice Center is to the east of the Powerhouse and is comprised by a one-story circular building in front of a sprawling one-story campus of interconnected buildings. A mid-century water tower is located northeast of the Powerhouse. Neither the Juvenile Justice Center nor the water tower were within Muirdale's historic boundaries and were not affiliated with the sanatorium.

The Muirdale Tuberculosis Sanatorium is situated amongst a mix of institutional and commercial buildings that vary from one to four-stories and separated from each other with lawn areas, mature trees, and curving roads. The neighboring streets give rise to medical and research buildings to the east of Interstate 41 (Zoo Freeway), including the Wisconsin Medical College. Residential neighborhoods are also located in each direction beyond.

Building 1 of 2 – Muirdale Hospital/Administration Building

Muirdale Hospital/Administration Building Exterior

The five-story Muirdale Hospital/Administration Building is located to the west of West Innovation Drive. The building has a U-shaped footprint comprised of a central block with twin wings that extend southward and flank a central courtyard. Behind the central block and to the north is a single-story dining hall and kitchen wing. The building was originally constructed as a three-story structure. Floors four and five were added in 1935. The entire building is raised slightly above a concrete basement, and is clad in red brick with stone trim. Stone banding encircles the building above the second, third, and fifth floors, and a thick stone cornice tops the fourth floor. All facades are regularly fenestrated. Remaining original windows are primarily one-over-one, wood sash, double-hung windows set in grouped arrangements of one, two, or three. Windows on the first three levels feature a fixed transom. All basement-level windows are single, one-over-one wood sash windows. The east and west wings are mirror images of each other. The main building has a flat roof; the wing to the north has a pitched roof with grey asphalt shingles and a gable end to the north. Terraces extend above the wings at the third and fourth levels; parapet walls are topped by metal pipe railings. These outdoor spaces were created to offer patients ample opportunities for exposure to fresh air, which was one of the most important elements of tuberculosis treatment during the first decades of the twentieth century.

Central Block: South Facade

The south facade is divided into the south facade of the center block and the east and west wings. The center block is symmetrically arranged in three sections with a recessed fifth level. The middle section

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is five bays wide and projects slightly from the rest of the facade, with a decorative stone portico protecting the main entrance at the first floor level. The open-air portico projects from the facade by one bay and is three bays wide; the bays are defined by a tall, arched openings framed by plain stone with projecting impostes and separated by rounded pilasters with Ionic capitals. The portico is reached by a short flight of concrete steps with brick sidewalls, and is capped by a heavy stone cornice with a plain frieze and a flat gravel roof. The pair of entrance doors is a modern wood and glass replacement that is set in the original arched wood frame with an elaborate multi-light transom with sidelights. Above the doorway are plain brick spandrels with plain, round, stone plaques. The single bays on either side of the stone portico feature three single windows divided by brick mullions and topped by decorative rectilinear spandrels with raised brick borders and plain stone center panels. The second level features tryptic sets of windows in each of the five bays with spandrels above similar to those above the first floor windows. The third level windows are also tryptic, but are topped by stone lintels with keystones. The fourth level is plain and features pairs of double-hung windows.

The two flanking side sections of the middle block are each two bays wide and feature tryptic windows with plain brick lintels on each level. The recessed fifth level is nine-bays-wide with a doorway in the middle bay and pairs of double hung windows in the remaining bays. Each bay is separated by a projecting brick pier that extends to the roofline.

Central Block: North Facade

The north facade of the central block is five stories tall and regularly fenestrated by single, double-hung, wood sash windows; there are a few windows set in pairs at the western end of the facade. The facade is bisected at the first floor level by the single-story north dining and kitchen wing. There are secondary entrances on this facade. At the western end is a projecting brick entrance pavilion with a set of doors facing north. The flat-roofed structure is capped by plain stone coping. At the eastern end of the facade is another entrance at the first floor level, which is reached by a non-historic metal stair with a brick sidewall and stone railing cap. The doorway is set in a surround with sidelights and transoms. Above the doorway is a copper canopy supported by iron chairs, with a pressed anthemion centered above its north edge, and bordered along the bottom edge by a copper-framed skirt of opalescent and green stained glass panels. The top of the canopy is comprised of clear glass panels in a copper frame.

East and West Wings

The east and west wings are mirror images of each other, with matching outer facades and matching courtyard-facing facades. The east wing's east (outer) facade is similar to the west wing's west (outer) facade, and the east wing's west (courtyard-facing) facade is similar to the west wing's east (courtyard-facing) facade. All windows have brick lintels and plain stone sills, some of which are part of running bands.

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East and West Wing – Outer Facades

The outer facades of the wings are divided into three sections: a three- and four-story south section that is three bays wide, a four-story projecting rounded middle section, and a five-story north section that is six bays wide.

The south section has three bays with a projecting brick entrance pavilion at the first level of the middle bay. The pavilion has a single, slightly recessed, multi-light door with a decorative arched tympanum and square stone springers. A rowlock band below stone coping tops the pavilion, which has a flat composite roof. The upper levels of the middle bay have single windows; the south bay extends only through the third floor and has windows in sets of three per level; and the north bay features a single and a pair of windows per level.

The middle section served as sun rooms. It is four-stories tall and projects from the facade with a half-round footprint. Seven evenly-spaced single windows line each level.

The north section is five-stories tall and six bays wide. A brick entrance pavilion, located in the bay that is second from the north, projects from the facade and features doorway with a tall, multi-light, arched transom. The doorway is set in a raised brick frame and is flanked by square raised brick piers with Doric stone capitals and bases. The sides are of brick with decorative raised brick panels. The whole is capped by a stone cornice with a plain frieze and a flat composite roof.

The northern three bays feature sets of three windows per level. The southern first and third bays each have window pairs per level, while the second bay from the south has a single window per level. The second bay from the north at the fifth level projects by approximately two inches and features a pair of double-hung windows with decorative tympanum above. The parapet and stone coping that cap the elevation form a shallow-sloping pediment above the tympanum.

East and West Wings – Courtyard Facades

The courtyard-facing facade of the wings is similar to the outer facade and is divided into three sections: a southern three- and four-story section that is three bays wide; a four-story projecting rounded middle section, and a five-story north section that is two bays wide.

The southern section has three bays; the middle bay has three single windows per level, with an infilled southern opening, while the outer bays have groups of three windows per level. The south bay is three stories tall, while the middle and northern bays are four-stories. At the fifth level, the middle and northern bays feature twin, single, double-hung windows.

The middle section is four stories tall and projects from the elevation with a half-round footprint. Each level is lined by seven single, double-hung windows.

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The northern section is two bays wide and five stories tall. The southern bay has three single windows separated by brick mullions, while the northern bay has single double-hung windows per level.

East and West Wings – South Facades

The south facades of the east and west wings are each three bays wide and have matching fenestration and trim detail to the middle block on the first three levels. The parapet above the third level is capped by plain stone coping and steps up approximately one-foot above the middle bay. The fourth level is recessed from the south, forming a terrace above the third level. The facade has a central doorway in a stone surround, with flanking single windows also set in stone frames. The fifth level is set back half the length of each wing, with a central doorway topped by a decorative brick tympanum and two flanking double-hung windows.

North Dining/Kitchen Wing

Attached to the north facade of the main U-shaped Hospital/Administration Building is a single-story dining and kitchen wing with a gable-roof and brick-cladding. The T-shaped wing connects to the main Hospital/Administration Building with a single-story, flat-roofed connector with arched openings on its east and west sides; the east opening is largely infilled. On the west facade of the north wing is a flat-roofed, single-story garage addition. The gable roof features deep eaves supported carved brackets or rafter tails; the brackets are in turn supported by plan iron supports that extend from the brick face at a 45-degree angle up to each bracket. The edge of the roofs is trimmed by the original copper gutter, which also retains original copper downspouts. Along the roof ridge are three original copper ventilators with decorative, ogee-shaped octagonal caps; each cap terminates with a small, round, copper, sphere finial.

The east facade is divided into two sections: a six-bay southern section along the former dining room and five-bay northern section along the former kitchen service area. The southernmost bay has two pairs of windows at the basement and first floor levels, while the rest of the bays feature windows in groups of three. Above the first floor windows are decorative panels comprised of a raised brick border around a panel of stack bond headers. At the north end of this section is an open metal stair with a roof that leads to a door in the kitchen service portion of the north wing. The north section of the east facade has a middle bay with a single, double-hung window and four flanking bays with windows in groups of three. A tall brick chimney with a stone cap is attached at the northern corner of the facade and stands approximately twice the height of the wing.

The west facade is similar to the east, but is partially obscured along the first floor level by the western garage addition. The facade is similarly divided into a southern section with six bays, and a northern section with five bays. Only the two northernmost bays at the basement level are obscured in this section. The northern section of the west facade is mostly obscured along the basement level by the

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addition. At the first floor level, there are eight evenly-spaced single windows, three of which are infilled and join a narrow enclosed corridor that extends over the roof of the western garage addition. The garage addition is clad in matching red brick with stone coping and a flat composite roof. Its south and west facades feature wide, steel-frame clerestory windows, while the north facade has four bays with three overhead, metal garage doors, and fourth bay with an entrance doorway. Above the north end of the roof is an enclosed corridor with stucco walls and a peaked roof with deep eaves, carved rafter tails, and a copper gutter.

The north facade of the north wing is three bays wide, with tree single windows per level in the easternmost bay. At the middle and western bays is a two-story and flat-roofed wing that projects northward. This wing has a projecting stone cornice with a brick parapet and stone coping. Below the cornice and between first floor level windows are decorative panels comprised of raised brick border. The north facade is bisected by a projecting brick chimney, which divides it into two bays: an eastern bay with a mid-level stairway window and a single window per level; and a western bay with two single windows per level. Twin sets of windows separated by brick mullions are located on the east and west facades.

Muirdale Hospital/Administration Building Interior

The interior of the Hospital/Administration Building retains its general layout on each floor and basement as built in 1915 or altered in 1935, with the addition of the upper two floors. Each floor features a series of rooms along the outer walls and accessed by a doubled-loaded corridor that bisects the wings and the central block of the building. The main center block has an east-west oriented corridor that connects to the north-south oriented corridors or the east, west, and north wings. The central block has two elevators that are centered on the north side of each floor. Two main stairs also serve all five floors and the basement and are located at the southeast and southwest corners of the central block. Each stair has a wide tiled landing per floor. Each flight has a clockwise rotation with two ninety-degree turns. The stairs have cast iron stringers, risers, and newel posts, with wrought iron balusters, wood railings, and white marble treads. Stair balusters have a plain square profile, while newel posts are square with recessed paneled sides and rounded caps. During a 1990s renovation the stairwells were given secondary railing sections above the original handrails with closely spaces balusters in order to meet building code. These sections are attached to the outside of the historic railings and have a similar style with square balusters. Above the third floor, the stairs were extended in 1935 and feature solid sidewalls with wood hand rails in place of iron balusters, and tiled treads. Skylights illuminate each stair and have nine operable, rectangular, leaded glass panels set in a wood frame. The leaded panels have wood frames and are composed of clear glass set in a lattice pattern with a border of amber and clear glass. For additional ventilation, the building's main stairwells served

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as chimneys for hot, stale air. Each of the pivoting skylight panels could be tiled open into a vertical position in order to allow air to be drawn out through vents in the skylights.

Basement

The basement has a basic layout with bisecting, double-loaded corridors and rooms arranged along the outer perimeter. Four entrances access the basement from the outside. The east wing has a stair that leads from a doorway at the south end of the east elevation. A similar doorway on the west elevation of the west wing also accesses the basement. Two entrances along the north elevation at the east and west ends also access the basement. Most exterior doorways open into a vestibule space. All stairs leading to the basement are concrete with iron railings. Secondary doorways separate the stairs from the basement corridors and are set in wood frames with transoms. The corridors are approximately seven feet wide with decorative tile floors composed of a center field of white hexagonal tiles framed a two-toned border of deep reddish-brown and grey one-inch square tiles. A band of unglazed terra cotta base tiles protect the plaster walls at the floor level. The walls plain and free of ornament and meet the plaster ceilings without any decorative moldings. Some sections of the corridor have exposed pipes, conduit, ducts, and cables that obscure the ceilings. Room doorways are recessed by approximately one foot from the corridor wall, and feature smooth, gently rounded returns. All doorways have non-historic, fire-resistant solid wood doors set in original painted wood jabs with plain casing. Most doorways also feature transoms, which have been infilled with finished solid wood panels to match the non-historic doors. Some rooms have clerestory casement windows that open into the corridor; these are mostly glazed with wire glass. One doorway at the east end of the main block is flanked by side windows and topped by transom windows; most openings are infilled with solid material, but one opening retains original glue chip glass. A decorative feature of the center block corridor is a built-in safe, which has the name "Milwaukee County Tuberculosis Sanatorium" painted on the iron frame above the door.

The dining room/kitchen wing to the north is connected to the center block and features a bisecting double-loaded corridor with acoustic vinyl tile floors and plaster walls and ceilings. Rooms lining the corridor have wood-framed doorways and historic clerestory windows that open into the corridor.

First Floor

The first floor follows the same basic layout with bisecting double-loaded corridors and perimeter rooms. Centered on the south side of the center block is the main entrance and vestibule, which has white marble steps and book-matched marble wainscoting, terra cotta tile floors, and plaster walls and ceilings. The vestibule's steps lead up to a secondary doorway with double doors, side lights, and transoms; both the outer and secondary doorways are trimmed in polished white marble. Five secondary entrances access the first floor including: one entrance at the east end of the north elevation, entrances with white marble stairs at the north ends of the east and west elevations, and entrances at the south ends of each wing. Three additional entrances serve the dining room/kitchen wing to the

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north, with single doorways on each elevation. Corridors are plainly finished with non-historic materials, including carpeted floors, fire-resistant doors with metal jambs, and dropped ceilings with fluorescent light panels. Some historic recessed doorways remain with non-historic doors and infilled transoms. A corridor segment leading to the north wing features tiled floors similar to those in the basement. Most rooms are finished with non-historic materials including carpeting and dropped ceilings. Some rooms, especially along the north side of the center block, have historic glazed tile on both exterior and interior walls, with tile returns at the windows. The rooms set in the rounded sections of the east and west wings are large spaces that historically served as sun rooms. They have non-historic carpeting and dropped ceilings, but their curving exterior walls, although painted, have historic brick cladding with stone sills.

The north wing is accessed through a non-historic, double-doorway and is connected by a double-loaded corridor that leads to the former dining room. The corridor has historic tile floors that match corridor floors in the basement, plaster walls with recessed room doorways, and dropped ceilings. The former dining room has acoustic tile floors, dropped ceilings, and non-historic partitions that divided the space into smaller rooms and form an extension to the connecting corridor. Exterior walls of the former dining room are clad in historic smooth, brownish-color brick. The north end of the north wing historically served as a kitchen and service area. It features floors clad in white hexagonal tiles, plastered and tiled walls, and plaster ceilings. Some non-historic partitions made of concrete block divided the space into smaller rooms that are currently used as laboratories. A narrow corridor above the garage addition to the west of the north wing has concrete floors, plaster walls, and doors and windows with plain wood trim. A kitchen area was added later at the west end of the corridor.

Second and Third Floors

The second and third floors are largely identical to the first floor in layout and finishes. They are accessed by the two main elevators and the two main stairs in the center block. The majority of corridors and rooms have carpeted floors, historic plaster walls with plaster returns at doorways and windows, and dropped ceilings. Corridor doorways have non-historic doors and infilled transoms.

Fourth Floor

The fourth floor was added above the center block and the north half of the east and west wings in 1935. It is similar in layout to lower floors with a bisecting double-loaded corridor and rooms on the outer perimeter. Corridors have carpeted floors, plaster walls, and ceilings are clad in acoustic tiles with some exposed pipes and conduit. Room doorways are recessed in deep wood jambs and feature wood-paneled doors with transoms. The south ends of the corridors in the east and west wings are separated from the rest of the corridor by wood and glass partitions with double doorways. The twin southern corridor segments are flanked by twin large rooms, which each had additional windows to borrow light and air into the corridor. Each room entrance features a pair of fifteen-light wood framed doors flanked by pairs of nine-light wood casement windows, and topped by a band of three-light,

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wood sash transom windows. These additional operable windows allowed for more natural light and fresh air, which was seen as critical for the treatment of tuberculosis. Single doorways at the south end of each corridor segment led to outdoor roof decks above the east and west wings.

Fifth Floor

The fifth floor is similar in layout and materials to the fourth floor, but only covers a portion of the area of the fourth floor. The corridor of the center block has a series of pairs of double hung windows along its south wall, while standard rooms line the north side of the floor; a wood and glass door at the west end of the corridor accesses a narrow roof area along the south side of the floor. The north-south corridors of the east and west wings are only half as long as those on the fourth floor and they terminate at their southern ends in an outdoor roof deck, which is accessed through small vestibules by single wood and glass doors.

Building 2 of 2 – Muirdale Powerhouse

Muirdale Powerhouse Exterior

The one-story Muirdale Powerhouse is located to the east of the Hospital/Administration Building, on the east side of West Innovation Drive. The building has a concrete foundation and is oriented north-south and has an I-shaped footprint with a hipped roof. Copper-clad cupolas and vents are evenly spaced on the north, center, and south portions of the roof. A non-functional brick chimney penetrates the roof on the north end. Historically, this chimney connected to a smoke stack attached to the east facade of the building. Deep, overhanging eaves are braced with metal tie rods and decorative wood brackets.

The building is of red brick, set in a running bond. Panels of decorative brick adorn all facades. A projecting decorative brick belt course aligns with stone sills under the windows to create a continuous band below window openings on all facades. Each facade is divided into regularly spaced bays, with the longer facades on the east and west sides of the building. The central bays on the north and ends of the east and west facades are slightly larger than the other bays. Arched brick headers frame door and window openings. Stone is used for window sills, some of which is replacement. All windows and doors are modern replacements.

The primary (west) facade faces West Innovation Drive. It is divided into nine bays, featuring arched openings and a mix of window and door infill. Eight of the bays contain window openings with eight-over-eight, round-arched windows, with multi-light fixed transoms. The door infill, in the second southern-most bay, consists of a paneled and glazed double-door. Areas of replacement brick are visible on the north end.

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The south facade is divided into four bays. The eastern and western bays are infilled with eight-over-eight round-arched windows with fixed, multi-light transoms. The second bay to the east contains narrower window openings, with a brick pier dividing them. A panel of decorative brick work is located where the transoms are in the other arched openings around the building. The bay to the west contains door infill, similar to the door on the west facade.

The east facade, although considered the rear of the building, is where access to the building is obtained. The façade is divided into three regularly spaced bays on the south end, infilled with replacement windows similar to those on the other facades. The entrance is located in this south bay. To the north, an infilled circular opening marks the location of the former chimney at the center of the building. The northern most bay is significantly altered, with a modern roll-down garage door, louvers, and parge coating.

The north facade, divided into four bays, is similar to the south. A majority of the window openings are shorter, however, infilled with additional brick panels below the double-hung, eight-over-eight windows. Only the western-most window contains a fixed transom opening above the double-hung windows.

Muirdale Powerhouse Interior

The interior of the one-story Powerhouse is primarily utilitarian and industrial in character, and is divided into three sections – the south, center, and north sections.

The south section contains a small east room, historically a refrigeration room which now serves as the building's primary entrance space. It is tiled with concrete floors, glazed brick walls, and unpainted wood ceilings (once clad in tin ceilings that are now gone).

A shallow mezzanine is located along the west wall of the former refrigeration room and is accessed via open metal stairs and was installed sometime after initial construction. The mezzanine is attached to the full-height, enclosed mechanical room to the south. The mezzanine stair retains the historic metal newel post and metal stair treads and risers, as well as a narrow concrete landing at the top of the stairs. The mezzanine itself is a narrow room, containing a toilet, sink, and mechanical enclosure. The walls are clad in glazed brick and the ceiling is a white textured tin with an articulated molding detail on the west side. On the east side, an opening in the brick contains a window frame, without the sash, and overlooks to the east on the floor below. The exterior is also clad in glazed brick.

A set of historic double-doors along the refrigeration room's west wall leads to the large former engine room, also with tiled floors (though some tiles are broken or missing) and concrete floors; glazed brick

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walls; and unpainted wood ceilings (once clad in tin ceilings that are now missing). Engine equipment has been removed and the pits infilled with concrete. Two door openings on the north elevation connect to the west corridor and center section respectively. Various ducts, pieces of mechanical equipment, and conduit are attached to the brick. An area of brick infill is visible on the east end of the west space.

The center section is the building's largest interior volume, an open, unfinished, former boiler room with concrete floors (located several feet below grade), exposed brick walls, and exposed steel and wood roof structure. The south wall has projecting brick columns and infilled openings connecting to the south section. Large ducts, meters, and vents are also attached to this wall and connect to additional pipes on the east wall. A metal platform and replacement wood stairs connect to an exterior entrance on the east wall.

A raised metal platform with metal railings and stairs is located along the west end of the large center space. Various pieces of mechanical equipment, valves, tanks, and meters are attached to, or are under, the platform.

Large metal columns and an exposed metal I-beam support an opening in the brick wall leading to the building's north interior section, a former coal bunker. The coal bunker also has concrete floors (also located several feet below outside grade), brick walls, and exposed steel and wood roof structure. A concrete ramp connects to a modern garage opening in the northeast corner of this space.

The east wall has a steep concrete ramp leading to a modern roll-down garage door. To the south of the door are CMU blocks infilling the former window openings. Traces of the arched brick lintels are visible. An outline of an infilled wall opening, likely a former connection point between the blacksmith shop and the coal bunker, is visible at the south end of the coal bunker's west wall.

A former blacksmith shop with deep machine pits (now empty) is located at the far northwest corner of the building. The blacksmith shop sits at grade and has a higher floor level than the adjacent boiler room and coal bunker. The shop is accessed by a single door to the boiler room's west metal walkway.

In the blacksmith shop, a large concrete raised platform with a metal guard rail overlooks a deep trench, infilled with mechanical equipment, pipes, and a metal grate. The exposed brick walls of the room are penetrated with pipes and conduit. CMU block infills the former entrance opening in the center of the bay on the west side. An outline of an infilled wall opening, likely a former connection point between the shop and the coal bunker, is visible at the south end of the shop's east wall. The blacksmith shop also displays exposed steel and wood roof structure.

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Alterations and Integrity

Since Muirdale Tuberculosis Sanatorium closed in 1969, the buildings have been used for a number of uses. Muirdale served briefly as the Milwaukee County Nursing Home, but closed permanently in 1978. The Milwaukee County Research Park Corporation was formed in 1987 to redevelop the area for use as a research and technology park. As part of the site's transformation into the research park, office buildings, parking lots, and roads were constructed during the 1990s and 2000s.

Muirdale's open rural character is still expressed in the lawn surrounding the Hospital/Administration Building and in the continued uninterrupted visual relationship between the Hospital/Administration Building and the Powerhouse to the east.

The Muirdale Hospital/Administration Building retains good integrity as the primary operational and hospital building for the former Muirdale Sanatorium facility. Changes to the Hospital/Administration Building exterior include: replacement of doors and some windows and roof replacement. Despite these changes, most of the Hospital/Administration Building's character-defining exterior features remain including its original south forecourt and columned entry porch; its historic massing and flat roofs; its Classical-inspired brick and stonework; original fenestration and door locations; original wood doors; and its character-defining rooftop terraces which were commonly used by Muirdale's tuberculosis patients.

Inside, the Hospital/Administration Building underwent a major renovation in the 1990s that removed some original finishes but retained its original interior spatial layout, including its historic entry vestibules, double-loaded corridors, and patient and office spaces now used as tenant office spaces. Its character-defining historic stair cores also remain mostly intact. The north dining wing has been subdivided for new tenant laboratory spaces – a fitting reuse for this former hospital building – but many of the dining wing's floor and wall finishes remain intact.

The Muirdale Powerhouse retains good integrity as a support structure for the former Muirdale Sanatorium facility. Changes to the Powerhouse exterior include: replacement of doors and windows, roof replacement, and removal of east chimney. Despite these changes, the majority of the Powerhouse's character-defining exterior features remain including its low symmetrical massing; its Classical-inspired brick and stonework; original fenestration and door locations; its historic hipped rooflines; and its copper cupolas.

Inside, the Powerhouse has changed little since it served the Muirdale facility. The three-part interior layout remains intact and each utilitarian space retains its original finishes, particularly the engine room with its glazed brick walls. Although the Powerhouse's original engine and boiler equipment has

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been removed and some south section tin ceilings are missing, the interior continues to express the utilitarian character of the building and its significance to Muirdale's everyday operations.

Despite landscape changes to the site, including the addition of roadways and the loss of auxiliary buildings, the two remaining buildings retain their open setting and continue to express the historically compact and vertical character of the former Muirdale Tuberculosis Sanatorium. Although both buildings have individually undergone some alterations since their use as part of the Muirdale Tuberculosis Sanatorium, they each continue to display sufficient integrity to convey their history as both a healthcare facility for the treatment of tuberculosis and as a specific hospital building type for the treatment of tuberculosis.

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STATEMENT OF SIGNIFICANCE

Summary of Significance

The Muirdale Tuberculosis Sanatorium, comprised of two original buildings – the Hospital/Administration Building and the Powerhouse – constructed in 1915 by Milwaukee County. The Muirdale Tuberculosis Sanatorium (or simply “Muirdale Sanatorium” or “Muirdale”) was built to fill a growing need in the state of Wisconsin for adequately-sized and -equipped facilities to treat large numbers of tuberculosis cases.

The Muirdale Tuberculosis Sanatorium is locally significant under National Register Criterion A in the area of Health/Medicine. The Hospital/Administration Building exemplifies pioneering methods for the treatment of tuberculosis, an extremely deadly communicable disease for which no cure was developed until after World War II. The period of significance for Criterion A spans from 1915 to 1969, encompassing the years the buildings were occupied by the Muirdale Tuberculosis Sanatorium, which opened in 1915 and permanently closed in 1969.

The Muirdale Tuberculosis Sanatorium is also locally significant under National Register Criterion C for Architecture for their association with the tuberculosis sanatorium hospital property type, a specific type of hospital building designed and constructed for the diagnosis and treatment of tuberculosis. Specifically, the design of Muirdale was unique for its verticality. Rather than being spread horizontally across a large campus, the primary functions of the sanatorium hospital, including all medical treatments, were conducted in a single, tall building. Cottages housed patients surrounding the main building, which allowed for the hospital to maximize treatment spaces and allowed doctors to work more efficiently. The affiliated Powerhouse provided steam power to the Hospital/Administration Building and associated cottages, serving a vital function in the running of the facility. Together, the Hospital/Administration Building and the Powerhouse represent the best remaining example of tuberculosis treatment facility in Milwaukee County. The period of significance for Criterion C includes the year 1915, the date of initial construction for the Hospital/Administration Building and Powerhouse, and 1935, the year the Hospital/Administration Building was expanded. The Powerhouse, as an associated support building, is included in the nomination as a contributing building.

Criterion A: Health/Medicine

The Muirdale Tuberculosis Sanatorium is locally significant under National Register Criterion A for Health/Medicine for its associations with the treatment of tuberculosis in Milwaukee County in the early- to mid-twentieth century.

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History of Tuberculosis and its Treatment

Tuberculosis: The Great White Plague

Tuberculosis killed around one in seven of all people who had ever lived in the world by the beginning of the 19th century. The disease has plagued humans for well over 5,000 years and has been described in writing and art for millennia. In Ancient India (around 1500 BC) it was called *yakma*, and ancient Egyptian mummies have shown characteristic lesions or tubercles on remaining bones. Throughout history the disease has been given several names, each indicative of the disease's symptoms. Early Greeks called the disease *phthisis*, meaning "wasting," referring to physical degradation caused by the disease as it destroyed organs and other tissues. In Latin it was referred to as *consumptione* or consumption, which remained a popular name for the pulmonary form of the disease through the early-twentieth century. Sufferers are characterized through history as feverish, dehydrated, and afflicted by strong bouts of coughing and left fighting for breath. Their bodies became emaciated, lethargic, and pale-white, which earned the disease the name "the great white plague."

The disease became known as "tuberculosis" for the presence of tubercles formed by clusters of bacteria tuberculosis cells, which were identified by Dr. Robert Koch in 1882. Prior to Dr. Koch's discovery, the term "tuberculosis" was used to refer to any disease that produced tubercles.

Tuberculosis is a highly communicable disease that is transmitted through infected droplets from a sneeze, a cough, or even from talking. The bacterium produces large hardy spores that can survive nearly any environment, which make it easily contractible from infected surfaces or food, especially milk or meat from infected cows. Very few of the slowing replicating bacterium are required to develop an infection, which form the disease's characteristic tubercles. In severe cases, the tubercles can burst and cause hemorrhages or bloody coughs. Although a respiratory infection is most common, any organ or part of the body can be affected. Of the various known strains of tuberculosis, pig, rat, and avian, only the bovine strain has shown to be pathogenic in humans.

Historically, tuberculosis was unlike the great plagues that had earlier ravaged Europe, or even the myriad diseases that were commonly found in any city of the nineteenth century. Tuberculosis did not make a sudden appearance, devastate a population, and quickly vanish like the Black Plague or outbreaks of cholera. Instead, tuberculosis could quietly infect and slowly consume a person over a period of years or decades through alternating cycles of sharp attacks and remissions. Because symptoms could appear weeks or years after exposure, it was difficult to identify newly infected cases or to determine the source of outbreaks. Consequently, without a means to identify a clear source of the disease, the best treatment was to isolate the sick to prevent the disease's spread. As one writer for the anti-tuberculosis journal *The Crusader* put it in 1922: prevention is better than cure – and far

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Treating Tuberculosis

Tuberculosis was the most common cause of death across the country for most of the nineteenth and early-twentieth centuries. Treating the disease was difficult because it provided bewildering symptoms that were set over great periods of time. Because of the bacteria's facile spread between people in close quarters, and due to the disease's record of attacks and remissions, many believed during the nineteenth century that the disease remained in families and that it was passed on to later generations. During the nineteenth and early-twentieth centuries treatment commonly involved keeping the disease in remission by reducing exposure to the believed triggers for acute attacks. Because there was no standard understanding of how the disease functioned, a variety of potential triggers were identified ranging from poor diet to polluted air. Consequently, it was believed that reducing the exposure to such triggers, such as eating certain foods or living in certain climates, could reduce or prevent the effects of the disease. Without a cure, controlling tuberculosis was viewed as the best possible treatment. A cure and an inoculation against tuberculosis were actively sought following the discovery of the tuberculosis-causing bacteria in 1882, but one was not found until after World War II.

The nineteenth century saw the rise of the fresh air sanatorium. There are two types of fresh air facilities that developed in the United States. The first is the "sanatorium" which originates from the Latin word *sanare*, meaning "to heal." The name presupposes the curability of the patients that it is destined to receive. Most sanatoriums both in Europe and the United States were opened as profitable ventures to treat early or curable cases. The plural of sanatorium is sanatoria. The second is the "sanitarium" which comes from the Latin word *sanitas*, meaning "health." Sanitariums developed as institutions, or health resorts, for cases of all classes regardless of their prospect for improvement. The Wisconsin Anti-Tuberculosis Association (WATA) published in its journal *The Crusader* a preference for the term "sanatorium" to apply to facilities treating tuberculosis, while "sanitariums" it determined were for the treatment of a wide variety of diseases and conditions.³ The Muirdale facility was organized as a sanatorium.

The concept of the fresh air sanatorium stemmed from practical notions of health used to treat tuberculosis in Europe. Its popularity began in the United States during the 1840s through the 1890s with the establishment of private treatment resorts and health spas in areas with fair climates. The discovery of the bacterial cause of tuberculosis and a greater understanding of its spread led to national campaigns in the early-twentieth century for the control and eradication of the disease.

² "More Provision for Childcare Needed," *The Crusader*, 1922. 18.

³ "The Right Word Should Be Used," *The Crusader*, June 1938. 3.

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Seeking Better Health: 1840s-1890s

The western lands of the United States were settled with the help of tuberculosis sufferers. Those with the disease followed the popular notion that an outdoor lifestyle with a regimen of activity in the right climate would be quickly cured of tuberculosis in any stage. The cult of fresh air and sunlight had been a primary treatment for tuberculosis since the time of the Ancient Greeks. It quickly gained traction in Germany during the mid-nineteenth century where some of the first resort-like sanatoriums were opened. These early facilities basked in sunny locals or benefited from higher altitudes where the air was perceived to be clearer and therefore healthier. Sufferers were offered ample rest and relaxation in the open air, and were also presented a careful regimen aimed at improving hygiene and diet, which were viewed as important in keeping the disease in remission. The "German system," as American doctors referred to it, was essentially a closed "school of hygienic discipline, with little left to the patient's initiative except strict obedience"; however, in the United States during the mid-nineteenth century, anyplace away from the dense city with its noxious fumes and filthy streets was viewed as beneficial to one's health.

In the period from the 1840s through the 1890s, tens of thousands of "health seekers," many of whom were consumptives, spread westward in search of the panacea offered by the new western states and territories. In turn, the states, territories, and railroads saw the sick as potential settlers and actively promoted the healthful climates of their lands. Because tuberculosis was seen as a hereditary disease and not tied to class, there was no perceived risk in inviting consumptives to join new western towns.

Profit and politics drove the invitation for a migration of the sick. New railroad lines, unprofitable alone, sold real estate around stations, offering each stop as a healthful place to live. Entire western towns were developed and sold as centers of health. Denver, Los Angeles, San Diego, and Pasadena were some of the dozens of towns that promoted their ideal climates for outdoor recuperation. The State of California proclaimed itself the "land of sunshine," and in an 1883 guidebook *California for Fruit Growers and Consumptives* encouraged all persons, restricted only by race and class, to come and enjoy "a life of outdoor luxury associated with good health." Although most western towns wanted to attract only higher class, white consumptives, they also drew sick and invalids from all levels of society. Even those of little means left their lives and jobs behind for the booming western health towns in search of the elusive "climate cure."

Dr. Robert Heinrich Hermann Koch (1843-1910)

During the nineteenth century, the successes in identifying and fighting other contagious diseases led to new research and discoveries aimed at defeating additional common diseases like tuberculosis. Although little was understood of the microscopic causes of these diseases, early researchers were able to identify how some diseases were spread, and consequently, how they could be controlled. Small pox

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was for millennia controlled by processes of inoculation, which relied on introducing a less virulent form of the virus to the body to develop immunity; this process was improved and made safer during the late-eighteenth century. Cholera outbreaks during the early-to-mid nineteenth century were quickly reduced once tainted water was identified by British researcher John Snow as the primary means for the disease's spread. Although tuberculosis was believed to be caused by any one of several correlated elements, including hereditary, climate, and food - early researchers determined that if some common diseases could be curbed, then tuberculosis could be controlled as well.

Dr. Robert Koch was influential in developing the study of disease causing microorganisms, and for identifying the specific bacterial causes for cholera, anthrax, and tuberculosis. Dr. Koch is also credited with developing many of the innovative and fundamental laboratory techniques that gave rise to the field of microbiology, and was awarded the Nobel Prize for physiology or medicine in 1905.

Early in his career, Dr. Koch was drawn to the problem of anthrax in farm animals, especially sheep, in a region of Germany. His research proved that the anthrax was caused by microorganisms, oblong-shaped bacteria of the genus *bacilli*, and that animals exposed to the bacteria could become infected. Dr. Koch used his findings to study other diseases including cholera in Egypt and India, which led him to develop rules for the control of these and other epidemics. His research was instrumental in applying germ theory to public health, and prompted major changes toward the end of the nineteenth century in sanitation and helped guide the control and mitigation of disease.

Dr. Koch identified the *tubercle bacillus*, currently known as *Mycobacterium tuberculosis*, which causes tuberculosis. Under the microscope, Dr. Koch noted that tuberculosis bacteria, "are rod-shaped, and they belong to the group of bacilli. They are very thin and one-fourth to one-half as long as the diameter of a red blood-corpucle, although they may sometimes reach a greater length." Recognizing the presence or absence of the *tubercle bacillus* meant being able to define "the boundaries of the diseases to be understood as tuberculosis." All forms of the disease, from the common respiratory infection to infections of other organs and the bones could be identified as having one source, and could be differentiated from other diseases like pneumonia.

Dr. Koch's research and lecture on the study of the tuberculosis bacteria, "Die Aetiologie der Tuberkulose" or *The Etiology of Tuberculosis*, was published in April 1882. Its findings were immediately controversial, as contemporary medical professionals believed that diseases like tuberculosis were inherited and not caused by a single source such as a tiny organism. Yet, the chance to vanquish the dreaded disease seemed ever closer, and Dr. Koch's revolutionary research became international news, influencing researchers and sufferers worldwide.

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Edward Livingston Trudeau (1848-1915)

Physician Edward Trudeau opened the first American sanatorium in Upstate New York in the mid-1880s. At a time when health spas catered to the wealthy, Trudeau's open-air cottage sanatorium represented the first attempt to offer the poor treatment for tuberculosis.

Trudeau was diagnosed with tuberculosis in 1873 and, following conventional logic, left his home in New York for a change of climate; he eventually moved his family to Sarnac Lake and opened his medical practice there while also remaining outdoors as recommended. Although the fresh air helped to arrest some of his symptoms, Trudeau remained debilitated by the disease. However, the year 1882 transformed Trudeau's life, as he was introduced to both the German sanatorium concept, that regulated hygiene and diet, and to Dr. Robert Koch's methods for isolating and studying tuberculosis bacteria. Trudeau then used Dr. Koch's methods to determine what effect environment and diet had on arresting the growth of the bacteria. In 1887, Trudeau published his research on rabbits, which showed that a healthy outdoor lifestyle with proper nourishment could almost eliminate any symptoms of tuberculosis. With these findings, he opened his Adirondack Cottage Sanatorium at Sarnac Lake; an institution that influenced the design and development of hundreds of similar private sanatorium across the country.

After tuberculosis was recognized as a communicable disease in the 1880s, the sanatorium became the standard public facility in the United States during the early-twentieth century's drive to combat tuberculosis. Patients in all stages of the disease were treated in isolation from the rest of the population, thereby both offering the patient fresh air, and preventing the continued spread of the disease. By the early 1900s, 1 out of every 170 Americans resided at a sanatorium. Sanatorium care remained popular in the United States through the mid-twentieth century, even after the Bacillus Calmette-Guérin (BCG) or tuberculosis vaccine was successfully introduced in France in 1921.⁴

By the end of the nineteenth century, views toward tuberculosis changed. As it became clear that the disease was spread by bacteria and not simply by some correlated condition, the view of the disease and those afflicted by it quickly changed in the public's eye. Chicago physician Dr. Theodore B. Sachs observed in 1903 that:

Consumption is beginning to be considered a disgrace, it is a disease which must be covered up if possible, or called by another name. People will tell willingly how many cases of typhoid fever they have

⁴ The United States maintained sanatorium care as the primary treatment for tuberculosis through the mid-twentieth century. It also continued in the global search for a formal cure for the disease instead of simply a preventative. Apprehension to vaccinations, especially due to some failed experiments by German researcher Dr. Robert Koch led many question the effectiveness and safety of a tuberculosis vaccination. Ultimately, the US opted against required mass vaccination, which was instituted in several countries around the world at the time.

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had in their families, but they are loath to admit a case of consumption, for the infectiousness of that disease is gradually becoming known and nobody wishes to be an object of dread to his neighbors.

Tuberculosis was no longer viewed as a hereditary disease that afflicted rich and poor alike. Instead, as germ theory advanced, the disease quickly became associated with the poor, stigmatizing those who suffered from it. As families met tuberculosis with disgrace, they also found additional financial burdens from insurers who raised rates if a near relative was known to have died from the disease. In the west, the once welcoming health towns closed themselves to consumptives and passed laws to keep them out. The recognition of tuberculosis as a significant communicable disease raised the need for a greater system for control. States, counties, and municipalities across the country started what would become the United States' first nationwide campaign on health and opened isolation hospitals or sanatoriums dedicated to treating tuberculosis sufferers.

Treating Disease in Milwaukee County

Disease and Treatment in Milwaukee County

Milwaukee County, like other developing areas of the American Midwest during the nineteenth century, was rife with dangers ranging from spoiled and/or adulterated food, malnutrition, unknown poisons in medicines, and dangerous working and living conditions. The average life expectancy in the city of Milwaukee during the mid-nineteenth century was around 40 years of age. Of all the lethal unmitigated dangers, disease was the most potent. During the mid-to-late nineteenth century, life in Milwaukee County was made especially miserable by outbreaks at different times of cholera, diphtheria, scarlet fever, typhoid, smallpox, measles, and malaria.

The process of addressing and mitigating the public danger of disease was addressed by the government, especially at the city and county level. During the nineteenth and early-twentieth centuries through newly passed laws aimed at limiting public's exposure to dangers, and founded increasingly specialized institutions to treat disease. Above all, the primary practice employed to maintain the health of the general public was to isolate the sick or otherwise ill or disabled in specialized institutions. In Milwaukee County, this isolation approach to public healthcare led to the establishment of the County Grounds, which by the twentieth century served a wide population with conditions ranging from plain poverty to severe illness.

Milwaukee County was organized in 1835, with seven towns created within its borders between 1838 and 1840. Of these towns, three clustered near the lakefront were incorporated together as the City of Milwaukee in 1846. As the largest and densest urban center in the county, the City of Milwaukee became a significant center of disease and a point of entry for new outbreaks. In 1846, Milwaukee

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appointed its first Board of Health, which was tasked with developing legislation aimed at preventing and controlling outbreaks of contagious diseases, especially cholera and later small pox. Waves of German and Irish immigrants during the late-1840s and early-1850s, along with a “general stampede of Chicagoans to this cleaner city,” were viewed with great suspicion and fear for their potential to introduce disease.⁵ At the time, options for treatment of diseases were limited to isolation at the city’s “pesthouse,” which was established in 1843 for the isolation of those with communicable diseases; one of the state’s military hospitals, which tended to be poorly supplied and maintained; or home treatment.⁶

A major cholera epidemic in 1848 led to the establishment of Wisconsin’s first true hospital, St. John’s Infirmary. The hospital was begun by the Sisters of Charity to serve the poor suffering from cholera and other diseases. However, despite being the most well-equipped facility in the state, cholera epidemics in 1849 and 1850, and the arrival in 1850 of a ship carrying Scandinavian immigrants stricken with typhus made it clear that St. John’s Infirmary was too small to effectively serve the city, let alone the county.⁷ Milwaukee County entered health care for the poor by establishing the charitable county poor farm beginning in 1852.

The Milwaukee County Grounds

The Milwaukee County Grounds developed from a small “poor farm” dedicated to aiding the poor into a public system of hospitals and other related institutions for the care of the poor and the administration of healthcare. Over time, as additional specialized institutions and hospitals were added, the grounds came to cover a large area covering both sides of Watertown Plank Road and extending from the western end of Harwood Avenue around 85st Street, west to Mayfair Road.

In 1849, the State of Wisconsin enacted a law requiring each county to care for the mentally ill and indigent. Three years later, the Milwaukee County Board of Supervisors purchased a 160-acre farm from County Supervisor Hendrik Gregg in order to establish a county almshouse or poor farm. The poor farm operated as a charitable organization through the county, serving to both treat and employ the poor. The farm was located in the southwest portion of the Town of Wauwatosa (founded in 1840), south of Watertown Plank Road (constructed in 1849), at a distance of seven miles from the City of Milwaukee. The location in Wauwatosa was selected both because it was owned by a county member, but also due to its remoteness from the main Milwaukee population center. Common practice for

⁵ A. T. Andreas, *History of Milwaukee*, Volume 1 (Chicago: The Western Historical Company, 1881) 396.

⁶ The city pesthouse functioned as an isolation hospital, keeping the sick out of the main population to prevent the spread of diseases. Military hospitals in Wisconsin served primarily as military and not civilian hospitals. Wyatt, Barbara, ed. “Health Services,” *Cultural Resource Management in Wisconsin: A Manual for Historic Properties*. [Madison, Wis.]: Historic Preservation Division, State Historical Society of Wisconsin, 1986.

⁷ Andreas, 404-405.

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controlling diseases at the time called for isolating the poor and ill from the general population. This served to limit the potential spread of disease and gave poor but able-bodied residents employment on the farm. The poor farm initially could house 24 inhabitants, but quickly attracted residents with a variety of conditions, from the physically or mentally disabled to the chronically ill, each requiring unique care that the County tried to meet. However, of all the cases, the most urgent were those afflicted with disease, which led the County to build the first County Hospital in 1854 adjacent to the poor farm. It was later joined by several additional county institutions, which together became known as the County Grounds. As the grounds developed, the purpose of the grounds shifted away from caring for the poor and disabled to providing regional healthcare to the Milwaukee area.

The County Grounds expanded rapidly as the County purchased surrounding farms to the north and west and built several additional specialized institutions to address the various changing and growing requirements of public health. By the 1870s, these institutions included a schoolhouse for indigent children, the County Hospital, and an insane asylum. By the early-twentieth century, the County Grounds covered nearly 1,200 acres; however, most institutions remained densely clustered at the eastern end.

Each institution grew rapidly as new immigrants continued to arrive in the region through the early twentieth-century. The patients of the poor farm that were deemed mentally insane were given specialized care following the opening of the Milwaukee County Insane Asylum 1878. The asylum was substantially increased two years later to hold 200 patients; it continued to increase its capacity to over 4,200 patients by the 1890s. In 1898, the school for children in the poor house developed into its own institution as the Home for Dependent Children, which provided a permanent and structured life for children. The largest of the institutions was the County Hospital, which opened a large new facility in 1880 following a destructive fire. It expanded again 1903 as advances in medicine required new treatments. In order to better provide healthcare, a school for nurses was established in 1887. As the County Grounds grew, new auxiliary services were organized to serve the institutions, including power and water systems for the grounds, ambulance and fire services, transit systems, laundry, and other valuable infrastructure.⁸

The County Grounds continued to develop and add specialized institutions, becoming a significant regional healthcare provider. A School of Agriculture and Domestic Economy opened in 1912, the Muirdale Tuberculosis Sanatorium was completed in 1915 at the far western edge of the grounds, and in 1930 the County Hospital built a modern and much larger facility. Following Muirdale's opening, all Milwaukee County institutions were united under the administration of the Manager of County Institutions.

⁸ Sarah Kilngman-Cole, "Land Use Analysis of the Milwaukee County Institutional Grounds: a Chronological and Spatial Depiction of Cultural Change" (MS thesis, University of Wisconsin-Milwaukee, 2015), 12-14; *Wauwatosa Life Sciences District*, Master Plan, January 12, 2017 [Draft], 16-20.

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The Great Depression and World War II limited development, but post-war residential development quickly encircled the County Grounds and made Wauwatosa an inner-ring suburb of Milwaukee. In the early 1960s, the "Zoo Freeway" US Highway 45 (Interstate 41) was completed, bisected the County Grounds between the historically clustered hospital institutions and the Muirdale Tuberculosis Sanatorium. It connected to newly opened East-West Freeway (Interstate 94) and helped spread development west of Milwaukee. The new routes also improved access to the county institutions and the main hospital. In 1961, the Children's Court Building was built on the Grounds to the east of Muirdale Tuberculosis Sanatorium.

During the second half of the twentieth century, many existing institutions on the County Grounds became obsolete and closed, including Muirdale Tuberculosis Sanatorium, which closed in 1969. At the same time, the main county hospital continued to build additions until it was replaced at the same location in 1980 by the current regional medical center, which is comprised of six specialized hospitals. In 1987, the Milwaukee County Research Park Corporation created a master plan to develop the southwestern portion of the County Grounds with dozens of modern research facilities. The multi-phased master plan called for the redevelopment of the existing Muirdale Tuberculosis Sanatorium facility, but only a portion of the buildings were demolished, with the main Hospital/Administration Building being incorporated into the research center plan.

The Anti-Tuberculosis Campaign in Milwaukee County

The campaign against the spread of tuberculosis started slowly during the 1890s. In 1893, the Wisconsin State Board of Health wrote in its annual report on the significance of the disease and on the common methods for its transmission. It emphasized the dangers of contracting the long-lived and nearly indestructible bacteria and concluded that while tuberculosis was not inherited; weak lungs were inherited, which meant that children of parents with the disease should exercise to strengthen their lungs. The notion that exercise and rest could strengthen one's body against the disease later prevailed as the primary treatment option, which, combined with isolation, formed the basis for state, county, and municipal tuberculosis treatment programs beginning after the turn of the twentieth century.

The State Board of Health issued its first public notice on the prevention of tuberculosis in 1895, which was followed in 1897 by legislation requiring the disinfection of public buildings, an anti-spitting ordinance, and additional public information on preventing the spread of tuberculosis in cows. The risk of the disease's spread to humans through tainted milk was well known and led to a study at the University of Wisconsin-Madison around 1900 where infected cows were successfully vaccinated. This generated public interest in the potential curability of tuberculosis. At the same time, the State Board was prompted to assess the prevalence of tuberculosis cases in hospitals and other institution across the state, which led the Board in 1902 to recommend removing existing cases from hospitals to

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a new state sanatorium for the treatment of tuberculosis.⁹

In 1905, the Wisconsin State Tuberculosis Commission, appointed in 1903 by Governor La Follette published an influential report promoting the benefits of and need for a state sanatorium, which led to the construction in 1907 of the Wisconsin State Sanatorium or "Statesan" outside Wales, Wisconsin. Statesan was only one of three publicly-funded sanatoriums in the country at the time. Several months earlier the state's second private sanatorium, Blue Mound, was opened by a group of physicians in the Town of Wauwatosa to treat less advanced cases. Yet, despite having three sanatoriums across the state by 1910, the extent of tuberculosis across the state was clearly too great for existing hospitals as funding for the state sanatorium was nearly exhausted within its first year, and wait lists for sanatorium beds were months long. The need for additional beds was evident.

Within the Milwaukee County, the epidemic was clear as death rates from tuberculosis ranged from 84.5 to 115.6 per 100,000 between 1910 and 1915. In 1911, the City of Milwaukee opened its own Greenfield Sanatorium with physician Dr. Hoyt E. Dearholt as its president. Dr. Dearholt was also president of the Wisconsin State Medical Society and the executive director of the Wisconsin Anti-Tuberculosis Association (WATA), which had organized in 1908 to inform the public of the dangers of the disease and to promote policies for its defeat. WATA had succeeded in persuading the City of Milwaukee to administer the Blue Mound Sanatorium, and strongly supported the passage of enabling legislation in 1911 allowing counties to establish their own tuberculosis sanatoriums.¹⁰

Several county sanatoria were built, but by 1913 approximately only five percent of those suffering from tuberculosis could be admitted to public institutions due to limited beds. Across the state seven sanatoria were built in addition to the main state sanatorium. In 1913, Milwaukee County appointed a committee to study the county's needs with regard to tuberculosis care, which concluded that the three institutions in the county were far from sufficient. County Supervisors voted to appropriate \$750,000 toward the construction of a 275-bed county facility that would later become known as Muirdale Tuberculosis Sanatorium.¹¹

Combating Tuberculosis at Muirdale

The Muirdale Tuberculosis Sanatorium became a model facility during the twentieth century and introduced several important therapies and procedures that became standard practice among Wisconsin sanatoria or were adopted nationally. Dr. Glenford L. Bellis, who was the former assistant medical

⁹ *Nineteenth Report of the State Board of Health of Wisconsin* (Madison: Democrat Printing Company, 1903), 3.

¹⁰ Louis Frederick Frank, *The Medical History of Milwaukee, 1834-1914* (Milwaukee: Germania Publishing Co., 1915), 169, 170, 175.

¹¹ Esther Salome White, "The History of Muirdale Sanatorium, 1914-1967, Wauwatosa, Wisconsin." (MS thesis, University of Wisconsin-Milwaukee, 1968). 21.

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director at Wisconsin's state sanatorium, left his position as Superintendent of the Cook County Sanatorium at Oak Forest, Illinois to become Muirdale's first Superintendent and Medical Director. Dr. Bellis initiated the practice of occupational therapy or "industrial recreation" to keep patients minds active and to prepare them for life after the sanatorium. Patients could take classes taught by other patients in a range of subjects, but primarily ones involving a craft.¹² Rooms were given over to a wood shop and other specialized production spaces, while less ambulatory patients were allowed to work on projects at their bed. The method of occupational therapy was so successful that it was mandated for all sanatoria by Wisconsin state legislature in 1919; Wisconsin became the only state to have such a requirement.¹³

While patients were given plenty of rest, sunlight, fresh air, and were kept mentally stimulated to keep their condition in check, three procedures were employed at Muirdale in the surgical theaters of the Hospital/Administration Building to physically heal patients. These procedures included artificial pneumothorax, phrenic nerve block, and thoracoplasty. At Muirdale, physicians proved the safety of the pneumothorax procedure, which treated pulmonary tuberculosis by inserting a needle to drive air or nitrogen into the lungs in order to collapse the infected portions. At the same time, Muirdale was one of few Wisconsin sanatoria where the thoracoplasty procedure could be performed. This more invasive procedure required the removal of ribs in order to also collapse the lungs.

Muirdale Tuberculosis Sanatorium was unlike many private sanatoriums during the 1910s and 1920s in that it accepted all patients regardless of age, condition, or race. It also accepted applicants for professional positions with relatively limited regard for considerations beyond credentials. In 1915, Muirdale hired Dr. L. L. Allen as the first African American physician at the institution. Dr. Allen remained at Muirdale, beginning as a junior physician and becoming a senior physician and specialist in the treatment of tuberculosis.¹⁴ Only two years later at Chicago's Municipal Tuberculosis Sanitarium, Dr. Roscoe C. Giles was briefly hired as that institution's first African American physician, but was fired in light of mounting political pressure.¹⁵

By 1938, Wisconsin had 23 sanatoria to combat tuberculosis. During World War II, there was a brief increase in tuberculosis cases, as had been seen during World War I, but following the discovery and isolation of the antibiotic Streptomycin in 1943, tuberculosis could finally be controlled. Drugs became standard during the 1950s, after which cases of tuberculosis steadily declined. Muirdale recorded its lowest population in 1955 with 322 patients, down from a peak of over 700. The low enrollment, which was felt in sanatoria across the state, resulted in legislation permitting portions of county

¹² Joan Seaman Murphy, "History of Muirdale Sanatorium," *Wisconsin Occupational Therapy Bulletin*, 9(2) 1937. 3.

¹³ "An Important Step," *Bulletin of the National Tuberculosis Association*, 5(15), December 1919. 9.

¹⁴ "Dr. L. L. Allen Holds Unique Position at Muirdale Sanatorium, Milwaukee," *Journal of Negro Life*, March 1940. 120.

¹⁵ "Caldwell Fires Dr. Giles When he Stands Pat," *Chicago Daily Tribune*, February 3, 1917. 9.

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sanatoriums to be used for other needed uses such as chronic disease hospitals.¹⁶

Muirdale's Later Years

Muirdale began accepting mental health patients infected with tuberculosis in 1955 as a dual-use hospital in order to fill spaces. Patients with other chronic diseases were accepted to Muirdale beginning in 1962; however, each portion of the sanatorium gradually closed, with the entire facility closing in 1969. Muirdale served briefly as the Milwaukee County Nursing Home, but closed permanently in 1978. In 1993, the Hospital/Administration Building was converted for use as a business incubator as part of the Milwaukee County Research Park, which it continues to serve as today. The former Powerhouse was most recently used as a training facility for electrical technicians by a local power company.

Criterion C / Architecture

The Muirdale Tuberculosis Sanatorium is locally significant under National Register Criterion C for its intact architecture, designed by Robert A. Messmer & Brother architects as a site-specific property for the treatment of tuberculosis. Sanatoriums built across the United States during the first two decades of the twentieth century typically had layouts that offered liberal outdoor space to patients. These sprawling "cottage design" type sanatoriums had a series of main buildings surrounded by patient cottages. The size and land area required for a sanatorium was dependent on its estimated number of patients. In the case of Milwaukee County, the sanatorium needed to have a large capacity of over one-hundred fifty patients, which meant that it would have required a very large area of over three-hundred acres according to turn-of-the-century sanatorium author and designer Thomas Spees Carrington.¹⁷ Architects Robert A. Messmer & Brother developed a compact sanatorium layout and building type that combined almost all administrative, medical, and patient services into one building. Muirdale and its Hospital/Administration Building reflect the implementation of a vertical design, a departure from the formerly popular cottage design for tuberculosis sanatoriums.

Construction and Design

The construction of Muirdale, Milwaukee County's tuberculosis sanatorium, began in 1913 following the purchase of the fifty-four-acre L. B. Potter farm. The site was a rolling landscape with a grove of maple trees to the west, a shallow valley, and a small stream, that was far from the City of Milwaukee

¹⁶ White, 55.

¹⁷ Carrington, 1914: 16.

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and distant from other county institutions. Its location was at the still rural western edge of the Town of Wauwatosa along the south side of Watertown Plank Road at Highway 100 or Lovers' Lane Road (currently Mayfair Road). The facility was named Muirdale after famed Wisconsin naturalist John Muir who died in 1914 while construction on the sanatorium was underway.

The Muirdale Tuberculosis Sanatorium was designed for all tuberculosis cases and was opened to the public in November 1915.¹⁸ Late in 1914, the Blue Mound Sanatorium burned down, at which point the City of Milwaukee Health Department voted against rebuilding the facility in favor of turning patients to Muirdale.¹⁹ Blue Mound was eventually reopened, but the facility was turned over to the county and operated as a remote facility of the main Muirdale campus in 1922.

Muirdale's design was unlike other more sprawling tuberculosis sanatoriums built across the country. Many followed standard designs based on the cottage format, which was notably employed at Trudeau's sanatorium at Sarnac Lake. These facilities featured an array of patient cottages, usually frame lean-tos or shacks, arrayed around a main administration building, with outbuildings, and additional cottages for staff and nurses. The idea was to limit a patient's exertion in stair climbing; brisk walks between buildings were believed to be better. However, the great distances between buildings in cottage-style campuses meant that nurses and staff spent more time in transit, which wasted time and raised management costs. In addition, the frequently flimsy frame cottages were seen as severely inadequate for modern needs, not to mention that they were prone to fire. County and municipal sanatoriums of the cottage-type had been built with sturdy brick cottages in Illinois, and across the country, but a "vertical" campus was increasingly preferred; Muirdale was one of the first such sanatoriums to be built following this format.²⁰

At Muirdale, the campus was designed to remain compact, while allowing for future expansion. Initially, two, forty-patient cottages convalescent cases were built flanking a main Hospital/Administration building; however, additional cottages were built later to accommodate up to 500 patients. The design provided for severe cases to be held in the main Hospital/Administration building, while patients that had recovered sufficiently could "graduate" to the attached cottages. Most significantly, the main Hospital/Administration Building was designed for future expansion, not horizontally, but vertically with the construction of up to three floors; these were eventually built in 1935. The Hospital/Administration Building was built at the highest point in the landscape and held all of the primary functions of the sanatorium including main offices, the hospital and surgery rooms, x-ray room, special care and exam rooms, clinical and research laboratories, and waiting rooms; the main

¹⁸ Wisconsin Historical Society, Wisconsin Architecture and History Inventory, "Muirdale Sanatorium Hospital and Administration Building", "Milwaukee County", "Wisconsin", "78056".

¹⁹ *Proceedings of the Common Council of the City of Milwaukee for the year ending 1915* (Milwaukee: Phoenix Printing Company, 1915), 748-749.

²⁰ C. L. Burnham, "Latest Trend in Sanatoria Construction is 'Vertical,'" *The Crusader*, June 1938. 3.

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dining hall and the primary kitchen was located in an attached wing to the north.²¹

Muirdale was designed by the Milwaukee architectural firm of Robert A. Messmer & Brother who completed designs for other institutions including the Home for Feeble Minded (1914) at Union Grove, Wisconsin (extant, NR #91001394), and later buildings for the Milwaukee County Home for Dependent Children (extant, NR #98001587 and NR #98001535).²² The final design was based on the careful study of other sanatoriums across the country and on consultation with experts including Dr. Dearholt. The firm of Messmer & Brother was engaged in the project as early as January 1913, when an announcement of the proposed sanatorium was published in *American Contractor* stating that facility would cost \$350,000.²³ Over the course of the year, published estimates grew steadily from \$500,000 in May to \$600,000 in December.²⁴ Ultimately, the final cost was only slightly over the allocated budget for construction.

Buildings that were completed by the opening in 1915 included the Hospital/Administration Building; two, forty-patient cottages; the superintendent's residence; a powerhouse; and an employees' cottage.²⁵ Today, only the Hospital/Administration Building and the Powerhouse remain. The opening ceremony was attended by several leading figures in the national crusade against tuberculosis, including several directors and members of Illinois institutions, including: J. W. Coon, who was the past superintendent of Wisconsin State Sanatorium and current superintendent of the Chicago Municipal Tuberculosis Sanatorium; James A. Mullenbach, former general superintendent of the Wisconsin State Sanatorium; Theodore B. Sachs, promoter of tuberculosis care in Illinois and president of the National Association for the Study and Prevention of Tuberculosis; and Hoyt E. Dearholt, president of the Wisconsin Anti-Tuberculosis Association. These figures, in addition the governor and past governors, hailed Muirdale's modern and efficient design.²⁶

Although Muirdale was presented publicly as a great county achievement that would swiftly reduce the incidence of tuberculosis in Milwaukee County, the County Board was not at once satisfied. Internally, the Board launched an investigation in 1917 into the cost of the sanatorium's construction. The Board hired two outside consultants, one to examine the power systems, and a second, the Chicago architectural firm of Marshall & Fox, to assess material quality and construction methods. The Board's final report commended the design of the sanatorium, but identified several faulty aspects of construction ranging from poorly set concrete to improperly installed plumbing. The investigation led

²¹ Glenford L. Bellis, "Muirdale, One of the Fine Sanatoriums in the Country," *The Crusader*, October 1915. 8-10.

²² *Steam*, December 1914. 172.

²³ "Wisconsin," *American Contractor*, January 18, 1913. 63.

²⁴ "Wisconsin," *American Architect & Architecture*, May 21, 1913. 16; "Milwaukee," *Iron Age*, December 25, 1913. 1468.

²⁵ Wisconsin Historical Society, Wisconsin Architecture and History Inventory, "Muirdale Sanatorium Powerhouse", "Milwaukee County", "Wisconsin", "143675".

²⁶ "Muirdale, County's New Sanatorium, Finest West of Allegheny Mountains," *Eau Claire Leader*, November 28, 1915. 9.

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the Board to adopt new regulations for county contracts, specifically that, "... where the services of an architect is required that architectural competition be held so that the county will not appear to be in collusion with any architect in giving him a monopoly of county work."²⁷

Within the first year of operation, the sanatorium reached capacity and had a lengthy waiting list.²⁸ Rates at the time of construction were either \$10 or \$5, or admittance was free for qualifying patients.²⁹ Additional room for twenty-five convalescing patients was provided during the summer of 1916 by erecting six temporary tent shacks. In 1916, the county appropriated an additional \$55,000 for the construction of a 60-bed children's cottage, which was completed in 1919. In addition, a 140-bed annex was also planned in 1916.³⁰ Muirdale expanded once again in 1922 with the annexation of the existing Blue Mound Sanatorium, which was converted for use as a children's preventorium in 1923.

During the 1930s, although tuberculosis mortality rates in Wisconsin declined from 52.1 in 1930 to 48.7 in 1931 per 100,000 and were well below the national average, and despite the addition of 200 new beds across the state, the demand for beds continued to increase and waitlists left patients without care for months.³¹ Milwaukee County too was strained by the urgent need for additional space for tuberculosis care. Following the passage of the National Recovery Act in 1933, the state of Wisconsin outlined a series of public building projects and improvements for facilities across the state. Administered by the Public Works Administration (PWA), funds for building improvements included the addition of a fourth and fifth floors to Muirdale's Hospital/Administration Building, capitalizing on the building's vertical design. The new space provided 42 additional beds, plus new laboratories and operating rooms. The addition was also designed by the firm of Robert A. Messmer & Brother and was completed in 1935.³²

The Sanatorium Hospital/Administration Building Type

The Muirdale Tuberculosis Sanatorium Hospital/Administration is unique in its vertical design that

²⁷ *Proceedings of the Common Council of the City of Milwaukee for the year ending 1917* (Milwaukee: Phoenix Printing Company, 1918), 440-442.

In early 1918, the architectural firm of Marshall & Fox was hired to design a new \$75,000 building at Muirdale, but it is not evident what building the firm designed. "Milwaukee, Wis," *The American Architect*, January 2, 1918. 14.

²⁸ *Proceedings of the Common Council of the City of Milwaukee for the year ending 1915* (Milwaukee: Phoenix Printing Company, 1915), 39.

²⁹ National Tuberculosis Association, *A Tuberculosis Directory Containing a List of Institutions, Associations and Other Agencies Dealing with Tuberculosis in the United States* (New York, 1919), 98.

³⁰ "In Muirdale, County Gives State its Largest Sanatorium," *The Crusader*, September 1916. 20.

³¹ White, 41-43.

³² *Engineering News Record*, v114, 1935. 99; C. L. Burnham, "About Sanatoria and Money," *The Crusader*, March-April, 1935. 2.

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incorporated a number of functions into a single structure.

During the first two decades of the twentieth century, the majority of sanatoria built across the United States were designed as sprawling campuses with an array of small purpose-built buildings. These typically included separate buildings for offices and administration, hospital uses and operating rooms, dining facilities and kitchens, open-air patient cottages, nurses' residences, power generation, laboratory, laundry, and occasionally an auditorium among other building types. Muirdale was no exception with regard to its campus size and variety of buildings, but it was unique for its multi-purpose "main building" or Hospital/Administration Building, which held all of the departments and uses that other large sanatoria were generally isolated in individual buildings.

Most sanatoria were designed with administrative offices and hospital functions in separate, one- to two-story buildings at the center of the campus, surrounded by a ring or blocks of well-spaced patient cottages and other buildings. Leaders in the crusade against tuberculosis, like sanatorium designer and author Dr. Thomas Spees Carrington, promoted the development of expansive campuses scaled to two acres of land per patient.³³ This horizontally sprawling-type tuberculosis sanatorium campus provided ample room for outdoor activities and allowed buildings and cottages to be evenly spaced for maximum air circulation around buildings. Spreading buildings apart also forced ambulatory patients to walk outdoors; after all, the primary treatment for tuberculosis was exposure to fresh air. In addition, the isolation of surgical units and hospital uses from administrative spaces and areas used by ambulatory patients, helped isolate the most advanced cases.

One aspect of this type of campus that met criticism was the inefficiency caused by having great distances for staff to walk. Patient rooms, offices, stock rooms, and other locations could be far apart, which was beneficial to patients, as it increased their exposure to fresh air, but also meant valuable staff time was spent in transit. Muirdale addressed this inefficiency by building a compact campus with all primary sanatorium functions, including administrative offices and hospital rooms in one building. The design also allowed for future vertical expansion with completion of upper floors; a fourth and fifth floor were added in 1935.

The concept of a "vertical" campus was promoted by the Wisconsin Anti-Tuberculosis Association (WATA), which was headed by Dr. Hoyt E. Dearholt and led Wisconsin's anti-tuberculosis cause during the early-twentieth century. WATA offered assistance to counties and towns seeking to build sanatoria by providing administrative assistance, programing, and architectural services. A reporter for the Association's monthly journal *The Crusader* wrote in 1938:

The W. A. T. A. architectural service has used its influence for the vertical type of building. Wisconsin sanatoria show greatly the influence of this modern trend, as its chain of institutions is singularly free from

³³ Carrington, 1914: 16.

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the objection of too much spread... in Wisconsin Sanatoria the spread on each floor is sufficiently limited so as not to prove harmful in the care of the patient and not to burden the employees.³⁴

Muirdale's Hospital/Administration Building was the first and tallest of all such vertical sanatorium buildings built in Wisconsin before World War II. Within its substantial brick walls there were all of the rooms and departments that were typically located in independent buildings. The ground floor held all administrative offices for the superintendent, medical director, physicians, director of nurses, dietitians, and other offices. It also featured examination rooms, a large laboratory, an x-ray room, and two receiving wards for patient admission. The initial three upper floors were primarily devoted to patient wards for advanced cases, and operating rooms were located on the third floor.³⁵ To the north of the building is a wing that held the main dining room and service rooms.

Muirdale's Hospital/Administration Building was designed with a typical compact hospital layout, but with the characteristics of a sanatorium. The layout consists of a central portion with twin wings, each with its own stairwell, for male and female patient wards. Double-loaded corridors bisect the wings and central portion on each floor, with former patient rooms and other spaces on either side. All of these elements were standard for hospital buildings at the time, including the former (not extant) Milwaukee County Hospital buildings to the east of Muirdale. Although the design treatment was that of a hospital, its design incorporated key elements that were central to tuberculosis treatment; the most significant of these is the use of large windows for ample air circulation in patient wards. Originally, the windows were set in groups of three with fixed upper transoms and tall, operable, pivoting, casement windows below. Other features included in the design were prominent projecting sunrooms on each floor, and small roof decks above the wings for true open-air treatment.

Architect Robert A. Messmer & Brother

Robert A. Messmer (1870-1943), the Milwaukee-based architect of Muirdale Tuberculosis Sanatorium, was best-known for his large scale public institutional designs of the 1910s through 1930s. Messmer trained as a designer under the guidance of his father, the prominent Milwaukee architect Henry Messmer (1839-1899). Born in Rheinbeck, Switzerland, the elder Messmer immigrated to the United States in 1866, living in Madison, Wisconsin, and Chicago, Illinois, before settling with his wife Barbara and infant son Robert in Milwaukee in 1871. Henry Messmer was well-known for his designs for large brewery buildings, churches, and commercial and residential structures. Robert Messmer began his own architectural career as an apprentice in his father's firm, which came to be known as H. Messmer & Son. After Henry Messmer's death in 1899, Robert Messmer took charge of the firm, doing business with his younger brother John (1884-1971) as R.A. Messmer & Brother.

³⁴ Burnham, *The Crusader*, June 1938: 3.

³⁵ Bellis, *The Crusader*, October 1915: 8-9.

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Robert A. Messmer's first widely-publicized work was the State of Wisconsin Building, a two-story Beaux Arts Classical Revival Style exhibition structure built in San Francisco for the 1915 Panama-Pacific International Exposition; Messmer's Wisconsin Building was one of the few structures to be retained after the Exposition's close and was planned to be relocated to Marin County to serve as a new facility for the Santa Venetia Club. After returning from San Francisco, Messmer received commissions from the Benevolent and Protective Order of Elks for new Elks Clubs in Grand Rapids, Michigan (1915, condition unknown), in Kenosha (completed 1919, extant, NRHP #100001815), and in Milwaukee (1920s, demolished).

The 1910s and 1920s brought Messmer his largest and best-known Wisconsin commissions including numerous public school projects in West Allis, Hartford, Ripon, Shawano, Antigo, Park Falls, and Kewaunee; a master plan and building designs for Racine's Southern Colony for the Developmentally Disabled (originally the Southern Home for Feeble Minded and Epileptics, 1914, extant, NR #91001394); the Muirdale Tuberculosis Sanatorium (1915); and the Administration Building and School for the Milwaukee County Home for Dependent Children School (1920s, both extant, NR #98001587 and NR #98001535).

Comparable Sites in Milwaukee County

There are no other known former tuberculosis sanatoriums in Milwaukee County. In addition, very few hospital or other institutional campuses built during the first decades of the twentieth century remain. Many of the Milwaukee County Grounds' larger institutions have been demolished, including the Milwaukee County General Hospital and grounds.

- **Milwaukee Sanitarium**

- 1220 Dewey Avenue, Wauwatosa**

- This site was also built in 1925 and was located at the very eastern end of the Milwaukee County Grounds, nearest the Wauwatosa's downtown. The site consists of a series of cottages and various buildings spread across a landscaped campus. The site's buildings have been repurposed as a medical facility, a school, and as private residences. The site opened in 1884 as a replacement for the Milwaukee Hospital for the Insane. Several extant buildings were completed during an expansion in 1925. Tuberculosis was not treated at this facility.

- **Sacred Heart Sanitarium (MOSTLY DEMOLISHED)**

- 1545 South Layton Boulevard, Milwaukee**

- This site features a complex of Mediterranean Revival buildings built in 1925 and designed by the firm of Plunket, Keymar, and Reginato. The facility was designed for general care and

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specialized in arthritis. The sanitarium's original building was demolished in 1977 though some of the complex's former support buildings remain and are reused for healthcare programming. Tuberculosis was not treated at this facility.

- **Milwaukee County Home for Dependent Children (DEMOLISHED)**
9658 West Watertown Plank Road, Wauwatosa

This facility was listed on the National Register #98001535, but was delisted in 2002 following the site's demolition in 2001. Robert Messmer designed the building in 1924, and it served as one of the main specialized Milwaukee County Grounds institutions. The building had a later addition completed in 1947 by John Messmer.

Conclusion

The Muirdale Hospital/Administration Building and Powerhouse are two remaining locally significant buildings of the former purpose-built Muirdale Tuberculosis Sanatorium site. Completed in 1915 by Milwaukee County, the Muirdale Tuberculosis Sanatorium was built as a specialized facility for the county's institutional grounds, which lay west of the City of Milwaukee in Wauwatosa. The County Grounds, which by the early-twentieth century held a variety of Milwaukee County health care institutions, began in the mid-nineteenth century as a local governmental response to the issues of poverty and public health. The Muirdale Tuberculosis Sanatorium was added to the grounds in response to a growing awareness of the significance and communicability of tuberculosis.

The two buildings are locally significant under Criterion A for Health/Medicine. The Hospital/Administration Building and the Powerhouse were the two most important buildings to the function of Muirdale Sanatorium during its operation from 1915 to 1969. The Hospital/Administration Building was the principal service building of Muirdale and stood at the heart of the sanatorium. It held all of Muirdale's administrative offices, research labs, operating rooms, and dining and kitchen facilities, which were critical to the work of the sanatorium's staff and the treatment of its resident patients. The Powerhouse supplied Muirdale with energy, heat, and steam, which was especially important for powering sanatorium facilities and facilitating their disinfection and cleaning. Muirdale's Hospital/Administration Building and Powerhouse exemplify the pioneering methods that were used locally as part of the greater national fight to control and prevent the spread of tuberculosis, an extremely deadly communicable disease for which no cure was developed until after World War II.

The Hospital/Administration and Powerhouse are also locally significant under Criterion C for Architecture. They were both built in 1915 and are fine examples of purpose-built buildings designed for the treatment of tuberculosis. Muirdale was a larger capacity sanatorium, but was designed and built to be compact and efficient. The Hospital/Administration Building had innovative compact

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Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

design and followed a vertical plan that housed all important sanatorium functions in one tall building. It was the first such tuberculosis sanatorium administration and hospital building in Wisconsin to be built over two stories tall, and housed the sanatorium's offices, treatment rooms, and dining spaces on a scale large enough to accommodate Muirdale's great number of staff and patients. The proximity of services in a single multi-story building improved efficiency and the care the sanatorium provided.

The Hospital/Administration Building and the Powerhouse are the best remaining examples of buildings associated with the treatment of tuberculosis in Milwaukee County.

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Section 9 Page 1

Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

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Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

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Wisconsin, 1986.

Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

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National Park Service

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Continuation Sheet

Section 10 Page 1

Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

Verbal Boundary Description:

Muirdale Tuberculosis Sanatorium is a 7.27 acre site located at 10437 and 10457 Innovation Drive in Wauwatosa, Wisconsin. The nomination area is in the Milwaukee County Research Park and is comprised of two buildings – the Administration Building and the Powerhouse, which are located on separate parcels and are separated by Innovation Drive, a public right-of-way. The nomination area includes the two parcels of the buildings, as well as an area of Innovation Drive covering approximately 105 feet by 130 feet, connecting the two buildings. The two parcels are described as:

- 10437 Innovation Drive (Hospital/Administration Building) – NW 1/4 SEC 29-7-21 LOT 20
- 10457 Innovation Drive (Powerhouse) – NW 1/4 SEC 29-7-21 LOT 21

Boundary Justification:

The boundary encompasses the legal parcels of the two extant purpose-built properties historically associated with the Muirdale Tuberculosis Sanatorium within the period of significance, 1915-1969 for Criterion A and the years 1915 and 1935 for Criterion C. The boundaries follow existing property lines for the Hospital/Administration Building and Powerhouse as established following the subdivision of the sanatorium.

Both parcels include the buildings and expanses around the buildings that continue to convey their relationship to each other and sufficient setting related to their history within what was once a larger campus.

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Continuation Sheet**

Section photos Page 1

Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

Photo Log

Name of Property: Muirdale Tuberculosis Sanatorium
City or Vicinity: Wauwatosa
County: Milwaukee **State:** Wisconsin
Photographer: John Cramer
Date Photographed: July 2017

Location of Original Digital Files: State Historic Preservation Office, Wisconsin Historical Society

Photo 1
Hospital/Administration Building, south (primary) and east facades
Camera facing northwest

Photo 2
Hospital/Administration Building, south (primary) facade
Camera facing northwest

Photo 3
Hospital/Administration Building, south (primary) facade
Camera facing northeast

Photo 4
Hospital/Administration Building, south facade courtyard
Camera facing west

Photo 5
Hospital/Administration Building, east facade
Camera facing west

Photo 6
Hospital/Administration Building, west facade
Camera facing southeast

Photo 7
Hospital/Administration Building, west facade
Camera facing east

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Section photos Page 2

Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

Photo 8
Hospital/Administration Building, west and north facades
Camera facing southeast

Photo 9
Hospital/Administration Building, main entrance foyer
Camera facing south

Photo 10
Hospital/Administration Building, typical lower floor corridor
Camera facing north

Photo 11
Hospital/Administration Building, stair detail
Camera facing southwest

Photo 12
Hospital/Administration Building, typical upper floor corridor
Camera facing south

Photo 13
Hospital/Administration Building, stair and skylight detail
Camera facing north

Photo 14
View of Powerhouse (right) from Administration Building
Camera facing northeast

Photo 15
Powerhouse, west (primary) facade
Camera facing northeast

Photo 16
Powerhouse, south facade
Camera facing northwest

Photo 17
Powerhouse, east facade

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Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

Camera facing northwest

Photo 18

Powerhouse, north facade

Camera facing south

Photo 19

Powerhouse, interior south section and mezzanine

Camera facing southwest

Photo 20

Powerhouse, interior south section (former engine room)

Camera facing southwest

Photo 21

Powerhouse, interior central section (former boiler room)

Camera facing northeast

Photo 22

Powerhouse, interior north section

Camera facing southeast

Photo 23

Powerhouse, interior north section (former blacksmith shop)

Camera facing north

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Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

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Milwaukee County Historical Society

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Milwaukee County Historical Society

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Wauwatosa Historical Society

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Milwaukee County Historical Society

Figure 6: Hospital/Administration Building, Typical Floor Plan

Onsite Safety Exit Plan

Figure 7: Powerhouse Floor Plan, 1913

Milwaukee County Historical Society

Figure 8: Photo key

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Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

**DORMITORY & POWER HOUSE
MUIRDALE SANATORIUM**

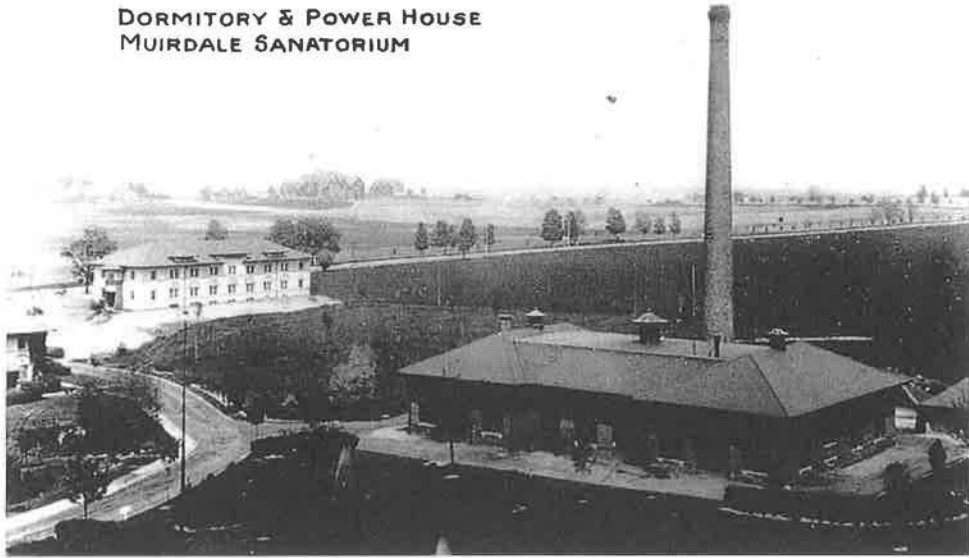


Figure 2: 1920s view of grounds showing Powerhouse (right), *Milwaukee County Historical Society*

**ENGINE ROOM
MUIRDALE SANATORIUM**

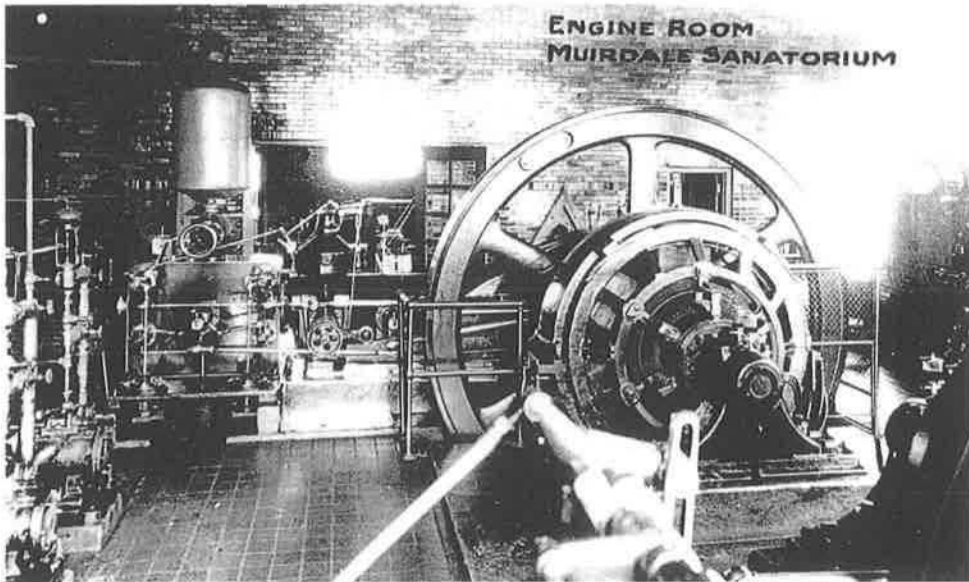


Figure 3: 1920s interior view of Powerhouse, Engine Room, *Milwaukee County Historical Society*

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Section figures Page 4

Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin



Figure 4: 1920s postcard of Hospital/Administration Building, *Wauwatosa Historical Society*

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National Park Service**

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Section figures Page 5

Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

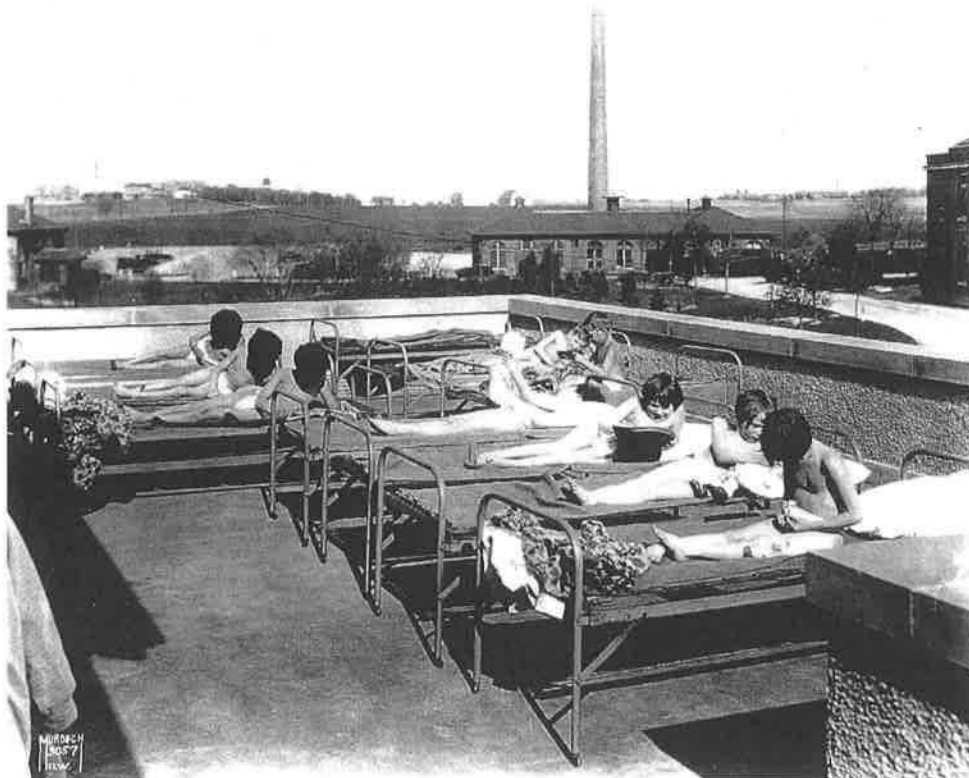


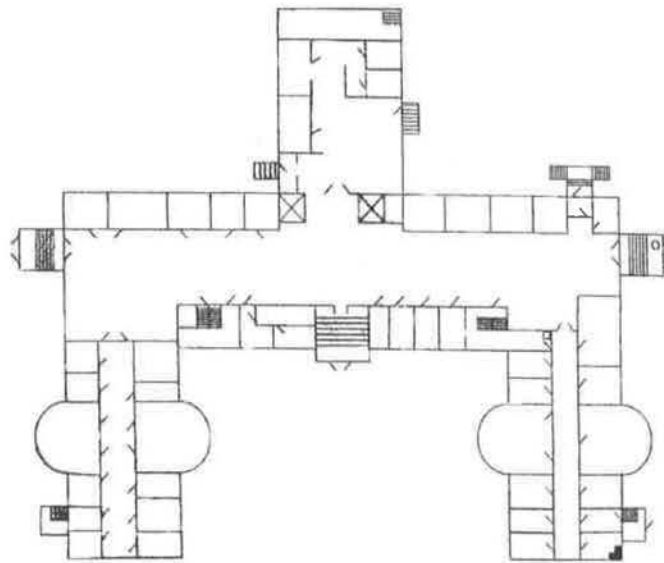
Figure 5: 1920s image of rooftop terrace of Hospital/Administration Building, showing Powerhouse beyond, *Milwaukee County Historical Society*

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National Park Service**

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Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin



Administration Building
Typical Floorplan
Muirdale Tuberculosis Sanatorium
10437 and 10457 Innovation Drive
Wauwatosa, WI



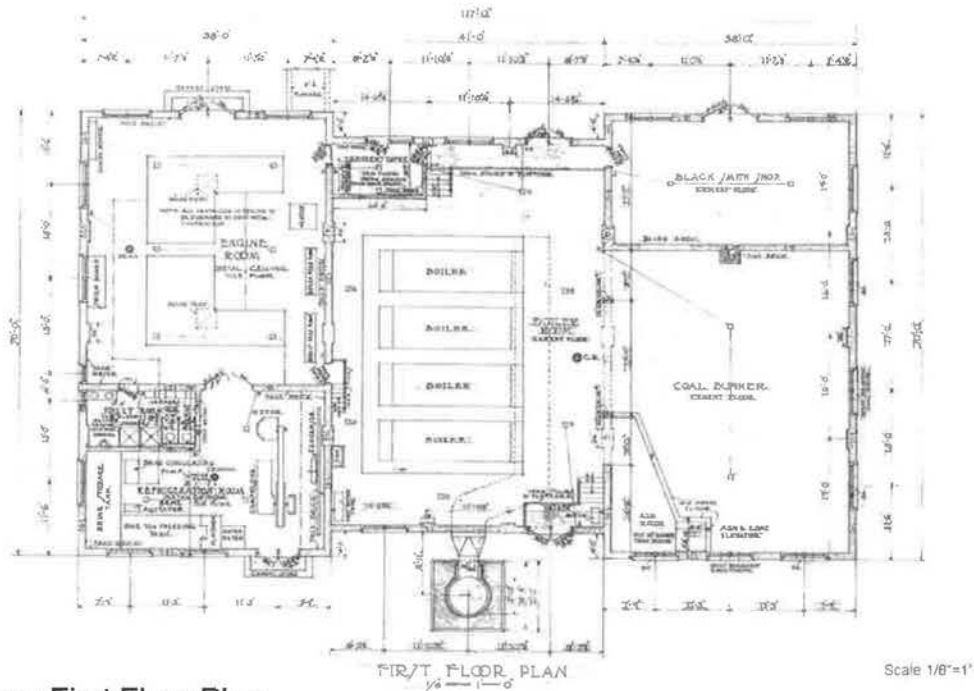
Figure 6: Hospital/Administration Building, Typical Floor Plan, *Onsite Fire Safety Exit Plan*

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National Park Service

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Continuation Sheet

Section figures Page 7

Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin



Powerhouse First Floor Plan
Muirdale Tuberculosis Sanatorium
10437 and 10457 Innovation Drive
Wauwatosa, WI



Figure 7: Powerhouse Floor Plan, 1913, *Milwaukee County Historical Society*

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National Park Service**

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Continuation Sheet**

Section figures Page 8

Muirdale Tuberculosis Sanatorium
Wauwatosa, Milwaukee County, Wisconsin

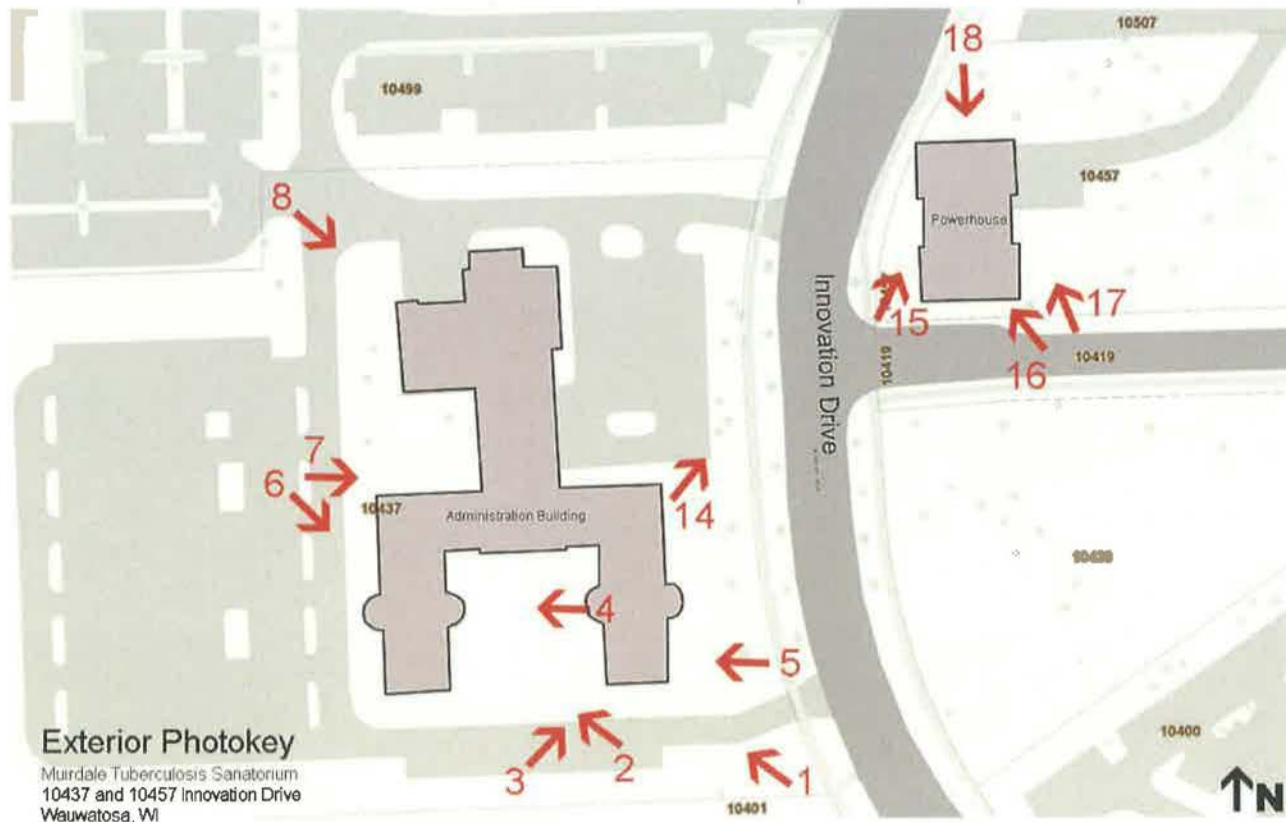
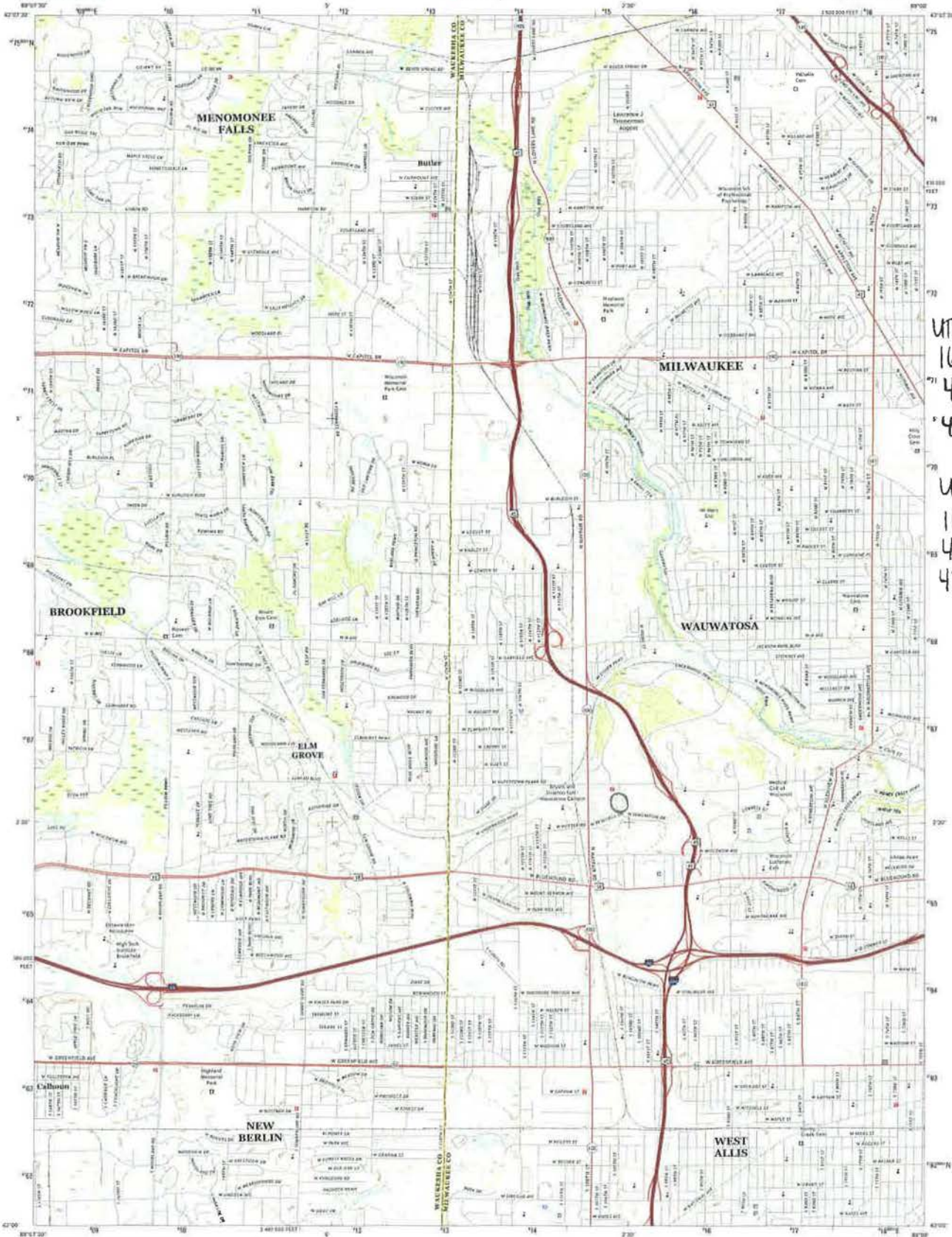


Figure 8: Site plan and photo key



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4766180.74 MN

UTM 2:
16T
415037.10 ME
4766241.82 MN

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection and
1:250,000 scale Universal Transverse Mercator Zone 16T
10 200 North UTM Wisconsin Geodetic System of 1983 datum
control

This map is not a legal document. Authorities may be
granted for this map only. Power lines within government
jurisdiction may not be shown. Other geographic features
may vary from actual.

Map Date: 2013
Scale: U.S. Census Bureau, 2014
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Hydrography: National Hydrography Dataset, 2013
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Metadata: 2013 National Map Accuracy Standards, 1977



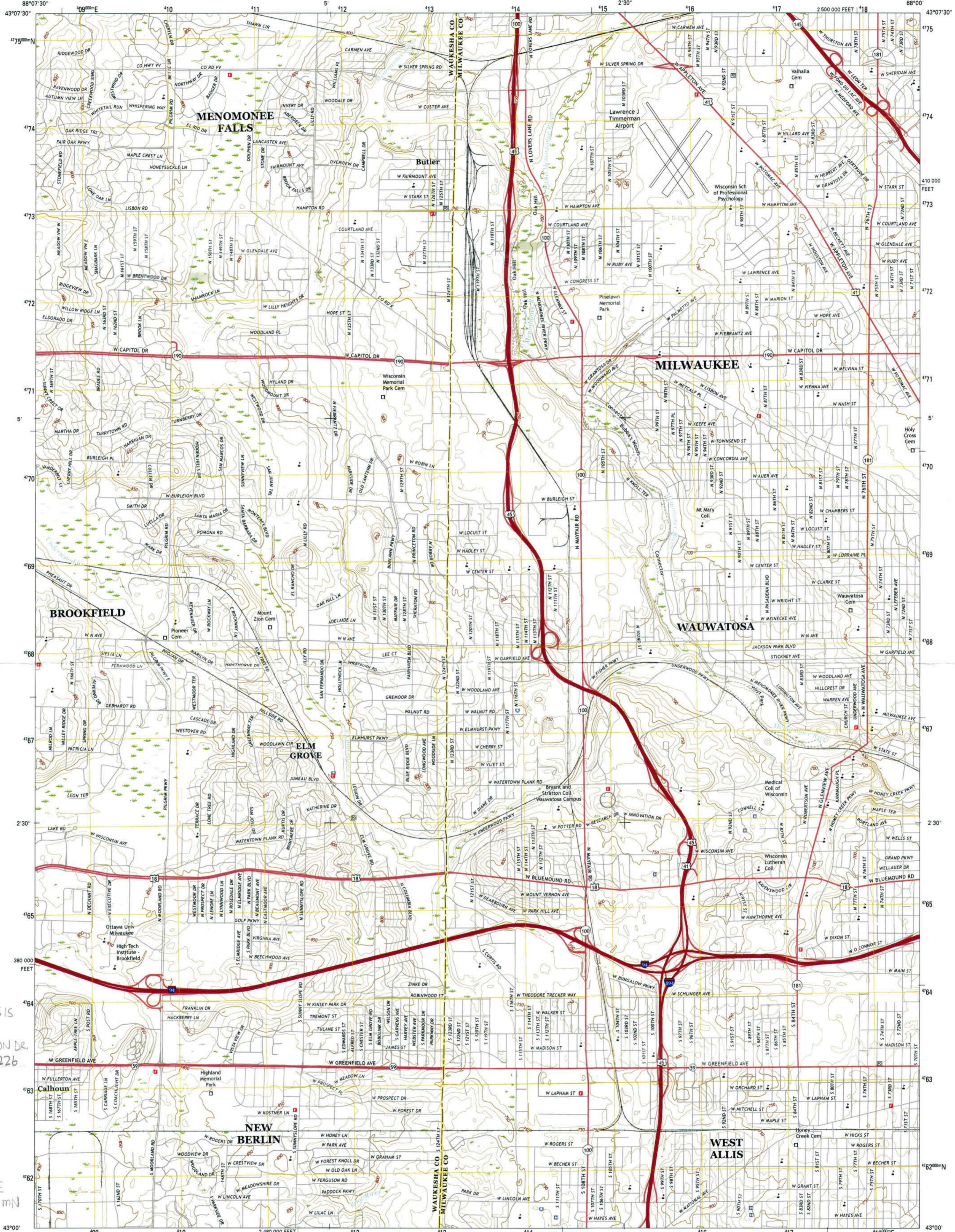
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WAUWATOSA, WI
2015



MURDALE TUBERCULOSIS SANA EXIUM
10437/10437
WAUWATOSA, WI 53226
MILWAUKEE COUNTY



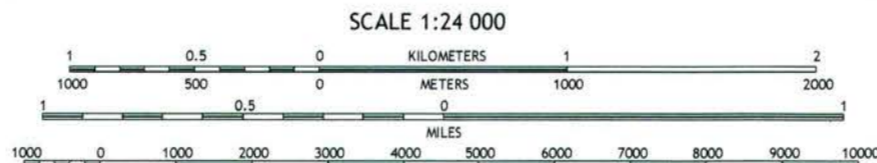
MURDALE TUBERCULOSIS SANATORIUM
10437/10457 INNOVATION DR
WAUWATOSA WI 53226
MILWAUKEE COUNTY

UTM 1
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NORTHING: 4766180.74 mN

UTM 2
ZONE: 16T
EASTING: 415037.10 mE
NORTHING: 4766241.82 mN

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 16T
10 000-foot ticks: Wisconsin Coordinate System of 1983 (south zone)

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Image: NAD83, June 2013
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Contours: National Elevation Dataset, 1999
Boundaries: Multiple sources; see metadata file 1972 - 2015
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Wetlands: FWS National Wetlands Inventory 1977 - 2014



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NORTH AMERICAN VERTICAL DATUM OF 1988
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A metadata file associated with this product is draft version 0.6.19



ADJOINING QUADRANGLES

1	2	3
4	5	6
7	8	9

WAUWATOSA, WI
2015







RESEARCH PARK
TECHNOLOGY
INNOVATION CENTER



RESEARCH PARK
TECHNOLOGY
INNOVATION CENTER











The quality of a person's life is
direct proportion to their
dedication to excellence
regardless of their chosen field
endeavor" — Vince Lombardi



"Coming together is a beginning
Keeping together is a process
Working together is success"
— Henry Ford



26

129









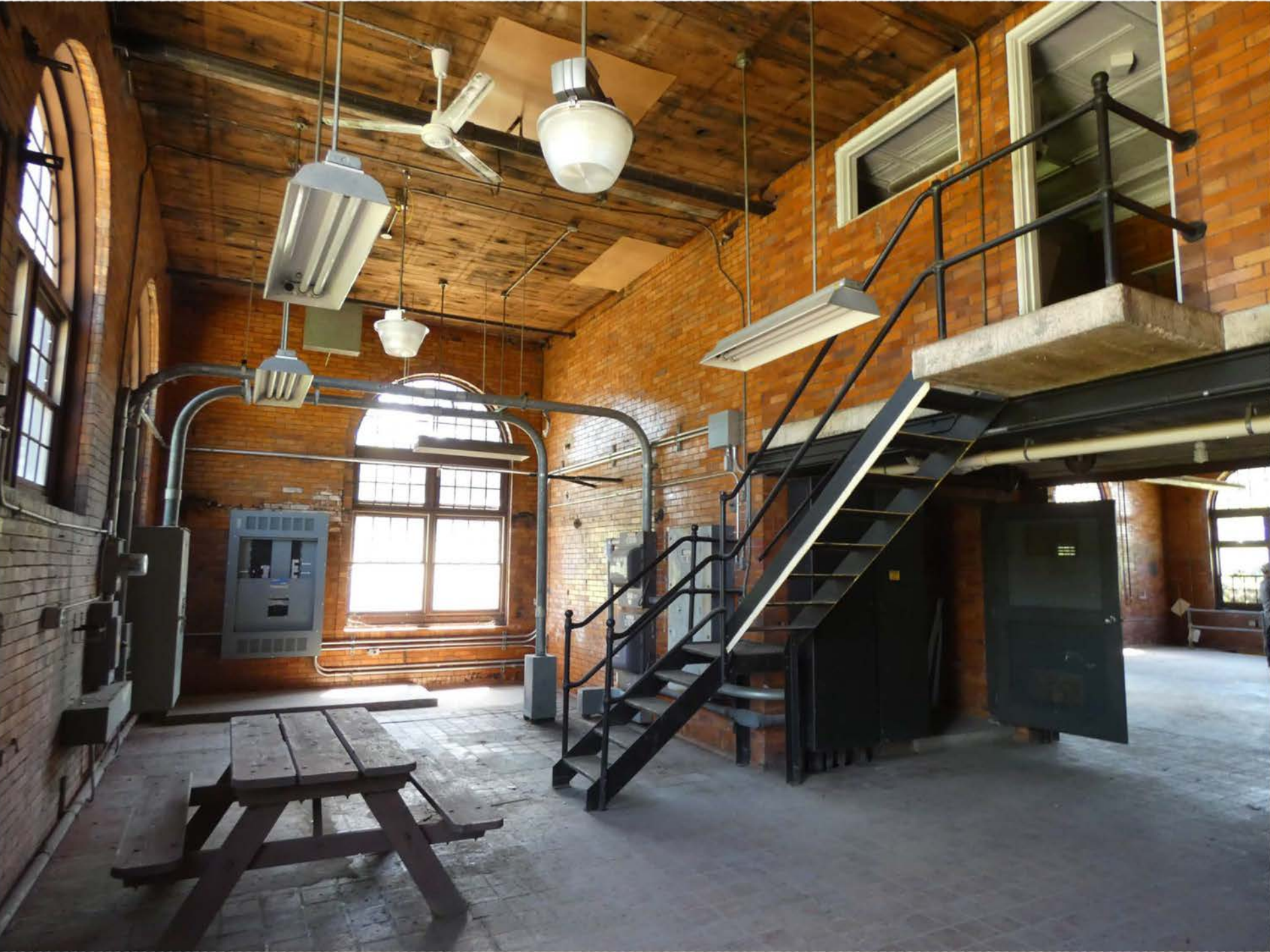




















UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

Requested Action:

Property Name:

Multiple Name:

State & County:

Date Received: 7/17/2018 Date of Pending List: 8/13/2018 Date of 16th Day: 8/28/2018 Date of 45th Day: 8/31/2018 Date of Weekly List: 9/7/2018

Reference number:

Nominator:

Reason For Review:

- | | | |
|---------------------------------------|--|---|
| <input type="checkbox"/> Appeal | <input checked="" type="checkbox"/> PDIL | <input type="checkbox"/> Text/Data Issue |
| <input type="checkbox"/> SHPO Request | <input type="checkbox"/> Landscape | <input type="checkbox"/> Photo |
| <input type="checkbox"/> Waiver | <input type="checkbox"/> National | <input type="checkbox"/> Map/Boundary |
| <input type="checkbox"/> Resubmission | <input type="checkbox"/> Mobile Resource | <input type="checkbox"/> Period |
| <input type="checkbox"/> Other | <input type="checkbox"/> TCP | <input type="checkbox"/> Less than 50 years |
| | <input checked="" type="checkbox"/> CLG | |

Accept Return Reject 8/31/2018 Date

Abstract/Summary
Comments:

Recommendation/
Criteria

Reviewer Barbara Wyatt Discipline Historian

Telephone (202)354-2252 Date _____

DOCUMENTATION: see attached comments : No see attached SLR : No

If a nomination is returned to the nomination authority, the nomination is no longer under consideration by the National Park Service.



WISCONSIN
HISTORICAL
SOCIETY

TO: Keeper
National Register of Historic Places

FROM: Peggy Veregin
National Register Coordinator

SUBJECT: National Register Nomination



The following materials are submitted on this Sixteenth day of July 2018, for the nomination of the Muirdale Tuberculosis Sanatorium to the National Register of Historic Places:

<u>1</u>	Original National Register of Historic Places Nomination Form
<u>1</u>	CD with NRHP Nomination form PDF
<u> </u>	Multiple Property Nomination form
<u>23</u>	Photograph(s)
<u>1</u>	CD with image files
<u>2</u>	Map(s)
<u>8</u>	Sketch map(s)/figures(s)/exhibit(s)
<u> </u>	Piece(s) of correspondence
<u> </u>	Other:

COMMENTS:

<u> </u>	Please ensure that this nomination is reviewed
<u>x</u>	This property has been certified under 36 CFR 67
<u> </u>	The enclosed owner objection(s) do or do not constitute a majority of property owners
<u> </u>	Other: