

# ***Historic Preservation Commission Agenda***

**Monday, February 23, 2026  
City Hall, 2<sup>nd</sup> Floor Council Chambers  
749 Main Street  
6:30 PM**

*Members of the public are welcome to attend and give comments remotely; however, the in-person meeting may continue even if technology issues prevent remote participation.*

- You can call in to **+1 253 215 8782, Webinar ID # 831 7647 9579**  
Webinar ID **#424734**
- You can log in via your computer. Please visit the City's website here to link to the meeting: [www.louisvilleco.gov/hpc](http://www.louisvilleco.gov/hpc).

*The Commission will accommodate public comments during the meeting. Anyone may also email comments to the Commission prior to the meeting at [Planning@LouisvilleCO.gov](mailto:Planning@LouisvilleCO.gov).*

1. Call to Order
2. Roll Call
3. Approval of Agenda
4. Introductions
5. Approval of Minutes (January 2026)
6. Public Comments on Items Not on the Agenda
7. Public Hearing:
  - a. 540 County Road (Grain Elevator) - Alteration Certificate and Grant Request
8. Updates from Staff
9. Updates from Commission Members
10. Adjourn

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Persons planning to attend the meeting who need sign language interpretation, translation services, assisted listening systems, Braille, taped material, or special transportation, should contact the City Clerk's Office at 303 335-4574 or [ClerksOffice@LouisvilleCO.gov](mailto:ClerksOffice@LouisvilleCO.gov). A forty-eight-hour notice is requested.

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# ***Historic Preservation Commission***

## ***Meeting Minutes***

**January 26, 2026**

**City Hall, Council Chambers**

**749 Main Street**

**6:30 PM**

**Call to Order – Daniels** called the meeting to order at 6:30 PM.

**Roll Call** was taken, and the following members were present:

Commission Members Present: Marty Beauchamp  
Keith Keller  
Jeff Moline  
Austen Welker  
Sloane Whidden  
Talbot Wilt

Commission Members Absent: Jamie Peterson

Staff Members Present: Jess Daniels, Senior Planner

### **APPROVAL OF AGENDA**

Motion to approve the agenda was moved by **Whidden**, seconded by **Beauchamp**, and adopted by voice vote.

### **APPROVAL OF MINUTES**

Commissioners noted clerical inconsistencies in the November and December minutes. The Commission proceeded with consideration of the October 2025 minutes only.

Motion to approve the October 2025 minutes was moved and seconded. The motion was adopted by voice vote.

The November and December 2025 minutes will be brought back for consideration at a future meeting.

Motion to approve the agenda was moved by **Wilt**, seconded by **Whidden**, and adopted by voice vote.

### **PUBLIC COMMENTS ON ITEMS NOT ON THE AGENDA**

None were heard.



## **2026 PROCEDURAL ITEMS**

a. Election of Officers for 2026

Motion to elect **Whidden** as Chair of the board was made by **Wilt**, seconded by **Welker**, and adopted by voice vote.

Motion to elect **Beauchamp** as Vice Chair of the board was made by **Whidden**, seconded by **Wilt**, and adopted by voice vote.

b. Approval of Posting Locations for Agendas

Staff reviewed the official posting locations:

- Louisville City Hall
- Louisville Public Library
- Louisville Police Department
- Louisville Recreation Center
- City of Louisville website

The motion to approve the posting locations was adopted by roll call vote 6–0.

c. Approval of Expected 2026 Historic Preservation Commission Meeting Dates

Staff presented the proposed 2026 meeting schedule.

The motion to approve the expected 2026 meeting dates was adopted by roll call vote 6–0.

## **PROBABLE CAUSE: 524 Main Street**

### Staff Presentation

Staff presented a request for a probable cause determination for 524 Main Street to qualify for a Historic Structure Assessment (HSA) grant of up to \$7,500. Staff explained that probable cause is evaluated using the landmarking criteria outlined in the Louisville Municipal Code.

The property was constructed in 1908 and is approximately 118 years old. Staff stated the property is not listed in the PaleoWest Stories in Place inventory nor in the Colorado Cultural Resource Survey. It is identified as a National Folk architectural type, common in Louisville between the 1870s and 1930s and associated with railroad and worker housing.

Historic photographs from the 1952 Boulder County Assessor card were compared to present-day images, demonstrating that the structure has maintained its historic footprint and a high degree of architectural integrity. Staff also noted social significance

due to occupancy by community members involved in mining and civic activities, including service on City Council.

**Staff Recommendation**

Staff recommended approval of probable cause and authorization of a grant of up to \$7,500 toward a Historic Structure Assessment.

**Commissioner Questions of Staff**

Commissioners asked procedural clarification questions regarding meeting order and speaker sequence.

**Commissioner Questions of Applicant**

None were heard.

**Public Comment**

No public comment was taken on this item.

**Commissioner Discussion**

Commissioners discussed the property's strong structural integrity, particularly the consistent window and door placement over time. Commissioners noted that the building retains its historic footprint and reflects early residential development patterns in Louisville. Commissioners expressed support for approving probable cause. A motion to approve probable cause for 524 Main Street for a Historic Structure Assessment was moved by **Beauchamp**, seconded by **Moline**, and approved by a vote of 6–0.

**PROBABLE CAUSE: 517 La Farge Ave**

**Staff Presentation**

Staff presented a request for probable cause for 517 La Farge Avenue for eligibility for a \$7,500 Historic Structure Assessment grant. Staff explained that the property was constructed in 1950 and is approximately 76 years old.

The property is identified as a Ranch architectural type in the City's 100 architectural inventories. It is not listed in the PaleoWest Stories in Place inventory nor the Colorado Cultural Resource Survey. Photographs from the 1952 assessor card compared to current images demonstrate minimal exterior changes and retention of historic integrity. Staff stated that the home reflects post–World War II development patterns in Louisville, including the growing importance of automobile-oriented residential design and mid-century infill development following the decline of mining operations. Staff concluded that the property meets the applicable landmarking criteria.

**Staff Recommendation**

Staff recommended approval of probable cause and authorization of a grant of up to \$7,500 toward a Historic Structure Assessment.

**Commissioner Questions of Staff**

No substantive questions were asked of staff.

**Applicant Presentation**

The applicant provided a detailed presentation explaining the home's significance as a Weyerhaeuser "Four Square" pre-cut lumber model (Model 5129). The applicant described the post-World War II housing context, including standardized floor plans, kiln-dried lumber, and pre-marked construction materials designed for efficiency and expansion.

The applicant stated the home retains a high degree of architectural integrity and represents mid-century infill development during Louisville's transition from a mining-based economy to postwar residential growth.

**Commissioner Questions of Applicant**

Commissioners asked whether additional Weyerhaeuser models exist in Louisville and whether similar examples have been landmarked. The applicant indicated that other examples exist, but none are currently landmarked to his knowledge.

**Public Comment**

No public comment was received.

**Commissioner Discussion**

Commissioners discussed the importance of recognizing mid-century architecture in Louisville and referenced prior discussions about identifying appropriate post-World War II properties for landmark consideration. Commissioners emphasized the home's strong integrity and educational value in illustrating postwar development patterns.

Commissioners expressed support for approving probable cause.

A motion to approve probable cause for 517 La Farge Avenue was move by

**Beauchamp**, seconded by **Welker**, and approved by a vote of 6–0.

**STAFF COMMENTS**

Staff provided updates regarding:

- Implementation of the updated Historic Preservation Grant Program
- Ongoing work related to an online landmark map

- Outreach and event opportunities, including the Farmers Market and other community events
- The upcoming Saving Places Conference (February 11–13)
- Upcoming Certified Local Government (CLG) evaluation and training
- The next meeting scheduled for February 23, 2026

### **COMMISSION COMMENTS**

The Commissioners introduced themselves and shared their backgrounds and interest in historic preservation.

Commissioners also discussed procedural clarification regarding voting methods for future meetings.

### **ADJOURNMENT**

Motion to adjourn was moved by **Wilt**, seconded by **Beauchamp**, and adopted by voice vote.

The Commission adjourned at 8:00 PM.

**ITEM:** 540 County Road Alteration Certificate & Grant Requests

**APPLICANT:** Erik Hartronft  
540 County Road  
Louisville, Colorado 80027

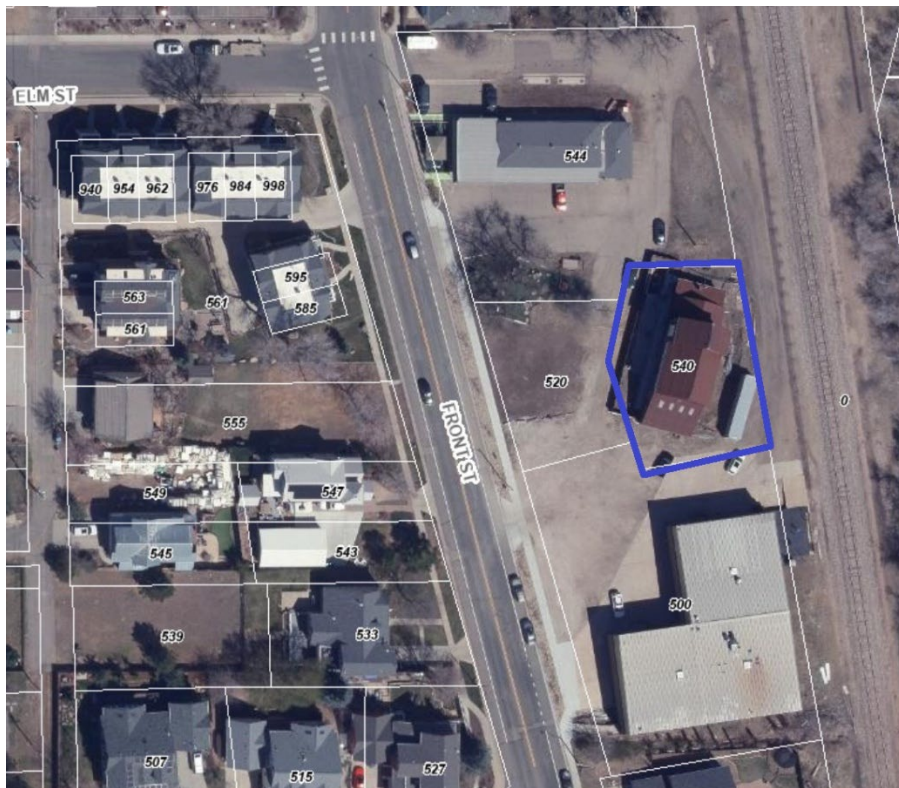
**OWNER:** Louisville Mill Site LLC  
540 County Road  
Louisville, CO 80027

**PROJECT INFORMATION:**

ADDRESS: 540 County Road  
LEGAL DESCRIPTION: Lot 2 Louisville Mill Site  
DATE OF CONSTRUCTION: Ca. 1905-1906

**REQUEST:** Alteration certificate, preservation and restoration grant, and new construction grant requests for the property at 540 County Road.

**VICINITY MAP:**



**SUMMARY:** The applicant is proposing to rehabilitate and redevelop the Louisville historic Grain Elevator into a commercial use for a Drinking Establishment, including restoring the porte cochere and boardwalk on the front side of the building, incorporating a historic wagon scale, and building a new, small “boxcar” building addition on the rear of the Grain Elevator.

The applicant is requesting:

- An Alteration Certificate to rehabilitate and redevelop the grain elevator to facilitate the establishment of a commercial use (Drinking Establishment).
- Historic preservation grants for \$1,475,000.00
- A New Construction Grant for the Boxcar Addition for \$111,000.00

Staff Recommendations:

1. Staff recommends approval of the Alteration Certificate.
2. Staff recommends approval of a grants totaling \$1,571,789. The following are the grant categories by amount recommended by staff as per [Resolution 102, Series 2025](#):
  - a. Preservation, Restoration and Rehabilitation grant up to \$343,000.00
  - b. Extraordinary Circumstances grant up to \$80,000.00
  - c. Exceptional Circumstances grant up to \$1,037,789.00
  - d. New Construction grant up to \$111,000.00

**BACKGROUND**

The Grain Elevator represents a unique part of Louisville’s agricultural history and is among the last remaining historic grain elevators in the State of Colorado. It has been considered a high value property for local historic preservation. The grain elevator was established as a national landmark in 1986 and a local landmark in 2015. In 2012, the City purchased the Louisville Grain Elevator property for \$950,000 using Historic Preservation Funds (HPF) in order to avoid the demolition of the historic building. The City’s acquisition at that time included the Grain Elevator property and the adjoining commercial property at 544 Front Street (previously a NAPA auto parts store and currently houses E-Bike of Colorado).

The City then published a request for proposals (RFP) for a public-private partnership to redevelop the properties, which included the restoration and activation of the Grain Elevator property for commercial use. The City initially entered into an agreement with a redevelopment company (Olde Town Group) for restoration of the Grain Elevator property and approved up to \$2.1M in HPF grants to assist with development costs.

Issues arose around property boundaries and a building encroachment onto the adjoining property to the south (500 Front Street). Due to a lack of resolution around these issues, the project with Olde Town Group was dropped, and instead the City entered into an agreement with a different entity, Louisville Mill Site, LLC. This new development partnership included the owner of 500 Front Street and facilitated resolution of the outstanding encroachment and property boundary issues.

The agreement with Louisville Mill Site, LLC included selling the property for a discounted price of \$200,000, a grant from the HPF for \$500,000 for initial stabilization work on the Grain Elevator, waiver of public land dedication fees or requirements, and rebates on application fees associated with the redevelopment of the property. The initial stabilization work was completed in 2016 and the property transferred to Louisville Mill Site, LLC.

### Previous Applications (2015)

The City has previously approved the following applications related to the Grain Elevator property:

1. Historic Preservation

Designation of the Grain Elevator building as a local landmark establishment of a conservation easement for the building, and approval of a historic preservation “Alternation Certificate” for the restoration work on the building and to allow a small building addition on the east side of the Grain Elevator.

2. Louisville Mill Site Subdivision

The Louisville Mill Site Subdivision, which established three lots and an outlot in front of the Grain Elevator (see Attachment No. 1). Lot 1 encompassed the existing commercial building on the south side of the development, Lot 2 encompassed the Grain Elevator, and Lot 3 encompassed the existing commercial building on the north side of the development. Outlot A is located in front of the Grain Elevator. Outlot A and portions of Lots 2 and 3 include a conservation easement (Note No. 8 on plat) that provides “No Build Areas” limiting development in order to preserve public view corridors to the Grain Elevator building.

3. Planned Unit Development (PUD) and Special Review Use (SRU)

The Louisville Mill Site Redevelopment PUD/SRU, which approved the demolition of the NAPA building (Lot 3) to be replaced by a new 19,000 sq. ft. three-story commercial building, a three-story addition to the existing commercial building on Lot 3, a small building addition on the east side the Grain Elevator (Lot 2), and an outdoor gathering area on Outlot A with an alternative plan for development as a parking lot. The development plans also included use of a leased area from BNSF for additional parking in the BNSF right of way on the east side of the development. The SRU authorized an “outdoor activity area” on Outlot A and Lot 2 to include food and beverage service. The PUD and SRU approvals have since expired.

### Current Applications (2025-2026)

1. Historic Preservation

The current proposal is for redevelopment and renovation of the historic Louisville Grain Elevator on Lot 2 (landmarked) to facilitate a commercial use. The plans include restoring the porte cochere and boardwalk on the front side of the grain elevator building, including a historic wagon scale, and building a new, small “boxcar” building addition on the rear of the Grain Elevator to include restrooms (Attachment No.2).

2. Planned Unit Development (PUD) and Special Review Use (SRU)

A concurrent PUD and SRU to allow an Outdoor Eating and Drinking Establishment and Mobile Food Court at 500-544 Front Street is proposed. Most of the development is proposed on Outlot A (not landmarked) which is located directly in front of Lot 2 (landmarked; location of Grain Elevator) and includes the proposed location of the outdoor gathering area, which would be fenced and include food truck pads, outdoor seating, a relocated historic accessory structure used as a tap house, and a small stage in the southwest corner of the lot. Limited development for parking, drive aisles, and drainage infrastructure would occur on Lot 1 and Lot 3 and in the BNSF right of way. Grain Yard, LLC, intends to lease and occupy the space as a bar, gathering space, and Mobile Food Court. See Attachment No. 3 for PUD/SRU application materials and supporting documentation.

The new PUD and SRU applications were considered by the Planning Commission on November 13, 2025 and recommended to City Council for approval, following a recommendation by the Historic Preservation Commission.

[LINK: November 13, 2025, Planning Commission Meeting.](#)

Prior and Current City Financial Contributions

The City and the City's Urban Renewal Authority have previously provided \$1,470,439 in assistance for the redevelopment of the property.

*Table 1: Prior City Financial Contributions*

|                                                 |  |                    |
|-------------------------------------------------|--|--------------------|
| Sale of Property*                               |  | \$750,000          |
| HPF Stabilization Grant                         |  | \$500,000          |
| Urban Renewal Public Streetscape Improvements** |  | \$163,526          |
| Public Land Dedication Waiver                   |  | \$48,927           |
| Fee Waivers                                     |  | \$7,986            |
| <b>TOTAL</b>                                    |  | <b>\$1,470,439</b> |

\* \$950,000 acquisition cost minus \$200,000 sale price

\*\* Required Infrastructure by Subdivision Improvement Agreement

Additional urban renewal grant funding and tax increment financing requests are anticipated as part of this overall proposal. The City has completed a "gap analysis" as part of the tax increment financing request, which evaluates the owner's initial financial proforma for the project and estimates the potential funding cap associated with the project to meet reasonable return on investment for the property owner. The "gap analysis" is not yet finalized, but staff anticipates a gap of approximately \$2,000,000. The applicant would like to close the identified funding gap utilizing both HPF grant funding and any urban renewal funding that is awarded.



## **HISTORICAL BACKGROUND:**

### Louisville Grain Elevator History

*Information from Gigi Yang, Louisville Historical Museum*

This building is considered to be one of the area's last remaining wooden grain elevators. It was placed on the National Register of Historic Places in 1986 due to the elevator being "historically and visually the most significant structure associated with the agricultural history of the community." It is also listed on the Colorado Register of Historic Places. Its stacked plank construction style is considered to be rare. A review of the available evidence shows that the date of construction of this building was most likely 1905-06.

This building was constructed by John K. Mullen, an Irish immigrant who built and operated a number of grain elevators in Colorado in his capacity as President of the Colorado Milling & Elevator Co. Besides being associated with John K. Mullen, the building was also associated with the Moore and Thomas families. The elevator was managed for about 35 years by Louisville resident Howard A. Moore and then his son, Donald Moore. In 1957, it was purchased by Louisville residents Charles Thomas and Quentin Thomas. Charles Thomas was the brother-in-law of Donald Moore. This building is connected with not only Boulder County's agricultural heritage, but is also connected with the area's railroad history, mining history, and the history of the Irish in Colorado. Louisville is often described in terms of its history as a small coal mining town. However, farming not only predated mining in the area, but local farmers continued to play an important role in the town's economy and cultural life through much of the 1900s.

A Denver Post article from the 1990s noted that the stacked plank method of construction of the Louisville Grain Elevator is unique. The article cited James Stratis, a restoration specialist for the Colorado Historical Society, as stating that "the elevator's role in the grain transportation system and its unique 'stacked-plank' architecture make the structure a national treasure."

It is believed that the general, original purpose of a grain elevator in this area was to receive grain, particularly wheat, from farmers. The Louisville Historical Museum has in its collection annual licenses given in the 1930s by the state of Colorado to Donald Moore, operator of the Grain Elevator, to inspect and grade wheat, barley, oats, corn, and rye. A grain elevator in this area would have also performed some processing of the grain, and local residents could purchase 100-lb. sacks of flour directly from the Grain Elevator, and families in Louisville used the flour sacks from the Grain Elevator to make clothing. Advertisements for the Grain Elevator show that this was a longtime, active business that played a vital role in the economy of the Louisville area. The building has been vacant since the Grain Elevator closed in the late 1960s.

Please see attached social history report for more information (Attachment No. 4).

## **ARCHITECTURAL INTEGRITY:**

*Stories in Places: Putting Louisville's Agricultural, Railroad, and Mining Development in Context* identifies the historical impact of grain elevators in a post WWII era (pg X-X). WWII profoundly affected American culture and economy. Across the United States and in Louisville, the early post-WWII years saw a boom in agricultural production, population growth, house construction, automobile use, and new industries. After WWII, the agricultural industry expanded rapidly due to human population explosion, further mechanization, development of new, high-yield varieties of grain, consolidation of farms, and use of chemical fertilizers and pesticides. At the same time, trucks using newly constructed interstate highways and regional roads generally replaced railroads for transporting large-scale agricultural products (Christensen 2009:37). 37 Dramatically increased agricultural production and a new network of roads created a need for and facilitated larger, dispersed grain elevators (Christensen 2009:37; Gohlke 1992, as cited in Christensen 2009:35). Increased yields often led to long lines of trucks at small country grain elevators that could not easily handle large volumes of product. In contrast, larger elevators could handle larger volumes and accommodate larger trucks. Although they were located farther from production sites, the larger elevators could still be accessed fairly quickly with the new road networks (Boulard 1967, as cited in Christensen 2009:35). Many railroads discontinued or greatly reduced service along lines that did not provide consistent business. Furthermore, some rail lines and grain elevators were abandoned as a result of the bankruptcy of many railroad companies between WWI and WWII (Christensen 2009:37). All of these factors contributed to the abandonment of many country elevators between 1930 and 1960 (Christensen 2009:35), including Louisville's, which closed in 1956 (The Louisville Times 1957).

Wood was commonly used for grain elevators until the end of WWII, particularly for country grain elevators such as Louisville's, as wood could be shipped in large quantities by railroad. Country grain elevators received grain directly from farmers for delivery to a terminal. Country grain elevators have a capacity that ranges from less than 100,000 bushels of grain to more than one million bushels (Christensen 2009:14). Louisville's Grain elevator was a country grain elevator. These grain elevators were placed along railroads approximately every six to 10 miles to connect farmers with larger, more centrally located, grain markets. This spacing was dictated by the availability of water and fuel, potential grain production, the distance at which farmers could deliver their harvests and return home by team and wagon on the same day, and railroad companies' blocking of other companies from the same area.

Country elevators are typically made of wood, steel, brick, tile, and/or concrete. Those Country grain elevators made of wood come in two forms: studded and cribbed. *Stories in Place* identifies the Louisville Grain Elevator as cribbed construction. Cribbed wood grain elevators are constructed of stacked lumber including 2 × 10s, 2 × 8s, 2 × 6s, and 2 × 4s, while studded wood grain elevators comprise balloon frame construction (Frame 1990; Mahar-Keplinger 1993:18, as cited in Christensen 2009:20). Cribbed construction is more stable and common for grain elevators than studded construction. The pieces of lumber are laid flat to form a rectangle or square, interlocking like logs in a log cabin, and held together with large metal spikes. Smaller width lumber of decreasing size is

used near the top of the grain elevator (Mahar-Keplinger 1993:18, as cited in Christensen 2009:20). Cribbed elevators (Figure 28) are generally topped by one of three types of cupola roofs: triangular, rectangular, or setback triangular. These tops feature stud construction (Mahar-Keplinger 1993, as cited in Christensen 2009:21). Louisville's cribbed grain elevator (Christensen 2009:62) features a triangular cupola roof.

Early wood grain elevators were highly susceptible to fire, so builders started to clad the exterior with corrugated steel panels or asbestos. These coverings largely prevented stray sparks from railroad use and other external sources from igniting the grain elevators. As a grain elevator's production increased, it was often necessary to expand the size of the building by adding exterior (usually steel) bins, then routing the grain through the head house to the bins via spouts or conveyors (Christensen 2009:22). Louisville's grain elevator is unusual in that it retains wood siding that has never been replaced with or covered by metal siding (Bacon 2010b:9).

The Louisville Grain Elevator building has been the subject of three different architectural and historical surveys, funded and completed jointly by the City of Louisville and the State of Colorado in 1982, 1985, and 2000:

#### State of Colorado Survey, 1982

The 1982 inventory record stated the building's special features to be "*Multi-level steep gables, 50 feet high at highest gable; next to railroad track for transport*" and included the following statement of significance:

*This tall frame structure, although badly deteriorated, provides a valuable visual record of the agricultural heritage of Louisville which has been so largely overshadowed by the pervasiveness of coal mining. . . . [I]ts location near the tracks, (like the early lumber companies), pointed out the fact that Louisville had become an important distribution point for agricultural products by the early 1900's. The 1982 inventory records also stated that "rehabilitation would help preserve perhaps the only structural link to the agricultural heritage of the town."*

#### National Designation Statement of Significance, 1986

The grain elevator was one of twelve historic buildings in downtown Louisville that were placed on the National Register of Historic Places in 1986 and was found to be:

*"...historically and visually the most significant structure associated with the agricultural history of the community. Its frame construction and functional design illustrate an important resource type traditionally associated with agriculture". Louisville Multiple Resource Area and under Railroads in Colorado, 1858-1948, Multiple Property Submission.*

#### State of Colorado Survey, 2000

The survey of this building conducted in 2000 for the State of Colorado gave the following statement of significance:

*This building has been individually listed on the National Register of Historic Places. It is historically significant, relative to National Register Criterion A, for its association with the theme of agriculture during the first half of the twentieth century. The structure is architecturally significant, under National Register Criterion C, because it [is] one of the region's last remaining wooden grain elevators, and because of its rare stacked plank construction. The preservation of this building should be one of Louisville's highest preservation priorities.*

#### Historic Structure Assessment (HSA), 2011

A Historic Structure Assessment was completed for the property in 2011, prepared by Anderson Hallas Architects, PC (Attachment No. 5). The contract was for \$38,000, which was funded by the City of Louisville through the Historic Preservation Fund (HPF).

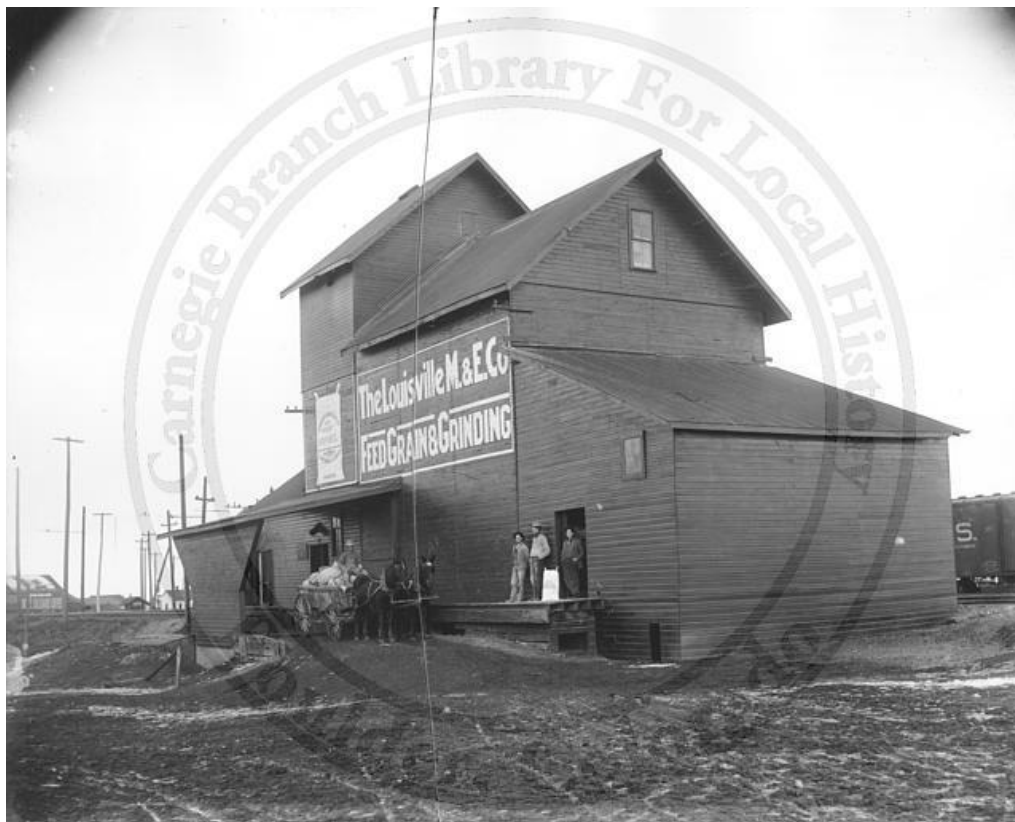
The HSA describes the Grain Elevator as composed of five sections, each with a different height and roof. Section 1 is the section furthest north and the numbers progress to the south. The northern and southern most sections have shed roofs, and the middle three sections, each have a gable roof. The three north sections have wood tongue and groove siding, the southernmost section has shiplap wood siding. The section in the middle, containing the grain storage bins, has stacked wood planks. The process of stacking boards horizontally with the broad sides together is called cribbing and was a common construction technique for grain elevators. The elevator is wood sided and has never had metal siding put on, as many grain elevators have had, except in a few sections by the gabled roofs. The HSA states that the proposed work on the building would restore its architectural integrity and ensure its status as a significant structure both locally and nationally. The HSA concluded that the building is structurally sound, barring a few areas of deterioration, though the report is now 15 years old. A structural assessment supplemental was completed by Ascent Structural Engineering in November, 2025 (Attachment No. 6)



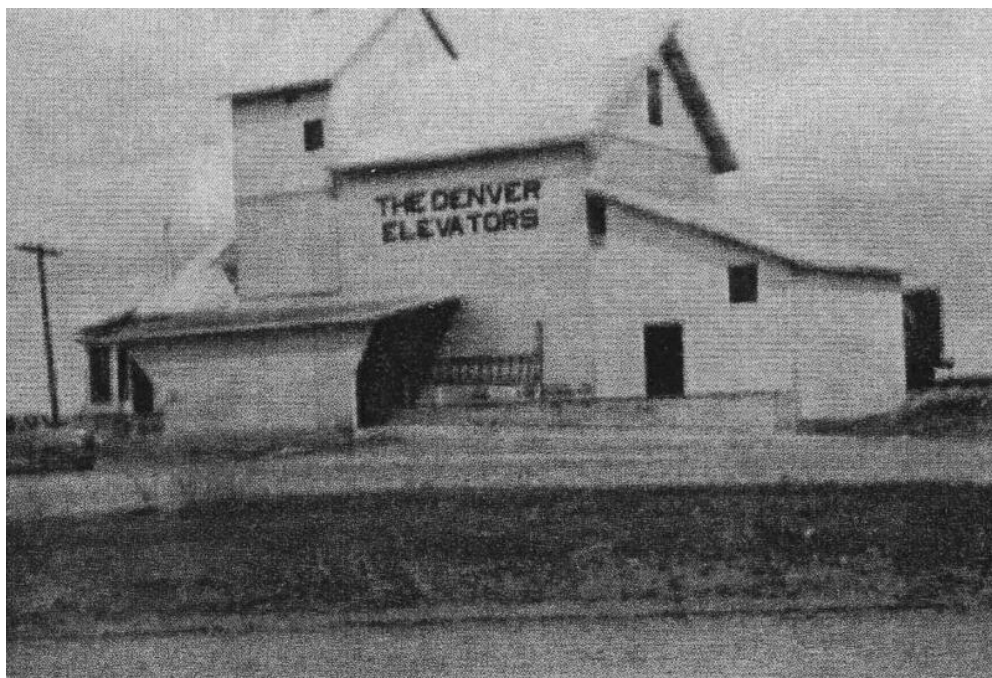
Louisville Grain Elevator, 2/8/1916, Louisville Historical Museum



Louisville Grain Elevator, 2/8/1916, Carnegie Branch Library for Local History, Boulder



Louisville Grain Elevator, circa 1916, Carnegie Branch Library for Local History, Boulder



Boulder County Assessor card photo showing Grain Elevator, circa 1949-1958





Recent image of Grain Elevator



Recent image of Grain Elevator



Recent image of Grain Elevator



Recent image of Grain Elevator



**ALTERATION CERTIFICATE REQUEST:**

The applicant is requesting an alteration certificate. Alteration certificate requests are tied to landmark requests to ensure the work proposed would not affect a property's historical integrity for landmarking. Alteration certificates are not required for routine maintenance, such as painting, but are required for work that requires a building permit. The proposed work falls under this review purview, which should focus on how the proposed changes may or may not impact the building and its historic integrity.

The proposed Alteration Certificate applies only to the landmarked property (Lot 1) containing the grain elevator. Structural stabilization and renovation of the grain elevator for commercial use is proposed per the Secretary of the Interior's Standards for the Treatment of Historic Properties. Specific scope of the Alteration Certificate includes:

- Existing siding and stacked plank walls to be repaired or replaced to match original as required, with paint to match original color as closely as possible
- New 'corten' corrugated metal roofing
- Restore historic painted wall sign
- New tenant signage area on structure
- New glass enclosure with operable wall panels
- New patios for outdoor dining
- Repair or replace original windows to match historic conditions
- Four new skylights
- New glazed entry
- Reconstruction of original boardwalk
- Restoring the porte cochere

Additional details for the rehabilitation and renovation of the grain elevator are presented in construction documents in Attachment No X.

**ALTERATION CERTIFICATE CRITERIA AND STANDARDS ANALYSIS:****Sec. 15.36.120. - Criteria to review an Alteration Certificate.**

A. The commission shall issue an Alteration Certificate for any proposed work on a designated historical site or district only if the proposed work would not detrimentally alter, destroy or adversely affect any architectural or landscape feature which contributes to its original historical designation.

B. The commission must find the proposed alteration to be visually compatible with designated historic structures located on the property in terms of design, finish, material, scale, mass and height. When the subject site is in an historic district, the commission must also find that the proposed alteration is visually compatible with characteristics that define the district. For the purposes of this chapter, the term "compatible" shall mean consistent with, harmonious with, or enhancing to the mixture of complementary architectural styles, either of the architecture of an individual structure or the character of the surrounding structures.

C. The commission will use the following criteria to determine compatibility:

| Criteria and Standards                                                                                                                                                                  | Met?       | Evaluation                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. <i>The effect upon the general historical and architectural character of the structure and property.</i>                                                                             | <b>Yes</b> | The work will improve and preserve the historic quality, character, and stabilization of the Grain Elevator building.                                                                                                 |
| 2. <i>The architectural style, arrangement, texture, and material used on the existing and proposed structures and their relation and compatibility with other structures.</i>          | <b>Yes</b> | The proposed restoration maintains the style of the Grain Elevator and uses compatible and comparable materials where relevant, including windows, siding, and plank.                                                 |
| 3. <i>The size of the structure, its setbacks, its site, location, and the appropriateness thereof, when compared to existing structures and the site.</i>                              | <b>Yes</b> | There are no changes to the size, location, or setbacks of the Grain Elevator.                                                                                                                                        |
| 4. <i>The compatibility of accessory structures and fences with the main structure on the site, and with other structures.</i>                                                          | <b>N/A</b> | The grain elevator is located on landmarked property on Lot 1. Accessory structures such as restoring the porte cochere and boardwalk on the front side of the building ramp are compatible.                          |
| 5. <i>The effects of the proposed work in creating, changing, destroying, or otherwise impacting the exterior architectural features of the structure upon which such work is done.</i> |            | Materials and features are proposed to be matched as closely to original aspects as possible. The Secretary of the Interior's Standards for the Treatment of Historic Properties will be used for the rehabilitation. |
| 6. <i>The condition of existing improvements and whether they are a hazard to public health and safety.</i>                                                                             | <b>N/A</b> | No public health hazards are identified with this proposal.                                                                                                                                                           |
| 7. <i>The effects of the proposed work</i>                                                                                                                                              | <b>Yes</b> | The proposed work will positively                                                                                                                                                                                     |

| Criteria and Standards                                                                                                                                                                                                                                                    | Met?       | Evaluation                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>upon the protection, enhancement, perpetuation and use of the property.</i>                                                                                                                                                                                            |            | affect the future usability of the building.                                                                                                                                                                                                                                                                                                                                                         |
| 8. a. <i>A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.</i>                                                                       | <b>No</b>  | It is not possible or feasible for the Grain Elevator to be used as intended for grain/milling. The change in use to a Drinking Establishment is intended to maintain and promote preservation and rehabilitation of the grain elevator alongside changing it to a more viable and contemporary use.                                                                                                 |
| 8. b. <i>The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.</i>                                                                  | <b>Yes</b> | The building will be preserved and restored with like character and materials.                                                                                                                                                                                                                                                                                                                       |
| 8. c. <i>Each property shall be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.</i> | <b>Yes</b> | The request related does not include conjectural features or other features that create a false sense of history. A non-historic "box car" addition is proposed off the rear of the Grain Elevator. While this element does not reflect the historic development of the Grant Elevator, it is designed to be subordinate to the main structure and will not be easily visible from public viewsheds. |
| 8. d. <i>Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.</i>                                                                                                                 | <b>N/A</b> | There are no architectural features on this property that have acquired historic significance in their own right.                                                                                                                                                                                                                                                                                    |
| 8. e. <i>Distinctive features, finishes and construction techniques or examples of craftsmanship that characterize a property shall be preserved.</i>                                                                                                                     | <b>N/A</b> | No existing distinctive finishes are proposed to be removed.                                                                                                                                                                                                                                                                                                                                         |
| 8. f. <i>Deteriorated historic features shall</i>                                                                                                                                                                                                                         | <b>N/A</b> | Windows, siding, and plank are                                                                                                                                                                                                                                                                                                                                                                       |

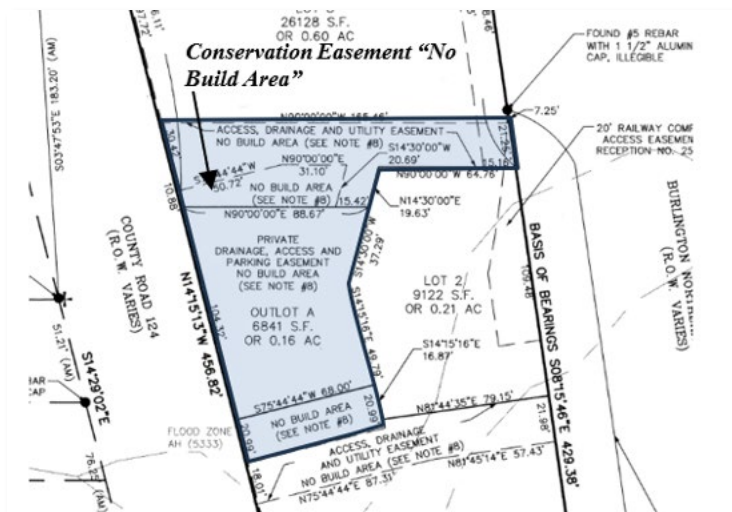
| Criteria and Standards                                                                                                                                                                                                                                                                                                                                                                                                      | Met?       | Evaluation                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>be repaired rather than replaced. When the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture and other visual qualities and, where possible, materials. In the replacement of missing features, every effort shall be made to substantiate the structure's historical features by documentary, physical, or pictorial evidence.</i> |            | proposed to be repaired where possible instead of replaced.                                                                                                                                                                                                                                   |
| <i>8. g. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.</i>                                                                                                                                                                                   | <b>N/A</b> | Damaging techniques are not proposed for use on this project.                                                                                                                                                                                                                                 |
| <i>8. h. Significant archaeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.</i>                                                                                                                                                                                                                                     | <b>N/A</b> | Significant archeological resources have not been identified on this property.                                                                                                                                                                                                                |
| <i>8. i. New additions, exterior alterations or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.<sup>1</sup></i>                                                    | <b>Yes</b> | The proposed "box car" addition is sited to the rear of the building and will be differentiated from the old through material, massing and scale. Other proposed structure are physically detached from the Grain Elevator and would not destroy historic materials on the historic building. |
| <i>8. j. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.</i>                                                                                                                                                                                  | <b>Yes</b> | The new addition is proposed to be differentiated from the historic grain elevator, be detached, and include restrooms. If removed the historic aspect of the grain elevator would be maintained.                                                                                             |

### No Build Area and Conservation Easement

While outside of the scope of this HPC application review, staff would like to make HPC aware that there is a designated No-Build Area and conservation easement that was established through the Louisville Mill Site Subdivision. The No-Build Area is intended to preserve view corridors to the Grain Elevator for historic preservation purposes. The No-Build Area generally prohibits buildings and other improvements within the area. However, the conservation easement allows consideration of some development in the No-Build Area if authorized through a resolution approved by City Council. Considering the stated intent of the conservation easement, staff finds that limited development within the No-Build Area could be appropriate if such development does not materially impact the public view corridors to the Grain Elevator. The proposed use of the No-Build Area includes parking areas, the Mobile Food Court and associated development such as the accessory building, fencing, a stage, and decorative lighting. These improvements will help facilitate redevelopment and activation of the property and will have a minimal impact on the intended view corridors.

8. NO-BUILD AREA: THE NO-BUILD AREAS NOTED ON THIS PLAT ARE SUBJECT TO THE FOLLOWING RESTRICTION: NO BUILDINGS OR OTHER IMPROVEMENTS SHALL BE CONSTRUCTED WITHIN THE NO-BUILD AREA WITHOUT THE EXPRESS PRIOR WRITTEN CONSENT OF THE CITY OF LOUISVILLE, AS EVIDENCED BY WRITTEN RESOLUTION OF THE CITY OF LOUISVILLE CITY COUNCIL. THE OWNERS HEREBY ESTABLISH THAT THE FOREGOING RESTRICTION SHALL CONSTITUTE A COVENANT RUNNING WITH OUTLOT A AND THOSE PORTIONS OF LOTS 1 AND 3 WITHIN THE NO-BUILD AREA, AND THAT SUCH RESTRICTION SHALL ENCUMBER THE NO-BUILD AREA AND BE BINDING UPON ALL OWNERS OF ANY OWNERSHIP OR OTHER INTEREST IN THE NO-BUILD AREA. THE OWNERS HEREBY FURTHER DEDICATE TO THE CITY OF LOUISVILLE A PERPETUAL CONSERVATION EASEMENT IN GROSS TO ENFORCE THE FOREGOING PROHIBITION ON THE CONSTRUCTION OF BUILDINGS OR OTHER IMPROVEMENTS WITHIN THE NO-BUILD AREA, IT BEING THE INTENT THAT SUCH PROHIBITION IS FOR THE PRESERVATION OF VIEW CORRIDORS FOR HISTORIC PRESERVATION PURPOSES. THE RESTRICTION AND EASEMENT HEREIN ESTABLISHED SHALL NOT BE SUBJECT TO ABANDONMENT OR MERGER AND MAY ONLY BE MODIFIED, TERMINATED, EXTINGUISHED OR RELEASED BY INSTRUMENT APPROVED BY RESOLUTION OF THE LOUISVILLE CITY COUNCIL AND EXECUTED BY THE MAYOR AND CITY CLERK. IMPROVEMENTS AUTHORIZED BY THE LOUISVILLE MILL SITE PLANNED UNIT DEVELOPMENT PLAN, AS APPROVED BY CITY COUNCIL RESOLUTION, SHALL BE PERMITTED IMPROVEMENTS IN THE NO-BUILD AREA.

### Conservation Easement Language on Subdivision Plat



Area of Conservation Easement

## GRANT REQUEST:

The applicant is requesting approval of a Preservation and Restoration Grant To rehabilitate the grain elevator.

### Preservation and Restoration Grant:

Under [Resolution No. 102, Series 2025](#), commercial applicants are eligible for up to \$343,000 in grant funds, including new construction grants for up to \$111,000 for a total of up to \$454,000 in matching grant funds under Tier 1. These grants funds are conditioned based on the applicant matching one hundred percent of the amount for approved work. Approved work must fall under the categories of preservation, rehabilitation, restoration, or maintenance (for income qualified applicants only).

**Preservation** is the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property as they now exist. Approved work focuses upon the repair of exterior historic materials and features rather than extensive replacement and new construction.

**Rehabilitation** is the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values. Rehabilitation acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate.

**Restoration** is the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time. Approved work focuses on exterior work and includes the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

Staff evaluated the Preservation and Restoration Grant request and summarized the findings in Table 1:



**Table 1. Analysis of Qualifying Grant Requests**

| Requests                                                                                                                                                                                   |           | Analysis                                  |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------------------------|------------------|
| Description                                                                                                                                                                                | Amount    | Preservation, Restoration, Rehabilitation | Eligible Expense |
| Site                                                                                                                                                                                       |           |                                           |                  |
| 1. Final site grading (includes excavation and backfill for foundation insulation/dampproofing)                                                                                            | \$117,694 | Preservation                              | Yes              |
| 2. New water service for fire sprinklers                                                                                                                                                   | \$128,836 | Rehabilitation                            | Yes              |
| 3. New sanitary sewer service                                                                                                                                                              | \$76,102  | Rehabilitation                            | Yes              |
| Foundation                                                                                                                                                                                 |           |                                           |                  |
| 4. Granular backfill at all crawlspace areas (hand placed over vapor barrier)                                                                                                              | \$13,101  | Preservation                              | Yes              |
| 5. Sump to drain at scale pit (Including plumbing equipment)                                                                                                                               | \$74,627  | Rehabilitation                            | Yes              |
| 6. Replace/reinforce section of wood foundation wall at Section 1                                                                                                                          |           | Preservation                              | Yes              |
| 7. Complete miscellaneous foundation construction in areas not previously addressed in stabilization phase.                                                                                |           | Preservation                              | Yes              |
| Building Structural System                                                                                                                                                                 |           |                                           |                  |
| 8. First floor: Remove abandoned stairs; re-frame floor around stair opening at Section 1 and 2 - Reframe for new stairs as indicated                                                      | \$103,965 | N/A                                       | No               |
| 9. At tower section, reinforce vertical members as indicated and at 6th Floor Mezzanine, add strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge |           | Preservation                              | Yes              |

|                                                                                                                                                                                        |           |              |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|-----|
| 10. Structural repair of bin walls and floors below grade as required to re-establish the horizontal lateral base of the bin structure that provides lateral bracing for the building. |           | Preservation | Yes |
| <b>All Sections; Lateral Force Resisting System</b>                                                                                                                                    |           |              |     |
| 11. Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation                                                    | \$32,040  | Preservation | Yes |
| 12. Miscellaneous drag strut and collector elements as indicated<br>Will drag some force into existing bin walls in order to minimize number of new wood shear walls.                  |           | Preservation | Yes |
| <b>All Sections; Floor framing and wall framing at all sections</b>                                                                                                                    |           |              |     |
| 13. Repair, re-frame, or replace percentage of floor framing to correct miscellaneous notched & cut joists, improperly headered joists, etc.                                           | \$279,920 | Preservation | Yes |
| 14. Sister or replace floor framing having grade limiting size knots or slope                                                                                                          |           | Preservation | Yes |
| 15. Sister or replace wall framing due to char damage, or due to discontinuous studs as indicated                                                                                      |           | Preservation | Yes |
| 16. Remove and replace structural elements affected by previous fire damage (to be reviewed on site with structural engineer and architect)                                            |           | Preservation | Yes |
| 17. New structural steel elements for reinforcing structure                                                                                                                            | \$254,395 | Preservation | Yes |
| <b>Restoration of wagon ramp, porte cochere &amp; boardwalk</b>                                                                                                                        |           |              |     |
| 18. Reconstruction of original Porte Cochere wall and roof to cover wagon ramp                                                                                                         | \$109,887 | Restoration  | Yes |

|                                                                                                                                                 |           |              |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|-----|
| 19. Reconstruct wagon ramp with grate at boot pit opening per original. Area of wagon ramp beyond wood framing to be concrete slab and ADA Ramp |           | Restoration  | Yes |
| 20. Reconstruct wood boardwalk along west side of building with stairs on each end. Add railings for safety where required.                     |           | Restoration  | Yes |
| 21. Disassemble scales, move and reassemble scale equipment and infill excavated scale pit at existing site                                     | \$20,000  | Restoration  | Yes |
| 22. Miscellaneous structural repairs and unknown conditions                                                                                     | \$30,000  | N/A          | No  |
| <b>Exterior Wall Construction &amp; Envelope</b>                                                                                                |           |              |     |
| 23. Selective repair or replacement of severely damaged wood shiplap siding. Additional siding replacement as required                          | \$131,562 | Preservation | Yes |
| 24. Selective repair or replacement of severely damaged wood tongue and groove siding                                                           |           | Preservation | Yes |
| 25. Repaint exterior of building including moderate preparation and some siding repair remains.                                                 |           | Restoration  | Yes |
| 26. Paint new boardwalk, porte cochere, and wagon ramp) with two pain coats                                                                     |           | Restoration  | Yes |
| 27. Code compliant wall and roof/attic insulation enclosing conditioned spaces                                                                  | \$79,764  | N/A          | Yes |
| <b>Envelope - Roofing &amp; Waterproofing</b>                                                                                                   |           |              |     |
| 28. New metal roofing, flashings gutters & downspouts for new (Porte Cochere only)                                                              | \$13,319  | Restoration  | Yes |
| 29. Membrane roofing and flashing at wagon ramp over basement space                                                                             | \$3,897   | Restoration  | Yes |
| 30. Below Grade Damproofing for entire perimeter of existing building                                                                           | \$6,245   | Preservation | Yes |
| 31. Reconfigure gutters as required for proper drainage, discharge                                                                              | \$24,230  | Preservation | Yes |

|                                                                                                                        |          |                |     |
|------------------------------------------------------------------------------------------------------------------------|----------|----------------|-----|
| to rain gardens for water quality                                                                                      |          |                |     |
| Windows and Doors                                                                                                      |          |                |     |
| 32. Replace (7) eight lite double hung wood windows and frames to match original.                                      | \$74,163 | Restoration    | Yes |
| 33. Replace (4) two lite double hung windows.                                                                          |          | Restoration    | Yes |
| 34. Repair (2) fixed four lite windows (2'x2')                                                                         |          | Restoration    | Yes |
| 35. Reconstruct existing eight lite double hung wood window                                                            |          | Restoration    | Yes |
| 36. Replace 50% of the wood on the sliding doors (6'x7').                                                              | \$26,113 | Restoration    | Yes |
| 37. Sand and refinish 4 panel wood door, refurbish hardware non-operating.                                             |          | Restoration    | Yes |
| 38. Replace 50% of the wood boards composing exterior doors (3'x7').                                                   |          | Restoration    | Yes |
| 39. Remove, wire brush and oil all hardware that remains.                                                              |          | Restoration    | Yes |
| 40. Install new hardware to match historic as closely as possible.                                                     |          | Restoration    | Yes |
| 41. New barn door rollers and track for sliding door to match original                                                 |          | Restoration    | Yes |
| Interior Rehabilitation (Code, Safety, and Structure)                                                                  |          |                |     |
| 42. Code compliant stairs from first to second level and from first level to basement in similar location to existing. | \$84,223 | Rehabilitation | No  |
| 43. Replace floorboard subfloor                                                                                        |          |                | No  |
| 44. Remove non-compliant access ladders (ship ladders).                                                                |          |                | No  |
| 45. Media blast wood surfaces in the building                                                                          |          |                | No  |
| 46. Treat charred wall areas to avoid dusting for safety.                                                              |          |                | No  |
| Mechanical Systems and Fire Protection                                                                                 |          |                |     |
| 47. Crawlspace ventilation to mitigate moisture and potential wood deterioration and mold.                             | \$26,724 | Rehabilitation | Yes |

|                                                                                                                              |            |                |     |
|------------------------------------------------------------------------------------------------------------------------------|------------|----------------|-----|
| 48. Fire sprinkler system                                                                                                    | \$136,226  | Rehabilitation | Yes |
| 49. Dry system to avoid freezing                                                                                             |            | Rehabilitation | Yes |
| 50. Fire alarm system                                                                                                        |            | Rehabilitation | Yes |
| 51. Plumbing system rough-in (no interior tenant finish)                                                                     | \$269,929  | Rehabilitation | Yes |
| 52. Electric heat pump system                                                                                                | \$187,417  | Rehabilitation | Yes |
| <b>Electrical Systems</b>                                                                                                    |            |                |     |
| 53. Electric Main Switchgear and Service to Transformer                                                                      | \$ 370,482 | Rehabilitation | Yes |
| 54. Branch Circuits, Panels, Outlets & Lighting                                                                              |            | Rehabilitation | Yes |
| 55. Xcel New Service Connection                                                                                              | \$50,000   | Rehabilitation | Yes |
| <b>Hazardous Material Mitigation</b>                                                                                         |            |                |     |
| 56. Follow up testing and mitigation allowance due to time of vacancy                                                        | \$18,000   | Rehabilitation | Yes |
| <b>Miscellaneous Soft Costs</b>                                                                                              |            |                |     |
| 57. 10% Owner's Construction Contingency for Hidden Conditions & Unforeseen Events                                           | \$274,286  | N/A            | No  |
| 58. Building Permit & Plan Review Fees                                                                                       | \$35,657   | N/A            | No  |
| 59. Taxes, other fees, etc. paid at permit                                                                                   | \$90,514   | N/A            | No  |
| 60. Builder's Risk Insurance - Carried by Owner                                                                              | \$76,800   | N/A            | No  |
| 61. Engineering Fees subsequent to initial stabilization                                                                     | \$109,714  | Preservation   | Yes |
| 62. Architecture Fees subsequent to initial stabilization                                                                    | \$174,857  | Preservation   | Yes |
| 63. Geotechnical Engineering Fees & Construction Phase Material Testing                                                      | \$5,368    | Preservation   | Yes |
| 64. Wood Scientist to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete | \$1,000    | Restoration    | Yes |
| 65. Qualified lumber grader for one day to identify floor framing members not meeting #2 grade where applicable for adaptive | \$2,000    | Preservation   | Yes |

|                                          |                    |                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| re-use                                   |                    |                                                                                                                                                                                                                                                                                                                                                              |
| <b>Total Project Cost from Applicant</b> | <b>\$3,513,058</b> |                                                                                                                                                                                                                                                                                                                                                              |
| <b>Adjusted Eligible Expenses</b>        | <b>\$2,921,578</b> | Not eligible: <ul style="list-style-type: none"> <li>• Fees (\$35,657)</li> <li>• Taxes (\$90,514)</li> <li>• Builders Risk Insurance (\$76,800)</li> <li>• Interior Rehabilitation (\$84,223)</li> <li>• Miscellaneous structure repairs and unknown conditions (\$30,000)</li> <li>• Owners Contingency (\$274,286)</li> </ul> Total ineligible: \$591,480 |
| <b>Half of Eligible Project Cost</b>     | <b>\$1,460,789</b> |                                                                                                                                                                                                                                                                                                                                                              |
| <b>Total Requested</b>                   | <b>\$1,475,000</b> |                                                                                                                                                                                                                                                                                                                                                              |
| <b>Total Recommended Grant</b>           | <b>\$1,460,789</b> |                                                                                                                                                                                                                                                                                                                                                              |

Staff finds that the following items are not eligible for grant funds:

- The building permit fees, construction use tax, development impact fees and builders risk insurance (Item Nos. 58 -60). These items are not typically grant eligible items and have not been approved in past grant applications. The City has supported other soft costs on past grant applications, including architectural and engineering fees related to eligible work covered by the grant.
- Interior rehabilitation (Item Nos. 42-46). While interior work related to mechanical, electrical, and plumbing systems, and interior structural work required by code are eligible items, these types of rehabilitation items related to the applicant's interior finish plans are not eligible.
- Miscellaneous structure repairs and unknown conditions (Item No. 22). The applicant has secured a final construction bid with General Contractor contingency included. Staff finds this open-ended additional contingency is redundant and is not connected to any specific eligible grant item.
- Owners 10% contingency (Item No. 57). As previously noted, the applicant has received a final bid with contingency included and this item is not specifically connected to an eligible historic preservation grant item.



Full scope of work and construction bid documents can be found in Attachment No. 1 and Attachment No. 7.

#### Extraordinary Circumstances (Tier 2)

Commercial projects may request additional matching funds of up to \$80,000 (Tier 2) if they qualify for extraordinary circumstances as defined by Section 8 (e) of Resolution No. 102, Series 2025:

*e..." extraordinary circumstances" shall mean additional grant funds are appropriate to:*

- i. Preserve, restore, and rehabilitate the integrity of historic architectural features and materials of the exterior of the buildings, including but not limited to historic windows, doors, siding, and other historic features that, without the additional grant funds, would be replaced by new materials; or*
- ii. Pay for vital structural work and building code compliance -related work that exceed Tier 1 grant amounts, if identified in an approved HSA.*

**Staff analysis:** The proposed scope includes repair where possible of historic materials including windows, siding, and stacked plank walls. These materials are proposed to be repaired or replaced to match original. The proposed scope includes critical code deficiency work, including plumbing, electrical, fire, water and sewer improvements. Staff find that the project meets the definition of extraordinary circumstances, and that the applicant is eligible for up to \$80,000 in additional matching funds for vital structural and code compliant work, as well as for scope that preserves original historic features.

#### Extraordinary Circumstances (Tier 3)

Commercial projects may be eligible for additional funding under Exceptional Circumstances (Tier 3). Staff analyzed eligibility of the project under Exceptional Circumstances as defined by Section 8 (f) of Resolution No. 102, Series 2025:

*f. ,,, " exceptional circumstances" must meet all of the following criteria:*

- i. Demonstrate exceptional architectural style or social history contributing to the historic fabric of Louisville; and*

**Staff Analysis:** The Grain Elevator has a particularly unique architectural style for grain elevators, identified as a cribbed structure and unusual in that it retains wood siding that has never been replaced with or covered by metal siding. As an anchor for the agricultural history of Louisville, the grain elevator is an important contributor to the historic fabric of Louisville in the post WWII era.

- ii. Demonstrate exceptional uniqueness in the City, and*

**Staff Analysis:** The Grain Elevator is the only grain elevator in the City and is integral

to representing the City's agricultural history, and is therefore singularly unique.

- iii. *Demonstrate that, without the additional grant funds, the project is not financially viable; and*

**Staff Analysis:** The applicant has demonstrated that without additional funds the project is not financially. The gap analysis completed as part of the urban renewal request shows a a \$2,000,000 financial gap for the project.

- iv. *Demonstrate a gap in funding for the project to be financially feasible.*

**Staff Analysis:** As discussed above, the City is completing a gap analysis of the project and anticipates a significant funding gap in the project in the range of \$2M..

**Staff Analysis:** The current fund balance is 2.9M. The grant request would reduce the funds to 1.38M. The City recently acquired 1016 Main Street for \$1.4M in order to preserve and resell the property. Staff anticipates listing the property by the end of this month and hopes to recover most of this cost, which would be added back into the fund balance. Staff also anticipate receipt of one additional commercial grant request in 2026, and is anticipating an uptick in residential grant requests as a result of the recent increase in grant funding available following the approval of Resolution No. 102, Series 2025.

#### New Construction Grant Request

Owners of landmarked property or property with an established conservation easement on which new commercial structures or additions to existing commercial structures are proposed are eligible for grants as set forth in Section 8, Table 2 for new commercial construction that, beyond mandatory requirements, substantially limits mass, scale, and number of stories, preserves setbacks in a manner that, a protects the historic integrity of the property and its environment by differentiating new work from the old. Qualifying new construction must limit building height to two stories and have a floor area ratio (FAR) 20% below what is allowed by zoning.

The proposed new construction grant is requested for an east addition to the historic grain elevator which would include restrooms. The addition is proposed to be a one-story structure to appear like a traditional boxcar moved to the siding location where trains would load and unload material from the grain elevator in the past. It is proposed to be a historically sensitive interpretation of the environment of the grain elevator to add to the historic context, while differentiating the new construction from the historic grain elevator.

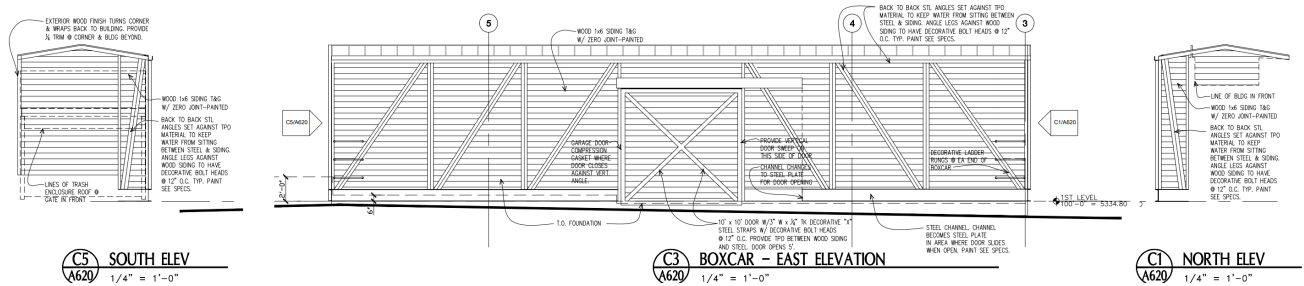


Figure 1: Boxcar addition elevations (page 49, Attachment No. 7).

**Staff Analysis:** The proposed addition is 1 story and is limited in mass and scale.

| Table 2. Analysis of New Construction Grant Request                                    |                    |
|----------------------------------------------------------------------------------------|--------------------|
| Requests                                                                               |                    |
| Description                                                                            | Amount             |
| All work related to the east addition to the grain elevator, similar to a train boxcar | \$838,622          |
| Owner costs, including contingency, permit and professional fees, taxes and insurance  | \$232,960          |
| <b>Half of Project Cost</b>                                                            | <b>\$1,071,582</b> |
| <b>Total Requested</b>                                                                 | <b>\$111,000</b>   |
| <b>Total Recommended</b>                                                               | <b>\$111,000</b>   |

#### Summary of Grant Requests

##### **PRESERVATION/RESTORATION GRANT REQUESTED:**

\$1,475,000

##### **STAFF RECOMMENDED PRESERVATION/RESTORATION GRANT:**

\$1,460,789

(Includes Tier 1, Tier 2, and Tier 3 grants)

##### **NEW CONSTRUCTION GRANT REQUESTED:**

\$111,000

##### **STAFF RECOMMENDED NEW CONSTRUCTION GRANT:**

\$111,000

##### **TOTAL OF GRANTS REQUESTED**

\$1,586,000

**STAFF RECOMMENDED TOTAL**

\$1,571,789

**FISCAL IMPACT:**

The unencumbered fund balance is estimated at \$3M and the average income of the Fund over the past two years is approximately \$885,000. The grant would reduce the fund balance to \$1.38M. Following the anticipated sale of 1016 Main St., the fund balance is estimated to be approximately \$2.7M. Thus, staff finds there are adequate funds to support the request.

**STAFF RECOMMENDATION**

1. Approval of Resolution No. 1, Series 2026, approving the Alteration Certificate.
2. Approval of Resolution No. 2, Series 2026, recommending to City Council approval of grants totaling \$1,571,789. The following are the grant categories by amount recommended by staff as per Resolution 102, Series 2025:
  - a. Preservation, Restoration and Rehabilitation grant up to \$343,000.00
  - b. Extraordinary Circumstances grant up to \$80,000.00
  - c. Exceptional Circumstances grant up to \$1,037,789.00
  - d. New Construction grant up to \$111,000.00

**ATTACHMENTS:**

1. Louisville Mill Site Subdivision
2. Application
3. Planned Unit Development (PUD)/Special Review Use (SRU) Proposal
4. Social History Report
5. Historic Structure Assessment, 2011
6. Historic Structure Assessment Supplemental, 2025
7. Grain Elevator Renovation Plans
8. Resolution No. 1, Series 2026 (Alteration Certificate)
9. Resolution No. 2, Series 2026 (Grant Request)



# LOUISVILLE MILL SITE LLC

950 Spruce Street, Suite 2C, Louisville, CO 80027

303.673.9304



Mr. Rob Zuccaro, Community Development Director  
City of Louisville, Colorado  
749 Main Street  
Louisville, CO 80027

12 February, 2026

Re: Historic Louisville Grain Elevator  
Redevelopment for The Grain Yard  
HPF Grant Application  
520, 540 County Road (Front Street)

Rob,

Per your request, we are pleased to provide this addendum to our initial Grant Application (original application dated 06/25/25, amended 09/20/25). We understand that the magnitude of this grant request requires a great deal of review and scrutiny on your part and we are happy to provide any additional information that is required for the HPC review of our grant application.

This resubmittal is based on the city's request that we provide actual contractor bids in lieu of the contractor's estimate that we provided last September. I have provided you with a bid summary indicating the 3 bids that we received from pre-qualified general contractors. The bid that we are prepared to accept, subject to adequate funding, is the low bid received from Melton Construction, (copy attached).

Attached, as requested please find the following information, revised as noted:

Grant Application Fillable Form-Louisville Mill Site 021226-REV-Signed.pdf  
LMS-LLC\_GrainElev-Sabilization&Rehab-HPC\_ScopeOfWork-021226-REV.pdf  
Grant Application Fillable Form-Louisville Mill Site 021226-REV-New\_Construction-Signed.pdf  
LouisvilleGrainElevator-bid.pdf

The Construction Drawings and Specification package as submitted for building permit and used for the general contractor bidding is in the DropBox below, as well as the structural engineer's review letter, and the PUD drawings:

DropBox Folder: Louisville\_Grain\_Elevator-Permit-CDs

[https://www.dropbox.com/scl/fo/gp0xg8itbrzaf4fh12q48/APzBy22Z8waDVrx\\_BLUBryQ?rlkey=urp0lisq7nilr064491h8yhndn&st=liuwc7o6&dl=0](https://www.dropbox.com/scl/fo/gp0xg8itbrzaf4fh12q48/APzBy22Z8waDVrx_BLUBryQ?rlkey=urp0lisq7nilr064491h8yhndn&st=liuwc7o6&dl=0)

We have included the original PUD narrative herein for reference.

The redevelopment of Louisville's historic Grain Elevator is intended to transform this iconic 120-year-old utilitarian agrarian structure into a vibrant venue that will become a community gathering place, contributing to Downtown Louisville's vitality. Please see the attached letter from the owners of The Grain Yard LLC, who will be the tenants of the building and site. Please note that the managing

partners of the Grain Yard LLC are also partners in the ownership of the property as part of Louisville Mill Site LLC/Louisville's Living Room LLC ownership group.

The design for the Grain Yard redevelopment retains all of the original features of this historic landmark and provides for reconstructing the original porte cochere, wagon ramp and wagon scales, which were an integral part of the original building design and function. We have proposed a small addition on the back of the building which will emulate a boxcar, in the location of the railroad siding that used to run behind the building. The proposed design for this first phase is consistent with the original PUD and SRU that was approved in 2015. This amendment to that PUD is intended to allow for some minor changes to the original approval, but is mainly a separation of this first phase from the rest of the development that is not currently moving forward. The grain elevator building will be fully renovated inside in the areas that will accommodate this new use, while preserving the historic fabric of the wooden structure, (even preserving evidence of the major fire that occurred in the past). The building will be ADA accessible, and energy upgrades will be provided as well as structural upgrades and new mechanical, plumbing, and electrical systems. A new, safe electrical service to the building will be provided to replace the antiquated electrical system, as well as new water and sewer services.

The site will be improved with landscaping, fencing and lighting for the open space in front of the grain elevator, (the 'Yard') which will be an area for community gathering, events and relaxing at this historic site, with spaces for food trucks. We envision interpretive historic signage and displays documenting the agrarian history of Louisville's early years and this building and site. We would like to work with the City of Louisville and the Museum to bring this history to life on this site. We would also like to move a small private granary from the Warembourg farm to the Grain Yard as a demonstration of how farmers stored grain on their private land versus this commercial grain elevator. We will utilize that small structure as a seasonal tap house for the Grain Yard in good weather. We may also propose landmark status for this structure.

We truly envision this project as a significant community benefit from an experiential and educational perspective. Again, the ability to have this type of a tenant utilize the building is perfect to sustain the history of this site, and Louisville's history into the future. It will activate the site and give people access inside this amazing wooden agricultural cathedral. The revenue from the commercial use of the building will provide the ability to properly maintain the property, which is not possible without a significant revenue stream and private investment into the building and the business.

As we will demonstrate with our grant assistance submittals to the LRC and the HPC, the redevelopment of this site and the renovation and adaptive reuse of this unique historic structure will not be possible without significant public assistance. Such assistance will be an investment together with a private venture for economic revitalization of this area, and also an investment in preserving and maintaining one of the most significant (if not the most significant) remaining structures from Louisville's early history. We look forward to accomplishing this project together with the City of Louisville, the Historic Preservation Commission and the Louisville Revitalization Commission. This one truly takes a village.

We are sensitive to possible concerns related to this proposed use at this site as they were expressed during the original PUD and SRU hearings. Parking is always a concern in downtown Louisville, and we have addressed this issue similar to the originally approved PUD and SRU. There are three commercial properties within this subdivision, which have entered into shared access, maintenance and parking agreements. As part of this development, we will be providing parking on site as required per the Downtown parking regulations, as well as providing 20 shared spaces on Lot 1 (including



BNSF leased ROW) and Lot 3 with formalized access lanes through the combined site. We are also showing potential for approximately 30 additional parking spaces in the adjacent BNSF ROW leased area that is controlled by the City of Louisville. We would like to work with the city and the LRC to provide additional parking spaces for downtown in this area, which has been leased by the city for parking. Please note that there are 6 street-parking spaces directly in front of the site on County Road and a city parking lot is about ½ block from the site.

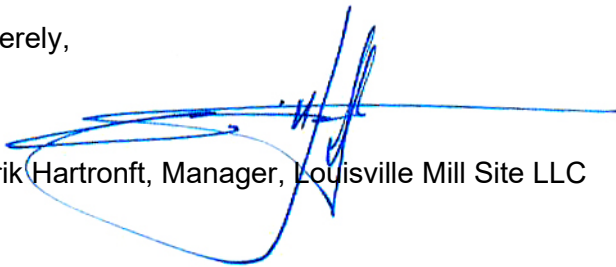
You will note that the final bid from the selected general contractor and subs is less than our estimated construction cost in September 2025 (although two other bids we received were similar to our original estimates). Please note that the contractor's bid includes the entire project construction cost, minus the Warembourg Granary relocation and rehabilitation, and the interior finish by the tenant. The grant table attachment has breakouts for the HPF-eligible scope. The contractor's bid also does not include professional and permit fees, taxes, and other owner-carried costs which are included on our detailed spreadsheet attached to the grant table.

Please note that a new construction grant request for \$75,000 is attached. Resolution 17, Series 2019 provides "... for grants up to \$75,000 for new commercial construction that, beyond mandatory requirements, ... protects the integrity of the property and its environment by differentiating new work from the old. Qualifying new construction must limit building height to two stories ...and have a floor area ratio (FAR) 20% below what is allowed by zoning."

The east addition to the historic grain elevator is a one-story structure designed to appear like a traditional boxcar moved to the siding location where trains would load and unload material from the grain elevator in the past. It is a historically sensitive interpretation of the environs of the grain elevator, and adds to the historic context, while differentiating the new construction from the historic grain elevator as an obvious addition. This development includes Lot 2 and Outlot A for the rehabilitation project for the Grain Yard development. The total lot area is 15,963sf and the total building area with the addition is 6,331sf. Therefore the FAR is .40, however no maximum FAR is specified in the LMC.

Please consider this request for the HPF grants as indicated herein. Let us know if you have any questions regarding this application.

Sincerely,



J. Erik Hartronft, Manager, Louisville Mill Site LLC

City of Louisville,

The ownership group of The Grain Yard, LLC is excited to begin the process of working with the City to bring the grain elevator back to the community.

We are proud to be the catalyst for the Restoration, Rehabilitation, and continued Preservation of the most historic commercial building in Louisville. It is our intention to work alongside the building owner to utilize the inherent strengths of the building and honor the history of the space.

Our concept as tenants of the building is to create a community gathering space. We will be open all day, every day as a place for people to gather, talk, and learn. Beyond the casual hangout moments, we plan to host pop up events, yoga classes, business meetings, private parties and public events, like museum tours. We will utilize lots of the cool spaces inside the building and also the yard between the building and the street.

We plan to sell all sorts of beverages from coffee and tea to kombucha and mocktails to beer and cocktails. We do not plan on having a kitchen, but rather we will partner with local restaurants like Azul Fuego and Lucky Pie during their slow hours and bring in food trucks during busy times. We will need to apply for a liquor license that includes the building and the outlot. The outlot will be fenced in to create a boundary for the license, but will be minimal in design to honor the conservation easement that requires the building not be obstructed.

We will also be coming to the City for a Special Review Use for outdoor dining and live music. The live music will be limited in frequency and size, with the sound directed to the North East, away from the residential neighbors.

Finally, we intend on submitting an application for a Business Assistance Package with the City prior to signing any lease agreement with the building owners. We hope for some use tax rebates for the tenant improvements that are quite complicated in this old building and a sales tax rebate for our first few years to help us get off to a profitable beginning.

We can't wait to work with a great team of building owners, architects, builders, City staff, boards and commissions, neighbors, and all residents to bring this idea to life and return the grain elevator to the community.

Sincerely,

Ownership Group of the The Grain Yard



## PRESERVATION & RESTORATION GRANT APPLICATION

### APPLICATION MATERIALS REQUIRED (submit final docs to [abrackett@louisvilleco.gov](mailto:abrackett@louisvilleco.gov))

- ☐ Application form (3 pages)
- ☐ Separate list with detailed descriptions of proposed work
- ☐ Alteration Certificate Application, if relevant (for work that alters the exterior of a property)
- ☐ Optional: Cover letter describing the proposal
- ☐ Optional: Invoices, estimates, and other cost-related materials to support request

### GENERAL INFORMATION

Site Address: 540 County Road

Owner Name: Louisville Mill Site LLC

Owner Phone: 303-673-9304

Owner Email: erik@hapcdesign.com

Owner Representative Name: Erik Hartronft

Owner Rep. Phone: (same)

Owner Rep. Email: (same)

### FILLING OUT THE GRANT TABLE ON PAGE 2

**Column 1:** Give a title to each line item. Include the same title in your list of descriptions of the work so that it is clear which description corresponds to which estimate.

**Column 2:** Provide the total cost of the line item.

**Column 3:** Check if relevant. Work completed within the past 5 years prior to landmarking is eligible for grants.

**Total Project Cost:** Fill in the total cost of all of the line items.

**Half of Total:** Divide the total project cost in half. This becomes your Total Grant Request. Preservation & Restoration Grants are 50/50 matching grants.

**Grant requests greater than maximum allowed:** If the Total Grant Request is greater than the maximum allowed, you must submit a letter describing your request. Applications for grants above the maximum must begin with a specific meeting with staff to discuss the request above maximum.

## GRANT TABLE

| 1                                                                                                                              | 2                                     | 3                                                     |
|--------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------------------|
| Title of Line Item                                                                                                             | Total Cost of Line Item               | Check box if work will be completed prior to hearing. |
| 3.1 Site - Final Grading, Water Service for Fire Sprinklers, Sanitary Sewer (Rehabilitation)                                   | \$322,632                             | <input type="checkbox"/>                              |
| 3.2 Foundations - Most work complete in previous phase. Minor repair and new footings                                          | \$87,728                              | <input type="checkbox"/>                              |
| 3.3 Building Structural System - Completion of the structural reinforcing and repairs for re-use                               | \$830,207                             | <input type="checkbox"/>                              |
| 3.4 Exterior Wall Construction & Envelope - Addl repair/repaint ext. & add insulation for re-use                               | \$211,326                             | <input type="checkbox"/>                              |
| 3.5 Envelope Roofing & Waterproofing - Porte Cochere roof plus minor G/DS reworking                                            | \$47,691                              | <input type="checkbox"/>                              |
| 3.6 Windows & Doors - Repair and/or replace all windows and doors for full rehabilitation                                      | \$100,276                             | <input type="checkbox"/>                              |
| 3.7 Interior Rehabilitation - Code, Safety, Struct. - Floor and stair repair/replace incl. charred wd.                         | \$84,223                              | <input type="checkbox"/>                              |
| 3.8 Mechanical Systems & Fire Protection - New HVAC (at exstg) plus Fire Sprinklers                                            | \$620,296                             | <input type="checkbox"/>                              |
| 3.9 Electrical Systems - New electrical at existing building only, utility lighting only                                       | \$420,482                             | <input type="checkbox"/>                              |
| 4.0 Hazardous Material Mitigation - Most done previously, minor re-clean & inspection                                          | \$18,000                              | <input type="checkbox"/>                              |
| <b>Total Project Cost:</b>                                                                                                     | \$2,742,861 + Owner Costs = 3,513,058 |                                                       |
| <b>Half of total:</b> \$1,756,529                                                                                              | <b>\$1,475,000</b>                    | <b>← Total Grant Request</b>                          |
| If Total Grant Request is greater than the maximum allowed, you must first meet with staff as part of the application process. |                                       |                                                       |

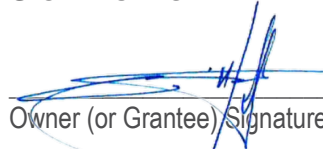
**The Property Owner (or Grantee) hereby agrees and acknowledges that:**

- A. Funds received as a result of this application will be expended as reimbursements of up to half of actual expenses and must be completed within established timelines.
- B. Awards from the Historic Preservation Fund may differ in type and amount from those requested on an application.
- C. Recipients must submit their project for any required design review by the Historic Preservation Commission and acquire any required building permits before work has started.
- D. All projects are subject to zoning and building code review and approval of a grant does not constitute building permit approval.
- E. All work approved for grant funding must be completed even if only partially funded through this incentives program.
- F. Unless the conditions of approval provide otherwise, disbursement of grant or rebate funds will occur after completion of the project and shall be accompanied by proof of payment. Reimbursements are processed as payments to the Property Owner or Grantee.
- G. The incentive funds may be considered taxable income and Applicant should consult a tax professional if they have questions.
- H. The grant application will be reviewed in accordance with all relevant City policy, including but not limited to the categories of eligible expenses described below.

Eligible expenses fall into one or more of the categories below. Interior improvements for protection, stabilization, or code-required work are eligible for grants. Other interior improvements are not.

- **Preservation** applies methods to sustain existing form, integrity, and materials. Approved work focuses on repairing exterior historic materials and features rather than extensive replacement and new construction.
- **Rehabilitation** facilitates new uses and standards for a building through repair, alterations, and additions that preserve those portions or features that convey its historical, cultural, or architectural significance. Rehabilitation acknowledges the need to alter or add to a historic property while retaining the property's historic character. Upgrading mechanical, electrical, and plumbing systems and other code-related work may be considered rehabilitation.
- **Restoration** accurately depicts the form, features, and character of a property as it appeared at a particular period of time. Approved work focuses on exterior work and includes the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

**SIGNATURES AND DATES**

 02/12/26  
\_\_\_\_\_  
Owner (or Grantee) Signature      Date

If Grantee is not Property Owner, describe relationship to property:

---

**CITY USE ONLY – INTAKE VERIFICATION**

- ☐ Table is filled out completely
- ☐ List of Line Item Descriptions is attached
- ☐ Title of Line Items matches Line Item Description Addendum
- ☐ Accompanied by Alteration Certificate, if needed
- ☐ Line items correspond to one of the 3 eligible categories (preservation, restoration, rehabilitation)
- ☒ Applicant has met with staff if grant request is above maximum allowed

**Louisville Grain Elevator - Rehabilitation  
Louisville Mill Site LLC**

**BID DETAIL FORM - HISTORIC PRESERVATION SCOPE OF WORK**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| <b>Bidder:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |
| <b>Melton Design Build</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2/6/2026         |
| <p>Note - The Scope of Work listed on this Bid Detail Form is only Historic Preservation Scope that is qualified per Louisville's Historic Preservation Grant Program. No interior tenant finish work shall be included in this Scope of Work. Also, no costs related specifically to the east building addition ("Boxcar addition") shall be included in this Scope of Work.</p> <p>This bid detail information is supplemental to the Bidder's Schedule of Values and Lump Sum Bid which will be utilized for the Contract for Construction. Bidder shall indicate the total lump sum contract amount for each numbered section below (no breakdown is required for each of the descriptive sub-categories in each section). If allowance is included, indicate by notation above the section amount. Note - Detail/Section costs do not preclude bidder from allocating actual costs differently when on-site construction dictates such modifications within the total bid amount which shall only be modified by change order to the Contract.</p> <p>The Section Subtotal Costs indicated in each numbered section below shall be the total cost of the work included in the bid, including general conditions, General Contractor's fee, overhead and profit, etc. and any contingencies or allowances applicable to the section.</p> |                  |
| <b>3.1 Site</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |
| Provide final grading around structure (incl. excavation and backfill for foundation insulation/dampproofing)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 117,694          |
| Water Service - 1" Domestic, 4" Fire Service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 128,836          |
| Sanitary Sewer Service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 76,102           |
| <b>Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&amp;P, etc. =</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>\$322,632</b> |
| <b>3.2 Foundations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |
| Granular backfill at all crawlspace areas - hand placed over vapor barrier                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 13,101           |
| Sump to drain at scale pit (Incl. plumbing equip.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                  |
| Replace/Reinforce section of wood foundation wall at section 1 as indicated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 74,627           |
| Complete misc. foundation construction in areas not previously addressed in stabilization phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |
| <b>Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&amp;P, etc. =</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>\$87,728</b>  |
| <b>3.3 Building Structural System</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                  |
| 1st Floor: Remove abandoned stairs; re-frame floor around stair opening at section 1 and 2 - reframe for new stairs as indicated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                  |
| At tower section, reinforce vertical members as indicated and at 6th Floor Mezzanine, add strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 103,965          |
| <b>Section 4; Bins</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |
| Structural repair of bin walls and floors below grade as required to re-establish the horizontal lateral base of the bin structure which provides lateral bracing for the building (Incl. \$30k allowance)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |
| <b>All Sections; Lateral Force Resisting System</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                  |
| Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 32,040           |
| Miscellaneous drag strut and collector elements as indicated. Will drag some force into existing bin walls in order to minimize number of new wood shear walls. See lateral connections to new east addition.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |
| <b>All Sections; Floor Framing and Wall Framing</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                  |
| Repair, re-frame, or replace % of floor framing to correct miscellaneous notched & cut joists, improperly headered joists, etc. per allowance.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |
| Sister or replace floor framing having grade limiting size knots or slope of grain (#3) VIF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  |
| Sister or replace wall framing due to char damage, or due to discontinuous studs as indicated, VIF.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 279,920          |
| Allowance to remove and replace structural elements affected by fire. Includes damaged elements requiring replacement and structurally acceptable elements to be replaced for aesthetic or odor reasons. Review on site with structural engineer and architect.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |
| New structural steel elements for reinforcing structure                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 254,395          |

**Louisville Grain Elevator - Rehabilitation**  
**Louisville Mill Site LLC**

**BID DETAIL FORM - HISTORIC PRESERVATION SCOPE OF WORK**

|                                                                                                                                                                                                                    |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| <b>Reconstruct wagon ramp, porte cochere &amp; boardwalk</b>                                                                                                                                                       |                  |
| Reconstruction of original Porte Cochere wall and roof to cover wagon ramp                                                                                                                                         |                  |
| Reconstruct wagon ramp with grate at boot pit opening per original. Area of wagon ramp beyond wood framing to be concrete slab and ADA Ramp.                                                                       | 109,887          |
| Reconstruct wood Boardwalk along west side of building with stairs on each end. Add railings for safety where required (to be differentiated from original construction per NPS guidelines).                       |                  |
| Allowance to disassemble scales, move and reassemble Scale equip. & infill excavated scale pit at existing site, including scale platform is BOSC. (Cost not included in GC scope bid detail.)                     | 20,000           |
| <b>General</b>                                                                                                                                                                                                     |                  |
| Allowance for miscellaneous structural repairs and unknown conditions                                                                                                                                              | 30,000           |
| <b>Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&amp;P, etc. =</b>                                                                                                                          | <b>\$830,207</b> |
| <b>3.4 Exterior Wall Construction &amp; Envelope</b>                                                                                                                                                               |                  |
| Selective repair or replacement of severely damaged wood shiplap siding (extensive at section 5 and upper north wall of section 3 completed). Addl. siding replacement as required (VIF w/Arch) Total \$20k Allow. |                  |
| Selective repair or replacement of severely damaged wood tongue and groove siding (VIF w/Arch)                                                                                                                     | 131,562          |
| Repaint exterior of building - repainting with moderate prep required & some siding repair remains                                                                                                                 |                  |
| Paint new elements with primer + 2 coats (boardwalk, porte cochere, wagon ramp)                                                                                                                                    |                  |
| Provide code compliant wall and roof/attic insulation enclosing conditioned spaces in existing bldg.                                                                                                               | 79,764           |
| <b>Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&amp;P, etc. =</b>                                                                                                                          | <b>\$211,326</b> |
| <b>3.5 Envelope - Roofing &amp; Waterproofing</b>                                                                                                                                                                  |                  |
| Metal roofing, flashings gutters & downspouts -Porte Cochere only                                                                                                                                                  | 13,319           |
| Membrane roofing, flashing, etc. at wagon ramp over basement space                                                                                                                                                 | 3,897            |
| Below Grade Dampproofing for entire perimeter of existing building                                                                                                                                                 | 6,245            |
| Reconfigure gutters as required for proper drainage, discharge to rain gardens for WQ                                                                                                                              | 24,230           |
| <b>Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&amp;P, etc. =</b>                                                                                                                          | <b>\$47,691</b>  |
| <b>3.6 Windows &amp; Doors</b>                                                                                                                                                                                     |                  |
| Restore/replace all windows                                                                                                                                                                                        |                  |
| Replace (7) eight lite double hung wood windows and frames to match original                                                                                                                                       |                  |
| Replace (4) two lite double hung windows                                                                                                                                                                           |                  |
| Repair (2) fixed four lite windows (2'x2') section 5                                                                                                                                                               |                  |
| Reconstruct existing eight lite double hung wood window (no glass - inside section 3)                                                                                                                              |                  |
| Restore Doors                                                                                                                                                                                                      |                  |
| Replace 50% of the wood on the sliding doors (6'x7')                                                                                                                                                               |                  |
| Sand and refinish 4 panel wood door, refurbish hardware non-operating                                                                                                                                              |                  |
| Replace 50% of the wood boards composing exterior doors (3'x7')                                                                                                                                                    |                  |
| Restore/Replace Hardware                                                                                                                                                                                           |                  |
| Remove, wire brush and oil all hardware that remains                                                                                                                                                               |                  |
| Install hardware to match historic as closely as possible                                                                                                                                                          |                  |
| New barn door rollers and track for sliding door to match original                                                                                                                                                 |                  |
| <b>Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&amp;P, etc. =</b>                                                                                                                          | <b>\$100,276</b> |
| <b>3.7 Interior Rehabilitation (Code, Safety, and Structure)</b>                                                                                                                                                   |                  |
| Provide code compliant stair from first to second level and from first level to basement in similar location to existing. Remove non-compliant access ladders (ship ladders).                                      |                  |
| Replace floor board subfloor - all Sections (varies from 1"x6" or 1"x8" or 1 1/2" x 10) - Allowance                                                                                                                | 84,223           |
| Media blast wood surfaces in the building - (Tenant option BOSC - Only at peeling painted areas or similar)                                                                                                        |                  |
| Treat charred wall areas to avoid dusting for safety. Not in GC costs. BOSC                                                                                                                                        |                  |
| <b>Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&amp;P, etc. =</b>                                                                                                                          | <b>\$84,223</b>  |



**Louisville Grain Elevator - Rehabilitation  
Louisville Mill Site LLC**

**BID DETAIL FORM - HISTORIC PRESERVATION SCOPE OF WORK**

|                                                                                                                                                          |                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| <b>3.8 Mechanical Systems and Fire Protection (includes only cost for existing building)</b>                                                             |                    |
| Provide crawlspace ventilation to mitigate moisture and potential wood deterioration and mold.                                                           | 26,724             |
| Provide fire sprinkler system in existing building to protect structure - dry system to avoid freezing                                                   | 136,226            |
| Provide fire alarm system in existing building to protect structure (required with fire sprinklers)                                                      |                    |
| Provide plumbing system rough-in (no interior tenant finish) in existing building only                                                                   | 269,929            |
| Provide all electric heat pump system for conditioning the occupied portions of existing building                                                        | 187,417            |
| <b>Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&amp;P, etc. =</b>                                                                | <b>\$620,296</b>   |
| <b>3.9 Electrical Systems (includes only cost for existing building)</b>                                                                                 |                    |
| Electric Main Switchgear and Service to Transformer (Xcel cost by owner)                                                                                 |                    |
| Branch Circuits, Panels, Outlets & Lighting for existing building only (no specialty fixtures)                                                           | 370,482            |
| <b>Section Subtotal Construction Cost w/General Conditions, GC's Fee/OH&amp;P, etc. =</b>                                                                | <b>\$370,482</b>   |
| <b>Xcel Service Cost Allowance - Paid By Owner (no GC Fee/OH&amp;P) =</b>                                                                                | <b>\$50,000</b>    |
| <b>4.0 Hazardous Material</b>                                                                                                                            |                    |
| Follow up testing and mitigation allowance due to time of vacancy (By Owner's Separate Contractor)                                                       |                    |
| <b>Section Subtotal Allowance - By Owner's Separate Contractor (no GC Fee/OH&amp;P) =</b>                                                                | <b>\$18,000</b>    |
| <b>Subtotal Construction Costs Including General Conditions &amp; GC's Fee/OH&amp;P</b>                                                                  |                    |
| <b>Total General Contractor Bid Amount for this Bid Detail Form - Historic Preservation =</b>                                                            | <b>\$2,742,861</b> |
| <b>Estimated Soft Costs, Fees, Taxes, &amp; other costs By Owner (not included above) prorated for Scope:</b>                                            |                    |
| <b>By Owner (not GC)</b>                                                                                                                                 |                    |
| Owner's Construction Contingency for Hidden Conditions & Unforeseen Events 10%                                                                           | \$274,286          |
| Building Permit & Plan Review Fees                                                                                                                       | \$35,657           |
| Taxes, other fees, etc. paid at permit                                                                                                                   | \$90,514           |
| Tap Fees paid at permit (not included in Grant Request)                                                                                                  |                    |
| Builder's Risk Insurance - Carried by Owner                                                                                                              | \$76,800           |
| Engineering Fees subsequent to initial stabilization - This Scope % only                                                                                 | \$109,714          |
| Architecture Fees subsequent to initial stabilization - This Scope % - Note 25% discount (Owner/Architect)                                               | \$174,857          |
| (3.2.1) Geotechnical Engineering Fees & Construction Phase Material Testing                                                                              | \$5,368            |
| (3.3.9) Wood Scientist for one day to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete - Allowance | \$1,000            |
| (3.3.17) Qualified lumber grader for one day to identify floor framing members not meeting #2 grade where applicable for adaptive re-use - Allowance     | \$2,000            |
| Planning/Architectural Fees for PUD/SRU @25% discount (Not included in Grant Request)                                                                    |                    |
| Owner's Representative / Project Manager (Not included in Grant Request)                                                                                 |                    |
| Note - Other Public Approval & Grant processing costs, legal & accounting (Not included in Grant Request)                                                |                    |
| <b>Estimated - Direct Project Soft Costs</b>                                                                                                             | <b>\$770,197</b>   |
| <b>Total Qualifying Project Costs - (Not Including Stabilization Previously Completed)</b>                                                               |                    |
| <b>Total GC Bid Amount plus Soft Costs for this Bid Detail Form - Historic Preservation =</b>                                                            | <b>\$3,513,058</b> |
| <b>Half of Total GC Bid Amount plus Soft Costs for this Bid Detail Form - Historic Preservation =</b>                                                    | <b>\$1,756,529</b> |
| <b>Total HPF Preservation Grant Request - Historic Preservation =</b>                                                                                    | <b>\$1,475,000</b> |
| Note - The sums on this form are not additive to the LRC Grant form as categories are duplicated.                                                        |                    |

## PRESERVATION & RESTORATION GRANT APPLICATION

### APPLICATION MATERIALS REQUIRED (submit final docs to [abrackett@louisvilleco.gov](mailto:abrackett@louisvilleco.gov))

- ☐ Application form (3 pages)
- ☐ Separate list with detailed descriptions of proposed work
- ☐ Alteration Certificate Application, if relevant (for work that alters the exterior of a property)
- ☐ Optional: Cover letter describing the proposal
- ☐ Optional: Invoices, estimates, and other cost-related materials to support request

### GENERAL INFORMATION

Site Address: 540 County Road

Owner Name: Louisville Mill Site LLC

Owner Phone: 303-673-9304

Owner Email: erik@hapcdesign.com

Owner Representative Name: Erik Hartronft

Owner Rep. Phone: (same)

Owner Rep. Email: (same)

### FILLING OUT THE GRANT TABLE ON PAGE 2

**Column 1:** Give a title to each line item. Include the same title in your list of descriptions of the work so that it is clear which description corresponds to which estimate.

**Column 2:** Provide the total cost of the line item.

**Column 3:** Check if relevant. Work completed within the past 5 years prior to landmarking is eligible for grants.

**Total Project Cost:** Fill in the total cost of all of the line items.

**Half of Total:** Divide the total project cost in half. This becomes your Total Grant Request. Preservation & Restoration Grants are 50/50 matching grants.

**Grant requests greater than maximum allowed:** If the Total Grant Request is greater than the maximum allowed, you must submit a letter describing your request. Applications for grants above the maximum must begin with a specific meeting with staff to discuss the request above maximum.

## GRANT TABLE

| 1                                                                                                                              | 2                       | 3                                                     |
|--------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------|
| Title of Line Item                                                                                                             | Total Cost of Line Item | Check box if work will be completed prior to hearing. |
| All construction work related to the east addition to the grain elevator, similar to a train boxcar.                           | \$838,662               | <input type="checkbox"/>                              |
|                                                                                                                                |                         | <input type="checkbox"/>                              |
|                                                                                                                                |                         | <input type="checkbox"/>                              |
|                                                                                                                                |                         | <input type="checkbox"/>                              |
|                                                                                                                                |                         | <input type="checkbox"/>                              |
|                                                                                                                                |                         | <input type="checkbox"/>                              |
|                                                                                                                                |                         | <input type="checkbox"/>                              |
|                                                                                                                                |                         | <input type="checkbox"/>                              |
|                                                                                                                                |                         | <input type="checkbox"/>                              |
| Owner Costs, including contingency, permit and professional fees, taxes, & insurance                                           | \$232,960               | <input type="checkbox"/>                              |
| <b>Total Project Cost:</b>                                                                                                     | <b>\$1,071,622</b>      |                                                       |
| <del>Half of total:</del>                                                                                                      | <b>\$75,000</b>         | <b>← Total Grant Request</b>                          |
| If Total Grant Request is greater than the maximum allowed, you must first meet with staff as part of the application process. |                         |                                                       |

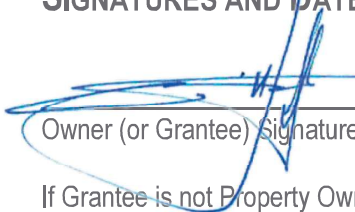
**The Property Owner (or Grantee) hereby agrees and acknowledges that:**

- A. Funds received as a result of this application will be expended as reimbursements of up to half of actual expenses and must be completed within established timelines.
- B. Awards from the Historic Preservation Fund may differ in type and amount from those requested on an application.
- C. Recipients must submit their project for any required design review by the Historic Preservation Commission and acquire any required building permits before work has started.
- D. All projects are subject to zoning and building code review and approval of a grant does not constitute building permit approval.
- E. All work approved for grant funding must be completed even if only partially funded through this incentives program.
- F. Unless the conditions of approval provide otherwise, disbursement of grant or rebate funds will occur after completion of the project and shall be accompanied by proof of payment. Reimbursements are processed as payments to the Property Owner or Grantee.
- G. The incentive funds may be considered taxable income and Applicant should consult a tax professional if they have questions.
- H. The grant application will be reviewed in accordance with all relevant City policy, including but not limited to the categories of eligible expenses described below.

Eligible expenses fall into one or more of the categories below. Interior improvements for protection, stabilization, or code-required work are eligible for grants. Other interior improvements are not.

- **Preservation** applies methods to sustain existing form, integrity, and materials. Approved work focuses on repairing exterior historic materials and features rather than extensive replacement and new construction.
- **Rehabilitation** facilitates new uses and standards for a building through repair, alterations, and additions that preserve those portions or features that convey its historical, cultural, or architectural significance. Rehabilitation acknowledges the need to alter or add to a historic property while retaining the property's historic character. Upgrading mechanical, electrical, and plumbing systems and other code-related work may be considered rehabilitation.
- **Restoration** accurately depicts the form, features, and character of a property as it appeared at a particular period of time. Approved work focuses on exterior work and includes the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

**SIGNATURES AND DATES**

 02/12/26  
\_\_\_\_\_  
Owner (or Grantee) Signature      Date

If Grantee is not Property Owner, describe relationship to property:

---

**CITY USE ONLY – INTAKE VERIFICATION**

- ☐ Table is filled out completely
- ☐ List of Line Item Descriptions is attached
- ☐ Title of Line Items matches Line Item Description Addendum
- ☐ Accompanied by Alteration Certificate, if needed
- ☐ Line items correspond to one of the 3 eligible categories (preservation, restoration, rehabilitation)
- ☒ Applicant has met with staff if grant request is above maximum allowed



**The Grain Yard**  
**540 County Rd., Louisville, CO 80027**  
**Pre-Construction Consultant/Estimator: Andrew Breen**  
**Architecture by Hartronft Associates**

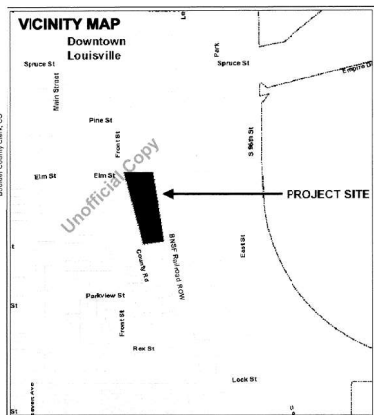
| Description                                                                                                                                                                                                                                                                                                                                                                              | Combined Total                                                                                                            | Summarized Totals |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------|
| <b>By Ownership - Excluded in Estimate</b><br><b>GeoTech/Arch Design/Engineering</b><br><b>Tap fees, Permits, Plan Review and Use tax Fees</b><br><b>Development fees, Dry and Wet Utility Company fees</b><br><b>Excludes abatement of hazardous materials</b><br><b>3rd party inspection expenses (GC too coordinate inspections)</b><br><b>All call out notes that mention (BOSC)</b> | \$0<br>\$0<br>\$0<br>\$0<br>\$0<br>\$0                                                                                    |                   |
| <b>DIVISION 1 - GENERAL CONDITIONS</b>                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                           | <b>\$373,760</b>  |
| <b>General Conditions</b><br>Project Management<br>Project Engineer/Coordinator<br>Superintendent<br>General Labor<br>Accounting<br>Toilets<br>Dumpsters<br>Jobsite security fence<br>Job Trailer (We plan to office inside the building)<br>Office Supplies, printing, software<br>Final Clean<br><b>Weather Conditions</b>                                                             | \$91,200<br>\$35,200<br>\$163,200<br>\$28,000<br>\$12,100<br>\$13,160<br>\$2,250<br>\$15,400<br>\$0<br>\$3,850<br>\$9,400 |                   |
| <b>BID Allowance #1 - Weather Conditions</b>                                                                                                                                                                                                                                                                                                                                             | <b>\$40,000</b>                                                                                                           | <b>\$40,000</b>   |
| <b>DIVISION 2 - SITE WORK</b>                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                           | <b>\$412,596</b>  |
| <b>Irrigation/Landscaping</b><br>Contractor to install all sleeving for the Irrigation per sheet IR100<br><b>Irrigation system and Landscaping (BOSC)</b><br><b>Site Work &amp; Utilities</b><br>Site Demolition<br>Erosion Control<br>Excavation/Export/Import/backfill/Compaction<br>New Utilities<br>Surveying<br><b>Asphalt Paving</b>                                               | \$2,650<br>\$11,230<br>\$2,848<br>\$122,049<br>\$222,394<br>\$19,500<br>\$31,925                                          |                   |
| <b>DIVISION 3 - CONCRETE</b>                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                           | <b>\$157,355</b>  |
| Footings, Foundation walls and Slab<br>Site concrete                                                                                                                                                                                                                                                                                                                                     | \$62,566<br>\$94,789                                                                                                      |                   |

|                                                                            |           |                   |
|----------------------------------------------------------------------------|-----------|-------------------|
| <b>DIVISION 4 - MASONRY</b>                                                |           | <b>\$0</b>        |
| N/A                                                                        | \$0       |                   |
| <b>DIVISION 5 - STEEL</b>                                                  |           | <b>\$251,800</b>  |
| Steel columns/Beams/stairs/handrails/Architectural metals                  | \$251,800 |                   |
| Custom barn door (Frame is included in number above)                       | \$0       |                   |
| <b>DIVISION 6 - WOODS</b>                                                  |           | <b>\$ 388,602</b> |
| <b>Rough Framing</b>                                                       |           |                   |
| BID Allowance #2 - Existing siding repair/replacement                      | \$20,000  |                   |
| BID Allowance #3 - Wood stud, floor joist & subfloor repair                | \$15,000  |                   |
| BID Allowance #4 - Bin floor & Wall Repair                                 | \$30,000  |                   |
| Rough framing material                                                     | \$133,890 |                   |
| Rough framing Labor                                                        | \$137,172 |                   |
| South Deck (material) - Provide decking material                           | \$9,695   |                   |
| South Deck (labor) - Labor to install decking material                     | \$8,320   |                   |
| Window installation                                                        | \$3,375   |                   |
| Jobsite cleaning                                                           | \$7,650   |                   |
| Dumpsters/Recycling                                                        | \$7,500   |                   |
| Rental equipment                                                           | \$16,000  |                   |
| <b>Millwork</b>                                                            |           |                   |
| All millwork and finishes are (BOSC)                                       | \$0       |                   |
| <b>DIVISION 7 - THERMAL PROTECTION</b>                                     |           | <b>\$157,012</b>  |
| <b>Damproof/Waterproofing</b>                                              |           |                   |
| Damproof/Waterproofing                                                     | \$3,210   |                   |
| Gravel on Vapor barrier                                                    | \$4,900   |                   |
| Exterior Site caulking                                                     | \$2,450   |                   |
| <b>Insulation</b>                                                          |           |                   |
| Wall, ceiling, rigid insulation & vapor barrier                            | \$67,500  |                   |
| <b>Roofing</b>                                                             |           |                   |
| Membrane roofing, standing seam & Corten panels                            | \$60,312  |                   |
| Gutters/Downspouts                                                         | \$18,640  |                   |
| <b>DIVISION 8 - DOORS &amp; WINDOWS</b>                                    |           | <b>\$131,030</b>  |
| <b>Doors</b>                                                               |           |                   |
| Doors/Frames (Material fabricated and delivered)                           | \$41,474  |                   |
| Door Frame/slab and hardware install                                       | \$3,135   |                   |
| Rolling doors 105A & 105C (Refurbish and replace hardware)                 | \$3,800   |                   |
| Storefront Doors/frames                                                    | \$14,397  |                   |
| <b>Windows</b>                                                             |           |                   |
| Operable windows & sliding doors - Material                                | \$53,263  |                   |
| Install - (Included in framers number)                                     | \$0       |                   |
| <b>Skylights</b>                                                           |           |                   |
| (4) new Skylights & wagon ramp skylight/walkable                           | \$14,961  |                   |
| <b>DIVISION 9 - FINISHES</b>                                               |           | <b>\$126,566</b>  |
| <b>Drywall &amp; Paint</b>                                                 |           |                   |
| Drywall & Cement board (restrooms)                                         | \$6,712   |                   |
| Drywall - boxcar walls/ floor insulation assembly/Drywall where spray foam | \$25,102  |                   |
| Corten Wall panels (restrooms)                                             | \$5,338   |                   |
| Painting and coating                                                       | \$47,065  |                   |
| Lead Abatement contingency                                                 | \$15,000  |                   |
| <b>Flooring</b>                                                            |           |                   |

|                                                                       |                    |                    |
|-----------------------------------------------------------------------|--------------------|--------------------|
| Sealed concrete (basement & boxcar)                                   | \$6,320            |                    |
| Floor and wall tile in restrooms                                      | \$18,104           |                    |
| Carpet walk off tile and rubber base                                  | \$2,925            |                    |
| <b>DIVISION 10 - SPECIALTIES/ACCESSORIES</b>                          |                    | <b>\$26,496</b>    |
| <b>Specialties</b>                                                    |                    |                    |
| Code signage                                                          | \$3,500            |                    |
| FRP                                                                   | \$2,451            |                    |
| Bathroom accessories                                                  | \$19,595           |                    |
| Knoxbox                                                               | \$950              |                    |
| <b>DIVISION 11 - EQUIPMENT</b>                                        |                    | <b>\$0</b>         |
| Any kitchen equipment, appliances and bar/tap equipment is (By Owner) | \$0                |                    |
| <b>DIVISION 12 - FURNISHINGS</b>                                      |                    | <b>\$0</b>         |
| N/A                                                                   | \$0                |                    |
| <b>DIVISION 13 - SPECIAL EQUIPMENT</b>                                |                    | <b>\$1</b>         |
| N/A                                                                   | \$1                |                    |
| <b>DIVISION 14 - ELEVATORS</b>                                        |                    | <b>\$65,818</b>    |
| New Lift for Kegs                                                     | \$65,818           |                    |
| Optional enclosure & gate package - Excluded                          | \$0                |                    |
| <b>DIVISION 15 - MECHANICAL</b>                                       |                    | <b>\$575,708</b>   |
| <b>Fire Supression</b>                                                |                    |                    |
| Fire Supression (dry system)                                          | \$96,208           |                    |
|                                                                       | \$0                |                    |
| <b>Plumbing</b>                                                       |                    |                    |
| Plumbing Building                                                     | \$295,000          |                    |
| <b>HVAC</b>                                                           |                    |                    |
| Unit heaters, new RTU's, ventilation                                  | \$184,500          |                    |
| <b>DIVISION 16 - ELECTRICAL</b>                                       |                    | <b>\$490,558</b>   |
| <b>Electrical</b>                                                     |                    |                    |
| New panels, switchgear, power, occupancy sensors & light fixtures     | \$469,462          |                    |
| Fire Alarm                                                            | \$21,096           |                    |
| Low Voltage (Conduit runs only)                                       | \$0                |                    |
| Subtotal                                                              | \$3,197,302        | <b>\$3,197,302</b> |
| Subtotal                                                              | \$3,197,302        | <b>\$3,197,302</b> |
| <b>(FEE) - General Liability / Overhead / Profit</b>                  | \$239,798          | <b>\$239,798</b>   |
| <b>Estimated Permit Fees (By Owner)</b>                               | \$0                | <b>\$0</b>         |
| <b>General Contractor - Contingency</b>                               | <b>\$159,865</b>   | <b>\$159,865</b>   |
| <b>General Conditions - Contingency due to weather delay notices</b>  | <b>\$31,000</b>    | <b>\$31,000</b>    |
| <b>(In the event of overrun on CPM schedule)</b>                      |                    |                    |
| <b>Estimate Total:</b>                                                | <b>\$3,627,965</b> | <b>\$3,627,965</b> |

**\*Please note all Change orders will be marked up at 10% OH&P**





# **FINAL P.U.D.** **LOUISVILLE MILL SITE REDEVELOPMENT** **500, 540, 544 County Road** **LOUISVILLE MILL SITE SUBDIVISION** **LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH RANGE 69 WEST OF** **THE 6TH P.M., CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO**



**HARTRONFT ASSOCIATES**  
*A Professional Corporation*  
**Planning**  
**Architecture**  
**Interior Design**  
 950 Spruce Street, Suite 1A  
 Louisville, Colorado 80027  
 TEL: 303.673.9304  
 FAX: 303.673.9319

**LOUISVILLE MILL SITE REDEVELOPMENT**  
**& HISTORIC GRAIN ELEVATOR**  
**500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO**  
**Louisville Mill Site LLC - Caranci / Hartronft**



**PROJECT # 125.10**  
**DATE: 04/05/14**  
**DRAWN BY: HFC**  
**CHECKED BY: EH**  
**REVISIONS:**  
 PRG/PC - 06/13/14  
 HFC - 11/06/14  
 FCC - 03/13/15  
 FCC - 05/06/15

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 Hartronft Associates, Inc.

**COVER SHEET**  
**PROJECT DATA**  
**RENDERINGS**  
**SIGNATURES**

Sheet

**A1**

1 of 4 Sheets

## **SIGNATURES**

**OWNER'S SIGNATURE BLOCK**  
 By signing this PUD, the owner acknowledges and accepts all the requirements and intent set forth in this PUD. Witness my hand and seal this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

**J. Erik Hartronft, Member**  
 Louisville Mill Site LLC  
 Owner Name and Signature

**Randall C. Caranci, Member**  
 Louisville Mill Site LLC  
 Owner Name and Signature

**Randall C. Caranci**  
 RCCL LLC  
 Owner Name and Signature

**Notary Name (print)** (Notary Seal)  
**Notary Signature**  
**My Commission Expires** \_\_\_\_\_

**PLANNING COMMISSION CERTIFICATE**  
 Approved this \_\_\_\_ day of \_\_\_\_\_, 20\_\_ by the Planning Commission of the City of Louisville, Colorado.  
 Resolution No. \_\_\_\_ Series \_\_\_\_

**CLERK AND RECORDER CERTIFICATE**  
 (COUNTY OF BOULDER, STATE OF COLORADO)  
 I hereby certify that this instrument was filed in my office at \_\_\_\_ o'clock \_\_\_\_ P. M. this \_\_\_\_ day of \_\_\_\_\_, 20\_\_, and is recorded in Plan File \_\_\_\_ Fee \$\_\_\_\_ per \_\_\_\_ Fil No. \_\_\_\_ Reception: \_\_\_\_

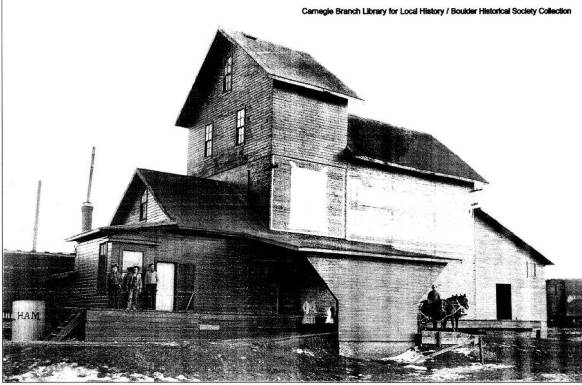
**Hillary Hall**  
 Clerk & Recorder  
**Deputy**

**CITY COUNCIL CERTIFICATE**  
 Approved this \_\_\_\_ day of \_\_\_\_\_, 20\_\_ by the City Council of the City of Louisville, Colorado.  
 Resolution No. \_\_\_\_ Series \_\_\_\_ (City Seal)  
**Mayor Signature**  
**City Clerk Signature**

## **SHEET INDEX**

| SHEET         | DESCRIPTION                                | PROJECT DIRECTORY                                                                                                           |
|---------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| ARCHITECTURAL |                                            |                                                                                                                             |
| A1            | Cover Sheet, Project Data & Renderings     | Louisville Mill Site LLC * 950 Spruce Street, Suite 1A Louisville, Colorado 80027 Contact: Erik Hartronft 303-673-9304      |
| A2            | Site Plan                                  | ARCHITECT/PLANNER                                                                                                           |
| A3            | Landscape & Parking Plan, All Parking Plan | Hartronft Associates, P.C. 950 Spruce Street, Suite 1A Louisville, Colorado 80027 Contact: Erik Hartronft, AIA 303-673-9304 |
| A4            | Plans                                      |                                                                                                                             |
| A5            | Building Elevations                        |                                                                                                                             |
| A6            | Site Photometric                           |                                                                                                                             |
| SURVEY        |                                            |                                                                                                                             |
| 1             | ALTA/ACSM Land Title Survey                | CIVIL ENGINEER                                                                                                              |
| CIVIL         |                                            |                                                                                                                             |
| C1.0          | Drainage Plan                              | JWA, Incorporated 1319 Spruce Street Boulder, Colorado 80502 Contact: Darren Stewart 303-444-1951                           |
| C2.0          | Utility Plan                               |                                                                                                                             |
| EX-1          | Autolum Firetruck Exhibit                  |                                                                                                                             |
| EX-2          | Autolum Firetruck Exhibit                  |                                                                                                                             |

## **HISTORIC VIEW OF GRAIN ELEVATOR FROM THE NORTHWEST**



**Louisville Mill Site - Use and Zoning Information** Final PUD and Plat - 11/6/14 (rev. 3/13/15)

**Project Description:**  
 The Louisville Mill Site Redevelopment project will combine two adjacent properties, and subdivide the combined land area into 3 building lots and one outlier for common use. The northern property currently contains the historic Louisville Grain Elevator building which will be dismantled and rehabilitated for commercial use with minor additions, and a 3,360sf commercial building, and small shed which will be both be removed. The southern property currently contains a commercial structure, formerly used as a warehouse, now home to a fitness-related business. An addition is planned for this building. The proposed uses for all buildings on the property is commercial, with retail, restaurant/bar, and similar allowable uses on the ground level, with offices anticipated on upper levels. There is a potential for some public or private museum space in the grain elevator structure.

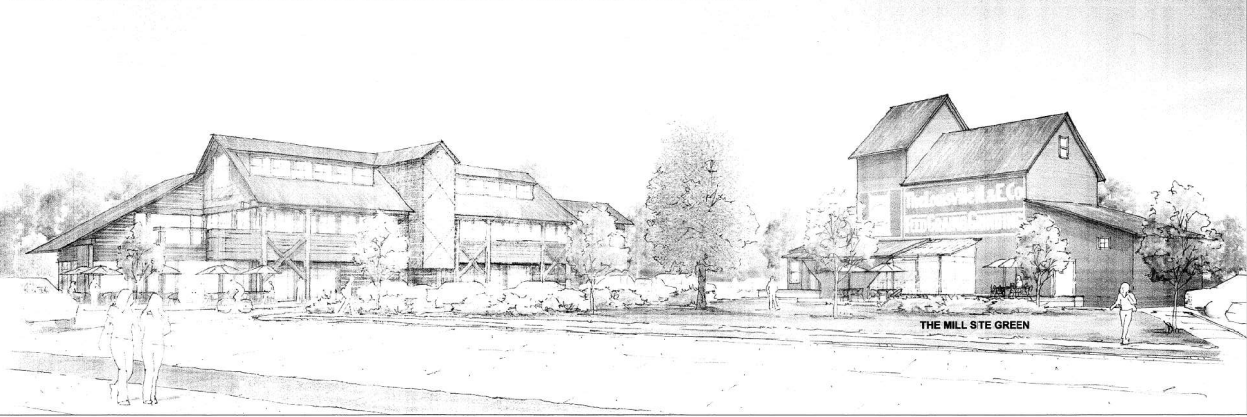
| Building Bulk and Density Standards:                                                                                                                                                                                            | Addresses and Legal Descriptions:          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| Required Setbacks:<br>Front 5'-25'<br>Rear 20'<br>Side (internal) 5'                                                                                                                                                            | See Plat and Survey for Legal Descriptions |
| Proposed Setbacks:<br>Front 5' minimum<br>Rear 20' minimum<br>Side (internal) 10' minimum                                                                                                                                       |                                            |
| Allowable Height:<br>2 story - 35'<br>3 story - 38.5'                                                                                                                                                                           |                                            |
| Proposed Height:<br>3 story - 38.5'                                                                                                                                                                                             |                                            |
| * 35' from Main Level FFE to flat roof with allowance for rooftop screening<br>Due to floodplain grading requirements, building height from average Main Level FFE to flat roof is 36.5' with tower and roof screening to 41.5' |                                            |

**Louisville Mill Site - Plat Areas & PUD Yield Per Lot Including Parking** Final PUD and Plat - 11/6/14 (rev. 3/13/15)

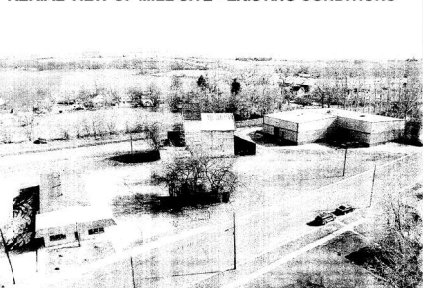
| Existing Property Area:                  | PUD Yield From Redevelopment | Caranci  | Green | Mill Site | Total |
|------------------------------------------|------------------------------|----------|-------|-----------|-------|
| Existing Mill Site Land Area             | 48,546 sf +/-                | 69.18%   |       |           |       |
| Existing Caranci Property Land Area      | 29,725 sf +/-                | 30.82%   |       |           |       |
| Total Plat Area                          | 67,261 sf +/-                | 100.00%  |       |           |       |
| RR ROW Lease Area 1 (Caranci)            | 5,208 sf +/-                 | existing |       |           |       |
| RR ROW Lease Area 2 (Proposed Mill Site) | 3,576 sf +/-                 | -future  |       |           |       |
| Total Plat Area plus RR ROW              | 76,125 sf +/-                |          |       |           |       |
| Proposed Plat Areas:                     |                              |          |       |           |       |
| Lot 1 - Caranci                          | 25,190 sf                    | 37.41%   |       |           |       |
| Lot 2 - Grain Elevator                   | 9,122 sf                     | 13.56%   |       |           |       |
| Outlet A - Mill Site Green               | 6,841 sf                     | 10.17%   |       |           |       |
| Combined Lot 2 + Outlet                  | 15,963                       |          |       |           |       |
| Lot 3 - Mill Site Building               | 26,128 sf                    | 38.83%   |       |           |       |
| Total Plat Area                          | 67,261 sf                    | 100.00%  |       |           |       |

**Notes:**  
 \* Existing bldg. area of Grain Elevator not all useable for all counted "proposed usable"  
 \* Existing Lot 3 Commercial (former Napa) to be removed, total is all new construction  
 \*\* 9 net spaces / green space replaced by parking, 5 potential spaces tucked under bldg  
 \*\*\* Dependent upon successful negotiation with BNSF for extended lease area  
 A shared parking/garage/maintenance agreement shall be executed by all Mill Site Subdivision property owners and recorded concurrently with the Final PUD and Plat.

## **VIEW OF PROPOSED MILL SITE BUILDING AND HISTORIC GRAIN ELEVATOR FROM THE SOUTHWEST**



## **AERIAL VIEW OF MILL SITE - EXISTING CONDITIONS**



## **VIEW OF LOT 1 BUILDING AND GRAIN ELEVATOR FROM THE NORTHWEST**



Unofficial Copy



1  
A2 ARCHITECTURAL SITE PLAN  
1" = 20'

0 10 20 30 40 50 60 70 80 90 100 FEET



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**LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR**  
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Carand / Hartonft



PROJECT # 125210  
DATE 04/05/14  
DRAWN BY: HAFG  
CHECKED BY: JH  
REVISIONS  
REV. DATE BY  
1 06/13/14 HAFG  
2 03/13/15 JH  
3 05/06/15 JH

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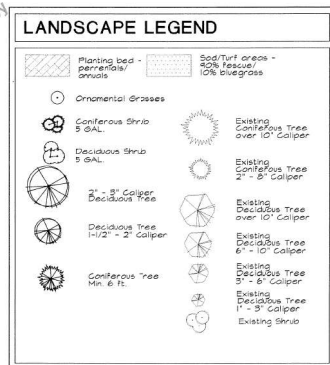
SITE PLAN

Sheet

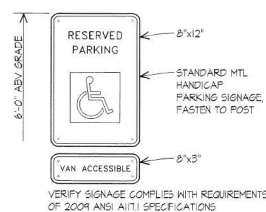
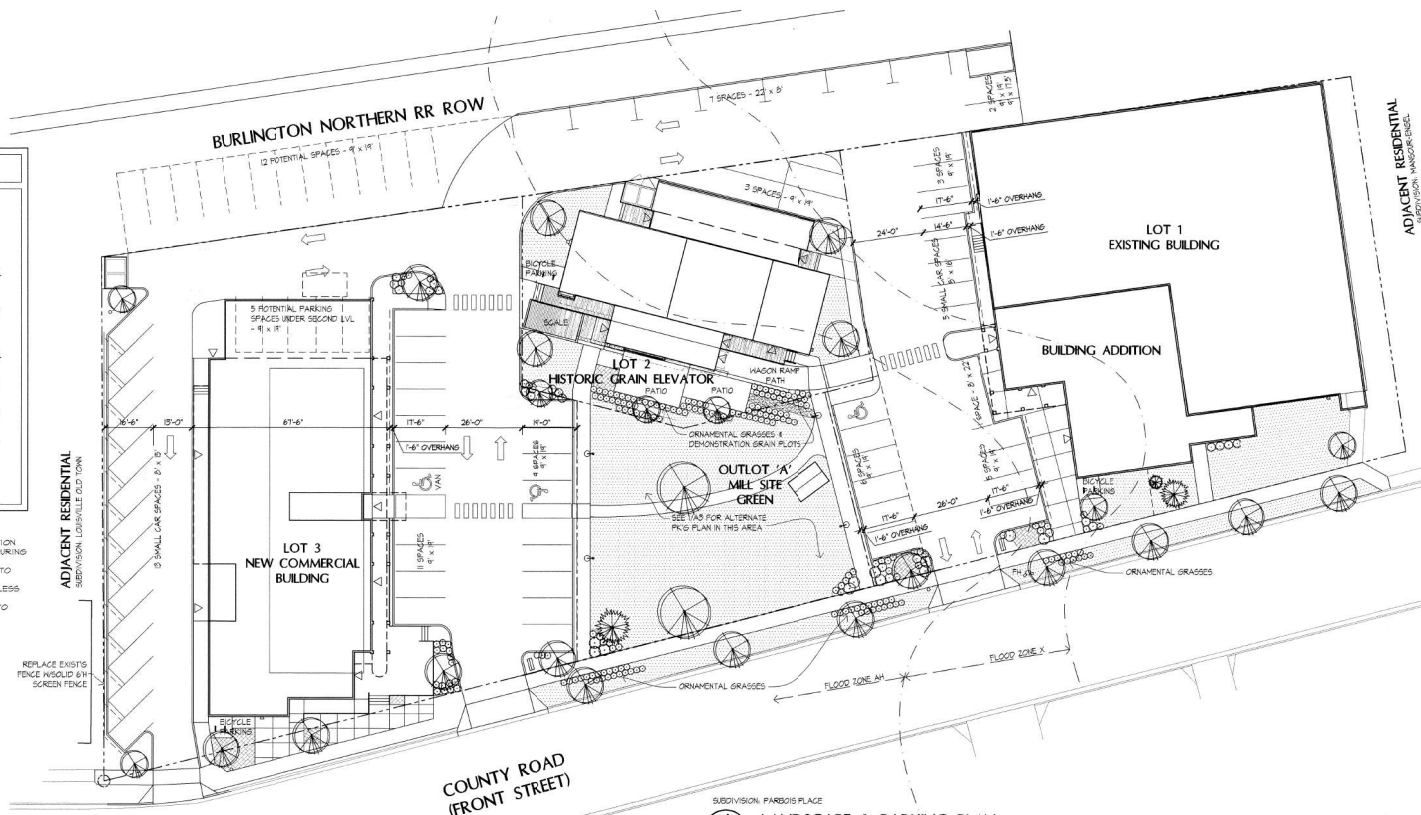
**A2**

2 of 6 Sheets

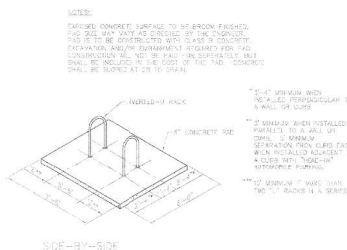
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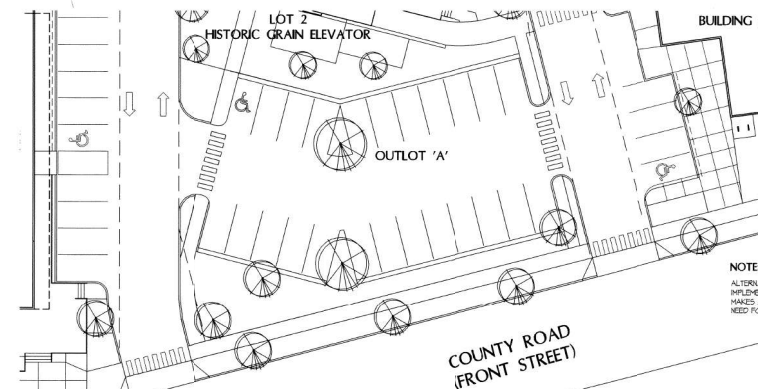
- NOTES:
1. APPLICANT TO PROVIDE DETAILED LANDSCAPE & IRRIGATION DRAWINGS TO PUBLIC WORKS FOR REVIEW & APPROVAL DURING THE CIVIL PLAN REVIEW
  2. PARKWAY TREES SHALL BE PLANTED NO CLOSER THAN 5' TO CURB OR WALK
  3. THE USE OF ROOT BARRIER IS REQUIRED FOR ALL TREES LESS THAN 5' FROM CURB OR WALK
  4. THE PARKWAY IRRIGATION SYSTEM SHALL NOT SPRAY ONTO PAVED SERVICES



3 H.C. PK'G SIGN DETAIL  
A3 N.T.S.



2 U-RACK DETAIL @BICYCLE PK'G  
A3 N.T.S.



1  
A3

ALTERNATE PARKING PLAN

1" = 20'



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---

**LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR**

**500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO**

**Louisville Mill Site LLC – Caranci / Harttronft**

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**PROJECT # 1252-10**

**DATE:** 04/05/14

**DRAWN BY:** HAPC

**CHECKED BY:** JEH

**REVISIONS:**

|         |   |             |
|---------|---|-------------|
| PFC/PCC | = | 06 / 13 / 1 |
| FINAL   | = | 11 / 08 / 1 |
| PFC     | = | 03 / 15 / 1 |
| PCC     | = | 05 / 06 / 1 |

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**LANDSCAPE & PARKING PLAN**

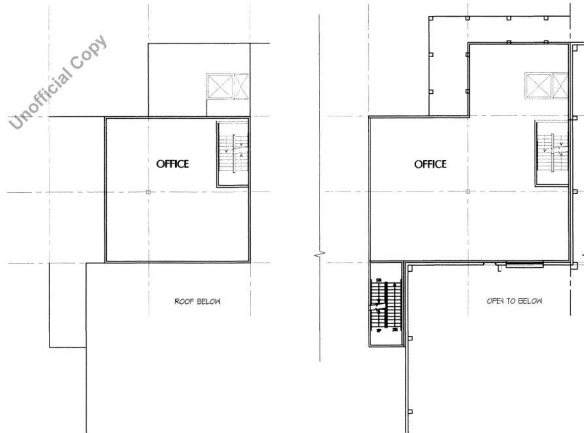
**ALT PARKING PLAN**

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Sheet

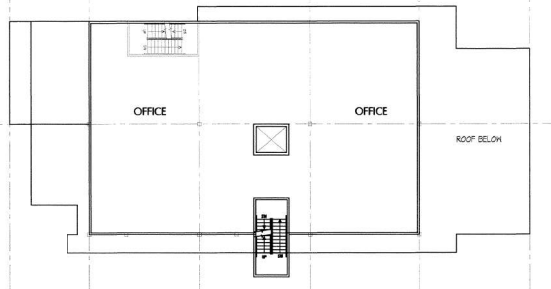
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3 of 3 Sheets

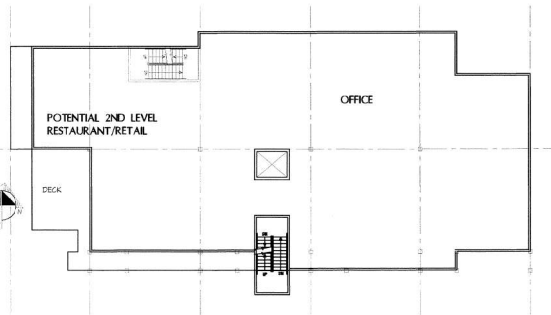


**C4** FLOOR PLAN - THIRD LEVEL  
A4 SCALE: 1/16" = 1'-0"

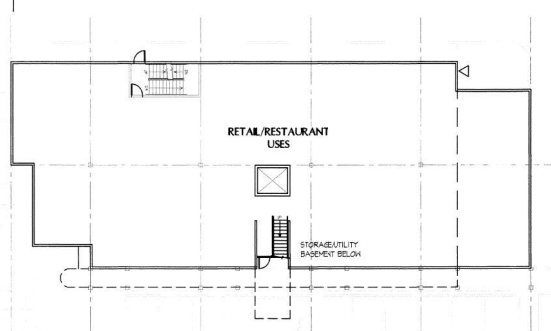
**C3** FLOOR PLAN - SECOND LVL  
A4 SCALE: 1/16" = 1'-0"



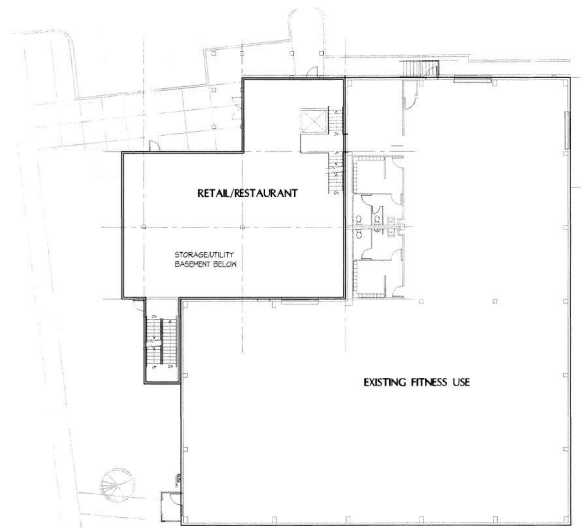
**C2** FLOOR PLAN - THIRD LEVEL  
A4 SCALE: 1/16" = 1'-0"



**B2** FLOOR PLAN - SECOND LEVEL  
A4 SCALE: 1/16" = 1'-0"



**A2** FLOOR PLAN - MAIN LEVEL  
A4 SCALE: 1/16" = 1'-0"



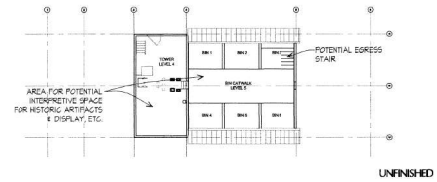
**A4** FLOOR PLAN - MAIN LEVEL  
A4 SCALE: 1/16" = 1'-0"

**LOT 1 - CARANCI BUILDING**

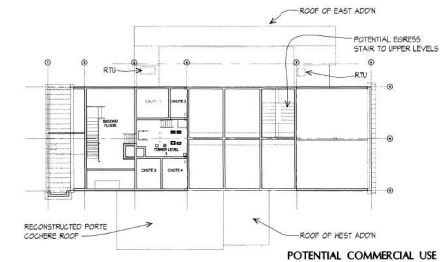
**LOT 3 - MILL SITE BUILDING**

**COMMERCIAL USE NOTES:**

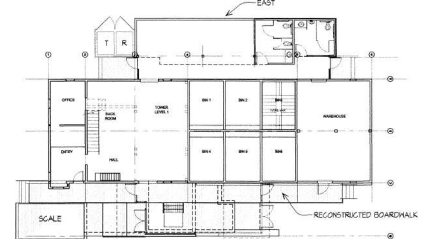
USE DESIGNATIONS ARE INTENDED TO DESCRIBE THE INTENDED CHARACTER OF THE SPACE TO BE CONSTRUCTED & DO NOT LIMIT ANY PERMITTED USE PER ZONING REGULATIONS OR AS OTHERWISE APPROVED, TYP.



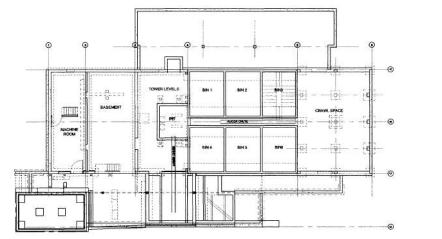
**D1** FLOOR PLAN - FOURTH/FIFTH LEVEL (3RD STORY)  
A4 SCALE: 1/16" = 1'-0"



**C1** FLOOR PLAN - SECOND/THIRD LEVEL (2ND STORY)  
A4 SCALE: 1/16" = 1'-0"



**B1** FLOOR PLAN - FIRST LEVEL (1ST STORY)  
A4 SCALE: 1/16" = 1'-0"



**A1** FLOOR PLAN - BASEMENT/CRAWL SPACE  
A4 SCALE: 1/16" = 1'-0"

**LOT 2 - HISTORIC GRAIN ELEVATOR**

**HARTRONFT ASSOCIATES**  
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**LOUISVILLE MILL SITE REDEVELOPMENT  
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500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Caranci / Hartonft



**PROJECT # 1252.10**  
DATE: 04/05/14  
DRAWN BY: HARG  
CHECKED BY: JH  
**REVISIONS:**  
REV. NO. DATE BY  
1 06/13/14  
2 11/08/14  
3 03/12/15

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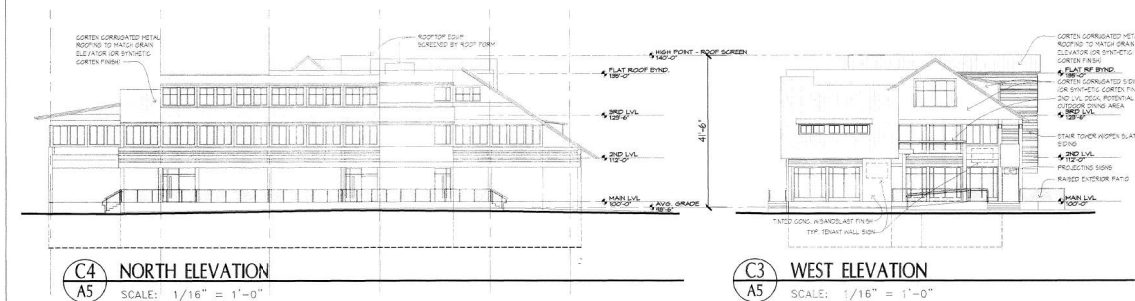
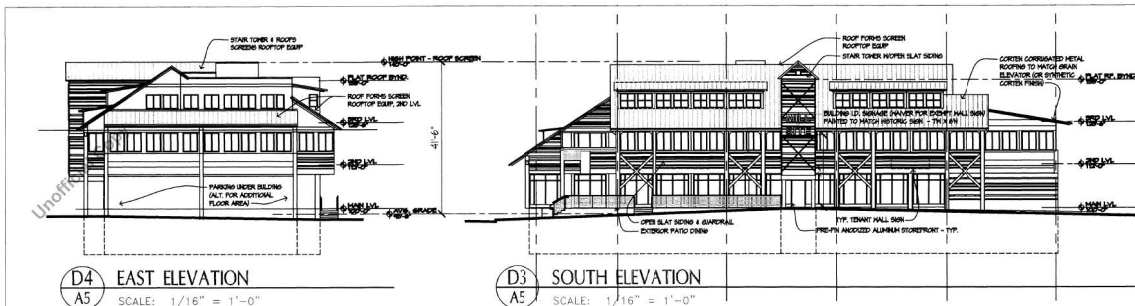
**PLANS**

Sheet

**A4**

4 of 4 Sheets

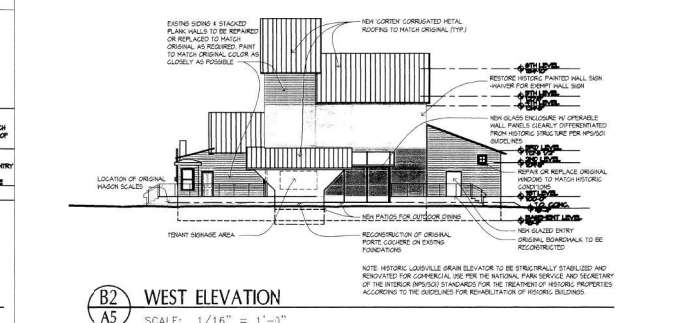
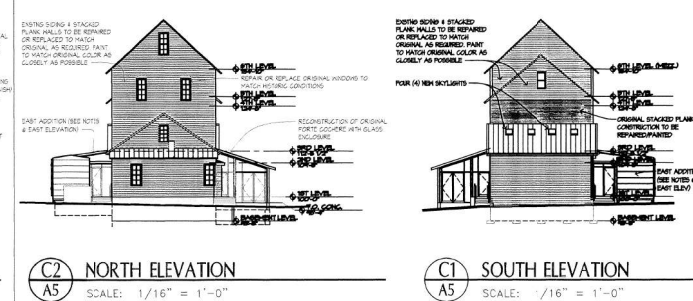
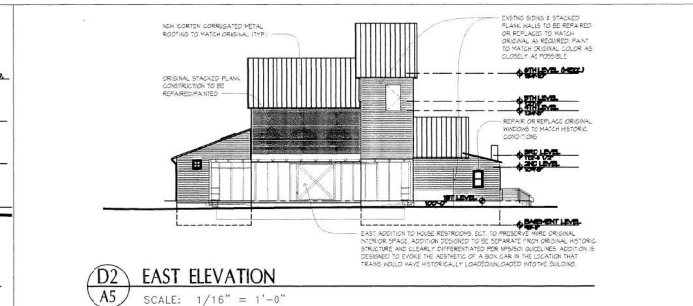
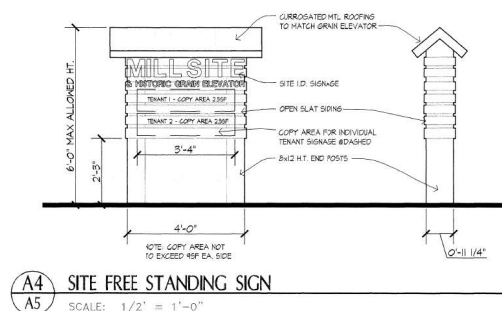




**LOT 3 - NEW MILL SITE BUILDING**



**LOT 1 - CARANCI BUILDING ADDITION / RENOVATION**



**LOT 2 - HISTORIC GRAIN ELEVATOR**

**SIGN AREA CALCULATIONS**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>LOT 1</b></p> <p>MAXIMUM SIGN COPY AREA<br/>MAXIMUM ALLOWED FOR COMBINATION OF ANY WALL, MARGLE, ANNEXATION, &amp; FREE STANDING SIGN</p> <p>PRIMARY FRONTAGE (FACING COUNTY RD) 123 L.F. x 25' PER L.F. = 241.5 SF<br/>SECONDARY FRONTAGE (FACING THE GREEN) 123 L.F. x 15' PER L.F. = 124.5 SF</p> <p>HALL SIGN COPY AREA<br/>TOTAL ALLOWED COPY AREA OF WALL SIGNS</p> <p>PRIMARY FRONTAGE (FACING COUNTY RD) 123 L.F. x 25' PER L.F. = 241.5 SF<br/>SECONDARY FRONTAGE (FACING THE GREEN) 123 L.F. x 15' PER L.F. = 124.5 SF</p> <p>ANNEX &amp; CANOPY SIGN COPY AREA<br/>TOTAL ALLOWED COPY AREA OF ANNEX &amp; CANOPY SIGNS</p> <p>PRIMARY FRONTAGE (FACING COUNTY RD) 123 L.F. x 15' PER L.F. = 124.5 SF<br/>SECONDARY FRONTAGE (FACING THE GREEN) 123 L.F. x 15' PER L.F. = 124.5 SF</p> <p>PROJECTING SIGNS<br/>TOTAL ALLOWED COPY AREA OF PROJECTING SIGNS</p> <p>THE MAXIMUM COPY AREA OF EACH PROJECTING SIGN ALONG ALL BLDG FRONTS IS 15 SF PER SIDE</p> <p>MULTI TENANT BUILDING MAY UTILIZE ONE PROJECTING SIGN PER TENANT</p> | <p><b>LOT 2</b></p> <p>MAXIMUM SIGN COPY AREA<br/>MAXIMUM ALLOWED FOR COMBINATION OF ANY WALL, MARGLE, ANNEXATION, &amp; FREE STANDING SIGN</p> <p>PRIMARY FRONTAGE (FACING COUNTY RD) 88.0 L.F. x 25' PER L.F. = 176.0 SF<br/>SECONDARY FRONTAGE (FACING THE GREEN) 88.0 L.F. x 15' PER L.F. = 124.5 SF</p> <p>HALL SIGN COPY AREA<br/>TOTAL ALLOWED COPY AREA OF WALL SIGNS</p> <p>PRIMARY FRONTAGE (FACING COUNTY RD) 88.0 L.F. x 25' PER L.F. = 176.0 SF<br/>SECONDARY FRONTAGE (FACING THE GREEN) 88.0 L.F. x 15' PER L.F. = 124.5 SF</p> <p>ANNEX &amp; CANOPY SIGN COPY AREA<br/>TOTAL ALLOWED COPY AREA OF ANNEX &amp; CANOPY SIGNS</p> <p>PRIMARY FRONTAGE (FACING COUNTY RD) 88.0 L.F. x 15' PER L.F. = 124.5 SF<br/>SECONDARY FRONTAGE (FACING THE GREEN) 88.0 L.F. x 15' PER L.F. = 124.5 SF</p> <p>PROJECTING SIGNS<br/>TOTAL ALLOWED COPY AREA OF PROJECTING SIGNS</p> <p>THE MAXIMUM COPY AREA OF EACH PROJECTING SIGN ALONG ALL BLDG FRONTS IS 15 SF PER SIDE</p> <p>MULTI TENANT BUILDING MAY UTILIZE ONE PROJECTING SIGN PER TENANT</p> | <p><b>LOT 3</b></p> <p>MAXIMUM SIGN COPY AREA<br/>MAXIMUM ALLOWED FOR COMBINATION OF ANY WALL, MARGLE, ANNEXATION, &amp; FREE STANDING SIGN</p> <p>PRIMARY FRONTAGE (FACING COUNTY RD) 56.0 L.F. x 25' PER L.F. = 122.0 SF<br/>SECONDARY FRONTAGE (FACING THE GREEN) 56.0 L.F. x 15' PER L.F. = 124.5 SF</p> <p>HALL SIGN COPY AREA<br/>TOTAL ALLOWED COPY AREA OF WALL SIGNS</p> <p>PRIMARY FRONTAGE (FACING COUNTY RD) 56.0 L.F. x 25' PER L.F. = 122.0 SF<br/>SECONDARY FRONTAGE (FACING THE GREEN) 56.0 L.F. x 15' PER L.F. = 124.5 SF</p> <p>ANNEX &amp; CANOPY SIGN COPY AREA<br/>TOTAL ALLOWED COPY AREA OF ANNEX &amp; CANOPY SIGNS</p> <p>PRIMARY FRONTAGE (FACING COUNTY RD) 56.0 L.F. x 15' PER L.F. = 124.5 SF<br/>SECONDARY FRONTAGE (FACING THE GREEN) 56.0 L.F. x 15' PER L.F. = 124.5 SF</p> <p>PROJECTING SIGNS<br/>TOTAL ALLOWED COPY AREA OF PROJECTING SIGNS</p> <p>THE MAXIMUM COPY AREA OF EACH PROJECTING SIGN ALONG ALL BLDG FRONTS IS 15 SF PER SIDE</p> <p>MULTI TENANT BUILDING MAY UTILIZE ONE PROJECTING SIGN PER TENANT</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

GENERAL NOTE: ALL SIGNAGE SHALL COMPLY WITH THE DOWNTOWN SIGN MANUAL UNLESS SPECIFIC VARIATION IS INDICATED OR REQUESTED

**HARTRONFT ASSOCIATES**  
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**LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR**

500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Carand / Hartroft



**PROJECT # 125210**  
DATE: 04/05/14  
DRAWN BY: HAPC  
CHECKED BY: JEH

REVISIONS:  
REV / PCC = 04/13/14  
FINAL = 11/06/14  
FPC = 03/13/15  
FCC = 03/08/15

**BUILDING ELEVATIONS**

Sheet  
**A5**  
4 of 9 sheets

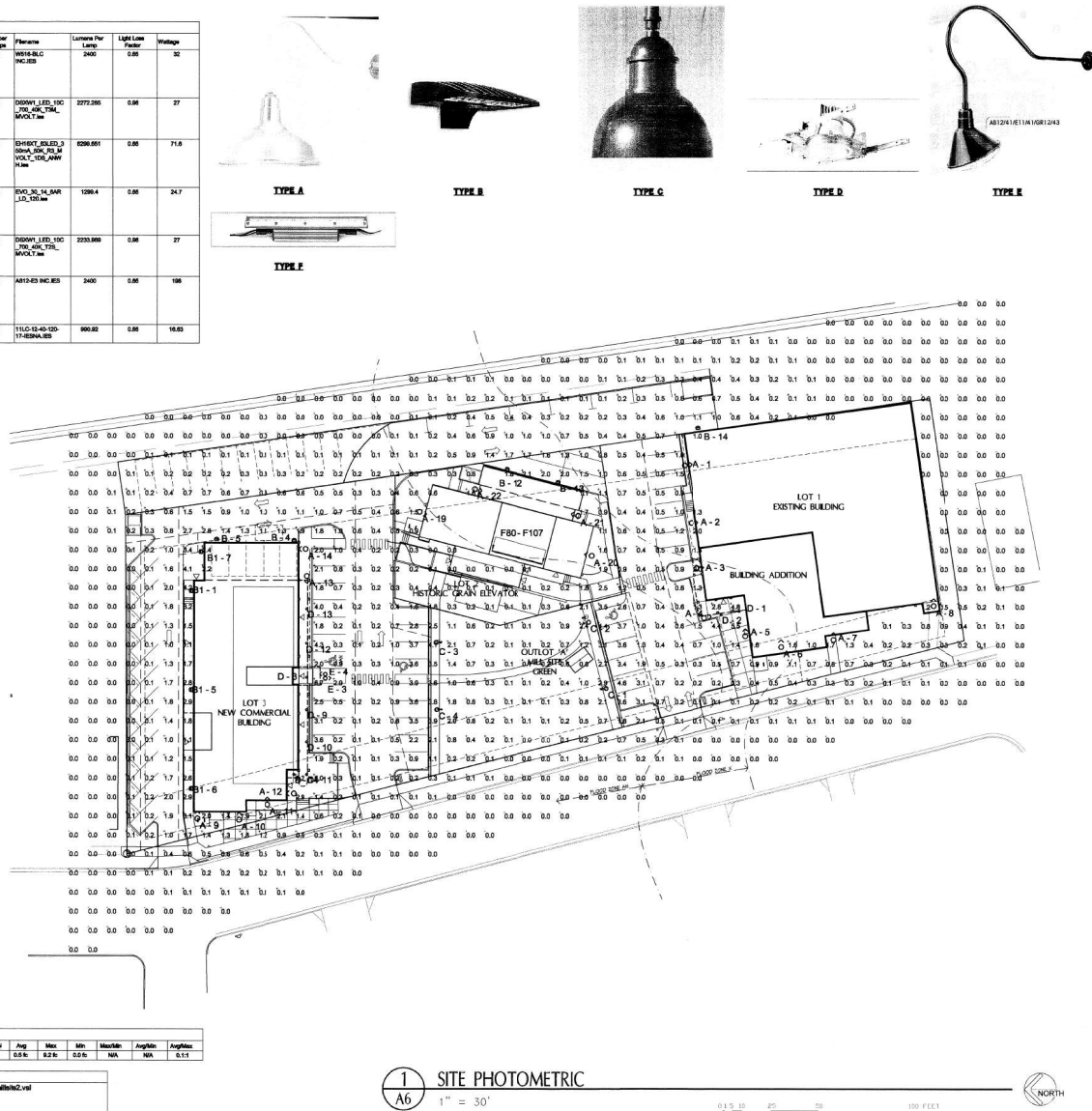
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| Luminaire Schedule                                                                |       |          |                                                              |                                             |                                                                                                         |                                 |                 |            |                           |                      |         |       |
|-----------------------------------------------------------------------------------|-------|----------|--------------------------------------------------------------|---------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|-----------------|------------|---------------------------|----------------------|---------|-------|
| Symbol                                                                            | Label | Quantity | Manufacturer                                                 | Catalog Number                              | Description                                                                                             | Lamp                            | Number<br>Lamps | Footcandle | Lumens Per<br>Lamp        | Light Loss<br>Factor | Wattage |       |
|  | A     | 18       | MINIATURE 1/2" INCANDESCENT 40-140 LUMINAIRE                 | W5W5C                                       | WITH WHITE INTERIOR AND NO LENS                                                                         | Incandescent 1/2 32 1/4         | 1               |            | 2400                      | 0.85                 | 32      |       |
|  | B     | 5        | Downward Lighting                                            | DOWN LED 100 T80 40K T80 MOUNT              | DOWN LED WITH 1 LIGHT (SHADE, 10 1/2" DOWN, 4000K LED, TYPE 3 MOUNT OPTIC)                              | LED                             | 1               |            | 2272.265                  | 0.98                 | 27      |       |
|  | C     | 4        | Adjustable Street Lamp                                       | SHIRLEY BULED 800VA (80K R) MOUNT 100 ANGLE | EURITOCHE HANDBOOK SERIES WITH DECORATIVE BART, 4.5M MOUNT TYPE 3, 1/2" BULB, SINGLE DRIVER, TEMP 80-2C | ONE 71 WATT LED ARMED DOWN POS. | 1               |            | 4298.061                  | 0.85                 | 71.8    |       |
|  | D     | 8        | Outdoor Architectural Lighting                               | PLD 3014 64W LED 120                        | P LED DOWNLIGHT, 3000K, 1400 LUMENS, 1/2" BULB, 10 1/2" DOWN, 4000K LED, TYPE 3 SHORT OPTIC             | LED                             | 1               |            | 1200.4                    | 0.85                 | 24.7    |       |
|  | B1    | 4        | Downward Lighting                                            | DOWN LED 100 T80 40K T80 MOUNT              | DOWN LED WITH 1 LIGHT (SHADE, 10 1/2" DOWN, 4000K LED, TYPE 3 SHORT OPTIC)                              | LED                             | 1               |            | 2272.265                  | 0.98                 | 27      |       |
|  | E     | 2        | MINIATURE 1/2" INCANDESCENT REFLECTOR - WALL MOUNT LUMINAIRE | AR125                                       | WITH WHITE INTERIOR AND NO LENS                                                                         | Incandescent 1/2 32 1/4         | 1               |            | AR125 INC RGS             | 2400                 | 0.85    | 198   |
|  | F     | 36       | ECONOMIE                                                     | 151C-12-40-120-17                           | Linear HP 2" LED WATT 15W, 13m, 4000K, 100mm, 1700lm                                                    | 4000K LED                       | 1               |            | 151C-12-40-120-17-ENABLES | 860.82               | 0.85    | 18.82 |

| Antennae Locations |     |          |        |       |       |             |      |        |        |      |
|--------------------|-----|----------|--------|-------|-------|-------------|------|--------|--------|------|
|                    |     | Location |        |       |       |             |      | Ant    |        |      |
| 1                  | Ant | X        | Y      | Z     | Mt    | Orientation | Tilt | X      | Y      | Z    |
| 1                  | A   | 204.70   | 204.44 | 15.00 | 15.00 | 81.71       | 0.00 | 204.70 | 204.44 | 0.00 |
| 2                  | A   | 208.34   | 174.22 | 15.00 | 15.00 | 84.58       | 0.00 | 208.34 | 174.22 | 0.00 |
| 3                  | A   | 201.34   | 180.43 | 15.00 | 15.00 | 82.82       | 0.00 | 201.34 | 180.43 | 0.00 |
| 4                  | A   | 206.40   | 124.87 | 15.00 | 15.00 | 77.72       | 0.00 | 206.40 | 124.87 | 0.00 |
| 5                  | A   | 214.14   | 114.84 | 15.00 | 15.00 | 0.00        | 0.00 | 214.14 | 114.84 | 0.00 |
| 6                  | A   | 345.82   | 108.86 | 15.00 | 15.00 | 0.00        | 0.00 | 345.82 | 108.86 | 0.00 |
| 7                  | A   | 412.71   | 112.71 | 15.00 | 15.00 | 0.00        | 0.00 | 412.71 | 112.71 | 0.00 |
| 8                  | A   | 428.07   | 130.60 | 15.00 | 15.00 | 0.00        | 0.00 | 428.07 | 130.60 | 0.00 |
| 9                  | A   | 37.08    | 18.71  | 14.00 | 14.00 | 0.00        | 0.00 | 37.08  | 18.71  | 0.00 |
| 10                 | A   | 58.60    | 18.73  | 14.00 | 14.00 | 0.00        | 0.00 | 58.60  | 18.73  | 0.00 |
| 11                 | A   | 74.52    | 20.24  | 14.00 | 14.00 | 0.00        | 0.00 | 74.52  | 20.24  | 0.00 |
| 12                 | A   | 85.82    | 21.82  | 14.00 | 14.00 | 0.00        | 0.00 | 85.82  | 21.82  | 0.00 |
| 13                 | A   | 85.82    | 146.25 | 14.00 | 14.00 | 190.00      | 0.00 | 85.82  | 146.25 | 0.00 |
| 14                 | A   | 84.91    | 180.88 | 14.00 | 14.00 | 0.00        | 0.00 | 84.91  | 180.88 | 0.00 |
| 15                 | A   | 155.00   | 180.00 | 14.00 | 14.00 | 111.52      | 0.00 | 155.00 | 180.00 | 0.00 |
| 20                 | A   | 248.00   | 187.00 | 14.00 | 14.00 | 77.91       | 0.00 | 248.00 | 187.00 | 0.00 |
| 21                 | A   | 238.00   | 178.00 | 14.00 | 14.00 | 73.81       | 0.00 | 238.00 | 178.00 | 0.00 |
| 22                 | A   | 184.00   | 182.00 | 14.00 | 14.00 | 104.47      | 0.00 | 184.00 | 182.00 | 0.00 |
| 4                  | B   | 88.01    | 184.77 | 14.00 | 14.00 | 0.00        | 0.00 | 88.01  | 184.77 | 0.00 |
| 5                  | B   | 47.12    | 186.38 | 14.00 | 14.00 | 0.00        | 0.00 | 47.12  | 186.38 | 0.00 |
| 1                  | B1  | 31.31    | 138.34 | 12.00 | 12.00 | 46.00       | 0.00 | 31.31  | 138.34 | 0.00 |
| 10                 | B   | 200.87   | 202.20 | 12.00 | 12.00 | 17.88       | 0.00 | 200.87 | 202.20 | 0.00 |
| 13                 | B   | 228.30   | 196.34 | 12.00 | 12.00 | 13.81       | 0.00 | 228.30 | 196.34 | 0.00 |
| 14                 | B   | 302.39   | 223.89 | 14.00 | 14.00 | 104.47      | 0.00 | 302.39 | 223.89 | 0.00 |
| 5                  | B1  | 31.31    | 34.34  | 12.00 | 12.00 | 46.00       | 0.00 | 31.31  | 34.34  | 0.00 |
| 6                  | B1  | 31.31    | 34.34  | 12.00 | 12.00 | 46.00       | 0.00 | 31.31  | 34.34  | 0.00 |
| 7                  | B1  | 36.21    | 188.88 | 12.00 | 12.00 | 46.00       | 0.00 | 36.21  | 188.88 | 0.00 |
| 1                  | C   | 251.20   | 88.57  | 14.00 | 14.00 | 80.19       | 0.00 | 251.20 | 88.57  | 0.00 |
| 2                  | C   | 241.98   | 121.39 | 14.00 | 14.00 | 78.84       | 0.00 | 241.98 | 121.39 | 0.00 |
| 3                  | C   | 185.12   | 111.21 | 14.00 | 14.00 | 286.81      | 0.00 | 185.12 | 111.21 | 0.00 |
| 4                  | C   | 186.56   | 73.89  | 14.00 | 14.00 | 286.87      | 0.00 | 186.56 | 73.89  | 0.00 |
| 1                  | D   | 523.85   | 127.71 | 13.00 | 13.00 | 0.00        | 0.00 | 523.85 | 127.71 | 0.00 |
| 2                  | D   | 214.42   | 125.79 | 13.00 | 13.00 | 0.00        | 0.00 | 214.42 | 125.79 | 0.00 |
| 3                  | D   | 85.82    | 82.82  | 12.00 | 12.00 | 0.00        | 0.00 | 85.82  | 82.82  | 0.00 |
| 8                  | D   | 85.82    | 78.82  | 12.00 | 12.00 | 0.00        | 0.00 | 85.82  | 78.82  | 0.00 |
| 10                 | D   | 85.82    | 68.82  | 12.00 | 12.00 | 0.00        | 0.00 | 85.82  | 68.82  | 0.00 |
| 11                 | D   | 85.82    | 47.82  | 12.00 | 12.00 | 0.00        | 0.00 | 85.82  | 47.82  | 0.00 |
| 12                 | D   | 85.82    | 119.82 | 12.00 | 12.00 | 0.00        | 0.00 | 85.82  | 119.82 | 0.00 |
| 13                 | D   | 85.82    | 128.82 | 12.00 | 12.00 | 0.00        | 0.00 | 85.82  | 128.82 | 0.00 |
| 14                 | D   | 85.82    | 47.82  | 12.00 | 12.00 | 0.00        | 0.00 | 85.82  | 47.82  | 0.00 |
| 3                  | E   | 106.25   | 82.25  | 16.00 | 16.00 | 98.34       | 0.00 | 106.25 | 82.25  | 0.00 |
| 4                  | E   | 106.25   | 84.00  | 16.00 | 16.00 | 48.91       | 0.00 | 106.25 | 84.00  | 0.00 |
| 18                 | F   | 207.11   | 81.81  | 1.00  | 1.00  | 77.47       | 0.00 | 207.11 | 81.81  | 0.00 |
| 17                 | F   | 207.33   | 83.54  | 1.00  | 1.00  | 77.47       | 0.00 | 207.33 | 83.54  | 0.00 |
| 18                 | F   | 207.84   | 86.88  | 1.00  | 1.00  | 77.47       | 0.00 | 207.84 | 86.88  | 0.00 |
| 19                 | F   | 207.78   | 85.09  | 1.00  | 1.00  | 77.47       | 0.00 | 207.78 | 85.09  | 0.00 |
| 20                 | F   | 215.80   | 82.80  | 1.00  | 1.00  | 78.86       | 0.00 | 215.80 | 82.80  | 0.00 |
| 21                 | F   | 215.14   | 81.81  | 1.00  | 1.00  | 78.86       | 0.00 | 215.14 | 81.81  | 0.00 |
| 22                 | F   | 215.39   | 83.88  | 1.00  | 1.00  | 78.86       | 0.00 | 215.39 | 83.88  | 0.00 |
| 23                 | F   | 215.83   | 85.88  | 1.00  | 1.00  | 78.86       | 0.00 | 215.83 | 85.88  | 0.00 |
| 80                 | F   | 198.48   | 198.28 | 25.00 | 25.00 | 14.38       | 0.00 | 198.48 | 198.28 | 0.00 |
| 81                 | F   | 194.45   | 198.13 | 25.00 | 25.00 | 14.38       | 0.00 | 194.45 | 198.13 | 0.00 |
| 82                 | F   | 196.42   | 198.08 | 25.00 | 25.00 | 14.38       | 0.00 | 196.42 | 198.08 | 0.00 |
| 83                 | F   | 198.39   | 198.03 | 25.00 | 25.00 | 14.38       | 0.00 | 198.39 | 198.03 | 0.00 |
| 84                 | F   | 197.38   | 198.28 | 25.00 | 25.00 | 14.38       | 0.00 | 197.38 | 198.28 | 0.00 |
| 85                 | F   | 198.33   | 198.13 | 25.00 | 25.00 | 14.38       | 0.00 | 198.33 | 198.13 | 0.00 |
| 86                 | F   | 198.30   | 197.89 | 25.00 | 25.00 | 14.38       | 0.00 | 198.30 | 197.89 | 0.00 |
| 87                 | F   | 200.27   | 197.84 | 25.00 | 25.00 | 14.38       | 0.00 | 200.27 | 197.84 | 0.00 |
| 88                 | F   | 201.23   | 197.38 | 25.00 | 25.00 | 14.38       | 0.00 | 201.23 | 197.38 | 0.00 |
| 89                 | F   | 202.20   | 197.14 | 25.00 | 25.00 | 14.38       | 0.00 | 202.20 | 197.14 | 0.00 |
| 90                 | F   | 203.17   | 196.89 | 25.00 | 25.00 | 14.38       | 0.00 | 203.17 | 196.89 | 0.00 |
| 91                 | F   | 204.14   | 196.64 | 25.00 | 25.00 | 14.38       | 0.00 | 204.14 | 196.64 | 0.00 |
| 92                 | F   | 205.11   | 196.40 | 25.00 | 25.00 | 14.38       | 0.00 | 205.11 | 196.40 | 0.00 |
| 93                 | F   | 206.08   | 196.15 | 25.00 | 25.00 | 14.38       | 0.00 | 206.08 | 196.15 | 0.00 |
| 94                 | F   | 207.05   | 195.90 | 25.00 | 25.00 | 14.38       | 0.00 | 207.05 | 195.90 | 0.00 |
| 95                 | F   | 208.01   | 195.65 | 25.00 | 25.00 | 14.38       | 0.00 | 208.01 | 195.65 | 0.00 |
| 96                 | F   | 208.98   | 195.40 | 25.00 | 25.00 | 14.38       | 0.00 | 208.98 | 195.40 | 0.00 |
| 97                 | F   | 209.95   | 195.15 | 25.00 | 25.00 | 14.38       | 0.00 | 209.95 | 195.15 | 0.00 |
| 98                 | F   | 210.92   | 194.90 | 25.00 | 25.00 | 14.38       | 0.00 | 210.92 | 194.90 | 0.00 |
| 99                 | F   | 211.89   | 194.65 | 25.00 | 25.00 | 14.38       | 0.00 | 211.89 | 194.65 | 0.00 |
| 100                | F   | 212.86   | 194.40 | 25.00 | 25.00 | 14.38       | 0.00 | 212.86 | 194.40 | 0.00 |
| 101                | F   | 213.83   | 194.15 | 25.00 | 25.00 | 14.38       | 0.00 | 213.83 | 194.15 | 0.00 |
| 102                | F   | 214.80   | 193.90 | 25.00 | 25.00 | 14.38       | 0.00 | 214.80 | 193.90 | 0.00 |
| 103                | F   | 215.77   | 193.65 | 25.00 | 25.00 | 14.38       | 0.00 | 215.77 | 193.65 | 0.00 |
| 104                | F   | 216.74   | 193.40 | 25.00 | 25.00 | 14.38       | 0.00 | 216.74 | 193.40 | 0.00 |
| 105                | F   | 217.71   | 193.15 | 25.00 | 25.00 | 14.38       | 0.00 | 217.71 | 193.15 | 0.00 |
| 106                | F   | 218.68   | 192.90 | 25.00 | 25.00 | 14.38       | 0.00 | 218.68 | 192.90 | 0.00 |
| 107                | F   | 219.64   | 192.65 | 25.00 | 25.00 | 14.38       | 0.00 | 219.64 | 192.65 | 0.00 |

| Statistics  | Symbol | Avg | Min | Max | MaxMin | AvgMin | AvgMax |
|-------------|--------|-----|-----|-----|--------|--------|--------|
| Can Zone #1 | 1      | 0.5 | 0.5 | 0.5 | 0.5    | 0.5    | 0.5    |

Note  
1. Use visual file app 2014-01-01-01-01-01



1 SITE PHOTOMETRIC  
1" = 30'

NORTH

**HARTRONFT ASSOCIATES**  
A Diamond Corporation  
Planning  
Architects  
Interior Designers  
950 Spruce Street, #1A  
Louisville, CO 80202  
TEL: 303.673.9504  
FAX: 303.673.9119

**LOUISVILLE MILL SITE REDEVELOPMENT & HISTORIC GRAIN ELEVATOR**  
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Caranci / Hartonft



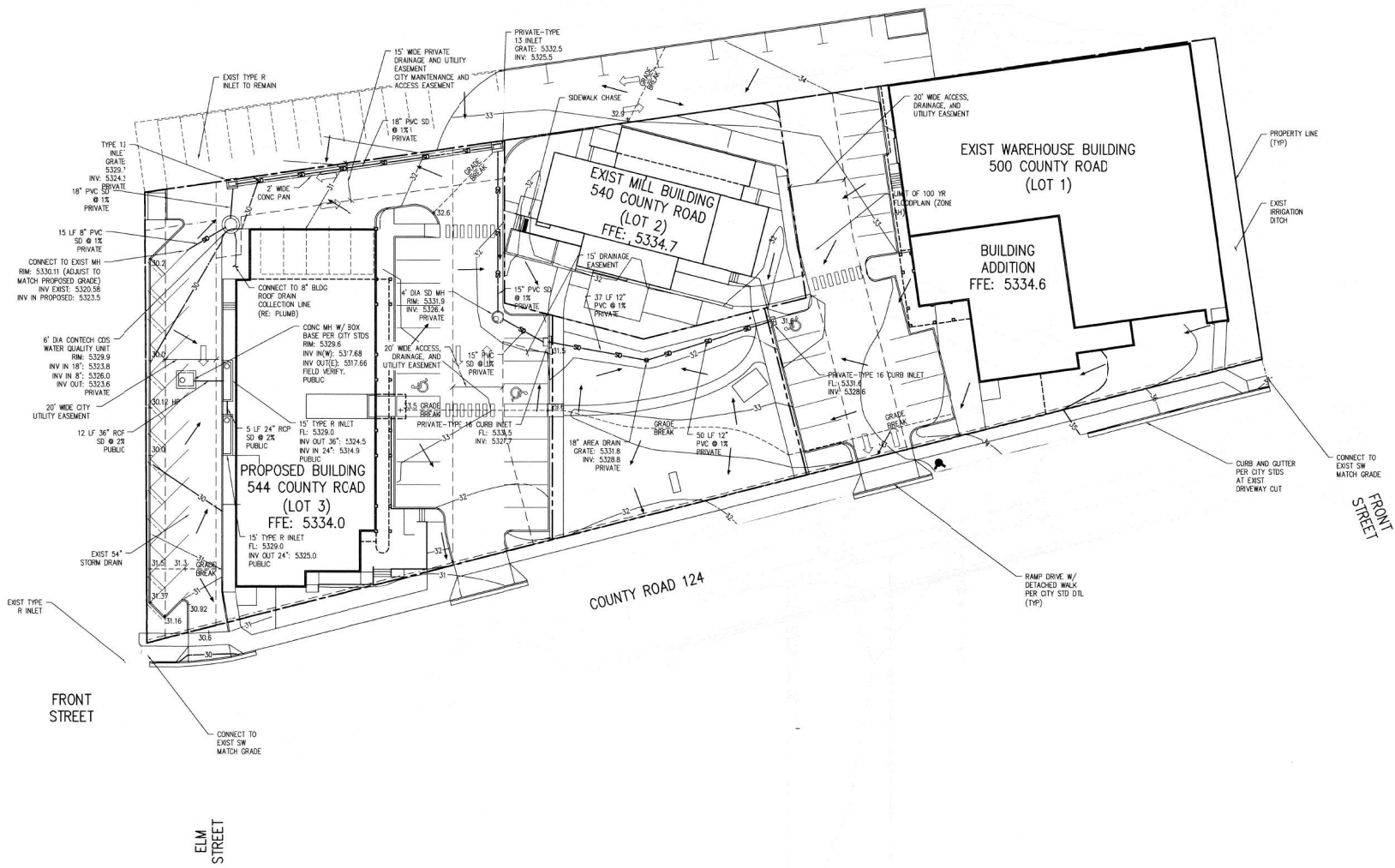
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DATE: 04/05/14  
DRAWN BY: HAPC  
CHECKED BY: JCH  
REVISIONS  
REV: 06/3/14  
FINAL: 11/05/14  
PCC: 03/12/15  
FCC: 05/05/15

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SITE PHOTOMETRIC

Sheet  
**A6**  
6 of 6 Sheets

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**HARTROFT ASSOCIATES**  
*A Professional Corporation*  
Planning  
Architecture  
Interior Design  
930 Spruce Street, #1A  
Louisville, CO 80027  
TEL: 303.673.9344  
FAX: 303.673.9319

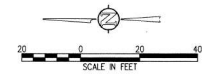
**LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR**  
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Caranci / Hartroft



PROJECT # 15210  
DATE: 04/13/14  
DRAWN BY: [Signature]  
CHECKED BY: [Signature]  
REVISIONS:  
PVC/PCC - 06/13/14  
FINAL - 11/06/14  
PCC - 03/13/15  
CCC - 02/06/15

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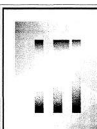
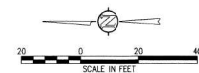
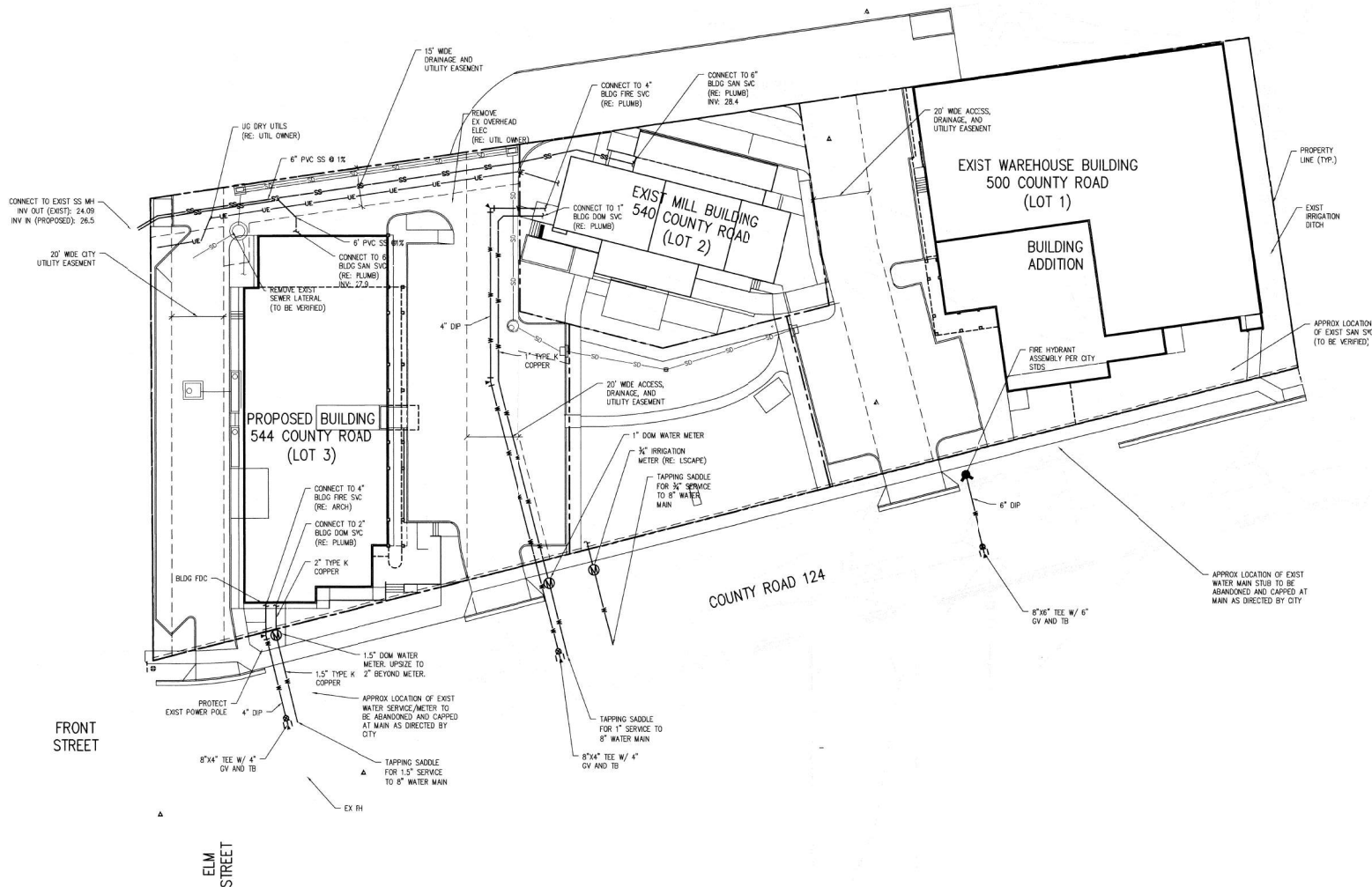
**DRAINAGE PLAN**  
Sheet:  
SHEET NO.  
**C1.0**  
of Sheets





Unofficial Copy

- NOTES:**
1. OLD WATER AND SEWER SERVICES SHALL BE ABANDONED AS DIRECTED BY THE CITY.
  2. CURB STOP VALVES AND METER PITS SHALL BE LOCATED AND INSTALLED AS DIRECTED BY THE CITY.
  3. FIRE LINES ARE PRIVATELY OWNED/MAINTAINED DOWNSTREAM OF WATER MAIN GATE VALVES.
  4. LIMITED UTILITY SURVEY INFORMATION WAS PROVIDED. PORTIONS OF SHOWN UTILITIES ARE BASED ON CITY UTILITY MAPPING. ALL UTILITY LOCATIONS, INVERTS, SIZES, ETC. TO BE FIELD LOCATED AND SURVEYED PRIOR TO CONSTRUCTION.



**HARTNOFF ASSOCIATES**  
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FAX: 303.673.9119

**LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR, CO  
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Carand / Hartnoff**



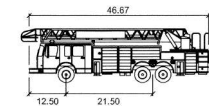
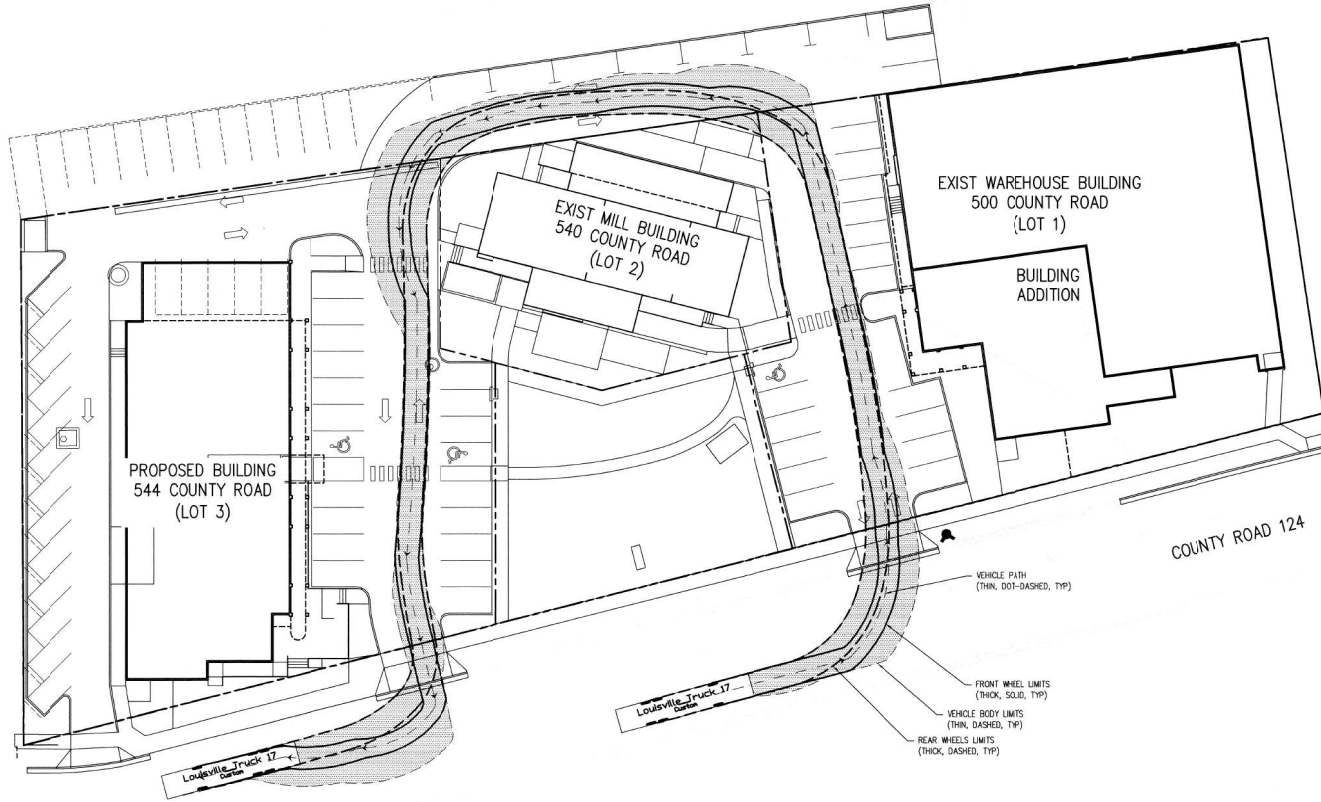
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**DATE** 04/13/14  
**DRAWN BY:**  
**CHECKED BY:**  
**REVISIONS:**  
PFC/PCS 06/3/14  
FINAL 11/06/14  
PFC 03/15/15  
FCC 05/06/15

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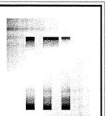
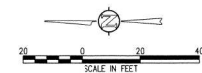
**UTILITY PLAN**

**Sheet**  
**C2.0**  
of Sheets

Unofficial Copy



Louisville Truck 17 feet  
Width : 8.00  
Track : 8.00  
Lock to Lock Time : 5.0  
Steering Angle : 45.0



**HARTTRONFT ASSOCIATES**  
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Interior Design  
950 Spruce Street, #1A  
Louisville CO 80027  
TEL: 303.673.9304  
FAX: 303.673.9319

**LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR CO**  
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Caranci / Harttronft



PROJECT # 125210  
DATE 04/2014  
DRAWN BY: --  
CHECKED BY: --  
REVISIONS:  
REV. NO. DATE  
FINAL 11/06/14  
FOR 05/13/15

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**AUTOTURN  
FIRE TRUCK  
EXHIBIT**

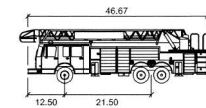
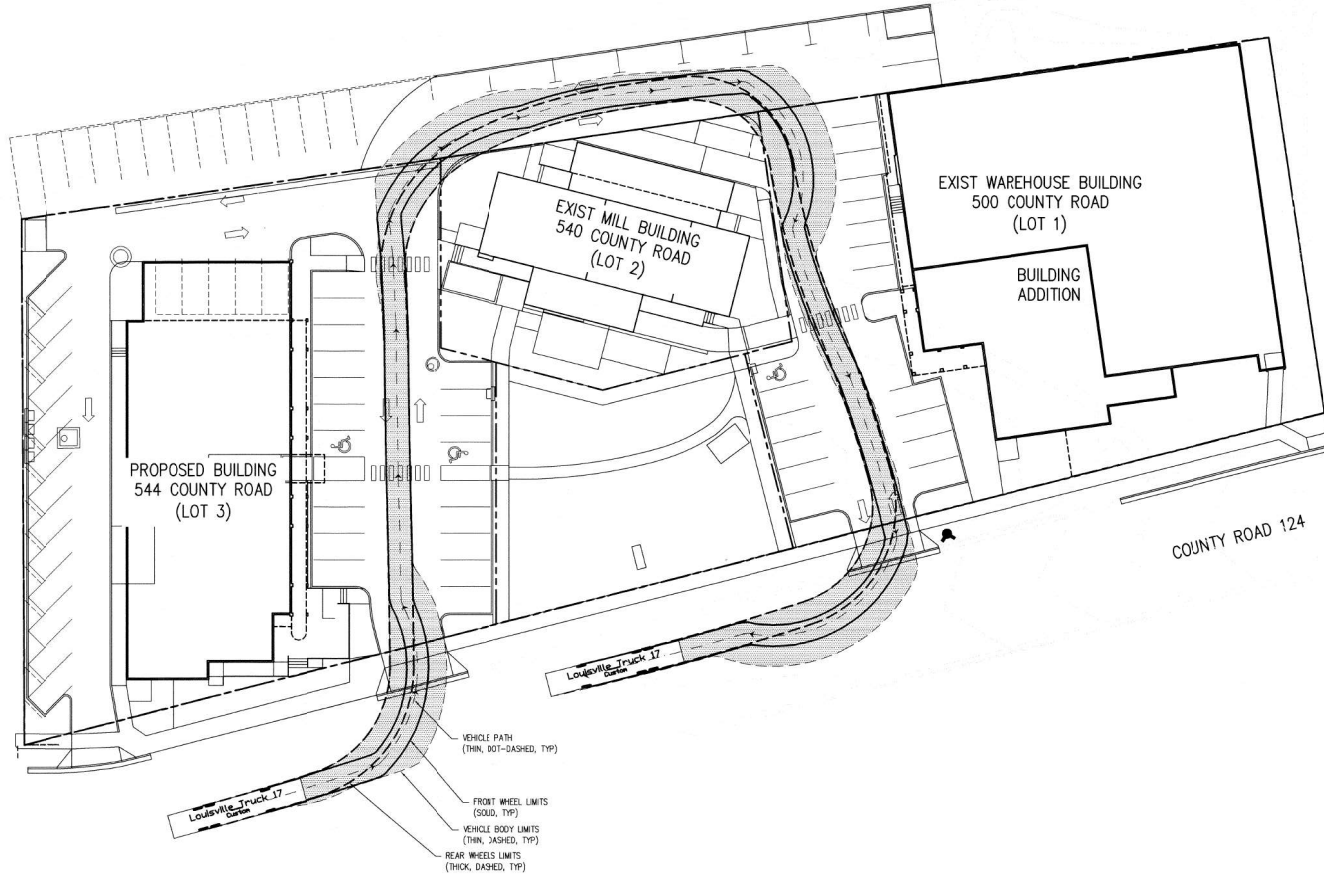
Sheet  
**EX-1**  
of Sheets

Unofficial Copy

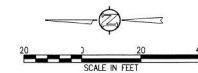
• D:\PROGRAM FILES\JCU2020\JUB\_24364\F0317.DWG • 01/01/2008 • 22:00 • 7:06/7:06 •

FRONT STREET

ELM STREET



Louisville Truck 17 feet  
Width : 8.00  
Track : 8.00  
Lock to Lock Time : 5.0  
Steering Angle : 45.0



HARTRONFT ASSOCIATES  
A Professional Corporation  
Planning  
Architecture  
Interior Design  
950 Spruce Street, #1A  
Louisville, CO 80027  
TEL: 303.673.9304  
FAX: 303.673.9319

LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR  
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Caranci / Harttronft



PROJECT # 1252.10  
DATE: 04/05/14  
DRAWN BY: --  
CHECKED BY: --  
REVISIONS:  
PWC/FCC - 06/13/14  
FINAL - 11/06/14  
FPC - 03/13/15  
FCC - 05/06/15

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AUTOTURN  
FIRETRUCK  
EXHIBIT

Sheet

EX-2

of Sheets

03563039  
12/20/2015 12:21 PM  
Boulder County, CO  
Boulder County, CO

## SIGNATURES

Owner/Signatory Block  
By signing this PLU, the owner acknowledges and accepts all the requirements and intent set forth in this PLU. Witness my hand(s) on this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

J. Erik Hartrnft, Member  
Louisville Mill Site, LLC  
Owner Name and Signature

Randall C. Caranci, Member  
Louisville Mill Site, LLC  
Owner Name and Signature

RCC LM  
Owner Name and Signature

REBECCA RINGMAN  
(Notary Seal)  
REBECCA RINGMAN  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY # 1996401896  
MY COMMISSION EXPIRES JUNE 20, 2016

My Commission Expires

PLANNING COMMISSION CERTIFICATE  
Approved this 21<sup>st</sup> day of APRIL  
2015 by the Planning Commission of the City of Louisville, Colorado.  
Resolution No. 19, Series 12/15

CLERK AND RECORDER CERTIFICATE  
(COUNTY OF BOULDER, STATE OF COLORADO)  
I hereby certify that this instrument was filed in my office at 12:21 o'clock P.M., this 12<sup>th</sup> day of December 2015, and is recorded in Plan File # 1180, said \_\_\_\_\_, File No. 03563039. Reception.

Hilary Hall  
Clerk & Recorder

Positive Matting  
Deputy

CITY COUNCIL CERTIFICATE  
Approved this 11<sup>th</sup> day of May  
2015 by the City Council of the City of Louisville, Colorado.  
Resolution No. 29, Series 2015

Mayor Signature  
City Clerk Signature

## PROJECT DIRECTORY

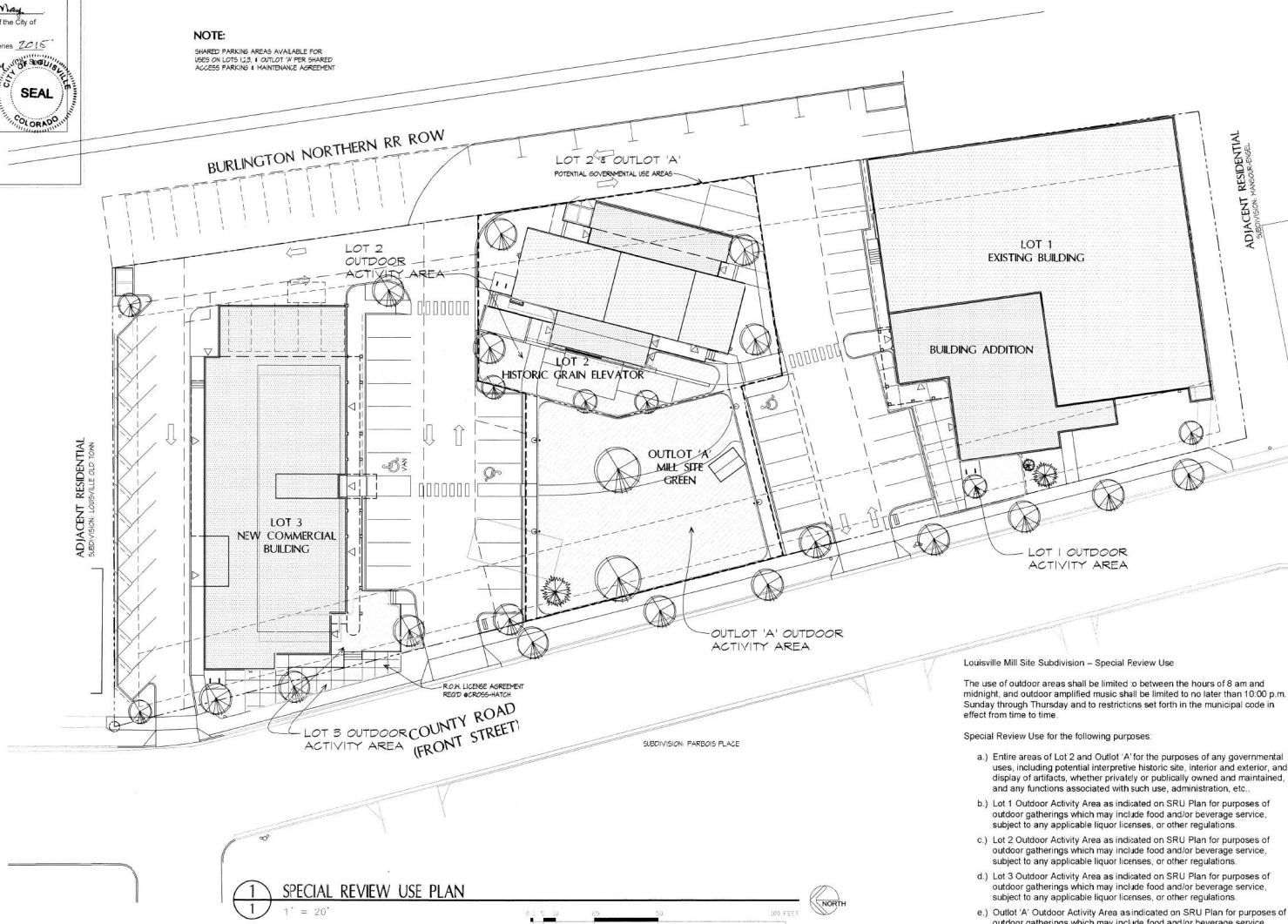
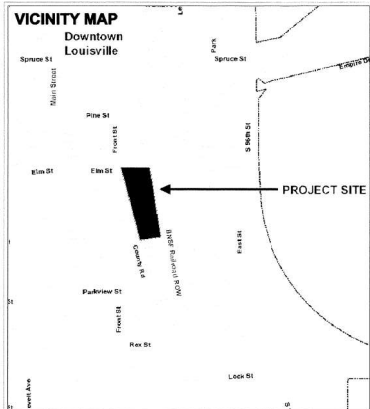
OWNER  
Louisville Mill Site, LLC  
950 Spruce Street, Suite 1A  
Louisville, Colorado 80027  
Contact: Erik Hartrnft  
303-473-9304

ARCHITECT/PLANNER  
Hartrnft Associates, P.C.  
950 Spruce Street, Suite 1A  
Louisville, Colorado 80027  
Contact: Erik Hartrnft, AIA  
303-473-9304

\* Note: Prior to closing date, property for 540/544 County Rd. Owner is City of Louisville, 745 Main Street, Louisville, CO 80027. Louisville Mill Site LLC has a contract with the property owner to purchase the property and has an agreement to renovate the buildings on site. 'Owner' as referenced herein for 540/544 County Rd. shall refer to Louisville Mill Site LLC. See related agreements for additional information and responsibilities.

## NOTE:

SHARED PARKING AREAS AVAILABLE FOR USES ON LOTS 1-2 & OUTLOT 'A' PER SHARED ACCESS PARKING & MAINTENANCE AGREEMENT



1  
1  
SPECIAL REVIEW USE PLAN  
1" = 20'



# SPECIAL REVIEW USE LOUISVILLE MILL SITE REDEVELOPMENT 500, 540, 544 County Road LOUISVILLE MILL SITE SUBDIVISION

LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH RANGE 69 WEST OF THE 6TH P.M., CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO

LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR  
500, 540 & 544 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Caranci / Hartrnft



PROJECT # 1252.10  
DATE: 1/26/14  
DRAWN BY: HARC  
CHECKED BY: JEH  
REVISIONS: 05/15/15  
05/06/15

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## SPECIAL REVIEW USE

Louisville Mill Site Subdivision - Special Review Use

The use of outdoor areas shall be limited to between the hours of 8 am and midnight, and outdoor amplified music shall be limited to no later than 10:00 p.m. Sunday through Thursday and to restrictions set forth in the municipal code in effect from time to time.

Special Review Use for the following purposes:

- Entire areas of Lot 2 and Outlot 'A' for the purposes of any governmental uses, including potential interpretive historic site, interior and exterior, and display of artifacts, whether privately or publicly owned and maintained, and any functions associated with such use, administration, etc.
- Lot 1 Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.
- Lot 2 Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.
- Lot 3 Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.
- Outlot 'A' Outdoor Activity Area as indicated on SRU Plan for purposes of outdoor gatherings which may include food and/or beverage service, subject to any applicable liquor licenses, or other regulations.

Sheet

1

1 of 1 Sheets



# FINAL P.U.D. FIRST AMENDMENT LOUISVILLE MILL SITE REDEVELOPMENT

## LOUISVILLE MILL SITE SUBDIVISION

LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH RANGE 69 WEST OF  
THE 6TH P.M., CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO



HARTRONFT  
ASSOCIATES  
A Professional Corporation

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Architecture  
Interior Design

950 Spruce Street, #2C  
Louisville CO 80027  
TEL: 303.673.9304  
FAX: 303.673.9319

LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR  
520 & 540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Louisville's Living Room LLC

FINAL P.U.D.  
FIRST AMENDMENT

PROJECT # 1252.50  
DATE: 06/16/25  
DRAWN BY: HPC  
CHECKED BY: JH  
REVISIONS: FPC 11/03/25

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COVER SHEET  
RENDERING  
SIGNATURES

Sheet

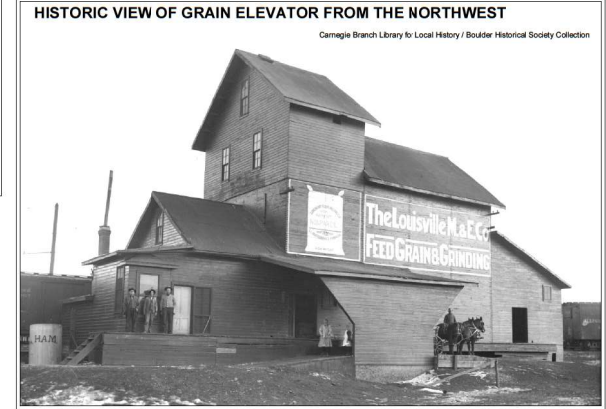
A1

of 11 Sheets



| SIGNATURES                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Owner/Structure Block</b><br>By signing this block, the owner acknowledges and accepts all the requirements and intent set forth in this P.U.D. (Witness my/our hand(s))<br>witnessed this ____ day of ____ 20____<br>_____<br>_____<br>Owner Name and Signature<br>Notary Name (print)<br>Notary Signature<br>My Commission Expires _____                                                                                | <b>Owner/Structure Block</b><br>By signing this block, the owner acknowledges and accepts all the requirements and intent set forth in this P.U.D. (Witness my/our hand(s))<br>witnessed this ____ day of ____ 20____<br>_____<br>_____<br>Owner Name and Signature<br>Notary Name (print)<br>Notary Signature<br>My Commission Expires _____ |
| <b>Planning Commission Certificate</b><br>Approved this ____ day of ____ 20____ by the Planning Commission of the City of Louisville, Colorado.<br>Resolution No. ____ Series ____<br>_____<br>City Council Certificate<br>Approved this ____ day of ____ 20____ by the City Council of the City of Louisville, Colorado.<br>Resolution No. ____ Series ____ (City Seal)<br>_____<br>Mayor Signature<br>City Clerk Signature | <b>City Council Certificate</b><br>Approved this ____ day of ____ 20____ by the City Council of the City of Louisville, Colorado.<br>Resolution No. ____ Series ____ (City Seal)<br>_____<br>Mayor Signature<br>City Clerk Signature                                                                                                          |

| SHEET INDEX   |      | PROJECT DIRECTORY                     |                   |
|---------------|------|---------------------------------------|-------------------|
| ARCHITECTURAL | A1   | Cover Sheet, Project Data & Rendering | PROJECT DIRECTORY |
|               | A2   | Site Plan                             |                   |
|               | A3   | Landscape Plan & Parking Plan         |                   |
|               | A4   | Building Floor Plans                  |                   |
|               | A5   | Building Elevations                   |                   |
|               | A6   | Site Photomontage                     |                   |
|               | A7   | SPECIAL REVIEW USE                    |                   |
| CIVIL         | C101 | Grading & Drainage Plan               | CIVIL ENGINEER    |
|               | C102 | Utility Plan                          |                   |
|               | C103 | Final Track Turning Analysis          |                   |
|               | C201 | Utility Plan - Future Phase           |                   |



# PROJECT DATA

## Louisville Mill Site - Use and Zoning Information

Final PUD - First Amendment

### Project Description:

This phase of the Louisville Mill Site Redevelopment will encompass Lot 2 and Outlot A of the Mill Site Subdivision. Lot 1 and Lot 3 of the subdivision are not proposed for redevelopment in this phase. However, with associated with common access easements, utilities and common parking areas located on Lots 1 and 3 is included in this phase to the extent indicated herein. Lot 2 currently contains the historic Louisville Grain Elevator building, which is on the National Register of Historic Places, and has been designated a Louisville local landmark, which will be rehabilitated for commercial use with minor additions. The proposed use for Lot 2 and Outlot A is commercial, with retail, restaurant/bar, and similar allowable uses. There is a potential for some private museum-type exhibit space in the grain elevator structure as well. The outlot is proposed to be an outdoor activity area for the business in the grain elevator, including outdoor sales subject to an approved GPU. The proposed development also includes relocating a small traditional wood-framed granary from the Warehousing farm, south of Community Park to the site to be rehabilitated to serve as a seasonal tap house for the outdoor activity area.

### Building Bulk and Density Standards:

| Planned setbacks:                                                      | 30' AC | Proposed setbacks:          |
|------------------------------------------------------------------------|--------|-----------------------------|
| Front:                                                                 | 20'    | Variance req. to 30' for AC |
| Rear:                                                                  | 20'    | Variance req. to 14' for PR |
| Side (interior):                                                       | 10'    | Variance req. to 30' for PR |
| (note fence structure @ 30' corner out @ 30' front & 5' side setbacks) |        |                             |
| Maximum Lot Coverage:                                                  | 40%    | 48% Proposed Variance Lot 2 |

### Allowable Height:

|               |                                          |
|---------------|------------------------------------------|
| 2 story - 36' | Proposed Height:                         |
|               | 3-story - 60' - Existing                 |
|               | 1-story - 17' - East Addition            |
|               | 1-story - 13' - 4' - Accessory Structure |

### CONING:

CSB within the Transition Area of the Design Handbook for Downtown Louisville

### Address and Legal Descriptions:

See Plat and Survey for Legal Descriptions

| RCC   | Grain | 'Yard'   | 544CR |
|-------|-------|----------|-------|
| Lot 1 | Lot 2 | Outlot A | Lot 3 |
| 800   | 540   | 620      | 544   |

## Louisville Mill Site - Lot 2 Building Area and Parking Calculation - Lot 2 and Outlot A

Final PUD - First Amendment

### Building Area and Parking Calculations - Lot 2 & Outlot

### PUD Areas From Redevelopment

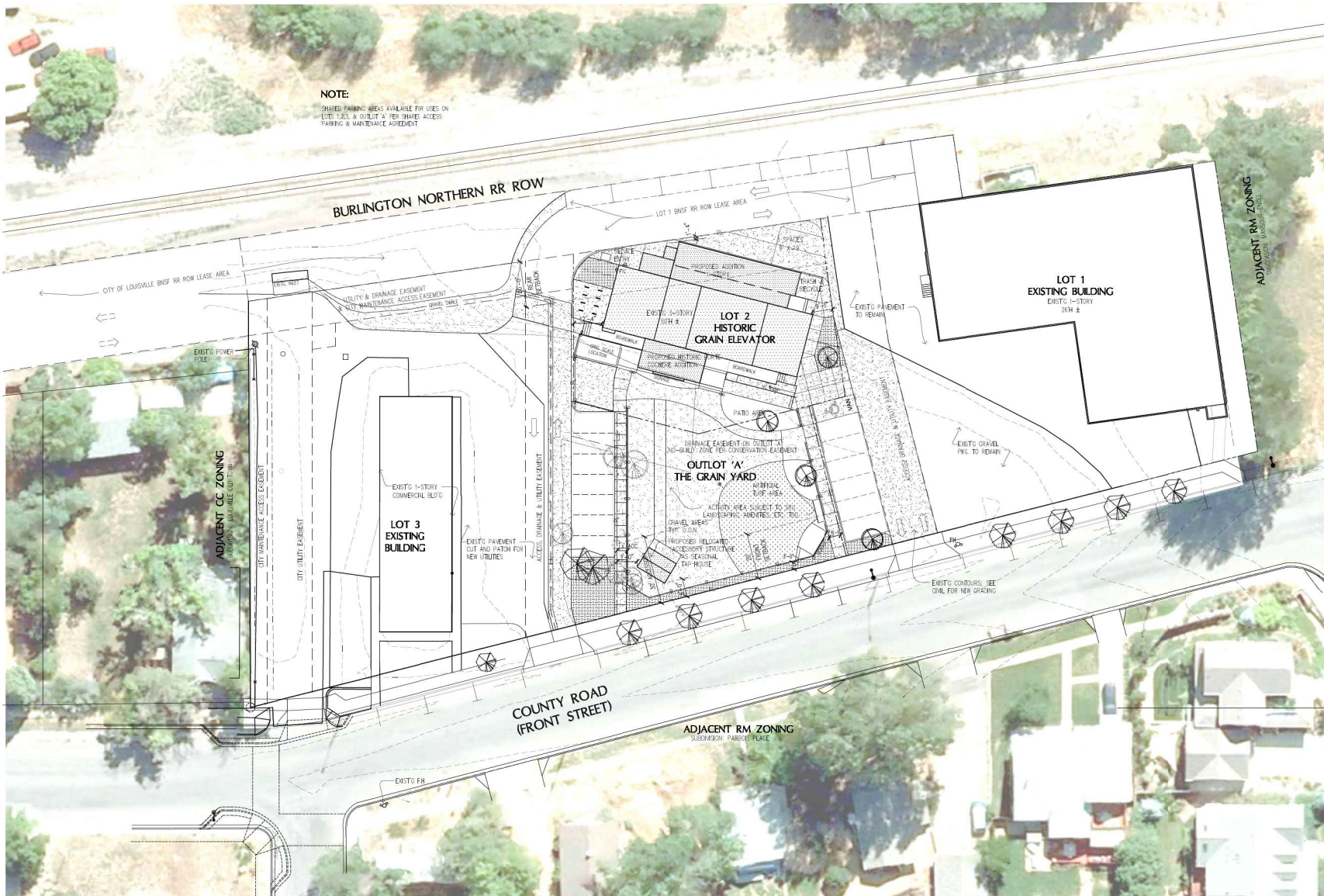
| Existing Grain Elevator Building<br>"Non-usable areas (unfurnished)<br>Finish part of existing basement<br>Patio Coaches<br>Mezzanine and Stair<br>East Addition<br>Basement<br>Total Area Grain Elevator<br>Accessory Tap House (move)<br>Total Building Area<br>Total Building Area on Site | Existing Reconstruct<br>(1,056)<br>395<br>1,081<br>2,998<br>395<br>2,998<br>395 | New<br>280<br>385<br>1,081<br>2,797<br>140<br>2,937 | RCC       | Grain | 'Yard'   | 544CR     | Total  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------|-----------|-------|----------|-----------|--------|
| Lot 1                                                                                                                                                                                                                                                                                         | Lot 2                                                                           | Outlot A                                            | Lot 1     | Lot 2 | Outlot A | Lot 3     | Lot 4  |
| Planned Lot Area - Phase 1                                                                                                                                                                                                                                                                    |                                                                                 |                                                     | Not Incl. | 9,122 | 6,841    | Not Incl. | 15,963 |
| Existing Building Coverage                                                                                                                                                                                                                                                                    |                                                                                 |                                                     |           | 2,484 | 0        |           |        |
| Additional Building Coverage                                                                                                                                                                                                                                                                  |                                                                                 |                                                     |           | 147   | 140      |           |        |
| Total Building (Lot) Coverage                                                                                                                                                                                                                                                                 |                                                                                 |                                                     |           | 3,631 | 140      |           | 4,091  |
| % Lot Coverage                                                                                                                                                                                                                                                                                |                                                                                 |                                                     |           | 43.3% | 2.0%     |           |        |

### Parking Calculation

|                                                            |           |                                          |
|------------------------------------------------------------|-----------|------------------------------------------|
| Net Building Area for Parking Calculation:                 | New Area: | 2,937                                    |
| Non-usable square footage exemption:                       |           | (999)                                    |
| Defect: poor access, parking, restrooms, circulation, etc. |           | (1,938)                                  |
| Net Building Area for Parking Calculation:                 |           | 0                                        |
| Parking provided at 1500/sq ft =                           | 1 Space   |                                          |
| Parking provided on site =                                 | 4 Spaces  |                                          |
| Parking provided incl. shared =                            | 24 Spaces | total developed as part of this project. |

\* Existing building area of Grain Elevator not all usable  
\*\* One space is ADA accessible parking space (parking space & loading shared w/ Lot 1).  
Shared parking agreement and accommodation agreement has been executed by all Mill Site Subdivision property owners. This project will develop 14 shared spaces directly adjacent to Outlot A, and 5 shared spaces directly adjacent to Lot 2.  
Regarding public parking nearby, note that 6 public parking spaces on County Road are directly in front of Outlot A plus 8 in front of Lot 1 and 3. An existing city parking lot is less than one block from the site. The City of Louisville has leased land within the SHIP ROW for future public parking which currently serves as ad hoc unimproved parking spaces. There is leased ROW area available for approximately 30 additional parking spaces adjacent and to the north of the Mill Site Subdivision.





1  
A2 ARCHITECTURAL SITE PLAN  
1" = 20'



**HARTRONFT ASSOCIATES**  
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Architecture  
Interior Design

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**LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR**  
520 & 540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Louisville's Living Room LLC

FINAL PLO  
FIRST AMENDMENT

PROJECT # 125250  
DATE: 05/16/25  
DRAWN BY: HAPC  
CHECKED BY: JEH  
REVISIONS: FPC 11/03/25

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SITE PLAN

Sheet

**A2**

2 of 11 Sheets



BURLINGTON NORTHERN RR ROW

EXISTING DRIVE SURFACE TO BE REPLACED WITH ASPHALT AS SHOWN

6 SPACES - 22' x 8' PER LOT 1 SHARED PKG AGREEMENT

LOT 2 HISTORIC GRAIN ELEVATOR

LOT 1

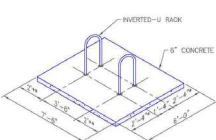
# LANDSCAPE LEGEND

|  |                                |  |                                           |
|--|--------------------------------|--|-------------------------------------------|
|  | Planting bed patterns/drawings |  | Gravel-Ped. Areas                         |
|  | Asphalt paving                 |  | Conc.                                     |
|  | Gravel Parking                 |  |                                           |
|  | Ornamental Grasses             |  | Existing Coniferous Tree over 10' Caliper |
|  | Coniferous Shrub 5' CAL.       |  | Existing Coniferous Tree 6' - 10' Caliper |
|  | Deciduous Shrub 5' CAL.        |  | Existing Deciduous Tree over 10' Caliper  |
|  | 2" - 3" Caliper Deciduous Tree |  | Existing Deciduous Tree 6' - 10' Caliper  |
|  | Deciduous Tree 5' - 6" Caliper |  | Existing Deciduous Tree 5' - 6" Caliper   |
|  | Coniferous Tree 10" - 12"      |  | Existing Shrub                            |

- NOTES:
1. APPLICANT TO PROVIDE DETAILED LANDSCAPE & IRRIGATION DRAWINGS TO PUBLIC WORKS FOR REVIEW & APPROVAL DURING THE CIVIL PLAN REVIEW.
  2. PATHWAY TREES SHALL BE PLANTED NO CLOSER THAN 5' TO CURB OR WALK OR WALK.
  3. THE USE OF ROOF BARRIER IS REQUIRED FOR ALL TREES LESS THAN 5' FROM CURB OR WALK.

## NOTES:

EXPPOSED CONCRETE SURFACE TO BE BROOM FINISHED. PAD SIZE MAY VARY AS DIRECTED BY THE ENGINEER. PAD TO BE CONSTRUCTED WITH CURB OR BARRIER. EXCAVATION AND/OR EMBANKMENT REQUIRED FOR PAD CONTRASTION WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PAD. CONCRETE SHALL BE SLOPED AT 2% TO DRAIN.



SIDE-BY-SIDE

2 U-RACK DETAIL @BICYCLE PK'G  
A3 N.T.S.

LOT 3

CONC. PAV.  
RE: CIVIL

CONC.

EXISTING PAVING

INLET

EXISTING TREES AND US ON LOT 3

OUTLOT 'A' THE GRAIN YARD

APPROX. AREA FOR FOOD TRUCK(S) - VEHICLE PADS & MANEUVERING AREAS ARE PKG. GRAVEL STANDARD - OUTLET AT EA. LIGHT POST

19'-0"

7 SPACES 9' x 19' PER LOT 3 SHARED PKG AGREEMENT

PKG. GRAVEL

NEW PAVING AT UTILITY TRENCH

NEW PAVING AT UTILITY TRENCH

NEW PAVING AT UTILITY TRENCH

NEW PAVING AT UTILITY TRENCH

NEW PAVING AT UTILITY TRENCH

NEW PAVING AT UTILITY TRENCH

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NEW PAVING AT UTILITY TRENCH

NEW PAVING AT UTILITY TRENCH

1 SCHEMATIC LANDSCAPE PLAN & PARKING PLAN  
A3 1" = 10'



HARTTRONFT ASSOCIATES  
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LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR  
520 & 540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Louisville's Living Room LLC

FINAL PWD  
FIRST AMENDMENT

PROJECT # 125250  
DATE: 05/16/25  
DRAWN BY: HAPC  
CHECKED BY: JEH  
REVISIONS: FPC 11/03/25

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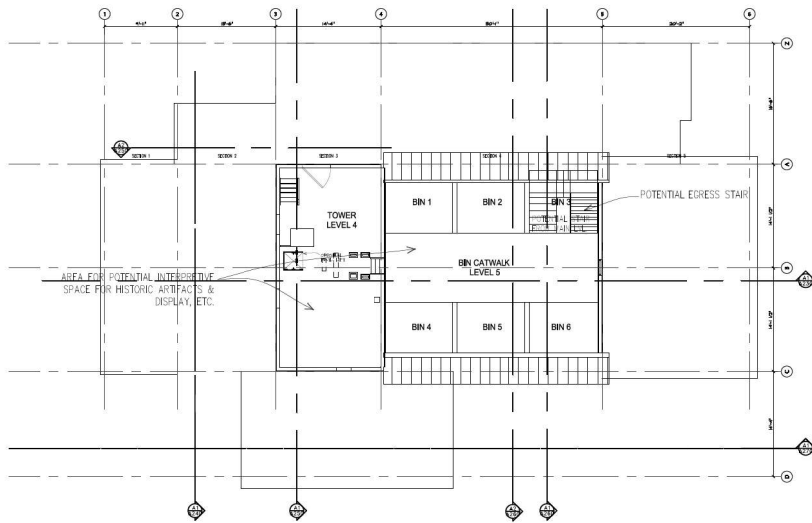
LANDSCAPE &  
PARKING PLAN

Sheet

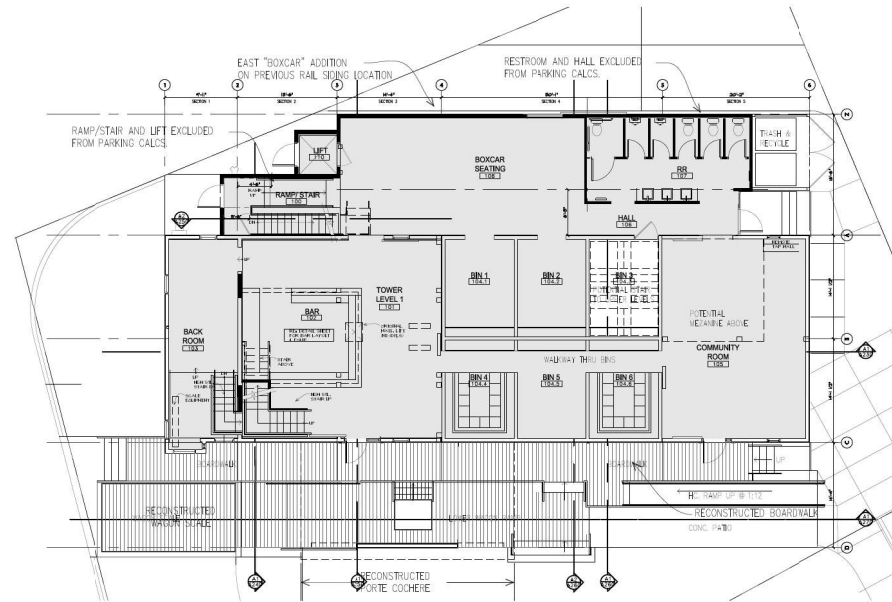
A3

3 of 11 Sheets

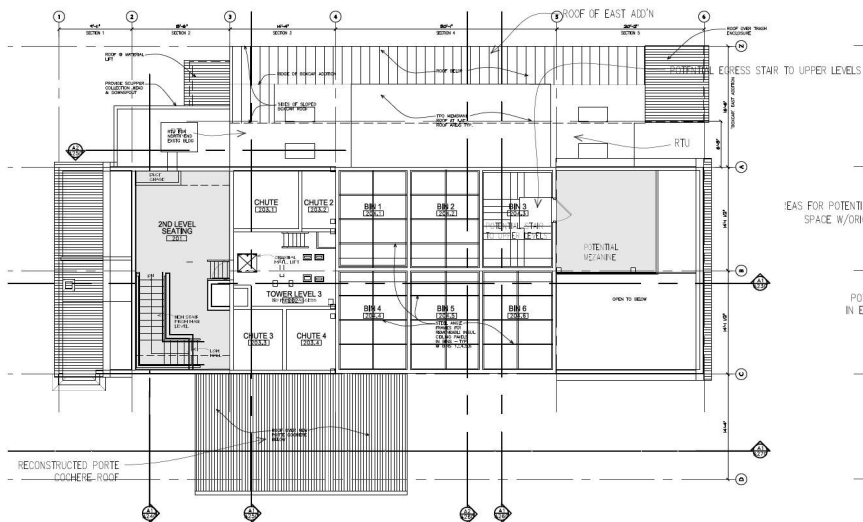




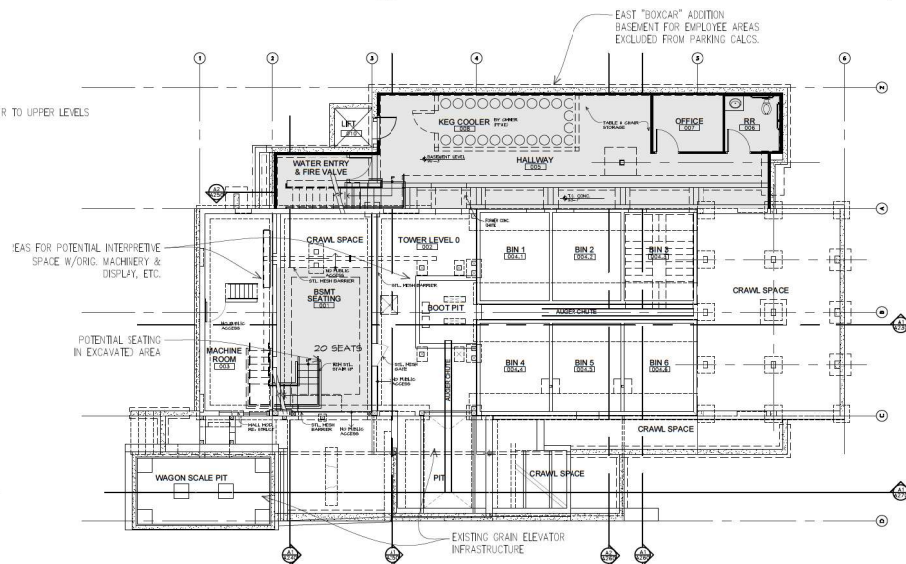
**4 FLOOR PLAN - FOURTH/FIFTH LEVEL (3RD STORY)**  
SCALE: 1/8" = 1'-0"



**2 FLOOR PLAN - FIRST LEVEL (1ST STORY)**  
SCALE: 1/8" = 1'-0"



**3 FLOOR PLAN - SECOND/THIRD LEVEL (2ND STORY)**  
SCALE: 1/8" = 1'-0"



**1 FLOOR PLAN - BASEMENT/CRAWL SPACE**  
SCALE: 1/8" = 1'-0"



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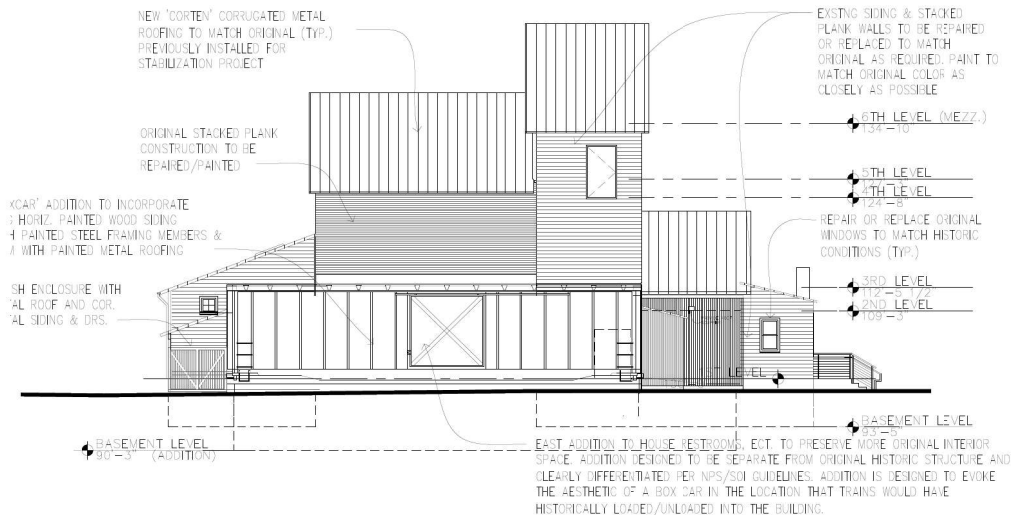
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FLOOR PLANS

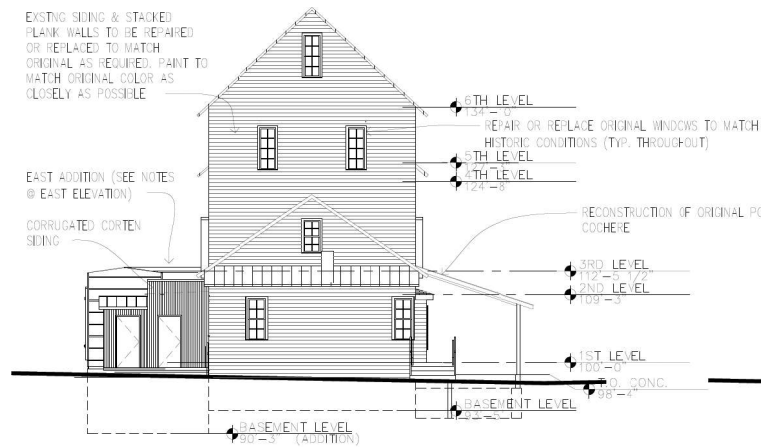
Sheet

**A4**

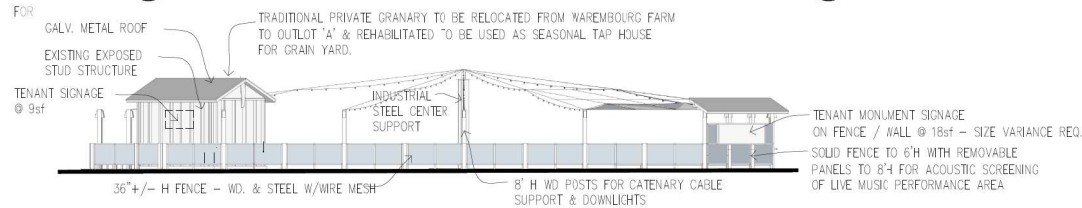
4 of 11 Sheets



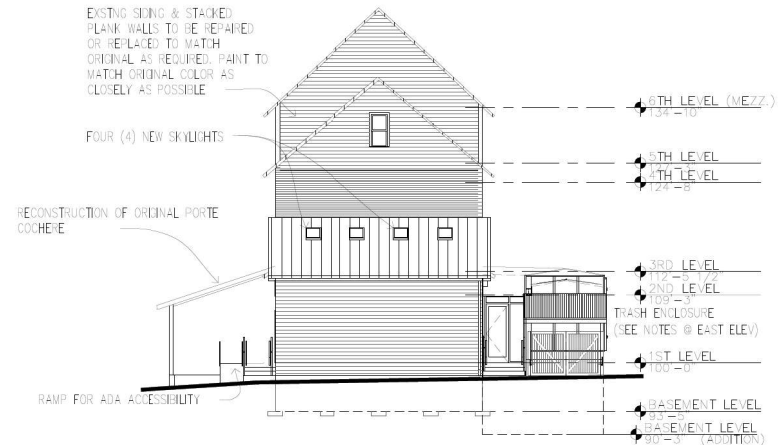
**5 EAST ELEVATION**  
SCALE: 1/8" = 1'-0"



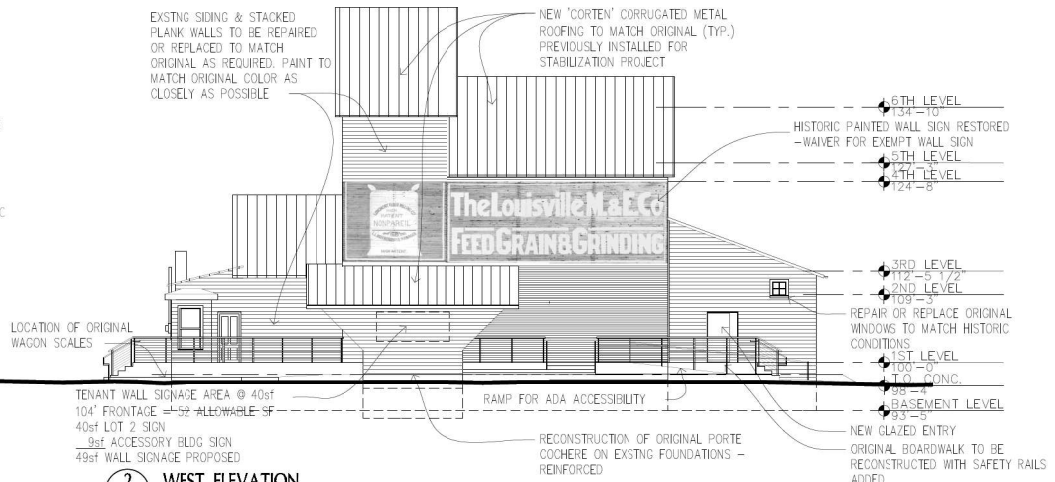
**3 NORTH ELEVATION**  
SCALE: 1/8" = 1'-0"



**1 WEST SITE ELEVATION - GRANARY & FENCE**  
SCALE: 1/8" = 1'-0"



**4 SOUTH ELEVATION**  
SCALE: 1/8" = 1'-0"



**2 WEST ELEVATION**  
SCALE: 1/8" = 1'-0"

NOTE: HISTORIC LOUISVILLE GRAIN ELEVATOR TO BE RENOVATED FOR COMMERCIAL USE PER THE NATIONAL PARK SERVICE AND SECRETARY OF THE INTERIOR (NPS/SOI) STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES ACCORDING TO THE GUIDELINES FOR REHABILITATION OF HISTORIC BUILDINGS.



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520 & 540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Louisville's Living Room LLC

FINAL PWD  
FIRST AMENDMENT

PROJECT # 1252.50  
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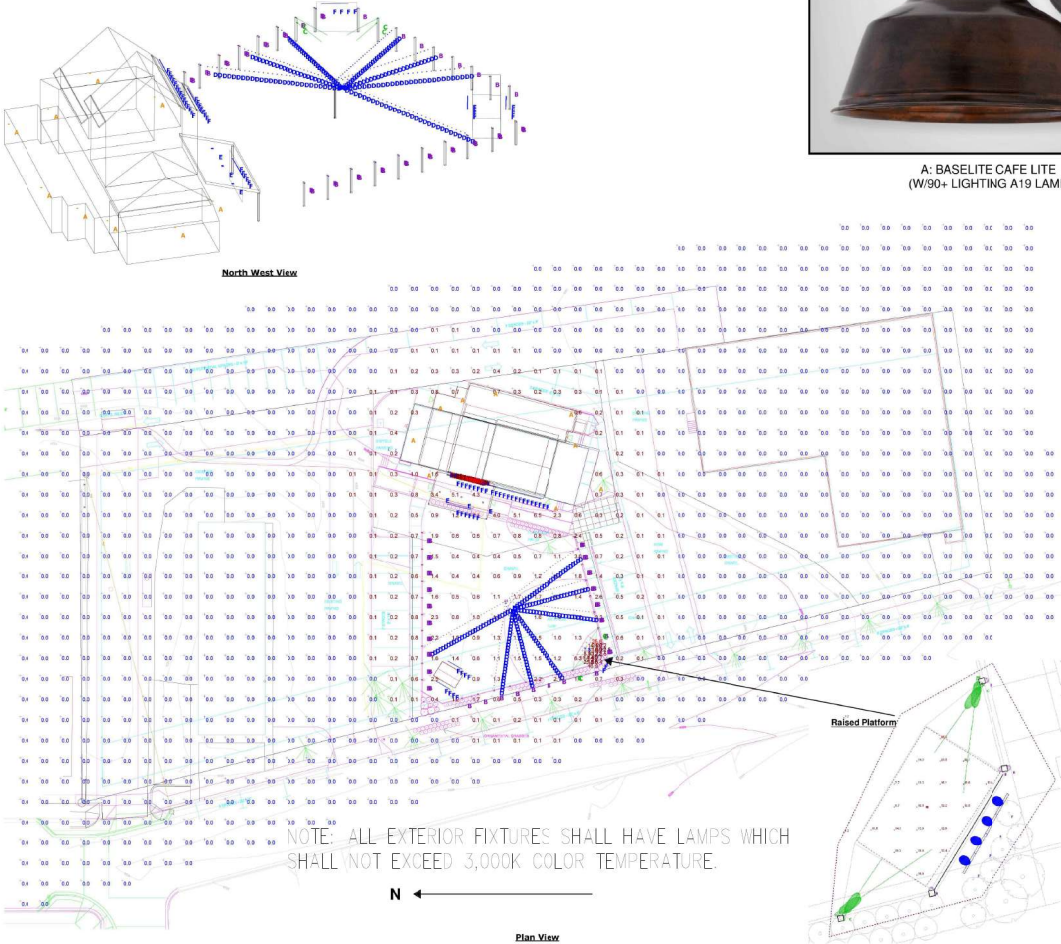
**BUILDING  
ELEVATIONS**

Sheet

**A5**

5 of 11 Sheets

| Luminaire Schedule |       |          |               |                                          |                                                                                               |                                                                          |              |                                             |                   |
|--------------------|-------|----------|---------------|------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------|---------------------------------------------|-------------------|
| Symbol             | Label | Quantity | Manufacturer  | Catalog Number                           | Description                                                                                   | Lamp                                                                     | Number Lamps | File Name                                   | Lumens Per Lamp   |
|                    | A     | 9        | 90+ LIGHTING  |                                          |                                                                                               | A19 120V 820lm 3000K 2.5' 2.7'                                           | 24           | SE-350-050-A19-10                           | 33                |
|                    | B     | 43       | WAC LIGHTING  | WS-014511-X0                             | Surface-mounted Luminaires                                                                    |                                                                          | 1            | WS-014511-ESP-10                            | 269               |
|                    | C     | 4        | LUMINIS       | SC355-L110-PLD-40K                       | Scopo 3                                                                                       | (1) Brogelux BUC-40E2000-D-73 c/w Philips 4000K (3000K/4000K) @ 120-200V | 1            | SC355-L110-PLD-40K-05                       | 922               |
|                    | D     | 194      | Tivoli, LLC   | LSL2-B-12-V-30-O                         |                                                                                               |                                                                          | 1            | 7828-LSL2-B-12-V-30-O-05                    | 63                |
|                    | E     | 3        | Juno Lighting | JPS10 77N 10LM 30K                       | 7 Square Edgell (Siformon) Surface Mount, 3000K, 100LM, 10V                                   | N/A                                                                      | 1            | JPS10 77N 10LM 30K 3000K                    | 1097              |
|                    | F     | 41       | LUMENPULSE    | LPR-120-277-24-3-75W-30K-30x35-CL-NO-11V | LUMENFACADE PURE This file was created by Lumenpulse to reflect an accessories configuration. |                                                                          | 1            | LPR-120-277-24-3-75W-30K-30x35-CL-NO-11V-05 | 603               |
|                    |       |          |               |                                          |                                                                                               |                                                                          |              |                                             | Light Loss Factor |
|                    |       |          |               |                                          |                                                                                               |                                                                          |              |                                             | Wattage           |
|                    |       |          |               |                                          |                                                                                               |                                                                          |              |                                             | 9.6               |
|                    |       |          |               |                                          |                                                                                               |                                                                          |              |                                             | 7.74136           |
|                    |       |          |               |                                          |                                                                                               |                                                                          |              |                                             | 12.5              |
|                    |       |          |               |                                          |                                                                                               |                                                                          |              |                                             | 0.8               |
|                    |       |          |               |                                          |                                                                                               |                                                                          |              |                                             | 12.9              |
|                    |       |          |               |                                          |                                                                                               |                                                                          |              |                                             | 7.21              |



CLICK ON FIXTURE IMAGES  
TO LINK TO PRODUCT PAGES



A: BASELITE CAFE LITE  
(W/90+ LIGHTING A19 LAMP)



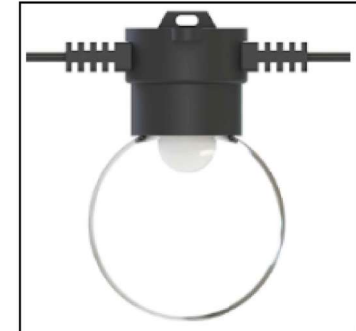
B: WAC SLANT



C: LUMINIS SCOPO 355



E: JUNO SLIMFORM



D: TIVOLI LITESPHERE 2.0



F: LUMENPULSE LUMENFACADE PURE

CLICK ON FIXTURE IMAGES  
TO LINK TO PRODUCT PAGES

Note  
Lighting calculation software is for  
estimating purposes only, not  
generating exact values.

These calculations are for the use  
and adoption by our clients and  
theirs' solely at their discretion.  
This includes evaluation of the  
calculated lighting levels and model  
by the Architect, Engineer, Lighting  
Designer or Owner for adherence to  
the project's lighting specifications  
for levels and uniformity.

We make no guarantees of meeting  
any subjective expectations.  
Calculations are based on a model  
only. Space characteristics and  
electrical supply to fixtures, along  
with installation details, may alter  
performance. Model is based on  
standard reflectance values unless  
otherwise noted.

Any variance from reflectance  
values, obstructions, light loss  
factors (including both physical and  
electrical in nature) or dimensional  
data will affect the actual light levels  
obtained.

Final construction drawings and  
calculations are the responsibility of  
a licensed architect or engineer.

The Lighting Agency provides these  
calculations as a courtesy for  
evaluation only.

Note  
1. File - visual-files-may-2025-millsite3-  
louisville grain - r2.vsl



HARTRONFT  
ASSOCIATES  
Architectural Consultants

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LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR  
520 & 540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC - Louisville's Living Room LLC

FINAL PLOT  
FIRST MODIFICATION

PROJECT # 125250  
DATE: 05/16/25  
DRAWN BY: HAPC  
CHECKED BY: GH  
REVISIONS: RVC 11/03/25

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SITE PHOTOMETRIC

Sheet  
A6

of 11 Sheets



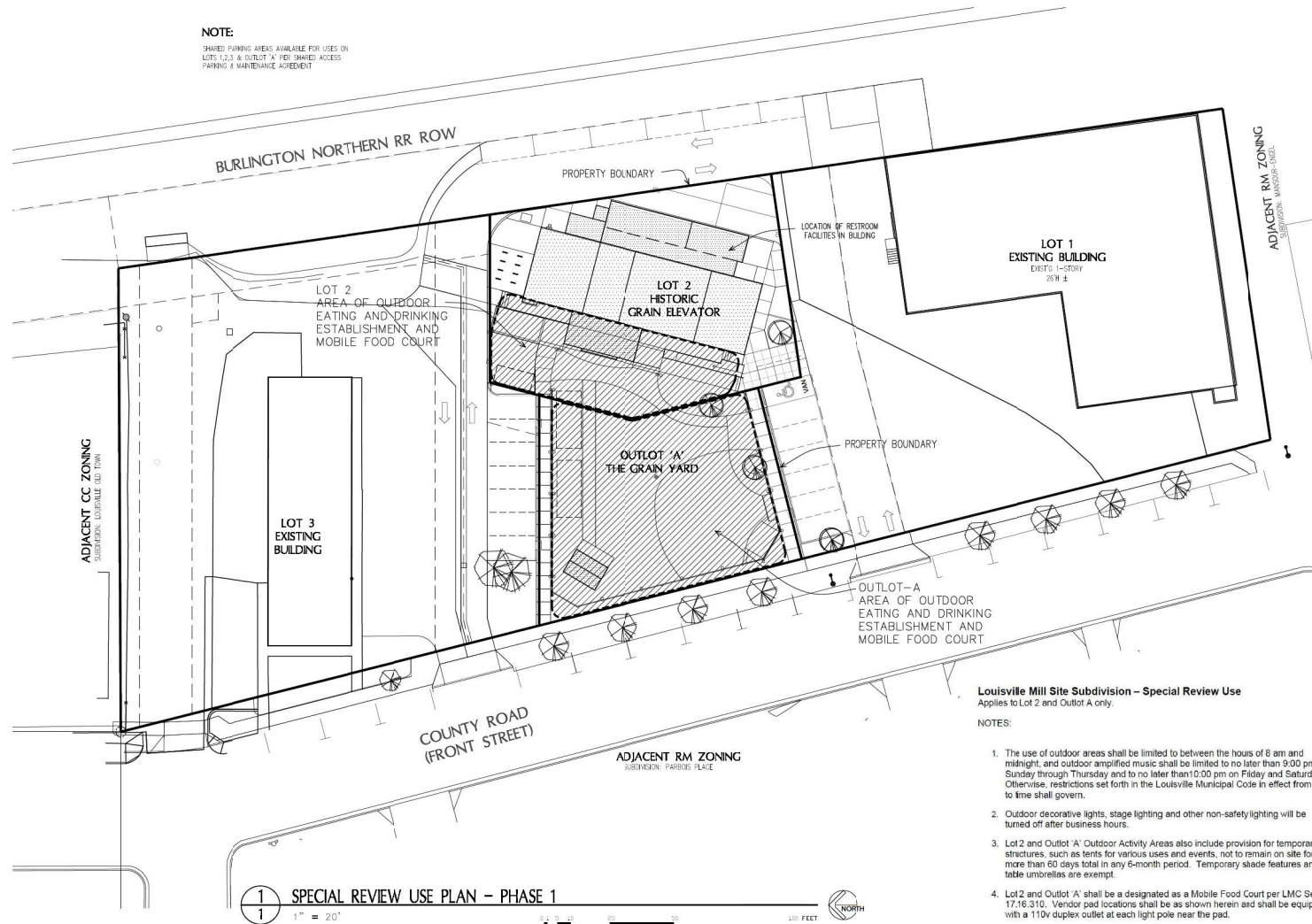
# SPECIAL REVIEW USE LOUISVILLE MILL SITE REDEVELOPMENT

## LOUISVILLE MILL SITE SUBDIVISION

LOCATED IN THE SOUTHEAST QUARTER OF SECTION 8, TOWNSHIP 1 SOUTH RANGE 69 WEST OF  
THE 6TH P.M., CITY OF LOUISVILLE, COUNTY OF BOULDER, STATE OF COLORADO

### NOTE:

SHARED PARKING AREAS AVAILABLE FOR USES ON  
LOTS 1,2,3 & OUTLOT 'A' PER SHARED ACCESS  
PARKING & MAINTENANCE AGREEMENT



**Louisville Mill Site Subdivision – Special Review Use**  
Applies to Lot 2 and Outlot A only.

### NOTES:

- The use of outdoor areas shall be limited to between the hours of 8 am and midnight, and outdoor amplified music shall be limited to no later than 9:00 pm Sunday through Thursday and to no later than 10:00 pm on Friday and Saturday. Otherwise, restrictions set forth in the Louisville Municipal Code in effect from time to time shall govern.
- Outdoor decorative lights, stage lighting and other non-safety lighting will be turned off after business hours.
- Lot 2 and Outlot 'A' Outdoor Activity Areas also include provision for temporary structures, such as tents for various uses and events, not to remain on site for more than 60 days total in any 6-month period. Temporary shade features and table umbrellas are exempt.
- Lot 2 and Outlot 'A' shall be designated as a Mobile Food Court per LMC Sec. 17:16-310. Vendor pad locations shall be as shown herein and shall be equipped with a 110v duplex outlet at each light pole near the pad.
- Drawings, including a Site Plan and Landscape Plan and detailed construction documents for the Mobile Food Court shall be submitted at time of building permit indicating compliance with requirements of LMC Sec. 17:16-310 D.5, as well as compliance with applicable building codes and Boulder County Health Department requirements.

**1 SPECIAL REVIEW USE PLAN – PHASE 1**  
1" = 20'  
0 20 40 60 80 100 FEET  
NORTH



**HARTSON ASSOCIATES**  
A Professional Corporation  
Planning  
Architecture  
Interior Design  
950 Spruce Street, #2C  
Louisville, CO 80027  
TEL: 303.673.9304  
FAX: 303.673.9319

**LOUISVILLE MILL SITE REDEVELOPMENT  
& HISTORIC GRAIN ELEVATOR**  
520 & 540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC – Louisville's Living Room LLC

SPECIAL REVIEW USE

**PROJECT # 125250**  
DATE: 05/16/25  
DRAWN BY: HAPC  
CHECKED BY: JEH  
REVISIONS: PC 11/03/25

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All drawn and written information  
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Hartson Associates, p.c.

SPECIAL REVIEW USE

Sheet

**A7**

1 of 11 Sheets







## **Louisville Grain Elevator History**

**Address:** 540 County Road, Louisville, Colorado

**Legal Description:** Referred to as Tract 712, Louisville

**Year of Construction:** Likely 1905-06 (see discussion)

**Summary:** This building is considered to be one of the area's last remaining wooden grain elevators. It was placed on the National Register of Historic Places in 1986 due to the elevator being "historically and visually the most significant structure associated with the agricultural history of the community." It is also listed on the Colorado Register of Historic Places. Its stacked plank construction style is considered to be rare.

This building was constructed by John K. Mullen, an Irish immigrant who built and operated a number of grain elevators in Colorado in his capacity as President of the Colorado Milling & Elevator Co. Besides being associated with John K. Mullen, the building was also associated with the Moore and Thomas families. The elevator was managed for about 35 years by Louisville resident Howard A. Moore and then his son, Donald Moore. In 1957, it was purchased by Louisville residents Charles Thomas and Quentin Thomas. Charles Thomas was the brother-in-law of Donald Moore.

As shown below, this building is connected with not only Boulder County's agricultural heritage, but is also connected with the area's railroad history, mining history, and the history of the Irish in Colorado. It was owned by an outsider before it became a locally owned Louisville business several decades later. It is located in Louisville's historic downtown area.

Every attempt has been made in the writing of this report to give accurate factual information, to discontinue the use of incorrect information that has occasionally cropped up in past reports about the building, and to compile in this document all of the available information about the structure's history.

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## Construction by John K. Mullen and Early Operation

The story of Louisville, Colorado is often told in terms of its history as a small coal mining town. However, farming not only predated mining in the area, but local farmers continued to play an important role in the town's economy and cultural life through much of the 1900s.

It was on the farm of David Kerr that coal was first discovered in 1877. And since coal mining was seasonal in this area due to the high moisture content of the coal that caused it to disintegrate once the coal was brought out of the ground, coal mining and farming came to have a complimentary relationship. Some miners worked on farms in the warm months, while some farmers worked in coal mines in the cold months. Louisville area farmers, though they did not live in town, certainly identified themselves as Louisville residents and fully participated in the town's economic, civic, and cultural life. They attended Louisville churches, shopped in the stores, and sent their children to Louisville schools. Just as Louisville miners tended to be recent European immigrants, the area farmers also represented different ethnicities.

Louisville faced particular challenges in the 1880s and 1890s (following its founding in 1878) and finally emerged with a viable economy after the turn of the century. This development likely made it a particularly attractive site for someone to build an elevator or mill in the early 1900s. A 1902 *Denver Post* item reported that a company called the Centennial Mill and Elevator Company in Louisville had been incorporated. However, there is no evidence that this was the company that constructed the Louisville Grain Elevator.

Boulder County property records indicate that the property on which the Grain Elevator was built came from The Union Pacific Coal Company. The deeds show that Peter F. Murphy of Louisville purchased property from Union Pacific in August 1905 and resold this parcel to John K. Mullen in October 1905. Both were Irish Catholics. It could be speculated that they knew one another and that Murphy was even acting on Mullen's behalf.

John K. Mullen, who had the Louisville Grain Elevator built, was an Irish immigrant who rose to great heights as the head of an empire of grain elevators and flour mills in Colorado and some surrounding states. He was born in County Galway, Ireland in 1847 and came to the United States in 1856 at the time of the Irish Potato Famine. He and his family settled in Oriskany Falls, New York, where he worked at a flour mill. As a young man, he worked his way West and assumed more and more responsibility in the grain industry. As described on the jacket of William J. Convery's biography of Mullen, *Pride of the Rockies: The Life of Colorado's Premiere Irish Patron, John Kernan Mullen*, Mullen "ruthlessly rose to control of the West's flour milling industry and was one of the architects of early Denver's transformation from a dusty supply town to the Queen City of the Mountains and Plains. A celebrated giver during his lifetime, J.K. Mullen endowed many religious and civic monuments." For example, Mullen High School in Denver was named for him, as was the Mullen Library at Catholic University in Washington, D.C. He helped finance and oversaw the construction of Denver's Cathedral of the Immaculate Conception. At times, he was even the owner of Elitch Gardens and the famous Matchless Mine in Leadville, among other prominent Colorado properties.

The book states that "[e]vidence of Mullen's contribution to the architectural landscape stretches beyond Denver. The tallest structure in many farming towns throughout the Rocky Mountain West is the grain elevator constructed by Mullen's Colorado Milling and Elevator Company" (p. 2). "By 1924, The

Colorado Milling and Elevator Company owned nearly three hundred mills, warehouses, and elevators ...” (p. 197). The following is a portrait of J.K. Mullen from 1933:



Portrait accessed online from the Denver Public Library, Western History Collection, [www.denverlibrary.org](http://www.denverlibrary.org)

As explained in the UC-Denver report on *Eastern Plains and Front Range Grain Elevators of Colorado*, Mullen was not only responsible for bringing to Colorado the Hungarian milling process, but he also played a leading role in creating high altitude flour. The fact that he owned both the grain elevators where farmers would bring their grain and the flour mills where the grain could be processed had the effect of tightening his control on the industry.

Although an accounting of the number of remaining J.K. Mullen’s Colorado grain elevators and mills could not be located for this report, information was found regarding Boulder County grain buildings. According to available information, two separate milling/elevator structures in Boulder burned down in 1889 and 1931. Longmont lost a flour mill and Mullen-owned grain elevator to fire in 1934. According to the UC-Denver report on *Eastern Plains and Front Range Grain Elevators of Colorado*, two other elevators besides the Louisville Grain Elevator still stand in Boulder County: in Lafayette and on a private farm in Hygiene. As with many historic elevators, the elevator in Lafayette has had metal siding installed on its sides to reduce the risk of fire, something that has never been done to Louisville’s, other than in a few limited sections. Specific information about the elevator in Hygiene could not be located for this report. Louisville’s elevator is the only one in the County that is listed on the National Register of Historic Places.

A 1918 *Denver Post* article shows that Louisville area wheat farmers at times disputed Mullen’s practices, not unlike similar conflicts of the time between Louisville coal miners and the mining companies. The articles states:

The wheat growers of the Lafayette-Louisville district are up in arms over the practices of the J.K. Mullen elevator there. Instead of the \$2.20 per bushel price fixed by the federal food commission, the elevator is paying only about \$1.00 or less for the highest grade wheat. . . . [The] Mullen explanation of a deduction of the freight to Kansas City does not explain this entire discrepancy. . . . [The farmers] are told that the purchase of wheat may be abandoned if there is any complaint.

According to the UC-Denver report *Eastern Plains and Front Range Grain Elevators of Colorado*, citing Convery's biography of Mullen,

In an effort to placate suspicious farmers who felt CM&E [the Colorado Milling & Elevator Company] was a monopoly guilty of price fixing, Mullen looked for ways to improve CM&E's image. J.K. instituted several measures designed to reestablish trust in his company. In order to provide a sense of local ownership, subsidiary mills acquired or opened by CM&E were named for the community ....

In this connection, it should be noted that the first and longtime name of the Louisville Grain Elevator was the "Louisville Milling & Elevator Company," and it appears to have been selected for the public relations reason noted. Other legal owners of the building were the Northern Colorado Elevator Company and the Colorado Milling & Elevator Company. It was also called the "Denver Elevator" and the words "The Denver Elevators" were painted on the side of the building even while it was owned by the Colorado Milling & Elevator Company. Despite the name changes, all of these companies are believed to have been under the control of John K. Mullen.

### **Date of Construction**

A review of the available evidence shows that the date of construction of this building was most likely 1905-06.

(The Boulder County Assessor lists two improvements located at 540 County Road and gives the date of construction of both of them as 1936. However, the County has sometimes been found to be in error with respect to the dates of construction of Louisville buildings. The 1936 date is clearly not accurate with respect to the Grain Elevator building.)

Different reports that have been written about the history of this building have given the dates of construction as 1903, 1904, 1905, and 1908.

The 1908 Sanborn fire insurance map for Louisville showed the Elevator and stated the year of construction to have been 1903. However, an examination of the deeds reveals that it was not until August 1905 that The Union Pacific Coal Company sold the property to Peter F. Murphy, who then sold it to J.K. Mullen in October 1905. It seems unlikely that the structure would have been built prior to the transfer of these deeds. Also, in February 1905, the Longmont, Colorado *Ledger* newspaper reported that "Louisville, in Boulder County, wants a flour mill." While a flour mill is not the same as a grain elevator, the statement suggests that what Louisville may have more broadly been seeking was a way for its wheat farmers to easily get their wheat crops to a mill. The construction of a grain elevator would have fulfilled that need, and the appearance of the item in the Longmont paper could suggest that Louisville did not yet have a grain elevator.

The Elevator, and Howard Moore as its manager, were first listed in the 1907-08 directory for Louisville, which could indicate that it was built before 1907. Significantly, the Elevator is not listed in the 1904 or 1906 Louisville directories. (A 1905 directory for Louisville appears to not exist.)

For the foregoing reasons, it is believed that the Elevator was constructed in 1905-06.

## Location of Grain Elevator and Association with Railroad

The Grain Elevator and the nearby Acme Mine that was located at Roosevelt and Hutchinson used the same railroad spur that left the main track just northeast of the Elevator and curved over to the Acme. In fact, the 1905 deed that conveyed the property from Peter F. Murphy to J.K. Mullen specifically referred to the “Acme switch” in its legal description of the parcel (a description repeated in the 1957 deed to the Thomas family). The following section of the 1909 Drumm’s Wall Map of Louisville shows this relationship, with a building labeled “Elevator” on the upper right, on the spur that continued to the west past the Acme mine dump towards the Acme Mine.



1909 Drumm’s Wall Map of Louisville, Louisville Historical Museum

This map shows how the Elevator was actually constructed to be parallel to the railroad spur, not the main track. This is why even today, even with the spur gone, it sits at an angle to the main track. It is believed that the reason was that it was better for the railroad cars being loaded with grain at the Elevator to not block the main line of the railroad.

This photo, looking east, shows the relationship of the Elevator to the Acme Mine, with the Elevator visible in the rear to the left of the photo:



Rescue squad by Acme Mine looking east, circa 1920s, Louisville Historical Museum

### **Architecture, Physical Description, and Functions of the Grain Elevator**

The building has been the subject of three different architectural and historical surveys. These are believed to have been funded and completed jointly by the City of Louisville and the State of Colorado in 1982, 1985, and 2000. In addition, information about this building is available from the 1986 National Register listing and in the 2011 structural report by Anderson Hallas Architects that was commissioned by the City of Louisville.

It is believed that the general, original purpose of a grain elevator in this area was to receive grain, particularly wheat, from farmers. A farmer would bring a wagonload of grain to the elevator; interviews of local residents indicate that the grains brought to the Louisville Elevator included wheat, corn, oats, and barley. The Louisville Historical Museum has in its collection annual licenses given in the 1930s by the state of Colorado to Donald Moore, operator of the Grain Elevator, to inspect and grade wheat, barley, oats, corn, and rye.

The wagon would be weighed on the weigh scale, then emptied into a pit. Then the empty wagon would be weighed again in order to obtain a true weight of the contents. The manager of the grain elevator was responsible for this recordkeeping. Merwin Jay Harrison, whose father was manager of the Mullen-owned grain elevator in Broomfield, Colorado, stated in a 1996 oral history interview for the Carnegie Library for Local History that wheat would then be loaded onto boxcars and shipped to Denver, where, he believed, it would be delivered to the Hungarian Flour Mill, which was also owned by J.K. Mullen. Later, trucks rather than boxcars were used to transport the grain.

A grain elevator in this area would have also performed some processing of the grain, including separating out gravel and weed seeds from the grain brought in by farmers, and grinding.

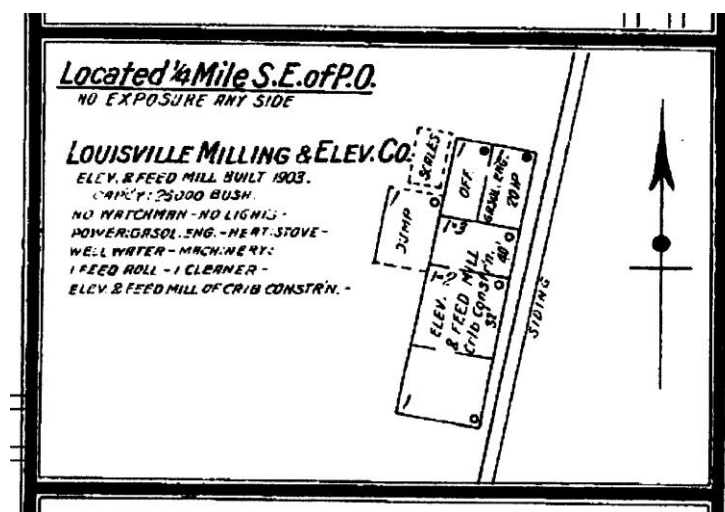
Local residents could purchase 100-lb. sacks of flour directly from the Grain Elevator. These may have been brought from flour mills in Denver, but precise information could not be located for this report. Families in Louisville used the flour sacks from the Grain Elevator to make clothing.

Out of six possible types of materials used in the construction of grain elevators in the United States, the Louisville Grain Elevator was constructed of wood. Also, as a wooden elevator, it is considered to be of “cribbed” construction, meaning stacked lumber, as opposed to balloon frame construction.



The UC-Denver report on *Eastern Plains and Front Range Grain Elevators of Colorado* states that wood was the earliest construction material used for grain elevators. A disadvantage of wood was its high combustibility, particularly with elevators typically being located near railroad tracks where sparks could start a fire. The report cites the statistic that wood grain elevators had to be replaced at an average of every four years due to fires. (As noted below, the Louisville Elevator had an interior fire in the 1950s.)

The Louisville Grain Elevator is a three story building in the section of its tower. The following excerpt from the 1908 Sanborn fire insurance map for Louisville shows the layout:



Louisville, Colorado [map]. 1908. Sanborn Fire Insurance Map. (Excerpt.)  
Accessed at [www.louisville-library.org](http://www.louisville-library.org).

The 2000 survey of the building further describes the parts of the elevator: “This structure is oriented north-northeast to south-southwest, with overall measurements of 88’ by 28’. From the north-northeast end, the building is composed of five sections, including an office, an elevator, an elevator tower, grain bins, and a warehouse.” More detailed information about the purpose of these sections can be found in this 2000 survey report and in the 2011 structural engineering report by Anderson Hallas Architects. The covered area shown in historic photographs is where the scales were located.

The 2011 report prepared for the City of Louisville by Anderson Hallas Architects states that the building footprint is 2,800 square feet and that there are 8,500 square feet of accessible interior floor space. The building sits on a 1.2 acre parcel.

The capacity of the elevator was stated in the 1908 Sanborn map excerpt above to be 25,000 bushels. A penciled notation on the County Assessor card completed on the building in the 1950s appears to state the capacity as having been 20,500 bushels.

The 1982 survey of the structure states that the building was partially renovated by the owners in the 1970s.

The April 4, 1999 *Denver Post* article stated: “Its stacked plank design and diminutive size make the elevator unique. Most elevators stored 35,000 bushels of grain. Louisville’s held far less.”

The elevator is wood sided and has never had metal siding put on, as many grain elevators have had, except in a few sections by the gabled roofs.

### **Management by Howard A. Moore and Donald Moore**

Howard A. Moore operated the Grain Elevator for about thirty years (while it was owned by Mullen's companies) and was followed in this job by his son, Donald Moore. Howard Moore was living in Louisville and managing the Elevator by 1907, according to Louisville directories. He lived from 1876 to 1934. He, his wife, Zura, and their children lived in Louisville. Their children were Grace, Sadie, Donald, Ethel, Howard Jr., Lois, and Louanna. Museum records indicate that Howard A. Moore served as mayor of Louisville from 1915 to 1917.

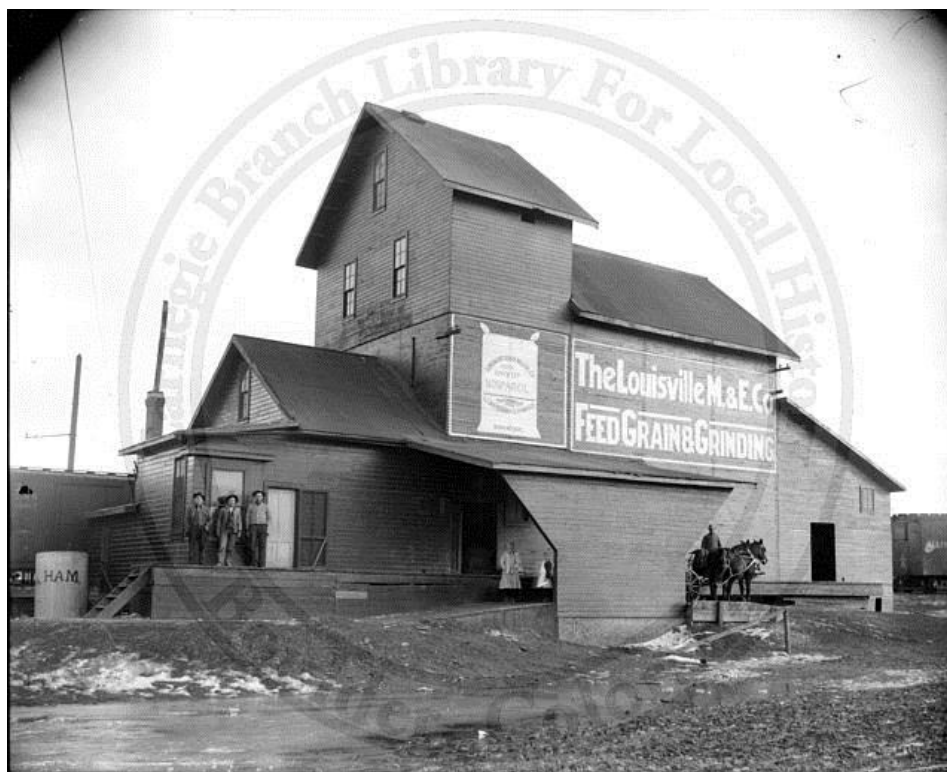
The following photos from the collections of the Louisville Historical Museum and Boulder's Carnegie Branch Library for Local History show the Grain Elevator while it was managed by Howard A. Moore:



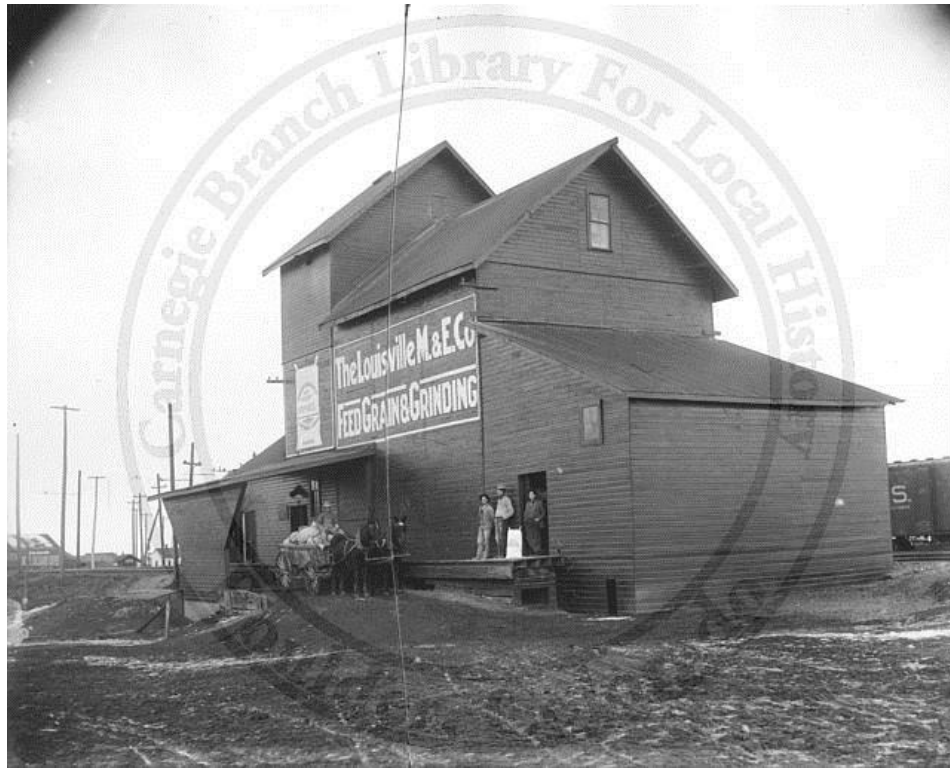
Louisville Grain Elevator, 2/8/1916, Louisville Historical Museum



Louisville Grain Elevator, 2/8/1916, Carnegie Branch Library for Local History, Boulder



Louisville Grain Elevator, circa 1916, Carnegie Branch Library for Local History, Boulder



Louisville Grain Elevator, circa 1916, Carnegie Branch Library for Local History, Boulder

Louisville directories show that after the death of Howard Moore in 1934, his son, Donald (1909-1975), took over the management of the Elevator. Directories indicate that by 1943, Donald had left this position and the new manager was Wayne Bickel. Managers after this era are noted below.

The following advertisements for the Grain Elevator show that this was a longtime, active business that played a vital role in the economy of the Louisville area:

## Flour, Feed, Grain and Grinding

The price of wheat has advanced and flour will soon follow. Better take advantage of the price and lay in a supply. Special discount on five sacks or more. We mix and grind feed to suit you and make the price right. Call and be convinced. Phone Louisville 44

**The Louisville Milling and Elevator Co.**  
H. A. MOORE, Mgr. Phone Louisville 44

From *Louisville News*, 1909, Louisville Historical Museum

H. A. Moore, Mgr. Phone Louisville 44

∴ The ∴  
**Louisville Milling & Elevator Co.**

Louisville, Colorado

**FLOUR, FEED AND GRAIN**

Agents for Nonpareil Colorado-Made Flour  
 and Semolina, a Kansas Hard-Wheat Flour.

We Will Buy Your Wheat at Market Price—  
 At All Times.

R.L. Polk Directory, 1916, Boulder County, Louisville Historical Museum



Louisville Historical Museum

The Rex Theatre movie curtain, which is a painted canvas made in 1927-28 with advertisements of twenty-two Louisville businesses, includes the above advertisement for the Louisville Grain Elevator; the curtain currently is on exhibit at the Louisville Historical Museum.

**THE LOUISVILLE ELEVATOR**  
 Nonpareil Lay Mash  
 Flour, Salt, Grain, Hay and Straw

**DR. SALSURY'S POULTRY SERVICE**  
 Phone 44

From 1940 St. Louis Church Annual Bazaar booklet, Louisville Historical Museum





From *Louisville Times*, Sept. 3, 1942,  
commemorating the 50<sup>th</sup> anniversary of Methodist Church,  
Louisville Historical Museum

Howard Moore and Don Moore are remembered as having given jobs at the Elevator to Louisville's young men. For example, Lee Evans, who was born in 1917, worked at the Louisville Grain Elevator in the mid 1930s. In his autobiography, entitled *From Happy Valley to the Mountaintop*, he wrote: "As I grew older, I worked regularly after school and on Saturdays at the elevator, shoveling grain into the chute after it was delivered. I sacked grain and loaded it into cars and trucks for customers or for delivery on the elevator-owned truck into Denver. At my highest rate of pay, I got 50 cents a day! But I grew strong with the heavy work, and by the time I was seventeen I could grab the ear of a sack and lift a one hundred pound sack of grain with each hand and pitch it from the walkway up into a truck about four feet higher" (p. 71).

### **Thomas Family Association and Ownership**

By the time of the 1946 Louisville directory, Charles Thomas had become the manager of the Grain Elevator. Charles Thomas' wife (Iona Bowes Thomas) and Donald Moore's wife (Sadie Bowes Moore) were sisters, perhaps leading to Charlie Thomas taking over the management of the Elevator not long after the tenure as manager by Donald Moore and his father. A newspaper account states that Thomas lost one hand while working with a corn conveyor at the Elevator. By 1949, the manager had become Vance Lynn, possibly as a result of Thomas' injury. According to the 1951, 1953, and 1955 directories for Louisville, the manager was Dan Gunkel.

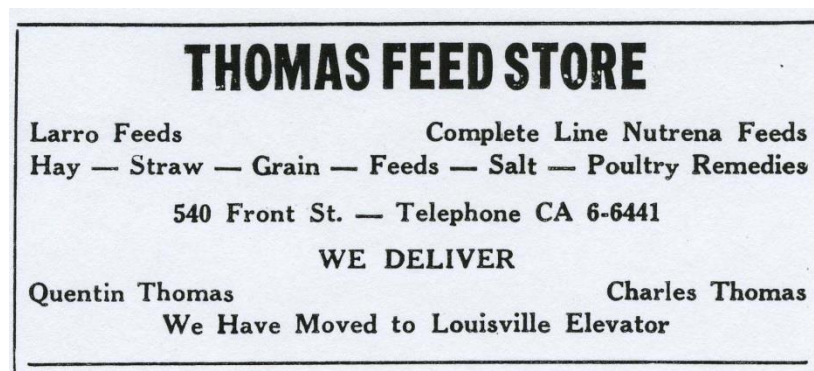
In 1957, Charles Thomas (1912-2002) and his brother, Quentin Thomas (1908-1986), who had a feed store nearby on Pine Street, purchased the Grain Elevator from the Colorado Milling & Elevator Company. The deed states that it was purchased for "\$10 and other valuable consideration." This was the first time that the building became a locally owned business, after fifty years of outside ownership.

The Thomas family was a pioneer family of Louisville with varied business interests and properties. Charles Thomas and Quentin Thomas were the grandsons of Nicholas and Mary Thomas. Nicholas Thomas was from Wales and worked as a coal miner, while Mary Oldacre Thomas' personal history includes the fact that she had worked as a chain maker as a young woman in England before marrying and coming to the United States. They immigrated from England in 1881 with their young son, Nicholas

Thomas, Jr., and came to Louisville in 1883. In 1892, Mary Thomas was one of the founders of the Methodist Church in Louisville, still located at 741 Jefferson, along with other early English settlers in Louisville. The family homes were at 733 Pine and 700 Lincoln (which, like the Grain Elevator, is listed on the National and Colorado Registers of Historic Places). Nicholas Thomas Jr. helped stated the Big Six Coal Company , which operated the Sunnyside Mine just southeast of Louisville. Nicholas Jr. and his sons formed the Ko-Z Coal Company and operated the Fireside Mine in Louisville, after which today's Fireside Elementary School in Louisville is named. It is believed that they had other coal mining interests as well. Thomas family members also operated the City Market on Main Street and moved the business to a new building on Front Street that they constructed. The Thomas family ran the City Market from the Front Street location from about 1966 until 1982. This building at 637 Front later became the location of the U.S. Post Office in Louisville and is now the location of a restaurant and ice cream shop. Another business owned and operated by the Thomas family was the Thomas Feed Store on Pine Street.

In the 1950s, and before 1957, a fire at the Grain Elevator damaged the interior. It was believed to have been caused by spontaneous combustion. Louisville volunteer firefighters Herb Steinbaugh and Tommy Cable are credited with saving the building in a risky and dramatic effort. They climbed up onto the Elevator roof in order to spray water into the tower section. A 1999 *Denver Post* article about the Louisville Grain Elevator stated that the year of the fire was 1955.

It is believed that by this time, the emphasis was on using the Grain Elevator for animal feed as opposed to purchasing wheat from wheat farmers to send to flour mills in Denver. As noted above, Quentin Thomas had operated a feed store on the south side of Pine Street facing north, on the site of today's 637 Front Street. The following 1957 advertisement dates from the Thomas family's early ownership and shows that the Thomas Feed Store had been moved to be located at the nearby Grain Elevator:



From 1957 St. Louis Church Annual Bazaar booklet, Louisville Historical Museum

As noted in the April 4, 1999 *Denver Post* article about the Louisville Grain Elevator, “the automotive industry essentially made grain elevators obsolete, since trucks could load grain in the field and transport it.” The UC-Denver report on *Eastern Plains and Front Range Grain Elevators of Colorado* states that many grain elevators were abandoned between the 1930s and 1950s for basically this reason and because of the failure of railroad companies, the droughts of the 1930s, changes in transportation and farm mechanization, and other reasons.

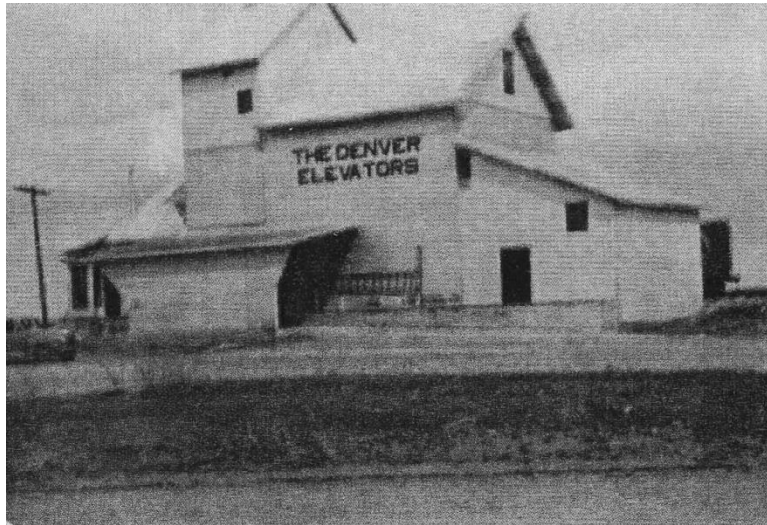
Although it is believed that the Grain Elevator was not used for the storage of grain for human consumption after the 1950s, the scales continued to be useful for weighing purposes for several more years. This usage of the building continued into at least the mid 1960s. For example, a local teen working for a Louisville farm in the 1960s regularly drove truckloads of silage to the Elevator so that the truck

could be weighed, with owner Quentin Thomas making the scales available. These scales from the Grain Elevator were later acquired by a Louisville farming family and are currently located on a Louisville farm. They are believed to have last been used on this farm in the 1990s.

According to the report by Anderson Hallas Architects, the Thomas family's feed store located in the Grain Elevator was open until as late as 1972.

### **County Assessor Cards**

This image from the County Assessor shows the building in circa 1949-1958:



A statement written by the County Assessor's office in 1958 says "This building has been burned out on the inside but is still being used." (As noted above, this fire is believed to have occurred in around 1955.)

### **Placement on National Register and Colorado Register of Historic Places**

In 1986, twelve historic buildings (seven residences and five businesses) in downtown Louisville were found to have met the required criteria and were placed on the National Register of Historic Places. The stated reason for the selection of the Grain Elevator was that "the elevator is historically and visually the most significant structure associated with the agricultural history of the community. Its frame construction and functional design illustrate an important resource type traditionally associated with agriculture. Listed under Louisville Multiple Resource Area and under Railroads in Colorado, 1858-1948 Multiple Property Submission."

### **Statements of Significance from Architectural and Historical Surveys**

The survey of this building conducted in 2000 for the State of Colorado gave the following statement of significance:

This building has been individually listed on the National Register of Historic Places. It is historically significant, relative to National Register Criterion A, for its association with the

theme of agriculture during the first half of the twentieth century. The structure is architecturally significant, under National Register Criterion C, because it [is] one of the region's last remaining wooden grain elevators, and because of its rare stacked plank construction. The preservation of this building should be one of Louisville's highest preservation priorities.

The 1982 inventory record stated the building's special features to be "Multi-level steep gables, 50 feet high at highest gable; next to railroad track for transport" and gave the following statement of significance:

This tall frame structure, although badly deteriorated, provides a valuable visual record of the agricultural heritage of Louisville which has been so largely overshadowed by the pervasiveness of coal mining. . . . [I]ts location near the tracks, (like the early lumber companies), pointed out the fact that Louisville had become an important distribution point for agricultural products by the early 1900's.

The 1982 inventory records also stated that "rehabilitation would help preserve perhaps the only structural link to the agricultural heritage of the town."

### **Past Community Discussion About and Recognition of the Louisville Grain Elevator**

A 1996 *Louisville Times* article pointed to the strong support expressed by the Economic Development Committee of the Downtown Business Association for saving and re-using the Grain Elevator, and stated:

Its roof is full of holes and its white painted is cracked and faded, but the 91-year-old elevator off Front Street is still coveted as a piece of Louisville's history.

The elevator is considered one of the city's last recoverable landmarks, and a coalition of downtown business interests and historical preservationists is exploring ways to return the building to its former glory and open it to the public.

Citing the DBA's Vice President, Cheri Ruskus, the article noted that "preserving a landmark on what will be an increasingly important gateway to Louisville when the 96<sup>th</sup> Street interchange opens could mean good things for downtown business."

1998 saw the completion of "A Preservation Master Plan: Louisville Colorado." This project and document were funded by the Louisville Downtown Business Association; Historic Boulder, Inc.; the Colorado Historical Society/State Historical Fund; and Boulder County Cultural Council, Tier III SCFD. The completed plan stated that the Economic Development Committee of the Downtown Business Association recognized the potential in sites such as the Grain Elevator "for multiple uses with significant public benefit."

A 1990s *Denver Post* article stated,

If an enthusiastic group of business owners, preservationists and architects has its way, a towering remnant of this town's rural past will someday welcome visitors to what has become a sprawling modern suburb. The group is studying the possibility of buying and

renovating the historic Thomas Grain elevator, built about 1905. Located just a block from Main Street and adjacent to a still-active railway line, the grain elevator rises above Front and Pine streets in downtown Louisville.

A *Denver Post* article from the 1990s noted that the stacked plank method of construction of the Louisville Grain Elevator is unique. The article cited James Stratis, a restoration specialist for the Colorado Historical Society, as stating that “the elevator’s role in the grain transportation system and its unique ‘stacked-plank’ architecture make the structure a national treasure.”

In 2007, the organization Historic Boulder, Inc., which is a 501c3 preservation organization focused on the Boulder area, selected the Louisville Grain Elevator for placement on its endangered list.

Boulder County installed a large photo collage at the Boulder County Courthouse within the last two years. This collage includes a historic photo of the Louisville Grain Elevator in the top center because of its strong connection to Boulder County history. Color was added to the photo to reflect the building’s original color, which is believed to have been a deep red color.

In 2011, the City of Louisville awarded a contract to Anderson Hallas Architects, PC to complete a structural assessment of the Louisville Grain Elevator. The contract was for \$38,000, which was funded by the City of Louisville through its Historic Preservation Fund. The report by Anderson Hallas Architects, PC, dated May 2, 2011, concluded that the building is structurally sound, barring a few areas of deterioration. The report contains recommendations for a work plan for the Elevator with several different phases and cost estimates.

## Sources

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# Louisville Grain Elevator

Historic Structure Assessment

May 2, 2011



Anderson Hallas Architects, PC  
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Note: Numbering follows CHS/SHF  
Historic Structure Assessment Outline

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## **1.1 Research Background / Participants**

The purpose of this assessment is to evaluate the Louisville Grain Elevator and document the existing elements and their conditions to determine if the building is structurally sound and can be rehabilitated. This assessment is the first part of this project, the second part will explore potential future building use options at the schematic design level.

David Miller, Anne Cutrell and Kristen Craig visited the Grain Elevator January 13, 2011, to measure the building and create as built plans. The entire project team visited the site on January 20, 2011, to assess the building. Nan Anderson, Kristen Craig and Anne Cutrell of Anderson Hallas Architects documented the building elements and their condition. Tom Soell and Ian Glaser of JVA, Inc. visited the site to assess the structural systems. Ron Anthony and Kim Dugan evaluated the wood components of the building. Mike Ritter surveyed the building for hazardous materials.



## 1.2 Vicinity Map / Location Map / Site Plan

The Grain Elevator is located southeast of downtown Louisville, on a tract of land between County Road and the railroad tracks, south of Elm Street. The property is in the southeast corner of the Old Town Overlay District. The vicinity map, location map, and site plan are shown below.

VICINITY MAP:



Grain Elevator



LOCATION MAP:



Grain Elevator

SITE PLAN:



### 1.3 Legal Description

P.M. 6th Township 1S Range 69W NW 1/4 of NE 1/4 of SE 1/4 of section 8.  
Town of Louisville Tract 712.



## 2.1 ARCHITECTURAL SIGNIFICANCE AND CONSTRUCTION HISTORY

Louisville was first settled in the 1860s and was mainly an agricultural area. The Colorado Central Railroad constructed a track through the area which became Louisville in 1872 and 1873 so six years later when the town was established, transportation was already in place. Louisville had three main economic activities – agriculture, mining and gardening. Throughout Colorado and the Front Range, agriculture was a common way to make a living and Louisville was no exception. Many farms in the area raised crops and livestock. The crops grown in Louisville were mainly corn and wheat, along with hay and straw for animal feed. In the 1870s coal was found in the Louisville area and the first coal mine opened in 1877. This mine created a population boom for the area and by 1900 there were eight mines in the area around Louisville.<sup>1</sup> Mines were located on the west and south edges of town and further away from town to the north and east of the railroad tracks. Coal mining in Louisville was mainly a seasonal activity – the mines operated in the fall and winter months when the demand for coal was greatest. Many of the miners gardened in the off months and sold their produce as far away as Denver and Boulder to supplement their income.

The Grain Elevator was constructed in 1908 by the Louisville Milling and Elevator Company. It had a 25,000 bushel capacity and served area farmers until its closure in the 1950s. In the 1910s and 1920s, Howard A. Moore was the facility manager and lived with his wife Zara on Spruce Street in Louisville, just west of McKinley Avenue. Donald C. Moore, who was perhaps Howard's son, managed the Louisville Milling and Elevator Company in the early 1930s. Donald Moore and his wife Sadie lived at 633 Garfield Avenue in Louisville.

In 1935 Quentin C. Thomas and Charles Thomas became the elevator operators and they purchased the Grain Elevator shortly thereafter. Charles, his wife Iona, and Quentin also owned and operated a feed store which was located approximately half a block to the north of the Grain Elevator. The Thomases were descendants of a long-time Louisville coal mining family. By the early 1950s, the Grain Elevator's name had been changed to "The Denver Elevator." The Grain Elevator stored multiple types of grain including corn, wheat and barley. A railroad spur ran adjacent to the east side of the building and grain was loaded on rail cars and transported to other areas. The Grain Elevator also sold grain to area farmers and to Louisville residents who raised chicken and goats. Local residents buying grain could come to the Grain Elevator and pick up the grain themselves or arrange for the Thomases to deliver the grain to them. Scales were located under an open shed on the west side of the building so wagons, and later trucks, could pull up and have the desired amount of grain loaded into them.

Grinding equipment was located in the basement under the north end of the building. Grain would be brought down to the grinding room through chutes and then transported back up to the top of the elevator tower through chutes and transferred into the grain bins. A small elevator ran from the basement to the fourth floor. Operators moved the elevator by sliding weights on and off the elevator at each floor. In the early 1960s a flash fire started on the second floor, but the fire department was able to put the fire out and the Grain Elevator continued to operate.

The agriculture community in Louisville quickly declined in the mid twentieth century and in the late 1960s the Grain Elevator closed and the majority of the equipment was removed. The Thomas family relocated the feed store to the Grain Elevator but in

<sup>1</sup> Item 8 Page 2, *Louisville Multiple Resource Area National Register of Historic Place Inventory – Nomination Form*

1972 that was also closed. In 1981 the Thomas family closed their grocery store and moved the equipment into the Grain Elevator. The Thomas family still owns the Grain Elevator.

The Grain Elevator is listed as a contributing property on the National Register of Historic Places under the Louisville Multiple Resource Area and under Railroads in Colorado 1858 – 1948 Multiple Property Submission.

## 2.2 PROPOSED USE

The Grain Elevator is currently not in use and the purpose of this project is to explore potential reuse options for the building. Three adaptive reuse options will be developed in the schematic design phase of this project and a cost estimate created for each option. Potential uses to be explored include: office, retail, restaurant, brewpub, art gallery and multi-family housing. Another potential use of the building would be to maintain it as a restored artifact with no use.

### 3.0 CONDITION ASSESSMENT

The following rating system is used throughout this report to evaluate various elements of each building:

An element is evaluated as **Good** when:

- The structure, significant features or element is intact, structurally sound, and performing its intended purpose.
- There are few or no cosmetic imperfections.
- The structure, significant features or element needs no repair or rehabilitation and only minor or routine maintenance.

An element is evaluated as **Fair** when:

- There are early signs of wear, failure, or deterioration, though the element or structure and its features are structurally sound and performing the intended purpose.
- There is failure of a significant feature of the structure.
- There is failure of a sub-component of the element.
- Replacement of up to 25% of the element or replacement of a defective sub-component is required.

An element is evaluated as **Poor** when:

- The element or significant features are no longer performing their intended purpose.
- The element or significant features are missing.
- Deterioration or damage affects more than 25% of the element and cannot be adjusted or repaired.
- The element shows signs of imminent failure or breakdown.
- The element requires major repair or replacement.

An element is evaluated as **Unknown** when:

- Not enough information is available to make an evaluation.

No known archaeological resources were observed on the site, however if any ground excavations occur, an archaeologist should be contacted.



### 3.1 Site



View of the Grain Elevator from County Road

#### CATEGORY:

3.1 Site

#### DESCRIPTION:

The Grain Elevator is located in Louisville, on County Road, southeast of the downtown area. The building is located in Old Town Louisville – an area of town which has retained its historic character. A landmark ordinance was established in 2005 for Old Town and a Historic Preservation Fund was established in 2008 to help fund preservation projects in Old Town.

The site is the original location of the Grain Elevator, though the surrounding buildings have changed over the years. The Grain Elevator is located to the east of County Road and south of Elm Street on Tract 712. A railroad track is located east of the building and when the Grain Elevator was operational, a spur ran from the railroad to the east side of the building so the railroad cars could be loaded with grain. Today the spur no longer remains, but the railroad track is still in use. Historically the railroad track connected to the Acme Mine, which closed in 1928. See the Appendix for the 1908 Sanborn Map of the site and the 2003 Land Survey.

The site is generally flat, but slopes up sharply on the west side of the building to the first floor building entry. Where the ground slopes sharply, a wood walkway runs adjacent to the building. In historic pictures, the ground did not slope up to the first floor, instead stairs led from the wood walkway down to grade. The walkway started a couple feet north of the northwest building corner and ran along the west elevation just past the southernmost entry door on that elevation. Currently the walkway runs from the north edge of the building to the south edge of Door 5. Originally an open shed extended west from the west elevation with scales located under it so that wagons (and later trucks) could be weighed as grain was loaded into them. No evidence remains of the scales on the site, so it is likely that they were removed. In general the ground

slopes slightly away from the building and provides drainage, but on the south end the ground slopes toward the western half of the building. A concrete curb, that appears to be a more modern addition, runs along the north section of the east elevation.

The landscape around the Grain Elevator has not been maintained for some time. Three mature trees are growing on site – one on the north end of the east elevation and two on the north elevation. The tree on the east elevation is growing immediately adjacent to the building. The two trees to the north of the building are volunteer elms that are growing very close to the Grain Elevator. A young tree is growing at the northwest corner of the building. The only other vegetation growing on the site is volunteer grasses.

An overhead power line feeds into a weatherhead on the north elevation. The Grain Elevator is the last building fed from the overhead line which runs parallel to the railroad tracks north of the building. The wood power pole is located just to the north of the Grain Elevator.

A furniture warehouse is located to the southeast of the Grain Elevator. The warehouse uses the land to the east of the Grain Elevator as a drive for the loading docks. To the northwest of the Grain Elevator is a commercial building which is currently not occupied. An asphalt drive and parking area run along the south elevation of this building.

An asphalt access road runs from Elm Street to the west side of the Grain Elevator. Parking is currently available on the asphalt drive on the west side of the building or on County Road which offers parallel parking on both sides of the street. No parking area is specifically designated for the building.

No archaeological exploration was included and no archaeological artifacts were encountered during the survey but if excavation is planned, an archaeologist should be involved.

#### EVALUATION:

The site around the Grain Elevator is in fair condition and drains away from the building in most locations. Areas where water is not draining away from the building allow water to puddle against the building which damages the wood exterior walls. The section of the wood walkway that remains is in fair condition but is collapsing on the south end (see 3.3 Structural Recommendations).

Historically the grade around the Grain Elevator stopped below the wood but over the years has built up so it is burying the wood. The original grade can be seen in the historic photographs included in Section 6.0 of this assessment. The change in grade has caused the wood at and below the current grade level to deteriorate. (See Structural Sections 3.2 and 3.3.)

The tree growing on the east side of the Grain Elevator is growing against the building and if allowed to continue growing in this location, the root system may damage the foundation walls. The trees on the north side of the Grain Elevator are growing very close to the building. The grasses are in good condition.

When the Grain Elevator is restored, parking spaces will be needed to accommodate



#### RECOMMENDED TREATMENT:

visitors. A zoning study should be done at that time to determine the number of spaces necessary and the best location for them.

There is currently no site lighting.

The site should be regraded along the wood walkway so it matches the original grade as seen in the historic photos. The site should be regraded around the rest of the building to ensure it is sloping away from the Grain Elevator. When the ground is regraded or disturbed during site or foundation work, then archaeological monitoring should be provided. The portions of the wood walkway that remain and are in good condition should be maintained in their original locations, and the missing and deteriorated sections should be reconstructed.

The trees on the north and east sides of the Grain Elevator should be removed.

Lighting options should be studied to determine lighting that is appropriate for the site and compatible with the neighborhood.



Electrical pole to the north and asphalt drive to the west of the Grain Elevator



Section of the original wood walkway that remains on the west side of the building



Looking north at the Grain Elevator with the railroad tracks and warehouse on the right



Looking north at the railroad track and warehouse loading dock drive to the east of the Grain Elevator



### 3.2 Foundations



Grain bin walls in the basement

#### CATEGORY:

3.2 Foundation Systems

#### DESCRIPTION:

**Sections 1, 2, and 3:** The existing foundation is largely visible in the basement. The basement is approximately six feet tall from the bottom of the first floor joists to the dirt floor. The dirt floor approximately matches the top of continuous footing elevation. Continuous strip footings, where visible, were measured to be 6" thick by 2'-0" wide. These footings support half-height concrete stem walls. The stem walls support half-height wood stud walls around the perimeter and timber posts and beams along the interior bearing lines. Along gridline 4, full-height timber posts are supported on isolated spread footings.

In one location along gridline A and in two locations along gridline Z, the concrete stem wall is omitted where historic door openings once existed. The block-outs in the concrete stem wall are now covered with wood sheathing.

The current exterior grade elevation approximately matches first floor elevation. The historic grade elevation was approximately three feet lower, near the top of concrete stem wall elevation and with isolated areas of lower grade at the basement door openings. A boardwalk, visible in the February 8, 1916 photograph, afforded access to the first floor level door openings.

In Section 2, two interior timber posts on isolated spread footings support basement level machinery. In Section 3, four interior timber posts on isolated spread footing support the first floor in locations presumed to have previously housed heavy equipment. One of these four posts is no longer in-place.

In the central portion of Section 3, an 8'-8" x 7'-8" x 5'-0" deep pit exists. The pit

walls are unreinforced concrete approximately 7" thick. The pit floor is either dirt or a concrete slab concealed beneath the dirt.

**Section 4:** Four continuous strip footings running in the north to south direction support the stacked-plank bin walls. The footings measure 14" thick by 3'-0" wide. The top of footing elevation is approximately 5'-6" below the first floor elevation.

The bin floors, consisting of 3"x10" joists spaced at 5 inches, spanning east to west, bear on two untreated 3"x12" plates on top of the strip footings. The stacked-plank bin walls rest on the ends of the floor joists. The space between the joists are infilled with 3"x10" spacer blocks beneath the bin walls.

**Section 5:** The crawlspace under Section 5 is not accessible and is currently only visible through a small wall opening along gridline 5. A total of nine timber posts and the perimeter walls support the first floor above. Isolated footings were visible under the six northern posts at the dirt floor elevation, roughly three feet below the bottom of first floor joist elevation. Footings were not visible under the three posts along the south.

The perimeter foundation walls along gridlines A, Z, and 6 are constructed of wood studs and posts. The walls are sheathed on the exterior side with horizontal siding. The walls along gridlines A and Z are also sheathed on the interior side. Remnants of historic crawl space access openings are visible on each of the three foundation walls.

Along gridline 5, substantial wall settlement is visible along the entire length of this wall with isolated areas of failure where the studs have collapsed inward. The walls along gridlines A and Z do not show signs of movement, but various diagonal braces have been installed perpendicular to the wall plane to resist soil pressure.

The Architectural Inventory Form, (dated April 26, 2000) states that this building section has a wood timber on grade foundation. This is consistent with the substantial wall movement visible along gridline 6, signaling a deteriorated grade beam. The foundations along gridlines A and Z are likely constructed with the same materials. A small portion of concrete footing is visible along gridline A approximately 10 feet north of gridline 6. This concrete is possibly part of a later repair; a departure from the typical foundation construction on the end walls; or an isolated footing at the jamb of the crawlspace access opening.

#### EVALUATION:

**Sections 1, 2, and 3:** The existing footings where visible were in good condition and showed no signs of distress or movement. Although the 6" thick strip footings are relatively thin, they are still capable of carrying Code required gravity wall loads. The width of the footings is acceptable assuming an allowable bearing pressure of 2500 psf. However, the existing perimeter footings are inadequate to resist the rotation induced by the lateral earth pressures applied to the stem wall.

The concrete stem walls are in good condition and showed no signs of distress, cracking, or movement.

The interior wood foundation walls are in fair condition. The untreated sill plates are in contact with concrete which is not permitted by current Code. However, there were no



obvious signs of deterioration at the time of our assessment, except at one location near grid intersection 3/A noted in the Wood Scientist's report located in the Appendix.

The exterior stud walls were clearly not intended to retain soil originally and the wall is performing poorly as a result. The walls are deteriorated in some locations and deterioration would be expected to continue and become widespread if the wall is not repaired. The wood is absorbing moisture from the retained soil and wood with high moisture content is prone to decay. See the Wood Scientist's report for more discussion on wood decay. Current Code prohibits the use of untreated wood in contact with soil for this reason.

Along gridline Z, in Section 3, the full-height stud wall has failed due to a combination of overload (soil pressure) and wood deterioration. In this location, the first floor and the walls above are supported by a timber beam which spans to gridlines 3 and 4. Thus, the failed stud wall does not pose an immediate risk of structural collapse of the framing above.

**Section 4:** The existing footings, where visible near gridline 4, were in good condition and showed no signs of distress or movement. The footings were sized to support the weight of the stacked-plank bin walls and the weight of grain in a filled bin. Provided the bin walls remain largely intact and no more than two or three levels of floor framing are introduced in any adaptive re-use program, the existing footings should be able to remain in service unaltered.

The existing bin walls below grade range from poor to good condition. In Bins 5 and 6, severe deterioration was readily visible. In the remaining bins, the condition likely varies considerably based on localized areas of high moisture content coupled with environmental conditions favorable to promoting wood decay. Because no visible deterioration was obvious, it is assumed that the remaining bin walls below grade are in fair to good condition with only small areas of wood in poor condition requiring repair.

**Section 5:** The six visible isolated spread footings to the north appear to be in good condition. The remaining three isolated spread footings to the south were not visible and either never existed or have settled substantially. Their condition is poor.

The condition of the foundations along gridlines A and Z is poor since the untreated wood wall and grade beam is in contact with the soil. Wood deterioration was visible at the exterior grade elevation through a small break in the siding at grid intersection Z/6.

The foundations along gridline 6 are in poor condition as segments of the foundation wall above have collapsed and settled significantly. Since this wall supports portions of the first floor and the roof, it should be corrected immediately or temporarily shored until permanent repairs can be performed.

#### RECOMMENDED TREATMENT:

**Sections 1, 2, and 3:** If the exterior grade is returned to its historic elevation and the fill inside the basement is raised so that the difference in soil retaining heights on both sides of the wall is minimized, then the strip footings and concrete foundation walls, in general, may remain in service although isolated deficiencies will likely be uncovered during excavations that will require repair. It is also anticipated that alterations required

for adaptive re-use of the building will concentrate or change loads in some locations. In these locations, the footing will need to be strengthened or enlarged. Deteriorated portions of the wood stud foundation walls, once they are re-exposed along the exterior and no longer in contact with the surrounding soils, will require repair and replacement where deteriorated. Historic basement level door openings, will need to be infilled with concrete up to the top of the concrete stem wall.

If the grading alterations recommended above are not possible or desired, another basic foundation stabilization option exists. Details of the stabilization will be further developed during design phases after the final use of the building has been decided and in consideration of costs, durability, and other site constraints. The general approach would be as follows:

After excavating around the perimeter of the building to the bottom of the existing footing elevation, the first floor would be shored so that the existing untreated wood foundation walls could be removed. These walls would be replaced with concrete infill walls or preservative-treated wood stud walls and sheathing. The new walls would need to be anchored to the top of the existing stem wall and the first floor diaphragm. The existing concrete wall and footing would need to be augmented with a doweled footing extension and periodic counterforts to resist the lateral earth pressures. After the new wall assembly is constructed, appropriate waterproofing materials would need to be applied to the exterior side of the wall.

The four isolated posts and footings in Section 3 may be removed if office use first floor loading is anticipated. They may also remain if assembly occupancy or large concentrated loads on the first floor are planned. One of the four timber columns will need to be reset. The existing pit in Section 3 should be backfilled to minimize potential settlement of the Section 4 bin strip footings if the pit were to deform.

**Section 4:** No treatment to the bin footings is required. Note that if extensive alteration of the bin walls (i.e. punched openings) and/or significant recruitment of the bins wall for the lateral force resisting system is proposed as part of the adaptive re-use program, it will tend to concentrate load in discrete locations along the length of the existing strip footing. Large concentrated loads will require that the footing be strengthened in these locations.

In Bins 5 and 6, the severely deteriorated portions of the walls require replacement. Needle beam shoring may be required above the deteriorated areas. The deteriorated areas should be removed back to competent, dry material and replaced, ply-by-ply. Until repairs are made, the area between Bin 5 and Bin 6 should be periodically inspected. It may be prudent to shore the bin walls above this deterioration to prevent localized collapse until repairs are completed.

In the remaining bins, the extent of stacked-plank deterioration requiring replacement should be quantified by resistance boring from the interior of the bins. After the bins have been cleaned and the exterior walls currently below grade are exposed during excavation, the condition should also be visually assessed prior to recommendation of final repairs. It is assumed that small areas of the bin walls below grade will require replacement.

Along gridlines A and Z, the exterior grade should be removed so that the stacked-plank



wood bin walls are not in contact with the surrounding soils. If this is not possible, the grade should be excavated to the footing elevation so that deteriorated areas of the wall can be removed and replaced. Prior to backfilling, the exterior side of the walls should be surfaced with an impervious waterproof membrane. Reinforcement, if required, to resist the soil pressures could be installed on the exterior side of the wall and be constructed with preservative treated lumber.

**Section 5:** The soil around the six isolated spread footings to the north should be removed around the base of the timber columns to prevent potential deterioration to the column bases. The footing capacities can be determined once their size is determined, the nature of the first floor loading is determined, and the allowable soil bearing capacity is established.

The three isolated spread footings to the south, if existing, should be removed. New footings should be cast integrally with the new stem wall recommended along gridline 6. Pilasters can be introduced along the stem wall that support the first floor girders in-lieu of replacing the timber posts.

The first floor and stud walls along gridlines A, Z, and 6 should be shored and the existing untreated wood foundations removed. The foundations should be replaced with a concrete stem wall and continuous strip footing. A difference in exterior and interior grade elevations may be maintained by connecting the top of the new concrete stem wall to the first floor diaphragm.

CATEGORY:

3.2b Perimeter Foundation Drainage

DESCRIPTION:

There is no known perimeter drainage system and it would have been unlikely to have been installed at the time of construction.

The exterior grade elevation is approximately equal to the first floor elevation along the north, east, and south sides of the building. Along the east elevation, a concrete curb divides the soils from the exterior wall and diverts surface drainage away from the building edge to the south. The depth of the curb is unknown but is expected to only be a few inches below the surface. Along the north and south elevation, the grade generally slopes away from the base of the building although a depression is centrally located along the north wall. Along the west elevation, the outlying grade is lower and is bermed up to the first floor elevation. This condition clearly diverts surface runoff away from the building envelope.

EVALUATION:

Although the current grading appears to slope away from the building in most locations, the soil is still capable of wetting and transferring moisture into the wood foundation walls.

RECOMMENDED TREATMENT:

The foundations appear stable and no signs of water infiltration were visible in the basement which indicates that a perimeter drain may not be appropriate.<sup>1,2</sup>



The final grade around the building perimeter, no matter of the elevation, should be sloped away from the building at least 2% to encourage surface runoff to migrate away from the foundation walls as recommended in Section 3.1 Site.

Until foundation stabilization and grading is complete, the interface between the existing curb and building's sheathing should be maintained to prevent water from infiltrating the joint. Snow that accumulates along the base of the building should be removed rather than allowed to melt while in contact with the building's wood materials. The grade depression along the north wall, potentially trapping water, should be corrected.

**Footnotes:**

1. The groundwater elevation and the in-situ soil characteristics are unknown. A Geotechnical Engineer's Report will be required to design foundation repairs and that Report should also assess the suitability of a perimeter drain. Since the building's perimeter grade will be excavated during foundation stabilization operations, a perimeter drain could be installed at that time for little additional cost. Perimeter drainage would minimize the possibility of saturated soils increasing the lateral earth pressure on the foundation walls, the periodic increases in moisture in the basement, and moisture changes at the footing depth that may lead to settlement.
2. The Code requires that wood foundation walls enclosing usable spaces below grade be adequately drained.

**Attachments:**

- A. Sheet S1.0 in the Appendix.



Section 1: Foundation wall at grid intersection Z/1



Section 2: Foundation wall along grid 3; basement stair, wall sheathing deterioration along grid Z



Section 2: Foundation wall along grid 2 and grid Z; machinery supports posts and footing



Section 3: Foundation wall along grid Z near grid 3; wall failure along grid Z





Section 3: First floor support posts and footings; foundation along grid A beyond



Section 3 & 4: First floor framing beam and joists along grid 4; flared bins wall beyond along building centerline



Section 4: Edge of Bin 1 footing at grid 4; concrete pit in foreground



Section 4: Underside of Bin 4 floor along grid Z





Section 4: Southwest corner of Bin 5 wall deterioration near exterior grade elevation



Section 4: Bin 5 wall detail view of deterioration, plank plies, and nails



Section 5: Foundation wall along grid A and grid 6; crawlspace access opening remnant; diagonal bracing



Section 5: Failed foundation wall along grid 6



Section 5: Settled stud wall and roof framing along grid 6



### 3.3 Structural Systems



Roof structure and grain chutes in Section 4

#### CATEGORY:

3.3 General Structural System Description

#### DESCRIPTION:

Demolition was not performed during the building assessment visit and thus only areas readily visible were assessed. However, the majority of framing assemblies were visible as most of the building's interior is unfinished. The primary exceptions to this were the Section 1 basement and wall framing, and the Section 5 crawl space which were not readily accessible or visible.

The original construction drawings are not available nor does documentation describing any repairs, alterations or additions exist.

Note that this report departs from the Architectural Inventory Form (dated April 26, 2000) convention for describing the distinct building sections. In this report, the sections are described by number, with Section 1 starting at the north and ending with Section 5 at the south. Structural findings and recommendations are referenced to section numbers, room numbers, and gridlines per the drawings in the Appendix which were developed as part of this assessment.

The structure contains five distinct sections demarcated by their construction type, height and historic use. There are multiple floor levels in the approximately 48 foot tall Section 3, the tallest portion of the building. A full basement exists under Sections 1, 2, and 3.

Roof framing consist of sloped wood rafters bearing on interior dropped purlins and stud walls or bin walls on the exterior.

Sections 1, 2, 3, and 5 are conventional light-framed wood construction. The



floors are constructed of 2x and 3x joists with wood floor sheathing. The walls are constructed of 2x studs surfaced with horizontal wood siding. The first floor level of Section 3 is framed with timber posts and beams.

Section 4 is constructed of stacked-plank wood walls which form the six grain bins. There are similar stacked-plank walls on the third level of Section 3.

A mixture of foundations and foundation wall types exist and are described in Section 3.2 in this report.

All wood joists, studs, beams, and post sizes measured corresponded to typical dressed sizes. As such, lumber is referred to by its nominal size in this report. The wood species of the framing elements in Sections 1, 2, 3, and 4 has been identified as Douglas-fir. The wood species in Section 5 has been identified as a mixture of Douglas-Fir and Western yellow pine. Please refer to the Wood Scientist's Report in the Appendix for more details.

Detailed structural system descriptions are found elsewhere in this report.

#### EVALUATION:

The building structure below the first floor is in poor condition. The building from the first floor and above is generally in fair condition. Selective strengthening of the framing systems will be required to address fire damaged members and localized framing areas having calculated overstresses.

The structure is currently a "U" or utility occupancy. The proposed use will result in a classification that, per IEBC Table 912.4, represents an increase in hazard category. The occupancy category also increases from I to II per IBC Table 1604.5. This triggers a number of structural upgrade provisions in Section 907 of the IEBC. Per 907.2, the existing building shall be analyzed and comply with applicable wind or snow load provisions of the IBC. Per 907.3.1, the existing building shall conform to the seismic requirements of the IBC for the new seismic use group. This will require that the roof framing and lateral force resisting systems be strengthened to comply with current Code.

The final use of the building has not been determined. However, where the proposed use results in an increase in live load, the capacity of the floors and their supporting elements will have to be determined and strengthening will be required where they are found deficient.

#### RECOMMENDED TREATMENT:

See detailed structural system descriptions for recommended treatments.

### 3.3 Structural Systems



Looking down at the ladders leading from the fifth floor into the grain bins

#### CATEGORY:

3.3a Floor and Ceiling Systems

#### DESCRIPTION:

**Section 1:** The first floor is framed with 2"x8" joists spaced at 16 inches spanning in the north to south direction. The joists bear on wood stud walls along gridlines 1 and 2. An interruption in the floor framing exists where a basement stair exists and is now abandoned. The floor opening has been sheathed over.

The first floor ceiling is framed with 2"x6" joists spaced at 16 inches spanning in the north to south direction. The joists bear on wood stud wall along gridlines 1 and 2 and are surfaced on their underside with finishes. No other ceiling finishes exist in the building.

**Section 2:** The first floor is framed with 3"x12" joists spaced at 16 inches spanning in the north to south direction. The joists bear on a timber post and beam cripple walls along gridlines 2 and 3. An interruption in the floor framing exists at the basement stairs.

The second floor is framed with two bays of 2"x8" joists spaced at 24 inches spanning in the east to west direction. The joists bear on wood stud walls along gridlines A and Z and a central bearing line that equally divides the two bays. The central bearing line was a wood stud wall, but it has been removed. The existing top plate remains in place and is supported in three places by wood props. The second floor framing is fire damaged.

**Section 3:** The first floor is framed with 3"x12" joists spaced at 16 inches spanning in the north to south direction. The joists bear on a timber post and beam cripple wall



along gridline 3 and timber posts and beams along gridline 4. Four isolated posts with wood 'corbels' are spaced roughly equidistantly in a rectangular pattern beneath the center of the bay. It is assumed these additional floor supports accommodated machinery historically stored on the first floor of Section 3. One of the four posts is no longer in place.

The third, fourth, and sixth floors are also framed with 3"x12" joists spaced at 16 inches spanning in the north to south direction. The joists span the full bay width to bearing lines along gridlines 3 and 4. The floor joists on all three floors are fire damaged. The maximum depth of char measured is 9/32 inches. Multiple interruptions in the floor framing exist around chutes, machinery, stairs, and ladderways. The sixth floor is an approximately 8 feet wide centrally located mezzanine with open areas to the east and west.

**Section 4:** The bin floors, consisting of 3"x10" joists spaced at 5 inches, spanning in the east to west direction, bear on 3"x12" plates over the existing continuous footings. The bin floor joists are presumed to be wood sheathed, but the flooring materials were not visible beneath the existing grain and detritus.

The fifth floor is approximately 10 feet wide, centered over the bins below, with open areas to the east and west. The floor framing consists of 2"x8" joists at random spacing spanning approximately 9 feet in the north to south direction to the bin stacked-plank walls. The flooring is flat 2"x4" gapped boards. Six small openings in the flooring provide access to each bin via ladderways.

**Section 5:** The first floor is framed with 2"x10" joists, spaced at 16 inches, running east to west, and spanning a maximum of 10 feet. The floor joists bear on the foundation walls along gridlines A and Z at the exterior and lap over three-ply 4"x12" dropped timber beams on the interior. The beams are each supported by three 8"x10" timber posts.

The three timber posts along and nearest to gridline 6 have failed. Two of the posts have fallen down and the center post has noticeably settled. Along the western bearing line, the south end of the dropped beam has fallen down to the crawlspace floor. The south ends of the two other bearing lines have moved downward approximately 6 inches to 1 foot. The floor joists have also displaced downward sympathetically with the displaced beams.

#### EVALUATION:

**All Sections:** The approximate load carrying capacities of the floor framing systems were calculated based on the member size, approximate span, wood species, and an assumed grade. Fire damaged member sizes were adjusted based on the maximum depth of char measured, subtracted from three faces of the member.

The Wood Scientist's findings indicate that the likely grade of the building's wood framing as a whole is #3. Where the lumber grade was assessed, the percentage of members not meeting grade ranged from 10 to 20 percent. Utilizing the estimated grade of #3 in design calculation reduces the calculated joist capacities by approximately 40% compared to a grade of #2. Since this difference is considerably penalizing, a grade of #2 was utilized for estimated framing capacities. The use of the better grade in design calculations is coupled with the assumption that the

small percentage of joists that do not meet the requirements of #2 grade can be individually replaced or sistered and consequently minimize the amount of intervention required to stabilize and reoccupy the structure.

There are a number of existing interruptions in the floor framing and alterations (i.e. notches) to the floor joists. These framing anomalies were not considered in the determination of the approximate floor capacities.

In general and under the above assumptions, the floor framing is robust and has the calculated capacity to support office loading and in some places higher occupancies such as assembly. The existing floor joist sizes and spans are generally appropriate for their historic intended function in a light industrial facility. See the evaluations below, where departures from the above generalization are noted.

**Section 1:** The first floor framing is in good condition and has the capacity to support residential or office uses. The ceiling framing is capable of supporting new finishes and fixtures.

**Section 2:** The first floor framing is in good condition and has the capacity to support any of the proposed uses for the building excepting storage or other unusually high loads. The second floor joists are in poor condition and are overstressed under live loads in excess of 20 pounds per square foot, but the floor capacity as a whole is limited by the intermediate bearing line which presently has no excess calculated load carrying capacity.

**Section 3:** The first floor framing has the capacity to support any of the proposed uses for the building excepting storage or other unusually high loads. The third, fourth, and sixth floors, are hindered by their loss of section due to fire damage. But, these fire damage floor systems are still capable of supporting office loads.

The capacity of the timber post and beam framing system is outside the scope of this report, but the member sizes appear adequate for office uses. No signs of deterioration or distress were observed. The charring observed does not substantially affect the uses of the floors structurally.

**Section 4:** The bin floors appear to be in good condition and have very high load carrying capacity congruent with their historic purpose of supporting up to 30 feet of grain. The existing floor sheathing over the grain bin floors is assumed to have areas of deterioration as moisture has likely been trapped by the historic silage or existing detritus. The condition can be considered between poor and fair.

The fifth floor is in good condition and is capable of supporting approximately 50 pounds per square foot which is adequate for an office use.

**Section 5:** The first floor framing is in poor condition as the southern half of the floor has failed or nearly failed where the south ends of the dropped beams have been undermined. Once the foundation walls are repaired and the posts and dropped beams are re-supported, the first floor framing will have the calculated capacity to support any of the proposed uses for the building including light storage.



RECOMMENDED TREATMENT:

**All Sections:** Once the intended uses of the various floor sections are determined, the floor framing should be selectively strengthened as required to meet Code requirements for that use. Some floor areas will require strengthening while other areas will not.

Wood joists and beams should be graded individually by a qualified wood grader. Members not satisfying requirements for #2 grade will likely require replacement or strengthening. This approach requires that the lumber with grade limiting defects be identified by a qualified grader but allows the structural intervention to be minimized to only those members which absolutely require it.

All framing anomalies such as deeply notched joists and inadequately framed floor openings should be repaired.

**Section 1:** The first floor framing around the abandoned stair opening should be evaluated as it is not currently visible. Minor repairs should be expected. No treatment of the first floor ceiling is required.

**Section 2:** Minor strengthening of the first floor framing around the basement stair opening are warranted. The second floor joists have little excess load carrying capacity and are charred. The second floor framing should be removed and replaced with a system that meets the adaptive reuse programming needs.

**Section 3:** The basement level post should be reset between the existing spread footing and wood 'corbel'. Some additional posts or stud infill should be expected beneath the first and third level timber beams along gridlines 3 and 4. The extent of upgrades to these bearing lines will depend on the occupancy programmed for the four levels above.

From a structural point of view, the third, fourth, and sixth floor framing may remain in place, since the floors have moderate load carrying capacity despite the fire damage. However, the burnt lumber's odor, color, and texture may necessitate that the framing either be removed and replaced or the charred outer portions of the members be scraped off. The floor sheathing on these levels should be removed and replaced.

**Section 4:** Once the detritus is removed, the bin floor joists and floor sheathing should be investigated to identify deterioration. Deteriorated portions of the floor sheathing, and floor joists if occurring, should be removed or epoxy consolidated. If the floor is to be occupied, the floor sheathing will likely require replacement.

No treatment is recommended to the fifth floor in order to stabilize the building. If live loads exceeding 50 pounds per square foot are programmed, then selective member strengthening should be expected.

**Section 5:** The ends of the three dropped beams along gridline 6 should re-supported on new timber posts or on pilasters along a new foundation wall. Anchorage should be provided from the dropped beams to all points of support.



Section 1: First floor framing bearing on wall along grid 2; wall beyond on grid Z



Section 2: First floor framing bearing on wall along grid 2





Section 2: West bay of second floor framing



Section 2: Removed bearing wall supporting second floor framing with wood prop



Section 3: First floor framing bearing on wall along grid 3



Section 3: First floor framing, wood post and 'corbel'

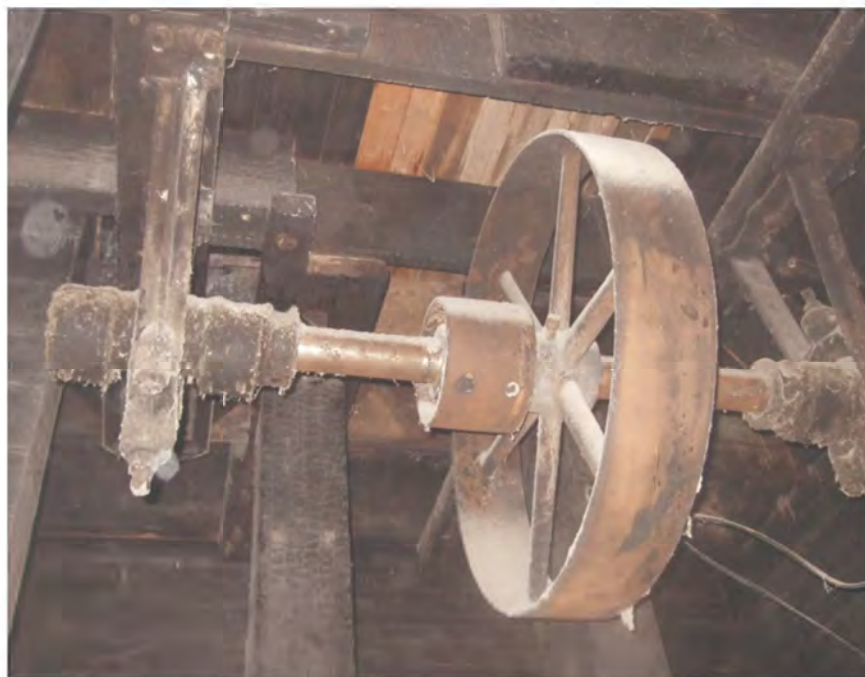




Section 3: Southeast corner of third floor framing bay



Section 3: Fourth floor framing; stacked-plank Chute 'partitions' below



Section 3: Fourth floor framing interrupted for machinery



Section 3: Sixth floor mezzanine framing with notch





Section 4: Underside of Bin 1 floor framing



Section 4: Fifth floor framing, looking south



Section 5: First floor framing, looking south



### 3.3 Structural Systems



Stacked boards supporting roof structure

#### CATEGORY:

3.3b Roof Framing System

#### DESCRIPTION:

**Section 1:** The shed roof is framed with 2"x6" sloped rafters, spaced at 16 inches, and sheathed with horizontal board sheathing.

**Sections 2 and 3:** The gable roofs are framed with 2"x6" rafters spaced at 24 inches. The rafters are supported by three-ply 2"x8" dropped purlins and the stud walls along gridlines A and Z. At the peak, the rafters abut one another; there is no ridge board. Horizontal skip sheathing is surfaced with plywood which was apparently added after the fire. The 2x framing and skip sheathing are fire damaged.

**Section 4:** The gable roof is framed with 2"x6" rafters spaced at 24 inches. The rafters are supported by a 2x ridge board, 6"x8" dropped purlins, and the stacked plank walls along gridlines A and Z. The purlins are supported by 6"x6" posts at their ends on gridlines 3 and 4, and in two intermediate locations that align with the stacked-plank walls that divide the bins. Four lines of 2x collar ties approximately 9 feet above the fifth floor elevation are spaced at 6 feet. Horizontal skip sheathing is surfaced with corrugated sheet metal roofing. There is no ceiling and the chutes that serviced the bins remain in the open space.

**Section 5:** The shed roof is framed with 2"x8" sloped rafters spaced at 24 inches spanning north to south. The northern bay is supported by a ledger along gridline 5 and a dropped four-ply 2"x8" girder. The southern bay is supported by the dropped girder and the stud wall along gridline 6. The dropped girder is located midway between the gridlines 5 and 6 and spans in the east to west direction. It is supported by 8"x8" posts at mid-span and at its ends on gridlines A and Z. The rafters are sheathed with corrugated sheet metal roofing over horizontal skip sheathing.

EVALUATION:

The roof framing is in poor condition. In general, the rafters and purlins do not have the calculated capacity to support Code required snow load. Since the roof elevation of each building section is different, snow drift loads affect all of the roofs except in Section 3.

The skip sheathing in Sections 2, 3, 4, and 5 does not provide the Code required diaphragm capacity to resist and distribute lateral loads.

RECOMMENDED TREATMENT:

**Section 1:** The rafters at the high end of the roof are subject to increased snow loads due to drifting and should be sistered. Since there is no accessible attic space, this work will require that either the ceiling finishes or the roof sheathing be removed to perform this strengthening work.

**Sections 2 and 3:** The roof framing and sheathing should be replaced since it is fire damaged and has inadequate capacity. The replacement framing can generally mimic the existing framing although larger framing members and/or tighter spacing will be necessary. Ridge beams will be required to eliminate rafter thrust since collar ties will interfere with the floor spaces. (The second floor diaphragm in Section 2 is several feet below the eave elevation. The sixth floor diaphragm in Section 3 does not extend to the eaves on gridlines A and Z.) One layer of plywood roof sheathing will satisfy diaphragm requirements.

**Section 4:** Selective strengthening of roof framing is required to bring the roof into conformance with Code. Member sistering and/or replacement as well as connection strengthening should be expected. Various roof sheathing, insulation, and roofing material assemblies can be developed which allow the roof structure to remain exposed if desired, provide space for insulation, and address structural diaphragm concerns.

**Section 5:** The ledger connection along gridline 5 should be repaired. This will likely require that the existing ledger be shored and jacked into position flush against the stacked-plank wall and thru-bolted at regular spacing. The rafters in the north bay are subject to snow drift loads and will require sistering. Alternatively, additional rafters could be added between existing rafters to decrease the rafter spacing. The rafters in the south bay require no treatment. The dropped girder supporting the rafters has inadequate capacity to resist Code loading and should be strengthened, replaced or two additional supporting columns should be introduced. A new layer of plywood sheathing should be installed or other materials that provide diaphragm capacity can be considered.





Section 1: Shed roof framing and flat ceiling framing, looking north at grid 2



Section 2: Gable roof rafters over dropped purlin, looking south at grid 4



Section 2: Gable roof rafters at eave bearing on top of stud wall along grid Z



Section 3: Gable roof rafters over dropped purlin





Section 4: Gable roof rafters over dropped purlin on east side



Section 4: Gable roof rafters at eave bearing on top of stacked-plank wall along grid Z



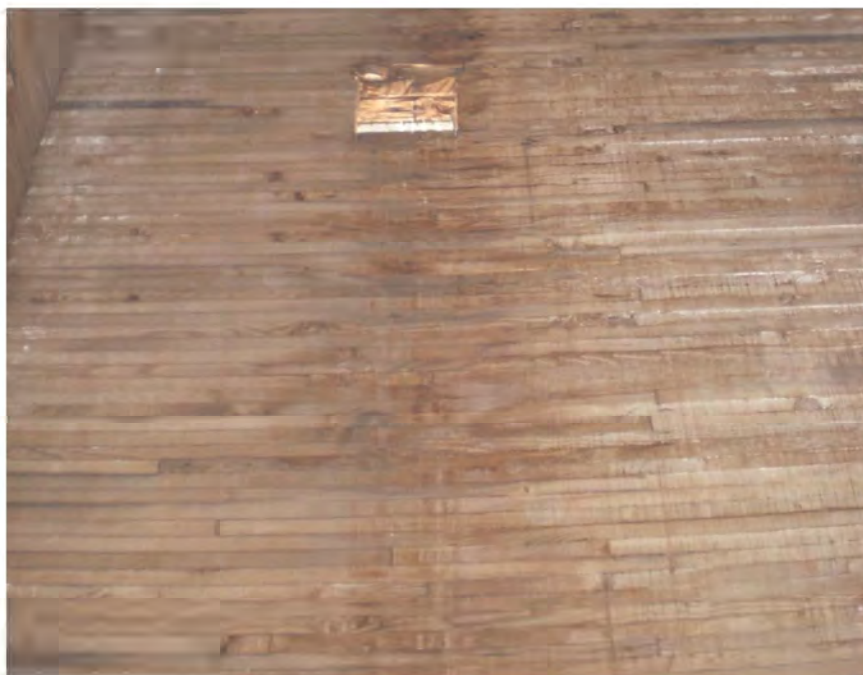
Section 5: Shed roof rafters at eave birdsmouthed over stud wall on grid 6



Section 5: Shed roof rafters bearing on ledger along grid 5 and on dropped multi-ply dropped girder



### 3.4 Exterior Wall Structure



Grain bin stacked plank walls

#### CATEGORY:

3.4 Exterior Wall Structure

#### DESCRIPTION:

**Sections 1, 2, 3, & 5:** The exterior walls are light-framed stud walls. 2x6 studs are spaced at 16 inches and surfaced on the exterior with horizontal siding. In Section 3, intermittent 2x diagonal bracing is nailed to the inside face of the wall studs. The first level walls in Section 3 are stud infill between the existing timber beams and are stacked-plank on the third level. Many of the wall studs in Section 3 have experienced scorching due to the fire. Except in Section 1, there is no insulation between the studs and there are no finishes applied to the inside face of the studs.

**Section 4:** The exterior walls are constructed with 2x stacked planks. At the top of the walls, the planks are 2x4s. Roughly 6 feet below the top of the walls, the planks transition to 2x6s and continue to the bin floors at this width. The central bin wall that runs in the north to south direction and divides the three eastern bins from the three western bins, transitions from one wall to two walls roughly at the first floor elevation. There is crawlspace access between and below these flared walls. The lengths of the planks varies, so that splices in the plies are lapped with the plies above and below. The plies were nailed together as the wall was constructed; the nails are exposed in the deteriorated areas between Bin 5 and Bin 6. The stacked-plank plies alternately lap at the bin wall corners. Along the exterior walls, the end grain of alternating dividing wall plies are visible. In all of the bins, except Bin 6, stacked-plank sister walls exist at their bases on the interior side.

#### EVALUATION:

The exterior walls below grade, evaluated previously in this report, are in poor condition. The exterior walls from the first floor and above are in fair condition. The 2x6 stud walls and stacked plank walls are generally capable of resisting Code required gravity loads

and out of plane wind loads. The stacked plank walls are particularly robust since they had to resist the lateral pressures imparted by the stored grain or silage.

However, some areas of localized deficiencies do exist. In the upper level of Section 3, the wall studs along gridlines A and Z span approximately 11 feet from the fourth floor to the roof eave. The top of the stud wall is not braced where it terminates and supports the rafters since the sixth floor does not extend to the east and west walls.

In Section 5, the wall studs along gridlines A and Z vary in height from approximately 12 feet to 20 feet. The taller studs to the north do not meet current Code for resistance to out-of-plane wind loads.

In Section 4, the stacked-plank bin walls have localized areas of deterioration described elsewhere in this report. This deterioration is almost entirely isolated to portions of the walls currently below grade. The sister walls in the bases of the bins are believed to have been installed sometime after the original construction to address either wood decay or increased lateral earth pressures.

The existing walls also must resist in-plane wind and seismic loads and transmit those loads to the building foundations. The stacked-plank walls have the capacity to resist these loads. However, the horizontal siding on the stud walls and the intermittent 2x diagonal bracing in Section 3, are generally inadequate to resist the in-plane Code prescribed wind and seismic forces. Wall chords and anchorage are also insufficient to resist overturning forces. Drag elements along the interfaces with the stacked-plank walls along gridlines 4 and 5 are undersized to allow load sharing between Section 3, 4, and 5.

#### RECOMMENDED TREATMENT:

In Section 3, the top of the stud walls along gridlines A, Z, and 3 should be braced. This can be accomplished by adding strongbacks to the inside face of studs at the top of the wall or extending the sixth floor framing and sheathing to meet the walls at the east and west sides of the building. Studs that have experienced pillowing or alligating due to the fire should be removed and replaced.

In Section 5, the tall studs along gridlines A and Z should be sistered with new studs. Because the studs are not interrupted by an intermediate plate, these sisters can be easily installed.

In Section 4, the deteriorated areas of stacked-plank construction should be removed and replaced as noted elsewhere in this report.

In order to bring the existing lateral force resisting system into compliance with current Code, alterations will need to be made to the existing stud walls. These alterations would include installing a layer of plywood sheathing on a portion of all of the perimeter walls and the walls along gridlines 2 and 3. This sheathing would typically be installed on the inside face of the studs and be concealed by new finishes. Blocking between studs will need to be installed at plywood panel edges in heavily loaded walls. Stud packs and holdowns anchors will be required at the ends of all designated shear walls. Footing augmentation should be expected at the ends of all designated shear walls to resist overturning forces. The selective addition of collector and drag elements should also be anticipated.



Once the final use of the building has been determined, the required alterations to the lateral force resisting system can be developed. Not all of the walls in the building require the alterations noted in the paragraph above, just those portions of walls designated by the designers to be recruited to work in the lateral force resisting system. Segments of designated shear wall should be expected along gridlines A, Z, 2, 3, and 6. A shear wall should be installed on the first level along gridline 3 since currently there is no line of resistance at this location and this is clearly a weak link in the existing system. Since the stacked-plank walls in Section 4 have considerable in-plane lateral capacity, they can be employed to resist portions of the loads which might otherwise be resisted by new sheathed walls in Sections 3 and 5. This will require strengthening of the connections to the floor and roof diaphragms along gridlines 4 and 5. The amount of load redirected to the stacked-plank walls will need to be carefully balanced with desire to minimize the overturning forces induced in the stacked-plank walls that would trigger adding holdown anchorage to the bin walls and footing underpinning beneath the bins.

These modifications all potentially impact the appearance of the building and would be carefully designed to minimize that impact. There are numerous other solutions which can be explored to meet Code and minimize the impact to the historic fabric of the building. Diagonal or cross bracing with wood or steel rods may prove to be a more desirable solution than sheathing walls in terms of both cost and aesthetic impact.



Section 3: First floor exterior wall along grid Z; stud infill at timber post and beam framing



Section 3: Fourth floor exterior wall along grid 3 and grid A; 2x diagonal bracing lapped over wall studs



Section 3: Sixth floor exterior wall along grid 3 and grid A; unbraced wall hinge at break in studs



Section 3: Exterior wall with horizontal siding and 2x diagonal bracing lapped over wall studs





Section 4: Stacked-plank bin wall along west elevation, lapped plies at cross dividing wall corners



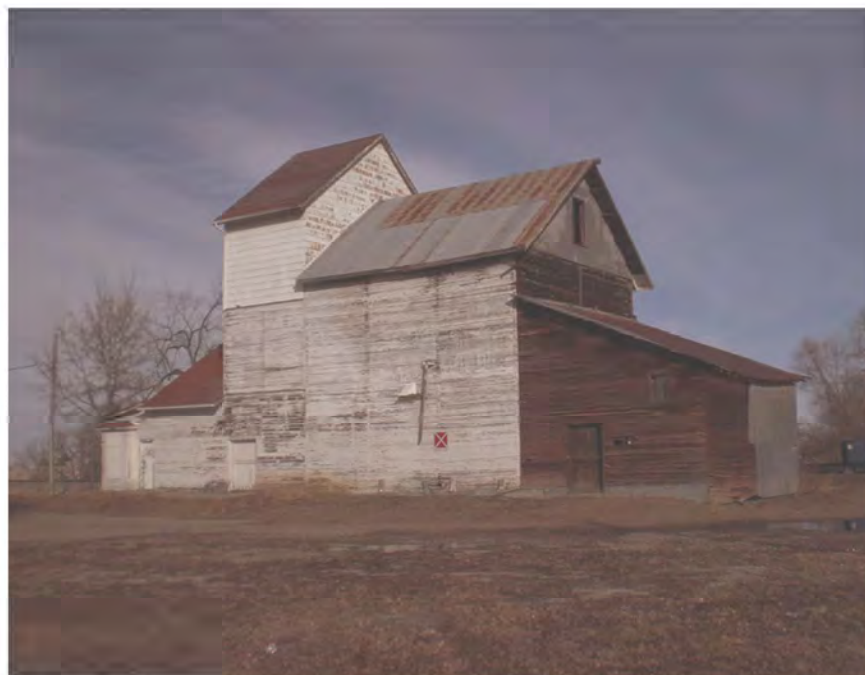
Section 5: Exterior wall studs along grid Z at grid 5; roof ledger along grid 5





Section 5: Roof ledger along grid 5 and underperforming anchors into stacked-plank wall

### 3.4 Exterior Walls



West elevation

#### CATEGORY:

3.4 Exterior Walls

#### DESCRIPTION:

The Grain Elevator is rectangular in plan, measuring approximately 88' x 28', with the front façade on the west side. The building outline is rectangular with the exception of a small jut out on the north end of the west elevation which is original to the building. The Grain Elevator is composed of five sections, each with a different height and roof. Section 1 is the section furthest north and the numbers progress to the south. (The sections are labeled on the west elevation, Sheet 4.0 in the appendix.) The northern and southern most sections have shed roofs, and the middle three sections each have a gable roof. The three north sections have wood tongue and groove siding, the southern most section has shiplap wood siding. The section in the middle, containing the grain storage bins, has stacked wood planks. The process of stacking boards horizontally with the broad sides together is called cribbing and was a common construction technique for grain elevators.

The three northernmost sections of the building are clad with wood tongue and groove siding with 5 1/8" exposure. The exception to this is Section 3 which has faux-shingle siding on the top third of the north, east and west elevations, though this appears to have been installed over the historic siding which is visible on the interior of the building. On all three sections the underside of the rafters are exposed where they extend from the building and the rafter tails are covered by fascia boards. Corner boards are nailed onto the northeast corner of the building. Historic photos do not show corner boards on the northwest edge of the building and there is no physical evidence that any ever existed. The siding, fascia and corner boards are painted white, though the paint is worn away and peeling. In the historic photo, the siding appears to have been painted a dark color and a sign showing a feed bag was painted on the west elevation of Section 3. A metal spout with a chain running along either side extends out



from the wall one third of the way up the east elevation of Section 3. The lower section of the spout appears to be newer than the section that extends from the building. This spout was likely used to pour grain into the railroad cars on the spur that ran adjacent to the building.

Section 4 contains the grain bins. There is no exterior cladding on this section, so the cribbed boards are visible. Since the boards are stacked with the broad sides together, the exterior edge of each board is 1 5/8". Two-by-six boards were used for the lower section of the bins and about two-thirds of the way up it switches to two-by-four boards. The boards are nailed together and interlock at the corners of the bins, so the bin divisions read through to the exterior. The boards have been painted white, though the paint is peeling and worn off. The lower ten feet of the east elevation has graffiti spray painted over the white paint. The historic photo shows a sign that says "The Louisville M.&E. Co FEED GRAIN & GRINDING" on the upper half of the west elevation. A chute extends out of the middle grain bin on the west elevation. At the joint between the southern two bins on the west elevation, a number of boards are deteriorated at grade level. Since Section 4 is taller than Section 5, part of the south bin wall is visible on the exterior. The stacked boards end at the top of the bins and above that the exterior wall is clad with corrugated sheet metal panels.

Section 5 is clad with shiplap siding, which has either shrunk so most boards are no longer overlapping or was not installed in the traditional manner with overlapping edges, but was instead installed with the bottom edge of one board abutting the top edge of the next board. The siding averages 5 1/2" wide. On the west elevation, corrugated sheet metal has been nailed over the siding at grade level. Corrugated sheet metal panels have been nailed over the siding on the east half of the south elevation from grade level up to the rafter tails. The corrugated panels wrap around to the southeast corner of the building and cover three quarters of east elevation of Section 5. For the most part, the siding is not painted, though there are still faint hints of red paint on the wood in some areas. The corrugated metal panels are not painted, though there is graffiti on some of the panels on the east elevation.

The historic photo shows an open shed that extends out to the west of the building from the middle of Section 2 to the middle grain bin. The west wall of the shed was clad with tongue and groove siding that matched the siding still in situ on Sections 1, 2 and 3. No elements of the shed remain.

#### EVALUATION:

The siding on Sections 1, 2 and 3 is in fair to poor condition. There are a few areas where deterioration is visible on the exterior and a large percentage of the siding has fire damage on the interior side. The siding has been damaged on the north end of the east elevation and plywood has been nailed up to protect that area. The fascia boards are in fair to poor condition, with some boards splitting and peeling away from the rafters.

The stacked exterior boards on Section 4 are generally in good condition, with the exception of the area on the west elevation where boards are missing and deteriorating. The south end of Section 4 that is currently clad with corrugated metal panels historically had wood siding.

The wood siding on Section 5 is in poor condition. The wood is deteriorated and

splitting apart in many locations and not longer laps to create a weather barrier. On the west elevation, the siding to the north of the door is seriously deteriorated so a piece of plywood has been nailed up to cover the holes in it. On the south elevation the bottom four feet of boards, not covered by metal panels, are significantly deteriorated and some boards are missing. The southwest corner of the building has been run into by trucks that tore through the corrugated metal panels and damaged the wood in two places. The corrugated metal panels are peeling off of the east elevation in several places.

With the exception of Section 5, the Grain Elevator is currently painted white, though the paint is peeling. The paint on Section 5 is significantly deteriorated but the paint that remains is red. In the historic photos, the siding, with the exception of the building sign it appears to have been painted red or reddish brown.

#### RECOMMENDED TREATMENT:

On Sections 1, 2 and 3 damaged and deteriorated siding should be replaced with wood siding to match the existing. The faux-shingle siding should be removed and replaced with tongue and groove siding to match the historic. The fascia boards that are deteriorated or warped should be replaced in-kind.

Section 4 should be repaired per the structural recommendations for the grain bins. The corrugated metal panels should be removed from the south end and tongue and groove siding should be installed to match the siding found on Sections 1, 2 and 3.

The siding on Section 5 should be replaced with shiplap siding. The siding should have 5 1/2" exposure to match the current.

The building should be painted a red or reddish brown to return it to its historic appearance. The exact color cannot be determined from the historic photographs. A paint analysis should be done to determine the paint color on Section 5. When the faux-shingle siding is removed from Section 3, if any original siding remains underneath, it may have remnants of the original paint color which should be included in the paint analysis. The historic sign should be repainted on the west façade.





South elevation



East elevation - southern sections 5, 4, 3



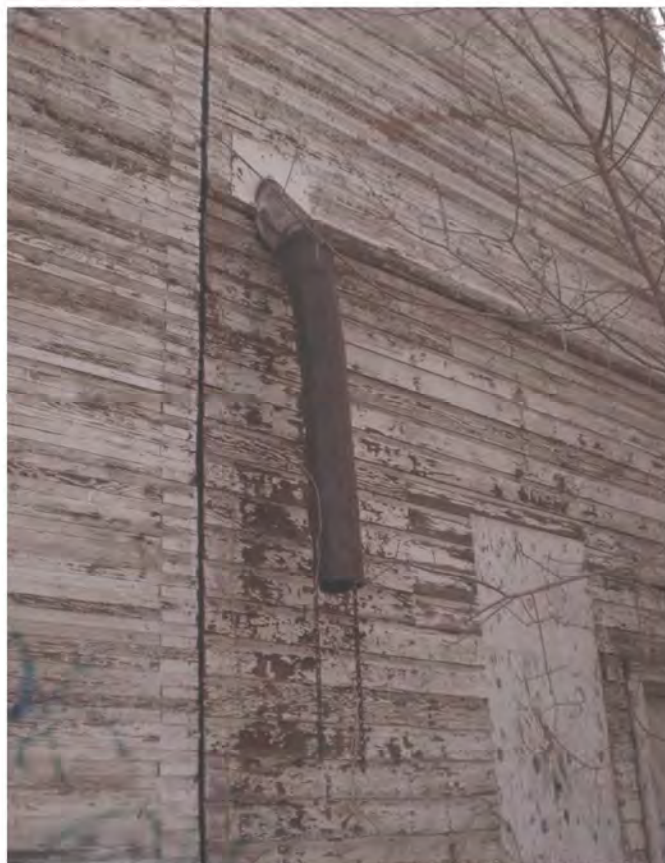
East elevation - northern sections 4, 3, 2, 1



North elevation



Sections 1, 2 and part of 3 - west elevation



Metal spout on east elevation of Section 3





Section 4 - Grain bins west elevation



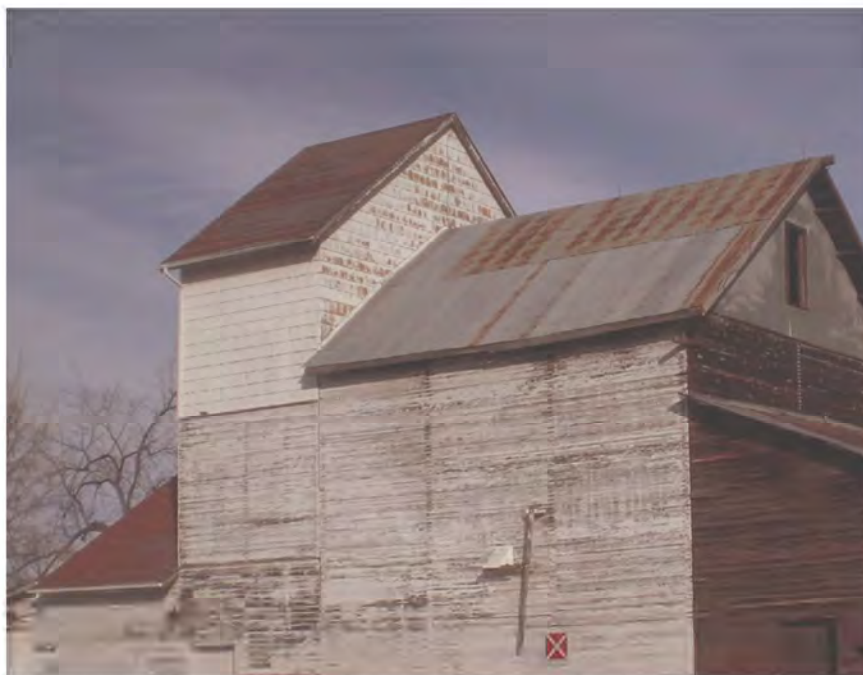
Section 4 - deteriorated cribbing at grade level





Section 5 - siding deteriorated at grade level of south elevation.

### 3.5 Roofing and Waterproofing



Asphalt shingles on Sections 2 and 3 and corrugated metal roofing on Section 4

#### CATEGORY:

3.5 Roofing and Waterproofing

#### DESCRIPTION:

There are five different roofs, one over each section of the Grain Elevator. Section 1 has a shed roof with red asphalt shingles. The roof sheathing appears to be 1x boards nailed to the rafters with abutted ends. A brick chimney with a cementitious coating is located slightly to the west of the center of the building in the north edge of the roof. Just to the east of the chimney, a weatherhead extends through the roof down to the electrical box. The jut out on the west side of the building has a small hipped roof with red asphalt shingles. Sections 2 and 3 are gable roofs with red asphalt shingles. The sheathing for both roofs appears to be plywood panels that have been nailed over the original 1"x9" sheathing spaced 16" on center. Section 4 has a gable roof covered by corrugated metal panels nailed directly to the 1"x9" roof sheathing spaced 16" on center. Section 4 is a shed roof with corrugated metal panels nailed directly to the 1"x9" roof sheathing spaced approximately 20" on center. At the east and west edges of the roof, a 1"x9" board is nailed between the roof sheathing to the last two rafters and extends out to the edge of the roof. This additional board provides support for the edges of the metal roofing panels.

Gutters have been installed along the west edge of Section 2 and 3. The gutter on Section 2 feeds into a downspout that runs over the roof on the jut out adjacent to Section 1 and drains at the north edge of the building. The gutter on Section 3 feeds into a downspout that extends down approximately fifteen feet and then stops, allowing water to continue draining down the face of the building. Originally the roof over Section 3 drained onto the roof of the shed below, which sloped to the west and drained directly onto the site. These gutters are not historic. There are no gutters anywhere else on the building and there is no indication that any ever existed.

EVALUATION:

The roofs are in poor condition and there is evidence of water infiltration in many areas of the building. The asphalt shingles on Sections 1, 2 and 3 are visibly deteriorated and no longer provide complete water protection. The roof over Section 1 is actively leaking, and water was observed dripping through the ceilings in the rooms below it. The metal roof over Section 4 was recently repaired so corrugated metal panels cover the entire roof now and no sheathing is exposed. However, there are a number of holes in the metal panels so water is still able to enter this section of the building. The metal panels over Section 5 also have holes in them.

The sheathing over Section 1 appears to be in good condition. The plywood sheathing over Sections 2 and 3 is in good condition, but the original 1"x8" sheathing below it is charred and in poor condition. The sheathing in Sections 4 and 5 is in good to fair condition.

The gutters and downspouts on the west side of Sections 2 and 3 are in good condition. However, the gutter and downspout on Section 3 may be damaging the building since instead of water draining from the roof onto the ground below, the water is caught and drained down the exterior cladding which is potentially accelerating the deterioration rate of the wood.

RECOMMENDED TREATMENT:

All five sections of the Grain Elevator need a new roof. In the historic photos the roof appears to have a corrugated metal roof over all five sections. All five roofs should be reroofed with a corrugated metal roof with a wide profile that matches the historic as closely as possible. A snow guard will need to be installed on Sections 2, 3 and 4 due to the slope of the roofs. The majority of the sheathing in Sections 1, 4 and 5 can be left in place, and any damaged sheathing should be replaced in kind. The sheathing in Section 3 and 4 should be removed and replaced in kind. New 5/8" plywood or OSB will be required to be installed over all roof areas – to provide the proper substrate for a warranted roofing installation.

The gutters and downspouts should be removed from Sections 2 and 3.





Gutter, downspout and deteriorated asphalt roofing on Section 2



Corrugated metal roofing on Section 5



### 3.6 Windows and Doors



Window 1 and Doors 4 and 5 on the west elevation

#### CATEGORY:

3.6 Windows and Doors

#### DESCRIPTION:

Most of the window and door openings in the Grain Elevator are original and have not been altered over the years. All but one of the doors are historic with original hardware. New hardware has been installed on some of the exterior doors to secure the building. The windows that remain are the historic windows, however many of the windows have been removed or fallen apart over the years. Most windows on the upper floors have been removed so only the framed opening remains and studs have been installed in the openings in line with other studs.

#### EVALUATION:

In general the doors are in fair condition with some deterioration and the windows are in poor condition or missing. See 3.6a Doors and 3.6b Windows for specific evaluation.

#### RECOMMENDED TREATMENT:

See 3.6a Door and 3.6b Windows for recommended treatments.

### 3.6a Doors



Door 1 - interior side

#### CATEGORY:

3.6a Doors

#### DESCRIPTION:

There are nine doors in the Grain Elevator, five are exterior and three are interior. There are three sliding doors, the rest are hinged, swinging doors.

Door 1 is located in the basement on the north end of the west wall. The door is hinged on the south side and swings inward. It is constructed of 1x tongue and groove boards oriented vertically. It has two historic surface mounted hinges and is held shut by a wood bar that drops across it, held in place by a nail. The door historically would have opened into the space below the wood walkway, but is currently not accessible from the exterior due to changes in the grade.

Door 2 is located in the basement in the middle of the east wall. Wood 2"x4" boards frame the opening and a sheet of plywood currently serves as the door. There are no hinges or other hardware. Since this opening is currently below grade and historically the railroad spur ran adjacent to the east wall, this may have served as an opening for equipment and grain transportation, and not functioned as a true door.

Door 3 is an interior basement door located in the Machine Room. The door is constructed of 1x tongue and groove boards oriented vertically. An eye hook is attached to the door and serves as the latch. There is no door trim. The door opening is framed by the wall and ceiling structural members.

Door 4 is the main entry door, located on the north end of the west façade. It is a hinged door that opens into the building. It is the original wood four panel door, but the exterior has been covered by plywood with a small rectangle cut out at the door knob. The original hinges, door knob and escutcheon plate are still intact, although



the door is currently secured by a series of four hasps and padlocks. The door trim is composed of 2"x4" boards on the exterior and interior. The door and the exterior trim are painted white and the interior trim is painted brown. The exterior paint is peeling significantly.

Door 5 is a sliding door that opens to the north and slides along the interior side of the west exterior wall. The door opening is 5'-0" by 6'-9" with a door composed of 2"x6" boards oriented vertically on the exterior and boards of varying sizes oriented diagonally on the interior. The original door hardware and track are intact on the interior of the building. Since the door is located on the interior of the wall, the opening is framed by boards that run from the face of the building to the face of the door. The door is painted white, as is the exterior trim.

Door 6 is a sliding door located on the south end of the west elevation that opens to the north along the interior side of the exterior wall. The door opening is 4'-0" by 6'-9" with a door that has a 2"x6" boards oriented vertically. The original door hardware including the door track, hangers and hasp are still intact. The door is secured by a hasp and padlock located on both the north and south sides of the opening.

Door 7 is a sliding door located in the middle of the east elevation that opens to the north along the interior side of the wall. The door opening is 5'-0" by 6'-9" with a door composed of 2"x4" boards oriented diagonally on the exterior and 2"x6" boards oriented vertically on the interior. The original door hardware remains on the interior of the building. Since the door is located on the interior of the wall, the opening is framed by boards that run from the exterior face of the building to the face of the door. The exterior face of the door is painted white, as is the exterior trim, while the interior face is unpainted.

Door 8 is an interior door that leads from the Entry to the remainder of the building. The door is hinged on the east side and opens into the Entry. The door is the original wood, four panel door with the original hardware. The door trim on the north side of the opening is 2"x4" boards, and there is no trim on the south side. The door is painted white and the trim is painted brown.

Door 9 is located on the fourth floor on the east exterior wall. The door is hinged on the north side and opens into the interior space. It is composed of 2"x6" boards oriented vertically. The three historic hinges are still intact. The exterior face of the door is not visible because it is covered over by faux-shingle siding and the door cannot be opened due to the build up of various materials on the floor.

#### EVALUATION:

Door 1 is in fair condition with some of the boards needing to be replaced due to deterioration. The latching method of sliding a board over the door until it catches on the nail is not secure. When the soil is regraded this door will be operable.

Door 2 is in poor condition. There is no door or hardware, just a piece of plywood covering the door opening.

Door 3 is in fair condition with some boards needing to be replaced due to damage at the bottom of the door. The eye hook is rusted.

Door 4 is in fair to poor condition. It is assumed that the plywood was nailed over the exterior side of the door due to damage. The extent of the damage is unknown. The hinges, door knob and escutcheon are in fair condition.

Door 5 is fair condition with some of the boards needing to be epoxy repaired or replaced due to damage at the base of the door. The door hardware and track are intact and appear to be in fair condition.

Door 6 is in fair condition. The hardware is in fair condition, the historic hasp is no longer in use and the door hardware and track is intact but not longer properly attached to the wall so the door regularly falls off the track.

Door 7 is in fair condition with some of the boards needing to be epoxy repaired or replaced due to damage at the base of the door. The door hardware is intact and appears to be in fair condition and the door track is missing.

Door 8 is in fair condition, since the wood is chipped and worn in some places. The hardware is in good condition.

Door 9 is in fair condition, with deterioration on the base of the boards and possibly on the exterior side of the door. The hinges are in fair condition, and no locking mechanism is evident.

#### RECOMMENDED TREATMENT:

Door 1 should have the deteriorated boards replaced in kind and a door latch installed. The hinges should be removed, wire brushed, oiled and reattached.

Door 2 should have its ultimate use determined. Since it is currently below grade, if the site will not be regraded it should be infilled with concrete to match the adjacent foundation. If the site is to be regraded to allow access through this opening, a door should be constructed to match Doors 1 and 3.

Door 3 should have the deteriorated boards replaced in kind. The door hardware should be removed, wire brushed, oiled and reattached.

Door 4 should have the plywood removed from the exterior face and at that time it should be determined if the door can be repaired or if it should be replaced in kind. The original hardware should be removed, wire brushed, oiled and reattached either to the current door or the reconstruction.

Door 5 should have the deteriorated boards replaced and a new track and hardware that match the original should be installed.

Door 6 should have the deteriorated boards replaced in kind. A new track and hardware that match the original should be installed. The modern hasp should be removed and the historic hasp repaired or replaced in kind.

Door 7 should have the deteriorated boards replaced. A new track and hardware that match the original should be installed.



Door 8 should be refinished and the hinges should be removed, wire brushed, oiled and reattached.

Door 9 should have the deteriorated boards replaced and the hinges should be removed, wire brushed, oiled and reattached. A latch should be installed so that once the faux-shingle siding is removed the door can be secured so wind does not blow it open.

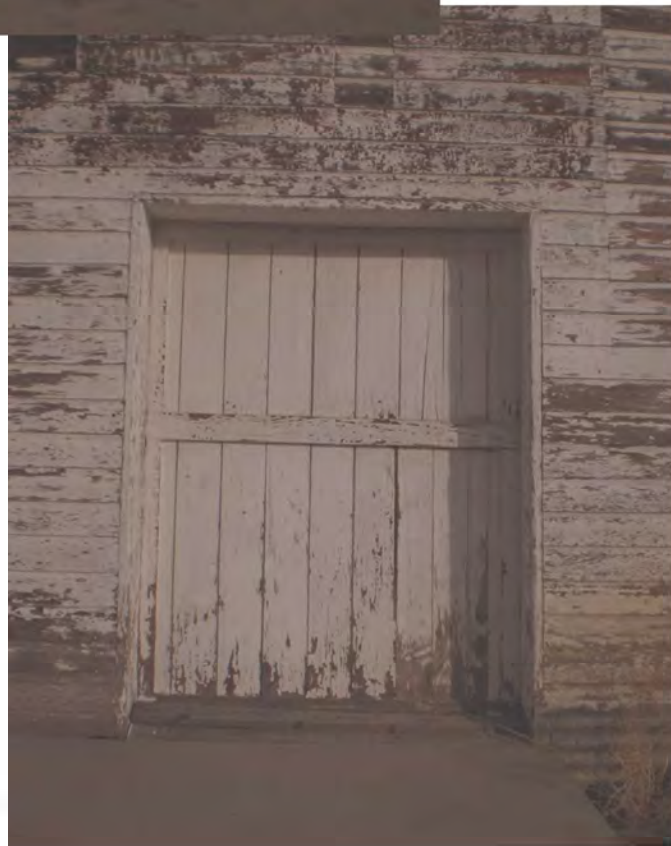


Door 3 propped open

Door 4 exterior side



Door 5 exterior side





Door 5 interior side



Door 6 exterior side





Door 7 original sliding door hardware



Door 8 original four panel door





Door 9 interior side

### 3.6b Windows



Windows 1 and 8

#### CATEGORY:

3.6b Windows

#### DESCRIPTION:

Window openings are located on all sides of the Grain Elevator, though most of the windows have been boarded up with plywood. The majority of the windows are rectangular, though there are a few square windows. Several of the window openings are just frames, the sash and glazing are missing. Windows 1 through 8 are on the first floor, Window 9 is on the second floor, Windows 10 through 12 are on the fourth floor, Window 13 is on the fifth floor and Window 14 is on the sixth floor.

Window 1 is located on the west elevation and is a double hung wood window. Plywood has been nailed over the window on the exterior. The frame and sill are visible on the interior and are painted brown. The sash are painted white and still intact, though the glazing is missing. The original window latch is still intact.

Window 2 is located on the narrow side of the jut out on Section 1 next to the main entry door. It is a two lite, narrow window that does not have a frame. The sash is directly attached to the walls and molding was originally attached to the sash on the interior, but it is missing in most areas. The sill has come loose and is now tilted to the exterior.

Window 3 is located on the west elevation of Section 5. The window is a fixed, four lite window that is missing one of the muntins and all of the glazing. A screen was nailed to the exterior side of the window and is now peeling off. The window frame on the exterior of the window is still intact, and a plywood board is nailed over the window on the interior.

Window 4 is located on the east elevation of Section 5 in the same location as Window



3 on the west elevation. No elements of the window remain and plywood has been nailed over the window on the exterior. Due to the symmetry with Window 3, it is likely that it was originally a fixed, four lite window.

Window 5 is located on the east elevation of Section 3. The window is covered by plywood on the exterior and the lower two thirds of the window are boarded up on the interior. No frame or sash are visible in the exposed section of the window.

Window 6 is located on the east elevation of Section 1 and is boarded over on the exterior. It is a double hung wood window, though only the upper sash is still intact. The parts of the window that remain are painted yellow, and the trim has been removed.

Windows 7 and 8 are located on the north elevation of Section 1 and are boarded over on the exterior. They are double hung wood windows that originally had four lites in each sash. In Window 7, currently only the vertical muntin remains in the lower sash. All but two of the panes of glazing are missing. The trim and sash are intact and painted brown, while the rest of the window is painted yellow. Window 8 is in similar condition, but all of the glazing is missing and both muntins in the lower sash have broken out, though the vertical muntin still sits in the opening. A beam intersects the upper west corner of the window trim. The original lock mechanism is still intact.

Window 9 is located on the north wall of Section 2 and is boarded over on the exterior. It is only a window opening, no elements of the window remain.

Window 10 is located on the west wall over Section 3, just under the eave. The window is not visible on the exterior; it is covered by the faux-shingle cladding. Very little remains of the window on the interior but it is a rectangular wood window with a screen nailed over it on the interior.

Windows 11 and 12 are located on the north wall of Section 3. The windows are covered on the exterior by the faux-shingle siding. The window frames have been completely removed but the header and sill still remain. A stud has been installed in both window openings that aligns with the studs above and below the window. Since this area of the building did not have interior finishes, it is likely that the window never had any trim.

Window 13 is located on the south elevation of Section 4. The window has been removed, so only the frame remains. This is the only window in the building that is not boarded up on either the interior or the exterior.

Window 14 is located on the north wall of Section 3 just under the peak of the roof. The opening is covered on the exterior by faux-wood siding. The window frame has been completely removed, but the header and sill remain. A board has been nailed inside the frame inline with the studs above and below it.

#### EVALUATION:

Windows 1, 5, 6, 7, 8, 9, 11, 12 and 13 all have the same proportions and remaining window elements suggest that these were identical eight lite, double hung windows. Historic photos reinforce this assumption since they illustrate several of these window openings with double hung, eight lite windows. Windows 1, 7 and 8 are the most intact.

RECOMMENDED TREATMENT:

Overall, the windows are in fair to poor condition, with some windows needing to be completely rebuilt and some needing work to restore them to their original condition. Necessary repair work includes repairing the frame, muntins, replacing the glazing and reconstructing the entire window. Since most of the exterior trim is covered over, the condition is assumed to range from fair to poor. Trim likely requires repair or stabilization in some places and in others it is likely missing.

Windows that are missing or damaged beyond repair should be reconstructed to match their historic appearance. Window elements that remain and are salvageable should be epoxy stabilized and missing window elements should be reconstructed. All of the windows need to be reglazed.

Trim should be epoxy stabilized where it remains and new trim should be installed where trim is missing, warped or severely deteriorated. Any trim boards that have come loose should be renailed.

A window-by-window survey and repair/reconstruction schedule with attendant details will be required to describe the work.





Interior side of window  
1



Exterior side of window  
1



Window 2 interior side



Window 3 exterior side



Window 4 exterior side



Window 7 frame detail





Interior side of window  
7



Exterior side of window  
7



Window 8 interior side



Window 9 interior side





Window 10 interior side



Window 12 interior side



### 3.7 Interior Finishes



Basement - looking south toward the grain bins

#### CATEGORY:

3.7 Interior Finishes

#### DESCRIPTION:

The Grain Elevator has six levels plus a basement. Some of the levels are all one room, while others are subdivided into multiple rooms. While from the exterior there are clearly five sections of the building, these sections are not always as evident on the interior. Since it is an agricultural building, most of the finishes are the structural elements without any interior finishes applied over them.

The basement is divided into three rooms plus a crawl space between the grain bins. The Machine Room, which was where grain was ground when the Grain Elevator was in operation, is located on the north end. There are two other rooms on the north end of the basement and all three have similar finishes. The floor is dirt, the exterior walls are concrete half walls with wood stud walls above them and the interior walls are concrete half height walls with posts on them. The ceiling is only about 6'-0" high and is the exposed first floor structure. There is a pit in Tower Level 0 that has concrete walls and a floor. The stairs from the basement to the first floor are wood treads with wood stringers and open risers. The grain bins extend into the basement but are not accessible at this level, though a crawl space runs between the east and west bins where a belt historically transported grain from the bins to other areas in the Grain Elevator.

The first floor has two separately accessed areas – the north three sections which contain four rooms and the south section which consists of one room. The grain bins are located between these two sections but can only be accessed from the fifth floor. The north section consists of the Entry, Office, Back Room and Tower Level One. The Entry has a tongue and groove wood ceiling and walls, though the walls have a heavily textured plaster applied over them. The floor steps up on the east side

of the room; the flooring to the west of the step is linoleum and the flooring to the east is carpet. The wall between the Entry and Office has a pegboard finish on the Entry side. A wood and brick chimney starts about five feet up on the north wall and a wood burning stove is located on the east side of the Entry. In the Office there are a variety of wall finishes including, fiberboard, painted tongue and groove boards and 1"x12" boards. Fiberboard shelves have been installed on all four walls and mounted with metal brackets. A variety of furniture and other materials are currently stored in this room. A Corridor leads from the Entry to Tower Level 1 and has wood plank flooring and fiberboard panels on the walls. The ceiling is the exposed second floor structure though painted fiberboard covers the structure in the northwest corner of the Corridor. A stair with wood treads and stringers leads up to the Second Floor, though the stair stops about two feet short of the floor. Tower Level 1 has wood floor boards and most of the walls and ceiling are the exposed structure. Part of the north wall has a gypsum board finish; the rest is the wall structure. The south wall is the stacked plank wall structure of the grain bins. A large amount of the wood visible in this space was affected by the fire and has char damage. (See Wood Scientist Report in the Appendix for more information on the damage.) A number of chutes are located on the ceiling. The walls and ceiling in the Back Room are a combination of exposed structure and fiberboard, some of which is painted white while other areas are natural wood color finish. A variety of items are stored in the Back Room and Tower Room 1.

The first floor in Section 5 is entered through a door on the west elevation and is a large open room used for storage. The walls and ceiling are the exposed structure. The north wall is the stacked plank grain bins walls, while the other walls are wood stud construction and exterior siding. A paper membrane was put up between the studs and the siding but it has significant water damage and is deteriorated. The ceiling is the exposed roof framing and corrugated metal roofing. The floor is wood boards, though it is mostly obscured by the items stored in the room and a layer of dirt.

The second floor is accessed from the stair off the first floor corridor and is in Section 2. The floor boards are currently covered by mounds of loose insulation and animal waste so they are not visible. The walls and ceiling are the wall and roof structure and sheathing. Large areas of this room have char damage from the fire. A small wood grain bin is located to the west of the stair. There is a small opening on the north side of the bin. A small set of stairs with wood treads and stringers leads up to the third floor.

The third floor is only located in Section 3 and over half of this level is occupied by chutes. There are two large wooden chutes, Chutes 3 and 4, which occupy the western third of the room, with access hatches that swing into the chutes from the room. These chutes extend from floor to ceiling. The middle third of this level is a mostly open room. The floor boards are covered by grain and other materials that have accumulated, the walls are the stacked plank bins walls and the ceiling is the exposed fourth floor structure. A medium sized chute is located in the northwest corner of this room, adjacent to Chute 3. On the south end of the room there are four small chutes (approximately 14"x8") that run from the ceiling through the floor. The elevator originally ran through the north side of this room and though the elevator has been removed, the wood boards that surrounded the opening on three sides and the wood elevator track are still intact. The openings in the floor and ceiling have been covered with corrugated metal. Some mechanical equipment remains and is mounted to the ceiling. A medium size chute (38"x30") is located in the southeast



corner of this space, adjacent to Chute 2, on the east side of the building. This chute is approximately eight feet tall and has a small access hole at the base which can be covered by a hinged piece of wood cut to match. Two bins occupy the east third of the building. Chute 1, the northern chute, has an access hatch that swings into the bin. Chute 2, the southern chute, only has a half height wall on the west side, the upper boards were cut out at some point. A stair with wooden stringers and treads leads up to the fourth floor.

The fourth floor is located in Section 3 and is a mostly open room. The floor boards are covered with grain and animal waste, the walls are the exposed structure and sheathing of the exterior walls and the ceiling is the roof structure and sheathing in most places, though the sixth floor structure forms the ceiling in the central portion of the room. The four small chutes visible on the third floor continue through the fourth floor up to the sixth floor. The wood elevator track continues up from the third floor. The elevator pulley and other mechanical equipment associated with the elevator are mounted to the underside of the sixth floor. A stair with wood stringers and treads runs along the east side of the north wall up to the sixth floor. A metal chute is located along the south wall on the east side of the room and runs down through the floor. Extra sections of wood chutes are stacked in the northwest corner of the space. A "ladder" formed by boards nailed to the wall joists runs from the fourth floor up to the southwest edge of the sixth floor. A large portion of the walls and ceiling in this space has char damage.

The fifth floor is located in Section 4 over the grain bins. A catwalk that is approximately eight feet wide runs down the center of the space, above the bins. The catwalk floor boards are 2"x3" boards spaced about 2" apart and there are two rectangular openings that allow access to the bins via built-in metal bars that serve as a ladder down to the floor of the grain bins. Two wood boards mounted to posts at the edge on either side of the catwalk serve as railings. A central wood chute runs above the catwalk with chutes that branch off and empty into the grain bins. The grain is allowed into each chute or diverted away by wood boards that can be pulled out and pushed into the chutes by wooden levers.

The sixth floor is a mezzanine level located above the center third of the fourth floor. There are no walls and the ceiling is the exposed roof structure and sheathing. The floor is wood floor boards. A number of chutes are located on this level, some of which run south to empty into the grain bins, while others run straight down, into the fourth floor and beyond.

#### EVALUATION:

The structural elements, exterior walls and roofs have been previously evaluated in sections 3.3 Structural System, 3.4 Exterior Walls and 3.5 Roofing and Waterproofing and will not be addressed in this section.

The finishes in the Entry and Office are in fair to poor condition since portions of the ceilings, walls and floors have significant water damage. The stairs are in good condition, but the stair from the first to the second floor does not meet code since it stops well below the second floor. The floorboards throughout are deteriorated or have char damage. Char damage has impacted a large percentage of the walls and ceilings in Tower Level 1, the Second Floor, the Fourth Floor and the Sixth Floor. While the structural impact of char damage has been previously addressed, the aesthetic

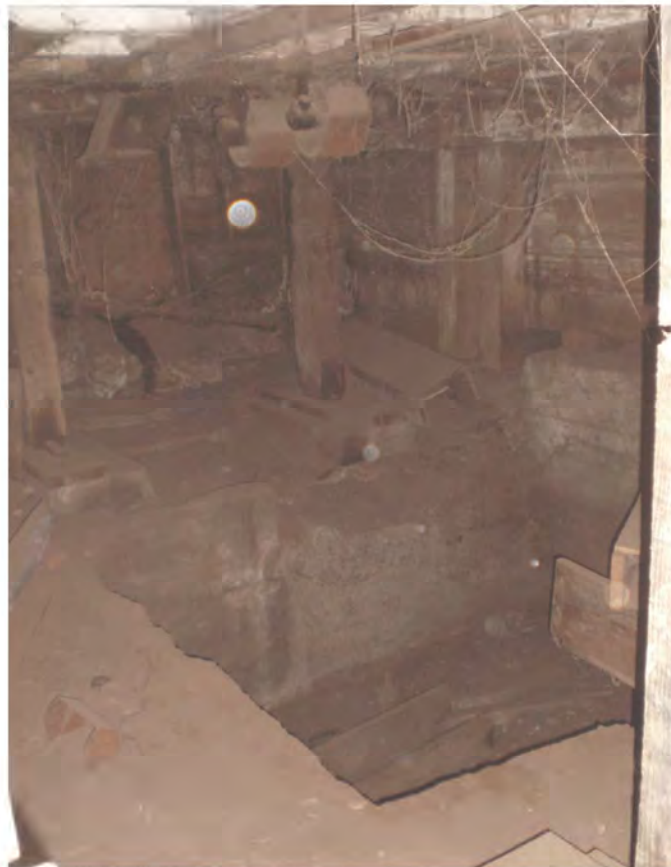
#### RECOMMENDED TREATMENT:

impacts have not. Char damaged wood has a burnt odor that is hard to remove from the wood and that will permeate an enclosed building.

The exterior walls and roof should be repaired according to the recommendations in sections 3.4 Exterior Walls and 3.5 Roofing and Waterproofing.

The interior of the structure should be cleaned per recommendations in the Hazardous Material Report located in the Appendix. All hazardous materials should be removed and properly disposed of and all animal waste and bird guano should be removed and cleaned. The lead based paint should be abated. Once all of the hazardous materials have been removed, the wood that remains should be cleaned by abrasive blasting.

All of the flooring throughout the building should be replaced with new wood to match the existing. The stairs should be reinstalled after the new flooring is in place except for the stair from the first to the second floor. A new stair should be constructed in this location that runs all the way up to the second floor. All of the charred wood that will be in the interior of the building should be removed and replaced so the scent of charred wood does not permeate the building.



Basement - Concrete pit in Tower Level 0





Basement - Typical finishes



First Floor - Entry typical finishes





First Floor - Entry  
with pegboard wall  
and carpet and wood  
burning stone



First Floor - Entry  
chimney on north wall



First Floor - Office north and east walls



First Floor - Office ceiling damage



First Floor - Corridor  
looking south



First Floor - Corridor  
looking north





First Floor - Tower Level 1 chute on ceiling and char damage on walls and ceiling



First Floor - Tower Level 1 looking at southeast corner



First Floor - Back Room  
looking northeast



First Floor - Back Room  
various wall and ceiling  
finishes.



Second Floor - Char damaged on walls and grain bin on south side of the room



Second Floor - Looking west along north wall





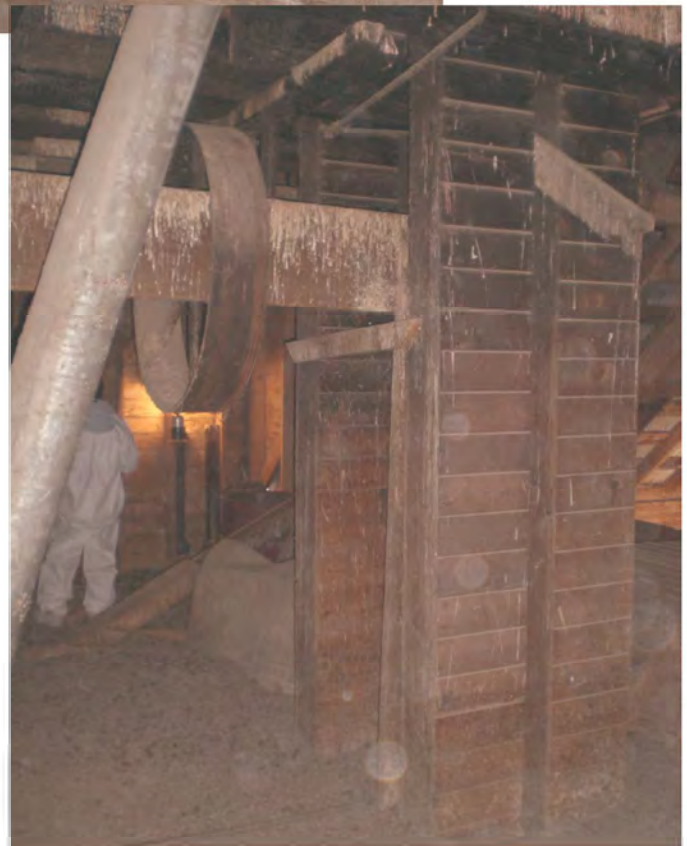
Third Floor - Access  
hatch into chute



Third Floor - Track at  
original elevator shaft



Third Floor - Chute 2 has been cut down while Chute 1 (on the left) continues up to the ceiling



Fourth Floor - Chutes running through the room underneath the Sixth Floor





Fourth Floor - Equipment and Sixth Floor Structure with char damage and bird guano



Fourth Floor - Looking up at chutes on the Sixth Floor

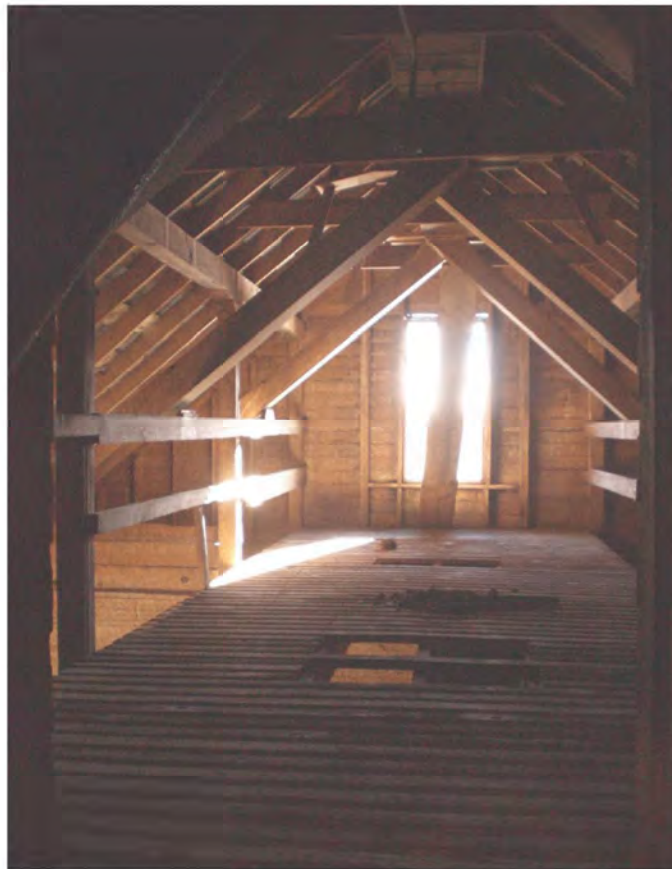




Fourth Floor - Chutes,  
original elevator track  
and corrugated metal  
over the stair



Sixth Floor - Chute to  
grain bins



Fifth Floor - Looking south



Fifth Floor - Looking north





Fifth Floor - Operating mechanism to control grain entering the grain bin chutes



Fifth Floor - Bin catwalk and railing





Fifth Floor - Looking down into Bin 5



Fifth Floor - In Bin 5 looking east at stepped wall at bottom of bin

### 3.8 Mechanical Systems



Elements of the conveying system on the sixth floor

#### CATEGORY:

3.8 Mechanical Systems

#### DESCRIPTION:

There are no active mechanical systems in the Grain Elevator. The conveying equipment that remains in the grain elevator, specifically the pulleys that remain in the basement, third, fourth and sixth floors, should be retained where feasible for interpretive purposes.



Elements of the conveying system on the third floor



Large pulley and belt in the Machine Room in the basement



### 3.9 Electrical Systems



Light fixture over the platform over the grain bins

#### CATEGORY:

3.9 Electrical Systems

#### DESCRIPTION:

Electricity was installed at some point, but has been shut off for a number of years. The weatherhead, which brought the power from the overhead lines into the building, extends through the roof in the middle of the north end of the Grain Elevator. The electrical panel remains on the inside face of the north wall.

Electrical wiring and switches are visible throughout the building. Fluorescent fixtures were installed in the north half of the first floor. The light fixtures on floors two through six are all fed from the same electrical line that runs from the first floor up through the fourth floor. The wire is hooked over the stair railing at the stair leading from the third to the fourth floor. Outlet boxes and light switches remain in some locations but most are missing the face plates. There is evidence of the previous knob and tube electrical system in some areas where the porcelain tube elements remain.

There is no evidence that a fire detection system or security alarm system were ever installed.

#### EVALUATION:

An electrical system will be necessary for any reuse option. The electrical elements that remain are outdated so the electrical system will need to be entirely replaced. The amount of light and location of fixtures and outlets should be determined by the reuse plans.

A fire detection system should be installed. A security system may be necessary depending on the final use of the building. The locks on the doors appear to be keeping trespassers out of the building since, aside from graffiti in the Entry room, there is not

RECOMMENDED TREATMENT:

evidence of vandalism inside the building. There is also graffiti on the east side of the building since that side is not visible from the street.

When floor plans for the new use are designed, a lighting plan should be developed that addresses all of the Grain Elevator's new electrical needs including a new electrical panel, wiring, electrical outlets, light switches and fixtures.

When the building is restored, a fire detection system should be installed. If desired by the owner, a security system should be installed.



Weatherhead and electrical meter on the north side of the building





Fluorescent light fixtures in Tower Level 1



Electrical wiring and remainder of previous ceramic electrical system





Wiring leading to the light fixture on the second floor and continuing on to the third floor



Light fixture and wiring in the basement

#### **4.0 Analysis and Compliance**

##### **4.1 Hazardous Material Testing and Information**

Hazardous material testing was conducted by Landmark Environmental Inc. as part of this report. The results of their testing are in the Appendix. When hazardous materials have been identified or are uncovered on a project, General Contractors are required to mitigate or abate these materials using authorized and trained personnel.

For further information about the state regulations in regards to hazardous materials, go to [www.cdphe.state.co.us/op/regs/airregs.asp](http://www.cdphe.state.co.us/op/regs/airregs.asp)

##### **Lead Containing Paint**

Paint samples were tested for lead and it was determined that the building has both lead based paint and lead containing paint, both of which are regulated by the EPA, HUD and OSHA. The paint on the interior window sills was found to be lead based paint with lead concentrations of 7.7%. The exterior paint was found to be lead containing paint with lead levels of 0.008%. See the Landmark Environmental Inc. report for specific recommendations.

Historically, lead was used in paint to improve its durability and colorfast qualities. Lead was incorporated into a broad range of building coatings and paints from the 1800s to the 1970s.

##### **Asbestos Containing Material**

The hazardous material tests determined fourteen samples taken from the Grain Elevator tested negative for asbestos. Two materials sampled were under Colorado regulated limits reported as .25%." Any materials that contain greater than 1% asbestos are regulated by EPA and OSHA.

The EPA National Emissions Standard for Hazardous Air Pollutants (NESHAP) regulation requires that Asbestos Containing Materials be identified prior to demolition and renovation activities. From the 1920s to the 1980s, there were many materials that incorporated asbestos, for its fire and chemical resistive, thermal and high tensile strength properties. Among the most common applications for asbestos were: fireproofing, roofing/flushing materials, exterior coating systems (a paint-like coating that usually has a textured surface), asbestos/cement shingles and exterior wall panels (Transite), roofing shingles and shingle siding, glazing putty at windows, pipe and pipe fitting insulation, vinyl sheet and tile flooring, plaster, construction adhesives, and building insulation.

"Friable" and "non-friable" are the two terms applied to asbestos with "friable" evoking the most concern and the greatest level of care in removal and disposal. "Friable" means that when the material is disturbed in any way, (sawn, moved, removed, cut, etc.) it will introduce asbestos fibers into the air that could be inhaled by unprotected workers and building users. Pipe and building insulation typically fall into this category and therefore require the highest degree of worker protection and controlled handling during the abatement process. It is important to identify all asbestos-containing materials as even non-friable materials may become friable under certain conditions (i.e. if asbestos-containing floor adhesive is sanded).

##### **Summary**

Any proposed restoration or rehabilitation project could reveal additional hazardous materials. Lead containing paint and asbestos can present health risks to building users and construction workers; can trigger both state and federal hazardous material



regulations for control and abatement and can add significant cost to a rehabilitation project.

Once under construction, the General Contractor should be alert to encountering and disturbing any suspicious materials and should stop work immediately if any are encountered.

A word of caution: hazardous material abatement crews are not always sensitive to the issue of preserving historic materials (e.g. scraping lead-based paint may damage the underlying surfaces). Ideally, abatement of historic, character-defining elements can be performed by the General Contractor responsible for the rehabilitation work.

#### **4.2 Material Analysis**

Wood analysis was conducted by Anthony and Associates which determined that Sections 1, 2, 3 and 4 were constructed with Douglas-fir while Section 5 was constructed with a mix of species, including yellow pine and Douglas-fir. Anthony and Associates also tested moisture content measurements and lumber and timber grading. See the Wood Investigation Report in the Appendix for specific results.

#### **4.3 Zoning Code Compliance**

The site is currently zoned Commercial-Business. All of the uses currently being considered are permitted in this zone, except for multi-family residential which is only allowed with a review.

#### **4.4 Building Code Compliance**

A code study is being done as part of the Schematic Design portion of this project.

#### **4.5 Accessibility Compliance**

Currently the building is not accessible. When the building's end use is determined, an accessibility study will need to be performed to determine what is needed to meet ADA requirements. The Schematic Design portion of this project will do preliminary accessibility studies. Where there are issues, the Owner should work out reasonable accommodation with local group(s) who represent disabled citizen interests.



## 5.0 Preservation Plan

### Rating System:

A **Critical Deficiency** of a feature or element exists where:

- There is advanced deterioration that has resulted in failure of the building feature or element or will result in its failure if not corrected within two years, and or
- There is accelerated deterioration of adjacent or related building materials as a result of the feature or element's deficiency, and or
- There is a threat to the health and safety of the user, and or
- There is a failure to meet the legislative requirement.

A **Serious Deficiency** of a feature or element exists where:

- There is deterioration that if not corrected within 2 to 5 years, will result in the failure of the building feature or element, and or
- A threat to the health and or safety of the user may occur within 2 to 5 years if the deterioration is not corrected, and or
- There is deterioration of adjacent or related building materials and or systems as a result of the deficiency of the feature or element.

A **Minor Deficiency** of a feature or element exists where:

- Standard preventative maintenance practices and building conservation methods have not been followed, and or
- There is a reduced life expectancy of affected or related building materials and or systems, and or
- There is a condition with long-term impact beyond 5 years.

## 5.1 Prioritized Work

The phasing plan for the Louisville Grain Elevator was created by evaluating the priorities of the recommended work. The following criteria served as guidelines for determining priority. Typically, critical issues should be addressed in earlier phases to protect the building and address life safety issues while minor issues can be addressed in later phases.

### Critical Deficiency (1 Priority)

1 = Critical: Work that should be performed immediately to mitigate existing life safety issues (including foundation stabilization) and work associated with critical work (e.g. roof replacement.)

### Serious Deficiency (2 Priority)

2 = Serious: Work that should be performed within the next 2-5 years in order to address existing deferred maintenance.

### Minor Deficiency (3 Minor Priority)

3 = Minor: Work that is of a cosmetic nature.

## 5.2 Phasing Plan

Since a large percentage of the recommended work is ranked critical, not all critical work is addressed in Phase I. Phase I work addresses the most critical issues - stabilizing the foundation and the roof. These two steps provide a solid base for the building and prevent water from entering the building and damaging the structure and interior finishes. Phase II addresses the remaining critical work, stabilizing the remaining structural systems, along with the serious work which includes repairing or replacing the exterior siding, so at the end of Phase II the building will be a restored shell. Phase III is the recommended work that is ranked minor and includes interior repairs and restoration of the doors and windows.

The intent of the phased development is to, by the end of Phase III, have a building that is "core/shell" complete and ready for tenant improvements (which would include installing utility lines to the site and system distribution within the building).

**Phase I** = Phase I addresses the most critical issues that need to be repaired to stabilize the building, including the roof structure, roofing, foundation and hazardous material mitigation.

**Phase II** = Phase II includes the remaining critical issues and the serious issues including the remaining structural work and exterior façade repairs.

**Phase III** = Phase III is the remaining recommended work and includes windows, doors and interior finish work.

**Phase IV** = Phase IV is the adaptive reuse of the Grain Elevator.

See the Phasing Spreadsheet for specific phase breakouts.

| Louisville Grain Elevator Historic Structure Assessment - Phasing Plan                                                                                                                                                                                  |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Description                                                                                                                                                                                                                                             | Phase |
| <b>3.1 Site</b>                                                                                                                                                                                                                                         |       |
| Regrade to ensure drainage away from building                                                                                                                                                                                                           | I     |
| Remove berm along west elevation (cut & fill on site)                                                                                                                                                                                                   | I     |
| Install perimeter drain                                                                                                                                                                                                                                 | I     |
| Remove 3 trees (2 on the north & 1 on the east)                                                                                                                                                                                                         | I     |
| <b>3.2 Foundations</b>                                                                                                                                                                                                                                  |       |
| Procure Geotechnical Engineer's Report for site                                                                                                                                                                                                         | I     |
| Excavate around entire perimeter of site to access work                                                                                                                                                                                                 | I     |
| Infill perimeter basement wall to Sections 1, 2, & 3                                                                                                                                                                                                    | I     |
| Concrete                                                                                                                                                                                                                                                | I     |
| Add counterforts & augment perimeter basement footing at Sections 1, 2, & 3                                                                                                                                                                             | I     |
| Add 4 spread footings to Section 3 (below timber posts along grid 3 and grid 4)                                                                                                                                                                         | I     |
| Add 2 square footings to Section 3 (at ends of shear wall along grid 3 to resist overturning forces)                                                                                                                                                    | I     |
| Infill basement pit with flowfil                                                                                                                                                                                                                        | I     |
| Repair deteriorated bin walls below grade, add impervious waterproofing membrane; reinforce wall with PT lumber if required                                                                                                                             | I     |
| Add perimeter basement wall to Section 5                                                                                                                                                                                                                | I     |
| Add strip footing to Section 5                                                                                                                                                                                                                          | I     |
| Allowance for footing augmentation where allowable bearing capacity exceeded or net tension due to shearwall overturning forces                                                                                                                         | I     |
| <b>3.3 Building Structural System</b>                                                                                                                                                                                                                   |       |
| <b>Section 1</b>                                                                                                                                                                                                                                        |       |
| 1st Floor: Remove abandoned stair; re-frame floor around stair opening                                                                                                                                                                                  | II    |
| Roof: Remove roof sheathing; sister rafters, add plywood sheathing                                                                                                                                                                                      | I     |
| <b>Section 2</b>                                                                                                                                                                                                                                        |       |
| 2nd Floor: Remove fire damaged floor joists which have a very low calculated load-carrying capacity. Replace with new more robust joists spanning east-west bearing on exterior walls and on one timber beam spanning north-south across center of bay. | II    |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins                                                                                                                                                    | I     |
| Replace 100% of 2nd floor wall framing due to char damage                                                                                                                                                                                               | II    |
| <b>Section 3</b>                                                                                                                                                                                                                                        |       |
| Add 1 timber post from 3rd floor to basement wall on grid 3 and grid 4 to support 3rd floor timber beams near midspan                                                                                                                                   | II    |
| 6th Floor Mezzanine: Add 2 strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge                                                                                                                                | II    |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins                                                                                                                                                    | I     |
| <b>Section 4</b>                                                                                                                                                                                                                                        |       |
| Wood scientist for one day to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete                                                                                                                    | I     |
| Roof: Remove roof sheathing; leave existing rafters; add rafters @ 24" between existing rafters; enhance connections; strengthen 2 dropped purlins; add plywood sheathing                                                                               | I     |
| <b>Section 5</b>                                                                                                                                                                                                                                        |       |
| 1st Floor: Shore floor to reset dropped girders on new posts on new footings or on new stem wall                                                                                                                                                        | II    |
| Roof: Remove roof sheathing; sister rafters in north bay, add plywood sheathing, add hurricane ties on ends of rafters                                                                                                                                  | I     |
| Roof: Anchor existing ledger on grid 4 to bin wall                                                                                                                                                                                                      | I     |
| Roof: Shore rafters, remove and replace existing overstressed girder with steel beam or equivalent                                                                                                                                                      | I     |
| <b>Sections 1, 2, 3, &amp; 5; Lateral Force Resisting System</b>                                                                                                                                                                                        |       |
| Miscellaneous drag strut and collector elements. Will drag some force into existing bin walls in order to minimize number of new wood shear walls                                                                                                       | II    |



|                                                                                                                                                                                                                                                                                           |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>All Sections, Floor Framing</b>                                                                                                                                                                                                                                                        |     |
| Allowance to remove and replace structural elements affected by fire. Includes damaged elements requiring replacement and structurally acceptable elements to be replaced for aesthetic or odor reasons. (100% of 3rd floor framing, 30% of 4th floor framing, 100% of 6th floor framing) | II  |
| Allowance for miscellaneous structural repairs and unknown conditions                                                                                                                                                                                                                     | I   |
| <b>3.4 Exterior Wall Construction &amp; Envelope</b>                                                                                                                                                                                                                                      |     |
| <b>Structural Recommendations</b>                                                                                                                                                                                                                                                         |     |
| <b>Section 3</b>                                                                                                                                                                                                                                                                          |     |
| Replace existing studs damaged by fire                                                                                                                                                                                                                                                    | II  |
| Add strongbacks to lines 3, A, Z at sixth floor                                                                                                                                                                                                                                           | II  |
| <b>Section 4</b>                                                                                                                                                                                                                                                                          |     |
| Cut small openings in bin walls for needle beam shoring. Shore bin walls, remove deteriorated stacked-plank lumber with demo saw. Tooth in Douglas-Fir 2x6 plies and attach plies with adhesive and toenails from each side. Correct smaller defects with epoxy consolidant               | II  |
| <b>Section 5</b>                                                                                                                                                                                                                                                                          |     |
| Sister tall studs along grids A & Z                                                                                                                                                                                                                                                       | II  |
| <b>Sections 1, 2, 3, &amp; 5; Basement Stud Walls</b>                                                                                                                                                                                                                                     |     |
| Replace deteriorated or damaged interior sills and plates on gridlines 2 and 3                                                                                                                                                                                                            | II  |
| <b>Sections 1, 2, 3, &amp; 5; Lateral Force Resisting System</b>                                                                                                                                                                                                                          |     |
| Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation.                                                                                                                                                          | II  |
|                                                                                                                                                                                                                                                                                           |     |
| <b>Architectural Recommendations</b>                                                                                                                                                                                                                                                      |     |
| Remove and replace wood shiplap siding                                                                                                                                                                                                                                                    | II  |
| Remove and replace wood tongue and groove siding                                                                                                                                                                                                                                          | II  |
| Remove lead containing paint from exterior of building                                                                                                                                                                                                                                    | II  |
| Repaint exterior of building                                                                                                                                                                                                                                                              | II  |
| Repaint historic sign on exterior of building                                                                                                                                                                                                                                             | III |
|                                                                                                                                                                                                                                                                                           |     |
| <b>3.5 Envelope - Roofing &amp; Waterproofing</b>                                                                                                                                                                                                                                         |     |
| Remove current roofing - corrugated sheet metal & asphalt shingles                                                                                                                                                                                                                        | I   |
| Install Berridge corrugated metal roof                                                                                                                                                                                                                                                    | I   |
| Install snow guards on the east and west edges of Sections 2, 3 & 4                                                                                                                                                                                                                       | I   |
|                                                                                                                                                                                                                                                                                           |     |
| <b>3.6 Windows &amp; Doors</b>                                                                                                                                                                                                                                                            |     |
| <b>Restore all windows</b>                                                                                                                                                                                                                                                                | III |
| Reconstruct eight lite double hung wood windows and frames to match original (2'x5')                                                                                                                                                                                                      |     |
| Reconstruct eight lite double hung wood windows to match original - epoxy stabilize existing frames (2'x5')                                                                                                                                                                               |     |
| Reconstruct four lite fixed wood window (approx. 2'x2')                                                                                                                                                                                                                                   |     |
| Reconstruct four lite fixed wood window (approx. 2'x3')                                                                                                                                                                                                                                   |     |
| Reconstruct two lite double hung window (8'x5')                                                                                                                                                                                                                                           |     |
| <b>Restore all doors</b>                                                                                                                                                                                                                                                                  | III |
| Replace 50% of the wood on the sliding doors (6'x7')                                                                                                                                                                                                                                      |     |
| Sand and refinish 4 panel wood doors                                                                                                                                                                                                                                                      |     |
| Replace 50% of the wood boards composing exterior doors (3'x7')                                                                                                                                                                                                                           |     |
| Remove, wire brush and oil all hardware that remains                                                                                                                                                                                                                                      | III |
| Install hardware to match historic                                                                                                                                                                                                                                                        | III |
| New hinges and track for sliding door to match original (2 hinges, 1 overhead track 7' long)                                                                                                                                                                                              | III |
|                                                                                                                                                                                                                                                                                           |     |

|                                                                                                |     |
|------------------------------------------------------------------------------------------------|-----|
| <b>3.7 Interior Finishes</b>                                                                   |     |
| Replace char damaged wood not covered in previous sections                                     | III |
| Replace 100% of floor boards in Sections 1,2,3 & 5 (varies from 1"x6" or 1"x8" or 1 1/2" x 10) | III |
| Remove non-historic stair from 1st to 2nd floor & install new stair                            | II  |
| Reinstall stairs on 2nd - 6th floors after new flooring is installed                           | III |
| Media blast all wood surfaces in the building (optional, not in total)                         | III |
| <b>3.8 Mechanical Systems</b>                                                                  |     |
| NA                                                                                             |     |
| <b>3.9 Electrical Systems</b>                                                                  |     |
| NA                                                                                             |     |

### 5.3 Cost Estimate

#### Cost Estimating

This assessment document is a first step in determining the means and methods for the successful rehabilitation and restoration of the Louisville Grain Elevator. This report is not a substitute for a complete design and engineering process wherein rehabilitation needs are more rigorously examined, design and engineering is engaged, construction issues are coordinated and a set of construction documents (plans and specifications) is developed. This report is not intended to be the document from which repairs are actually affected or final costs are established. The Owner is urged to take this further (design and engineering) step, prior to applying for actual "bricks and mortar" funding.

Since the Architect has no control over the cost of labor, materials, equipment, the contractor's method of determining prices, or market conditions, opinions of probable costs, as provided herein, are made on the basis of our experience and qualifications and represent our best judgment as design professionals familiar with the rehabilitation/construction industry. The Architect cannot and does not guarantee that proposals, bids or the construction costs will not vary from opinions of probable costs prepared for the Owner.

This pricing represents aggregate work performed in 2011. A 4% minimum annual inflation factor for each year should be added to work performed in subsequent years. Please note that breaking the cost estimate into smaller component parts will result in a loss of any economy of scale and will increase both design and construction cost percentages. The Opinion of Probable Cost was compiled from general field approximations of both quantities and quality and was estimated by a General Contractor with years of experience in the rehabilitation of historic buildings of similar size and complexity.

#### General Contractor Fees for General Conditions, Overhead, and Profit

The allowance for general conditions provide for the General Contractor's overhead, profit, and contingencies. General Contractor overhead includes indirect costs such as permits, Workers' Compensation, insurances and supervision. Owner Contingency (for construction) provides for unforeseen construction difficulties, which include material shortages, weather delays and unforeseen conditions.

#### Abbreviations

|     |                   |
|-----|-------------------|
| LS  | lump sum          |
| SF  | square feet       |
| LF  | linear feet       |
| EA  | each              |
| CF  | cubic feet        |
| CLF | cubic linear feet |



| Louisville Grain Elevator Historic Structure Assessment                                                                                                                                                                                                 |          |        |              |              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|--------------|--------------|
| Description                                                                                                                                                                                                                                             | Quantity | Unit   | Unit Price   | Total        |
| <b>3.1 Site</b>                                                                                                                                                                                                                                         |          |        |              |              |
| Regrade to ensure drainage away from building                                                                                                                                                                                                           | 211      | CY     | \$ 6.00      | \$ 1,266.00  |
| Remove berm along west elevation (cut & fill on site)                                                                                                                                                                                                   | 50       | CY     | \$ 6.00      | \$ 300.00    |
| Install perimeter drain                                                                                                                                                                                                                                 | 250      | LF     | \$ 21.00     | \$ 5,250.00  |
| Remove 3 trees (2 on the north & 1 on the east)                                                                                                                                                                                                         | 3        | EACH   | \$ 250.00    | \$ 750.00    |
| <b>3.2 Foundations</b>                                                                                                                                                                                                                                  |          |        |              |              |
| Procure Geotechnical Engineer's Report for site                                                                                                                                                                                                         | 1        | LS     | \$ 2,500.00  | \$ 2,500.00  |
| Excavate around entire perimeter of site to access work                                                                                                                                                                                                 | 628      | CY     | \$ 8.00      | \$ 5,024.00  |
| Infill perimeter basement wall to Sections 1, 2, & 3                                                                                                                                                                                                    | 33       | CY     | \$ 750.00    | \$ 24,750.00 |
| Concrete                                                                                                                                                                                                                                                | 14       | CY     | \$ 750.00    | \$ 10,500.00 |
| Add counterforts & augment perimeter basement footing at Sections 1, 2, & 3                                                                                                                                                                             | 5        | CY     | \$ 2,670.00  | \$ 13,350.00 |
| Add 4 spread footings to Section 3 (below timber posts along grid 3 and grid 4)                                                                                                                                                                         | 1        | CY     | \$ 850.00    | \$ 850.00    |
| Add 2 square footings to Section 3 (at ends of shear wall along grid 3 to resist overturning forces)                                                                                                                                                    | 1        | CY     | \$ 850.00    | \$ 850.00    |
| Infill basement pit with flowfill                                                                                                                                                                                                                       | 17       | CY     | \$ 150.00    | \$ 2,550.00  |
| Repair deteriorated bin walls below grade, add impervious waterproofing membrane; reinforce wall with PT lumber if required                                                                                                                             | 17       | CY     | \$ 750.00    | \$ 12,750.00 |
| Add perimeter basement wall to Section 5                                                                                                                                                                                                                | 9        | CY     | \$ 850.00    | \$ 7,650.00  |
| Add strip footing to Section 5                                                                                                                                                                                                                          | above    | CY     | above        | above        |
| Allowance for footing augmentation where allowable bearing capacity exceeded or net tension due to shearwall overturning forces                                                                                                                         | 1        | LS     | \$ 15,000.00 | \$ 15,000.00 |
| <b>3.3 Building Structural System</b>                                                                                                                                                                                                                   |          |        |              |              |
| <b>Section 1</b>                                                                                                                                                                                                                                        |          |        |              |              |
| 1st Floor: Remove abandoned stair; re-frame floor around stair opening                                                                                                                                                                                  | 15       | SF     | \$ 25.00     | \$ 375.00    |
| Roof: Remove roof sheathing; sister rafters, add plywood sheathing                                                                                                                                                                                      | 370      | SF     | \$ 15.00     | \$ 5,550.00  |
| <b>Section 2</b>                                                                                                                                                                                                                                        |          |        |              |              |
| 2nd Floor: Remove fire damaged floor joists which have a very low calculated load-carrying capacity. Replace with new more robust joists spanning east-west bearing on exterior walls and on one timber beam spanning north-south across center of bay. | 400      | SF     | \$ 20.00     | \$ 8,000.00  |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins                                                                                                                                                    | 660      | SF     | \$ 20.00     | \$ 13,200.00 |
| Replace 100% of 2nd floor wall framing due to char damage                                                                                                                                                                                               | 1375     | SF     | \$ 6.00      | \$ 8,250.00  |
| <b>Section 3</b>                                                                                                                                                                                                                                        |          |        |              |              |
| Add 1 timber post from 3rd floor to basement wall on grid 3 and grid 4 to support 3rd floor timber beams near midspan                                                                                                                                   | 19       | LF     | \$ 30.00     | \$ 570.00    |
| 6th Floor Mezzanine: Add 2 strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge                                                                                                                                | 20       | LF     | \$ 30.00     | \$ 600.00    |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins                                                                                                                                                    | 750      | SF     | \$ 20.00     | \$ 15,000.00 |
| <b>Section 4</b>                                                                                                                                                                                                                                        |          |        |              |              |
| Wood scientist for one day to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete                                                                                                                    | 1        | LS     | \$ 1,500.00  | \$ 1,500.00  |
| Roof: Remove roof sheathing; leave existing rafters; add rafters @ 24" between existing rafters; enhance connections; strengthen 2 dropped purlins; add plywood sheathing                                                                               | 1330     | SF     | \$ 20.00     | \$ 26,600.00 |
| <b>Section 5</b>                                                                                                                                                                                                                                        |          |        |              |              |
| 1st Floor: Shore floor to reset dropped girders on new posts on new footings or on new stem wall                                                                                                                                                        | 3        | Places | \$ 1,000.00  | \$ 3,000.00  |
| Roof: Remove roof sheathing; sister rafters in north bay, add plywood sheathing, add hurricane ties on ends of rafters                                                                                                                                  | 935      | SF     | \$ 20.00     | \$ 18,700.00 |
| Roof: Anchor existing ledger on grid 4 to bin wall                                                                                                                                                                                                      | 30       | LF     | \$ 10.00     | \$ 300.00    |
| Roof: Shore rafters, remove and replace existing overstressed girder with steel beam or equivalent                                                                                                                                                      | 28       | LF     | \$ 101.25    | \$ 2,835.00  |
| <b>Sections 1, 2, 3, &amp; 5; Lateral Force Resisting System</b>                                                                                                                                                                                        |          |        |              |              |
| Miscellaneous drag strut and collector elements. Will drag some force into existing bin walls in order to minimize number of new wood shear walls                                                                                                       | 1        | LS     | \$ 1,000.00  | \$ 1,000.00  |

|                                                                                                                                                                                                                                                                                           |      |         |              |              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|--------------|--------------|
| <b>All Sections, Floor Framing</b>                                                                                                                                                                                                                                                        |      |         |              |              |
| Allowance to remove and replace structural elements affected by fire. Includes damaged elements requiring replacement and structurally acceptable elements to be replaced for aesthetic or odor reasons. (100% of 3rd floor framing, 30% of 4th floor framing, 100% of 6th floor framing) | 525  | SF      | \$ 25.00     | \$ 13,125.00 |
| Allowance for miscellaneous structural repairs and unknown conditions                                                                                                                                                                                                                     | 1    | LS      | \$ 15,000.00 | \$ 15,000.00 |
| <b>3.4 Exterior Wall Construction &amp; Envelope</b>                                                                                                                                                                                                                                      |      |         |              |              |
| <b>Structural Recommendations</b>                                                                                                                                                                                                                                                         |      |         |              |              |
| <b>Section 3</b>                                                                                                                                                                                                                                                                          |      |         |              |              |
| Replace existing studs damaged by fire                                                                                                                                                                                                                                                    | 80   | EACH    | \$ 18.00     | \$ 1,440.00  |
| Add strongbacks to lines 3, A, Z at sixth floor                                                                                                                                                                                                                                           | 50   | LF      | \$ 80.00     | \$ 4,000.00  |
| <b>Section 4</b>                                                                                                                                                                                                                                                                          |      |         |              |              |
| Cut small openings in bin walls for needle beam shoring. Shore bin walls, remove deteriorated stacked-plank lumber with demo saw. Tooth in Douglas-Fir 2x6 plies and attach plies with adhesive and toenails from each side. Correct smaller defects with epoxy consolidant               | 3    | EACH    | \$ 5,163.33  | \$ 15,490.00 |
| <b>Section 5</b>                                                                                                                                                                                                                                                                          |      |         |              |              |
| Sister tall studs along grids A & Z                                                                                                                                                                                                                                                       | 16   | EACH    | \$ 18.00     | \$ 288.00    |
| <b>Sections 1, 2, 3, &amp; 5; Basement Stud Walls</b>                                                                                                                                                                                                                                     |      |         |              |              |
| Replace deteriorated or damaged interior sills and plates on gridlines 2 and 3                                                                                                                                                                                                            | 12   | LF      | \$ 35.00     | \$ 420.00    |
| <b>Sections 1, 2, 3, &amp; 5; Lateral Force Resisting System</b>                                                                                                                                                                                                                          |      |         |              |              |
| Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation.                                                                                                                                                          | 1166 | SF      | \$ 3.00      | \$ 3,498.00  |
| <b>Architectural Recommendations</b>                                                                                                                                                                                                                                                      |      |         |              |              |
| Remove and replace wood shiplap siding                                                                                                                                                                                                                                                    | 920  | SF      | \$ 8.00      | \$ 7,360.00  |
| Remove and replace wood tongue and groove siding                                                                                                                                                                                                                                          | 2100 | SF      | \$ 8.00      | \$ 16,800.00 |
| Remove lead containing paint from exterior of building                                                                                                                                                                                                                                    | 6482 | SF      | \$ 2.00      | \$ 12,964.00 |
| Repaint exterior of building                                                                                                                                                                                                                                                              | 6482 | SF      | \$ 1.50      | \$ 9,723.00  |
| Repaint historic sign on exterior of building                                                                                                                                                                                                                                             | 550  | SF      | \$ 8.00      | \$ 4,400.00  |
| <b>3.5 Envelope - Roofing &amp; Waterproofing</b>                                                                                                                                                                                                                                         |      |         |              |              |
| Remove current roofing - corrugated sheet metal & asphalt shingles                                                                                                                                                                                                                        | 3880 | SF      | \$ 1.00      | \$ 3,880.00  |
| Install Berridge corrugated metal roof                                                                                                                                                                                                                                                    | 3880 | SF      | \$ 4.00      | \$ 15,520.00 |
| Install snow guards on the east and west edges of Sections 2, 3 & 4                                                                                                                                                                                                                       | 120  | LF      | \$ 15.00     | \$ 1,800.00  |
| <b>3.6 Windows &amp; Doors</b>                                                                                                                                                                                                                                                            |      |         |              |              |
| <b>Restore all windows</b>                                                                                                                                                                                                                                                                |      |         |              |              |
| Reconstruct eight lite double hung wood windows and frames to match original (2'x5')                                                                                                                                                                                                      | 6    | windows | \$ 900.00    | \$ 5,400.00  |
| Reconstruct eight lite double hung wood windows to match original - epoxy stabilize existing frames (2'x5')                                                                                                                                                                               | 3    | windows | \$ 900.00    | \$ 2,700.00  |
| Reconstruct four lite fixed wood window (approx. 2'x2')                                                                                                                                                                                                                                   | 1    | window  | \$ 360.00    | \$ 360.00    |
| Reconstruct four lite fixed wood window (approx. 2'x3')                                                                                                                                                                                                                                   | 2    | windows | \$ 540.00    | \$ 1,080.00  |
| Reconstruct two lite double hung window (8"x5')                                                                                                                                                                                                                                           | 1    | window  | \$ 350.00    | \$ 350.00    |
| <b>Restore all doors</b>                                                                                                                                                                                                                                                                  |      |         |              |              |
| Replace 50% of the wood on the sliding doors (6'x7')                                                                                                                                                                                                                                      | 3    | doors   | \$ 945.00    | \$ 2,835.00  |
| Sand and refinish 4 panel wood doors                                                                                                                                                                                                                                                      | 2    | doors   | \$ 250.00    | \$ 500.00    |
| Replace 50% of the wood boards composing exterior doors (3'x7')                                                                                                                                                                                                                           | 4    | doors   | \$ 472.50    | \$ 1,890.00  |
| Remove, wire brush and oil all hardware that remains                                                                                                                                                                                                                                      | 3    | sets    | \$ 85.00     | \$ 255.00    |
| Install hardware to match historic                                                                                                                                                                                                                                                        | 3    | sets    | \$ 235.00    | \$ 705.00    |
| New hinges and track for sliding door to match original (2 hinges, 1 overhead track 7' long)                                                                                                                                                                                              | 3    | sets    | \$ 700.00    | \$ 2,100.00  |



|                                                                                                 |       |          |              |                                                         |
|-------------------------------------------------------------------------------------------------|-------|----------|--------------|---------------------------------------------------------|
| <b>3.7 Interior Finishes</b>                                                                    |       |          |              |                                                         |
| Replace char damaged wood not covered in previous sections                                      | 1     | lump sum | \$ 25,000.00 | \$ 25,000.00                                            |
| Replace 100% of floor boards in Sections 1,2,3 & 5 (varies from 1"x6" or 1"x8" or 1 1/2" x 10)  | 3286  | SF       | \$ 4.00      | \$ 13,144.00                                            |
| Remove non-historic stair from 1st to 2nd floor & install new stair                             | 1     | lump sum | \$ 1,500.00  | \$ 1,500.00                                             |
| Reinstall stairs on 2nd - 6th floors after new flooring is installed                            | 4     | sets     | \$ 500.00    | \$ 2,000.00                                             |
| Media blast all wood surfaces in the building (optional, not in total)                          | 24372 | SF       | \$ 2.50      | \$ 60,930.00                                            |
| <b>3.8 Mechanical Systems</b>                                                                   |       |          |              |                                                         |
| NA                                                                                              |       |          |              |                                                         |
| <b>3.9 Electrical Systems</b>                                                                   |       |          |              |                                                         |
| NA                                                                                              |       |          |              |                                                         |
| <b>General Conditions</b>                                                                       |       |          |              |                                                         |
| Assumed 90 Day Duration                                                                         | 3     | MO       | \$ 15,000.00 | \$ 45,000.00                                            |
| <b>Subtotal Hard Construction Costs</b>                                                         |       |          |              | <b>\$ 439,347.00</b>                                    |
|                                                                                                 |       |          |              | Bond (1.5%) \$ 6,590.21                                 |
|                                                                                                 |       |          |              | Builder's Risk Insurance \$ 1,318.04                    |
|                                                                                                 |       |          |              | Permits & Plan Review \$ 6,590.21                       |
| <b>Subtotal Construction Costs</b>                                                              |       |          |              | <b>\$ 453,845.45</b>                                    |
|                                                                                                 |       |          |              | Contractor Overhead & Profit (15%) \$ 68,076.82         |
| <b>Subtotal</b>                                                                                 |       |          |              | <b>\$ 521,922.27</b>                                    |
|                                                                                                 |       |          |              | Contingency (during design) - 5% \$ 26,096.11           |
| <b>Subtotal</b>                                                                                 |       |          |              | <b>\$ 548,018.38</b>                                    |
|                                                                                                 |       |          |              | A&E fees (10%) \$ 54,801.84                             |
| <b>Subtotal</b>                                                                                 |       |          |              | <b>\$ 602,820.22</b>                                    |
|                                                                                                 |       |          |              | Owner Contingency (for construction) - 10% \$ 60,282.02 |
| <b>Total Construction Costs</b>                                                                 |       |          |              | <b>\$ 663,102.24</b>                                    |
| Hazardous material mitigation - plan development and mitigation work per report in HSA Appendix |       |          |              | \$ 21,281.25                                            |
| <b>Total Costs</b>                                                                              |       |          |              | <b>\$ 684,383.49</b>                                    |



Phase I

| Louisville Grain Elevator Historic Structure Assessment - Phase I                                                                                                         |          |      |              |              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------|--------------|--------------|
| Description                                                                                                                                                               | Quantity | Unit | Unit Price   | Total        |
| <b>3.1 Site</b>                                                                                                                                                           |          |      |              |              |
| Regrade to ensure drainage away from building                                                                                                                             | 211      | CY   | \$ 6.00      | \$ 1,266.00  |
| Remove berm along west elevation (cut & fill on site)                                                                                                                     | 50       | CY   | \$ 6.00      | \$ 300.00    |
| Install perimeter drain                                                                                                                                                   | 250      | LF   | \$ 21.00     | \$ 5,250.00  |
| Remove 3 trees (2 on the north & 1 on the east)                                                                                                                           | 3        | EACH | \$ 250.00    | \$ 750.00    |
| <b>3.2 Foundations</b>                                                                                                                                                    |          |      |              |              |
| Procure Geotechnical Engineer's Report for site                                                                                                                           | 1        | LS   | \$ 2,500.00  | \$ 2,500.00  |
| Excavate around entire perimeter of site to access work                                                                                                                   | 628      | CY   | \$ 8.00      | \$ 5,024.00  |
| Infill perimeter basement wall to Sections 1, 2, & 3                                                                                                                      | 33       | CY   | \$ 750.00    | \$ 24,750.00 |
| Concrete                                                                                                                                                                  | 14       | CY   | \$ 750.00    | \$ 10,500.00 |
| Add counterforts & augment perimeter basement footing at Sections 1, 2, & 3                                                                                               | 5        | CY   | \$ 2,670.00  | \$ 13,350.00 |
| Add 4 spread footings to Section 3 (below timber posts along grid 3 and grid 4)                                                                                           | 1        | CY   | \$ 850.00    | \$ 850.00    |
| Add 2 square footings to Section 3 (at ends of shear wall along grid 3 to resist overturning forces)                                                                      | 1        | CY   | \$ 850.00    | \$ 850.00    |
| Infill basement pit with flowfill                                                                                                                                         | 17       | CY   | \$ 150.00    | \$ 2,550.00  |
| Repair deteriorated bin walls below grade, add impervious waterproofing membrane; reinforce wall with PT lumber if required                                               | 17       | CY   | \$ 750.00    | \$ 12,750.00 |
| Add perimeter basement wall to Section 5                                                                                                                                  | 9        | CY   | \$ 850.00    | \$ 7,650.00  |
| Add strip footing to Section 5                                                                                                                                            | above    | CY   | above        | above        |
| Allowance for footing augmentation where allowable bearing capacity exceeded or net tension due to shearwall overturning forces                                           | 1        | LS   | \$ 15,000.00 | \$ 15,000.00 |
| <b>3.3 Building Structural System</b>                                                                                                                                     |          |      |              |              |
| <b>Section 1</b>                                                                                                                                                          |          |      |              |              |
| Roof: Remove roof sheathing; sister rafters, add plywood sheathing                                                                                                        | 370      | SF   | \$ 15.00     | \$ 5,550.00  |
| <b>Section 2</b>                                                                                                                                                          |          |      |              |              |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins                                                                      | 660      | SF   | \$ 20.00     | \$ 13,200.00 |
| <b>Section 3</b>                                                                                                                                                          |          |      |              |              |
| Roof: Remove roof sheathing, rafters, and 2 dropped purlins; Add new sheathing, rafters, and purlins                                                                      | 750      | SF   | \$ 20.00     | \$ 15,000.00 |
| <b>Section 4</b>                                                                                                                                                          |          |      |              |              |
| Wood scientist for one day to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete                                      | 1        | LS   | \$ 1,500.00  | \$ 1,500.00  |
| Roof: Remove roof sheathing; leave existing rafters; add rafters @ 24" between existing rafters; enhance connections; strengthen 2 dropped purlins; add plywood sheathing | 1330     | SF   | \$ 20.00     | \$ 26,600.00 |
| <b>Section 5</b>                                                                                                                                                          |          |      |              |              |
| Roof: Remove roof sheathing; sister rafters in north bay, add plywood sheathing, add hurricane ties on ends of rafters                                                    | 935      | SF   | \$ 20.00     | \$ 18,700.00 |
| Roof: Anchor existing ledger on grid 4 to bin wall                                                                                                                        | 30       | LF   | \$ 10.00     | \$ 300.00    |
| Roof: Shore rafters, remove and replace existing overstressed girder with steel beam or equivalent                                                                        | 28       | LF   | \$ 101.25    | \$ 2,835.00  |
| <b>All Sections, Floor Framing</b>                                                                                                                                        |          |      |              |              |
| Allowance for miscellaneous structural repairs and unknown conditions                                                                                                     | 1        | LS   | \$ 15,000.00 | \$ 15,000.00 |
| <b>3.4 Exterior Wall Construction &amp; Envelope</b>                                                                                                                      |          |      |              |              |
| <b>Structural Recommendations</b>                                                                                                                                         |          |      |              |              |
| NA                                                                                                                                                                        |          |      |              |              |
| <b>Architectural Recommendations</b>                                                                                                                                      |          |      |              |              |
| NA                                                                                                                                                                        |          |      |              |              |

Phase I

|                                                                                                 |      |    |                                            |                      |
|-------------------------------------------------------------------------------------------------|------|----|--------------------------------------------|----------------------|
| <b>3.5 Envelope - Roofing &amp; Waterproofing</b>                                               |      |    |                                            |                      |
| Remove current roofing - corrugated sheet metal & asphalt shingles                              | 3880 | SF | \$ 1.00                                    | \$ 3,880.00          |
| Install Berridge corrugated metal roof                                                          | 3880 | SF | \$ 4.00                                    | \$ 15,520.00         |
| Install snow guards on the east and west edges of Sections 2, 3 & 4                             | 120  | LF | \$ 15.00                                   | \$ 1,800.00          |
| <b>3.6 Windows &amp; Doors</b>                                                                  |      |    |                                            |                      |
| NA                                                                                              |      |    |                                            |                      |
| <b>3.7 Interior Finishes</b>                                                                    |      |    |                                            |                      |
|                                                                                                 |      |    |                                            |                      |
| <b>3.8 Mechanical Systems</b>                                                                   |      |    |                                            |                      |
| NA                                                                                              |      |    |                                            |                      |
| <b>3.9 Electrical Systems</b>                                                                   |      |    |                                            |                      |
| NA                                                                                              |      |    |                                            |                      |
| <b>General Conditions</b>                                                                       |      |    |                                            |                      |
| Assumed 90 Day Duration                                                                         | 2    | MO | \$ 15,000.00                               | \$ 30,000.00         |
| <b>Subtotal Hard Construction Costs</b>                                                         |      |    |                                            | <b>\$ 253,225.00</b> |
|                                                                                                 |      |    | Bond (1.5%)                                | \$ 3,798.38          |
|                                                                                                 |      |    | Builder's Risk Insurance                   | \$ 759.68            |
|                                                                                                 |      |    | Permits & Plan Review                      | \$ 3,798.38          |
| <b>Subtotal Construction Costs</b>                                                              |      |    |                                            | <b>\$ 261,581.43</b> |
|                                                                                                 |      |    | Contractor Overhead & Profit (15%)         | \$ 39,237.21         |
| <b>Subtotal</b>                                                                                 |      |    |                                            | <b>\$ 300,818.64</b> |
|                                                                                                 |      |    | Contingency (during design) - 5%           | \$ 15,040.93         |
| <b>Subtotal</b>                                                                                 |      |    |                                            | <b>\$ 315,859.57</b> |
|                                                                                                 |      |    | A&E fees (10%)                             | \$ 31,585.96         |
| <b>Subtotal</b>                                                                                 |      |    |                                            | <b>\$ 347,445.53</b> |
|                                                                                                 |      |    | Owner Contingency (for construction) - 10% | \$ 34,744.55         |
| <b>Total Construction Costs</b>                                                                 |      |    |                                            | <b>\$ 382,190.08</b> |
| Hazardous material mitigation - plan development and mitigation work per report in HSA Appendix |      |    |                                            | \$ 21,281.25         |
| <b>Phase I Total Costs</b>                                                                      |      |    |                                            | <b>\$ 403,471.33</b> |

Phase II

| Louisville Grain Elevator Historic Structure Assessment - Phase II                                                                                                                                                                                                                        |          |        |             |              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|-------------|--------------|
| Description                                                                                                                                                                                                                                                                               | Quantity | Unit   | Unit Price  | Total        |
| <b>3.1 Site</b>                                                                                                                                                                                                                                                                           |          |        |             |              |
| NA                                                                                                                                                                                                                                                                                        |          |        |             |              |
| <b>3.2 Foundations</b>                                                                                                                                                                                                                                                                    |          |        |             |              |
| NA                                                                                                                                                                                                                                                                                        |          |        |             |              |
| <b>3.3 Building Structural System</b>                                                                                                                                                                                                                                                     |          |        |             |              |
| <b>Section 1</b>                                                                                                                                                                                                                                                                          |          |        |             |              |
| 1st Floor: Remove abandoned stair; re-frame floor around stair opening                                                                                                                                                                                                                    | 15       | SF     | \$ 25.00    | \$ 375.00    |
| <b>Section 2</b>                                                                                                                                                                                                                                                                          |          |        |             |              |
| 2nd Floor: Remove fire damaged floor joists which have a very low calculated load-carrying capacity. Replace with new more robust joists spanning east-west bearing on exterior walls and on one timber beam spanning north-south across center of bay.                                   | 400      | SF     | \$ 20.00    | \$ 8,000.00  |
| Replace 100% of 2nd floor wall framing due to char damage                                                                                                                                                                                                                                 | 1375     | SF     | \$ 6.00     | \$ 8,250.00  |
| <b>Section 3</b>                                                                                                                                                                                                                                                                          |          |        |             |              |
| Add 1 timber post from 3rd floor to basement wall on grid 3 and grid 4 to support 3rd floor timber beams near midspan                                                                                                                                                                     | 19       | LF     | \$ 30.00    | \$ 570.00    |
| 6th Floor Mezzanine: Add 2 strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge                                                                                                                                                                  | 20       | LF     | \$ 30.00    | \$ 600.00    |
| <b>Section 4</b>                                                                                                                                                                                                                                                                          |          |        |             |              |
| <b>Section 5</b>                                                                                                                                                                                                                                                                          |          |        |             |              |
| 1st Floor: Shore floor to reset dropped girders on new posts on new footings or on new stem wall                                                                                                                                                                                          | 3        | Places | \$ 1,000.00 | \$ 3,000.00  |
| <b>Sections 1, 2, 3, &amp; 5; Lateral Force Resisting System</b>                                                                                                                                                                                                                          |          |        |             |              |
| Miscellaneous drag strut and collector elements. Will drag some force into existing bin walls in order to minimize number of new wood shear walls                                                                                                                                         | 1        | LS     | \$ 1,000.00 | \$ 1,000.00  |
| <b>All Sections, Floor Framing</b>                                                                                                                                                                                                                                                        |          |        |             |              |
| Allowance to remove and replace structural elements affected by fire. Includes damaged elements requiring replacement and structurally acceptable elements to be replaced for aesthetic or odor reasons. (100% of 3rd floor framing, 30% of 4th floor framing, 100% of 6th floor framing) | 525      | SF     | \$ 25.00    | \$ 13,125.00 |
| <b>3.4 Exterior Wall Construction &amp; Envelope</b>                                                                                                                                                                                                                                      |          |        |             |              |
| <b>Structural Recommendations</b>                                                                                                                                                                                                                                                         |          |        |             |              |
| <b>Section 3</b>                                                                                                                                                                                                                                                                          |          |        |             |              |
| Replace existing studs damaged by fire                                                                                                                                                                                                                                                    | 80       | EACH   | \$ 18.00    | \$ 1,440.00  |
| Add strongbacks to lines 3, A, Z at sixth floor                                                                                                                                                                                                                                           | 50       | LF     | \$ 80.00    | \$ 4,000.00  |
| <b>Section 4</b>                                                                                                                                                                                                                                                                          |          |        |             |              |
| Cut small openings in bin walls for needle beam shoring. Shore bin walls, remove deteriorated stacked-plank lumber with demo saw. Tooth in Douglas-Fir 2x6 plies and attach plies with adhesive and toenails from each side. Correct smaller defects with epoxy consolidant               | 3        | EACH   | \$ 5,163.33 | \$ 15,490.00 |
| <b>Section 5</b>                                                                                                                                                                                                                                                                          |          |        |             |              |
| Sister tall studs along grids A & Z                                                                                                                                                                                                                                                       | 16       | EACH   | \$ 18.00    | \$ 288.00    |
| <b>Sections 1, 2, 3, &amp; 5; Basement Stud Walls</b>                                                                                                                                                                                                                                     |          |        |             |              |
| Replace deteriorated or damaged interior sills and plates on gridlines 2 and 3                                                                                                                                                                                                            | 12       | LF     | \$ 35.00    | \$ 420.00    |
| <b>Sections 1, 2, 3, &amp; 5; Lateral Force Resisting System</b>                                                                                                                                                                                                                          |          |        |             |              |
| Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation.                                                                                                                                                          | 1166     | SF     | \$ 3.00     | \$ 3,498.00  |
| <b>Architectural Recommendations</b>                                                                                                                                                                                                                                                      |          |        |             |              |
| Remove and replace wood shiplap siding                                                                                                                                                                                                                                                    | 920      | SF     | \$ 8.00     | \$ 7,360.00  |
| Remove and replace wood tongue and groove siding                                                                                                                                                                                                                                          | 2100     | SF     | \$ 8.00     | \$ 16,800.00 |
| Remove lead containing paint from exterior of building                                                                                                                                                                                                                                    | 6482     | SF     | \$ 2.00     | \$ 12,964.00 |
| Repaint exterior of building                                                                                                                                                                                                                                                              | 6482     | SF     | \$ 1.50     | \$ 9,723.00  |



Phase II

|                                                                     |     |          |                                            |               |
|---------------------------------------------------------------------|-----|----------|--------------------------------------------|---------------|
| <b>3.5 Envelope - Roofing &amp; Waterproofing</b>                   |     |          |                                            |               |
| NA                                                                  |     |          |                                            |               |
| <b>3.6 Windows &amp; Doors</b>                                      |     |          |                                            |               |
| NA                                                                  |     |          |                                            |               |
| <b>3.7 Interior Finishes</b>                                        |     |          |                                            |               |
| Remove non-historic stair from 1st to 2nd floor & install new stair | 1   | lump sum | \$ 1,500.00                                | \$ 1,500.00   |
| <b>3.8 Mechanical Systems</b>                                       |     |          |                                            |               |
| NA                                                                  |     |          |                                            |               |
| <b>3.9 Electrical Systems</b>                                       |     |          |                                            |               |
| NA                                                                  |     |          |                                            |               |
| <b>General Conditions</b>                                           |     |          |                                            |               |
| Assumed 90 Day Duration                                             | 1.5 | MO       | \$ 15,000.00                               | \$ 22,500.00  |
| <b>Subtotal Hard Construction Costs</b>                             |     |          |                                            | \$ 130,903.00 |
|                                                                     |     |          | Bond (1.5%)                                | \$ 1,963.55   |
|                                                                     |     |          | Builder's Risk Insurance                   | \$ 392.71     |
|                                                                     |     |          | Permits & Plan Review                      | \$ 1,963.55   |
| <b>Subtotal Construction Costs</b>                                  |     |          |                                            | \$ 135,222.80 |
|                                                                     |     |          | Re-mobilization cost (10%)                 | \$ 13,522.28  |
| <b>Subtotal</b>                                                     |     |          |                                            | \$ 148,745.08 |
|                                                                     |     |          | Contractor Overhead & Profit (15%)         | \$ 22,311.76  |
| <b>Subtotal</b>                                                     |     |          |                                            | \$ 171,056.84 |
|                                                                     |     |          | Contingency (during design) - 5%           | \$ 8,552.84   |
| <b>Subtotal</b>                                                     |     |          |                                            | \$ 179,609.68 |
|                                                                     |     |          | A&E fees (10%)                             | \$ 17,960.97  |
| <b>Subtotal</b>                                                     |     |          |                                            | \$ 197,570.65 |
|                                                                     |     |          | Owner Contingency (for construction) - 10% | \$ 19,757.07  |
| <b>Phase II Total Construction Costs</b>                            |     |          |                                            | \$ 217,327.72 |

Phase III

| Louisville Grain Elevator Historic Structure Assessment - Phase III                                         |          |          |                                            |                      |
|-------------------------------------------------------------------------------------------------------------|----------|----------|--------------------------------------------|----------------------|
| Description                                                                                                 | Quantity | Unit     | Unit Price                                 | Total                |
| <b>3.1 Site</b>                                                                                             |          |          |                                            |                      |
| NA                                                                                                          |          |          |                                            |                      |
| <b>3.2 Foundations</b>                                                                                      |          |          |                                            |                      |
| NA                                                                                                          |          |          |                                            |                      |
| <b>3.3 Building Structural System</b>                                                                       |          |          |                                            |                      |
| <b>3.4 Exterior Wall Construction &amp; Envelope</b>                                                        |          |          |                                            |                      |
| <b>Architectural Recommendations</b>                                                                        |          |          |                                            |                      |
| Repaint historic sign on exterior of building                                                               | 550      | SF       | \$ 8.00                                    | \$ 4,400.00          |
| <b>3.5 Envelope - Roofing &amp; Waterproofing</b>                                                           |          |          |                                            |                      |
| NA                                                                                                          |          |          |                                            |                      |
| <b>3.6 Windows &amp; Doors</b>                                                                              |          |          |                                            |                      |
| Restore all windows                                                                                         |          |          |                                            |                      |
| Reconstruct eight lite double hung wood windows and frames to match original (2'x5')                        | 6        | windows  | \$ 900.00                                  | \$ 5,400.00          |
| Reconstruct eight lite double hung wood windows to match original - epoxy stabilize existing frames (2'x5') | 3        | windows  | \$ 900.00                                  | \$ 2,700.00          |
| Reconstruct four lite fixed wood window (approx. 2'x2')                                                     | 1        | window   | \$ 360.00                                  | \$ 360.00            |
| Reconstruct four lite fixed wood window (approx. 2'x3')                                                     | 2        | windows  | \$ 540.00                                  | \$ 1,080.00          |
| Reconstruct two lite double hung window (8"x5')                                                             | 1        | window   | \$ 350.00                                  | \$ 350.00            |
| Restore all doors                                                                                           |          |          |                                            |                      |
| Replace 50% of the wood on the sliding doors (6'x7')                                                        | 3        | doors    | \$ 945.00                                  | \$ 2,835.00          |
| Sand and refinish 4 panel wood doors                                                                        | 2        | doors    | \$ 250.00                                  | \$ 500.00            |
| Replace 50% of the wood boards composing exterior doors (3'x7')                                             | 4        | doors    | \$ 472.50                                  | \$ 1,890.00          |
| Remove, wire brush and oil all hardware that remains                                                        | 3        | sets     | \$ 85.00                                   | \$ 255.00            |
| Install hardware to match historic                                                                          | 3        | sets     | \$ 235.00                                  | \$ 705.00            |
| New hinges and track for sliding door to match original (2 hinges, 1 overhead track 7' long)                | 3        | sets     | \$ 700.00                                  | \$ 2,100.00          |
| <b>3.7 Interior Finishes</b>                                                                                |          |          |                                            |                      |
| Replace char damaged wood not covered in previous sections                                                  | 1        | lump sum | \$ 25,000.00                               | \$ 25,000.00         |
| Replace 100% of floor boards in Sections 1,2,3 & 5 (varies from 1"x6" or 1"x8" or 1 1/2" x 10)              | 3286     | SF       | \$ 4.00                                    | \$ 13,144.00         |
| Reinstall stairs on 2nd - 6th floors after new flooring is installed                                        | 4        | sets     | \$ 500.00                                  | \$ 2,000.00          |
| Media blast all wood surfaces in the building (optional, not in total)                                      | 24372    | SF       | \$ 2.50                                    | \$ 60,930.00         |
| <b>3.8 Mechanical Systems</b>                                                                               |          |          |                                            |                      |
| NA                                                                                                          |          |          |                                            |                      |
| <b>3.9 Electrical Systems</b>                                                                               |          |          |                                            |                      |
| NA                                                                                                          |          |          |                                            |                      |
| <b>General Conditions</b>                                                                                   |          |          |                                            |                      |
| Assumed 90 Day Duration                                                                                     | 1        | MO       | \$ 15,000.00                               | \$ 15,000.00         |
| <b>Subtotal Hard Construction Costs</b>                                                                     |          |          |                                            | <b>\$ 77,719.00</b>  |
|                                                                                                             |          |          | Bond (1.5%)                                | \$ 1,165.79          |
|                                                                                                             |          |          | Builder's Risk Insurance                   | \$ 233.16            |
|                                                                                                             |          |          | Permits & Plan Review                      | \$ 1,165.79          |
| <b>Subtotal Construction Costs</b>                                                                          |          |          |                                            | <b>\$ 80,283.73</b>  |
|                                                                                                             |          |          | Re-mobilization cost (10%)                 | \$ 8,028.37          |
| <b>Subtotal</b>                                                                                             |          |          |                                            | <b>\$ 88,312.10</b>  |
|                                                                                                             |          |          | Contractor Overhead & Profit (15%)         | \$ 13,246.81         |
| <b>Subtotal</b>                                                                                             |          |          |                                            | <b>\$ 101,558.91</b> |
|                                                                                                             |          |          | Contingency (during design) - 5%           | \$ 5,077.95          |
| <b>Subtotal</b>                                                                                             |          |          |                                            | <b>\$ 106,636.86</b> |
|                                                                                                             |          |          | A&E fees (10%)                             | \$ 10,663.69         |
| <b>Subtotal</b>                                                                                             |          |          |                                            | <b>\$ 117,300.55</b> |
|                                                                                                             |          |          | Owner Contingency (for construction) - 10% | \$ 11,730.05         |
| <b>Phase III Total Construction Costs</b>                                                                   |          |          |                                            | <b>\$ 129,030.60</b> |

## 6.0 Historic Photos



"Louisville: Louisville M. & E. Company" date unknown.  
*Carnegie Branch Library for Local History, Boulder Historical Society Collection*





"Louisville: Louisville M. & E. Company" date unknown.  
*Carnegie Branch Library for Local History, Boulder Historical Society Collection*



Photo of the Grain Elevator, 2/8/1914.  
*Courtesy of the RFP from the City of Louisville*

## 7.0 Bibliography

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## 8.0 Appendix

- Floor Plans, Elevations and Section
- 1908 Sanborn Map
- Land Survey
- Wood Scientist Report
- Hazardous Materials Report
- National Register Nomination Form
- Colorado Cultural Resource Survey



Anderson Hallas  
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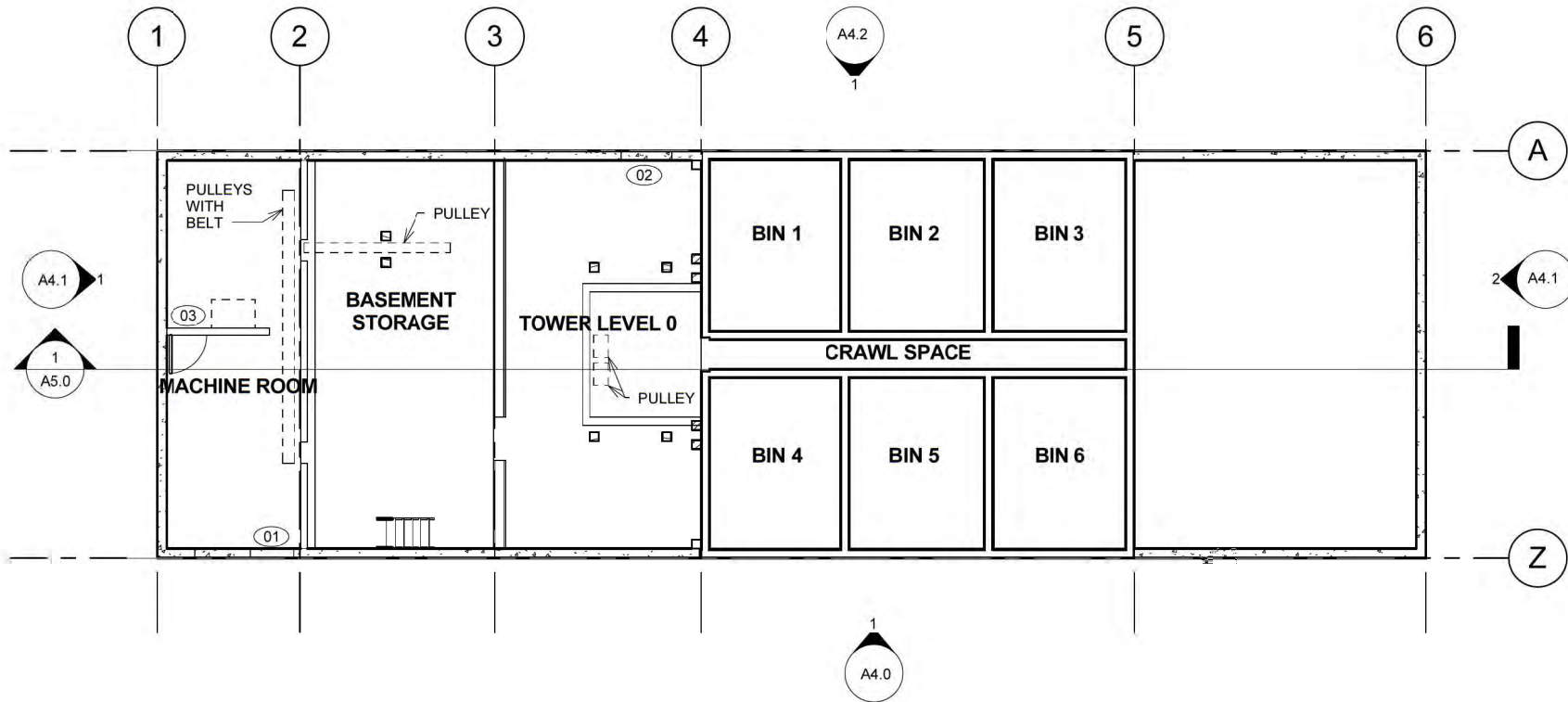
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Louisville, Colorado

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Project Number 2011100  
Issue HSA  
Date 05/02/2011  
Drawn by KAC/AFC  
Checked by NAA  
Scale 1/8" = 1'-0"

Basement Floor  
Plan

**A1.0**



**1 BASEMENT**  
1/8" = 1'-0"





## A1.1







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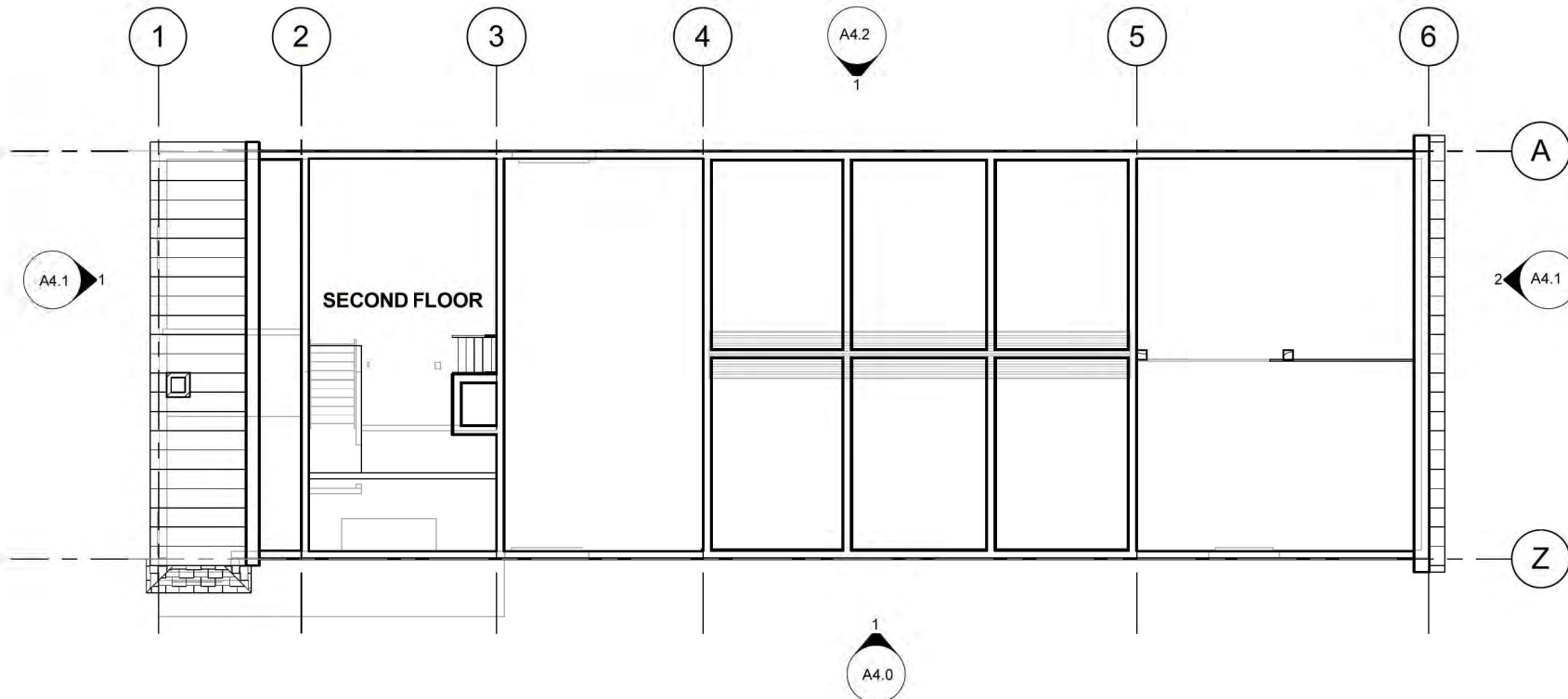
Louisville Grain Elevator  
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Project Number 2011100  
Issue HSA  
Date 05/02/2011  
Drawn by KAC/AFC  
Checked by NAA  
Scale 1/8" = 1'-0"

Second Floor Plan

A1.2



1 SECOND FLOOR  
1/8" = 1'-0"

[illegible]

|                |              |
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| Project Number | 2011100      |
| Issue          | HSA          |
| Date           | 05/02/2011   |
| Drawn by       | KAC/AFC      |
| Checked by     | NAA          |
| Scale          | 1/8" = 1'-0" |

### Third Floor Plan

### A1.3



**1 THIRD FLOOR**  
1/8" = 1'-0"

[illegible]

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| Project Number | 2011100      |
| Issue          | HSA          |
| Date           | 05/02/2011   |
| Drawn by       | KAC/AFC      |
| Checked by     | NAA          |
| Scale          | 1/8" = 1'-0" |

### Fourth Floor Plan

**1 FOURTH FLOOR**  
1/8" = 1'-0"







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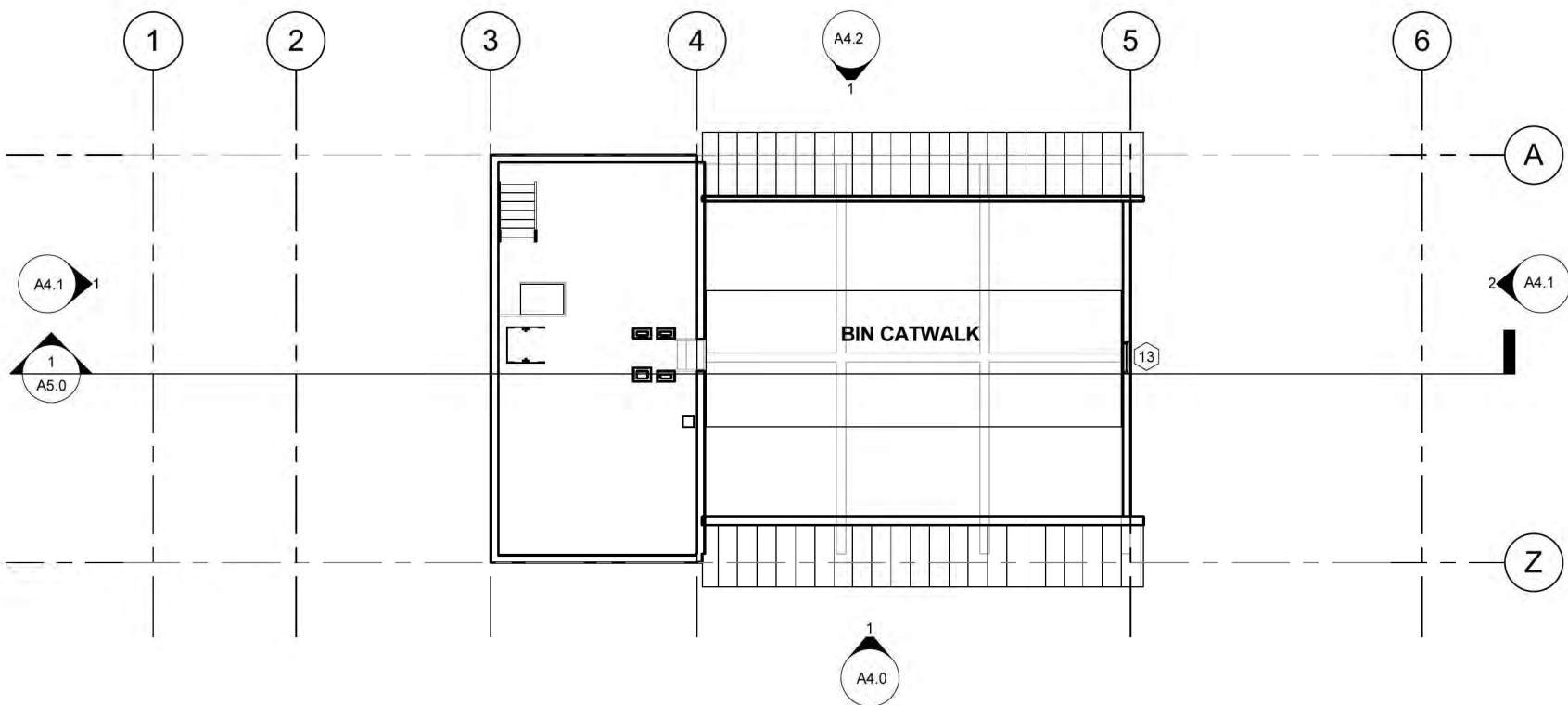
Louisville Grain Elevator  
Louisville, Colorado

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Project Number 2011100  
Issue HSA  
Date 05/02/2011  
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Scale 1/8" = 1'-0"

Fifth Floor Plan

A1.5



1 FIFTH FLOOR  
1/8" = 1'-0"



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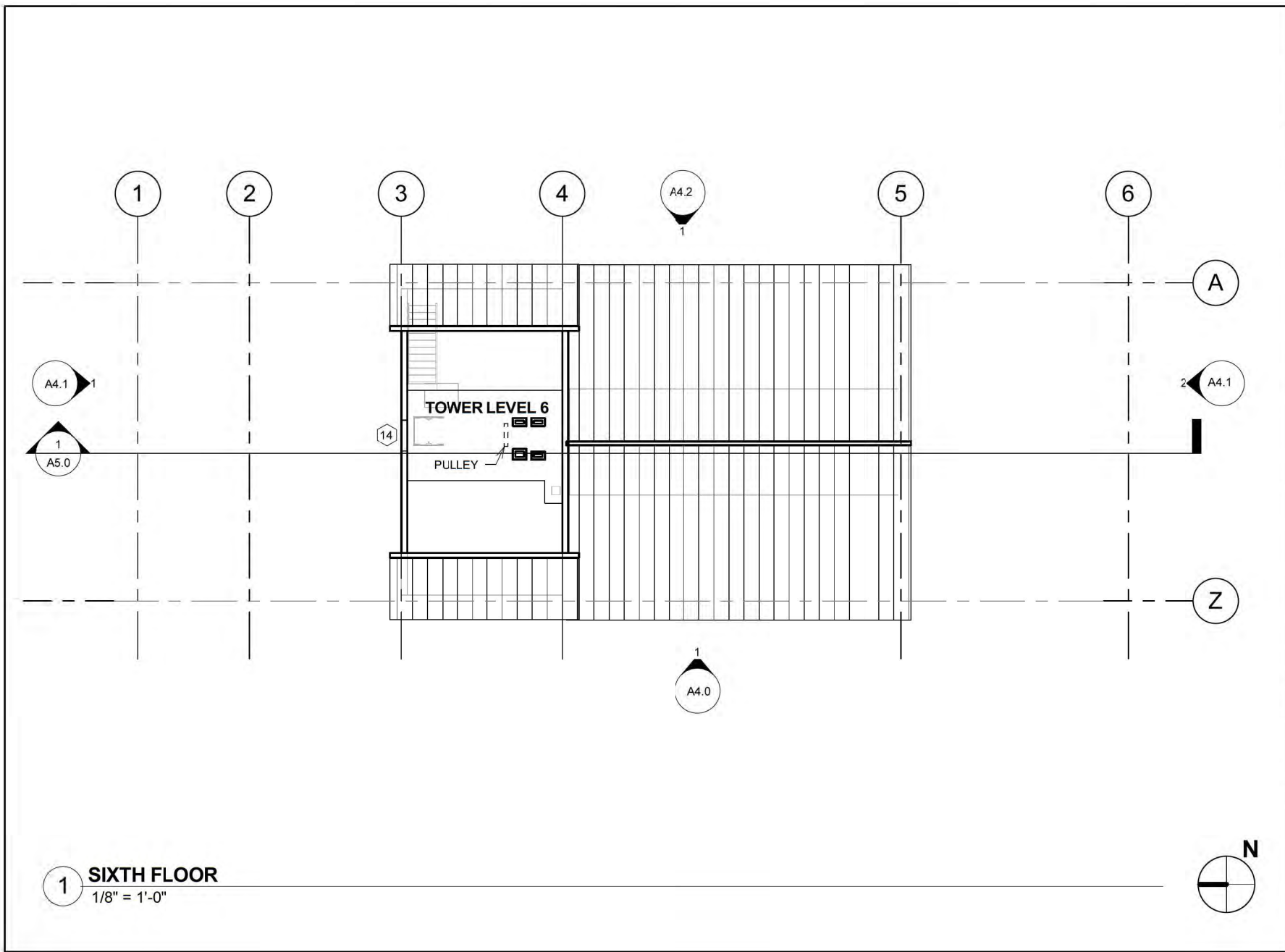
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Louisville, Colorado

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Project Number 2011100  
Issue HSA  
Date 05/02/2011  
Drawn by KAC/AFC  
Checked by NAA  
Scale 1/8" = 1'-0"

Sixth Floor Plan

A1.6



1 SIXTH FLOOR  
1/8" = 1'-0"



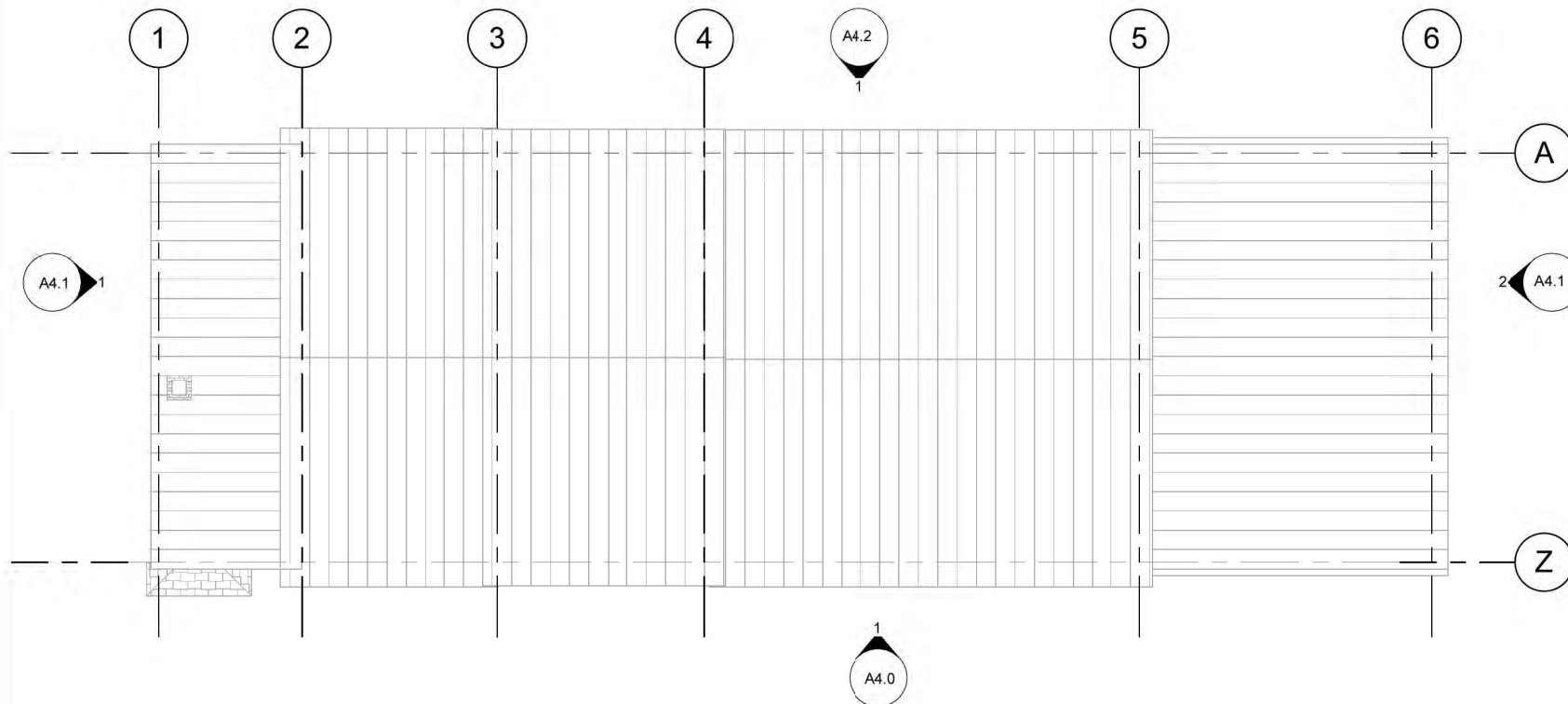
Louisville Grain Elevator  
-  
Louisville, Colorado

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|       |              |
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| Scale | 1/8" = 1'-0" |
|-------|--------------|

Roof Plan

## A1.7



**1 ROOF**  
1/8" = 1'-0"





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[illegible]

Scale  $1/8" = 1'-0"$

## A4.0


$$1/8'' = 1'-0''$$



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## Louisville Grain Elevator

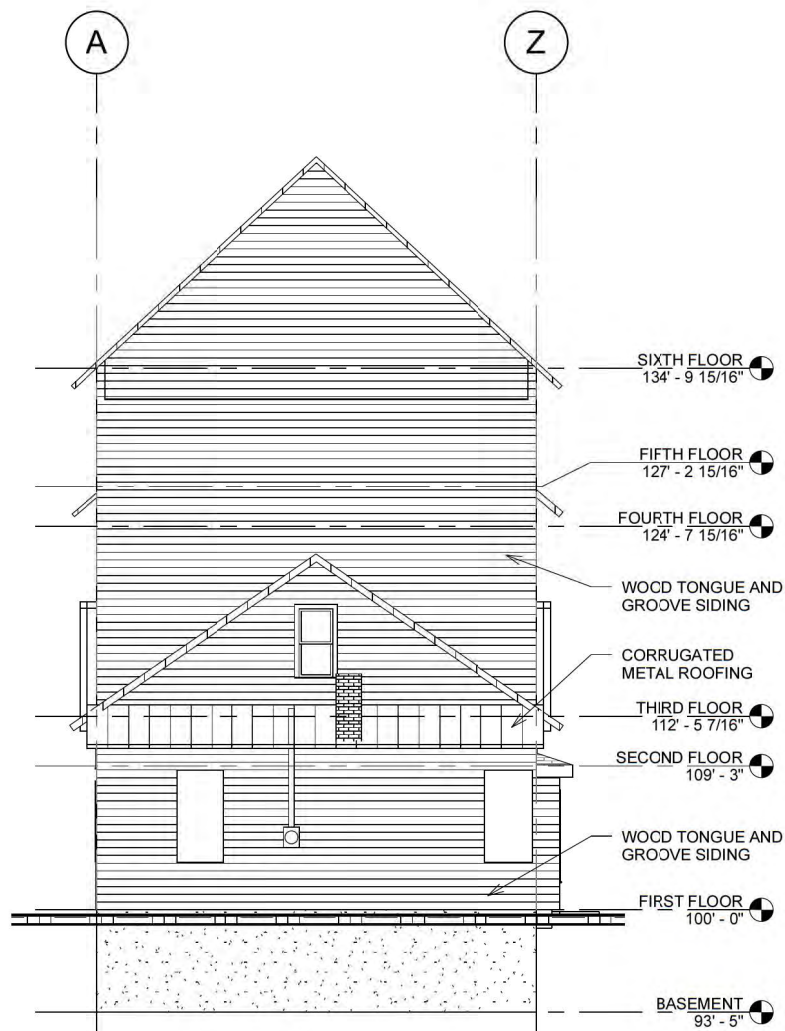
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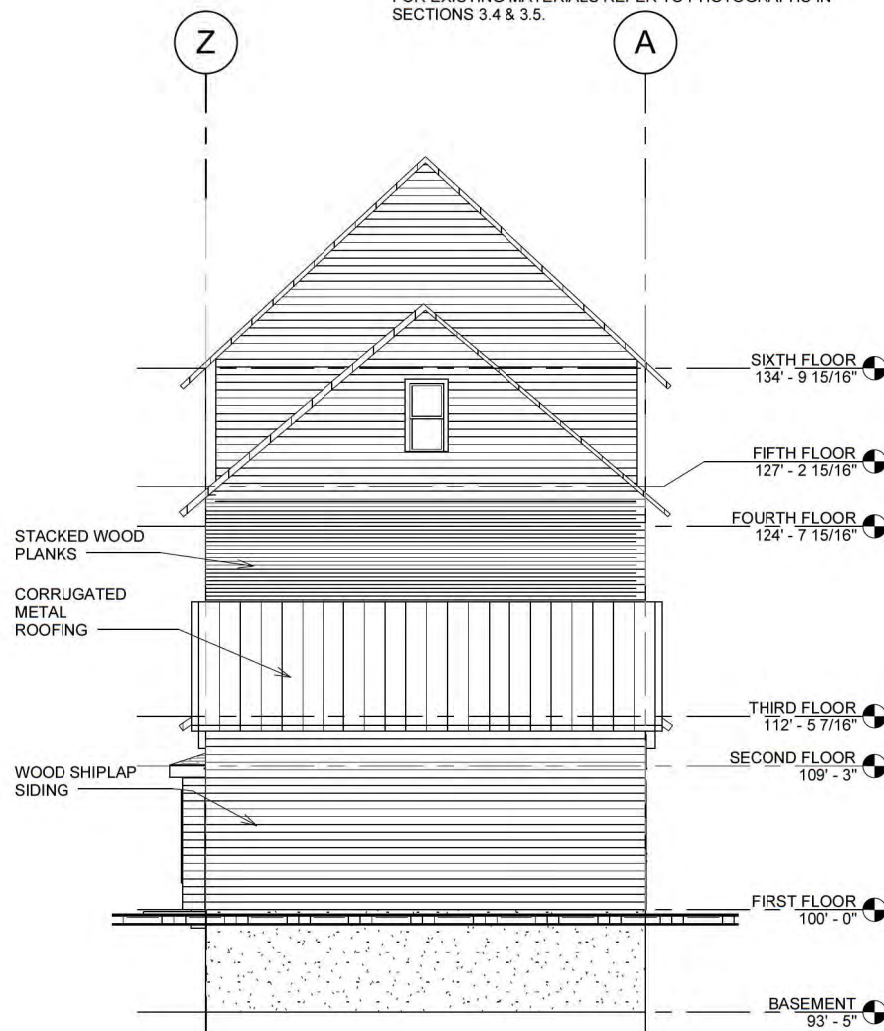
Exterior Elevation -  
North and South

## A4.1

ELEVATIONS SHOW PROPOSED MATERIALS AFTER PHASE II WORK IS COMPLETED, NOT ALL MATERIALS ARE EXISTING. FOR EXISTING MATERIALS REFER TO PHOTOGRAPHS IN SECTIONS 3.4 & 3.5.



1 NORTH ELEVATION  
1/8" = 1'-0"



**2 SOUTH ELEVATION**  
1/8" = 1'-0"

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[illegible]

### Exterior Elevation - East

Architectural section drawing of a building, showing five sections (1 to 5) and six floors (Basement to Sixth Floor). The drawing includes various materials and structural details.

**Materials and Details:**

- CORRUGATED METAL ROOFING
- WOOD PLANK FASCIA
- WOOD TONGUE AND GROOVE SIDING
- STACKED WOOD PLANKS
- WOOD SHIPLAP SIDING

**Floor Levels and Dimensions:**

- SIXTH FLOOR: 134' - 9 15/16"
- FIFTH FLOOR: 127' - 2 15/16"
- FOURTH FLOOR: 124' - 7 15/16"
- THIRD FLOOR: 112' - 5 7/16"
- SECOND FLOOR: 109' - 3"
- FIRST FLOOR: 100' - 0"
- BASEMENT: 93' - 5"

**Sections:**

- SECTION 5
- SECTION 4
- SECTION 3
- SECTION 2
- SECTION 1

1

$$1/8'' = 1'-0''$$





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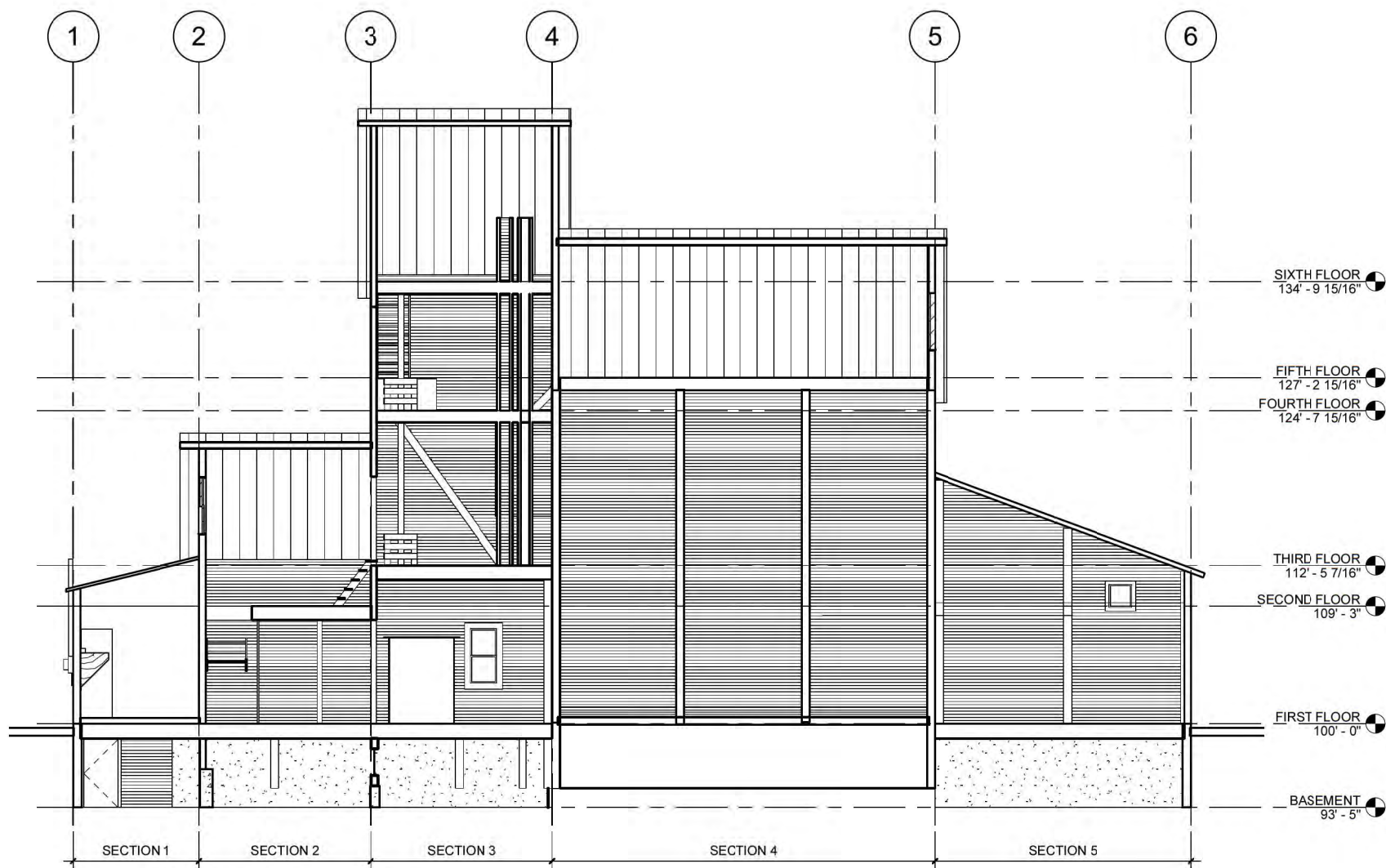
# Louisville Grain Elevator

Louisville, Colorado

| No.            | Description  | Date |
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| Project Number | 2011100      |      |
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| Checked by     | NAA          |      |
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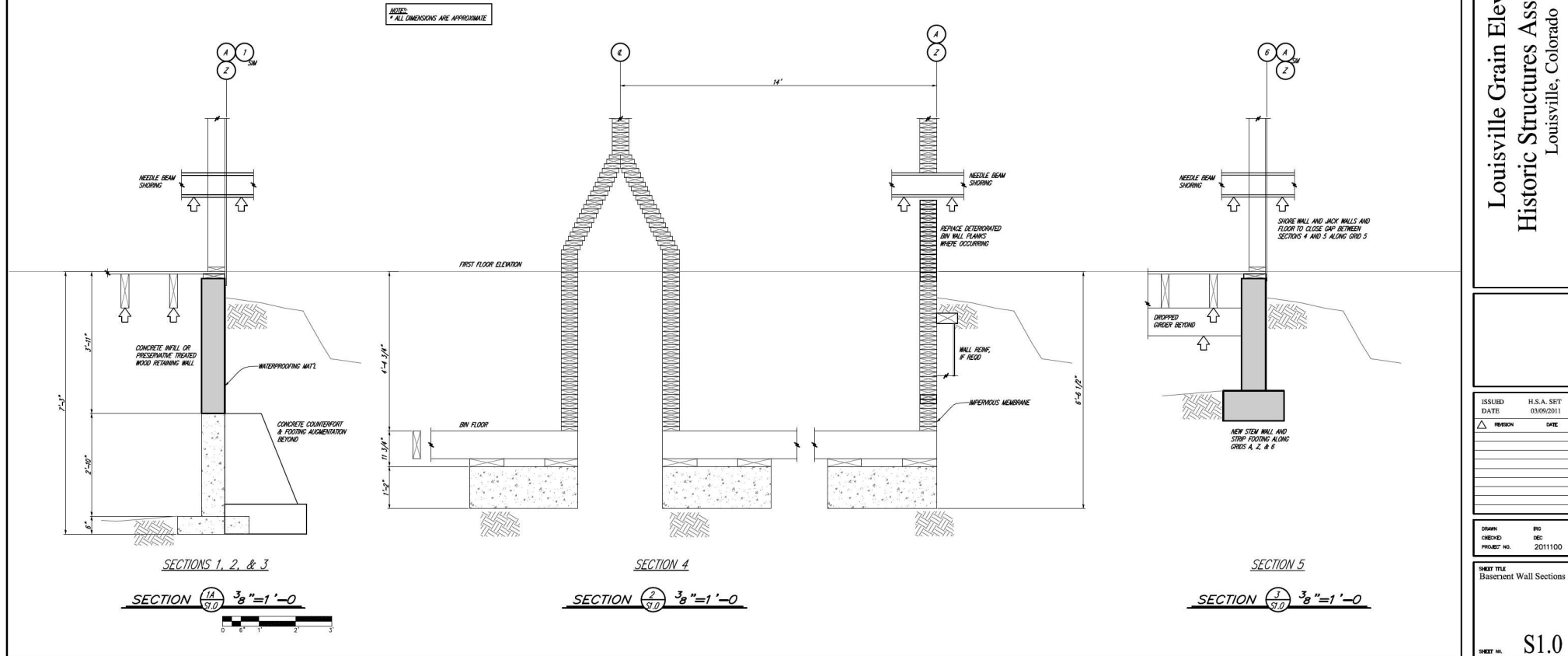
Building Section

## A5.0



**1 LONGITUDINAL SECTION**  
1/8" = 1'-0"

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Louisville Grain Elevator  
Historic Structures Assessment  
Louisville, Colorado

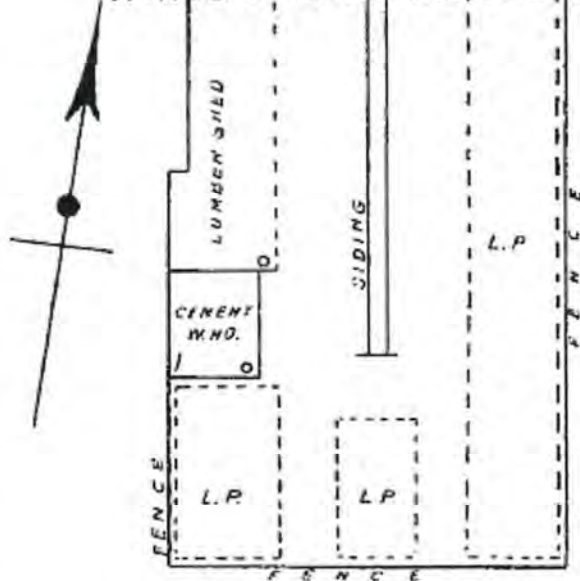
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SHEET TITLE  
Basement Wall Sections

1908 Sanborn Map - courtesy of the City of Louisville and the Louisville Historical Museum

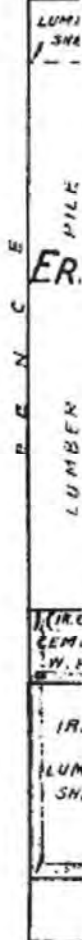
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COLORADO & SOUTHERN R.R.

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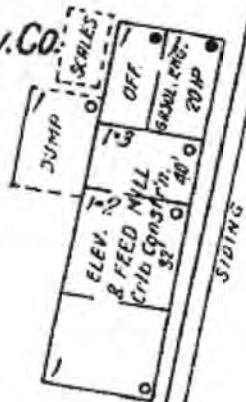
COLORADO & SOUTHERN R.R.



Located 1/4 Mile S.E. of P.O.  
NO EXPOSURE ANY SIDE

**LOUISVILLE MILLING & ELEV. CO.**

ELEV. & FEED MILL BUILT 1903.  
CAPCY: 25000 BUSH.  
NO WATCHMAN - NO LIGHTS -  
POWER: GASOL. ENG. - HEAT: STOVE -  
WELL WATER - MACHINERY:  
1 FEED ROLL - 1 CLEANER -  
ELEV. & FEED MILL OF CRIB CONSTR. -



Located 1/4 Mile N.E.  
NO EXPOSURE ANY SIDE

Located 1 Mile N.E. of P.O.  
NO EXPOSURE ANY SIDE

**NORTHERN COAL & COKE CO.**

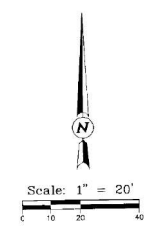
**REX No 2 MINE.**

HEAT: STEAM - LIGHTS: LAMPS &  
LANTERNS - WATER FROM MINE  
DERNE S.F.P. (7 1/2" x 4 1/2" x 10") WITH  
100' 2 1/2" HOSE ATT'D. - TWO 4 GAL.  
CHEMICAL FIRE EXTGRS.

**HECLA M.**

HEAT: STEAM - LIGHTS:  
LANTERNS - WATER  
1 SNOW PUMP (5 1/2" x 3")  
HOSE ATT'D. -





*Report:*

**Wood Investigation of the Louisville Grain Elevator,  
Louisville, Colorado**



*Submitted to:*

Andrews & Anderson Architecture, PC  
715 Fourteenth Street  
Golden, Colorado, 80401

*Submitted by:*

Anthony & Associates, Inc.  
P.O. Box 271400  
Fort Collins, CO 80527-1400

February 17, 2011

# **Wood Investigation of the Louisville Grain Elevator, Louisville, Colorado**

## **BACKGROUND**

The Louisville Grain Elevator, located just south of downtown Louisville, Colorado, was constructed in 1903 by the Louisville Milling and Elevator Company. The grain elevator served area farmers until its closure in the 1950s. The building's name was changed to the Denver Elevator in the early 1950s and it was acquired by the Thomas family in the 1960s. The Louisville Grain Elevator (the Building), which is still privately owned, has remained vacant since it ceased operation. It was listed as the Denver Elevator in 1984 in the National Register of Historic Places.

The Building has a rectangular footprint and is oriented on an approximate north-south axis. It is constructed of a combination of dimension lumber, large timbers, and stacked plank construction.

The City of Louisville is interested in developing an adaptive reuse plan for the Building. There are concerns regarding the condition of the structural wood elements. There is evidence of fire damage within the interior levels of the Building, and the extent of any deterioration caused by wood decay fungi and/or insects is unknown. The species and grade of the structural wood elements is also unknown, which is necessary for establishing capacities of the existing framing elements.

Anthony & Associates, Inc. was contracted to conduct a wood investigation of the structural wood elements within the Building, as well as determine the species and/or species group of key structural members of concern to the architect and engineer. *The scope of this investigation is intended to provide insight about the general condition of the wood throughout the Building, not serve as a comprehensive survey of all wood elements.* This report summarizes our findings and provides the preservation architect and structural engineer with information for developing a plan for potential uses of the Building.

## **SCOPE OF WORK**

As noted above, the species, condition and structural grade of the timbers and structural lumber within the Building were unknown. A wood investigation, summarized in this report, was conducted to provide information on the general



condition of the wood throughout the Building. The scope of work included the following tasks:

- Removing 3-6 wood species samples to identify the wood species or wood species groups for a few structural elements such as columns, joists, and roof framing.
- Identifying, via a walk-through inspection, locations in the Building that have potential insect, mold, or decay damage.
- Taking moisture content measurements of a representative sample of structural wood elements to determine whether conditions in the Building are favorable for deterioration of the wood.
- Conducting limited resistance drilling in suspect locations to determine the extent of decay or insect damage.
- Commenting on the *likely* allowable structural grade(s) of the wood elements.

## **NOMENCLATURE**

The Louisville grain elevator is comprised of five sections. The sections were described in a 2000 Colorado Resource Survey as (from north to south) the Office, the Elevator, the Elevator Tower, the Grain Bins, and the Warehouse. The current survey team relabeled each section with a simple numbering scheme (Sections 1 through 5, from north to south) and added room names that reference the function of the interior spaces. Section 1 is a single story and includes the Machine Room in the basement and the Entry and Office rooms on the first floor. Section 2 is two stories with a basement and includes the Basement Storage Room, the Corridor and Back Room on the first floor, and the Second Floor Room. Section 3 comprises the tallest section of the Building and contains several rooms, including Tower Level 0, Tower Level 1, Tower Level 3 with Chutes 1 through 4, Tower Level 4, and Tower Level 6. Six grain bins comprise Section 4. The grain bins are numbered 1 through 6 and extend from the basement level to the Bin Catwalk on the fifth floor. Section 5 is comprised of the Storage Room on the south end of the Building. References to conditions, species sample locations, and resistance drilling locations in this report are by section, floor or level, and room name, as well as by the grid lines established by the architects, where possible. Figures A1 and A2 in the appendix include section and room names as established by the 2011 survey team.

## **FIELD PROCEDURES**

Anthony & Associates, Inc. provided a wood scientist and a wood specialist to conduct an investigation of wood elements in the Louisville Grain Elevator on January 20, 2011. The investigation was based on a combination of visual inspection and probing, species identification, moisture content determination, and decay quantification. These methods are described below. Results of the investigation can be used to draft a preservation plan and establish repair priorities for the Building.

### **Species Identification**

The Building makes extensive use of heavy timber, framing lumber, and boards. Identifying wood species, along with determining the structural grade, makes it possible to determine design properties for conducting a structural analysis and to identify compatible material for repairs. Wood species were identified by removing small samples throughout the Building from which the species or species group was identified under microscopic examination (Figure 1). In consultation with the structural engineer, 10 samples were removed from the Building to identify species of key structural wood elements to aid in developing historical documentation, conducting structural analysis, and specifying repairs.



**Figure 1.** Removing a sample for species identification from a built-up beam, Section 5, Storage Room.

### **Visual Inspection and Probing**

Visual examination of the wood allows for identifying components that are missing, broken, or in an advanced state of deterioration. Missing components are those which have been removed or have fallen away because of deterioration, structural failure, or vandalism. If missing components were intended to provide structural support or protection from the elements (e.g., to prevent



moisture intrusion), their replacement may be essential to prevent long-term damage to the structure. Visual inspection also allows for the detection of past or current moisture problems, as evidenced by moisture stains on the exposed surface of the wood. Further, visual inspection enables detection of external wood decay fungi or insect activity as determined by the presence of decay fruiting bodies, fungal growth, insect bore holes or wood substance removed by wood-destroying insects.

Internal decay and insect damage are often difficult to detect due to the lack of evidence on the exposed surface of the wood. Probing the wood with an awl enables rapid detection of voids in the wood that may not be visible on the surface. It can also indicate the approximate depth of any deterioration that is visible on the surface. Visual inspection and probing provides a rapid means of identifying areas that may need further investigation. Based on input from the preservation architects and structural engineers, several accessible areas of the Building were visually inspected for evidence of moisture intrusion and deterioration caused by wood decay fungi, insects, and fire damage.

### **Moisture Determination**

Prolonged exposure to moisture can produce undesirable conditions and long-term maintenance issues for wood in a structure. Excessive shrinkage or swelling, checking, and loose connections are typical problems. Moisture content measurements can also identify wood with favorable moisture levels for the growth of wood-decay fungi. Generally, if the moisture content is less than 20 percent wood-decay fungi are unable to grow. While fungi may be present at lower moisture contents they are unable to continue to deteriorate the wood without sufficient moisture. Moisture contents from 20 to 30 percent indicate areas of concern where sufficient moisture is present for fungi to grow but not sufficient to indicate advanced decay. Moisture contents above 30 percent are often an indication of advanced decay with internal voids and / or surface deterioration. Limited moisture diagnostics were conducted within the basement and roof framing of the Building to determine whether further investigation of moisture intrusion issues is warranted.

### **Lumber and Timber Grading**

Lumber and structural timbers used in new construction are intended to comply with the relevant building code for that jurisdiction. For wood construction, structural engineers rely on design values referenced in the building code to determine an acceptable species, size, and grade for a particular load condition. The design values given in the building code for solid wood products are established by the American Forest & Paper Association and published as the



*National Design Specification for Wood Construction*.<sup>1</sup> The published design values are based on test data and procedures published by the American Society for Testing and Materials (ASTM) that demonstrate the engineering performance of the material.<sup>2</sup> Wood products are graded in accordance with procedures promulgated by one of several forest products industry associations, such as the Western Wood Products Association (WWPA).<sup>3</sup>

For existing buildings the engineer often relies on available species and current standards to determine the adequacy of the wood elements to remain in service. Since many older buildings were built before building codes or design values for wood products were established (and, thus, before grade stamps were used), engineers are often in a quandary when determining what design values are appropriate. Frequently an assumed species and grade are assigned, only to show that the wood elements are structurally deficient. The result is often an overly conservative estimate of design values and unnecessary replacement and repair decisions with the associated unnecessary project costs.

Typically in older buildings, knots and slope of grain are the grade-limiting characteristics that can impact structural performance. Anthony & Associates, Inc. conducted in-situ visual grading of a representative sample of structural wood elements within the basement and the roof framing of interest to the structural engineer in order to provide information on the *likely* grade of the timber and lumber (Figure 2). Because only a representative sample of the structural wood elements was graded, and the sizes of the defects within the sample were typically estimated, the grades reported are likely conservative. More detailed measurements may allow for assigning more definitive and, in some cases, higher grades with increased allowable design stresses. The information reported provides general data sufficient for conducting preliminary structural analyses to determine the Building's ability to support current and future loading conditions.

### **Decay Quantification**

In addition to the inspection of the wood elements using a combination of visual observations and moisture content measurements, limited resistance drilling was conducted to determine loss of material due to wood decay. Resistance drilling is a quasi-nondestructive assessment method best suited for determining internal

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<sup>1</sup> American Forest & Paper Association and American Wood Council, 2005, *National Design Specification for Wood Construction*, Washington, D.C.

<sup>2</sup> American Society for Testing and Materials, 2006, *Annual Book of Standards*, Vol. 04.10: D245, Standard Practice for Establishing Structural Grades and Related Allowable Properties for Visually Graded Lumber; D2555, Standard Test Methods for Establishing Clear Wood Strength Values. ASTM, West Conshohocken, Pennsylvania.

<sup>3</sup> Western Wood Products Association, 2005. *Western Lumber Grading Rules*, Portland, Oregon.

problems in timber that does not show obvious external signs of deterioration. Any internal void or early-stage decay at the location drilled can be detected by determining the relative density of the wood. The relative density is printed on a strip of paper as a small diameter needle penetrates the wood. The technique is very reliable for quantifying the extent of voids when used in combination with other techniques to rapidly locate areas of probable deterioration. Resistance drilling was conducted on structural elements within the basement and the stacked plank walls of Section 4 on the west elevation (Figure 3).



**Figure 2.** Measuring the slope of grain on a column with an acetate grid.



**Figure 3.** Resistance drilling a sill beam in the basement between Basement Storage and Tower Level 0.



## **FINDINGS AND DISCUSSION**

### **General Observations**

The wood grade and condition information provided is based on the conditions of wood elements that were visible and accessible for assessment. Access to structural members within the Building was limited in some areas, including the structural framing within Section 1 and the foundation of the Section 5.

Wood conditions found within the Building were divided into three classifications: good, fair, and poor. Good condition describes wood that has no evidence of insect damage or deterioration from wood decay fungi. Wood in good condition may exhibit moisture staining but is not structurally impacted. Wood in fair condition may exhibit evidence of past moisture damage, including minor deterioration from wood decay fungi, and may also have minor insect damage. Wood in poor condition may have ongoing deterioration caused by wood decay fungi and may also exhibit severe visible insect damage.

In general, with the exception of fire-damaged dimension lumber, most of the structural elements within the Building are in fair to good condition; areas of poor condition tend to be limited to structural elements in contact with the ground around the building's perimeter. In a few instances, such as along the south side of Section 5 and the first floor of Section 3 on the west elevation, the structural elements are in extremely poor condition and have failed due to deterioration caused by wood decay fungi (Figures 4 and 5).



**Figure 4.** Interior view of the west basement wall of Section 3, Level 0, which has collapsed due to deterioration caused by wood decay fungi.





**Figure 5.** Interior (crawl-space) view of the south foundation of Section 5 with collapsed elements.

Moisture staining is prevalent on structural elements in contact with wall or roof sheathing but is not generally apparent on wood located towards the interior of the Building. Current moisture intrusion issues could better be determined after periods of recent rainfall and should be mitigated to extend the long-term serviceability of the wood used in the Building. There was no identified evidence of insect damage on the structural wood elements.

### **Species Identification**

Ten samples were removed from structural elements of interest to the engineer for species identification. The samples and their locations are provided in Table 1. Samples were not taken from Section 1 or from the foundation of Section 5 due to a lack of access to structural elements. The findings suggest that the central portion of the Building (Sections 2 through 4) was likely constructed at the same time out of Douglas-fir (*Pseudotsuga menziesii*), while Section 5 may have been constructed later using a mix of species, primarily locally available western yellow pine (*Pinus spp.*) in addition to Douglas-fir. Western yellow pine is a species group that includes ponderosa pine and lodgepole pine. These two species are indistinguishable based on microscopic characteristics.

### **Moisture Determination**

Limited moisture diagnostics were conducted within the basement and roof framing of the Building using a resistance meter for timber and a capacitance meter for dimension lumber. Moisture contents of the roof framing above the Grain Bins (Section 4) ranged from 7 to 9 percent. Moisture contents of the first floor framing, accessed from the basement, ranged from 12 to 15 percent for interior posts and 17 to 22 percent for girders and posts that abutted exterior walls or concrete foundations. Given the low temperatures during the field

investigation (18° to 30° F), the moisture content measurements may not accurately reflect the actual moisture content of the wood. As wood temperature decreases, its electrical resistance increases and indicated moisture contents are lower. Thus, the readings should be considered only as indicators of likely areas of concern rather than definitive data for identifying moisture-damaged areas.

**Table 1.** Wood species identified from the Louisville Grain Elevator

| Sample No. | Room (Section)    | Floor    | Element              | Location Description              | Species                                      | Comments                                 |
|------------|-------------------|----------|----------------------|-----------------------------------|----------------------------------------------|------------------------------------------|
| 1          | Storage (5)       | First    | rafter               | south shed/addition               | Douglas-fir ( <i>Pseudotsuga menziesii</i> ) |                                          |
| 2          | Storage (5)       | First    | built-up beam purlin | south shed/addition               | western yellow pine ( <i>Pinus spp.</i> )    |                                          |
| 3          | Storage (5)       | First    | wall stud            | south shed/addition               | western yellow pine                          |                                          |
| 4          | Bin 6 (4)         | First    | stacked plank        | south wall                        | Douglas-fir                                  | nominal 2 x 6                            |
| 5          | Tower Level 0 (3) | Basement | girder               | central girder 3A - 3Z            | Douglas-fir                                  |                                          |
| 6          | Back Room (2)     | First    | floor joist          | near south end of a central joist | Douglas-fir                                  | accessed from Basement Storage           |
| 7          | Chute 1(3)        | Third    | stacked plank        | west interior wall                | Douglas-fir                                  | nominal 2 x 4                            |
| 8          | Bin Catwalk (4)   | Fifth    | west purlin          | above bins                        | Douglas-fir                                  |                                          |
| 9          | Bin Catwalk (4)   | Fifth    | rafter               | above bins, east side             | Douglas-fir                                  |                                          |
| 10         | Bin 1 - Bin 2 (4) | Fifth    | stacked plank        | interior wall between bins        | Douglas-fir                                  | nominal 2 x 4, accessed from Bin Catwalk |

### Lumber and Timber Grading

Lumber and timber grades are determined by species, size of the member(s), and growth characteristics such as knots and slope of grain. Knots and slope of grain tend to be the grade-limiting characteristics for lumber and timber in older buildings. Measurement of knots and slope-of-grain provides an indication of



the allowable lumber grade for a given wood species. Knot size and slope of grain were either measured or estimated for a representative sample of the key structural elements of interest to the engineer. A few of the structural elements in the Building were essentially free of large knots and slope of grain and could be assigned a high structural grade. However, a significant number of elements have knots or slope of grain that either do not meet structural grade requirements or necessitate the assignment of a lower structural grade (Figure 6).



**Figure 6.** Large knots on a roof rafter above the Grain Bins (Section 4) that limit the structural grade.

To be assigned a particular grade, 95 percent of the pieces graded should meet or exceed the grade requirements. Since there are typically limited wood elements of any type available for inspection in the Building, the percentage within a grade can fall below the 95 percent level even if only a few members fail to meet a higher grade. In these cases, the structural engineer may elect to apply the higher overall grade if knowledge of the structural loads warrants it, provided that wood elements with large knots (i.e., lower grades) are replaced or augmented to provide adequate support. The results of the in-situ visual grading survey can be found in Table 2.

Based on grading rules applicable to the 2005 NDS specifications, the likely structural grade of the accessible structural elements within the Building as a whole is No. 3 Western Woods. If considering the Building in sections, the first-floor floor framing of Section 2 can be considered No. 3 Douglas-fir, the roof framing over the Grain Bins in Section 4 can be considered No. 3 Douglas-fir, and the roof framing of Section 5 can be considered No. 3 Western Woods. It should be noted that if more definitive grades are desired, particularly for critical areas of the Building, additional measurements could be taken to obtain sufficient data to make those determinations.



**Table 2.** Visual grading results for the Louisville Grain Elevator

| <b>Room<br/>(Section)</b>        | <b>Floor</b> | <b>Element</b> | <b>Likely Grade</b> | <b>Comments</b>                                                                                |
|----------------------------------|--------------|----------------|---------------------|------------------------------------------------------------------------------------------------|
| Storage (5)                      | Roof         | rafters        | No. 3               | At least 10% do not meet requirements for No. 2 Western Woods or No. 2 Douglas-fir             |
| Storage (5)                      | Roof         | purlin         | No. 3               | At least 10% of laminations do not meet requirements for No. 2 Western Woods                   |
| Corridor and Back Room (2)       | First        | floor joists   | No. 3               | 5% do not meet a structural grade; at least 15% do not meet requirements for No. 2 Douglas-fir |
| Tower Level 0 (3)                | Basement     | girder         | Select Structural   |                                                                                                |
| Roof Framing over Grain Bins (4) | Fifth        | rafters        | No. 3               | At least 10% do not meet requirements for No. 2 Douglas-fir                                    |
| Roof Framing over Grain Bins (4) | Fifth        | purlins        | No. 2               | Approximately 75% do not meet requirements for No. 1 Douglas-fir                               |

### **Fire Damage**

Within the interior of the Building, there is evidence of fire damage on a number of floors. Wood with various degrees of charring can be found within Sections 2 and 3 at all levels except the basement (Level 0). Char is evident on dimension lumber such as roof rafters and sheathing, as well as on larger structural elements such as purlins and columns.

Wood elements subjected to fire develop a layer of char that protects the wood below the char layer by slowing the rate of combustion. Structural timbers generally perform well in fire, while thinner wood elements, such as boards and dimension lumber, may lose a significant portion of their cross section or burn through completely. In fires where the burning period is relatively brief, many of the wood elements will exhibit various stages of char development. For evaluating the effect of char after a structure fire, it is assumed that un-charred wood is sound and has the same strength as the wood did before the fire. To decide whether a structural member can remain in service, measuring the depth of the char is often necessary to determine the remaining cross section (Figure 7).



**Figure 7.** Measuring the depth of char on a joist with a char depth gauge. Note the alligatoring on the floor sheathing above the joist.

Char is the result of combustion of the wood. For the purposes of this report, the lightest degree of char is limited to discoloration due to scorching of the wood surface. Once the wood begins to burn, the scorched surface develops a two-dimensional pattern called alligatoring. Numerous small fissures develop across the grain of the wood as the fibers contract due to the heat, ultimately breaking and forming shallow fissures. As combustion continues, the alligatoring pattern extends into the wood developing deeper fissures that form three-dimensional pockets of burned wood. This degree of char is called pillowing. Figure 8 shows wood within the Building with various degrees of charring.



**Figure 8.** Pillowing and scorching on the same joist, Section 3, Level 1. Areas of undamaged wood are visible where charred elements have been removed.

Once pillowing develops, the rate of combustion of the wood slows considerably. The char layer protects the wood below from the heat of the fire. Large cross section timbers frequently survive even very hot fires and can remain in service



because the ratio of surface area (that was burned) to volume (of the cross section) is small. Dimension lumber (like purlins and roof sheathing) typically suffer much more damage during a fire because the ratio of surface area to volume is large enough that the char is unable to protect the interior of the thin wood. Several char depth measurements were taken on two second-floor floor joists within the Tower to determine the relative severity of the fire. Char depths from  $\frac{1}{8}$ -inch to  $\frac{9}{32}$ -inch were measured on the 2  $\frac{1}{2}$ " x 11" (actual dimensions) floor joists near the west wall.

Decisions about replacement of charred wood elements, subject to the requirements of the architect and engineer, can be a relatively simple process based on the following information:

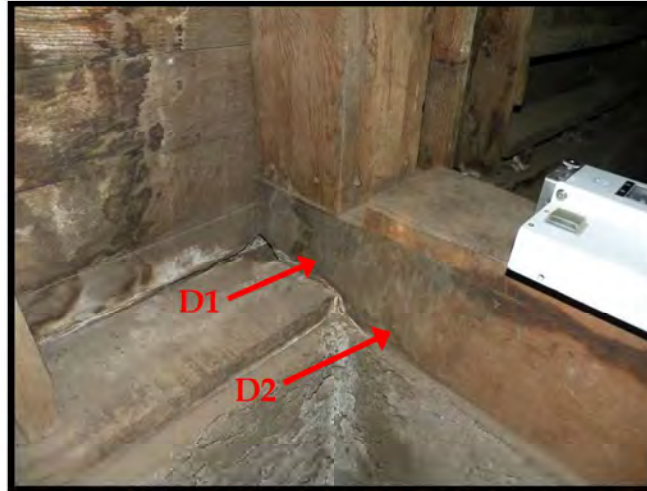
- Wood that has burned through must be replaced.
- Any wood member with surface char only (scorching) can remain in service.
- Thin wood elements (e.g., roof sheathing) with alligatoring should be replaced.
- Nominal 2-inch dimension lumber (rafters) and boards (roof sheathing) with pillowing should be replaced or reinforced.
- Depending on the loads calculated by the engineer, dimension lumber greater than 2 inches thick (floor joists) and larger timbers may be able to remain in service if there is sufficient cross section remaining even though alligatoring and/or pillowing is present.
- In some cases, replacement of elements with little charring may be necessary because of the difficulty (i.e., construction or cost) in replacing adjacent damaged elements.
- It must be noted that for any degree of charring, the ability to clean the surface to produce the desired aesthetic and remove the odor of burned wood may override whether the wood can perform structurally.

### **Decay Quantification**

Limited resistance drilling was conducted within the basement and along the west exterior wall of Grain Bins 4 through 6 (Figure 9). Wood elements around the perimeter of the Building in contact with the ground were not assessed based on discussions with the architect. Within the Basement Storage Room and Tower Level 0, there are numerous wood columns, sill beams, and sill plates that rest on concrete foundation walls or footers. Resistance drilling results of E-W sill beams indicate a pattern of deterioration extending into the beams from the exterior ends that abut the east elevation exterior wall. This deterioration extends at least 12 inches but no more than 33 inches into the southern sill beam



on the eastern end (grid 3A – 3Z), and at least 5 inches but no more than 14 inches into the northern sill beam (grid 2A – 2Z) on the eastern end. Resistance drilling of interior columns and sill plates within the basement found no voids at the drilling locations.



**Figure 9.** Resistance drilling locations D1 and D2 at the east end of the E-W basement sill beam dividing the Basement Storage Room from Tower Level 0.

The stacked plank construction on the west elevation of the Grain Bins was investigated using limited resistance drilling as well. Drilling locations were primarily located around the area of visible deterioration between Bins 5 and 6. Resistance drilling results indicate that the wood 12 to 16 inches above the ground line near the area of visible deterioration and sagging has internal deterioration. Resistance drilling results above or away from the visibly deteriorated area indicated no internal voids are present. Typically, stacked plank construction is very durable, particularly above grade, except where the wood may be subjected to moisture intrusion from leaks. The deterioration found in the stacked plank wall was near or below grade where poor drainage away from the foundation has allowed for a favorable environment for active wood decay to develop over a prolonged period of time. The appendix includes a resistance drilling log and schematics of drilling locations.

## **WOOD CONDITION SUMMARY**

The findings of the investigation can be summarized as follows:

- The primary wood species of the Louisville Grain Elevator is Douglas-fir (*Pseudotsuga menziesii*). A sample taken from a lamination from a purlin and a sample removed from a wall stud within Section 5 were identified as western yellow pine (*Pinus spp.*).

- The *likely* allowable structural grade, based on a representative sample of key structural elements, is No. 3 Western Woods for Section 5 and No. 3 Douglas-fir for Sections 2 through 4. Additional measurements of lumber defects could provide more definitive grades in critical areas of the Building.
- A large percentage of the timbers and dimension lumber within the interior of Section 2 and nearly all levels of Section 3 have varying degrees of fire damage. Larger timbers can remain in service if sufficient cross section remains to support existing or future loads.
- Moisture content readings within the roof framing of the Grain Bins (Section 4) indicate that the structural elements are currently unable to support active wood decay.
- Moisture content readings within the Basement Storage Room (Section 2) and Tower Level 0 (Section 3) indicate that the structural elements that are not in contact with the ground or with perimeter walls are currently unable to support active decay but have elevated moisture contents that indicate during wetter periods, some of these elements most likely have sufficient moisture contents to support active wood decay. Drainage away from the repaired foundation should be considered to extend the service life of any wood near grade.
- The structural wood elements within the Building, excluding fire-damaged dimension lumber, are in general in fair to good condition and may be suitable for continued use provided deteriorated elements and those that fail to meet the necessary grade requirements as determined by the engineer are repaired or replaced.

## **APPENDIX**

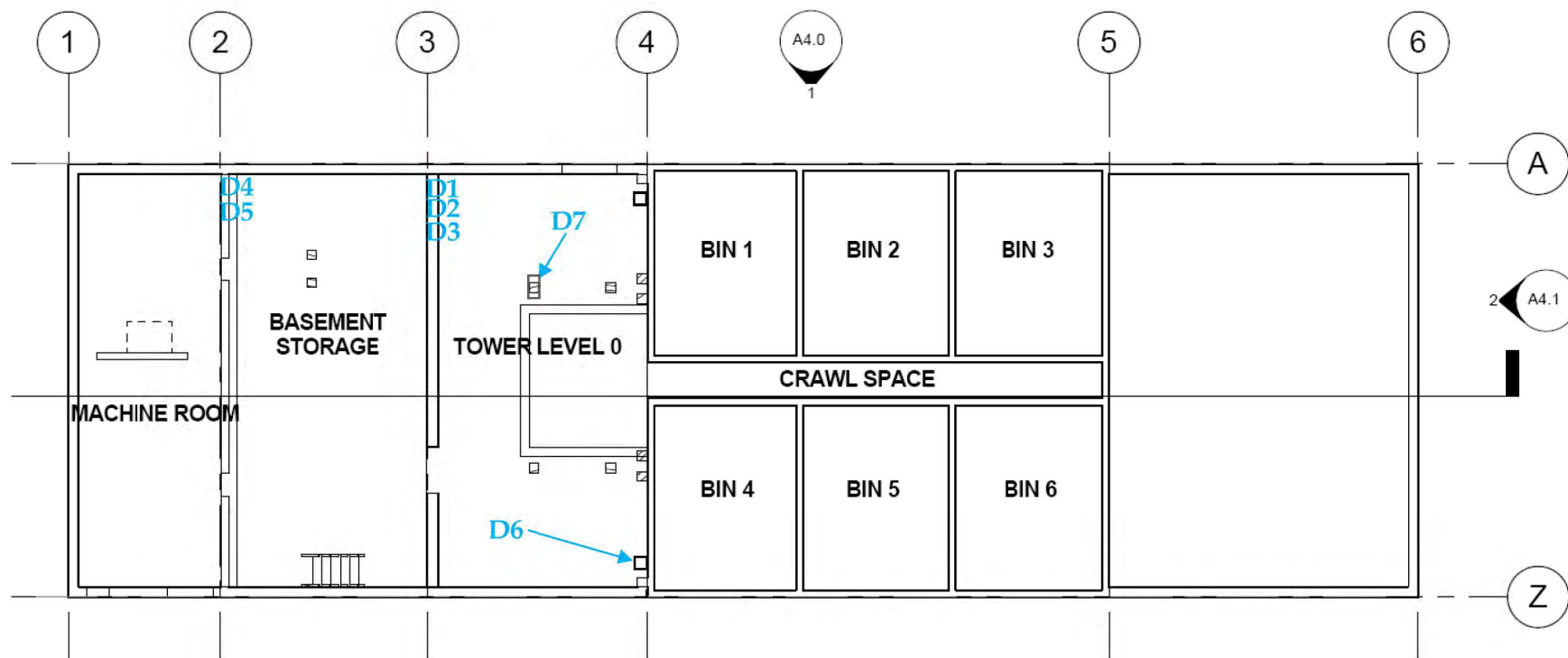
### **Resistance Drilling Results**

#### **Schematics of Louisville Grain Elevator and Drilling Locations**

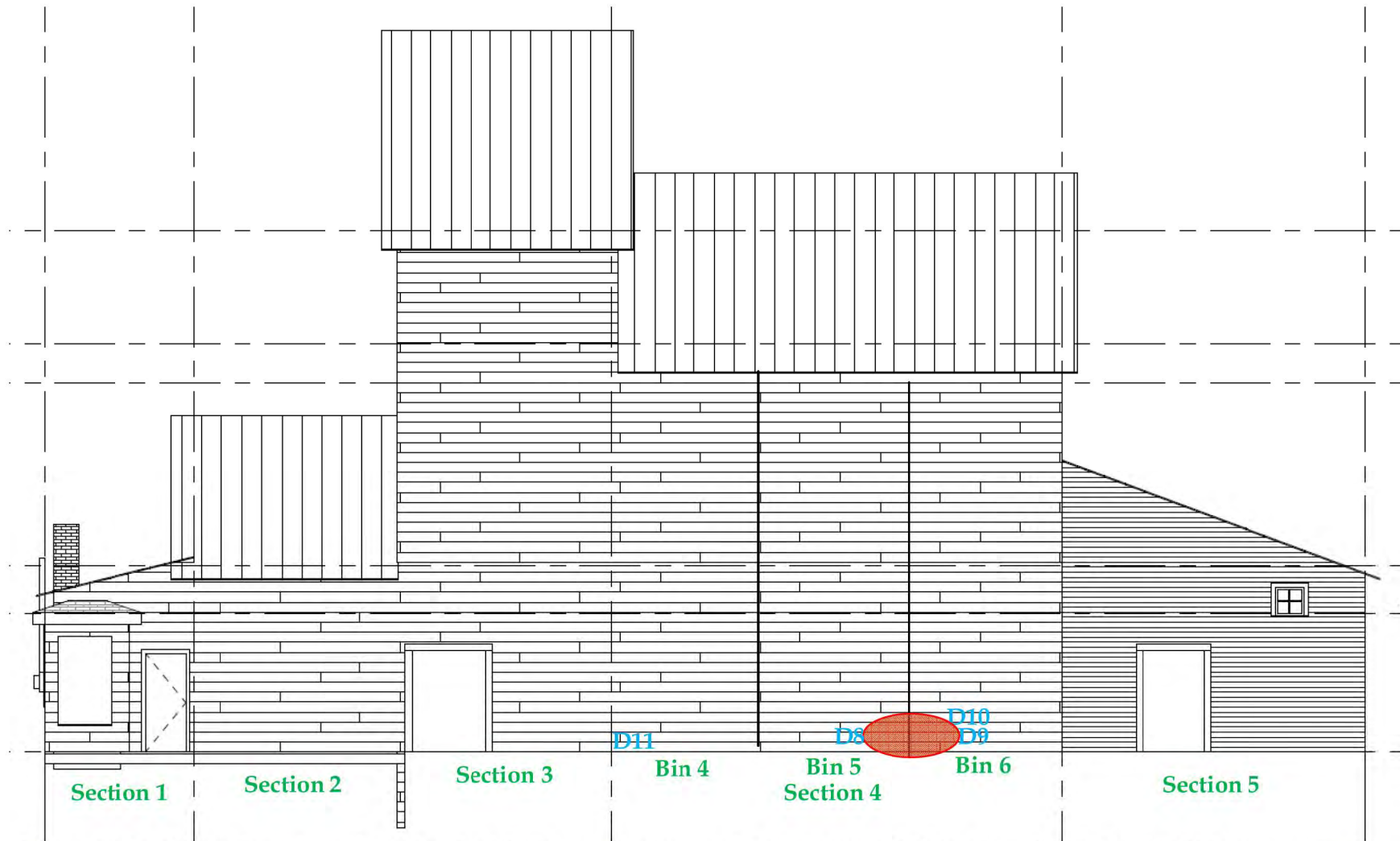


**Table A-1.** Resistance drilling results, Louisville Grain Elevator

| <b>Drilling No.</b> | <b>Room</b>           | <b>Section</b> | <b>Element</b>                | <b>Location</b>                          | <b>Drilling Direction</b> | <b>Comments</b>                          |
|---------------------|-----------------------|----------------|-------------------------------|------------------------------------------|---------------------------|------------------------------------------|
| D1                  | Basement Storage      | 2              | sill beam 3A-3Z               | 6" from east end, 2" from bottom         | N-S                       | 50% of the cross section is deteriorated |
| D2                  | Basement Storage      | 2              | sill beam 3A-3Z               | 12" from east end, 2" from bottom        | N-S                       | 4" internal void                         |
| D3                  | Basement Storage      | 2              | sill beam 3A-3Z               | 34" from east end, 2" from bottom        | N-S                       | no voids found                           |
| D4                  | Basement Storage      | 2              | sill beam 2A-2Z               | 5" from east end, 4" from bottom         | S-N                       | 3" solid, then void                      |
| D5                  | Basement Storage      | 2              | sill beam 2A-2Z               | 15" from east end, 2" from bottom        | S-N                       | no voids found                           |
| D6                  | Tower Level 0         | 3              | SW interior column, central   | 2" from bottom, mid-width                | E-W                       | no voids found                           |
| D7                  | Tower Level 0         | 3              | NE column sill plate, central | directly under column, mid-depth         | S-N                       | no voids found                           |
| D8                  | Bin 5, west elevation | 4              | stacked plank                 | 12" above grade, 45" north of Bin 6 wall | W-E                       | possible internal deterioration          |
| D9                  | Bin 6, west elevation | 4              | stacked plank                 | 16" above grade, 51" south of Bin 5 wall | W-E                       | 1" shell, then void                      |
| D10                 | Bin 6, west elevation | 4              | stacked plank                 | 36" above grade, 51" south of Bin 5 wall | W-E                       | no voids found                           |
| D11                 | Bin 4, west elevation | 4              | stacked plank                 | 8" above grade, 14" south of Tower wall  | W-E                       | no voids found                           |



**Figure A-1.** Basement plan of the Louisville Grain Elevator, showing resistance drilling locations (blue).



**Figure A-2.** West elevation of the Louisville Grain Elevator, with resistance drilling locations (blue), 2011 survey section names (green), and deterioration (red) marked.





March 3, 2011

Ms. Nanon Anderson  
Anderson & Anderson Architects, PC  
715 Fourteenth Street  
Golden, CO 80401

**RE: Results of Environmental Assessment at the Former Louisville M. & E. Company  
Grain Elevator, Louisville, Colorado.  
Landmark Project No.: 10048.001**

Dear Ms. Anderson:

Landmark Environmental, Inc. (Landmark) has conducted an Environmental Assessment of the property located at 540 County Road, Louisville, Colorado (subject property) on January 20, 2011. The Environmental Assessment included collection of samples from suspect asbestos containing materials (ACM) and lead containing/based paint (LCP/LBP) and observational/visual assessment of other regulated building materials (RBM) and conditions associated with animal infestation. The purpose of the Environmental Assessment is to support evaluation of the current status of the structure, as well as the possibility for reuse. This report presents findings and summarizes the regulatory requirements pertaining to environmental cleanup for the renovation rather than structural demolition scenario.

The subject property includes an approximate 2,800 square foot (building footprint) structure that was constructed in 1903 and was formerly used as a Grain Elevator and Feed Store. The structure is multi-level with approximately 8,500 square feet of accessible interior floor space and is located on an approximate 1.2 acre parcel. The structure is composed of five sections: office, elevator, elevator tower, grain bins; and a warehouse area. The structure was vacant at the time of the site visit and included numerous stored items, trash and, animal wastes.

This report presents the findings of the inspection and sampling efforts in the structure at the subject property in three general categories, asbestos, lead-containing paints and other RBMs. Under each category, the report is further organized by sampling approach, applicable regulatory criteria; and results, followed by recommendations associated with the findings and results. Further detail is provided in Attachment 1 (Asbestos), Attachment 2 (Paints); and Attachment 3 (Regulated Building Materials). Photographs are provided in Attachment 4 and Preliminary Cost Estimates are included in Attachment 5.

#### **Asbestos Sample Collection and Analysis**

The purpose of the ACM inspection is to identify the presence, location, quantity, friability, and condition of any ACMs and quantifying the suspect ACMs, which must be removed prior to renovation. Landmark collected fourteen samples of suspect ACM during the site inspection. The sampling was conducted according to requirements of the Colorado Department of Public Health and Environment (CDPHE), U.S. Environmental Protection Agency (EPA) Asbestos Hazard, Emergency Response Act (AHERA); and U.S. Occupational Safety and Health Administration (OSHA) Chapter 29 Code of Federal Regulations (CFR) §1926.1101, as well as generally accepted industry standards. Asbestos inspection activities were conducted by EPA AHERA and CDPHE accredited personnel.



Building material samples of the suspect ACM were collected in a representative manner as determined by the inspector and samples were collected by taking a composite core that includes all layers within the suspect ACM. Suspect ACM that were identified and sampled include the following.

- White plaster-like wall treatment/coating.
- Loose fill insulation on the third floor.
- Window putty on exterior windows.
- Asphalt roofing shingles.
- Paper vapor barrier on walls in the south addition.
- Sheet vinyl.
- Chimney plaster.
- Hot pad material.

Table 1 in Attachment 1 summarizes sample descriptions, locations, and analytical results. Laboratory Reports for suspect ACM samples are also provided in Attachment 1.

The suspect asbestos samples were submitted to Reservoirs Environmental Services, Inc. (Reservoirs), located in Denver, Colorado. Reservoirs is a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory and is also accredited by the American Industrial Hygiene Association (AIHA). The samples were analyzed by Polarized Light Microscopy (PLM) to determine asbestos type and percent. The total asbestos reported is the average of all components in the material, with the asbestos content of separate layers also identified. Unused portions of samples are archived for 60 days unless the client requests special handling.

### **Asbestos Regulatory Criteria**

This brief overview of certain applicable asbestos regulatory criteria is general and for informational purposes only. Asbestos is one of the most widely regulated environmental substances and for specific requirements refer to applicable statutes and regulations. The OSHA regulations in 29 CFR 1926.1101 require that building owners inform prospective contractors, employees, and tenants of the presence, location, and quantity of ACM or presumed ACM, in their buildings and facilities.

Applicable asbestos regulations define ACM as material containing greater than 1.0 percent asbestos by weight, volume or visual surface area and also distinguish between friable and non-friable forms of ACM. Friable ACMs can be crumbled or reduced to powder by hand pressure when dry. Non-friable materials cannot be crumbled, pulverized, or reduced to powder by hand pressure.

The EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) further classify non-friable ACM as Category I and II. Category I non-friable ACMs include asbestos containing packings, gaskets, resilient floor coverings, and asphalt roofing products. Category II non-friable ACMs are defined as all other non-friable ACM, such as cement board, window putty, etc. During abatement and renovation projects, applicable regulations identify removal requirements based on the friability classification of an ACM. Category I non-friable ACMs can remain in a building during standard structural demolition projects (i.e. demolition by heavy equipment, not burning or implosion). Category II non-friable ACM may also remain in the building under certain specific circumstances as long as the materials are not rendered friable during demolition, though typically these materials are abated prior to demolition. The EPA NESHAP and CDPHE Regulation #8, Part B require point count analysis for friable materials found to contain detectable asbestos at 1.0 percent or less by PLM analysis.





In general, removal of ACM is not required by regulation unless the potential for an airborne release of asbestos fibers in excess of allowable levels exists. Typically, the potential for an airborne release of asbestos fibers exists in three circumstances:

1. The ACM will be impacted during maintenance, renovation, or demolition.
2. The material is significantly deteriorated to the extent that asbestos debris is present.
3. The ACM will be subject to future deterioration by vibration, airflow, or weathering.

### **Asbestos Inspection Results**

Landmark collected fourteen representative samples from suspect ACM identified in the structure. Results of laboratory analysis report that all of the fourteen samples are None Detected (ND) for asbestos, therefore no asbestos is presently identified in the structure.

### **Paint Sample Collection and Analysis**

Bulk paint chip samples of suspect LBP were collected in a representative manner as determined by the inspector. Samples were collected from window sills and the exterior of the structure. The paint chip samples were submitted to Reservoirs, which is an Environmental Lead Laboratory Accreditation Program (ELLAP) accredited laboratory that uses procedures developed in compliance with the guidelines established by the National Institute of Occupational Safety and Health (NIOSH) Method 7420. The samples were analyzed by Atomic Absorption (AA)/Inductively Coupled Plasma (ICP) protocol to determine lead content. The total lead concentration reported is the average of all layers in the sample. Lead content results are reported as a percent by weight.

### **Lead-containing Paint Regulatory Criteria**

The EPA and U.S. Department of Housing and Urban Development (HUD) regulate lead-based paint (LBP) abatement activities in target housing and child occupied facilities. OSHA regulates worker exposure to lead for coatings with any detectable lead. The EPA and HUD regulations related to LBP abatement do not apply to the project site unless abatement activities occur (specifically designed to permanently remove LBP). LBP is defined as paint containing 0.5 percent by weight or 1.0 milligram per cubic centimeter by both the EPA and HUD.

The CDPHE Regulation 19 regulates lead paints in housing and child-occupied facilities (not commercial properties) and CDPHE also regulates concentrations in soil that exceed 400 milligrams per kilogram (mg/kg), as provided in the CDPHE Soil Cleanup Table Value Standards, for residential/unrestricted land use.

The OSHA lead in construction standard 29 CFR 1926.62 addresses requirements for sites where the employer has reason to believe that any employee may be exposed to lead in excess of OSHA's action level (AL) of 30 micrograms per cubic meter (30  $\mu\text{g}/\text{m}^3$ ) over an eight-hour time weighted average. The OSHA standard applies to all construction activities that may impact LCP (any detectable lead).

### **Paint Sampling Results**

For this inspection, bulk paint samples are correlated to testing combinations using substrate, component, and color. The substrate is the material from which the component is fabricated. Substrates are classified as brick/masonry, concrete, drywall, metal, plaster, or wood.





A component is defined as a particular item, such as a door, a wall, or a cabinet. Laboratory analysis concluded that the lead concentration in sample PC-LGE-012011-EP-01 collected from the exterior of the structure was 0.008 percent. Sample PC-LGE-012011-WP-01, collected from the interior window sills, resulted in a lead concentration of 7.7 percent. Lead paint concentrations of less than 0.5 percent are categorized as Lead Containing, not Lead Based. Laboratory results are summarized in Table 2 in Attachment 2 and laboratory analysis reports are also included in Attachment 2.

### **Regulated Building Materials Observations**

Regulated Building Materials are generally materials that may require special handling, recycling, and/or disposal prior to building demolition or renovation and include paint, aerosol containers, fluorescent light tubes and ballasts, petroleum products, chlorofluorocarbons (CFCs) in refrigeration and air conditioning systems, and compressed gas cylinders. RBMs observed during the site survey include the following.

- Several refrigerated display cases and refrigerators.
- Five fluorescent light fixtures.
- One compressed gas cylinder (unmarked).
- One 55-gallon drum (contents undetermined).
- Numerous paint cans.
- Numerous automobile tires.
- Two television sets and other items with electronic components.
- One lawnmower and other equipment that may contain fuels or oils.

A complete inventory of RBMs observed at the Louisville Grain Elevator is included in Table 3 in Attachment 3. Photographs showing some of the RBM's (Photographs #1 through photograph #6) are included in Attachment 4.

### **Environmental Observations**

Additional environmental conditions were noted during the site survey which included significant quantities of animal feces and bird/bat guano throughout the building on vertical and horizontal surfaces, in debris piles, and fixtures (see photographs #7 and #8 in Attachment 4). Guano and feces are known to carry diseases such as hystoplasmosis and hantavirus. A strong odor apparently from recent skunk habitation was noticeable when entering the building. Several animal carcasses believed to be raccoons were observed in the basement.

No discolored soil or stressed vegetation was observed during the site visit. Landmark did not observe evidence/indication of recognized environmental conditions (RECs) during the subject property site reconnaissance. A REC is described by the ASTM Standard E 1527-05 as: *the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property.*

### **Recommendations**

Landmark recommends the following administrative and abatement activities be conducted prior to renovations and re-occupancy.





## Asbestos

If planned renovations will include rehabilitation of structural members within the building, Landmark recommends that required permitting costs and timeframes be contemplated for the project. Two permits are required before structural demolition (if applicable), one from the CDPHE and one from Boulder County. If demolition of load bearing structures will occur, a Notification of Demolition Form must be submitted to the CDPHE, even if no asbestos was found during the inspection, along with payment of a \$275 notification fee. A ten (10) working day waiting period is required before a permit is issued and the structural rehabilitation/demolition can proceed. The Notification of Demolition Form requires the signature of a CDPHE certified asbestos building inspector, stating that no ACM is present or that regulated ACM has been removed from the structure as applicable. Boulder County also requires a demolition permit. To obtain the Boulder County demolition permit, the contractor is required to provide a copy of CDPHE permit for demolition, a copy of the asbestos inspection report and pay a \$25.00 fee.

## Lead Containing Paints

Lead-containing materials, paints and coatings that may be impacted by demolition activities are regulated by OSHA 29 CFR 1926.62, which requires training, respiratory protection, medical monitoring and worker exposure assessment. Abatement of LCP is not required prior to renovation or structural rehabilitation. However, Landmark recommends that renovation plans be evaluated to determine the extent and nature of impacts to LCP/LBP and a work plan/specification that addresses basic lead hazard controls be developed.

During demolition, samples of building debris that are coated with LBP/LCP should be collected from representative areas of the waste and Toxicity Characteristic Leaching Procedure (TCLP) analysis for lead should be performed to verify the appropriate landfill to dispose of the demolition debris (i.e., Subtitle D (municipal landfill) or Subtitle C (hazardous waste landfill)).

Loose/flaking LCP was identified on the exterior walls. Paint chip debris was noted on localized areas of surface soils at the foundation. Because the identified peeling LBP has the potential to further impact the surrounding soil during rehabilitation activities such as power washing etc., construction methods that prevent further paint chip debris from impacting soils are recommended.

## Regulated Building Materials and Animal Debris

Landmark recommends that the identified RBMs be removed and properly disposed prior to the planned renovation project, that a licensed transporter complete a Universal or Hazardous Waste Manifest and a certificate of destruction be obtained from the disposal facility when RBMs are removed and disposed.

Regarding animal debris and feces, Landmark recommends that the structure be first and immediately secured in a manner that prevents further inhabitation by animals, and that if access to the interior is required, that personal protective equipment (PPE) be used until cleanup is complete. Landmark recommends that a work plan/specification that addresses biological hazards and controls be developed and that cleaning/biocide treatment of all surfaces contaminated with animal feces and bird/bat guano occur by an experienced and licensed abatement contractor, both while stored items are removed and segregated as trash or usable items, and as a second prior to renovation/construction activities.

## Cost Estimate

Landmark has developed an estimate of probable abatement cost that includes line items for lead-containing paint stabilization during renovation (not abatement) and removal, transport and disposal of identified RBMs.





The estimate for abatement of animal debris and feces is developed based on the approach that cleaning of stored items will occur as a first step where trash is segregated from any items that would be salvaged, followed secondly by general decontamination of the structure. The estimate of probable abatement costs is included in Attachment 5.

### **Limitations**

Landmark does not imply or guarantee that every suspect ACM on or in the building has been identified or sampled. The services performed and any opinions expressed by Landmark in the report are based on the limits of the investigation as described above. It is understood that Landmark has relied on the accuracy of documents, oral information, and other material and information provided by the Client and others, and Landmark assumes no liability for the accuracy of such data. Landmark assumes no responsibility for property conditions or activities that are outside the scope of the services, or for changes to property conditions or regulatory requirements which may apply after completion of the services by Landmark.

Services performed by Landmark on this Environmental Assessment were performed in a competent and professional manner in accordance with sound consulting practices and procedures. The inspection did not include a subsurface investigation or destructive sampling (i.e., sampling or visual inspection behind physical barriers, if structures were present). Therefore, Landmark warrants the conclusions contained in this report, but cannot warrant site conditions beyond matters amenable to visual confirmation.

This report does not warrant against operations or conditions present of a type or at a location not investigated during this study. Additionally, this document does not warrant against future conditions or exacerbation of contaminants by others. Conclusions presented in this report are professional opinions based solely on visual observations and supplemental testing of environmental media within the study area. Such opinions are intended exclusively for the purpose outlined herein and at the Site and project indicated.

Please call me 720.283.8974 if you have any questions.

Respectfully,  
Landmark Environmental, Inc.



Matthew Roberts  
President

Enclosures:

|              |                                                          |
|--------------|----------------------------------------------------------|
| Attachment 1 | ACM Sample Table and Laboratory Report                   |
| Attachment 2 | Lead Containing Paint Sample Table and Laboratory Report |
| Attachment 3 | Regulated Building Materials Summary Table               |
| Attachment 4 | Photographs                                              |
| Attachment 5 | Estimate of Probable Costs                               |





**Attachment 1**

**ACM SAMPLE TABLE AND  
LABORATORY REPORT**

**Asbestos Sample Results  
Louisville Grain Elevator  
Louisville, Colorado**

| Sample Number       | Material        | Results | Location                                 |
|---------------------|-----------------|---------|------------------------------------------|
| B-LGE-012011-HP-01  | Hot Pad         | ND      | First Floor                              |
| B-LGE-012011-WT-01  | Wall Treatment  | ND      | 1 <sup>st</sup> Floor Entrance No. Wall  |
| B-LGE-012011-WT-02  | Wall Treatment  | ND      | 1 <sup>st</sup> Floor Entrance So. Wall  |
| B-LGE-012011-WT-03  | Wall Treatment  | ND      | 1 <sup>st</sup> Floor Entrance West Wall |
| B-LGE-012011-I-01   | Insulation      | ND      | Third Floor East                         |
| B- LGE-012011-I-02  | Insulation      | ND      | Third Floor East                         |
| B- LGE-012011-I-03  | Insulation      | ND      | Third Floor East                         |
| B-LGE-012011-WP-01  | Window Putty    | ND      | First Floor North                        |
| B-LGE-012011-S-01   | Asphalt Shingle | ND      | Above Entrance                           |
| B-LGE-012011-FT1-01 | Sheet Vinyl     | ND      | 1 <sup>st</sup> Floor Entrance           |
| B-LGE-012011-PS-01  | Vapor Barrier   | ND      | South Addition                           |
| B-LGE-012011-PS-02  | Vapor Barrier   | ND      | South Addition                           |
| B-LGE-012011-PS-03  | Vapor Barrier   | ND      | South Addition                           |
| B-LGE-012011-CC-01  | Chimney Plaster | ND      | 1st Floor North Wall                     |

\* ND = None Detected



# Reservoirs Environmental, Inc.

January 28, 2011

Laboratory Code: RES  
Subcontract Number: NA  
Laboratory Report: RES 206023-1  
Project # / P.O. #: 10048.001.001  
Project Description: Louisville Grain Elevator

Mike Ritter  
Landmark Environmental, Inc.  
250 Bryant Street  
Denver CO 80219

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

**RES 206023-1** is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr  
President

Analyst(s): \_\_\_\_\_  
Paul D. LoScalzo      Wenlong Liu  
Michael Scales      Rich Wegrzyn  
Anita Grigg      Robert R. Workman Jr.  
Bethany Nichols



# RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0  
TDH Licensed Laboratory # 30-0136

Page 2 of 2

**TABLE PLM BULK ANALYSIS, PERCENTAGE COMPOSITION BY VOLUME**

RES Job Number: **RES 206023-1**  
 Client: **Landmark Environmental, Inc.**  
 Client Project Number / P.O.: **10048.001.001**  
 Client Project Description: **Louisville Grain Elevator**  
 Date Samples Received: **January 21, 2011**  
 Analysis Type: **PLM, Short Report**  
 Turnaround: **3-5 Day**  
 Date Analyzed: **January 24, 2011**

| Client Sample Number | Lab ID Number | L<br>A<br>Y<br>E<br>R | Physical Description                     | Sub Part (%) | Asbestos Content |                     | Non Asbestos Fibrous Components (%) | Non-Fibrous Components (%) |
|----------------------|---------------|-----------------------|------------------------------------------|--------------|------------------|---------------------|-------------------------------------|----------------------------|
|                      |               |                       |                                          |              | Mineral          | Visual Estimate (%) |                                     |                            |
| B-LGE-012011-HP-01   | EM 685780     | A                     | White carbonate                          | 100          |                  | ND                  | 0                                   | 100                        |
| B-LGE-012011-WT-01   | EM 685781     | A                     | White compound                           | 100          |                  | ND                  | 0                                   | 100                        |
| B-LGE-012011-WT-02   | EM 685782     | A                     | White compound w/ tan paint              | 100          |                  | ND                  | 0                                   | 100                        |
| B-LGE-012011-WT-03   | EM 685783     | A                     | White compound                           | 100          |                  | ND                  | 0                                   | 100                        |
| B-LGE-012011-I-01    | EM 685784     | A                     | Yellow insulation                        | 100          |                  | ND                  | 95                                  | 5                          |
| B-LGE-012011-I-02    | EM 685785     | A                     | Yellow insulation                        | 100          |                  | ND                  | 95                                  | 5                          |
| B-LGE-012011-I-03    | EM 685786     | A                     | Yellow insulation                        | 100          |                  | ND                  | 95                                  | 5                          |
| B-LGE-012011-WP-01   | EM 685787     | A                     | Cream glaze w/ white paint               | 100          |                  | ND                  | 0                                   | 100                        |
| B-LGE-012011-S-01    | EM 685788     | A                     | Red shingle w/ tan fibrous material      | 50           |                  | ND                  | 20                                  | 80                         |
|                      |               | B                     | Red shingle                              | 50           |                  | ND                  | 20                                  | 80                         |
| B-LGE-012011-FT1-01  | EM 685789     | A                     | Tan sheet vinyl w/ black fibrous backing | 100          |                  | ND                  | 30                                  | 70                         |
| B-LGE-012011-PS-01   | EM 685790     | A                     | Red paper                                | 100          |                  | ND                  | 90                                  | 10                         |
| B-LGE-012011-PS-02   | EM 685791     | A                     | Red paper                                | 100          |                  | ND                  | 90                                  | 10                         |
| B-LGE-012011-PS-03   | EM 685792     | A                     | Red/brown paper                          | 100          |                  | ND                  | 90                                  | 10                         |
| B-LGE-012011-CC-01   | EM 685793     | A                     | White plaster w/ cream paint             | 100          |                  | ND                  | 0                                   | 100                        |

ND=None Detected

TR=Trace, <1% Visual Estimate

Trem-Act=Tremolite-Actinolite

Note: Further analysis by TEM is recommended for organically bound material (i.e. floor tile) if PLM results are ≤1%.

Data QA

Due Date: 1-26-1-28Due Time: 9:45a

# Reservoirs Environmental, Inc.

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RES 206023

-1 PLM - 2 mm

Page 1 of 2

## SUBMITTED BY:

## INVOICE TO: (IF DIFFERENT)

## CONTACT INFORMATION:

|                                                                |          |                                       |                                   |
|----------------------------------------------------------------|----------|---------------------------------------|-----------------------------------|
| Company: <u>Landmark Environmental Inc</u>                     | Company: | Contact:                              | Contact: <u>MIKE RITER</u>        |
| Address: <u>250 Bryant St</u>                                  | Address: | Phone:                                | Phone:                            |
| <u>Denver, CO 80219</u>                                        |          | Fax:                                  | Fax:                              |
| Project Number and/or P.C. #: <u>10048.001.001</u>             |          | Cell/pager:                           | Cell/pager: <u>303-961-3218</u>   |
| Project Description/Location: <u>LOUISVILLE GRAIN ELEVATOR</u> |          | Final Data Deliverable Email Address: | <u>mritter@landmarkenviro.com</u> |

| ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm                                                                                                                                                                  |                                            | REQUESTED ANALYSIS              |                                              | VALID MATRIX CODES                      |             | LAB NOTES:              |                                 |        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------|----------------------------------------------|-----------------------------------------|-------------|-------------------------|---------------------------------|--------|
| PLM / PCM / TEM                                                                                                                                                                                                 | <u>STANDARD</u>                            | PLM (Short report, Point Count) | TEM - AHERA, Level II, 7402, ISO, +/-, Quant | Air = A                                 | Bulk = B    |                         |                                 |        |
|                                                                                                                                                                                                                 | <u>RUSH (Same Day) PRIORITY (Next Day)</u> |                                 | Semi-quant, Micro-vac, ISO-Indirect Preps    | Dust = D                                | Paint = P   |                         |                                 |        |
|                                                                                                                                                                                                                 | (Rush PCM = 2hr, TEM = 6hr.)               |                                 | PCM - 7400A, 7400B, OSHA                     | Soil = S                                | Wipe = W    |                         |                                 |        |
| CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm                                                                                                                                                                 |                                            |                                 | DUST - Total, Respirable                     | Drinking Water = DW                     |             |                         |                                 |        |
| Metal(s) / Dust                                                                                                                                                                                                 | <u>3-5 Day</u>                             |                                 | METALS - Analyte(s) <u>LEAD</u>              | Waste Water = WW                        |             |                         |                                 |        |
| RCRA 8 / Metals & Welding                                                                                                                                                                                       | <u>5 day 10 day</u>                        |                                 | TCAP, Welding Fume, Metals Scan              | Other = O                               |             |                         |                                 |        |
| Fume Scan / TCLP                                                                                                                                                                                                |                                            |                                 | ORGANICS - BTEX, MTBE, GRO, DRO              | **ASTM E1792 approved wipe media only** |             |                         |                                 |        |
| Organics                                                                                                                                                                                                        | <u>24 hr. 3 day 5 Day</u>                  |                                 | OTHER -                                      | Sample Volume (L) / Area                | Matrix Code | Date Collected mm/dd/yy | Time Collected hh/mm a/p        |        |
| **Analysis turnarounds are subject to laboratory sample volume and are not guaranteed. You will be notified if delays are expected. Additional fees apply for afterhours and holidays for all analysis types.** |                                            |                                 |                                              | # Containers                            |             |                         |                                 |        |
| Special instructions:                                                                                                                                                                                           |                                            |                                 |                                              |                                         |             |                         |                                 |        |
| Client sample ID number (Sample ID's must be unique)                                                                                                                                                            |                                            |                                 |                                              |                                         |             |                         | EM Number (Laboratory Use Only) |        |
| 1                                                                                                                                                                                                               | B-LGE-012011-HP-01                         | ✓                               |                                              |                                         | B           | 1                       | 01/20/11                        | 685780 |
| 2                                                                                                                                                                                                               | B-LGE-012011-WT-01                         | ✓                               |                                              |                                         |             |                         |                                 | 81     |
| 3                                                                                                                                                                                                               |                                            | ✓                               |                                              |                                         |             |                         |                                 | 82     |
| 4                                                                                                                                                                                                               |                                            | ✓                               |                                              |                                         |             |                         |                                 | 83     |
| 5                                                                                                                                                                                                               | B-LGE-012011-I-01                          | ✓                               |                                              |                                         |             |                         |                                 | 84     |
| 6                                                                                                                                                                                                               | B-LGE-012011-I-02                          | ✓                               |                                              |                                         |             |                         |                                 | 85     |
| 7                                                                                                                                                                                                               |                                            | ✓                               |                                              |                                         |             |                         |                                 | 86     |
| 8                                                                                                                                                                                                               | B-LGE-012011-WP-01                         | ✓                               |                                              |                                         |             |                         |                                 | 87     |
| 9                                                                                                                                                                                                               | B-LGE-012011-S-01                          | ✓                               |                                              |                                         |             |                         |                                 | 88     |
| 10                                                                                                                                                                                                              | B-LGE-012011-FT1-01                        | ✓                               |                                              |                                         |             |                         |                                 | 89     |
| 11                                                                                                                                                                                                              | B-LGE-012011-P3-01                         | ✓                               |                                              |                                         |             |                         |                                 | 90     |
| 12                                                                                                                                                                                                              |                                            | ✓                               |                                              |                                         |             |                         |                                 | 91     |
| 13                                                                                                                                                                                                              |                                            | ✓                               |                                              |                                         |             |                         |                                 | 92     |

Number of samples received:

(Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

|                                    |                                   |                          |        |        |
|------------------------------------|-----------------------------------|--------------------------|--------|--------|
| Relinquished By: <u>Mike Riter</u> | Date/Time: <u>1/21/11 9:43</u>    | Sample Condition: On Ice | Sealed | Intact |
| Laboratory Use Only                |                                   | Temp. (F°)               | Y/N    | Y/N    |
| Received By: <u>[Signature]</u>    | Date/Time: <u>1-21-11 @ 9:45a</u> | Carrier: <u>red</u>      |        |        |
| Results:                           | Contact                           | Page                     | Phone  | Email  |
|                                    | Contact                           | Page                     | Phone  | Email  |

Due Date: 1-26-1-28Due Time: 9:45a

# Reservoirs Environmental, Inc.

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Job # 206023Page 1 of 2

## SUBMITTED BY:

## INVOICE TO: (IF DIFFERENT)

## CONTACT INFORMATION:

|                                                                |                                       |             |
|----------------------------------------------------------------|---------------------------------------|-------------|
| Company: <u>Landmark Environmental INC</u>                     | Company:                              | Contact:    |
| Address: <u>250 Bryant St</u>                                  | Address:                              | Phone:      |
| <u>Denver, CO 80219</u>                                        |                                       | Fax:        |
|                                                                |                                       | Cell/pager: |
| Project Number and/or P.C. #: <u>10048.001.001</u>             | Final Data Deliverable Email Address: |             |
| Project Description/Location: <u>Louisville Grain Elevator</u> |                                       |             |

| ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm                                                                                                                                                                  |                                                     | REQUESTED ANALYSIS                           |                                                                                         | VALID MATRIX CODES                      |             | LAB NOTES:              |                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------|-------------|-------------------------|---------------------------------|
| (PLM) / PCM / TEM                                                                                                                                                                                               | RUSH (Same Day) PRIORITY (Next Day) <u>STANDARD</u> | PLM - Short report, Long report, Point Count | TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps | Air = A                                 | Bulk = B    |                         |                                 |
| (Rush PCM = 2hr, TEM = 6hr.)                                                                                                                                                                                    |                                                     | PCM - 7400A, 7400B, OSHA                     | DUST - Total, Respirable                                                                | Dust = D                                | Paint = P   |                         |                                 |
| CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm                                                                                                                                                                 |                                                     | METALS - Analyte(s)                          | RCRA 8, TOLP, Welding Fume, Metals Scan                                                 | Soil = S                                | Wipe = W    |                         |                                 |
| Metal(s) / Dust                                                                                                                                                                                                 | RUSH 24 hr. <u>3-5 Day</u>                          | ORGANICS - BTEX, MTBE, GFO, DRO              | OTHER -                                                                                 | Drinking Water = DW                     |             |                         |                                 |
| RCRA 8 / Metals & Welding Fume Scan / TCLP                                                                                                                                                                      | RUSH 5 day 10 day                                   |                                              |                                                                                         | Waste Water = WW                        |             |                         |                                 |
| Organics                                                                                                                                                                                                        | 24 hr. 3 day 5 Day                                  |                                              |                                                                                         | Other = O                               |             |                         |                                 |
| **Analysis turnarounds are subject to laboratory sample volume and are not guaranteed. You will be notified if delays are expected. Additional fees apply for afterhours and holidays for all analysis types.** |                                                     |                                              |                                                                                         | **ASTM E1792 approved wipe media only** |             |                         |                                 |
| Special Instructions:                                                                                                                                                                                           |                                                     |                                              |                                                                                         | Sample Volume (L) / Area                | Matrix Code | Date Collected mm/dd/yy | Time Collected hh/mm a/p        |
| Client sample ID number (Sample ID's must be unique)                                                                                                                                                            |                                                     |                                              |                                                                                         | # Containers                            |             |                         | EM Number (Laboratory Use Only) |
| 1                                                                                                                                                                                                               | B - LGE - 012011 - CC - 01                          |                                              |                                                                                         |                                         |             | 01/20/11                | 685793                          |
| 2                                                                                                                                                                                                               | PC - LGE - 012011 - EP - 01                         |                                              |                                                                                         |                                         |             |                         | 94                              |
| 3                                                                                                                                                                                                               | PC - LGE - 012011 - WP - 01                         |                                              |                                                                                         |                                         |             |                         | 95                              |
| 4                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 5                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 6                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 7                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 8                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 9                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 10                                                                                                                                                                                                              |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 11                                                                                                                                                                                                              |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 12                                                                                                                                                                                                              |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 13                                                                                                                                                                                                              |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |

Number of samples received: (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

|                                        |                                                 |                                                 |
|----------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Relinquished By: <u>Michael Jitter</u> | Date/Time: <u>1/21/11 9:43</u>                  | Sample Condition: On Ice Sealed Intact          |
| Laboratory Use Only                    |                                                 | Temp. (F°) Y/N Y/N Y/N                          |
| Received By: <u>[Signature]</u>        | Date/Time: <u>1-21-11 9:45a</u>                 | Carrier: <u>Land</u>                            |
| Results:                               | Contact Page Phone Email Fax Date Time Initials | Contact Page Phone Email Fax Date Time Initials |
|                                        | Contact Page Phone Email Fax Date Time Initials | Contact Page Phone Email Fax Date Time Initials |



**Attachment 2**

**LEAD CONTAINING PAINT SAMPLE TABLE  
AND LABORATORY REPORT**



January 25, 2011

|                      |                           |
|----------------------|---------------------------|
| Laboratory Code:     | RES                       |
| Subcontract Number:  | NA                        |
| Laboratory Report:   | RES 206023-2R             |
| Project # / PO #:    | 10048.001.001             |
| Project Description: | Louisville Grain Elevator |

Mike Ritter  
Landmark Environmental, Inc.  
250 Bryant Street  
Denver CO 80219

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the American Industrial Hygiene Association, Lab ID 101533 - Accreditation Certificate #480. The laboratory is currently proficient in both PAT & ELPAT programs respectively.

Reservoirs has analyzed the following sample(s) using Atomic Absorption Spectroscopy (AAS) / Atomic Emission Spectroscopy - Inductively Coupled Plasma (AES-ICP) per your request. Reported sample results were not blank corrected. The analysis has been completed in general accordance with the appropriate methodology as stated in the analysis table. Results have been sent to your office.

**RES 206023-2R** is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those authorized by the client. The results described in this report only apply to the samples analyzed. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you should have any questions about this report, please feel free to call me at 303-964-1986.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jeanne Orr", is written over a faint, larger signature.

Jeanne Spencer Orr  
President

**RESERVOIRS ENVIRONMENTAL, INC.****5801 Logan St., Suite 100****Denver CO 80216****TABLE ANALYSIS: LEAD IN PAINT**

RES Job Number: **RES 206023-2R**  
Client: **Landmark Environmental, Inc.**  
Client Project Number / P.O.: **10048.001.001**  
Client Project Description: **Louisville Grain Elevator**  
Date Samples Received: **January 21, 2011**  
Analysis Type: **USEPA SW846 3050B / AA (7420)**  
Turnaround: **3-5 Day**  
Date Samples Analyzed: **January 25, 2011**

| <b>Client</b>              | <b>Lab</b>       | <b>Reporting</b> | <b>LEAD</b>          |
|----------------------------|------------------|------------------|----------------------|
| <b>ID Number</b>           | <b>ID Number</b> | <b>Limit</b>     | <b>CONCENTRATION</b> |
|                            |                  | <b>(%)</b>       | <b>(%)</b>           |
| <b>PC-LGE-012011-EP-01</b> | EM 685794        | 0.003            | 0.008                |
| <b>PC-LGE-012011-WP-01</b> | EM 685795        | 0.003            | 7.696                |

\* Unless otherwise noted all quality control samples performed within specifications established by the laboratory.



Due Date: 1-26-1-28Due Time: 9:45a

# Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph. 303 964-1986 • Fax 303-477-4275 • Toll Free: 866 RESI-ENV

RES 206023

-1 PLM - 2 mm

Page 1 of 2

## SUBMITTED BY:

## INVOICE TO: (IF DIFFERENT)

## CONTACT INFORMATION:

|                                                                |          |                                       |                                   |
|----------------------------------------------------------------|----------|---------------------------------------|-----------------------------------|
| Company: <u>Landmark Environmental Inc</u>                     | Company: | Contact:                              | Contact: <u>MIKE RITER</u>        |
| Address: <u>250 Bryant St</u>                                  | Address: | Phone:                                | Phone:                            |
| <u>Denver, CO 80219</u>                                        |          | Fax:                                  | Fax:                              |
| Project Number and/or P.C. #: <u>10048.001.001</u>             |          | Cell/pager:                           | Cell/pager: <u>303-961-3218</u>   |
| Project Description/Location: <u>LOUISVILLE GRAIN ELEVATOR</u> |          | Final Data Deliverable Email Address: | <u>mritter@landmarkenviro.com</u> |

| ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm                                                                                                                                                                  |                                            | REQUESTED ANALYSIS              |                                              | VALID MATRIX CODES                      |             | LAB NOTES:              |                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------|----------------------------------------------|-----------------------------------------|-------------|-------------------------|---------------------------------|
| PLM / PCM / TEM                                                                                                                                                                                                 | <u>STANDARD</u>                            | PLM (Short report, Point Count) | TEM - AHERA, Level II, 7402, ISO, +/-, Quant | Air = A                                 | Bulk = B    |                         |                                 |
|                                                                                                                                                                                                                 | <u>RUSH (Same Day) PRIORITY (Next Day)</u> |                                 | Semi-quant, Micro-vac, ISO-Indirect Preps    | Dust = D                                | Paint = P   |                         |                                 |
|                                                                                                                                                                                                                 | (Rush PCM = 2hr, TEM = 6hr.)               |                                 | PCM - 7400A, 7400B, OSHA                     | Soil = S                                | Wipe = W    |                         |                                 |
| CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm                                                                                                                                                                 |                                            |                                 | DUST - Total, Respirable                     | Drinking Water = DW                     |             |                         |                                 |
| Metal(s) / Dust                                                                                                                                                                                                 | <u>3-5 Day</u>                             |                                 | METALS - Analyte(s) <u>LEAD</u>              | Waste Water = WW                        |             |                         |                                 |
| RCRA 8 / Metals & Welding                                                                                                                                                                                       | <u>5 day 10 day</u>                        |                                 | TCAP, Welding Fume, Metals Scan              | Other = O                               |             |                         |                                 |
| Fume Scan / TCLP                                                                                                                                                                                                |                                            |                                 | ORGANICS - BTEX, MTBE, GRO, DRO              | **ASTM E1792 approved wipe media only** |             |                         |                                 |
| Organics                                                                                                                                                                                                        | <u>24 hr. 3 day 5 Day</u>                  |                                 | OTHER -                                      | Sample Volume (L) / Area                | Matrix Code | Date Collected mm/dd/yy | Time Collected hh/mm a/p        |
| **Analysis turnarounds are subject to laboratory sample volume and are not guaranteed. You will be notified if delays are expected. Additional fees apply for afterhours and holidays for all analysis types.** |                                            |                                 |                                              | # Containers                            |             |                         |                                 |
| Special instructions:                                                                                                                                                                                           |                                            |                                 |                                              |                                         |             |                         | EM Number (Laboratory Use Only) |
| Client sample ID number (Sample ID's must be unique)                                                                                                                                                            |                                            |                                 |                                              |                                         |             |                         |                                 |
| 1                                                                                                                                                                                                               | B-LGE-012011-HP-01                         | ✓                               |                                              |                                         | B           | 1                       | 01/20/11                        |
| 2                                                                                                                                                                                                               | B-LGE-012011-WT-01                         | ✓                               |                                              |                                         |             |                         |                                 |
| 3                                                                                                                                                                                                               |                                            | ✓                               |                                              |                                         |             |                         |                                 |
| 4                                                                                                                                                                                                               |                                            | ✓                               |                                              |                                         |             |                         |                                 |
| 5                                                                                                                                                                                                               | B-LGE-012011-I-01                          | ✓                               |                                              |                                         |             |                         |                                 |
| 6                                                                                                                                                                                                               | B-LGE-012011-I-02                          | ✓                               |                                              |                                         |             |                         |                                 |
| 7                                                                                                                                                                                                               |                                            | ✓                               |                                              |                                         |             |                         |                                 |
| 8                                                                                                                                                                                                               | B-LGE-012011-WP-01                         | ✓                               |                                              |                                         |             |                         |                                 |
| 9                                                                                                                                                                                                               | B-LGE-012011-S-01                          | ✓                               |                                              |                                         |             |                         |                                 |
| 10                                                                                                                                                                                                              | B-LGE-012011-FT1-01                        | ✓                               |                                              |                                         |             |                         |                                 |
| 11                                                                                                                                                                                                              | B-LGE-012011-P3-01                         | ✓                               |                                              |                                         |             |                         |                                 |
| 12                                                                                                                                                                                                              |                                            | ✓                               |                                              |                                         |             |                         |                                 |
| 13                                                                                                                                                                                                              |                                            | ✓                               |                                              |                                         |             |                         |                                 |

Number of samples received:

(Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

|                                    |                                   |                          |        |        |
|------------------------------------|-----------------------------------|--------------------------|--------|--------|
| Relinquished By: <u>Mike Riter</u> | Date/Time: <u>1/21/11 9:43</u>    | Sample Condition: On Ice | Sealed | Intact |
| Laboratory Use Only                |                                   | Temp. (F°)               | Y/N    | Y/N    |
| Received By: <u>[Signature]</u>    | Date/Time: <u>1-21-11 @ 9:45a</u> | Carrier: <u>red</u>      |        |        |
| Results:                           | Contact                           | Page                     | Phone  | Email  |
|                                    | Contact                           | Page                     | Phone  | Email  |

Due Date: 1-26-1-28Due Time: 9:45a

# Reservoirs Environmental, Inc.

5801 Logan St. Denver, CO 80216 • Ph 303 964-1986 • Fax 303-477-4275 • Toll Free 866 RESI-ENV

Job # 206023Page 1 of 2

## SUBMITTED BY:

## INVOICE TO: (IF DIFFERENT)

## CONTACT INFORMATION:

|                                                                |                                       |             |
|----------------------------------------------------------------|---------------------------------------|-------------|
| Company: <u>Landmark Environmental INC</u>                     | Company:                              | Contact:    |
| Address: <u>250 Bryant St</u>                                  | Address:                              | Phone:      |
| <u>Denver, CO 80219</u>                                        |                                       | Fax:        |
|                                                                |                                       | Cell/pager: |
| Project Number and/or P.C. #: <u>10048.001.001</u>             | Final Data Deliverable Email Address: |             |
| Project Description/Location: <u>Louisville Grain Elevator</u> |                                       |             |

| ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm                                                                                                                                                                  |                                                     | REQUESTED ANALYSIS                           |                                                                                         | VALID MATRIX CODES                      |             | LAB NOTES:              |                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------|-------------|-------------------------|---------------------------------|
| (PLM) / PCM / TEM                                                                                                                                                                                               | RUSH (Same Day) PRIORITY (Next Day) <u>STANDARD</u> | PLM - Short report, Long report, Point Count | TEM - AHERA, Level II, 7402, ISO, +/-, Quant, Semi-quant, Micro-vac, ISO-Indirect Preps | Air = A                                 | Bulk = B    |                         |                                 |
| (Rush PCM = 2hr, TEM = 6hr.)                                                                                                                                                                                    |                                                     | PCM - 7400A, 7400B, OSHA                     | DUST - Total, Respirable                                                                | Dust = D                                | Paint = P   |                         |                                 |
| CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm                                                                                                                                                                 |                                                     | METALS - Analyte(s)                          | RCRA 8, TOLP, Welding Fume, Metals Scan                                                 | Soil = S                                | Wipe = W    |                         |                                 |
| Metal(s) / Dust                                                                                                                                                                                                 | RUSH 24 hr. <u>3-5 Day</u>                          | ORGANICS - BTEX, MTBE, GFO, DRO              | OTHER -                                                                                 | Drinking Water = DW                     |             |                         |                                 |
| RCRA 8 / Metals & Welding Fume Scan / TCLP                                                                                                                                                                      | RUSH 5 day 10 day                                   |                                              |                                                                                         | Waste Water = WW                        |             |                         |                                 |
| Organics                                                                                                                                                                                                        | 24 hr. 3 day 5 Day                                  |                                              |                                                                                         | Other = O                               |             |                         |                                 |
| **Prior notification is required for RUSH turnarounds.**                                                                                                                                                        |                                                     |                                              |                                                                                         | **ASTM E1792 approved wipe media only** |             |                         |                                 |
| **Analysis turnarounds are subject to laboratory sample volume and are not guaranteed. You will be notified if delays are expected. Additional fees apply for afterhours and holidays for all analysis types.** |                                                     |                                              |                                                                                         | Sample Volume (L) / Area                | Matrix Code | Date Collected mm/dd/yy | Time Collected hh/mm a/p        |
| Special Instructions:                                                                                                                                                                                           |                                                     |                                              |                                                                                         | # Containers                            |             |                         | EM Number (Laboratory Use Only) |
| Client sample ID number (Sample ID's must be unique)                                                                                                                                                            |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 1                                                                                                                                                                                                               | B - LGE - 012011 - CC - 01                          |                                              |                                                                                         |                                         | B1          | 01/20/11                | 685793                          |
| 2                                                                                                                                                                                                               | PC - LGE - 012011 - EP - 01                         |                                              |                                                                                         |                                         | EP1         |                         | 94                              |
| 3                                                                                                                                                                                                               | PC - LGE - 012011 - WP - 01                         |                                              |                                                                                         |                                         | P1          |                         | 95                              |
| 4                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 5                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 6                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 7                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 8                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 9                                                                                                                                                                                                               |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 10                                                                                                                                                                                                              |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 11                                                                                                                                                                                                              |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 12                                                                                                                                                                                                              |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |
| 13                                                                                                                                                                                                              |                                                     |                                              |                                                                                         |                                         |             |                         |                                 |

Number of samples received: (Additional samples shall be listed on attached long form.)

NOTE: REI will analyze incoming samples based upon information received and will not be responsible for errors or omissions in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis as indicated on this Chain of Custody shall constitute an analytical services agreement with payment terms of NET 30 days, failure to comply with payment terms may result in a 1.5% monthly interest surcharge.

|                                        |                                                 |                                                 |
|----------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Relinquished By: <u>Michael Jitter</u> | Date/Time: <u>1/21/11 9:43</u>                  | Sample Condition: On Ice Sealed Intact          |
| Laboratory Use Only                    |                                                 | Temp. (F°) Y/N Y/N Y/N                          |
| Received By: <u>[Signature]</u>        | Date/Time: <u>1-21-11 9:45a</u>                 | Carrier: <u>Land</u>                            |
| Results:                               | Contact Page Phone Email Fax Date Time Initials | Contact Page Phone Email Fax Date Time Initials |
|                                        | Contact Page Phone Email Fax Date Time Initials | Contact Page Phone Email Fax Date Time Initials |

**Attachment 3**

**REGULATED BUILDING MATERIALS SUMMARY TABLE**



Regulated Building Materials Inventory  
Louisville Grain Elevator  
Louisville, Colorado

| Description                | Quantity | Size                        | Location     |
|----------------------------|----------|-----------------------------|--------------|
| Fluorescent Light Fixtures | 4        | 3 feet                      | Ground Floor |
| Fluorescent Light Fixture  | 1        | 6 feet                      | Ground Floor |
| Refrigerator               | 5        | Standard Household          | Ground Floor |
| Refrigerated Display Cases | 4        | 6-8 Feet                    | Ground Floor |
| Vintage Television         | 2        | 1 Console, 1 - 12"          | Ground Floor |
| Compressed Gas Cylinder    | 1        | Volume Undetermined         | Ground Floor |
| Lawn Mower                 | 1        | 1 Qt. Gasoline              | Ground Floor |
| Paint                      | 12-15    | 1 Gallon                    | Ground Floor |
| Metal Drum                 | 1        | 55 Gallon – Unknown Content | Second Floor |
| *Automobile Tires          | 8-10     | N/A                         | Ground Floor |

\* Not an RBM, Requires Proper Disposal

**Attachment 4**  
**PHOTOGRAPHS**



**Photo 1 - First Floor Light Fixture**



**Photo 2 - Gas Cylinder and Refrigerated Display Case**





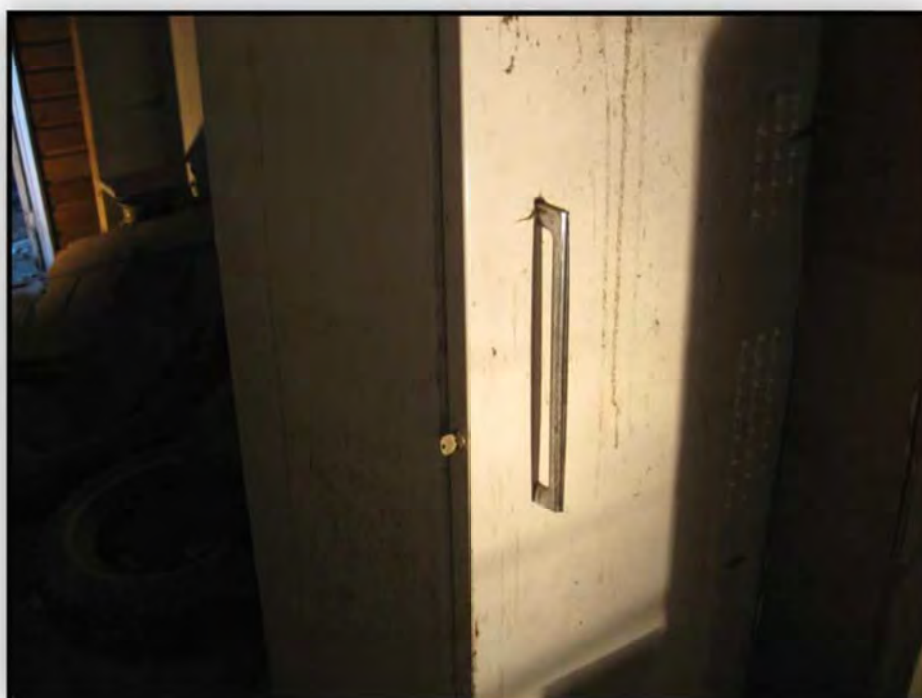
**Photo 3 - Vintage Television**



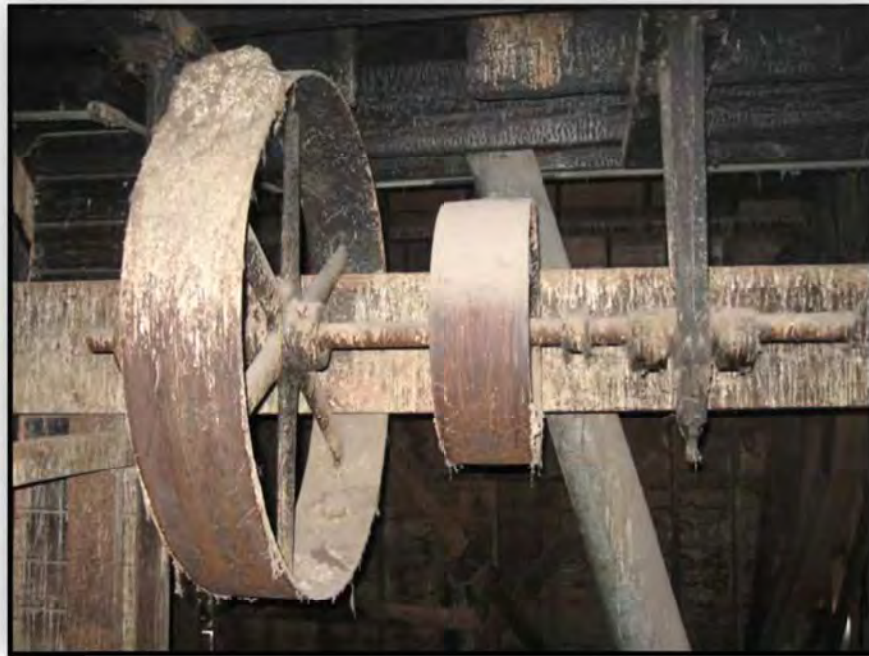
**Photo 4 - Discarded Vehicle Tires**



**Photo 5 - 55 Gallon Drum – Contents Unknown**



**Photo 6 - One of Five Refrigerators**



**Photo 7 - Guano on Upper Floor Mechanical Components**



**Photo 8 - Animal Feces – Upper Floors**



**Attachment 5**

**ESTIMATE OF PROBABLE COSTS**

Louisville Grain Elevator

Preliminary Cost Estimate

Prepared By:  
M. Roberts  
7-Feb-11

A&A

| ITEM | SPEC. SECTION | DESCRIPTION                                                                                                                          | QUANTITY | UNIT |   | UNIT PRICE  | SUBTOTAL           | COMMENT                       |
|------|---------------|--------------------------------------------------------------------------------------------------------------------------------------|----------|------|---|-------------|--------------------|-------------------------------|
| 1    |               | Mobilization                                                                                                                         | 1        | LS   | @ | \$ 500.00   | \$ 500.00          |                               |
| 2    |               | Demobilization                                                                                                                       | 1        | LS   | @ | \$ 250.00   | \$ 250.00          |                               |
| 3    |               | Labor Pre-cleaning of Stored Items for Recycling or Re-use                                                                           | 1        | LS   | @ | \$ 1,500.00 | \$ 1,500.00        | 1 day segregation & cleaning  |
| 4    |               | Labor Trash Removal                                                                                                                  | 1        | LS   | @ | \$ 1,200.00 | \$ 1,200.00        | 45 CY - 1 day                 |
| 5    |               | Labor Cleaning Animal debris, feces from Surfaces in Building                                                                        | 8,500    | SF   | @ | \$ 0.60     | \$ 5,100.00        | 8,500 Sf surfaces - 2 days    |
| 6    |               | Selective demo and removal of animal-stained areas                                                                                   | 400      | SF   | @ | \$ 2.50     | \$ 1,000.00        | 400 SF selective demo - 1 day |
| 7    |               | Biocide of Surfaces                                                                                                                  | 8,500    | SF   | @ | \$ 0.20     | \$ 1,700.00        |                               |
| 8    |               | Remove and dispose/recycle identified RBM's                                                                                          | 1        | LS   | @ | \$ 1,600.00 | \$ 1,600.00        | Identified RBMs               |
| 9    |               | LCP Exterior Stabilization - Incremental Cost for Painter's Prep.                                                                    | 1        | LS   | @ | \$ 1,500.00 | \$ 1,500.00        | Training, PPE and controls    |
| 10   |               | LBP Removal - Component Window frame remove & dispose                                                                                | 2        | EA   | @ | \$ 150.00   | \$ 300.00          | Replacement not incl.         |
| 11   |               | Equipment and Supplies (daily rate)                                                                                                  | 5        | EA   | @ | \$ 250.00   | \$ 1,250.00        |                               |
| 12   |               | Solid Waste Transport & Disposal                                                                                                     | 45       | CY   | @ | \$ 25.00    | \$ 1,125.00        |                               |
|      |               |                                                                                                                                      |          |      |   |             |                    |                               |
|      |               |                                                                                                                                      |          |      |   |             | <b>Total</b>       |                               |
| 13   |               |                                                                                                                                      |          |      |   |             | \$ 17,025.00       |                               |
|      |               |                                                                                                                                      |          |      |   |             |                    |                               |
| 13a  |               | Industrial Hygiene Inspections/Oversight and Work Plan Development - 15%                                                             |          |      |   |             | \$ 2,553.75        |                               |
| 13b  |               | Contracting and Unforeseen Condition Contingency 10%                                                                                 |          |      |   |             | \$ 1,702.50        |                               |
|      |               |                                                                                                                                      |          |      |   |             |                    |                               |
|      |               |                                                                                                                                      |          |      |   |             | <b>Grand Total</b> |                               |
| 14   |               |                                                                                                                                      |          |      |   |             | \$ 21,281.25       |                               |
|      |               | Estimated project performance period is 5 working days expedited schedules and associated overtime are not included in this estimate |          |      |   |             |                    |                               |



COLORADO HISTORICAL SOCIETY  
Office of Archaeology and Historic Preservation  
1300 Broadway Denver, Colorado

Historic Building Inventory Record

NOT FOR FIELD USE

ELIGIBLE

DET. NOT ELIG.

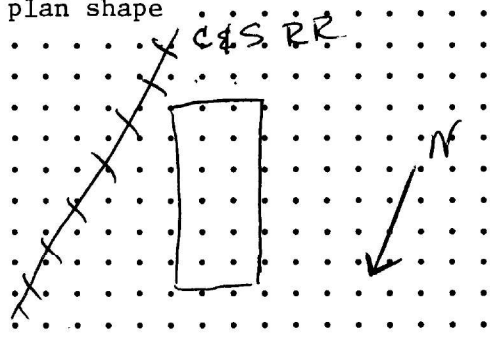
NOMINATED

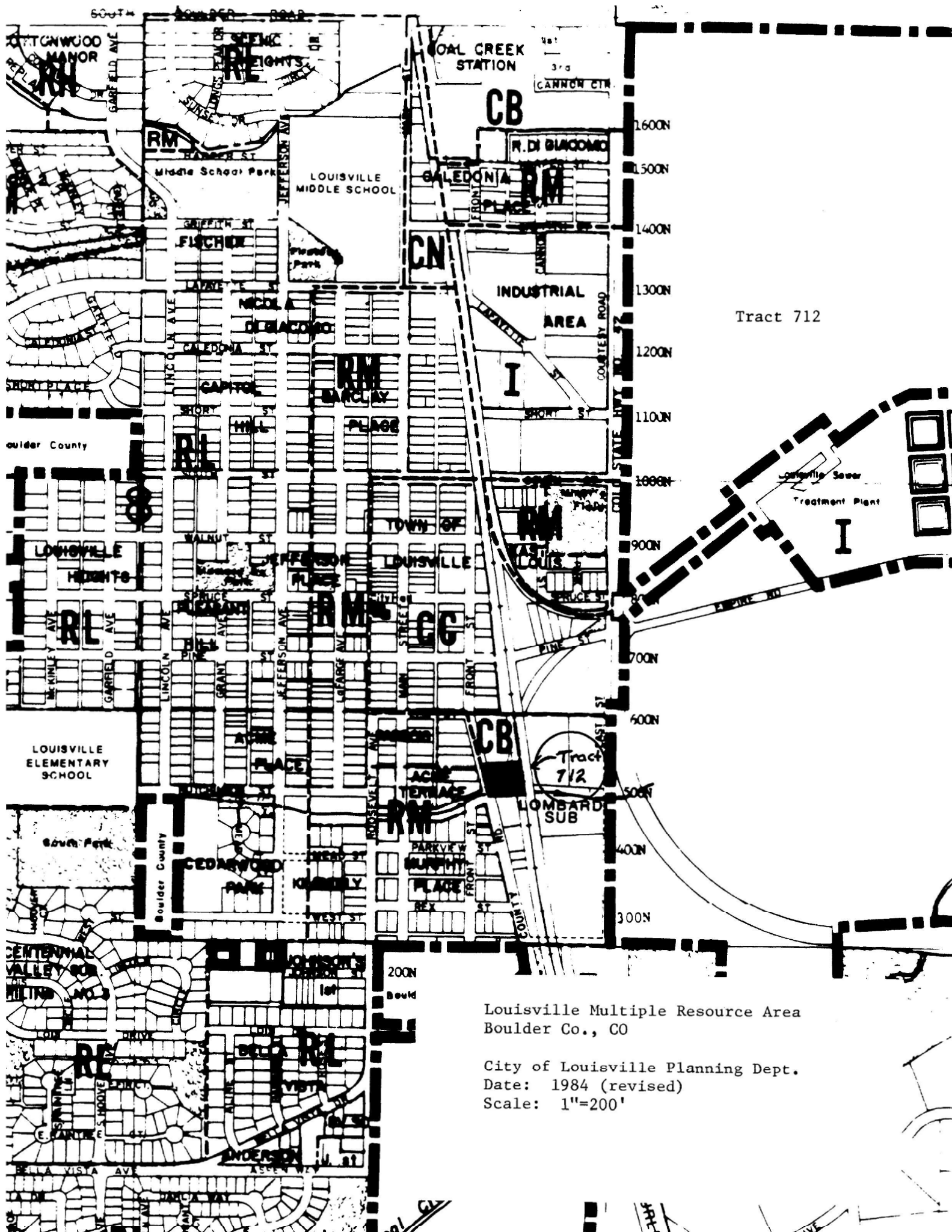
CERTIFIED REHAB

DATE \_\_\_\_\_

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                        |                                                                              |                                                                                    |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--|
| project name<br>Louisville Survey                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | county<br>Boulder      | city<br>Louisville                                                           | state ID no. 5BL830.20<br>temporary no. LSV14                                      |  |
| current building name<br>Grain Elevator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |                        | owner<br>Charles Thomas<br>Empire Road<br>Louisville, CO                     |                                                                                    |  |
| address<br>Tract 712, Louisville, CO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                        | tnsp 1S range 69W sec 8 ,SE 1/4, SE 1/4                                      |                                                                                    |  |
| historic name<br>Denver Elevator(Grain Elevator)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                        | USGS quad name 65(79)____yr. X 7.5' ____15'<br>Louisville                    |                                                                                    |  |
| district name<br>N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                        | blk. lot(s) addition yr. of addition<br>Previously unincorporated Louisville |                                                                                    |  |
| film roll<br>by S.F.Mehls no. LSV-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  | negative nos.<br>28,29 | loc. of neg.<br>CHS                                                          | date of construction<br>____estimate 1904____actual<br>source<br>Present Owner     |  |
| paste photograph here. use archival glue.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                        |                                                                              | use<br>Vacant____present<br>Grain Elevator____historic                             |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                        |                                                                              | condition<br>____excellent____good<br>XX fair____deteriorating                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                        |                                                                              | extent of alterations<br>XX minor____moderate____major<br>describe:<br>doors moved |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                        |                                                                              | XX original____moved<br>date(s) of move:____                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                        |                                                                              | field assessment<br>XX eligible____not eligible                                    |  |
| style<br>Nineteenth Century Commercial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | stories<br>1-3         | district potential<br>____yes XX no____contributing<br>____non-contributing  |                                                                                    |  |
| materials Wood siding & corrugated metal<br>sheathing/wood frame                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | sq. footage<br>4,950   | local landmark designation<br>Louisville<br>Landmark____name____date         |                                                                                    |  |
| architectural description<br>A wood-sided and corrugated metal 19th century grain elevator, functional in design. Has multi-gabled roofs with sections of disparate height. The main body consists of two tall units with few openings, with a shed-roofed appendage on the south side and a one-story section on the opposite, north side. There are openings on all sides in all sections excellent for the smaller of the two taller brick. Changes include metal siding on the tallest unit. Boardwalk on west side deteriorated. |  |                        | associated buildings? ____yes<br>type No                                     |                                                                                    |  |
| additional pages ____yes<br>XX no                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |                        | if inventoried, list ID nos.                                                 |                                                                                    |  |



|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                 |  |                    |         |        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                                      |        |               |                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------|---------|--------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------|--------|---------------|----------------------------------------------|
| plan shape<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">architect</td> <td style="width: 50%; padding: 2px;">Unknown</td> </tr> <tr> <td style="padding: 2px;">source</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">builder/contractor</td> <td style="padding: 2px;">Unknown</td> </tr> <tr> <td style="padding: 2px;">source</td> <td style="padding: 2px;"></td> </tr> </table> | architect    | Unknown                                                                                                                                                                                                                                       | source                                                                                                                                                                                                                                                                                                                                          |  | builder/contractor | Unknown | source |  | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 100%; padding: 2px;">original owner</td> </tr> <tr> <td style="padding: 2px;">Denver Elevator Co.<br/>(J.K. Mullen)</td> </tr> <tr> <td style="padding: 2px;">source</td> </tr> <tr> <td style="padding: 2px;">Present Owner</td> </tr> <tr> <td style="padding: 2px;">theme(s) Mountains-farming<br/>Urban-Rail Era</td> </tr> </table> | original owner | Denver Elevator Co.<br>(J.K. Mullen) | source | Present Owner | theme(s) Mountains-farming<br>Urban-Rail Era |
| architect                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Unknown                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                 |  |                    |         |        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                                      |        |               |                                              |
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| builder/contractor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Unknown                                                                                                                                                                                                                                                                                                                                                                                                                                                              |              |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                 |  |                    |         |        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                                      |        |               |                                              |
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| Denver Elevator Co.<br>(J.K. Mullen)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                 |  |                    |         |        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                                      |        |               |                                              |
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| Present Owner                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                 |  |                    |         |        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                                      |        |               |                                              |
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| construction history (descriptions, names, dates, etc. relating to major additions or alterations to original structure)<br><br>Wings on north side appear to have been modified at unknown date after initial construction. Other modifications have been minimal, consisting primarily of metal sheathing. Also, removal of steam boiler occurred at some date after 1960.<br><br><div style="text-align: right;">continued <input type="checkbox"/> yes <input checked="" type="checkbox"/> no</div>                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                 |  |                    |         |        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                                      |        |               |                                              |
| historical background (discuss important persons and events associated with this structure)<br><br>Built in 1908 to serve farmers in area surrounding Louisville. On exterior wall was once visible a sign saying "The Denver Elevator's".<br><br><br><br><br><div style="text-align: right;">continued <input type="checkbox"/> yes <input checked="" type="checkbox"/> no</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                 |  |                    |         |        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                                      |        |               |                                              |
| significance (check appropriate categories and briefly justify below)<br><br><table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;">           architectural significance:<br/> <input type="checkbox"/> represents the work of a master<br/> <input type="checkbox"/> possesses high artistic values<br/> <input checked="" type="checkbox"/> represents a type, period or method of construction         </td> <td style="width: 50%; vertical-align: top;">           historical significance:<br/> <input type="checkbox"/> associated with significant persons<br/> <input type="checkbox"/> associated with sig. events <u>patterns</u><br/> <input type="checkbox"/> contributes to an historic district<br/>           Area of Significance: <u>Agriculture, Architecture</u><br/>           Level of Significance: <u>Local</u>      Dates: 1900 -         </td> </tr> </table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              | architectural significance:<br><input type="checkbox"/> represents the work of a master<br><input type="checkbox"/> possesses high artistic values<br><input checked="" type="checkbox"/> represents a type, period or method of construction | historical significance:<br><input type="checkbox"/> associated with significant persons<br><input type="checkbox"/> associated with sig. events <u>patterns</u><br><input type="checkbox"/> contributes to an historic district<br>Area of Significance: <u>Agriculture, Architecture</u><br>Level of Significance: <u>Local</u> Dates: 1900 - |  |                    |         |        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                                      |        |               |                                              |
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| statement of significance<br>Built in 1908 for use as a grain elevator, this building is historically and visually the most significant structure associated with the agricultural history of the community. Its frame construction and functional design illustrate an important resource type traditionally associated with agriculture.<br><br>The building addresses the following RP3 concerns: correlates non-mining economic activity to the community-agricultural production; provides information on the physical form of rail towns-located directly on the tracks.<br><br><div style="text-align: right;">continued <input type="checkbox"/> yes <input checked="" type="checkbox"/> no</div>                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                 |  |                    |         |        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                                      |        |               |                                              |
| references (be specific)<br>Personal communication with Charles Thomas, present owner, 8/2/85.<br>Conarro, Carolyn, <u>The Louisville Story</u> , Louisville: Louisville Times, 1978.<br><br><br><div style="text-align: right;">continued <input type="checkbox"/> yes <input checked="" type="checkbox"/> no</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                 |  |                    |         |        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                                      |        |               |                                              |
| surveyed by S. Mehls, C. Mehls, J. Fell                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Affiliation Western Historical Studies                                                                                                                                                                                                                                                                                                                                                                                                                               | date 7/28/85 |                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                 |  |                    |         |        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |                                      |        |               |                                              |



Tract 712

Louisville Multiple Resource Area  
Boulder Co., CO

City of Louisville Planning Dept.  
Date: 1984 (revised)  
Scale: 1"=200'

Denver Elevator, Louisville, CO

### 3. Classification

| Category                                        | Ownership                                      | Status                                              | Present Use                            |                                                   |
|-------------------------------------------------|------------------------------------------------|-----------------------------------------------------|----------------------------------------|---------------------------------------------------|
| <input checked="" type="checkbox"/> district    | <input type="checkbox"/> public                | <input type="checkbox"/> occupied                   | <input type="checkbox"/> agriculture   | <input type="checkbox"/> museum                   |
| <input checked="" type="checkbox"/> building(s) | <input checked="" type="checkbox"/> private    | <input checked="" type="checkbox"/> unoccupied      | <input type="checkbox"/> commercial    | <input type="checkbox"/> park                     |
| <input type="checkbox"/> structure              | <input type="checkbox"/> both                  | <input type="checkbox"/> work in progress           | <input type="checkbox"/> educational   | <input type="checkbox"/> private residence        |
| <input type="checkbox"/> site                   | <b>Public Acquisition</b>                      | <b>Accessible</b>                                   | <input type="checkbox"/> entertainment | <input type="checkbox"/> religious                |
| <input type="checkbox"/> object                 | <input checked="" type="checkbox"/> in process | <input checked="" type="checkbox"/> yes: restricted | <input type="checkbox"/> government    | <input type="checkbox"/> scientific               |
|                                                 | <input type="checkbox"/> being considered      | <input type="checkbox"/> yes: unrestricted          | <input type="checkbox"/> industrial    | <input type="checkbox"/> transportation           |
|                                                 |                                                | <input type="checkbox"/> no                         | <input type="checkbox"/> military      | <input checked="" type="checkbox"/> other: Vacant |





Denver Elevator  
Boulder County, Colorado

Photographer: Steven Mehls  
Locale of Negative: Office of Archaeology  
& Historic Preservation  
1300 Broadway, Denver, CO  
Date of Photo: Augst 1985

Photo 1 of 2  
View looking southeast





Denver Elevator  
Boulder County, Colorado

Photographer: Steven Mehls  
Locale of Negative: Office of Archaeology  
& Historic Preservation  
1300 Broadway, Denver, CO  
Date of Photo: August 1985

Photo 2 of 2  
View looking northeast

## COLORADO CULTURAL RESOURCE SURVEY

### Architectural Inventory Form

(Page 1 of 5)

#### I. IDENTIFICATION

1. Resource number: **5BL961.11**
2. Temporary number: **N/A**
3. County: **Boulder**
4. City: **Louisville**
5. Historic building name: **Louisville Milling & Elevator Co. Elevator**
6. Current building name: **Louisville Milling & Elevator Co. Elevator**
7. Building address: **Tract 712, Louisville**
8. Owner name: **Charles K. & Iona Thomas**  
Owner address: **P.O. Box 156**  
**Louisville, CO 80027**

#### II. GEOGRAPHIC INFORMATION

9. P.M. **6th** Township **1S** Range **69W**  
**NW** of **NE** of **SE** of **SE** of section **8**
10. UTM reference  
Zone **13**  
Easting: **488940**  
Northing: **4424830**
11. USGS quad name: **Louisville, Colorado**  
Year: **1965 (Revised 1994) 7.5'**
12. Lot(s): **Tract 712** Block: **n/a**  
Addition: **n/a** Year of Addition: **n/a**
13. Boundary Description and Justification: **This legally defined parcel encompasses but does not exceed the land historically associated with this property.**

#### Official Eligibility Determination

(OAHP use only)

- Date \_\_\_\_\_ Initials \_\_\_\_\_
- ☐ Determined Eligible - National Register
- ☐ Determined Not Eligible - National Register
- ☐ Determined Eligible - State Register
- ☐ Determined Not Eligible - State Register
- ☐ Needs Data
- ☐ Contributes to eligible National Register District
- ☐ Noncontributing to eligible National Register District

#### III. ARCHITECTURAL DESCRIPTION

14. Building plan (footprint, shape):  
**Rectangular**
15. Dimensions in feet: **2464 square feet**
16. Number of stories: **Three**
17. Primary external wall material:  
**Wood / Weatherboard**  
**Wood / Stacked Lumber**
18. Roof configuration (enter one):  
**Gabled Roof**
19. Primary external roof material (enter one):  
**Asphalt Roof**
20. Special features (enter all that apply):  
**Chimney**

22. Architectural style /  
building type:

**Other Style**  
**(Stacked Plank**  
**Grain Elevator)**



**21. General Architectural Description**

This structure is oriented north-northeast to south-southwest, with overall measurements of 88' by 28'. From the north-northeast end, the building is composed of five sections, including an office, an elevator, an elevator tower, grain bins, and a warehouse. Each of these sections are described below.

The **Office** section is one-story tall, measures 10' by 28', is supported by a concrete foundation, and is covered with a shed roof, covered with rolled asphalt roofing. A brick chimney, with concrete pargeting, penetrates the roof near the north-northeast end. The office's exterior walls are painted white horizontal weatherboard, with 1" by 4" corner boards. A rectangular hipped-roof bay window, and a single wood-paneled door, are located on the office's north-northwest elevation. Three window openings on the office - two on the north-northeast elevation, and one on the east-southeast elevation - are covered with plywood.

The **Elevator** section is 1½-stories tall, measures 14' by 28', is supported by a low concrete perimeter walls foundation, and is covered by a gable roof, with red asphalt shingles, and exposed rafter ends with fascia. The elevator's exterior walls are painted white horizontal wood siding. A vertical wood plank horizontal sliding door is located on the elevator's west-northwest elevation.

The **Elevator Tower** section is three-stories tall, measures 14' by 28', is supported by a low concrete perimeter walls foundation, and is covered by a gable roof with red asphalt shingles, and exposed rafter ends with fascia. The elevator tower's first story exterior walls are painted white horizontal weatherboard; the elevator tower's second story walls are painted white stacked plank construction (2x lumber); the elevator tower's third story exterior walls are painted white square-out wood shingle siding. Painted white wood plank, horizontal sliding doors are located on the tower's east-southeast and north-northwest elevations.

The **Grain Bins** section is 1½-stories tall, measures 30' by 28', is supported by a low concrete perimeter walls foundation, and is covered by a gable roof with corrugated metal, and exposed rafter ends with fascia. The Grain Bins section features painted white stacked plank walls (2x lumber), and there is one window opening in the upper gable end.

The **Warehouse** section is one-story tall, measures 20' by 28', has a wood timbers on grade foundation, and is covered by a shed roof with corrugated metal over 1x wood decking and 2x wood rafters. The warehouse's walls are painted red horizontal weatherboard. One door opening is located on the west-northwest elevation.

**29. Construction History** (include description and dates of major additions, alterations, or demolitions:

This structure was built in 1903.

**23. Landscape or setting special features:**

Now abandoned, this grain elevator is located on a tract of land between Front Street and the railroad tracks, south of Elm Street, to the southeast of downtown Louisville.

**24. Associated buildings, features, or objects**  
n/a**IV. ARCHITECTURAL HISTORY****25. Date of Construction:**

Estimate

Actual 1903

Source of information:

1908 Sanborn map lists structure's date of construction as "1903.". Louisville Milling & Elevator Co. is first listed in the 1904 Boulder County Directory.

**26. Architect:**

n/a

Source of information:

n/a

**27. Builder/ Contractor:**

unknown

Source of information:

n/a

**28. Original owner:**

Louisville Milling &amp; Elevator Co.

Source of information:

Boulder County Directories

**30. Original location:** yes

Moved no

Date of move(s) n/a



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**V. HISTORICAL ASSOCIATIONS**

31. Original use(s): **Agriculture/ Subsistence / Grain Elevator**
32. Intermediate use(s): **n/a**
33. Current use(s): **Vacant / Not In Use**
34. Site type(s): **Grain Elevator**

**35. Historical Background**

This structure was constructed in 1903 by the Louisville Milling and Elevator Company. Built with a 25,000 bushel capacity, this grain elevator served area farmers until its closure in the 1950s. Howard A. Moore of Louisville was the facility's manager, during the 1910s and 1920s, Moore, and his wife Zara, lived on Spruce Street in Louisville, just west of McKinley Avenue. In the late 1930s and 1940s, the Louisville Milling and Elevator Company was managed by Donald C. Moore. (Donald was perhaps Howard's son.) Donald Moore, and his wife Sadie, lived at 633 Garfield Avenue in Louisville. By the early 1950s, the facility's name had been changed to "The Denver Elevator." Dan Gunkel was the manager in 1951. By the 1960s, the elevator had been acquired by Charles and Iona Thomas, and by Quentin C. Thomas, who ran a feed store in Louisville. The Thomases were descendant from a long-time Louisville coal mining family. Charles and Iona Thomas are still the building's owner in 2000.

**36. Sources of Information**

(Boulder County) "Real Estate Appraisal Card - Urban Master", on file at the Boulder Carnegie Library.

"Grain Elevator A Silent Sentinel of Plains. *The Denver Post*, April 4, 1999, p. 99.

Mehls, Steven F., and Mehls, Carol Drake. "Colorado Historical Society, Historic Building Inventory Record", (Tract 712, Louisville), July 28, 1985. On file at the Colorado Historical Society, Office of Archaeology and Historic Preservation, Denver, CO.

*Polk's Boulder County Directory* [generally published annually], Denver, Kansas City, and Salt Lake City: R.L. Polk and Company Publishers.

*Polk's Longmont City Directory*, [generally published annually], Denver, Kansas City, and Salt Lake City: R.L. Polk and Company, Publishers, 1966 - 1997.

Sanborn Fire Insurance Map, August 1908.

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**VI. SIGNIFICANCE**

37. Local landmark designation:

Yes

No ☒

Date of Designation: n/a

38. Applicable National Register Criteria

☒ A. Associated with events that have made a significant contribution to the broad patterns of our history;

B. Associated with the lives of persons significant in our past;

☒ C. Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or that possess high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction;

D. Has yielded, or may be likely to yield information important in history or prehistory;

Qualifies under Criteria Considerations A through G (see Manual).

Does not meet any of the above National Register criteria.

39. Area(s) of Significance:

**Agriculture; Commerce**

40. Period of Significance: 1903 - 1950

41. Level of Significance:

National:

State: ☒Local: ☒**42. Statement of Significance**

This building has been individually listed in the National Register of Historic Places. It is historically significant, relative to National Register Criterion A, for its association with the theme of agriculture during the first half of the twentieth century. The structure is architecturally significant, under National Register Criterion C, because it one of the region's last remaining wooden grain elevators, and because of its rare stacked plank construction. The preservation of this building should be one of Louisville's highest preservation priorities.

**43. Assessment of historic physical integrity related to significance:**

This structure has had no additions, and very minimal alterations, subsequent to its original construction in 1903. As such it exhibits a high degree of historical integrity, in accordance with National Park Service and Colorado Historical Society guidelines. The property's owners are unfortunately allowing the building to deteriorate.

---

**VII. NATIONAL REGISTER ELIGIBILITY ASSESSMENT**

44. National Register eligibility field assessment:

Eligible: **xx**

Not Eligible:

Need Data:

45. Is there National Register district potential?

Yes:

No: **xx**

Discuss: **This structure is in a relatively isolated location, at Louisville's southeastern outskirts.**

If there is National Register district potential, is this building:

Contributing: **n/a**

Noncontributing: **n/a**

46. If the building is in an existing National Register district, is it:

Contributing: **n/a**

Noncontributing: **n/a**

**VIII. RECORDING INFORMATION**

47. Photograph numbers:

Roll: **CM-6**

Frame(s): **25-28**

Negatives filed at: **City of Louisville, Administration  
749 Main Street  
Louisville, Colorado 80027**

48. Report title: **"Old Town" Louisville Historical Building Survey**

49. Date: **February 1, 2000**

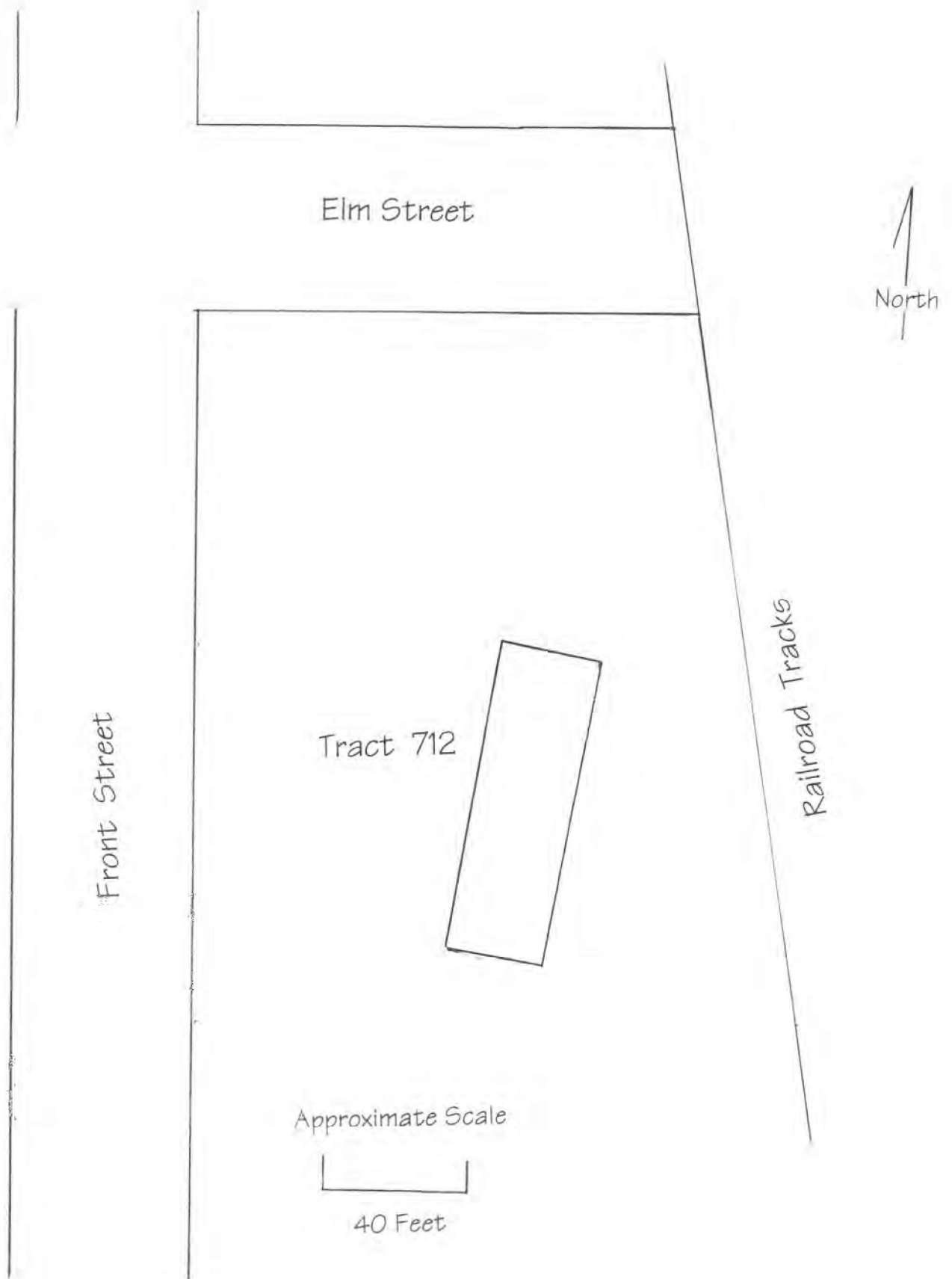
50. Recorder(s): **Carl McWilliams**

51. Organization: **Cultural Resource Historians**

52. Address: **1607 Dogwood Court  
Fort Collins, Colorado 80525**

53. Phone number: **970/493-5270**





. . . SKETCH MAP . . .









5BL961.11      Tract 712, Louisville  
 The Denver Elevator  
 26 April 2000  
 Negative located at: City of Louisville  
                                  749 Main Street, Louisville, CO 80027  
 Photographed by Carl McWilliams  
 Roll CM-6      Frame 26  
 View to SE

5BL961.11      Tract 712, Louisville  
 The Denver Elevator  
 26 April 2000  
 Negative located at: City of Louisville  
                                  749 Main Street, Louisville, CO 80027  
 Photographed by Carl McWilliams  
 Roll CM-6      Frame 27  
 View to NNE



November 21, 2025

J. Erik Hartronft  
HAPC  
950 Spruce St.  
#2C  
Louisville, CO 80027

Reference: Ascent Job# 2025-0150: Louisville Historic Grain Elevator

Dear Mr. Hartronft,

At your request, our firm observed the existing grain elevator structure located at 540 County Road, Louisville, CO with respect to the structural references within Historic Structure Assessment (HSA) prepared by Anderson Hallas Architects, PC Dated May 2nd 2011.

Since that document was prepared, your firm and another structural engineering firm JVA Consulting Engineers, prepared a structural stabilization plan with the anticipation of restoring the boardwalk and porte cochere on the west side of the building and a low profile addition on the east side of the building. Construction efforts to prepare and stabilize the structure were commenced but not fully completed.

Our firm reviewed the current condition of the structure with respect to the structural stabilization documents and the 2011 HSA and have prepared the following narrative. The *Italicized* text is directly from the 2011 HSA and is included in this document for reference. In the HSA Text, note that "GRID Z" referenced in the original Historic Structure Assessment text corresponds to "GRID C" in the construction plans prepared by HAPC, JVA and Ascent Group Inc.

### *3.2 Foundation Systems*

#### *Description*

*Sections 1, 2, and 3: The existing foundation is largely visible in the basement. The basement is approximately six feet tall from the bottom of the first floor joists to the dirt floor. The dirt floor approximately matches the top of continuous footing elevation. Continuous strip footings, where visible, were measured to be 6" thick by 2'-0" wide. These footings support half-height concrete stem walls. The stem walls support half-height wood stud walls around the perimeter and timber posts and beams along the interior bearing lines. Along gridline 4, full-height timber posts are supported on isolated spread footings.*

*In one location along gridline A and in two locations along gridline Z, the concrete stem wall is omitted where historic door openings once existed. The block-outs in the concrete stem wall are now covered with wood sheathing.*

*The current exterior grade elevation approximately matches first floor elevation. The historic grade elevation was approximately three feet lower, near the top of concrete stem wall elevation and with isolated areas of lower grade at the basement door openings. A boardwalk, visible in the February 8, 1916 photograph, afforded access to the first floor level door openings.*

*In Section 2, two interior timber posts on isolated spread footings support basement level machinery. In Section 3, four interior timber posts on isolated spread footing support the first floor in locations presumed to have previously housed heavy equipment. One of these four posts is no longer in-place.*

*In the central portion of Section 3, an 8'-8" x 7'-8" x 5'-0" deep pit exists. The pit walls are unreinforced concrete approximately 7" thick. The pit floor is either dirt or a concrete slab concealed beneath the dirt.*

*Section 4: Four continuous strip footings running in the north to south direction support the stacked-plank bin walls. The footings measure 14" thick by 3'-0" wide. The top of footing elevation is approximately 5'-6" below the first floor elevation.*

*The bin floors, consisting of 3"x10" joists spaced at 5 inches, spanning east to west, bear on two untreated 3"x12" plates on top of the strip footings. The stacked-plank bin walls rest on the ends of the floor joists. The space between the joists are infilled with 3"x10" spacer blocks beneath the bin walls.*

*Section 5: The crawlspace under Section 5 is not accessible and is currently only visible through a small wall opening along gridline 5. A total of nine timber posts and the perimeter walls support the first floor above. Isolated footings were visible under the six northern posts at the dirt floor elevation, roughly three feet below the bottom of first floor joist elevation. Footings were not visible under the three posts along the south.*

*The perimeter foundation walls along gridlines A, Z, and 6 are constructed of wood studs and posts. The walls are sheathed on the exterior side with horizontal siding. The walls along gridlines A and Z are also sheathed on the interior side. Remnants of historic crawl space access openings are visible on each of the three foundation walls.*

*Along gridline 5, substantial wall settlement is visible along the entire length of this wall with isolated areas of failure where the studs have collapsed inward. The walls along gridlines A and Z do not show signs of movement, but various diagonal braces have been installed perpendicular to the wall plane to resist soil pressure.*

*The Architectural Inventory Form, (dated April 26, 2000) states that this building section has a wood timber on grade foundation. This is consistent with the substantial wall movement visible along gridline 6, signaling a deteriorated grade beam. The foundations along gridlines A and Z are likely constructed with the same materials. A small portion of concrete footing is visible along gridline A approximately 10 feet north of gridline 6. This concrete is possibly part of a later repair; a departure from the typical foundation construction on the end walls; or an isolated footing at the jamb of the crawlspace access opening.*

#### *Evaluation*

*Sections 1, 2, and 3: The existing footings where visible were in good condition and showed no signs of distress or movement. Although the 6" thick strip footings are relatively thin, they are still capable of carrying Code required gravity wall loads. The width of the footings is acceptable assuming an allowable bearing pressure of 2500 psf. However, the existing perimeter footings are inadequate to resist the rotation induced by the lateral earth pressures applied to the stem wall.*

*The concrete stem walls are in good condition and showed no signs of distress, cracking, or movement.*

*The interior wood foundation walls are in fair condition. The untreated sill plates are in contact with concrete which is not permitted by current Code. However, there were no obvious signs of deterioration at the time of our assessment, except at one location near grid intersection 3/A noted in the Wood Scientist's report located in the Appendix.*

*The exterior stud walls were clearly not intended to retain soil originally and the wall is performing poorly as a result. The walls are deteriorated in some locations and deterioration would be expected to continue and become widespread if the wall is not repaired. The wood is absorbing moisture from the retained soil and wood with high moisture content is prone to decay. See the Wood Scientist's report for more discussion on wood decay. Current Code prohibits the use of untreated wood in contact with soil for this reason.*

*Along gridline Z, in Section 3, the full-height stud wall has failed due to a combination of overload (soil pressure) and wood deterioration. In this location, the first floor and the walls above are supported by a timber beam which spans to gridlines 3 and 4. Thus, the failed stud wall does not pose an immediate risk of structural collapse of the framing above.*

*Section 4: The existing footings, where visible near gridline 4, were in good condition and showed no signs of distress or movement. The footings were sized to support the weight of the stacked-plank bin walls and the weight of grain in a filled bin. Provided the bin walls remain largely intact and no more than two or three levels of floor framing are introduced in any adaptive re-use program, the existing footings should be able to remain in service unaltered.*

*The existing bin walls below grade range from poor to good condition. In Bins 5 and 6, severe deterioration was readily visible. In the remaining bins, the condition likely varies considerably based on localized areas of high moisture content coupled with environmental conditions favorable to promoting wood decay. Because no visible deterioration was obvious, it is assumed that the remaining bin walls below grade are in fair to good condition with only small areas of wood in poor condition requiring repair.*

*Section 5: The six visible isolated spread footings to the north appear to be in good condition. The remaining three isolated spread footings to the south were not visible and either never existed or have settled substantially. Their condition is poor.*

*The condition of the foundations along gridlines A and Z is poor since the untreated wood wall and grade beam is in contact with the soil. Wood deterioration was visible at the exterior grade elevation through a small break in the siding at grid intersection Z/6.*

*The foundations along gridline 6 are in poor condition as segments of the foundation wall above have collapsed and settled significantly. Since this wall supports portions of the first floor and the roof, it should be corrected immediately or temporarily shored until permanent repairs can be performed.*

#### *Recommended Treatment*



*Sections 1, 2, and 3: If the exterior grade is returned to its historic elevation and the fill inside the basement is raised so that the difference in soil retaining heights on both sides of the wall is minimized, then the strip footings and concrete foundation walls, in general, may remain in service although isolated deficiencies will likely be uncovered during excavations that will require repair. It is also anticipated that alterations required for adaptive re-use of the building will concentrate or change loads in some locations. In these locations, the footing will need to be strengthened or enlarged. Deteriorated portions of the wood stud foundation walls, once they are re-exposed along the exterior and no longer in contact with the surrounding soils, will require repair and replacement where deteriorated. Historic basement level door openings, will need to be infilled with concrete up to the top of the concrete stem wall.*

*If the grading alterations recommended above are not possible or desired, another basic foundation stabilization option exists. Details of the stabilization will be further developed during design phases after the final use of the building has been decided and in consideration of costs, durability, and other site constraints. The general approach would be as follows:*

*After excavating around the perimeter of the building to the bottom of the existing footing elevation, the first floor would be shored so that the existing untreated wood foundation walls could be removed. These walls would be replaced with concrete infill walls or preservative-treated wood stud walls and sheathing. The new walls would need to be anchored to the top of the existing stem wall and the first floor diaphragm. The existing concrete wall and footing would need to be augmented with a doweled footing extension and periodic counterforts to resist the lateral earth pressures. After the new wall assembly is constructed, appropriate waterproofing materials would need to be applied to the exterior side of the wall.*

*The four isolated posts and footings in Section 3 may be removed if office use first floor loading is anticipated. They may also remain if assembly occupancy or large concentrated loads on the first floor are planned. One of the four timber columns will need to be reset. The existing pit in Section 3 should be backfilled to minimize potential settlement of the Section 4 bin strip footings if the pit were to deform.*

*Section 4: No treatment to the bin footings is required. Note that if extensive alteration of the bin walls (i.e. punched openings) and/or significant recruitment of the bins wall for the lateral force resisting system is proposed as part of the adaptive re-use program, it will tend to concentrate load in discrete locations along the length of the existing strip footing. Large concentrated loads will require that the footing be strengthened in these locations.*

*In Bins 5 and 6, the severely deteriorated portions of the walls require replacement. Needle beam shoring may be required above the deteriorated areas. The deteriorated areas should be removed back to competent, dry material and replaced, ply-by-ply. Until repairs are made, the area between Bin 5 and Bin 6 should be periodically inspected. It may be prudent to shore the bin walls above this deterioration to prevent localized collapse until repairs are completed.*

*In the remaining bins, the extent of stacked-plank deterioration requiring replacement should be quantified by resistance boring from the interior of the bins. After the bins have been cleaned and the exterior walls currently below grade are exposed during excavation, the condition should also be visually assessed prior to recommendation of final repairs. It is assumed that small areas of the bin walls below grade will require replacement.*

*Along gridlines A and Z, the exterior grade should be removed so that the stacked-plank wood bin walls are not in contact with the surrounding soils. If this is not possible, the grade should be excavated to the footing elevation so that deteriorated areas of the wall can be removed and replaced. Prior to backfilling, the exterior side of the walls should be surfaced with an impervious waterproof membrane. Reinforcement, if required, to resist the soil pressures could be installed on the exterior side of the wall and be constructed with preservative treated lumber.*

*Section 5: The soil around the six isolated spread footings to the north should be removed around the base of the timber columns to prevent potential deterioration to the column bases. The footing capacities can be determined once their size is determined, the nature of the first floor loading is determined, and the allowable soil bearing capacity is established.*

*The three isolated spread footings to the south, if existing, should be removed. New footings should be cast integrally with the new stem wall recommended along gridline 6. Pilasters can be introduced along the stem wall that support the first floor girders in-lieu of replacing the timber posts.*

*The first floor and stud walls along gridlines A, Z, and 6 should be shored and the existing untreated wood foundations removed. The foundations should be replaced with a concrete stem wall and continuous strip footing. A difference in exterior and interior grade elevations may be maintained by connecting the top of the new concrete stem wall to the first floor diaphragm.*

UPDATE: Stabilization of the foundation has occurred in close conformance to the Construction Phase 3.3 plans prepared by JVA and stamped 11/4/16.

Due to new foundation stabilization and new perimeter foundation walls and counterforts, the foundation walls are in good condition with the exception of one portion of wood framed wall in section 1 on grid A. This will be rebuilt with concrete. Sections 1, 2 & 3 have had counterforts installed along grid A and the existing grade against the wood walls has been removed, but this area is currently a well and does not drain away from the building. New sister foundation walls have been added along grids 1 & 6. West of grid Z (Grid C on current plans) secondary

foundation elements have been placed to support a future boardwalk and porte cochere. This area has a temporary framed lid and the top of the new foundation walls are such that the grade slopes away from the structure to the west. Concrete caps have been added to the top of some walls replacing rotted wood plates and to increase grade levels against the foundation. Bins have been cleaned and the exterior walls and most interior walls have been repaired as per the structural stabilization documents. Once section of interior wall between bins 4 & 5 still requires repair adjacent to the new opening between bins. The previously deteriorated bin floor framing is still in its rotted condition directly on the foundation. This will require repair and replacement of these timber elements. New foundation elements will occur with the new boxcar addition to the east and any un-discovered repair areas at interior locations.

### *3.2b Perimeter Foundation Drainage*

**DESCRIPTION:** *There is no known perimeter drainage system and it would have been unlikely to have been installed at the time of construction.*

*The exterior grade elevation is approximately equal to the first floor elevation along the north, east, and south sides of the building. Along the east elevation, a concrete curb divides the soils from the exterior wall and diverts surface drainage away from the building edge to the south. The depth of the curb is unknown but is expected to only be a few inches below the surface. Along the north and south elevation, the grade generally slopes away from the base of the building although a depression is centrally located along the north wall. Along the west elevation, the outlying grade is lower and is bermed up to the first floor elevation. This condition clearly diverts surface runoff away from the building envelope.*

#### **EVALUATION:**

*Although the current grading appears to slope away from the building in most locations, the soil is still capable of wetting and transferring moisture into the wood foundation walls.*

#### **RECOMMENDED TREATMENT:**

*The foundations appear stable and no signs of water infiltration were visible in the basement which indicates that a perimeter drain may not be appropriate.<sup>1,2</sup>*

*The final grade around the building perimeter, no matter of the elevation, should be sloped away from the building at least 2% to encourage surface runoff to migrate away from the foundation walls as recommended in Section 3.1 Site. Until foundation stabilization and grading is complete, the interface between the existing curb and building's sheathing should be maintained to prevent water from infiltrating the joint. Snow that accumulates along the base of the building should be removed rather than allowed to melt while in contact with the building's wood materials. The grade depression along the north wall, potentially trapping water, should be corrected.*

#### **Footnotes:**

- 1. The groundwater elevation and the in-situ soil characteristics are unknown. A Geotechnical Engineer's Report will be required to design foundation repairs and that Report should also assess the suitability of a perimeter drain. Since the building's perimeter grade will be excavated during foundation stabilization operations, a perimeter drain could be installed at that time for little additional cost. Perimeter drainage would minimize the possibility of saturated soils increasing the lateral earth pressure on the foundation walls, the periodic increases in moisture in the basement, and moisture changes at the footing depth that may lead to settlement.*
- 2. The Code requires that wood foundation walls enclosing usable spaces below grade be adequately drained.*

**UPDATE:** Completed foundation recommendations will allow the future drainage plan to be completed.

### *3.3 Structural Systems*

#### *3.3 General Structural System Description*

##### **DESCRIPTION:**

*Demolition was not performed during the building assessment visit and thus only areas readily visible were assessed. However, the majority of framing assemblies were visible as most of the building's interior is unfinished. The primary exceptions to this were the Section 1 basement and wall framing, and the Section 5 crawl space which were not readily accessible or visible.*

*The original construction drawings are not available nor does documentation describing any repairs, alterations or additions exist.*

*Note that this report departs from the Architectural Inventory Form (dated April 26, 2000) convention for describing the distinct building sections. In this report, the sections are described by number, with Section 1 starting at the north and ending with Section 5 at the south. Structural findings and recommendations are referenced to section numbers, room numbers, and gridlines per the drawings in the Appendix which were developed as part of this assessment.*

*The structure contains five distinct sections demarcated by their construction type, height and historic use. There are multiple floor levels in the approximately 48 foot tall Section 3, the tallest portion of the building. A full basement exists under Sections 1, 2, and 3.*

*Roof framing consist of sloped wood rafters bearing on interior dropped purlins and stud walls or bin walls on the exterior. Sections 1, 2, 3, and 5 are conventional light-framed wood construction. The floors are constructed of 2x and 3x joists with wood floor sheathing. The walls are constructed of 2x studs surfaced with horizontal wood siding. The first floor level of Section 3 is framed with timber posts and beams.*

*Section 4 is constructed of stacked-plank wood walls which form the six grain bins. There are similar stacked-plank walls on the third level of Section 3.*

*A mixture of foundations and foundation wall types exist and are described in Section 3.2 in this report.*

*All wood joists, studs, beams, and post sizes measured corresponded to typical dressed sizes. As such, lumber is referred to by its nominal size in this report. The wood species of the framing elements in Sections 1, 2, 3, and 4 has been identified as Douglas-fir. The wood species in Section 5 has been identified as a mixture of Douglas-Fir and Western yellow pine. Please refer to the Wood Scientist's Report in the Appendix for more details.*

*Detailed structural system descriptions are found elsewhere in this report.*

**EVALUATION:** *The building structure below the first floor is in poor condition. The building from the first floor and above is generally in fair condition. Selective strengthening of the framing systems will be required to address fire damaged members and localized framing areas having calculated overstresses.*

*The structure is currently a "U" or utility occupancy. The proposed use will result in a classification that, per IEBC Table 912.4, represents an increase in hazard category. The occupancy category also increases from I to II per IBC Table 1604.5. This triggers a number of structural upgrade provisions in Section 907 of the IEBC. Per 907.2, the existing building shall be analyzed and comply with applicable wind or snow load provisions of the IBC. Per 907.3.1, the existing building shall conform to the seismic requirements of the IBC for the new seismic use group. This will require that the roof framing and lateral force resisting systems be strengthened to comply with current Code.*

*The final use of the building has not been determined. However, where the proposed use results in an increase in live load, the capacity of the floors and their supporting elements will have to be determined and strengthening will be required where they are found deficient.*

**RECOMMENDED TREATMENT:** *See detailed structural system descriptions for recommended treatments.*

**UPDATE:** The intended use for the existing structure is a restaurant serving occupants on the first floor of sections 1, 2, 3 & 5, and the 2<sup>nd</sup> floor and basement of section 3. Much of the structural stabilization has taken place with some exceptions and deviations from the construction documents prepared by JVA. This is described in the following structural system descriptions.

### *3.3a Floor and Ceiling Systems*

#### **DESCRIPTION:**

*Section 1: The first floor is framed with 2"x8" joists spaced at 16 inches spanning in the north to south direction. The joists bear on wood stud walls along gridlines 1 and 2. An interruption in the floor framing exists where a basement stair exists and is now abandoned. The floor opening has been sheathed over.*

*The first floor ceiling is framed with 2"x6" joists spaced at 16 inches spanning in the north to south direction. The joists bear on wood stud wall along gridlines 1 and 2 and are surfaced on their underside with finishes. No other ceiling finishes exist in the building.*

*Section 2: The first floor is framed with 3"x12" joists spaced at 16 inches spanning in the north to south direction. The joists bear on a timber post and beam cripple walls along gridlines 2 and 3. An interruption in the floor framing exists at the basement stairs.*

*The second floor is framed with two bays of 2"x8" joists spaced at 24 inches spanning in the east to west direction. The joists bear on wood stud walls along gridlines A and Z and a central bearing line that equally divides the two bays. The central bearing line was a*



wood stud wall, but it has been removed. The existing top plate remains in place and is supported in three places by wood props. The second floor framing is fire damaged.

*Section 3: The first floor is framed with 3"x12" joists spaced at 16 inches spanning in the north to south direction. The joists bear on a timber post and beam cripple wall along gridline 3 and timber posts and beams along gridline 4. Four isolated posts with wood 'corbels' are spaced roughly equidistantly in a rectangular pattern beneath the center of the bay. It is assumed these additional floor supports accommodated machinery historically stored on the first floor of Section 3. One of the four posts is no longer in place.*

*The third, fourth, and sixth floors are also framed with 3"x12" joists spaced at 16 inches spanning in the north to south direction. The joists span the full bay width to bearing lines along gridlines 3 and 4. The floor joists on all three floors are fire damaged. The maximum depth of char measured is 9/32 inches. Multiple interruptions in the floor framing exist around chutes, machinery, stairs, and ladderways. The sixth floor is an approximately 8 feet wide centrally located mezzanine with open areas to the east and west.*

*Section 4: The bin floors, consisting of 3"x10" joists spaced at 5 inches, spanning in the east to west direction, bear on 3"x12" plates over the existing continuous footings. The bin floor joists are presumed to be wood sheathed, but the flooring materials were not visible beneath the existing grain and detritus.*

*The fifth floor is approximately 10 feet wide, centered over the bins below, with open areas to the east and west. The floor framing consists of 2"x8" joists at random spacing spanning approximately 9 feet in the north to south direction to the bin stacked-plank walls. The flooring is flat 2"x4" gapped boards. Six small openings in the flooring provide access to each bin via ladderways.*

*Section 5: The first floor is framed with 2"x10" joists, spaced at 16 inches, running east to west, and spanning a maximum of 10 feet. The floor joists bear on the foundation walls along gridlines A and Z at the exterior and lap over three-ply 4"x12" dropped timber beams on the interior. The beams are each supported by three 8"x10" timber posts.*

*The three timber posts along and nearest to gridline 6 have failed. Two of the posts have fallen down and the center post has noticeably settled. Along the western bearing line, the south end of the dropped beam has fallen down to the crawlspace floor. The south ends of the two other bearing lines have moved downward approximately 6 inches to 1 foot. The floor joists have also displaced downward sympathetically with the displaced beams.*

#### **EVALUATION:**

*All Sections: The approximate load carrying capacities of the floor framing systems were calculated based on the member size, approximate span, wood species, and an assumed grade. Fire damaged member sizes were adjusted based on the maximum depth of char measured, subtracted from three faces of the member.*

*The Wood Scientist's findings indicate that the likely grade of the building's wood framing as a whole is #3. Where the lumber grade was assessed, the percentage of members not meeting grade ranged from 10 to 20 percent. Utilizing the estimated grade of #3 in design calculation reduces the calculated joist capacities by approximately 40% compared to a grade of #2. Since this difference is considerably penalizing, a grade of #2 was utilized for estimated framing capacities. The use of the better grade in design calculations is coupled with the assumption that the small percentage of joists that do not meet the requirements of #2 grade can be individually replaced or sistered and consequently minimize the amount of intervention required to stabilize and reoccupy the structure.*

*There are a number of existing interruptions in the floor framing and alterations (i.e. notches) to the floor joists. These framing anomalies were not considered in the determination of the approximate floor capacities.*

*In general and under the above assumptions, the floor framing is robust and has the calculated capacity to support office loading and in some places higher occupancies such as assembly. The existing floor joist sizes and spans are generally appropriate for their historic intended function in a light industrial facility. See the evaluations below, where departures from the above generalization are noted.*

*Section 1: The first floor framing is in good condition and has the capacity to support residential or office uses. The ceiling framing is capable of supporting new finishes and fixtures.*

*Section 2: The first floor framing is in good condition and has the capacity to support any of the proposed uses for the building excepting storage or other unusually high loads. The second floor joists are in poor condition and are overstressed under live loads in excess of 20 pounds per square foot, but the floor capacity as a whole is limited by the intermediate bearing line which presently has no excess calculated load carrying capacity.*

*Section 3: The first floor framing has the capacity to support any of the proposed uses for the building excepting storage or other unusually high loads. The third, fourth, and sixth floors, are hindered by their loss of section due to fire damage. But, these fire damage floor systems are still capable of supporting office loads.*

*The capacity of the timber post and beam framing system is outside the scope of this report, but the member sizes appear adequate for office uses. No signs of deterioration or distress were observed. The charring observed does not substantially affect the uses of the floors structurally.*

*Section 4: The bin floors appear to be in good condition and have very high load carrying capacity congruent with their historic purpose of supporting up to 30 feet of grain. The existing floor sheathing over the grain bin floors is assumed to have areas of deterioration as moisture has likely been trapped by the historic silage or existing detritus. The condition can be considered between poor and fair.*

*The fifth floor is in good condition and is capable of supporting approximately 50 pounds per square foot which is adequate for an office use.*

*Section 5: The first floor framing is in poor condition as the southern half of the floor has failed or nearly failed where the south ends of the dropped beams have been undermined. Once the foundation walls are repaired and the posts and dropped beams are re-supported, the first floor framing will have the calculated capacity to support any of the proposed uses for the building including light storage.*

#### **RECOMMENDED TREATMENT:**

*All Sections: Once the intended uses of the various floor sections are determined, the floor framing should be selectively strengthened as required to meet Code requirements for that use. Some floor areas will require strengthening while other areas will not.*

*Wood joists and beams should be graded individually by a qualified wood grader. Members not satisfying requirements for #2 grade will likely require replacement or strengthening. This approach requires that the lumber with grade limiting defects be identified by a qualified grader but allows the structural intervention to be minimized to only those members which absolutely require it.*

*All framing anomalies such as deeply notched joists and inadequately framed floor openings should be repaired.*

*Section 1: The first floor framing around the abandoned stair opening should be evaluated as it is not currently visible. Minor repairs should be expected. No treatment of the first floor ceiling is required.*

*Section 2: Minor strengthening of the first floor framing around the basement stair opening are warranted. The second floor joists have little excess load carrying capacity and are charred. The second floor framing should be removed and replaced with a system that meets the adaptive reuse programming needs.*

*Section 3: The basement level post should be reset between the existing spread footing and wood 'corbel'. Some additional posts or stud infill should be expected beneath the first and third level timber beams along gridlines 3 and 4. The extent of upgrades to these bearing lines will depend on the occupancy programmed for the four levels above.*

*From a structural point of view, the third, fourth, and sixth floor framing may remain in place, since the floors have moderate load carrying capacity despite the fire damage. However, the burnt lumber's odor, color, and texture may necessitate that the framing either be removed and replaced or the charred outer portions of the members be scraped off. The floor sheathing on these levels should be removed and replaced.*

*Section 4: Once the detritus is removed, the bin floor joists and floor sheathing should be investigated to identify deterioration. Deteriorated portions of the floor sheathing, and floor joists if occurring, should be removed or epoxy consolidated. If the floor is to be occupied, the floor sheathing will likely require replacement.*

*No treatment is recommended to the fifth floor in order to stabilize the building. If live loads exceeding 50 pounds per square foot are programmed, then selective member strengthening should be expected.*

*Section 5: The ends of the three dropped beams along gridline 6 should re-supported on new timber posts or on pilasters along a new foundation wall. Anchorage should be provided from the dropped beams to all points of support.*

**UPDATE: Section 1 & 2 main level floor – Select floor joists may require reinforcement, and framing will be modified for a future stair to the basement.**

**Section 2: 2<sup>nd</sup> Floor – Three beam lines will be installed in order for the existing 2x8 floor joists to support occupancy loads. Certain joists may require reinforcement.**

**Section 3: 1<sup>st</sup> Floor, 2<sup>nd</sup> Floor, 3<sup>rd</sup> Floor, 4<sup>th</sup> Floor – The central area of the floor has openings for conveyor belts extending to the top. This area will require some reinforcement. The full length joists in good condition are**

sufficient. Supporting the 4<sup>th</sup> floor the timber beam on the south end of grid 4 will require reinforcement if the floor will be used as a public space.

Section 4: The west bin floors have rotted out and will need to be replaced. These members extend under the stacked 2x6 bin walls. Sistered new members will be required and the need to be pressure treated or separated from coming into contact with the concrete. The upper floor walkway over the bins is in good condition to serve as a non-public area.

Section 5: The first floor framing has been reinforced as per the structural stabilization documents prepared by JVA.

### *3.3b Roof Framing System*

#### *DESCRIPTION:*

*Section 1: The shed roof is framed with 2"x6" sloped rafters, spaced at 16 inches, and sheathed with horizontal board sheathing.*

*Sections 2 and 3: The gable roofs are framed with 2"x6" rafters spaced at 24 inches. The rafters are supported by three-ply 2"x8" dropped purlins and the stud walls along gridlines A and Z. At the peak, the rafters abut one another; there is no ridge board. Horizontal skip sheathing is surfaced with plywood which was apparently added after the fire. The 2x framing and skip sheathing are fire damaged.*

*Section 4: The gable roof is framed with 2"x6" rafters spaced at 24 inches. The rafters are supported by a 2x ridge board, 6"x8" dropped purlins, and the stacked plank walls along gridlines A and Z. The purlins are supported by 6"x6" posts at their ends on gridlines 3 and 4, and in two intermediate locations that align with the stacked-plank walls that divide the bins. Four lines of 2x collar ties approximately 9 feet above the fifth floor elevation are spaced at 6 feet. Horizontal skip sheathing is surfaced with corrugated sheet metal roofing. There is no ceiling and the chutes that serviced the bins remain in the open space.*

*Section 5: The shed roof is framed with 2"x8" sloped rafters spaced at 24 inches spanning north to south. The northern bay is supported by a ledger along gridline 5 and a dropped four-ply 2"x8" girder. The southern bay is supported by the dropped girder and the stud wall along gridline 6. The dropped girder is located midway between the gridlines 5 and 6 and spans in the east to west direction. It is supported by 8"x8" posts at mid-span and at its ends on gridlines A and Z. The rafters are sheathed with corrugated sheet metal roofing over horizontal skip sheathing.*

#### *EVALUATION:*

*The roof framing is in poor condition. In general, the rafters and purlins do not have the calculated capacity to support Code required snow load. Since the roof elevation of each building section is different, snow drift loads affect all of the roofs except in Section 3. The skip sheathing in Sections 2, 3, 4, and 5 does not provide the Code required diaphragm capacity to resist and distribute lateral loads.*

#### *RECOMMENDED TREATMENT:*

*Section 1: The rafters at the high end of the roof are subject to increased snow loads due to drifting and should be sistered. Since there is no accessible attic space, this work will require that either the ceiling finishes or the roof sheathing be removed to perform this strengthening work.*

*Sections 2 and 3: The roof framing and sheathing should be replaced since it is fire damaged and has inadequate capacity. The replacement framing can generally mimic the existing framing although larger framing members and/or tighter spacing will be necessary. Ridge beams will be required to eliminate rafter thrust since collar ties will interfere with the floor spaces. (The second floor diaphragm in Section 2 is several feet below the eave elevation. The sixth floor diaphragm in Section 3 does not extend to the eaves on gridlines A and Z.) One layer of plywood roof sheathing will satisfy diaphragm requirements.*

*Section 4: Selective strengthening of roof framing is required to bring the roof into conformance with Code. Member sistering and/or replacement as well as connection strengthening should be expected. Various roof sheathing, insulation, and roofing material assemblies can be developed which allow the roof structure to remain exposed if desired, provide space for insulation, and address structural diaphragm concerns.*

*Section 5: The ledger connection along gridline 5 should be repaired. This will likely require that the existing ledger be shored and jacked into position flush against the stacked-plank wall and thru-bolted at regular spacing. The rafters in the north bay are subject to snow drift loads and will require sistering. Alternatively, additional rafters could be added between existing rafters to decrease the rafter spacing. The rafters in the south bay require no treatment. The dropped girder supporting the rafters has inadequate capacity to*



*resist Code loading and should be strengthened, replaced or two additional supporting columns should be introduced. A new layer of plywood sheathing should be installed or other materials that provide diaphragm capacity can be considered.*

UPDATE: Sections 1-5 – Roof framing has been reinforced per the structural Stabilization drawings prepared by JVA.

Section 4 – the roof is sheathed only with metal corrugated roofing panels. Some diagonal bracing on the underside of the existing joists might be required. The connection of the roof between Section 3 & the walls of section 4 will require some attention. There is a double stacked bin wall on the 3<sup>rd</sup> level and a beam at these locations and they may require additional fasteners to integrate the shear walls together.

#### 3.4 Exterior Wall Structure

##### DESCRIPTION:

*Sections 1, 2, 3, & 5: The exterior walls are light-framed stud walls. 2x6 studs are spaced at 16 inches and surfaced on the exterior with horizontal siding. In Section 3, intermittent 2x diagonal bracing is nailed to the inside face of the wall studs. The first level walls in Section 3 are stud infill between the existing timber beams and are stacked-plank on the third level. Many of the wall studs in Section 3 have experienced scorching due to the fire. Except in Section 1, there is no insulation between the studs and there are no finishes applied to the inside face of the studs.*

*Section 4: The exterior walls are constructed with 2x stacked planks. At the top of the walls, the planks are 2x4s. Roughly 6 feet below the top of the walls, the planks transition to 2x6s and continue to the bin floors at this width. The central bin wall that runs in the north to south direction and divides the three eastern bins from the three western bins, transitions from one wall to two walls roughly at the first floor elevation. There is crawlspace access between and below these flared walls. The lengths of the planks varies, so that splices in the plies are lapped with the plies above and below. The plies were nailed together as the wall was constructed; the nails are exposed in the deteriorated areas between Bin 5 and Bin 6. The stacked-plank plies alternately lap at the bin wall corners. Along the exterior walls, the end grain of alternating dividing wall plies are visible. In all of the bins, except Bin 6, stacked-plank sister walls exist at their bases on the interior side.*

##### EVALUATION:

*The exterior walls below grade, evaluated previously in this report, are in poor condition. The exterior walls from the first floor and above are in fair condition. The 2x6 stud walls and stacked plank walls are generally capable of resisting Code required gravity loads and out of plane wind loads. The stacked plank walls are particularly robust since they had to resist the lateral pressures imparted by the stored grain or silage.*

*However, some areas of localized deficiencies do exist. In the upper level of Section 3, the wall studs along gridlines A and Z span approximately 11 feet from the fourth floor to the roof eave. The top of the stud wall is not braced where it terminates and supports the rafters since the sixth floor does not extend to the east and west walls.*

*In Section 5, the wall studs along gridlines A and Z vary in height from approximately 12 feet to 20 feet. The taller studs to the north do not meet current Code for resistance to out-of-plane wind loads.*

*In Section 4, the stacked-plank bin walls have localized areas of deterioration described elsewhere in this report. This deterioration is almost entirely isolated to portions of the walls currently below grade. The sister walls in the bases of the bins are believed to have been installed sometime after the original construction to address either wood decay or increased lateral earth pressures.*

*The existing walls also must resist in-plane wind and seismic loads and transmit those loads to the building foundations. The stacked-plank walls have the capacity to resist these loads. However, the horizontal siding on the stud walls and the intermittent 2x diagonal bracing in Section 3, are generally inadequate to resist the in-plane Code prescribed wind and seismic forces. Wall chords and anchorage are also insufficient to resist overturning forces. Drag elements along the interfaces with the stacked-plank walls along gridlines 4 and 5 are undersized to allow load sharing between Section 3, 4, and 5.*

##### RECOMMENDED TREATMENT:

*In Section 3, the top of the stud walls along gridlines A, Z, and 3 should be braced. This can be accomplished by adding strongbacks to the inside face of studs at the top of the wall or extending the sixth floor framing and sheathing to meet the walls at the east and west sides of the building. Studs that have experienced pillowing or alligatoring due to the fire should be removed and replaced. In Section 5, the tall studs along gridlines A and Z should be sistered with new studs. Because the studs are not interrupted by an intermediate plate, these sisters can be easily installed.*

*In Section 4, the deteriorated areas of stacked-plank construction should be removed and replaced as noted elsewhere in this report.*

*In order to bring the existing lateral force resisting system into compliance with current Code, alterations will need to be made to the existing stud walls. These alterations would include installing a layer of plywood sheathing on a portion of all of the perimeter walls and the walls along gridlines 2 and 3. This sheathing would typically be installed on the inside face of the studs and be concealed by new finishes. Blocking between studs will need to be installed at plywood panel edges in heavily loaded walls. Stud packs and holdowns anchors will be required at the ends of all designated shear walls. Footing augmentation should be expected at the ends of all designated shear walls to resist overturning forces. The selective addition of collector and drag elements should also be anticipated.*

*Once the final use of the building has been determined, the required alterations to the lateral force resisting system can be developed. Not all of the walls in the building require the alterations noted in the paragraph above, just those portions of walls designated by the designers to be recruited to work in the lateral force resisting system. Segments of designated shear wall should be expected along gridlines A, Z, 2, 3, and 6. A shear wall should be installed on the first level along gridline 3 since currently there is no line of resistance at this location and this is clearly a weak link in the existing system. Since the stacked-plank walls in Section 4 have considerable in-plane lateral capacity, they can be employed to resist portions of the loads which might otherwise be resisted by new sheathed walls in Sections 3 and 5. This will require strengthening of the connections to the floor and roof diaphragms along gridlines 4 and 5. The amount of load redirected to the stacked-plank walls will need to be carefully balanced with desire to minimize the overturning forces induced in the stacked-plank walls that would trigger adding holdown anchorage to the bin walls and footing underpinning beneath the bins.*

*These modifications all potentially impact the appearance of the building and would be carefully designed to minimize that impact. There are numerous other solutions which can be explored to meet Code and minimize the impact to the historic fabric of the building. Diagonal or cross bracing with wood or steel rods may prove to be a more desirable solution than sheathing walls in terms of both cost and aesthetic impact.*

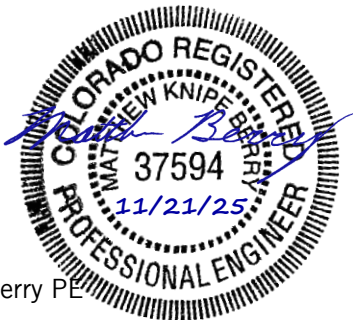
UPDATE: Sections 1 & 2 – OSB Shear walls called out in the stabilization drawings have not yet been installed. Hold downs for the shear walls are mostly in place. This shall be installed. Certain walls that are not already insulated with foam that are designated shear walls may be braced with diagonal braces.

Section 3 – The wall along grid A is designated as a shear wall, but it is not desirable to cover the un-insulated wall studs. The wall lines at sections 1,2 and the bin walls of section 4 will be used. Upper walls of section 3 will require diagonal braces shown in the stabilization documents on grid 3, and the upper gable end rafters will require steel brackets to transfer their loads to the bin walls on grid 4. The 2nd level framing on grid 3 will be connected to a steel braced frame in the boxcar addition. There is a hinge point in the upper level of section 3 outside the 4th level where the wall studs are not continuous from its 3<sup>rd</sup> floor to the upper roof past that 4<sup>th</sup> level. Currently there is an LVL brace spanning from wall to wall at this location. This is not desired. A steel wind girt may need to be added to replace these braces.

Section 4 – The exterior bin walls have been repaired. The top of the bin walls along grid 4 where it connects to the exterior gable end walls of Section 3 & 4 is dropped approximately three inches from the bottom of the wall studs. It is unclear if this is settlement, or if the top courses of wood were removed. The bin walls may need to be lifted upward when the floors below are replaced or studs added to the top courses to re-engage the studs.

It is a pleasure to work with you on this project and we look forward to its successful completion. Please feel free to contact our office if you have any questions or if we may be of any further assistance regarding these matters.

Sincerely,



Matthew K. Berry PE  
Principal

## PROJECT INFORMATION

### LOUISVILLE HISTORIC GRAIN ELEVATOR REHABILITATION/RENOVATION & ADDITION CONSTRUCTION PHASE 5.0 - SECTION 1-5

**OWNER:**  
LOUISVILLE MILL SITE LLC  
1. Erik Hartront  
erik@harcapdesign.com  
Ross Bowdye  
ross@foxpropertymgt.com  
P (720) 583-4389

**ARCHITECT:**  
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**STRUCTURAL:**  
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1711 Pearl Street, Suite 300  
Boulder, Colorado 80302  
P (303) 445-4942

**MEP:**  
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Lakewood, Colorado 80228  
P (720) 936-6588 F (303) 716-1272

**CIVIL:**  
DASH ASH, P.E.  
dash@dashstudio.com  
2101 Pearl Street  
Boulder, Colorado 80302  
P (303) 445-7859

**SITE AREA - LOT 2:** 9,122 SF = 21 ACRE  
**SITE AREA - OUTLOT A:** 6,841 SF = 16 ACRE

**IBC AREA CALCULATION:**  
BASMENT FLOOR AREA: 1,216 SF  
FIRST FLOOR FLOOR AREA (INCL. BNS): 3,446 SF  
SECOND FLOOR FLOOR AREA (INCL. MEZZ.): 386 SF  
TOTAL IBC FLOOR AREA: 5,248 SF

## VICINITY MAP N.T.S.



## PROJECT DATA AND CODE INFO.

**PROJECT DESCRIPTION:**  
Rehabilitation and adaptive re-use of an existing historic wood-framed grain elevator. The Scope of Work includes renovation of the existing structure and reconstruction of the original porches and related walkways, ramps etc. west of Grid C and new construction of a one-story addition, east of Grid A, and all other work. Construction shall be complete for occupancy by the tenant "The Grain Yard".

**ZONING:**  
CE - The building use shall be #31 Indoor Eating and Drinking Establishments with SBU for Outdoor Sales.

**BUILDING CODE:**  
2024 International Codes (IBC, IRC, IFBC, IECC, IEBC, IFBC)  
2023 National Electrical Code (NEC)  
All as amended by City of Louisville as well as LMC Ch15

**IBC FLOOR AREA:**  
TOTAL = 5,248 sf  
SPRINKLED AREA:  
TOTAL = 10,978 sf

**OCCUPANCY CLASSIFICATION:**  
EXISTING = U - Utility Occupancy  
PROPOSED = A2 - Assembly (possible B for museum)

**CONSTRUCTION TYPE:**  
EXISTING = Type V-B (to be Fully Sprinklered)

**BUILDING HEIGHT:**  
EXISTING = 3 Stories, 49' +/-

**OCCUPANT LOAD:**  
(See Building Code Summary)

**FIRE SEPARATION:**  
None

**PUD:**  
PUD-000557-2025

## HISTORIC VIEW OF GRAIN ELEVATOR FROM THE NORTHWEST



## INDEX TO DRAWINGS

| ARCHITECTURAL                                    |
|--------------------------------------------------|
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| C-001 Site Plan                                  |
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| C-103 Utility Plan                               |
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# FINAL ENGINEERING PLANS (FEP)

FOR  
LOUISVILLE MILL SITE REDEVELOPMENT  
540 COUNTY ROAD  
LOUISVILLE, COLORADO

## GENERAL NOTES

(APPLIES TO ALL SHEETS)

- BENCHMARK INFORMATION: CITY OF LOUISVILLE LPS FOUND 2.5" ALUMINUM CAP IN A RANGE BOX IN SOUTH ST. BEING THE CENTER E & S CORNER OF SECTION 8 ELEVATION=5348.49' (NAVOD88). SITE BENCHMARKS AS SHOWN. CONTOURS SHOWN ARE FROM A GROUND SURVEY.
- THIS DRAWING IS BASED ON A SURVEY BY SITESURVEYS, LLC. ON 08/26/2025.
- FLOOD INFORMATION: ACCORDING TO FEMA FLOOD INSURANCE MAP NO. 08033C0080K DATED 08/15/2019, THE NORTH OF OUTLOT A IS LOCATED IN ZONE X (SHADED). AREAS OF 0.2% ANNUAL CHANCE FLOOD, AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREA LESS THAN 1 SQUARE MILE. THE ENTIRETY OF LOT 2 IS OUTSIDE OF ANY MAPPED FLOODPLAIN.
- ALL CUT AND FILL SLOPES IN SHALL BE MINIMUM OF 1.5:1. CUT SLOPES IN COMPETENT BEDROCK SHALL BE 0.5:1.
- GRADE AWAY FROM BUILDINGS AT A MINIMUM 10% SLOPE IN THE FIRST TEN FEET AT LANDSCAPE AREAS AND AT A MINIMUM 2% SLOPE IN THE FIRST TEN FEET AT IMPERVIOUS AREAS, EXCEPT AS NOTED.
- FOUNDATION HEIGHT SHALL BE RAISED TO A MINIMUM OF 8" ABOVE EXISTING OR PROPOSED GRADE AT EXTERIOR OF BUILDING.
- ALL PROPOSED STORM CULVERTS AND FARED END SECTIONS SHALL BE REINFORCED CONCRETE PIPE (RCP) OR APPROVED EQUAL. ALL CULVERTS AND RIP RAP PROTECTION WILL BE DESIGNED TO CONVEY THE 10 YEAR STORM.
- SEE ARCHITECTURAL PLANS FOR ADDITIONAL SITE FEATURES. REFERENCE FINAL ARCHITECTURAL AND LANDSCAPE PLANS FOR FINAL DESIGN LOCATION AND HEIGHTS OF ANY PROPOSED RETAINING WALLS.
- LAYOUT OF LANDSCAPING AND OTHER ARCHITECTURAL FEATURES MAY VARY FROM THIS PLAN BASED ON FINAL SITE DESIGN AND FROM SITE CONDITIONS.
- ALL CONSTRUCTION SHALL CONFORM TO THE LOUISVILLE DESIGN AND CONSTRUCTION STANDARDS.

## LEGAL DESCRIPTION

LOT 2 LOUISVILLE MILL SITE  
OUTLOT A LOUISVILLE MILL SITE



## VICINITY MAP

SCALE: 1" = 2000'

## SHEET INDEX

|                            |       |
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## LEGEND

|        |                                   |
|--------|-----------------------------------|
| ---    | EXISTING CONTOUR                  |
| ---    | PROPOSED CONTOUR                  |
| +      | ADD 5300 TO ALL CONTOURS          |
| x 25.8 | PROPOSED SPOT ELEVATION           |
| +      | ADD 5300 TO ALL SPOT ELEVATIONS   |
| +      | EXISTING SPOT ELEVATION           |
| →      | PROPOSED FLOW DIRECTION           |
| →      | HISTORIC SHEET FLOW               |
| A      | PROPOSED SUB-BASIN DESIGNATION    |
| 1      | AREA IN ACRES                     |
| ---    | PROPOSED BASIN BOUNDARY           |
| ⊗      | INLET PROTECTION (IP)             |
| ⊗      | CULVERT INLET PROTECTION (CIP)    |
| ---    | SEDIMENT CONTROL LOG (SC)         |
| ---    | VEHICLE TRACKING CONTROL (VTC)    |
| ---    | LIMITS OF CONSTRUCTION (LOC)      |
| ---    | CONCRETE WASHOUT AREA (CWA)       |
| ⊗      | EXISTING SEWER CLEANOUT           |
| ⊗      | EXISTING WATER METER              |
| ⊗      | EXISTING STORM MANHOLE            |
| ⊗      | EXISTING WATER VALVE              |
| ⊗      | EXISTING POWER POLE               |
| ⊗      | EXISTING LIGHT POLE               |
| ⊗      | EXISTING SIGN                     |
| ⊗      | EXISTING FIRE HYDRANT             |
| ⊗      | EXISTING FENCE                    |
| ⊗      | EXISTING OVERHEAD POWER LINE      |
| ⊗      | EXISTING SANITARY SEWER W/MANHOLE |
| ⊗      | EXISTING WATER W/FIRE HYDRANT     |
| ⊗      | EXISTING STORM SEWER W/MANHOLE    |
| ⊗      | PROPOSED WATER W/FIRE HYDRANT     |
| ⊗      | PROPOSED SANITARY SEWER SERVICE   |
| ⊗      | PROPOSED GAS SERVICE              |
| ⊗      | PROPOSED WATER METER              |



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LOUISVILLE HISTORIC GRAIN ELEVATOR  
Renovation for the GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 125250  
DATE: 12/05/2025  
DRAWN BY: DPA  
CHECKED BY: DPA  
REVISIONS:  
1. CHANGE APPROVED: 1  
2. CHANGE APPROVED: 2

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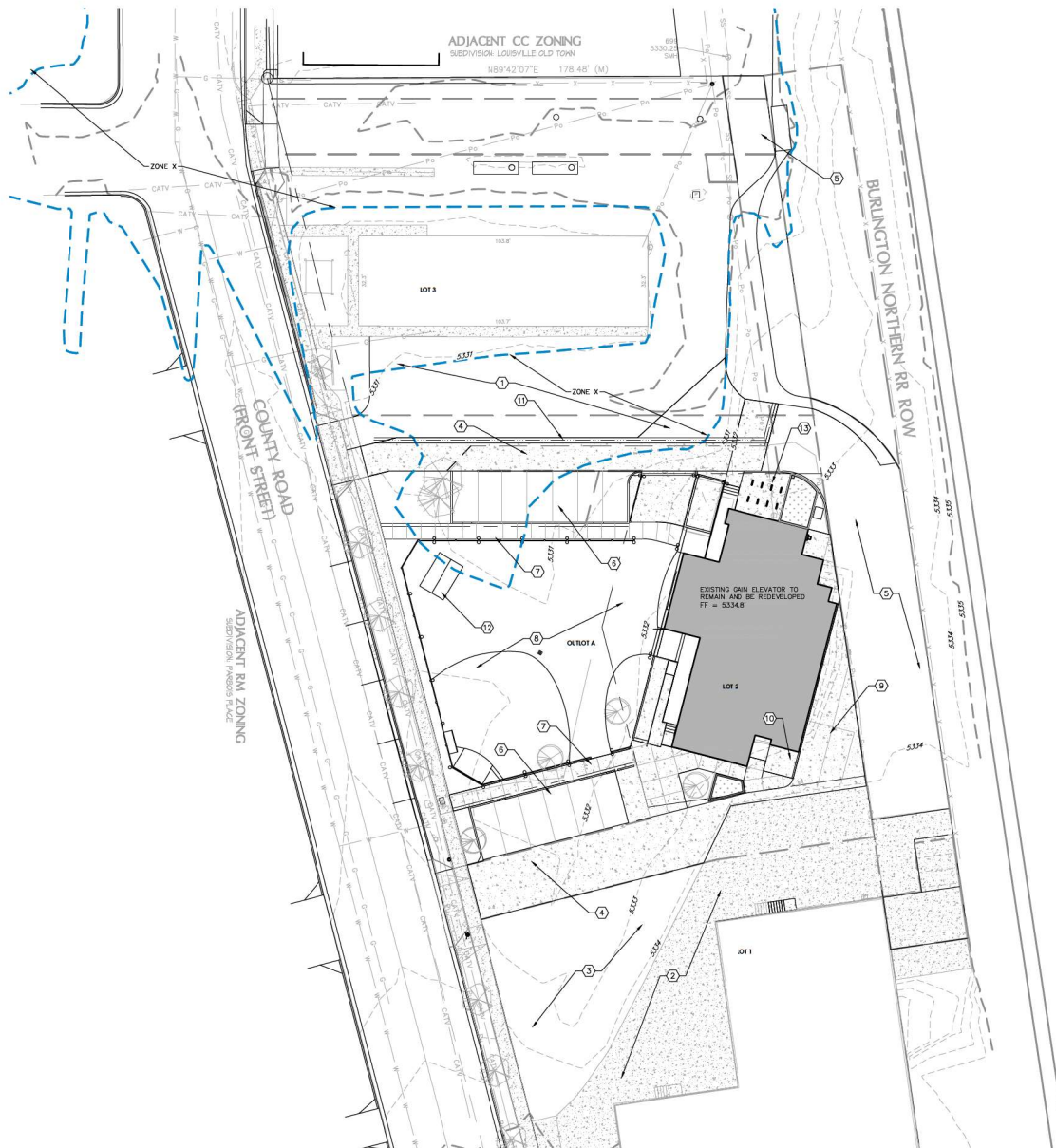
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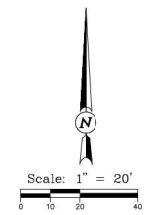
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### KEYED NOTES ①

1. EXISTING ASPHALT PARKING SURFACE TO REMAIN.
2. EXISTING CONCRETE PARKING SURFACE TO REMAIN.
3. EXISTING GRAVEL PARKING TO REMAIN.
4. PROPOSED CONCRETE SURFACE.
5. PROPOSED ASPHALT SURFACE.
6. PROPOSED GRAVEL PARKING SURFACE.
7. PROPOSED CONCRETE SIDEWALK.
8. PROPOSED GRAVEL COURTYARD.
9. PROPOSED CONCRETE PARKING SPACES.
10. PROPOSED TRASH AND RECYCLING.
11. PROPOSED CONCRETE DRAINAGE PAN.
12. PROPOSED SEASONAL TAP HOUSE.
13. PROPOSED BICYCLE PARKING.



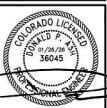


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**LOUISVILLE HISTORIC GRAIN ELEVATOR  
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540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



**PROJECT # 125250**  
DATE: 12/09/2025  
DRAWN BY: DPA  
CHECKED BY: DPA  
REVISIONS:  
1. OWNER APPROVAL  
2. LIVING ROOM APPROVAL

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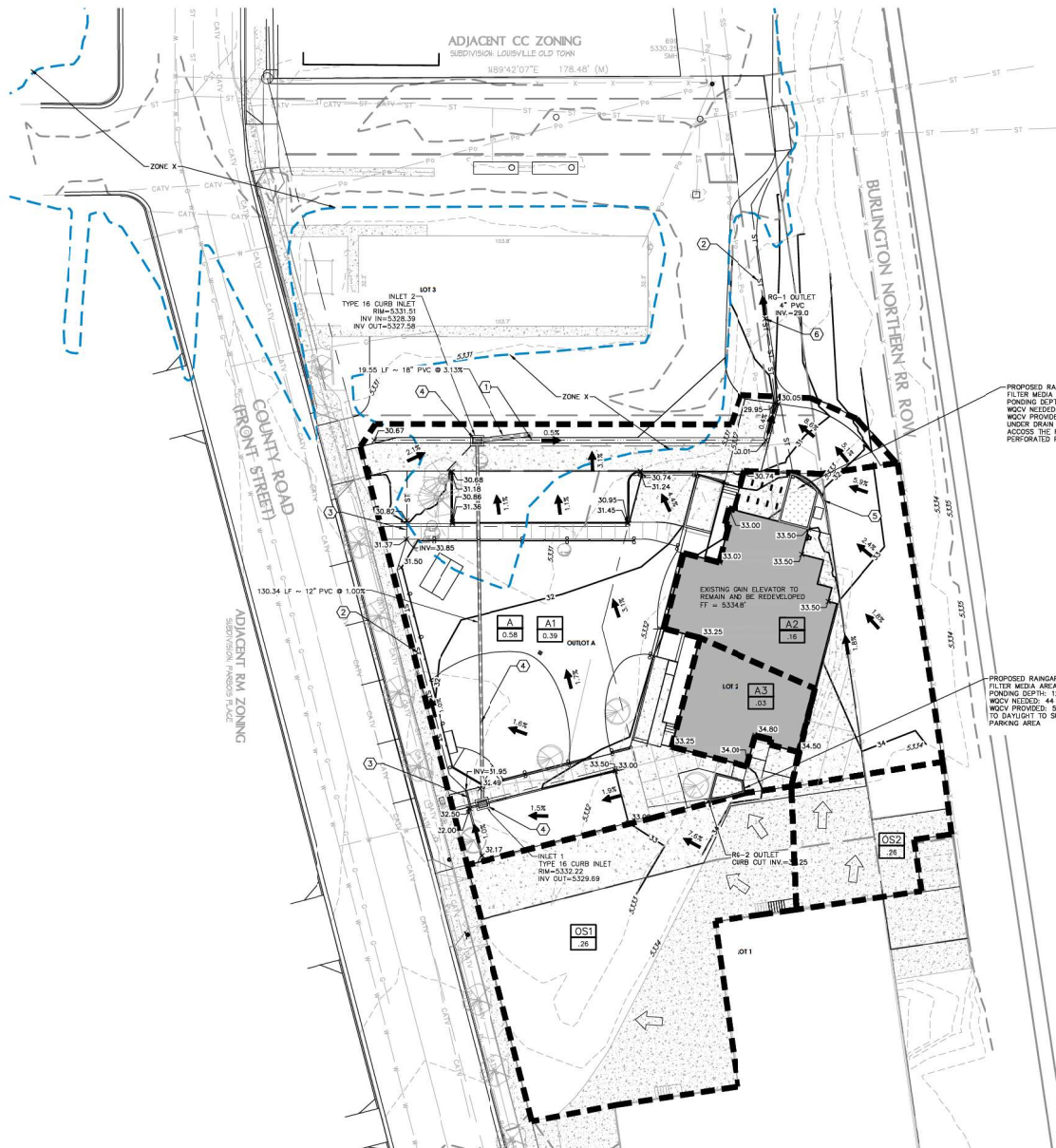
**SITE  
PLAN**

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Sheet

**C-101**

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## LEGEND

- 5 — PROPOSED CONTOUR  
ADD 5.300 TO ALL CONTOURS
- x 25.8 PROPOSED SPOT ELEVATION  
ADD 5.300 TO ALL SPOT ELEVATIONS
- 25.8 — EXISTING SPOT ELEVATION
- PROPOSED FLOW DIRECTION
- HISTORIC SHEET FLOW
- A PROPOSED SUB-BASIN DESIGNATION
- 1 AREA IN ACRES
- PROPOSED BASIN BOUNDARY

## GRADING NOTES

- FLOOD INFORMATION: ACCORDING TO FEMA FLOOD INSURANCE MAP NO. 080300000K DATED 06/15/2010, THE NORTH OF OUTLET A IS LOCATED IN ZONE X (SHADED). AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREA LESS THAN 1 SQUARE MILE, THE ENTIRETY OF LOT 2 IS OUTSIDE OF ANY MAPPED FLOODPLAIN.
- BENCHMARK INFORMATION: CITY OF LOUISVILLE UPS, FOUND 2" ALUMINUM CAP IN A RANGE BOX IN SOUTH ST. BEING THE CENTER E & CORNER OF SECTION 8 ELEVATION=344.49 (NAVD83). SITE BENCHMARKS AS SHOWN. CONTOURS SHOWN ARE FROM A GROUND SURVEY.
- THE LOCATION OF THE ABOVE GROUND UTILITIES SHOWN HEREON ARE BASED ON THE FIELD SURVEY BY SITEWORKS, LLC DATED 08/26/2020. THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON SAD SURVEY AND INFORMATION PROVIDED BY OTHERS (WHICH MAY INCLUDE THE UTILITY OWNER OR UTILITY LOCATING SERVICES). SITEWORKS, LLC IS NOT RESPONSIBLE FOR UTILITY INFORMATION PROVIDED BY OTHERS. SITEWORKS, LLC RECOMMENDS THAT THE LOCATION OF THE UTILITIES BE FIELD VERIFIED PRIOR TO ANY GRADING OR ADJACENT TO THE SUBJECT PROPERTY.

## KEYED NOTES

- PROPOSED 2" CONCRETE SWALE.
- PROPOSED 4" PERFORATED PVC PIPE BURIED UNDER GRAVEL PLANTING AREA. PIPE TO DAYLIGHT ON NORTH SIDE INTO CONCRETE PAV.
- PROPOSED 6" SIDEWALK CHASE.
- PROPOSED UNDERGROUND STORM SEWER FOR FUTURE PHASE 2 DEVELOPMENT. STEEL COVER TO GO OVER STORM SEWER INLETS TO PREVENT ANY DRAINAGE UNITS, FUTURE DEVELOPMENT, STUB FUTURE STORM PIPE PAST CONCRETE DRIVE LANE AND CAP THE END OF THE PIPE.
- PROPOSED 12" CURB CUT TO ALLOW RUNOFF TO DRAIN INTO RAINGARDEN THROUGH SLOTTED CURB.
- PROPOSED RAINGARDEN OUTLET PIPE TO TIE INTO 4" PERFORATED PVC PIPE.

PROPOSED RAINGARDEN: RG-1  
FILTER MEDIA AREA: 180 SF  
POUNDING DEPTH: 12 IN.  
WOODY DEBRIS: 170 CF  
WOODY PROVIDED: 180 CF  
UNDER DRAIN TO BE PIPED  
ACROSS THE ROAD AND TIE INTO  
PERFORATED PVC PIPE.

PROPOSED RAINGARDEN: RG-2  
FILTER MEDIA AREA: 50 SF  
POUNDING DEPTH: 12 IN.  
WOODY DEBRIS: 44 CF  
WOODY PROVIDED: 50 CF  
TO DAYLIGHT TO SURFACE OF  
PARKING AREA.



Scale: 1" = 20'



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Renovation for the GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



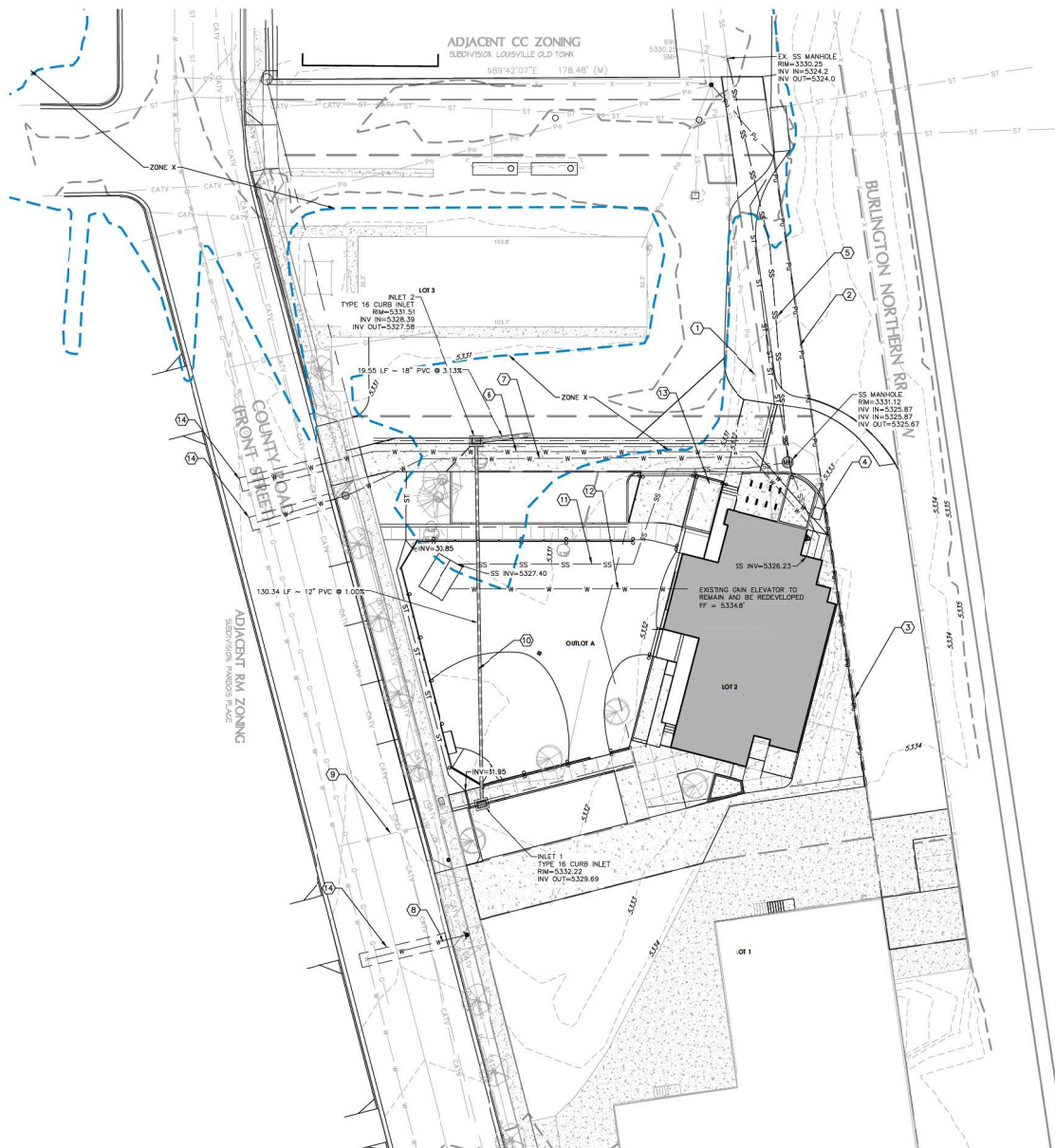
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DATE: 12/09/2020  
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**GRADING  
&  
DRAINAGE  
PLAN**

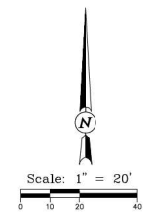
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| LEGEND |                                  |
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|        | EXISTING CONTOUR                 |
|        | EXISTING SEWER CLEANOUT          |
|        | EXISTING WATER METER             |
|        | EXISTING STORM MANHOLE           |
|        | EXISTING WATER VALVE             |
|        | EXISTING POWER POLE              |
|        | EXISTING LIGHT POLE              |
|        | EXISTING SIGN                    |
|        | EXISTING FIRE HYDRANT            |
|        | EXISTING FENCE                   |
|        | EXISTING OVERHEAD POWER LINE     |
|        | EXISTING SANITARY SEWER W/MAHOLE |
|        | EXISTING WATER W/FIRE HYDRANT    |
|        | EXISTING STORM SEWER W/MAHOLE    |
|        | PROPOSED WATER W/FIRE HYDRANT    |
|        | PROPOSED SANITARY SEWER SERVICE  |
|        | PROPOSED GAS SERVICE             |
|        | PROPOSED WATER METER             |

- KEYED NOTES** ①
- EXISTING OVERHEAD ELECTRIC TO BE REMOVED.
  - PROPOSED UNDERGROUND ELECTRIC TO CONNECT TO LOT 2 TRANSFORMER.
  - PROVIDE 8" SCHEDULE 80 PVC SLEEVE ACROSS EAST SIDE OF LOT 2 FOR LOT 1 ELECTRICAL SERVICE.
  - PROPOSED TRANSFORMER.
  - PROPOSED 6" SANITARY SEWER SERVICE AT 1X.
  - PROPOSED 4" FIRE SERVICE.
  - PROPOSED 1" DOMESTIC SERVICE WITH METER PIT.
  - PROPOSED 4" FIRE HYDRANT LINE.
  - EXISTING 3/4" IRRIGATION SERVICE WITH METER PIT TO REMAIN.
  - PROPOSED UNDERGROUND STORM SEWER FOR FUTURE PHASE 2 DEVELOPMENT. STEEL COVER TO GO OVER SEWER INLETS TO PREVENT ANY DRAINAGE UNTIL FUTURE DEVELOPMENT. STUB FUTURE STORM PIPE PAST CONCRETE DRIVE LANE.
  - PROPOSED 6" SANITARY SEWER SERVICE TO CONNECT TO TAP HOUSE.
  - PROPOSED 1" DOMESTIC SERVICE TO CONNECT TO TAP HOUSE.
  - PROPOSED SUMP PUMP TO DAYLIGHT AND DRAIN INTO GRAVEL SWALE.
  - ASPHALT SAW CUT EDGE 2.5' OF SET FROM PROPOSED WATER SERVICE.



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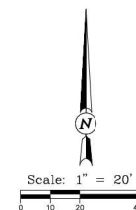
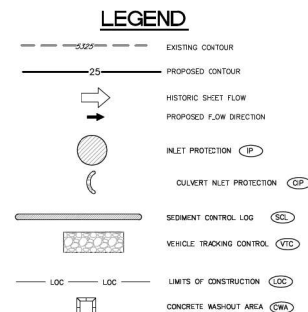


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**UTILITY PLAN**

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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE: 12/05/2025  
DRAWN BY: DRS  
CHECKED BY: DPA  
REVISIONS:  
01/06/26 ADDENDUM 1  
01/25/26 ADDENDUM 2

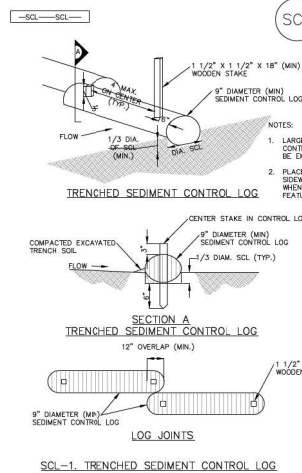
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Sheet

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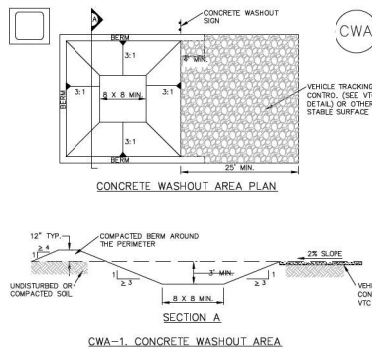


#### SEDIMENT CONTROL LOG INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION AND LENGTH OF SEDIMENT CONTROL LOGS.
2. SEDIMENT CONTROL LOGS THAT ACT AS A PERIMETER CONTROL, SHALL BE INSTALLED PRIOR TO ANY UPRIGHT LAND-DISTURBING ACTIVITIES.
3. SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELISOR OR COCONUT FIBER AND SHALL BE FREE OF ANY NOXIOUS WEED SEEDS OR OBJECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
4. SEDIMENT CONTROL LOGS MAY BE USED AS SMALL CHECK DAMS IN DITCHES AND SWALES. HOWEVER, THEY SHOULD NOT BE USED IN PERENNIAL STREAMS.
5. IT IS RECOMMENDED THAT SEDIMENT CONTROL LOGS BE TRENCHED INTO THE GROUND TO A DEPTH OF APPROXIMATELY 1/2 OF THE DIAMETER OF THE LOG. IF TRENCHING TO THIS DEPTH IS NOT FEASIBLE AND/OR DESIRABLE (SHORT TERM INSTALLATION WITH DESIRE NOT TO DAMAGE LANDSCAPE) A LESSER TRENCHING DEPTH MAY BE ACCEPTABLE WITH MORE ROBUST STAKING. COMPOST LOGS THAT ARE 6 LB/FT DO NOT NEED TO BE TRENCHED.
6. THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL OR FILTER MATERIAL THAT IS FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED INTO THE SHAPE OF A RIGHT TRIANGLE USING A SHOVEL OR WEIGHTED LUMP ROLLER OR BLOOM IN PLACE.
7. FOLLOW MANUFACTURERS' GUIDANCE FOR STAKING. IF MANUFACTURERS' INSTRUCTIONS DO NOT SPECIFY SPACING, STAKES SHALL BE PLACED ON 4' CENTERS AND EMBEDDED A MINIMUM OF 4" INTO THE GROUND. 3' OF THE STAKE SHALL PROTRUDE FROM THE TOP OF THE LOG. STAKES THAT ARE BROKEN PRIOR TO INSTALLATION SHALL BE REPLACED. COMPOST LOGS SHOULD BE STAKED 10' ON CENTER.

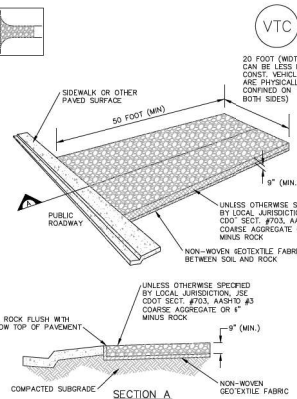
#### SEDIMENT CONTROL LOG MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOG SHALL BE REMOVED AS NEEDED TO MAINTAIN FUNCTIONALITY OF THE BMP. TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 1/2 OF THE HEIGHT OF THE SEDIMENT CONTROL LOG.
5. SEDIMENT CONTROL LOG SHALL BE REMOVED AT THE END OF CONSTRUCTION. COMPOST FROM COMPOST LOGS MAY BE LEFT IN PLACE AS LONG AS BARS ARE REMOVED AND THE AREA SEEDS. IF DISTURBED AREAS EXIST AFTER REMOVAL, THEY SHALL BE COVERED WITH TOP SOIL, SEEDS AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.



#### CWA INSTALLATION NOTES

1. SEE PLAN VIEW FOR:  
-CWA INSTALLATION LOCATION.
2. DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (15 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE AREA SHOULD BE USED.
3. THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
4. CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8" BY 8" SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3' DEEP.
5. BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
6. VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
7. SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
8. USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.



#### STABILIZED CONSTRUCTION ENTRANCE/EXIT INSTALLATION NOTES

1. SEE PLAN VIEW FOR:  
- LOCATION OF CONSTRUCTION ENTRANCE(S)/EXIT(S)  
- TYPE OF CONSTRUCTION ENTRANCE(S)/EXIT(S) (WITH/WITHOUT WHEEL WASH CONSTRUCTION MAT OR TRM).
2. CONSTRUCTION MAT OR TRM STABILIZED CONSTRUCTION ENTRANCES ARE ONLY TO BE USED ON SHORT DURATION PROJECTS (TYPICALLY RANGING FROM A WEEK TO A MONTH) WHERE THERE WILL BE LIMITED VEHICULAR ACCESS.
3. A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE LOCATED AT ALL ACCESS POINTS WHERE VEHICLES ACCESS THE CONSTRUCTION SITE FROM PAVED RIGHT-OF-WAYS.
4. STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
5. A NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE STABILIZED CONSTRUCTION ENTRANCE/EXIT PRIOR TO THE PLACEMENT OF ROCK.
6. UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF HOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 8" (MINUS) ROCK.

#### STABILIZED CONSTRUCTION ENTRANCE/EXIT MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY TO THE STABILIZED CONSTRUCTION/EXIT TO MAINTAIN MINIMUM DEPTH.
5. SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED THROUGHOUT THE DAY AND AT THE END OF THE DAY BY SHOVELING OR SWEEPING. SEDIMENT MAY NOT BE WASHED DOWN STORM SEWER DRAINS.

## STORM WATER QUALITY NOTES

(APPLIES TO CIVIL ENGINEERING SHEETS)

1. TEMPORARY EROSION CONTROLS: ALL TEMPORARY EROSION CONTROL MEASURES FOR EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED BEFORE ANY CONSTRUCTION ACTIVITIES TAKE PLACE.
2. SEDIMENT CONTROLS: CONTROL MEASURES FOR EROSION AND SEDIMENT CONTROL SHALL BE IMPLEMENTED TO PREVENT THE RELEASE OF SEDIMENT FROM CONSTRUCTION SITES. VEHICLE TRACKING OF SEDIMENT SHALL NOT BE ALLOWED TO ENTER THE STORMWATER UTILITY SYSTEM OR WATERS OF THE STATE. SEDIMENT SHALL NOT BE TRACKED ONTO PUBLIC STREETS AND, IF SO, SHALL BE IMMEDIATELY REMOVED.
3. WATER QUALITY IMPACTS: STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES SHALL NOT CAUSE OR THREATEN TO CAUSE POLLUTION, CONTAMINATION, OR DEGRADATION OF WATERS OF THE STATE.
4. WASTE CONTROLS: SOLID WASTE, INDUSTRIAL WASTE, YARD WASTE, AND ANY OTHER POLLUTANTS OR WASTE ON ANY CONSTRUCTION SITE SHALL BE CONTROLLED USING CONTAINERS, MEASURES, WASTE AND/OR RECYCLING CONTAINERS SHALL BE PROVIDED AND MAINTAINED BY THE OWNER OR CONTRACTOR ON CONSTRUCTION SITES WHERE THERE IS THE POTENTIAL FOR RELEASE OF WASTE. UNKNOWNS WASTE MAY BE BURN, WASH, OR OTHERWISE BE RELEASED FROM THE SITE IS PROHIBITED. SANITARY WASTE FACILITIES SHALL BE PROVIDED AND MAINTAINED BY THE OWNER OR CONTRACTOR.
5. CONCRETE WASTE: READY-MIXED CONCRETE, OR ANY MATERIALS RESULTING FROM THE CLEANING OF VEHICLES OR EQUIPMENT CONTAINING OR USED IN TRANSPORTING OR APPLYING IT, SHALL BE CONTAINED WITH APPROPRIATE CONTROLS MEASURES AND ULTIMATELY REMOVED FOR PROPER DISPOSAL. RELEASE OF THESE MATERIALS IS PROHIBITED.
6. CHEMICAL STORAGE: BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE ADEQUATE PROTECTION SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING THE STORMWATER UTILITY SYSTEM OR WATERS OF THE STATE.
7. SURFACE COVER TENDING: COVER SHALL BE APPLIED WITHIN 14 DAYS TO INACTIVE SOIL STOCKPILES AND SHALL BE MAINTAINED FOR STOCKPILES THAT ARE PROPOSED TO REMAIN IN PLACE LONGER THAN 30 CALENDAR DAYS.
8. PROJECT PHASING: ALL EARTH DISTURBANCES SHALL BE DESIGNED, CONSTRUCTED, AND COMPLETED TO LIMIT THE DISTURBED AREA OF ANY DISTURBED LAND TO THE SHORTEST POSSIBLE PERIOD OF TIME.
9. DUST CONTROLS: TECHNIQUES SHALL BE USED TO PREVENT DUST, SEDIMENT, OR DEBRIS FROM BLOWING OFF THE SITE.
10. MAINTENANCE: ANY DAMAGE OR REQUIRED MAINTENANCE TO TEMPORARY AND PERMANENT CONTROLS MEASURES SHALL BE REPAIRED OR REPLACED AS SOON AS POSSIBLE, IMMEDIATELY IN MOST CASES.
11. REMOVAL: ALL CONTROL MEASURES FOR EROSION AND SEDIMENT CONTROL SHALL BE REMOVED AND DISPOSED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, WHICHEVER OCCURS FIRST.
12. RESPONSIBILITY: THE EROSION CONTROL PERMITTEE SHALL BE RESPONSIBLE FOR CONTINUED COMPLIANCE WITH THE REQUIREMENTS OF SECTION 7.1.3 OF THE CITY'S DESIGN AND CONSTRUCTION STANDARDS DURING CONSTRUCTION ACTIVITY ON THE SITE.

## EROSION CONTROL NOTES

1. ALL TOPSOIL: WHERE PHYSICALLY PRACTICABLE, SHALL BE SALVAGED AND NO TOPSOIL SHALL BE REMOVED FROM THE SITE. TOPSOIL AND OVERBURDEN SHALL BE SEGREGATED AND STOCKPILED SEPARATELY. TOPSOIL AND OVERBURDEN SHALL BE REDEPOSITED WITHIN THE GRADED AREA AFTER EACH GRADING TO PROVIDE A SUITABLE BASE FOR AREAS WHICH WILL BE SEEDS AND PLANTED. RUNOFF FROM STOCKPILED AREA SHALL BE CONTROLLED TO PREVENT EROSION AND RESILIENT SEDIMENTATION OF RECEIVING WATER.
2. PERMANENT SOIL STABILIZATION MEASURES SHALL BE APPLIED TO DISTURBED AREAS AND STOCKPILES WITHIN 14 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED WITHIN 14 DAYS TO DISTURBED AREAS WHICH MAY NOT BE AT FINAL GRADE, BUT WILL BE LEFT DORMANT FOR LONGER THAN 60 DAYS.
3. TEMPORARY SOIL STABILIZATION SHALL CONSIST OF SEEDING WITH ANNUAL RYEGRASS AT 40 LBS PLS/ACRE AND SHALL BE HYDROMULCHED WITH A WOOD FIBER AND TACKIFIER AT 1 TON/ACRE. NATIVE SEED MIX FOR RAIN GARDENS PER LANDSCAPE PLAN.
4. THE SEEDS SHALL THEN BE LIGHTLY RAKED TO DEPOSIT THE SEEDS APPROXIMATELY 1/4" - 1/2" BELOW THE SURFACE. IMMEDIATELY FOLLOWING SEEDING, ALL SEEDS AREAS SHALL BE MULCHED WITH 1 - 1 1/2 TONS OF WEED-FREE STRAW PER ACRE, MECHANICALLY OR HAND COMBED INTO TOPSOIL.
5. ALL DISTURBED AREAS SHALL RECEIVE PERMANENT VEGETATIVE COVER AS DESCRIBED ABOVE. ALL CUT OR FILL SLOPES WITH 3 TO 1 OR GREATER SLOPE SHALL BE COVERED WITH EROSION CONTROL MATING OR HYDROMULCHED WITH A WOOD FIBER AND TACKIFIER AT 1 TON/ACRE.
6. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED BY THE OWNER, OR OWNER APPROVED AGENT, AFTER ALL STORM EVENTS. ANY EROSION CONTROL MEASURES WHICH ARE DAMAGED PRIOR TO RE-ESTABLISHMENT OF VEGETATIVE COVER SHALL BE REPLACED IMMEDIATELY.



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 125250  
DATE 12/05/2025  
DRAWN BY: DWH  
CHECKED BY: DWH  
REVISIONS:  
1. owner approval  
2. owner approval

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**CIVIL DETAILS**

Sheet

**C-301**

6 of 1 Sheets



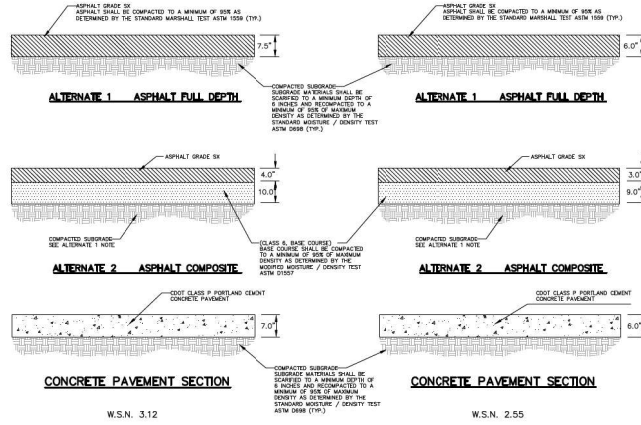


# PAVEMENT DESIGN ALTERNATIVES

THE SEVER PAVEMENT SECTION PROPOSED HEREIN ARE DESIGNED TO MEET A SPECIFIC NON WEIGHTED STRUCTURAL NUMBER. THE STRENGTH COEFFICIENTS OF THE ACTUAL MATERIALS TO BE USED IN THE CONSTRUCTION MAY BE DIFFERENT FROM THE ASSUMED STRENGTH COEFFICIENTS. THEREFORE, SECTIONS WOULD NOT BE CONSIDERED FOR ALL BE CONSIDERED. THE CONTRACTOR SHALL SUBMIT ALL WITH SUBSTANTIATION OF ACTUAL STRENGTH COEFFICIENTS TO BE CHOKEN FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

## NOTES:

- ALL WORK SHALL CONFORM TO THE 2003 "STANDARDS AND SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION".
- ASPHALT SHALL BE COMPACTED TO A MINIMUM OF 98% AS DETERMINED BY THE MARSHALL TEST ASTM D1559 (TYP.).
- MAX. ASPHALT LIFT THICKNESS = 4 INCHES
- MIN. ASPHALT LIFT THICKNESS = 1 1/2 INCHES

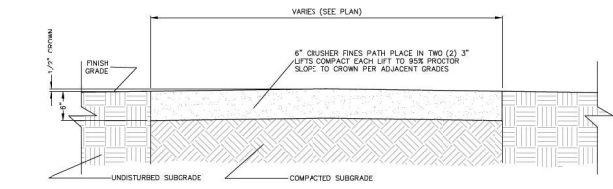


**HEAVY PAVEMENT SECTIONS**  
(TO BE USED IN TRAVELWAYS AND TRUCK ACCESS AREAS)

**LIGHT PAVEMENT SECTIONS**  
(TO BE USED IN PARKING STALL AREAS ONLY)

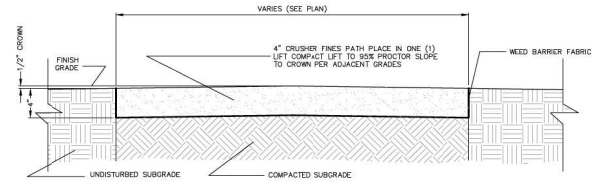
## 1 PAVEMENT SECTIONS

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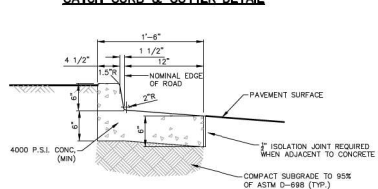
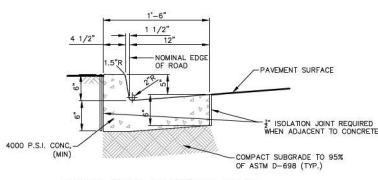
## 2 CRUSHER FINES PARKING DETAIL

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## 3 CRUSHER FINES DRIVE DETAIL

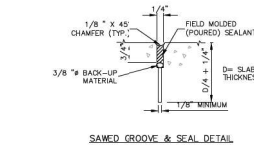
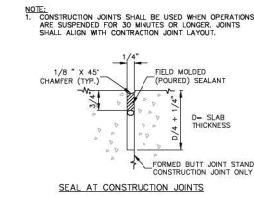
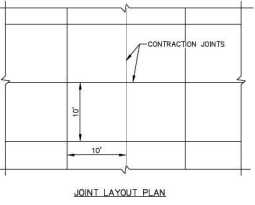
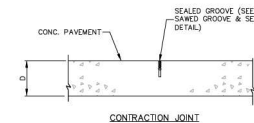
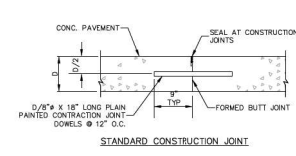
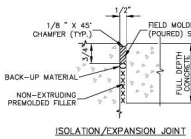
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- NOTE:**
- ALL EXPOSED CONCRETE SHALL HAVE A BROOM FINISH
  - EXPANSION JOINTS AT EACH END OF ALL CURB RETURNS AND 500' MAX. INTERVALS - SEE CURB & GUTTER EXPANSION JOINT DETAIL.
  - CONTRACTION JOINTS AT 10' MAX. INTERVALS - SEE CURB & GUTTER CONTRACTION JOINT DETAIL.

## 4 CURB AND GUTTER DETAIL

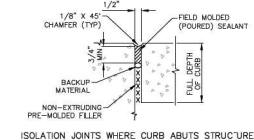
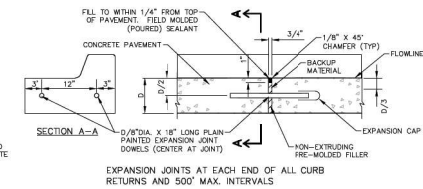
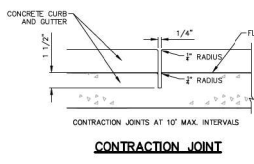
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- NOTE:**
- JOINT LAYOUT PLAN REPRESENTS THE MAXIMUM JOINT SEPARATION. CONTRACTOR SHALL SUBMIT FINAL JOINT LAYOUT PLAN TO OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
  - PROVIDE ISOLATION JOINT WHERE CONCRETE ABUT STRUCTURES.

## 5 CONCRETE PAVEMENT JOINTS

SCALE: N.T.S.



## CURB ISOLATION JOINT



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for the GRAIN YARD

540 COUNTY ROAD, LOUISVILLE, CO

Louisville Mill Site LLC / Louisville's Living Room LLC

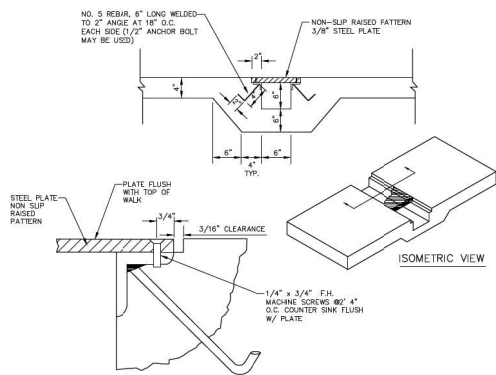


**PROJECT # 125250**  
**DATE:** 12/05/2025  
**DRAWN BY:** DWA  
**CHECKED BY:** DWA  
**REVISIONS:**

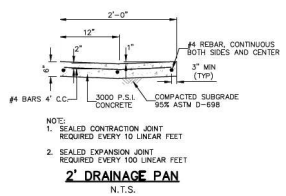
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2. CHANGE APPROVAL: 2

**Civil Details**

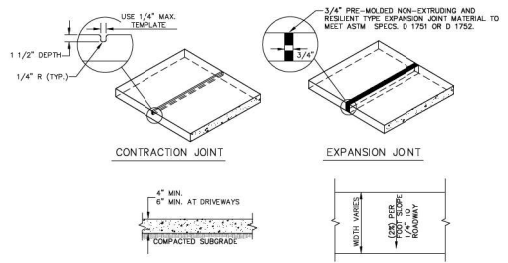
Sheet  
**C-302**  
1 of 1 Sheets



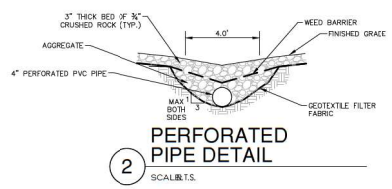
**1** **SIDEWALK CHASE DETAIL**  
SCALE: 1/8\"/>



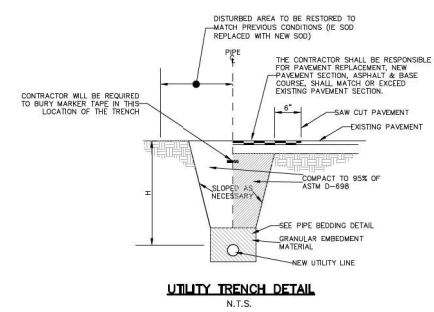
**2' DRAINAGE PAN**  
N.T.S.



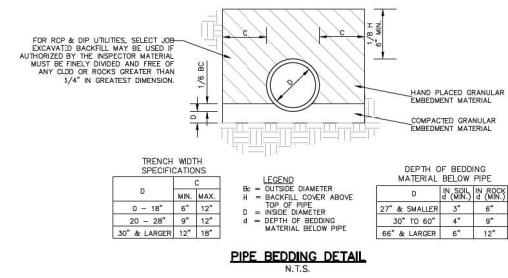
**3** **CONCRETE SIDEWALK DETAIL**  
SCALE: N.T.S.



**PERFORATED PIPE DETAIL**  
SCALE: 1/8\"/>

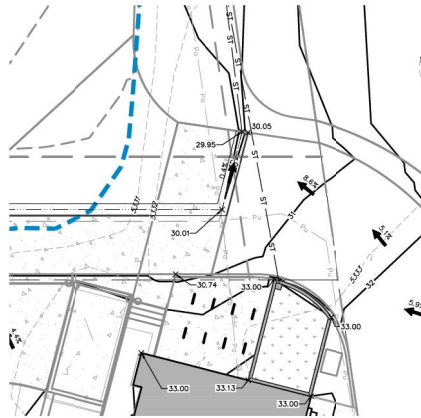


**UTILITY TRENCH DETAIL**  
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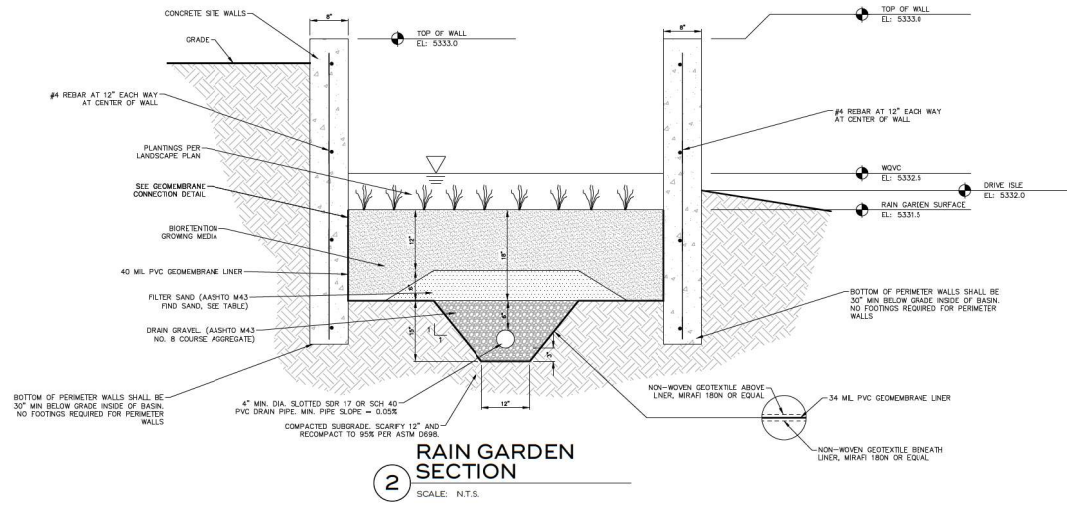


| TRENCH WIDTH SPECIFICATIONS |     |           | DEPTH OF BEDDING MATERIAL BELOW PIPE |                 |                 |
|-----------------------------|-----|-----------|--------------------------------------|-----------------|-----------------|
| D                           | C   |           | D                                    | IN SOIL IN ROCK | IN SOIL IN ROCK |
| 0 - 18"                     | 6"  | MIN. MAX. | 24" & SMALLER                        | 3"              | 6"              |
| 20 - 28"                    | 9"  | 12"       | 30" TO 60"                           | 4"              | 9"              |
| 30" & LARGER                | 12" | 18"       | 60" & LARGER                         | 6"              | 12"             |

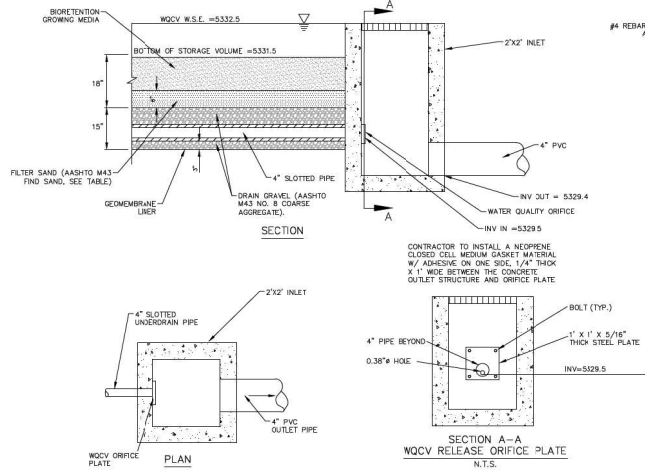
**PIPE BEDDING DETAIL**  
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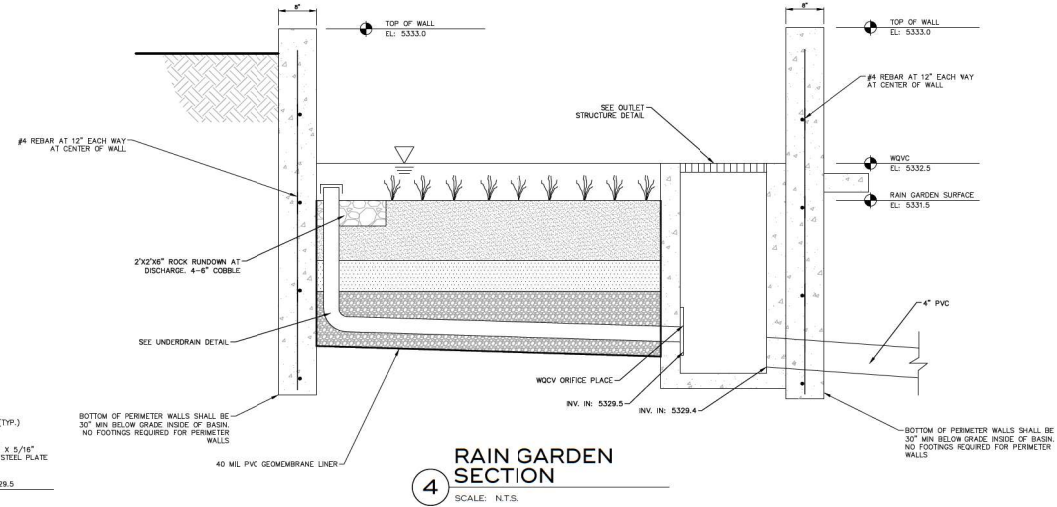
**1**  
RAIN GARDEN  
"RG-1" DETAIL  
SCALE: 1"=10'



**2**  
RAIN GARDEN  
SECTION  
SCALE: N.T.S.

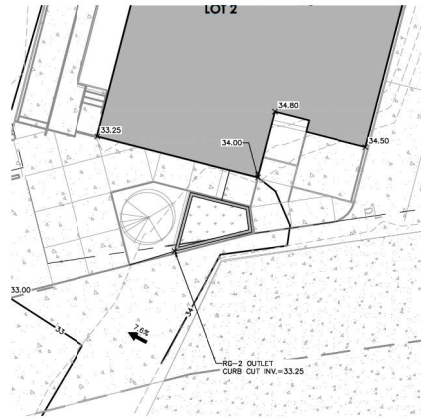


**3**  
OUTLET STRUCTURE  
DETAIL  
SCALE: N.T.S.

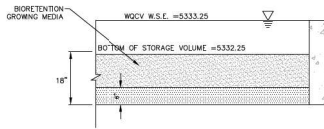


**4**  
RAIN GARDEN  
SECTION  
SCALE: N.T.S.

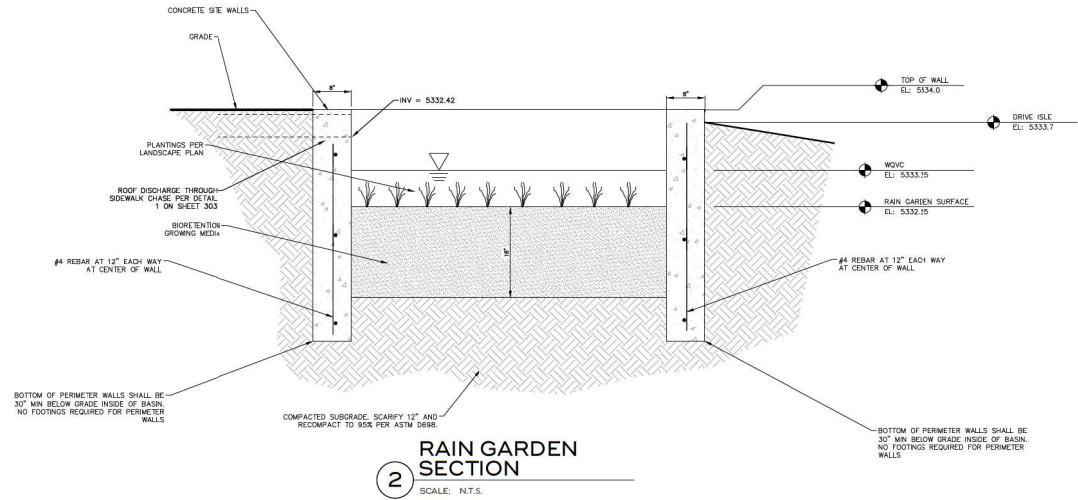




**1** RAIN GARDEN  
"RG-2" DETAIL  
SCALE: 1"=10'



**3** OUTLET DETAIL  
SCALE: N.T.S.



**2** RAIN GARDEN  
SECTION  
SCALE: N.T.S.



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Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE: 12/05/2025  
DRAWN BY: DPA  
CHECKED BY: DPA  
REVISIONS:  
1. CHANGE APPROVED: 1  
2. CHANGE APPROVED: 2  
3. CHANGE APPROVED: 3

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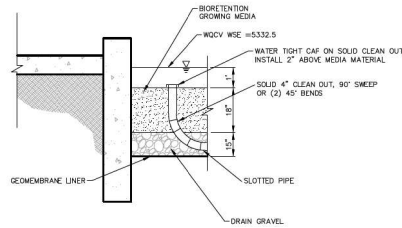
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DETAILS**

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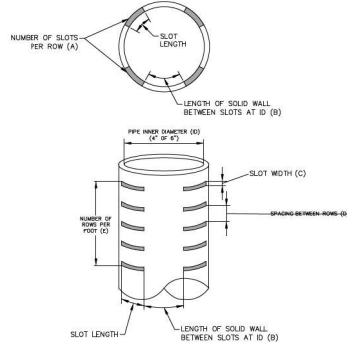


**C-305**

10 of 11 Sheets



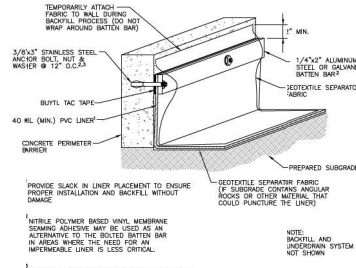
1 UNDERDRAIN DETAIL  
SCALE: N.T.S.



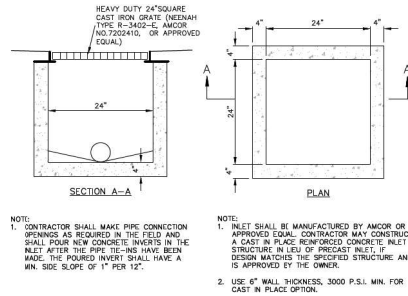
4 PVC SLOTTED PIPE UNDERDRAIN DETAIL  
SCALE: N.T.S.

| GEOMETRY                                             | MINIMUM | MAXIMUM |
|------------------------------------------------------|---------|---------|
| Number of slots per row (A)                          | 4       | 6       |
| Length of solid wall between slots at ID (B), inches | 1.0     | 2.0     |
| Slot width (C), inches                               | 0.060   | 0.100   |
| Spacing between rows (D), inches                     | 0.25    | 1.0     |
| Rows per lineal foot (E)                             | 11      | 36      |
| Open area per lineal foot (square inches)            | 6.0     | 20.0    |

8 PVC PIPE SLOT CONFIGURATION  
SCALE: N.T.S.



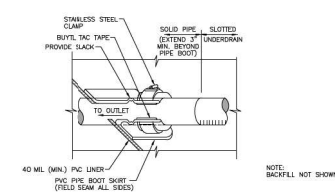
2 GEOMEMBRANE CONNECTION DETAIL  
SCALE: N.T.S.



5 2' X 2' INLET DETAIL  
SCALE: N.T.S.

| SOIL PARAMETERS                       | TEST NAME                                        | BIORETENTION MEDIA PROPERTIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Texture/Gradation                     | ASTM D7928 Sedimentation (Hydrometer) Method     | Particle Size Distribution:<br>70-80% Sand (0.05-2.0 mm diameter)<br>5-25% Silt (0.002-0.05 mm diameter)<br>5-15% Clay (<0.002 mm diameter)<br>Notes:<br>Sand, silt and clay percentages are by dry weight.<br>Particle sizes are based on the USDA soil classification system.<br>Distribution is measured after gravel > 2 mm is removed from sample. Media should have no more than 25% material > 2 mm.<br>Equivalent sieve sizes for the upper and lower limit of sand are #10 and #240, respectively. |
| Organic Matter                        | ASTM D2974                                       | 1-5% by dry weight                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| pH                                    | ASA/AASHTO                                       | 6.0 - 8.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Salinity/ Salts (EC) dS/m or mmhos/cm | Saturated Paste                                  | <3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Nitrate Nitrogen (ppm)                | ASA 2 33-3                                       | <30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Phosphorus (ppm)                      | Use Olsen when pH > 6.2, otherwise use Mehlich-3 | Olsen: <20 or Mehlich-3: <30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

9 BIORETENTION GROWING MEDIA  
SCALE: N.T.S.



3 GEOMEMBRANE PENETRATION DETAIL  
SCALE: N.T.S.

| SIEVE SIZE       | MASS PERCENT PASSING SQUARE MESH SIEVES |
|------------------|-----------------------------------------|
| 12.5 mm (1/2")   | 100                                     |
| 9.5 mm (3/8")    | 85 - 100                                |
| 4.75 mm (No. 4)  | 10 - 30                                 |
| 2.36 mm (No. 8)  | 0 - 10                                  |
| 1.18 mm (No. 16) | 0 - 5                                   |

6 DRAIN GRAVEL GRADATION AASHTO NO. 8  
SCALE: N.T.S.

| SIEVE SIZE       | MASS PERCENT PASSING SQUARE MESH SIEVES |
|------------------|-----------------------------------------|
| 9.5 mm (3/8")    | 100                                     |
| 4.75 mm (No. 4)  | 95 - 100                                |
| 2.36 mm (No. 8)  | 80-100                                  |
| 1.18 mm (No. 16) | 50-85                                   |
| 600 µm (No. 30)  | 25-60                                   |
| 300 µm (No. 60)  | 10-30                                   |
| 150 µm (No. 100) | 0-10                                    |
| 75 µm (No. 200)  | 0-3                                     |

7 FILTER SAND GRADATION  
SCALE: N.T.S.



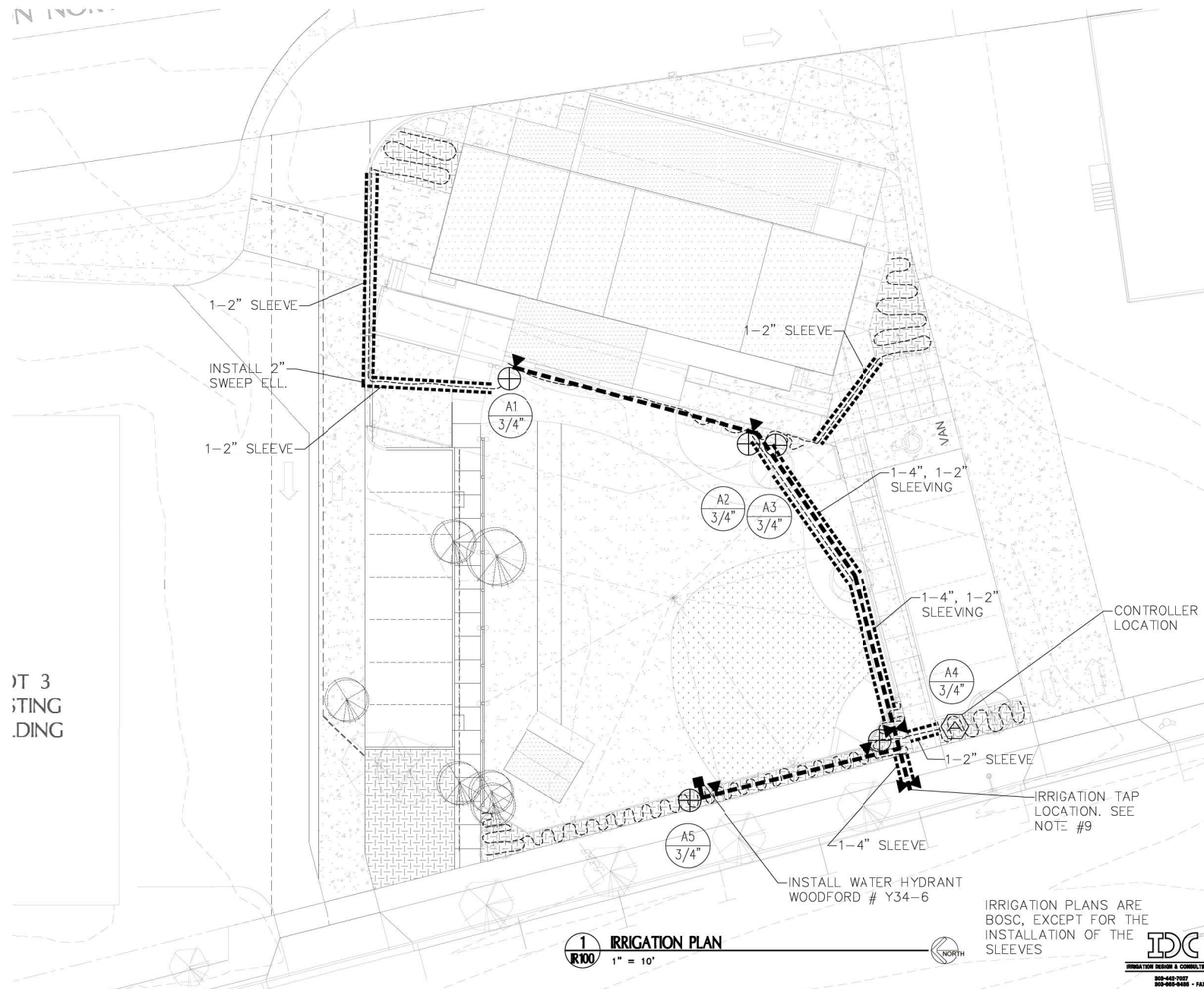
LOUISVILLE HISTORIC GRAIN ELEVATOR  
Renovation for the GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE 12/05/2015  
DRAWN BY: DPH  
CHECKED BY: DPH  
REVISIONS:  
1. OWNER APPROVAL  
2. OWNER APPROVAL  
3. OWNER APPROVAL

Civil  
DETAILS

Sheet  
C-306  
1 of 1 Sheets





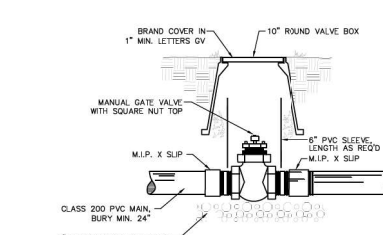
## IRRIGATION SCHEDULE

| SYMBOL | MODEL                 | DESCRIPTION                              | DETAIL |
|--------|-----------------------|------------------------------------------|--------|
| —      | LINE SIZE             | GATE VALVE                               | 3      |
| ⊕      | ¾"                    | DRIP VALVE                               | 4      |
| ▼      | 44LRC                 | RAINBIRD QUICK COUPLER                   | 5      |
| ▲      | ESP-24-LXME SERIES    | RAINBIRD CONTROLLER - PEDESTAL MOUNT     |        |
| -----  | CL. 200 B.E. (1-1/4") | PVC MAINLINE                             |        |
| -----  | CL. 200 B.E. (1")     | PVC LATERALS - 1" UNLESS OTHERWISE NOTED |        |
| -----  | CL. 200               | PVC SLEEVING                             |        |
| -----  | ¾"                    | DRIP TUBING                              |        |
| ⊙      |                       | CONTROLLER NUMBER VALVE SIZE             |        |
| ●      | 20930 SERIES - ¾"     | BUCKNER MASTER VALVE                     |        |

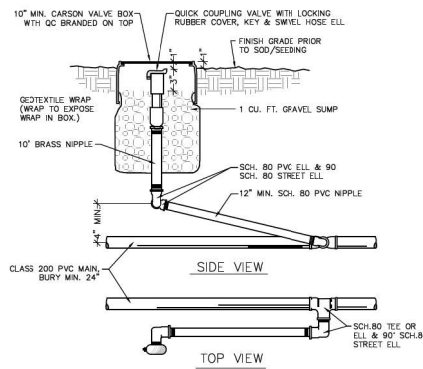
## NOTES

- REFER TO SPECIFICATIONS AND DETAILS FOR INSTALLATION INSTRUCTIONS.
- ALL BASE PLAN INFORMATION HAS BEEN TAKEN FROM DRAWINGS PREPARED BY HARTRONFT ASSOCIATES, NC.
- IRRIGATION SYSTEM IS DESIGNED FOR A STATIC WATER PRESSURE OF 70 PSI. CONTRACTOR IS TO VERIFY PRESSURE PRIOR TO INSTALLATION OF IRRIGATION SYSTEM AND NOTIFY LANDSCAPE ARCHITECT WITH VERIFICATION FIGURES. FAILURE TO NOTIFY LANDSCAPE ARCHITECT WILL RESULT IN CONTRACTOR TAKING RESPONSIBILITY FOR ANY ALTERATIONS AT HIS/HER OWN COST.
- INSTALL DRIP EMITTERS IN BED AREAS AS DESCRIBED BELOW:
 

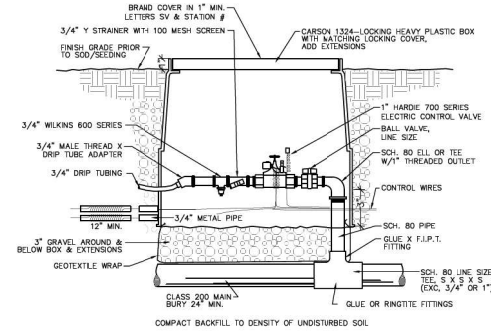
|                                 |              |                            |
|---------------------------------|--------------|----------------------------|
| GROUND COVER                    | AGRIM IFT-5  | 1 EA. 12" RADIUS, 15" O.C. |
| 1 GALLON MAT'L.                 | AGRIM IFT-5  | 1 EA.                      |
| 5 GALLON MAT'L.                 | AGRIM IFT-5  | 2 EA.                      |
| DECIDUOUS TREES (19" - 2" CAL.) | AGRIM IFT-10 | 3 EA.                      |
| DECIDUOUS TREES (3" - 4" CAL.)  | AGRIM IFT-10 | 4 EA.                      |
| PINE TREES (6" - 10")           | AGRIM IFT-10 | 2 EA.                      |
| PINE TREES (11" - 14")          | AGRIM IFT-10 | 3 EA.                      |
- CONTRACTOR TO COORDINATE INSTALLATION OF SLEEVING WITH INSTALLATION OF PAVING AND SIDEWALKS.
- USE RAINBIRD 12 SERIES NOZZLES FOR SPRAY HEADS SPACED LESS THAN 13'.
- USE RAINBIRD 10 SERIES NOZZLES FOR SPRAY HEADS SPACED LESS THAN 11'.
- ELECTRICAL POWER TO THE NEW CONTROLLER IS EXISTING.
- TAP LOCATION: CONNECT TO EXISTING ¾" WATER STUBOUT DOWNSTREAM OF EXISTING BACKFLOW PREVENTER AND INSTALL ¾" MASTER VALVE AND EXTEND 1-1/4" MAINLINE AS SHOWN. INSTALL MASTER VALVE IN SEPARATE CARSON #1419-138 VALVE BOX.



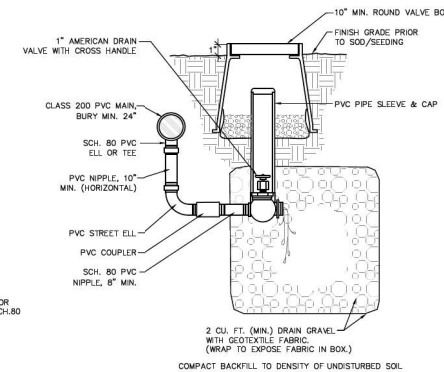
1 ISOLATION GATE VALVE



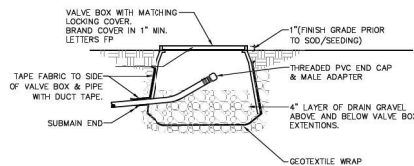
3 QUICK COUPLER



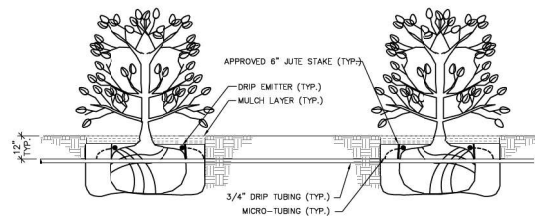
2 DRIP VALVE



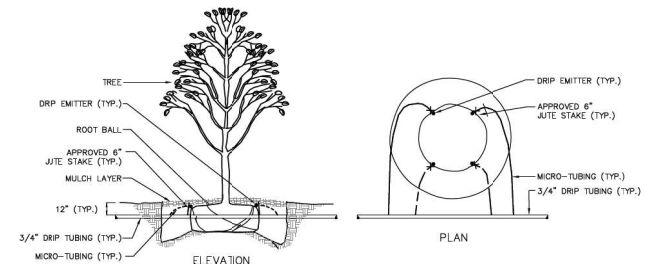
4 DRAIN VALVE



5 DRIP-BLOWOUT



6 DRIP-SHRUB



7 DRIP-TREE



CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK



LOUISVILLE HISTORIC GRAIN ELEVATOR  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC

PROJECT # 1252.50  
DATE: 12/05/25  
DRAWN BY: HAPC  
CHECKED BY: JEH  
REVISIONS:

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All drawn and written information  
depicted, disclosed or otherwise  
copied herein shall not be  
used without written consent of  
Harttronft Associates, Inc.

Irrigation Details

Sheet  
IR101  
of Sheets

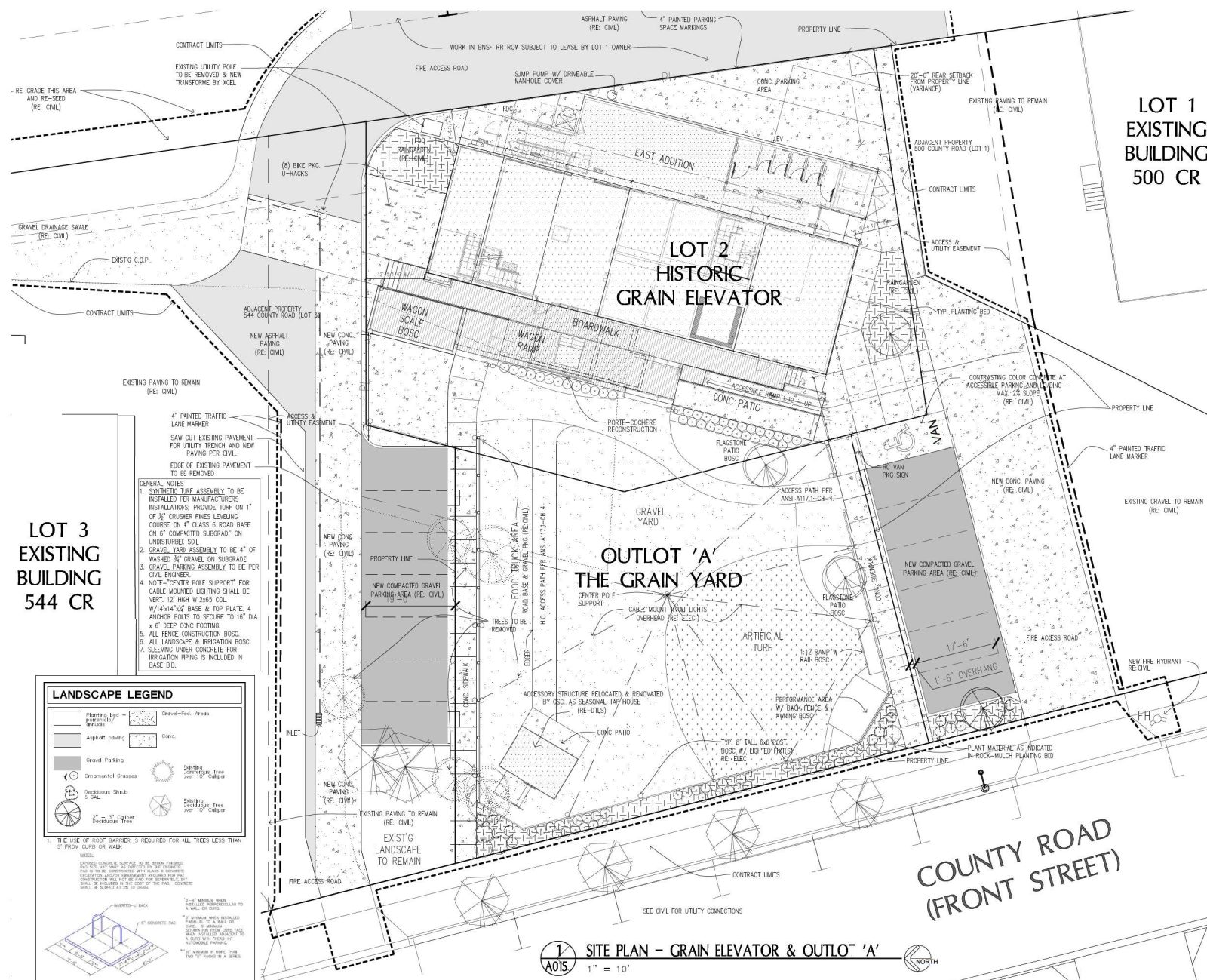
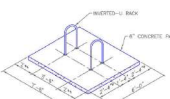
1. Contractor shall be governed by the currently adopted edition of all codes and regulations having jurisdiction over aspects of this construction project.
2. Within dimensions and existing conditions shall be verified in the field the Contractor and/or his Sub-Contractors. Do not stake drawings. If further clarification is required, contact Architect and provide him with field dimensions, as required to satisfy him, with his clarification.
3. Any discrepancy in dimensions and/or drawings and/or field measurements shall be the responsibility of the Architect prior to the commencement of any work.
4. These drawings and specifications are the property and copyright of the Architect and shall not be used in any other work except by agreement with the Architect.
5. Duty of Cooperation: Release of these plans anticipates thorough cooperation among the Owner, Contractor, and Architect. Although the Architect and Contractor are separate parties, they are one team in the design and delivery, they cannot cooperate partially. Any ambiguity or discrepancy discovered shall be reported immediately to the Architect. Failure to cooperate by e-mail reports to the Architect shall not relieve the Contractor from responsibility for all consequences. Changes made from the plans without the permission of the Architect are unauthorized, and shall relieve the Contractor of any responsibility for all consequences arising out of such changes.

6. Plans reflect initial building and site information. Demolition, site clearing, etc., to be performed as required. No alterations to made that allow existing conditions or show or hide delineating noted. Contractor to be held solely responsible for any errors or omissions in the information provided. Contractor is designated as an historic landmark. As such, it is imperative that Contractor's attention be related to the project's historic character. If any existing material or construction is to be removed, the disposition of the removed material or construction is to be confirmed with the City of Seattle. Also, materials designated for salvage by the Architect shall be stored on site as directed for review. Only discarded materials specifically indicated by the Architect to be discarded.
7. All products to be installed per manufacturer's recommendations.
8. All work to be in accordance with "General Conditions of the Contract for Construction – AIA Document A201" and other Contract Documents.
9. All Survey and Property Information indicated herein is based upon the ALTA/ACSM Land Use Survey prepared by Surveyors LLC 05/26/20.
10. The Contractor shall include any work required to make the final result building meet the intent of the Contract Documents. If equipment, material and/or construction are not detailed in documents or specifications, the Contractor may request a change order. If the Contractor does not specify that work shall be included in a bid, if the Owner does not accept or approve the work, the addition or deletion of the work shall be a change order. If equipment or materials chosen by the Owner or Architect will be effected by Change Order.
11. The term "provide" as used herein shall mean that Contractor shall furnish and install and/or, construction, equipment, materials, etc., for a complete, balanced installation.
12. Do not use calcium or sodium plating products or products containing calcium or sodium in plating.
13. Do not use solvents or solvents containing products for work in place. Contractor shall cut, cut, remove, or otherwise dispose any material, equipment, construction, etc., in a way that is in accordance with any hazardous materials. If material, equipment, construction, etc., is encountered which is not likely to be calcium or sodium materials, notify Owner immediately.
14. Electrical equipment shall be certified as conforming to NEC's.
15. Topographical errors or omissions of spelling shall be brought to the Architect's attention for correction. Interpretation of the meaning of changed or misspelled words without clarification from the Architect will be made by the Contractor with acceptance of responsibility for that interpretation.

### LANDSCAPE LEGEND

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Planting bed - permeable/gravel<br> Asphalt paving<br> Gravel Parking<br> Ornamental Grasses<br> Deciduous Shrub 5 Cal.<br> 12" - 17" Caliber Deciduous Tree |  Gravel-Fed Areas<br> Concrete<br> Existing Conifers Tree over 10' Caliber<br> Existing Conifers Tree over 10' Caliber |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

1. THE USE OF ROOF BARRIER IS REQUIRED FOR ALL TREES LESS THAN 6" DBH. CROWN OR WALK



CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK



**HARTRONFT  
ASSOCIATES**  
*A Professional Corporation*

*Planning  
Architecture  
Interior Design*

950 Spruce Street, #2C  
Louisville, CO 80027  
TEL: 303.673.9304  
FAX: 303.673.9319

LOUISVILLE HISTORIC GRAIN ELEVATOR  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE: 12/05/25  
DRAWN BY: HAPC  
CHECKED BY: JEH  
REVISIONS:  
A 0/16/26 ADDENDUM 1  
B 01/23/26 ADDENDUM 2  
PERMIT SUBMITTAL

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Site Plan

Sheet

**A015**

of Sheets



Louisville Grain Elevator  
01.20.26  
540 County Rd. Louisville, CO  
Owner: Louisville Mill Site LLC  
Architect: Hartnont Associates, p.c.

**2024 IBCB Summary**  
**CHAPTER 3 – Administration**

**Section 301.1 – General**

The alteration or change of occupancy shall comply with Section 301.2, 301.3, or 301.4. The provisions of Sections 302-309 shall apply to all alterations, repairs, additions, relocation of structures and changes of occupancy regardless of compliance method.

Section 301.3.1 – This building will adhere to the Prescriptive compliance method per Chapter 5 except as described.

**Section 302.3 – Existing Materials**

Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the code official to be unsafe. Refer to provisions outlined in Section 1202.2 regarding replacement of existing or missing features using original materials and Section 1203.5 regarding using interior finishes that are consistent with historic finishes.

**Section 302.4 – New and Replacement materials**

Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs and alterations, provided that unsafe conditions are not created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location. Refer to provisions outlined in Section 1202.2 regarding replacement of existing or missing features using original materials and 1203.5 regarding using interior finishes that are consistent with historic finishes.

**Section 306.1 – Scope**

The provisions of Sections 306.1 through 306.7.16 apply to maintenance and repair, change of occupancy, additions and alterations to existing buildings, including those identified as historic buildings.

**Section 306.2 – Design**

Buildings and facilities shall be designed and constructed to be accessible in accordance with this code and the alteration and existing building provisions in ICC A117.1, as applicable.

**Section 306.5 – Change of occupancy**

Existing buildings that undergo a change of group or occupancy shall comply with Section 306.7.

**Section 306.6 – Additions**

Provisions for new construction shall apply to additions. An addition that affects the accessibility to, or contains an area of, a primary function shall comply with the requirements of Section 306.7.1. The addition will comply with requirements of the IBC for new construction.

**Section 306.7 – Alterations**

A facility that is altered shall comply with the applicable provisions in Chapter 11 of the IBC, ICC A117.1 and the provisions of Sections 306.7.1 through 306.7.16 unless technically infeasible. Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent technically feasible. The addition will meet applicable provisions of Chapter 11 of the IBC for new construction.

**Section 306.7.1 – Alterations affecting an area containing a primary function.**

Where an alteration affects the accessibility to, or contains an area of primary function, the route to the primary function area shall be accessible. Toilet facilities and drinking fountains serving the area of primary function, including the route from the area of primary function to these facilities, shall be accessible. An accessible route will be provided that includes toilet facilities. Refer to plumbing code notations related to drinking fountain requirements in restaurants. IFG 410.4 – Substitutions.

**Section 306.7.2 – Accessible means of egress**

Accessible means of egress required by Chapter 10 of the International Building Code are not required to be added in existing facilities. An accessible route will be provided within the primary function space.

**Section 306.7.5 – Entrances**

Where an alteration includes alterations to an entrance that is not accessible, and the facility has an accessible entrance, the altered entrance is not required to be accessible unless required by Section 306.7.1. Signs complying with Section 1119 of the IBC shall be provided. An accessible route will be provided at the primary entrances.

**Section 306.7.8 – Accessible route**

Exterior accessible routes, including curb ramps, shall be not less than 36 inches minimum in width. Exterior accessible routes of 36" or larger will be provided.

**Section 306.7.10 – Stairways and escalators in existing buildings**

Where a stairway is added where none existed previously and major structural modifications are necessary for installation, an accessible route complying with Section 1104.4 of the IBC is required between levels served by such stairway. An accessible route will be provided as required at new interior stairs except as indicated in IBC notations.

**Section 306.7.18 – Historic structures**

Where compliance with the requirements for accessible routes, entrances or toilet rooms would threaten or destroy the historic significance of the historic structure, as determined by the authority having jurisdiction, the alternative requirements of Sections 306.7.16.1 through 306.7.16.5 for that element shall be permitted. Exceptions:

1. Accessible means of egress required by Chapter 10 of the IBC are not required to be provided in historic structures.
  2. The altered element or space is not required to be on an accessible route, unless required by Sections 306.7.16.1 or 306.7.16.2.
- Requirements for accessible routes, entrances, and toilet rooms will be provided at the main level. Refer to notations regarding the feasibility of accessible routes at upper levels.

**Section 306.7.18.1 – Site arrival points**

Not fewer than one exterior accessible route, including curb ramps from a site arrival point to an accessible entrance, shall be provided and shall be not less than 36 inches minimum in width. Exterior accessible routes of 36" or larger will be provided from the site arrival points to an accessible entrance.

**Section 306.7.18.2 – Multiple-level buildings and facilities**

An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided. Accessible routes will be provided throughout public spaces on the level of the accessible entrance.

**Section 306.7.18.3 – Entrances**

Where an entrance cannot be made accessible in accordance with Section 306.7.5, an accessible entrance that is unobstructed while the building is occupied shall be provided; or, a locked accessible entrance with a notification system or remote monitoring shall be provided.

Signs complying with Section 1112 of the IBC shall be provided at the public entrances and the accessible entrance.

Accessible routes will be provided throughout public spaces on the level of the accessible entrance.

**Section 306.7.18.4 – Toilet facilities**

Where toilet rooms are provided, not fewer than one accessible single-use toilet room or one accessible family or assisted-use toilet room complying with Section 1110.2.1 of the IBC shall be provided. Requirements for accessible routes, entrances, and toilet rooms will be provided at the main level.

**Section 309 – Additions and replacements of exterior wall coverings and exterior wall envelopes**

**Section 309.1 – General**

The provisions of Section 309 apply to all alterations, repairs, additions, relocations of structures and changes of occupancy regardless of compliance method.

**Section 309.2 – Additions and replacements**

Where an exterior wall covering or exterior wall envelope is added or replaced, the materials and methods used shall comply with the requirements for new construction in Chapter 14 and 26 of the IBC if the added or replaced exterior wall covering or exterior wall envelope involves two or more contiguous stories and comprises more than 15% of the total wall area on any side of the building. Some exterior wall covering will be replaced or repaired, but the extent of these replacements will be less than 15% for any given side.

**CHAPTER 5 – Prescriptive Compliance Method**

**Section 501.2 Fire-Resistance Ratings**

Where approved by the code official, inbuildings where an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 of the IBC has been added, and the building is now sprinklered throughout, the required fire-resistance ratings of building elements and materials shall be permitted to meet the requirements of the current building code. The building is required to meet the other applicable requirements of the IBC. An automatic sprinkler system will be added to all required areas of the existing building.

**Section 506.1 Compliance**

A change of occupancy shall not be made in any building unless that building is made to comply with the requirements of the IBC for the use or occupancy. Refer to exceptions outlined in 2021 IBCB Chapter 12.

**Section 506.1.1 Change in the character of use**

A change of occupancy with no change of occupancy classifications shall not be made to any structure that will subject the structure to any special provisions of the applicable International Codes, without approval of the code official. Compliance shall be only as necessary to meet the specific provisions and is not intended to require the entire building be brought into compliance.

Only the areas intended to be occupied by the public will be brought into full compliance with all applicable standards with some exceptions. The entire building will be fire sprinklered per NFPA 13. The upper floors of the building are not occupiable, are considered as "attic spaces" and will not be conditioned or brought up to full life safety compliance.

**Section 507.1 – Historic Buildings**

The provisions of this code that require improvements relative to a buildings existing condition or, in the case of repairs, that require improvements relative to buildings pre-damage condition, shall not be mandatory for historic buildings unless specifically required by this section. Refer to exceptions outlined in 2021 IBCB Chapter 12.

**Section 507.2 – Life safety hazards**

It is unfeasible not desirable to alter upper-level floor spaces to meet current codes for stairs, railings, exiting distances, etc. Refer to exceptions outlined in 2021 IBCB Chapter 12.

**CHAPTER 6 – Classification of work**

**Section 601.1 – Scope**

The provisions of this chapter shall be used in conjunction with Chapters 7 through 12 and shall apply to the alteration, addition and change of occupancy of existing structures, including historic and moved structures, as referenced in Section 301.3.2. The work performed on an existing building shall be classified in accordance with this chapter.

**Section 604 – Alteration – Level 3**

**Section 601.1 – Scope**

Level 3 alterations apply where the work area exceeds 50% of the building area. The work area will exceed 50% of the building area and the building will undergo a change of occupancy.

**Section 605 – Change of Occupancy**

**Section 605.2 – Application**

Changes of occupancy shall comply with the provisions of Chapter 10.

**Section 607 – Historic Buildings**

**Section 607.2 – Application**

Except as specifically provided for in Chapter 12, historic buildings shall comply with applicable provisions of this code for the type of work being performed. Refer to exceptions outlined in 2021 IBCB Chapter 12.

**CHAPTER 10 – Change of Occupancy Classification**

**Section 1001.2.1 – Change of use**

Any work undertaken in connection with a change in shall conform to the applicable requirements for the work as classified in Chapter 6 and to the requirements of Section 1002 through 1010. Exception: As modified in Section 1204 for historic buildings. Refer to exceptions outlined in 2021 IBCB Chapter 12.

**Section 1002 – Special Use and occupancy**

**Section 1002.1 – Compliance with the building code**

Where an existing building or part of an existing building undergoes a change of occupancy to one of the special use or occupancy categories as described in Chapter 4 of the IBC, the building shall comply with all of the requirements of Chapter 4 of the IBC applicable to the special use or occupancy. Refer to exceptions outlined in 2021 IBCB Chapter 12.

**Section 1010.1 – Light and ventilation**

Light and ventilation shall comply with the requirements of the IBC for the new occupancy. Refer to exceptions outlined in 2021 IBCB Chapter 12.

**Section 1011 – Change of occupancy classification**

**Section 1011.1 – General**

The provisions of this section shall apply to buildings or portions thereof undergoing a change of occupancy classification. This includes a change of occupancy classification within a group as well as a change of occupancy classification from one group to a different group. The provisions of this section shall also apply where there is a change of occupancy within a building or portion thereof and there is a different fire protection system threshold requirement in Chapter 9 of the current IBC than exists in the current building or space. Such buildings shall also comply with Sections 1002 through 1010 of this code. It is the intent to adhere to all of the requirements of Chapter 9 of the IBC related to Fire Sprinkler Systems.

**Section 1011.2.1 – Automatic Sprinkler system**

The installation of an automatic sprinkler system shall be required where there is a change of occupancy classification and Chapter 9 of the current IBC requires an automatic sprinkler system based on the new occupancy or where there is a change of occupancy within the space where there is a different fire protection system threshold requirement in Chapter 9 of the current IBC than exists in the current building or space. The installation of the automatic sprinkler system shall be required within the area of the change of occupancy and areas of the building not separated horizontally and vertically from the change of occupancy by a nonrated permanent partitions and horizontal assemblies, fire partition, smoke partition, smoke barrier, fire barrier or fire wall.

1. Nonrated permanent partitions and horizontal assemblies.

2. Fire partition

3. Smoke partition

4. Smoke barrier

5. Fire barrier

6. Fire wall

The building will be equipped throughout with a NFPA 13 fire protection system.

**Section 1011.3 – Interior finish**

In areas of the building undergoing the change of occupancy classification, the interior finish of the walls and ceiling shall comply with the requirements of the IBC for the new occupancy classification. Refer to exceptions outlined in 2021 IBCB Chapter 12. The existing interior finishes and structure are all made of wood framing and wood paneling. It is the intent to repair and rebuild existing areas to maintain the historic character.

**Chapter 12 – Historic Buildings**

**Section 1201.1 – Scope**

This chapter is intended to provide means for the preservation of historic buildings. Historic buildings shall comply with the provisions of this chapter relating to their repair, alteration, relocation and change of occupancy.

**Section 1201.2 – Report**

A historic building undergoing alteration or change of occupancy shall be investigated and evaluated. If it is intended that the building meet the requirements of this chapter, a written report shall be prepared and filed with the code official by a registered design professional where such a report is necessary in the opinion of the code official. Such report shall be in accordance with Chapter 1 and shall identify each required safety feature that is in compliance with this chapter and where compliance with other chapters of these provisions would be damaging to the contributing historic features. Additionally, the report shall describe each feature that is not in compliance with these provisions and shall demonstrate how the intent of these provisions is complied with in providing an equivalent level of safety.

It is the intent to meet applicable IBC, IECC, and IEBC requirements for areas of the building to be altered to meet current codes. Some exceptions will be proposed to maintain the historical significance of the building.

**Section 1201.3 – Special occupancy exceptions-museums**

Where a building in Group R-3 is used for Group A, B or M purposes such as museum tours, exhibits and other public assembly activities, or for museums less than 3,000 sq. ft., the code official is authorized to determine that the occupancy is Group B where life safety conditions can be demonstrated in accordance with Section 1201.2. Adequate means of egress in such buildings, including, but not limited to, a means of maintaining doors in an open position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exit procedures, shall be provided.

It is the intent to have assembly areas that will be open to the public year-round. Some areas will only be accessed seasonally. And, some select areas will be open to guided tours. Detailed descriptions and vertical/horizontal assemblies will be described that endorse each of these areas to address safety and energy requirements.

**Section 1201.5 – Unsafe conditions**

Conditions determined by the code official to be unsafe shall be remedied. Work shall not be required beyond what is required to remedy the unsafe conditions.

It is the intent to remediate unsafe conditions in all assembly areas. Some areas accessed through guided tours may not meet all IBCB Chapter 10 requirements to ensure the integrity of the historic features.

**Section 1202 – Repairs**

**Section 1202.1 – General**

Repairs to any portion of a historic building or structure shall be permitted with original or like materials and original methods of construction, subject to the provisions of this chapter. Hazardous materials, such as asbestos and lead-based paint, shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

Some repairs utilizing original methods of construction will be required. No asbestos or lead-based paint will be used.

**Section 1202.2 – Replacement**

Replacement of existing or missing features using original materials shall be permitted. Partial replacement for repairs that match the original in configuration, height and size shall be permitted. Replacement glazing in hazardous location shall comply with the safety glazing requirements of Chapter 24 of the IBC.

All new glazing will be safety glazing as required by Chapter 24 of the IBC.

**Section 1203 – Fire Safety**

**Section 1203.1 – Scope**

Historic building undergoing alterations, changes of occupancy or that are moved shall comply with Section 1203.

**Section 1203.2 – General**

Every historic building that does not conform to the construction requirements specified in this code for the occupancy or use and that constitutes a distinct fire hazard as defined herein shall be provided with an approved automatic fire-extinguishing system as determined appropriate by the code official. However, an automatic fire-extinguishing system shall not be used to substitute for, or act as an alternative to, the required number of exits from any facility.

An NFPA 13 fire-extinguishing dry system is proposed to minimize fire hazards for the entire structure. The required number of exits per the IBC will be met.

**Section 1203.3 – Means of egress**

Existing door openings and corridor and stairway widths less than those specified elsewhere in this code may be approved, provided that, in the opinion of the code official, there is sufficient width and height for a person to pass through the opening or traverse the means of egress. Where approved by the code official, the front or main exit doors need not swing in the direction of the path of exit travel, provided that other approved means of egress having sufficient capacity to serve the total occupant load are provided. It is the intent that at least one new and existing means of egress within assembly areas will meet the requirements of the IBC.

**Section 1203.5 – Interior finishes**

The existing interior finishes shall be accepted where it is demonstrated that they are the historic finishes. The entirety of the above grade existing structure is constructed with wood including beams, columns, and interior finishes. It is the intent to utilize wood structure and interior finishes in all repairs, alterations, and additions.

**Section 1203.6 – Stairway enclosures**

In buildings of three stories or less, exit enclosure construction shall limit the spread of smoke by the use of tight-fitting doors and solid elements. Such elements are not required to have a fire-resistance rating. Refer to notations in response to IBC Section 712.1.9 and 713.

**Section 1203.7 – One-hour fire-resistant assemblies**

Where a one-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood or metal lath and plaster.

All existing wall and ceilings are made of wood.

**Section 1203.8 – Glazing in fire-resistance-rated systems**

Historic glazing materials are permitted in interior walls required to have a 1-hour fire-resistance rating where the opening is provided with approved smoke seals and the area affected is provided with an automatic sprinkler system. Refer to specific areas to receive glazing.

**Section 1203.12 – Automatic fire-extinguishing systems**

Every historic building that cannot be made to conform to the construction requirements specified in the IBC for the occupancy or use and that constitutes a distinct fire hazard shall be deemed to be in compliance if provided with an approved automatic fire-extinguishing system. An approved automatic fire-extinguishing system is proposed for this building.

**Section 1204 – Change of Occupancy**

**Section 1204.4 – Occupancy separation**

Required occupancy separations of 1 hour may be omitted where the building is provided with an approved automatic sprinkler system throughout. No occupancy separations are proposed.

**Section 1204.9 – Interior finishes**

Where interior finish materials are required to comply with the fire test requirements of Section 803.1 of the IBC, existing nonconforming materials shall be permitted to be surfaced with an approved fire-retardant coating to achieve the required classification. Compliance with this section shall be demonstrated by testing the fire-retardant coating on the same material and achieving the required fire classification. Where the same material is not available, it shall be permitted to test on a similar material. Exception: Existing nonconforming materials need not be resurfaced with an approved fire-retardant coating where the building is equipped throughout with an automatic sprinkler system installed in accordance with the IBC and the nonconforming materials can be substantiated as being historic in character.



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**Renovation for THE GRAIN YARD**  
**540 COUNTY ROAD, LOUISVILLE, CO**  
**Louisville Mill Site LLC / Louisville's Living Room LLC**



**PROJECT # 1252.50**  
**DATE: 12/05/25**  
**DRAWN BY: JPH**  
**CHECKED BY: JPH**  
**REVISIONS:**  
1. REVISION NUMBER 1  
2. REVISION NUMBER 2

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**CODE  
ANALYSIS**

Sheet

**A016**



The existing wood finishes are intended to remain and an automatic sprinkler system installed in accordance with the IBC.

Section 1204.14 – Natural light  
Where it is determined by the code official that compliance with the natural light requirements of Section 1010.1 will lead to loss of historic character or historic materials in the building, the existing level of natural lighting shall be considered to be acceptable.  
Some natural lighting requirements required through IBC 1204.2 will not be met without affecting the historic character of the building.

## 2024 IECC Summary

### CHAPTER 5 – Existing Buildings

Section C501.1 Scope - The provisions of this chapter shall control the alteration, repair, addition and change of occupancy of existing buildings and structures.

Section C501.1.1 - Except as specified in this Chapter, this code shall not be used to require the removal, alteration or abandonment of, nor prevent the continued use and maintenance of, an existing building or building system lawfully in existence at the time of adoption of this code.

Section C501.2 - Additions, alterations, repairs, and changes of occupancy to, or relocation of, existing buildings and structures shall comply with Sections C502, C503, C504, and C505 of this code.

Section C501.5 - Historic Buildings  
Provisions of this code relating to the construction, repair, alteration, restoration and movement of structures, and change of occupancy shall not be mandatory for historic buildings provided that a report has been submitted to the code official and signed by a registered design professional, demonstrating that compliance with that provision would threaten, degrade or destroy the historic form, fabric, or function of the building.  
A report, if required, that describes specific construction that will not adhere to current energy requirements as these requirements will degrade or destroy the historic form, fabric, or function of the building.

### Section C502 – Additions

Section C502.1 – General  
Additions to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portion of the existing building or building system to comply with this code. Additions shall not create an unsafe or hazardous condition or overload existing building systems. An addition shall be deemed to comply with this code if the addition alone complies or if the existing building and addition comply with this code as a single building.  
An addition to the existing structure is proposed. The addition is intended to meet the requirements for new construction per the IBC and IECC. Portions of the existing structure are intended to transform from unconditioned to conditioned space. A report will define what areas will be able to meet or not meet energy requirements without degrading or destroying the historic form or fabric.

Section C503.1 Alterations  
Alterations to any building or structure shall comply with the requirements of Section C503. Alterations shall be such that the existing building or structure is not less conforming to the provisions of this code than the existing building or structure was prior to the alteration. Alterations to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall not create an unsafe or hazardous condition or overload existing building systems.  
Alterations to the existing structure are proposed. The alterations are intended to meet the requirements for new construction per the IBC. However, a report will define what areas will be able to meet or not meet energy requirements without degrading or destroying the historic form or fabric.

Section C505 - Change of Occupancy or Use  
Spaces undergoing a change in occupancy that would result in an increase in demand for either fossil fuel or electrical energy shall comply with this code. Where the use in a space changes from one use in Table C405.3.2(1) or C405.3.2(2) to another use in Table C405.3.2(1) or C405.3.2(2), the installed lighting wattage shall comply with Section C405.3.3. Where the space undergoing a change in the occupancy or use is in a building with a fenestration area that exceeds the limitations of Section C402.4.1, the space is exempt from Section C402.4.1 provided that there is not an increase in fenestration area.  
This building will have a change of occupancy from historic original grain storage to that of a tavern and museum. Refer to section C501.5 and associated report identifying conformance with energy code without destroying the historic form or fabric of the existing building.

## 2024 IBC Summary

### CHAPTER 3 – Use and Occupancy Classification

Group A-2 – Assembly (Tavern)

| OCCUPANCY & AREA SUMMARY                   | Building Code Area | Occupancy         | Notes                       |
|--------------------------------------------|--------------------|-------------------|-----------------------------|
| Basement - Total                           | 1,218 sf           |                   |                             |
| Tavern                                     | 242 sf             | A-2               | 14.5 occ                    |
| Accessory storage                          | 974 sf             | A-2               | 2.88 occ                    |
| Ground Level - Total                       | 3,446 sf           |                   |                             |
| Tavern                                     | 3,446 sf           | A-2               | 163.5 occ                   |
| Second Level - Total                       | 586 sf             |                   |                             |
| Tavern + mezzanine                         | 586 sf             | A-2               | 25.66                       |
| Third Level – (attic) (not open to public) | 0                  |                   |                             |
| <b>Total IBC Building Area</b>             | <b>5,246 sf</b>    | <b>Mixed Occ.</b> | <b>*207 total occupants</b> |

All occupancy counts for assembly areas are based on net square footage

### CHAPTER 5 – General Building Heights and Areas

Note: The building shall be provided with Automatic Fire Sprinkler System throughout per 903.3.1.1 (NFPA 13).

Section 504 Building Height and Number of Stories  
Table 504.3 Allowable Height - Type V-B Construction (sprinklered):  
A - 60 ft max allowable height  
Actual height to top of tower = 48'-6"

Table 504.3 Allowable Stories Above grade plane - Type V-B Construction (sprinklered):  
A-2 2 story

Section 504.4 Number of stories  
The maximum number of stories above grade plane of a building shall not exceed the limits specified in Table 504.4.

Per this section, the basement is not considered when calculating the number of stories.

Table 506.2 Allowable Area - Type V-B Construction (sprinklered):  
A-2 18,000 sf

Section 508.2.1 Accessory Occupancy classification  
Accessory occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space.

The basement has spaces dedicated to storage and an employee office. This area is classified as B.

Section 506.2.4 Separation of occupancies.  
No separation is required between accessory occupancies and the main occupancy.

### CHAPTER 6 – Types of Construction

Fire Resistance Ratings:

Table 601 Type V-B Building structural elements are non-rated.

### CHAPTER 7 – Fire Resistance Rated Construction

Table 705.2 Projections with a fire separation distance from 2'-3' are allowed up to a 24" projection.

Table 705.5 Fire Resistance of building elements based on fire separation distance.  
In construction type V-B building elements greater than 10' from property line or to the center of the street, an alley or publicly measured at right angles from the face of wall do not require a fire resistance rating.

All existing walls exceed 10' to the property line or to center line of the railroad ROW.

Section 705.9.1 Exception #2 -

Unlimited unprotected openings are allowed for Type VB construction.

Section 712.1.9 Two-story openings

A vertical opening that is not used as one of the applications specified in this section shall be permitted if the opening complies with all of the following items:

- Does not connect more than two stories.
- Does not penetrate a horizontal assembly that separates fire areas or smoke barriers that separate smoke compartments.
- Is not concealed within the construction of a wall or a floor/ceiling assembly.
- Is not open to a corridor in Group I and R occupancies.
- Is not open to a corridor on nonsprinklered floors.
- Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.

One exit access stair is open and communicates between the second level and the ground level. Another exit access stair is provided between the basement and the first floor. Refer to Section 1019.3 for additional information.

Section 713.4 A 1 hour fire rated shaft enclosure is required for shafts connecting less than four stories.

Refer to IEBC Section 1203.7 regarding fire ratings of shaft enclosures and construction requirements.

Section 713.6 Exterior walls serving as part of a shaft enclosure need not comply with fire rated enclosure requirements.

### CHAPTER 8 – Interior Finishes

Table 803.13 Interior wall and ceiling finish requirements by occupancy in buildings equipped with an automatic sprinkler system:

A-2 - Interior exit stairways/corridors/exit access stairways = B

Rooms and enclosed spaces = C

Refer to IEBC 1204.9, the existing wood finishes are intended to remain and an automatic sprinkler system installed in accordance with the IBC.

### CHAPTER 9 – Fire Protection Systems

Section 903 The building will be provided throughout with a NFPA 13 automatic sprinkler system.

### CHAPTER 10 – Means of Egress

Each existing 1st Floor tenant space will remain as is. Each new residential unit, except those two located adjacent to the central exit access stair, will receive new individual exterior exit stairs.

Table 1006.4.5 Basement occupant load = 332/15 + 864/300 = 12.13 + 2.88 = 15.01

Ground floor occupant load = 2,617.5 net/15 = 174.5

2nd floor occupant load = 251/15 = 16.73

(occupant load based on net area)

Section 1006.3.4 Single Exits

Table 601 Type V-B Building structural elements are non-rated.

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Ground floor occupant load = 2,617.5 net/15 = 174.5

2nd floor occupant load = 251/15 = 16.73

(occupant load based on net area)

Section 1006.3.4 Single Exits

A single exit or access to a single exit shall be permitted from any story or occupiable roof where one of the following conditions exist.

- The occupant load and exit access travel distance do not exceed the values in Table 1006.3.4(1) or 1006.3.4(2).

Table 1006.3.4(2) Stories with one exit or access to one exit for other occupancies

First story above or below grade plane – A occupancy – max occ. Load = 49 – max exit access travel distance = 75  
Spaces within the basement and the second floor both have single exit access stairways to the ground floor. Neither space exceeds the maximum occupancy count or exit access travel distance. Refer to the code plan for clarification.

Section 1009 Accessible Means of Egress:

Components of Accessible Means of Egress

1. Accessible Routes (1104)

2. Stairways complying with 1009.3 and 1023

Section 1009.2.1

The elevator is only required to be an accessible means of egress if an accessible floor is four or more stories above the level of exit discharge. An elevator is not required.

Section 1009.3.2 Exception #1

48" between handrails is not required with fire sprinklers.

Section 1009.3.3 Exception #2

Area of refuge not required in buildings with fire sprinklers.

Section 1011.2 44" width required except if greater than specified in Section 1005

Section 1019.3 Occupancies other than Groups I-2 and I-3. In other than Group I-2 and I-3 occupancies, floor openings containing exit access stairways or ramps shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

Exception #1: Exit access stairways and ramps within a two-story opening complying with Section 712.1.9

Exception #4: Exit access stairways and ramps in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the stairway or ramp and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.

The exit access stairway from the second level will atmospherically communicate with the ground floor. This exit access stair opening will be provided with a draft curtain that complies with NFPA 13 Section 9.3.5.2. The draft curtain will be made of noncombustible material, hang from the ceiling 18", and be able to stay in place before and during sprinkler operation.

Section 1028 Exit Discharge

Section 1028.5 All exits on the first floor provide direct access to the public way.

### Chapter 11 – Accessibility

Section 1104.4 – Multistory buildings and facilities

At least one accessible route shall connect each accessible story, mezzanine, and occupied roofs in multilevel buildings and facilities.

Exception:

- An accessible route is not required to stories, mezzanines and occupied roofs that have an aggregate area of not more than 3,000sf and are located above and below accessible levels.

The aggregate area of usable areas in the basement, on the second level, and on the mezzanine is less than 3,000sf and not required to be accessible.

Section 1109.2.9 – Dining and drinking areas

In dining and drinking areas, all interior and exterior floor areas shall be accessible and be on an accessible route.

Exception:

- An accessible route between accessible levels and stories above or below is not required where permitted by Section 1104.4, Exception #1.

Section 1110.2.4 – Water closet compartment

Where the combined total water closet compartments and urinals provided in a toilet room or bathing room is six or more, at least 5 percent of the total number of compartments shall be ambulatory accessible, provided in addition to the wheelchair-accessible compartment.

One handicap accessible and one ambulatory accessible toilet compartment will be provided.

Section 1110.2.5 – Lavatories

Where lavatories are provided, at least 5 percent, but not less than one, shall be accessible.

## 2024 IPC Summary

### CHAPTER 4 – Fixtures, Faucets, and Fixture Fittings

Table 403.1 Minimum number of required plumbing fixtures

Bars/Taverns water closets - male = 1 per 40 / female = 1 per 40

228 occupants/40 = 5.7 water closets 3 male/3 female

(Refer to Section 424.3 to allow 2 urinals to substitute 2 water closets)

Lavatories = 1 per 75

228 occupants/75 = 3 lavatories

Section 424.2 Substitution for water closets

In each bathroom or toilet room, urinals shall not be substituted for more than 67% of the required water closets in assembly and educational occupancies.



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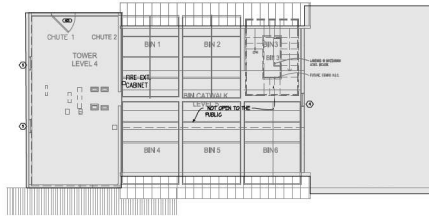


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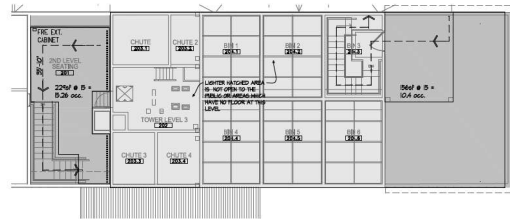
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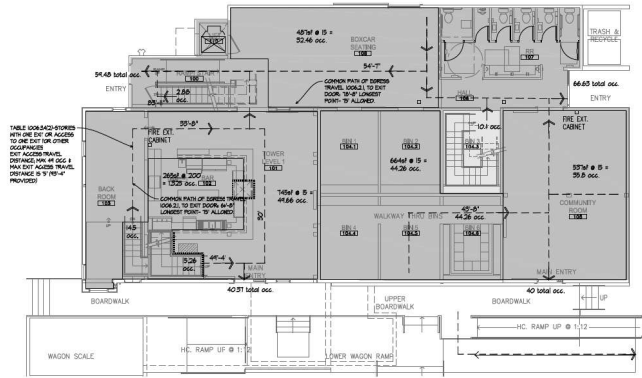
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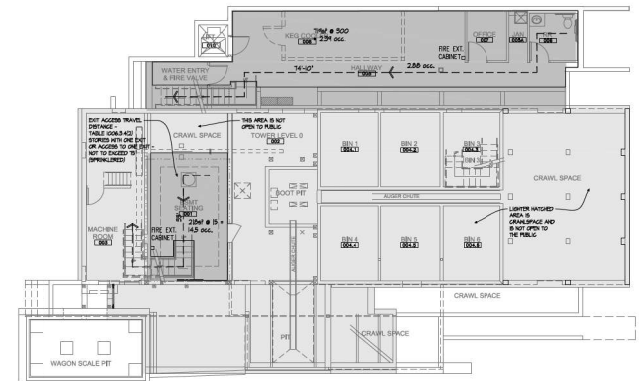
**B2** FLOOR PLAN - FOURTH/FIFTH FLOOR LEVELS (3RD STORY)  
A018 1" = 10' - 0"



**A2** FLOOR PLAN - SECOND/THIRD FLOOR LEVELS (2ND STORY)  
A018 1" = 10' - 0"



**B1** FLOOR PLAN - FIRST FLOOR LEVEL (1ST STORY)  
A018 1" = 10' - 0"



**A1** FLOOR PLAN - BASEMENT LEVEL / CRAWLSPACE  
A018 1" = 10' - 0"

#### HABITABLE SPACE GENERAL NOTES:

- DARKER HATCHED AREAS INDICATE CONDITIONED SPACE;  
LIGHTER HATCHED AREAS INDICATE UNCONDITIONED AND/OR NON-HABITABLE SPACE.

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK



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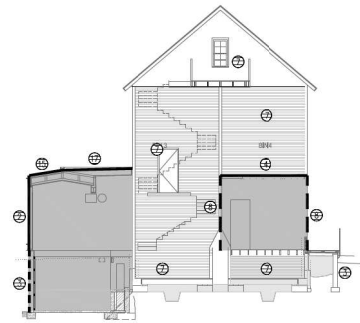


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1. REVISION NUMBER 1  
12/05/25

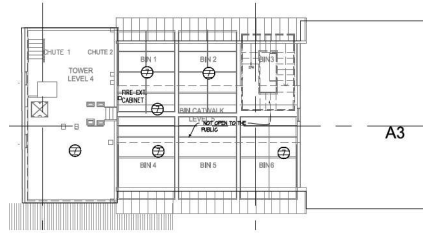
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Basement, 1st  
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Story  
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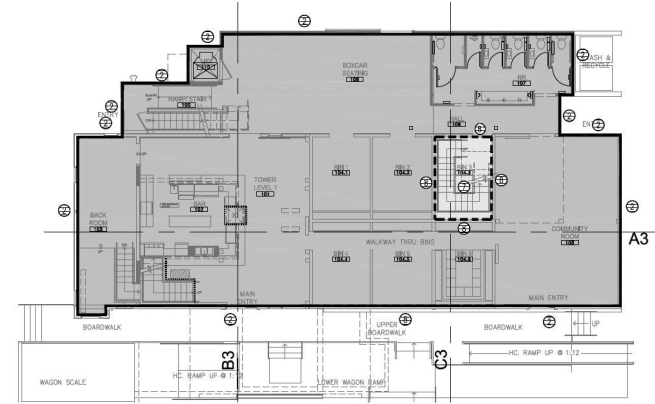
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**C3 BUILDING SECTION**  
A020 1" = 10' - 0"



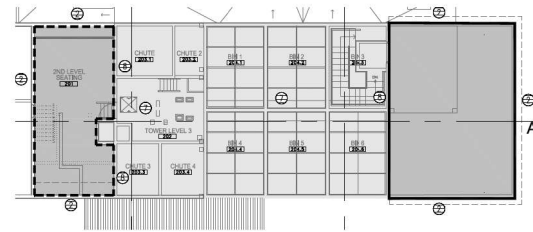
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A018 1" = 10' - 0"



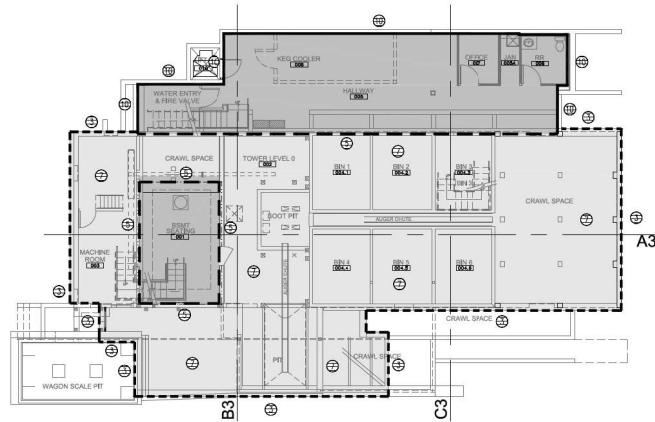
**B1 FLOOR PLAN - FIRST FLOOR LEVEL (1ST STORY)**  
A018 1" = 10' - 0"



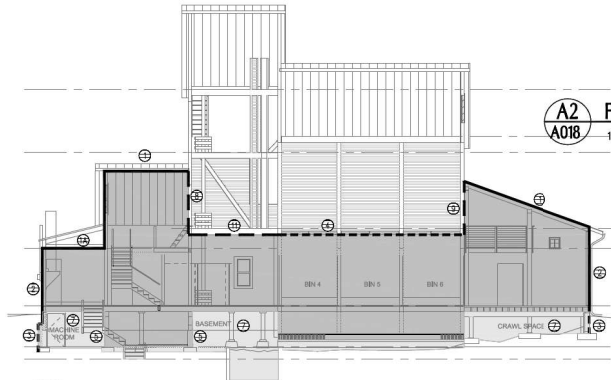
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**A1 FLOOR PLAN - BASEMENT LEVEL / CRAWLSPACE**  
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**A3 BUILDING SECTION**  
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**THERMAL ENVELOPE GENERAL NOTES:**

- DARKER HATCHED AREAS INDICATE CONDITIONED SPACE.
- LIGHTER HATCHED AREAS INDICATE UNCONDITIONED AND/OR NON-HABITABLE SPACE.
- SPRAY FOAM INSULATION TO BE HUNTSMAN HEATLOK HFO HIGH LIFT W/ MIN. 5" PER RICH.
- PROVIDE 1/2" GWB TO COVER ALL SPRAY FOAM INSULATION UOIN

**THERMAL ENVELOPE NOTES:**

- R-49 SPRAY FOAM INSULATION BETWEEN ROOF JOISTS
- R-24.5 SPRAY FOAM INSULATION BETWEEN WALL STUDS
- R-10 CONTINUOUS XPS INSULATION AT OUTSIDE OF EXISTING FOUNDATION WALLS
- R-30 REMOVABLE LAY-IN INSULATED PANELS
- EXISTING WALL - OPEN TO UNCONDITIONED BASEMENT AREAS
- R-49 ROOF / CEILING
- CRAWLSPACE AREAS MECHANICALLY CONDITIONED
- R-3.5 UNINSULATED STACK PLANK 3.5" SOLID WOOD
- R-5.5 UNINSULATED STACK PLANK 5.5" SOLID WOOD
- R-10 CONTINUOUS FOUNDATION WALLS
- R-49 XPS RIGID INSUL. BETWEEN JOISTS
- R-3.5 SOLID WOOD WALL
- EXISTING WOOD WALL
- R-21 EXISTING SPRAY FOAM WALLS
- R-7.7 ROOF - 4" SPRAY FOAM + 14" BLOW-IN FIBERGLASS INSUL.
- R-21 WALL - 5.5" BATT INSUL.
- R-7.7 ROOF - 4" SPRAY FOAM + 7.25"-22" OF BLOW-IN FIBERGLASS INSUL.
- R-40 EXTERIOR ROOF
- R-40 EXTERIOR ROOF
- R-40 CRAWLSPACE
- R-40 FLOOR SLAB
- R-40 EXTERIOR WALL

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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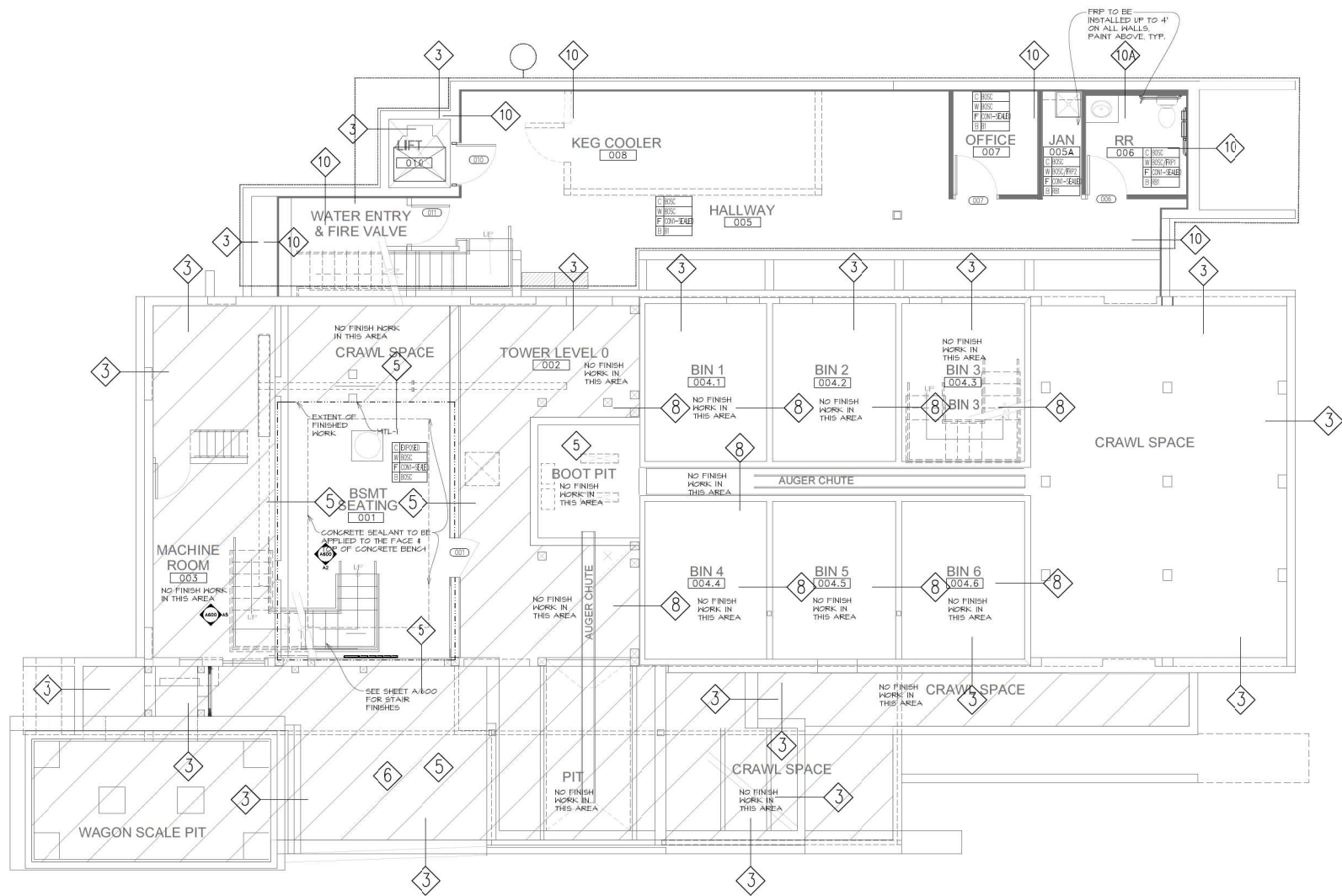
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Basement, 1st  
2nd & 3rd  
Story  
Envelope Plans

Sheet  
**A020**  
- of - Sheets





A1 FLOOR PLAN - BASEMENT LEVEL / CRAWLSPACE  
A030 1/4" = 1'-0"



CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC

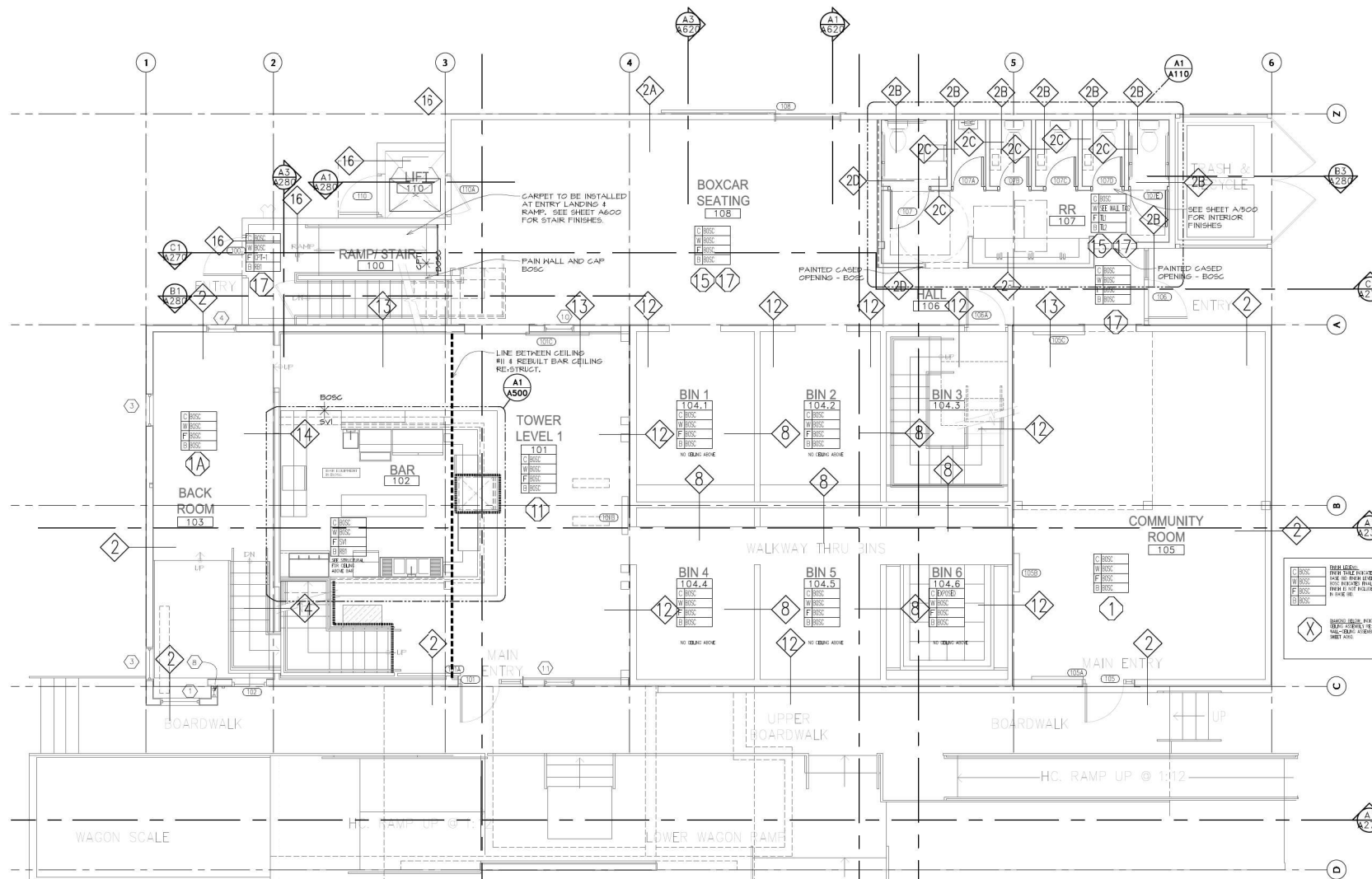


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**WALL TYPES & FINISH TAGS**

Sheet  
**A030**  
- of - Sheets



**A1**  
**A040** WALL TYPES - FIRST FLOOR LEVEL (1ST STORY)  
1/4"=1'-0"



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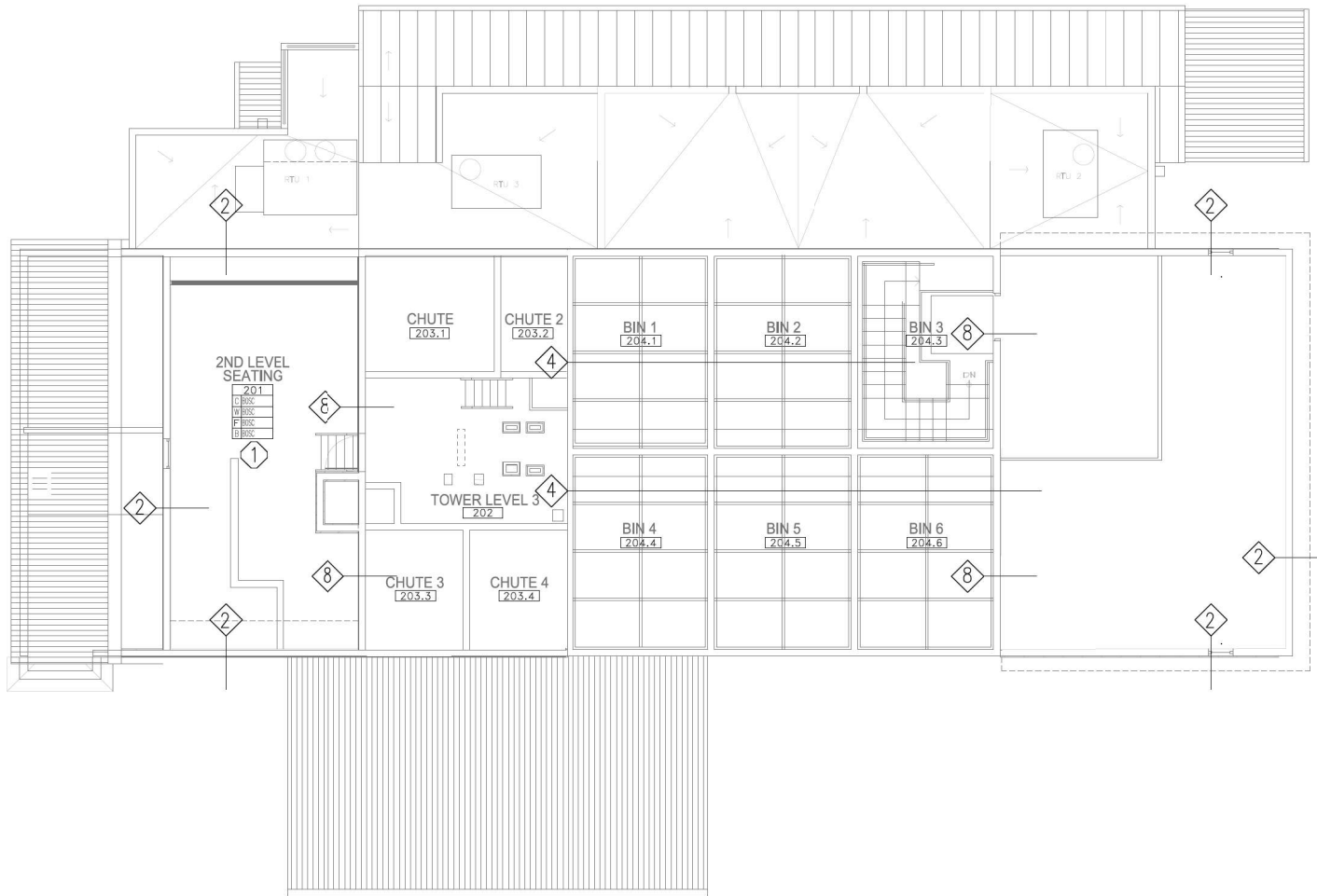


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**WALL TYPES  
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Sheet  
**A040**  
- of - Sheets



**A1** FLOOR PLAN - SECOND/THIRD FLOOR LEVELS (2ND STORY)  
**A050** 1/4"=1'-0"

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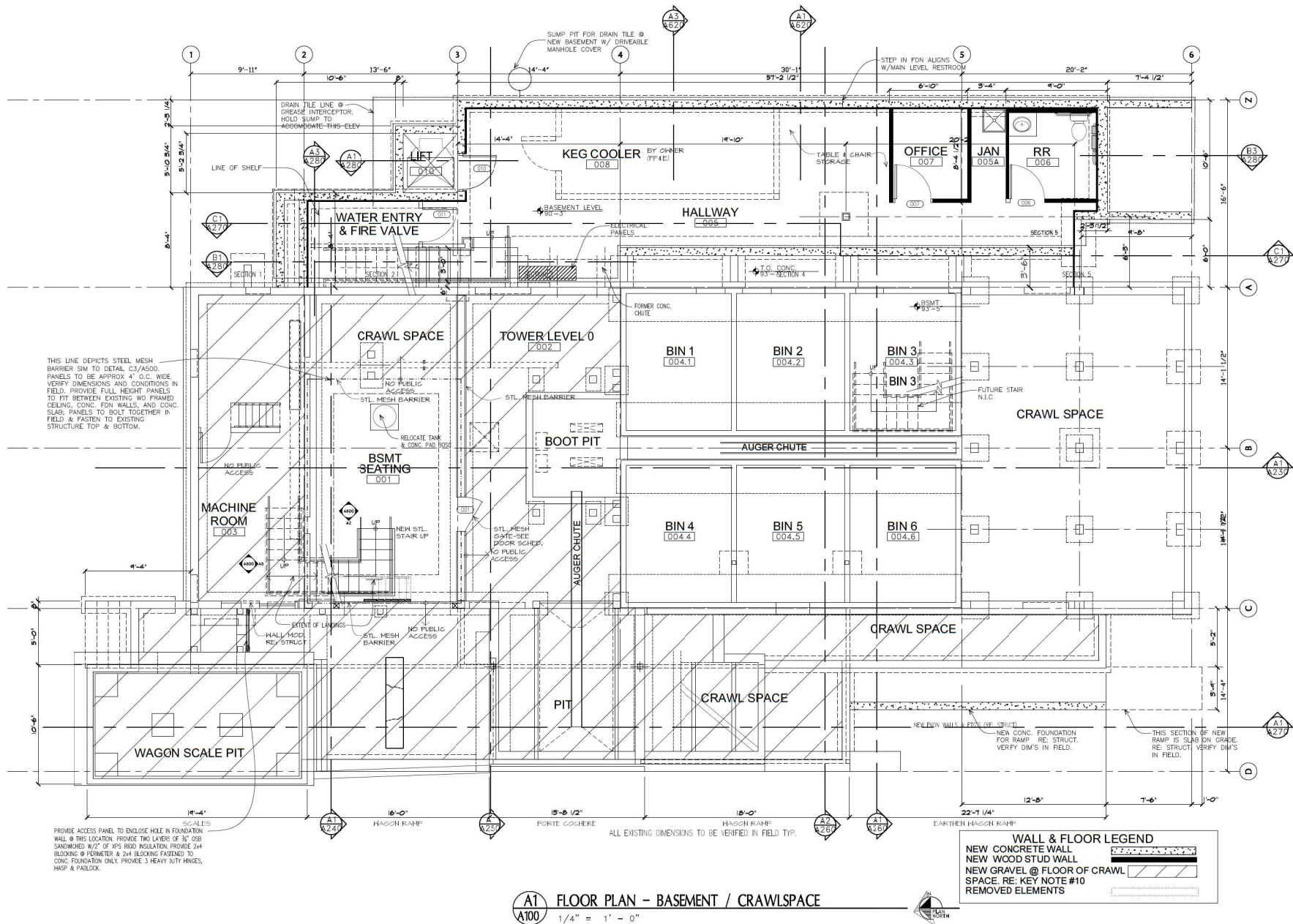
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**WALL TYPES & FINISH TAGS**

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| WALL, ROOFS & FLOOR TYPES LEGEND CONTINUED: |                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                   |
|---------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TYPE                                        | DETAIL                                                                                  | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | COMMENTS                                                                                                                                                          |
| 10                                          | <p>EXTERIOR</p> <p>INTERIOR</p>                                                         | <ul style="list-style-type: none"> <li>2" XPS RIGID INSULATION - MIN R-10 BELOW GRADE WALLS</li> <li>PROVIDE 200 G/SMIN ROOF COATING @ BELOW GRADE FOUNDATION WALLS w/ FOOTINGS</li> <li>CONCRETE FOUNDATION WALL</li> <li>PROVIDE 3/8" FLAT FRAMING @ 16" O.C.</li> <li>1/2" GYPSBOARD - FINISH PAINT</li> </ul>                                                                                                                                                                      | GYF: 80 FINISH TO BE LEVEL 2 WITH ORANGE PEEL TEXTURE 1/8 IN.                                                                                                     |
| 10A                                         | <p>EXTERIOR</p> <p>INTERIOR</p> <p>SECOND FLOOR</p>                                     | <ul style="list-style-type: none"> <li>2" XPS RIGID INSULATION - MIN R-10 BELOW GRADE WALLS</li> <li>PROVIDE 200 G/SMIN ROOF COATING @ BELOW GRADE FOUNDATION WALLS w/ FOOTINGS</li> <li>CONCRETE FOUNDATION WALL</li> <li>PROVIDE 3/8" FLAT FRAMING @ 16" O.C.</li> <li>1/2" GYPSBOARD - FINISH PAINT</li> </ul>                                                                                                                                                                      | GYF: 80 FINISH TO BE LEVEL 2 WITH ORANGE PEEL TEXTURE 1/8 IN.                                                                                                     |
| 11                                          | <p>MAIN LEVEL</p>                                                                       | <ul style="list-style-type: none"> <li>EXISTING FLOOR ROOF STRUCTURE - EXISTING BLACKENED &amp; SISTERED NEW JOISTS</li> <li>PROVIDE MINIMUM R-49 POLY ISO INSULATION (2" CORE) R-10 (R-49 MINIMUM)</li> <li>PROVIDE 1/2" GYP BD ON UNDERSIDE TO ENCAPSULATE INSULATION PAINT - COLOR BY ARCHITECT</li> <li>PROVIDE 2x2 TRIM AROUND EACH SECTION OF INSUL TO SECURE GYP BD.</li> </ul>                                                                                                 |                                                                                                                                                                   |
| 12                                          | <p>BN EXTERIOR LEVEL 2 CLEANING</p> <p>BN INTERIOR LEVEL 2 CLEANING</p>                 | <ul style="list-style-type: none"> <li>UNINSULATED STACK PLANK SOLID WOOD - NO MODIFICATIONS</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                   |
| 13                                          | <p>ORIGINAL EXTERIOR SIDE OF WALL LEVEL 2 CLEANING</p> <p>INTERIOR LEVEL 1 CLEANING</p> | <ul style="list-style-type: none"> <li>EXISTING 1x4 WOOD SIDING - CLEANING LEVEL 2</li> <li>EXISTING 2x6 WOOD STUD WALLS</li> </ul>                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                   |
| 14                                          | <p>SOUTH</p> <p>NORTH</p>                                                               | <ul style="list-style-type: none"> <li>EXISTING 1x4 WOOD SIDING</li> <li>EXISTING 2x6 WOOD STUD WALLS</li> <li>EXISTING SPRAY INSUL</li> <li>EXISTING 1x4 WOOD SIDING</li> <li>EXISTING 1x4 PLASTER COAT</li> <li>NO MODIFICATIONS THIS WALL EXCEPT CLEANING LEVEL 1</li> </ul>                                                                                                                                                                                                        |                                                                                                                                                                   |
| 15                                          | <p>EXTERIOR</p> <p>INTERIOR</p>                                                         | <ul style="list-style-type: none"> <li>METAL ROOFING</li> <li>TPO ROOFING SYSTEM</li> <li>1/2" OSB SHEATHING</li> <li>TRUSS AND/OR STEEL FRAMING</li> <li>2" BRP INSUL</li> <li>MIN 3/4" BATT INSULATION</li> <li>1/2" OSB BATT OF JOISTS</li> <li>PROVIDE NEW 1/2" INTERIOR WOOD SIDING - FINISH - BOSCC</li> </ul>                                                                                                                                                                   | BOSCC - BY OWNER'S SEPARATE CONTRACTOR<br>THIS WORK WILL BE N.E.C. FOR CORE AND SHELL<br>CONTRACTOR SHALL COORDINATE W/ OWNER REGARDING OWNER PROVIDED ITEMS TYP. |
| 16                                          | <p>EXTERIOR</p> <p>INTERIOR</p>                                                         | <ul style="list-style-type: none"> <li>CORTEN CORRUGATED SIDING ON FURRING STRIPS w/ EVERBRIGHT COATING TO CONTROL RUSTING OR EQ.</li> <li>TYVEK COMMERCIAL VAPOR D.</li> <li>1" RIGID INSUL 1.5</li> <li>1/2" OSB SHEATHING</li> <li>WOOD 2x6 STUDS</li> <li>FULL DEPTH DRAFT FACED BATT INSULATION MIN R-21</li> <li>1/2" OSB SHEATHING</li> <li>1/2" GYPSBOARD - PAINT - COLOR BY ARCHITECT</li> </ul>                                                                              | PROVIDE SUBMITTAL FOR CORTEN SIDING PRIOR TO INSTALLATION.                                                                                                        |
| 17                                          |                                                                                         | <ul style="list-style-type: none"> <li>10 MIL GRAY TPO MECH. FASTENED OR ADHERED</li> <li>TPO WALKWAY PADS TO RTU ACCESS PANELS</li> <li>1/4" DERRISDECK COVERBOARD</li> <li>MIN. 1/4" TPO POLYESTER RIGID INSUL</li> <li>3/4" OSB ON ROOF FRAMING</li> <li>4" BRP W/ FOAM INSUL (HUNTSMAN HEATLOK WFO - R-7.7N - R-28)</li> <li>R-21 BATT INSUL IN CAVITY (MIN R-21)</li> <li>1/2" OSB ON BOTTOM OF JOISTS</li> <li>PROVIDE NEW 1/2" INTERIOR WOOD SIDING - FINISH - BOSCC</li> </ul> |                                                                                                                                                                   |
| 18                                          |                                                                                         | <ul style="list-style-type: none"> <li>CORRUGATED METAL ROOFING</li> <li>STEEL TUBE ROOF FRAMING</li> <li>INTERMEDIATE ANGLES BETWEEN TUBES TO FASTEN CORRUGATED METAL ROOFING</li> <li>STEEL TUBE PORTS</li> <li>REFER TO STRUCT. FOR ADDITIONAL INFORMATION</li> </ul>                                                                                                                                                                                                               |                                                                                                                                                                   |
| 19                                          |                                                                                         | <ul style="list-style-type: none"> <li>CORTEN STEEL CORRUGATED METAL ROOFING MATCH EXISTING</li> <li>OWENS CORNING FIBROGLASS SYNTHETIC UNDERLAYMENT</li> <li>MIN 1/2" OSB SUBROOF</li> <li>2x ROOF JOISTS</li> <li>1x TOWNSHIP AND GROUND AT DRAINAGE JOISTS</li> <li>REFER TO STRUCT. FOR ADDITIONAL INFORMATION</li> </ul>                                                                                                                                                          |                                                                                                                                                                   |
| 20                                          |                                                                                         | <ul style="list-style-type: none"> <li>4" OF 2" FIBER ROCK</li> <li>15 MIL TEGOCORNA WRAP</li> <li>NATURAL SOL</li> </ul>                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                   |
| 21                                          |                                                                                         | <ul style="list-style-type: none"> <li>CONCRETE SLAB - TROWEL FINISH</li> <li>15 MIL TEGOCORNA WRAP VAPOR RETARDER</li> <li>2" OF 2" FIBER DRAINING GRAVEL</li> <li>UNDERLAP 4" PERIMETER DRAINAGE SYSTEM EMBEDDED INTO GRAVEL LAYER</li> <li>SOL PER SOLS REPORT</li> <li>REFER TO STRUCT. FOR ADDITIONAL INFORMATION</li> </ul>                                                                                                                                                      |                                                                                                                                                                   |
| 21                                          |                                                                                         | <ul style="list-style-type: none"> <li>WOOD SIDING (MATCH EXISTING)</li> <li>TYVEK COMMERCIAL WRAP D</li> <li>2x WOOD FRAMING</li> <li>WOOD COMMERCIAL WRAP D</li> <li>WOOD SIDING (MATCH EXISTING)</li> <li>REFER TO STRUCT. FOR ADDITIONAL INFORMATION</li> </ul>                                                                                                                                                                                                                    |                                                                                                                                                                   |
| 22                                          | <p>MECH DUCTING</p> <p>INTERIOR</p>                                                     | <ul style="list-style-type: none"> <li>1/2" OSB SHEATHING</li> <li>2x4 FRAMING</li> <li>BOUNDARY IN CAVITY</li> <li>1/2" OSB SHEATHING</li> <li>PROVIDE NEW 1/2" INTERIOR WOOD SIDING - FINISH - BOSCC</li> </ul>                                                                                                                                                                                                                                                                      |                                                                                                                                                                   |



CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
 Renovation for the GRAIN YARD  
 540 COUNTY ROAD, LOUISVILLE, CO  
 Louisville Mill Site LLC / Louisville's Living Room LLC

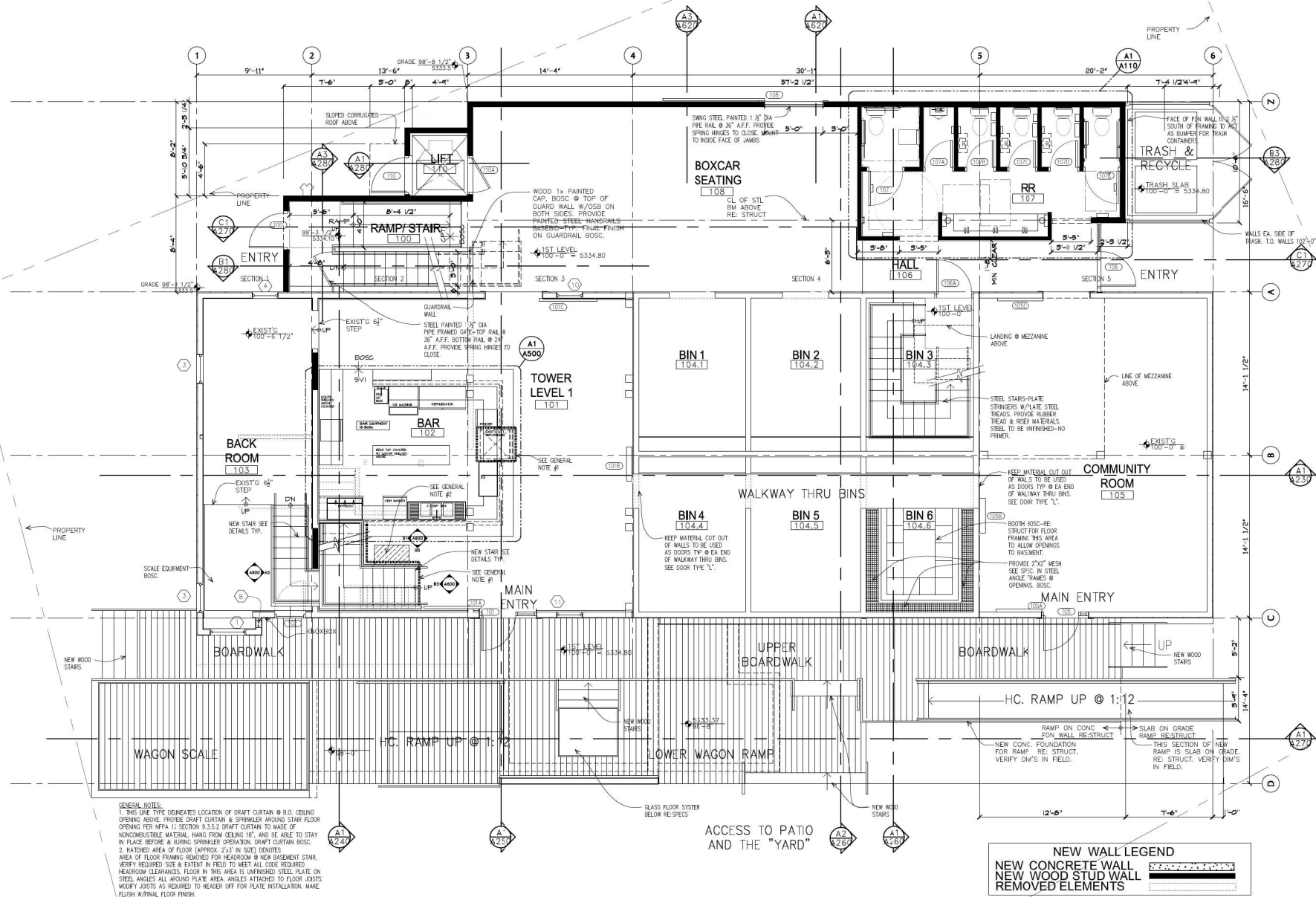


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Basement &  
 Crawlspace Plan

Sheet  
**A100**  
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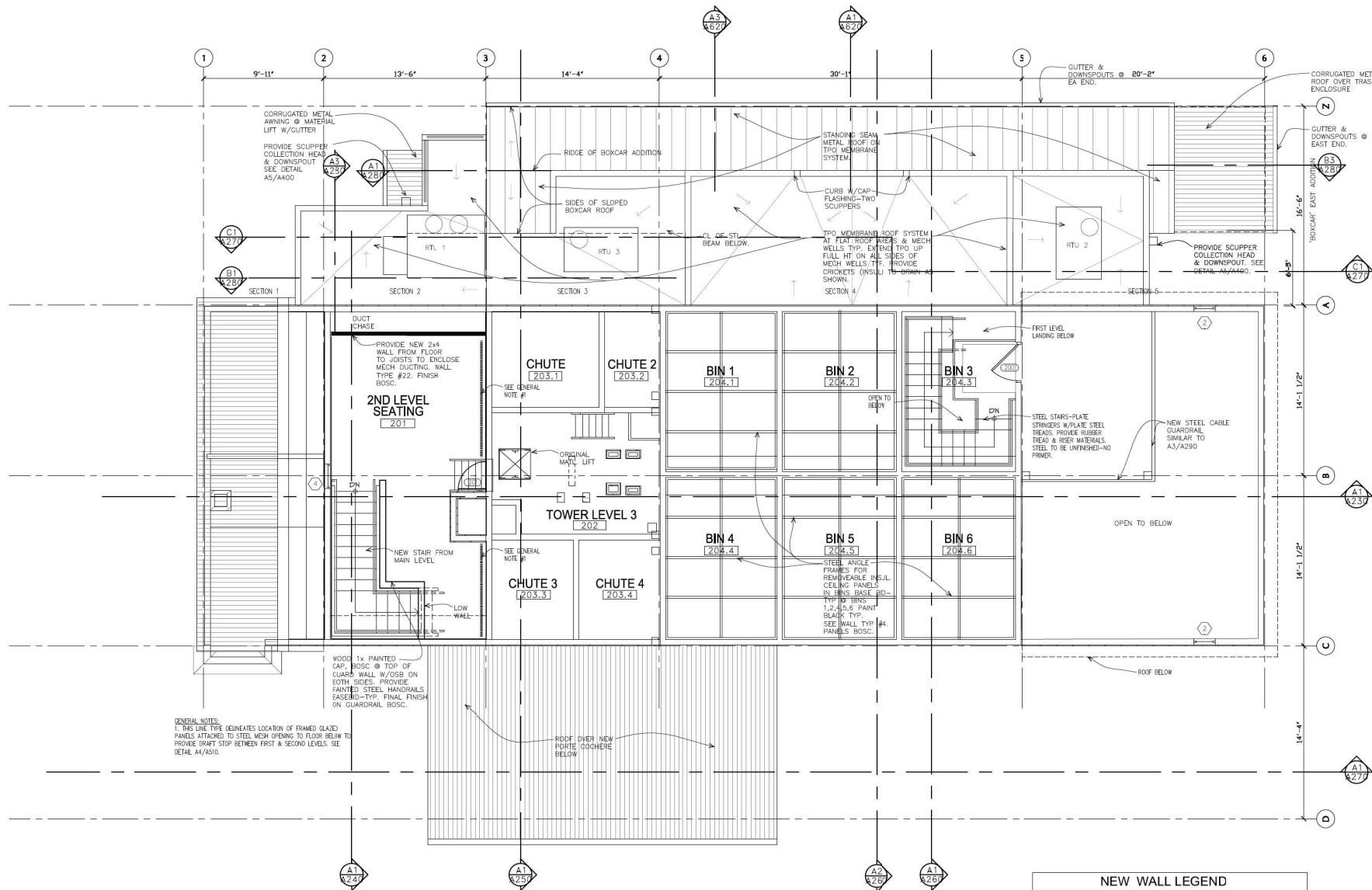
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First Level Plan

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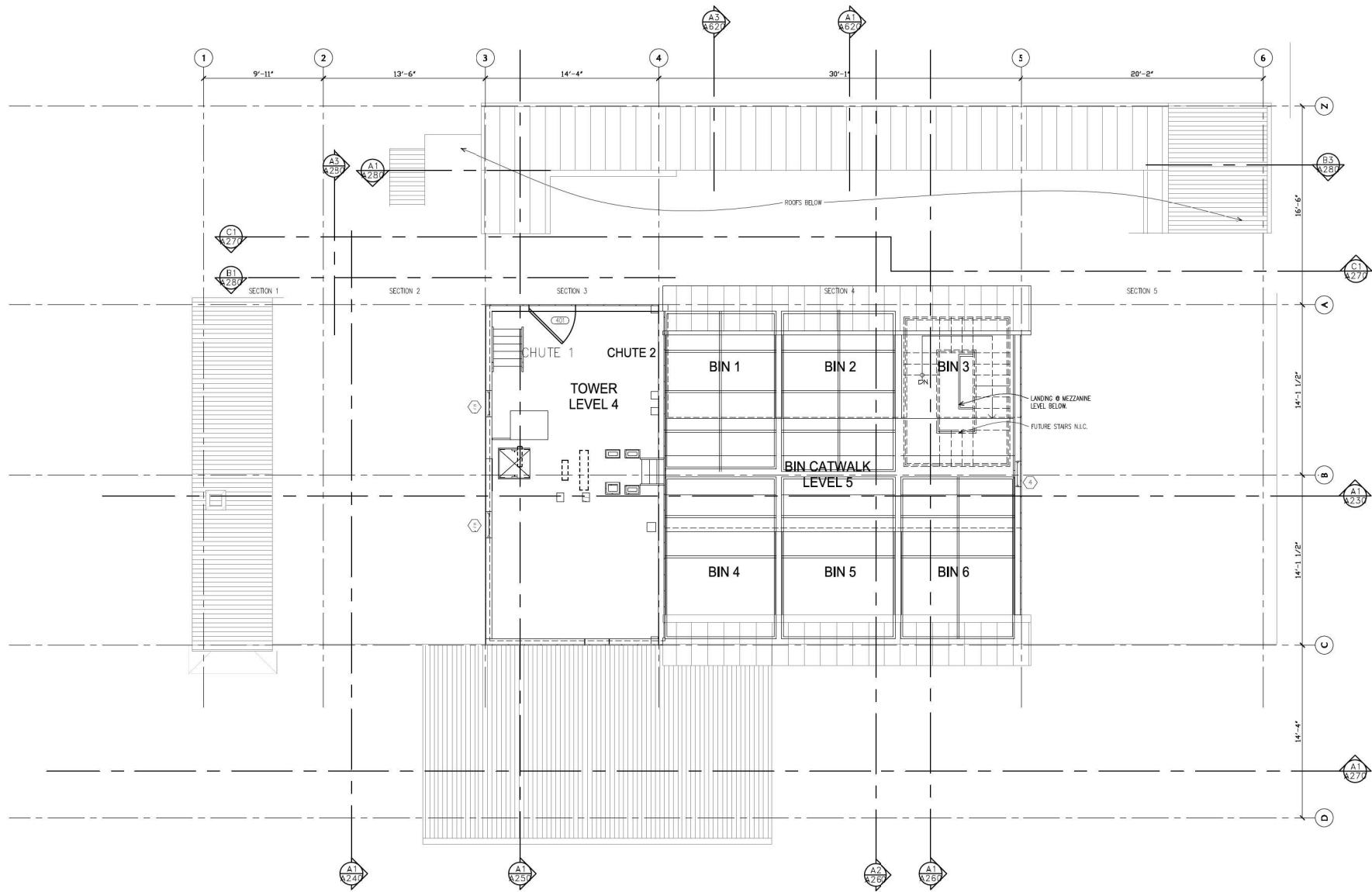


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Second & Third  
 Level Plan

Sheet  
**A120**  
 of Sheets



**C1 FLOOR PLAN - FOURTH/FIFTH LEVEL**  
 1/4" = 1' - 0"



**CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK**

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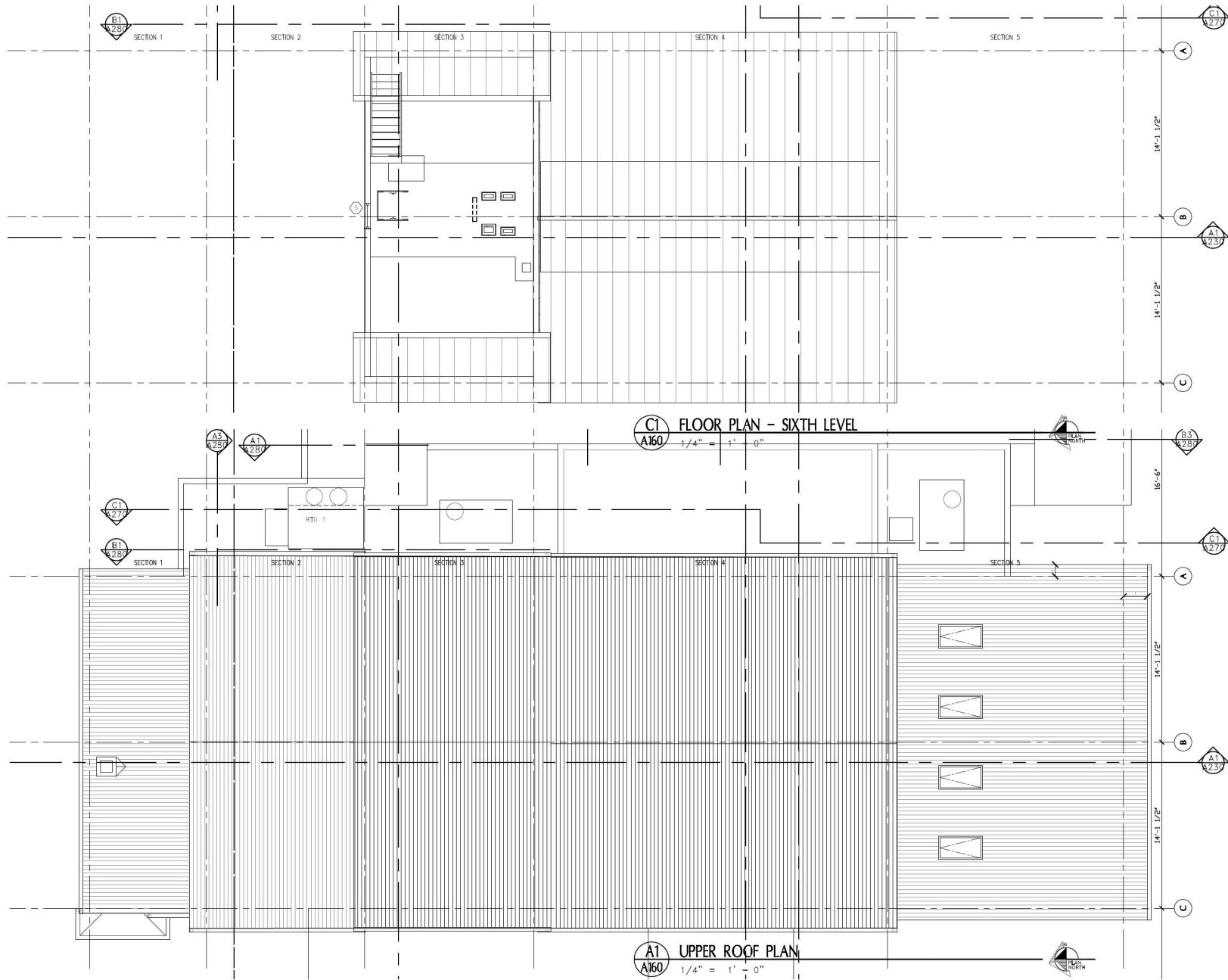


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**FLOOR PLAN  
 FOURTH/FIFTH  
 LEVEL**

Sheet  
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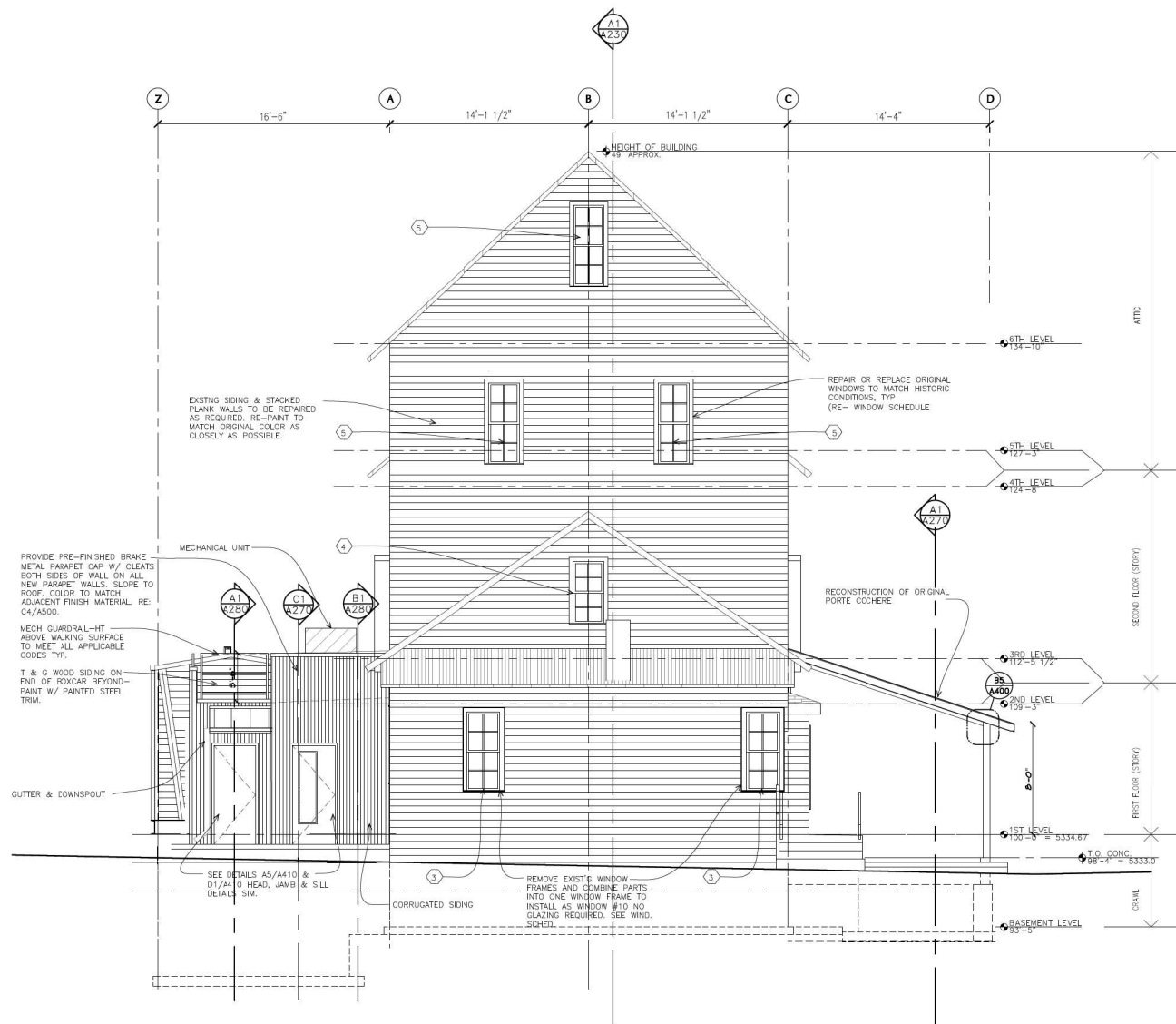
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**UPPER ROOF  
PLAN**

Sheet  
**A160**  
of Sheets







**A3**  
**A205** NORTH ELEVATION  
1/4" = 1" - 0"

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK



**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
**Renovation for the Grain Yard**  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC

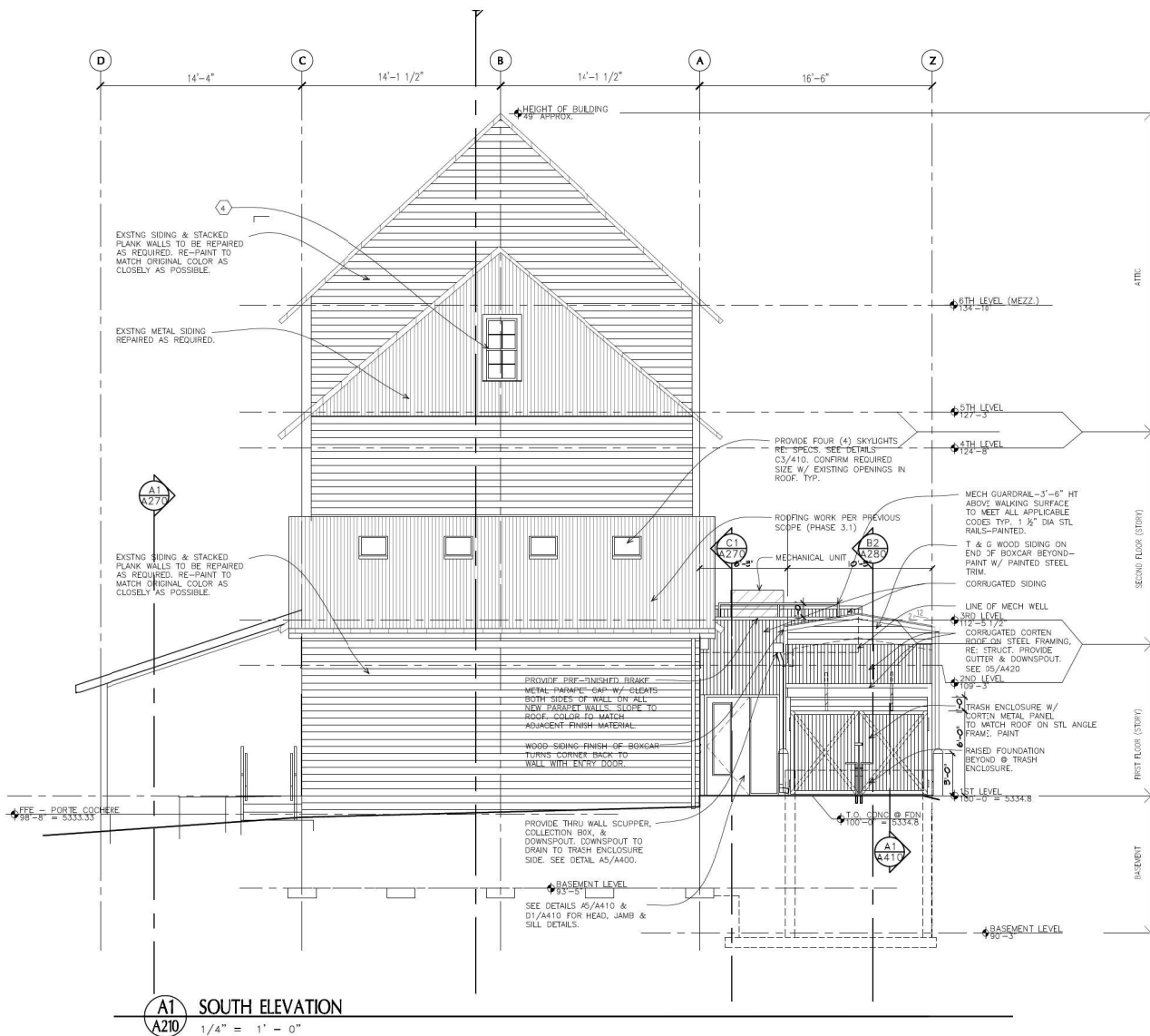


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**North Elevation**

Sheet  
**A205**  
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Renovation for THE GRAIN YARD  
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South Elevation

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**A210**  
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**A220**  
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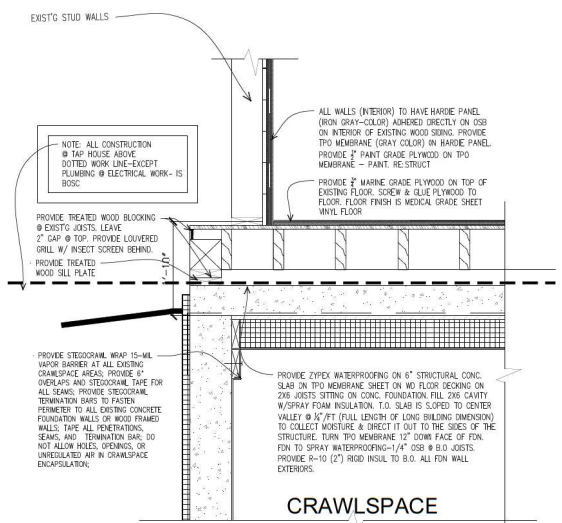
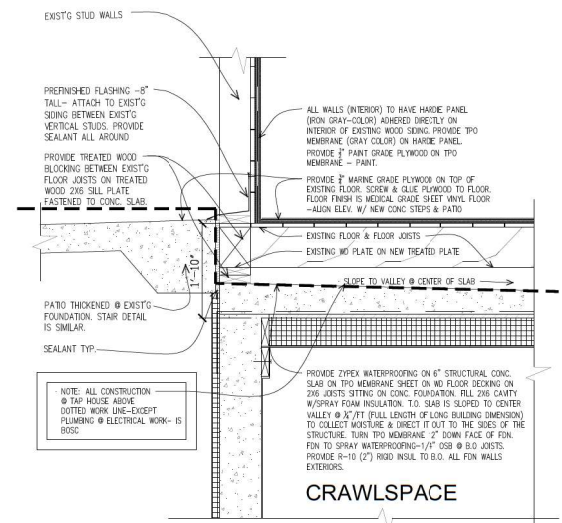
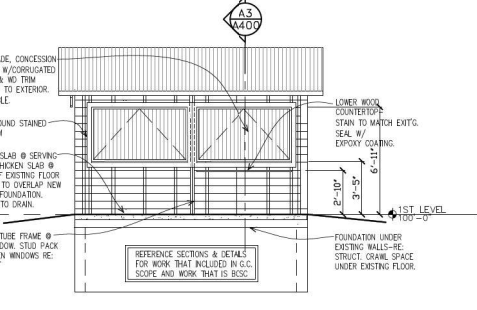
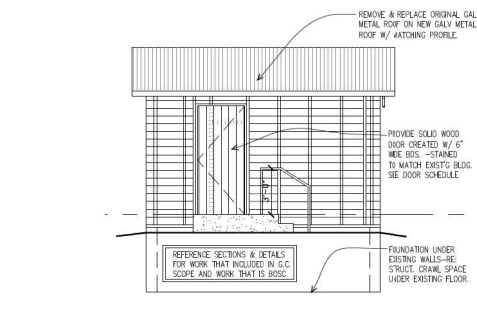
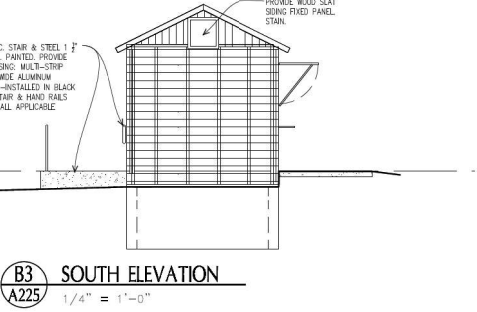
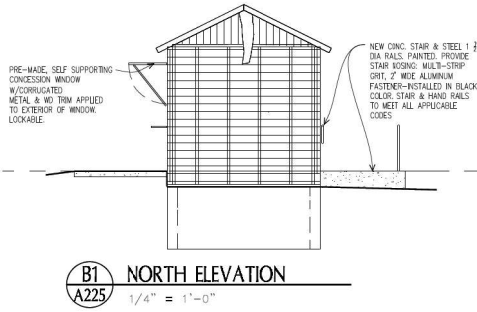
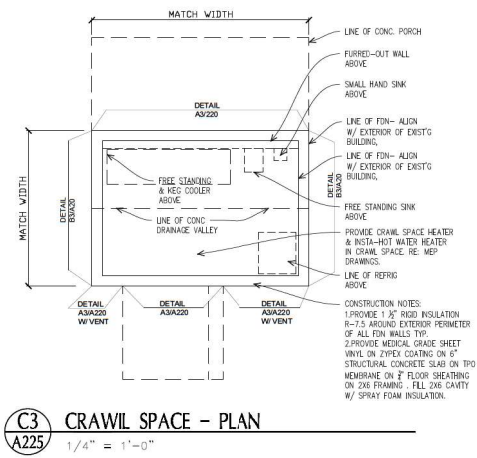
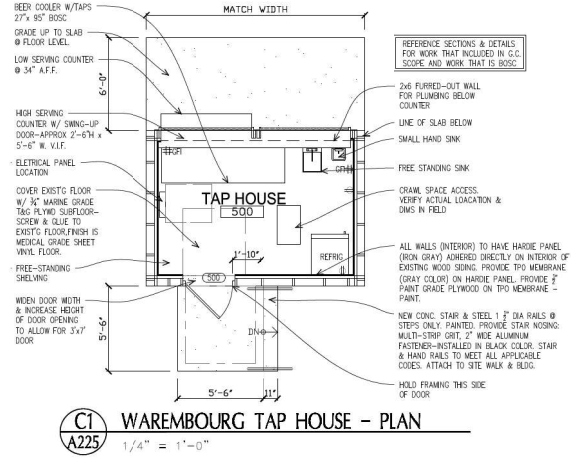
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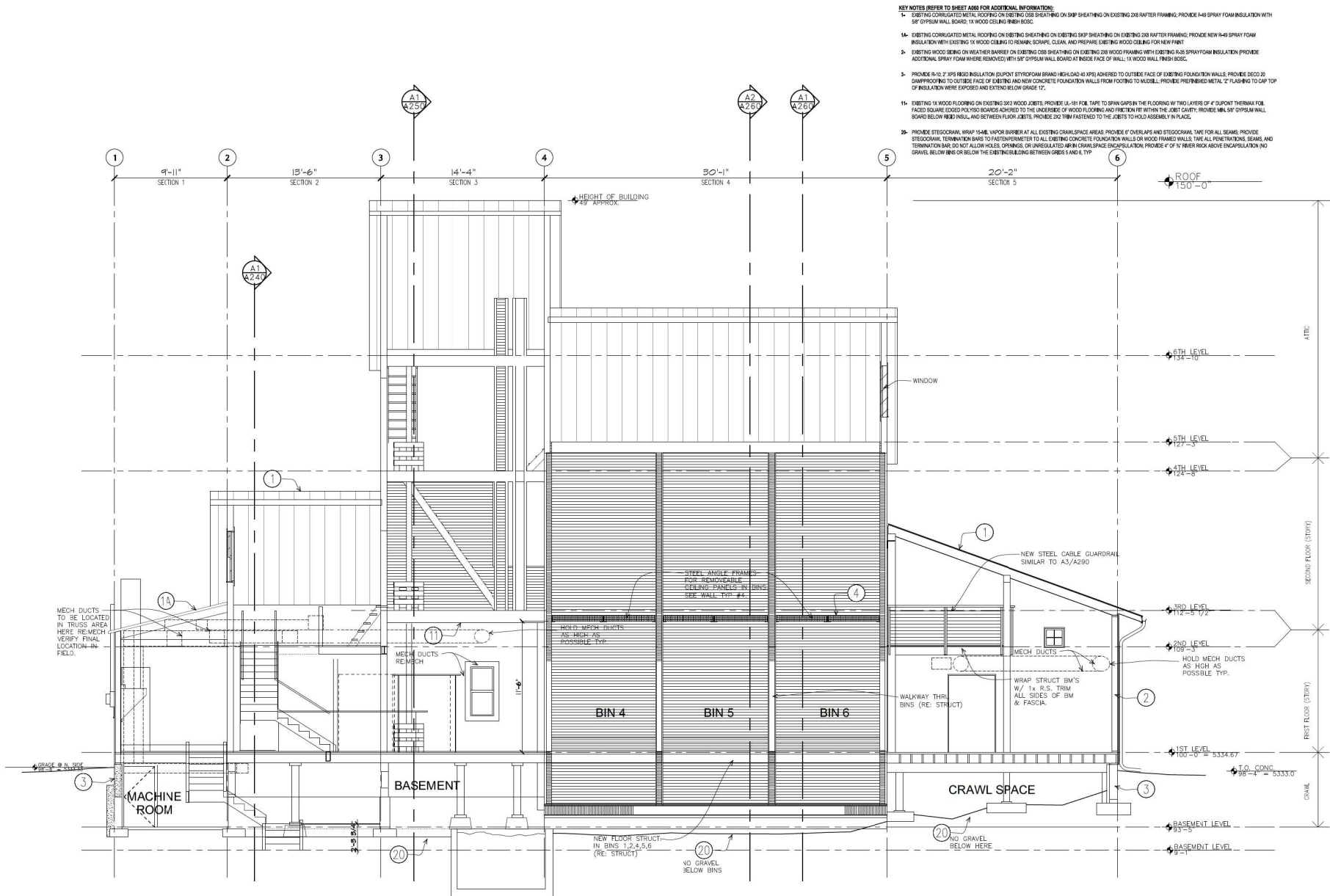
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Warenbourg  
Tap House  
Plan  
Elevations

Sheet  
A225  
of Sheets

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK





**A1**  
**A230** LONGITUDINAL SECTION  
1/4" = 1' - 0"

**KEY NOTES (REFER TO SHEET A260 FOR ADDITIONAL INFORMATION):**

- 1- EXISTING CORRUGATED METAL ROOFING ON EXISTING OSB SHEATHING ON EXISTING 2X8 RAFTER FRAMING. PROVIDE 4-8 SPRAY FOAM INSULATION WITH 5/8" GYPSUM WALL BOARD, 1X WOOD CEILING BINS BOSC.
- 1A- EXISTING CORRUGATED METAL ROOFING ON EXISTING OSB SHEATHING ON EXISTING 2X8 RAFTER FRAMING. PROVIDE NEW R-48 SPRAY FOAM INSULATION WITH EXISTING 1X WOOD CEILING TO REMAIN, SCRAPE, CLEAN, AND PREPARE EXISTING WOOD CEILING FOR NEW PAINT.
- 2- EXISTING WOOD BEING ON WEATHER BARRIER ON EXISTING OSB SHEATHING ON EXISTING 2X8 WOOD FRAMING WITH EXISTING R-48 SPRAYFOAM INSULATION PROVIDE ADDITIONAL SPRAY FOAM WHERE REMOVED WITH 5/8" GYPSUM WALL BOARD AT INSIDE FACE OF WALL, 1X WOOD WALL FINISH BOSC.
- 3- PROVIDE 8-12" XPS RIGID INSULATION (DUPONT STYROFOAM BRAND) (HIGHER 45 XPS) ADHERED TO OUTSIDE FACE OF EXISTING FOUNDATION WALLS. PROVIDE DECO 20 SHAPROOFING TO OUTSIDE FACE OF EXISTING AND NEW CONCRETE FOUNDATION WALLS FROM FOOTING TO MUDSILL. PROVIDE PREPUNCHED METAL "Z" FLASHING TO CAP TOP OF INSULATION WHERE EXPOSED AND EXTEND BELOW GRADE 12".
- 1A- EXISTING 1X WOOD FLOORING ON EXISTING 3/4" WOOD JOISTS. PROVIDE 1/4" 1X1 FOR TAP TO SPAN GAPS IN THE FLOORING W/ TWO LAYERS OF 4" DUPONT THERMAK FOL FACED SQUARE EDED POLYISO BOARD ADHERED TO THE UNDERSIDE OF WOOD FLOORING AND FRICTION FIT WITHIN THE JOIST CAVITY. PROVIDE 1/4" 1X1 GYPSUM WALL BOARD BELOW INSUL AND BETWEEN FLOOR JOISTS. PROVIDE 3/4" 1X1 FASTENED TO THE JOISTS TO HOLD ASSEMBLY IN PLACE.
- 2B- PROVIDE STEPCORRAL WRAP 154L, VAPOR BARRIER AT ALL EXISTING CHIMNEY AREAS. PROVIDE 8" OVERLAPS AND STEPCORRAL TAPE FOR ALL SEAMS. PROVIDE STEPCORRAL TERMINATION BARS TO FASTEN PERMITTER TO ALL EXISTING CONCRETE FOUNDATION WALLS OR WOOD FRAMED WALLS. TRIM ALL PENETRATIONS. SEAMS AND TERMINATION BAR DO NOT ALLOW HOLES, CRACKS, OR UNINSULATED AIR IN CRAWLSPACE ENCLOSURE. PROVIDE 4" OF 12" RIVER ROCK ABOVE ENCLOSURE (NO GRAVEL BELOW BINS OR BELOW THE EXISTING BUILDING BETWEEN BINS 5 AND 6, TYP.

**CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK**

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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for the GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



**PROJECT # 1252.50**  
DATE: 12/05/25  
DRAWN BY: HAPC  
CHECKED BY: JEH  
REVISIONS:  
1. 12/05/25: 1252.50-1  
2. 12/05/25: 1252.50-2

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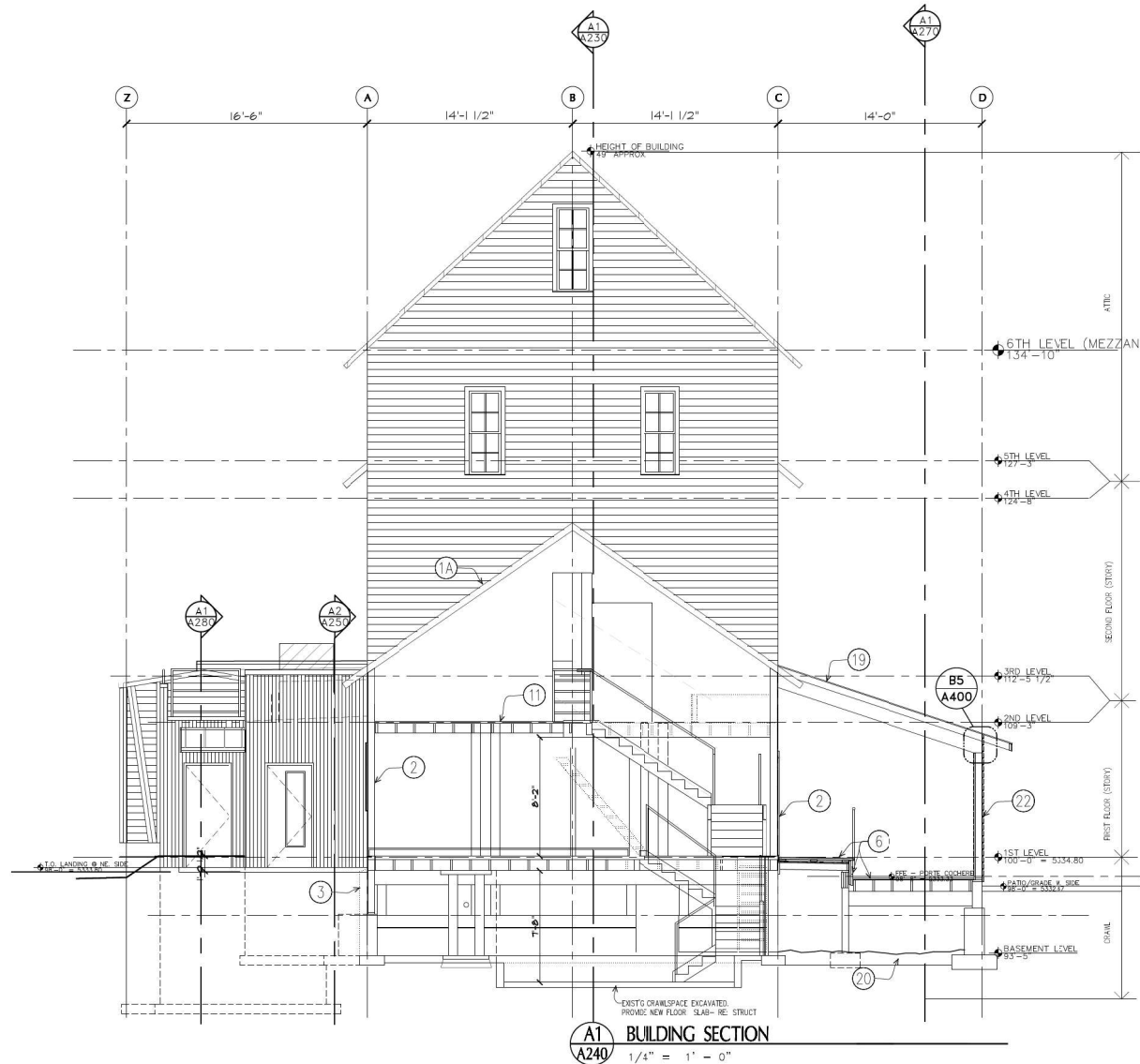
**Building  
Sections**

Sheet

**A230**

of Sheets





# KEY NOTES (REFER TO SHEET A400 FOR ADDITIONAL INFORMATION):

- 1A- EXISTING CORRUGATED METAL ROOFING ON EXISTING SHEATHING ON EXISTING SHIP SHEATHING ON EXISTING 2X6 W/10" FRAMING. PROVIDE NEW 1/4" SPRAY FOAM INSULATION WITH EXISTING 1X WOOD CEILING TO REMAIN. SCRAPE, CLEAN, AND PREPARE EXISTING WOOD CEILING FOR NEW PAINT.
- 2- EXISTING WOOD SIDING ON WEATHER BARRIER ON EXISTING OSB SHEATHING ON EXISTING 2X6 WOOD FRAMING WITH EXISTING R-13 SPRAY FOAM INSULATION. PROVIDE ADDITIONAL SPRAY FOAM WHERE REMOVED WITH 5/8" GYPSUM WALL BOARD AT INSIDE FACE OF WALL; 1X WOODWALL FINISH WOOD.
- 3- PROVIDE 1/2" XPS INSULATION (DUPONT STYROFOAM BRAND) OVER EXISTING 1/2" XPS INSULATION TO OUTSIDE FACE OF EXISTING FOUNDATION WALLS FROM FOOTING TO GROUND. PROVIDE PREPARED METAL 1/2" FLASHING TO CAP TOP OF INSULATION WHERE EXPOSED AND EXTEND BEYOND GRADE 12".
- 6- PROVIDE WOOD DECKING ON 2X WOOD SLEEPERS (SNAP TOP OF SLEEPERS IN WOOD DECK PROTECTOR TAPE) ON 4X ML GRAY TPO ADHERED TO 1/4" DENSEDECK COVERBOARD ON ML 5/8" OSB SHEATHING ON SLOPED 2X JOIST. SLOPED ML 1/4" TYP. PROVIDE 4" OF SPRAY FOAM INSULATION PLUS WITH 1/2" OF 1X1/2" BATT INSUL. (R-13). COVER INSUL. WITH ML 1/2" GYPSUM BOARD. WHEN 2X JOIST ARE LESS THAN 2X JOIST, PROVIDE 7" OF SPRAY FOAM INSULATION IN LIEU OF BATT INSULATION. TYP. EXTEND TPO UP WALL SHEATHING BEHIND EXISTING 5/8" ML 5/8" EXTEND TPO, DENSEDECK, AND OSB SHEATHING DOWN VERTICAL FACE OF DECK STEP AND ACROSS SECOND LEVEL OF BOARDWALK AND UP PORTE COCHERE SUPPORT WALL. TPO TO BE CONTINUOUSLY ADHERED. THE ENTIRE SYSTEM TO BE CLASS A ROOFING ASSEMBLY, TYP.
- 11- EXISTING 1X WOOD FLOORING ON EXISTING 3X6 WOOD JOISTS. PROVIDE 1/4" 1X1/2" TYP. TAPE TO SPIN GAPS IN THE FLOORING IN TWO LAYERS OF 4" DUPONT THERMAX POLY FOL FACED SQUARE EGGED POLYBIO BOARDS ADHERED TO THE UNDERSIDE OF WOOD FLOORING AND FRICITION RT WITHIN THE JOIST CAVITY. PROVIDE ML 5/8" GYPSUM WALL BOARD BELOW RISED INSUL. AND BETWEEN FLOOR JOISTS. PROVIDE 300 TBM FASTENED TO THE JOISTS TO HOLD ASSEMBLY IN PLACE.
- 19- PROVIDE CORTEN STEEL CORRUGATED METAL ROOFING (MATCH EXISTING) ON OWENS CORNING PROWRAP. SYNTHETIC ROOF UNDERLAYMENT ON 5/8" OSB ON ROOF FRAMING WITH 1X TONGUE AND GROOVE AT UNDERSIDE OF ROOF. TYP.
- 20- PROVIDE STEGOCORRAL WRAP 1548L VAPOR BARRIER AT ALL EXISTING CRAWLSPACE AREAS. PROVIDE 1" OVERLAPS AND STEGOCORRAL TAPE FOR ALL SEAMS. PROVIDE STEGOCORRAL TERMINATION BARS TO FASTEN PERIMETER TO ALL EXISTING CONCRETE FOUNDATION WALLS OR WOOD FRAMED WALLS TAPE ALL PENETRATIONS SEAMS, AND TERMINATION BAR. DO NOT ALLOW HOLES, OPENINGS, OR UNREGULATED AIR IN CRAWLSPACE ENCLOSURE. PROVIDE 4" OF 1X1/2" RISE ROCK ABOVE ENCLOSURE AND GRAVEL BELOW BEING OR BELOW THE EXISTING BUILDING BETWEEN GRIDS 1 AND 6, TYP.
- 22- PROVIDE 1X SHIP LAP SIDING ON 1" OSB ON TYPES COMMERCIAL WRAP D ON WOOD FRAMING.

## CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for the Grain Yard  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE 12/05/25  
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CHECKED BY: JEH  
REVISIONS

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Building  
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of Sheets



22. PROVIDE 1X SHIPLAP SIDING ON 1/2" OSB ON TYVEK COMMERCIAL WRAP D ON WOOD FRAMING

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CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK



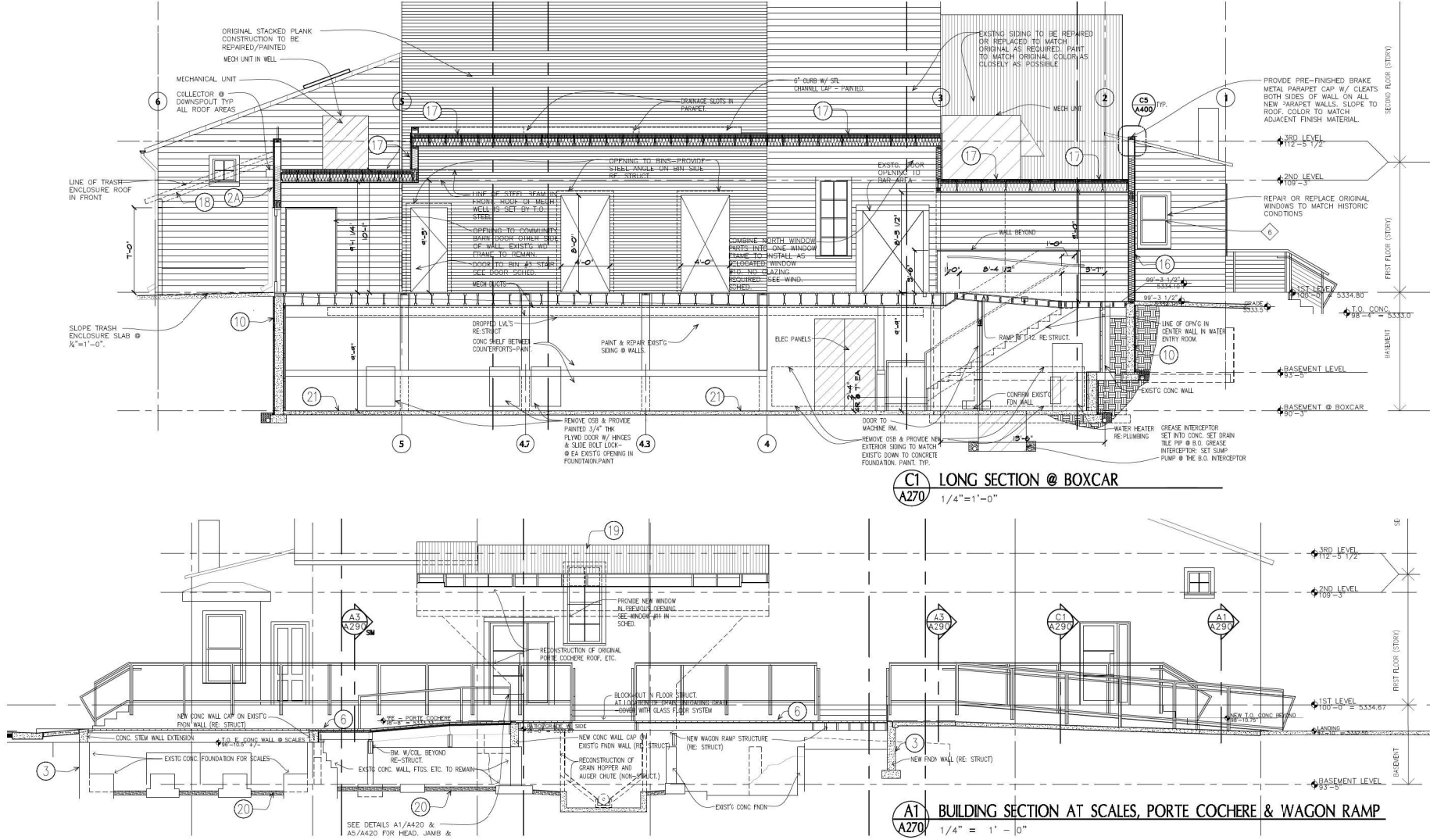
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# KEY NOTES (REFER TO SHEET A80 FOR ADDITIONAL INFORMATION):

1. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
2. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
3. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
4. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
5. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
6. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
7. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
8. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
9. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
10. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
11. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
12. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
13. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
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15. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
16. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
17. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
18. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
19. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
20. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
21. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.

11. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
12. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
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17. PROVIDE 1/2" X 1/2" X 1/2" CONCRETE, MINIMUM 1/2" X 1/2" O/SB SHEATHING ON 2X6 WOOD STUDS ON 2X6 WOOD STUDS WITH 1/2" KRAFT FIBER INSULATION WITH INTERIOR FINISH PER BOC.
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CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for the GRAY YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC

PROJECT # 1252.50  
DATE 12/05/25  
DRAWN BY: HAPC  
CHECKED BY: JEH  
REVISIONS

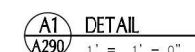
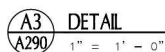
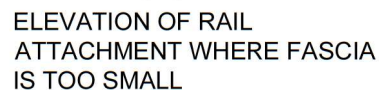
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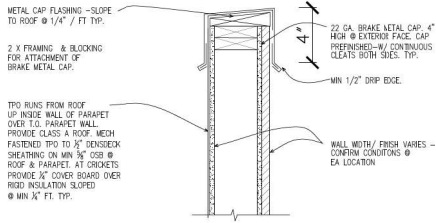
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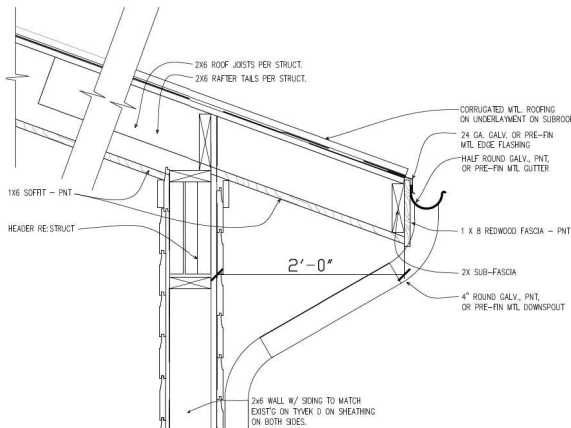




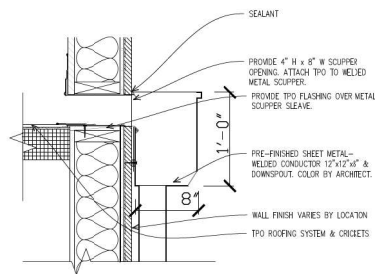




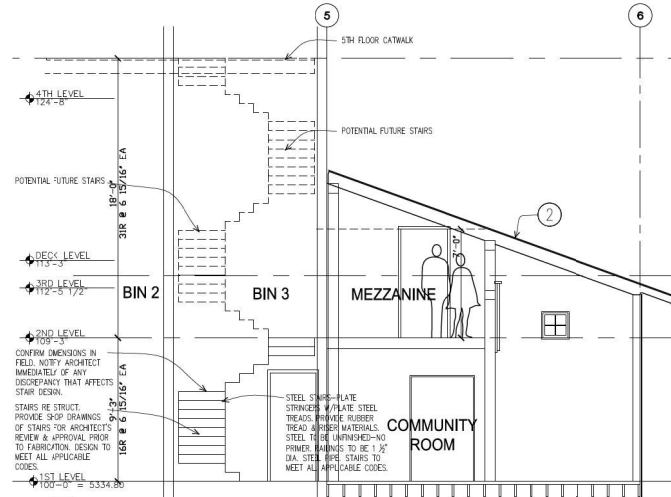
**C5** TYPICAL PARAPET CAP  
A400 1 1/2" = 1'-0"



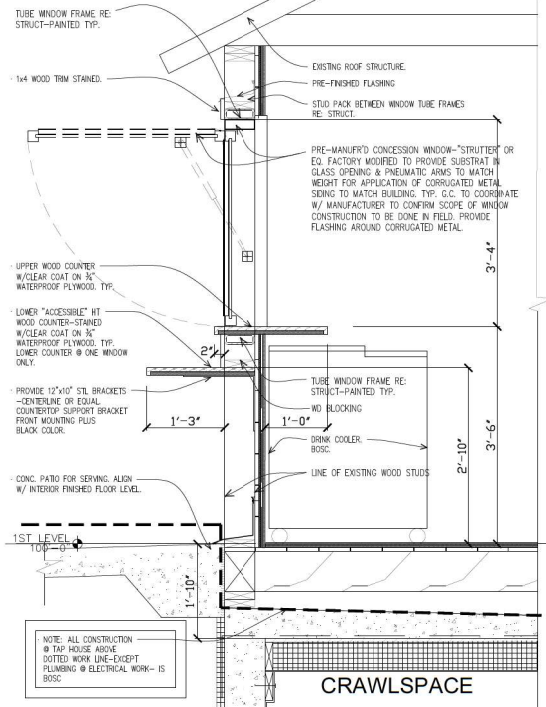
**B5** EAVE DETAIL  
A400 1 1/2" = 1'-0"



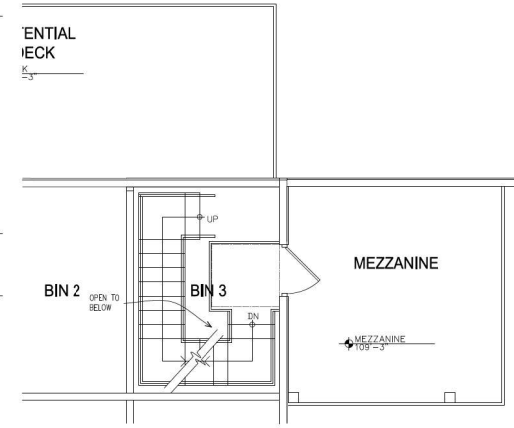
**A5** SCUPPER & COLLECTOR  
A400 1 1/2" = 1'-0"



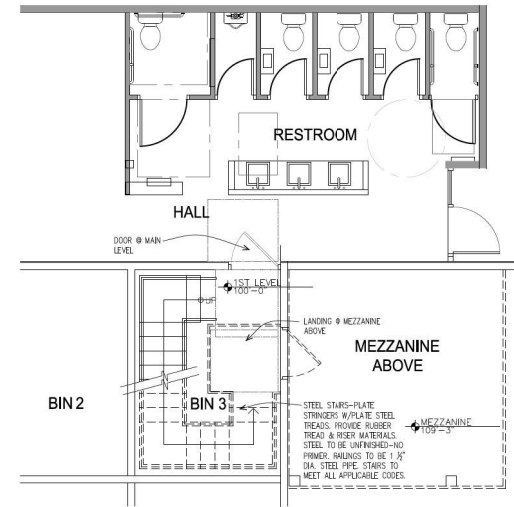
**B3** STAIRWAY @ BIN #3 - NORTH-SOUTH SECTION  
A400 1/4" = 1'-0"



**A3** SECTION @ TAP HOUSE CONCESSION WINDOW  
A400 1" = 1'-0"



**B1** STAIRWAY @ BIN #3 - 2ND LEVEL PLAN  
A400 1/4" = 1'-0"



**A1** STAIRWAY @ BIN #3 - MAIN LEVEL PLAN  
A400 1/4" = 1'-0"

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE: 12/05/25  
DRAWN BY: HAPC  
CHECKED BY: JEH  
REVISIONS:  
1. REVISION 1  
2. REVISION 2

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**Building  
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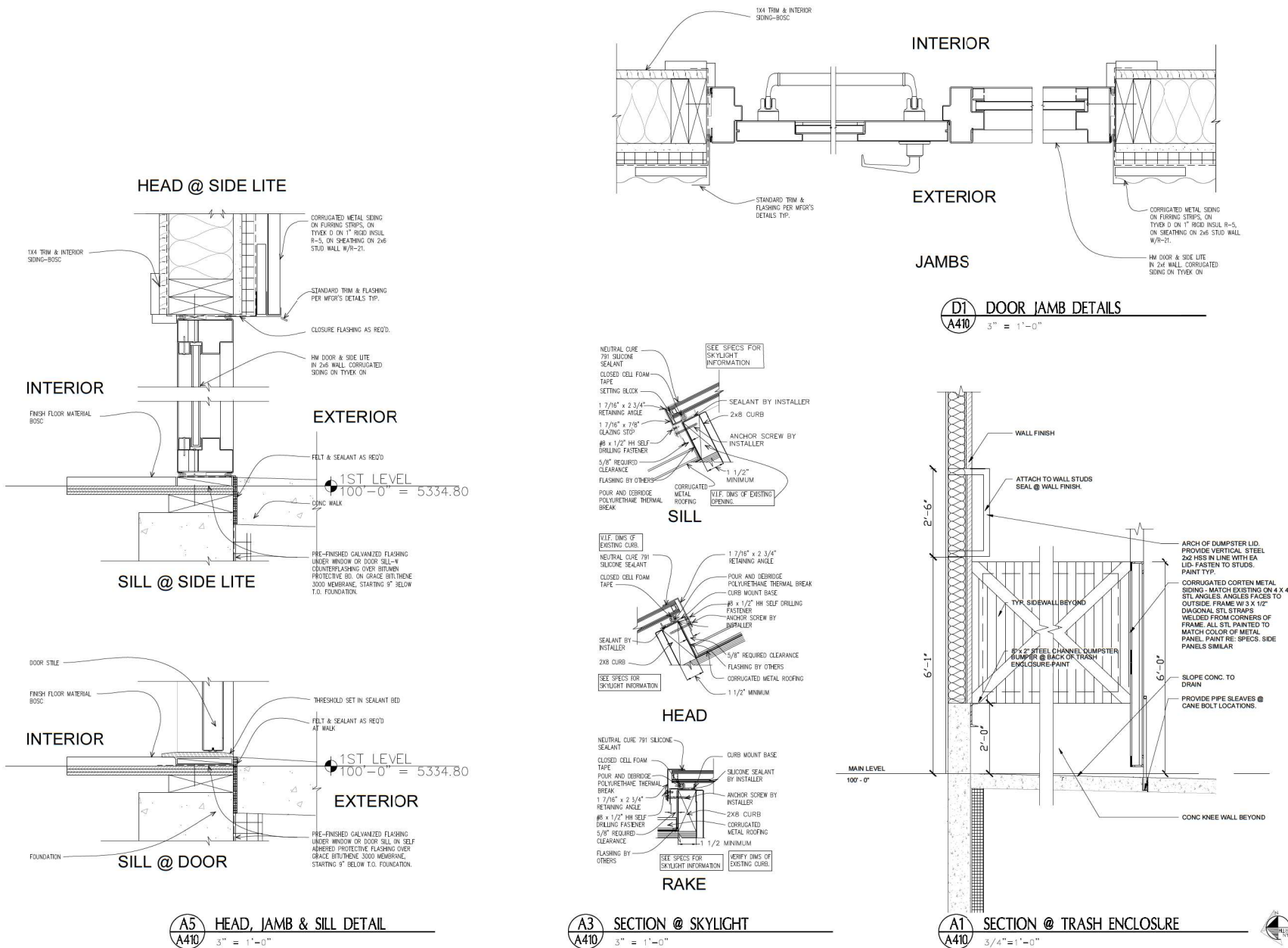
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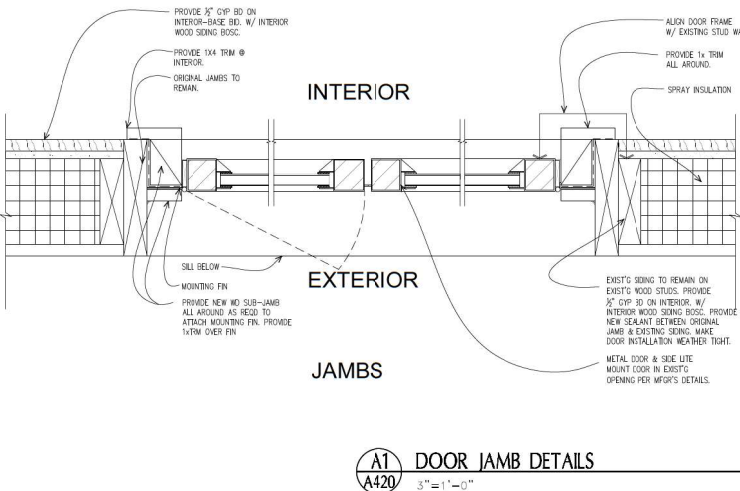
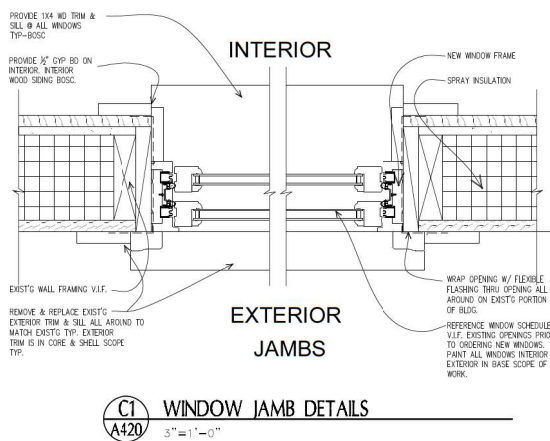
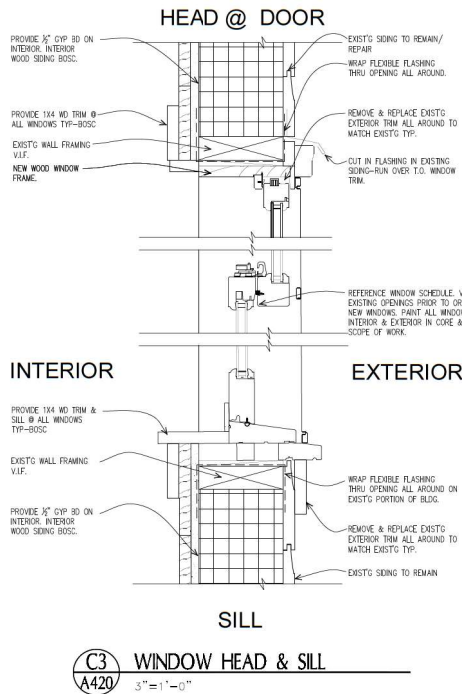
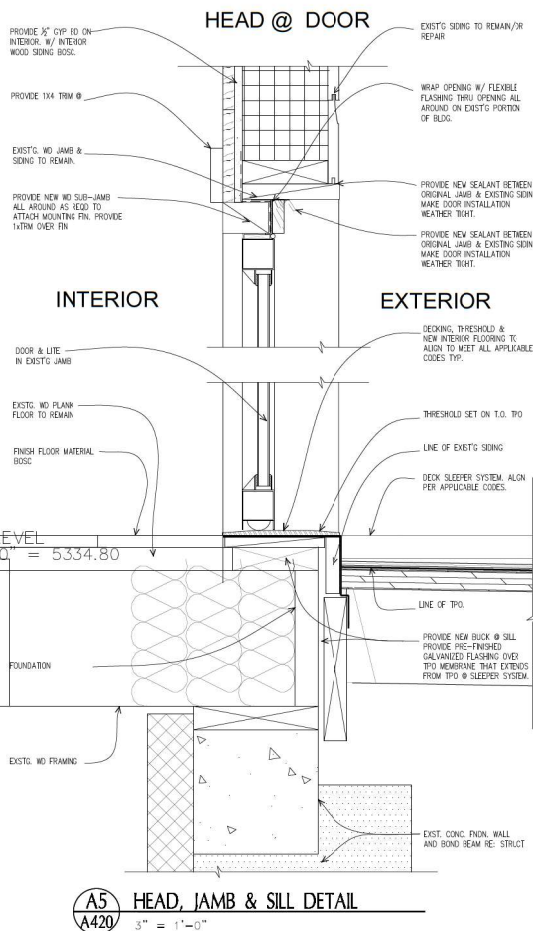
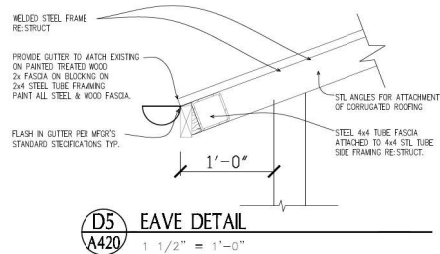
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CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK





CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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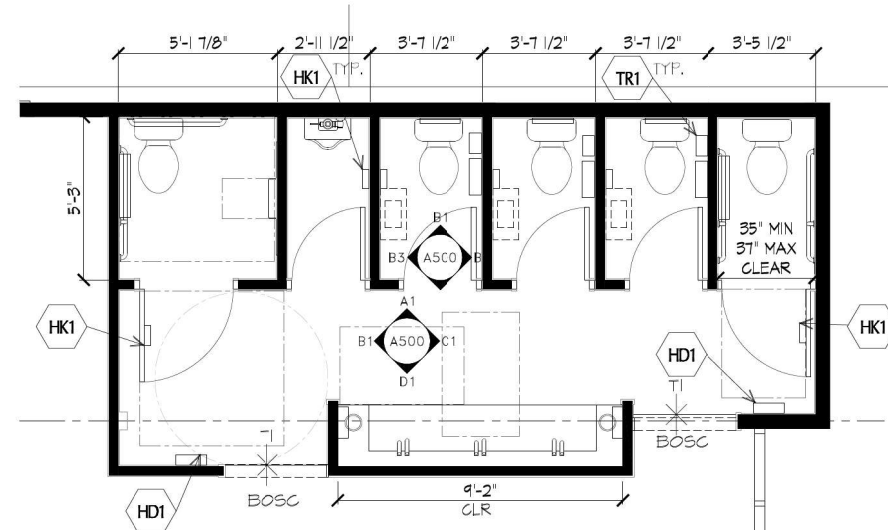
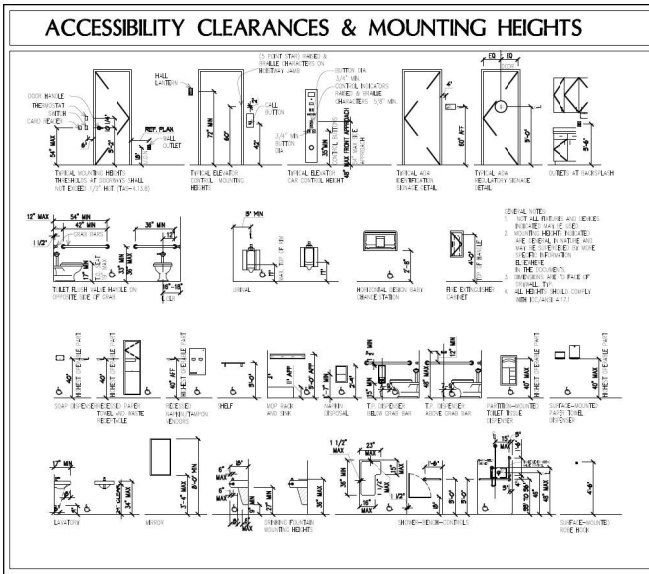
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DRAWN BY: HAPC  
CHECKED BY: JEH  
REVISIONS:

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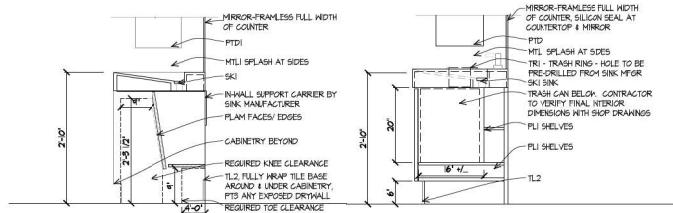
**Building Section & Details**

Sheet  
**A420**  
of Sheets

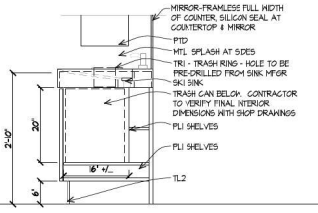




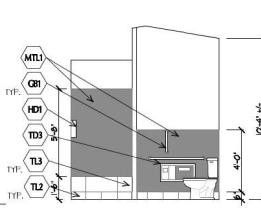
**C1 FLOOR PLAN - FIRST LEVEL**  
1/2" = 1' - 0"



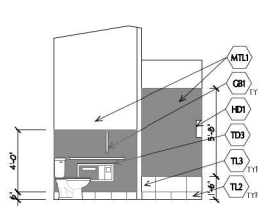
**B5 SECTION**  
A500 3/4" = 1' - 0"



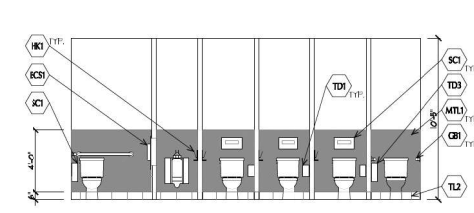
**B4 SECTION**  
A500 3/4" = 1' - 0"



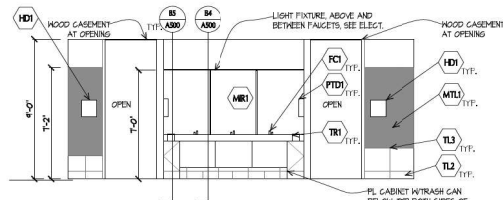
**B3 SOUTH ELEVATION**  
A500 1/4" = 1' - 0"



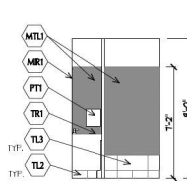
**B2 NORTH ELEVATION**  
A500 1/4" = 1' - 0"



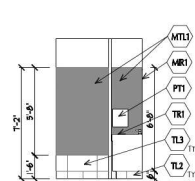
**B1 RR 107 - WEST ELEVATION**  
A500 1/4" = 1' - 0"



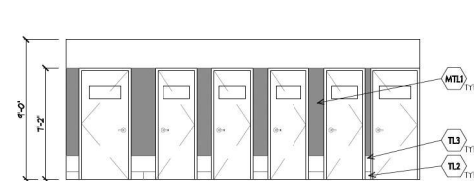
**D1 EAST ELEVATION**  
A500 1/4" = 1' - 0"



**C1 SOUTH ELEVATION**  
A500 1/4" = 1' - 0"



**B1 NORTH ELEVATION**  
A500 1/4" = 1' - 0"



**A1 WEST ELEVATION**  
A500 1/4" = 1' - 0"

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

**HARTRONFT ASSOCIATES**  
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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for the GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC

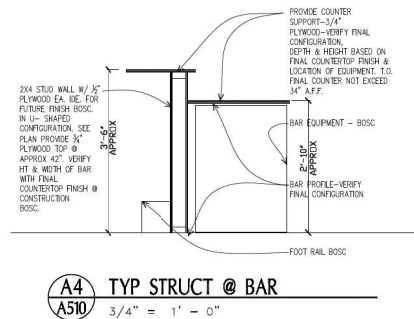
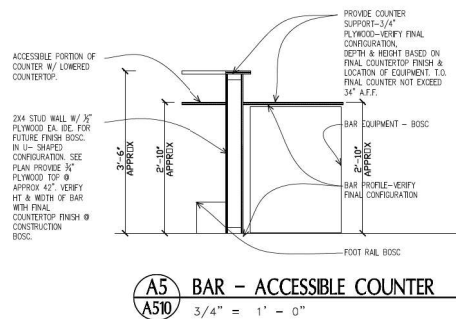
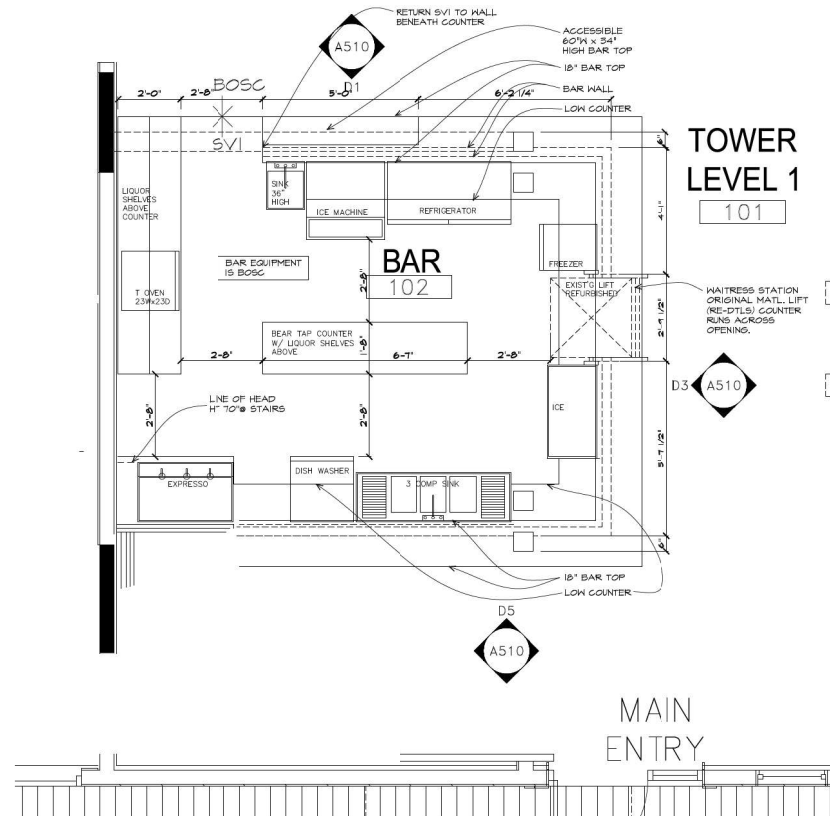
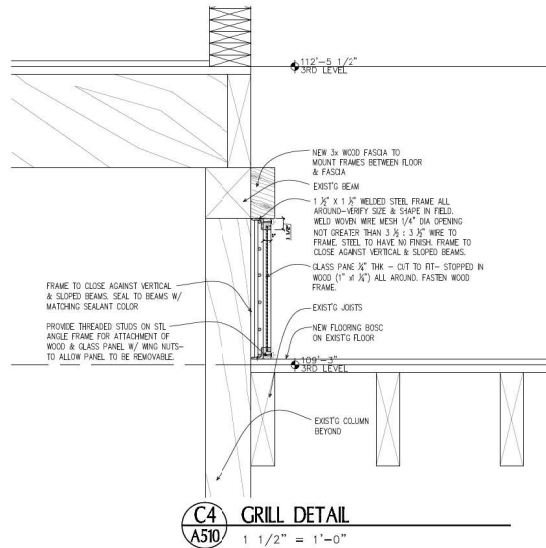
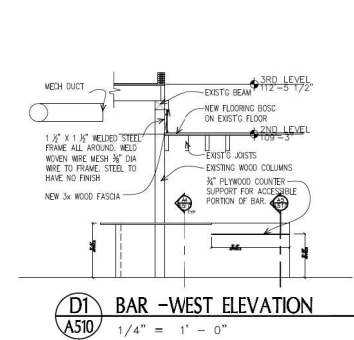
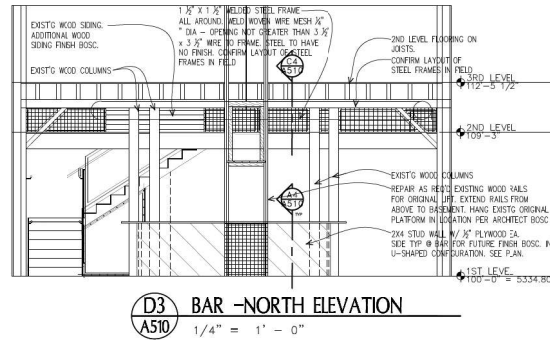
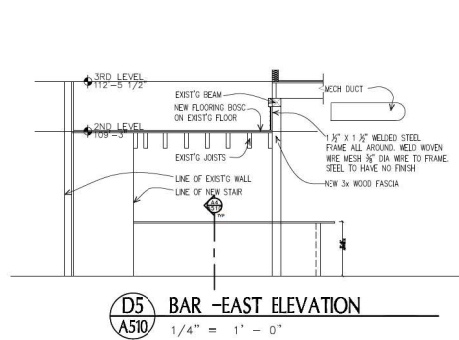


PROJECT # 1252.50  
DATE 12/05/25  
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CHECKED BY: JEH  
REVISIONS

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Enlarged Restroom  
Plans & Elevations

Sheet  
**A500**  
of Sheets



[illegible]

| FISHES & TAG NUMBER            | NOTES                   | MPQR                                 | NOTES                                |
|--------------------------------|-------------------------|--------------------------------------|--------------------------------------|
| CP11                           |                         |                                      |                                      |
| Wink Off Capnet                | Wtg. 2 / 2 Strong Group |                                      | Profolio                             |
|                                | Size: TBO               |                                      | 24 x 24, Offset track pattern        |
| COA1                           |                         |                                      |                                      |
| Black Sealed Concrete          | Wtg. XXX                | Date: XXX                            |                                      |
|                                |                         | Color: XXX                           |                                      |
| FBIH1                          |                         |                                      |                                      |
| Flint Wall Panel               | Wtg. Marble             | Number: 80                           |                                      |
|                                | Finish: Marble          | Color Name: 180                      |                                      |
| FBIH2                          |                         |                                      |                                      |
| Flint Wall Panel               | Wtg. Marble             | Number: 800                          |                                      |
|                                | Finish: Smooth ZEP      | Color Name: 180                      |                                      |
| G01                            |                         |                                      |                                      |
| Grout Base - RB 107            | Wtg. Isocore            | Size: 1 1/2" Min. E                  |                                      |
|                                |                         | Finish: Matte Black                  |                                      |
| G02                            |                         |                                      |                                      |
| Grout Base - RB 100            | Wtg. Isocore            | Size: 6'x6'                          |                                      |
|                                |                         | Finish: Semi-Fine Fresh              |                                      |
| MT1.1                          |                         |                                      |                                      |
| Marble Wall Panel              | Wtg. TBO                | Number: 180                          |                                      |
|                                | Finish: TBO             | Color Name: 180                      |                                      |
| MT1.2                          |                         |                                      |                                      |
| Marble Misch                   | Wtg. TBO                | Number: TBO                          |                                      |
|                                | Finish: TBO             | Color Name: TBO                      |                                      |
| PL1                            |                         |                                      |                                      |
| Plastic Laminated              | Wtg. Formica            | Number: 80                           |                                      |
|                                | Finish: TBO             | Color Name: 180                      |                                      |
| PT1                            |                         |                                      |                                      |
| Polished Metal Cloucs & Frames | Wtg. Ben Moore          | Number: 180                          |                                      |
|                                | Finish: Graphite        | Color Name: 180                      |                                      |
| RB1                            |                         |                                      |                                      |
| Rubber Base                    | Wtg. Roppe              | Size: 1/2"                           | Finish: 4" Cove Base, Continuous cut |
|                                |                         | Color: TBO                           |                                      |
| RB2                            |                         |                                      |                                      |
| Rubber Heads & Risers          | Wtg. Roppe              | Size: 3/8"                           | Finish: 3/8" Diamond                 |
|                                |                         | Color: TBO                           |                                      |
| RT1                            |                         |                                      |                                      |
| Reinforced Steel Doors         | Wtg. Ben Moore          | Number: 180                          |                                      |
|                                | Finish: TBO             | Color Name: 180                      |                                      |
| ST1                            |                         |                                      |                                      |
| Steel Vinyl                    | Wtg. MacGregor          | Date: MacGregor                      | Commercial Street                    |
|                                | Finish: Reflection      | Color Name: Reflection               |                                      |
| T11                            |                         |                                      |                                      |
| Trackdown Floor Tile           | Wtg. Van Tie            | Size: 12 x 24, Offset Brick Pattern  |                                      |
|                                | Size: 12 x 24           | Grout: Custom Building Products, TBO |                                      |
| T12                            |                         |                                      |                                      |
| Trackdown Tile Covered Base    | Wtg. Van Tie            | Size: 12 x 24                        | Grout: Custom Building Products, TBO |
|                                | Size: 12 x 24           | Grout: Custom Building Products, TBO |                                      |
| T13                            |                         |                                      |                                      |
| Trackdown Wall Tile            | Wtg. Van Tie            | Size: 12 x 24                        | Grout: Custom Building Products, TBO |
|                                | Size: 12 x 24           | Grout: Custom Building Products, TBO |                                      |

| <b>WINDOW NUMBER</b> | <b>WINDOW SIZE</b>  | <b>FRAME</b> | <b>DETAIL</b> |      |      |      |  |    | <b>FIRE RATING</b>                                                       | <b>DESCRIPTION</b> |
|----------------------|---------------------|--------------|---------------|------|------|------|--|----|--------------------------------------------------------------------------|--------------------|
|                      | (PAR) W X H         | MFL          | PIN           | HEAD | JAMB | SILL |  |    |                                                                          |                    |
| 1                    | 3'-0" X 5'-8"       | WD           | PT            |      |      |      |  | NA | Double hung, no divided lites                                            |                    |
| 2                    | 1'-11" X 1'-11"     | WD           | PT            |      |      |      |  | NA | Windows to remain, replace glazing on east elevation                     |                    |
| 3                    | 2'-4" X 5'-7"       | WD           | PT            |      |      |      |  | NA |                                                                          |                    |
| 4                    | 2'-9" X 4'-4"       | WD           | PT            |      |      |      |  | NA |                                                                          |                    |
| 5                    | 2'-2" X 5'-8"       | WD           | PT            |      |      |      |  | NA |                                                                          |                    |
| 6                    | NOT USED            |              |               |      |      |      |  | NA |                                                                          |                    |
| 7                    | 2'-2" X 4'-11"      | WD           | PT            |      |      |      |  | NA | Double hung, no divided lites                                            |                    |
| 8                    | 1'-1" X 5'-8"       | WD           | PT            |      |      |      |  | NA | Double hung, no divided lites                                            |                    |
| 9                    | 3'-3" X Verify      | WD           | PT            |      |      |      |  | NA |                                                                          |                    |
| 10                   | 2'-3" x verify      | WD           | PT            |      |      |      |  | NA | Interior window; refurbished window frames as noted on elevation A3/A205 |                    |
| 11                   | 2'-6" 3/4" X 1'-12" | WD           | PT            |      |      |      |  | NA | Existing opening & sill height & width visible from the inside           |                    |

General Notes:

1. Existing windows to be replaced with Marvin Ultimates Wood Double Hung Magnnum Window w/ Authentic Divided Lites (ADL), wood interior & wood exterior, factory primed unless otherwise noted. Field void all existing window openings in field.
2. Refer to Plans & Elevations for Window Locations.
3. See C3/A420 and C-1/A420 for Window head, sill and jamb details.
4. The upper face of the window to be located in the base bid, the interior face of the windows to be BOSOC.

[illegible]

| DOOR NUMBER | DOOR SIZE    | DOOR TYPE   | DOOR FRAME    | FIRE | HDWR | COMMENTS                          |
|-------------|--------------|-------------|---------------|------|------|-----------------------------------|
|             | ASBL W x H   | Type MTL, L | Type MTL, FIN | NA   | NA   |                                   |
| 081         | 10'0" x 8'0" | F STL, STL  | MTL, PT       | NA   | 03   |                                   |
| 096         | 3'2" x 7'0"  | A HMR PT    | WDO           | PT   | NA   | Tempered glass storm not required |
| 100         | 7'0" x 7'0"  | C HMR PT    | WDO           | PT   | NA   |                                   |
| 010         | 7'0" x 7'0"  | O HMR PT    | WDO           | PT   | NA   |                                   |
| 013         | 7'0" x 7'0"  | C HMR PT    | WDO           | PT   | NA   |                                   |
| 014         | 7'0" x 7'0"  | C HMR PT    | WDO           | PT   | NA   |                                   |
| 015         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 016         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 017         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 018         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 019         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 020         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 021         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 022         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 023         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 024         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 025         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 026         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 027         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 028         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 029         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 030         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 031         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 032         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 033         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 034         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 035         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 036         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 037         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 038         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 039         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 040         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 041         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 042         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 043         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 044         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 045         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 046         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 047         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 048         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 049         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 050         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 051         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 052         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 053         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 054         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 055         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 056         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 057         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 058         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 059         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 060         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 061         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 062         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 063         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 064         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 065         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 066         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 067         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 068         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 069         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 070         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 071         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 072         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 073         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 074         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
| 075         | 7'0" x 7'0"  | F HMR PT    | WDO           | PT   | NA   |                                   |
|             |              |             |               |      |      |                                   |

Technical drawings of nine door types (A through I) with dimensions and material specifications:

- TYPE A:** PARTIAL LITE. Dimensions: 3'-0" wide, 7'-0" high. Label: SEE DOOR SCHEDULE.
- TYPE B:** PARTIAL LITE. Dimensions: 2'-6" wide, 7'-0" high.
- TYPE C:** FLUSH DOOR. Dimensions: 3'-0" wide, 7'-0" high.
- TYPE D:** FLUSH DOOR. Dimensions: 3'-0" wide, 7'-0" high. Label: 18" HIGH SS KICKPLATE.
- TYPE E:** 2x2 STEEL MESH DOOR (C) BENDING, W/8". Dimensions: W, 7'-0" high, 10" wide.
- TYPE F:** BLACK STEEL FRAME PARTIAL GLASS ADA INTEGRAL KICK PLATE. Dimensions: 4'-10" wide, 6'-8" high, 10" wide.
- TYPE G:** BLACK STEEL FRAME PARTIAL GLASS ADA INTEGRAL KICK PLATE. Dimensions: 4'-8" wide, 6'-8" high, 10" wide.
- TYPE H:** HOLLOW METAL PAINT PARTIAL GLASS 18" HIGH SS KICKPLATE. Dimensions: 3'-0" wide, 7'-0" high, 10" wide.
- TYPE I:** HOLLOW METAL PAINT PARTIAL GLASS 18" HIGH SS KICKPLATE. Dimensions: 3'-0" wide, 7'-0" high, 10" wide.
- TYPE J:** NOT USED.
- TYPE K:** SOLID WOOD DOOR CUSTOM BUILT BOSS. (L.F. GRNT LK 6" W. BTRNL PLANK PAINT). Dimensions: W, 7'-0" high, 10" wide.
- TYPE L:** SOLID WOOD DOOR CUSTOM BUILT BOSS. (L.F. GRNT LK 6" W. BTRNL PLANK PAINT). Dimensions: 2'-6" wide, 7'-0" high, 10" wide. Label: PULLS X" THK STEEL.



## HARDWARE SCHEDULE

### Hardware Group No. 012

Provide each SGL door(s) with the following:

| QTY | DESCRIPTION | CATALOG NUMBER                               | FINISH | MFR |
|-----|-------------|----------------------------------------------|--------|-----|
| 1   | SET         | 58B1 (SIZE, QTY, WEIGHT, NRP AS REQ'D)       | BBLK   | IVE |
| 1   | EA          | EXTERIOR BALL BEARING HINGE                  |        |     |
| 1   | EA          | LD-78-EO                                     | 711    | VON |
| 1   | EA          | CO-100-993R-70-KP-LAT-P6 4B BATTERY OPERATED | 643e   | SCE |
| 1   | EA          | 4050A SCUSH                                  | 693    | LCN |
| 1   | EA          | 142BK                                        | BK     | ZER |
| 1   | SET         | 429AA @ HEAD & JAMBS                         | BK     | ZER |
| 1   | EA          | 39BK                                         | BK     | ZER |
| 1   | EA          | 1/2" HIGH - DEPTH AS REQUIRED BY SILL DETAIL | A      | ZER |

**FREE EGRESS AT ALL TIMES. LOCKSET IS NORMALLY SECURE. NORMAL CREDENTIAL UNLOCKS THE LOCK MOMENTARILY WHEN IN NORMALLY SECURED STATE. VALID TOGGLE CREDENTIALS ON THE EXTERIOR MAY BE USED TO CHANGE TO A PASSAGE OR SECURED STATUS.**

### Hardware Group No. 013

#### SLIDING DOOR HARDWARE

Manufacturer: RealCraft  
Style: Top Mounted - Box Rail Barn Door Sliding Hardware, Interior & Exterior (400 lbs)  
Length: 5' One Piece/Wall Mounted. Verify Actual Length in Field  
Finish: Black  
Barn Door Floor Guide: T-Guide Sliding Door Floor Guide with Bottom Guide U Channel  
Finish: Black

Note: Custom barn door approximately 5" thick. Provide 1x blocking and spacers as required to accommodate the width of the door.

Door pulls will be integrated in the 1/4" steel edges that surround the door on both sides of the door. Reference sheet A520 for door elevation.

### Hardware Group No. 06

Provide each SGL door(s) with the following:

| QTY | DESCRIPTION | CATALOG NUMBER                         | FINISH | MFR |
|-----|-------------|----------------------------------------|--------|-----|
| 1   | SET         | 58B1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK   | IVE |
| 1   | EA          | PC80P6D LAT                            | 622    | SCH |
| 1   | EA          | WS406/407 (CCV / CVX AS REQ'D)         | BLK    | IVE |
| 3   | EA          | SR64                                   | GRY    | IVE |

### Hardware Group No. 08

Provide each SGL door(s) with the following:

| QTY | DESCRIPTION | CATALOG NUMBER                             | FINISH | MFR |
|-----|-------------|--------------------------------------------|--------|-----|
| 1   | SET         | 58B1 (SIZE, QTY, WEIGHT, NRP AS REQ'D)     | FBLK   | IVE |
| 1   | EA          | CO-100-CY-70-KP-LAT-P6 4B BATTERY OPERATED | 643e   | SCE |
| 1   | EA          | 1450 HWIPA FC                              | 693    | LCN |
| 1   | EA          | 8400 38" B-CS                              | BLK    | IVE |
| 1   | EA          | WS406/407 (CCV / CVX AS REQ'D)             | BLK    | IVE |
| 3   | EA          | SR64                                       | GRY    | IVE |

CONTRACTOR TO COORDINATE THE DOORS WITH THE LIFT MANUFACTURER.  
**FREE EGRESS AT ALL TIMES. LOCKSET IS NORMALLY SECURE. NORMAL CREDENTIAL UNLOCKS THE LOCK MOMENTARILY WHEN IN NORMALLY SECURED STATE. VALID TOGGLE CREDENTIALS ON THE EXTERIOR MAY BE USED TO CHANGE TO A PASSAGE OR SECURED STATUS.**

### Hardware Group No. 010

Provide each SGL door(s) with the following:

| QTY | DESCRIPTION | CATALOG NUMBER                               | FINISH | MFR |
|-----|-------------|----------------------------------------------|--------|-----|
| 1   | SET         | 58B1 (SIZE, QTY, WEIGHT, NRP AS REQ'D)       | BBLK   | IVE |
| 1   | EA          | 78-NL                                        | 711    | VON |
| 1   | EA          | 20-022                                       | 622    | SCH |
| 1   | EA          | 4050A CUSH                                   | 693    | LCN |
| 1   | SET         | 429AA @ HEAD & JAMBS                         | BK     | ZER |
| 1   | EA          | 39BK                                         | BK     | ZER |
| 1   | EA          | 1/2" HIGH - DEPTH AS REQUIRED BY SILL DETAIL | A      | ZER |

**FREE EGRESS AT ALL TIMES. KEY IN OUTSIDE TRIM RETRACTS LATCH FOR ENTRY ONLY. DOOR RE-SECURES WHEN KEY IS REMOVED. DOOR CAN BE HEX-KEY DOGGED FOR PUSH / PULL OPERATION.**

### Hardware Group No. 011

Provide each SGL door(s) with the following:

| QTY | DESCRIPTION | CATALOG NUMBER                               | FINISH | MFR |
|-----|-------------|----------------------------------------------|--------|-----|
| 1   | SET         | 58B1 (SIZE, QTY, WEIGHT, NRP AS REQ'D)       | BBLK   | IVE |
| 1   | EA          | CO-100-CY-70-KP-LAT-P6 4B BATTERY OPERATED   | 643e   | SCE |
| 1   | EA          | LG12                                         | 600    | IVE |
| 1   | EA          | 4050A HEDA SRI                               | 693    | LCN |
| 1   | EA          | FS18 HEIGHT AS REQ'D                         | BLK    | IVE |
| 1   | SET         | 429AA @ HEAD & JAMBS                         | BK     | ZER |
| 1   | EA          | 39BK                                         | BK     | ZER |
| 1   | EA          | 1/2" HIGH - DEPTH AS REQUIRED BY SILL DETAIL | A      | ZER |

CONTRACTOR TO COORDINATE THE DOORS WITH THE LIFT MANUFACTURER.  
**FREE EGRESS AT ALL TIMES. LOCKSET IS NORMALLY SECURE. NORMAL CREDENTIAL UNLOCKS THE LOCK MOMENTARILY WHEN IN NORMALLY SECURED STATE. VALID TOGGLE CREDENTIALS ON THE EXTERIOR MAY BE USED TO CHANGE TO A PASSAGE OR SECURED STATUS.**

### Hardware Group No. 01

Provide each SGL door(s) with the following:

| QTY | DESCRIPTION | CATALOG NUMBER                         | FINISH | MFR |
|-----|-------------|----------------------------------------|--------|-----|
| 1   | SET         | 58B1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK   | IVE |
| 1   | EA          | PC10S LAT                              | 622    | SCH |
| 1   | EA          | 1450 HWIPA FC                          | 693    | LCN |
| 1   | EA          | 8400 38" B-CS                          | BLK    | IVE |
| 1   | EA          | WS406/407 (CCV / CVX AS REQ'D)         | BLK    | IVE |
| 3   | EA          | SR64                                   | GRY    | IVE |

CONTRACTOR TO COORDINATE THE DOORS WITH THE LIFT MANUFACTURER

### Hardware Group No. 02

Provide each SGL door(s) with the following:

| QTY | DESCRIPTION | CATALOG NUMBER                         | FINISH | MFR |
|-----|-------------|----------------------------------------|--------|-----|
| 1   | SET         | 58B1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK   | IVE |
| 1   | EA          | PC10S LAT                              | 622    | SCH |
| 1   | EA          | 1450 SCUSH FC                          | 693    | LCN |
| 3   | EA          | SR64                                   | GRY    | IVE |

### Hardware Group No. 02.1

Provide each SGL door(s) with the following:

| QTY | DESCRIPTION | CATALOG NUMBER                         | FINISH | MFR |
|-----|-------------|----------------------------------------|--------|-----|
| 1   | SET         | 58B1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK   | IVE |
| 1   | EA          | PC10S LAT                              | 622    | SCH |
| 1   | EA          | 1450 RWIPA FC                          | 693    | LCN |
| 1   | EA          | WS406/407 (CCV / CVX AS REQ'D)         | BLK    | IVE |
| 3   | EA          | SR64                                   | GRY    | IVE |

### Hardware Group No. 03

Provide each SGL door(s) with the following:

| QTY | DESCRIPTION | CATALOG NUMBER                         | FINISH | MFR |
|-----|-------------|----------------------------------------|--------|-----|
| 1   | SET         | 58B1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK   | IVE |
| 1   | EA          | ND40S LAT OS-OCC                       | 622    | SCH |
| 1   | EA          | WS406/407 (CCV / CVX AS REQ'D)         | BLK    | IVE |
| 1   | EA          | 488S @ HEAD & JAMBS                    | BK     | ZER |

### Hardware Group No. 04

Provide each SGL door(s) with the following:

| QTY | DESCRIPTION | CATALOG NUMBER                         | FINISH | MFR |
|-----|-------------|----------------------------------------|--------|-----|
| 1   | SET         | 58B1 (SIZE, QTY, WEIGHT, NRP AS REQ'D) | FBLK   | IVE |
| 1   | EA          | PC53P6D LAT                            | 622    | SCH |
| 1   | EA          | WS406/407 (CCV / CVX AS REQ'D)         | BLK    | IVE |
| 1   | EA          | 488S @ HEAD & JAMBS                    | BK     | ZER |

CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC

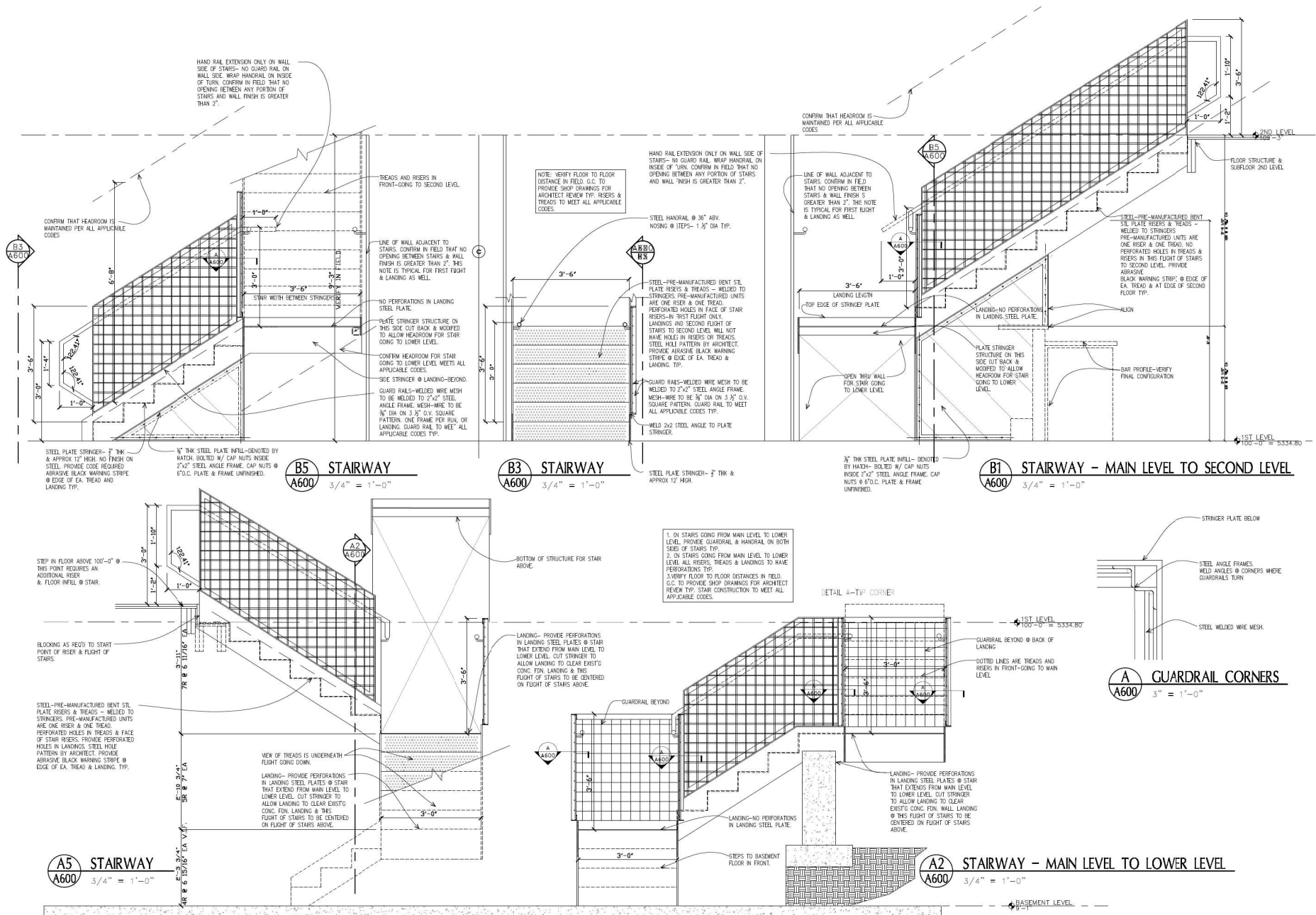


PROJECT # 1252.50  
DATE 12/05/25  
DRAWN BY: HAPC  
CHECKED BY: JEH  
REVISIONS

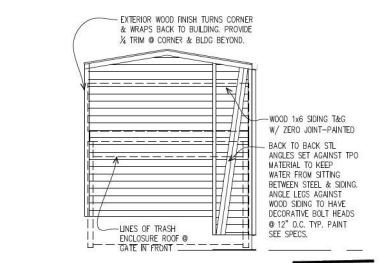
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Hardware Schedule

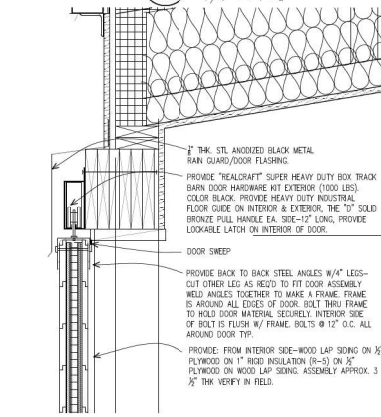
Sheet  
**A525**  
of Sheets



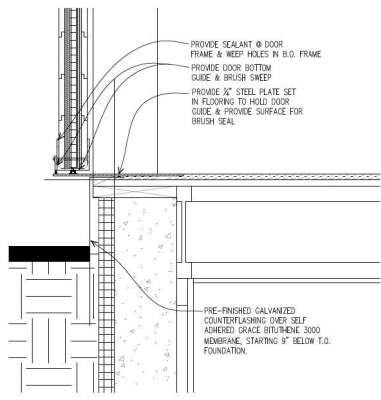
CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK



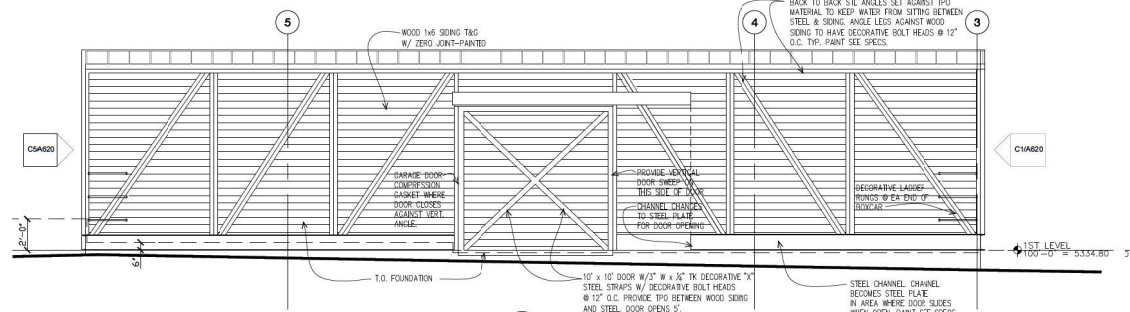
**C5 SOUTH ELEV**  
A620  
1/4" = 1'-0"



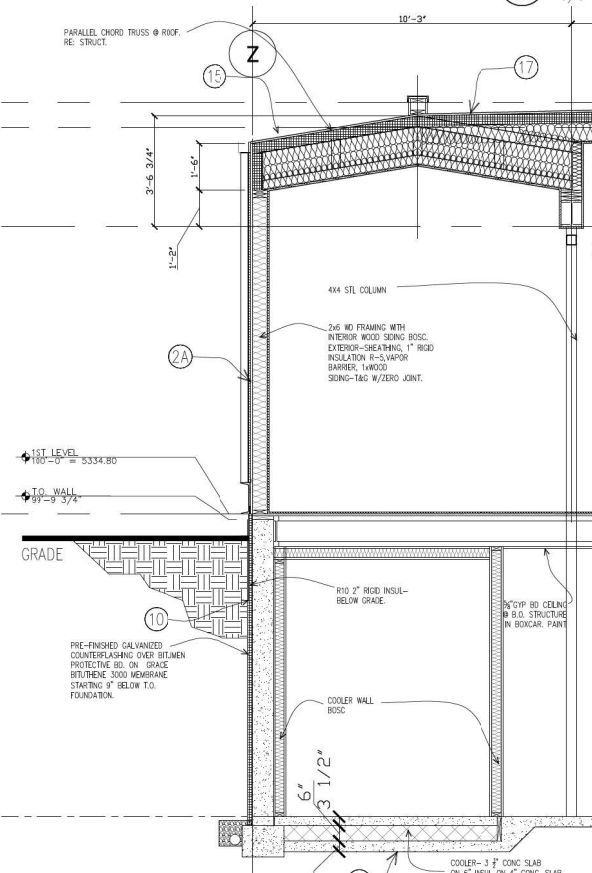
**B5 BOXCAR DOOR HEAD**  
A620  
1 1/2" = 1'-0"



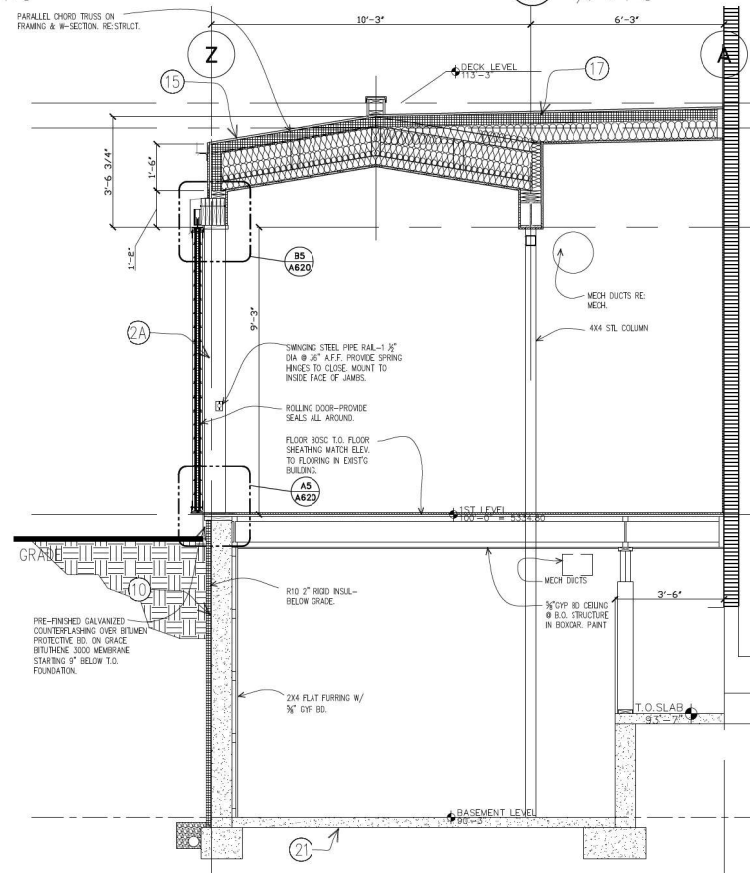
**A5 BOXCAR DOOR SILL**  
A620  
1 1/2" = 1'-0"



**C3 BOXCAR - EAST ELEVATION**  
A620  
1/4" = 1'-0"



**A3 BOXCAR SECTION THRU COOLER**  
A620  
1 1/2" = 1'-0"



**A1 BOXCAR SECTION @ DOOR - NOT THRU COOLER**  
A620  
1 1/2" = 1'-0"

KEY NOTES - REFER TO SHEET A600 FOR ADDITIONAL INFORMATION



**DIVISION 0 - CONDITIONS OF THE CONTRACT**

**GENERAL CONDITIONS- AIA**

1. Unless otherwise noted in written form and approved by Owner and Architect the terms and conditions set forth herein, inclusive of "for construction" set of drawings shall be followed by Contractor. The "General Conditions of the Contract for Construction", AIA Document A201, Fourteenth Edition, 1997, is a part of the Contract and is incorporated as fully as if here set forth.

**SUPPLEMENTARY CONDITIONS-AIA**

1. These Supplementary Conditions amend or supplement the General Conditions of the Contract for Construction (AIA Document A201, 1997 Edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect. The terms used in these Supplementary Conditions which are defined in the General Conditions of the Contract for Construction (AIA Document A201, 1997 Edition) have the meanings assigned to them in the General Conditions.

**DIVISION 1 - GENERAL REQUIREMENTS**

**SUMMARY OF WORK**

1. DESCRIPTION OF WORK
- A. The work includes the redevelopment of approximately .37 acres including general site development, a renovation of an existing historic mill providing for a core and shell, and an addition to the structure.
- B. The site work includes the construction of new private drives, sidewalks and paving, landscaping, and utility connections.
- C. The work includes mechanical, plumbing, and electrical work per the requirements of the applicable drawings and specifications included in the Contract Documents.
2. CONTRACTOR USE OF SITE
- A. Access to Site: Limited to those designated areas indicated explicitly by the scope of work shown in these drawings. Contractor to limit disturbance of adjacent site as to not impede operations of the adjacent businesses and homes.
- B. Construction Operations: Limited to the site and to public right-of-way only for the purpose of completing that work located in the public right-of-way.
- C. Time Restrictions for Performing Exterior Work: Limited to after 6:00 a.m. and before 7:00 p.m. unless otherwise approved by the Owner.

**CONTRACT MODIFICATION PROCEDURES**

1. CHANGE PROCEDURES
- A. The Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions.
- B. Time and Material Change Order: Time and Material Change Orders will be discouraged and shall not become effective unless approved by Owner and Architect in writing prior to initiation of work. Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
- C. Execution of Change Orders: All change orders shall be approved by the Owner, the Architect, and the Contractor.
2. DEFECT ASSESSMENT
- A. Replace the Work, or portions of the Work, not conforming to specified requirements. If, in the opinion of the Architect, it is not practical to remove and replace the Work, the Architect will direct an appropriate remedy or adjust payment.

**ADMINISTRATIVE REQUIREMENTS**

1. COORDINATION AND PROJECT CONDITIONS
- A. Coordinate scheduling, submittals, and Work of the various sections of the Contract Documents.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Coordinate space requirements, supports, and installation of mechanical and electrical Work. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion.
2. FIELD ENGINEERING
- A. Employ a Land Surveyor registered in the State of Colorado. Contractor shall locate and protect survey control and reference points.
- B. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

- C. Submit three copies of improvement survey and certificate prepared and signed by the Land Surveyor indicating elevations of floors, dimensions, and locations of the Work.
3. PROGRESS MEETINGS
- A. Schedule and administer meetings throughout progress of the Work at appropriate intervals. Agenda shall include review of minutes of previous meetings, review of Work progress, field observations, problems, and decisions, identification of problems which impede planned progress, review of status of submittals, corrective measures to regain projected schedules, maintenance of quality and work standards, effect of proposed changes on progress schedule and coordination, and other business relating to Work.
4. CUTTING AND PATCHING
- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Execute cutting, fitting, and patching to complete Work, and to:
- i. Fit the several parts together, to integrate with other Work.
- ii. Uncover Work to install or correct ill-timed Work.
- iii. Remove and replace defective and non-conforming Work.
- iv. Remove samples of installed Work for testing.
- v. Provide openings in elements of Work for penetrations of structural, mechanical and electrical Work.
- C. Execute work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- D. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

**CONSTRUCTION PROGRESS DOCUMENTATION**

1. During the duration of the Work, Contractor shall maintain a complete set of Contract Drawings in job office, upon which set he/she is required to note in red, or other clear manner, all authorized deviations from the Contract Documents. Marked-up Drawings prepared from this job set are a part of the project close-out documents and made available to Architect.
2. Contractor shall provide to the Owner and Architect a comprehensive Gantt Chart schedule for construction activities that require three months or longer to complete. Indicate an estimated completion percentage in 10% increments within time bar.

**SUBMITTALS**

1. SUBMITTAL PROCEDURE
- A. Schedule submittals to expedite the Project, and deliver to Architect at business address. Coordinate submission of related items.
- B. For each submittal for review, allow 15 days excluding delivery time to and from the Contractor.
- C. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- D. Submitted to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents. Architect will not review submittals not previously reviewed and stamped by the Contractor.
2. PRODUCT DATA
- A. Submit two copies one copy will be returned by the Architect.
3. SHOP DRAWINGS OR PRODUCT DATA
- A. Shop Drawings For Review: Foundation and slab reinforcing, equipment and fixtures, stair systems, metal railings, toilet accessories, paint data, windows, bike racks, lighting, insulation, doors, and door hardware.
- B. Refer to mechanical, electrical, plumbing, or structural drawings for additional shop drawings to be provided.
- C. Submit in the form of two opaque reproductions.
4. SAMPLES
- A. Samples and Products for Review: wood siding, metal mesh, flooring, pre-finished metal assemblies, weather barriers, glazing, metal mesh, windows, doors, roofing, concrete finishes, gypsum board, stain, exterior siding, paint draw downs, millwork, and all interior finishes.
- B. Samples For Selection:
- i. Submitted to Architect for aesthetic, color, or finish selection.
- ii. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect selection.
- C. Submit the number of samples desired; at least one sample will be retained by Architect.
- D. Size: Submit a sample size of no less than 6"x6".
- E. Provide 6"x6" samples of finished exterior wood siding

**TEMPORARY FACILITIES AND CONTROLS**

1. TEMPORARY ELECTRICITY
- A. Cost: Power will be provided on-site by owner.
- B. Provide power outlets for construction operations.
2. TEMPORARY HEATING
- A. Enclose building prior to activating temporary heat.

- B. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Replace filters and worn or consumed parts.
3. TEMPORARY VENTILATION
- A. Ventilate enclosed areas to achieve curing of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
4. TEMPORARY WATER SERVICE
- A. Connect to existing water source, at existing building, for construction operations at time of project mobilization.
- B. Owner will pay cost of water used.
5. TEMPORARY SANITARY FACILITIES
- A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
6. BARRIERS
- A. Provide barriers to prevent unauthorized entry to construction areas and to provide safe protection of the public. Barriers shall not prevent access to or operation of adjacent homes and businesses.
- B. Provide barricades if required by governing authorities for public rights-of-way.
7. WATER CONTROL
- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment as required.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion and to avoid sediment flow onto adjacent properties, public right-of-way, or public storm sewer.

**SUBSTITUTION PROCEDURES**

1. Contractor shall make every effort to provide products specified.
2. Substitutions will be considered if:
- A. Contractor has submitted substitution to Architect in writing.
- B. Contractor has investigated proposed product and determined that it is equivalent to that specified.
- C. Contractor has indicated in writing cost, time or other benefits for substitution.
3. Architect shall be judge of acceptability and reserves right to reject proposed substitution.

**STARTING AND ADJUSTING**

1. STARTING OF SYSTEM
- A. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- B. Verify that wiring and support components for equipment are complete and tested.
- C. Execute start-up in accordance with manufacturers' instructions.

**DEMONSTRATION AND INSTRUCTIONS**

- A. Demonstrate operation and maintenance of Products to Owner's personnel prior to date of final observation.

**CLOSEOUT PROCEDURES**

1. FINAL CLEANING
- A. Contractor shall employ skilled workmen for final cleaning, including all glass, metal, glossy surfaces, floors and finishes.
- B. Replace filters of operating equipment.
- C. Remove waste and surplus materials, rubbish, and construction facilities from the site.
2. CLOSEOUT DOCUMENTS
- A. Contractor shall provide documentation stating work has been substantially completed. Where Owner requires use of space prior to final completion, Contractor shall provide project record documents, material and finish data, operation and instruction manuals, warranties and bonds at project completion. Submit (3 each) bound in 8 1/2" x 11" three-ring binders with durable plastic covers. Arrange in format similar to specifications.
- B. Contractor shall submit (marked-up) record Drawings to Owner.
- C. Contractor shall provide evidence of payments and release of liens to Owner. Contractor will sign lien waiver prior to receipt of monthly progress payment.
- D. Contractor shall obtain Certificate of Occupancy and provide to Owner.
- E. Contractor shall provide final Certificate for Payment to Owner.

3. OPERATION AND MAINTENANCE DATA
- B. Submit data bound in 8-1/2 x 11 inch text pages, three ring binders with durable plastic covers.
- C. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of project.
- D. Submit two sets, within 10 days before final inspection
- The manual shall provide the following information per 2024 IECC, Section C408. The building operations and maintenance documents shall be provided to the owner and shall consist of manufacturers' information, specifications and

CONSTRUCTION PHASE 5.0 — SECTION 1-5 REHABILITATION AND ADDITIONS + STEWORK



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



**PROJECT # 1252.50**  
**DATE:** 12/05/25  
**DRAWN BY:** HAPC  
**CHECKED BY:** JH  
**REVISIONS:**  
1. 12/05/25: REVISION 1  
2. 12/05/25: REVISION 2

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**SPECIFICATIONS**

Sheet  
**A700**

- of - Sheets

recommendations; programming procedures and data points; narratives; and other means of illustrating to the owner how the building, equipment and systems are intended to be installed, maintained and operated. Required regular maintenance actions for equipment and systems shall be clearly stated on a readily visible label. This label shall include the title or publication number for the operation and maintenance manual for that particular model and type of product.

- Submittal data with equipment data
- Manufacturer's Operation manual and maintenance manuals for each piece of equipment
- Name and address of at least one service agency
- HVAC and service hot water controls system maintenance and calibration information.
- Submittal data for each piece of lighting equipment and controls
- Operation and maintenance manual for each piece of lighting equipment.
- Schedule for inspecting and recalibrating all lighting controls.
- A narrative of how each system is intended to operate.

#### 4. COMMISSIONING

- Building commissioning of the mechanical system and the power and lighting systems shall comply with the 2024 IECC Section C408.2-C403.3.
- Testing services may be ongoing throughout project. The Commissioning Agent is to identify milestones for building and/or system testing as required by code.
- Provide Preliminary and Final commissioning reports for HVAC and Lighting systems, equipment and controls.

### DIVISION 2 - SITEWORK

Also see Civil Drawings

#### SUMMARY OF WORK

##### 1. DESCRIPTION OF WORK

- Work under this division includes Selective Demolition, Excavation, and Earthwork as required for building construction, specialty ground cover, and landscaping, and Concrete Paving.
- All Landscaping shall be provided by Contractor, including irrigation systems and landscape preparation.
  - Refer to Civil Drawings for specifications on road base, Asphalt and Concrete Paving.

#### SITE DEMOLITION

- Demolition as required for the removal of existing construction as required to accommodate new construction, as indicated on drawings, to include but not be limited to:
    - Existing site structures and infrastructure as required.
  - Existing walls, stairs, paving, windows, and doors as required.
  - Existing electrical systems as required.
  - Refer to drawing notations and other specification sections for new paint.
- Protection:
- Remove, handle and dispose of hazardous materials other than asbestos or PCB in a safe manner and as required by authorities having jurisdiction.
  - Perform demolition in accordance with applicable authorities having jurisdiction.
  - Use skilled workers to carefully remove materials and equipment indicated or scheduled for Owner's salvage. Deliver and store on site where directed by Owner.

### DIVISION 3 - CONCRETE

Also see Structural Drawings

#### SUMMARY OF WORK

- Work under this division includes Cast in Place Concrete for foundations, slab on grade, stairs, ramps, and landings.
- Refer to Structural Drawings for required concrete strengths, reinforcing, and other design requirements.
- Provide min. welded wire mesh and fiber mesh at all exterior slabs.
- Provide DECO 20 Dampproof Coating at below grade foundation walls and footings.
- Concrete finishes shall be as follows:
  - Apply Broom Finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
    - Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
    - Provide fiber mesh for all exterior slabs
  - Apply Trowel Finish for all interior floor slabs and trash enclosure concrete as follows:
    - Comply with the following: ACI 301 & ACI 117
    - Execution shall follow criteria set forth in ASTM E1155.
    - Provide flatness and levelness of SOF<sub>F</sub> = 35; SOF<sub>L</sub> = 25

### DIVISION 5 - METALS

Also see Structural Drawings

#### SUMMARY OF WORK

##### 1. DESCRIPTION OF WORK

Work under this division includes metal fabrications, structural steel, metal stair stringers, and decorative metal railings.

All welds shall be continuous and ground smooth of any protrusions for appearance for NOMMA #2 joint welds. Provide factory applied red oxide primer on all concealed steel fabrications. Exposed steel per painting specifications. All exterior exposed architectural steel shall be hot-dipped galvanized and receive a high-performance paint finish. Color per Architect.

#### DECORATIVE METAL RAILINGS

- Structural Performance: Provide railing systems capable of withstanding the following structural loads without exceeding allowable design working stress of materials for handrails, railings, anchors, and connections:
  - Top Rail: Shall withstand the following loads:
    - Concentrated load of 200 lbf (890 N) applied at any point and in any direction
    - Uniform load of 50 lbf per foot (730 N/m) applied horizontally or vertically downward.
    - Concentrated and uniform loads above need not be assumed to act concurrently.
  - Handrails not Serving as Top Rails: Shall withstand the following loads:
    - Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
    - Uniform load of 50 lbf per foot (730 N/m) applied in any direction.
    - Concentrated and uniform loads above need not be assumed to act concurrently.
  - Guard Infill Area: Shall withstand the following loads: Concentrated horizontal load of 50 lbf (222 N) applied to 1 square foot (0.09 m<sup>2</sup>) at any point in system, including panels, intermediate rails, balusters, or other elements composing infill area. Loads need not be assumed to act concurrently with loads on top rails in determining stress on guard.
- Railing materials to be steel where indicated.
  - Metal railing components to be provided with high performance paint.
  - Provide Stainless steel cable rails system with:
    - CRL 3/16" mill 316 stainless steel cable
    - CRL mill 316 stainless steel button tensioner
    - CRL 316 stainless steel beveled washer for 3/16" cable
  - Welded wire mesh at interior locations to be McNichols Item #36042600
  - Welded wire mesh at select gates to be McNichols Item #32959201

### DIVISION 6 - WOOD, PLASTIC, AND COMPOSITES

#### SHEATHING

- Exterior Wall Sheathing and subflooring - refer to Structural specifications for more information.
  - Provide a complete and continuous thermal and moisture envelope that does not allow unregulated air leakage except where specified.
- Roof Sheathing and at inside face of parapet walls - refer to Structural specifications for more information.
  - Provide min. 5/8" roof sheathing at locations to receive TPO.
- Gypsum Sheathing
  - Provide 5/8" USG Sheetrock panels at interior walls.
  - Provide 5/8" USG Sheetrock UltraLight panels at interior ceilings.
  - Provide 5/8" USG Mold Tough panels at walls in the bathroom and other wet applications.
  - Provide 5/8" USG Durock Cement Board at locations to receive wall tile.
  - All gypsum sheathing products may be substituted with equal or better products for their intended function. Provide substitutions as necessary.
  - Provide minimum Level 4 finish paint and back-roll at all interior gypsum walls and ceilings. Paint by BOSQ

#### REDWOOD DECKING

- Provide 2x6 solid redwood deck boards.
- Pre-drill and fasten with Camo Edge Fastening System and stainless-steel screws
- Provide 3/16" gap between boards using
- Provide 25-year standard warranty
- Provide stain and sealer per finish specifications

### DIVISION 7 - THERMAL AND MOISTURE PROTECTION

#### SUMMARY OF WORK

##### DESCRIPTION OF WORK

Work under this division includes thermal insulation, weather barriers, exterior wall sheathing, TPO membrane roofing, sheet metal flashing, and joint sealants.

#### THERMAL INSULATION (provide minimum R-values per assembly)

- Fiberglass Batt Insulation
  - Provide R-21 (5 1/2") kraft faced batt insulation at exterior and demising walls where indicated
  - Provide R-15 (3 1/2") kraft faced batt insulation where indicated
- Blow-in Fiberglass Insulation
  - Certified Optima Blow-in Insulation system
  - Completely fill ceiling cavities with batt insulation where indicated.
  - Insulation to be blown in at a design density of a min. 0.8 pounds per cubic foot. At ceiling areas of 8' or deeper.
  - Insulation to be blown in at a design density of a min. 1.6 pounds per cubic foot. At ceiling areas of 7.25' or shallower.

- Spray Foam Insulation
  - Provide Huntsman Building Solutions "HeatLok HFO Pro" spray foam insulation where indicated.
  - Provide minimum R-7.0 per inch spray foam insulation.
  - Prepare all substrates per manufacturer's instructions.
  - Install per manufacturer's installation instructions.
  - All spray foam must be separated from interior space by a minimum 1/2" gypsum wallboard thermal barrier.
- Rigid Insulation
  - Provide Owens Corning Foamular NGX 253 XPS Rigid Insulation
  - Provide R-5 per inch XPS rigid insulation where indicated.
- Identification:
  - A R-value identification mark shall be applied by the manufacturer to each piece of building thermal envelope insulation.

#### WEATHER BARRIER

- Tyvek Commercial Wrap D
  - Provide under exterior walls assemblies where indicated.
  - Install per manufacturers recommended installation instructions
  - Provide only approved Tyvek fasteners including cap nails, cap screws or cap staples
  - Seal bottom of wrap directly to the concrete foundation with Dupont AdhesivePrimer
  - Provide Dupont Tyvek Tape and overlap at seams and any penetrations
  - Provide Dupont FlexWrap at all window and door flashing
    - Install window and door flashing per construction documents
  - Prepare all surfaces to remove dirt, dust, or moisture before applying any adhesive material.
- Grace Vycor Deck Protector
  - Install Grace Vycor Deck Protector self-adhered flashing to protect decking structure and associated fasteners. Place one layer above all exposed deck joint, beams, and sleepers
  - Install Grace Vycor Deck Protector per manufacturers recommended installations instructions.
- Certified Membrain vapor retarder
  - Install Membrain vapor retarder at inside faces of all new exterior wall framing insulated with batt insulation.
  - Install per manufacturers installation instructions.
- GCP Bluthene 3000 self-adhesive, rubberized waterproof membranes
  - Install Bluthene where indicated on construction documents.
  - Install per manufacturers installation instructions.
  - Do not allow bluthene to touch TPO as products will degrade each other.

#### METAL SIDING AND ROOFING

- Corrugated metal siding and roofing
  - Provide Corten steel corrugated metal roofing and siding panels
  - Match existing sine wave profile to existing structure
  - Overlap and sitch panels a minimum of two ridges; predrill holes
  - Provide zinc coated gasketed fasteners to match existing; provide a minimum
    - Provide #10 gasketed woodfast screws for use at dimensional lumber. Min. 7/16" thickness.
    - Provide #14 gasketed wafer screws for used at plywood and OSB sheathing. Min. 7/16" thickness.
  - Provide screws every 12" up the panel at roof conditions
  - Provide Butyl sealant between every panel at side laps
  - It is the responsibility of the GC to ensure that purins are adequately spaced to meet specific engineering requirements.
  - Refer to drawings for specific details

#### TPO ROOFING

- Warranty: 15 year
- Manufacturer: Genflex
  - UltraPly TPO
  - 60 mils
  - Mechanically Fastened with heat welded seams
  - Color: Grey
  - Install per manufacturer's Class A assembly requirements.
- Accessories
  - Provide 1/4" Coverboard: Georgia Pacific Dens Deck when attaching TPO directly over rigid insulation, parapet walls, or subroofing
- TPO is not compatible with ice and Water Shield. Provide Grace Ultra underlayment under TPO roofing at roof to wall transitions or other transitions where Ice and Water Shield is to be used.

#### SHEET METAL FLASHING

- Provide 26-gauge sheet metal prefinished flashing where shown on construction documents including: at window and door heads and sills, door thresholds, eaves, rakes, parapets, or other locations as indicated or construction documents.
- Provide 22-gauge sheet metal prefinished flashing for any depth equal to or larger than 4" flashing.
- Drip edges to have 1/2" drip edges, typical.
- Provide Kynar 500 finish.
- Architect to choose from manufacturer's standard colors.



**HARTRONFT ASSOCIATES**  
A Professional Corporation

Planning  
Architecture  
Interior Design

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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



**PROJECT # 1252.50**  
DATE: 12/05/25  
DRAWN BY: HAPC  
CHECKED BY: JH  
REVISIONS:

1. REVISED DRAWING 1  
2. REVISED DRAWING 2

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#### SPECIFICATIONS

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#### JOINT SEALANTS

1. Provide silicon joint sealers between all dissimilar materials in colors to match adjacent surfaces and formulation as required for bonding and performance at specific application.
2. Provide backer rods as necessary to maintain a joint depth no greater than the joint width.
3. Provide paintable exterior grade, min class 25 silicon sealant meeting ASTM C920 at exterior locations.

#### BUILDING THERMAL ENVELOPE

1. Recessed luminaires installed in the building thermal envelope shall be sealed to limit air leakage.
2. Provide adhesive or sealant at the following locations east of Grid A:
  - A. Provide gaskets under mud sills.
  - B. Provide continuous sealant or adhesive at top and bottom of rim joist
  - C. At flooring to sill plate
  - D. Exterior sheathing to sill plates
  - E. Exterior sheathing to window and door headers and at trim studs
  - F. Continuous sealant or adhesive at top and bottom of top plate and sill plate to interior GWB
  - G. Ceiling GWB taped to wall board
  - H. Provide sealant around all concealed fire sprinkler cover plates and exterior recessed lighting.
  - I. Refer to window wrap details elsewhere for window and door seals

#### GUTTERS AND DOWNSPOUTS

1. Provide seamless aluminum box type gutters and downspouts except where indicated.
  - A. Provide open-faced prefinished aluminum downspouts.
  - B. Install per manufacturers installation instructions.
  - C. Provide standard Kynar 500 or Hylar 5000 applied to exposed side.
  - D. Warranty: Manufacturers Standard Warranty

#### DIVISION 8 - DOORS AND WINDOWS

##### SUMMARY OF WORK

1. DESCRIPTION OF WORK  
Work under this division includes Exterior and Interior Doors, Wood Windows, Skylights, and Glazing.

##### INTERIOR DOORS

1. Provide TruStile Doors – TMF1000 interior doors
  - A. 1 3/4" thick typical flush slabs.
  - B. Provide 48 lb MDF core with LVL stiles and rails
  - C. Provide factory finishing and paint per finish schedule
  - D. Provide prehung wood frames
  - E. Warranty: Manufacturers Standard
  - F. Refer to Door General Notes for door hardware.
2. Provide Allegion-SteelCraft Hollow Metal Doors
  - A. 1 3/4" thick typical flush slabs with glass lites where shown.
  - B. Provide L18 - 18 gauge – Exterior – Galvannealed Steel
  - C. Provide factory priming and paint per finish schedule
  - D. Provide Polyurethane Core and LF door edge construction
  - E. Provide PS074 gasket and FAS-SEAL door bottom
  - F. Warranty: Manufacturers Standard
  - G. Refer to door hardware schedule and door elevations for glass lites.
  - H. Glass lites to have a U-factor of .37 or better.
3. Provide Black Badge Steel Storefront entry door and sidelights
  - A. Provide Ferrofront V50 TB thermally broken frames
  - B. Provide FV 1807R-02 Glazing bead
  - C. Provide C99008-12 door hinges
  - D. Provide 10" bottom rail
  - E. Provide 1" double pane, Low-e, insulated glass lite – argon filled
  - F. Provide standard matt black finish
  - G. Warranty: Manufacturers Standard
  - H. Refer to door hardware schedule for additional information
  - I. Door assembly to have a U-factor of .37 or better.

##### HOLLOW METAL DOOR AND WINDOW FRAMES

1. Provide SteelCraft – F Series hollow metal frames
  - A. Provide fully welded, galvannealed, 16-gauge series with 2" facing
  - B. Provide reinforcing sleeve for door closers
  - C. Provide insulated, tempered, and Low-E clear glazing at sidelights where indicated
  - D. Warranty: Manufacturers Standard
  - E. Refer to Door General Notes and Door Hardware Schedule
  - F. Provide (4) 4" butt hinges per door
  - G. Provide full weather seals on all sides; bottom rail to be machined for weather seal.
  - H. Min. Assembly U-Factor for entry doors and sidelights = .30.
  - I. Provide hollow metal frames for sidelights where indicated and 1" low-e insulated glass

##### ROOF SKYLIGHTS

1. Provide Dayle – Summit Series Curb Mount Fixed Flat Glass Skylight
  - A. Size to fit existing framed openings
  - B. Min. Assembly U-Factor = .30
  - C. Min. SHGC = .4
  - D. Provide Low-E Solarban 70 clear + clear glazing
  - E. Provide manufacturers standard warranty

##### WALKABLE GLASS FLOORING SYSTEM

1. Provide Glass Flooring System – Series 2000 thermally broken pedestal perimeter Walkable Glass Skylight
  - A. Provide 4'x5' walkable glass skylight system
  - B. Glass to be flush with adjacent decking
  - C. Provide "Hudson-Transparent" glass texture
  - D. Skylight to have a minimum U-factor of .5
  - E. Refer to drawing for additional information
  - F. Provide manufacturers standard warranty

##### GLAZING

1. Warranty: Manufacturer's standard
2. Products: Provide 1" insulated glazing units
3. Min. Assembly U-Factor = .30
4. Min. SHGC = .42

#### DIVISION 9 - FINISHES

##### PAINT AND STAIN

1. High Performance Paint for all exterior metal fabrications -
  - A. Colors: match architect's sample.
  - B. Provide degreasing, acid pickling and fluxing surface preparation.
  - C. Hot dipped galvanizing to achieve a dry film thickness of 5.0-7.0 mils.
  - D. Finish coat: Hydrophobic Acrylic applied at spreading rate recommended by mfg. to achieve a dry film thickness of 5.0-7.0 mils.
    - i. Tremec Uni-Bond DF – Series Y115
  - E. Provide samples of each paint color to architect for approval.
  - F. Apply paint per conventional air spray or airless spray methods only.
2. Stain for exterior redwood surfaces
  - A. Provide Cabot Australian Timber Oil for all redwood decks
  - B. Sand, clean with Cabot Wood Cleaner and prepare surfaces to receive stain.
  - C. Apply with brush or spray; if spraying back brush immediately
  - D. Apply one coat only. Do not overapply.
  - E. Provide sample for architect approval.
3. Sealer for 'be railing top rails
  - A. Provide "Ipe Oil Plus"
- B. Prepare surface per manufacturer's instructions including aging in place for 6-8 weeks, cleaning, drying, and wipe off excess.
  - C. Final color to be determined.
4. Ceiling paint
  - A. Provide Sherwin Williams Promar Ceiling paint
  - B. Where exposed floor/ceiling joists are exposed with gypsum wall board between joists, joists are not to be painted.
  - C. Final color and sheen per finish schedule
  - D. Provide samples of each paint color to architect for approval.
  - E. Interior paint is BOSCH
5. Interior Wall paint
  - A. Provide Sherwin Williams Promar 200 Zero VOC
  - B. Prepare surface per manufacturer's instructions including aging in place for 6-8 weeks, cleaning, drying, and wipe off excess.
  - C. Final color and sheen per finish schedule
  - D. Provide samples of each paint color to architect for approval.
  - E. Interior paint is BOSCH
6. Exterior Siding Paint
  - A. Conduct testing throughout exterior siding to determine if existing paint is oil based or water based
  - B. Conduct adhesion test on both primer and top coat at location per architect
  - C. Provide Sherwin Williams Exterior Latex Waterbased Wood Primer.
  - D. Provide Sherwin Williams Duration Exterior Acrylic Latex Paint topcoat
    - i. Provide two coats of top coat
    - ii. Each coat to be 5.3-7 mil thick
    - iii. Spray apply and backroll
  - E. Prepare surface per manufacturer's instructions including:
    - i. Scrape away loose and peeling paint
    - ii. Clean and pressure wash existing exterior siding
    - iii. Allow building to dry for 3 days minimum
    - iv. Wipe or blow away dust
    - v. Fill holes, cracks, and gaps with exterior-grade filler or caulk, then sand these isolated spots
    - vi. Provide prime coat to entirety of exterior
    - vii. Provide top coat
  - F. Final color and sheen per finish schedule
  - G. Provide samples of each paint color to architect for approval.
  - H. Follow manufacturers surface preparation and application instructions.

#### DIVISION 10 - SPECIALTIES

##### FIRE EXTINGUISHERS

1. Basis of Design: Buckeye Fire Equipment
2. Products:
  - A. 5 lb. ABC Multipurpose Stored Pressure Extinguisher

- B. Provide Kidde – surface-mounted fire extinguisher cabinet model#KF9721-C
- C. Provide fire extinguishers and cabinets where shown on the Code Plan.

#### DIVISION 14 – CONVEYING EQUIPMENT

##### MATERIAL LIFT

1. Basis of Design: Custom Industrial Products – C Series
2. Review drawings to describe lift opening configuration and anticipated elevations for each stop.
3. Provide 48"x31" platform
4. Interlock hollow metal entry doors with elevator controls to lock doors when elevator platform is not available.
5. Provide exterior weatherproof elevator call signals.
6. Provide anti-slip platform surface
7. Provide platform gates
8. Contact: Custom Industrial Products Representative
  - A. Hein de Hoog – 952-831-8447 – hein@manufacturingsales.com

#### DIVISION 21 - FIRE SUPPRESSION

1. Fire Sprinkler Systems
  - A. Provide NFPA 13 dry fire sprinkler system
  - B. Provide full shop drawings to architect for review and approval of pipe elevations, valve assemblies, and sprinkler head locations.
  - C. At all areas east of Grid A; all heads and pipes to be concealed with white escutcheon plates at ceiling.
  - D. Hold all pipes and pipe assemblies within 6" of all ceiling structures with downward pointing sprinkler heads, except as noted otherwise.
  - E. Do not paint sprinkler piping.
  - F. Provide low-temperature alarm for valve room.
  - G. Fill pipes with nitrogen and provide nitrogen bottle within valve room.

#### DIVISION 32 - EXTERIOR IMPROVEMENTS

##### DESCRIPTION OF WORK

Work under this division includes selective, Excavation and Earthwork as required for building construction and site features, Artificial Turf, gravel parking, landscape beds, rain gardens, Concrete Paving, and Concrete curbs.

All Landscaping shall be provided by Contractor, including irrigation systems and landscape preparation.

##### ARTIFICIAL TURF

1. Basis of Design: ADA compliant SynAccess artificial turf
2. Substrate: 1/2" crusher fines leveling course on 4" of Class 6 Road Base on 6" compacted subgrade on undisturbed soil
3. Artificial turf is BOSCH



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC



PROJECT # 1252.50  
DATE: 12/05/25  
DRAWN BY: HAPC  
CHECKED BY: JSH  
REVISIONS:  
1. DESIGN APPROVAL  
2. APPROVED FOR CONSTRUCTION

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#### SPECIFICATIONS

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GENERAL STRUCTURAL NOTES

1.0 GOVERNING BUILDING CODE 2024 INTERNATIONAL BUILDING CODE

2.0 DESIGN CRITERIA & LOADS

- A. MEKA CATEGORY III
- D. DEAD LOADS
1. SLAB: 15 psf + 5 psf for PHOTOVOLTAIC PANELS
2. FLOOR: 20 psf
3. ROOF: 20 psf
4. MECH: 20 psf
- E. LIVE LOADS
1. FLOOR: 100 psf
2. EXTENSION STAIRS & LANDINGS: 100 psf
3. DECK: 100 psf
4. ROOF NOT OCCUPABLE: 10 psf

- D. SNOW LOADS
1. SNOW LOAD (S<sub>N</sub>) (psf): 30 psf
2. FLAT ROOF SNOW (S<sub>N</sub>) (psf): 30 psf
3. SLOPED ROOF SNOW (S<sub>N</sub>) (psf): 30 psf
4. SNOW LOAD IMPORTANCE FACTOR (I<sub>S</sub>): 1.0
5. FLOOR LOAD IMPORTANCE FACTOR (I<sub>F</sub>): 1.0
6. ROOF LOAD IMPORTANCE FACTOR (I<sub>R</sub>): 1.0
7. SNOW LOAD IMPORTANCE FACTOR (I<sub>S</sub>): 1.0
8. SNOW LOAD IMPORTANCE FACTOR (I<sub>S</sub>): 1.0
9. SNOW LOAD IMPORTANCE FACTOR (I<sub>S</sub>): 1.0
10. SNOW LOAD IMPORTANCE FACTOR (I<sub>S</sub>): 1.0

- E. WIND
1. WIND SPEED (V): 145 MPH
2. EXPOSURE: C
3. PRESSURE: 0.171
4. WIND DIRECTION: 0.171

- F. EARTHQUAKE DESIGN DATA
1. EARTHQUAKE IMPORTANCE FACTOR (I<sub>E</sub>): 1.0
2. SPECIAL RESPONSE PARAMETERS
3. SPECIAL RESPONSE PARAMETERS
4. SPECIAL RESPONSE PARAMETERS
5. SPECIAL RESPONSE PARAMETERS
6. SPECIAL RESPONSE PARAMETERS
7. SPECIAL RESPONSE PARAMETERS
8. SPECIAL RESPONSE PARAMETERS
9. SPECIAL RESPONSE PARAMETERS
10. SPECIAL RESPONSE PARAMETERS

3.0 GENERAL

- A. THE STRUCTURAL DRAWINGS ILLUSTRATE THE COMPLETE STRUCTURE WITH ELEMENTS IN THEIR FINAL POSITIONS, PROPERLY SUPPORTED AND BRACED. THE CONTRACTOR IS RESPONSIBLE FOR ACQUIRING BRACING AND SHORING AS REQUIRED TO MAINTAIN THE STRUCTURE TO WITHSTAND ALL LOADS, STOCKPILES OF MATERIALS AND EQUIPMENT. SNAKE BRACING SHALL BE LEFT IN PLACE AS SPECIFIED UNTIL THE STRUCTURE IS COMPLETELY CONSTRUCTED. AFTER COMPLETION, THE CONTRACTOR SHALL REMOVE THE BRACING AND SHORING AND REPAIR ANY DAMAGE TO THE STRUCTURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE PERSONS AND PROPERTY EITHER ON OR ADJACENT TO THE PROJECT AND SHALL PROTECT SAME AGAINST BURGLARY, DAMAGE OR LOSS DURING CONSTRUCTION.
- B. GENERAL CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH WORK AFFECTED BY AREA WITH EXISTING CONDITIONS. REPORT ANY SIGNIFICANT DISCREPANCIES TO THE STRUCTURAL ENGINEER IMMEDIATELY.
- C. WHERE PERIODIC OR CONTINUOUS INSPECTIONS AND/OR TESTING ARE REQUIRED BY THESE DOCUMENTS, GOVERNING BUILDING CODE OR THE GOVERNING LOCAL OFFICIAL, ENGINEER OR AN AUTHORIZED PERSON, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF THE INSPECTIONS OR TESTING REQUIRED BY THE CONTRACTOR TO PERFORM REQUIRED INSPECTIONS AND/OR TESTING.
- D. THE CONTRACTOR SHALL INFORM ARCHITECT AND ENGINEER CLEARLY BY WRITING AND PROVIDE DOCUMENTATION FOR THE REVIEW OF ANY DISCREPANCIES OR OMISSIONS OF REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- E. THESE PLANS HAVE BEEN ENGINEERED FOR CONSTRUCTION AT ONE SPECIFIC BUILDING SITE. BUILDER ASSUMES ALL RESPONSIBILITY FOR THE USE OF THESE PLANS AT ANY OTHER LOCATION.
- F. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE. PLANS AND DETAILS ARE TO SCALE UNLESS NOTED. WHILE DIMENSIONS ARE BELIEVED TO BE RELIABLE, THE ACCURACY AND COMPLETENESS IS NOT GUARANTEED BY THE ENGINEER. CONSULT THE ARCHITECT OR ENGINEER OF RECORD FOR DIMENSION VERIFICATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DISCREPANCIES IN DIMENSIONS BETWEEN THE ARCHITECTURAL AND STRUCTURAL DOCUMENTS BEFORE PROCEEDING WITH THE WORK.
- G. MEK STRUCTURAL MEMBERS SHALL BE CUT, NOTCHED OR OTHERWISE PENETRATED UNLESS ALLOWED BY MANUFACTURER, SPECIFICALLY SHOWN ON THESE DOCUMENTS OR APPROVED BY THE ENGINEER IN WRITING.
- H. SECTIONS OF DETAILS SHOWN OR NOTED APPLY TO SIMILAR CONDITIONS ELSEWHERE NOT SPECIFICALLY SHOWN OR NOTED.
- I. THESE CONSTRUCTION DOCUMENTS ARE BASED ON THE WORK BEING COMPLETED IN A WORKMAN LIKE MANNER BY A CONTRACTOR USING THE FOLLOWING CONSTRUCTION.

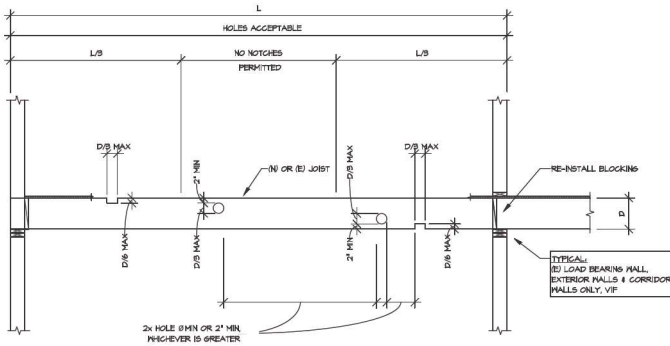
4.0 FOUNDATIONS

- A. THE FOUNDATION HAS BEEN DESIGNED IN ACCORDANCE WITH RECOMMENDATIONS CONTAINED IN THE SOIL REPORT PREPARED BY SOCC. USE A DISCREETLY PLACED FILL OR SOIL TO MAINTAIN THE FOUNDATION AT THE SAME ELEVATION AS THE ORIGINAL GRADE.
- B. SOIL SOIL REPORT IS PRESENT PART OF THESE DOCUMENTS AND EXCEPT WHERE OTHERWISE SPECIFICALLY NOTED HEREIN, ALL RECOMMENDATIONS AND PRECAUTIONS CONTAINED IN THAT REPORT SHALL BE ADHERED TO BY THE CONTRACTOR.
- C. SOIL DESIGN VALUES SHOWN HEREIN ARE TO BE VERIFIED BY OPEN HOLE INSPECTION BY THE SOIL ENGINEER, ANY CHANGES IN THE SOIL DESIGN VALUES MAY REQUIRE REVISIONS TO THE FOUNDATION DESIGN.
- D. FOOTINGS SHALL BE FOUNDED UPON UNDISTURBED NATURAL SOIL OR COMPACTED FILL, TESTED AND APPROVED BY A SOILS ENGINEER.
- E. MINIMUM GRADE (G) AND FINISH GRADE (F) SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION.
- F. FOOTINGS SHALL BE PLACED AT A MINIMUM OF 30" BELOW FINAL FINISHED GRADE (F) DEPTH.
- G. DESIGN LATERAL SOIL PRESSURE EQUIVALENT FLUID PRESSURE, AT REST CONDITION, USING SOIL OR GRANULAR SOILS AS INDICATED IN THE PLAN.
- H. PRIOR TO BACKFILLING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATELY BRACING FOUNDATIONS TO RETAIN EARTH AGAINST BACKFILL PRESSURES UNTIL SUPPORTING ELEMENTS INCLUDING FLOOR SLABS ARE IN PLACE.
- I. FOUNDATION WALLS AND GRADE BEAMS SHOWN EARLY PLACED ON BOTH SIDES SHALL HAVE BOTH SIDES FILLED SUFFICIENTLY TO MAINTAIN A CONSTANT ELEVATION.
- J. DO NOT BACKFILL WITH EXPANSIVE SOILS. VERIFY FILL TYPE WITH SOILS ENGINEER PRIOR TO BACKFILLING.
- K. PROVIDE A CONTINUOUS PERIMETER DRAIN SYSTEM PER THE SOILS ENGINEER'S DESIGN OR AS SPECIFIED IN ANY OTHER DOCUMENT BELOW THE BOTTOM OF THE FOUNDATION SLAB. EXTEND THE PERIMETER DRAIN TO A SUMP OR TO DRAINAGE. COORDINATE DESIGN WITH ANY RECOMMENDATIONS CONTAINED IN THE SOIL REPORT.
- L. PROVIDE A CLEAR MINIMUM FROM GRADE TO TOP OF FOUNDATION WALL. FOOTING BEARING ELEMENTS SHALL BE ADJUSTED TO THE FIELD TO AVOID CONTACT WITH FOUNDATION WALLS AND REQUIRED PROTECTIVE COVERINGS, NOTIFY ENGINEER OF CHANGES IN ELEVATION FROM THAT SHOWN ON FOUNDATION PLAN.
- M. CENTER ALL FOOTINGS UNDER WALLS, COLUMNS OR OBSTACLES UNLESS NOTED OTHERWISE ON DOCUMENTS.
- N. SLOPE THE EXTERIOR GRADE AWAY FROM THE STRUCTURE.

5.0 CONCRETE AND REINFORCEMENT

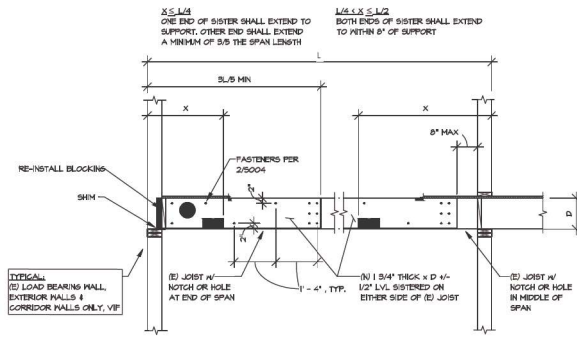
- A. CONCRETE DESIGN IS BASED ON BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318).
- B. CONCRETE SHALL CONFORM TO THE APPLICABLE PROVISIONS OF SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDING (ACI 318).
- C. CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- D. CONCRETE SHALL BE OF THE TYPE SPECIFIED IN THE CONCRETE MIX TABLE ON THE STRUCTURAL PLANS, CONFORMING TO ASTM C150.
- E. ALL AGGREGATE SHALL CONFORM TO ASTM C686, CLASS C OR F, AND SHALL NOT EXCEED 20% OF THE TOTAL WEIGHT OF GENUINE MATERIAL.
- F. FOR ADJUSTMENTS CONTAINING CALCIUM CHLORIDE, THIS IS PERMITTED IN ANY CONCRETE.
- G. SOILS ENGINEER'S CONCERNING SOILS TEMPERATURES OR SOILS MOISTURE OR AS SPECIFIED IN ANY OTHER DOCUMENT DURING CONCRETE AND CURING. THE PROVISIONS OF THIS ACI SHALL BE FOLLOWED TO PROTECT CONCRETE FROM FREEZING.
- H. WHEN WEATHER CONDITIONS CALL FOR THE USE OF CONCRETE IN ACCORDANCE WITH ACI 308, CONCRETE INCREASING BEFORE MIXING TO MAINTAIN CONCRETE SLUMP AT TIME OF PLACEMENT BEING 90 DEGREES F.
- I. CONCRETE MUST BE CONTINUOUSLY PLACED WITHOUT HORIZONTAL JOINTS. IF JOINTS ARE NECESSARY, ADEQUATE REINFORCEMENT AND PROTECTIVE COVERINGS SHALL BE PROVIDED. CONCRETE REINFORCEMENT WITH ENGINEER, ALL REINFORCING STEEL SHALL BE CONTINUOUS THROUGH CONNECTIONS.
- J. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- K. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- L. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- M. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- N. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- O. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- P. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- Q. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- R. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- S. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- T. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- U. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- V. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- W. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- X. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- Y. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.
- Z. REINFORCED CONCRETE SHALL BE NORMAL WEIGHT (145 PCF) WITH STONE AGGREGATE AND DEVELOP A MINIMUM 30-MIN COMPRESSIVE STRENGTH FOR THE CONCRETE MIX TABLE ON THE STRUCTURAL DRAWINGS.

- C. FORMED SURFACE NOT EXPOSED TO WEATHER
1. SLABS, WALLS AND JOISTS
2. SLABS THROUGH FLOOR BARS
3. SLABS AT AND SMALLER BARS
4. BEAMS AND COLUMNS
5. PROVIDE 10% EACH SIDE OF ALL WALL OPENINGS OR NOTCHES. WALL, VERTICAL BARS SHALL BE FULL-HEIGHT, HORIZONTAL BARS SHALL EXTEND TO MINIMUM OF 24" ABOVE AND 24" BELOW THE OPENING.
6. MAINTAIN CONTINUITY OF ALL HORIZONTAL REINFORCEMENT AT CORNERS, INTERSECTIONS AND AT STOPS IN THE TOP AND BOTTOM OF WALLS OR FOOTINGS.
7. WELDING OF REINFORCING STEEL SHALL BE PERFORMED ONLY WHERE INDICATED ON THE DRAWINGS AND SHALL BE IN COMPLIANCE WITH ALL THE REQUIREMENTS OF THE AMERICAN WELDED INSTITUTE (AWS) D1.1, D1.2, D1.3, D1.4, D1.5, D1.6, D1.7, D1.8, D1.9, D1.10, D1.11, D1.12, D1.13, D1.14, D1.15, D1.16, D1.17, D1.18, D1.19, D1.20, D1.21, D1.22, D1.23, D1.24, D1.25, D1.26, D1.27, D1.28, D1.29, D1.30, D1.31, D1.32, D1.33, D1.34, D1.35, D1.36, D1.37, D1.38, D1.39, D1.40, D1.41, D1.42, D1.43, D1.44, D1.45, D1.46, D1.47, D1.48, D1.49, D1.50, D1.51, D1.52, D1.53, D1.54, D1.55, D1.56, D1.57, D1.58, D1.59, D1.60, D1.61, D1.62, D1.63, D1.64, D1.65, D1.66, D1.67, D1.68, D1.69, D1.70, D1.71, D1.72, D1.73, D1.74, D1.75, D1.76, D1.77, D1.78, D1.79, D1.80, D1.81, D1.82, D1.83, D1.84, D1.85, D1.86, D1.87, D1.88, D1.89, D1.90, D1.91, D1.92, D1.93, D1.94, D1.95, D1.96, D1.97, D1.98, D1.99, D1.100, D1.101, D1.102, D1.103, D1.104, D1.105, D1.106, D1.107, D1.108, D1.109, D1.110, D1.111, D1.112, D1.113, D1.114, D1.115, D1.116, 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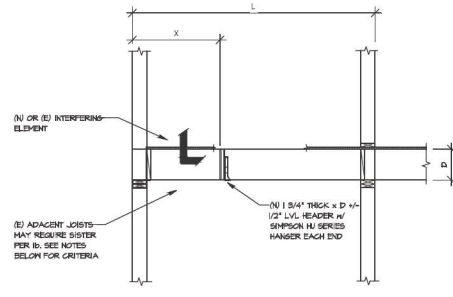
- TYPICAL ACCEPTABILITY CRITERIA FOR NOTCHES AND HOLES IN (N) OR (I) FLOOR JOISTS
- CRITERIA VALID ONLY FOR UNIFORMLY LOADED JOISTS, NOT VALID WHERE JOISTS SUPPORT BEARING WALLS OR CONCENTRATED LOADS.
  - CRITERIA NOT APPLICABLE TO BEAMS, GIRDERS, OR CANTILEVERED JOISTS.
  - NOTCHES AT ENDS OF JOISTS SHALL NOT EXCEED 1/4 JOIST DEPTH (D).
  - JOISTS WITH NOTCHES OR HOLES EXCEEDING THOSE SHOWN ABOVE ARE UNACCEPTABLE.
  - JOISTS WITH SPLITS, CRACKS, DETERIORATION OR OTHER SIGNS OF DISTRESS ARE UNACCEPTABLE. CHECKING AT JOIST ENDS IS ACCEPTABLE IF  $\leq 1/4"$  WIDE AT INDEST POINT.
  - NEW HOLES AND NOTCHES IN EXISTING OR NEW WOOD MEMBERS SHALL NOT EXCEED THOSE SHOWN ABOVE WITHOUT PRIOR CONSENT BY THE CO.
  - AT END SUPPORTS MINIMUM BEARING LENGTH SHALL BE 2' AT INTERMEDIATE SUPPORTS MINIMUM BEARING LENGTH SHALL BE 5 1/2'. REPORT TO THE CO IF BEARING CONDITIONS ARE OBSERVED THAT VIOLATE THESE MINIMUMS.
  - SQUARE HOLES ACCEPTABLE ONLY IF PERIMETER CAN BE CIRCUMSCRIBED BY ACCEPTABLE ROUND HOLE.

SECTION  
500' 1/2" = 1'-0"



JOIST SISTERING DETAIL

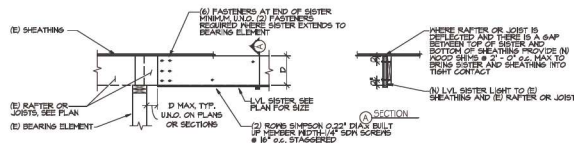
SECTION  
500' 1/2" = 1'-0"



JOIST HEADING DETAIL

- HEADER ONLY IF SISTERING PER (I) IS NOT FEASIBLE.
- ADJACENT JOISTS SUPPORTING (N) HEADER SHALL BE SISTERED PER SECTION (I) IF (N) IS UNUSABLE OTHERWISE, NO SISTERING REQUIRED.
- SIMPSON H HANGERS SHALL BE OF APPROPRIATE DEPTH TO ACCOMMODATE SUPPORTED MEMBER AND SHALL BE ATTACHED W/ MINIMUM FASTENERS SPECIFIED BY MANUFACTURER.

SECTION  
500' 1/2" = 1'-0"

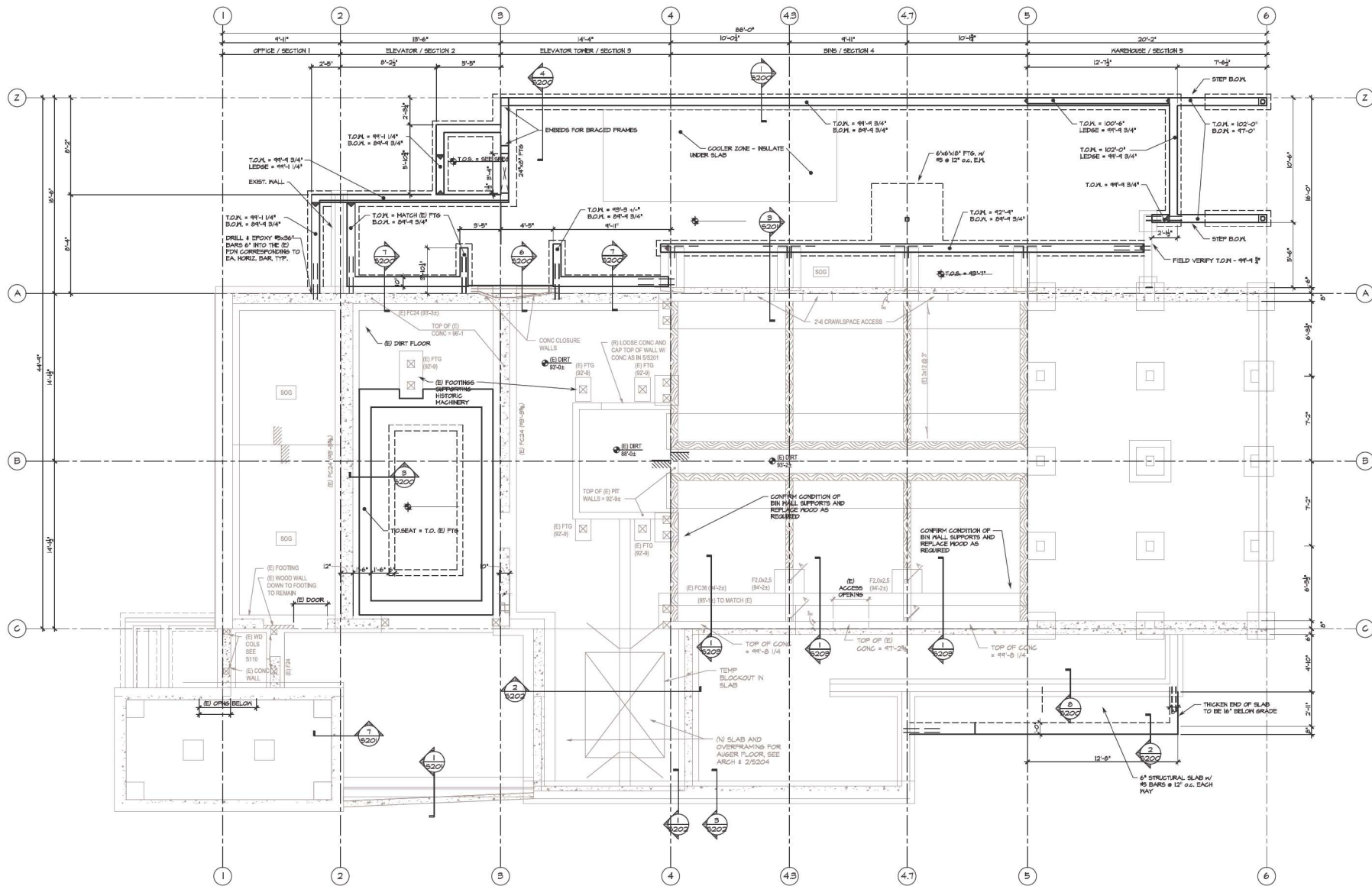


TYPICAL (I) RAFTER TOP CHORD FLOOR JOIST OR CEILING JOIST WITH SISTER

SECTION  
500' 1/2" = 1'-0"







**FOUNDATION PLAN**  
Scale: 1/4" = 1'-0"

- FOUNDATION NOTES:**
- USGS ELEVATION 880.28' ± 0.02'-0.00' TOP OF 1ST LEVEL SEATING AT OFFICE - SECTION 1
  - SEE SHEETS S01-S02 FOR TYPICAL DETAILS & GENERAL NOTES
  - SEE SHEET S11 FOR HOLDINGS, ANCHOR BOLTS, AND SILL PLATE LOCATIONS
  - ALL TIES MUST REST ON NATURAL UNDISTURBED SOIL OR COMPACTED FILL PER SOIL ENGINEER AT LEAST 6" BELOW FINISHED GRADE
  - FOOTINGS AND 16" x 8" UNLESS NOTED OTHERWISE
  - FIELD VERIFY GRADE WITH TOP OF WALL AND WALL STEPS AND COORDINATE WITH ENGINEER
- KEY**
- ▲ - STEP IN TOP OF WALL

**CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK**

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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for the GRAY YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC

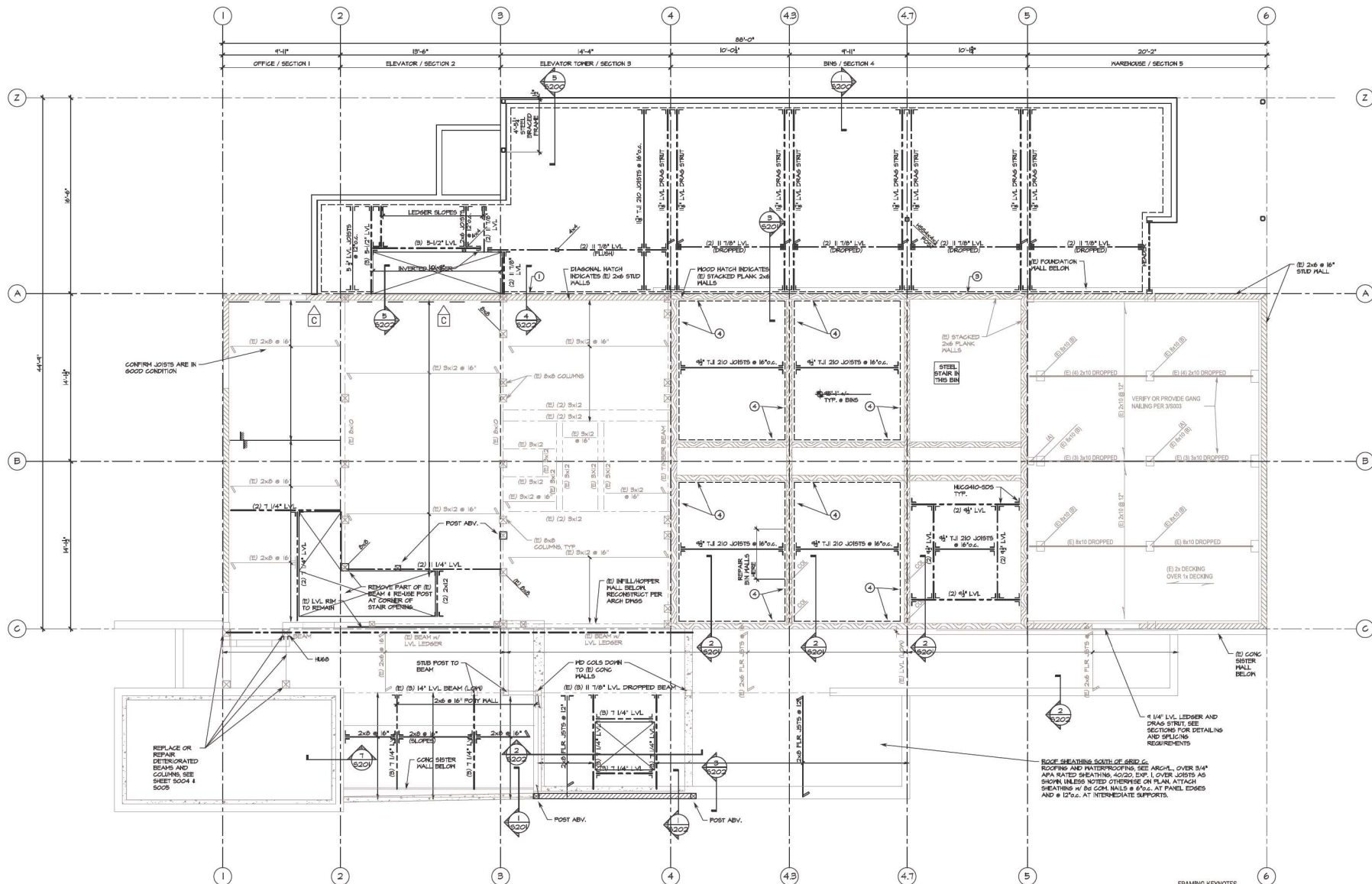
PROFESSIONAL ENGINEER  
37594  
2/23/24

PROJECT # 2025-0150  
DATE 12/5/2025  
DRAWN BY: HKB  
CHECKED BY: HKB  
REVISIONS  
1. 12/5/2025

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**FOUNDATION PLAN**

Sheet  
**S100**  
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# 1ST LEVEL FRAMING PLAN

scale: 1/4" = 1'-0"



## PLAN NOTES:

- SEE SHEETS S01-S02 FOR TYPICAL DETAILS & GENERAL NOTES.
- PROVIDE T-J BLOCKING & ALL INTERIOR JOIST BEARING LOCATIONS.
- PROVIDE SCABIN BLOCKS OR ADDITIONAL RM SECTION BELOW (2) 2x4 AND LARGER POSTS, TO TRANSFER LOADS FROM ABOVE THROUGH THE FLOOR SYSTEM TO FOUNDATION.
- FLOOR JOISTS ARE T-J 2x10 UNLESS NOTED OTHERWISE.
- ALL HEADERS (2) 2x6 OR (2) 2x10 UNLESS NOTED OTHERWISE.

## KEY

- POST BELOW (2) 2x4 OR (2) 2x6 MIN. POSTS TO MATCH WALL STUD SIZE UNO.
- POST FROM ABOVE.
- INTERIOR BEARING WALL LOCATION OF 2x4 or 2x6 @ 16" o.c.
- HOLD-DOWN - CONFIRM CAST-IN-PLACE LETHBRIDGE IS IN PLACE OR PROVIDE SIMPSON HDU2-SDB2.5 w/ 1/2" DIA. THREADED ROD DRILLED AND EPXOKED 2" MIN. INTO TOP OF CONCRETE w/ SIMPSON SET EPXOK.

## FRAMING KEYNOTES

NOTED: AT STACKED 2x6 BIN WALLS, PLACE SCREW CENTERED INTO 2x4 ON BIN WALL, NOT IN A JOINT

- 1 1/8" LVL N/ (B) S0525412 SCREWS @ 12" o.c.
- 1 1/8" LVL N/ (B) S0525412 SCREWS @ 16" o.c.
- 1 1/8" LVL N/ (2) S0525412 SCREWS @ 16" o.c.
- 4 5/8" LVL N/ (B) S0525412 SCREWS @ 16" o.c.
- 4 5/8" LVL N/ (B) S0525412 SCREWS @ 12" o.c.

## CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

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1. correct revision 1

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6. correct revision 6

7. correct revision 7

8. correct revision 8

9. correct revision 9

10. correct revision 10

11. correct revision 11

12. correct revision 12

13. correct revision 13

14. correct revision 14

15. correct revision 15

16. correct revision 16

17. correct revision 17

18. correct revision 18

19. correct revision 19

20. correct revision 20

21. correct revision 21

22. correct revision 22

23. correct revision 23

24. correct revision 24

25. correct revision 25

26. correct revision 26

27. correct revision 27

28. correct revision 28

29. correct revision 29

30. correct revision 30



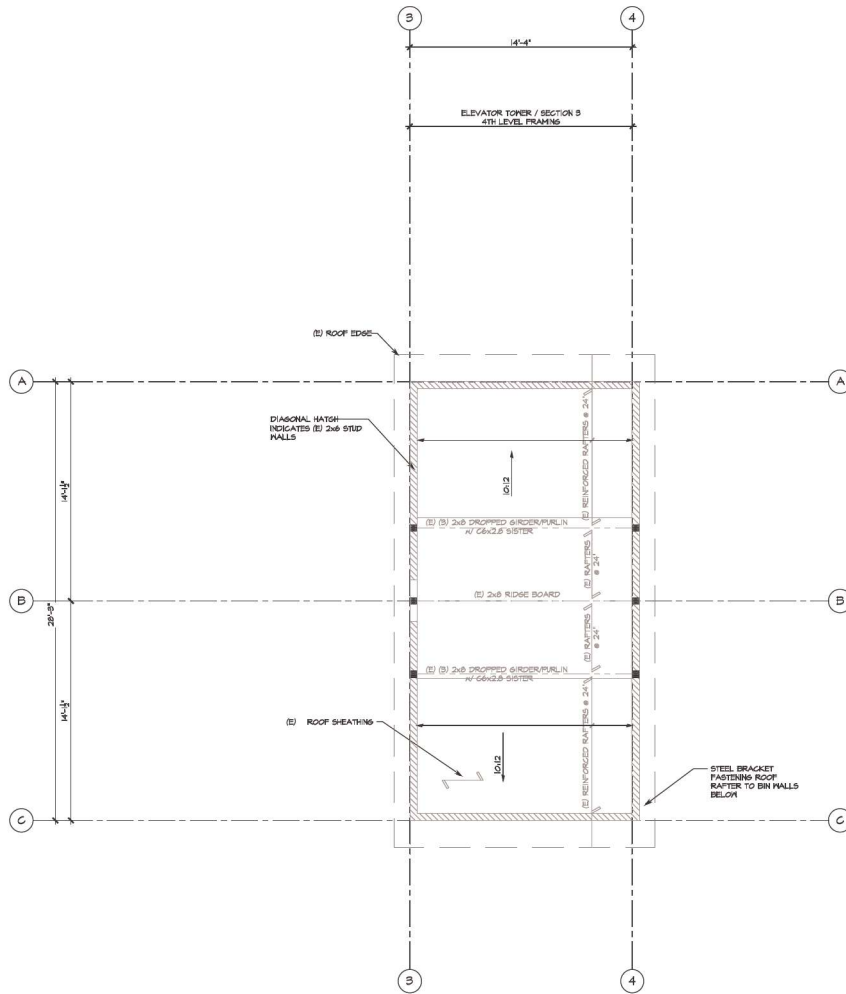
Sheet  
**S110**  
5 of 14 Sheets











# ELEVATOR TOWER ROOF FRAMING PLAN

scale: 1/4" = 1'-0"

## ROOF NOTES:

- SEE SHEETS 501-502 FOR TYPICAL DETAILS & GENERAL NOTES.
- PROVIDE SIMPSON H2S AT ALL TRUSSES AND RAFTERS.
- PROVIDE SIMPSON H6 AT EA. END OF GIRDERS/ TRUSSES UNLESS NOTED OTHERWISE.
- SUBMIT TRUSS SHOP DRAWINGS AND CALCULATIONS TO ENGINEER, PER GENERAL NOTES.
- ALL GABLE END WALLS TO BE BALLOON FRAMED FROM FLOOR TO CEILING.
- ALL HEADERS (B) 2x6 OR (C) 2x10 UNLESS NOTED OTHERWISE.

## KEY:

- - A MINIMUM OF (2) 2x4 OR (2) 2x6 POSTS TO MATCH WALL STUD SIZE UNO.
- - INTERIOR BEARING WALL LOCATION OF 2x4 OR 2x6 @ 16' O.C.
- ▤ - OVERFRAMING OF 2x6 @ 24" O.C. FROM VERTS @ 24", VERIFY IN TRUSS MFR.
- ⓧ - HOLDING PER SCHEDULE AND (1) (501)



CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK



LOUISVILLE HISTORIC GRAIN ELEVATOR  
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REVISIONS:  
1.1. correct notation 1  
2.1. correct notation 2

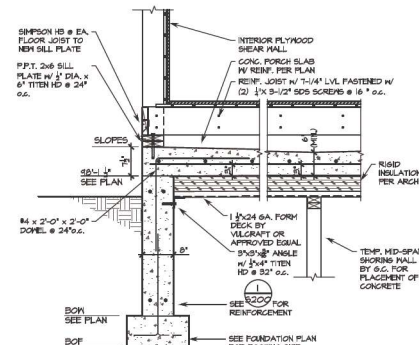
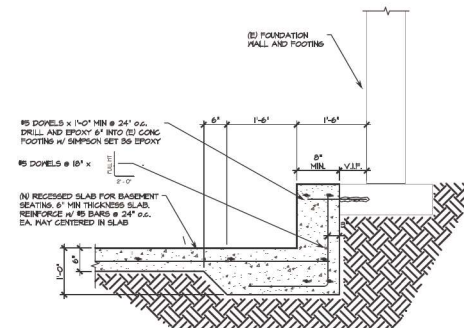
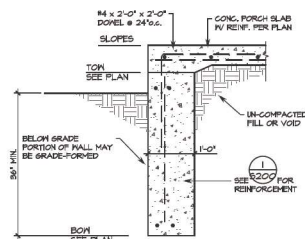
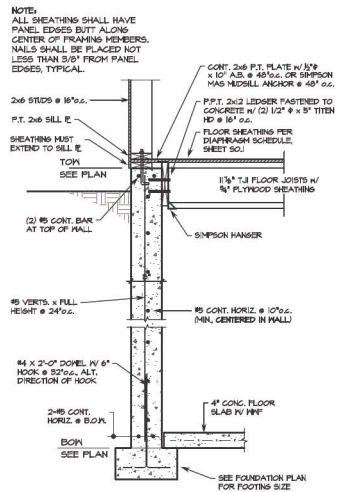
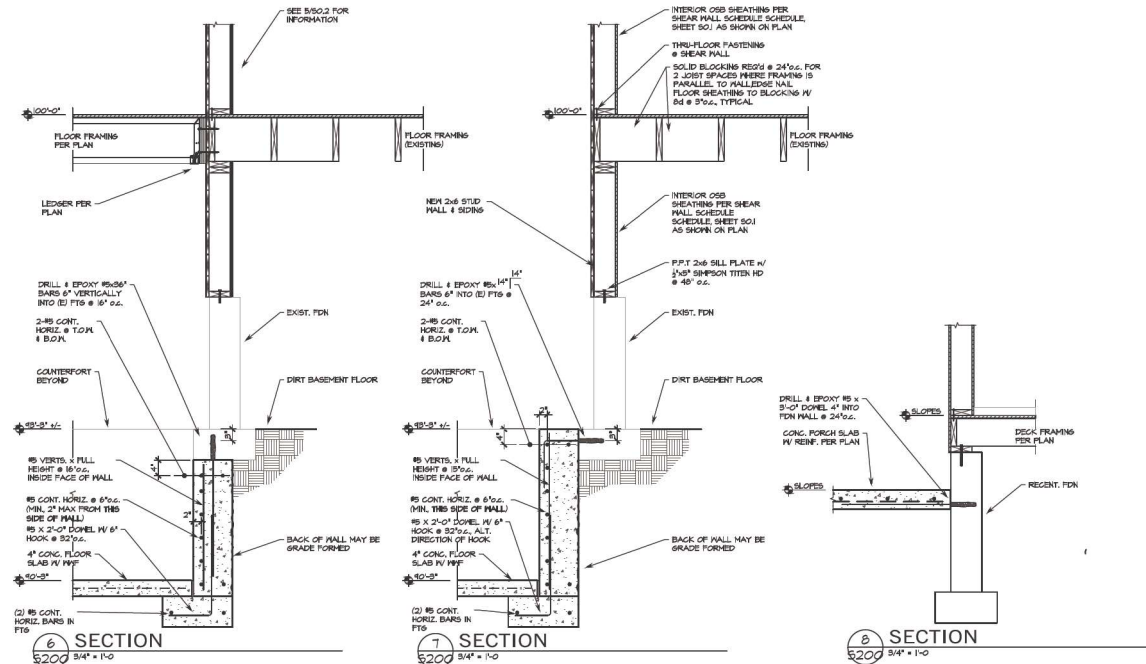
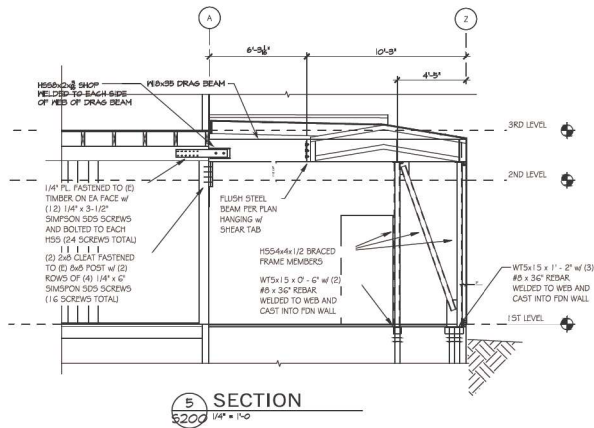
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ELEVATOR  
TOWER  
ROOF FRAMING  
PLAN

Sheet  
**S150**  
1 of 14 Sheets







CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK



LOUISVILLE HISTORIC GRAIN ELEVATOR  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



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REVISIONS:  
△ OUNION ACCESSORY 1  
△ OUNION ACCESSORY 2  
FROM SHEET 2

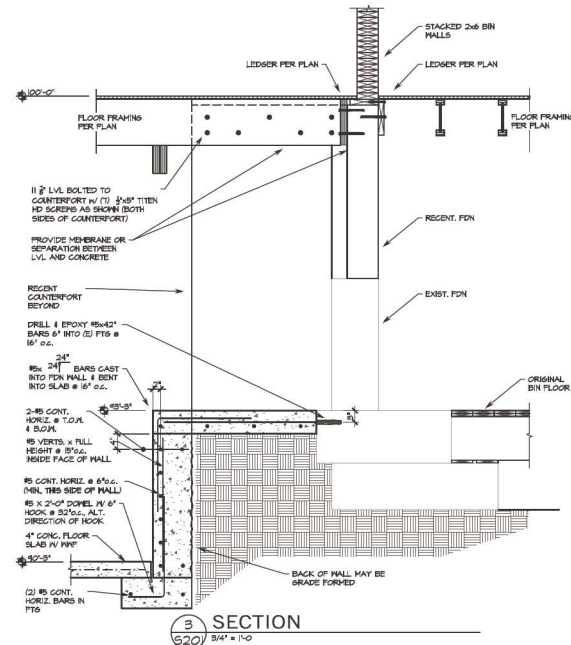
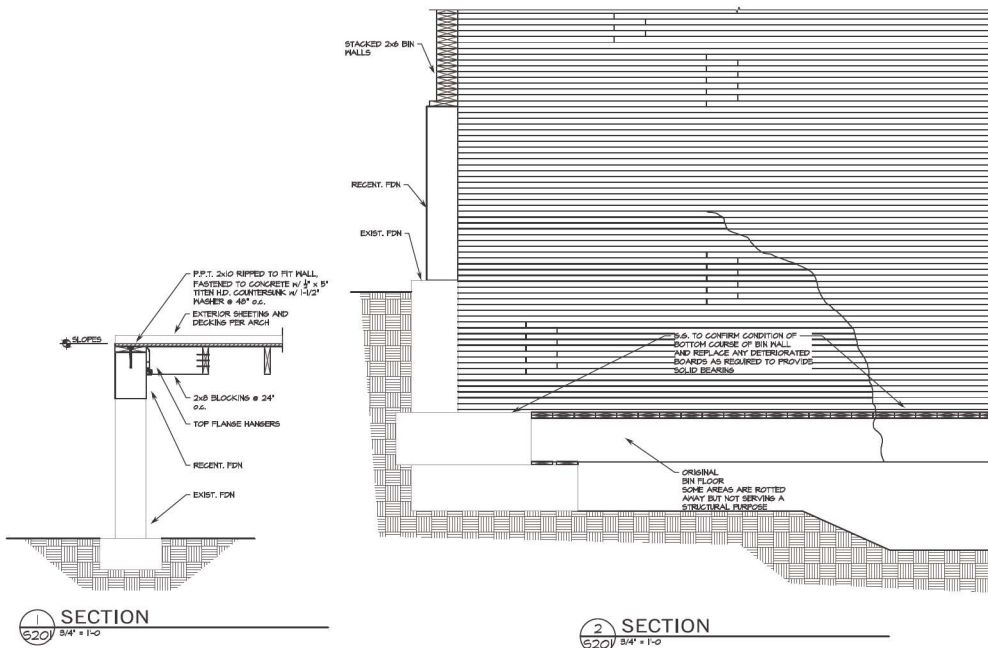
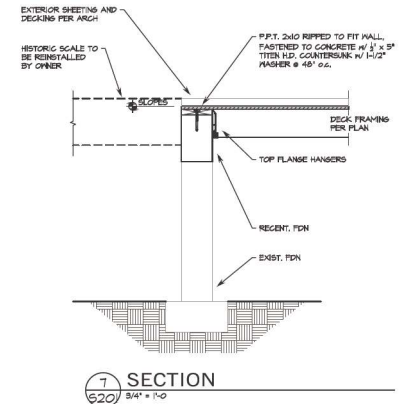
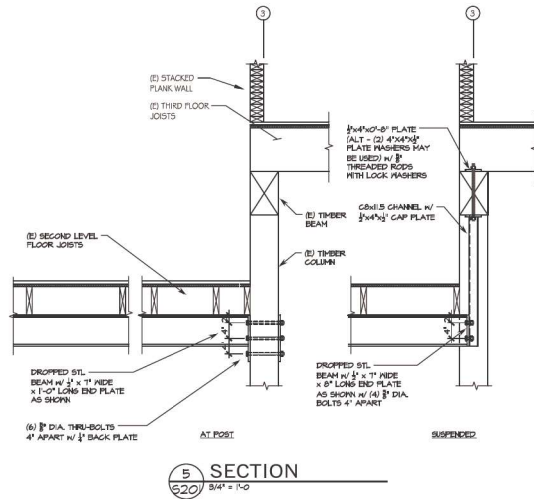
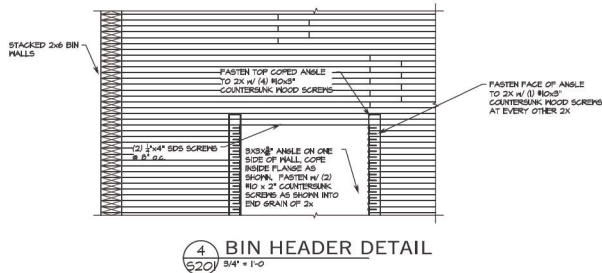
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## SECTIONS

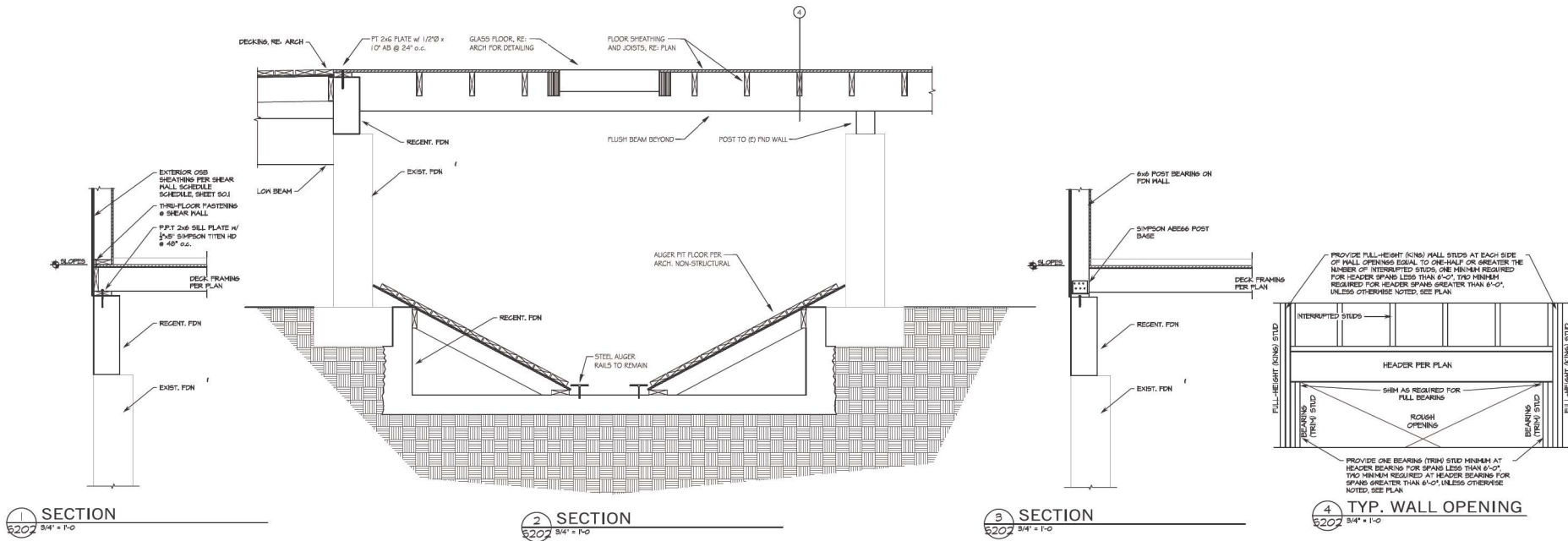
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CONSTRUCTION PHASE 5.0 - SECTION 1-5 REHABILITATION AND ADDITIONS + SITEWORK

**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
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540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 2025-0150  
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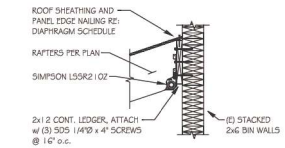
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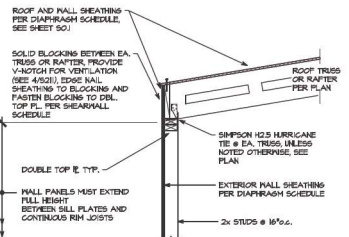
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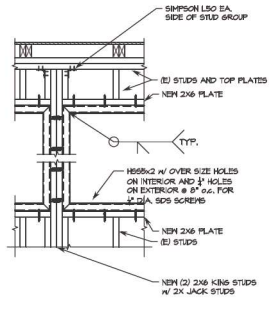




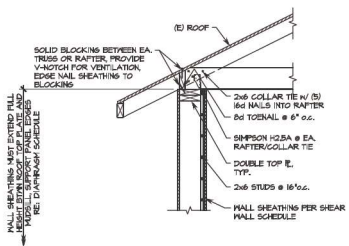
**6 SECTION**  
S203 3/4" x 1'-0"



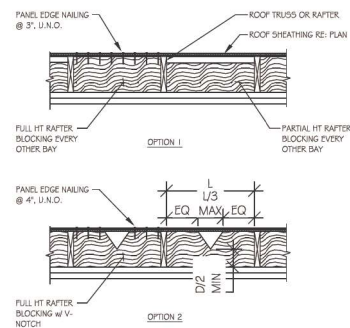
**1 TRUSS BEARING**  
S203 3/4" x 1'-0"



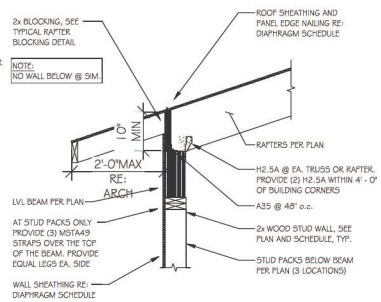
**2 TAP HOUSE FRAME**  
S203 3/4" x 1'-0"



**3 TAP HOUSE RAFTER**  
S203 3/4" x 1'-0"



**4 SECTION**  
S203 3/4" x 1'-0"



**5 SECTION**  
S203 3/4" x 1'-0"

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PROJECT # 2025-0150  
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REVISIONS:  
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2. 12/5/2025 H-B

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**SECTIONS**

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**S203**  
14 of 14 Sheets





### LIGHTING CONTROLS NOTES:

- ALL LIGHTING CONTROLS FOR THE PROJECT SHALL MEET THE REQUIREMENTS SECTION 0452 OF THE 2024 IBC, AS WELL AS ANY APPLICABLE AMENDMENTS TO THE 2024 IBC MADE BY THE CITY OF LOUISVILLE, CO.
- WHERE APPLICABLE, PROVIDE THE FOLLOWING FOR THE LIGHTING CONTROLS SYSTEM:
  - OCCUPANCY SENSORS IN THE COMMUNITY ROOM, BAR/LOUNGE SPACES, OFFICE, RESTROOMS & WATER CLOSETS, STORAGE ROOMS, CORRIDORS, AND OTHER SPACES THAT ARE 300 SQUARE FEET OR LESS THAT ARE ENCLOSED BY FLOOR-TO-CEILING HEIGHT WALLS.
  - TIME-SWITCH / CLOCK CONTROLS.
  - LIGHT REDUCTION / DIMMING CONTROLS.
  - DAYLIGHT CONTROLS.
  - SPECIFIC APPLICATION CONTROLS IN DISPLAY AREAS, TASK LIGHTING AT BAR WORK SPACES, STAGE LIGHTING.
  - MANUAL CONTROLS.
  - EXTERIOR LIGHTING CONTROLS UTILIZING PHOTO SENSORS.
- THE FOLLOWING LIGHTING CONTROLS MATRIX SHALL BE THE BASIS OF THE OVERALL LIGHTING CONTROL SYSTEM(S) FOR THE PROJECT. VERIFY MODES AND TIME CLOCK SETTINGS WITH THE OWNER & TENANT PRIOR TO PROGRAMMING.

Louisville Historic Grain Elevator  
Lighting Matrix

| ZONES | ROOM NAME           | ROOM #       | LIGHTING FUNCTIONS       | DESCRIPTION                                                                                                                                        | Timer | OS |
|-------|---------------------|--------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|
| A     | Tower Level 1, Bar  | 101, 102     | Night Light              | Off hours, low level visuals                                                                                                                       | T     |    |
|       |                     |              | Clearing Mode            | Bright lights for prep/cleaning/back of house                                                                                                      | T     |    |
|       |                     |              | Daytime Mode             | Day lighting level                                                                                                                                 | T     |    |
|       |                     |              | Dimming/Evening/Bar Mode | Lower light level                                                                                                                                  | T     |    |
| B     | Back Room           | 103          | Night Light              | Off hours, low level visuals                                                                                                                       | T     | OS |
|       |                     |              | Clearing Mode            | Bright lights for prep/cleaning/back of house                                                                                                      | T     |    |
|       |                     |              | Daytime Mode             | Day lighting level                                                                                                                                 | T     |    |
|       |                     |              | Dimming/Evening/Bar Mode | Lower light level                                                                                                                                  | T     |    |
| C     | Bin 1, 2            | 104.1, 104.2 | Night Light              | Off hours, low level visuals                                                                                                                       | T     | OS |
|       |                     |              | Clearing Mode            | Bright lights for prep/cleaning/back of house                                                                                                      | T     |    |
|       |                     |              | Daytime Mode             | Day lighting level                                                                                                                                 | T     |    |
|       |                     |              | Dimming/Evening/Bar Mode | Lower light level                                                                                                                                  | T     |    |
| D     | Bin 3, 4            | 104.3        | Night Light              | Off hours, low level visuals                                                                                                                       | T     |    |
|       |                     |              | Clearing Mode            | Bright lights for prep/cleaning/back of house                                                                                                      | T     |    |
|       |                     |              | Daytime Mode             | Day lighting level                                                                                                                                 | T     |    |
|       |                     |              | Dimming/Evening/Bar Mode | Lower light level                                                                                                                                  | T     |    |
| E     | Bin 5, 6, Walk thru | 104.5, 104.6 | Night Light              | Off hours, low level visuals in walkway                                                                                                            | T     |    |
|       |                     |              | Clearing Mode            | Bright lights for prep/cleaning/back of house                                                                                                      | T     |    |
|       |                     |              | Daytime Mode             | Day lighting level                                                                                                                                 | T     |    |
|       |                     |              | Dimming/Evening/Bar Mode | Lower light level                                                                                                                                  | T     |    |
| F     | Bin 7               | 104.7        | Night Light              | Off hours, low level visuals                                                                                                                       | T     |    |
|       |                     |              | Clearing Mode            | Bright lights for prep/cleaning/back of house                                                                                                      | T     |    |
|       |                     |              | Daytime Mode             | Day lighting level                                                                                                                                 | T     |    |
|       |                     |              | Dimming/Evening/Bar Mode | Lower light level                                                                                                                                  | T     |    |
| G     | Bin 8               | 104.8        | Night Light              | Off hours, low level visuals                                                                                                                       | T     |    |
|       |                     |              | Clearing Mode            | Bright lights for prep/cleaning/back of house                                                                                                      | T     |    |
|       |                     |              | Daytime Mode             | Day lighting level                                                                                                                                 | T     |    |
|       |                     |              | Dimming/Evening/Bar Mode | Lower light level                                                                                                                                  | T     |    |
| H     | Community Room      | 105          | Night Light              | Off hours, low level visuals                                                                                                                       | T     |    |
|       |                     |              | Clearing Mode            | Bright lights for prep/cleaning/back of house                                                                                                      | T     |    |
|       |                     |              | Daytime Mode             | Control panel for this space to be in the room, lockable. Customizable to accommodate presentations for study sessions, conference room level etc. | T     |    |
|       |                     |              | Dimming/Evening/Bar Mode | Lower light level                                                                                                                                  | T     |    |

| ZONES | ROOM NAME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ROOM #                                   | LIGHTING FUNCTIONS       | DESCRIPTION                                                          | Timer | OS |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------|----------------------------------------------------------------------|-------|----|
| I     | Breaker/Storage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 108                                      | Night Light              | Off hours, low level visuals                                         | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Clearing Mode            | Bright lights for prep/cleaning/back of house                        | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Daytime Mode             | Day lighting level                                                   | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Dimming/Evening/Bar Mode | Lower light level                                                    | T     |    |
| F1    | Rest Room                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 107                                      | Clearing Mode            | Bright lights for prep/cleaning/back of house                        | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Daytime Mode             | Daytime level lighting, daytime same as evening                      | T     | OS |
| F2    | Ramp/Stair                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 100                                      | Night Light              | Off hours, low level visuals                                         | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Clearing Mode            | Clear level                                                          | T     |    |
| G     | Walkway, Office, Restroom                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 005, 006, 007                            | Night Light              | Off hours, low level visuals                                         | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Clearing Mode            | Bright lights for prep/cleaning/back of house                        | T     |    |
| H     | Basement/Storage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1                                        | Daytime Mode             | Day lighting level                                                   | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Night Light              | Off hours, low level visuals                                         | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Clearing Mode            | Bright lights for prep/cleaning/back of house                        | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Dimming/Evening/Bar Mode | Lower light level                                                    | T     |    |
| I     | 2nd Level/Storage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 201                                      | Night Light              | Off hours, low level visuals                                         | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Clearing Mode            | Bright lights for prep/cleaning/back of house                        | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Daytime Mode             | Day lighting level                                                   | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Dimming/Evening/Bar Mode | Lower light level                                                    | T     |    |
| J     | Tower Level 0, Boat Plt, Auger Chute, Waiver Scale Plt, Chute, Tower Level 3, Chute 1, 2, 3, 4, Bin Catwalk Level 5, Bin 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 | 202, 203, 203.1, 203.2, 203.3, 203.4     | Low Visual Mode          | Non customer space, low lighting for visual effect                   | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Manual Switch            | Unoccupied space                                                     | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Daytime Mode             | Day lighting level                                                   | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Dimming/Evening/Bar Mode | Lower light level                                                    | T     |    |
| J2    | Bin 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100                                                                                                                      | 204.1, 204.2, 204.3, 204.4, 204.5, 204.6 | Manual Switch            | Unoccupied space                                                     | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Daytime Mode             | Day lighting level                                                   | T     |    |
| K     | Machine Room                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 3                                        | Daytime Mode             | Day lighting level                                                   | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Dimming/Evening/Bar Mode | Lower light level                                                    | T     |    |
| L     | 3rd Floor Level Bin 5, 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 204.5, 204.6                             | Chandler Mode            | Plendant/Chandler lighting used limited times of the year. One draw. | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Manual Switch            | Manual lighting                                                      | T     |    |
| M     | Utility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                          | Manual Switch            | Manual lighting                                                      | T     |    |
|       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                          | Dimming/Evening/Bar Mode | Lower light level                                                    | T     |    |



| MDP LOAD SUMMARY               |                     |               |             |
|--------------------------------|---------------------|---------------|-------------|
| VOLTAGE: 120/208 WYE           |                     |               |             |
| PHASE: 3                       |                     |               |             |
| WIRING: 4                      |                     |               |             |
| SERVICE SIZE: 1000 A           |                     |               |             |
| CIRCUIT                        | CIRCUIT DESCRIPTION |               |             |
| 1                              | PANEL TP            |               |             |
| 2                              | RTU-1               |               |             |
| 3                              | RTU-2               |               |             |
| 4                              | RTU-3               |               |             |
| 5                              | PANEL TP            |               |             |
| 6                              | SPACE               |               |             |
| LOAD DESCRIPTION               | CONNECTED (VA)      | DEMAND FACTOR | DEMAND (VA) |
| LIGHTING                       | 7512                | 125.00%       | 9390        |
| RECEPTACLES                    | 22580               | 71.20%        | 16090       |
| MOTORS                         | 20110               | 114.92%       | 23110       |
| KITCHEN                        | 31780               | 65.00%        | 20664       |
| MISCELLANEOUS                  | 11000               | 100.00%       | 11000       |
| ELECTRIC HEAT                  | 20100               | 100.00%       | 20100       |
| ELECTRIC WATER HEATING         | 20000               | 125.00%       | 25000       |
| HVAC                           | 113104              | 100.00%       | 113104      |
| EV CHARGING                    | 21800               | 125.00%       | 27250       |
| TOTAL SERVICE DEMAND (VA):     |                     |               | 27788 VA    |
| TOTAL SERVICE DEMAND AMPS (A): |                     |               | 772 A       |

| PANEL: HP                                                                                                      |     |                        |         |                     |               |                                     |              |         |           | ENCLOSURE: NEMA 1                |  |  |  | A/C RATING: 35,00A |  |  |  |
|----------------------------------------------------------------------------------------------------------------|-----|------------------------|---------|---------------------|---------------|-------------------------------------|--------------|---------|-----------|----------------------------------|--|--|--|--------------------|--|--|--|
| VOLTAGE: 120/208 WYE                                                                                           |     |                        |         |                     |               |                                     |              |         |           | SUPPLY FROM: MCP                 |  |  |  | MAINS TYPE: MLO    |  |  |  |
| PHASE: 3                                                                                                       |     |                        |         |                     |               |                                     |              |         |           | MOUNTING:                        |  |  |  | MAINS RATING: 400  |  |  |  |
| WIRING: 4                                                                                                      |     |                        |         |                     |               |                                     |              |         |           | FEED-THROUGH LOAD: NO            |  |  |  | MCR RATING: -      |  |  |  |
| CIRCUIT DESCRIPTION                                                                                            |     | CB RATING              | CB TYPE | CBKT                | A             | B                                   | C            | CB TYPE | CB RATING | CIRCUIT DESCRIPTION              |  |  |  |                    |  |  |  |
| LIGHTING - BASEMENT - EP-3-1, EP-3-2                                                                           |     | 20                     | 1       | 1                   | 740           | 4000                                |              |         | 2         | ELEVATOR CONTROLLER              |  |  |  |                    |  |  |  |
| LIGHTING - BASEMENT SEATING                                                                                    |     | 20                     | 1       | 3                   |               | 751                                 | 4000         |         | 4         |                                  |  |  |  |                    |  |  |  |
| LIGHTING                                                                                                       |     | 20                     | 1       | 5                   |               |                                     |              |         | 6         |                                  |  |  |  |                    |  |  |  |
| LIGHTING                                                                                                       |     | 20                     | 1       | 7                   | 880           | 300                                 |              |         | 8         | ELEVATOR CAB LIGHTS & FAN        |  |  |  |                    |  |  |  |
| LIGHTING                                                                                                       |     | 20                     | 1       | 9                   |               | 1069                                | 214          |         | 10        |                                  |  |  |  |                    |  |  |  |
| LIGHTING - EXTERIOR BLDGMOUNTED                                                                                |     | 20                     | 1       | 11                  |               |                                     | 1194         | 214     | 12        |                                  |  |  |  |                    |  |  |  |
| LIGHTING 2ND FLOOR                                                                                             |     | 20                     | 1       | 13                  | 232           | 1176                                |              |         | 14        | ELEVATOR SUMP PUMP               |  |  |  |                    |  |  |  |
| RECEPTACLES - BSMT - CRANK SPACES                                                                              |     | 20                     | 1       | 15                  |               | 1260                                | 1000         |         | 16        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLES - BSMT - 905-807                                                                                   |     | 20                     | 1       | 17                  |               |                                     | 1260         | 1000    | 18        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLES - BSMT - 001000 - CP-1                                                                             |     | 20                     | 1       | 19                  | 1080          | 5400                                |              |         | 20        | EUH-1-1, EUH-1-2                 |  |  |  |                    |  |  |  |
| RECEPTACLES - CONV - 1ST FLR                                                                                   |     | 20                     | 1       | 21                  |               | 720                                 | 5400         |         | 22        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLES - CONV - 1ST FLR - EP-3-1                                                                          |     | 20                     | 1       | 23                  |               |                                     | 1410         | 5400    | 24        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLES - CONV - 1ST FLR                                                                                   |     | 20                     | 1       | 25                  | 1200          | 1667                                |              |         | 26        | FOU-1-1                          |  |  |  |                    |  |  |  |
| RECEPTACLES - WIG - EXTERIOR                                                                                   |     | 20                     | 1       | 27                  |               | 900                                 | 1667         |         | 28        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLES - AD - BMR                                                                                         |     | 20                     | 1       | 29                  |               |                                     | 1080         | 1667    | 30        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLES - 2ND FLR                                                                                          |     | 20                     | 1       | 31                  | 720           | 1000                                |              |         | 32        | EUH-1-4, EUH-1-5                 |  |  |  |                    |  |  |  |
| RECEPTACLES - 1                                                                                                |     | 20                     | 1       | 33                  |               | 720                                 | 1000         |         | 34        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLES                                                                                                    |     | 20                     | 1       | 35                  |               |                                     | 1080         | 1500    | 36        |                                  |  |  |  |                    |  |  |  |
| FIRESMOKE DAMPERS                                                                                              |     | 20                     | 1       | 37                  | 120           | 1500                                |              |         | 38        | EUH-1-6, EUH-1-7, EUH-1-8        |  |  |  |                    |  |  |  |
| RECEPTACLES AT RTUS                                                                                            |     | 20                     | 1       | 39                  |               | 360                                 | 1000         |         | 40        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLE LVLS - EP-1-1                                                                                       |     | 20                     | 1       | 41                  |               |                                     | 1044         | 1000    | 42        |                                  |  |  |  |                    |  |  |  |
| SUMP PUMP - SP-1                                                                                               |     | 20                     | 1       | 43                  | 1176          | 1500                                |              |         | 44        | EUH-1-9, EUH-1-10, EUH-1-11      |  |  |  |                    |  |  |  |
| SUMP PUMP - SP-2                                                                                               |     | 20                     | 1       | 45                  |               | 1176                                | 1500         |         | 46        |                                  |  |  |  |                    |  |  |  |
| SUMP PUMP - SP-3                                                                                               |     | 20                     | 1       | 47                  |               |                                     | 1176         | 1800    | 48        |                                  |  |  |  |                    |  |  |  |
| SUMP PUMP - SP-4                                                                                               |     | 20                     | 1       | 49                  | 1176          | 1800                                |              |         | 50        | EUH-2-1                          |  |  |  |                    |  |  |  |
| RECEPTACLES - BARTY PROJECTORS                                                                                 |     | 20                     | 1       | 51                  |               | 720                                 | 3064         |         | 52        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLES - BARTY PROJECTORS                                                                                 |     | 20                     | 1       | 53                  |               |                                     | 900          | 3064    | 54        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLES - BARTY PROJECTORS                                                                                 |     | 20                     | 1       | 55                  | 180           | 1800                                |              |         | 56        | EUH-2-2                          |  |  |  |                    |  |  |  |
| RECEPTACLES - BARTY PROJECTORS                                                                                 |     | 20                     | 1       | 57                  |               | 1080                                | 1800         |         | 58        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLES - CONV - 1ST FLR                                                                                   |     | 20                     | 1       | 59                  |               |                                     | 540          | 180     | 60        |                                  |  |  |  |                    |  |  |  |
| DEDICATED RECEPTACLE - IT                                                                                      |     | 20                     | 1       | 61                  | 180           | 2000                                |              |         | 62        | KIT - E1 - KEG COOLER LTG        |  |  |  |                    |  |  |  |
| SUMP PUMP - SP-5                                                                                               |     | 20                     | 1       | 63                  |               | 1176                                | 2000         |         | 64        |                                  |  |  |  |                    |  |  |  |
| BSMT RECEPT. CIRC PUMP CP-1                                                                                    |     | 20                     | 1       | 65                  |               |                                     | 570          | 500     | 66        |                                  |  |  |  |                    |  |  |  |
| RECEPTACLES - TELL TERN BOARD                                                                                  |     | 20                     | 1       | 67                  | 720           | 500                                 |              |         | 68        | KIT - E2 - KEG COOLER COMPRESSOR |  |  |  |                    |  |  |  |
| RECEPTACLES - COMMUNITY ROOM                                                                                   |     | 20                     | 1       | 69                  |               | 900                                 | 900          |         | 70        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 71        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 72        | KIT - E3 - KEG COOLER EVAP       |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 73        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 74        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 75        | KIT - E4 - ICE MACHINE           |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 76        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 77        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 78        | KIT - E5 - REFRIGERATOR          |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 79        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 80        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 81        | KIT - E6 - FREEZER               |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 82        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 83        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 84        | KIT - E7 - DISHWASHER            |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 85        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 86        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 87        | KIT - E8 - T-OVEN                |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 88        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 89        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 90        | KIT - E9 - ESPRESSO MACHINE      |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 91        |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     |                        |         |                     |               |                                     |              |         | 92        |                                  |  |  |  |                    |  |  |  |
| TOTAL CONNECTED VOLT - AMPS PER PHASE                                                                          |     |                        |         |                     | 351.64        | 3460                                | 3350         |         |           |                                  |  |  |  |                    |  |  |  |
| TOTAL CONNECTED AMPS PER PHASE                                                                                 |     |                        |         |                     | 301           | 328                                 | 292          |         |           |                                  |  |  |  |                    |  |  |  |
| TOTAL ESTIMATED DEMAND AMPS PER PHASE                                                                          |     |                        |         |                     | 264           | 321                                 | 276          |         |           |                                  |  |  |  |                    |  |  |  |
| PHASE IMBALANCE                                                                                                |     | LOAD CLASSIFICATION    |         | CONNECTED LOAD (VA) | DEMAND FACTOR | DEMAND (VA)                         | PANEL TOTALS |         |           |                                  |  |  |  |                    |  |  |  |
| PHASE A                                                                                                        | 1 % | LIGHTING               | 6619    | 125.00%             | 8283          | TOTAL CONNECTED LOAD (VA): 19081 VA |              |         |           |                                  |  |  |  |                    |  |  |  |
| PHASE B                                                                                                        | 8 % | RECEPTACLES            | 17540   | 76.34%              | 13363         | TOTAL DEMAND (VA): 106935 VA        |              |         |           |                                  |  |  |  |                    |  |  |  |
| PHASE C                                                                                                        | 7 % | MOTORS                 | 20110   | 114.92%             | 23110         | TOTAL CONNECTED LOAD (AMPS): 304 A  |              |         |           |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     | KITCHEN                | 12800   | 65.00%              | 8320          | TOTAL DEMAND (AMPS): 297 A          |              |         |           |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     | MISCELLANEOUS          | 5000    | 100.00%             | 5000          |                                     |              |         |           |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     | ELECTRIC HEAT          | 10200   | 100.00%             | 10200         |                                     |              |         |           |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     | ELECTRIC WATER HEATING | 5000    | 125.00%             | 6250          |                                     |              |         |           |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     | HVAC                   | 23212   | 100.00%             | 23212         |                                     |              |         |           |                                  |  |  |  |                    |  |  |  |
|                                                                                                                |     | EV CHARGING            | 0       | 0.00%               | 0             |                                     |              |         |           |                                  |  |  |  |                    |  |  |  |
| BREAKER TYPE ABBREVIATIONS:                                                                                    |     |                        |         |                     |               |                                     |              |         |           |                                  |  |  |  |                    |  |  |  |
| A - AFCI, G - GFCI, AG - COMBINATION AFCI/GFCI, ET - ELECTRONIC TRIP, LX - LOCKING PROVISIONS, ST - SHUNT TRIP |     |                        |         |                     |               |                                     |              |         |           |                                  |  |  |  |                    |  |  |  |
| NOTES:                                                                                                         |     |                        |         |                     |               |                                     |              |         |           |                                  |  |  |  |                    |  |  |  |

| PANEL: TP                                                                                           |     |                        |         |                     |               |                       |                             |        |         |                     |                                |                                |                                 |  |  |
|-----------------------------------------------------------------------------------------------------|-----|------------------------|---------|---------------------|---------------|-----------------------|-----------------------------|--------|---------|---------------------|--------------------------------|--------------------------------|---------------------------------|--|--|
| VOLTAGE: 120/208 WYE                                                                                |     |                        |         |                     |               | ENCLOSURE: NEMA 1     |                             |        |         | A/C RATING: 22,000A |                                |                                |                                 |  |  |
| PHASE: 3                                                                                            |     |                        |         |                     |               | SUPPLY FROM: MDP      |                             |        |         | MAINS TYPE: MEO     |                                |                                |                                 |  |  |
| WIRING: 4                                                                                           |     |                        |         |                     |               | MOUNTING:             |                             |        |         | MAINS RATING: 450   |                                |                                |                                 |  |  |
|                                                                                                     |     |                        |         |                     |               | FEED-THROUGH LOAD: NO |                             |        |         | MCR RATING:         |                                |                                |                                 |  |  |
| CIRCUIT DESCRIPTION                                                                                 |     | CB RATING              | CB TYPE | CB RTY              | A             | B                     | C                           | CB RTY | CB TYPE | CB RATING           | CIRCUIT DESCRIPTION            |                                |                                 |  |  |
| LIGHTING - TAP HOUSE                                                                                |     | 25                     | 1       | 1                   | 287           | 3000                  |                             |        | 2       |                     | READY / CAPABLE EVCHARGE NORTH |                                |                                 |  |  |
| FOOD TRUCK RECEPTACLE                                                                               |     | 50                     | 2       | 3                   |               | 3000                  | 3000                        | 3000   | 3000    | 2                   | 50                             | READY / CAPABLE EVCHARGE SOUTH |                                 |  |  |
| FOOD TRUCK RECEPTACLE                                                                               |     | 50                     | 2       | 8                   | 3000          | 3000                  |                             |        |         | 2                   | 50                             | EVSE (INSTALLED CHARGER EAST   |                                 |  |  |
| FOOD TRUCK RECEPTACLE                                                                               |     | 50                     | 2       | 13                  | 3000          | 8000                  |                             |        | 3000    | 1000                | 12                             | ELECTRIC WATER HEATING         |                                 |  |  |
| STAGE RECEPTACLE                                                                                    |     | 90                     | 2       | 15                  |               | 3000                  | 8000                        |        |         | 14                  | 3                              | 90                             | RECEIPT - COURTYARD FENCE POSTS |  |  |
| RECEPTACLE AT STAGE                                                                                 |     | 20                     | 1       | 1                   | 300           | 1000                  |                             |        |         | 20                  | 1                              | 20                             | RECEIPT - COURTYARD FENCE POSTS |  |  |
| STRINGING/RECEAT AT TREE (AMAS)                                                                     |     | 20                     | 1       | 21                  |               | 800                   | 1000                        |        |         | 22                  | 1                              | 20                             | RECEIPT - COURTYARD FENCE POSTS |  |  |
| LIGHTING - SITE, OUTLOT 'A'                                                                         |     | 20                     | 1       | 23                  |               |                       |                             | 800    | 1000    | 24                  | 1                              | 20                             | RECEIPT - COURTYARD FENCE POSTS |  |  |
| RECEPTACLES - TAP HOUSE                                                                             |     | 20                     | 1       | 25                  | 720           |                       |                             |        |         | 26                  |                                |                                |                                 |  |  |
| RECEPTACLES - TAP HOUSE                                                                             |     | 20                     | 1       | 27                  |               | 720                   |                             |        |         | 28                  |                                |                                |                                 |  |  |
| KIT- E11- TAP HOUSE REFRIGERATOR                                                                    |     | 20                     | 1       | 29                  |               |                       |                             | 900    | 300     | 30                  |                                |                                |                                 |  |  |
| ELECTRIC HEATER - GRAMA, SPACE                                                                      |     | 30                     | 1       | 31                  | 1000          |                       |                             |        |         | 32                  |                                |                                |                                 |  |  |
|                                                                                                     |     |                        |         | 33                  |               |                       |                             |        |         | 34                  |                                |                                |                                 |  |  |
|                                                                                                     |     |                        |         | 35                  |               |                       |                             |        |         | 36                  |                                |                                |                                 |  |  |
|                                                                                                     |     |                        |         | 37                  |               |                       |                             |        |         | 38                  |                                |                                |                                 |  |  |
|                                                                                                     |     |                        |         | 39                  |               |                       |                             |        |         | 40                  |                                |                                |                                 |  |  |
|                                                                                                     |     |                        |         | 41                  |               |                       |                             |        |         | 42                  |                                |                                |                                 |  |  |
| TOTAL CONNECTED VOLT/AMPS PER PHASE                                                                 |     |                        |         |                     | 25147         | 25000                 | 27048                       |        |         |                     |                                |                                |                                 |  |  |
| TOTAL CONNECTED AMPS PER PHASE                                                                      |     |                        |         |                     | 210           | 224                   | 225                         |        |         |                     |                                |                                |                                 |  |  |
| TOTAL EST. WATIED DEMAND AMPS PER PHASE                                                             |     |                        |         |                     | 230           | 267                   | 265                         |        |         |                     |                                |                                |                                 |  |  |
| PHASE IMBALANCE                                                                                     |     | LOAD CLASSIFICATION    |         | CONNECTED LOAD (VA) | DEMAND FACTOR | DEMAND LOAD (VA)      | PANEL TOTALS                |        |         |                     |                                |                                |                                 |  |  |
| PHASE A                                                                                             | 5 % | LIGHTING               |         | 1000                | 125.00%       | 1300                  | TOTAL CONNECTED LOAD (VA)   |        | 7900 VA |                     |                                |                                |                                 |  |  |
| PHASE B                                                                                             | 2 % | RECEPTACLES            |         | 5940                | 100.00%       | 5940                  | TOTAL DEMAND (VA)           |        | 8674 VA |                     |                                |                                |                                 |  |  |
| PHASE C                                                                                             | 3 % | KITCHEN                |         | 8000                | 80.00%        | 15108                 | TOTAL CONNECTED LOAD (AMPS) |        | 200 A   |                     |                                |                                |                                 |  |  |
|                                                                                                     |     | MISCELLANEOUS          |         | 6000                | 100.00%       | 6000                  | TOTAL DEMAND (AMPS)         |        | 261 A   |                     |                                |                                |                                 |  |  |
|                                                                                                     |     | ELECTRIC HEAT          |         | 1000                | 100.00%       | 1000                  |                             |        |         |                     |                                |                                |                                 |  |  |
|                                                                                                     |     | ELECTRIC WATER HEATING |         | 24000               | 125.00%       | 30000                 |                             |        |         |                     |                                |                                |                                 |  |  |
|                                                                                                     |     | H/A/C                  |         | 0                   | 0.00%         | 0                     |                             |        |         |                     |                                |                                |                                 |  |  |
|                                                                                                     |     | EV CHARGING            |         | 21800               | 125.00%       | 27200                 |                             |        |         |                     |                                |                                |                                 |  |  |
| BREAKER TYPE ABBREVIATIONS:                                                                         |     |                        |         |                     |               |                       |                             |        |         |                     |                                |                                |                                 |  |  |
| A=AFEC G; G=GC ALG; COMBINATION OF G/AFEC ET; E=ELCTRONIC TRIP; L=LOCKING PROVISIONS; ST=SHUNT TRIP |     |                        |         |                     |               |                       |                             |        |         |                     |                                |                                |                                 |  |  |
| NOTES:                                                                                              |     |                        |         |                     |               |                       |                             |        |         |                     |                                |                                |                                 |  |  |



## TRADE CONNECTION SCHEDULE - ELECTRICAL

### REMARKS:

- ONE CONNECTION PROVIDES POWER SUPPLY FOR ...
- UTLITE ONE DUPLEX RECEPTACLE FOR CONNECTION OF CABLES AND FILTER PUMP.
- PROVIDE MAIN 150 AMP FUSE TO FIELD INSTALL ON MANUFACTURE CORO AS REQUIRED.
- WOOD CONNECTIONS PROVIDED THROUGH COMMON DCV CONTROLLER LOCATED IN REBENT CABINET ...
- 1" V"

| SUIT               | PLAN MARK              | Description | Voltage | Phase | Watts | Full Load Amps | Circuit Breaker Size | Outlet type | Connection Type | Panel | Feeder                            | Remarks |
|--------------------|------------------------|-------------|---------|-------|-------|----------------|----------------------|-------------|-----------------|-------|-----------------------------------|---------|
| E4                 | ICE MACHINE            | 120V        | 1       | 60W   |       |                |                      |             |                 |       | (2012) 2WGS, 1#12 AWG GND 3/4" C. |         |
| E5                 | REFRIGERATOR           | 120V        | 1       | 60W   |       |                |                      |             |                 |       | (2012) 2WGS, 1#12 AWG GND 3/4" C. |         |
| E6                 | PRESSURIZER            | 120V        | 1       | 60W   |       |                |                      |             |                 |       | (2012) 2WGS, 1#12 AWG GND 3/4" C. |         |
| E7                 | ICE COOLER             | 120V        | 1       | 60W   |       |                |                      |             |                 |       | (2012) 2WGS, 1#12 AWG GND 3/4" C. |         |
| E8                 | DISHWASHER             | 120V        | 1       | 60W   |       |                |                      |             |                 |       | (2012) 2WGS, 1#12 AWG GND 3/4" C. |         |
| E9                 | 12 CANS                | 120V        | 1       | 600W  |       |                |                      |             |                 |       | (2012) 2WGS, 1#12 AWG GND 3/4" C. |         |
| E10                | ESPRESSO MACHINE       | 120V        | 1       | 60W   |       |                |                      |             |                 |       | (2012) 2WGS, 1#12 AWG GND 3/4" C. |         |
| BUILDING EQUIPMENT |                        |             |         |       |       |                |                      |             |                 |       |                                   |         |
| E11                | KEG COOLER LIGHTING    | 120V        | 1       | 100W  |       |                |                      |             |                 |       | (2012) 2WGS, 1#12 AWG GND 3/4" C. |         |
| E2                 | KEG COOLER COMPRESSOR  | 208V        | 1       | 1000W |       |                |                      |             |                 |       | (2012) 2WGS, 1#12 AWG GND 3/4" C. |         |
| E3                 | KEG COOLER EVAPORATOR  | 208V        | 1       | 1000W |       |                |                      |             |                 |       | (2012) 2WGS, 1#12 AWG GND 3/4" C. |         |
| TAP HOUSE          |                        |             |         |       |       |                |                      |             |                 |       |                                   |         |
| E11                | TAP HOUSE REFRIGERATOR | 120V        | 1       | 60W   |       |                |                      |             |                 |       | (2012) 2WGS, 1#12 AWG GND 3/4" C. |         |

## EQUIPMENT CONNECTION SCHEDULE

### GENERAL NOTES:

- PROVIDE DISCONNECTING MEANS FOR EACH PIECE OF EQUIPMENT AS INDICATED IN THE "DESC" COLUMN.

### REMARKS:

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LOUISVILLE HISTORIC GRAIN ELEVATOR  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE 12/05/2025  
DRAWN BY: AFJ/CRM  
CHECKED BY: BMB  
REVISIONS:  
1. 12/05/2025

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ELECTRICAL SITE  
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of Sheets

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Lafayette, Colorado 80228  
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Given Project # 23086

#### DRAWING NOTES:

1. ALL ELECTRICAL EQUIPMENT AND DEVICES LOCATED OUTDOORS, ON ROOFS, OR ON BUILDING EXTERIORS SHALL BE RATED NEMA 3R, OR LOCATED WITHIN NEMA 3R RATED ENCLOSURES. PROVIDE WHILE-IN-USE COVERS FOR ALL OUTDOOR RECEPTACLES.
2. COORDINATE INSTALLATION REQUIREMENTS FOR EXTERIOR BUILDING FACADE LIGHTING WITH OWNER AND PROVIDE ALL FINAL CONNECTIONS AND ACCESSORIES AS REQUIRED.
3. COORDINATE EXACT LOCATIONS OF UTILITY EQUIPMENT WITH XCEL ENERGY.
4. UNLESS NOTED OTHERWISE, ALL EXISTING WIRING AND CONDUCTORS IN THE BUILDING SHALL BE DEMOLISHED. INSPECT THE CONDITION OF ALL EXISTING ELECTRICAL DEVICES, BOXES, CONDUIT, ETC. EXISTING ELECTRICAL DEVICES, BOXES, CONDUITS, ETC. SHALL BE DEMOLISHED TO THE EXTENT POSSIBLE. ABANDON IN PLACE IF ANY DAMAGE TO THE EXISTING STRUCTURE OR WALLS WILL BE CAUSED BY DEMOLITION. VERIFY AND COORDINATE WITH ARCHITECT PRIOR TO ANY DEMOLITION WORK.
5. UNLESS NOTED OTHERWISE, LIGHTING CONTROL PANELS AND EQUIPMENT FOR THE SITE AND OUT-LOT "A" TO BE LOCATED AT THE TAP HOUSE.
6. UNLESS NOTED OTHERWISE, ALL NEW ELECTRICAL AND LOW VOLTAGE BOXES, CONDUITS AND DEVICES SHALL BE SURFACE MOUNTED. VERIFY AND COORDINATE CONDUIT ROUTING WITH ARCHITECT PRIOR TO ROUGH-IN. REFER TO LOW VOLTAGE PLANS AND DETAILS FOR ADDITIONAL INFORMATION.

#### KEY NOTES:

1. ELECTRICAL & LOW VOLTAGE CONDUITS, AND PLUMBING PIPING SERVING THE TAP HOUSE AND COURTYARD SHALL BE ROUTED UNDERGROUND IN A COMMON TRENCH PRIOR TO CONSTRUCTION AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL TRADES. LOW VOLTAGE CONDUITS TO INCLUDE (1) 2" PVC CONDUIT WITH PULL CORDS ROUTED FROM AN HEAD-END EQUIPMENT, UG TO TAP HOUSE. REFER TO ARCHITECTURAL, CIVIL, LOW VOLTAGE AND PLUMBING PLANS FOR ADDITIONAL INFORMATION. VERIFY CONDUIT SIZES AND QUANTITIES PRIOR TO ROUGH-IN.
2. PROVIDE LEVEL 2 EVSE INSTALLED, WALL MOUNTED, DUAL CHARGING STATION AT THIS LOCATION. CHARGER TO BE MOUNTED AT 48" AFS.
3. PROVIDE WEATHERPROOF IN-GRADE JUNCTION BOX WITH ONE 200V/1-PH POWER CONNECTION AS NOTED FOR SHARED, LEVEL 2, EV READY / CAPABLE DUAL STATION CHARGER. CIRCUIT BREAKER AND 2" IN AFG UG 1" IN AFG CU UG 1" IN AFG CU UG 1" TO BE INSTALLED DURING CONSTRUCTION (EV READY), CHARGING EQUIPMENT TO BE INSTALLED IN THE FUTURE.
4. PROVIDE WEATHERPROOF JUNCTION BOX WITH 200V/1-PH POWER CONNECTION. NOTED: L&S OUTLET AND WHILE-IN-USE COVER FOR FOOD TRUCK POWER. J BOX TO BE MOUNTED 24" AFS ON A 4" X 4" WOOD POST LOCATED TIGHT TO FENCE. VERIFY LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. POWER CONNECTION TO BE ROUTED UNDERGROUND TO SOURCE PANEL. GFCI PROTECTION TO BE PROVIDED AT THE CIRCUIT BREAKER.
5. PROVIDE POLE 1" POST PER ARCHITECT'S SPECIFICATIONS FOR SUPPORT OF TYPE D FESTON LIGHTING.
6. PROVIDE WEATHERPROOF JUNCTION BOX WITH 200V/1-PH POWER CONNECTION. NOTED: L&S OUTLET AND WHILE-IN-USE COVER FOR STAGE POWER. J BOX TO BE MOUNTED 24" AFS ON A 4" X 4" WOOD POST LOCATED TIGHT TO FENCE. VERIFY LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. POWER CONNECTION TO BE ROUTED UNDERGROUND TO SOURCE PANEL. GFCI PROTECTION TO BE PROVIDED AT THE CIRCUIT BREAKER.
7. PROPOSED ROUTING OF ELECTRICAL SERVICE FEEDER CONDUITS, REFER TO ONE-LINE DIAGRAM.
8. PROVIDE WEATHERPROOF DUPLEX RECEPTACLE MOUNTED AT 18" AFS ON LANDSCAPING STAKE FOR PORTABLE HOLIDAY STRING LIGHTING. COORDINATE WITH ARCHITECTURAL AND LANDSCAPE PLANS FOR EXACT LOCATION.
9. COORDINATE MOUNTING HEIGHT AND LOCATION WITH ARCHITECT.
10. PROVIDE SURFACE MOUNTED LOW VOLTAGE JUNCTION BOX / BACK BOX AT 48" AFS. STUD 3/4" PVC PULL CORD AND ANTI-SHORT GROMMETS TO ANV HEAD-END EQUIPMENT. VERIFY BOX LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE PULL THROUGH BOX IF CONDUIT RUN EXCEEDS 3 SWEEPS.
11. PROVIDE WEATHERPROOF DUPLEX RECEPTACLE AND WEATHERPROOF DATA BACK BOX MOUNTED ON FENCE POST AT 48" AFS. STUD 1" PVC WITH PULL CORD IN BETWEEN DATA BOXES. DATA DEVICES AND CABLES BY OTHERS. REFER TO LOW VOLTAGE PLANS FOR CONDUIT ROUTING AND ADDITIONAL INFORMATION.
12. STUD THE FOLLOWING PVC CONDUITS EACH WITH PULL CORDS FROM THE MAIN TELEPHONE TERMINAL BOARD IN BASEMENT, UNDERGROUND IN THE COMMON TRENCH TO OUTLOT "A" COURTYARD:
  1. 2" AT TO THE LOW VOLTAGE PEDESTAL AT COUNTY ROAD (VERIFY LOCATION AND REQUIREMENTS WITH THE LOW VOLTAGE SERVICE PROVIDER)
  2. 1" CONDUITS TO THE TAP HOUSE, PEDESTAL TO POST AT STAGE, NEAREST FENCE MOUNTED DATA BACK BOX, AND THEN IN BETWEEN BACK BOXES AS NOTED ABOVE AND SHOWN IN THE PLAN.



1 ELECTRICAL SITE PLAN  
1" = 20'-0"

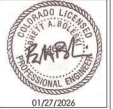
- ① PROVIDE GFI RECEPTABLES IN CRAWL SPACE AREAS. BELOW THE BASEMENT LEVEL, COORDINATE LOCATIONS WITH OWNER / ARCHITECT PRIOR TO ROUGH-IN.
- ② PROVIDE 2" x 4" PVC CONDUITS FOR INCOMING TELECOM / LOW VOLTAGE CABLES SERVING THE BUILDING. ROUTE CONDUIT FROM TELECOM PEDESTAL TO DEMARCATION POINT IN BUILDING. CONDUITS TO BE ROUTED IN COMMON TRENCH BACK TO COMMERCIAL SITE. PROVIDE, VERIFY LOCATION OF INCOMING SERVICE AND CABLEING PRIOR TO ROUGH-IN. REFER TO LOW VOLTAGE PLANS FOR ADDITIONAL INFORMATION.
- ③ PROVIDE 4X8" FLAME RETARDANT TELEPHONE BOARD FOR MOUNTING A/V AND TELECOM EQUIPMENT. MOUNT DOUBLE DUPLEX POWER RECEPTABLES ON OR IMMEDIATELY ADJACENT TO TELEPHONE BOARD. COORDINATE EXACT LOCATIONS WITH TELECOM AND A/V PROVIDER.
- ④ NOT USED.

3. CIRCUIT EXHAUST FANS WITH LIGHT FIXTURE AND LIGHTING CONTROLS IN ROOM.
4. PROVIDE SURFACE MOUNTED LOW VOLTAGE JUNCTION BOX BACK-BOX AT 48" AFF. PROVIDE 1/2" WALL CLOSURE AND SHORT GROMMETS TO AN HX-EGG ENVELOPE. VERIFY BOX LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE THROUGH-BOX F CONDUIT RUN EXCEEDS 3 SWEPS.
5. PROVIDE 200V POWER CONNECTION AS NOTED FOR PERIMETER SUMP PUMP. STUD 3/4" CONDUIT THROUGH FOUNDATION WALL AND ROUTE UNDERGROUND TO PUMP CONTROL PANEL. VERIFY ELECTRICAL REQUIREMENTS WITH EQUIPMENT TO BE CONNECTED TO ROOM. REFER TO APPROVED EQUIPMENT SUBMITTAL FOR ADDITIONAL INFORMATION.
6. PROVIDE AUTOMATIC RECEPTACLE CONTROL FOR ALL RECEPTACLES IN THE OFFICE PER 2004 EEC. SECTION 0455.12. CONTROL RECEPTACLES TO THE OCCUPANCY SENSOR. PROVIDE POWER AND RELAY PACKS AS REQUIRED.

1. WIRE SIZE SHALL BE MINIMUM #12 AWG, THIN SOLID PAPER INSULATED UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED RACEWAY.
2. ALL OUTLETS AND EQUIPMENT SHALL BE GROUND TO PANELS AS NOTED. NUMBERS INDICATE CIRCUITING.
3. VERIFY WORKING AND LOCATION AS NOTED FOR ALL OUTLETS WITH ARCHITECT. COORDINATE WITH MECHANICAL DRAWINGS AS REQUIRED PER TOUGH-IN.
4. COORDINATE LOCATIONS FOR ALL TELEPHONE, CATV OUTLETS AND REQUIREMENTS WITH OWNER / ARCHITECT.
5. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT.
6. COORDINATE INSTALLATION REQUIREMENTS OF ELECTRICAL EQUIPMENT PROVIDED BY OTHER TRADES, AND PROVIDE ALL CONNECTIONS AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
7. REFER TO EQUIPMENT CONNECTION SCHEDULES FOR FEEDER, DISCONNECT, AND CIRCUIT BREAKER SIZES FOR MECHANICAL & PLUMBING EQUIPMENT.
8. NO EQUIPMENT, DEVICES, FURNITURE, OR THE LIKE SHALL BE INSTALLED OR PLACED IN FRONT OF ELECTRICAL PANELS OR EQUIPMENT THAT WOULD VIOLATE CODE REQUIREMENTS FOR WORKING CLEARANCE.


$$\overline{1/4'' = 1'-0''}$$


**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE: 12/05/2025  
DRAWN BY: AF/JC/IRM  
CHECKED BY: BAB  
REVISIONS:  
A 314504 ADDENDUM 1  
B 314504 ADDENDUM 2  
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BASEMENT FLOOR  
PLAN - POWER

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# KEY NOTES:

- PROPOSED LOCATION OF FIRE ALARM CONTROL PANEL (FACP). VERIFY WITH LOCAL AHA PRIOR TO ROUGH-IN. PROVIDE 120V POWER CONNECTION AND TELEPHONE/DATA CONNECTION PER LOCAL FIRE DEPARTMENT'S REQUIREMENTS.
- PROVIDE SURFACE MOUNTED LOW VOLTAGE JUNCTION BOX (BACK-BOX FOR DATA AND/OR TV OUTLETS). STRIP 3/4" VELL PULL CORD AND ANTI-SHORT PROMINETS IN BETWEEN BOXES AND TO ANY HEAD-END EQUIPMENT. VERIFY BOX LOCATIONS AND MOUNTING HEIGHTS WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE PULL THROUGH BOX IF CONDUIT RUN EXCEEDS 3 BENDS.

# DRAWING NOTES:

- WIRE SIZE SHALL BE MINIMUM #12 AWG, 17MIL SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TO TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED BACKWAY.
- ALL OUTLETS AND EQUIPMENT SHALL BE CIRCUITED TO PANELS NOTED. NUMBERS INDICATE CIRCUITING.
- VERIFY MOUNTING AND LOCATION OF ALL OUTLETS WITH ARCHITECT AND COORDINATE WITH MECHANICAL DUCTWORK AS REQUIRED PRIOR TO ROUGH-IN.
- COORDINATE LOCATIONS FOR ALL TELEPHONE, CATV OUTLETS AND REQUIREMENTS WITH OWNER / ARCHITECT.
- REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT.
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- NO EQUIPMENT, DEVICES, FURNITURE, OR THE LIKE SHALL BE INSTALLED OR PLACED IN FRONT OF ELECTRICAL PANELS OR EQUIPMENT THAT WOULD VIOLATE CODE REQUIREMENTS FOR WORKING CLEARANCE.



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE 12/05/2023  
DRAWN BY: AFJ/CRM  
CHECKED BY: BAB  
REVISIONS:  
1. REVISION 1  
2. REVISION 2

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FIRST FLOOR  
PLAN - POWER

Sheet

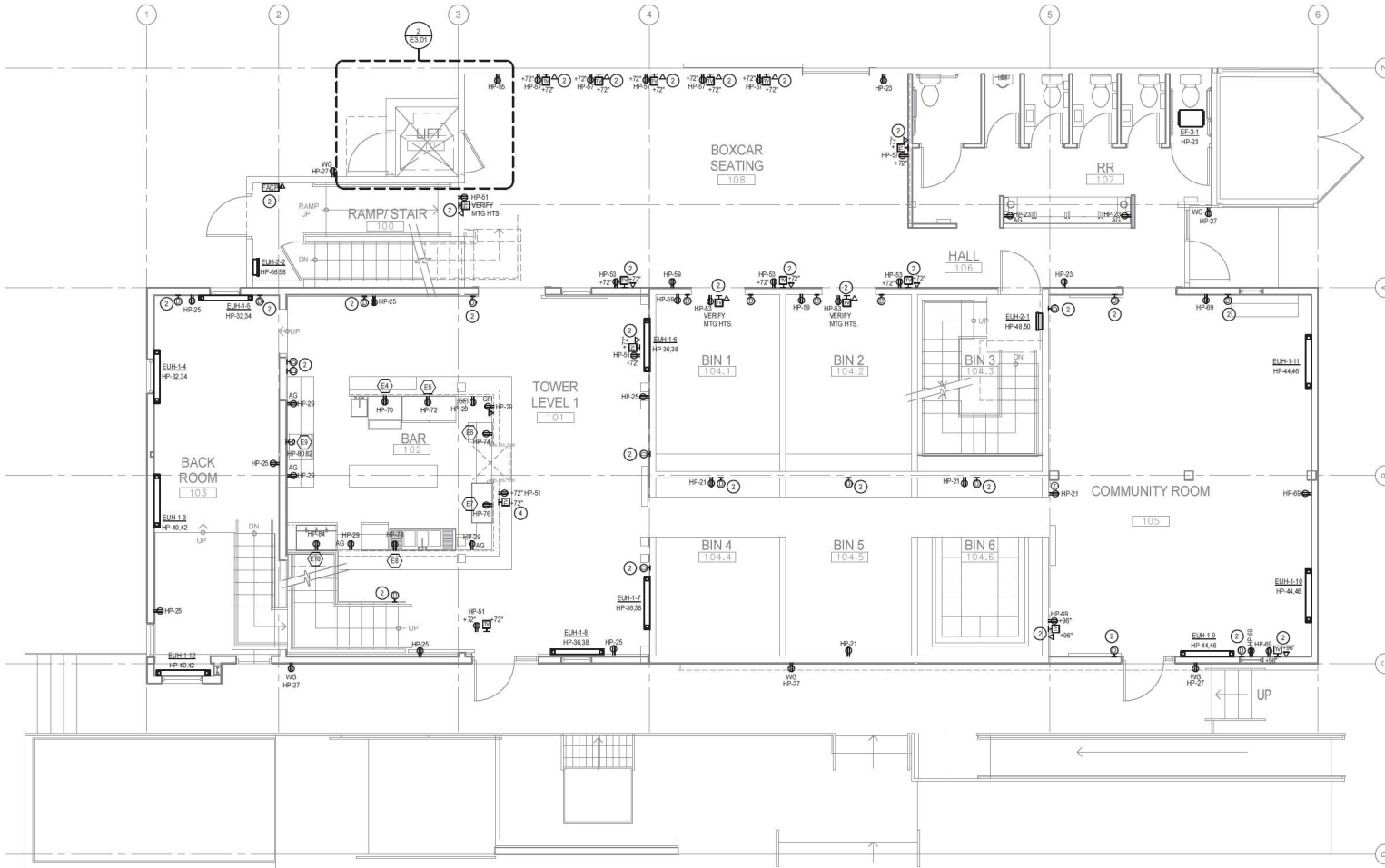
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**1 FIRST LEVEL FLOOR PLAN - POWER**  
1/4" = 1'-0"



# KEY NOTES:

1. PROVIDE CONNECTIONS IN ACCORDANCE WITH EQUIPMENT CONNECTION SCHEDULE.
2. FIELD VERIFY AT LEAST ONE RECEPTACLE IS PROVIDED WITHIN 25FT OF MECHANICAL EQUIPMENT FOR MAINTENANCE PURPOSES.
3. PROVIDE SURFACE MOUNTED LOW VOLTAGE JUNCTION BOX / BACK BOX AT 48" AFG. STUB 3/4" VC WILL PULL CORG AND ANTI-SHORT GROMMETS TO AN HEAD END EQUIPMENT. VERIFY BOX LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. PROVIDE PULL THROUGH BOX IF CONDUIT RUN EXCEEDS 3 SWEEPS.

# DRAWING NOTES:

1. WIRE SIZE SHALL BE MINIMUM #12 AWG, THIN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TO TALL LENGTH OF ANY BRANCH EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED RACEWAY.
2. ALL OUTLETS AND EQUIPMENT SHALL BE CIRCUITED TO PANELS AS NOTED. NUMBERS INDICATE CIRCUITING.
3. VERIFY MOUNTING AND LOCATION OF ALL OUTLETS WITH ARCHITECT AND COORDINATE WITH MECHANICAL DUCTWORK AS REQUIRED PRIOR TO ROUGH-IN.
4. COORDINATE LOCATIONS FOR ALL TELEPHONE, CATV OUTLETS AND REQUIREMENTS WITH OWNER / ARCHITECT.
5. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT.
6. COORDINATE INSTALLATION REQUIREMENTS OF ELECTRICAL EQUIPMENT PROVIDED BY OTHER TRADES, AND PROVIDE ALL CONNECTIONS AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE 12/05/2023  
DRAWN BY: AFJ/CRM  
CHECKED BY: BMB  
REVISIONS:  
1. REVISION 1: 12/05/2023

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SECOND/THIRD  
FLOOR PLAN -  
POWER

Sheet

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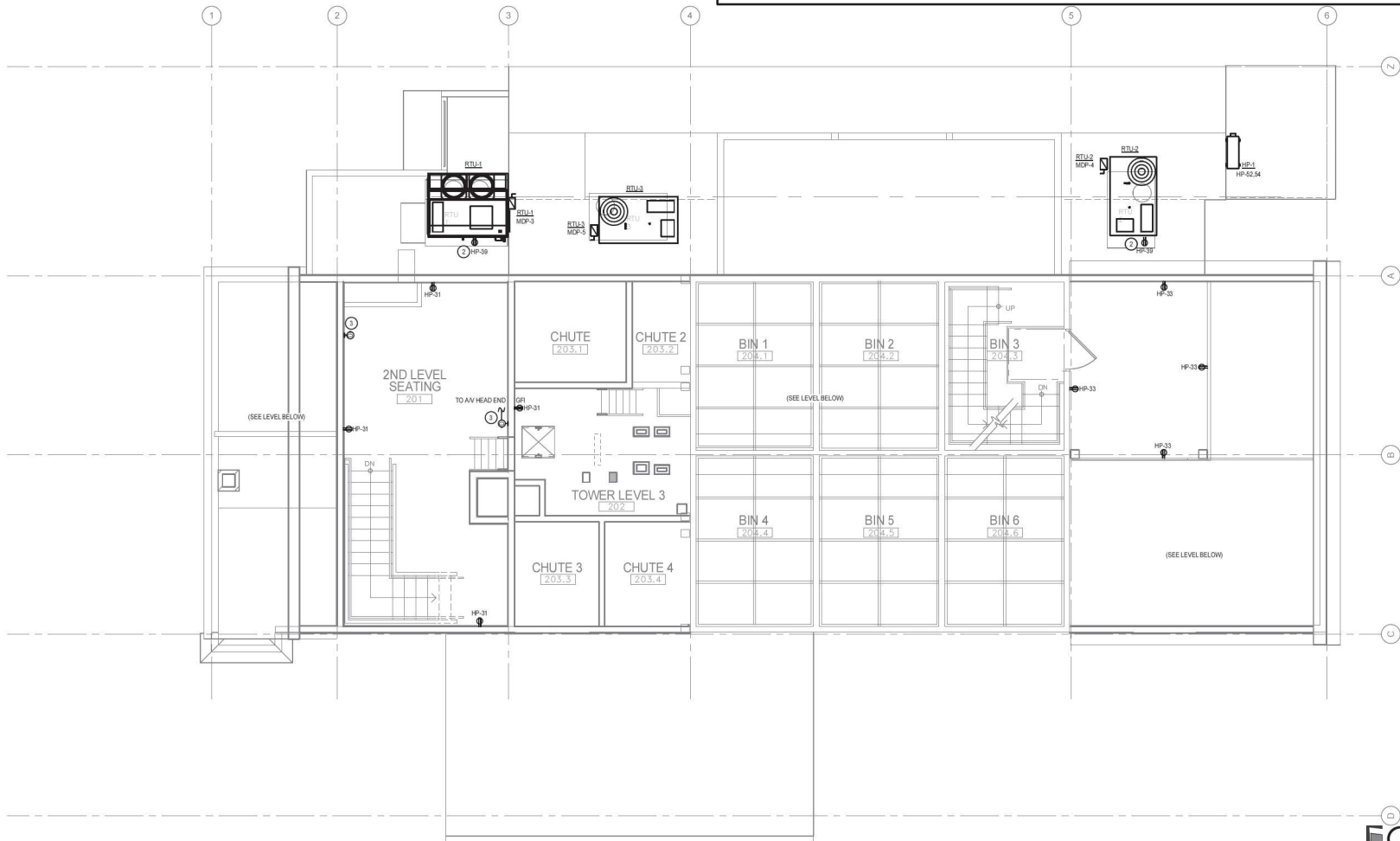
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1

SECOND/THIRD LEVEL FLOOR PLAN - POWER  
1/4" = 1'-0"



# DRAWING NOTES:

1. WIRE SIZE SHALL BE MINIMUM #12 AWG, THIN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TO TALL LENGTH OF ANY BRANCH EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED RACEWAY.
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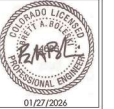


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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE: 12/05/2023  
DRAWN BY: AFJ/CRM  
CHECKED BY: BMB  
REVISIONS:  
1. REVISION: 12/05/2023

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FOURTH/FIFTH  
FLOOR PLAN -  
POWER

Sheet

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1

**FOURTH/FIFTH LEVEL FLOOR PLAN - POWER**  
1/4" = 1'-0"

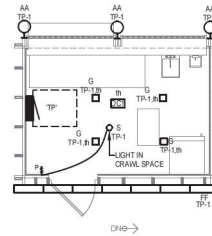




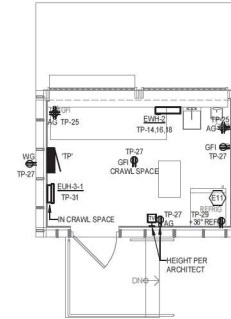


| <b>PANEL: TP</b><br>VOLTAGE: 120/208 VYE<br>PHASE: 3<br>WIRES: 4            |           |                        |      |                     |               |                  |                                                                                                                                        |           |                                       |
|-----------------------------------------------------------------------------|-----------|------------------------|------|---------------------|---------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------|
| ENCLOSURE: NEMA 1<br>SUPPLY FROM: MCP<br>MOUNTING:<br>FEED-THROUGH LUGS: NO |           |                        |      |                     |               |                  |                                                                                                                                        |           |                                       |
| AC RATING: 22,000A<br>MAIN TYPE: MLO<br>MAIN RATING: 400<br>MCB RATING: -   |           |                        |      |                     |               |                  |                                                                                                                                        |           |                                       |
| CIRCUIT DESCRIPTION                                                         | CB RATING | CB TYPE                | CBKT | A                   | B             | C                | CBKT                                                                                                                                   | CB RATING | CIRCUIT DESCRIPTION                   |
| LIGHTING - TAP HOUSE                                                        | 25        | 1                      | 1    | 287                 | 3000          |                  | 2                                                                                                                                      | 50        | READY / CAPABLE EV DUAL CHARGER NORTH |
| FOOD TRUCK RECEPTACLE                                                       | 50        | 2                      | 3    |                     | 3000          | 3000             | 4                                                                                                                                      |           |                                       |
|                                                                             |           |                        | 5    |                     |               |                  | 6                                                                                                                                      |           | READY / CAPABLE EV DUAL CHARGER SOUTH |
| FOOD TRUCK RECEPTACLE                                                       | 50        | 2                      | 7    | 3000                | 3000          |                  | 8                                                                                                                                      |           |                                       |
|                                                                             |           |                        | 9    |                     | 3000          | 3000             | 10                                                                                                                                     |           | EVSE (INSTALLED) CHARGER EAST         |
| FOOD TRUCK RECEPTACLE                                                       | 50        | 2                      | 11   |                     |               |                  | 12                                                                                                                                     |           |                                       |
|                                                                             |           |                        | 13   | 3000                | 8000          |                  | 14                                                                                                                                     |           |                                       |
| STAGE RECEPTACLE                                                            | 50        | 2                      | 15   |                     | 3000          | 8000             | 16                                                                                                                                     |           | ELECTRIC WATER HEATING                |
|                                                                             |           |                        | 17   |                     |               | 3000             | 18                                                                                                                                     |           |                                       |
| RECEPTACLE AT STAGE                                                         | 25        | 1                      | 19   | 300                 | 1000          |                  | 20                                                                                                                                     | 1         | 20 RECEPT - COURTYARD FENCE POSTS     |
| STRING LUG RECS AT TREE (XMAS)                                              | 25        | 1                      | 21   |                     | 900           | 1000             | 22                                                                                                                                     | 1         | 20 RECEPT - COURTYARD FENCE POSTS     |
| LIGHTING - SITE - OUT OF PT                                                 | 25        | 1                      | 23   |                     |               | 800              | 24                                                                                                                                     | 1         | 20 RECEPT - COURTYARD FENCE POSTS     |
| RECEPTACLES - TAP HOUSE                                                     | 25        | 1                      | 25   | 720                 |               |                  | 26                                                                                                                                     |           |                                       |
| RECEPTACLES - TAP HOUSE                                                     | 25        | 1                      | 27   |                     | 720           |                  | 28                                                                                                                                     |           |                                       |
| KIT - ETL - TAPHOUSE REFRIGERATOR                                           | 25        | 1                      | 29   |                     |               |                  | 30                                                                                                                                     |           |                                       |
| ELECTRIC HEATER - CRAWL SPACE                                               | 25        | 1                      | 31   | 1500                |               |                  | 32                                                                                                                                     |           |                                       |
|                                                                             |           |                        | 33   |                     |               |                  | 34                                                                                                                                     |           |                                       |
|                                                                             |           |                        | 35   |                     |               |                  | 36                                                                                                                                     |           |                                       |
|                                                                             |           |                        | 37   |                     |               |                  | 38                                                                                                                                     |           |                                       |
|                                                                             |           |                        | 39   |                     |               |                  | 40                                                                                                                                     |           |                                       |
|                                                                             |           |                        | 41   |                     |               |                  | 42                                                                                                                                     |           |                                       |
| TOTAL CONNECTED VOLT-AMPS PER PHASE                                         |           |                        |      | 25147               | 36900         | 27046            |                                                                                                                                        |           |                                       |
| TOTAL CONNECTED AMPS PER PHASE                                              |           |                        |      | 210                 | 228           | 225              |                                                                                                                                        |           |                                       |
| TOTAL ESTIMATED DEMAND AMPS PER PHASE                                       |           |                        |      | 223                 | 247           | 256              |                                                                                                                                        |           |                                       |
| PHASE IMBALANCE                                                             |           | LOAD CLASSIFICATION    |      | CONNECTED LOAD (VA) | DEMAND FACTOR | DEMAND LOAD (VA) | PANEL TOTALS                                                                                                                           |           |                                       |
| PHASE A 5 %                                                                 |           | LIGHTING               |      | 1095                | 125.00%       | 1095             | TOTAL CONNECTED LOAD (VA): 79000 VA<br>TOTAL DEMAND (VA): 86074 VA<br>TOTAL CONNECTED LOAD (AMPS): 220 A<br>TOTAL DEMAND (AMPS): 241 A |           |                                       |
| PHASE B 2 %                                                                 |           | RECEPTACLES            |      | 8940                | 100.00%       | 8940             |                                                                                                                                        |           |                                       |
| PHASE C 3 %                                                                 |           | MISCELLANEOUS          |      | 0                   | 0.00%         | 0                |                                                                                                                                        |           |                                       |
|                                                                             |           | KITCHEN                |      | 18900               | 80.00%        | 15168            |                                                                                                                                        |           |                                       |
|                                                                             |           | MISCELLANEOUS          |      | 0                   | 100.00%       | 0                |                                                                                                                                        |           |                                       |
|                                                                             |           | ELECTRIC HEAT          |      | 1500                | 100.00%       | 1500             |                                                                                                                                        |           |                                       |
|                                                                             |           | ELECTRIC WATER HEATING |      | 24000               | 125.00%       | 30000            |                                                                                                                                        |           |                                       |
|                                                                             |           | HVAC                   |      | 0                   | 0.00%         | 0                |                                                                                                                                        |           |                                       |
|                                                                             |           | EV CHARGING            |      | 21600               | 125.00%       | 27000            |                                                                                                                                        |           |                                       |

BREAKER TYPE ABBREVIATIONS:  
 AL - AFCI, G - GFCI, AG - COMBINATION AFCI/GFCI, ET - ELECTRONIC TRIP, LK - LOCKING PROVISIONS, ST - SHUNT TRIP  
 NOTES:



2 TAP HOUSE FLOOR PLAN - LIGHTING  
 1/4" = 1'-0"



1 TAP HOUSE FLOOR PLAN - POWER  
 1/4" = 1'-0"



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LOUISVILLE HISTORIC GRAIN ELEVATOR  
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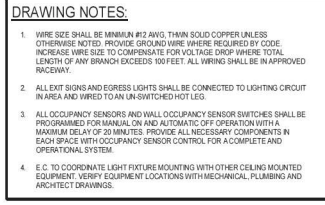
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TAP HOUSE  
 PLANS  
 ELECTRICAL

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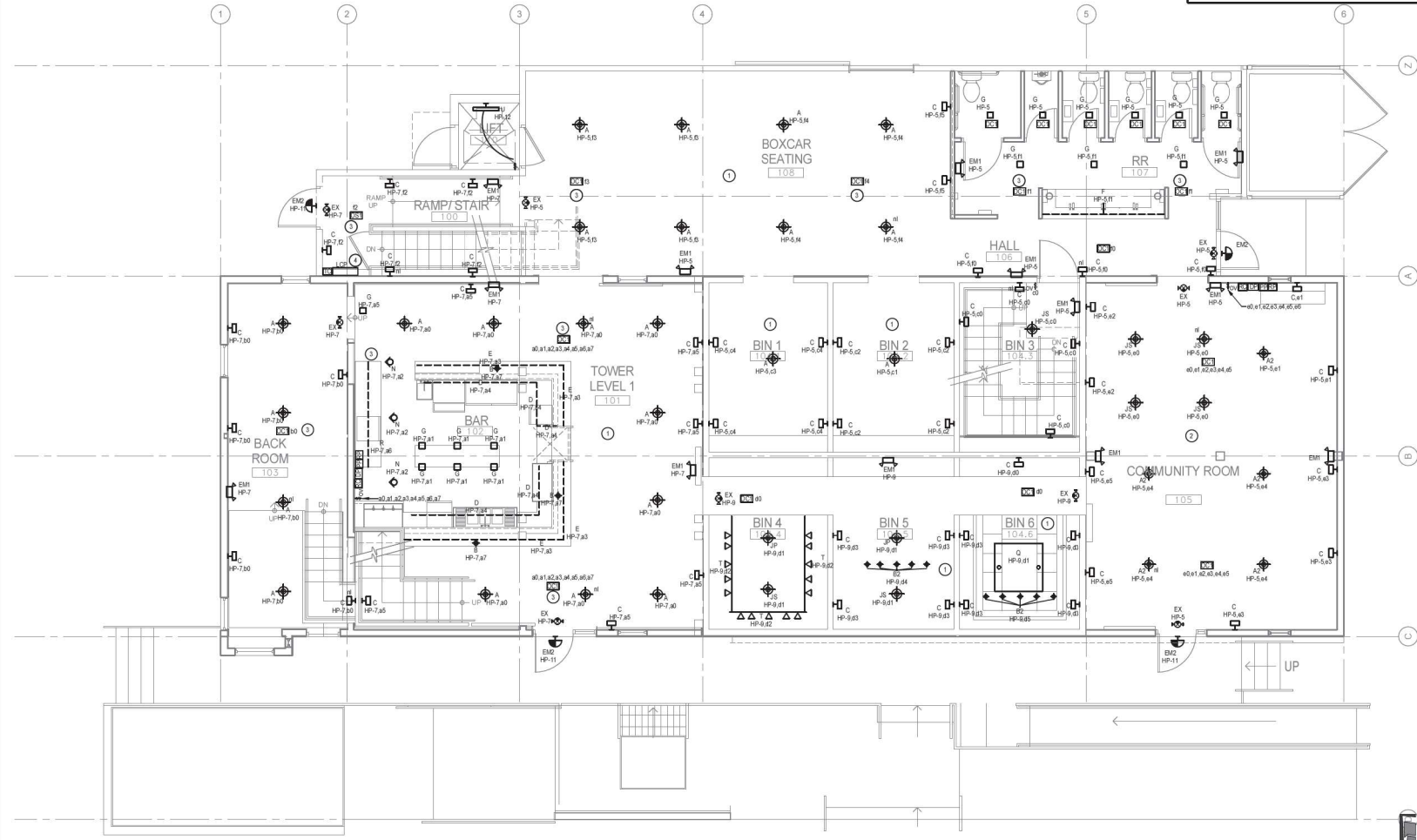
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- KEY NOTES:**
1. PROVIDE ROOM CONTROLLER LIGHTING CONTROLS WITH MULTIPLE PRESET LIGHTING CONTROLS FOR THE BAR / SEATING / BOXCAR AREAS IN LEVELS BASEMENT, ONE AND TWO. ALL FIXTURES IN THESE AREAS SHALL HAVE DIMMING CAPABILITIES VIA THE ROOM CONTROLLER.
  2. PROVIDE ROOM CONTROLLER LIGHTING CONTROLS WITH MULTIPLE PRESET LIGHTING CONTROLS FOR COMMUNITY ROOM AND MEZANINE AREAS. ALL FIXTURES IN THESE AREAS SHALL HAVE DIMMING CAPABILITIES VIA THE ROOM CONTROLLER.
  3. LIGHT FIXTURES IN THIS AREA / ON THIS SWITCH LEG / IN THIS SWITCH ZONE SHALL BE CONTROLLED VIA TIME-CLOCK WITH LOCAL MANUAL SWITCH OR OCCUPANCY SENSOR CAPABLE OF OVERRIDING TIME-CLOCK TO TURN FIXTURES ON.
  4. PROVIDE MAIN LIGHTING CONTROL PANEL (LPC) WITH TIME-CLOCK AT THE LOCATION INDICATED ON PLAN. FIXTURES NOT CONTROLLED BY INDIVIDUAL ROOM CONTROLLERS SHALL BE CONTROLLED FROM THIS LOCATION. REFER TO LIGHTING CONTROL MATRIX FOR MORE INFORMATION.

- DRAWING NOTES:**
1. WIRE SIZE SHALL BE MINIMUM #12 AWG, THIN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED RACEWAY.
  2. ALL EXT. SIGNS AND EXPOSED LIGHTS SHALL BE CONNECTED TO LIGHTING CIRCUIT IN AREA AND WIRED TO AN UN-SWITCHED HOT LEG.
  3. ALL OCCUPANCY SENSORS AND WALL OCCUPANCY SENSOR SWITCHES SHALL BE PROGRAMMED FOR MANUAL, ON AND AUTOMATIC OFF OPERATION WITH A MAXIMUM DELAY OF 20 MINUTES. PROVIDE ALL NECESSARY COMPONENTS IN EACH SPACE WITH OCCUPANCY SENSOR CONTROL FOR A COMPLETE AND OPERATIONAL SYSTEM.
  4. E.C. TO COORDINATE LIGHT FIXTURE MOUNTING WITH OTHER CEILING MOUNTED EQUIPMENT. VERIFY EQUIPMENT LOCATIONS WITH MECHANICAL, PLUMBING AND ARCHITECT DRAWINGS.



**1 FIRST LEVEL FLOOR PLAN - LIGHTING**  
1/4" = 1'-0"

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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC

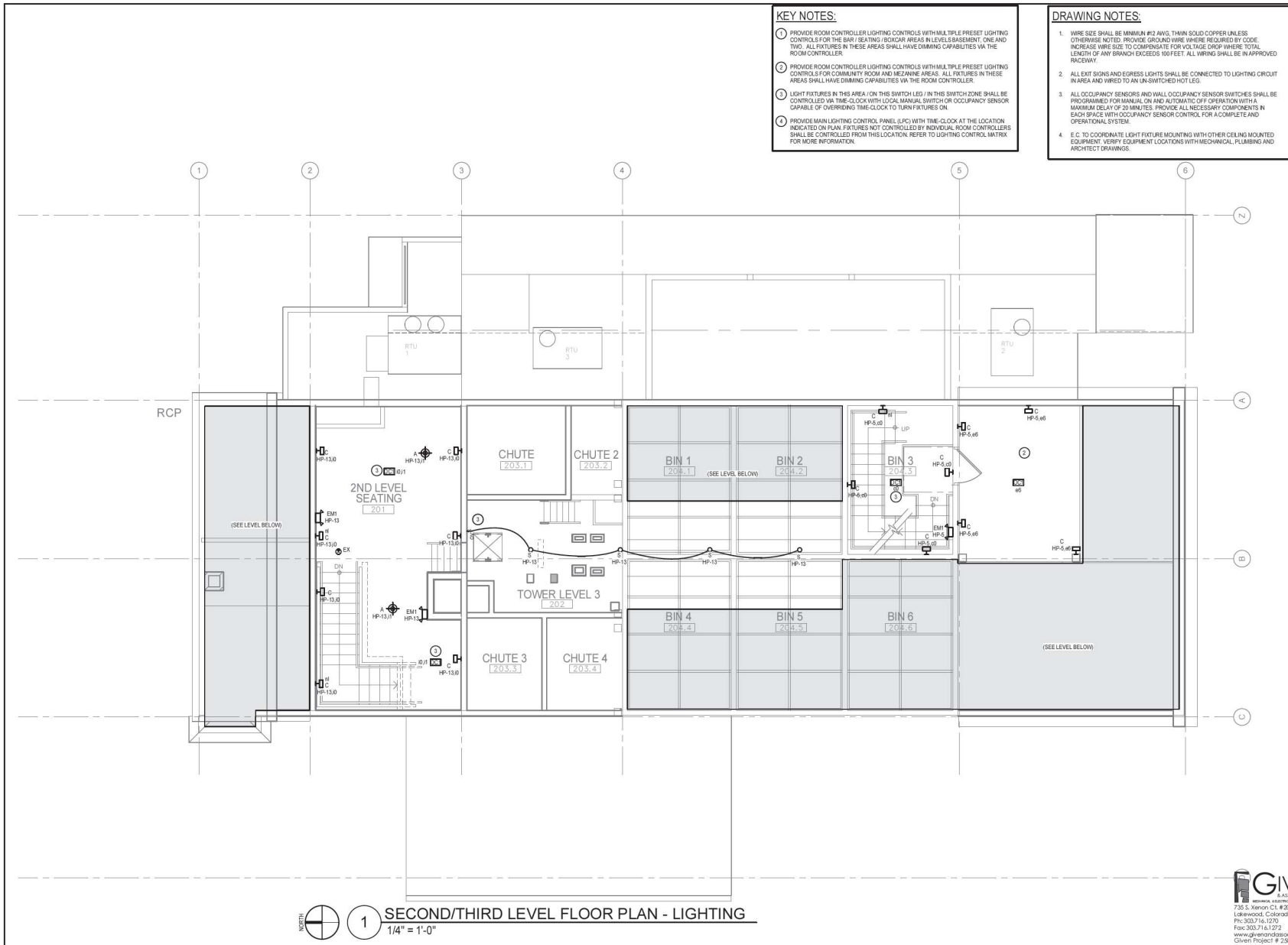


PROJECT # 1252.50  
DATE: 12/05/2025  
DRAWN BY: AFJ/CRM  
CHECKED BY: BAB  
REVISIONS:  
1. 12/05/2025  
2. 12/05/2025

**FIRST FLOOR PLAN - LIGHTING**

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**E.02**  
of Sheets

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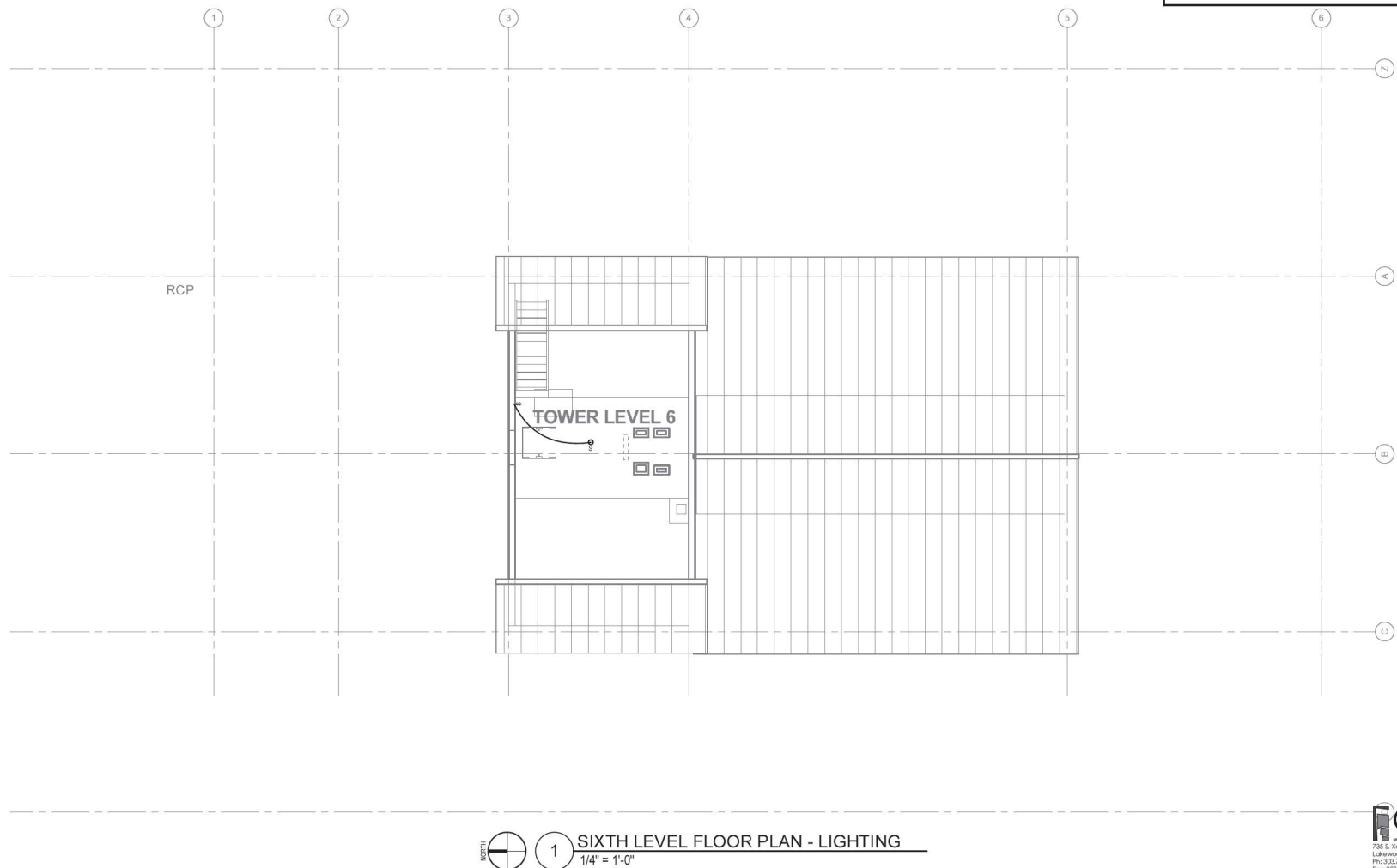
SECOND/THIRD  
FLOOR PLAN -  
LIGHTING

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**E2.03**  
of Sheets

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**DRAWING NOTES:**

1. WIRE SIZE SHALL BE MINIMUM #12 AWG. THIN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE (WHERE REQUIRED) BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH (ANY BRANCH DEVICES) EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED RACEWAY.
2. ALL EXIST SIGNS AND EGRESS LIGHTS SHALL BE CONNECTED TO LIGHTING CIRCUIT IN AREA AND WIRED TO AN UN-SWITCHED HOT LEG.
3. ALL OCCUPANCY SENSORS AND WALL OCCUPANCY SENSOR SWITCHES SHALL BE PROGRAMMED FOR MANUAL ON AND AUTOMATIC OFF OPERATION WITH A 30 MINIMUM TIME OF 20 MINUTES. PROVIDE ALL NECESSARY COMPONENTS IN EACH SPACE WITH OCCUPANCY SENSOR CONTROL FOR A COMPLETE AND OPERATIONAL SYSTEM.
4. E.C. TO COORDINATE LIGHT FIXTURE MOUNTING WITH OTHER CEILING MOUNTED EQUIPMENT. VERIFY EQUIPMENT LOCATIONS WITH MECHANICAL, PLUMBING AND ARCHITECT DRAWINGS.



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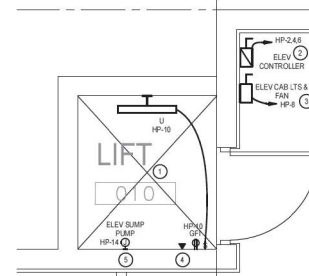
SIXTH FLOOR  
PLAN - LIGHTING

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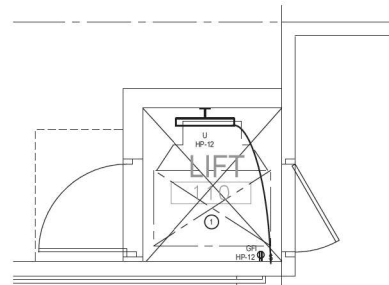
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Given Project # 25086



1 ELEVATOR PIT ELECTRICAL PLAN  
1/2" = 1'-0"



2 ELEVATOR HOISTWAY ELECTRICAL PLAN  
1/2" = 1'-0"

#### DRAWING NOTES:

1. WIRE SIZE SHALL BE MINIMUM #12 AWG THIN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET. ALL WIRING SHALL BE IN APPROVED RACEWAY.
2. ALL OUTLETS AND EQUIPMENT SHALL BE CIRCUITED TO PANELS AS NOTED. NUMBERS INDICATE CIRCUITING.
3. VERIFY MOUNTING AND LOCATION OF ALL OUTLETS WITH ARCHITECT AND COORDINATE WITH MECHANICAL DUCTWORK AS REQUIRED PRIOR TO ROUGH-IN.
4. COORDINATE LOCATIONS FOR ALL TELEPHONE, CATV OUTLETS AND REQUIREMENTS WITH OWNER / ARCHITECT.
5. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR EXACT LOCATIONS OF EQUIPMENT.
6. COORDINATE INSTALLATION REQUIREMENTS OF ELECTRICAL EQUIPMENT PROVIDED BY OTHER TRADES, AND PROVIDE ALL CONNECTIONS AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
7. REFER TO EQUIPMENT CONNECTION SCHEDULES FOR FEEDER, DISCONNECT, AND CIRCUIT BREAKER SIZES FOR MECHANICAL & PLUMBING EQUIPMENT.
8. NO EQUIPMENT, DEVICES, FURNITURE, OR THE LIKE SHALL BE INSTALLED OR PLACED IN FRONT OF ELECTRICAL PANELS OR EQUIPMENT THAT WOULD VIOLATE CODE REQUIREMENTS FOR WORKING CLEARANCE.

#### KEY NOTES:

1. COORDINATE ALL HOISTWAY AND PIT DEVICE LOCATIONS WITH ELEVATOR MANUFACTURER.
2. PROVIDE 40A/3P FUSED DISCONNECT SWITCH AND POWER CONNECTION WITH (3) #8 AWG CU + 1 #8 AWG GROUND, 1" AND FUSES PER ELEVATOR MANUFACTURER'S REQUIREMENTS FOR ELEVATOR CONTROLLER. VERIFY REQUIREMENTS WITH APPROVED ELEVATOR EQUIPMENT SUBMITTAL AND SHOP DRAWINGS PRIOR TO ROUGH-IN.
3. PROVIDE 15A/1P NON-FUSED DISCONNECT FOR ELEVATOR CAB LIGHTS & FAN. VERIFY REQUIREMENTS WITH APPROVED ELEVATOR EQUIPMENT SUBMITTAL AND SHOP DRAWINGS PRIOR TO ROUGH-IN.
4. PROVIDE TELEPHONE / DATA OUTLET IN ELEVATOR HOISTWAY FOR CONNECTION TO ELEVATOR CONTROLLER. VERIFY LOCATION WITH ELEVATOR INSTALLER.
5. PROVIDE 120V POWER CONNECTION IN ELEVATOR PIT FOR ELEVATOR PUMP PUMP.

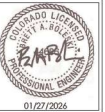


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**LOUISVILLE HISTORIC GRAIN ELEVATOR  
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PROJECT # 1252.50  
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DRAWN BY: AFJ/CRM  
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ELECTRICAL  
PLANS

Sheet

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| PIPING SYSTEMS                                                                    |                                 |
|-----------------------------------------------------------------------------------|---------------------------------|
|  | CHWS CHILLED WATER SUPPLY       |
|  | CHWR CHILLED WATER RETURN       |
|  | CDS CONDENSER WATER SUPPLY      |
|  | CDR CONDENSER WATER RETURN      |
|  | HWS HEATING HOT WATER SUPPLY    |
|  | HWR HEATING HOT WATER RETURN    |
|  | DCW DOMESTIC COLD WATER         |
|  | DCWR DOMESTIC COLD WATER RETURN |
|  | DDH DOMESTIC HOT WATER          |
|  | DDHR DOMESTIC HOT WATER RETURN  |
|  | REFS REFRIGERANT SUCTION LINE   |
|  | REFL REFRIGERANT LIQUID LINE    |
|  | REFG REFRIGERANT GAS LINE       |
|  | G NATURAL/PROPANE GAS           |
|  | CA COMPRESSED AIR               |
|  | COND CONDENSATE                 |

| VALVES & FITTINGS                                                                   |                                                    |
|-------------------------------------------------------------------------------------|----------------------------------------------------|
|    | 3 WAY CONTROL VALVE                                |
|    | 3 WAY VALVE                                        |
|    | AIR VENT AUTOMATIC                                 |
|    | AIR VENT MANUAL                                    |
|    | BALL VALVE                                         |
|    | BUTTERFLY VALVE                                    |
|    | CALIBRATED BALANCE VALVE                           |
|    | CAP                                                |
|   | CHECK VALVE                                        |
|  | CONTROL VALVE                                      |
|  | DRAIN & FILL VALVE WITH CAP & 3/4" HOSE CONNECTION |
|  | FLEX CONNECTOR                                     |
|  | FLOW ARROW                                         |
|  | FLOW METER                                         |
|  | FLOW SWITCH                                        |
|  | GATE VALVE                                         |
|  | GLOBE VALVE                                        |
|  | PLUG VALVE/GAS COCK                                |
|  | PRESSURE GAUGE & COCK                              |
|  | PRESSURE REGULATING/REDUCING VALVE                 |
|  | SIGHT GLASS                                        |
|  | SUCTION DIFFUSER                                   |
|  | TEMPERATURE & PRESSURE RELIEF VALVE                |
|  | TEMPERATURE & PRESSURE TEST PORT                   |
|  | TEST PORT                                          |
|  | THERMOMETER                                        |
|  | Y-STRAINER                                         |
|  | Y-STRAINER WITH VALVE, CAP & 3/4" HOSE CONNECTION  |
|  | ELBOW/BOW/DN                                       |
|  | ELBOW/BOW/UP                                       |
|  | TEE DOWN                                           |
|  | TEE UP                                             |
|  | UNION                                              |

| DUCT SYSTEMS                                                                          |                                                      |
|---------------------------------------------------------------------------------------|------------------------------------------------------|
|    | DUCT SIZE<br>(CLEAR INSIDE DIMENSION)                |
|    | ROUND DUCT DIAMETER SIZE<br>(CLEAR INSIDE DIMENSION) |
|    | FLEXIBLE DUCT                                        |
|    | ELBOW WITH TURNING VANES                             |
|    | SUPPLY UP/DOWN                                       |
|    | RETURN UP/DOWN                                       |
|    | EXHAUST UP/DOWN                                      |
|    | RADIATION DAMPER                                     |
|    | FIRE DAMPER                                          |
|    | SMOKE DAMPER                                         |
|    | FIRE/SMOKE DAMPER                                    |
|    | 24V OR 120V MOTORIZED<br>CONTROL DAMPER              |
|    | BACK DRAFT DAMPER                                    |
|    | VOLUME CONTROL DAMPER                                |
|    | MANUAL VOLUME DAMPER                                 |
|    | DOOR UNDERCUT                                        |
|    | AIR FLOW DIRECTION                                   |
| AIR DEVICES                                                                           |                                                      |
|    | CEILING SUPPLY AIR DEVICE                            |
|    | CEILING RETURN AIR DEVICE                            |
|   | CEILING EXHAUST AIR DEVICE                           |
|  | ROUND DIFFUSER                                       |
|  | LINEAR AIR DEVICE                                    |
|  | SIDEWALL AIR DEVICE                                  |
|  | LOUVER                                               |
|  | LOUVERED WALL BOX                                    |
|  | EYEBROW HOOD WALL CAP                                |
|  | CONCENTRIC VENT TERMINATION                          |

| SHEET DESIGNATIONS                                                                                                                                                                                                                                          |                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| -----                                                                                                                                                                                                                                                       | ABOVE OR BELOW                                     |
| - - - - -                                                                                                                                                                                                                                                   | CLEARANCE                                          |
| ~~~~~                                                                                                                                                                                                                                                       | CONTROL OR INTERLOCK                               |
| -----                                                                                                                                                                                                                                                       | DEMOLISH                                           |
| —————                                                                                                                                                                                                                                                       | EXISTING                                           |
| —————                                                                                                                                                                                                                                                       | FUTURE                                             |
| =====                                                                                                                                                                                                                                                       | MATCHLINE                                          |
| —————                                                                                                                                                                                                                                                       | NEW                                                |
| -----                                                                                                                                                                                                                                                       | TEMPORARY                                          |
|    | <b>NUMBERS ON SHEET</b><br>SHEET NUMBER            |
|                                                                                                                                                                          | EQUIPMENT COORDINATION TAG                         |
|                                                                                                                                                                          | KEY NOTE(S)                                        |
|                                                                                                                                                                          | DETAIL NOTE(S)                                     |
|                                                                                                                                                                          | POINT OF CONNECTION (POC)                          |
|                                                                                                                                                                          | POINT OF DISCONNECT (POD)                          |
|                                                                                                                                                                          | MECHANICAL EQUIPMENT TAG                           |
|                                                                                                                                                                          | VESTIBULAR/CONTROLLER EQUIPMENT TAG<br>INSTANCE    |
|                                                                                                                                                                          | SYSTEM INSTANCE ID<br>OUTDOOR UNIT SYSTEM          |
|                                                                                                                                                                          | PLUMBING/ELECTRICAL<br>EQUIPMENT TAG FOR REFERENCE |
| TAG-NEW QTY<br>CFM                                                                                                                                                                                                                                          | AIR DEVICE TAG                                     |
| TAG-# SIZE<br>CFM                                                                                                                                                                                                                                           | LOUVER TAG                                         |
| DEVICES                                                                                                                                                                                                                                                     |                                                    |
|                                                                                                                                                                          | THERMOSTAT                                         |
|                                                                                                                                                                          | HUMIDISTAT                                         |
|                                                                                                                                                                          | SMOKE DETECTOR                                     |
|                                                                                                                                                                          | HORN/STROBE                                        |
|                                                                                                                                                                         | EQUIPMENT CONTROL PANEL                            |
|                                                                                                                                                                        | VARIABLE FREQUENCY DRIVE                           |
|                                                                                                                                                                        | EMERGENCY POWER OFF (RE. ELEC)                     |
|                                                                                                                                                                        | SENSOR WITH ABBREVIATION                           |
| AQ                                                                                                                                                                                                                                                          | AQUASTAT                                           |
| CO                                                                                                                                                                                                                                                          | CARBON MONOXIDE                                    |
| CO2                                                                                                                                                                                                                                                         | CARBON DIOXIDE                                     |
| H                                                                                                                                                                                                                                                           | HYDROGEN                                           |
| NO2                                                                                                                                                                                                                                                         | NITROUS DIOXIDE                                    |
| P                                                                                                                                                                                                                                                           | PRESSURE                                           |
| PD                                                                                                                                                                                                                                                          | PRESSURE DIFFERENTIAL                              |
| T                                                                                                                                                                                                                                                           | TEMPERATURE                                        |

| ABBREVIATIONS                            |                                        |
|------------------------------------------|----------------------------------------|
| (D) DEMOLISH                             | LF LINEAR FEET                         |
| (E) EXISTING                             | LT LEAVING WATER TEMPERATURE           |
| (F) FUTURE                               | NAT MIXED AIR TEMP                     |
| (N) NEW                                  | RHH THOUSANDS BTU PER HOUR             |
| (R) RELOCATE                             | R.C. MECHANICAL CONTRACTOR             |
| ABS ABSOLUTE                             | NCA MINIMUM CIRCUIT AMPS               |
| AD ACCESS DOOR                           | NCDB MEAN COINCIDENT DRY BULB          |
| ADJ ADJUSTABLE                           | NCDBS MEAN COINCIDENT WET BULB         |
| AFB ABOVE FINISHED FLOOR                 | MFR MANUFACTURER                       |
| AHJ AUTHORITY HAVING JURISDICTION        | MMH MILLION BTU PER HOUR               |
| ALT ALTITUDE                             | MOOP MAX OVERCURRENT PROTECTION        |
| AMB AMBIENT                              | MTD MOUNTED                            |
| AVG AVERAGE                              | R.C. NORMALLY CLOSED                   |
| BHP BRAKE HORSEPOWER                     | R.O. NORMALLY OPEN                     |
| BTU BRITISH THERMAL UNIT                 | NAT NATURAL GAS                        |
| CAT CATEGORY                             | NC NOISE CRITERIA                      |
| CFH CUBIC FT PER HOUR                    | NC NOT IN CONTRACT                     |
| CFM CUBIC FEET PER MINUTE                | N / # NUMBER                           |
| CND CONDENSATE                           | NM NOMINAL (VALUE)                     |
| CONC CONCENTRATION                       | NR NOT REQUIRED                        |
| COND CONDENSER (ER-ING -ATION)           | NTS NOT TO SCALE                       |
| CUFF CUBIC FEET                          | OA OUTSIDE AIR                         |
| CUN CUBIC INCH                           | OBD OPPOSED BLADE DAMPER               |
| DB(D)A DECIBEL (A)                       | OD OUTSIDE DAMPER                      |
| DB DRY-BULB TEMPERATURE (°F)             | F.C. PLUMBING CONTRACTOR               |
| DCW DOMESTIC COLD WATER                  | FD PRESSURE DROP OR DIFFERENCE         |
| DHW DOMESTIC HOT WATER                   | FEG POLYETHYLENE GLYCOL                |
| DIAM / DIA / Ø DIAMETER                  | FGF PROPYLENE GLYCOL                   |
| DX DIRECT EXPANSION                      | FPM PARTS PER MILLION                  |
| EAT ENTERING AIR TEMPERATURE             | FRP PROPANE GAS                        |
| E.C. ELECTRICAL CONTRACTOR               | FSP POUNDS PER SQUARE FOOT             |
| EER ENERGY EFFICIENCY RATING             | FSI POUNDS PER SQUARE INCH             |
| ELEV ELEVATION                           | FS(S) POUNDS PER SQUARE INCH, GAUGE    |
| EFF EFFICIENCY                           | FS(S) POUNDS PER SQUARE INCH, ABSOLUTE |
| EOR ENGINEER OF RECORD                   | R THERMAL EXPANSION VALVE              |
| ESP EXTERNAL STATIC PRESSURE             | FA RETURN AIR                          |
| EVAP EVAPORATOR                          | FHR REFRIGERANT                        |
| EWIT ENTERING WATER TEMPERATURE          | FEH RELATIVE HUMIDITY                  |
| FLM FULL LOAD AMPS                       | FLA RUNNING LOAD AMPS                  |
| FLM FEET PER MINUTE                      | FLM REVOLUTIONS PER MINUTE             |
| FPS FEET PER SECOND                      | SA SUPPLY AIR                          |
| FT(LB) FOOT POUND                        | SEER SEASONAL ENERGY EFFICIENCY RATING |
| FTHD FEET OF HEAD (WG)                   | STG STAGES CONTROL                     |
| GA GAUGE THICKNESS                       | SL SEAL LEVEL                          |
| GAL GALLONS)                             | STG STAGES                             |
| G.C. GENERAL CONTRACTOR                  | TEMP TEMPERATURE AND PRESSURE          |
| GPD GALLONS PER DAY                      | TONS TONS OF REFRIGERATION             |
| GPH GALLONS PER HOUR                     | TSP TOTAL STATIC PRESSURE              |
| GR GRAMS                                 | 1-STAT THERMOSTAT                      |
| HP HORSEPOWER                            | 2V THERMOSTATIC EXPANSION VALVE        |
| HSPF HEATING SEASONAL PERFORMANCE FACTOR | TYP TYPICAL                            |
| HZ HZ FREQUENCY                          | U HEAT TRANSFER COEFFICIENT            |
| ID INSIDE DIAMETER                       | VDV VARIABLE FREQUENCY DRIVE           |
| IPVU INTEGRATED PART LOAD VALUE          | VAV VARIABLE AIR VOLUME                |
| K THERMAL RESISTANCE                     | VEL VELOCITY                           |
| KW KILOWATT                              | W WATTS                                |
|                                          | WB WET BULB TEMPERATURE                |
|                                          | WT WEIGHT                              |



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**

**Renovation for the GRAIN YARD**

5/10 COUNTY ROAD, LOUISVILLE, CO

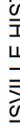
Louisville Mill Site LLC / Louisville's Living Room LLC

LOUISVILLE HISTORIC GRAIN ELEVATOR

Renovation for the GRAIN YARD

5/10 COUNTY ROAD, LOUISVILLE, CO

Louisville Mill Site LLC / Louisville's Living Room LLC



01/26/2024

|                                                                                                                                                                                                                                                                                         |         |             |            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------|------------|
| PROJECT #                                                                                                                                                                                                                                                                               | 1252    | DATE:       | 12/05/2025 |
| DRAWN BY:                                                                                                                                                                                                                                                                               | AFJ/CJM | CHECKED BY: | BAW        |
| REVISIONS:                                                                                                                                                                                                                                                                              |         |             |            |
| <div style="display: flex; align-items: center;"> <div style="width: 10px; height: 10px; border: 1px solid black; margin-right: 5px;"></div> <div style="font-size: 8px;">             1. REVISIONS<br/>             2. REVISIONS<br/>             3. REVISIONS           </div> </div> |         |             |            |

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**LEGEND & ABBREVIATIONS**

Sheet

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## ROOFTOP UNIT SCHEDULE HEAT PUMP - DX/ELECTRIC WITH HIGH OUTSIDE AIR CAPACITY

### REMARKS:

- (1) REFERS TO COOLING CAPACITIES BASED ON 100F OADB @ 5200 FTELEV. AND 100% OA UNIT SELECTED AT 90F SUMMER 0° WINTER.
- (2) PROVIDE PLENUM CURB WITH HORIZONTAL DISCHARGE, BELT DRIVE, HAL GUARDS, MICROPROCESSOR CONTROL, OPTIONAL DISCONNECT, COMBO FILTER RACK, OUTDOOR AIR INTAKE HOOD.
- (3) PROVIDE NON POWERED CONVENIENCE OUTLET.
- (4) SEER AND EER RATING ARE RATED AT 40% CONDITIONS AND IN ACCORDANCE WITH TEST PROCEDURES.
- (5) PROVIDE ROOF TOP UNIT WITH SMOKE DETECTOR AND AUTOMATIC SHUT-OFF IN RETURN AIR DUCT. INTERLOCK UNIT WITH FIRE CONTROL PANEL.
- (6) PROVIDE STAINLESS STEEL HEAT EXCHANGER.
- (7) PROVIDE UNIT WITH 50W NORMAL ELECTRIC HEAT BACKUP.
- (8) PROVIDE SENSOR IN SPACE FOR DEMAND CONTROLLED VENTILATION. MINIMUM OA SETTING SHALL BE 15% OF TOTAL SUPPLY AIRFLOW. MAXIMUM OA SETTING SHALL BE PER VENTILATION SCHEDULE.
- (9) PROVIDE ULL TEMPERATURE ECONOMIZER. W/BAROMETRIC RELIEF PER MANUFACTURER.

| PLAN MARK | MANUFACTURER | MODEL #              | SUPPLY (CFM) | EXHAUST (CFM) | OA(CFM) | SUPPLY FAN HP | EXHAUST FAN HP | ESP (inH2O) | HEATING CAPACITY |          |          |     | COOLING CAPACITY |            |           |           |           |           |         |       | REFRIGERANT | SEER/EER | ELECTRICAL DATA |      |     |      | OPERATING WEIGHT (LBS) | REMARKS |
|-----------|--------------|----------------------|--------------|---------------|---------|---------------|----------------|-------------|------------------|----------|----------|-----|------------------|------------|-----------|-----------|-----------|-----------|---------|-------|-------------|----------|-----------------|------|-----|------|------------------------|---------|
|           |              |                      |              |               |         |               |                |             | TEMP RISE (°F)   | EAT (°F) | LAT (°F) | COP | TOTAL (MBH)      | SENS (MBH) | EADB (°F) | EAWB (°F) | LADB (°F) | LAWB (°F) | VOLT    | PH    |             |          | MCA             | MOCP |     |      |                        |         |
| RTU-1     | CAPTIVE ARE  | CAS-PRAC-E-250-16-51 | 2,000        | 1,050         | 140     | 0.75          | 0.75           | 1.0         | 35.5             | 52       | 0        | 88  | 3.5              | 84.0       | 60.7      | 95        | 65        | 49.0      | 70/58.0 | R454B | 17.9/16.4   | 208      | 3               | 89.7 | 30A | 1222 | (1/2X3/4X5/6/7/8/9)    |         |

## ROOFTOP UNIT SCHEDULE - DX/ELECTRIC COOLING & HEAT PUMP HEAT

### REMARKS:

- (1) REFERS TO COOLING CAPACITIES BASED ON 95F OADB, 80F EADB, 67F EAWB @ 1300 FT ELEVATION.
- (2) PROVIDE MANUFACTURER'S 14" VIBRATION ISOLATION ROOF CURB, BELT DRIVE, HAL GUARDS, 100% OA ECONOMIZER AND BAROMETRIC RELIEF.
- (3) PROVIDE NON-POWERED CONVENIENCE OUTLET.
- (4) PROVIDE WITH ELECTRIC HEAT KIT AND SINGLE POINT POWER CONNECTION. HEATER WATTS LISTED IN SCHEDULE REFLECT POWER AT 208V. PROVIDE HEATER MODEL OR HEATER 320400.
- (5) PROVIDE WITH ELECTRIC HEAT KIT AND SINGLE POINT POWER CONNECTION. HEATER WATTS LISTED IN SCHEDULE REFLECT POWER AT 208V. PROVIDE HEATER MODEL OR HEATER 320400.
- (6) PROVIDE RETURN DUCT SMOKE DETECTOR.
- (7) PROVIDE SENSOR IN SPACE FOR DEMAND CONTROLLED VENTILATION. MINIMUM OA SETTING SHALL BE 15% OF TOTAL SUPPLY AIRFLOW. MAXIMUM OA SETTING SHALL BE PER VENTILATION SCHEDULE.
- (8) PROVIDE ULL TEMPERATURE ECONOMIZER. W/BAROMETRIC RELIEF PER MANUFACTURER.
- (9) PROVIDE UL6035-2-40 APPROVED R-454B DISAPPEAR BOARD AND LEAK SENSOR INCLUDED AS STANDARD.

| HEATING CAPACITY |              |                   |                      |                      |           |               |                  |                  |                  |                  |                     |                         |                  |                        |      |      |           |           | NET COOLING CAPACITY |           |         |                  |             |      |      |     |                     |  | ELECTRICAL DATA |  |  |  |  |  |  |  |  |  | OPERATING WEIGHT (LBS) | REMARKS |
|------------------|--------------|-------------------|----------------------|----------------------|-----------|---------------|------------------|------------------|------------------|------------------|---------------------|-------------------------|------------------|------------------------|------|------|-----------|-----------|----------------------|-----------|---------|------------------|-------------|------|------|-----|---------------------|--|-----------------|--|--|--|--|--|--|--|--|--|------------------------|---------|
| PLAN MARK        | MANUFACTURER | MODEL #           | SUPPLY AIRFLOW (CFM) | MIN OA AIRFLOW (CFM) | BLUR (HP) | ESP. (INCHES) | HEATING CAPACITY |                  | HEATING CAPACITY |                  | ELECTRIC HEAT WATTS | HEATING STAGES/CONTROLS |                  | TOTAL COOLING CAPACITY |      | SEER | EADB (°F) | EAWB (°F) | LADB (°F)            | LAWB (°F) | REFRIG. | EFFICIENCY STD/H | SEER RATING | VOLT | PH   | MCA | MOCP                |  |                 |  |  |  |  |  |  |  |  |  |                        |         |
|                  |              |                   |                      |                      |           |               | HEATING CAP (°F) | HEATING LAT (°F) | HEATING CAP (°F) | HEATING LAT (°F) |                     | HEATING CAP (°F)        | HEATING LAT (°F) | SEER                   | SEER |      |           |           |                      |           |         |                  |             |      |      |     |                     |  |                 |  |  |  |  |  |  |  |  |  |                        |         |
| RTU-2            | CARRIER      | SIFECAS-2400-2400 | 1,300                | 290                  | 1.0       | 1.0           | -3.0             | 101 F            | 32.8             | 6.7/3.6          | 12,000              | 1                       | 32.8             | 27.2                   | 80   | 83   | 54.5      | 53.1      | R-454B               | STD       | 10.4    | 208              | 3           | 94   | 70A  | 308 | (1/2X3/4/5/6/7/8/9) |  |                 |  |  |  |  |  |  |  |  |  |                        |         |
| RTU-3            | CARRIER      | SIFECAS-2400-2400 | 2,200                | 335                  | 1.0       | 1.0           | -3.0             | 101 F            | 54.3             | 6.7/3.7          | 18,000              | 2                       | 54.3             | 35.5                   | 80   | 83   | 54.5      | 53.1      | R-454B               | STD       | 13.4    | 208              | 3           | 96   | 100A | 608 | (1/2X3/4/5/6/7/8/9) |  |                 |  |  |  |  |  |  |  |  |  |                        |         |

## ELECTRIC UNIT HEATER SCHEDULE

### REMARKS:

- (1) PROVIDE WITH FACTORY MOUNTING ACCESSORIES. VERIFY MOUNTING HEIGHTS PRIOR TO FIELD INSTALLATION.
- (2) UNITS TO BE PROVIDED WITH HEAT IN FAN DELAY AUTO THERM PROTECTION.
- (3) PROVIDE BANGES BRONZE COLOR. CONFIRM WITH ARCHITECT PRIOR TO ORDERING.
- (4) HEIGHT = 4" DEPTH = 2.5"
- (5) INTEGRAL T-STAT TO ENERGIZE HEATER AT A TEMPERATURE AT 60F (AQU) OR BELOW.
- (6) PROVIDE SURFACE MOUNTING FRAME. FRAM
- (7) PROVIDE HEATER FOR PLENUM SPACE. INTEGRAL T-STAT TO ENERGIZE HEATER AT A TEMPERATURE AT 45F (AQU) OR BELOW.

| PLAN MARK | MFR     | MODEL     | STYLE            | CONTROL         | ELECTRICAL DATA |    | OPERATING WEIGHT (LBS) | REMARKS        |
|-----------|---------|-----------|------------------|-----------------|-----------------|----|------------------------|----------------|
|           |         |           |                  |                 | VOLT            | PH |                        |                |
| EUA-5-1   | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-2   | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-3   | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-4   | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-5   | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-6   | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-7   | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-8   | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-9   | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-10  | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-11  | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-12  | MARKELL | Z910-040C | BASEBOARD HEATER | INTEGRAL T-STAT | 208 V           | 1  | 1,000                  | 10 (1/2X3/4/5) |
| EUA-5-13  | BERKO   | FR4824F   | WALL HEATER      | INTEGRAL T-STAT | 208 V           | 1  | 3,600                  | 10 (1/2X3)     |
| EUA-5-14  | BERKO   | FR4824F   | WALL HEATER      | INTEGRAL T-STAT | 208 V           | 1  | 3,600                  | 10 (1/2X3)     |
| EUA-5-15  | BERKO   | FR4824F   | WALL HEATER      | INTEGRAL T-STAT | 208 V           | 1  | 3,600                  | 10 (1/2X3)     |

## OUTDOOR AIR VENTILATION SCHEDULE

| SYSTEM TYPE              | FLOOR | SPACE TYPE              | AREA (SF) | Rp  | Ra   | # / 1000SF | # OCCUPANTS | Vbr | Er  | Voz | Ev | Vot                |
|--------------------------|-------|-------------------------|-----------|-----|------|------------|-------------|-----|-----|-----|----|--------------------|
| <b>RTU-1</b>             |       |                         |           |     |      |            |             |     |     |     |    |                    |
| BAR BASEMENT SEATING     | 0     | Bars / cocktail lounges | 128       | 7.5 | 0.18 | 100        | 13          | 121 | 0.8 | 151 | 1  | 151                |
| BAR MAIN LEVEL SEATING   | 1     | Bars / cocktail lounges | 503       | 7.5 | 0.18 | 100        | 51          | 473 | 0.8 | 591 | 1  | 591                |
| BAR SECOND LEVEL SEATING | 2     | Bars / cocktail lounges | 170       | 7.5 | 0.18 | 100        | 17          | 158 | 0.8 | 198 | 1  | 198                |
|                          |       |                         | 801       |     |      |            | 81          |     |     |     |    |                    |
|                          |       |                         |           |     |      |            |             |     |     |     |    | TOTAL REQUIRED 940 |
|                          |       |                         |           |     |      |            |             |     |     |     |    | TOTAL SUPPLIED 940 |
| <b>RTU-2</b>             |       |                         |           |     |      |            |             |     |     |     |    |                    |
| COMMUNITY ROOM           | 1     | Conference / meeting    | 525       | 5   | 0.06 | 50         | 27          | 187 | 0.8 | 208 | 1  | 208                |
| COMMUNITY ROOM           | 2     | Conference / meeting    | 185       | 5   | 0.06 | 50         | 10          | 61  | 0.8 | 76  | 1  | 76                 |
|                          |       |                         | 710       |     |      |            | 37          |     |     |     |    |                    |
|                          |       |                         |           |     |      |            |             |     |     |     |    | TOTAL REQUIRED 285 |
|                          |       |                         |           |     |      |            |             |     |     |     |    | TOTAL SUPPLIED 280 |
| <b>RTU-3</b>             |       |                         |           |     |      |            |             |     |     |     |    |                    |
| COMMUNITY ROOM           | 1     | Conference / meeting    | 625       | 5   | 0.06 | 50         | 32          | 196 | 0.8 | 247 | 1  | 247                |
|                          |       |                         | 825       |     |      |            | 32          |     |     |     |    |                    |
|                          |       |                         |           |     |      |            |             |     |     |     |    | TOTAL REQUIRED 247 |
|                          |       |                         |           |     |      |            |             |     |     |     |    | TOTAL SUPPLIED 250 |
| <b>RTU-4</b>             |       |                         |           |     |      |            |             |     |     |     |    |                    |
| BOUQUAT SEATING          | 1     | Restaurant dining rooms | 534       | 7.5 | 0.18 | 70         | 38          | 381 | 0.8 | 476 | 1  | 476                |
| HALL                     | 1     | Corridors               | 96        | 0   | 0.06 | 0          | 0           | 6   | 0.8 | 7   | 1  | 7                  |
| OFFICE                   | 0     | Office space            | 74        | 5   | 0.06 | 5          | 1           | 9   | 0.8 | 12  | 1  | 12                 |
| HALL                     | 0     | Corridors               | 348       | 0   | 0.06 | 0          | 0           | 21  | 0.8 | 26  | 1  | 26                 |
|                          |       |                         | 1054      |     |      |            | 39          |     |     |     |    |                    |
|                          |       |                         |           |     |      |            |             |     |     |     |    | TOTAL REQUIRED 522 |
|                          |       |                         |           |     |      |            |             |     |     |     |    | TOTAL SUPPLIED 525 |

$V_{br} = R_p \cdot P_z + R_a \cdot A_z$   
 $R_p$  = OUTDOOR AIRFLOW RATE PER PERSON (CFM/PERSON)  
 $R_a$  = OUTDOOR AIRFLOW RATE REQUIRED PER UNIT AREA (CFM/SQFT)  
 $A_z$  = ZONE FLOOR AREA (sqft)  
 $P_z$  = ZONE POPULATION OCCUPANTS  
 $V_{br}$  (CFM) = BREATHING ZONE OUTDOOR AIR FLOW  
 $V_{oz} = V_{br} \cdot E_z$   
 $E_z$  = ZONE AIR DISTRIBUTION EFFECTIVENESS  
 $V_{oz}$  (CFM) = ZONE OUTDOOR AIR FLOW  
 $V_{ot} = V_{oz} \cdot E_v$   
 $E_v$  = SYSTEM VENTILATION EFFICIENCY  
 $V_{ot}$  (CFM) = REQUIRED OUTDOOR AIR INTAKE FLOW  
 $A_z$  = FLOOR AREA BASED ON NET OCCUPABLE AREA

## HEAT PUMP ELECTRIC HEAT/DX FAN COIL UNIT SCHEDULE

### REMARKS:

- (1) SELECTION BASED ON 5400 FT ELEVATION.
- (2) PROVIDE WITH LOCKABLE T-STATS AND CONDENSATE PUMPS AS REQUIRED.
- (3) UNIT HEAT SPECIFIED AT 20V WITH 20V PERFORMANCE & DERATE SHOWN ON SCHEDULE FOR ELECTRICAL DATA. PROVIDE ENH1010B HEATER 100W AT 240V.
- (4) PROVIDE MOTORIZED DAMPER FOR OUTSIDE AIR INTAKE. BALANCE OUTSIDE AIR INTAKE TO QUANTITY SHOWN ON VENTILATION SCHEDULE.
- (5) UNIT LOCATED IN CRAWLSPACE. ACCESS TO UNIT THROUGH CRAWLSPACE ACCESS. PROVIDE VIBRATION ISOLATION HANGERS FOR UNIT.

| PLAN MARK | MANUFACTURER | MODEL #    | AIRFLOW (CFM) | ESP (inH2O) | MOTOR (HP) | DX COOLING |          | DX HEATING |          | ELECTRIC HEAT |        | ELECTRICAL DATA  |                |       |    |      |      | REMARKS          |
|-----------|--------------|------------|---------------|-------------|------------|------------|----------|------------|----------|---------------|--------|------------------|----------------|-------|----|------|------|------------------|
|           |              |            |               |             |            | EDB (°F)   | EWB (°F) | TC (MMHg)  | EDB (°F) | TH (MMHg)     | STAGES | CAPACITY (WATTS) | CAPACITY (MMH) | VOLTS | PH | MCA  | MOCP |                  |
| FCCU-1    | CARRIER      | FMC52200AL | 1,200         | 0.7         | 1/5        | 60         | 67       | 36.0       | 70       | 36.0          | 1      | 7,200            | 24.7           | 20.8  | 1  | 45.5 | 60   | (1/2)(3/4)(5)(6) |

## HEAT PUMP CONDENSING UNIT SCHEDULE

### REMARKS:

- (1) PROVIDE UNIT WITH 1/2" QUICK SLANG MOUNTING PAD.
- (2) PROVIDE UNIT WITH TOX VALVE PER MANUFACTURER.
- (3) REFRIGERANT PIPING TO BE SIZED PER MANUFACTURER'S RECOMMENDATIONS.
- (4) UNIT CONTAINS R-454B A2L REFRIGERANT AND IS EQUIPPED WITH REFRIGERANT DETECTION SYSTEM.

| FLAN MARK | MANUFACTURER | MODEL#     | COOLING             |             | HEATING     |     | ELECTRICAL DATA |       |    |      |      |      |     |         | OPERATING WEIGHT (LBS) | REMARKS |
|-----------|--------------|------------|---------------------|-------------|-------------|-----|-----------------|-------|----|------|------|------|-----|---------|------------------------|---------|
|           |              |            | TOTAL COOLING (MBH) | MBH AT 47°F | MBH AT 30°F | COP | SEER2           | VOLT. | PH | FLA  | MCA  | MOCP |     |         |                        |         |
| HP-1      | CARRIER      | 37MUHQ3AA3 | 36.0                | 36.0        | 24.0        | 3.6 | 17.4            | 208   | 1  | 28.5 | 29.3 | 30A  | 151 | (1)X(3) |                        |         |

## FAN SCHEDULE

### REMARKS:

- (1) PROVIDE SPRING MOUNT ISOLATORS, WALL CAP, EC MOTOR & BACKDRAFT DAMPER.
- (2) FAN SHALL OPERATE CONTINUOUSLY DURING OCCUPIED HOURS.
- (3) FAN SHALL INTERLOCK WITH LIGHTING CONTROL.

AT FAN SHALL BE INTERLOCKED WITH MOTORIZED DAMPER AND LOUVER IN BASEMENT

| PLAN MARK | MANUFACTURER | MODEL # | STYLE       | CFM | ESP (INCHES) | RPM  | SONES | ELECTRICAL DATA |    | MOTOR SIZE (HP) | MOTOR SIZE (WATTS) | REMARKS |
|-----------|--------------|---------|-------------|-----|--------------|------|-------|-----------------|----|-----------------|--------------------|---------|
|           |              |         |             |     |              |      |       | VOLT            | PH |                 |                    |         |
| EF-1-1    | GREENHECK    | SBE-H20 | WALL MOUNT  | 600 | 0.3          | 1220 | <30   | 120             | 1  | 1/2             | -                  | (1/4)   |
| EF-1-1    | GREENHECK    | SO-B400 | WALL FAN    | 300 | 0.5          | 2500 | <30   | 120             | 1  | 1/4             | -                  | (1/2)   |
| EF-3-1    | GREENHECK    | SP-A110 | CEILING FAN | 75  | 0.5          | 950  | <30   | 120             | 1  | -               | 14                 | (1/3)   |
| EF-3-2    | GREENHECK    | SP-A110 | CEILING FAN | 75  | 0.5          | 950  | <30   | 120             | 1  | -               | 14                 | (1/3)   |

## AIR DEVICE SCHEDULE

### REMARKS:

- (1) VERIFY FINISH TYPE & COLOR WITH ARCHITECT PRIOR TO SUBMITTING FOR APPROVAL.
- (2) COORDINATE FRAME SELECTION WITH FINAL RCP.
- (3) PROVIDE SPIRAL DUCT MOUNT ACCESSORIES.

| PLAN MARK | MANUFACTURER | MODEL # | NOMINAL SIZE | CONNECTION<br>(IN) | FACE PATTERN            | DAMPER          | MATERIAL | FINISH     | NC MAX<br>(IN) | REMARKS |
|-----------|--------------|---------|--------------|--------------------|-------------------------|-----------------|----------|------------|----------------|---------|
| A1        | PRICE        | 800     | 12"R         | NOTED              | SPIRAL DUCT GRILLE      | AIR SCOOP (ROD) | STL      | 180 W ARCH | <35            | (1/2X3) |
| A2        | PRICE        | 850     | 12"R         | NOTED              | SPIRAL DUCT GRILLE      | AIR SCOOP (ROD) | STL      | 180 W ARCH | <35            | (1/2X3) |
| A3        | PRICE        | 170     | 12"R         | NOTED              | FLOOR DIFFUSER          | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| A4        | PRICE        | 620     | 12"X12"      | NOTED              | LOUVERED SUPPLY GRILLE  | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| A5        | PRICE        | 530     | 12"X10"      | NOTED              | LOUVERED SUPPLY GRILLE  | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| A6        | PRICE        | 500     | 12"X12"      | NOTED              | SQUARE CONE DIFFUSER    | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| B1        | PRICE        | 530     | 36"R         | NOTED              | LOUVERED RETURN GRILLE  | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| B2        | PRICE        | 530     | 12"X12"      | NOTED              | LOUVERED RETURN GRILLE  | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| B3        | PRICE        | 530     | 32"X12"      | NOTED              | LOUVERED RETURN GRILLE  | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| B4        | PRICE        | 530     | 24"X18"      | NOTED              | LOUVERED RETURN GRILLE  | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| B5        | PRICE        | 530     | 30"X18"      | NOTED              | LOUVERED RETURN GRILLE  | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| B6        | PRICE        | 530     | 12"X10"      | NOTED              | LOUVERED RETURN GRILLE  | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| B7        | PRICE        | 530     | 12"X12"      | NOTED              | LOUVERED RETURN GRILLE  | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| E1        | PRICE        | 530     | 12"X10"      | NOTED              | LOUVERED EXHAUST GRILLE | OP BLADE        | STL      | 180 W ARCH | <35            | (1/2)   |
| L141      | CONNECCK     | ES0436  | 87"X12"      | NOTED              | DOWN                    |                 |          |            |                |         |





PROJECT # 1252.50  
DATE: 12/05/2025  
DRAWN BY: AF/JC/RM  
CHECKED BY: BAB  
REVISIONS:  
 B-B-9B ADDENDUM 1  
 B-B-9B ADDENDUM 2

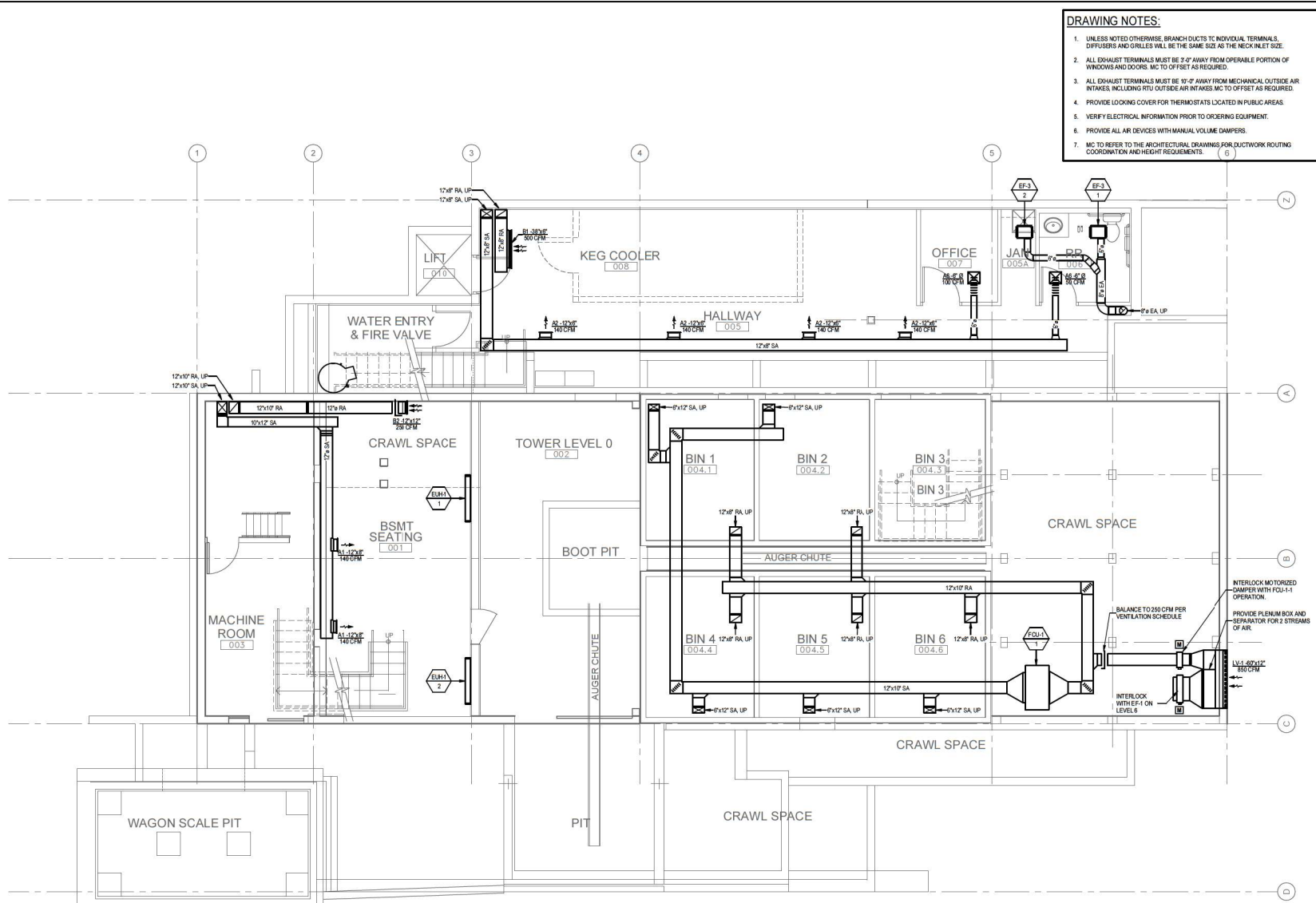
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BASEMENT FLOOR  
PLAN -  
MECHANICAL

Sheet

M1.01

of. Sheets



### BASEMENT FLOOR PLAN - MECHANICAL

$1/4'' = 1'-0''$

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# DRAWING NOTES:

1. UNLESS NOTED OTHERWISE, BRANCH DUCTS TO INDIVIDUAL TERMINALS, DIFFUSERS AND GRILLES WILL BE THE SAME SIZE AS THE MAIN INLET DUCT.
2. ALL EXHAUST TERMINALS MUST BE 3'-0" AWAY FROM OPERABLE PORTION OF WINDOWS AND DOORS. MC TO OFFSET AS REQUIRED.
3. ALL EXHAUST TERMINALS MUST BE 10'-0" AWAY FROM MECHANICAL OUTSIDE AIR INTAKES, INCLUDING RTU OUTSIDE AIR INTAKES. MC TO OFFSET AS REQUIRED.
4. PROVIDE LOCKING COVER FOR THERMOSTATS LOCATED IN PUBLIC AREAS.
5. VERIFY ELECTRICAL INFORMATION PRIOR TO ORDERING EQUIPMENT.
6. PROVIDE ALL AIR DEVICES WITH MANUAL VOLUME DAMPERS.
7. MC TO REFER TO THE ARCHITECTURAL DRAWINGS FOR DUCTWORK ROUTING COORDINATION AND HEIGHT REQUIREMENTS.



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
510 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE: 12/05/2025  
DRAWN BY: AFJCRM  
CHECKED BY: BMB

REVISIONS:  
1. REVISION 1  
2. REVISION 2

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FIRST FLOOR  
PLAN -  
MECHANICAL

Sheet

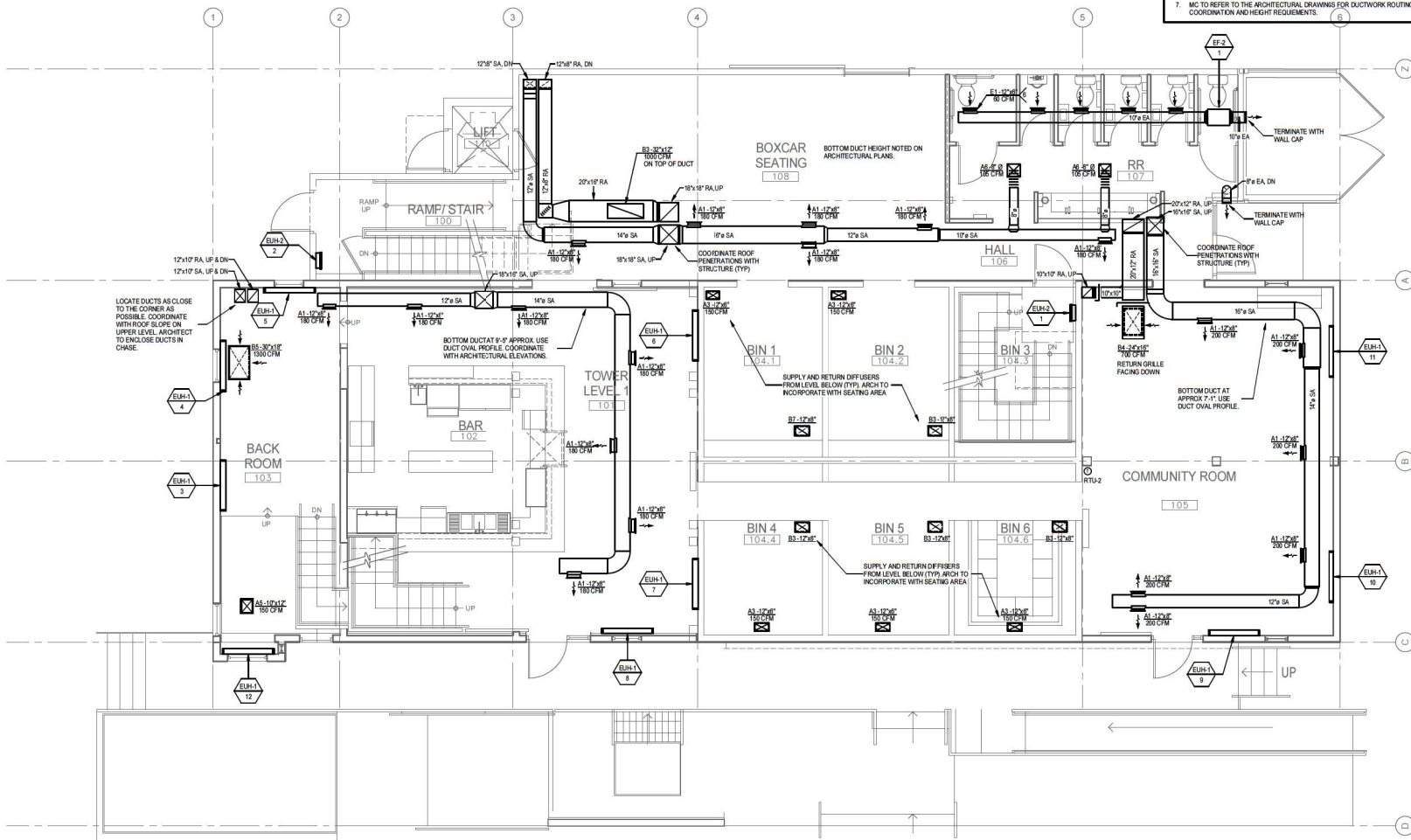
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**1 FIRST LEVEL FLOOR PLAN - MECHANICAL**  
1/4" = 1'-0"



# DRAWING NOTES:

1. UNLESS NOTED OTHERWISE, BRANCH DUCTS TO INDIVIDUAL TERMINALS, DIFFUSERS AND GRILLES WILL BE THE SAME SIZE AS THE MAIN INLET SIZE.
2. ALL EXHAUST TERMINALS MUST BE 3'-0" AWAY FROM OPERABLE PORTION OF WINDOWS AND DOORS. MC TO OFFSET AS REQUIRED.
3. ALL EXHAUST TERMINALS MUST BE 10'-0" AWAY FROM MECHANICAL OUTSIDE AIR INTAKES, INCLUDING RTU OUTSIDE AIR INTAKES. MC TO OFFSET AS REQUIRED.
4. PROVIDE LOCKING COVER FOR THERMOSTATS LOCATED IN PUBLIC AREAS.
5. VERIFY ELECTRICAL INFORMATION PRIOR TO ORDERING EQUIPMENT.
6. PROVIDE ALL AIR DEVICES WITH MANUAL VOLUME DAMPERS.
7. MC TO REFER TO THE ARCHITECTURAL DRAWINGS FOR DUCTWORK ROUTING COORDINATION AND HEIGHT REQUIREMENTS.

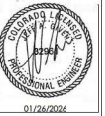


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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



01/26/2024  
PROJECT # 1252 50  
DATE: 12/05/2023  
DRAWN BY: AFJCRM  
CHECKED BY: BMB  
REVISIONS:  
1. REVISION: 1  
2. REVISION: 2

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SECOND/THIRD  
FLOOR PLAN -  
MECHANICAL

Sheet

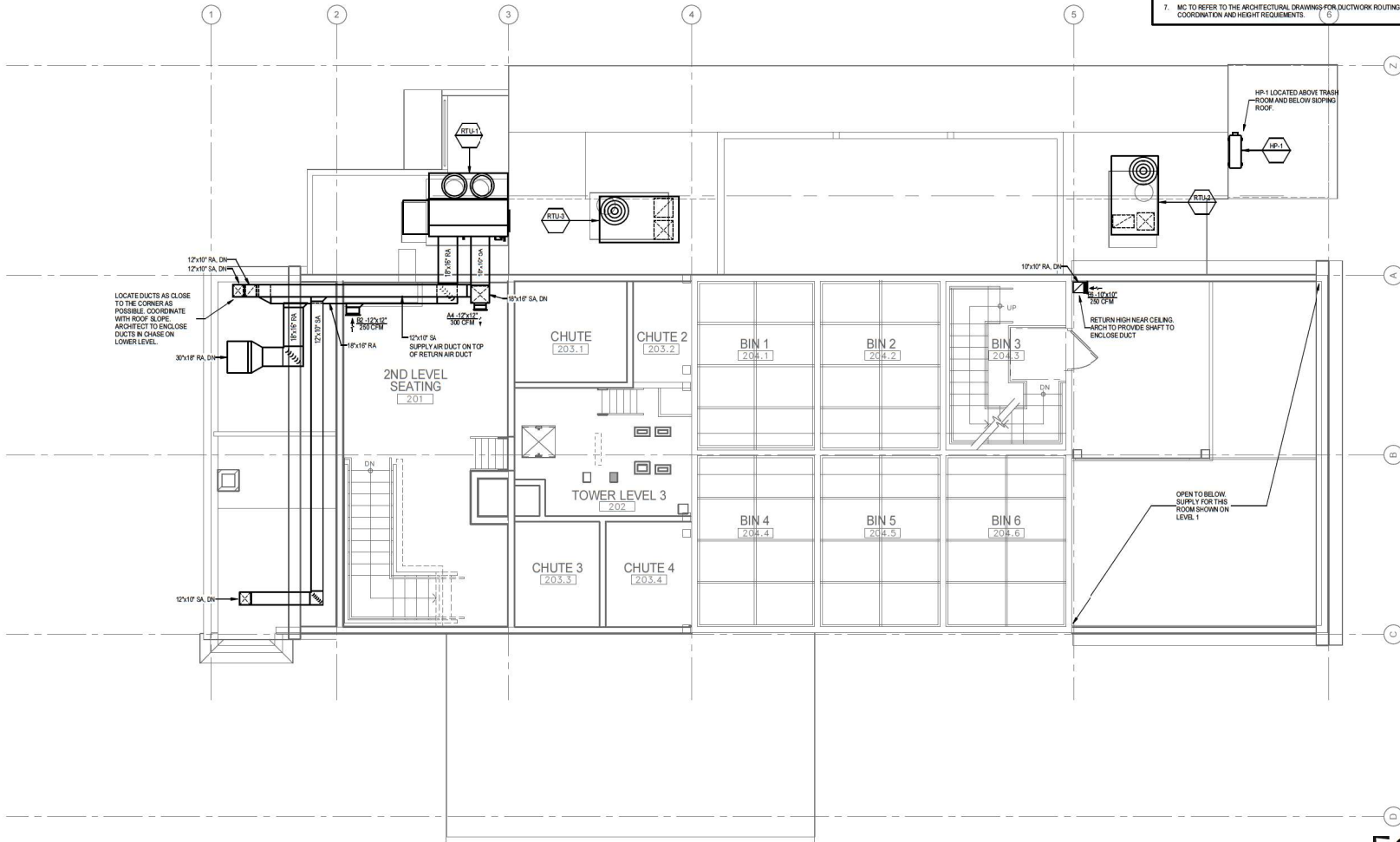
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Given Project # 23066



**1 SECOND/THIRD LEVEL FLOOR PLAN - MECHANICAL**  
1/4" = 1'-0"





# DRAWING NOTES:

1. UNLESS NOTED OTHERWISE, BRANCH DUCTS TO INDIVIDUAL TERMINALS, DIFFUSERS AND GRILLES WILL BE THE SAME SIZE AS THE NECK INLET SIZE.
2. ALL EXHAUST TERMINALS MUST BE 2'-0" AWAY FROM OPERABLE PORTION OF WINDOWS AND DOORS. MC TO OFFSET AS REQUIRED.
3. ALL EXHAUST TERMINALS MUST BE 10'-0" AWAY FROM MECHANICAL OUTSIDE AIR INTAKES, INCLUDING RTU OUTSIDE AIR INTAKES. MC TO OFFSET AS REQUIRED.
4. PROVIDE LOCKING COVER FOR THERMOSTATS LOCATED IN PUBLIC AREAS.
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6. PROVIDE ALL AIR DEVICES WITH MANUAL VOLUME DAMPERS.
7. MC TO REFER TO THE ARCHITECTURAL DRAWINGS FOR DUCTWORK ROUTING COORDINATION AND HEIGHT REQUIREMENTS.



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Louisville Mill Site LLC / Louisville's Living Room LLC



01/28/2024

PROJECT # 1252.50  
DATE: 12/05/2023  
DRAWN BY: AFJCRM  
CHECKED BY: BMB  
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2. REVISION: 2

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FOURTH/FIFTH  
FLOOR PLAN -  
MECHANICAL

Sheet

**M1.04**

of Sheets



1

FOURTH/FIFTH LEVEL FLOOR PLAN - MECHANICAL

1/4" = 1'-0"

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# DRAWING NOTES:

1. UNLESS NOTED OTHERWISE, BRANCH DUCTS TO INDIVIDUAL TERMINALS, DIFFUSERS AND GRILLES WILL BE THE SAME SIZE AS THE NECK INLET SIZE.
2. ALL EXHAUST TERMINALS MUST BE 2'-0" AWAY FROM OPERABLE PORTION OF WINDOWS AND DOORS. MC TO OFFSET AS REQUIRED.
3. ALL EXHAUST TERMINALS MUST BE 10'-0" AWAY FROM MECHANICAL OUTSIDE AIR INTAKES, INCLUDING RTU OUTSIDE AIR INTAKES. MC TO OFFSET AS REQUIRED.
4. PROVIDE LOCKING COVER FOR THERMOSTATS LOCATED IN PUBLIC AREAS.
5. VERIFY ELECTRICAL INFORMATION PRIOR TO ORDERING EQUIPMENT.
6. PROVIDE ALL AIR DEVICES WITH MANUAL VOLUME DAMPERS.
7. MC TO REFER TO THE ARCHITECTURAL DRAWINGS FOR DUCTWORK ROUTING COORDINATION AND HEIGHT REQUIREMENTS. (S)



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
5/10 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



01/26/2024

PROJECT # 1252.50  
DATE: 12/05/2023  
DRAWN BY: AFJCRM  
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REVISIONS:  
REVISION 1: 01/26/2024

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SIXTH FLOOR  
PLAN -  
MECHANICAL

Sheet

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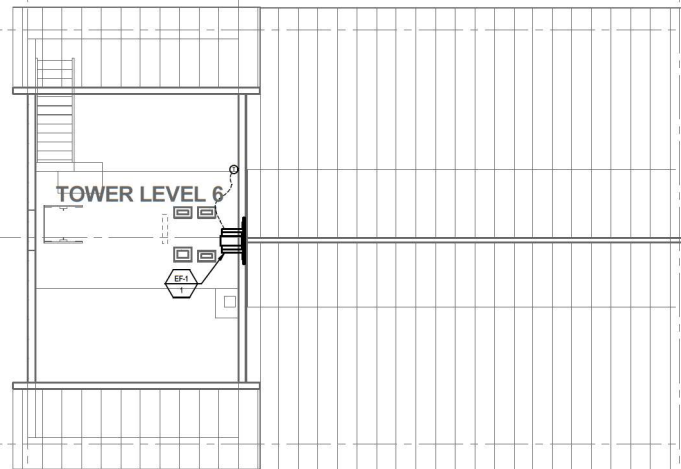
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1

SIXTH LEVEL FLOOR PLAN - MECHANICAL

1/4" = 1'-0"





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Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252 50  
DATE: 12/05/025  
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ROOF PLAN -  
MECHANICAL

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**1** ROOF PLAN - MECHANICAL  
1/4" = 1'-0"





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01/28/2024

PROJECT # 1252 50  
DATE: 12/05/025  
DRAWN BY: AFJCRM  
CHECKED BY: BMB  
REVISIONS:  
REVISION 1: 12/05/025

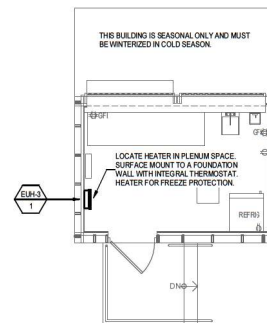
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TAP HOUSE PLAN -  
MECHANICAL

Sheet

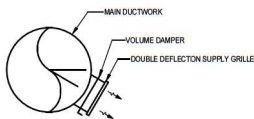
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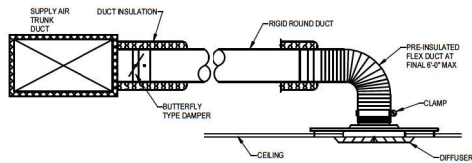


1 TAP HOUSE FLOOR PLAN - MECHANICAL  
1/4" = 1'-0"

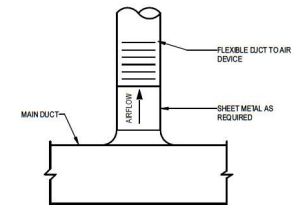
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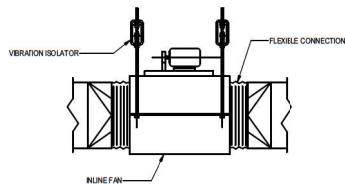
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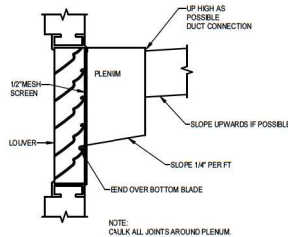
2 DIFFUSER INSTALLATION DETAIL  
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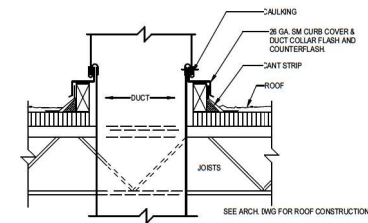
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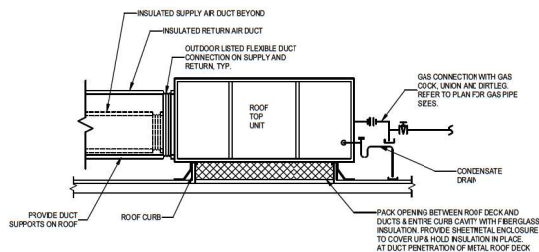
6 INLINE FAN SUPPORT DETAIL  
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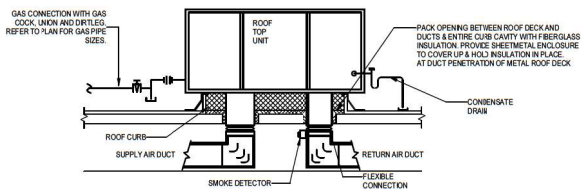
5 LOUVER CONNECTION DETAIL  
N.T.S.



4 ROOF PENETRATION DETAIL  
N.T.S.



8 HORIZONTAL ROOF TOP DETAIL  
N.T.S.



7 ROOF TOP DETAIL  
N.T.S.



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CHECKED BY: BAB  
REVISIONS:  
1. REVISION 1  
2. REVISION 2

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MECHANICAL  
DETAILS

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Given Project # 23056





THIS SHEET SPECIFICATION SHALL GOVERN IN LIEU OF SEPARATE BIDDING SPECIFICATIONS. UPON ISSUANCE SHOULD CONFLICTS ARISE BETWEEN THE SHEET AND THE BIDDING SPECIFICATION THEN THE MORE STRINGENT OF THE TWO SHALL PREVAIL.

#### 1. BASIC REQUIREMENTS

- PLUMBING PLANS MAY INCLUDE SOME INFORMATION FOR OTHER TRADES. GENERAL CONTRACTOR TO FACILITATE COORDINATION OF PERMITTING AND TO ALL REQUIRED CONTRACTORS. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES PRIOR TO BID TO CONFIRM A COMPLETE SYSTEM IS REQUIRED.
- PLUMBING DESIGN SHALL CONFORM TO APPLICABLE CODES AND ALL LOCAL AGREEMENTS. PROJECT SHALL BE COORDINATED WITH ALL BUILDING SERVICES AND ALL LOCAL ITEMS NECESSARY FOR COMPLETE AND FULLY OPERATIONAL PLUMBING SYSTEMS. MAKE CONNECTIONS TO EXISTING SYSTEMS INSTALLED BY OTHERS AND/OR FURNISHED BY OTHERS. PROVIDE ACCESSORIES AND INCIDENTAL ITEMS AS REQUIRED FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM WHETHER OR NOT SPECIFICALLY SPECIFIED AND/OR SHOWN ON THE PLANS.
- DO NOT SCALE FROM THESE DRAWINGS. REFER TO ARCHITECTURAL, STRUCTURAL OR CIVIL DRAWINGS FOR DESIGN PROFESSIONAL'S FOR DIMENSIONS AND FOR ESTIMATING DISTANCES. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND SPECIFICATIONS RELATING TO THE JOB WHETHER OR NOT INDICATED ON THESE DRAWINGS.
- ANY SCALE, DIMENSION OR QUANTITIES SHOWN ON THE DRAWINGS ARE FOR ENGINEERING CALCULATION PURPOSES ONLY. DESIGN IS DIAGNOSTIC IN NATURE AND IS PROVIDED TO COMEY DESIGN INTENT ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONAL AND RESULTS MUST BE DETERMINED BY THE SITE CONDITIONS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ESTIMATING AND DETERMINING ALL DISTANCES AND QUANTITIES RELATED TO THE PROJECT. REFER TO ALL DRAWINGS BY OTHERS AND VERIFY EXISTING CONDITIONS ON SITE PRIOR TO BID FOR ALL ESTIMATING PURPOSES.
- COORDINATE WITH OTHER TRADES FOR A COORDINATED INSTALLATION WITHIN THE AVAILABLE SPACE. WHERE CROWDED CONDITIONS EXIST, PREPARE COORDINATION DRAWINGS SHOWING ALL TRADE CONFLICTS AND SUBMIT TO ARCHITECT/ENGINEER FOR APPROVAL AND DIRECTION PRIOR TO BEGIN AN ON-SITE INSTALLATION. RELOCATION OF WORKMADE PRIOR TO THE WORK SHALL BE DONE AT NO ADDITIONAL COST. PROVIDE OFFSETS AT CHANGES OF DIRECTION AND TO AVOID OBSTRUCTIONS AT NO ADDITIONAL COST TO OWNERS.
- ALL WORK SHALL BE PERFORMED BY PROPERLY LICENSED CONTRACTORS OR UNDER THEIR SUPERVISION. ALL MATERIALS AND EQUIPMENT SHALL MEET THE REQUIREMENTS OF THE APPLICABLE STANDARDS OF I.A.S.T.A., C.S.P. ETC. AND SHALL BEAR THE LABELS EVIDENCING THAT THE MATERIAL AND/OR EQUIPMENT MEETS THIS REQUIREMENT.
- CONFIRM ACTUAL VOLTAGES, PHASES AND CHARACTERISTICS OF EQUIPMENT, FIXTURES AND APPARATUS FURNISHED BY CONTRACTOR. OTHER TRADES, DIMENSIONS AND/OR EXISTING. CONFIRM PRIOR TO BEGIN. IF DISCREPANCIES ARE NOTED TO THE INSTRUCTIONS OF THESE PLANS AND SPECIFICATIONS, SUBMIT THE NOTED DISCREPANCIES TO THE ARCHITECT/ENGINEER FOR DIRECTION PRIOR TO PROCEEDING.
- INSTALL ALL EQUIPMENT MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS AND DETAILS UNLESS OTHERWISE NOTED IN THESE PLANS. IF DISCREPANCIES EXIST CONTACT THE ARCHITECT/ENGINEER PRIOR TO ORDERING EQUIPMENT AND/OR BEGIN.
- CONTRACTOR TO ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO PERFORM START-UP SERVICES ON ALL EQUIPMENT AND PROVIDE ALL NECESSARY ADJUSTMENTS FOR PROPER OPERATION.
- SUBMIT MANUFACTURER'S LITERATURE (SHOP DRAWINGS) FOR MATERIALS AND EQUIPMENT. SUBMITTAL SHALL INCLUDE EQUIPMENT PERFORMANCE DATA AT ELEVATION AND/OR LOAD CONDITIONS. EQUIPMENT COULDS OR COULDS COULDS ARE NOT ACCEPTABLE. SUBMITTAL SHALL BEAR THE APPROVAL OF THE GENERAL CONTRACTOR FOR COMPLIANCE WITH COORDINATION AND THESE SPECIFICATIONS PRIOR TO SUBMITTAL TO ARCHITECT AND/OR THEIR AGENCIES. ANY SUBSTITUTED EQUIPMENT FROM SCHEDULED SHALL BE EQUAL TO THAT SCHEDULED IN CONTROLS, ACCESSORIES AND PERFORMANCE REGARDLESS OF MANUFACTURER. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COSTS ASSOCIATED WITH THE SUBSTITUTED EQUIPMENT CONNECTED BY OTHER CONTRACTORS ON THE DESIGN TEAM.
- AT TIME OF BID THE CONTRACTORS SHALL ENSURE THE SITE TO BUILDING UTILITY CONNECTIONS ARE INCLUDED. CONTRACTORS TO COORDINATE INVERT AND SIZING OF ALL PLUMBING LEAVING OR ENTERING THE BUILDING. CONTRACTORS SHALL CONTACT DESIGN TEAM DURING THE BID PROCESS IF THERE IS A DISCREPANCY BETWEEN THE CIVIL DOCUMENTS AND THE PLUMBING DOCUMENTS. COORDINATE WITH SITE CONTRACTOR TO BRING ALL UNDERGROUND PLUMBING TO A MINIMUM OF 8" OFF OF BUILDING FOUNDATION UNLESS NOTED OTHERWISE.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL NEW EQUIPMENT, FIXTURES AND DEVICES IN LIKE NEW STATE AT TIME OF PROJECT COMPLETION. PROTECT EQUIPMENT, FIXTURES AND DEVICES AS REQUIRED AGAINST PHYSICAL DAMAGE, DISBURY, VIB, BLOW, WIND, DIRT, SUN FADING, RUST, CORROSION OR ANY OTHER DEGRADATION. CONTRACTOR TO REPAIR OR REPLACE ANY EQUIPMENT OR DEVICES AS REQUIRED.

#### 2. BASIC MATERIALS

- PROVIDE PLUMBING SYSTEM CONTROLS, CONTROLLERS, CONTROL TRANSFER, DISCONNECTS, STARTERS, CONTROL WIRING ASSOCIATED CONTROL POWER, WIRING, AND ALL WORK NECESSARY FOR A COMPLETE AND OPERATIONAL PLUMBING SYSTEM. CONTRACTOR IS REQUIRED TO COORDINATE WITH OTHER TRADES OR RETAIN SUB-CONTRACTORS AS REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM PRIOR TO BID.
- PROVIDE SUPPLEMENTAL STEEL AND SUPPORTS AS REQUIRED FOR INSTALLATION OF PLUMBING MATERIALS, EQUIPMENT, AND APPARATUS.
- PROVIDE VIBRATION ISOLATION AND FLEXIBLE CONNECTIONS ON ALL EQUIPMENT WITH ROTATING OR OSCILLATING COMPONENTS AND PUMPS OVER 1 HORSEPOWER.
- ALL WORK IN FINISHED AREAS SHALL BE CONCEALED UNLESS SPECIFICALLY NOTED AS EXPOSED ON THE PLANS. PRIOR TO THE INSTALLATION OF ANY EXPOSED WORK THE CONTRACTOR SHALL VERIFY AND OBTAIN ARCHITECTURAL APPROVAL OF LOCATION, ELEVATION, EXTENT, MATERIAL, AND TREATMENT.
- UNLESS NOTED ELSEWHERE ON PLAN, PROVIDE ASSE 100 PSI PRESSURE REDUCING VALVE ASSEMBLY AT BUILDING WATER SERVICE ENTRY. OUTLET PRESSURE TO BE SET TO MAINTAIN A MAXIMUM STATIC PRESSURE OF 80 PSI AT ANY FUTURE.
- PROVIDE DRAINAGE SYSTEM CLEANOUTS AS REQUIRED BY LOCAL CODES.
- PROVIDE QUARTER TURN BRANCH AND ZONE SHUT-OFF VALVES ON ALL WATER LINES EXTENDING FROM MAINS.
- THE CONTRACTOR SHALL LOCATE AND FURNISH FOR INSTALLATION BY OTHERS, ALL ACCESS PANELS AS REQUIRED FOR ACCESS TO VALVES, ACTUATORS, MOTORS, DEVICES, ETC. AND THE PROPER SERVING EQUIPMENT INSTALLED UNDER THIS CONTRACT. AT TIME OF BID THE CONTRACTOR AND/OR SHALL COORDINATE TO ENSURE THAT ALL ACCESS PANELS INCLUDING PER AND/OR SINK (RATED MODELS) ARE INCLUDED.
- PROVIDE SEISMIC AND/OR WIND LOADING REQUIREMENT DETAILS AS REQUIRED BY THE LOCAL JURISDICTION. THE CONTRACTOR SHALL COORDINATE WITH THE EQUIPMENT SUPPLIERS TO OBTAIN THE DRAWINGS AND INSTALL THE SYSTEM AS REQUIRED BY THE MANUFACTURER. CONTRACTOR TO SECURE ATTACHMENT AND MOUNTING SYSTEMS BASED ON ATTACHING TO THE DESIGNED SUBSTRATE AND STRUCTURE WITHOUT REQUIREMENT ADDITIONAL REINFORCEMENT BY OTHERS. IF ANY SUBSTRATE AND/OR STRUCTURE IS REQUIRED FOR PROPER REINFORCEMENT, CONTRACTOR TO COORDINATE WITH GENERAL CONTRACTOR FOR ALL POTENTIAL REQUIREMENTS PRIOR TO BID.
- PIPE STOP TAP AND WIRING MATERIALS PASSING THROUGH HATCH STRUCTURES OR ASSEMBLIES USING UL LISTED PRODUCTS FOR ALL APPLICABLE PENETRATIONS IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.
- FIELD LABEL ALL PLUMBING EQUIPMENT AND PIPING AS INDICATED ON THE PLANS PER PLUMBING AND LOCAL CODE REQUIREMENTS. INDICATE DIRECTION OF FLOW ON PIPING.
- TAG ALL ZONE VALVES WITH CONSECUTIVE NUMBERING ON PERMANENT HARD PLASTIC OR METAL TAG AND PROVIDE SCHEDULE LISTING ITEMS, AREA, SERVICE, SIZE AND VALVE TYPE. SUBMIT FINAL VALVE SCHEDULE FOR REVIEW.

### PLUMBING SPECIFICATIONS

- ALL PROVIDED MATERIALS LOCATED IN A RETURN AIR PLenum SHALL HAVE A FLAME SPREAD OF 25 OR LESS AND A SMOKE DEVELOP RATING OF 50 OR LESS AS DETERMINED BY AN INDEPENDENT TESTING LAB. CONTRACTOR SHALL COORDINATE AT TIME OF BID WITH OTHER TRADES.
  - DOMESTIC WATER CIRCULATION SYSTEMS WITH MANUAL FLOW CONTROL VALVES AND ALL RECIRCULATORY PUMPS SHALL BE VERIFIED AND OR BALANCED TO MEET DESIGN CRITERIA. BALANCING AND VERIFICATION SHALL BE BY AN INDEPENDENT THIRD PARTY CERTIFIED BALANCER. CONTRACTORS ARE RESPONSIBLE TO COORDINATE WITH THE BALANCING CONTRACTOR TO PROVIDE FLOW MONITORING STATIONS AND ACCESS PORTS AS REQUIRED FOR PROPER BALANCING AND SYSTEM VERIFICATION. BALANCING NOT REQUIRED IN RESIDENTIAL UNITS WITH INDIVIDUAL DEDICATED RECIRCULATION SYSTEMS.
  - DOMESTIC WATER FLOW CONTROL VALVES
    - FURNISH AND INSTALL AN ASSE 1010, NSF #1, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER WITH DISCHARGE FUNNEL FOR THE PRIMARY DOMESTIC WATER SERVICE IN ACCORDANCE WITH STATE, LOCAL, AND JURISDICTIONAL WATER DISTRICT REQUIREMENTS. CONTRACTOR TO COORDINATE WITH WATER DISTRICT FOR METER AND WATER ENTRY REQUIREMENTS. CONTRACTOR SHALL PROVIDE FLOOR SINK(S) SUITABLE FOR DISCHARGE FUNNEL AND PIPING TO ACCEPT DEVICE FAILURE EMERGENCY FLOW RATE AS PROVIDED BY MANUFACTURER.
    - UNLESS NOTED ELSEWHERE ON PLAN, CONTRACTOR TO PROVIDE AN ASSE 1001 NSF #1 PRESSURE REDUCING VALVE ON DOMESTIC WATER SERVICE ENTRY. CONTRACTOR TO ADJUST VALVE TO MAINTAIN A MAXIMUM OF 80 PSI AT ANY FUTURE.
    - FURNISH AND INSTALL AN ASSE 1010, NSF #1, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER FOR ALL DOMESTIC WATER DIRECT CONNECTIONS TO MECHANICAL EQUIPMENT, POOL, SPA, FOUNTAINS, IRRIGATION, OR SIMILAR NON-POTABLE APPLICATIONS. PROVIDE DISCHARGE FUNNEL AND PIPING REQUIRED TO APPROVED RECEPTION WITH A GRP DISCHARGE.
  - PIPING
    - PIPE MATERIAL SHALL BE PROVIDED PER THE SYSTEM TYPE, MAXIMUM OPERATING TEMPERATURE, AND PRESSURE OF THE SYSTEM, AND SIZE UNLESS NOTED OTHERWISE. PIPE AND FITTINGS SHALL BE MANUFACTURED BY A SYSTEM AND BE THE PRODUCT OF ONE MANUFACTURER. ALL PIPE AND FITTINGS SHALL BE MANUFACTURED IN THE UNITED STATES. INSTALLATION SHALL CONFORM WITH THE LATEST INSTALLATION INSTRUCTIONS PUBLISHED BY MANUFACTURER AND SHALL COMPLY WITH ALL APPLICABLE PLUMBING, BUILDING, AND PIPE CODE REQUIREMENTS. SYSTEMS SHALL BE HYDROSTATICALLY TESTED AFTER INSTALLATION. THE SYSTEM SHALL BE PROTECTED FROM CHEMICAL AGENTS, FIRE STOPPING MATERIALS, TREATMENT AGENTS, PLASTICIZED VINYL PRODUCTS, OR OTHER AGGRESSIVE CHEMICAL AGENTS NOT COMPATIBLE WITH PVC COMPOUNDS.
    - PROVIDE EXPANSION LOOPS, SINKING JOINTS, OR MECHANICAL EXPANSION COMPENSATING DEVICES AS REQUIRED TO ACCORDANCE WITH THE REQUIREMENTS OF THE DESIGN TEAM. EXPANSION SYSTEM SIZING SHALL BE IN ACCORDANCE WITH MATERIALS DATA SHEETS AND MANUFACTURER RECOMMENDATIONS.
    - ANY PIPING SYSTEM LOCATED IN A RETURN AIR PLenum SHALL BE NON-CONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOP RATING OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.
    - PIPE STOP TAP ALL PIPING MATERIALS PASSING THROUGH FIRE RATED STRUCTURES OR FIRE RATED ASSEMBLIES IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION. USE CURRENTLY USED UL CLASSIFIED PRODUCTS, TESTED BY ASTM E 148 USE FOR ALL APPLICABLE PIPE PENETRATIONS THROUGH FLOORED FLOORS, WALLS, OR FLOOR CEILING ASSEMBLIES IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.
  - GRAVITY DRAIN PIPING
    - DRAINAGE SYSTEM ACCEPTABLE MATERIALS: REFER TO MATERIALS LISTED BELOW FOR STANDARDS AND SPECIFIC REQUIREMENTS.
      - SANITARY & VENT - CAST IRON, EPOXY COATED CAST IRON, SOLID CORE PVC, STAINLESS STEEL, COPPER.
      - GAS/STEAM WASTE - CAST IRON, EPOXY COATED CAST IRON, PVC, STAINLESS STEEL, COPPER.
      - SAND AND DRAINAGE - CAST IRON, PVC.
    - CAST IRON HUB PIPE & FITTINGS MANUFACTURED FROM GRAY CAST IRON AND CONFORM TO ASTM A 194 AND CIPR STANDARD 301 BEARING THE TRADEMARK OF THE CAST IRON PIPE INSTITUTE AND LISTED BY NSF INTERNATIONAL. COUPLINGS FOR JOINTING CAST IRON HUB PIPE SHALL MEET THE REQUIREMENTS OF CIPR 310 AND LISTED BY NSF INTERNATIONAL. COUPLINGS SHALL BE IDEAL GREEN, HUSKY 4000 OR CIMPAL ALL 125. INSTALLATION IN COMPLIANCE TO CIPR HANDBOOK.
    - EPOXY COATED CAST IRON HUB PIPE & FITTINGS (ACIDIC & HIGH TEMPERATURE WASTE): MANUFACTURED FROM GRAY CAST IRON AND CONFORM TO ASTM A 194 AND CIPR STANDARD 301 BEARING THE COLLECTIVE TRADEMARK OF THE CAST IRON PIPE INSTITUTE AND BE LISTED BY NSF INTERNATIONAL. COATING PERFORMANCE REQUIREMENTS TO MEET EN177. WHERE REQUIRED BY MANUFACTURER, FIELD-OUT PATCHES SHALL BE TREATED WITH MANUFACTURE APPROVED METHOD. COUPLINGS FOR JOINTING CAST IRON HUB PIPE SHALL MEET THE REQUIREMENTS OF CIPR 310 AND LISTED BY NSF INTERNATIONAL. COUPLINGS SHALL BE IDEAL GREEN, HUSKY 4000 OR CIMPAL ALL 125. INSTALLATION IN COMPLIANCE TO CIPR HANDBOOK.
    - CAST IRON HUB AND SPOOT PIPE & FITTINGS MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 194 AND BEARING THE COLLECTIVE TRADEMARK OF THE CAST IRON PIPE INSTITUTE AND LISTED BY NSF INTERNATIONAL. CAST IRON HUB AND SPOOT PIPE SHALL BE JOINED WITH COMPRESSION GASKETS MANUFACTURED IN COMPLIANCE WITH ASTM C 564 AND C 1053.
    - EPOXY COATED CAST IRON HUB AND SPOOT PIPE & FITTINGS (ACIDIC & HIGH TEMPERATURE WASTE) MANUFACTURED FROM GRAY CAST IRON AND SHALL CONFORM TO ASTM A 194 AND BEARING THE COLLECTIVE TRADEMARK OF THE CAST IRON PIPE INSTITUTE AND LISTED BY NSF INTERNATIONAL. COATING PERFORMANCE REQUIREMENTS TO MEET EN177. WHERE REQUIRED BY MANUFACTURER, FIELD-OUT PATCHES SHALL BE TREATED WITH MANUFACTURE APPROVED METHOD. CAST IRON HUB AND SPOOT PIPE SHALL BE JOINED WITH COMPRESSION GASKETS MANUFACTURED IN COMPLIANCE WITH ASTM C 564 AND C 1053.
    - SOLID CORE PVC PIPE & FITTINGS (MAX 140°F OPERATING TEMPERATURE AND/OR ACIDIC WASTE): SCHEDULED PIPE AND SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D 1784, ASTM D 1785 AND ASTM D 2688. INJECTION MOULDED PIPE SHALL CONFORM TO ASTM D 2688. FABRICATED PVC DWV FITTINGS SHALL CONFORM TO ASTM F 1989. PIPE AND FITTINGS SHALL CONFORM TO NSF INTERNATIONAL STANDARDS 14 BURED PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D 2327 AND ASTM F 1989. SOLVENT GEMT JOINTS SHALL BE MADE IN A TWO STEP PROCESS WITH COLORED PRIMER CONFORMING TO ASTM F 656 AND SOLVENT CEMENT CONFORMING TO ASTM D 2324.
    - CELLULAR CORE PVC PIPE & FITTINGS (ABOVE GRADE ONLY, MAX 140°F OPERATING TEMPERATURE AND/OR ACIDIC WASTE): MATERIAL SHALL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM THE ENGINEER, OWNER, AND ARCHITECT. SCHEDULE 40 PIPE AND SHALL BE IRON PIPE SIZE (IPS) CONFORMING TO ASTM D 1784 AND ASTM F 81. INJECTION MOULDED PVC DWV FITTINGS SHALL CONFORM TO ASTM D 2688. FABRICATED PVC DWV FITTINGS SHALL CONFORM TO ASTM F 1989. PIPE AND FITTINGS SHALL CONFORM TO NSF INTERNATIONAL STANDARDS 14 BURED PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D 2327 AND ASTM F 1989. SOLVENT GEMT JOINTS SHALL BE MADE IN A TWO STEP PROCESS WITH COLORED PRIMER CONFORMING TO ASTM F 656 AND SOLVENT CEMENT CONFORMING TO ASTM D 2324.
    - STAINLESS STEEL PIPE & FITTINGS (ACIDIC & HIGH TEMPERATURE WASTE): CONFORMING TO AISI 316 L 1430 FOR STAINLESS STEEL PIPE SYSTEM WITH PUSH-UP SOCKET CONNECTIONS WITH EPDM (STANDARD) SEALING RING. ALL PRODUCTS ARE TO BE TESTED AND LISTED ACCORDING TO ASME B 112.1 THROUGH WPMI FILE NO. 3247. ALL PIPE TO BE TREATED WITH PICKLING AND PASSIVATION FINISH PROCESS.
    - COPPER PIPE & FITTINGS: CONFORMING TO ABOVE GRADE COPPER SHALL BE ASTM B 88. TYPE L COPPER WITH WROUGHT OR FORGED FITTINGS AND LEAD FREE SOLDERED OR MECHANICALLY PRESSED-CONNECTED JOINT. JOINT PRESS OR EQUAL, BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH SILVER SOLDERED JOINTS.
    - CONDENSATE DRAIN PIPING SHALL BE TYPE M COPPER WITH SOLDERED JOINTS.
  - PRESSURE PIPING
    - DOMESTIC WATER PIPING (WATER ENTRY, MECH ROOMS, MAINS, DISTRIBUTION) ABOVE/BELOW GRADE: ABOVE GRADE COPPER SHALL BE ASTM B 88 TYPE L COPPER WITH WROUGHT OR FORGED FITTINGS AND LEAD FREE SOLDERED OR MECHANICALLY PRESSED-CONNECTED JOINT. JOINT PRESS OR EQUAL, BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH SILVER SOLDERED JOINTS.
    - DOMESTIC WATER PIPING MAINS, DISTRIBUTION ABOVE/BELOW GRADE: SOLVENT SOCKET WELDED CPVC PIPE MEETING ASTM D 2446 W CELL CLASS 4448 PER ASTM D 1784 FOR FLOW/LEAKAGE (50.0 CTS @ 107 THRU 17) PIPE UTILIZING A 1-STEP SOLVENT CEMENT CONFORMING TO ASTM F 656. IF THE APU IS REQUIRED PRIMER, THEN A PRIMER CONFORMING TO ASTM F 656 SHOULD BE USED. CONTRACTOR SHALL HAVE ALL INSTALLERS REQUIRED QUALIFIED TO ASSE 8 313 CORZAN CPVC SCHEDULE 80 PIPE W/ CELL CLASS 4448 UP TO E AND 2347 F AND G. ALL PRIMERS AND CEMENTS SHALL BE LISTED WITH AEE FOR POTABLE WATER.
    - REVEAL ALL UNCLAY PRODUCT (CAULK, FIRE SEALANT, JOINT DOWNGRASS, ETC.) WITH THE LIBRIZOL SYSTEM COMPATIBLE PROGRAM AND/OR RESIN WRITTEN DOCUMENTATION FROM MANUFACTURER PRODUCT MANUFACTURER SHOWING "COMPATIBILITY" WITH CPVC.
    - CONTRACTOR SHALL SUBMIT PROOF OF TRAINING BY CPVC MANUFACTURER WITHIN LAST 2 YEARS OF START OF THIS PROJECT FOR RECOMMENDED INSTALLATION PRACTICE.
  - DOMESTIC WATER PIPING MAINS, DISTRIBUTION ABOVE/BELOW GRADE: TYPE L UPONOR ADAPTURE PIPING WITH PROPER FITTINGS FOR ALL BRANCH CONNECTIONS AND TERMINATIONS (OR BRANCH EQUIVALENT). TYPE B MEDIA PEX OR EQUAL WITH ZERO LEAD BRIDGE, INSULATED PEX PRESS, OR EQUAL FITTINGS FOR ALL BRANCH CONNECTIONS AND TERMINATION MANIFOLD SYSTEM SHALL BE REVIEWED AND APPROVED PRIOR TO INSTALLATION. DO NOT TO BE BLUE PIPE, DOW TO BE RED PIPE, AND DOW TO BE WHITE PIPE.
  - CONDENSATE DRAIN PIPING SHALL BE TYPE M COPPER WITH SOLDERED JOINTS, OR CPVC IF ALLOWED BY LOCAL AUTHORITY HAVING JURISDICTION.
  - INSULATION
    - PIPING INSULATION TO BE INSTALLED AS PER BELOW, WHEN CONFLICTING INSULATION REQUIREMENTS ARE LISTED, THE MORE STRINGENT SHALL BE USED.
    - INSULATION SHALL BE INSTALLED PER ECC SECTION 4 TABLE C406 MINIMUM PIPE INSULATION THICKNESS AND TABLE C404 PIPING VOLUME AND MAXIMUM PIPING LENGTHS. HOT & RETURN WATER PIPING (100'-140' 1/4" AND SMALLER SHALL HAVE 1" FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET 1/4" AND LARGER SHALL HAVE 1/2" FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET 1/2" AND LARGER SHALL HAVE 1/2" FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET 1/2" AND LARGER SHALL HAVE 1/2" FIBER GLASS INSULATION WITH AN ALL-SERVICE JACKET (EVALUATES OF 234.26). EXCEPTION: PIPING SURROUNDED BY BUILDING INSULATION WITH A THERMAL RESISTANCE OF NOT LESS THAN R-3.
    - RESIDENTIAL R-2, R-3, R-4 BUILDINGS 3 STORES OR LESS IN HEIGHT INSULATION SHALL BE INSTALLED PER 2018 ECC. MINIMUM R-3 VALUE INSULATION SHALL BE INSTALLED ON 3/4" AND LARGER HOT WATER AND ALL RECIRCULATING HOT WATER LINES.
    - DOMESTIC COLD & HOT WATER PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING ATTICS, COVERED PARKING AND CRAWL SPACES SHALL BE INSULATED WITH MINIMUM 2-INCH FIBERGLASS INSULATION.
  - SANITARY, DOMESTIC COLD, AND HOT WATER PIPING IN AN EXTERIOR WALL, CEILING, OR FLOOR THAT IS ADJACENT TO AN UNCONDITIONED SPACE SHALL BE INSTALLED TO THE WARM SIDE OF THE BUILDING INSULATION.
  - IN COLD ENVIRONMENTS 60% WATER DESIGN DB -34°F.
    - HORIZONTAL SANITARY AND STORM PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING COVERED PARKING AND CRAWL SPACES SHALL BE HEAT-TRACED AND INSULATED WITH 1-INCH FIBERGLASS INSULATION.
    - VERTICAL SANITARY AND STORM PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING EXTERIOR WALLS, COVERED PARKING AND CRAWL SPACES SHALL BE INSULATED WITH 1-INCH FIBERGLASS INSULATION.
    - DOMESTIC COLD & HOT WATER PIPING EXPOSED TO OUTDOOR TYPE AMBIENT CONDITIONS INCLUDING ATTICS, COVERED PARKING AND CRAWL SPACES SHALL BE HEAT-TRACED AND INSULATED WITH MINIMUM 2-INCH FIBERGLASS INSULATION.
  - PROVIDE MINIMUM 1-INCH THICK INSULATION ON DOMESTIC WATER LINES IN AN EXTERIOR WALL, CEILING, OR FLOOR THAT IS ADJACENT TO AN UNCONDITIONED SPACE.
- PLUMBING FITTINGS
  - FURNISH AND INSTALL PLUMBING FITTINGS AS SCHEDULED ON THE PLANS.
  - PROVIDE CHROME PLATED ANGLE STOPS AND ESCUTCHION FLANGES ON ALL EXPOSED FITTURE RINGS.
  - PROVIDE INSULATION AND ROUGH IN AS REQUIRED FOR COMPLIANCE WITH ADA REQUIREMENTS.
  - PROVIDE ALL ACCESSORIES AND SPECIALTY ITEMS AS REQUIRED FOR A COMPLETE FITTURE INSTALLATION.
- ELECTRIC WATER HEATERS
  - FURNISH AND INSTALL A GLASS LINED ELECTRIC WATER HEATER AS SCHEDULED ON THE PLANS.
  - FURNISH WATER HEATER WHICH ARE UL LABELED AND MEET THE REQUIREMENTS OF LOCAL MUNICIPALITIES.
  - WATER HEATER LOCATED IN CEILING SHALL BE PROVIDED WITH 2 1/2" DRAIN PAN. TERMINATE DRAIN TO NEAREST FLOOR DRAIN, FLOOR SINK OR LAIV TRAP.
  - MINIMUM 2" OF DOMESTIC WATER PIPE SHALL BE COPPER OFF ALL WATER CONNECTIONS TO WATER HEATER. REFER TO SHEET SPEC SECTION 3 PIPING TO VERIFY MATERIALS ACCEPTABLE IN MECHANICAL WATER ENTRY ROOM.
- PUMP
  - FURNISH AND INSTALL IN-LINE OR BASE MOUNTED PUMP AS SCHEDULED ON THE PLANS.
  - FURNISH AND INSTALL PUMP COMPLETE WITH ALL OPERATIONAL AND SAFETY CONTROLS.
  - PROVIDE 4" CONCRETE PAD FOR BASE MOUNTED PUMPS.
- CIRCULATING PUMP
  - FURNISH AND INSTALL A NSF RATED DOMESTIC WATER RETURN CIRCULATOR AS SCHEDULED ON THE PLANS. PROVIDE RETURN LINE ADAPTAT AND WIRE COMPLETE TO TYPE CIRCULATOR TO PROVIDE 90 OR 140 DEGREES RETURN WATER TEMPERATURE (ADJUSTABLE).
  - SUBMERSIBLE SEWAGE PUMP AND DEWATERING PUMPS
  - PUMPS SHALL BE SIMPLEX OR DUPLEX, VERTICAL, CENTRIFUGAL, DIRECT CONNECTED, END SUCTION, SINGLE STAGE, BRONCE FITTED, COMPLETE WITH INTEGRAL INLET STRAINER, OPERATING CONTROLS, AND AMP COVER AS SCHEDULED. SYSTEM SHALL INCLUDE ALL ACCESSORIES FOR COMPLETE INSTALLATION INCLUDING BUT NOT LIMITED TO THOSE STATED ABOVE.
  - PUMP SHALL BE CAST IRON CONSTRUCTION AND FULLY SEALED FOR SUBMERSIBLE APPLICATIONS.
  - PROVIDE HIGH WATER ALARM.
- CONDENSATE PUMP
  - FURNISH AND INSTALL A SELF-CONTAINED CONDENSATE PUMP WHERE INDICATED ON THE PLANS.
  - PUMP SHALL BE CAPABLE OF LIFTING CONDENSATE FROM EQUIPMENT INDICATED ON PLANS FOR PUMP DISPOSAL TO AVAILABLE DRAIN LOCATION.
  - PROVIDE HIGH WATER ALARM.
- KITCHEN EQUIPMENT
  - MAKE ALL FINAL CONNECTIONS TO KITCHEN EQUIPMENT AS REQUIRED.
  - RECEIVE AND COMPLETELY INSTALL KITCHEN EQUIPMENT MATERIALS, EQUIPMENT, AND APPARATUS FURNISHED BY OTHERS FOR INSTALLATION OF A COMPLETE PLUMBING SYSTEM FOR ALL KITCHEN AND FOOD SERVICE RELATED EQUIPMENT AND SYSTEMS.
- REVIEW CONSTRUCTION DOCUMENTS AND INSTALLATION INSTRUCTIONS FOR MATERIALS AND EQUIPMENT FURNISHED FOR INSTALLATION BY THE CONTRACTOR. INSTALL ALL EQUIPMENT APPARATUS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND SUGGESTED PRACTICES. PROVIDE SUPPLEMENTAL AND INCIDENTAL MATERIALS AND PIPING AS MAY BE REQUIRED FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM. PREPARE A DETAILED ROUGH IN DRAWING FOR APPROVAL PRIOR TO ROUGH IN.



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LOUISVILLE HISTORIC GRAIN ELEVATOR  
Renovation for THE GRAY YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



01/24/2024

PROJECT # 1252 50  
DATE 12/05/2025  
DRAWN BY: AFJ/CRM  
CHECKED BY: BMB  
REVISIONS:  
1. REVISION 1: 12/05/2025  
2. REVISION 2: 12/05/2025

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PLUMBING  
SPECIFICATIONS

Sheet  
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of Sheets

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Given Project # 23086

| PLUMBING SHEET LIST |                                   |
|---------------------|-----------------------------------|
| NUMBER              | TITLE                             |
| PO 01               | PLUMBING SPECIFICATIONS           |
| PO 02               | PLUMBING LEGENDS                  |
| PO 03               | PLUMBING SCHEDULES                |
| PI 01               | UNDERGROUND FLOOR PLAN - PLUMBING |
| PI 01               | BASEMENT FLOOR PLAN - PLUMBING    |
| PI 02               | FIRST FLOOR PLAN - PLUMBING       |
| PI 03               | SECOND FLOOR PLAN - PLUMBING      |
| PI 03               | TAP HOUSE PLANS - PLUMBING        |
| PS 01               | PLUMBING ISOMETRICS               |
| PS 02               | PLUMBING ISOMETRICS               |
| PS 02               | PLUMBING DETAILS                  |
| PS 02               | PLUMBING DETAILS                  |
| PS 03               | PLUMBING DETAILS                  |
| PS 04               | PLUMBING DETAILS                  |
| PS 05               | PLUMBING DETAILS                  |
| SHEET TOTAL: 16     |                                   |

| CODE & DESIGN CRITERIA  |                                                                                 |
|-------------------------|---------------------------------------------------------------------------------|
| JURISDICTION            | LOUISVILLE, CO                                                                  |
| PROJECT ALTITUDE        | 5350'                                                                           |
| INTERNATIONAL CODES     | 2024 INTERNATIONAL PLUMBING CODE<br>2024 INTERNATIONAL ENERGY CONSERVATION CODE |
| UTILITY WATER PRESSURE  | PENDING                                                                         |
| GAS METER OUTLET        | -                                                                               |
| PEAK RAINFALL RATE      | -                                                                               |
| S-O4 DISCHARGE          | -                                                                               |
| ELEVATOR PUMP REQUIRED  | N/A                                                                             |
| ELEVATOR PUMP DISCHARGE | TO STORM                                                                        |
| CONDENSATE DISCHARGE    | SANITARY                                                                        |
| FULLY SPRINKLERED       | YES                                                                             |
| NUMBER OF FLOORS        | 3                                                                               |
| LOCAL CODES             | 2021 LOUISVILLE MUNICIPAL CODE CHAPTER 15 - BUILDINGS AND CONSTRUCTION          |

| PLUMBING SHEET LIST |                                   |
|---------------------|-----------------------------------|
| NUMBER              | TITLE                             |
| PO 01               | PLUMBING SPECIFICATIONS           |
| PO 02               | PLUMBING LEGENDS                  |
| PO 03               | PLUMBING SCHEDULES                |
| PI 01               | UNDERGROUND FLOOR PLAN - PLUMBING |
| PI 01               | BASEMENT FLOOR PLAN - PLUMBING    |
| PI 02               | FIRST FLOOR PLAN - PLUMBING       |
| PI 03               | SECOND FLOOR PLAN - PLUMBING      |
| PI 03               | TAP HOUSE PLANS - PLUMBING        |
| PS 01               | PLUMBING ISOMETRICS               |
| PS 02               | PLUMBING ISOMETRICS               |
| PS 02               | PLUMBING DETAILS                  |
| PS 02               | PLUMBING DETAILS                  |
| PS 03               | PLUMBING DETAILS                  |
| PS 04               | PLUMBING DETAILS                  |
| PS 05               | PLUMBING DETAILS                  |
| SHEET TOTAL: 16     |                                   |

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- KEY NOTES:**
- ① 1" FIRE LINE. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
  - ② 1-1/2" DOMESTIC COLD WATER BUILDING MAIN. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
  - ③ 1" DOMESTIC COLD WATER BUILDING MAIN TO TAP HOUSE. REFER TO CIVIL DRAWINGS FOR CONTINUATION.



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
5/10 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



01/26/2024

PROJECT # 1252.50  
DATE 12/05/2023  
DRAWN BY: AFJCRM  
CHECKED BY: BMB

REVISIONS:  
1. REVISION 1  
2. REVISION 2

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**UNDERGROUND  
FLOOR PLAN -  
PLUMBING**

Sheet

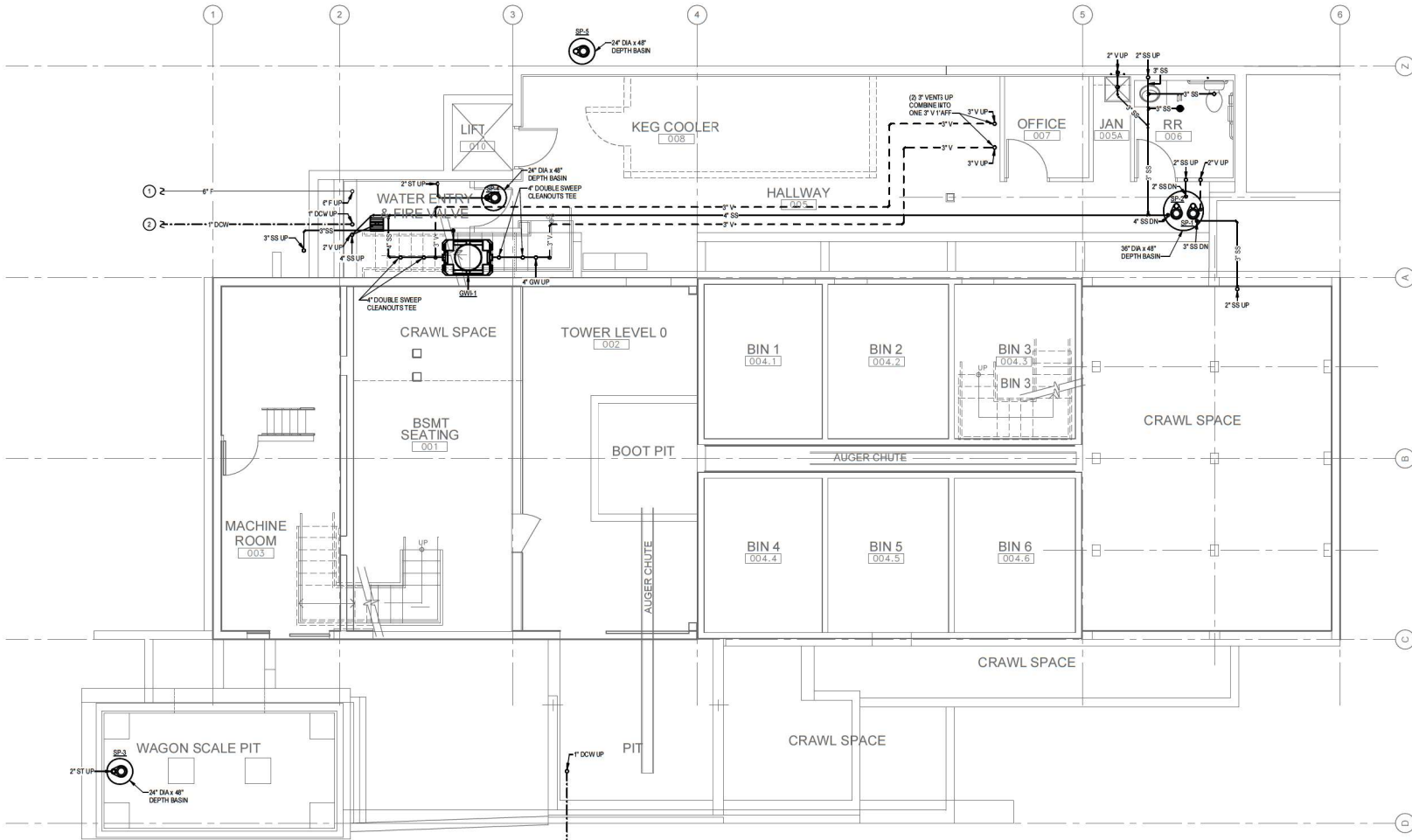
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**1 UNDERGROUND FLOOR PLAN - PLUMBING**  
1/4" = 1'-0"





# DRAWING NOTES:

- WHERE SERVICE HOT WATER IS PROVIDED BY A CENTRAL WATER HEATING SYSTEM, THE HOT WATER PIPE INSULATION THICKNESS SHALL BE AT LEAST 1.5 TIMES THE THICKNESS REQUIRED IN SECTION C404. ALL SERVICE HOT WATER PIPING SHALL BE INSULATED FROM THE HOT WATER SOURCE TO THE FUTURE SHUTOFF. WHERE 50 PERCENT OR MORE OF HOT WATER PIPING DOES NOT HAVE INCREASED INSULATION DUE TO INSTALLATION IN PARTITIONS, THE CREDIT SHALL BE PRORATED AS A PERCENTAGE OF UNEQUAL FEET OF PIPING WITH INCREASED INSULATION.
- PIPING FROM A WATER HEATER TO THE TERMINATION OF THE HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED TO R-3 ON BOTH THE INLET AND OUTLET PIPING OF A STORAGE WATER HEATER OR HEATED WATER STORAGE TANK. THE PIPING TO A HEAT TRAP OR THE FIRST 8 FEET (2438 MM) OF PIPING, WHICHEVER IS LESS, SHALL BE INSULATED. PIPING THAT IS HEAT TRACED SHALL BE INSULATED TO R-3 OR THE HEAT TRACE MANUFACTURER'S INSTRUCTIONS.

# KEY NOTES:

- REFER TO DETAIL 1 ON P6.02 FOR HOT WATER ROUTING.
- REFER TO DETAIL 2 ON P6.02 FOR HOT WATER ROUTING.
- 7" PORT FOR GREASE INTERCEPTOR. REFER TO INTERCEPTOR SCHEDULE FOR MODEL.
- OWNER PROVIDED EQUIPMENT PLUMBING HOOK UPS BY G.C.



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
**Renovation for THE GRAIN YARD**  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252.50  
DATE: 12/05/2023  
DRAWN BY: AFJCRM  
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2. REVISION 2

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FIRST FLOOR  
PLAN - PLUMBING

Sheet

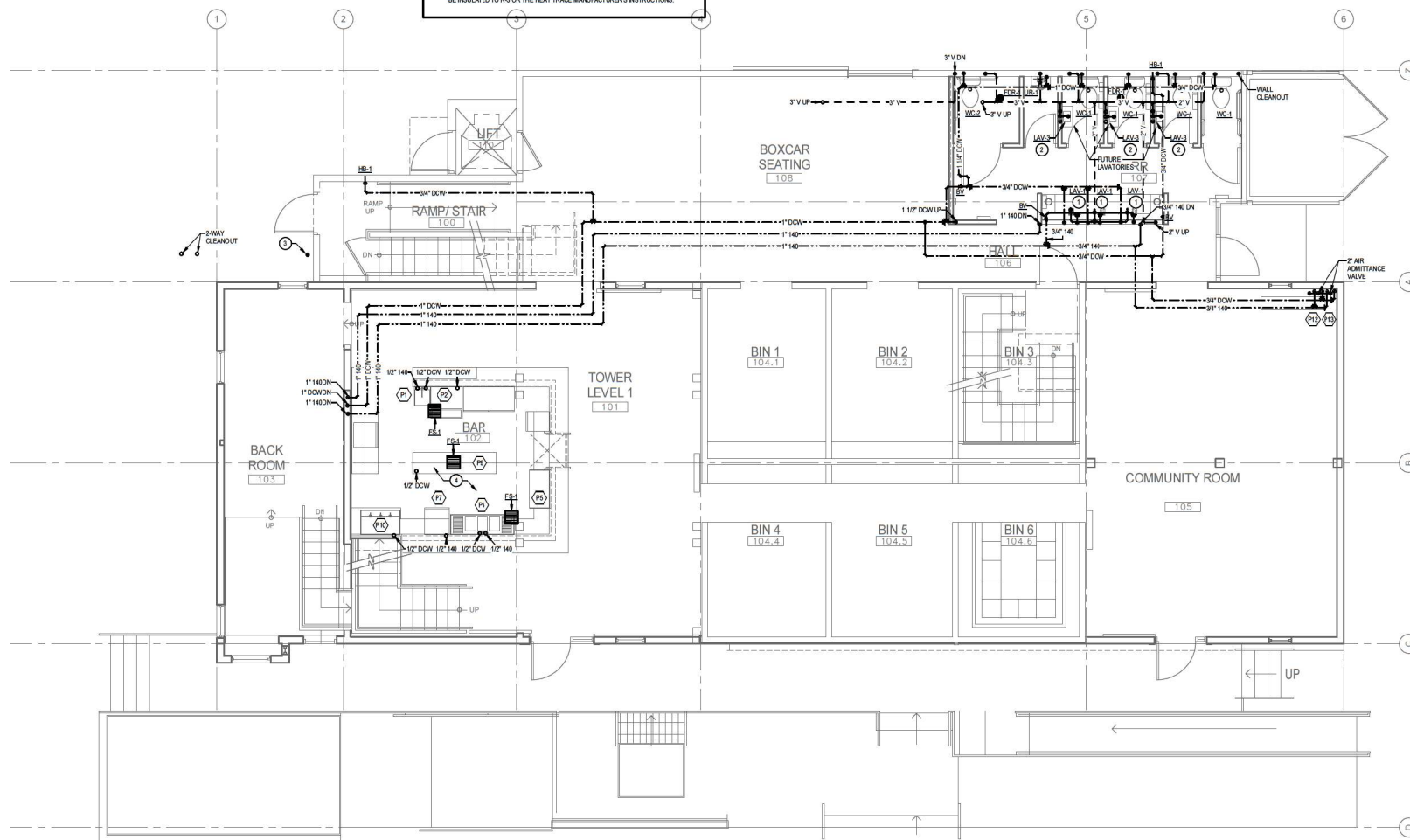
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**1 FIRST LEVEL FLOOR PLAN - PLUMBING**  
1/4" = 1'-0"







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LOUISVILLE HISTORIC GRAIN ELEVATOR  
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01/26/2024  
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DATE: 12/05/2023  
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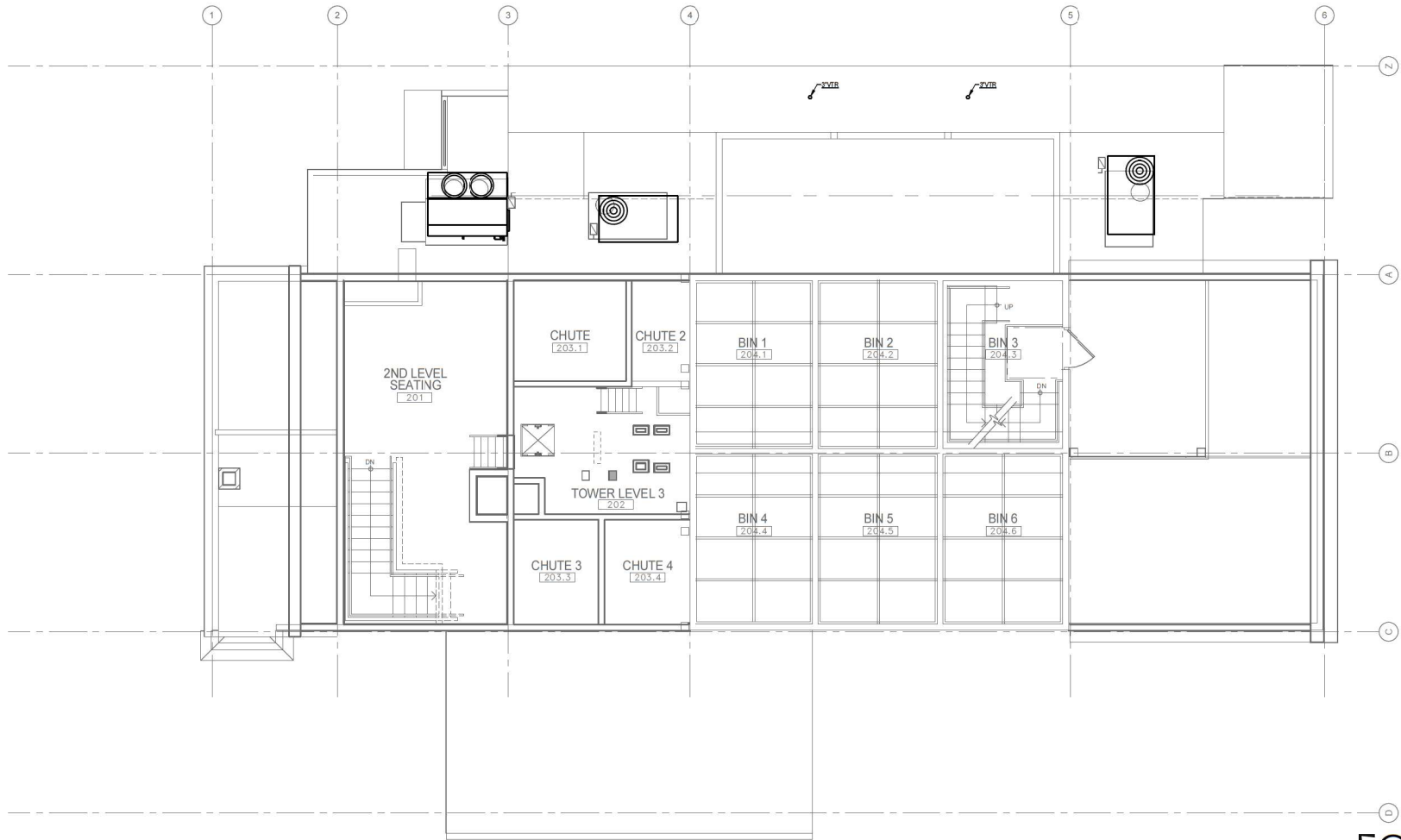
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SECOND/THIRD  
FLOOR PLAN -  
PLUMBING

Sheet

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1 SECOND/THIRD LEVEL FLOOR PLAN - PLUMBING  
1/4" = 1'-0"

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LOUISVILLE HISTORIC GRAIN ELEVATOR  
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540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



01/26/2024

PROJECT # 1252 50  
DATE: 12/05/2023  
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TAP HOUSE  
PLANS -  
PLUMBING

Sheet

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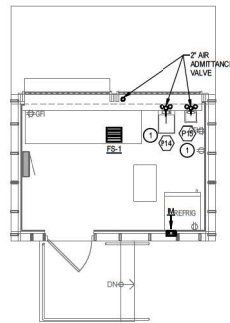
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#### DRAWING NOTES:

1. TAP HOUSE ANNUAL WINTERIZATION CHECKLIST:  
A. SHUT OFF VALVE ON COLD WATER SUPPLY TO TAP HOUSE. TAP HOUSE SHUT-OFF VALVE LOCATED IN MAIN BUILDING. REFER TO BASEMENT PLAN P1.01 FOR LOCATION.  
B. BLOWOUT COLD WATER SUPPLY SYSTEM WITH AIR COMPRESSOR.  
C. OPEN CLEANOUT FITTING ON SINK/TAP HOUSE P-TRAPS.  
D. TURN OFF CIRCUIT BREAKER FOR TAP HOUSE WATER HEATER. TWH-2
2. WHERE SERVICE HOT WATER IS PROVIDED BY A CENTRAL WATER HEATING SYSTEM, THE HOT WATER PIPE INSULATION THICKNESS SHALL BE AT LEAST 1.5 TIMES THE THICKNESS REQUIRED IN SECTION C404.4 ALL SERVICE HOT WATER PIPING SHALL BE INSULATED FROM THE HOT WATER SOURCE TO THE FIXTURE SHUTOFF. WHERE 50 PERCENT OR MORE OF HOT WATER PIPING DOES NOT HAVE INCREASED INSULATION DUE TO INSTALLATION IN PARTITIONS, THE CREDIT SHALL BE PROVIDED AS A PERCENTAGE OF USUAL FEET OFFERING WITH INCREASED INSULATION.
3. PIPING FROM A WATER HEATER TO THE TERMINATION OF THE HEATED WATER FORTUNE SUPPLY PIPE SHALL BE INSULATED TO R-3 ON BOTH THE INLET AND OUTLET PIPING OF A STORAGE WATER HEATER OR HEATED WATER STORAGE TANK, THE PIPING TO A HEAT TRAP OR THE FIRST 8 FEET (248 MM) OF PIPING, WHICHEVER IS LESS, SHALL BE INSULATED. PIPING THAT IS HEAT TRACED SHALL BE INSULATED TO R-3 OR THE HEAT TRACE MANUFACTURER'S INSTRUCTIONS.

#### KEY NOTES:

- 1 PROVIDE P-TRAP WITH CLEANOUT FITTINGS FOR EACH SINK FIXTURE IN THIS AREA.
- 2 2" SANITARY SEWER BUILDING MAIN. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
- 1" DOMESTIC COLD WATER BUILDING MAIN. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
- 4 OWNER PROVIDED EQUIPMENT PLUMBING HOOK UPS BY G.C.



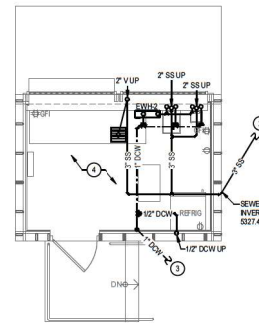
2

TAP HOUSE FLOOR PLAN - PLUMBING  
1/4" = 1'-0"

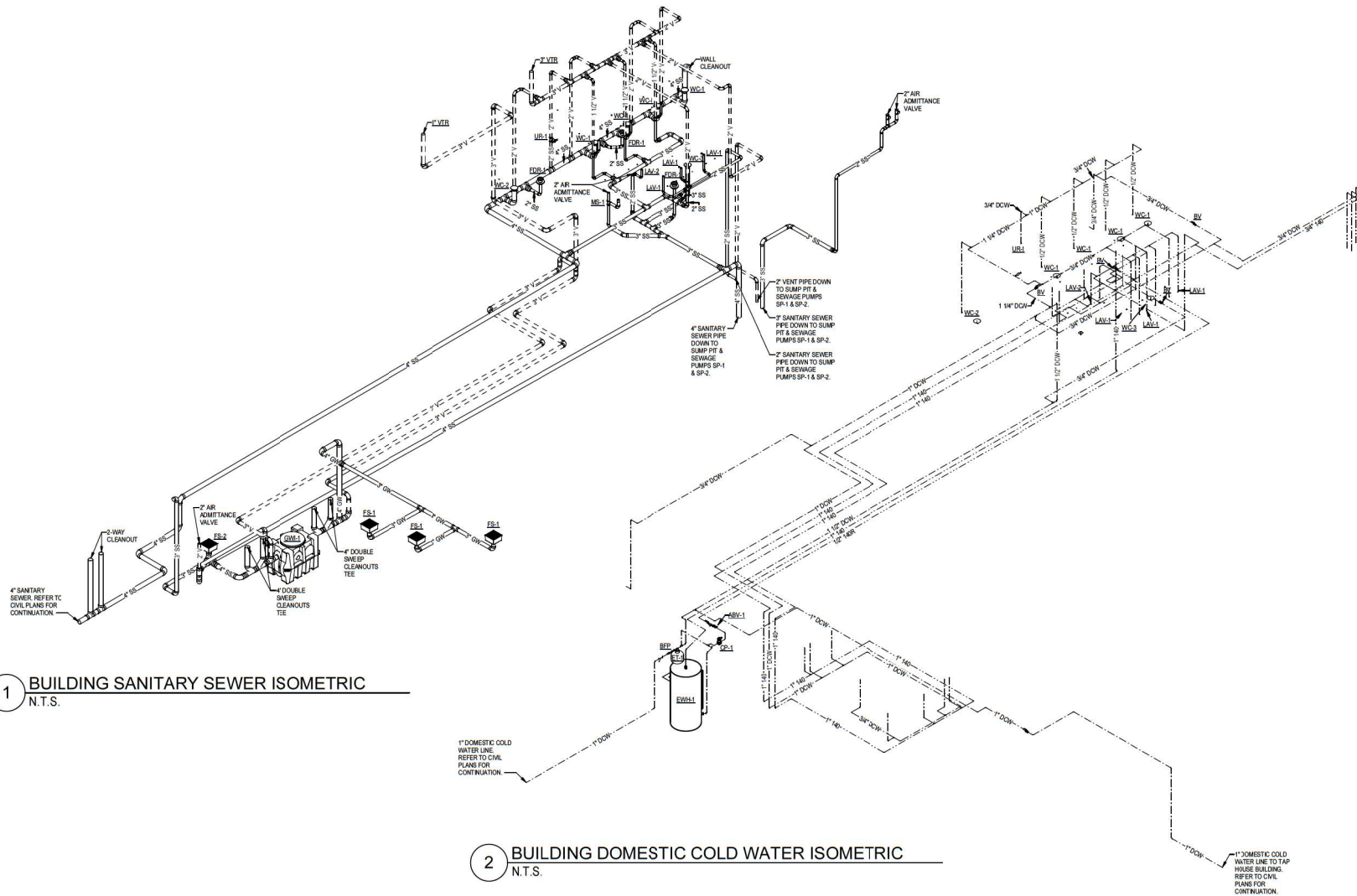


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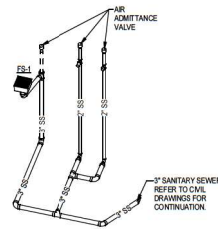
TAP HOUSE CRAWLSPACE - PLUMBING  
1/4" = 1'-0"



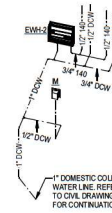
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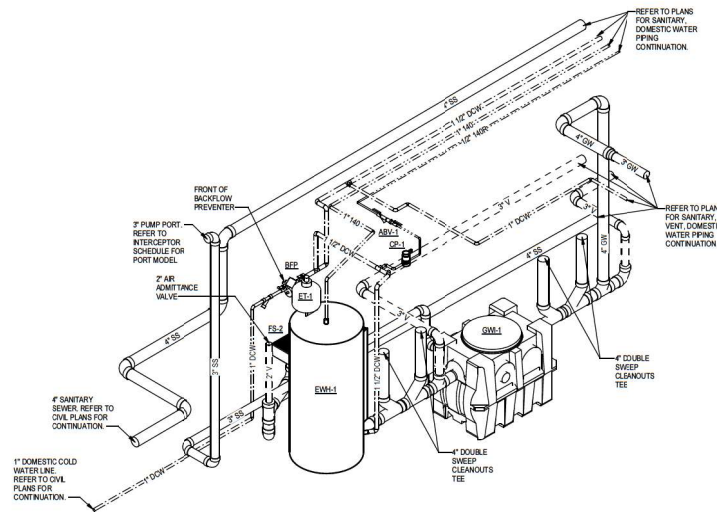




1 TAP HOUSE SANITARY SEWER ISOMETRIC  
N.T.S.



2 TAP HOUSE DOMESTIC WATER ISOMETRIC  
N.T.S.



3 WATER ENTRY ROOM ISOMETRIC  
N.T.S.



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LOUISVILLE HISTORIC GRAIN ELEVATOR  
Renovation for THE GRAIN YARD  
540 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



01/26/2024

PROJECT # 1252 50  
DATE 12/05/2023  
DRAWN BY: AFJCRM  
CHECKED BY: BMB  
REVISIONS:  
1. REVISION 1  
2. REVISION 2

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CONDENSATE & LOW FLOW — LAMBS TONGUE — GRATE WITH OPENINGS AS REQUIRED — FINISHED FLOOR — 80° ELBOW — SINKS & LARGE VOLUME — DRAIN LINE — AIR GAP — DRAIN LINE — DRAIN OUTLET — FLOOR SINK OR HUB DRAIN — DRAIN OUTLET

**GENERAL NOTES:**

1. PC SHALL BE RESPONSIBLE FOR AIR GAP DIMENSIONS IN ACCORDANCE WITH LOCAL CODE AMENDMENTS AND JURISDICTIONAL REQUIREMENTS.
2. RIM OF FLOOR SINK SHALL BE FLUSH OR SLIGHTLY BELOW FINISHED FLOOR. COORDINATE WITH ARCHITECTURE, AND OTHER TRADES. PC IS RESPONSIBLE TO VERIFY FLUSH MOUNTING SINK WITH LOCAL CODES AND JURISDICTION. IF FLUSH MOUNTING FLOOR SINK & NOT ALLOWED NOTIFY ENGINEER PRIOR TO ROUGH IN.

Diagram illustrating a vertical PVC pipe assembly. The assembly consists of a vertical pipe section with a coupling and a riser clamp. The riser clamp is labeled "RISER CLAMP". The coupling is labeled "FLEXIBLE COUPLING TO CONNECT SIMILAR OR DISSIMILAR MATERIALS, COUPLING SIZE PER PIPE MATERIAL REQUIREMENTS, FOR EXPANSION APPLICATIONS CONFORMANTS WITH COUPLING MANUFACTURER FOR CORRECT COUPLING PER FIELD CONDITIONS AND JESTECH REPORT". The pipe section is labeled "SOCKET WELD PVC PIPE". The coupling is labeled "SOCKET WELD SOLID CORE PVC PIPE". The riser clamp is labeled "3/8\"

Diagram illustrating the components of a drain assembly:

- STRAINER FLUSH WITH FLOOR
- ADJUSTABLE DRAIN HEAD
- DRAIN BODY
- TRAP GUARD ASSE 1072 APPROVED
- PIPE
- DRAIN SUPPORT STRAP

Diagram illustrating the components of a drain assembly:

- FLOW TO FIXTURE
- APPROVED TRAP PRIMER WITH AIR GAP VACUUM BREAKING PORTS
- STRAINER FL WITH FLOOR
- ADJUSTABLE DRAIN HEAD
- DRAIN BODY
- PIPE
- DRAIN SUPPORT STRAP



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
**Renovation for THE GRAIN YARD**  
 540 COUNTY ROAD, LOUISVILLE, CO  
 Louisville Mill Site LLC / Louisville's Living Room LLC



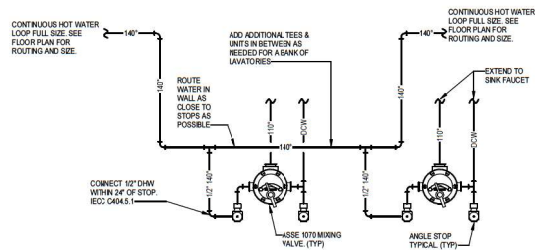
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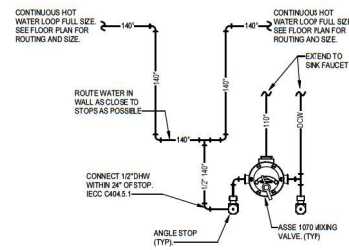
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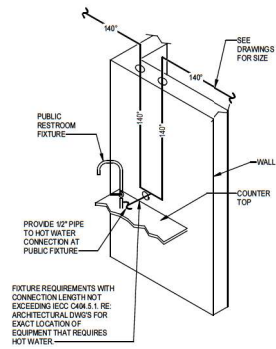
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Given Project # 25086



1 HOT WATER TO MULTIPLE PUBLIC FIXTURES DETAIL  
N.T.S.

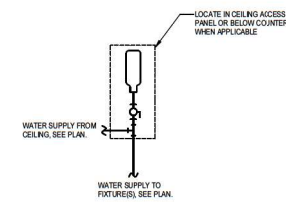
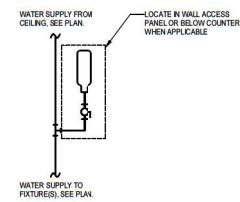


2 HOT WATER TO PUBLIC FIXTURE DETAIL  
N.T.S.



3 PIPE SLEEVE BELOW GRADE DETAIL  
N.T.S.

- GENERAL NOTES:**
1. WATER HAMMER ARRESTORS INSTALLED ABOVE CEILINGS OR IN WALLS SHALL BE POSITIONED IN ACCESSIBLE LOCATIONS FOR VALVE MAINTENANCE AND REMOVAL OF WATER HAMMER ARRESTOR.
  2. WHEN WATER SUPPLY REQUIRES MORE THAN 1 WATER HAMMER ARRESTOR THE PC SHALL REFER TO MANUFACTURER'S MANUAL FOR ACCEPTABLE FIXTURE QUANTITIES AND SPACING AND SIZE OF ARRESTORS TO BE INSTALLED.

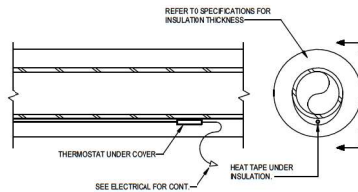


4 WATER HAMMER ARRESTORS DETAIL  
N.T.S.



#### GENERAL NOTES:

1. HEAT TAPE TO BE PROVIDED BY CONTRACTOR FOR WHICH SYSTEM THE HEAT TAPE IS BEING PLACED ON. COORDINATE WITH ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN.
2. RUN HEAT TAPE ALONG BOTTOM OF PIPE OR WRAP PIPE PER MANUFACTURER'S REQUIREMENTS. REFER TO FLOOR PLANS FOR WATTAGE REQUIREMENTS AND SET POINTS OF HEAT TAPE. HEAT TAPE SHALL COVER THE ENTIRE LENGTH OF PIPING EXPOSED TO CONDITIONS. PROVIDE MANUFACTURE CONTROLLER(S) OR MONITORING HEAT TAPE SYSTEM(S).



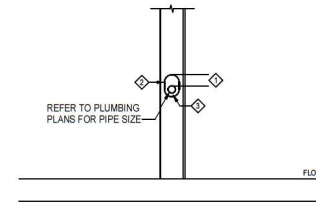
1 HEAT TAPE DETAIL  
N.T.S.

#### DIAGRAM NOTES:

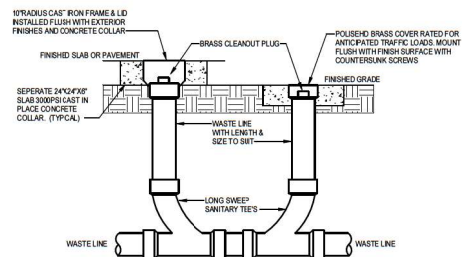
- ◇ PROVIDE 2" RELIEF CUT ABOVE PIPE.
- ◇ RELIEF CUT IN STUD FOR ANTICIPATED BUILDING SETTLEMENT. COORDINATE WITH STRUCTURAL FOR HOLE SIZE AND STUD REQUIREMENTS.
- ◇ PIPE SHALL BE MINIMUM 1/2" ABOVE BOTTOM CUT.

#### GENERAL NOTES:

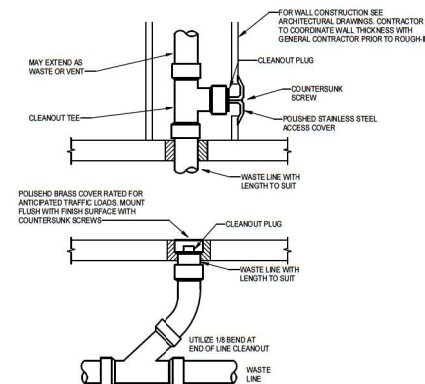
1. PC SHALL ACCOUNT FOR INSULATION AROUND PIPING WHEN CONSIDERING SIZE ON STUD DRAWING.
2. REFER TO STRUCTURAL FOR STUD EXPANSION/CONTRACTION INFORMATION.
3. MAINTAIN PIPE PENETRATION RATINGS THROUGH STRUCTURE.
4. PROPERLY SUPPORT PIPING THROUGH STUD AND FOR EXPANSION AS REQUIRED.



2 PIPE THROUGH WALL DETAIL  
N.T.S.



3 2-WAY BUILDING CLEANOUT DETAIL  
N.T.S.



4 INTERIOR WALL/FLOOR CLEANOUT DETAIL  
N.T.S.



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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
510 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



01/26/2024

PROJECT # 1252 50  
DATE: 12/05/2025  
DRAWN BY: AFJCRM  
CHECKED BY: BMB

REVISIONS:  
1. REVISED FOR 1/8\"/>

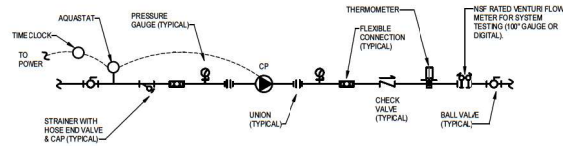
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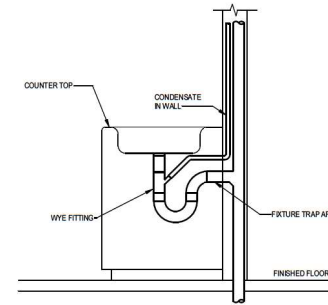
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# GENERAL NOTES:

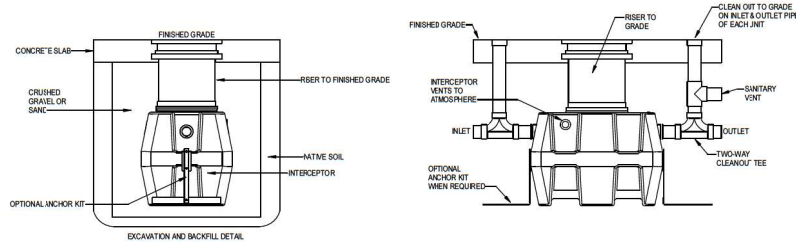
1. INDEPENDENTLY SUPPORT PUMP & PIPING. PROVIDE VIBRATION ISOLATION ON HANGERS.
2. THERMOMETERS & AQUASTATS STEMS SHALL BE IN THE WATER STREAM.



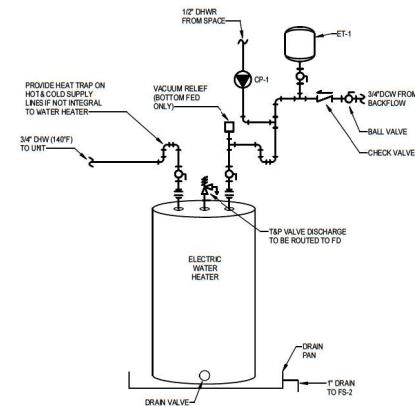
1 INLINE PUMP WITH AQUASTAT DETAIL  
N.T.S.



2 CONDENSATE TO SINK DETAIL  
N.T.S.



4 1-RISER HYDROMECHANICAL INTERCEPTOR DETAIL  
N.T.S.



3 INDIVIDUAL ELECTRIC WATER HEATER DETAIL  
N.T.S.



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**LOUISVILLE HISTORIC GRAIN ELEVATOR  
Renovation for THE GRAIN YARD**  
5410 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252 50  
DATE: 12/05/2025  
DRAWN BY: AFJCRM  
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REVISIONS:  
1. REVISION 1: 11/15/2024

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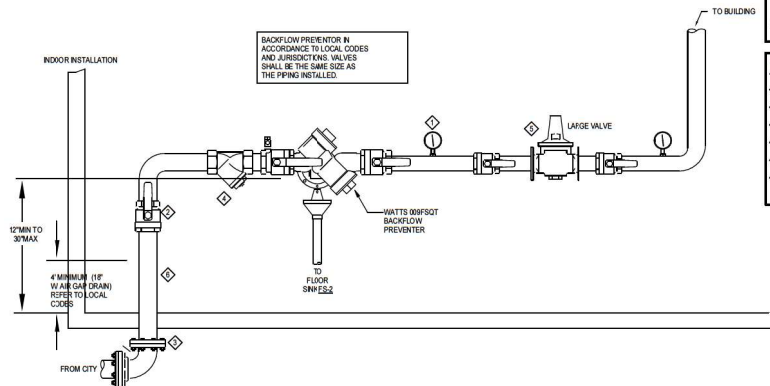
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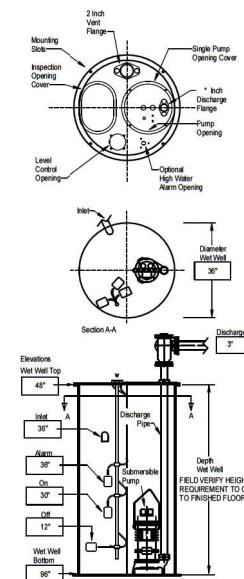
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Given Project # 23056



- GENERAL NOTES:**
1. BACKFLOW PREVENTOR IN ACCORDANCE TO LOCAL CODES AND JURISDICTIONS. VALVES SHALL BE THE SAME SIZE AS THE PIPING INSTALLED.
  2. FOR JOBS WITH A SITE BACKFLOW PREVENTOR, THE PRIV IS ONLY REQUIRED IN THE BUILDING.
- DIAGRAM NOTES:**
- ◆ 3/12" FACE PRESSURE GAUGE (TYP.)
  - ◆ BALL OR BUTTERFLY VALVE (TYP.)
  - ◆ SWEET OR FLANGE UNION (TYP.)
  - ◆ STRAINER
  - ◆ PRESSURE REDUCING VALVE(S)
- PIPING FROM CML TO INLET OF BUILDING ISOLATION VALVE SHALL BE PER LOCAL JURISDICTIONS OR MATCH CIVIL PIPING MATERIAL IF NO LOCAL REQUIREMENT.

1 DOMESTIC WATER ENTRY 3/4"-2" DETAIL  
N.T.S.

- GENERAL NOTES:**
1. MINIMUM WET WELL DIAMETER
    - A. 2 INCH DISCHARGE - 30 INCH
    - B. 3 INCH DISCHARGE - 36 INCH
    - C. 4 INCH DISCHARGE
      - a. 7 INCH PUMP CASE - 36 INCH
      - b. 8 INCH PUMP CASE - 54 INCH
      - c. 12 INCH PUMP CASE - 60 INCH
  2. 10 STARTS PER HOUR MAXIMUM
  3. MINIMUM WATER LEVEL 1 INCH ABOVE PUMP CASE.
  4. INSTALLATION OF THIS EQUIPMENT TO CONFORM TO LOCAL AND/OR NATIONAL CODES AND ORDINANCES AND IS THE RESPONSIBILITY OF THE INSTALLER.
  5. PUMP OPENINGS WITH COVERS ON COVER:
    - A. 2 AND 3 INCH DISCHARGE - 1
    - B. 4 INCH DISCHARGE - 2
  6. NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS CERTIFIED.
  7. REFER TO MFG. TO VERIFY ALL EQUIPMENT NOT PROVIDED TO COMPLETE INSTALL AND PC SHALL BE RESPONSIBLE FOR PROVIDING IT.



2 DUPLEX SUMP PUMP TOP DISCHARGE DETAIL  
N.T.S.

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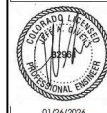


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**LOUISVILLE HISTORIC GRAIN ELEVATOR**  
Renovation for THE GRAIN YARD  
510 COUNTY ROAD, LOUISVILLE, CO  
Louisville Mill Site LLC / Louisville's Living Room LLC



PROJECT # 1252 50  
DATE: 12/05/2023  
DRAWN BY: AFJCRM  
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REVISIONS:  
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**RESOLUTION NO. 1  
SERIES 2026**

**A RESOLUTION APPROVING OF AN ALTERATION CERTIFICATE FOR THE  
LOUISVILLE GRAIN ELEVATOR LOCATED AT 540 COUNTRY ROAD FOR EXTERIOR  
ALTERATIONS.**

**WHEREAS**, there has been submitted to the Louisville Historic Commission (HPC) an application requesting an alteration certificate for a historic structure located at 540 County Road, on property legally described as Lot 2 Louisville Mill Site, City of Louisville, State of Colorado; and

**WHEREAS**, the City Staff and the HPC have reviewed the application and found it to be in compliance with Chapter 15.36 of the Louisville Municipal Code, including Section 15.36.120, establishing criteria for alteration certificates; and

**WHEREAS**, the HPC held a properly noticed public hearing on the proposed alteration certificate on February 23, 2026, where evidence and testimony were entered into the record, including findings in the Louisville Historic Preservation Commission Staff Report.

**NOW, THEREFORE, BE IT RESOLVED THAT THE HISTORIC PRESERVATION  
COMMISSION OF THE CITY OF LOUISVILLE, COLORADO:**

Does hereby approve the application for an alteration certificate for the Grain Elevator as described in the Staff Report dated February 23, 2026:

**PASSED AND ADOPTED** this 23rd day of February, 2026.

---

Sloane Whidden, Chairperson

**RESOLUTION NO. 2  
SERIES 2026**

**A RESOLUTION MAKING FINDINGS AND RECOMMENDATIONS REGARDING A  
PRESERVATION, REHABILITATION, AND RESTORATION GRANT FOR THE GRAIN  
ELEVATOR LOCATED AT 540 COUNTY ROAD.**

**WHEREAS**, there has been submitted to the Louisville Historic Preservation Commission (HPC) an application requesting a preservation, rehabilitation, and restoration grant for the Grain Elevator, a historic structure located at 540 County Road on property legally described as Lot 2 Louisville Mill Site, City of Louisville, State of Colorado; and

**WHEREAS**, the City Staff and the HPC have reviewed the application and found it to be in compliance with Section 3.20.605.D and Section 15.36.120 of the Louisville Municipal Code; and

**WHEREAS**, the HPC has held a properly noticed public hearing on the preservation and restoration grant; and

**WHEREAS**, the preservation, rehabilitation, and restoration work being requested includes making repairs to the existing structure; and

**WHEREAS**, the Historic Preservation Commission finds these proposed improvements will assist in the preservation of the Louisville Grain Elevator;

**NOW, THEREFORE, BE IT RESOLVED BY THE HISTORIC PRESERVATION COMMISSION OF THE CITY OF LOUISVILLE, COLORADO:**

The Historic Preservation Commission recommends the City Council approve a total grant award of \$1,571,789 as outlined in Exhibit A for the following categories:

- a. Preservation, Rehabilitation and Restoration and grant up to \$343,000.00
- b. Extraordinary Circumstances grant up to \$80,000.00
- c. Exceptional Circumstances grant up to \$1,037,789.00
- d. New Construction grant up to \$111,000.00

**PASSED AND ADOPTED** this 23rd day of February 2025.

\_\_\_\_\_  
Sloan Whidden, Chairperson

## EXHIBIT A

| Table 1. Qualifying Grant Requests                                                                                                                                                         |           |                                           |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------------------------|------------------|
| Requests                                                                                                                                                                                   |           | Analysis                                  |                  |
| Description                                                                                                                                                                                | Amount    | Preservation, Restoration, Rehabilitation | Eligible Expense |
| Site                                                                                                                                                                                       |           |                                           |                  |
| 1. Final site grading (includes excavation and backfill for foundation insultation/dampproofing)                                                                                           | \$117,694 | Preservation                              | Yes              |
| 2. New water service for fire sprinklers                                                                                                                                                   | \$128,836 | Rehabilitation                            | Yes              |
| 3. New sanitary sewer service                                                                                                                                                              | \$76,102  | Rehabilitation                            | Yes              |
| Foundation                                                                                                                                                                                 |           |                                           |                  |
| 4. Granular backfill at all crawlspace areas (hand placed over vapor barrier)                                                                                                              | \$13,101  | Preservation                              | Yes              |
| 5. Sump to drain at scale pit (Including plumbing equipment)                                                                                                                               | \$74,627  | Rehabilitation                            | Yes              |
| 6. Replace/reinforce section of wood foundation wall at Section 1                                                                                                                          |           | Preservation                              | Yes              |
| 7. Complete miscellaneous foundation construction in areas not previously addressed in stabilization phase.                                                                                |           | Preservation                              | Yes              |
| Building Structural System                                                                                                                                                                 |           |                                           |                  |
| 8. First floor: Remove abandoned stairs; re-frame floor around stair opening at Section 1 and 2 - Reframe for new stairs as indicated                                                      | \$103,965 | N/A                                       | No               |
| 9. At tower section, reinforce vertical members as indicated and at 6th Floor Mezzanine, add strongbacks to north gable end wall at floor diaphragm elevation to brace wall studs at hinge |           | Preservation                              | Yes              |
| 10. Structural repair of bin walls and floors below grade as required to re-establish the horizontal lateral base of the bin structure that provides lateral bracing for the building.     |           | Preservation                              | Yes              |



| <b>All Sections; Lateral Force Resisting System</b>                                                                                                                |           |              |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|-----|
| 11. Selectively sheath existing stud walls to use as wood shear walls; add blocking, holdowns, and anchors into existing foundation                                | \$32,040  | Preservation | Yes |
| 12. Miscellaneous drag strut and collector elements as indicated Will drag some force into existing bin walls in order to minimize number of new wood shear walls. |           | Preservation | Yes |
| <b>All Sections; Floor framing and wall framing at all sections</b>                                                                                                |           |              |     |
| 13. Repair, re-frame, or replace percentage of floor framing to correct miscellaneous notched & cut joists, improperly headered joists, etc.                       | \$279,920 | Preservation | Yes |
| 14. Sister or replace floor framing having grade limiting size knots or slope                                                                                      |           | Preservation | Yes |
| 15. Sister or replace wall framing due to char damage, or due to discontinuous studs as indicated                                                                  |           | Preservation | Yes |
| 16. Remove and replace structural elements affected by previous fire damage (to be reviewed on site with structural engineer and architect)                        |           | Preservation | Yes |
| 17. New structural steel elements for reinforcing structure                                                                                                        | \$254,395 | Preservation | Yes |
| <b>Restoration of wagon ramp, porte cochere &amp; boardwalk</b>                                                                                                    |           |              |     |
| 18. Reconstruction of original Porte Cochere wall and roof to cover wagon ramp                                                                                     | \$109,887 | Restoration  | Yes |
| 19. Reconstruct wagon ramp with grate at boot pit opening per original. Area of wagon ramp beyond wood framing to be concrete slab and ADA Ramp                    |           | Restoration  | Yes |
| 20. Reconstruct wood boardwalk along west side of building with stairs on each end. Add railings for safety where required.                                        |           | Restoration  | Yes |
| 21. Disassemble scales, move and reassemble scale equipment and infill excavated scale pit at existing                                                             | \$20,000  | Restoration  | Yes |

|                                                                                                                        |           |              |     |
|------------------------------------------------------------------------------------------------------------------------|-----------|--------------|-----|
| site                                                                                                                   |           |              |     |
| 22. Miscellaneous structural repairs and unknown conditions                                                            | \$30,000  | N/A          | No  |
| <b>Exterior Wall Construction &amp; Envelope</b>                                                                       |           |              |     |
| 23. Selective repair or replacement of severely damaged wood shiplap siding. Additional siding replacement as required | \$131,562 | Preservation | Yes |
| 24. Selective repair or replacement of severely damaged wood tongue and groove siding                                  |           | Preservation | Yes |
| 25. Repaint exterior of building including moderate preparation and some siding repair remains.                        |           | Restoration  | Yes |
| 26. Paint new boardwalk, porte cochere, and wagon ramp) with two pain coats                                            |           | Restoration  | Yes |
| 27. Code compliant wall and roof/attic insulation enclosing conditioned spaces                                         | \$79,764  | N/A          | Yes |
| <b>Envelope - Roofing &amp; Waterproofing</b>                                                                          |           |              |     |
| 28. New metal roofing, flashings gutters & downspouts for new (Porte Cochere only)                                     | \$13,319  | Restoration  | Yes |
| 29. Membrane roofing and flashing at wagon ramp over basement space                                                    | \$3,897   | Restoration  | Yes |
| 30. Below Grade Damproofing for entire perimeter of existing building                                                  | \$6,245   | Preservation | Yes |
| 31. Reconfigure gutters as required for proper drainage, discharge to rain gardens for water quality                   | \$24,230  | Preservation | Yes |
| <b>Windows and Doors</b>                                                                                               |           |              |     |
| 32. Replace (7) eight lite double hung wood windows and frames to match original.                                      | \$74,163  | Restoration  | Yes |
| 33. Replace (4) two lite double hung windows.                                                                          |           | Restoration  | Yes |
| 34. Repair (2) fixed four lite windows (2'x2')                                                                         |           | Restoration  | Yes |
| 35. Reconstruct existing eight lite double hung wood window                                                            |           | Restoration  | Yes |
| 36. Replace 50% of the wood on the sliding doors (6'x7').                                                              | \$26,113  | Restoration  | Yes |
| 37. Sand and refinish 4 panel wood door, refurbish hardware non-operating.                                             |           | Restoration  | Yes |

|                                                                                                                        |            |                |     |
|------------------------------------------------------------------------------------------------------------------------|------------|----------------|-----|
| 38. Replace 50% of the wood boards composing exterior doors (3'x7').                                                   |            | Restoration    | Yes |
| 39. Remove, wire brush and oil all hardware that remains.                                                              |            | Restoration    | Yes |
| 40. Install new hardware to match historic as closely as possible.                                                     |            | Restoration    | Yes |
| 41. New barn door rollers and track for sliding door to match original                                                 |            | Restoration    | Yes |
| Interior Rehabilitation (Code, Safety, and Structure)                                                                  |            |                |     |
| 42. Code compliant stairs from first to second level and from first level to basement in similar location to existing. | \$84,223   | Rehabilitation | No  |
| 43. Replace floorboard subfloor                                                                                        |            |                | No  |
| 44. Remove non-compliant access ladders (ship ladders).                                                                |            |                | No  |
| 45. Media blast wood surfaces in the building                                                                          |            |                | No  |
| 46. Treat charred wall areas to avoid dusting for safety.                                                              |            |                | No  |
| Mechanical Systems and Fire Protection                                                                                 |            |                |     |
| 47. Crawlspace ventilation to mitigate moisture and potential wood deterioration and mold.                             | \$26,724   | Rehabilitation | Yes |
| 48. Fire sprinkler system                                                                                              | \$136,226  | Rehabilitation | Yes |
| 49. Dry system to avoid freezing                                                                                       |            | Rehabilitation | Yes |
| 50. Fire alarm system                                                                                                  |            | Rehabilitation | Yes |
| 51. Plumbing system rough-in (no interior tenant finish)                                                               | \$269,929  | Rehabilitation | Yes |
| 52. Electric heat pump system                                                                                          | \$187,417  | Rehabilitation | Yes |
| Electrical Systems                                                                                                     |            |                |     |
| 53. Electric Main Switchgear and Service to Transformer                                                                | \$ 370,482 | Rehabilitation | Yes |
| 54. Branch Circuits, Panels, Outlets & Lighting                                                                        |            | Rehabilitation | Yes |
| 55. Xcel New Service Connection                                                                                        | \$50,000   | Rehabilitation | Yes |
| Hazardous Material Mitigation                                                                                          |            |                |     |
| 56. Follow up testing and mitigation allowance due to time of vacancy                                                  | \$18,000   | Rehabilitation | Yes |
| Miscellaneous Soft Costs                                                                                               |            |                |     |
| 57. 10% Owner's Construction Contingency for Hidden Conditions                                                         | \$274,286  | N/A            | No  |



|                                                                                                                                     |                    |                                                                                                                                                                                                                                                                                                                                                              |     |
|-------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| & Unforeseen Events                                                                                                                 |                    |                                                                                                                                                                                                                                                                                                                                                              |     |
| 58. Building Permit & Plan Review Fees                                                                                              | \$35,657           | N/A                                                                                                                                                                                                                                                                                                                                                          | No  |
| 59. Taxes, other fees, etc. paid at permit                                                                                          | \$90,514           | N/A                                                                                                                                                                                                                                                                                                                                                          | No  |
| 60. Builder's Risk Insurance - Carried by Owner                                                                                     | \$76,800           | N/A                                                                                                                                                                                                                                                                                                                                                          | No  |
| 61. Engineering Fees subsequent to initial stabilization                                                                            | \$109,714          | Preservation                                                                                                                                                                                                                                                                                                                                                 | Yes |
| 62. Architecture Fees subsequent to initial stabilization                                                                           | \$174,857          | Preservation                                                                                                                                                                                                                                                                                                                                                 | Yes |
| 63. Geotechnical Engineering Fees & Construction Phase Material Testing                                                             | \$5,368            | Preservation                                                                                                                                                                                                                                                                                                                                                 | Yes |
| 64. Wood Scientist to quantify extent of bin wall and bin floor deterioration by resistance boring after excavation complete        | \$1,000            | Restoration                                                                                                                                                                                                                                                                                                                                                  | Yes |
| 65. Qualified lumber grader for one day to identify floor framing members not meeting #2 grade where applicable for adaptive re-use | \$2,000            | Preservation                                                                                                                                                                                                                                                                                                                                                 | Yes |
| <b>Total Project Cost from Applicant</b>                                                                                            | <b>\$3,513,058</b> |                                                                                                                                                                                                                                                                                                                                                              |     |
| <b>Adjusted Eligible Expenses</b>                                                                                                   | <b>\$2,921,578</b> | Not eligible: <ul style="list-style-type: none"> <li>• Fees (\$35,657)</li> <li>• Taxes (\$90,514)</li> <li>• Builders Risk Insurance (\$76,800)</li> <li>• Interior Rehabilitation (\$84,223)</li> <li>• Miscellaneous structure repairs and unknown conditions (\$30,000)</li> <li>• Owners Contingency (\$274,286)</li> </ul> Total ineligible: \$591,480 |     |
| <b>Half of Eligible Project Cost</b>                                                                                                | <b>\$1,460,789</b> |                                                                                                                                                                                                                                                                                                                                                              |     |
| <b>Total Requested</b>                                                                                                              | <b>\$1,475,000</b> |                                                                                                                                                                                                                                                                                                                                                              |     |
| <b>Total Recommended Grant</b>                                                                                                      | <b>\$1,460,789</b> |                                                                                                                                                                                                                                                                                                                                                              |     |

| Table 2. New Construction Grant Request                                                |                    |
|----------------------------------------------------------------------------------------|--------------------|
| Requests                                                                               |                    |
| Description                                                                            | Amount             |
| All work related to the east addition to the grain elevator, similar to a train boxcar | \$838,622          |
| Owner costs, including contingency, permit and professional fees, taxes and insurance  | \$232,960          |
| <b>Half of Project Cost</b>                                                            | <b>\$1,071,582</b> |
| <b>Total Requested</b>                                                                 | <b>\$111,000</b>   |
| <b>Total Recommended</b>                                                               | <b>\$111,000</b>   |