Feasibility Study
for the
REHABILITATION AND ADAPTIVE REUSE
of the
GARVER FEED MILL
Madison, Wisconsin

Submitted by

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Adaptive Reuse of the Garver Feed Mill

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On December 21, 2004, Hasbrouck Peterson Zimoch Sirirattumrong (HPZS) was awarded a contract by the City of Madison, Wisconsin, to prepare an Historic Structure Report and adaptive reuse feasibility study for the building commonly known as the Garver Feed Mill in Madison. This building and related property are adjacent to the Olbrich Botanical Garden (OBG). In 1997 the Olbrich Botanical Society purchased the property and gave it to the City of Madison for the future expansion of the Olbrich Botanical Gardens.

On January 18, 2005, Henry Zimoch (HPZS) met with the following members of the OBS Executive Committee: Dennis Birke, President; Barb Tensfeldt, Past-President; Gene Henry, Vice President; Sandy Doliter, Secretary; Si Widstrand, Planning Superintendent for the City of Madison Parks Department; Nancy Ragland, Director of the Olbrich Botanical Gardens; and Connie Beam, Director of Development and Marketing for the Olbrich Botanical Gardens. The primary purpose of the meeting was to review the program objectives and confirm the proposed adaptive reuse scenarios. Henry Zimoch was provided with the historical written, graphic and photographic material in the possession of the OBG for HPZS use in preparing this study.

On that same day, Sally Guregian (HPZS) performed historical research on the property at various repositories of information, in Madison. In preparation, Ms. Guregian reviewed the University of Wisconsin Libraries on-line catalog. She also visited the websites of Historic Madison, Inc., the Dane County Historical Society, and the State Historical Society to identify possible resources, and contacted Mike Whaley of Potter Lawson, Inc., the successor firm to Law, Law, and Potter, to make arrangements to view original drawings present in their archives. Ms. Guregian downloaded photographs of the building as well as materials on J.R. Garver located in an on-line clipping file available from the Wisconsin State Historical Society, and initiated searches on the topics of beet sugar processing and feed mill production.

In Madison, she reviewed materials at the Madison Public Library, including local history books and a clipping file maintained for the Garver Feed Mill in the Local History collection. At the Wisconsin State Historical Society, she reviewed printed materials, and unsuccessfully searched for a self-published book and monograph of works by Law, Law, and Potter (which the library was unable to locate). Ms. Guregian reviewed the photographic collections in the Historical Society Archives for images of the building. Henry Zimoch reviewed the drawing archives of Potter Lawson and arranged for all drawings associated with the building to be copied.

On February 17, 2005, Henry Zimoch returned to Madison and performed a comprehensive evaluation of the Garver Feed Mill building. In this effort he was assisted by Ron Linsicum (OBG) who operated a lift for the purpose of accessing the various roof areas, and arranged for lighting in the interior spaces. During this trip he also obtained a copy of the 1939 Sanborn Fire Insurance Map for Madison, located at the Wisconsin State Historical Society, and arranged to obtain electronic copies of similar maps for previous and subsequent years thorough Environmental Data Resources.

Subsequently, HPZS contacted Madison architect Arlan Kay, who participated in the preparation of the documentation of the building for the City of Madison Landmarks Commission, to discuss his recollections and request copies of any source materials he might have. HPZS also contacted Joseph DeRose of the Historic Preservation Division of the State Historical Society of Wisconsin to obtain a copy of their building file consisting of a draft National Register Nomination prepared by Thomas H. Lemon, a University of Wisconsin student, in 1980. (In 1981, Lemon prepared an article on U.S. Sugar Corporation for the Journal of Historic Madison, Inc. of Wisconsin, also referenced in this report.) Finally, HPZS contacted Katherine Rankin of the City of Madison Landmarks Commission to discuss the project and verify that she had no additional information in her files.

In reviewing the Olbrich Botanical Gardens space need program (Appendix "A") it was obvious that although the proposed uses would fit well within the context of this agri-industrial building, the needs of the OBG are not sufficient to completely occupy all of the available space. (See Adaptive Reuse Scenarios 1A and 1B.) If the OBG is to occupy the building effectively, it will be with a shared-use program. Two options investigated were the addition of a community space or an arts incubator, with respective support services, to occupy the building with the OBG functions. If this combination of resources is economically and commercially viable, it represents an ideal solution to fully utilize the facility while providing a benefit to the OBG. (See Adaptive Reuse Scenarios 2A and 2B.) Adaptive Reuse Scenario 3, full commercial occupancy has great potential in buildings of this character, and has proven successful in similar venues; however, it precludes the use of the building for OBG purposes unless commercial occupancy is viewed as a temporary occupancy to defer the holding cost of the building until such time as the OBG expands to occupy it.

HPZS would like to thank Nancy Ragland and Connie Beam for their assistance in organizing meetings and site visits, and providing us with necessary information when required, and Ron Linsicum for his help and patience in performing the building survey on a very cold day in February. We would also like to thank Mike Whaley, Arlan Kay, Joe DeRose, and Katherine Rankin for their time and cooperation in obtaining valuable materials from their files. Finally, HPZS would like to thank the City of Madison, Wisconsin for the opportunity to work on this most interesting project.

HISTORY

HISTORY

The development of the United States Sugar Beet Company and its processing plant in Madison, Wisconsin parallels the rise and fall of the sugar beet industry in the Midwest and the United States.

Interest in the construction of a sugar beet processing factory in Madison developed just after the turn of the 20th Century. Thomas H. Lemon, in his 1981 article for Historic Madison, Inc., recounts that Magnus Swenson, a member of the staff of the College of Agriculture at the University of Wisconsin and a holder of patents on a number of sugar processing inventions, was approached by a "committee of prominent citizens" in 1902 regarding the development of such a factory, and that academic enthusiasm was generated through a series of university lectures during the winter of 1903.[1] Similar enthusiasm was generated throughout the agricultural community through the efforts of Professor W.A. Henry and the members of the Forty Thousand Club, a business and professional group working to increase the size of the population and the business community in Madison. The Forty Thousand Club sponsored informational meetings throughout Dane County, visits to the sugar beet processing plants in Janesville and Menomonee Falls, and contract meetings in an effort to develop the local sugar beet production that would be required to keep the processing factory operating at capacity during the processing season. [2] In 1904, Theo Hapke (who made his living constructing sugar processing plants and would serve as the building consultant for the Madison plant) and others incorporated the Dane County Sugar Refining Company for the purpose of convincing farmers to grow sugar beets.[3]

Swenson and other Madison businessmen filed articles of incorporation for the Madison Sugar Company in July 1905, with the Madison Sugar Company becoming the United States Sugar Company on September 11, 1906.[4] Magnus Swenson served as president of the company until 1907. [5] Despite his research background in sugar beet processing, Swenson's interest may well have been more entrepreneurial than academic. During this time period Swenson was also heavily involved in a venture to develop a hydropower plant at Kilborne, Wisconsin (on the Wisconsin River Dells) (1905 to 1909) and later at Prairie du Sac (1913 to WWII).[6]

In his book *Madison, a history of the formative years,* David Mollenhoff notes that the Madison plant was U.S. Sugar Company's fourth plant to be developed, following those in Janesville, Menominee Falls, and Chippewa Falls.[7] The plant in Janesville was first, and was already in its second year of operation in 1903.[8] Purchase of the 19-acre site for the Madison plant, then located in the Town of Blooming Grove, took place in July 1905, and construction began that

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[1]Thomas M. Lemon, "An Industrial Inheritance: The United States Sugar Company 1906 – 1924", *The Journal of Historic Madison, Inc.* Vol. VI: 1980-1981, pp 14-15.
[2] Lemon, p. 15.
[3] Lemon, p. 16.
[4] Lemon, p. 15.
[5] David V. Mollenhoff, *Madison, A History of the Formative Years,* 2nd ed. , (Dubuque, Iowa: Kendall/Hunt Publishing Company, 2003), p. 246.
[6] Richard A. Bernstein, 'The Power of Water: Wisconsin's Hydro-mania", 2002. Retrieved from Wisconsin Public Radio's "Wisconsin Stories" website at http://www.wisconsinstories.org/2002season/water/closer_look.cfm on February 22, 2005, p. 2.
[7] Mollenhoff, p. 246.
[8] Lemon, p. 15.

month. [9] Theo Hapke, Vice President and General Manager of the American Construction and Supply Company was the building consultant and H.J. Strick served as superintendent of construction.[10]

Lemon quotes Madison newspaperman and local historian Frank Custer as stating that the factory opened for operation on October 22, 1906 at 7am.[11] There is little documentary evidence available to demonstrate the extent of construction in place on that date. Physical evidence suggests that the front half of the main building (buildings 3, generally four stories in height, with a fifth story above a portion of the west end and at a tower over the central entrance), the two flanking buildings (building 2 and building 4, the west two and one-half stories and the east two stories, though they are the same height), and the one-story storage building (building 1) to the northwest were probably constructed at the same time and as part of the original construction.

It is not clear whether the rear half of the main building, a series of rooms (buildings 5, 6, 7, and 8) with a total of three distinctly different facades, was constructed concurrent with the front half or shortly thereafter. The outer walls of the front half of the main building are 20 inches thick as opposed to 12 to 16 inches for the rear half of the building, but the greater wall thickness at the front half may well reflect the additional wall thickness required to support four and five stories on masonry bearing walls, and not a different phase of construction. The roofline of the easternmost section is not at the same height as the remainder of the rear roofs, possibly but not definitively suggesting that it may have a different construction date than the other sections of the rear of the main building. It is also possible that the easternmost section was once taller than it is today. Photographs taken in the 1950s and 60s as well as more recent photographs pre-dating the demolition of the fire-damaged sections of the building show a uniform cornice line, but not a uniform roof line, for the rear sections of the main building. (See photographs later in this report.) The uniform cornice line may reflect a single date of construction, or subsequent remodeling similar to that which took place later on the front elevation of the building.

By 1908, when the earliest Sanborn Fire Insurance Map was prepared for the building, the footprint of the building was largely in place. (See Figures 1, 2, and 3, below.) Exceptions include the infill construction north of building 2A between buildings 1 and 5, the gable-roofed boiler building at the northeast corner (building 9) and the infill building between building 9 and building 4 (building 10). A small building, labeled “beet testing” is shown at the northeast corner of building 4 and was subsequently removed. Similarly, a four foot wide platform is shown along the south wall of building 1 and was subsequently removed. A large beet shed and two six foot high concrete retaining walls (supporting coal piles) and several small office buildings are indicated northeast of the building; a large molasses tank, two open wells, the main office building, and a storage building to the southwest and south of the building.

[9] Susan O. Haswell, Arlan Kay, and Katherine Rankin, “City of Madison Landmarks Commission Landmarks and .Landmark Sites Nomination Form for Garver Feed and Supply Co.”, (Madison, Wisconsin, 1994) , Significance p. 3.
[10] Lemon, p. 16.
[11] Lemon, p. 16.

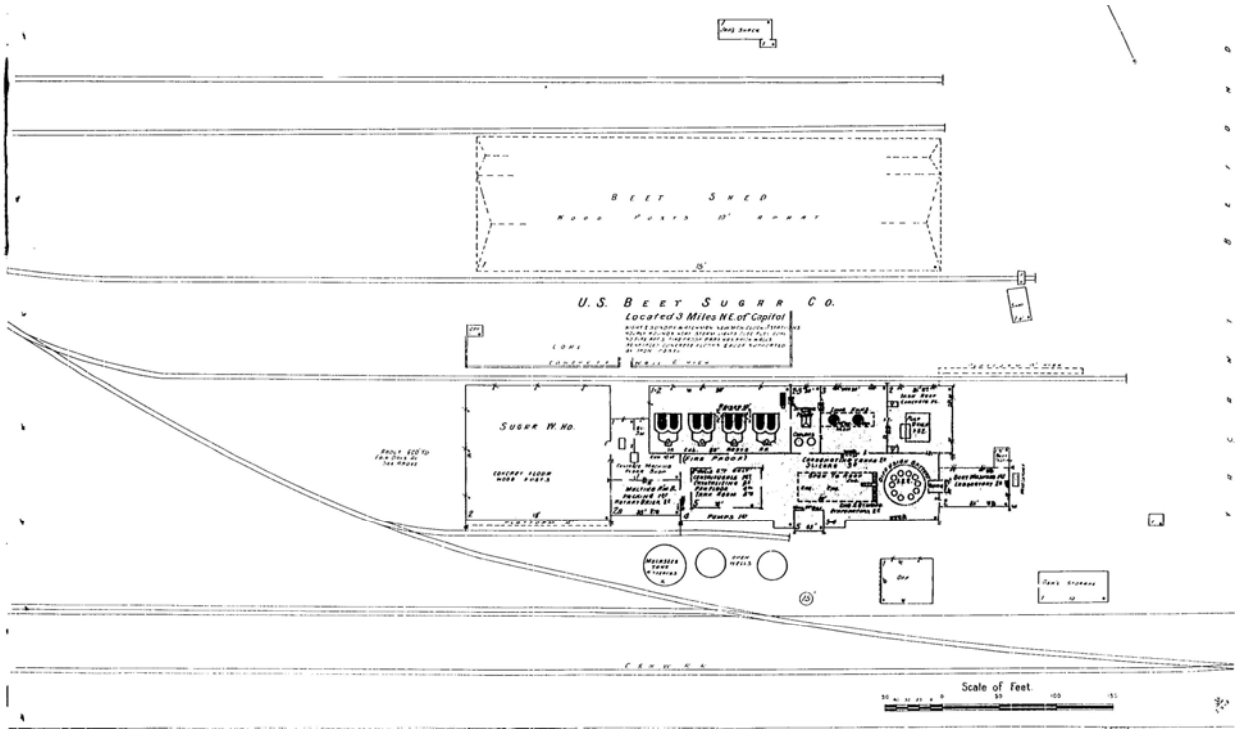


Figure 1: A detail from the 1908 Sanborn Fire Insurance Map showing the U.S. Sugar Company building and associated outbuildings

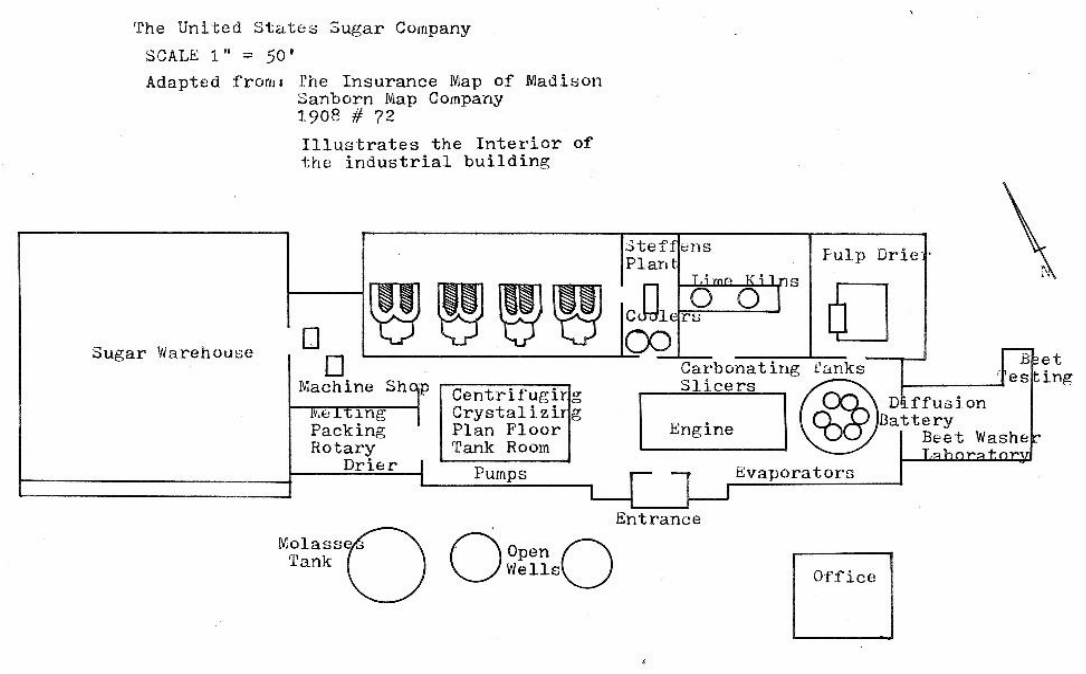


Figure 2: A line drawing of the building, adapted from the 1908 Sanborn Insurance Map, prepared by Thomas Lemon for inclusion in the 1980 draft National Register Nomination form and subsequently included in the 1991 National Register Nomination prepared by Arlen Kay.

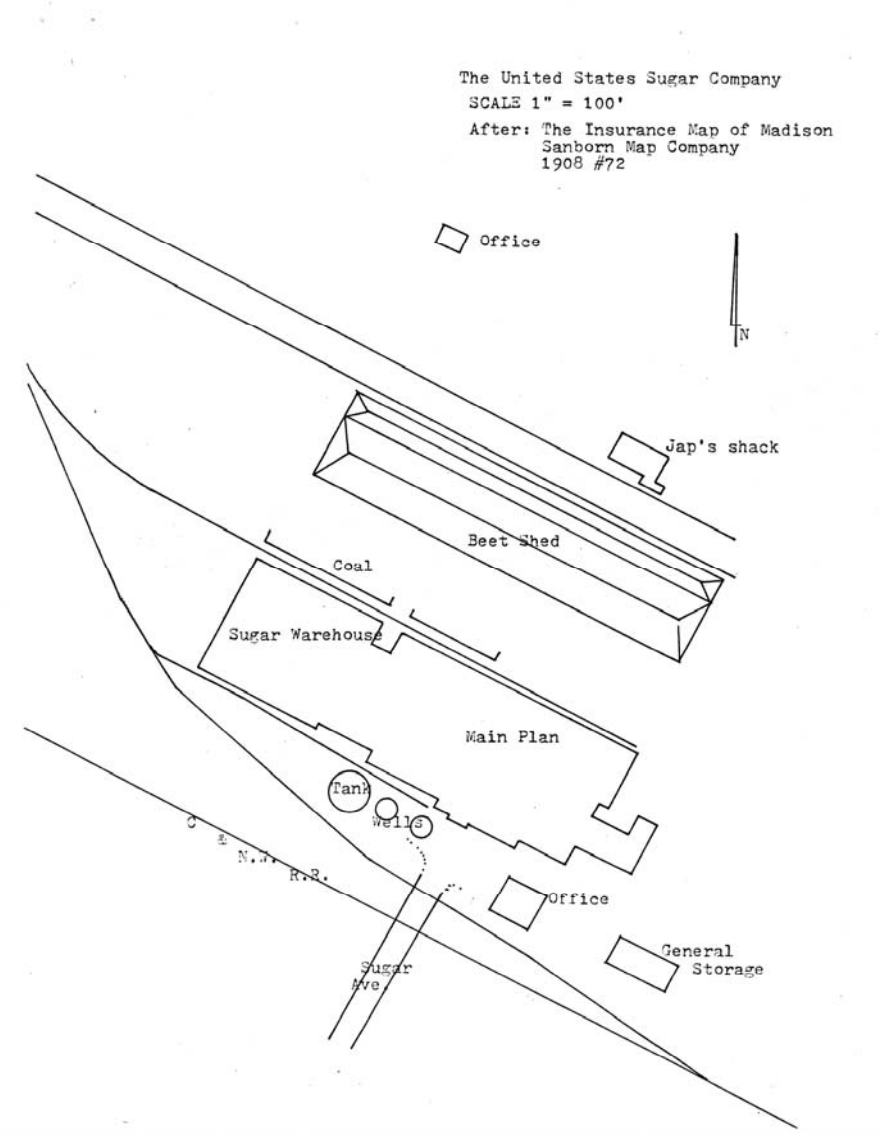


Figure 3: A line drawing of the building site, adapted from the 1908 Sanborn Insurance Map, prepared by Thomas Lemon for inclusion in the 1980 draft National Register Nomination form and subsequently included in the 1991 National Register Nomination prepared by Arlen Kay.

Three early photographs of the south and southwest elevations illustrate small changes in the appearance of the front of the building. The first, dated circa 1924 to 1931 by the State Historical Society of Wisconsin, shows a one to five story building with four tall smokestacks located behind the five-story portion of the building and extending another two stories above the fifth floor roof. (See Figure 4, below.) These smokestacks correspond in number and location to the four large pieces of equipment shown in room 5 on the 1908 Sanborn Map. The east flanking building is visible behind and to the right of the building now known as the Garver Cottage. A tall shaft (probably housing an elevator) is visible at the right of the main building. The masonry between the third and fourth floor levels of the main building is clean and unpainted. When this photograph is enlarged, multi-pane glass is visible in the windows.

Figure 4: "U.S. Sugar Factory, Atwood Avenue, Madison Wisconsin 1924-31. Photo credit: State Historical Society of Wisconsin Whi(x3)3554.3.

In the second photograph, dated circa 1915 to 1920 by the State Historical Society of Wisconsin, only one chimney is visible, and it is not as tall as the fifth story of the main building. (See Figures 5, 6, and 7, below.) The other chimneys may not be present, or may be present but not visible due to a reduction in their height. The words "United States" are clearly visible in large light-colored block letters on a dark background painted on the west half of the main building between the third and fourth floors, with similar lettering visible on the east half of the main building at this floor level. A large pipe extends out the wall of the fifth story and down into the fourth-story roof of the main building. A small hip-roofed structure is visible to the northwest of the front section of the main building at the fourth floor level. When this image is enlarged, multi-pane windows are also visible, and curtains flutter from one of the fifth-floor windows, suggesting that this area served as office space. A light-colored enclosure is visible at the west end of the east flanking building.

Figure 5: U.S. Sugar Co. Factory, Madison, Wisconsin c1915-20. Original owned by Wayne Wendorf, Madison Wisconsin. Photo credit: State Historical Society of Wisconsin, Whi(x3)36191.

Figure 6: Detail of the south elevation of the main building. The low round building in the foreground is noted as a molasses tank on the 1908 Sanborn map. Immediately above the peak of the roof of the tank, a light-colored enclosure is visible east of the main entrance of the processing plant.

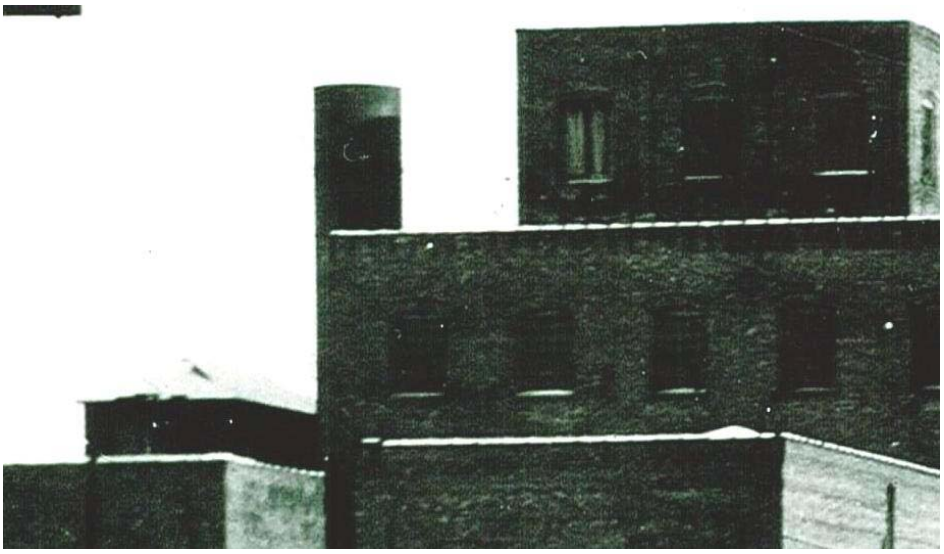


Figure 7: Detail showing the hip-roofed structure at left and the curtained fifth-floor window.

The third photograph, dated "about 1900-10(?)" by the State Historical Society of Wisconsin, shows a building similar in appearance to the latter photograph and includes the beet shed at the rear of the building. (See Figure 8, below.) Steam or smoke is seen rising at the front of the building and above a second story roof.

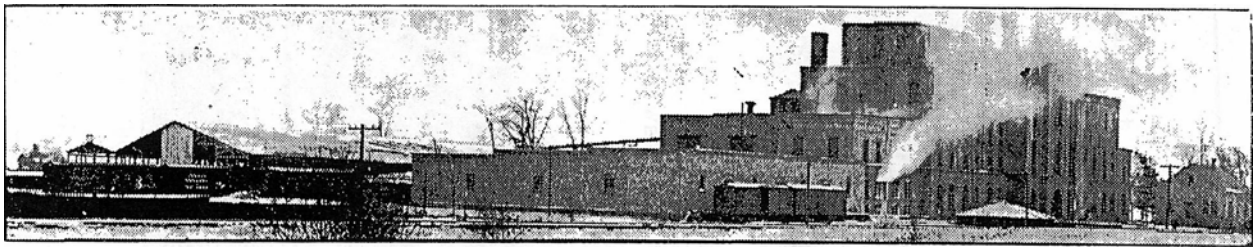


Figure 8: United States Sugar Beet Company on Atwood Avenue. Photo credit: State Historical Society of Wisconsin. Halftone. Whi(X3)45410.

The appearance of the building in the latter two of these photographs is strikingly similar to a photograph that ran in the Sunday, October 10, 1926 edition of the Wisconsin State Journal accompanying an article entitled "Herman Schulz Buys Sugar Plant".[12] (See Figure 9, below.) In this photograph, taken from approximately the same vantage point as the second and third of the Historical Society photographs, one low chimney is visible, lettering is visible between the third and fourth floors of the main building, and a large pipe extends out the south wall of the fifth floor level. The small hip-roofed building at the fourth floor level cannot be seen in this photograph. The similarities in these three photographs suggest that the State Historical Society photograph dated 1924-1931 may in fact predate their photograph dated 1915 -1920.

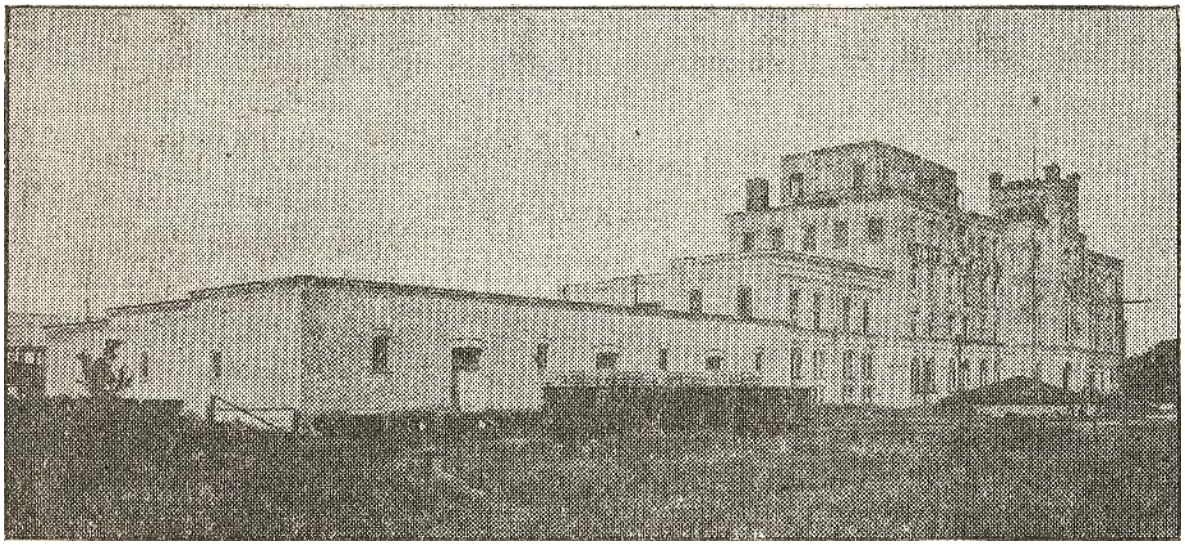


Figure 9: Illustration from the Wisconsin State Journal, Sunday, October 10, 1926 (page unknown.)

[12] "Herman Schulz Buys Sugar Plant," *(Madison) Wisconsin State Journal*, 10 October 1926, page unknown,

The United States Sugar Company operated the Madison plant from October through January from 1906 until May 1924. [13] Mollenhoff writes:

> "For six years, the plant conducted its frenetic fall campaign. But then in 1912 the U.S. Congress responded to demands to lower the cost of living by removing the protective sugar tariff, a decision that gave the cheaper imported sugar a clear advantage over the more expensive sugar beet. Consequently, the plant was closed for the 1913 and 1914 seasons. Gradually, however, growing sugar shortages and new tariffs caused the plant to reopen in 1915. During World War I the production of sugar beets reached new highs and the Madison plant flourished."[14]

Concurrent with the problems associated with fluctuations in sugar prices (which caused numerous beet sugar processing plants in the Midwest, Utah, California, and other sugar producing states to either go under or consolidate by the mid 1920s) was a problem specific to the Madison plant: the plant dumped its effluent into adjacent Starkweather Creek, subsequently polluting nearby Lake Monona. Despite attempts by United States Sugar Company beginning in the 1907 season to treat and recycle a portion of the factory waste, ongoing dumping into the creek was sufficiently extensive that in 1920 the City of Madison dragged the lake to remove the decaying beet pulp. [15]

On May 24, 1924, United States Sugar Company filed a petition of volunteer bankruptcy with the clerk of the United States Court, and in February 1925 the main building and three acres wee sold to a group of Milwaukee businessmen at public auction.[16] On October 10, 1926, the Wisconsin State Journal reported that the building had been sold to Herman Schulz and that the beet sugar machinery had been sold to the Stein-Brill corporation of New York and was in the process of being dismantled and shipped to other beet sugar plants "all over the country".[17]

In addition to the photograph included with the newspaper article (discussed above) a site survey prepared for Herman Schulz (not by him, as indicated by Lemon) illustrates the major changes that had been made to the building by 1926. (See Figure 10, below.) A series of eight long bins and sheds have been constructed at the rear of the building, and the original coal retaining walls and wood beet shed have been demolished. A gable-roofed addition (building 9) is in place at the northeast corner of the original building, and a small addition (a stair enclosure) is also in place east of the main entrance to the building.

[13] Lemon, p. 17.
[14] Mollenhoff, p. 247.
[15] Mollenhoff, p. 247.
[16] Lemon, p. 17.
[17] "Herman Schulz Buys Sugar Plant," *(Madison) Wisconsin State Journal*, 10 October 1926, page unknown.

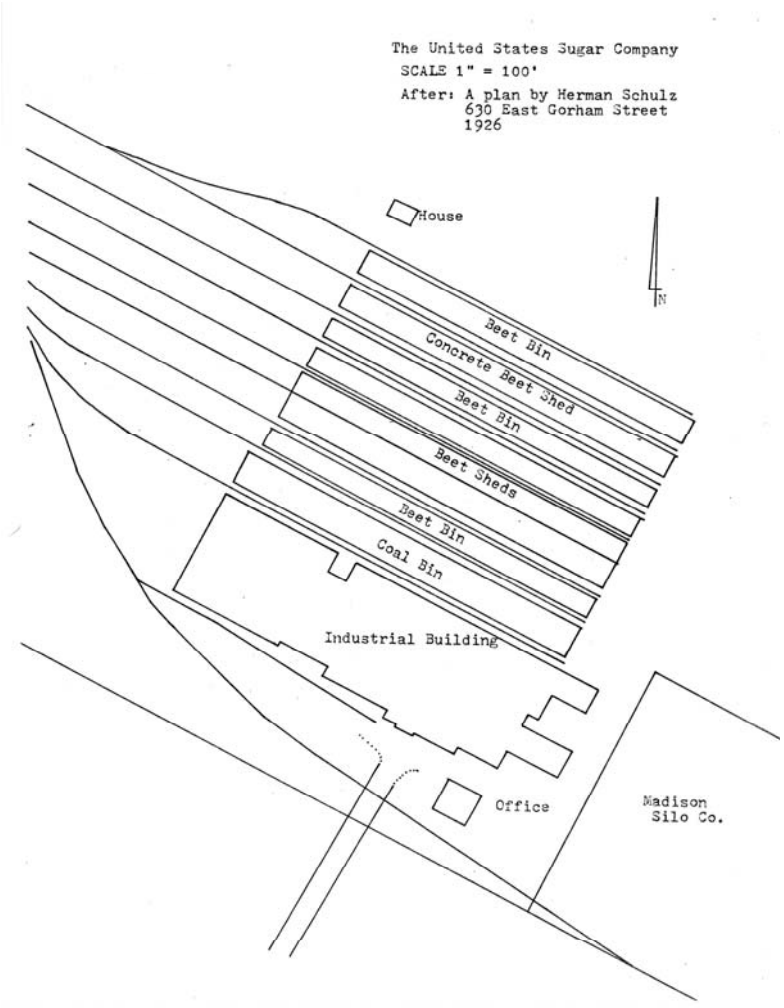


Figure 10: A line drawing of the building site, adapted from the site plan prepared for Herman Schulz, prepared by Thomas Lemon for inclusion in the 1980 draft National Register Nomination form and subsequently included in the 1991 National Register Nomination prepared by Arlen Kay.

In May 1929, James Russell Garver purchased the U.S. Sugar building, and set up a business there, the Wisconsin Sales and Storage Company, which offered general storage and a "complete line" of dairy and poultry feeds. [18] Conversion of the building to a feed mill began almost immediately, with the assistance of the local architectural firm of Law, Law, and Potter, who prepared structural and architectural plans for the conversion. Planning for the most extensive alteration, reduction of the front portion of the main building (Building 3) from four and five stories to a two-story high single-story space began in 1929 with designs for new roof trusses and framing (Figure 11), details of the masonry at the exterior wall and the connection between the new trusses and the new masonry (September 9, 1929, Figure 12.) These modifications established a new cornice line for the South elevation of Building 3 closely approximating the cornice lines of flanking Buildings 2 and 4. West of the center section of Building 3, the masonry at the cornice line and above the existing second story window heads was rebuilt. At the center and east sections of this elevation, where the existing windows were tall and narrow and extended well into the new cornice line, the window heads were redesigned to match those

[18] Susan O. Haswell and Arlan Kay, "National Register of Historic Places Registration Form for Garver Feed & Supply", (Madison, Wisconsin , 1991), p. 11.

of the east section, and the reconstructed masonry includes the window heads as well as masonry at the cornice line. These changes are still visible in the masonry of this elevation.

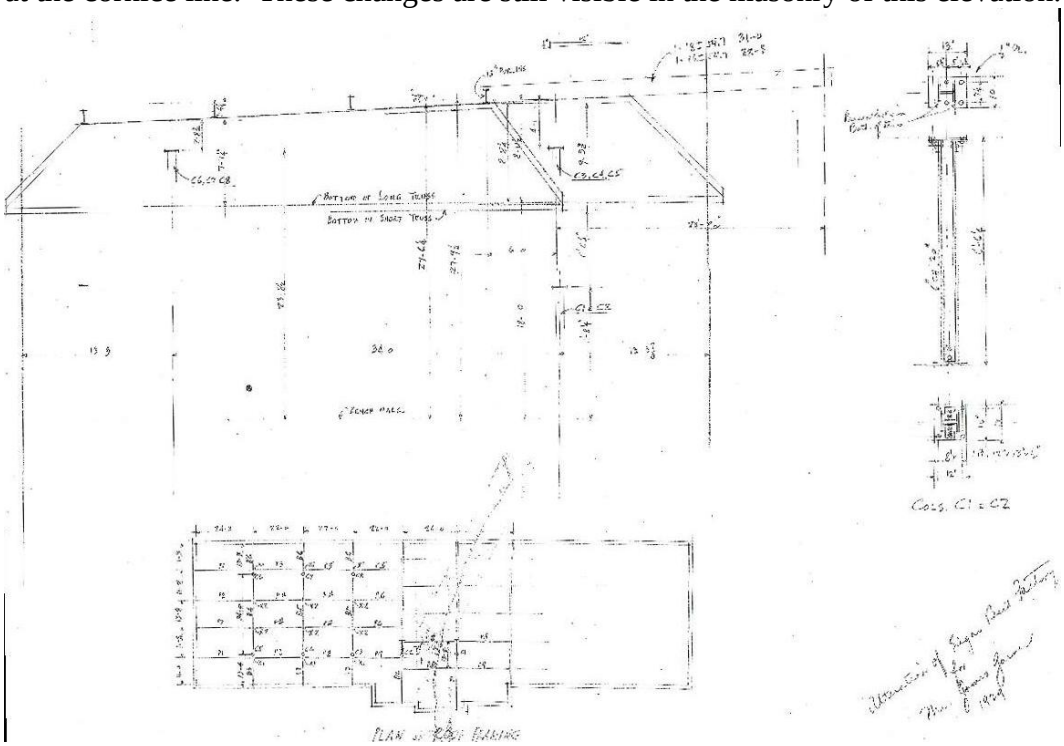


Figure 11: "Alteration of Sugar Beet Factory for Mr. James Garver 1929". Law, Law, and Potter, architects. Source: Potter Lawson, Inc. Madison, Wisconsin.

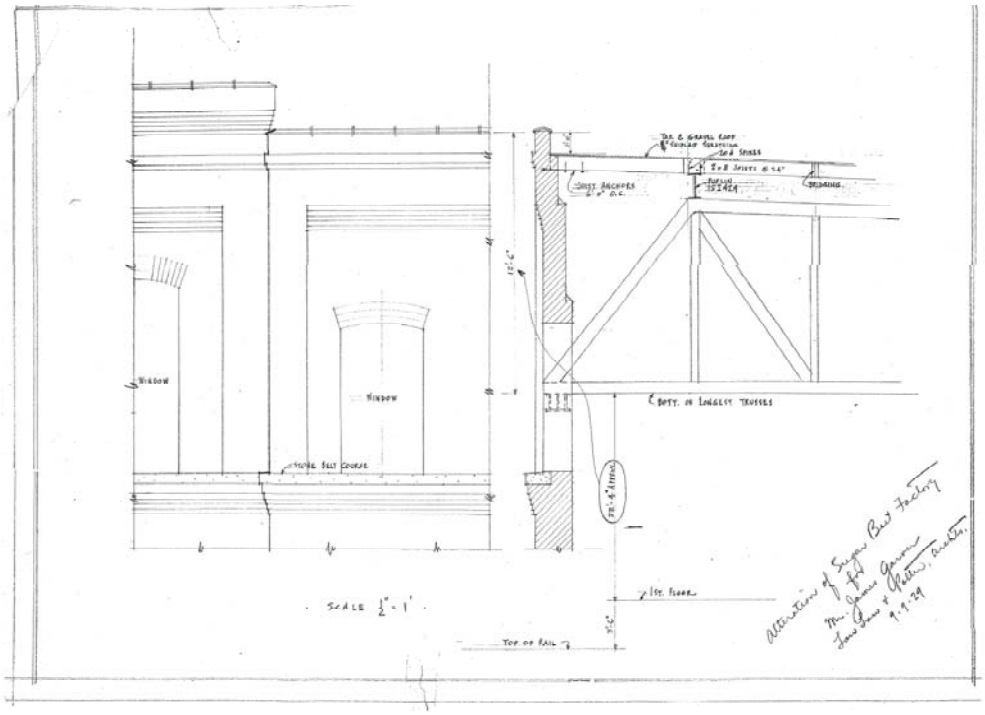


Figure 12: "Alteration of Sugar Beet Factory for Mr. James Garver 9-9-29". Law, Law, and Potter, architects. Source: Potter Lawson, Inc. Madison, Wisconsin.

Other modifications that were planned for the building in late 1929 included installation of new lighting and closing of numerous existing windows and one door with masonry infill (Figure 13), and closing of numerous roof openings (Figure 14).

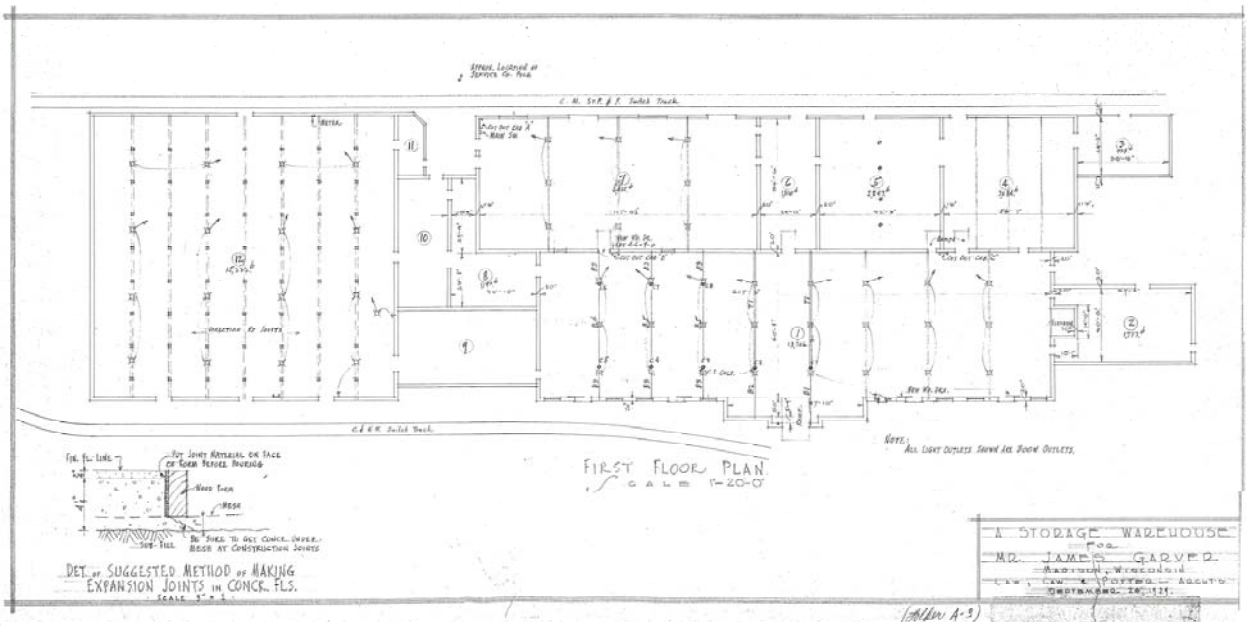


Figure 13: First Floor Plan. A Storage Warehouse for Mr. James Garver, Madison, Wisconsin. Law, Law and Potter, Architects, September 24, 1929. Source: Potter Lawson,

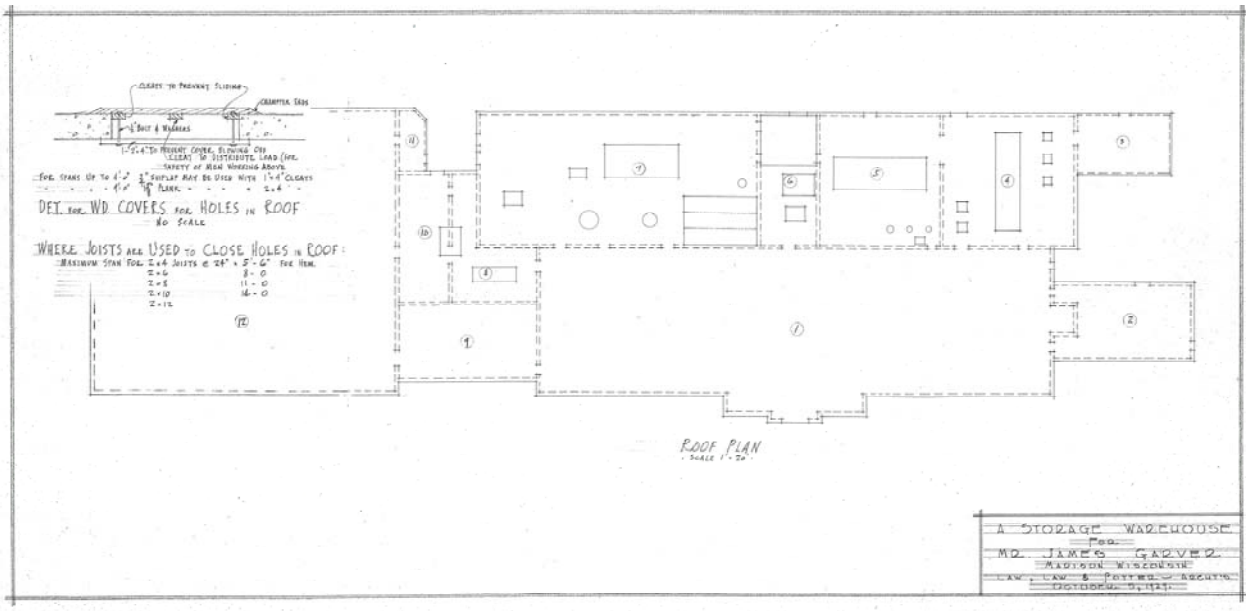


Figure 14: Roof Plan. A Storage Warehouse for Mr. James Garver, Madison, Wisconsin. Law, Law and Potter, Architects, October 5, 1929. Source: Potter Lawson, Inc. Madison, Wisconsin.

HISTORY

In December 1930 and January 1931, plans were developed to create a molasses cistern in the basement of Building 6, with concurrent designs for the installation of grain bins on upper floor levels of this building continuing to be developed through May of 1932. In March of 1931, plans were also developed for building-wide modifications to existing openings in fire walls separating the various buildings. (See Figure 15.) Structural modifications to the second floor level of the Milling Room (Building 7) were prepared in March 1933.

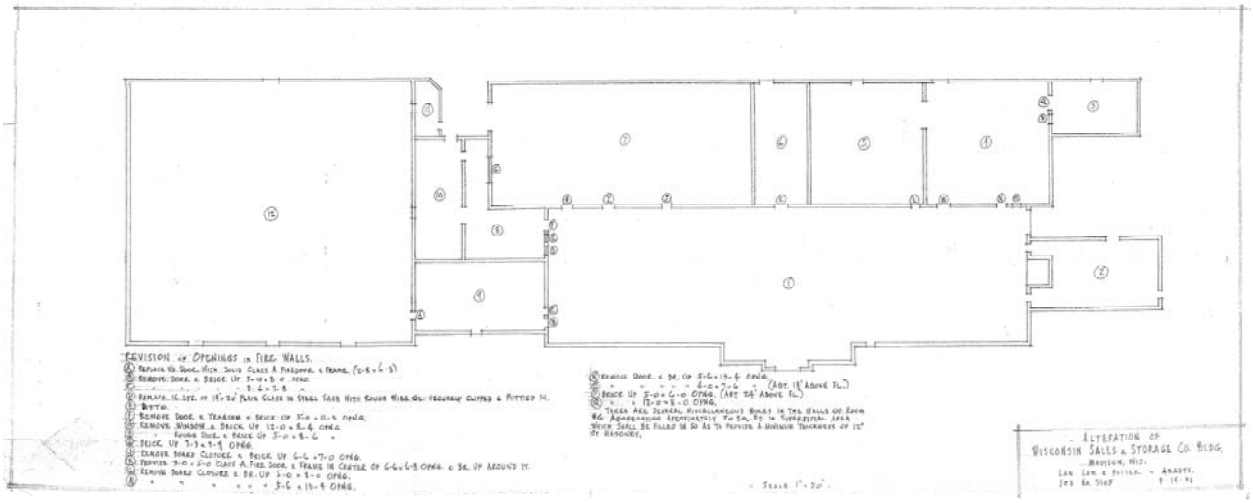


Figure 15: Alteration of Wisconsin Sales & Storage Building, Madison, Wisconsin. Law, Law and Potter, Architects, Job No. 3105 3-14-31. Source: Potter Lawson, Inc. Madison, Wisconsin.

The 1939 Sanborn Fire Insurance Map, which includes "paste-over" corrections utilizing the 1908 Sanborn Map as a base, illustrates the outline of a building very similar to that which was in place prior to the fire that destroyed Building 5 and portions of Building 2 in May, 2001. (See Figure 16.) Only the small infill building eventually constructed between Building 2 and Building 5 is not in evidence. Infill Building 10 has been constructed, and the coal yard and several beet sheds have been removed. A platform is still in place at the front (south) side of Building 1. The cisterns and wells south of the building have been removed.

The 1942 Sanborn Fire Insurance Map shows the fully completed building, with the infill building in place between Building 2 and Building 5. On site, one beet shed and the Garver Office Building remain. (See Figure 17.) The 1950 Sanborn Fire Insurance Map shows identical construction at the Feed Mill and Office buildings, while a small building has been constructed at the east end of the north elevation of the remaining beet shed. (See Figure 18.) The platform on the south side of Building 1 is still in place on both of these maps.

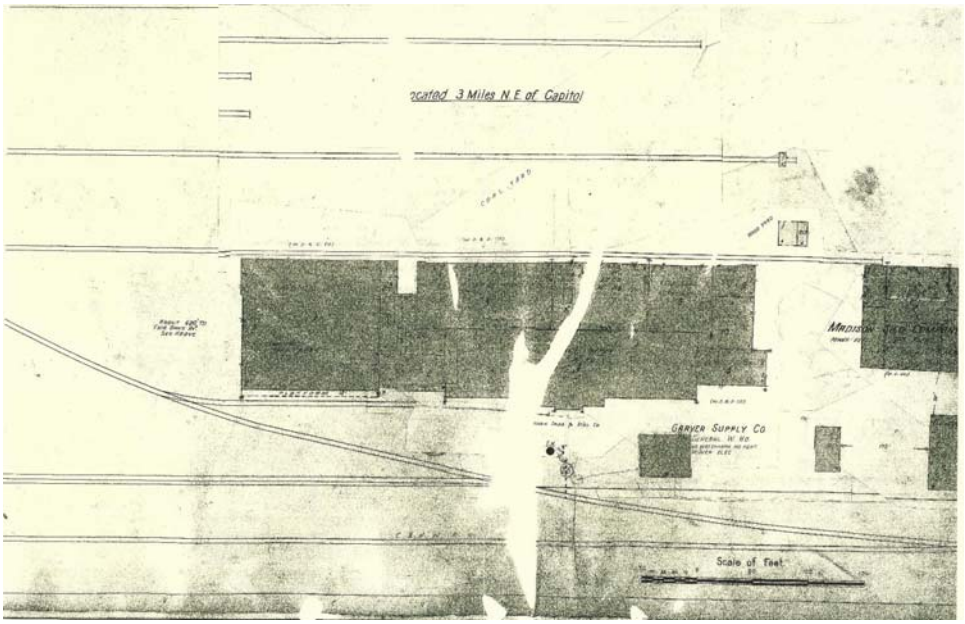


Figure 16: 1939 Sanborn Fire Insurance Map of Garver's Supply Co. and adjacent site. Source: State Historical Society of Wisconsin.

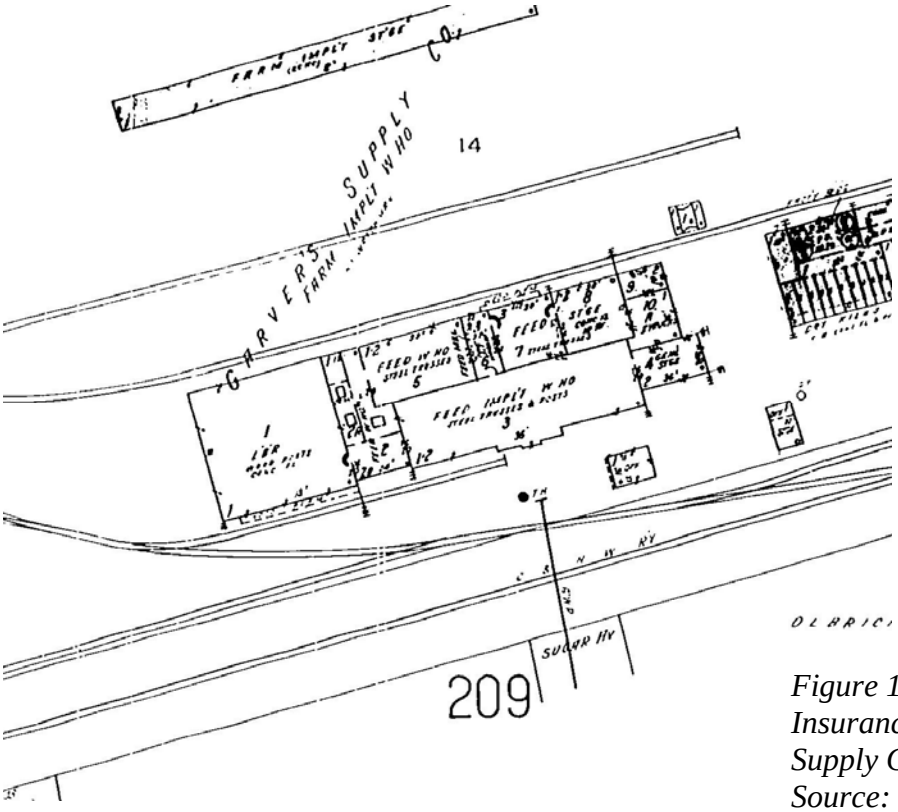


Figure 17: 1942 Sanborn Fire Insurance Map of the Garver's Supply Company and adjacent site. Source: The Sanborn Library, LLC. /Environmental Data Resources, Inc.

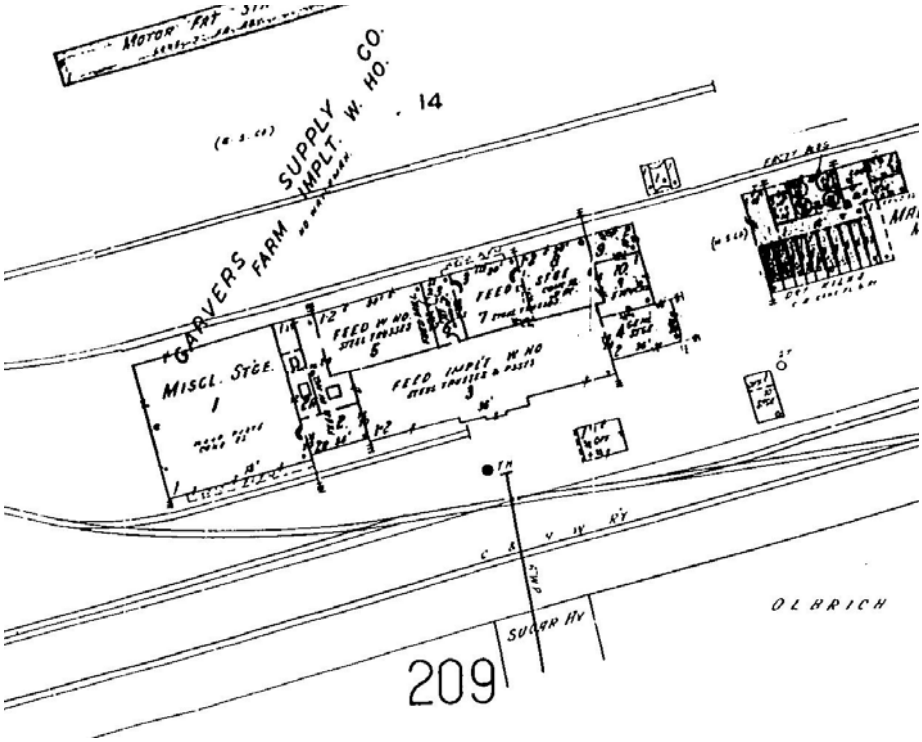


Figure 18: 1950 Sanborn Fire Insurance Map of the Garver's Supply Company and adjacent site. Source: The Sanborn Library, LLC. / Environmental Data Resources, Inc.

Numerous additional changes to the building took place over the course of its occupancy by Garver Supply Company, most visibly the installation of large equipment at the back and roof of the building. A series of aerial photographs taken sometime after 1942 and before 1960 illustrate some of the package plant installations and silos that were constructed. (See Figures 19 and 20.) In these photographs, the addition to the beet shed that is documented in the 1950 Sanborn Map is visible, but the small Prater Package Feed Plant, designed in 1959 and 1960 with part of the installation located on the roof of Building 7, is not visible at this roof. In a second series of aerial photographs, taken in 1960 or later, this Feed Plant is clearly visible. (See Figures 21, 22, and 23.)

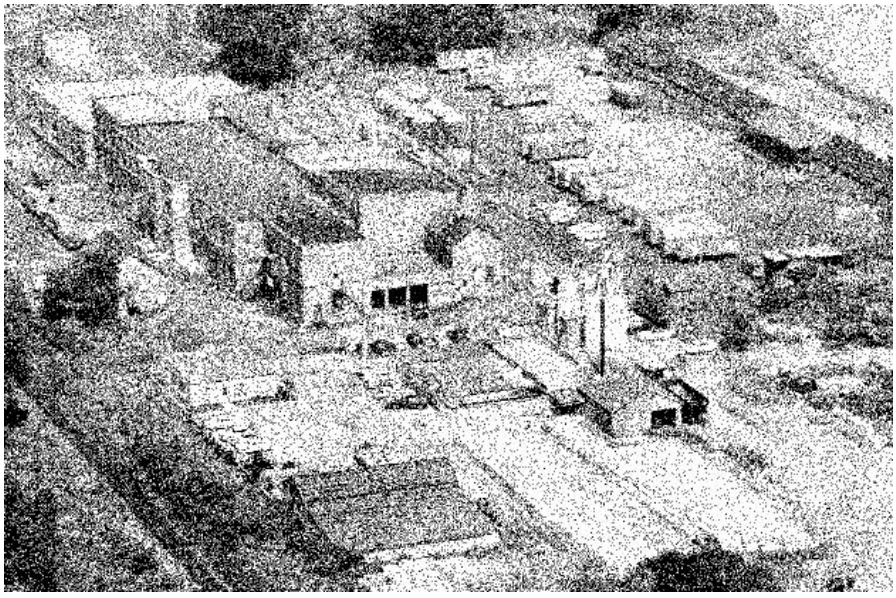


Figure 19: Detail of Photograph circa 1943 to 1960 showing the south and east sides of the building .

Figure 20: Detail from the same series of aerial photos, circa 1943 –1960, showing the north elevation of the building.

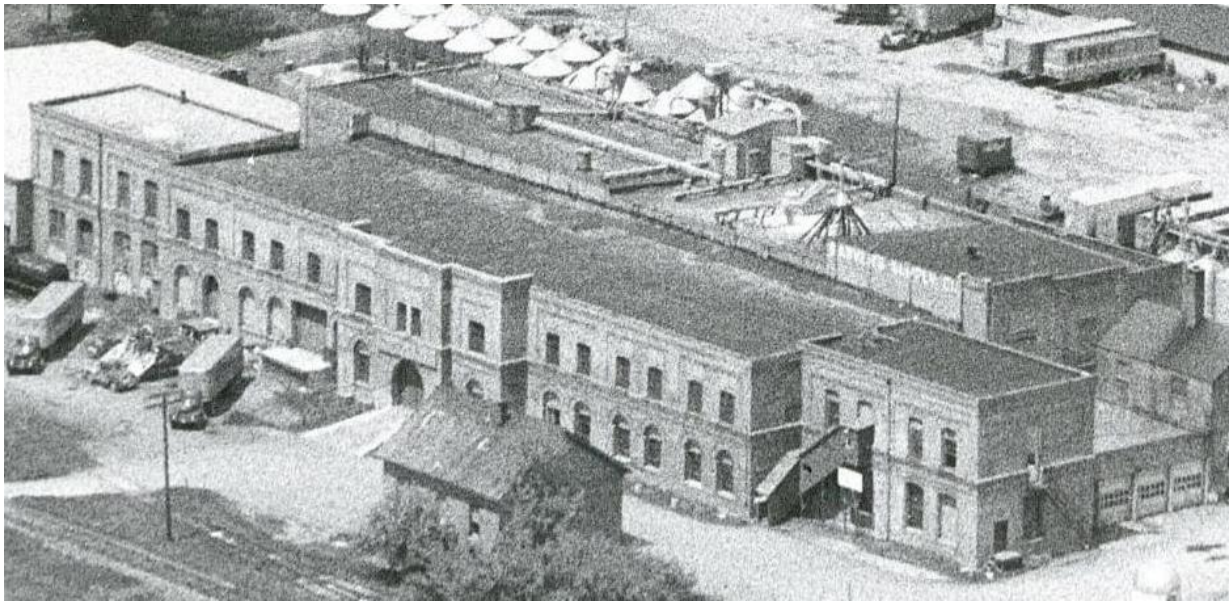


Figure 21: Detail of an undated aerial view circa the early 1960s showing roof transitions and the small Prater Package Feed Plant on the roof of Building 7. Also note the two exterior access stairs to the second floor of the east flanking building, the absence of the round tank to the west of the main entrance, and the presence of an new rectangular enclosure at that location.

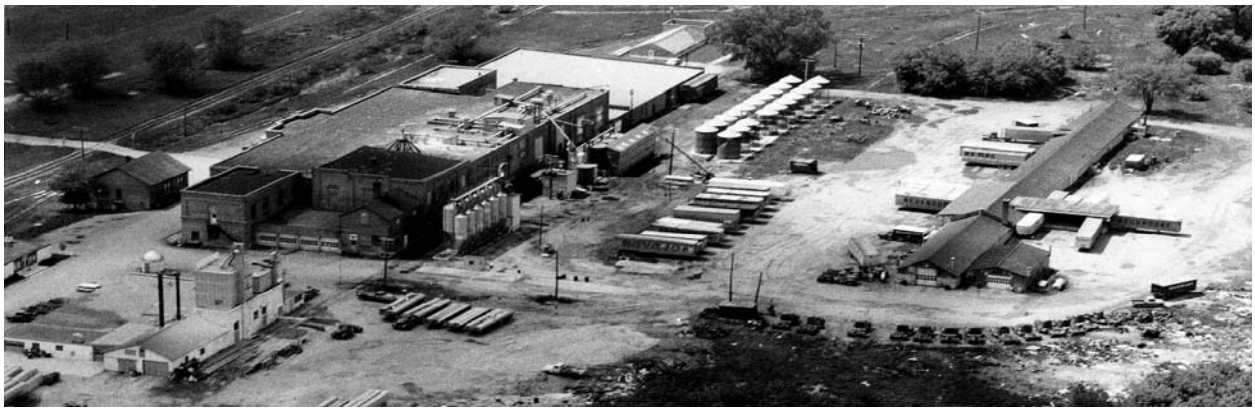


Figure 22: Detail of an undated aerial view circa the early 1960s showing roof transitions and the small Prater Package Feed Plant on the roof of Building 7. Also note the numerous tanks that have been installed at the rear of the building subsequent to the earlier photo series.

Figure 23: The rooftop equipment for the small Prater Package Feed Plant, part of a series of photos probably taken shortly after the equipment was installed.

Subsequently, a larger Prater Package Feed Plant, sometimes referenced as "the pelletizer" was constructed, with a substantial portion of the equipment extending through and above the roof of Building 8. Both the original feed plant and the new larger construction were photographed in the late 1980s or early 1990s, possibly in conjunction with the preparation of the 1991 National Register Nomination. (See Figures 24, 25, 26 and 27.) The "pelletizer" equipment has been removed within the last several years.

Figure 24: Front view of the"pelletizer".

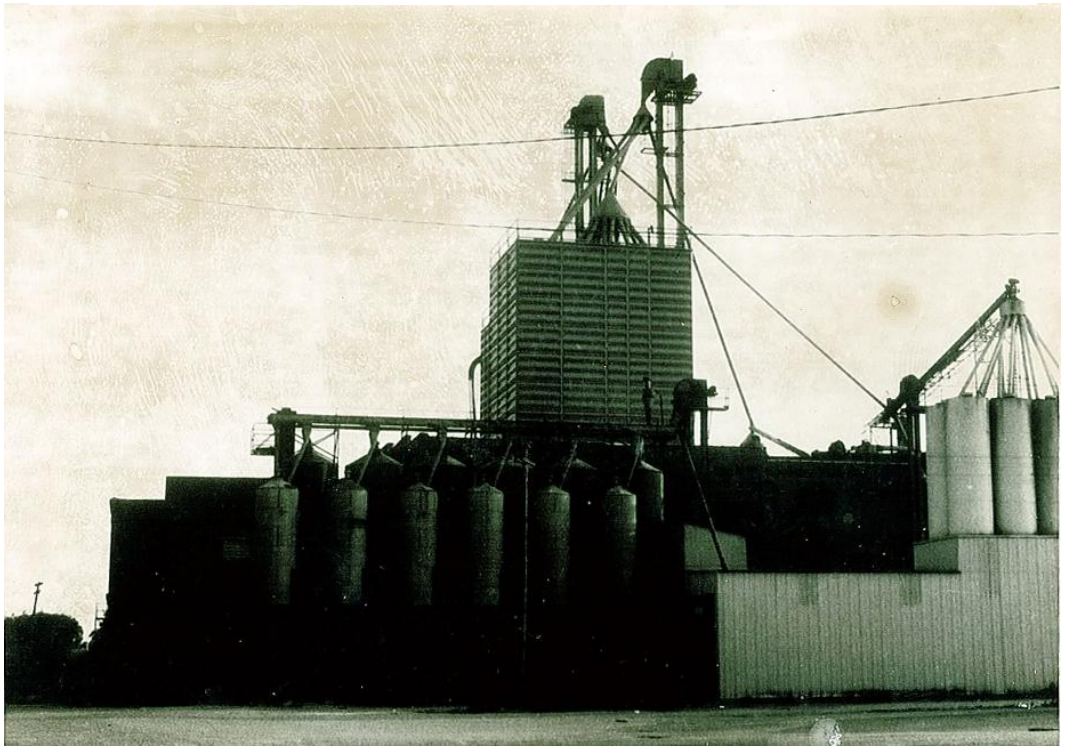


Figure 25: Rear view of the "pelletizer" at left and portions of the Package Feed Mill at right.

Figure 26: The supply tanks for the Package Feed Mill.

Figure 27: The supply tanks for the "pelletizer".

HISTORY

Following James Garver's death in 1973, Garver's Supply Co.was operated by employees for nearly two years under a trust agreement. On March 14, 1975, the Wisconsin State Journal reported that the business had been sold to Wayne Wendorf and James Hatch and would continue to be operated under a new name, the Garver Feed and Supply Company.[19] The Sanborn Fire Insurance Map for 1986 shows a building substantially the same as depicted in earlier maps, but with an infill addition between Building 2 and Building 5. The platform is still noted along the south wall of Building 1. (See Figure 28, below.) This platform is no longer extant.

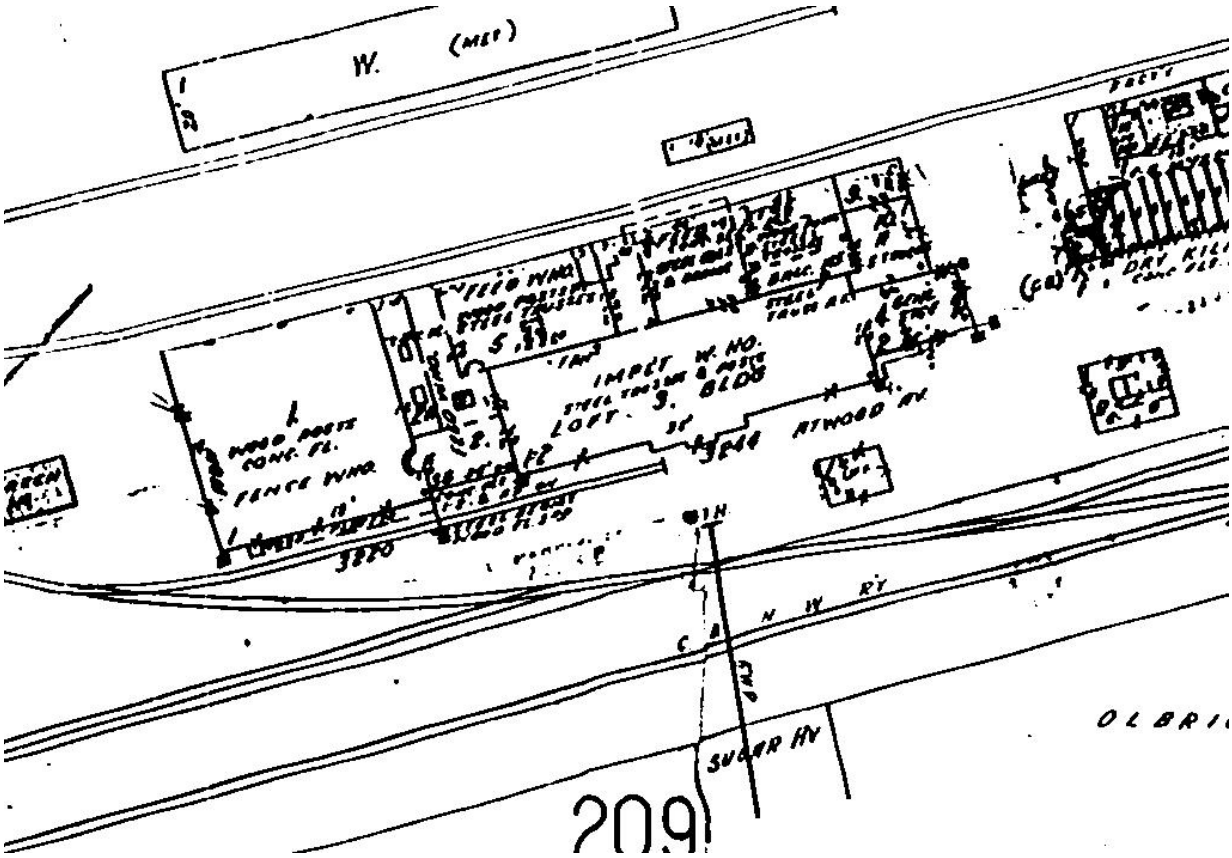


Figure 28: Detail of the 1950 Sanborn Fire Insurance Map of the Garver's Supply Company and adjacent site. Source: The Sanborn Library, LLC. / Environmental Data Resources, Inc.

Wendorf and Hatch operated Garver Feed and Supply Company at this facility until October 31, 1997, as reported in the Capital Times. [20] On November 11th of that year, the Wisconsin State Journal reported that the business and name of Garver Feed and Supply Company had been acquired by Cargill, and that that company had already begun to server Garver's customers. The

[19] "Pair Buys Garver Supply Co.," *(Madison) Wisconsin State Journal*, 14 March 1975, page unknown.
[20] "Era Comes to an end with Closing of Garver Feed," *(Madison Wisconsin) Capital Times*, 6 November 1997, page unknown.

article also noted that the physical assets and land of the feed mill had been recently acquired by Olbrich Botanical Gardens. [21]

In May, 2001, fire broke out in the Garver Feed Mill Building. [22] As a result of the damage from that fire, portions of Building 2a, the infill building between Building 2a and Building 5, and Building 5 have been demolished. The building is presently being utilized by the Botanical Gardens for storage while plans for adaptive reuse are developed.

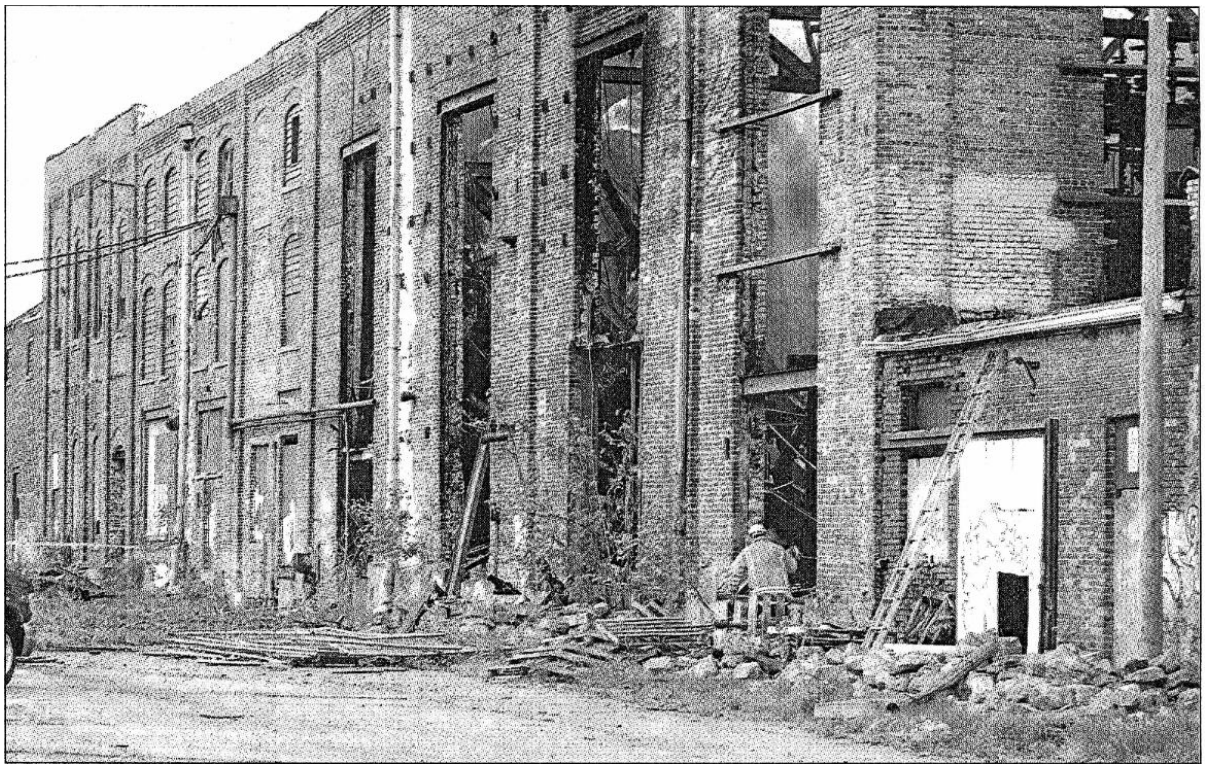


Figure 29, May, 2001 Photograph of the fire-damaged rear elevation of the main building. Note the uniform cornice line despite very different fenestration patterns at each section of the building. Photo credit: John Maniaci/Wisconsin State Journal.

[21] "Cargill buys Garver business and name," *(Madison) Wisconsin State Journal,* 19 November 1997, page unknown.

[22] "Feed mill building damaged,"*(Madison) Wisconsin State Journal,* 6 May 2001, page unknown.

STRUCTURAL CONDITION ASSESSMENT

STRUCTURAL CONDITION ASSESSMENT

In evaluating the current condition of the structure, HPZS reviewed the following:

1. Registration form for the National Register of Historic Places submitted July 22, 1991.

2. The condition report prepared by Robert B. Corey, P.E. or the firm of Arnold and O'Sheridan, Inc. (A & O) consulting engineers (dated January 18, 1996).

3. Existing drawings and photographs in the OBG archives.

4. Additional drawings obtained by HPZS from Potter Lawson, Inc. (the successor firm to Law Law & Potter).

We also performed an onsite visual evaluation on February 17, 2005. The onsite evaluation was performed with the assistance of a boom lift to access various roof areas.

Although the building is oriented on an angle to the primary compass points, for the purpose of the following discussion we have established the long axis of the building as the east/west direction, and the short axis as the north/south direction. The main entrance façade (facing the railroad tracks and recreational path) is the south façade. This is consistent with the directional orientation of previous reports. The respective spaces are referenced using two criteria. Names are based on the 1991 illustration contained in the National Register Nomination form, and number are based on those established on the Sanborn Maps beginning in 1942. Please refer to the Orientation Pan [Figure 30].

It would appear that very little has been done pursuant to the recommendations contained in the A & O report. A subsequent fire in 2001 destroyed the Large Bins and Loading Dock (#5) area on the north side of the building. There has been some subsequent remedial work performed in conjunction with the post-fire stabilization, including the installation of a metal parapet coping on a portion of the north face of the Tall 1 Story Warehouse (#3).

The general condition of the remaining portions of the building do not appear to have suffered extraordinary accelerated deterioration in the intervening nine years since the A & O report. To be sure, there is evidence of increased damage, most significantly at the roofs and parapets; however, the basic shell structure appears to be in a condition similar to that observed by A & O in 1996, which is a credit to the quality and workmanship of the original construction.

The following descriptions apply uniformly to the remaining aggregate building unless indicated otherwise. The existing roof decks are in poor and unsafe condition. Portions of the roof are open, allowing water to infiltrate to the interior spaces. (The three pit areas contain significant amounts of standing water.) Several roof areas were observed that would possibly fail under a significant snow load. Although the structural elements

of the roof assembly were not closely inspected, and they appeared to be generally stable, one would expect that the continued and persistent water infiltration has caused some rotting of the wood rafters and beams, particularly where moisture can be trapped between the structural member and the wood deck.

Notwithstanding their significant width, the masonry parapets are in uniformly poor and potentially unstable condition. Moisture has penetrated deep into the assembly from both sides through open mortar joints and openings in the clay tile coping joints. The subsequent freeze/thaw cycles have compromised the bond between the mortar and the brick. Evidence of related brick movement that has led to an imminently hazardous condition was observed over the main entry and was brought to the attention of Ron Linsicum. [See Figure 31] This condition was subsequently mitigated; however, other areas of brick movement were observed, particularly at the top of the north wall of the boiler building. [See Figure 32]

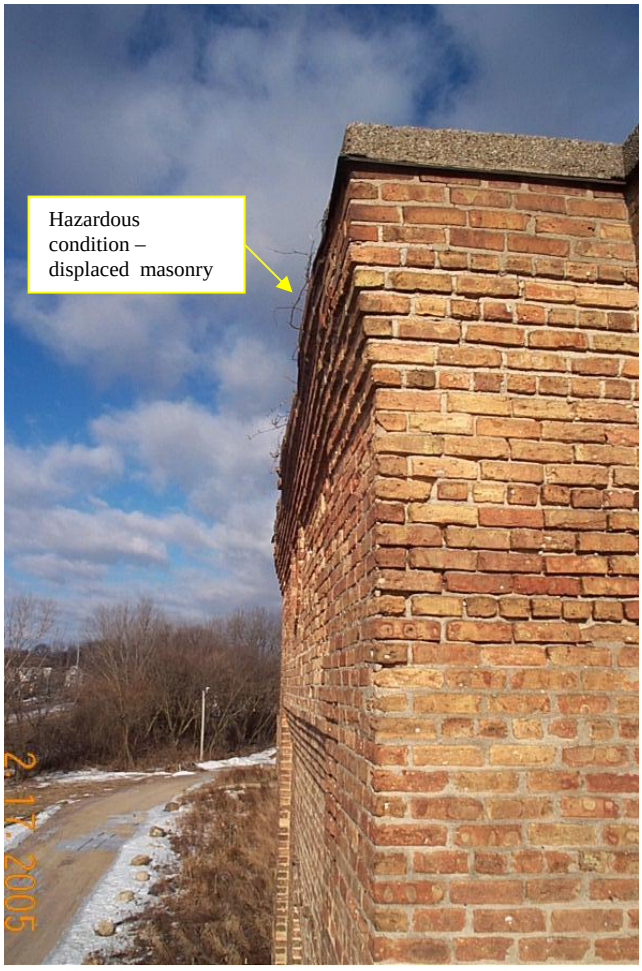


Figure 31, displaced masonry at parapet.

Figure 32, displaced masonry at boiler building

The masonry walls below the parapets require complete grinding and tuckpointing on the exterior, and limited repointing of the interior mortar joints. For the most part the walls appear to be stable with some exceptions, particularly at downspout locations where the outer wythe of brick is significantly deteriorated and in need of replacement. The concrete string course below the second floor windows has numerous cracks that require repair.

The window openings have been boarded up and it appears that most, if not all, of the original windows have been removed. The existing closure assemblies are not completely weathertight and continue to allow some water infiltration into the building.

Although the foundations are for the most part not visible, the masonry walls show no significant evidence or cracking or displacement due to uneven settlement. Based on the available structural drawings, the building was designed to support industrial floor loads of 280 pounds per square foot.

The interior structural elements of the building are in generally fair condition. As is typical of agri-industrial buildings of this vintage, the interior spaces underwent multiple iterations of change to suit the ever-changing needs of the industry in the Tall 1 Story Warehouse (#3), a new steel structural system was installed when the building height was reduced from five to two stories. Extant steel framing remains in the Milling Machinery Room (#7) and the Peletizer Room (#8). In the 1 Story Warehouse (#1) the original wood post and beam system evident in the early (1930) drawings has been replaced with steel pipe columns and wide flange beams to support the wood roof

framing. The structural steel components are generally in good condition with only superficial rust.

The spaces labeled 2 Story w/Mezz. (#24), 2-Story Artist Lofts (#4), and Vaults Below (#6) contain steel beam and reinforced concrete floor and roof decks. The concrete slabs have been penetrated at various locations to allow for the retrofit insertion of industrial equipment. The steel is in generally good condition, and the concrete slabs are in fair condition with unfinished edges at the penetrations and localized areas of exposed reinforcing.

Miscellaneous non-structural interior partitions were installed as needed at various times and in various areas of the building. These range from wood boards to concrete masonry units, and their respective condition ranges from good to fair.

As mentioned previously, there are three pits located in the building. They contain water and were not closely observed; however, there does not appear to be any problems directly related to this condition.

The building's mechanical infrastructure (plumbing, heating and electrical systems) have been adapted and modified on numerous occasions to meet the changing and ongoing requirements of the industrial activities. It is not anticipated that any portion of these elements will be reused in any of the adaptive reuse scenarios.

Very little equipment remains in the building. The elevator that was located at the east end of the space (#3) has been removed. It is interesting to note that the grain bins, hopper and cup conveyor are still reasonably intact in Space #6, [See Figure 33] and an interesting barrel or cylinder conveying system remains in Space #24.

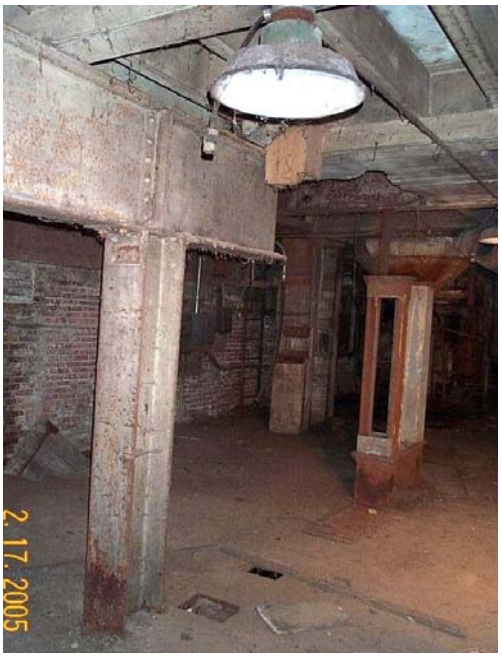


Figure 33, original cup conveyor equipment

REHABILITATION/ ADAPTIVE REUSE PLAN

REHABILITATION / ADAPTIVE REUSE PLAN

The first step in the adaptive reuse plan is to stabilize and rehabilitate the existing structure in a manner sensitive to the historic nature and importance of the building, and recognizing those elements that may or will be incorporated into the proposed new use of the building. The second step is to assess the impact of three different adaptive reuse scenarios established by the OBG. These are:

Scenario #1: Full utilization by the OBG for storage, maintenance and horticulture operations.

Scenario #2: Partial utilization by the OBG for storage, maintenance and horticulture operations, and the remaining space dedicated to some "broadly defined public space" or as an arts incubator facility.

Scenario #3: Full utilization for private office and retail and rental space at market rates.

Basic Rehabilitation Plan

The principal initial focus of the rehabilitation plan is to identify the significant elements of the building and immediately stabilize those elements for future rehabilitation and incorporation into one of the three adaptive reuse scenarios.

It will become evident later in the description of the adaptive reuses that the building area and volume is far in excess of the specific needs of the OBG; therefore, as a first step in the rehabilitation process it is recommended that, if permissible, the two-story boiler building, and the one-story garage located in the northeast corner of the building, be demolished. Although these structures appear in the Sanborn Map of 1942, and the boiler building dates back to the period of significance established in the National Register Nomination form, they are not part of the original footprint of the building. The boiler building in particular is significantly deteriorated and contains hazardous masonry conditions at the top of the north and south walls. The masonry from these structures should be salvaged and reused for repairing the exterior masonry of the remaining building.

The highest priority of the rehabilitation plan is to provide a weathertight enclosure for the building interior. Utilizing a "top down" approach, this entails the following steps:

1. ROOF REPLACEMENT AND PARAPET RECONSTRUCTION

    a) Remove 100% of the existing roofing and related insulation materials.
    b) Remove 100% of the existing roof deck material.
    c) Repair and replace existing or missing roof framing members as required. (Our preliminary evaluation indicates that this work is limited to rafters, and that the principal beams and purlins are structurally sound.)

d) Install new plywood roof deck material.
e) Dismantle and rebuild 100% of the existing parapets, maintaining the current corbelled profile of the masonry.
f) Reinstall original clay tile coping on top of the newly reconstructed parapets. Where sufficient clay tile coping material is not available, install a temporary aluminum coping.
g) Install a temporary single-ply roof membrane over the entire structure.
h) Provide temporary aluminum scuppers and downspouts for water relief and protection of the wall surfaces below.

2. WINDOW AND DOOR OPENING PROTECTION

a) Remove non-weathertight window and door closure assemblies and replace with new weathertight assemblies that will provide a minimum five years of useful life.

3. MASONRY

a) Grind out and repoint 100% of the exterior mortar joints (except as indicated in Item b) below).
b) Replace selected and limited areas of deteriorated masonry.
c) Grind out all cracks in the concrete string course below the second floor windows and install sealant.
d) Apply breathable masonry coating to the concrete string course below the second floor windows.
e) Thoroughly wash down all exterior masonry.

4. INTERIOR

a) Remove water from all pit areas. (Please note that the water should be tested prior to removal to determine if it is contaminated by pesticides or industrial waste, and properly removed and disposed of.)
b) Once the shell of the structure is weathertight, begin the process of slowly drying out the interior. (Please note that as the interior surfaces of the masonry begin to dry, moisture will be drawn from the interior of the wall assembly, and efflorescence may form on the interior surfaces. If this occurs, it should be a temporary condition.)

Item #1 is of the highest priority for safety reasons and to protect the building interior. This work should be completed as soon as possible. If circumstances do not permit the roof and parapet work to be performed within the next year, a close-up inspection of the perimeter parapet should be performed every three to four months to assess the integrity of the masonry and remove any hazardous conditions that may exist. The remaining tasks can be addressed as the planning process progresses, with the understanding that

the conditions will continue to deteriorate and the related repair costs will continue to rise.

Adaptive Reuse – Scenario #1

As mentioned previously, the program established by the OBG for their adaptive reuse under Scenario #1 requires significantly less area that the building provides. [See Appendix "A"] The 23,200 square feet required by the OBG represents only 47% of the footprint of the building, and this does not include the additional space provided by any existing upper levels. Any proposed space distribution plan under this scenario will leave several areas unassigned.

We have provided two possible options for this scenario. Option "A" utilizes spaces #1, #2a, #2b, #6, #7 and #8 for OBG activities. [See Option 1A Plan] The remaining spaces #3 and #4 remain unassigned. These may be considered for future expansion of OBG activities.

Option "B" utilizes spaces #3, #4, #6, #7 and #8 for OBG activities, and spaces #1, #2a and #2b remain unassigned. [See Option 1B Plan] Both options would provide for paved employee parking.

The advantage of Option "A" is that it makes use of the large one story wing at the west end of the building. This space will be easily accessible to machinery and equipment, and will be much more cost effective for providing heat to those areas requiring it. The disadvantage is that the OBG activities are separated into two discrete clusters.

The advantage of Option "B" is that it consolidates the OBG activities; however, it necessitates the use of a large volume space, and the required related infrastructural improvements, with no significant benefit to the building or to the OBG.

Adaptive Reuse – Scenario #2

Since the OBG program for Scenario #1 does not fully occupy the building area, we maintained the same program requirements for Scenario #2, rather than reducing them by 7,600 square feet as indicated in the Space Need Program.

Two options have been recommended for Scenario #2, and both are an adaptation of Scenario #1A. In Option "A", the Tall 1 Story Warehouse space (#3) would be treated as a large community space capable of being subdivided into smaller rooms. Windows would be reinstalled on the south façade with a long east-west skylight on the roof to provide a naturally lit interior. (It is anticipated that the steel framing that currently exists in this space would be replaced.) The interior surfaces of the masonry walls would be cleaned, tuckpointed and remain exposed. An elevator would be installed in the shaft at the west end where in elevator had been previously located.

The 2 Story Artists Lofts (#4) would provide support for the community space, the lower level containing public restrooms and a serving kitchen for catering use, and the upper level utilized by the community room management offices, and perhaps a small conference room.

In Option "B", the warehouse space (#3) would be reconfigured to contain three levels of studio space in varying sizes for use and display by artists. Window opening in the south façade would remain closed, but would be finished with decorative panels that suggest the artistic functions within. A large north-south skylit atrium would be the entry centerpiece and contain vertical circulation. Similar to Option "A", the interior masonry would remain exposed and an elevator located in the exiting shaft.

The lower level of the Artists Lofts (#4) would contain public restrooms and the facility's administrative offices. The upper level is ideal as a gallery and gift shop for the display and sale of items created by the artists.

In both options, the agricultural equipment that exists in Space #6 provides an opportunity to commemorate the history of the building and provide an educational resource. The lower level of this area could be turned into a small museum space for self-guided tours. The cup conveyor and hoppers can be partially restored and interpretive display panels installed that describe the history of the property and, more broadly, the beet and grain industries in general. Additional investigation is required to determine whether the upper level grain bins can and should be made accessible to the public.

The required off-street parking for the community space, subject to the approval of the zoning administrator, could be as high as 200 spaces, requiring approximately 1.5 acres of landscaped parking. This does not include any parking required for OBG staff members utilizing this facility. The additional parking could be accommodated by off-peak parking demand that is different from Olbrich Botanical Garden use.

Adaptive Reuse – Scenario #3

In this scenario the building would be rehabilitated, restored and remodeled to accommodate a combined retail and office rental use. [See Scenario #3 Plan] The interior surfaces of the masonry walls would be cleaned and repointed. Original window openings would be restored and new windows installed at the perimeter walls. Existing intermediate floor structures would be selectively removed and replaced.

A contiguous second level inserted into Spaces #3, #6, #7 and #8 would provide additional retail/office space and the required circulation. This new circulation level is detached from the north wall of Space #1 to permit light from the roof mounted skylight to wash down the full height of the interior masonry and penetrate to the ground floor level.

Two principal entries have been implemented, one through the south facing main portal, and the other through a newly constructed entry vestibule at the northwest corner of Space #1. The former entry is related directly to the botanic garden and a proposed pedestrian crossing over the railroad tracks and recreational path. The latter provides access from the parking area that will be located north of the building.

A loading dock is inserted on the west end of the building adjacent to Space #8, and an elevator is provided in the existing elevator shaft.

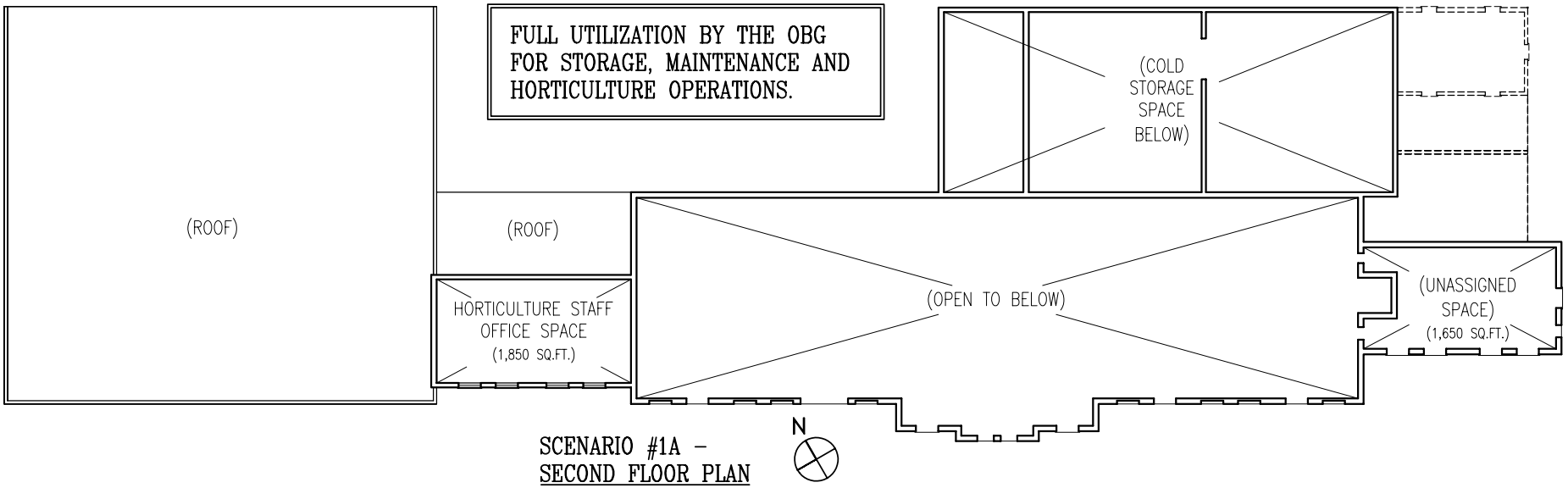
Two possible options for utilization of Space #1 are as a community space or as a food court, each with self-contained support facilities. A strategically placed skylight over a portion of this space could create an attractive "winter garden" effect.

The estimated minimum parking requirement for this proposed use is substantially increased, requiring approximately 3 acres of landscaped parking area.

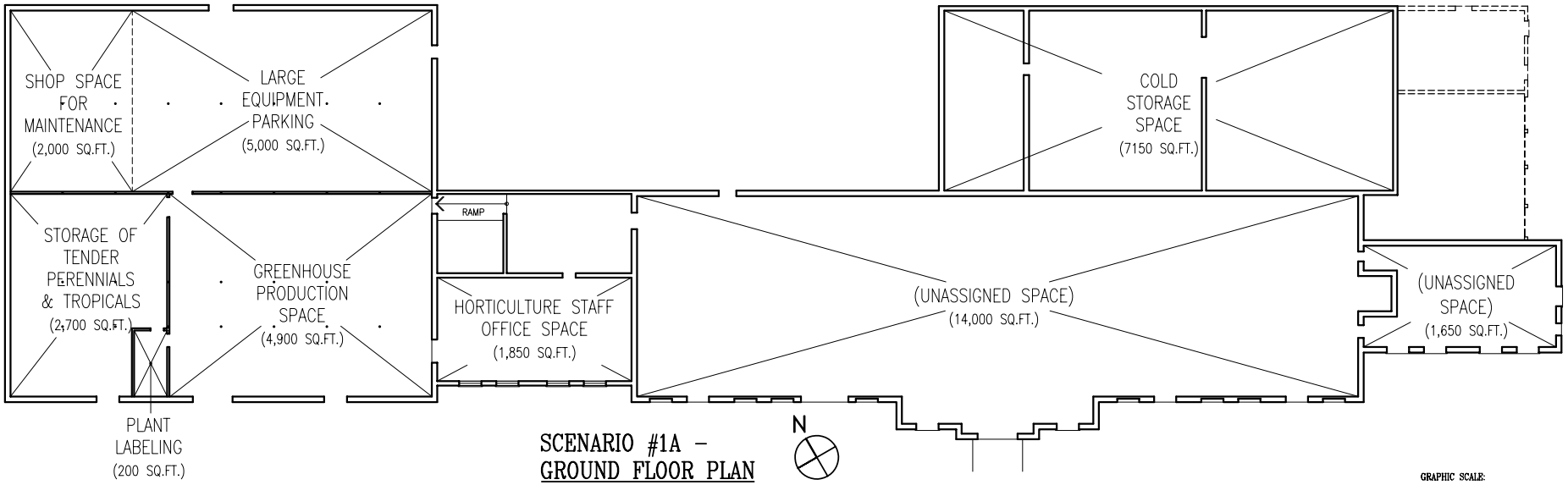
LEED Initiatives

The various scenarios for the adaptive reuse of the Garver Feed Mill building provide tremendous opportunities to incorporate exciting and environmentally responsible design features. Some of these include active and passive energy considerations and utilizing a material palette of environmentally friendly renewable resources. Specific recommendations can be made once a specific use for the building has been selected and the design is developed further.

One interesting possibility suggests itself given the relationship of the Olbrich Botanical Gardens to the Garver Feed Mill. There is a unique opportunity to implement a "green roof" over a portion of the building, creating a roof garden that will increase the energy efficiency of the building and promote the mission of the OBG. This concept can work with any one of the adaptive reuse scenarios.



SCENARIO #1A –
SECOND FLOOR PLAN



SCENARIO #1A –
GROUND FLOOR PLAN

GRAPHIC SCALE:
0' 10' 20' 30' 40'

HASBROUCK | PETERSON | ZIMOCH | SIRIRATTUMRONG
Architects Engineers Landscape
104 South Michigan Suite 250, Chicago, Illinois 60603 (312)553-9600

GARVER FEED MILL
ADAPTIVE REUSE FOR
THE OLBRICH BOTANICAL GARDENS
MADISON, WISCONSIN

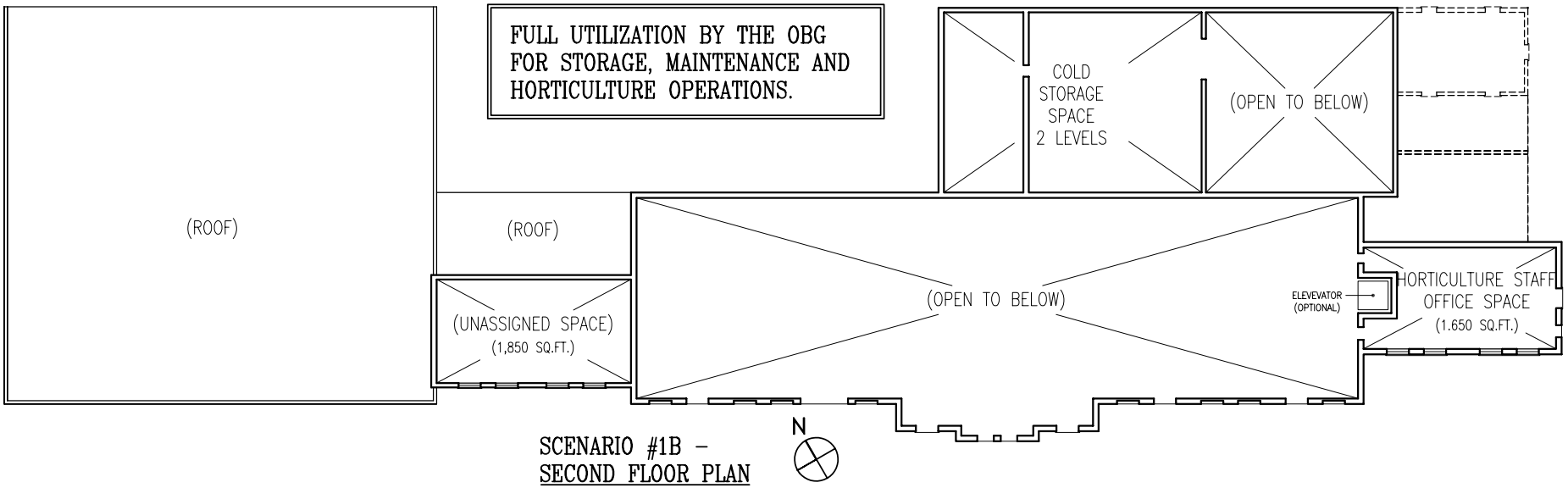
No.	Date	Remarks
		Revisions

Sheet Title:
SCENARIO #1A –
GROUND AND SECOND
FLOOR PLANS

Drawn by: SO Date 4.21.05

SCENARIO #1A

1113-01



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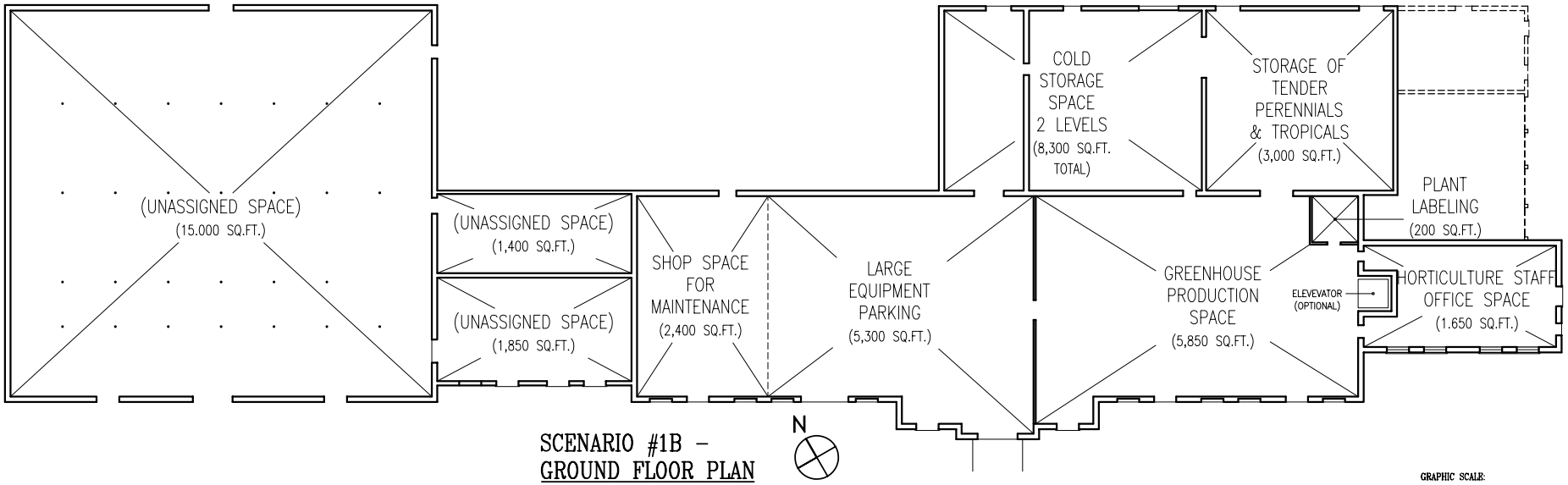
SECOND FLOOR PLAN



SCENARIO #1B –
GROUND FLOOR PLAN

GRAPHIC SCALE:
0' 10' 20' 30' 40'

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104 South Michigan Suite 250, Chicago, Illinois 60603 (312)553-9600

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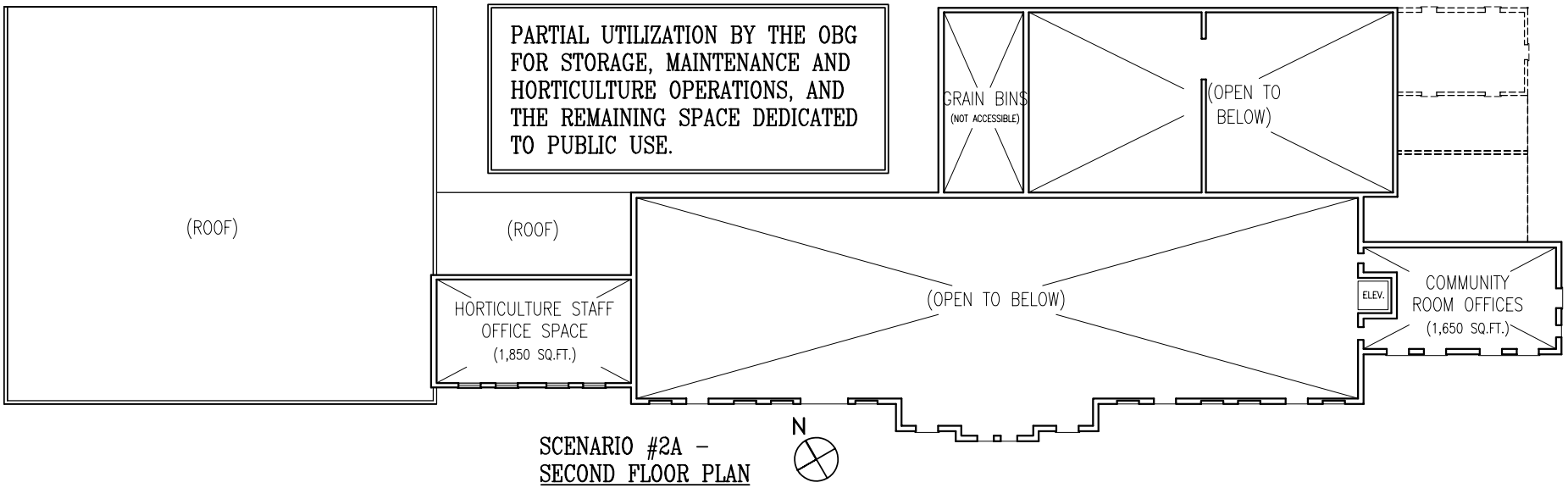
No.	Date	Remarks
		Revisions

Sheet Title:
SCENARIO #1B –
GROUND AND SECOND
FLOOR PLANS

Drawn by: SO Date: 4.21.05

SCENARIO #1B

1113-01



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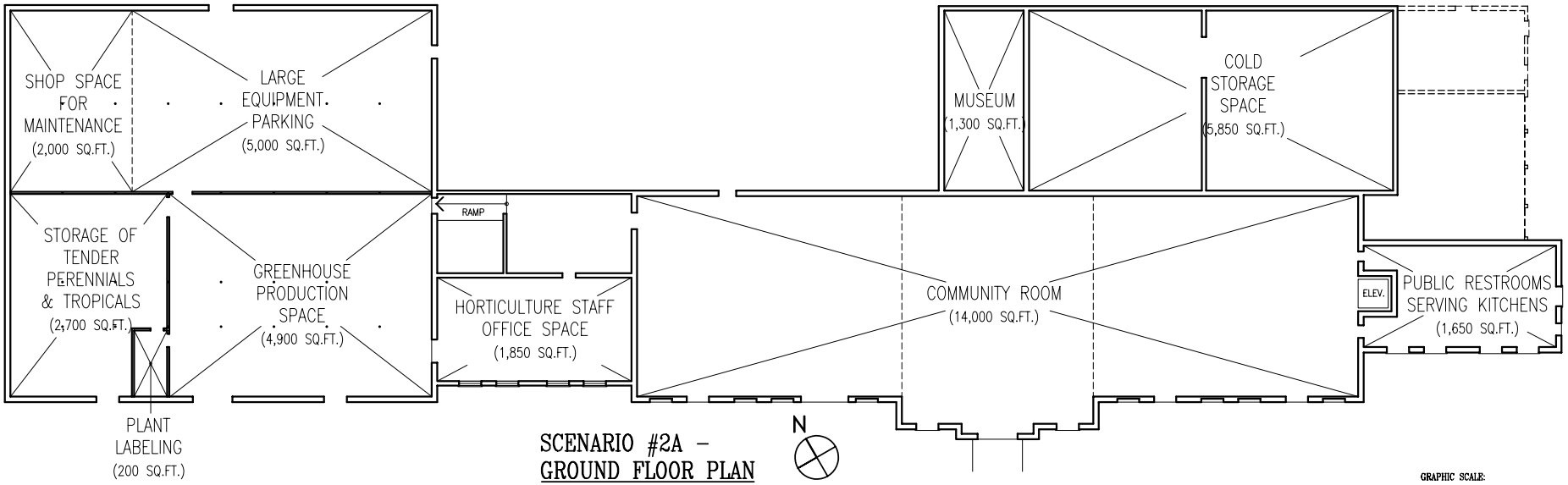
SECOND FLOOR PLAN



SCENARIO #2A –
GROUND FLOOR PLAN

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No.	Date	Remarks
		Revisions

Sheet Title:
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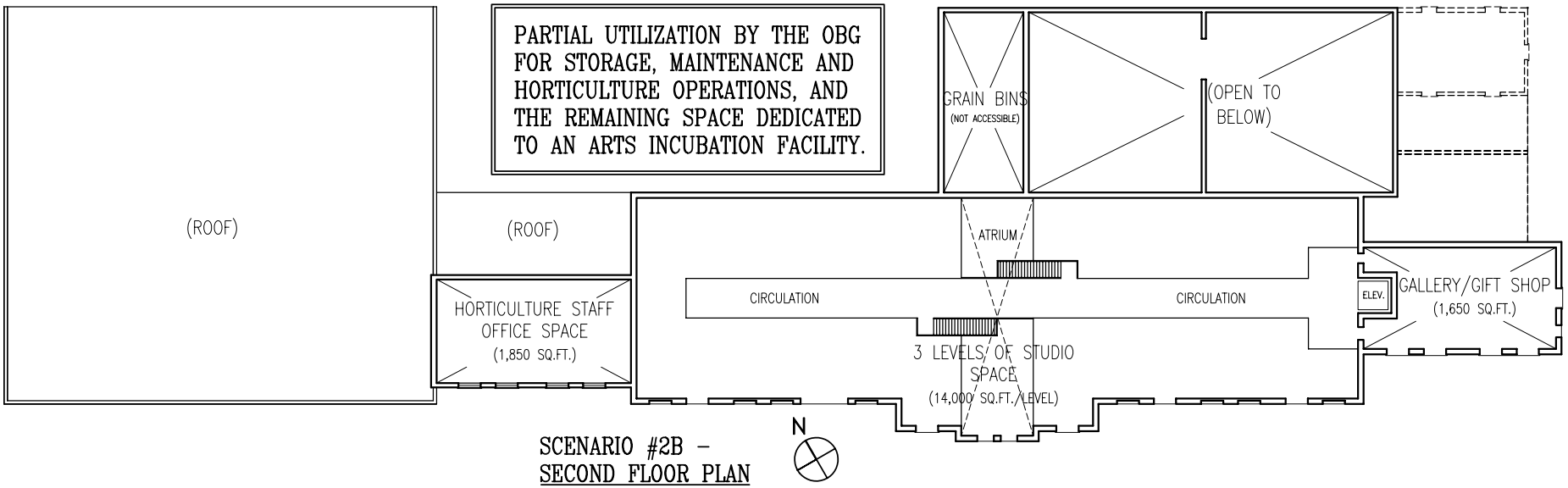
GROUND AND SECOND
FLOOR PLANS

Drawn by: SO Date: 4.21.05

SCENARIO #2A

1113-01



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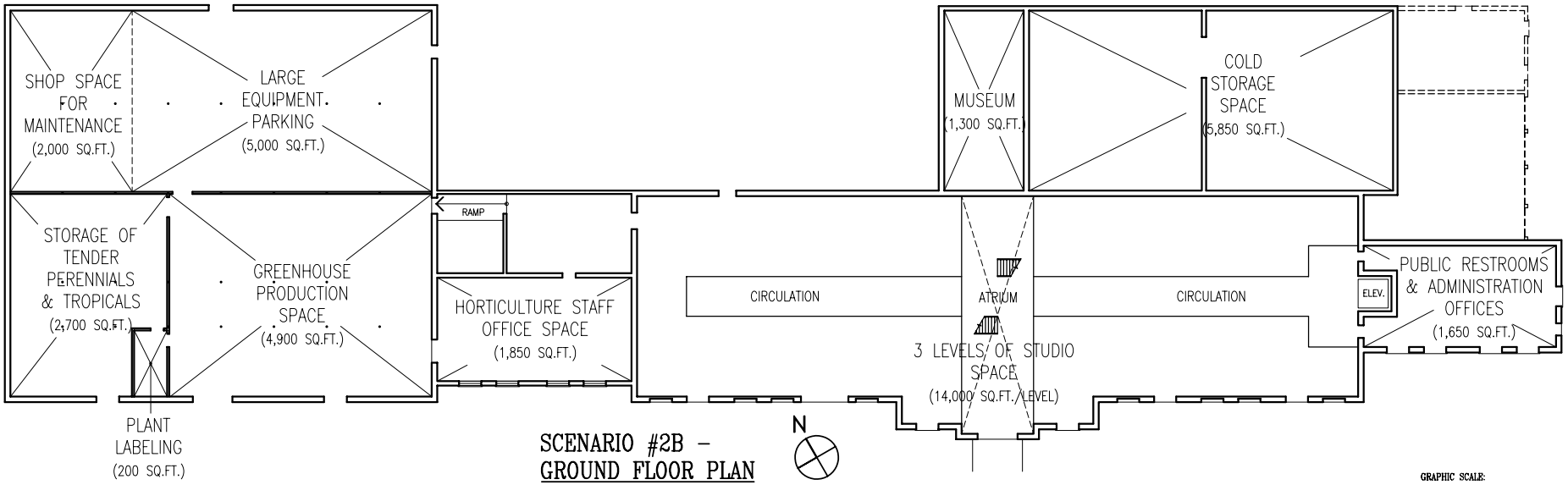
SECOND FLOOR PLAN



SCENARIO #2B –
GROUND FLOOR PLAN

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Architects Engineers Landscape Architects
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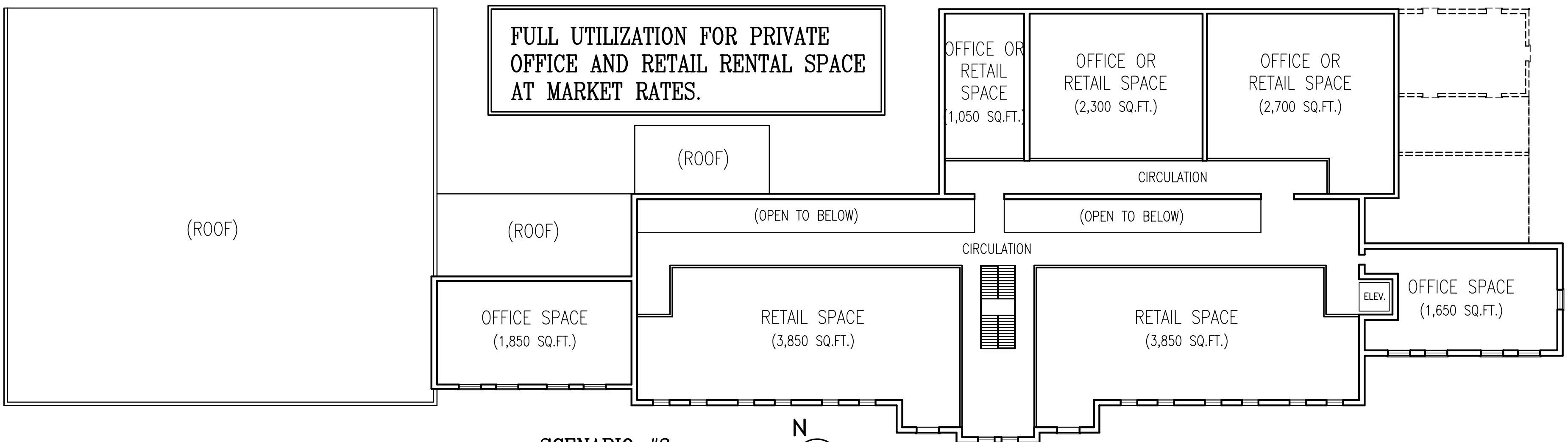
No.	Date	Remarks
		Revisions

Sheet Title:
SCENARIO #2B – GROUND AND SECOND FLOOR PLANS

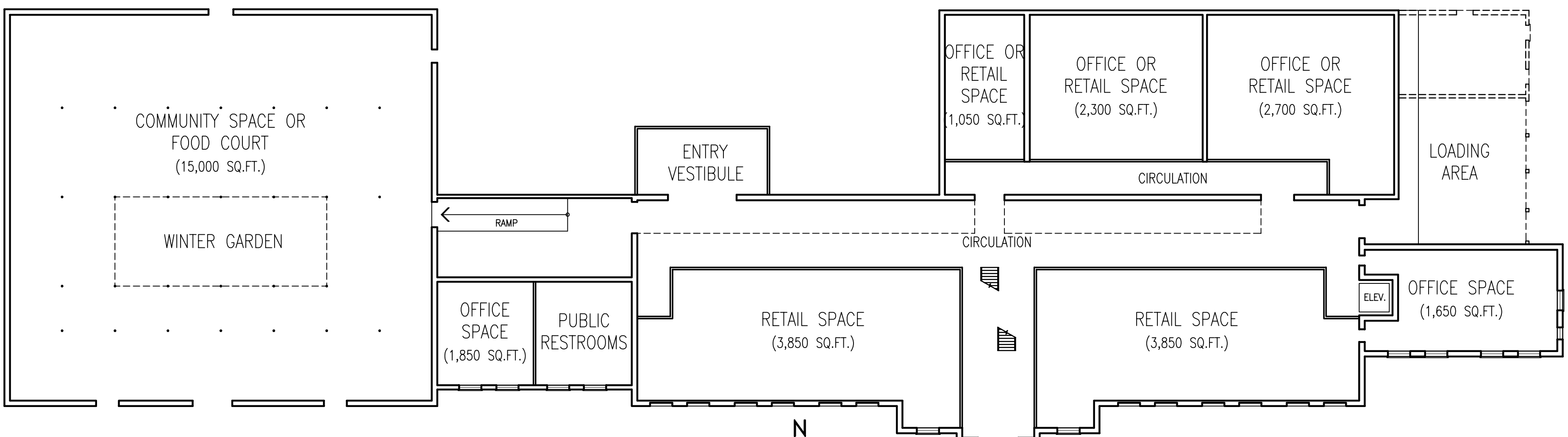
Drawn by: SO | Date: 4.21.05

SCENARIO #2B

1113-01



SCENARIO #3 –
SECOND FLOOR PLAN



SCENARIO #3 –
GROUND FLOOR PLAN

GRAPHIC SCALE: 0' 10' 20' 30' 40'

HASBROUCK | PETERSON | ZIMOCH | SIRIRATTUMRONG
Architects Engineers Conservators
104 South Michigan Suite 250, Chicago, Illinois 60603 (312)553-9600

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No.	Date	Remarks
		Revisions

Sheet Title:
SCENARIOR #3 – GROUND AND SECOND FLOOR PLANS
Drawn by: SO Date: 4.21.05

SCENARIO #3
1113-01

APPENDICES

APPENDIX "A" – OLBRICH BOTANICAL GARDENS SPACE NEED PROGRAM

Date: March 1, 2005

To: Henry Zimoch
FAX: 312-553-9650
From: Nancy Ragland
Subject: Space need for horticulture in Garver Feed Mill

Adaptive Reuse for the Garver Feed Mill for Gardens' storage, maintenance and horticulture

	Option 1 Sq. Ft	Option 2
Office space for Horticulture Staff		
Director of Horticulture	180	180
Horticulturist (6) – 100 SF/person	600	600
Lead Gardener (1)	100	100
Gardener (2)	200	200
Plant Recorder	120	120
Interns (6 work stations)	300	300
Volunteers	200	200
Library	200	200
Conference Room	200	200
Rest rooms	300	300
Lunch room w/kitchen facilities	200	200
(Round out with 3000 sf.)	2600	2600
Heated space for plant labeling		
Plant labeling Room	200	200
Heated space to park large equipment	5000	5000
Heated Shop Space for maintenance	2000	2000
Minimally heated areas for storage of tender perennials & tropicals.	3000	400
Greenhouse production space	5000	0
Cold storage space for garden equipment, pots, bagged mulch, stone, seasonal garden adornments, supplies, garden shows sets, bricks, stone.	5000	5000
Approximate s.f. needed:	23,200 s.f.	15,600 s.f.

APPENDIX "B" – ESTIMATES OF PROBABLE COST

ESTIMATES OF PROBABLE COST

For the purpose of clarity, comprehensiveness and organization, the following estimates of probable cost are categorized in accordance with the MASTERSPEC division format. HPZS utilized R.S. Means – Building Construction Cost Data (2005), construction industry trade consultants, and extensive prior experience to determine the appropriate unit costs applied to each line item. These estimated costs are based upon current dollar values and should be adjusted as required for inflation when implemented.

We have interpreted the intent of the OBS to highlight the existing agri-industrial character of the building, not only with respect to the historical facades, but also regarding the interior finishes, regardless of the scenario selected. These estimated costs are based upon an assumed aesthetic of exposed steel, masonry and concrete structure, and a limited palette of utilitarian finishes. Although the focus of this study has been primarily on the building, HPZS has included a level of anticipated site development for each scenario.

It must be noted that these estimates are based upon very preliminary design concepts and a limited investigation of the existing building components. Therefore, we have provided an appropriate design contingency cost, to accommodate unanticipated increases in the scope of work ("scope-creep"), and a construction contingency cost, to provide for discovered conditions during construction, for each scenario cost.

STABILIZATION

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 1 - GENERAL REQUIREMENTS					
General conditions	1	ls	20,000.00	20,000	
Remove water from pit areas	1	ls	1,500.00	1,500	
Hazardous material abatement	1	al	20,000.00	20,000	
Selective demolition and disposal					
Roofing & insulation	41000	sf	0.60	24,600	
Roof deck	41000	sf	0.50	20,500	
Boiler & garage buildings (incl. brick salvage)	1	ls	20,000.00	20,000	
Construction fence	1600	lf	4.00	6,400	
Window & door closures	77	un	50.00	3,850	116,850
DIVISION 4 - MASONRY					
Dismantel & rebuild parapets					
Ornamental parapets	750	lf	225.00	168,750	
Standard parapets	900	lf	150.00	135,000	
Replacement limestone coping	85	lf	55.00	4,675	
Replacement clay tile coping	200	lf	20.00	4,000	
Replace deteriorated masonry (2 wythes)	2000	sf	80.00	160,000	
100% grinding & tuckpointing	40000	sf	7.50	300,000	
Repair cracks & apply coating to concrete stringcourse	425	lf	3.50	1,488	
Clean (wash) exterior masonry	40000	sf	0.50	20,000	793,913
DIVISION 6 - WOOD & PLASTICS					
Replace deteriorated structural members	1	al	15,000.00	15,000	
Infill structural roof members at location of removed pelletizer	3100	sf	3.25	10,075	
Plywood roof deck	41000	sf	2.00	82,000	107,075
DIVISION 7 - THERMAL & MOISTURE PROTECTION					
Temp. roofing & flashing	41000	sf	2.50	102,500	
Temp. aluminum counterflashing	3500	lf	5.00	17,500	
Aluminum gutters & downspouts	400	lf	7.00	2,800	
Aluminum coping	375	lf	7.50	2,813	125,613
CONSTRUCTION CONTINGENCY (10%)					114,345
TOTAL ESTIMATED COST					**1,257,795**

STABILIZATION

ABBREVIATION KEY					
lf - lineal foot					
sf - square foot					
sy - square yard					
un - unit					
ls - lump sum					
al - allowance					

SCENARIO 1A

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 1 - GENERAL REQUIREMENTS					
General conditions	1	ls	40,000.00	40,000	
Hazardous material abatement	1	al	10,000.00	10,000	
Selective demolition & disposal					
Misc. equipment	1	ls	15,000.00	15,000	
Misc. structure & decking	1	ls	20,000.00	20,000	85,000
DIVISION 2 - SITE CONSTRUCTION					
Site clearing	6000	sf	0.40	2,400	
Site drainage	6000	sf	5.00	30,000	
Asphalt paving	6000	sf	3.25	19,500	51,900
DIVISION 3 - CONCRETE					
Repair/replace existing concrete floors	2500	sf	14.00	35,000	
Repairs to structural concrete	1	ls	5,000.00	5,000	
Compacted fill in pit areas	2000	cy	17.50	35,000	75,000
DIVISION 4 - MASONRY					
Misc. openings & interior masonry repairs.	1	al	20,000.00	20,000	
Clean (wash) interior masonry	6000	sf	0.80	4,800	24,800
DIVISION 5 - METALS					
Repair/reconfiguration of existing steel structure	1	al	5,000.00	5,000	
Metal stairs	1	un	8,000.00	8,000	
Metal railings	200	lf	35.00	7,000	20,000
DIVISION 6 - WOOD & PLASTICS					
Interior trim (Hort. Staff Off.)	3600	sf	0.50	1,800	
ADA access ramp	1	un	7,000.00	7,000	8,800
DIVISION 7 - THERMAL & MOISTURE PROTECTION					
Roofing, flashing & insulation	25350	sf	7.00	177,450	
Sheet metal counterflashing	1600	lf	5.00	8,000	
Skylights	10	un	1,000.00	10,000	195,450
DIVISION 8 - DOORS & WINDOWS					
Exterior doors, frames & hardware	5	un	900.00	4,500	
Interior doors, frames & hardware	14	un	700.00	9,800	
Overhead doors	3	un	1,500.00	4,500	
Windows	9	un	900.00	8,100	26,900

SCENARIO 1A

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 9 - FINISHES					
Metal stud & gypsum board partitions	600	lf	45.00	27,000	
Ceramic tile	300	sf	13.00	3,900	
Wood flooring	3200	sf	9.25	29,600	
Painting	7200	sf	0.75	5,400	65,900
DIVISION 10 - SPECIALITIES					
Signs	1	al	3,000.00	3,000	
Toilet compartments & accessories	4	un	900.00	3,600	6,600
DIVISION 11 - EQUIPMENT					
Appliances	1	al	1,500.00	1,500	1,500
DIVISION 12 - FURNISHINGS					
Kitchen casework & countertop	7	lf	425.00	2,975	2,975
DIVISION 15 - MECHANICAL SYSTEMS					
Plumbing waste & water distribution	20000	sf	2.00	40,000	
Plumbing fixtures					
Water closets	3	un	400.00	1,200	
Lavatories	2	un	350.00	700	
Urinals	1	un	800.00	800	
Sink	1	un	600.00	600	
Heating systems - greenhouse & shop spaces	14600	sf	4.00	58,400	
HVAC - office space	3700	sf	12.00	44,400	146,100
DIVISION 16 - ELECTRICAL SYSTEMS					
Power & lighting distribution - office space	3700	sf	14.00	51,800	
Power & lighting distribution - greenhouse & shop spaces	36300	sf	4.00	145,200	
Power & lighting distribution - unassigned spaces	17300	sf	1.00	17,300	
Power & lighting distribution - site	6000	sf	2.50	15,000	229,300
DESIGN CONTINGENCY (10%)					94,023
CONSTRUCTION CONTINGENCY (10%)					94,023
TOTAL ESTIMATED COST					**1,128,270**

SCENARIO 1B

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 1 - GENERAL REQUIREMENTS					
General conditions	1	ls	40,000.00	40,000	
Hazardous material abatement	1	al	10,000.00	10,000	
Selective demolition & disposal					
Misc. equipment	1	ls	15,000.00	15,000	
Misc. structure & decking	1	ls	20,000.00	20,000	85,000
DIVISION 2 - SITE CONSTRUCTION					
Site clearing	6000	sf	0.40	2,400	
Site drainage	6000	sf	5.00	30,000	
Asphalt paving	6000	sf	3.25	19,500	51,900
DIVISION 3 - CONCRETE					
Repair/replace existing concrete floors	2500	sf	14.00	35,000	
Repairs to structural concrete	1	ls	5,000.00	5,000	
Compacted fill in pit areas	2000	cy	17.50	35,000	75,000
DIVISION 4 - MASONRY					
Misc. openings & interior masonry repairs.	1	al	20,000.00	20,000	
Clean (wash) interior masonry	6000	sf	0.80	4,800	24,800
DIVISION 5 - METALS					
Repair/reconfiguration of existing steel structure	1	al	5,000.00	5,000	
Metal stairs	1	un	8,000.00	8,000	
Metal railings	200	lf	35.00	7,000	20,000
DIVISION 6 - WOOD & PLASTICS					
Interior trim (Hort. Staff Off.)	3200	sf	0.50	1,600	
ADA access ramp	1	un	7,000.00	7,000	8,600
DIVISION 7 - THERMAL & MOISTURE PROTECTION					
Roofing, flashing & insulation	22800	sf	7.00	159,600	
Sheet metal counterflashing	1900	lf	5.00	9,500	
Skylights	10	un	1,000.00	10,000	179,100
DIVISION 8 - DOORS & WINDOWS					
Exterior doors, frames & hardware	5	un	900.00	4,500	
Interior doors, frames & hardware	14	un	700.00	9,800	
Overhead doors	3	un	1,500.00	4,500	
Windows	18	un	900.00	16,200	35,000

SCENARIO 1B

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 9 - FINISHES					
Metal stud & gypsum board partitions	600	lf	45.00	27,000	
Ceramic tile	300	sf	13.00	3,900	
Wood flooring	3000	sf	9.25	27,750	
Painting	7200	sf	0.75	5,400	64,050
DIVISION 10 - SPECIALITIES					
Signs	1	al	3,000.00	3,000	
Toilet compartments & accessories	4	un	900.00	3,600	6,600
DIVISION 11 - EQUIPMENT					
Appliances	1	al	1,500.00	1,500	1,500
DIVISION 12 - FURNISHINGS					
Kitchen casework & countertop	7	lf	425.00	2,975	2,975
DIVISION 15 - MECHANICAL SYSTEMS					
Plumbing waste & water distribution	20000	sf	2.00	40,000	
Plumbing fixtures					
Water closets	3	un	400.00	1,200	
Lavatories	2	un	350.00	700	
Urinals	1	un	800.00	800	
Sink	1	un	600.00	600	
Heating systems - greenhouse & shop spaces	17000	sf	4.50	76,500	
HVAC - office space	3300	sf	12.00	39,600	159,400
DIVISION 16 - ELECTRICAL SYSTEMS					
Power & lighting distribution - office space	3300	sf	14.00	46,200	
Power & lighting distribution - greenhouse & shop spaces	25000	sf	4.00	100,000	
Power & lighting distribution - unassigned spaces	18200	sf	1.00	18,200	
Power & lighting distribution - site	6000	sf	2.50	15,000	179,400
DESIGN CONTINGENCY (10%)					89,333
CONSTRUCTION CONTINGENCY (10%)					89,333
TOTAL ESTIMATED COST					**1,071,990**

SCENARIO 2A

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 1 - GENERAL REQUIREMENTS					
General conditions	1	ls	70,000.00	70,000	
Hazardous material abatement	1	al	20,000.00	20,000	
Selective demolition & disposal					
Misc. equipment	1	ls	30,000.00	30,000	
Misc. structure & decking	1	ls	30,000.00	30,000	150,000
DIVISION 2 - SITE CONSTRUCTION					
Site clearing	66000	sf	0.40	26,400	
Site drainage	66000	sf	5.00	330,000	
Asphalt paving	66000	sf	3.25	214,500	
Landscaping	1	al	15,000.00	15,000	585,900
DIVISION 3 - CONCRETE					
Repair/replace existing concrete floors	4000	sf	14.00	56,000	
Repairs to structural concrete	1	ls	10,000.00	10,000	
Compacted fill in pit areas	2000	cy	17.50	35,000	101,000
DIVISION 4 - MASONRY					
Misc. openings & interior masonry repairs.	1	al	40,000.00	40,000	
Clean (wash) interior masonry	40000	sf	0.80	32,000	72,000
DIVISION 5 - METALS					
Repair/reconfiguration of existing steel structure	1	al	10,000.00	10,000	
Metal stairs	2	un	8,000.00	16,000	
Metal railings	300	lf	35.00	10,500	36,500
DIVISION 6 - WOOD & PLASTICS					
Interior trim	21000	sf	0.50	10,500	
ADA access ramps	2	un	7,000.00	14,000	
Misc. repairs to museum equipment	1	al	10,000.00	10,000	34,500
DIVISION 7 - THERMAL & MOISTURE PROTECTION					
Roofing, flashing & insulation	41000	sf	7.00	287,000	
Sheet metal counterflashing	3500	lf	5.00	17,500	
Skylights	20	un	1,000.00	20,000	324,500

SCENARIO 2A

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 8 - DOORS & WINDOWS					
Exterior doors, frames & hardware	12	un	900.00	10,800	
Interior doors, frames & hardware	22	un	700.00	15,400	
Overhead doors	3	un	1,500.00	4,500	
Windows	57	un	1,100.00	62,700	93,400
DIVISION 9 - FINISHES					
Metal stud & gypsum board partitions	1000	lf	45.00	45,000	
Ceramic tile	2000	sf	13.00	26,000	
Wood flooring	5200	sf	9.25	48,100	
Painting	10000	sf	0.75	7,500	126,600
DIVISION 10 - SPECIALITIES					
Signs	1	al	7,000.00	7,000	
Museum interperative display panels	1	al	5,000.00	5,000	
Toilet compartments & accessories	12	un	900.00	10,800	22,800
DIVISION 11 - EQUIPMENT					
Appliances	1	al	1,500.00	1,500	
Commercial appliances	1	al	20,000.00	20,000	21,500
DIVISION 12 - FURNISHINGS					
Kitchen casework & countertop	7	lf	425.00	2,975	
Commercial kitchen casework & countertops	20	lf	650.00	13,000	
Demountable partitions	120	lf	150.00	18,000	33,975
DIVISION 14 - CONVEYING SYSTEMS					
Hydraulic elevator - 2 stops	1	ls	65,000.00	65,000	65,000
DIVISION 15 - MECHANICAL SYSTEMS					
Plumbing waste & water distribution	41000	sf	2.00	82,000	
Plumbing fixtures					
Water closets	9	un	400.00	3,600	
Lavatories	7	un	350.00	2,450	
Urinals	3	un	800.00	2,400	
Sinks	2	un	600.00	1,200	
Commercial sink	1	un	900.00	900	
Heating systems - greenhouse & shop spaces	14600	sf	4.00	58,400	
HVAC - finished spaces	22300	sf	14.00	312,200	463,150

SCENARIO 2A

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 16 - ELECTRICAL SYSTEMS					
Power & lighting distribution - finished spaces	22300	sf	15.00	334,500	
Power & lighting distribution - greenhouse & shop spaces	20450	sf	4.00	81,800	
Power & lighting distribution - site	66000	sf	2.50	165,000	581,300
DESIGN CONTINGENCY (12%)					325,455
CONSTRUCTION CONTINGENCY (10%)					271,213
TOTAL ESTIMATED COST					**3,308,793**

SCENARIO 2B

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
This scenario assumes that the tenants for the Art Incubator will be responsible for the cost of the buildout, finishes and infrastructure of their respective spaces.					
DIVISION 1 - GENERAL REQUIREMENTS					
General conditions	1	ls	70,000.00	70,000	
Hazardous material abatement	1	al	20,000.00	20,000	
Selective demolition & disposal					
Misc. equipment	1	ls	30,000.00	30,000	
Misc. structure & decking	1	ls	40,000.00	40,000	160,000
DIVISION 2 - SITE CONSTRUCTION					
Site clearing	66000	sf	0.40	26,400	
Site drainage	66000	sf	5.00	330,000	
Asphalt paving	66000	sf	3.25	214,500	
Landscaping	1	al	15,000.00	15,000	585,900
DIVISION 3 - CONCRETE					
Repair/replace existing concrete floors	4000	sf	14.00	56,000	
Repairs to structural concrete	1	ls	10,000.00	10,000	
Compacted fill in pit areas	2000	cy	17.50	35,000	101,000
DIVISION 4 - MASONRY					
Misc. openings & interior masonry repairs.	1	al	40,000.00	40,000	
Clean (wash) interior masonry	40000	sf	0.80	32,000	72,000
DIVISION 5 - METALS					
Repair/reconfiguration of existing steel structure	1	al	10,000.00	10,000	
Metal stairs	6	un	8,000.00	48,000	
Metal railings	1500	lf	35.00	52,500	
Two levels of steel framing & conc. deck in Tall 1 Story Warehouse space (#3)	23000	sf	10.00	230,000	340,500
DIVISION 6 - WOOD & PLASTICS					
Interior trim	21000	sf	0.50	10,500	
ADA access ramps	2	un	7,000.00	14,000	
Misc. repairs to museum equipment	1	al	10,000.00	10,000	34,500
DIVISION 7 - THERMAL & MOISTURE PROTECTION					
Roofing, flashing & insulation	41000	sf	7.00	287,000	
Sheet metal counterflashing	3500	lf	5.00	17,500	
Skylights	16	un	1,000.00	16,000	
Atrium skylight	1800	sf	45.00	81,000	401,500

SCENARIO 2B

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 8 - DOORS & WINDOWS					
Exterior doors, frames & hardware	14	un	900.00	12,600	
Interior doors, frames & hardware	18	un	700.00	12,600	
Overhead doors	4	un	1,500.00	6,000	
Windows	27	un	900.00	24,300	55,500
DIVISION 9 - FINISHES					
Metal stud & gypsum board partitions	800	lf	45.00	36,000	
Ceramic tile	1000	sf	13.00	13,000	
Wood flooring	6200	sf	9.25	57,350	
Painting	10000	sf	0.75	7,500	113,850
DIVISION 10 - SPECIALITIES					
Signs	1	al	10,000.00	10,000	
Museum interperative display panels	1	al	5,000.00	5,000	
Toilet compartments & accessories	12	un	900.00	10,800	25,800
DIVISION 11 - EQUIPMENT					
Appliances	1	al	1,500.00	1,500	1,500
DIVISION 12 - FURNISHINGS					
Kitchen casework & countertop	7	lf	425.00	2,975	2,975
DIVISION 14 - CONVEYING SYSTEMS					
Hydraulic elevator - 3 stops	1	ls	90,000.00	90,000	90,000
DIVISION 15 - MECHANICAL SYSTEMS					
Plumbing waste & water distribution	64000	sf	1.80	115,200	
Plumbing fixtures					
Water closets	9	un	400.00	3,600	
Lavatories	6	un	350.00	2,100	
Urinals	3	un	800.00	2,400	
Sinks	1	un	600.00	600	
Heating systems - greenhouse & shop spaces	14600	sf	4.00	58,400	
HVAC - finished spaces	45000	sf	13.00	585,000	767,300

SCENARIO 2B

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 16 - ELECTRICAL SYSTEMS					
Power & lighting distribution - finished spaces	45000	sf	13.00	585,000	
Power & lighting distribution - greenhouse & shop spaces	20450	sf	4.00	81,800	
Power & lighting distribution - site	66000	sf	2.50	165,000	831,800
DESIGN CONTINGENCY (15%)					537,619
CONSTRUCTION CONTINGENCY (10%)					358,413
TOTAL ESTIMATED COST					**4,480,156**

SCENARIO 3

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
This scenario assumes that the tenants for the retail/office space will be responsible for the cost of the buildout, finishes and infrastructure of their respective spaces.					
DIVISION 1 - GENERAL REQUIREMENTS					
General conditions	1	ls	70,000.00	70,000	
Hazardous material abatement	1	al	20,000.00	20,000	
Selective demolition & disposal					
Misc. equipment	1	ls	30,000.00	30,000	
Misc. structure & decking	1	ls	45,000.00	45,000	165,000
DIVISION 2 - SITE CONSTRUCTION					
Site clearing	135000	sf	0.40	54,000	
Site drainage	135000	sf	4.00	540,000	
Asphalt paving	135000	sf	3.25	438,750	
Landscaping	1	al	45,000.00	45,000	1,077,750
DIVISION 3 - CONCRETE					
Repair/replace existing concrete floors	4000	sf	14.00	56,000	
Repairs to structural concrete	1	ls	10,000.00	10,000	
Footings & foundations	80	lf	325.00	26,000	
ADA access ramps	2	un	12,000.00	24,000	
Compacted fill in pit areas	2000	cy	17.50	35,000	151,000
DIVISION 4 - MASONRY					
Misc. openings & interior masonry repairs.	1	al	60,000.00	60,000	
Clean (wash) interior masonry	100000	sf	0.80	80,000	140,000
DIVISION 5 - METALS					
Repair/reconfiguration of existing steel structure	1	al	10,000.00	10,000	
Metal stairs	4	un	8,000.00	32,000	
Metal railings	250	lf	35.00	8,750	
One level of steel framing & conc. deck in spaces #3, #6, #7, & #8	19600	sf	10.00	196,000	246,750
DIVISION 6 - WOOD & PLASTICS					
Interior trim	60000	sf	0.50	30,000	30,000
DIVISION 7 - THERMAL & MOISTURE PROTECTION					
Roofing, flashing & insulation	38500	sf	7.00	269,500	
Sheet metal counterflashing	3600	lf	5.00	18,000	
Skylights	12	un	1,000.00	12,000	
Atrium skylights	3500	sf	45.00	157,500	457,000

SCENARIO 3

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 8 - DOORS & WINDOWS					
Exterior doors, frames & hardware	12	un	900.00	10,800	
Interior doors, frames & hardware	12	un	750.00	9,000	
Overhead doors	4	un	1,500.00	6,000	
Aluminum storefront	800	sf	34.00	27,200	
Windows	27	un	900.00	24,300	77,300
DIVISION 9 - FINISHES					
Metal stud & gypsum board partitions	500	lf	45.00	22,500	
Ceramic tile	4000	sf	13.00	52,000	
Painting	5000	sf	0.75	3,750	78,250
DIVISION 10 - SPECIALITIES					
Signs	1	al	5,000.00	5,000	
Toilet compartments & accessories	18	un	900.00	16,200	21,200
DIVISION 11 - EQUIPMENT					
Commercial appliances	1	al	20,000.00	20,000	20,000
DIVISION 12 - FURNISHINGS					
Commercial kitchen casework & countertops	20	lf	650.00	13,000	13,000
DIVISION 14 - CONVEYING SYSTEMS					
Hydraulic elevator - 2 stops	1	ls	65,000.00	65,000	65,000
DIVISION 15 - MECHANICAL SYSTEMS					
Plumbing waste & water distribution	60000	sf	1.80	108,000	
Plumbing fixtures					
Water closets	14	un	400.00	5,600	
Lavatories	9	un	350.00	3,150	
Urinals	4	un	800.00	3,200	
Sinks	1	un	600.00	600	
Commercial sink	1	un	900.00	900	
HVAC - finished spaces	60000	sf	11.00	660,000	781,450

SCENARIO 3

DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST	SUMMARY
DIVISION 16 - ELECTRICAL SYSTEMS					
Power & lighting distribution - finished spaces	60000	sf	13.00	780,000	
Power & lighting distribution - site	135000	sf	2.25	303,750	1,083,750
DESIGN CONTINGENCY (15%)					661,118
CONSTRUCTION CONTINGENCY (10%)					440,745
TOTAL ESTIMATED COST					**5,509,313**

APPENDIX "C" – BIBLIOGRAPHY

BIBLIOGRAPHY

UNITED STATES SUGAR BEET COMPANY AND FACTORY

"40,000 Tons of Sugar Beets." (*Madison) Wisconsin State Journal*, 3 January 1907.

"$50,000 Will Be Spent by Sugar Co. in Madison." *(Madison) Wisconsin State Journal*, 5 April 1907.

"Alvord Will Probe Lake Report." *(Madison) Wisconsin State Journal*, 24 May 1919.

Beal, George Max. *The Sugar Beet Manufacturing Industry in Wisconsin.* M.S. thesis, University of Wisconsin, 1938.

Bjorkland, Robert C.. "Pair Buys Garver Supply Co.." *(Madison) Wisconsin State Journal*, 14 March 1975.

Custer, Frank. "Madison Was Once Sugar Center of U.S.." (*Madison) Wisconsin Capital Times*, 30 December 1974, p.17.

"Free Sugar Will Ruin Beet Sugar Industry." *(Madison) Wisconsin State Journal*, 8 April 1913.

"Garver's Supply Co. Stores Feeding Ingredients," *(Madison) Wisconsin State Journal*, July 21, 1945.

Haswell, Susan O. and Kay, Arlan. "National Register of Historic Places Registration Form for Garver Feed & Supply." Madison, Wisconsin: 1991.

Haswell, Susan O.; Kay, Arlan; and Rankin, Katherine. "City of Madison Landmarks Commission Landmarks and .Landmark Sites Nomination Form for Garver Feed and Supply Co." Madison, Wisconsin: 1994.

Henry, W.A.. Letter to Magnus Swenson, March 22, 1904. Swenson Papers, State Historical Society of Wisconsin.

"Herman Schulz Buys Sugar Plant", *(Madison) Wisconsin State Journal*, October 10, 1926

Lemon, Thomas M.. "An Industrial Inheritance: The United States Sugar Company 1906 – 1924." *Journal of Historic Madison, Inc.* VI: 1980-81, pp. 13 - 19.

Lemon, Thomas M.. "National Register of Historic Places Inventory -Nomination Form for United States Sugar Company." Madison, Wisconsin: 1980.

"Madison Factory Received 40,000 Tons Sugar Beets" *(Madison) Wisconsin State Journal*, 3

January 1907, p. 1.

"Madison to Have $700,000 Factory - Dane Co. Sugar Refining Company." (*Madison) Wisconsin State Journal*, 1 December 1904.

"Madison to Have Big Sugar Factory," *(Madison) Wisconsin State Journal*, July 11, 1905.

Mollenhoff, David V.. *Madison, A History of the Formative Years.* 2nd ed. Dubuque (Iowa): Kendall/Hunt Publishing Co., 2003.

"New Corporations - Madison Sugar Company", *The Madison Democrat,* July 12, 1905.

"Our New Sugar Factory." (*Madison) Wisconsin State Journal*, 31 August 1905.

"Output of Beet Sugar to be Big", *(Madison) Wisconsin State Journal,* April 25, 1906.

"Overhaul." *(Madison) Wisconsin State Journal*, 5 April 1907.

Property Transfer: Dane County Register of Deeds , Vol. 278,p.569, recorded August 31, 1925.

Property Transfer: Dane County Register of Deeds , Vol.342, p.261, recorded May 31, 1929.

Rankin, Katherine H. and Timothy Heggland. "Madison Intensive Survey Historic Themes" (Draft) prepared for the City of Madison and the Historic Preservation Division State Historical Society of Wisconsin, 1994.

Seisinger, Doris. "Passing Through: Wisconsin's Use of Migrant Farmworkers." Retrieved from Wisconsin Public Radio's "Wisconsin Stories" website at http://www.wisconsinstories.org/2002season/passing/closer_look.cfm on January 25, 2005

Swenson, Magnus. Letter to Theo Hapke, January 7, 1903. Swenson Papers, State Historical Society of Wisconsin.

_____. Legal Document Transferring Sugar Beets Company of Madison to the United States Sugar Company, September 11, 1906. Swenson Papers, State Historical Society of Wisconsin.

_____. Letter to R.G. Wagner, President of the Wisconsin Sugar Company, November 25, 1902, Swenson Papers, State Historical Society of Wisconsin.

"Sugar Beet Factory Opens." (*Madison) Wisconsin State Journal*, 8 October 1906.

"Sugar Beet Factory to Open." *(Madison) Wisconsin State Journal*, 15 October 1905.

"Sugar Company Goes Bankrupt." *(Madison) Wisconsin State Journal*, 26 May 1924.

"Theodore Hapke, Contractor and Builder of Beet Sugar Factories and Pulp Driers..," advertisement in *The American Sugar Industry and Beet Sugar Gazette* 8, no. 24 (December 20 1906): xvi.

"Tomorrow... Saturday: the last day in which to purchase a FAIR OAKS LOT at the present price." (*Madison) Wisconsin State Journal,* 29 September 1905, p.7.

"To Open Sugar Beet Factory," *(Madison) Wisconsin State Journal*, 15 October 1915.

"United States Sugar Co.." *(Madison) Wisconsin State Journal*, 24 May 1919.

"Vote in Favor of 'Fair Oaks." *(Madison) Wisconsin State Journal*, April 27, 1905.

GARVER SUPPLY / GARVER FEED COMPANY

"An Introductory Offer to Farmers." *(Madison) Wisconsin State Journal*, 3 March 1931, p. 10.

"Arson Suspected in fire at East Side Landmark." *(Madison) Wisconsin State Journal*, 8 May 2001.

Bjorkland, Robert C. "Pair Buys Garver Supply Co.." (*Madison) Wisconsin State Journal*, 14 March 1975.

"Cargill buys Garver business and name." *(Madison) Wisconsin State Journal,* 19 November 1997.

"Four Crews Fight $5,000 Night Fire." *(Madison) Wisconsin State Journal*,11 February 1931, p. 1.

"Garver's Supply Co. Stores Feeding Ingredients." *(Madison) Wisconsin State Journal*, 21 July 1945, p. 8.

Hermolin, Joseph. (Katherine Rankin, ed.) *Schenk's-Atwood Neighborhood: A Walking Tour.* Madison, Wisconsin: Madison Landmarks Commission and the Atwood Community Center, 1987.

Lautenschlager, Scott. "82 apartments: Developer would convert Garver Feed Building." *(Madison) Wisconsin State Journal*, 9 January 1992.

Oncken, John. "Era Comes to an end with Closing of Garver Feed." *(Madison) Wisconsin Capital Times*, 6 November 1997.

Williams, Beth. "Feed mill building damaged." *(Madison) Wisconsin State Journal*, 6 May 2001.

Wisconsin Historical Society. “Wisconsin Architecture & History Inventory,” Record #27802 for Garver Feed Company. Retrieved from http://www.wisconsinhistory.org/ahi/detailrecord.asp on January 12, 2005.

MAGNUS SWENSON

Bernstein, Richard A, ‘The Power of Water: Wisconsin’s Hydro-mania” , 2002. Retrieved from Wisconsin Public Radio’s “Wisconsin Stories” website at http://www.wisconsinstories.org/2002season/water/closer_look.cfm on February 22, 2005.

“Electric Power”, undated. Retrieved from the Sauk Prairie Area Historical Society website at http://www.saukprairiehistory.org/Prairie_du_Sac/electric%20power.html on Februrary 22, 2005.

Hougen, Olaf A.. “A Biographical Sketch of Magnus Swenson.” Archives of the State Historical Society of Wisconsin, June 1938.

Swenson, Magnus. “Manuscripts of Magnus Swenson.” Archives of the State Historical Society of Wisconsin.

LAW, LAW, AND POTTER

Law, Edward J.; Law, James R.; and Potter, Ellis J. *Selections from the recent work of Law, Law, and Potter, Architects, Madison Wisconsin.* New York, New York: Architectural Catalog Co., 1941, c1937.

_____. *Monograph of the work of Law, Law, and Potter, Architects, Madison Wisconsin.* New York, New York: Architectural Catalog Co., 1941, c1937. (Bound with *Selections*, listed above.)

Potter, Ellis; taped and transcribed interview for Historic Madison, Inc. ca. 1985. Abstract retrieved from the Historic Madison, Inc. website at http://danenet.wicip.org/hmi/html/MadHist/Bios.htm on January 14, 2005.

SUGAR/SUGAR PROCESSING/SUGAR PRODUCERS/TARIFFS

“American Crystal Marks Anniversary.” February 2003 press release. Retrieved from American Crystal Sugar’s website at http://www.crystalsugar.com/media/news/30.asp on January 25, 2005.

“Centennial History.” Long Beach (California): Bixby Land Company, 1996 Retrieved from the Bixby Land Company website at http://www.bixbyland.com/centennialhistory4.html on January

25, 2005.

"Claus Spreckles." 11 October 2003. Retrieved from Baseportal's SanFrancisco/History/Time/Place database at http://baseportal.com/cgi-bin/baseportal.pl?htx=/zpub2000/sfentries&cmd=list&range=0,50&cmd=all7Id=108 on January 25, 2005.

"Early Sugar Beet History." Big Chief News, Volume 15, No. 1, Fall 1995. Retrieved from Monitor Sugar's website at http://www.monitorsugar.com/htmtext/BC15_1.htm on January 25, 2005.

"Facts About...Sugarbeets and Beet Sugar." Southern Minnesota Sugar Cooperative. Retrieved from the Sugarbeet Research & Education Board of Minnesota and North Dakota's website at http://www.sbreb.org/brochures/SugarCoop/ on February 2, 2005.

Gilmour, Gerry; "Perserverance keeps Crystal business sweet." *(Fargo-Grand Forks North Dakota) Forum*, 16 October 1999 Retrieved from http://www.in-forum.com/specials/century/jan3/week43b.html on January 25, 2005.

Henley, Ronald L. "Sweet Success...The Story of Michigan's Beet Sugar Industry 1898 – 1974." January 2001. Retrieved from the Michigan Historical Center, Department of History, Arts and Libraries website at http://www.michigan.gov/hal/0,1607,7-160-17451_18670_18793-53367--,00.html on January 25, 2005.

Hill, Roger W.. *Holly Sugar Corporation: the first 90 years.* New York: Newcomen Society of the United States, 1984.

"How Beet Sugar is Made – the Basic Story." Retrieved from http://www.sucrose.com/lbeet.htm on February 2, 2005.

Mintz, Sidney; "Sweetness and Power." 1985. Retrieved from Fort Collins (Colorado) Public Library Local History Archive at http://library.fcgov.com/local_history/Topics/ethnic/mex-beet.htm on January 25, 2005.

Pace, Robert E.; "Union Gap's Sugar Factory.". Retrieved from Yakima (Washington) Regional Library's "Yakima Memory"digital photograph collection website at http://www.yakimamemory.org/articles/sugar.html on January 25, 2005.

"Product: History of Sugar." Retrieved from http://www.suedzucker.de./en/product/diagram/index.shtml on February 2, 2005.

"Red River Valley Sugarbeet Growers Association (The)." retrieved from the Sugarbeet Research & Education Board of Minnesota and North Dakota's website at http://www.sbreb.org/brochures/RRVSGA/rrvsga.htm on January 25, 2005.

Schmidt, Steve; "Owosso Sugar Company, Owosso Michigan." Retrieved from http://www.shiawasseehistory.com/sugar.html on January 25, 2005.

Shaw, Joan; "Sugar Beet Culture in Early Utah.". Retrieved from DragonGoose Farm's website at http://www.dragongoose.com/LewHisSugarBeets.html on January 25, 2005.

"Spreckels Sugar Corporation 1929." Retrieved from http://www.scripophily.net/sprecsugcor.html on January 25, 2005.

"Sugar processing: from sugar beet to sugar crystal." Retrieved from http://www.suedzucker.de./en/product/history/index.shtml on February 2, 2005.

Taussig, Frank William; *Some Aspects of the Tariff Question.* Cambridge, Massachusetts: Harvard University Press, 1915. Retrieved from The Library of Economics and Liberty's on-line library at http://www.econlib.org/library/Taussig/tsgSTQ7.html on January 25, 2005.

Titus, W.A.. "A Beet Sugar Refinery." *Wisconsin Magazine of History* (Vol. 29(2), pp. 191 – 194.

"Union City Turns 40." Retrieved from the City of Union City, California's website at http://www.ci.union-city.ca.us/history/uc-history.html on January 25, 2005.

"Western Beet Sugar Company (1896) (The)." excerpted from *Santa Cruz County; a faithful reproduction in print and photography of its climate, capabilities and beauties.*" 1896. Retrieved from the Santa Cruz (California) Public Library's website at http://www.santacruzpl.org/history/work/beetsugar.shtml on January 25, 2005.

Woll, F.W.. *The Beet Sugar Industry of Wisconsin.* Madison, Wisconsin: UW Agriculture Experiment Station Bulletin no. 213, 1905.

FEED/FEED MILLS

"30,000 Spent Annually for Feeds by Wisconsin Consumers." *The Feed Bag*, August 1930.

"An Introductory Offer to Farmers." Advertisement in *(Madison) Wisconsin State Journal*, 3 March 1931 p.10.

Brobst, M..F.. "Dealer Promotes Future by Improving Patrons' Flocks." *The Feed Bag*, November 1929, p.17.

"Commercial Feed Manufacturing Has Experienced Rapid Growth." *The Feed Bag*, April 1930, p. 31.

"Dealer's Own Herd Shows Customers that Summer Feeding Pays." *The Feed Bag,* May 1930, p. 23.

Ebling, Walter H.. *A Century of Wisconsin Agriculture, 1846 – 1946."* Madison, Wisconsin: Wisconsin Crop and Livestock Reporting Service Bulletin no. 290. U.S. Department of Agriculture and Wisconsin Department of Agriculture, 1946.

_____ and Walter B. Griem. *Wisconsin Feed Production and Utilization.* Madison, Wisconsin: Crop Reporting Service, Wisconsin State Department of Agriculture, February 1943.

Griem, Walter B.. *Feeder's Guide to Quality.* Madison, Wisconsin: Wisconsin Department of Agriculture and Markets. Bulletin 114, November 1930.

Henry, William Arnon. *Feeds and Feeding*. Madison, Wisconsin: College of Agriculture, University of Wisconsin, 1898.

Indiana Agricultural Extension Service. *Third Annual Report of the Department of Agricultural Extension.* (For the year ending 30 June 1914.) Lafayette, Indiana: Purdue University, 1914.

_____. *Second Annual Report of the Department of Agricultural Extension.* (For the year ending 30 June 1913.) Lafayette, Indiana: Purdue University, 1913.

Lusignan, Paul. *Fruit and vegetable products"* study unit. In *Cultural Resource Management in Wisconsin: vol. 2.* Barbara Wyatt, ed. Madison, Wisconsin: Historic Preservation Division, State Historical Society of Wisconsin, 1986, pp. 11-6 to 11-16.

Morrison, Frank B.. *Feeds and Feeding: A Handbook for the Student and Stockman.* Ithaca, New York: Morrison Publishing Co., 1956. [22nd edition of W.A. Henry's original version, published in 1898.]

"Quaker Dealers, Feeders Entertained at Monona Farm Outing." *The Feed Bag,* September 1929, p.33.

Schaars, Marvin A.. *The Story of the Department of Agricultural Economics, 1909 – 1972.* Mimeographed 99-page document on file at the University of Wisconsin Archives, UW Memorial Library.

Schoeff, Robert W. " The Formula Feed Industry." In *Feed Production Handbook.* Kansas City, Missouri: Feed Production School, Inc. 1961.

Wherry, Larry. *The Golden Age of Scientific Feeding.* Milwaukee,Wisconsin: Business Press, 1947.

Wisconsin Department of Agriculture and Markets, Feed and Fertilizer Inspection Division. *Commercial Feeds in Wisconsin*. Madison, Wisconsin: Wisconsin Department of Agriculture and Markets.

Bulletin 128, November 1931. (31st annual report)
Bulletin 136, August 1932 (32nd annual report)
Bulletin 149, November 1933 (33rd annual report)
Bulletin 159, November 1934 (34rd annual report)

ADDITIONAL RESOURCES

Angell, G.R. and Co. *Directory of Dane County. 1904-1908.* Madison

Capital Times Madison (Wisconsin). 1917- (except as referenced above.)

History of Dane County: Biographical and Genealogical. Madison,Wisconsin: Western Historical Association, 1906.

Monona Landmarks Commission. *City of Monona: Its Landmarks and Heritage*. Monona, Wisconsin: Landmarks Commission, 1980.

Polk's Wisconsin State Gazetteer and Business Directory. Detroit: R.L. Polk and Company ca. 1878-1928.

Wisconsin State Journal Madison, Wisconsin: 1852 - (except as referenced above)
Wright's city directories for Madison Wisconsin:

1939
1937
1931
1927

Quaife, Milo M. *Wisconsin: Its History and its People, 1634 – 1924* (Vol. IV.) Chicago: S.J. Clarke Publishing Co., 1924.

Ruby, Viola E. and Johnson, Allen (ed.) *Photographs and Memories: A Pictorial History of Menomonee Falls, Wisconsin.* Menomonee Falls,Wisconsin: Menomonee Falls Historical Society, 1977,

"Union List of Sanborn and Other Fire Insurance Maps – Wisconsin." Western Association of Map Libraries, 2004. Retrieved from the University of California at Berkeley's Earth Sciences & Map Library website at http://www.lib.berkeley.edu/EART/sanbul_WI_M.html on February 21, 2005.

Wisconsin. Division of Safety & Buildings. *Building plans correspondence (e-files), 1914-1998.* Archives of the State Historical Society of Wisconsin.

Zellie, Carol; "An Introductory Guide for Local History Research in Dane County, Wisconsin. 1985: Madison, Wisconsin, Dane County Cultural Affairs Commission. (Source: Madison Public Library)

END