# Animas Museum Master Plan

LA PLATA COUNTY HISTORICAL SOCIETY
FINAL MASTER PLAN
SHF 24-PL-014
OCTOBER 9, 2024

# Table of Contents

# Project Overview

## Summary

This objective of this Master Plan is to provide the La Plata County Historical Society and the Animas Museum staff with a roadmap for future projects that would serve to preserve the museum and maximize the visitor experience for years to come.

While condition assessments had been completed before, the stakeholders found they needed a transition from assessments to solutions. Anderson Hallas Architects proposed a multidisciplinary Master Plan for the Animas Museum. Professional investigations by architects and engineers culminated in a condition assessment accompanied by recommended treatments. At a series of workshops, stakeholders and the design team met to discuss and evaluate the treatments. The resulting Master Plan sought to prioritize and sequence future projects to maximize efficiency and funding opportunities.

## Funding Partners

This Master Plan project was paid for in part by a History of Colorado State Historical Fund Grant (SHF 24-PL-014) and the La Plata County Historical Society.

## Project Participants

Susan Jones, Animas Museum Collections Manager
Charlie DiFernando, Animas Museum Facility Manager
La Plata Historical Society Board of Directors
Gay Kiene, Board President

Colorado State Historical Fund Staff

Anderson Hallas Architects, architecture and preservation
    Elizabeth Hallas, Laine McLaughlin and Chloe Dyer
Goff Engineering and Surveying, civil engineering
    Rob Harries
360 Engineering, mechanical and plumbing engineering
    Denise Dihle and Brennen Guy
JVA Inc, structural engineering
    Brett Robinson
AE Design, electrical engineering and lighting design
    Jon Brooks and Kathleen Menyhart
Parametrix, cost estimating
    Nathan Anzer

## GUIDING PRINCIPLES

HISTORIC PRESERVATION

SUSTAINABILITY

MAINTAINABILITY

RESILIENCY

UNIVERSAL ACCESS

| STAKEHOLDER THEMES | PROPOSED TREATMENTS | PRIORITIES |
|---|---|---|
| *Address drainage* | Revise grade to drain away<br>Roof drainage | Replace gutters and downspouts<br>Attic heating system changes<br>Grading to improve drainage |
| *Repair damage* | Basement floor structure<br>Basement stair<br>Broken joists<br>Entry stair<br>Additional repairs<br>Masonry restoration | Reroute and upgrade utilities<br>Parking lot, curb cuts and drive<br>Fire protection system<br>Repair entry stair<br>New accessible restroom<br>Masonry restoration + other |
| *Improve thermal comfort* | Replace boiler system<br>Ventilation air<br>Air conditioning<br>Storm windows | Broken joists<br>New hot water heating system<br>Ventilation air<br>Elevator and stair tower<br>Storm windows |
| *Protect and preserve* | Fire protection | Basement floor structure<br>Basement stair<br>Basement restrooms |
| *Enhance services* | More restrooms<br>Public meeting space | Public meeting space<br>Air conditioning |
| *Improve access* | Drainage and parking<br>Accessible routes | |

# *Address Drainage*

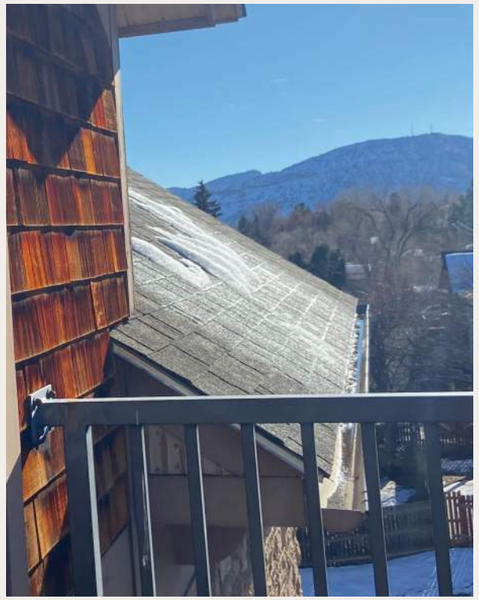
## Replace  gutters and downspouts

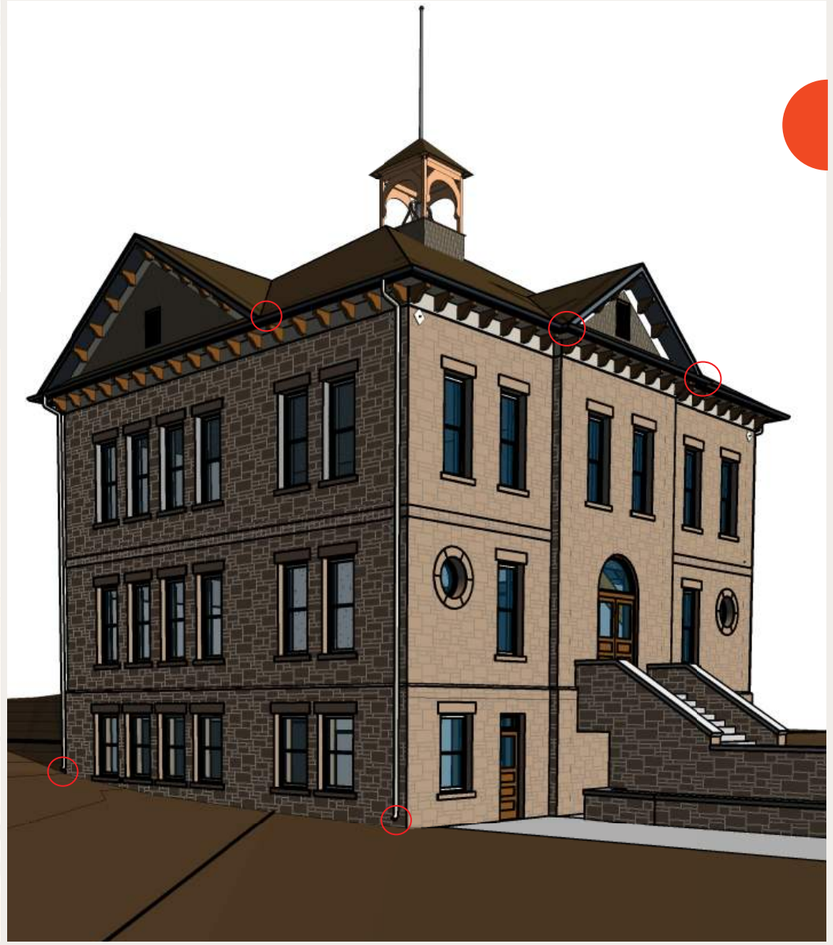
### Existing Conditions

One 5-inch half-round gutter drains across each elevation to a smaller downspout at each corner. During rain events, the gutters overflow, particularly at the roof valleys, wetting the stone and creating a drip line at ground level.  Several holes in the gutters add to the problem.

The downspouts are much smaller (3 inches) than intended, limiting the flow of water from the gutters. The downspouts return discharge to the foundations despite the efforts of the staff.

During snow events, ice damming and icicle formation is common at the gutters.  Melting snow runs down the roof to freeze again at the backed up gutters. As ice and snow melt at the gutters, icicles form.





### Proposed Treatment

- Replace all gutters with 5-inch prefinished metal for corrosion resistance
- Prefinishing involves a factory applied coating that will last longer than paint - select color to match fascia
- Reassess roof runoff and required slopes
- Replace downspouts (5-inch, prefinished metal to match or blend with masonry) and connect to site drainage
- See existing condition drawings for roof, gutter and downspout layout

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# *Improve Thermal Comfort*

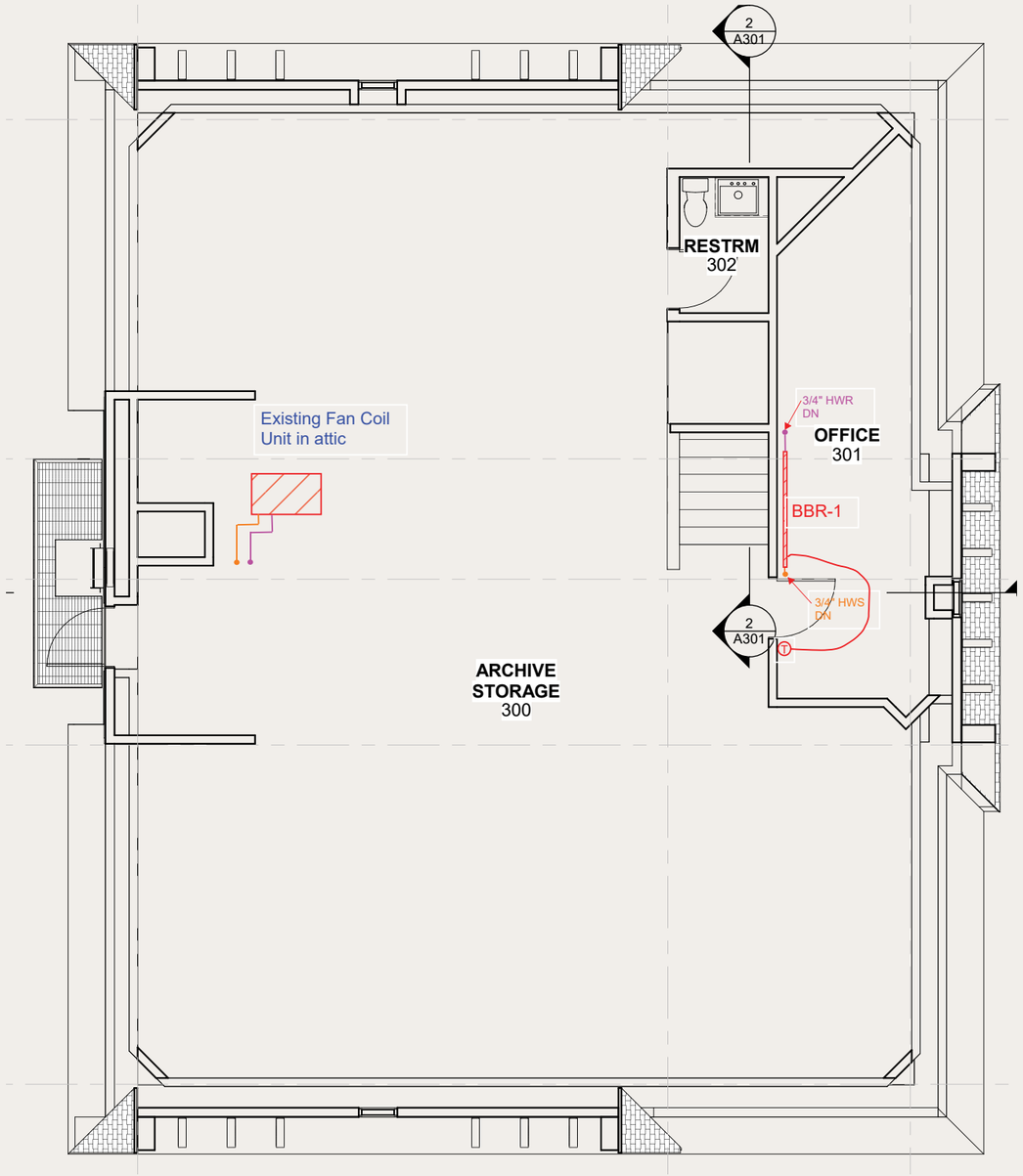
## Separate attic heating system

### Existing Conditions

The existing mechanical system provides heating to all levels via a natural gas-fired steam boiler. The steam system is a 1-pipe system versus a typical 2-pipe. The system is not thermally zoned, so when the boiler is providing steam, the 1-pipe system provides steam throughout the entire building.

There are two thermostats, one at the attic collections level and another at the 1st floor. The control of the steam system via these thermostats is problematic. The attic level is the critical zone to maintain temperature.

The museum staff requested a two-phase solution that would provide quick relief to the temperature crisis.




### Proposed Treatment

- Please refer to the mechanical engineering assessment report, where this work is described as Phase 1
- The objective of this phase is to decouple the attic system from the systems serving other floors
- Replace steam coil in existing unit with a hydronic coil
- Provide a steam-to-hydronic heat exchanger and distribution pump
- 1st floor becomes critical zone; exchanger and pump provide extra heat to attic if needed
- Minimal impact in attic

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# *Address Drainage*

## Revise grading

## Existing Conditions

Storm drainage on the existing site is the primary concern and has adversely impacted the Museum building's foundation and subterrain walls.

Presently, the exterior soils and landscaping adjacent to the building have little or adverse gradient away from the building. This condition allows roof drainage and melting snow to saturate the soil surrounding the building and is the likely cause of seepage into the basement foundation walls.


## Proposed Treatment

- Please see the civil engineering assessment report
- Geotechnical investigation is required
- Archaeological monitoring is a best practice for scope items that include ground disturbance
- Regrade the building exterior soils and landscaping to at least a 10 feet width at 5% positive gradient
- Include costs for installation of a perforated foundation drain below frost depth
- Remove asphalt slopes on the south side of the building
- Sleeve for utility routing (proposed later)

*Disclaimer: Map and parcel data are believed to be accurate, but accuracy is not guaranteed. This is not a legal document and should not be substituted for a title search,appraisal, survey, or for zoning verification.*

Map Scale
**1 inch = 41 feet**
12/7/2023

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# *Improve Access*

## Driveway and parking

### Existing Conditions

The current driveway is problematic for vehicles with low clearance due to the abrupt grade transition from 31st Street.  A secondary driveway access on West 3rd Avenue is unused.

Runoff from major storm events in the Animas Mountain watershed discharges into 31st and floods the property.

The existing parking area is asphalt pavement in very poor condition and in need of replacement.

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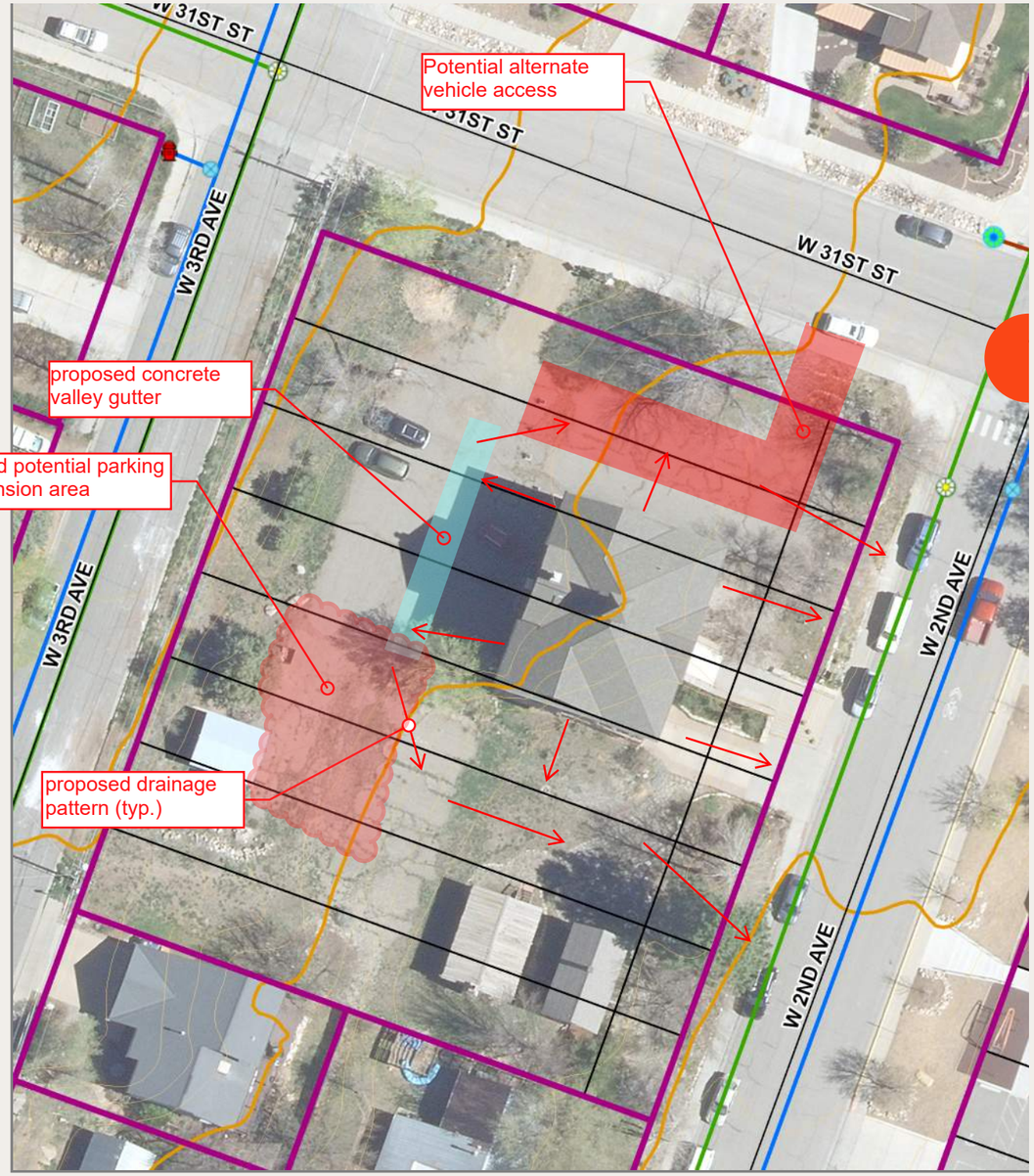


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### Proposed Treatment

- See civil engineering narrative
- Archaeological monitoring is a best practice for scope items that include ground disturbance
- Relocate vehicular access drive to alternate location further east on 31st Street
- Provide new curb cuts at 31st Street
- Replace asphalt at existing parking
- Provide striping and signage for accessible parking

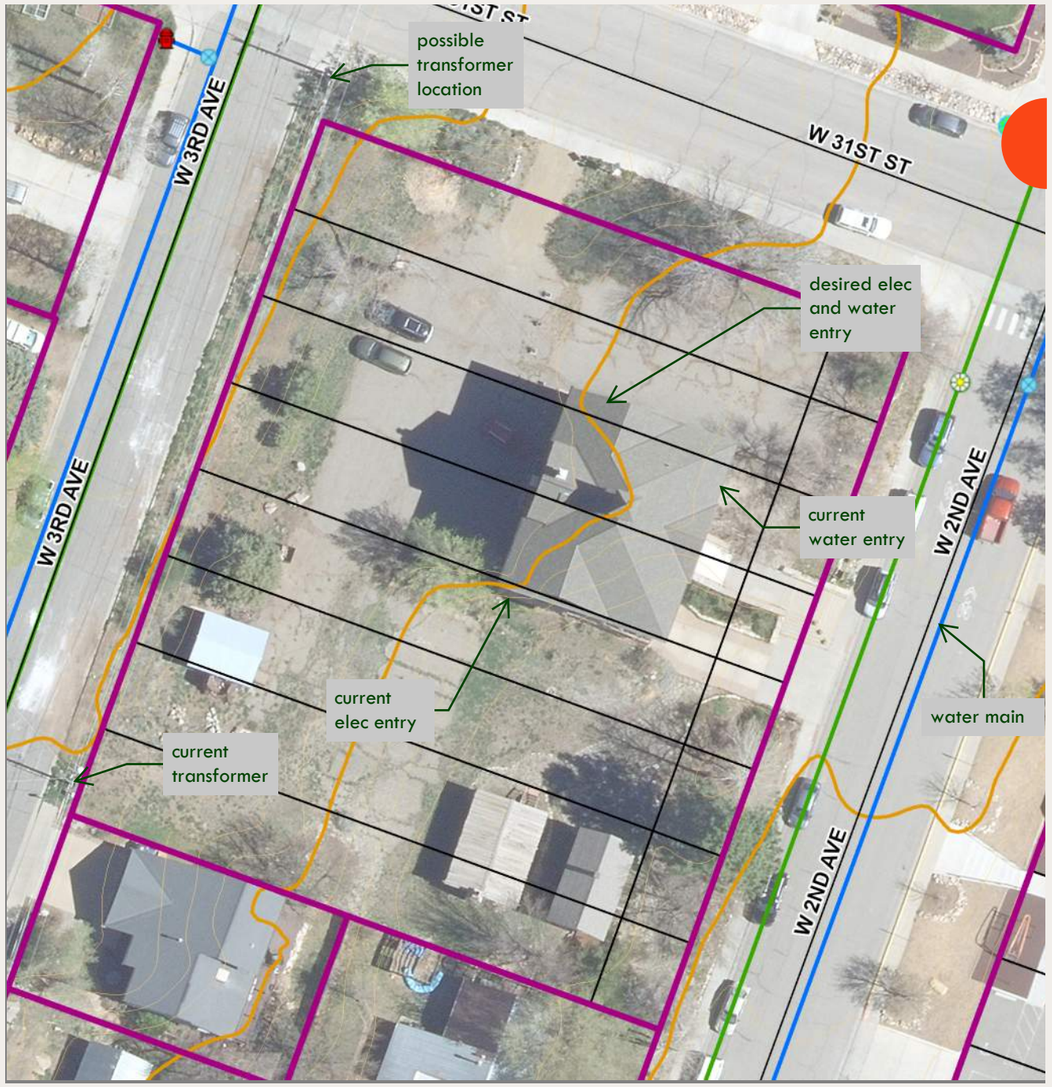
# *Improve systems*

## Upgrade and reroute utilities

### Existing Conditions

Electrical service is currently provided by a pole mounted utility transformer and routed overhead to enter the building at  a meter at the southwest corner of the building. Service lines then run across the basement to panels in the boiler room and attic. The existing service is one-phase.

Water service comes into the east side of the building from the water main in West 2nd Avenue. The 3/4-inch service line runs underground below the entry stair and then enters the building in an inconvenient location in the basement.

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Map Scale
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12/7/2023

### Proposed Treatment

- See civil, electrical and plumbing engineering narratives
- Archaeological monitoring is a best practice for scope items that include ground disturbance
- Relocate the electrical service to enter building at northwest rather than southwest; convert service from overhead to underground
- Upgrade to 3-phase service (available), provide new transformer
- Upgrade water line size to one inch and reroute water line to provide a new water entry location to the north side of the building
- Provide similar routing and entry for new fire service line (see next)

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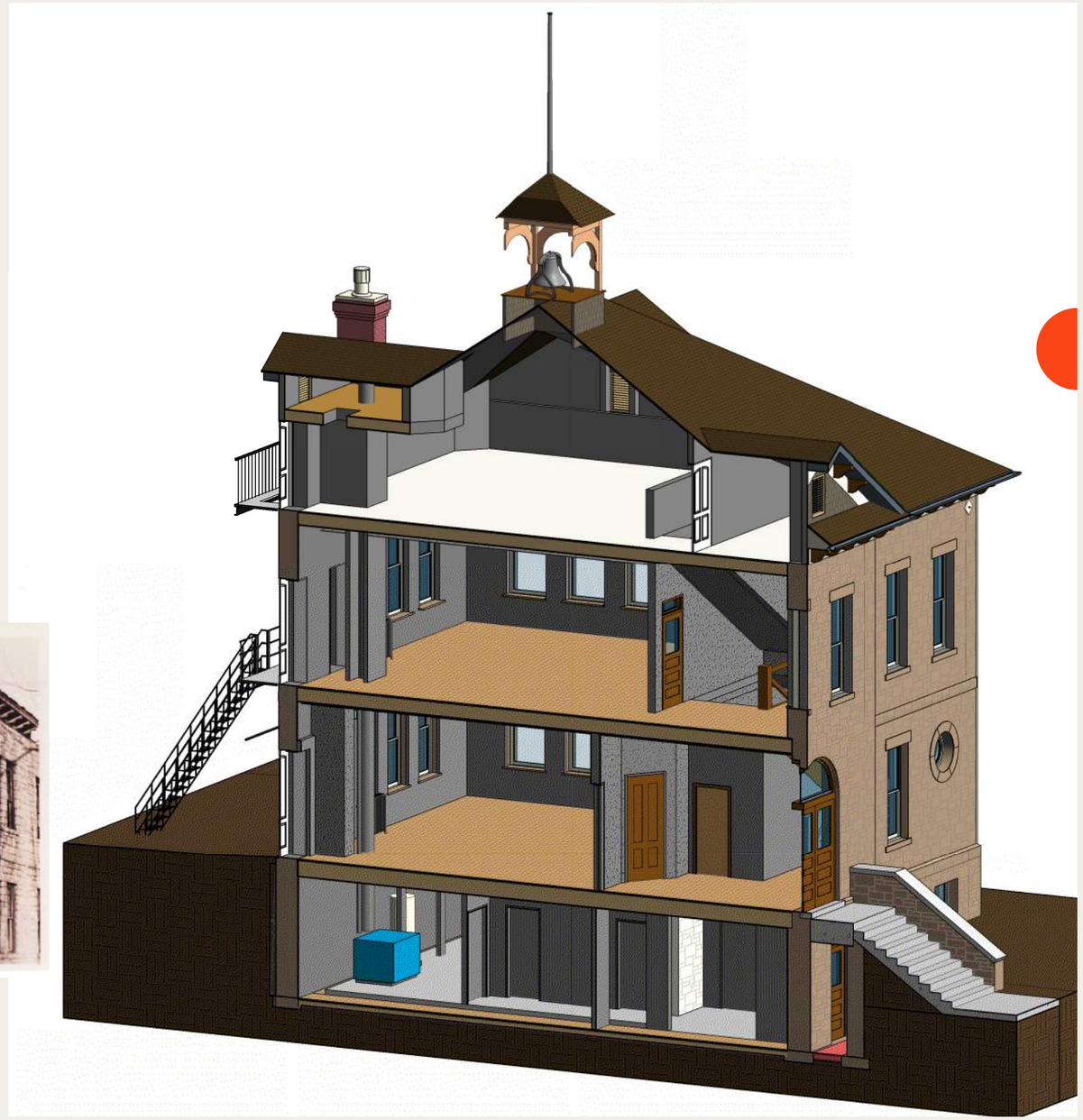
# *Protect and Preserve*

## Fire protection

### Existing Conditions

The building is currently not protected by a fire suppression system.

The building does not comply with current building codes for the number of stories above grade and the uses of the building. While as an existing and historic building there is not a requirement to bring it into the compliance, any new construction as part of a rehabilitation must comply. A sprinkler system would bring the building up to code and allow more flexibility for future work.



### Proposed Treatment

- Protect people, building and collections
- Install a fire suppression (sprinkler) system at all levels
- For cost estimate, assume a preaction system for all four levels
- Piping can run with other piping for less impact
- Provide new integrated fire alarm system
- Requires new fire line as noted in utilities treatment

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# *Repair Damage*

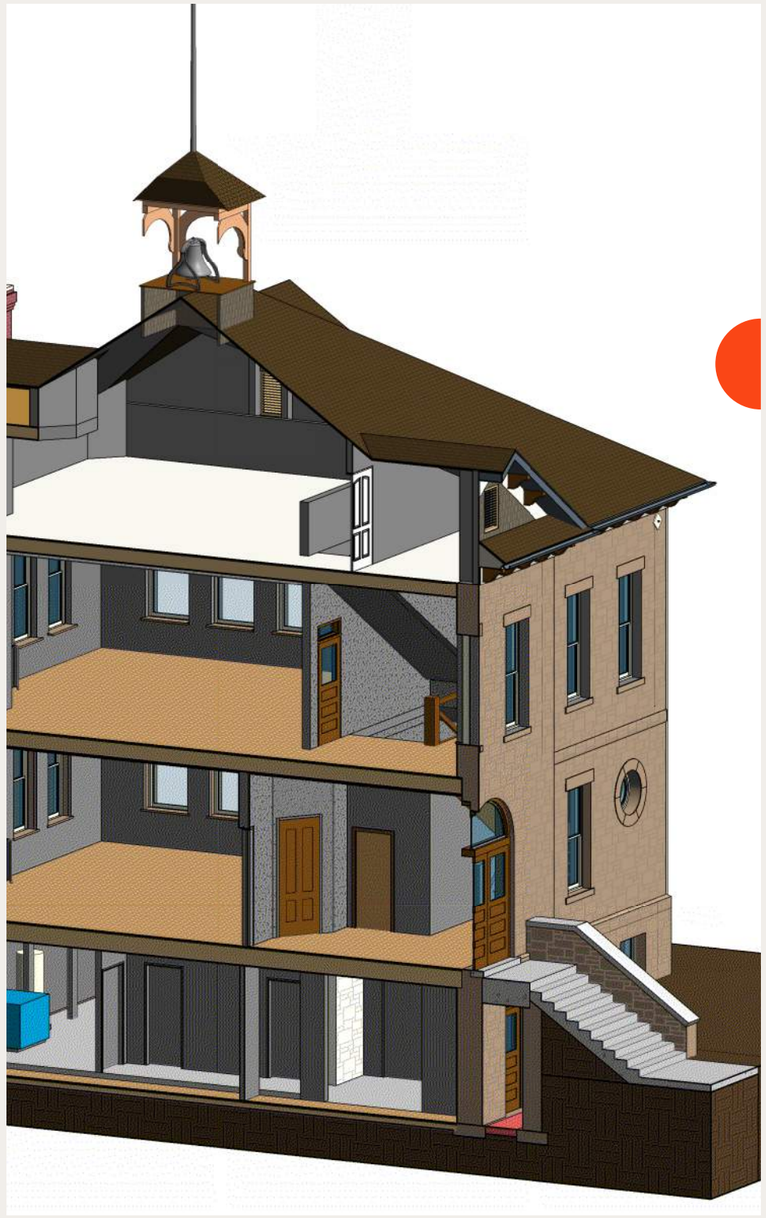
## Entry stair

### Existing Conditions

The stone main entry stair shows evidence of movement and deterioration from water intrusion.

The movement appears to be primarily due to frost heave allowed by the very shallow foundations.  Elsewhere, the foundations are similarly shallow but have enough weight from the stone walls to mitigate the effects of frost heave. At the stair, there has been movement causing cracking at the interface of the stairs and the building. The lack of a positive connection between the concrete stair and the stone cheek walls offers another point of separation and water entry.

Illumination levels along the entry path are inadequate.



### Proposed Treatment

- See structural narrative, geotechnical investigation required
- Provide footing insulation for freeze protection of the shallow footings
- Provide injection grouting and repointing of affected stone
- Add spiral repair anchors to tie concrete steps to cheek walls
- Install new precast concrete cap over flashing at stair cheek walls
- Provide dark-sky compliant lighting fixtures along path

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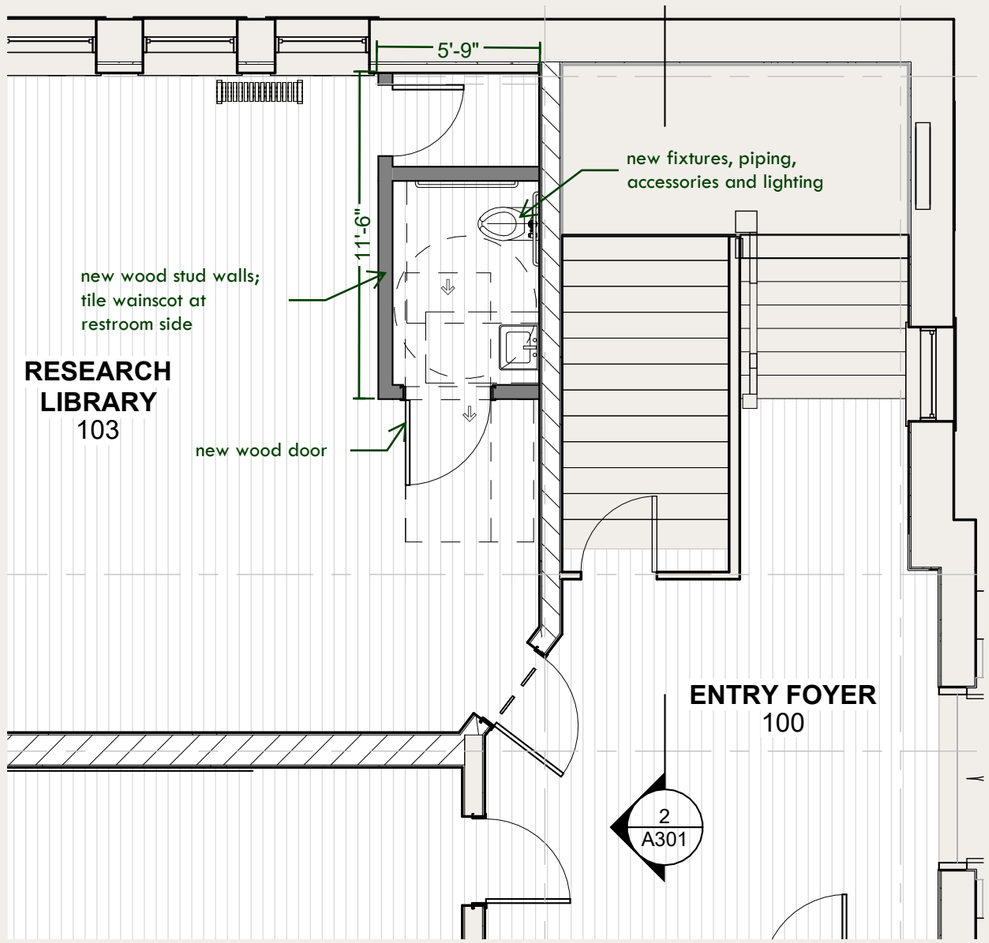
# *Enhance Services*

## Main floor restroom

## Existing Conditions

Historic buildings are required to have at a minimum one accessible route to an accessible entrance and to an area of primary function, with an accessible restroom along the route.

The current accessible entrance is at the west side of the building, at a door opening to the parking lot. This entrance serves the main floor, but there are no accessible restrooms on that floor.




## Proposed Treatment

- One method of providing an accessible restroom is to add one to the 1st floor, on the current accessible route
- Option shows construction of one restroom within a room currently used an office space, with an optional adjacent audiovisual closet
- New fixtures and plumbing
- New lighting and electrical
- New finishes

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# *Repair Damage*

## Masonry restoration

### Existing Conditions

Even if not actively growing, open cracks allow water into the wall cavity

The stone lintel at the basement level southeast corner window is cracked and the crack stair-steps up the wall.

Pointing mortars vary in type, strength and tooling.

### Proposed Treatment

- Crack repair - for pricing, assume 15 linear feet per elevation
- Broken lintel repair (1)
- General repointing - assume 10% of each facade, see existing conditions drawings
- Requires mortar analysis
- Further design phases will make recommendations for historically appropriate tooling mortar and profiles

# *Repair Damage*

## Broken Joists

### Existing Conditions

While the school district still owned the building, stacks of books were kept in the room above the boiler room. The books obscured a radiator which at some point failed and saturated the books, causing several floor joists to fail.

The repair at the time was to add posts and beams in the boiler room below to support the joists.

### Proposed Treatment

- Sister the (4) existing joists with LVL beams to restore their structural capacity
- Allow the extra posts and beams in the boiler room to be removed
- Replace ceiling following repairs

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# *Improve Thermal Comfort*

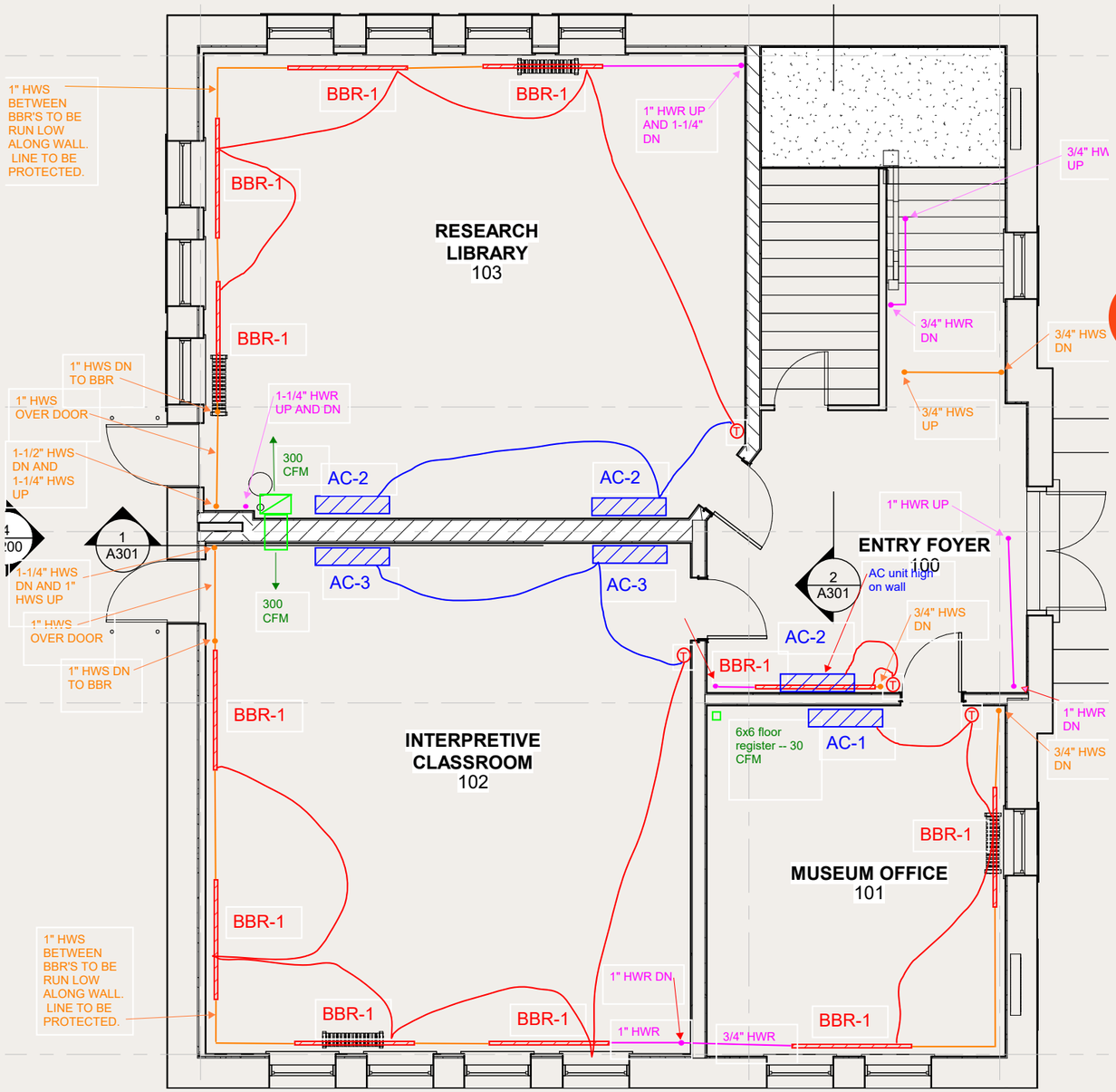
## Replace boiler system

## Existing Conditions

The existing mechanical system provides heating to all levels via a natural gas-fired steam boiler. The steam system is a 1-pipe system versus a typical 2-pipe. The existing system is not thermally zoned, so when the boiler is providing steam, the 1-pipe system provides steam throughout the entire building.

There are two thermostats in the building, at the attic collections level and at the 1st floor. The control of the steam system via these thermostats is problematic.

There have been attempts to mitigate the issue by installing valves at the radiators, which can be adjusted manually. However, without a zoned system, both the collections area and the lower levels cannot be kept within comfortable temperatures simultaneously.




## Proposed Treatment

- Two new high-efficiency gas boilers sequenced together
- Two-pipe hot water supply and return piping
- All new hydronic radiators - select least intrusive options during further design
- Remove and salvage existing radiators where new radiators must be installed in same location
- Pipes follow existing steam line routes for less impact to historic finishes
- Remove the heat exchanger and pump installed in the attic unit during phase 1, connect to overall hydronic system

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# *Improve Thermal Comfort*

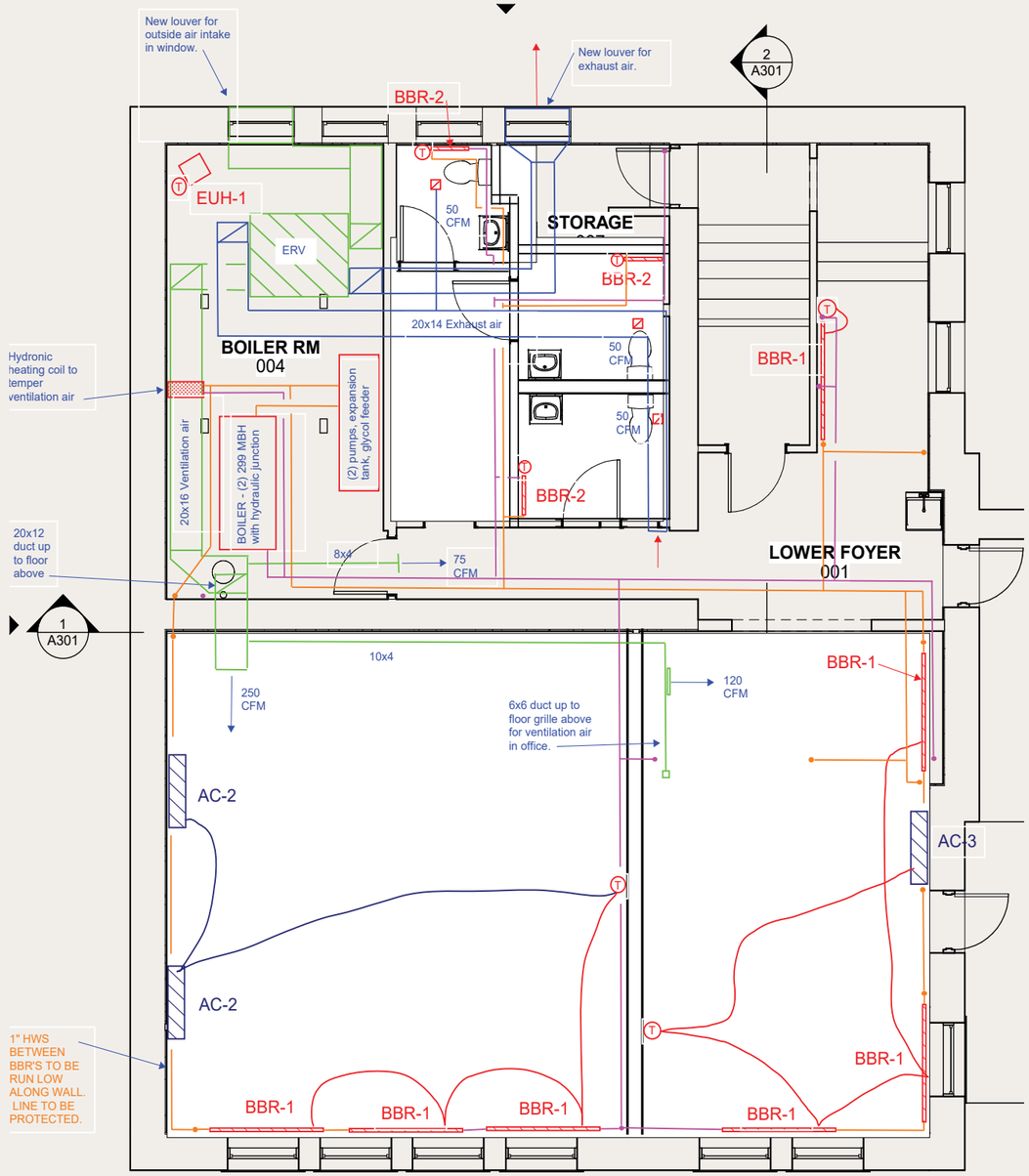
## Ventilation Air

### Existing Conditions

There is no active mechanical ventilation for the basement, 1st Floor, or 2nd Floor. Ventilation for these areas is only provided when windows are opened to allow fresh air into the space. This practice is not recommended for a museum due to the sensitivity of the collections.

The attic level does not have active ventilation air either; however, this is a different use of space, and maintaining a consistent temperature is critical, and outside air is not recommended.

There are also two individual restrooms, one on the basement level and one on the attic level. The basement-level restroom has no exhaust or exterior openings to allow odors out. The attic level does have a small exhaust fan.




### Proposed Treatment

- Energy Recovery Ventilation System
- ERV unit and window intake in boiler room
- Air tempered by other systems, then distributed
- Also provides exhaust required for restrooms
- During further design, select units, locations and routing to minimize impact to historic fabric

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# *Improve Thermal Comfort*

## Storm Windows

### Existing Conditions

Windows were restored in 1994 using an SHF grant and are in overall good condition.

Significant gaps appear at the perimeter of most windows. There was reportedly some issue in labeling the windows, complicating the reinstall. The glass is single pane, which offers little thermal resistance.

Windows are typically covered with closed blinds to prevent light that might damage collections. Windows are not typically opened in these spaces.

Lighting controls are limited to occupancy sensors and manual switches.

### Proposed Treatment

- Add interior storm windows at all (49) windows
- Improve U-value and seal air gaps for better performance of new mechanical systems and thermal comfort
- Can include UV protection
- Interior so no scaffolding needed
- Opportunity to upgrade lighting controls for max efficiency

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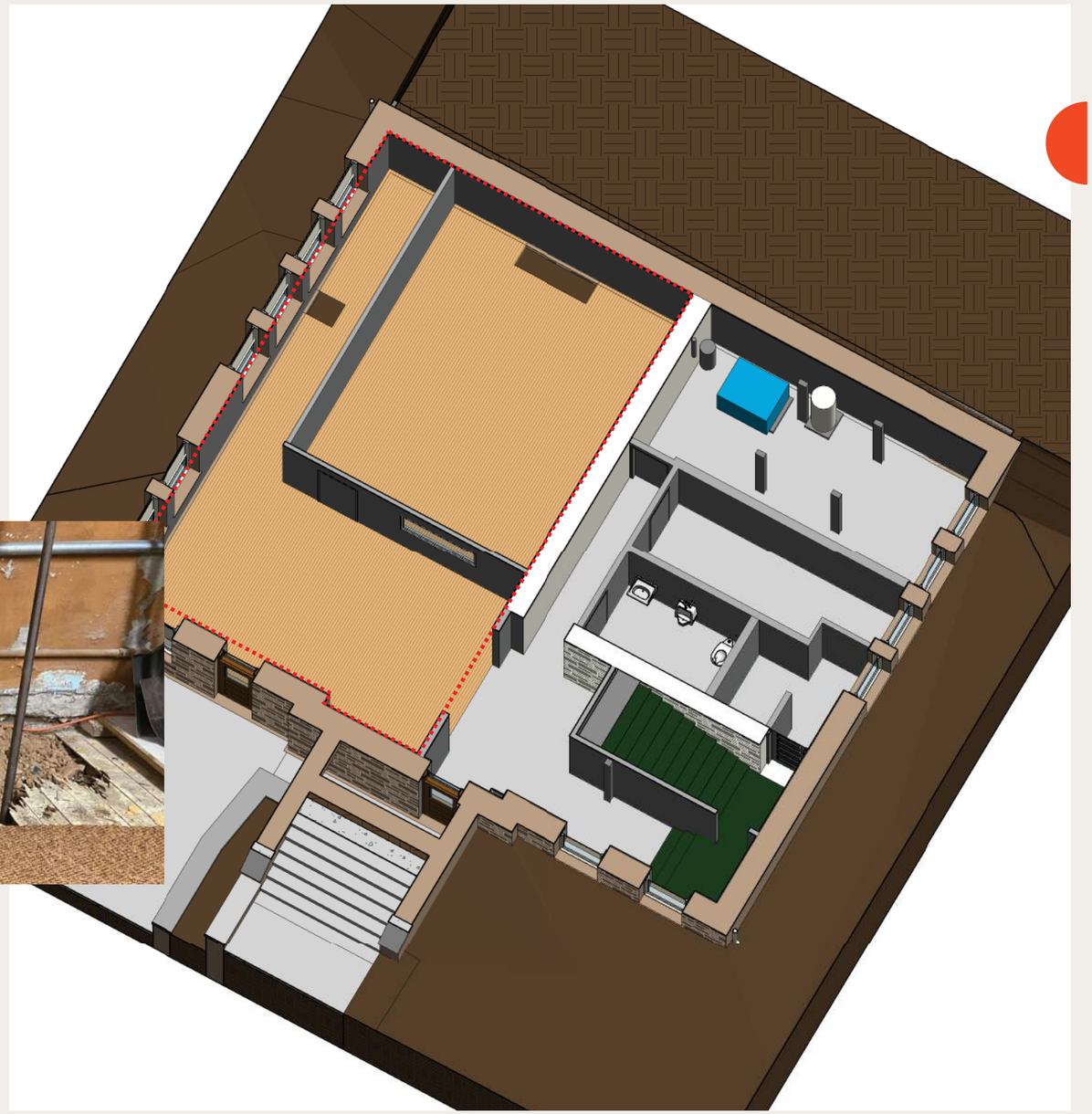
# *Repair Damage*

## Basement floor structure

### Existing Conditions

The existing grade directs water against the building. Moisture issues are manifested in the damaged and deteriorated basement floor structure.
The existing system with timber sleepers resting on grade and supporting wood subfloor does not meet current codes and has contributed to the deterioration of the floor.



### Proposed Treatment

- See structural report and existing condition drawings
- Archaeological monitoring is a best practice for scope items that include ground disturbance
- Geotechnical investigation and further structural load path analysis required
- Preferred option: replace historic wood joist floor system with a concrete slab on grade (in area shown inside red dotted line)
- Demo non-historic internal partitions to facilitate work - shore main floor structure
- Current wood flooring is understood as subfloor - no salvage required
- Further design phases to make recommendations for silverfish and insect mitigation as well as finish materials

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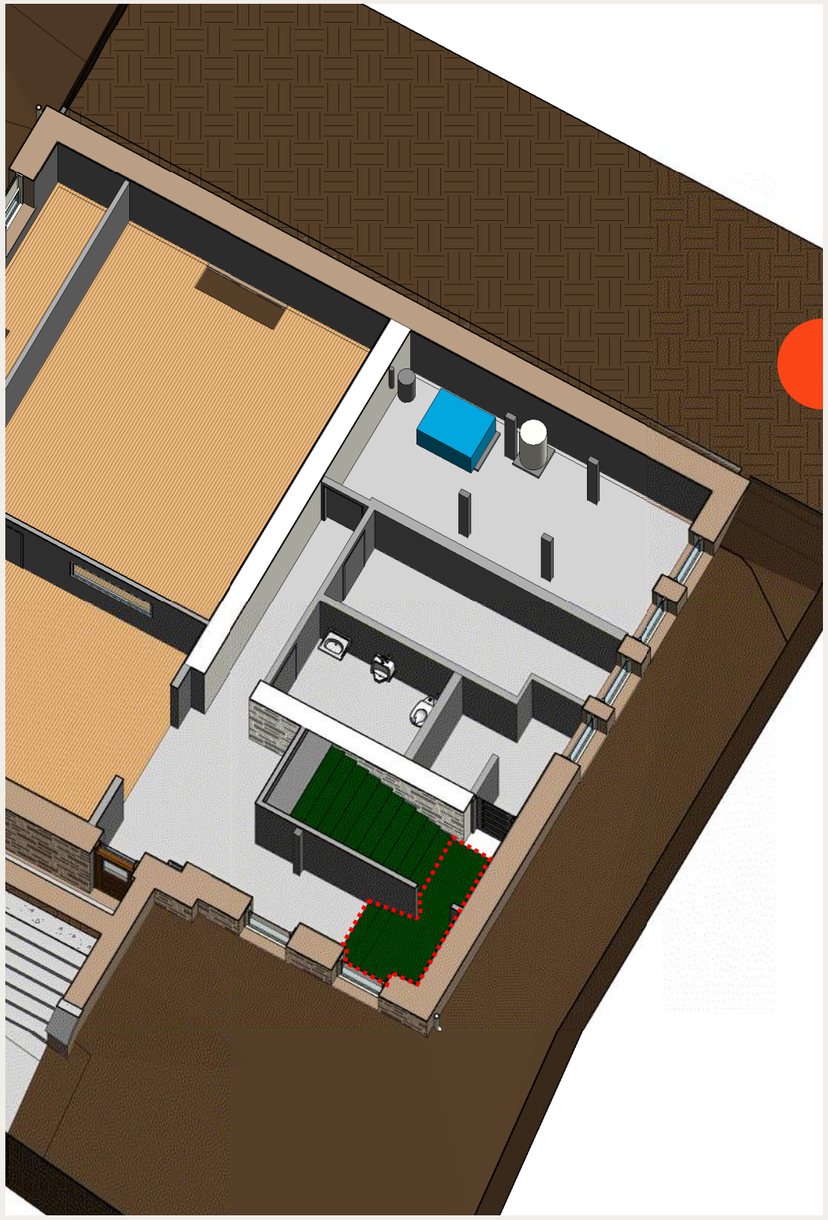
# *Repair Damage*

## Basement stair

### Existing Conditions

The stairs from the main floor down to the basement floor do not have adequate foundations.

The midway landing is sloped and makes egress dangerous.

### Proposed Treatment

- Replace the wood stair from the main floor to the basement (rather than just the section shown in red) with a new wood stair and structure resting on concrete foundations or a concrete slab
- These stair sections are not historic - protect upper historic stair and railing to remain
- New finish material to be determined

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# *Enhance Services*

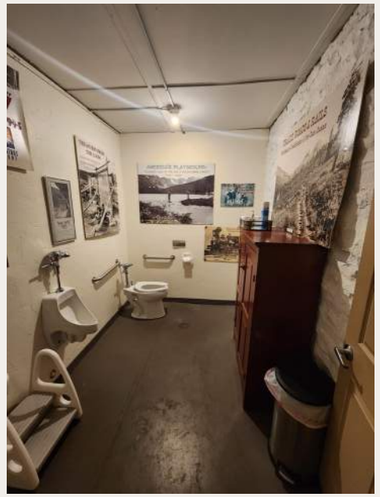
## More restrooms

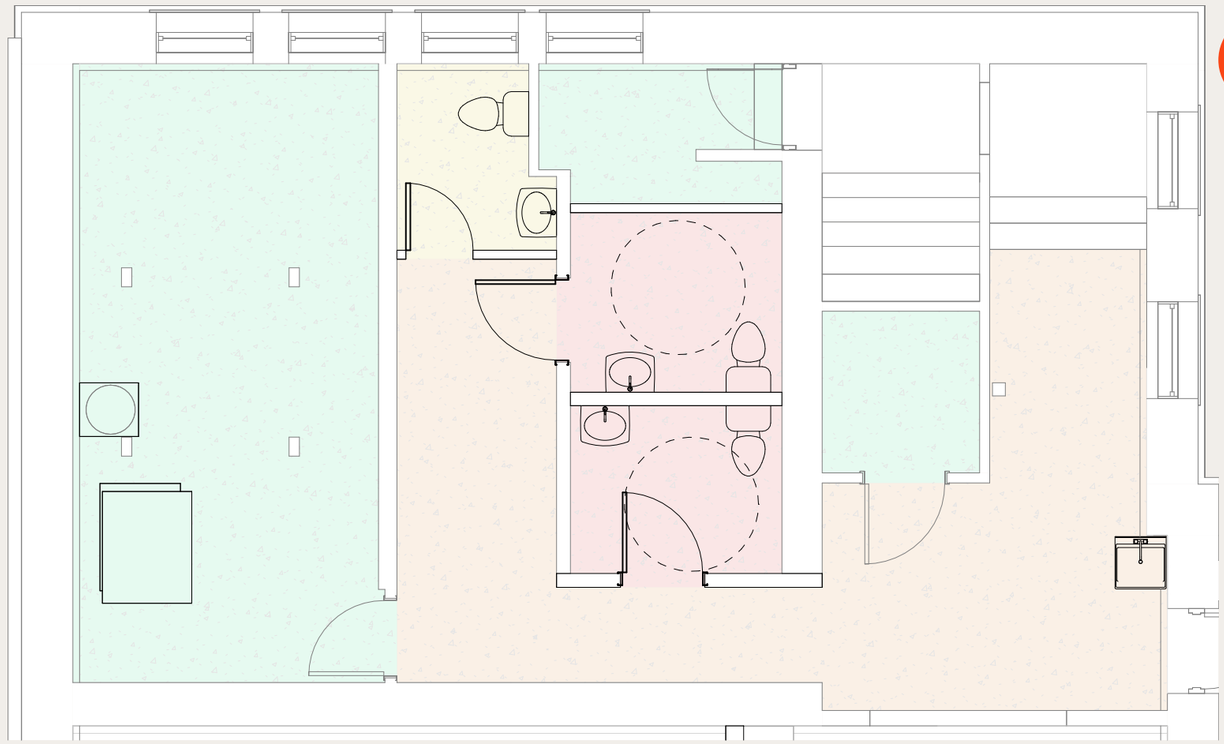
### Existing Conditions

There are two restrooms in the building, one in the attic for staff use and one in the basement that serves both staff and the public.

The basement restroom serves as the ADA accessible restroom. More public restrooms are needed. As there were once two restrooms in the basement (one in the present break/storage room), potential for expansion is there.

New restrooms must comply with current accessibility standards.





### Proposed Treatment

- See existing conditions drawings for current configuration
- Many options possible
- Shown is idea to reconfigure existing restroom and storage room to provide 3 single-user restrooms (2 ADA)
- Requires new 1-inch main; see utilities treatment
- New water heater proposed
- New ceramic tile finishes
- New lighting and electrical

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# *Enhance Services*

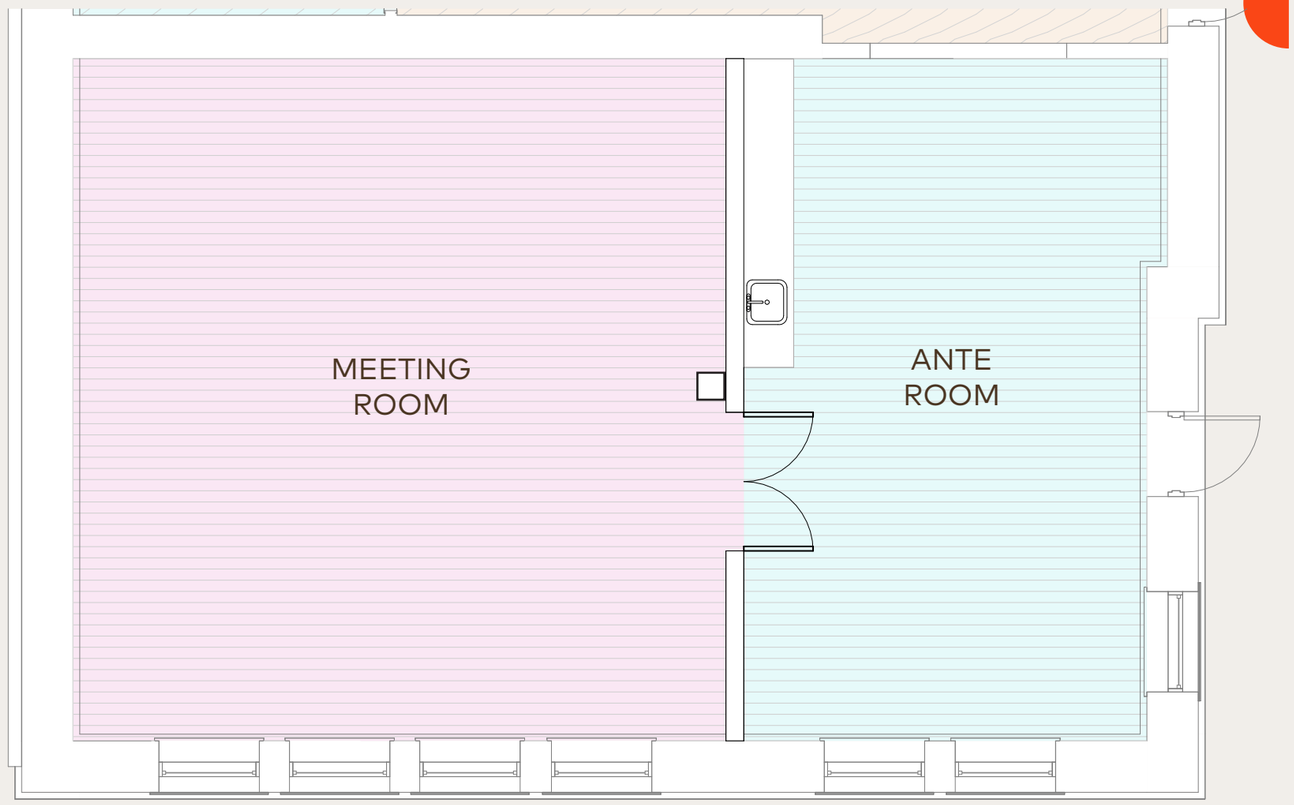
## Public meeting space

### Existing Conditions

The Museum sees an opportunity to offer a meeting space that would be available for public use.

The basement level has an accessible entrance and restrooms. The entrance also allows for public access without disturbing museum operations.

A kitchenette would allow for refreshment service and serve as a break area for employees.


### Proposed Treatment

- See existing conditions drawings for current layout
- Potential layout shown - assumes previous demo of interior partitions for floor slab work
- Requires load bearing study for intermediate walls
- Provide acoustic insulation at new partition wall
- New full lite (glass) double door - additional glass and transparency can be studied in further design
- Mini-kitchen contains sink and fridges - plumbing is close to main line
- New lighting and electrical; AV for meeting room

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# *Improve Thermal Comfort*

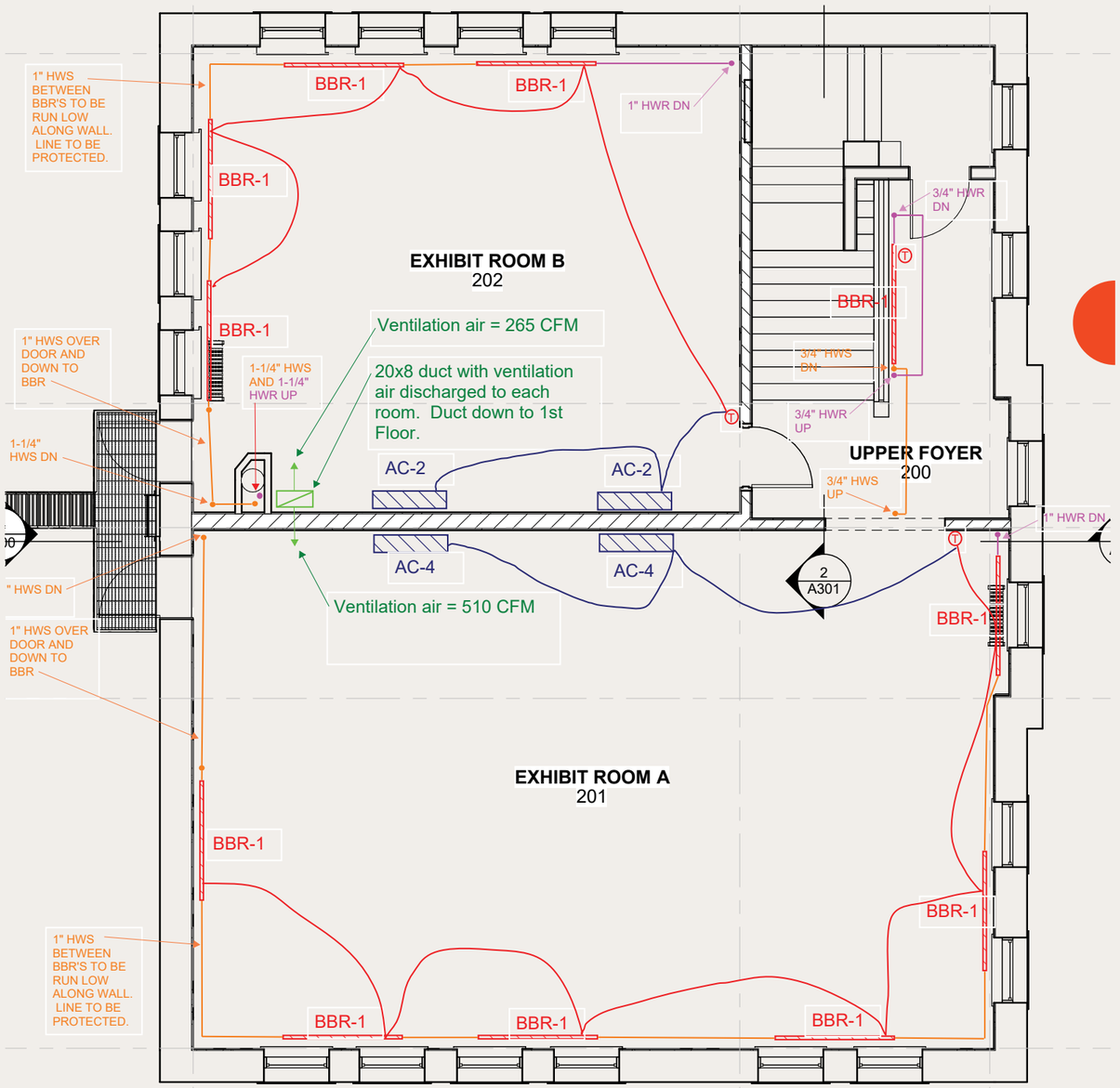
## Air conditioning

### Existing Conditions

Currently, only the attic collections level has air conditioning.

The other levels can become quite hot during the summer months. Opening windows to catch breezes is not practical in the museum exhibit spaces.

Installation of a typical ducted system would threaten the integrity of historic material.




### Proposed Treatment

- See mechanical narrative and included plans
- Ductless split DX systems
- Wall mounted with coordinated piping
- Each room zoned for temperature control
- Requires 4 outdoor condenser units on concrete pads
- Requires upgrade to 3-phase electrical as covered in utilities treatments
- During further design, select units, locations and routing to minimize impact to historic fabric

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# *Improve Access*

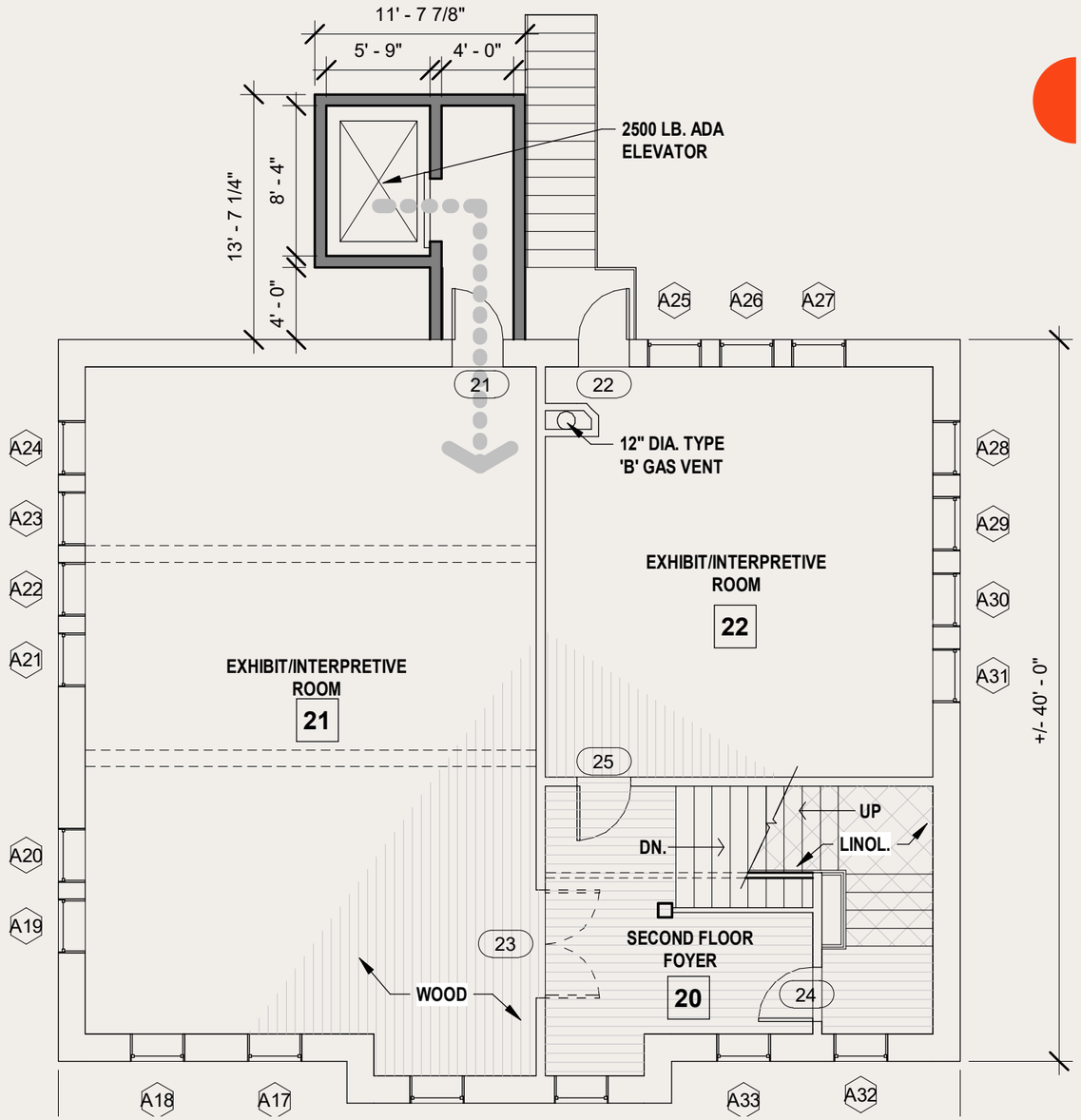
## Elevator and stair tower

### Existing Conditions

The current accessible entrance is at the west side, at a door opening to the parking lot. This serves the main floor, but there are no accessible restrooms on that floor.

The basement has a restroom and a door that could be used for access, but there is no defined accessible route from parking to the door.

There is no universal access to second floor and attic level.




### Proposed Treatment

- See previously proposed design (by others) for a new elevator tower at left
- Archaeological monitoring is a best practice for scope items that include ground disturbance
- Actual design for the tower and for its connection to the museum will require intensive planning, study and sensitivity to minimize impacts to the historic building
- Tower is envisioned as including a 4-stop elevator
- Tower would include an enclosed corridor to entry points on each level - basement access requires excavation and new opening
- Adjacent exterior steel exit stair (to replace fire escape) connects upper two floors with main level parking lot

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# *Assessment Reports*

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# *Scoping Trip Report*

**Animas Museum**
**La Plata County Historical Society**

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# Overview

**The Visit**

Anderson Hallas visited the Animas Museum on July 13, 2023 at 8:30 am to view current conditions at the historic building and to discuss the needs and wishes of museum stakeholders.

Animas Museum
Susan Jones, Collections Manager
Gay Kiene, Animas Museum Board President
Charlie DiFerdinando, Facility Manager

Anderson Hallas
Liz Hallas, AIA, Principal
Laine McLaughlin, AIA, Project Manager

**Report**

This trip report is intended to document and assess existing conditions at the Museum as witnessed and discussed during the site visit.

This document is not intended to be a complete Historic Structures Assessment as defined by the State Historical Fund Annotated Scope of Work. Architectural items investigated and recorded in this report include: building enclosure performance, roofing and roof drainage, stone masonry, exterior and interior stairs and accessibility. Other features such as windows, doors and interior finishes were observed only briefly as their condition was not among the primary concerns voiced by the museum staff.

**Museum Background**

This brief summary is not intended to replace more thorough histories found elsewhere, but to concentrate on key developments in the building past that proved significant in our observations and discussions.

Animas City School was constructed in 1905 from local sandstone in the Richardsonian Romanesque style. Rectangular in plan, the building has three stories including a full basement that is fully below grade at the northwest corner and fully exposed at the southeast corner. The original wood shingle hipped roof and bell tower caught fire in 1919. The roof was rebuilt in 1920 as a flat roof.

The school closed in 1967. The property transferred to the La Plata Historical Society in 1978 but remained vacant until its opening as the Animas Museum in 1988.

In 2007, a major project reconstructed the form of the original roof, ornamental gables and bell tower. In that project, the new attic space was prepared for conditioned collections storage, allowing museum collections to relocate from the damp basement.

# Part I – Significant Observations

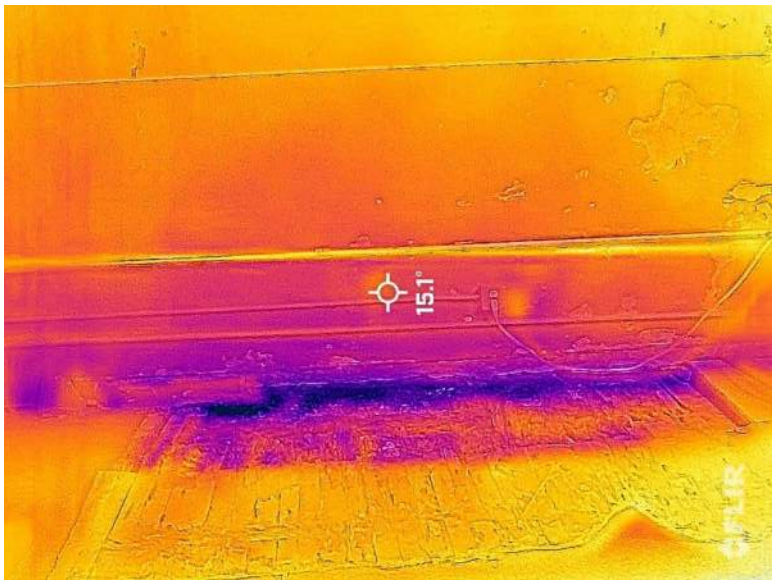
**Foundations and Site Drainage**

Moisture at the foundations is the single most pressing problem at this point.

Site drainage is a known contributor. The site slopes steeply from the northwest to southeast corner.  An asphalt parking lot west of the building adds to sheet flows from rain events. These issues are not new to the structure. Sometime in the 1930s, concrete "at grade gutters" were installed at ground level on all sides of the building to capture flow from the site and from the roof drains off what was then a flat roof. By 1999, the gutters were removed from the south and east elevations and buried below asphalt at the north and west. At the northwest corner, a strongly sloped section of the old gutter is open to view. With the concrete gutters gone, the presence of water at the building perimeter can still be perceived on a dry day. Images from a recent (November 2022) rain event show water pooling below the eaves in several places, with splash back on to the masonry walls.

The effect of over a century of drainage issues is more visible at the interior. At the portions of the basement walls that are below grade, moisture transfer is manifest in peeling paint and efflorescence at the wall in interior. The boiler room is shown here.

The basement floor structure also bears witness to these issues. Floor joists, sleepers and ends of the floorboards themselves are rotted at the west wall as shown in the first image below. In the thermal image of the same condition, the moisture in the foundation wall reads as blue (cold/wet) in contrast to the yellow (warm/dry) areas.




A similar condition can be seen along the south wall where a rotted joist barely bears on concrete block. The concrete block bearing condition is indicative of how much is unknown about the foundations of the structure below grade. Similarly, moisture and ad hoc bearing conditions at the stair to the basement have contributed to an obvious slope in the stair landing. Despite attempts to stabilize the situation, the slope is significant enough to be considered unsafe.

**Roof Drainage**

Roof gutters and downspouts contribute to the overall drainage and moisture problems.

Gutters are not original to the building but were added as part of the 2007 roof reconstruction project to help control water runoff from the roof. One 5-inch wide half-round gutter drains across each elevation to a smaller downspout at each corner.

Several issues are immediately evident. During rain events, the gutters overflow, particularly at the valleys formed by the gables. The image at left below, taken last September and provided by Susan Jones, clearly shows dampness at stones below the valley of the west gable. The resulting drip line at ground level is notable even in dry conditions.

The downspouts are much smaller (3-inch diameter) than those specified, limiting the flow of water from the gutters. The downspouts discharge too close to the structure, but this condition is carefully ameliorated by the staff in the form of various piping and tubing that can move water further away. These are temporary expedients that require constant monitoring to ensure nothing is loose. The image below shows the northwest downspout over the sharply sloped concrete gutter from the 1930s, and the various methods used to keep the water away from the window and the foundation.

The west gutter has holes in its base, likely caused by corrosion of the painted galvanized gutter. The condensate line from the attic condensing unit drains into the gutter at this location and may be the cause of the corrosion (shown below).

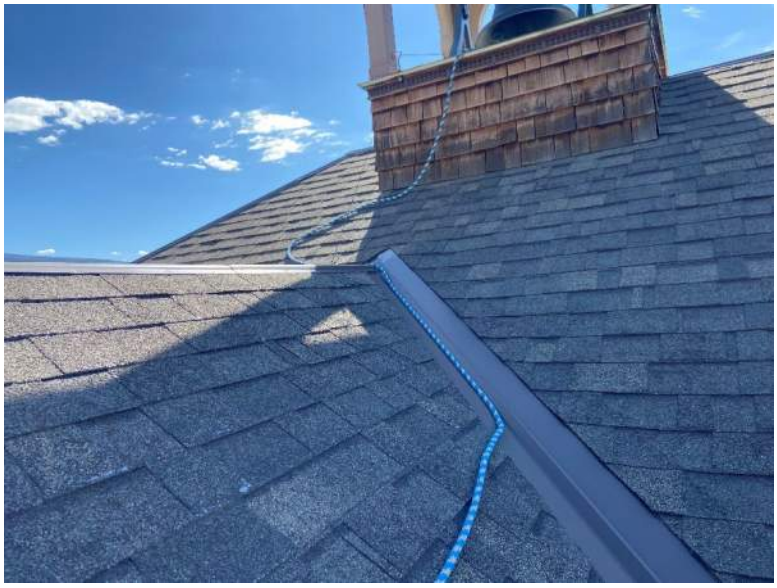
During snow events, ice damming and icicle formation is common at the gutters according to the staff.  Ice damming occurs when interior heat (such as in the attic) warms the roof and causes snow above to melt. The melted snow runs down the roof only to freeze again where the roof is suddenly cold at the eaves. Backed up gutters provide additional cold surfaces to add to the buildup of the dams. As ice and snow do melt at the gutters, the melt seems to quickly solidify into icicles off the side of the gutter.

**Roofing**

The current asphalt shingle roofing was installed in 2007 as part of the roof reconstruction.

We observed the roofing condition only as could be viewed from the roof hatch and the upper level of the fire escape. From these vantage points, we noted no major issues with the shingles themselves. Flashing is installed properly at valleys, but important flashing at side walls, chimney and bell tower, and even drip edge flashing seems less consistently applied.

Further inspection of the entire roof, possibly using drones, is necessary to understand the overall condition given the age of the roof and the ice damming issues, which are indicative of freeze thaw issues throughout the assembly. It is likely that the insulation strategy at the new roof contributes to the ice damming problems; documentation of conditions over the course of winter would be useful in making recommendations.



**Masonry**

Load-bearing masonry walls were briefly observed from interior and exterior.

Below grade masonry shows the effects of the site drainage issues mentioned above. In many locations in the basement, masonry is exposed to view from the interior. Several layers of paint or other coatings are trapping moisture within the walls; the peeling paint is indicative of the masonry's sincere attempt to dry toward the interior. Above grade masonry is covered with plaster at the interior with few issues noted beyond cracking of the plaster above windows and doors. Many such cracks are old and can be attributed to settlement but should be studied further in case the new load of the reconstructed roof is affecting the bearing walls.

The exterior wythes of the masonry walls are in overall good condition, showing little of the erosion, bedding issues or staining common to sandstone. Several large, open cracks persist on

the exterior. These are not new cracks but should be studied anew due to the new roof structure loads, and also repaired as open cracks allow liquid water into the wall assembly and leave it vulnerable to the deleterious effects of freeze-thaw.

The masonry was extensively repointed with the current convex beading technique sometime in the 1930s, as explained by facilities staff and visible in historic images. Areas previously covered by the concrete gutters, such as at the southeast corner, show a more typical raked joint. A more thorough investigation of masonry pointing is needed, especially at upper reaches, but was in fair to good condition where observed, expect at the exterior east stair (shown below). The 2018 HSA indicates that a mortar analysis and report were completed for a 1999 architectural assessment, but our copy of that assessment does not include it.  Such a report would be a valuable resource. *Update: Mortar analysis received 8/9/2024.*

**Mechanical Systems**

This was an architectural observation only; however, mechanical systems are noted here as the museum staff would like to consider new mechanical conditioning for the lower three floors. Ventilation solutions merit study as well.

The current system for those three floors is a boiler (replace) with steam circulation through radiators. Though the boiler itself was replaced, the system remains inefficient, resulting in high gas bills and ineffective, unzoned heating. There is no cooling available, a condition immediately noted on the hot day of our visit. The mechanical system for the attic, a fan coil unit that both heats and cools, seems to function adequately there, where walls and roof are insulated.

**Accessibility**

The staff indicated a desire for accessibility improvements; some possible solutions are documented in previous studies.

Currently, the basement and first floor can both be accessed at grade level, the basement from the east and the first floor from the west. Accessible routes to these entrances were not ascertained, and a further study of door clearance and thresholds is needed. There is an accessible restroom in the basement. As there is no elevator, there is no interior accessible route to the restroom – patrons must exit the first floor, circle the building and enter the basement from the east to reach the restroom. Programmatic access only is provided to the second floor. The third floor is not accessible but not open to the public.

# Part II – Recommendations

**Master Plan - Concept**

Clearly the Museum has substantial and interrelated rehabilitation projects ahead.  Adding to the complexity, the remote location of the museum makes any project difficult to plan and execute. For instance, gutter and downspout replacement seems like a simple enough endeavor, but in fact requires labor and scaffolding that are difficult to source. As finding synergies between future projects will be essential to success, we recommend a multidisciplinary Master Plan.

The Master Plan would encompass all potential projects with a goal of prioritizing and sequencing the work based on: (1) all necessary professional investigations or observations and (2) workshops with Museum staff and shareholders to understand needs and requirements. The Master Plan would also propose a sequence for the work to maximize efficiency while allowing the Museum to budget in advance.

**Master Plan - Components**

Based on this scoping trip, the following disciplines and scopes are proposed:

Civil Engineering

- Topographical survey, which may be accomplished by a local team to perimeters set by the civil engineer.
- Recommendations for site drainage, paving, parking and site utilities as needed.

Structural engineering

- Evaluation of the building foundations, which would likely include investigative potholes at the perimeter; recommendations also based on the geotechnical report.
- Comprehensive study of all dead and live loads, including floor support at all levels, lateral force resistance capacity and specialized loading for condensed storage.

Geotechnical engineering

- Field investigation to include drilling of test holes.
- Report with soil composition, underground water and recommendations

Architecture

- Building enclosure recommendations: roofing and flashing, roof drainage, masonry rehabilitation and repointing, door and window rehabilitation. Use of a drone to document roof and upper wall conditions is possible. If roofing replacement seems warranted, new flashing strategies can be incorporated into the roof drainage recommendations.
- Opportunities for energy efficiency improvements and impact of installation of newer mechanical systems.
- Accessibility and code assessment and recommendations.

Mechanical Engineering

- Recommendations for mechanical systems to heat, cool and ventilate those floors that are not currently conditioned, with explanation of costs and impacts for such an undertaking.

Electrical Engineering

- Whole-building evaluation for safety and code compliance and recommendations for lightning protection.
- Recommendations to support any new mechanical systems that are desired.

Cost Estimating

- To assist in planning and phasing all future work.

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# Animas Museum
# 3065 W 2nd Ave, Durango, CO 81301
# Civil Site Evaluation narrative

## Summary

This narrative has been prepared to summarize the existing site conditions at the Animas Museum property in Durango Colorado and to present improvement recommendations including project costs for their implementation.

Only the civil engineering elements of site access, utility service, and storm drainage have been included in this analysis. Data acquisition was obtained through field obtained topographic, utility, and boundary surveys, supplemented by information gathered from City of Durango and La Plata County GIS datasets, review of As-Built plans from archives, and site inspection visits.

**Access:** Vehicular access to the site presently is located on 31st Street at the northwestern property quadrant. The access into the property is a 24-foot driveway curb cut on 31st Street and is fairly steep and abrupt as shown in Figure 1 below.


*Figure 1 – Existing 31st street driveway access*

A secondary driveway access into the property is located at the southwestern quadrant on West 3rd Avenue. This access is currently blocked off and not used given the significant elevation differential between the west 3rd avenue roadway and museum's parking lot. (refer to Figure 2).

*Figure 2 - West 3rd Avenue driveway*

According to museum personnel, the current driveway is problematic for vehicles with low clearance due to the abrupt grade transition from 31st street. An alternate access location is feasible further to the east on 31st street that does not have similar gradient differential. Relocating the primary access to the site to this location is recommended.

The existing parking area is asphalt pavement in very poor condition and in need of replacement. There is sufficient area available to increase the amount of parking and vehicular maneuverability on the west side of the building. Depending on the desired improvements, small retaining walls may be warranted for the parking lot improvements and expansion.

The new access roadway and parking area will be asphalt paved. Based on familiarity with similar site developments and soil types in this locale, it is expected that the pavement structure will be 3" / 4" asphalt pavement (heavy/light duty), 6" Class 6 ABC, on 12" Class 2 ABC. This will be refined following review of the forthcoming project specific geotechnical report.

Pedestrian access to the site is provided by the attached roadside sidewalks on 31st street and west second avenue. Accessibility improvements from the parking area will need to be coordinated with the proposed interior building improvements, as presently the only ADA route into the structure is located on the east side and only serves the lower floor level.

**Water Utility service:**
The parcel is presently served domestic water by a single ¾" service tapped onto the City of Durango's 6-inch distribution main in West 2nd Avenue. Static water pressure at the property is estimated at 135 psi based the elevation of the Tanque Verde storage tank proximate to the property which has been verified by recent City Utility department test data.

There are two fire hydrants located within 175 feet of the Museum building. These hydrants are located at the southwest corner of West 3rd Avenue and northeast corner of West 2nd Ave. and 31st Street intersections. No additional hydrants are warranted for the current building.

According to museum staff the existing water service is sufficient for the building's current water demands. Coordination with the plumbing consultant will be needed to verify if increasing the service line is warranted due to interior improvements or addition of fire suppression systems.

**Sanitary Sewer Utility service:**
The museum building's sanitary sewer is served by a single 4" Sch. 40 PVC conduit that gravity flows easterly into City of Durango's 6-inch diameter collection system in West 2nd Avenue. According to museum staff, this sewer service was replaced in the Late 1990's when the roadway asphalt pavement was installed. The previous sewer service was a clay pipe conduit and had deteriorated. There are no current issues with the building's sewer service, and no replacements are warranted.

**Storm drainage**
All site drainage conveyance is achieved via surface and no underground collection system is present on site, or in the City's bordering roadway network. Roof drainage is conveyed on the surface is a system of concrete gutters directly adjacent to the building. According to museum staff, and evidence observations during my site visit, the proximity of these gutters to the building is the likely cause for water infiltration into the building.

As described in the AHA Scoping report, storm drainage on the existing site is the primary concern and has adversely impacted the Museum building's foundation and subterrain walls. The gutter system is in need of rehabilitation or replacement at select locations as evidenced by leaks at select locations.

Presently, the exterior soils and landscaping adjacent to the building have little or adverse gradient away from the building. This condition allows roof drainage and melting snow to saturate the soil surrounding the building and is the likely cause of seepage into the basement foundation walls. Re-grading the building exterior soils and landscaping to at least a 10 feet width at 5% positive gradient will greatly reduce the potential for saturation and seepage.

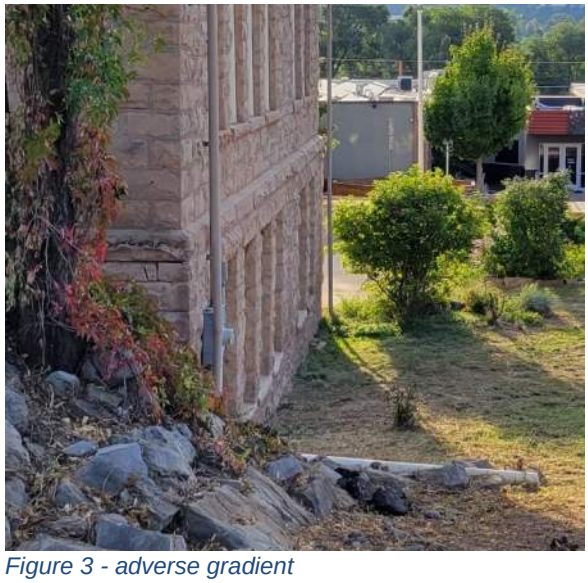


*Figure 3 - adverse gradient*

Installation of a perforated foundation drain should also be considered as budget permits. It is not necessary that the foundation drain be installed at the basement elevation to convey ground water, although it should be installed at least below frost depth (4 feet). To function properly, this drain piping should be installed with a 1%

minimum gradient and daylight at least 20 feet from the building.

It is recommended that the roof gutter drainage system be improved, and the discharge be directed and conveyed further from the building to reduce soil infiltration and saturation adjacent to the building.

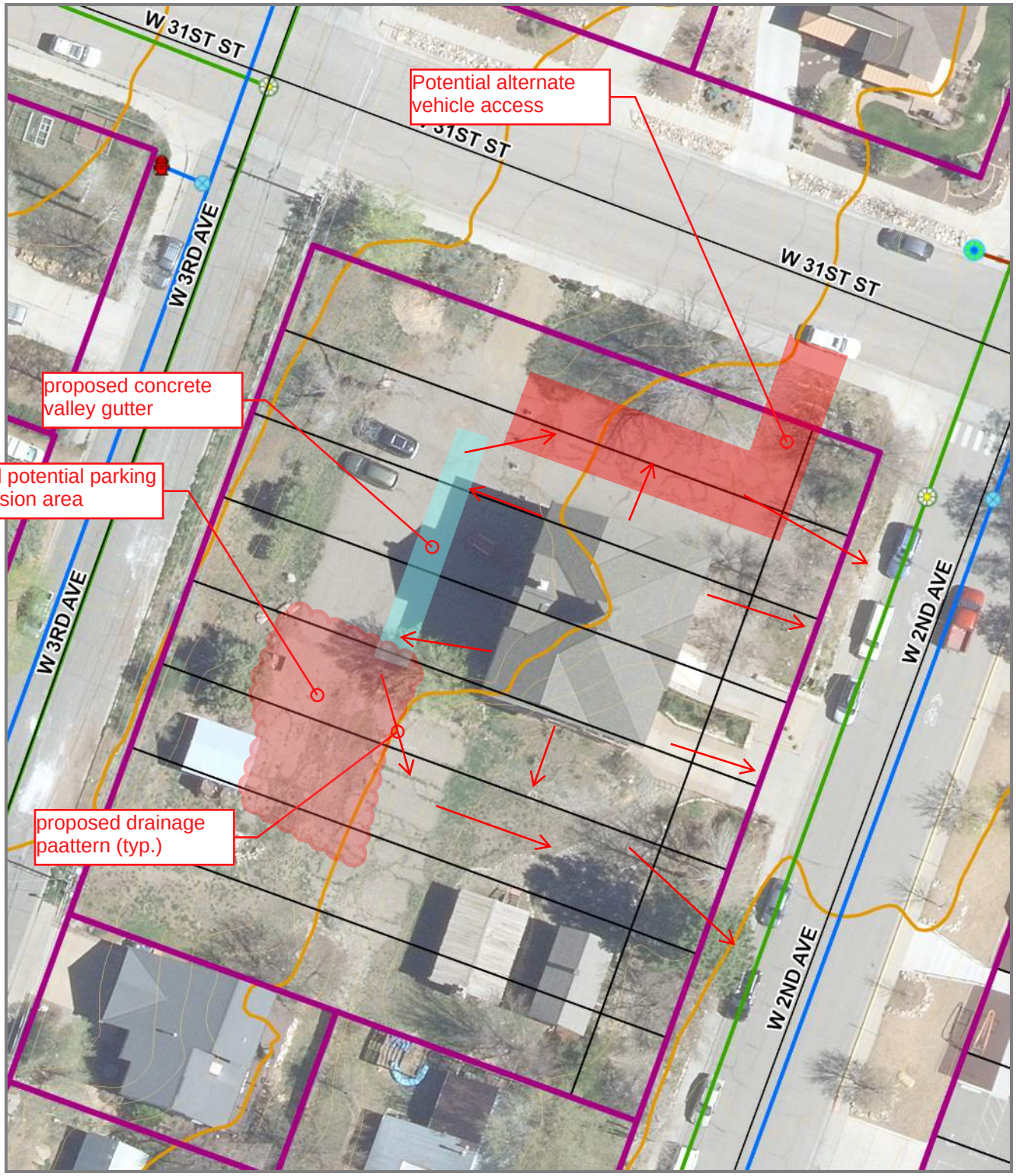
Removal of the asphalt pavement slopes on the south side of the building is also recommended to reduce the amount of imperviousness and associated runoff generation. This area provides an opportunity for aesthetic improvement through landscaping.

During high intensity rainfall events the western Animas Mountain watershed is prone to contributing discharges into 31st street which have exceeded its conveyance capacity. These events have cased overflows and flooding into the subject property. Relocating the primary access into the parcel will greatly decrease the potential for offsite flooding.

**Soil considerations**
Soils in the project vicinity are Clay and Clay Loam varieties, and classified as hydrologic category "D". These soils lave high clay content and are subject to high shrink/swell potential and exhibit low rate of water transmissivity. Careful review of the site specific geotechnical report should be considered for building foundations, retaining walls, and pavement structural systems.

**Budgetary costs associated with recommended improvements.**
*To be included with final report.*

## COD GIS exhibit




CITY of DURANGO

*Disclaimer: Map and parcel data are believed to be accurate, but accuracy is not guaranteed. This is not a legal document and should not be substituted for a title search,appraisal, survey, or for zoning verification.*

Map Scale
**1 inch = 41 feet**
12/7/2023

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January 8, 2024

Laine McLaughlin
Anderson Hallas Architects
1317 Washington Avenue
Golden, CO 80401

RE: Animas Museum – Structural Condition Observations and Recommendations
JVA Job Number 230166.STR

Dear Laine:

JVA, Inc. (Structural) accompanied you and the remainder of the design team on a site visit to the Animas Museum on December 5, 2023. This report is to summarize our observations and give our recommendations for further treatment to be incorporated into your presentation for the Musuem later this month.

Our site visit was to perform a visual condition assessment and a limited review of accessible framing and foundation elements, including exposing foundation elements in two locations.

No material testing or invasive probes were performed. The Museum staff had performed some limited demolition to allow us to expose foundation elements. No structural design has been completed for this letter; recommendations have been made based on our experience and our preliminary analysis.

**DESCRIPTION**

The Animas Museum is a three story load bearing sandstone masonry structure with timber floor structure. The basement level is fully below grade at the northwest side and at grade on the southeast side. The attic floor framing and roof framing was re-constructed as part of a 2007 renovation and includes a mix of structural steel and timber framing. More complete descriptions of the building structure have been included in previous documents, including the Scoping Trip Report completed by your firm earlier this year.

**STRUCTURAL EXISTING CONDITION FINDINGS AND RECOMMENDATIONS**

The recommendations below are listed in what we view as the order of priority. Photos are included after the letter.

1. Remediate and repair damage from moisture intrusion in the basement areas with finished floor below grade.
    a. The existing grade current directs water against the building.
        i. The most cost effective treatment will be to modify the exterior grading to direct water away from the building walls. This will also be part of the civil recommendations and may include some partial demolition and replacement of the parking area on the northwest side of the building. A foundation drain could be installed as part of this effort, but with the existing grades moving the water on the ground surface should be effective.
    b. The basement floor will need to be repaired.

i. There are multiple options of how to do this. This existing system with timber sleepers resting on grade and supporting wood sub-floor does not meet current codes and has contributed to the deterioration of the floor. A system of beams, either timber or steel, could be considered but would require excavation of a crawl space to provide adequate clearance between the structure and grade. Our recommendation is to replace the existing floor with a concrete slab on grade. A portion of the basement already has concrete slab on grade.

c. Similarly, the stairs from the main floor down to the basement floor will need to be repaired.
   i. It does not appear that from the lowest landing down to the basement there is historic material and could be replaced with a new stair structure resting on concrete foundations or a concrete slab.

d. The northwest basement wall is retaining earth its full height with additional surcharge loading for the adjacent parking. There is evidence of the wall having cracked at approximately 6'-6" above the floor level with a small amount of rotation. We measured that the wall was approximately ½" out of plumb in 2 feet. There was not evidence of recent movement and it appears that the wall has reached equilibrium, but it is possible that re-grading activities might cause some additional movement.
   i. Our recommendation would be to monitor the wall to measure if there is additional movement, based on measure how much the wall is out of plumb using a 4 foot long level. If there is, the most common treatment is to provide additional structure to strong-back the existing wall. These strong-backs could be structural steel, light gauge steel, or a composite material.

2. Repair broken joists above the boiler room.
   a. In conversation with the Museum staff, while the school district still owned the building it was used for a time as a storage facility and stacks of books were kept in the room above the boiler room. The books obscured a radiator which at some point failed and saturated the books, causing several floor joists to fail. The repair at the time was to add posts and beams in the boiler room below to support the joists.
      i. We recommend sistering the existing joists with LVL beams to re-establish their structural capacity and allow the extra structure in the boiler room to be removed.
3. The stone main entry stair shows evidence of movement and deterioration from water intrusion.
   a. The movement appears to be primarily due to frost heave allowed by the very shallow foundations. Elsewhere in the building the foundations are similarly shallow but have enough weight from the stone walls to mitigate the effects of frost heave but at the stair there has been movement causing cracking at the interface between the stairs and the building.
      i. The shallow footings should be addressed per the recommended treatment below and the cracks should be grouted and re-pointed with appropriate mortar.
   b. The deterioration from water has caused some of the original sand-lime mortar to be reduced to sand.
      i. We recommend injection grouting and re-pointing as needed.
4. The building foundations are shallow and subject to frost heave.
   a. We exposed the footing at several locations and the foundation is stone approximately 3" wider than the wall on each side and about 10 inches deep. The

depth from grade to the top of the foundation varies with the exterior grading, but is as shallow as 4" below grade. The weight of the building has kept it from moving in most locations, but the shallow foundation still poses a risk for future movement as well as water and animal intrusion into the interior.
    i. One solution could be a shallow frost protected foundation, which would add insulation horizontally to establish adequate frost protection. It could be detailed to also add water and animal protection.

5. Stone lintel at basement level southeast corner is cracked.
    a. The stone lintel at the basement level southeast corner window is cracked and the crack stair-steps up the wall.
        i. We recommend replacing the limestone lintel, although there are some schemes where it could be left in place and repaired with structural steel that would be hidden within the wall. The stair step crack should be re-pointed.
6. Strengthen existing floor framing or post live load limits.
    a. The existing floor framing at each level except those strengthened in the 2007 renovation consists of 2x14 joists at 12 inches on center and spanning 25'-3". Based on preliminary calculations, this results in a live load capacity of about 50 pounds per square foot which is lower than would be code required for an assembly area.
        i. The floor could be strengthened to meet current codes or load limits could be posted.
7. Evaluate existing pointing mortars.
    a. Much of the existing sandstone masonry has been re-pointed with cement based mortars instead of a mortar which would match the properties of the original construction. Often this would cause deterioration in the wall as water is trapped behind the mortar and saturates the masonry units, which can delaminate after a few freeze-thaw cycles. That does not appear to have happened at this building, but the mortar used in any future work should match the historic mortars used in the original construction.

Please reach out if there are any questions and if you would like us to move forward with any of the recommendations by preparing construction documents. We look forward to working with you on this project.

Sincerely,
JVA, INCORPORATED

By: _____
Brett A. Robinson, P.E.
Senior Project Manager

Exposed Foundation Stone

Deteriorated Floor Framing on Sleepers on Grade

Second Area of Deteriorated Floor

Bow in Northwest Basement Wall

Frames in Boiler Room Supporting Broken Floor Joists

Stairstep Cracking from Movement of Entry Stair

Deterioration at Stone Stair from Water

Support at Lower Stair Landing

# La Plata County Historical Society Animas Museum

## Pricing Narrative

March 15, 2024

**Architect: Anderson Hallas Architects**

**Engineer: 360 Engineering, Inc.**

**BUILDING OVERVIEW**

The historic building is located in Durango, CO, consisting of four (4) levels, basement (lower level), 1st Floor, 2nd Floor, and Attic level. The basement, or lower level, contains the mechanical room, a restroom, a storage area, and a small exhibit space. The 1st Floor has an office and two (2) exhibit spaces. The 2nd floor has two (2) exhibit spaces. The Attic level is for collection storage and space for curation.

**MECHANICAL - EXISTING**

The existing mechanical system provides active heating to all levels of the building via a natural gas-fired steam boiler (Burnham). The steam system is a 1-pipe system versus a typical 2-pipe system. A 1-pipe system provides both steam to the radiator and condensate return back to the boiler. A typical 2-pipe system provides steam to the radiators/coils via a dedicated steam pipe and then a separate condensate pipe from the radiators/coils back to the boiler. The existing system is not thermally zoned, so when the boiler is providing steam, the 1-pipe system provides steam throughout the entire building.

There are two (2) thermostats in the building, one at the attic level in the collections area and one at the main entry on the 1st Floor. The control of the boiler steam system via these thermostats is problematic. The collections are in the attic level is the critical zone to maintain temperature. The facility team keeps the collections thermostat set at 68°F, and the system does well to maintain this. However, the collections storage area was constructed with new insulation around the room, and the rest of the building has no insulation. Therefore, the amount of times the fan coil unit calls for heat is much less than the remainder of the building, so the steam boiler doesn't run. Downstairs in the main entry, the thermostat is set at 57°F, which is quite cold for an occupied building. However, if the thermostat setting is raised downstairs, the attic temperature goes up and is not ideal for collections. Recently, the fan belt on the fan coil unit broke, the temperature in the collections area dropped, and the main level temperature was quite warm. The facility team repaired the fan coil unit and put it back into operation. However, in order to get the temperature in the collections area back in line, they opened the door to get heat up to the attic space, which is a security issue.

There have been attempts to mitigate the issue by installing Danfoss valves at the radiators on the three lowest levels, which can be adjusted to allow less or more steam into the radiators manually. These valves have been installed where air is aspirated from the radiator. The radiator valves are on the other side of the radiator and control the steam and condensate, these valves are open to allow for the condensate to return back to the boiler. However, without a zoned system, the system cannot keep both the collections area and the lower three levels within comfortable temperatures simultaneously.

There are also two individual restrooms, one on the basement level and one on the attic level. The basement-level restroom has no exhaust or exterior openings to allow odors out. The attic level does have a small exhaust fan.

There is no active mechanical ventilation for the basement, 1st Floor, or 2nd Floor. The ventilation for these areas is only provided when windows are opened to allow fresh air into the space. Being a museum, this is not recommended due to dust/debris blowing

into the building. The attic level does not have active ventilation air either; however, this is a different use of space, and maintaining a consistent temperature is critical, and outside air is not recommended. The small office on the attic level does have an operable window with a louver beyond that could be used for a short amount of time when the user feels that the office is becoming "stuffy".

**MECHANICAL – NEW SYSTEM**

Phase 1 – Decoupling the Attic:

The existing steam coil in the attic fan coil unit will be replaced with a hydronic coil and provided with a steam-to-hydronic heat exchanger and in-line distribution pump outside of the unit. The thermostat critical zones shall be switched to allow the 1st floor to be the critical zone. The heat exchanger will allow for the steam boiler to operate and satisfy the basement and 1st floor without overheating the attic space while the heat exchanger and associated hydronic distribution pump will only enable upon a call of heating from the attic unit. The hydronic piping system will be provided with a 3-way valve and constant volume pump to maintain a constant heating water supply temperature to the unit. At the completion of future phases, the heat exchanger and hydronic distribution pump will be removed and the hydronic coil in the fan coil unit will be connected to the building's overall hydronic heating water loop.

Phase 2 – The Rest of the Building:

The existing mechanical boiler, piping, radiators, and attic steam coil will be replaced with a new high-efficiency gas-fired boiler and a hydronic heating water system. The new boiler system will be two (2) 299 MBH boilers packaged together for sequenced operation. The advantage of having two boilers is that if one goes down, the other is available to keep some heat in the building, which could be directed to the critical attic level. The radiators and piping would be removed throughout the building, and new hydronic radiators would be installed to replace them. Due to the difference in operating pressure between the two systems, the existing steam radiators are not recommended to be converted to hydronic radiators. Also, with a one-pipe system, the conversion of the radiators to hydronic provides a different heat output than steam and lacks a second return pipe. New hydronic supply and return piping to be provided from the mechanical room out to new radiators on the basement, 1st Floor, and 2nd Floor levels. The hydronic piping would be Schedule 40 steel (or copper, pending pricing) and insulated. The piping would follow the current steam line routes as much as possible. Two (2) new inline pumps, 2 hp each, would be installed in the basement mechanical room to circulate the heating water throughout the building.

For the attic level, the heat exchanger and hydronic distribution pump will be removed, and the hydronic coil will be connected to the overall building's hydronic heating system. The 3-way control valve will be reused as the coil's means of maintaining a constant heating water supply temperature.

All radiators and the fan coil unit would have new control valves, and zoning per room would be possible.

To introduce air conditioning to the basement level, 1st Floor, and 2nd Floors, ductless-split DX systems are recommended. These systems consist of wall-mounted (would need to be carefully coordinated with architect and structural) units with refrigerant piping to an outdoor condensing unit. The rooms would be zoned for optimum temperature control. Below is the anticipated sizes and quantities of indoor units:

Basement Level:
- Precon/Breakroom = 1.5 tons
- Conference room = 2 tons (2 x 1.0 ton units)

1st Floor:
- Interpretive Classroom = 3 tons (2 x 1.5 ton units)
- Research Library = 2 tons (2 x 1.0 ton units)
- Office = 0.5 tons
- Entry = 1.0 tons

2nd Floor:
Exhibit Area A = 4 tons (2 x 2 ton units)
Exhibit Area B = 2 tons (2 x 1 ton units)

TOTAL = 16 tons

The outdoor units would be sized and paired as follows:

CU-1 (condensing unit) – 3.5 tons
Basement Level Conference Room
Basement Level Precon/Breakroom

CU-2 – 4.5 tons
1st Floor Interpretive Classroom
1st Floor Office
1st Floor Entry

CU-3 – 4 tons
1st Floor Research Library
2nd Floor Exhibit B

CU-4 – 4 tons
2nd Floor Exhibit A

Refrigerant lines from the four (4) outdoor condensing units would be routed into the mechanical room to distribution Branch Boxes. From here, the refrigerant would be routed in paired lines to each indoor unit. Coordination of routing with the architect to limit the visibility of lines within the space would be needed.

To obtain active ventilation air to the basement, 1st Floor, and 2nd Floor that is filtered, an Energy Recovery Ventilation System (ERV) is recommended. The ERV would be located in the basement mechanical room and provide tempered airflow to the three lower levels. Outside air would be brought into the unit via the currently blocked window at the mechanical room's north side, and exhaust air would be ducted out of the building at the window near the east end on the north side. A 10' separation between these units is needed by code. The outside air would be pre-heated or pre-cooled via the exhaust air routed from the basement restrooms and general building circulation space. After the air is pre-heated, it will be tempered in the wintertime via the new hydronic boiler system. In the summertime, the air will be pre-cooled and then distributed to the building. This system then provides the code ventilation air as well as exhaust for the restroom in the basement.

See attached 11x17 plans for a rough layout of the system and how the rooms are proposed for zoning. Note that the attic system will be left alone except for the change from a steam heating coil to a hydronic heating coil. Also, new air conditioning is currently proposed for the office in the attic. This could be a consideration to add as the project moves forward.

**PLUMBING - EXISTING**

The existing plumbing system consists of a ¾" main from the east side of the building. The line enters into the basement level and then is distributed throughout the building. The water line distribution piping is a mix of copper, galvanized, and PEX. An existing hot water heater in the mechanical room of the basement that provides hot water to the existing lavatories in the bathrooms. The main sanitary line exits the building to the east and is located just outside the basement restroom.

There are two (2) operating restrooms in the building, one in the basement and one at the attic level. There is also a service sink in the basement along the east wall.

The natural gas meter is located on the west side of the building and feeds the boiler and water heater in the mechanical room.

**PLUMBING - RECOMMENDATIONS**

The proposed plan reconfigures the basement area to have three (3) restrooms and a breakroom sink area. The additional plumbing fixtures brings the demand for domestic water flow up and will require a 1" main line to be installed. The main line would enter in the same location as the current ¾" line. To meet code compliance, a new Reduced Pressure Backflow Preventer (RPBP) would be installed on the line. Consideration and coordination with the water district to locate the backflow under the stairs in the basement would be recommended. This puts the RPBP out of the flow of traffic at the bottom of the stairs. A floor drain is also needed at the water entry for the RPBP, and this would allow tie-in to the plumbing work that would need to occur for the renovated restrooms in the basement. The other option would be to remove the existing service sink on the east wall of the basement and install a mop service basin under the stairs with the RPBP, and allow the mop service basin to meet the floor drain requirements. This removes plumbing from the public areas.

After the RPBP, the new cold water line would be routed to the new bathroom plumbing fixtures in the basement, the new breakroom sink, and the existing service sink (or a new mop service basin). The water line would also be routed to the mechanical room and connected to a new water heater and a make-up water line for the boiler system. A new water heater would provide hot water for all the plumbing fixtures in the building. The hot water distribution line would be routed out of the mechanical room and to the new basement fixtures, and a hot water recirculation line would be included for all the public lavatories as a requirement of the code. The cold and hot water lines would connect into the existing lines feeding the lavatory and water closet on the attic level.

All new cold, hot, and hot water circulation piping will be PEX.

All new plumbing fixtures in the basement area will be provided. The attic restroom fixtures would remain.

New sanitary and vent lines from the new fixtures in the basement would be routed to the existing sanitary main on the basement level and the vent line up through the roof. A new sump basin and a sump pump are recommended for the mechanical room. A new floor drain in this room would also provide a location for condensate disposal off boilers and air conditioners.

New condensate drain lines would be routed from each wall air conditioner back to the mechanical room or to the service sink/mop sink. Lines will be copper and can be painted to mitigate visibility. Routing of these lines would typically follow the refrigerant line routing of the air conditioning units.

The natural gas meter and gas line would be modified for the new boiler system.

**PHOTOS**

**Existing Boiler in Mechanical Room**

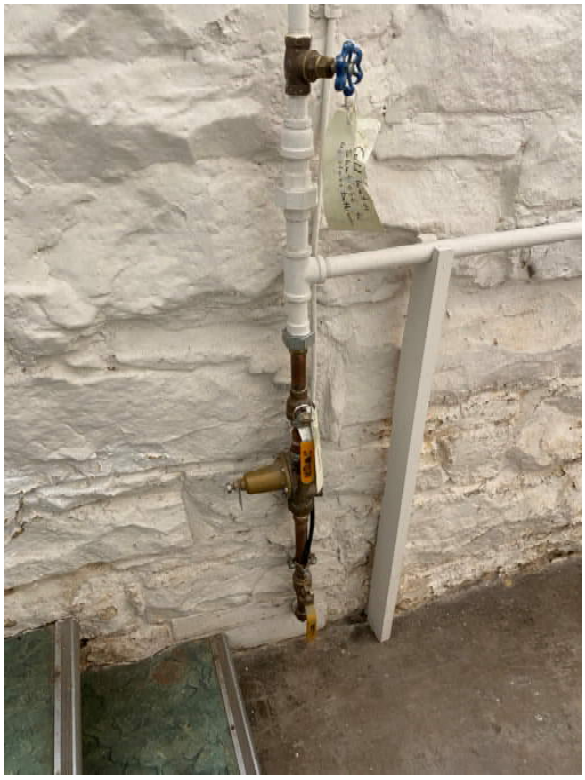
**Typical Radiator and Manual Control Valve**

**Typical Danfoss Valve Installed in Radiator Air Aspirator**

**Window in Attic Office**

**STEAM Connection to Attic Fan Coil Unit**

**Condensing Unit for Attic Fan Coil Unit and Combustion Air Louver for Boiler and Water Heater**



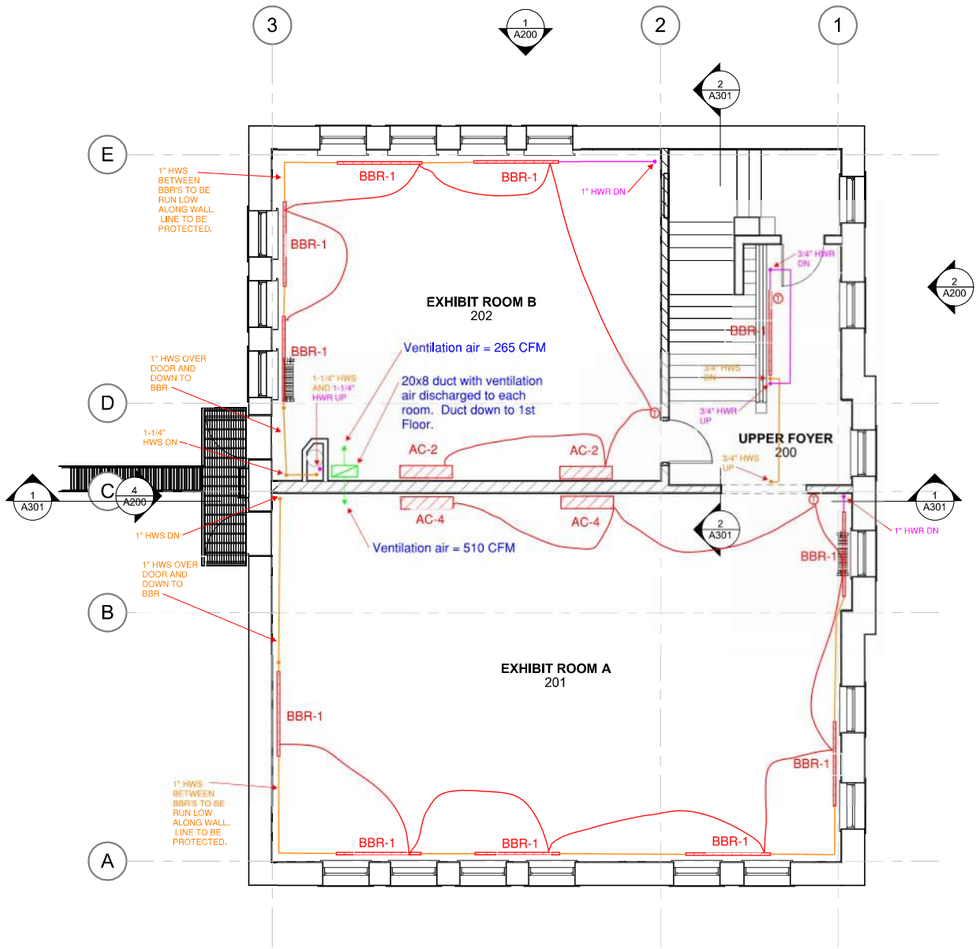
**Existing Water Entry**

**Existing Water Heater in Mechanical room**

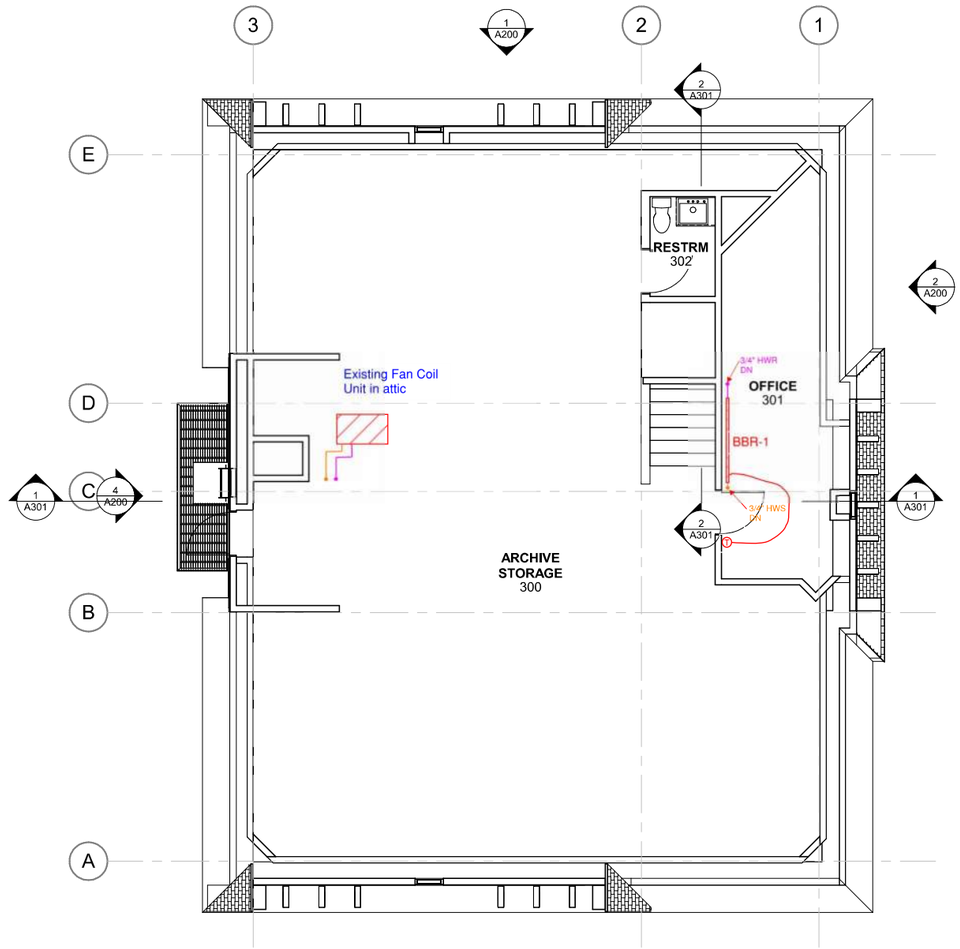
**Drawings:**

- MA101 – Basement and 1st Floor Mechanical Option
- MA102 – 2nd Floor and Attic Mechanical Option

**END OF REPORT**




1 **03 SECOND FLOOR**
3/16" = 1'-0"




2 **04 ATTIC LEVEL**
3/16" = 1'-0"

ANDERSON HALLAS ARCHITECTS

# La Plata County Historical Society Animas Museum

| NO. | Description | Date |
|---|---|---|
| | | |


1317 WASHINGTON AVENUE
GOLDEN, COLORADO 80401

P: (303) 278-4378
F: (303) 278-0521




| | |
|---|---|
| Project Number | 2023290 |
| Issue | |
| Date | 06/06/19 |
| Drawn By | DAM |
| Checked By | LM |

FLOOR PLANS

NORTH BLDG. NORTH

MA102

58 Mechanical & Plumbing Engineering Treatment Narrative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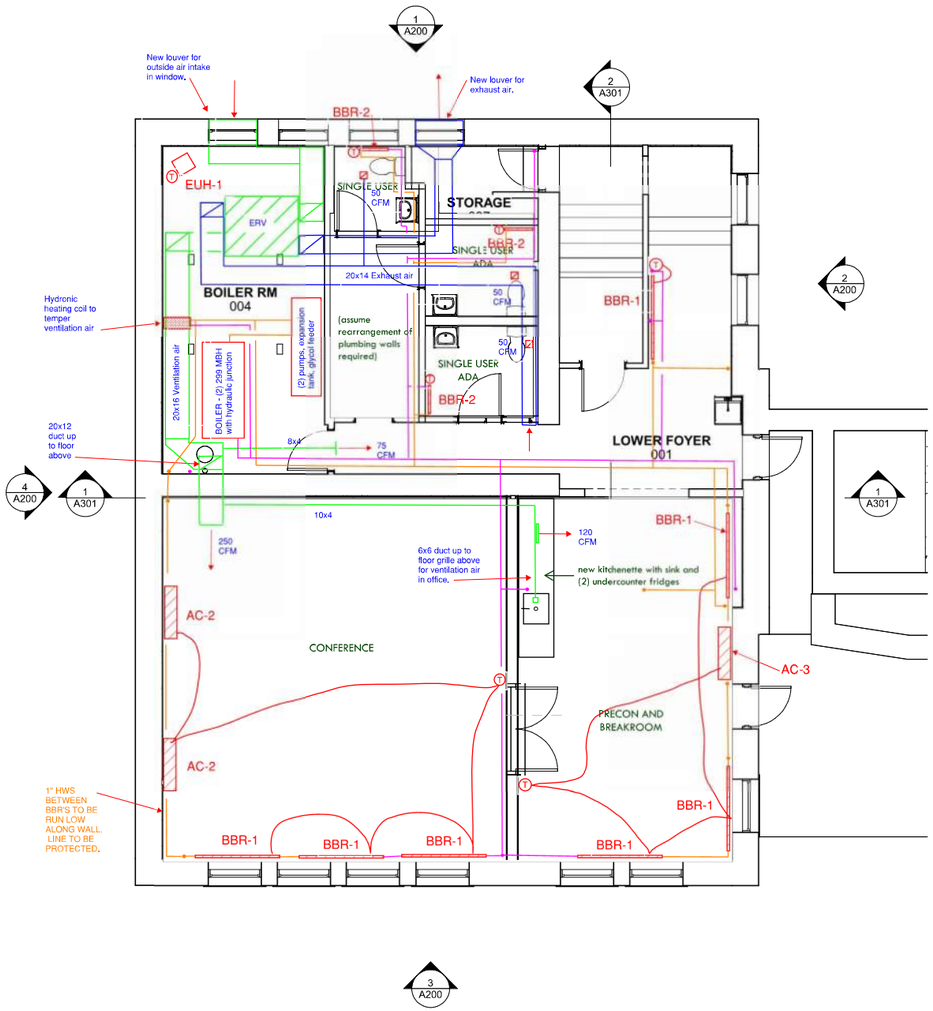
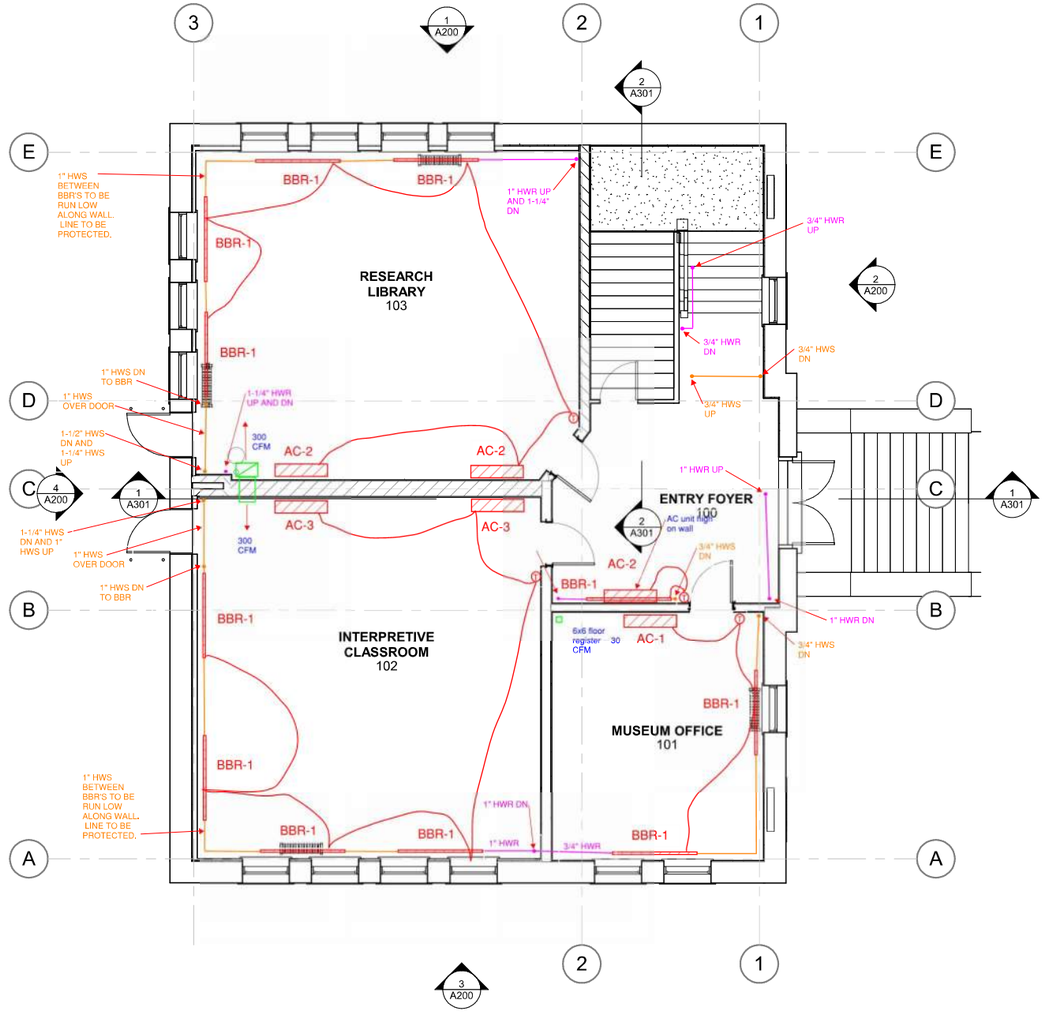



1 **01 BASEMENT** POSSIBLE LAYOUT AND USE CHANGES
3/16" = 1'-0"




2 **02 FIRST FLOOR**
3/16" = 1'-0"

ANDERSON HALLAS ARCHITECTS

1317 WASHINGTON AVENUE
GOLDEN, COLORADO 80401

P: (303) 278-4378
F: (303) 278-9521



# La Plata County Historical Society Animas Museum

| NO. | Description | Date |
|---|---|---|
| | | |

| | |
|---|---|
| Project Number | 2023290 |
| Issue | |
| Date | 06/06/19 |
| Drawn By | DAM |
| Checked By | LM |

FLOOR PLANS

MA101

59 Mechanical & Plumbing Engineering Treatment Narrative

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AE DESIGN

Integrated Lighting and Electrical Solutions

# DETAILED ASSESSMENT REPORT FOR THE ANIMAS MUSEUM

Durango, CO

ELECTRICAL SYSTEMS
January 8, 2023

## PURPOSE OF THE DETAILED ASSESSMENT REPORT

This detailed assessment report is intended to serve two primary purposes. First, it is intended to give the Owner a basic understanding of the electrical systems. Second, this package is intended to be a coordination document for Design Team discussions.

## PROJECT DESCRIPTION

The Animas Museum building was originally constructed in 1904 as the Animas City School. It is a 4-story building, including the basement and the attic. Total floor area is approximately 8000 SF.

## APPLICABLE CODES AND STANDARDS

1. International Building Code 2018 (IBC)
2. International Energy Conservation Code 2018 (IECC)
3. NFPA 72, 2018 IFC
4. NFPA 101, 2018 IFC
5. National Electric Code 2020 (NEC)

## ELECTRICAL SYSTEM RECOMMENDATIONS

A. **Electrical Service**

a. Existing Conditions:

i. No documentation is available of the existing one-line diagram; however, the distribution is of small scale.

ii. An existing overhead utility transformer, owned by La Plata Electric, located on at the southwest corner of the property provides electrical service to the building. (Photo #1).

1. The existing electrical service is 120/240V, 1-phase.
2. The electrical feeder from the transformer to the building is routed overhead.
3. Adjacent to the meter is a locked cabinet. It is assumed that this cabinet contains (2) 100A/2P circuit breakers, one feeding each of the (2) electrical load centers in the building (Photo #2). This assumption will need to be confirmed with La Plata Electric.

b. New Considerations:

i. Based on the recommended mechanical system updates, including added air conditioning to the building, an upgrade to the existing electrical system will be required.

ii. Recommend upgrading to a 120/208V, 3-phase system in lieu of the existing 120/240V, 1-phase system and adding an exterior service-rated disconnect and CT/Meter to replace the existing exterior meter/disconnect equipment. This new service is likely to be fed from a 150KVA pad mounted transformer, located on the Animas Museum property at the southwest corner of the property. This new utility transformer will provide a 400 amp service to the exterior disconnect which will then serve a new 400 amp panel in the basement within the boiler room. This new panel shall back feed the existing 100 amp single phase panel in the attic as well as provide a new 200 amp, 3-phase feed up to a new 200 amp, 3-phase 120/208V panel located in the attic. These two new panels will provide all the required branch circuit distribution to the new equipment associated with the renovations.

Photo #1: Existing pole-mounted utility transformer

Photo #2: Existing utility meter

B. **Electrical Distribution**

a. Existing Conditions:
   i. There are (2) 100A load centers on the interior of the building – one in the basement and one in the attic.
      1. Load Center in the basement has 16 poles and is near capacity in terms of breaker space (Photo #3).
      2. Load Center in the attic has 24 poles with (5) available spaces (Photo #4).
   ii. Minimal convenience outlets were observed on interior walls only. Where additional power was needed, extension cords and exposed cabling were in use and observed (Photos #4 and #5).

b. New Considerations:

i. It is anticipated that the load center in the basement will be replaced with new as noted above, and the existing load center in the attic can be reused and maintain the majority of its branch circuit connections.
ii. Consider additional convenience power outlets, as needed throughout the entire facility.

Photo #3: Load Center - Basement

Photo #4: Load Center - Attic

Photo #5: Exposed Cabling around doorway

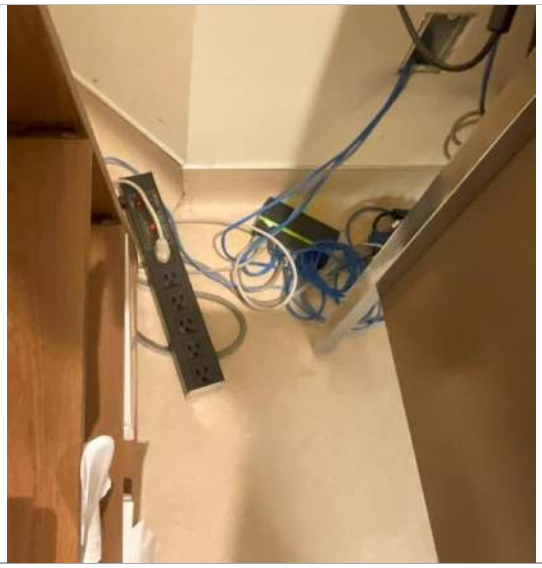


Photo #6: Extension cords in use

**C. Lighting Systems**

a. Existing Conditions:
   i. In the Gallery spaces, a track lighting system was observed. It appears that fixtures have been re-lamped with LED sources (Photo #7).
   ii. In other areas, fluorescent fixtures were observed (Photos #8 and #12).
   iii. Emergency lighting units (frog eyes) and emergency lighting/exit sign combo fixtures were observed throughout the building (Photo #9).
   iv. Existing exterior lighting were observed:
      1. Area lights were mounted to studded metal T-post (Photo #13).
      2. Solar powered path lights (Photo #14).
      3. Over-door surface-mounted fixtures (Photo #15).
   v. No existing lighting in the parking lot.

b. New Considerations:
   i. In Attic, recommend re-lamping existing fixtures with LED replacement lamps for energy savings.
   ii. In all other areas, where fixtures that have not already been re-lamped with LED sources, recommend replacing them with LED fixtures.
   iii. New lighting is also recommended in any spaces that are being renovated.
   iv. Recommend testing emergency lighting and replacement of any fixtures that are not operational.
   v. Recommend replacing all non-historic exterior light fixtures with new dark-sky compliant fixtures and specifically providing new fixtures along the entry stairway as required to meet the desired illumination levels.

**D. Lighting Control System**

a. Existing Conditions:
   i. In Gallery spaces, wall-switch occupancy sensors were observed (Photo #10).
   ii. In other areas, manual switches were observed (Photo #11).

b. New Considerations:
   i. Where lighting fixtures are replaced, update lighting controls to meet energy code requirements which typically consists of replacement of occupancy and/or standard switches with vacancy type switches and potentially the need for additional occupancy sensors to be mounted at the ceiling within most spaces.

Photo #7: Track lighting in gallery spaces with LED lamps

Photo #8: Fluorescent Light fixtures


Photo #9: Emergency Lighting/Exit Signs

Photo #10: Wall-switch sensors in gallery spaces

Photo #11: Manual line voltage light switches

Photo #12: Fluorescent fixtures in attic

Photo #13: exterior lights

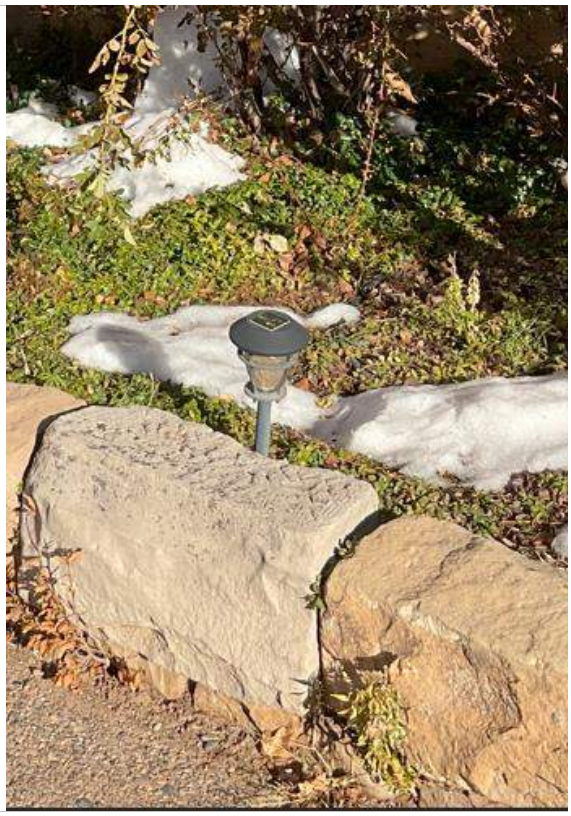


Photo #14: Solar powered path lights

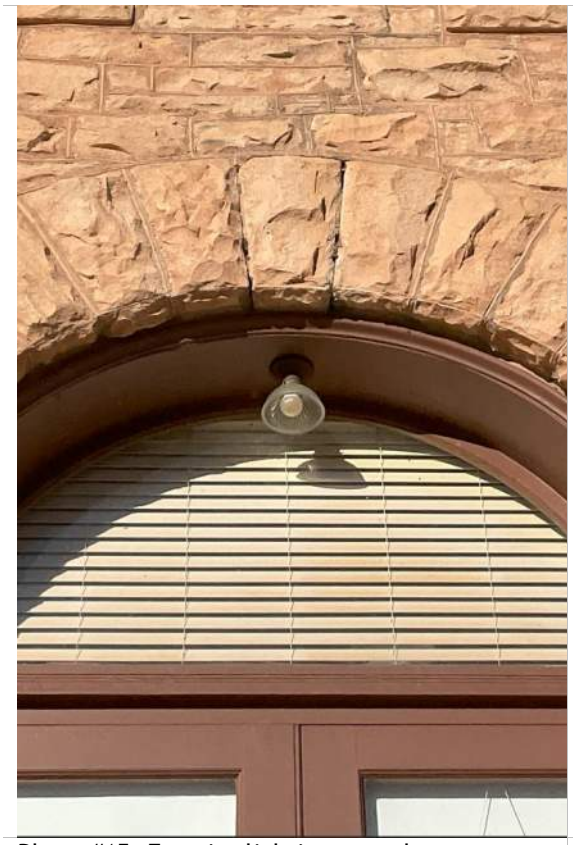


Photo #15: Exterior lighting over door

**E. Technology Systems**

a. Existing Conditions:
   i. An existing incoming utility service co-axial cable was observed – routed overhead, down the exterior of the building and enters through a wood grill at the southwest corner of the building (Photo #16).
   ii. Co-axial cable runs up through a hole in the floor (Photo #17) to a splitter, near a modem on the first floor (Photo #18).
   iii. From the splitter, there are (2) co-ax cables, each connected to a modem (Photo #18).
   iv. From one modem, it appears there is a connection to the NetworX security cabinet in the basement (Photo #19).
   v. From the other modem, it appears there is a connection to an 8-port network switch in the attic (Photo #20).

b. New Considerations:
   i. Confirm with owner that no additional phone or internet provisions will be required and that the existing infrastructure is adequate. Assuming that it is, following are our recommendations:
      1. Recommend providing fixed mounting for telecom equipment.
      2. Recommend cleaning up loose cables and terminating ethernet cables to wall-mounted faceplates.

Photo #16: Co-axial cable entering the building

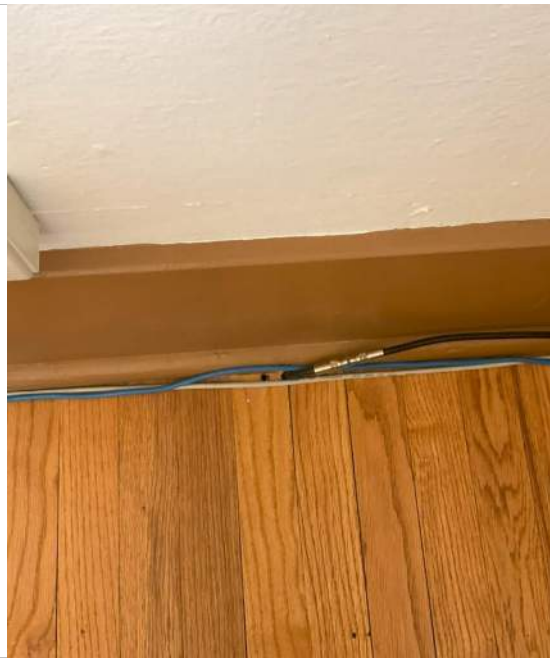


**Photo #17: Internet cable routed through floor (from exterior of building to splitter)**

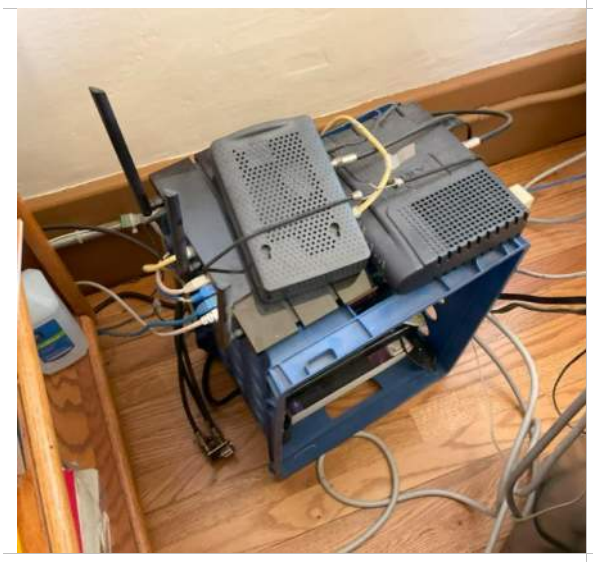


**Photo #18: Splitter and modems on first floor**

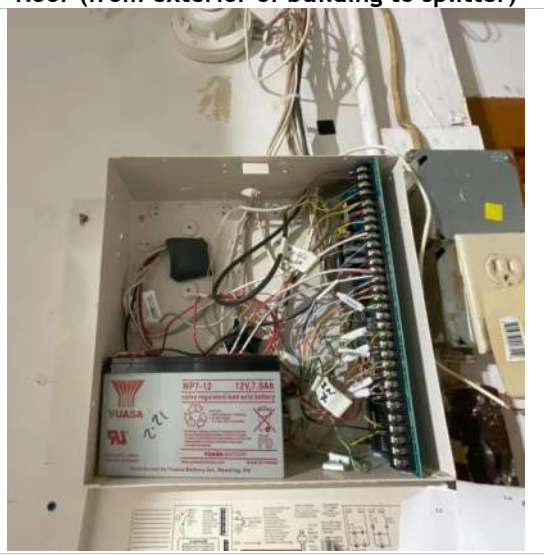


**Photo #19: NetworX Security Cabinet in basement**

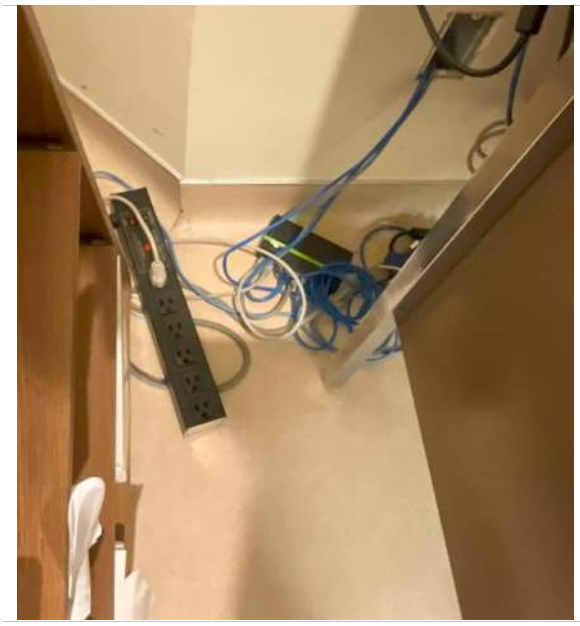


**Photo #20: 8-port Network switch in Attic**

**F. Security**

a. Existing Conditions:
   i. Motion detectors were observed.
   ii. The existing security cabinet appears to be near capacity.

b. New Considerations:
   i. Discuss with owner. If security system enhancements are desired, system will likely need to be upgraded.

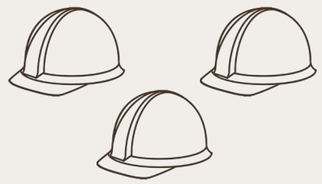
**G. Fire Alarm**

a. Existing Conditions:
   i. Smoke detectors were observed.
   ii. Building is not sprinklered.

b. New Considerations:
   i. Recommend upgrading the existing fire alarm with a new system that is meets current NFPA requirements.
   ii. Due to sensitivity of the collections stored in the building, consider higher level smoke detection devices.

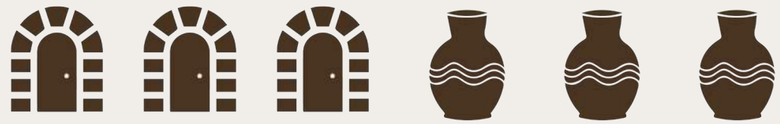
# *Project Phasing*

# OVERVIEW OF PHASING OPTIONS

| | OPTION 1<br>ALL AT ONCE | OPTION 2<br>STEP BY STEP | OPTION 3<br>ACCESS PLUS |
|---|---|---|---|
| PROPOSED TREATMENTS |  |  |  |
| COST EFFICIENCY<br>(most efficient = least total cost) | most efficient | least efficient | less efficient |
| COST FLEXIBILITY<br>(for funding) | least flexible | most flexible | less flexible |
| CONSTRUCTION TIME EFFICIENCY | most efficient | least efficient | less efficient |
| CLOSURE AND COLLECTIONS IMPACT | total closure more likely but overall less downtime | most flexibility for partial opening and protecting collections in house | more flexibility for partial opening and protecting collections in house |

Note: Opinion of costs provided are at a pre-design, rough order of magnitude level and include escalation through a 2026 construction start; escalation beyond that point may vary.

## STEP BY STEP: A plan to tackle priority items in order and save higher cost wish list items for later

| BUCKET | PROPOSED TREATMENTS | OPINION OF COST | CLOSURE | COLLECTIONS |
|---|---|---|---|---|
| **EXTERIOR DRAINAGE AND MORE** | Replace gutters and downspouts<br>Grading to improve drainage<br>Reroute and upgrade utilities<br>Parking lot, curb cuts and driveway<br>Repair entry stair<br>Masonry restoration + repair | **$600-700K**<br>**4-8 months** |  |  |
| **EXPEDIENTS FOR SAFETY & COMFORT** | Attic heating system changes<br>Basement stair repair<br>Main floor accessible restroom | **$200-300K**<br>**1-3 months** |  |  |
| **MECHANICAL OVERHAUL** | Broken joists<br>New hot water heating system<br>Ventilation air | **$600-700K**<br>**3-5 months** |  |  |
| **BASEMENT** | Replace basement floor structure<br>New basement restrooms | **$400-500K**<br>**3-5 months** |  |  |
| **SOMEDAY** | New basement public space<br>Fire protection system?<br>Storm windows<br>Air conditioning<br>Elevator and stair tower* | **$2M - $3M**<br>**varies** |  | |

**Total $6M+ with time factor**


Relative impact on museum closure


Relative likelihood of relocating collections

# *Opinion of Probable Cost*

**ANIMAS MUSEUM MASTER PLAN**
**ROM ESTIMATE COVER SHEET**

*The spreadsheet below summarizes the amounts shown in the following estimate delineated by treatment and phase. We also recommend planning an additional 25% in soft costs, as shown in the final columns. This amount accounts roughly for escalation (inflation) due to delay in phased work as well as design fees and similar costs.*

| | PHASE | LABOR & MATERIALS | CONTRACTOR MARKUPS (1) 38% | OTHER MARKUPS (2) 55% | ROM TOTAL | PLUS SOFT COST (3) 25% | PHASE SUBTOTAL |
|---|---|---|---|---|---|---|---|
| BASEMENT FLOOR STRUCTURE | BASEMENT | $ 58,710 | $ 22,016 | $ 44,399 | $ 125,126 | $ 156,407 | |
| BASEMENT RESTROOMS | BASEMENT | $ 96,000 | $ 36,000 | $ 72,600 | $ 204,600 | $ 255,750 | |
| | | | | | | | $ 412,157 |
| BASEMENT STAIR REPAIR | EXPEDIENT | $ 22,425 | $ 8,409 | $ 16,959 | $ 47,793 | $ 59,742 | |
| ATTIC HEATING SYSTEM MOD | EXPEDIENT | $ 40,650 | $ 15,244 | $ 30,742 | $ 86,635 | $ 108,294 | |
| NEW ACCESSIBLE RESTROOM | EXPEDIENT | $ 29,250 | $ 10,969 | $ 22,120 | $ 62,339 | $ 77,924 | |
| | | | | | | | $ 245,960 |
| GUTTERS & DOWNSPOUTS | EXTERIOR | $ 18,888 | $ 7,083 | $ 14,284 | $ 40,255 | $ 50,319 | |
| GRADING FOR DRAINAGE | EXTERIOR | $ 36,252 | $ 13,595 | $ 27,416 | $ 77,262 | $ 96,578 | |
| PARKING LOT, CURB & DRIVE | EXTERIOR | $ 52,398 | $ 19,649 | $ 39,626 | $ 111,673 | $ 139,592 | |
| REROUTE & UPGRADE UTILITIES | EXTERIOR | $ 61,850 | $ 23,194 | $ 46,774 | $ 131,818 | $ 164,772 | |
| REPAIR ENTRY STAIR | EXTERIOR | $ 37,478 | $ 14,054 | $ 28,343 | $ 79,875 | $ 99,844 | |
| MASONRY RESTORATION | EXTERIOR | $ 30,342 | $ 11,378 | $ 22,946 | $ 64,666 | $ 80,833 | |
| | | | | | | | $ 631,937 |
| BROKEN JOISTS | MECH | $ 16,221 | $ 6,083 | $ 12,267 | $ 34,571 | $ 43,214 | |
| NEW HEATING SYSTEM | MECH | $ 166,093 | $ 62,285 | $ 125,608 | $ 353,986 | $ 442,482 | |
| VENTILATION AIR | MECH | $ 43,125 | $ 16,172 | $ 32,613 | $ 91,910 | $ 114,888 | |
| | | | | | | | $ 600,584 |
| FIRE PROTECTION SYSTEM | SOMEDAY | $ 297,525 | $ 111,572 | $ 225,003 | $ 634,100 | $ 792,625 | |
| PUBLIC MEETING SPACE | SOMEDAY | $ 180,000 | $ 67,500 | $ 136,125 | $ 383,625 | $ 479,531 | |
| AIR CONDITIONING | SOMEDAY | $ 151,340 | $ 56,753 | $ 114,451 | $ 322,543 | $ 403,179 | |
| ELEVATOR AND STAIR TOWER | SOMEDAY | $ 312,478 | $ 117,179 | $ 236,311 | $ 665,969 | $ 832,461 | |
| | | | | | | | $ 2,507,797 |
| GRAND TOTAL | | $ 1,651,025 | | | $ 3,518,747 | $ 4,398,434 | $ 4,398,434 |

(1) General conditions (20%), bond (2.5%), Operations and Profit (15%) as shown in ROM Estimate

(2) Other markups (contingency 20%, inflation 10%, historic preservation factor 25% as shown in ROM estimate

(3) Soft costs suggested by AH to cover design, materials testing and escalation beyond 2026

ESTIMATE FOR INDEPENDENT ARCHEOLOGICAL MONITORING OF GROUND-DISTURBING WORK
Based on 10% of the base cost for the ground-disturbing activity as provided in the estimate

| | |
|---|---|
| BASEMENT FLOOR STRUCTURE | $4,968 |
| GRADING FOR DRAINAGE | $2,015 |
| PARKING LOT, CURB AND DRIVE | $5,239 |
| REROUTE & UPGRADE UTILITIES | $2,685 |
| Total | $14,907 |

# DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

## M A S T E R  S U M M A R Y

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | TOTAL |
|---|---|
| REPLACE GUTTERS & DOWNSPOUTS | $40,255 |
| ATTIC HEATING SYSTEM CHANGES | $86,635 |
| GRADING TO IMPROVE DRAINAGE | $77,262 |
| PARKING LOT, CURB CUTS & DRIVEWAY | $111,672 |
| REROUTE & UPGRADE UTILITIES | $131,818 |
| FIRE PROTECTION SYSTEM | $634,100 |
| REPAIR ENTRY STAIR | $79,874 |
| NEW ACCESSIBLE RESTROOM | $62,339 |
| MASONRY RESTORATION + OTHER | $64,666 |
| BROKEN JOISTS | $34,571 |
| NEW HOT WATER HEATING SYSTEM | $353,985 |
| VENTILATION AIR | $91,910 |
| STORM WINDOWS | $181,186 |
| BASEMENT FLOOR STRUCTURE | $125,126 |
| BASEMENT STAIR | $47,793 |
| BASEMENT RESTROOMS | $204,600 |
| PUBLIC MEETING SPACE | $383,625 |
| AIR CONDITIONING | $322,543 |
| ELEVATOR & STAIR TOWER | $665,968 |
| **TOTAL (Construction)** | **$3,699,929** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
Costs are Based on a Traditional Open Competitive Bid Basis w/ Receiving Multiple Favorable Bids.
Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

# DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

## REPLACE GUTTERS & DOWNSPOUTS

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **REPLACE GUTTERS & DOWNSPOUTS** | | | | |
| Replace Gutters & Downspouts, Pre-Finished | 336 | LF | 51.75 | $17,388 |
| Patching & Repairing, Allow | 1 | LS | 1,500 | $1,500 |
| | | | | **$18,888** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$18,888** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$3,778** |
| **CONTRACTOR BOND** | **2.5%** | **$472** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$2,833** |
| **SUB-TOTAL** | | **$25,971** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$5,194** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$2,597** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$6,493** |
| **TOTAL (Construction)** | | **$40,255** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
Costs are Based on a Traditional Open Competitive Bid Basis w/ Receiving Multiple Favorable Bids.
Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

## DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

# ATTIC HEATING SYSTEM CHANGES

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **SEPARATE ATTIC HEATING SYSTEM** | | | | |
| Replace Steam Coil w/ Hydronic Coil | 1 | EA | 10,925 | $10,925 |
| Steam to Hydronic Heat Exchanger & Pump | 1 | EA | 24,725 | $24,725 |
| Modify Controls / Misc Work, Allow | 1 | LS | 5,000 | $5,000 |
| | | | | **$40,650** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$40,650** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$8,130** |
| **CONTRACTOR BOND** | **2.5%** | **$1,016** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$6,098** |
| **SUB-TOTAL** | | **$55,894** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$11,179** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$5,589** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$13,973** |
| **TOTAL (Construction)** | | **$86,635** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
Costs are Based on a Traditional Open Competitive Bid Basis w/ Receiving Multiple Favorable Bids.
Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

## DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

# GRADING TO IMPROVE DRAINAGE

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **REVISE GRADING** | | | | |
| Demo Asphalt / Regrade Building Exterior | 5,000 | SF | 4.03 | $20,150 |
| Perforated Foundation Drainage Line | 220 | LF | 39.10 | $8,602 |
| Utility Sleeve For Future Routing, Allow | 1 | LS | 7,500 | $7,500 |
| | | | | **$36,252** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$36,252** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$7,250** |
| **CONTRACTOR BOND** | **2.5%** | **$906** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$5,438** |
| **SUB-TOTAL** | | **$49,847** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$9,969** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$4,985** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$12,462** |
| **TOTAL (Construction)** | | **$77,262** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
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Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

# DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

## PARKING LOT, CURB CUTS & DRIVEWAY

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **DRIVEWAY & PARKING** | | | | |
| Relocate Vehicular Access Drive | 2,200 | SF | 8.05 | $17,710 |
| Provide New Curb Cuts at 31st Street | 1 | LS | 1,000 | $1,000 |
| Replace Asphalt Parking | 3,750 | SF | 8.05 | $30,188 |
| Provide Striping & Signage for Accessible Parking | 1 | LS | 3,500 | $3,500 |
| | | | | **$52,398** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$52,398** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$10,480** |
| **CONTRACTOR BOND** | **2.5%** | **$1,310** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$7,860** |
| **SUB-TOTAL** | | **$72,047** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$14,409** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$7,205** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$18,012** |
| **TOTAL (Construction)** | | **$111,672** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
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Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

## DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

# REROUTE & UPGRADE UTILITIES

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **UPGRADE & REROUTE UTILITIES** | | | | |
| Relocate Underground Electrical Service | 120 | LF | 115.00 | $13,800 |
| Upgrade to 3-Phase Service, New Transformer & Gear | 1 | LS | 35,000 | $35,000 |
| Upgrade Water Service Line to 1" | 100 | LF | 80.50 | $8,050 |
| Misc Utility Work, Allow | 1 | LS | 5,000 | $5,000 |
| | | | | **$61,850** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$61,850** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$12,370** |
| **CONTRACTOR BOND** | **2.5%** | **$1,546** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$9,278** |
| **SUB-TOTAL** | | **$85,044** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$17,009** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$8,504** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$21,261** |
| **TOTAL (Construction)** | | **$131,818** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
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Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

# DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

## FIRE PROTECTION SYSTEM

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **FIRE PROTECTION** | | | | |
| Preaction Fire Suppression System | 9,400 | SF | 25.00 | $235,000 |
| Fire Alarm System | 9,400 | SF | 5.00 | $47,000 |
| Fire Water Service Line | 100 | LF | 155.25 | $15,525 |
| | | | | **$297,525** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$297,525** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$59,505** |
| **CONTRACTOR BOND** | **2.5%** | **$7,438** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$44,629** |
| **SUB-TOTAL** | | **$409,097** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$81,819** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$40,910** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$102,274** |
| **TOTAL (Construction)** | | **$634,100** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
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Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

# DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

## REPAIR ENTRY STAIR

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **ENTRY STAIR** | | | | |
| Footing Insulation for Freeze Protection | 1 | LS | 3,500 | $3,500 |
| Injection Grouting & Repointing Stone | 300 | SF | 37.95 | $11,385 |
| Anchors to Tie Concrete Steps to Cheek Wall | 1 | LS | 10,000 | $10,000 |
| Precast Concrete Cap | 30 | LF | 195.50 | $5,865 |
| Dark-Sky Compliant Lighting Fixtures | 6 | EA | 1,121 | $6,728 |
| | | | | **$37,478** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$37,478** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$7,496** |
| **CONTRACTOR BOND** | **2.5%** | **$937** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$5,622** |
| **SUB-TOTAL** | | **$51,532** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$10,306** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$5,153** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$12,883** |
| **TOTAL (Construction)** | | **$79,874** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
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Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

# DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

## NEW ACCESSIBLE RESTROOM

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **MAIN FLOOR RESTROOM** | | | | |
| New Restroom / AV Closet on Main Floor | 65 | SF | 450.00 | $29,250 |
| | | | | **$29,250** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$29,250** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$5,850** |
| **CONTRACTOR BOND** | **2.5%** | **$731** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$4,388** |
| **SUB-TOTAL** | | **$40,219** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$8,044** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$4,022** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$10,055** |
| **TOTAL (Construction)** | | **$62,339** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
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Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

## DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

# MASONRY RESTORATION + OTHER

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **MASONRY RESTORATION** | | | | |
| Masonry Crack Repair | 60 | LF | 287.50 | $17,250 |
| Broken Masonry Lintel Repair | 1 | EA | 1,725 | $1,725 |
| General Masonry Repointing (10%) | 260 | SF | 37.95 | $9,867 |
| Mortar Analysis, Allow | 1 | LS | 1,500 | $1,500 |
| | | | | **$30,342** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$30,342** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$6,068** |
| **CONTRACTOR BOND** | **2.5%** | **$759** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$4,551** |
| **SUB-TOTAL** | | **$41,720** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$8,344** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$4,172** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$10,430** |
| **TOTAL (Construction)** | | **$64,666** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
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Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

## DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

# BROKEN JOISTS

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **BROKEN JOISTS** | | | | |
| Sister Existing Joists w/ LVL Beams | 72 | LF | 172.50 | $12,420 |
| Remove Extra Posts & Beams | 1 | LS | 1,500 | $1,500 |
| Replace Ceiling | 288 | SF | 7.99 | $2,301 |
| | | | | **$16,221** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$16,221** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$3,244** |
| **CONTRACTOR BOND** | **2.5%** | **$406** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$2,433** |
| **SUB-TOTAL** | | **$22,304** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$4,461** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$2,230** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$5,576** |
| **TOTAL (Construction)** | | **$34,571** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
Costs are Based on a Traditional Open Competitive Bid Basis w/ Receiving Multiple Favorable Bids.
Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

## DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

# NEW HOT WATER HEATING SYSTEM

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **REPLACE BOILER SYSTEM** | | | | |
| Two New Gas Boilers w/ Accessories | 2 | EA | 28,175 | $56,350 |
| Hot Water Supply & Return Piping | 9,400 | SF | 6.50 | $61,100 |
| Hydronic Radiators | 33 | EA | 1,323 | $43,643 |
| Remove Heat Exchanger & Pump, Connect to Hydronic Sys. | 1 | LS | 5,000 | $5,000 |
| | | | | **$166,093** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$166,093** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$33,219** |
| **CONTRACTOR BOND** | **2.5%** | **$4,152** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$24,914** |
| **SUB-TOTAL** | | **$228,377** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$45,675** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$22,838** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$57,094** |
| **TOTAL (Construction)** | | **$353,985** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
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Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

## DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

# VENTILATION AIR

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **VENTILATION AIR** | | | | |
| ERV System & Exhaust for Restrooms | 1 | EA | 43,125 | $43,125 |
| | | | | **$43,125** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$43,125** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$8,625** |
| **CONTRACTOR BOND** | **2.5%** | **$1,078** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$6,469** |
| **SUB-TOTAL** | | **$59,297** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$11,859** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$5,930** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$14,824** |
| **TOTAL (Construction)** | | **$91,910** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
Costs are Based on a Traditional Open Competitive Bid Basis w/ Receiving Multiple Favorable Bids.
Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

## DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

## STORM WINDOWS

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **STORM WINDOWS** | | | | |
| Add Interior Storm Windows | 49 | EA | 1,294 | $63,394 |
| Upgrade Lighting Controls | 9,400 | SF | 2.30 | $21,620 |
| | | | | **$85,014** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$85,014** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$17,003** |
| **CONTRACTOR BOND** | **2.5%** | **$2,125** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$12,752** |
| **SUB-TOTAL** | | **$116,894** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$23,379** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$11,689** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$29,223** |
| **TOTAL (Construction)** | | **$181,186** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
Costs are Based on a Traditional Open Competitive Bid Basis w/ Receiving Multiple Favorable Bids.
Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

## DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

# BASEMENT FLOOR STRUCTURE

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **BASEMENT FLOOR STRUCTURE** | | | | |
| Replace Wood Joist Floor w/ Slab On Grade | 1,200 | SF | 41.40 | $49,680 |
| Remove Partitions | 440 | SF | 5.75 | $2,530 |
| Temporary Shoring | 1 | LS | 6,500 | $6,500 |
| | | | | **$58,710** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$58,710** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$11,742** |
| **CONTRACTOR BOND** | **2.5%** | **$1,468** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$8,807** |
| **SUB-TOTAL** | | **$80,726** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$16,145** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$8,073** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$20,182** |
| **TOTAL (Construction)** | | **$125,126** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
Costs are Based on a Traditional Open Competitive Bid Basis w/ Receiving Multiple Favorable Bids.
Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

# DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

## BASEMENT STAIR

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **BASEMENT STAIR** | | | | |
| Replace Wood Stair & Add Foundation | 1 | FLT | 22,425 | $22,425 |
| | | | | **$22,425** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$22,425** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$4,485** |
| **CONTRACTOR BOND** | **2.5%** | **$561** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$3,364** |
| **SUB-TOTAL** | | **$30,834** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$6,167** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$3,083** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$7,709** |
| **TOTAL (Construction)** | | **$47,793** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
Costs are Based on a Traditional Open Competitive Bid Basis w/ Receiving Multiple Favorable Bids.
Costs are Based on a Construction Start of May 2026.
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## DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

# BASEMENT RESTROOMS

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|---|
| **MORE RESTROOMS** | | | | | |
| Three New Restrooms in the Basement (2 ADA) | | 160 | SF | 600.00 | $96,000 |
| | | | | | **$96,000** |
| **SUB-TOTAL** | | | | | **$96,000** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | | | | **$19,200** |
| **CONTRACTOR BOND** | **2.5%** | | | | **$2,400** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | | | | **$14,400** |
| **SUB-TOTAL** | | | | | **$132,000** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | | | | **$26,400** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | | | | **$13,200** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | | | | **$33,000** |
| **TOTAL (Construction)** | | | | | **$204,600** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
Costs are Based on a Traditional Open Competitive Bid Basis w/ Receiving Multiple Favorable Bids.
Costs are Based on a Construction Start of May 2026.
For Inflation Beyond May of 2026, Add 5% per Year Compounded.

# DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

## PUBLIC MEETING SPACE

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **PUBLIC MEETING SPACE** | | | | |
| Public Meeting Space in Basement | 1,200 | SF | 150.00 | $180,000 |
| | | | | **$180,000** |
| **SUB-TOTAL** | | | | **$180,000** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | | | **$36,000** |
| **CONTRACTOR BOND** | **2.5%** | | | **$4,500** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | | | **$27,000** |
| **SUB-TOTAL** | | | | **$247,500** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | | | **$49,500** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | | | **$24,750** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | | | **$61,875** |
| **TOTAL (Construction)** | | | | **$383,625** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
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## DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

# AIR CONDITIONING

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **AIR CONDITIONING** | | | | |
| Split System AC w/ Condensing Units (16 Ton) | 9,400 | SF | 16.10 | $151,340 |
| | | | | **$151,340** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$151,340** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$30,268** |
| **CONTRACTOR BOND** | **2.5%** | **$3,784** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$22,701** |
| **SUB-TOTAL** | | **$208,093** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$41,619** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$20,809** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$52,023** |
| **TOTAL (Construction)** | | **$322,543** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
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For Inflation Beyond May of 2026, Add 5% per Year Compounded.

# DURANGO, COLORADO

## LA PLATA COUNTY HISTORICAL SOCIETY
## ANIMAS MUSEUM MASTER PLANN

## ELEVATOR & STAIR TOWER

Rough Order of Magnitude - Opinion of Probable Construction Cost Estimate
April 29, 2024

| SECTION | QUANTITY | UNIT | COST/SF | TOTAL |
|---|---|---|---|---|
| **ELEVATOR & STAIR TOWER** | | | | |
| Excavation & Foundations for Elevator Tower | 150 | SF | 85.00 | $12,750 |
| Exterior Stair w/ Railings & Footings | 1 | FLT | 29,728 | $29,728 |
| CMU Elevator Tower, 4-Stop | 600 | SF | 450.00 | $270,000 |
| | | | | **$312,478** |

| | | |
|---|---|---|
| **SUB-TOTAL** | | **$312,478** |
| **CONTRACTOR GENERAL CONDITIONS** | **20.0%** | **$62,496** |
| **CONTRACTOR BOND** | **2.5%** | **$7,812** |
| **CONTRACTOR OVERHEAD & PROFIT** | **15.0%** | **$46,872** |
| **SUB-TOTAL** | | **$429,657** |
| **DESIGN / MARKET CONTINGENCY, ALLOW** | **20.0%** | **$85,931** |
| **INFLATION TO MAY 2026, ALLOW** | **10.0%** | **$42,966** |
| **HISTORIC PRESERVATION FACTOR, ALLOW** | **25.0%** | **$107,414** |
| **TOTAL (Construction)** | | **$665,968** |

**NOTES:** Costs are for Construction Only and do Not Include Soft Costs or Contractor / Owner Contingency.
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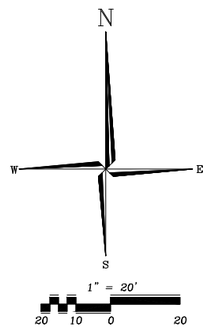
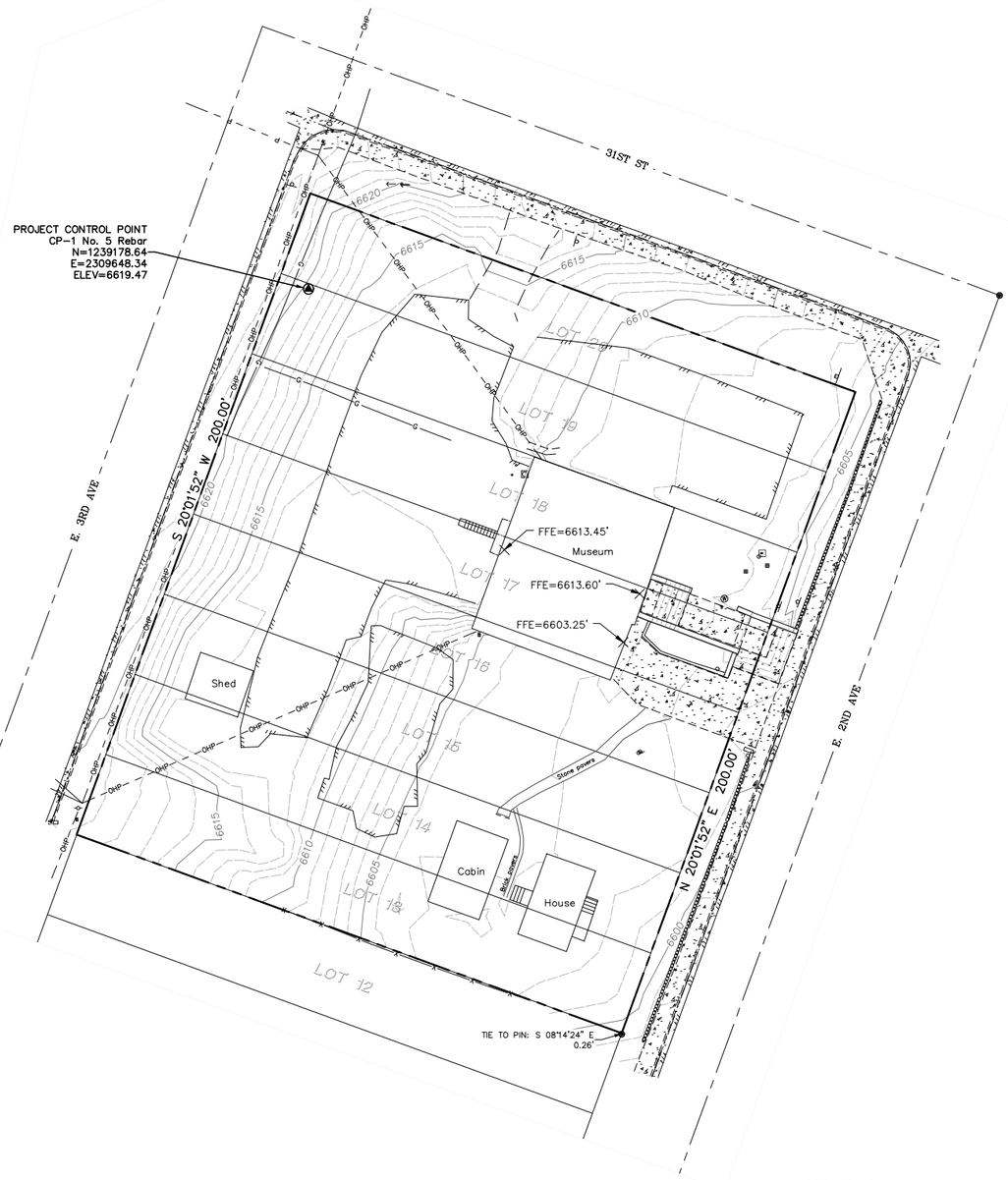
# *Existing Condition Survey & Drawings*

# TOPOGRAPHIC SURVEY
# ANIMAS MUSEUM

LOCATED IN SECTION 17, T 35 N, R 9 W, N.M.P.M.
LA PLATA COUNTY, COLORADO




Units shown hereon = U.S. Survey Feet
Contour Interval = 1 Foot




## LEGEND

- BOUNDARY LINE
- FENCE
- EDGE OF ASPHALT
- DIRT EDGE OF TRAVELWAY
- EDGE OF CONCRETE
- FLOWLINE
- BUILDING
- OVERHEAD POWER
- POWER
- GAS LINE
- MAJOR CONTOUR (5' INTERVALS)
- MINOR CONTOUR (1' INTERVALS)
- CONTROL POINT
- PROPERTY PIN
- TELECOM VAULT
- ELECTRIC PEDESTAL/VAULT
- ELECTRIC METER
- UTILITY POLE
- WATER METER
- WATER MANHOLE
- SPIGOT
- GAS METER
- TRAFFIC SIGN

**NOTICE:**
According to the laws of the State of Colorado, any legal action based upon any defect in this survey must commence within three years after such defect was first discovered. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.

PROJECT DATUM:

| | |
|---|---|
| Coordinate System | : US State Plane 1983 |
| Zone | : Colorado South 0503 |
| Geoid | : GEOID18 (Conus) |
| Ground scale factor | : 1.0003250412 |
| Project Origin Latitude | : N37°17'58.00182" |
| Project Origin Longitude | : W107°52'24.87641" |
| Orthometric Vertical Datum | : NAVD88 |
| Contour Interval | : 1 Foot |
| Project Benchmark & Seed Point | : CP-1 Set #5 Rebar |
| Northing | : 1239178.64 |
| Easting | : 2309648.34 |
| Elevation | : 6619.47' |


GOFF
ENGINEERING + SURVEYING INC
126 ROCK POINT DRIVE
PO BOX 97
DURANGO, COLORADO 81302
970.247.1705

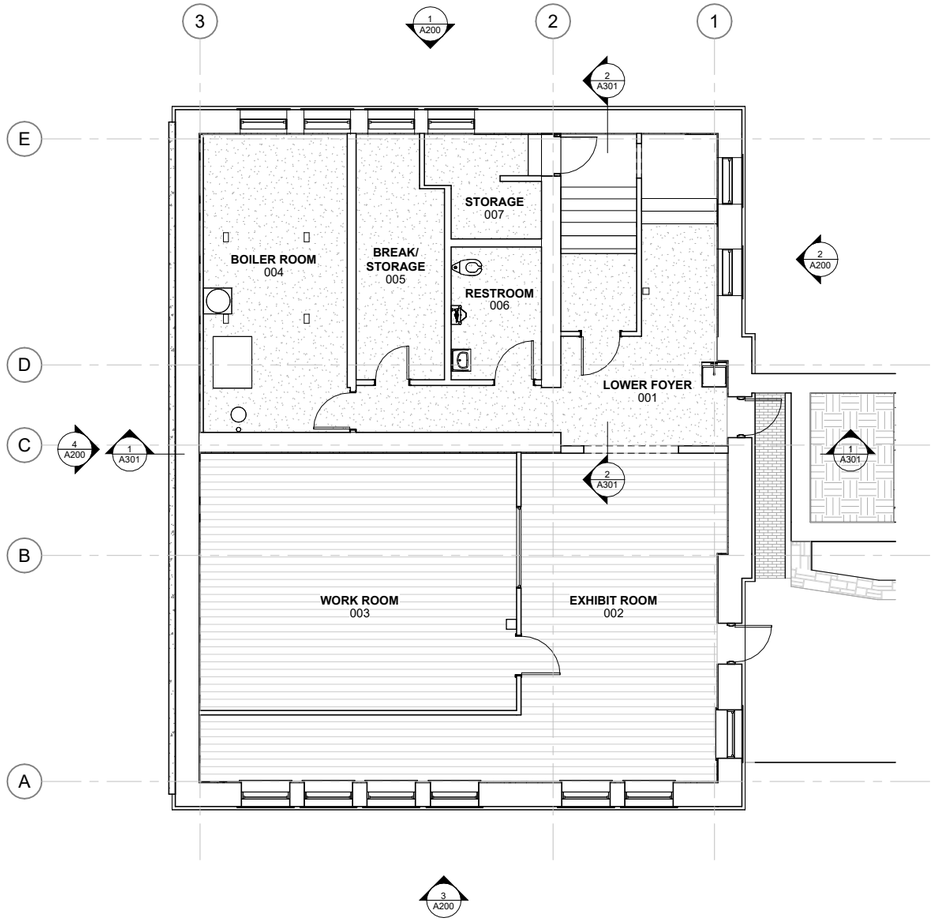

TOPOGRAPHIC SURVEY
ANIMAS MUSEUM

SHEET 1 OF 1

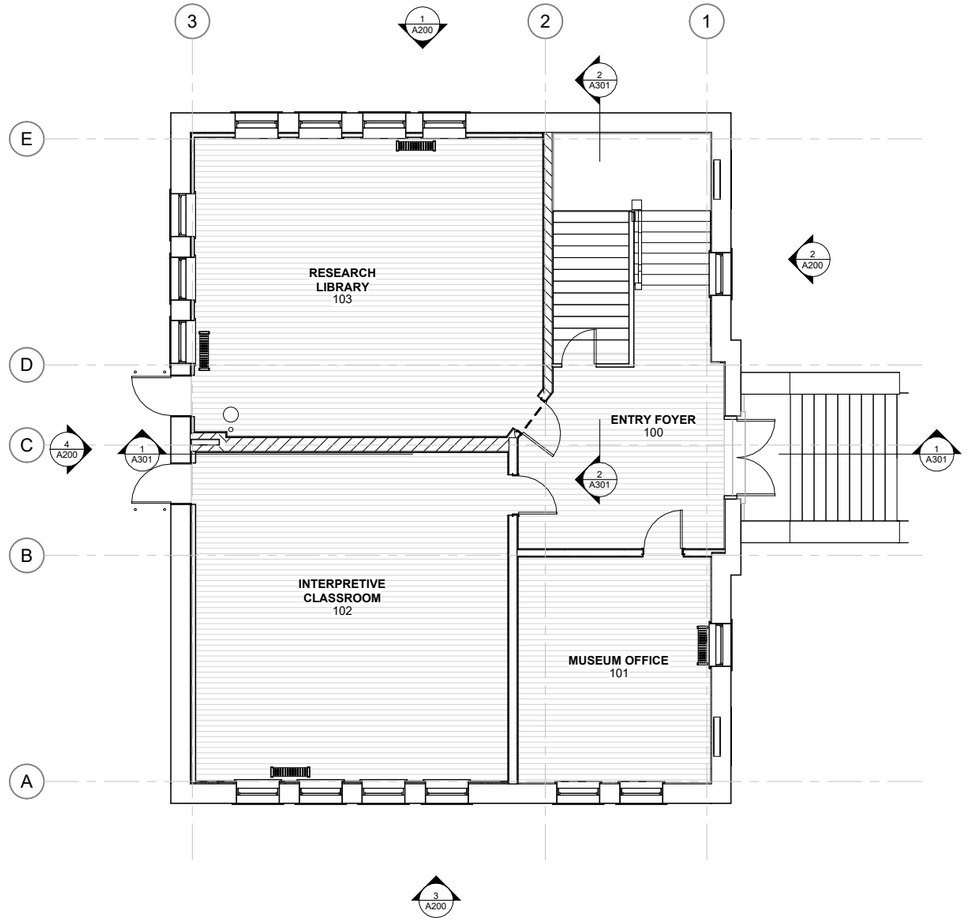
PREPARED BY: KET | CHECKED BY: BB
PROJECT NO. 23-236 | SCALE: AS SHOWN | DATE: 6/25/2024



95 Existing Condition Survey




1 **01 BASEMENT**
3/16" = 1'-0"




2 **02 FIRST FLOOR**
3/16" = 1'-0"

NORTH

ANDERSON
HALLAS
ARCHITECTS

# La Plata County Historical Society Animas Museum

| NO. | Description | Date |
|---|---|---|
| | | |

1317 WASHINGTON AVENUE
GOLDEN, COLORADO 80401

P: (303) 278-4378
F: (303) 278-0521



| | |
|---|---|
| Project Number | 2023290 |
| Issue | |
| Date | 03/25/2024 |
| Drawn By | DAM |
| Checked By | LM |

FLOOR PLANS

A101

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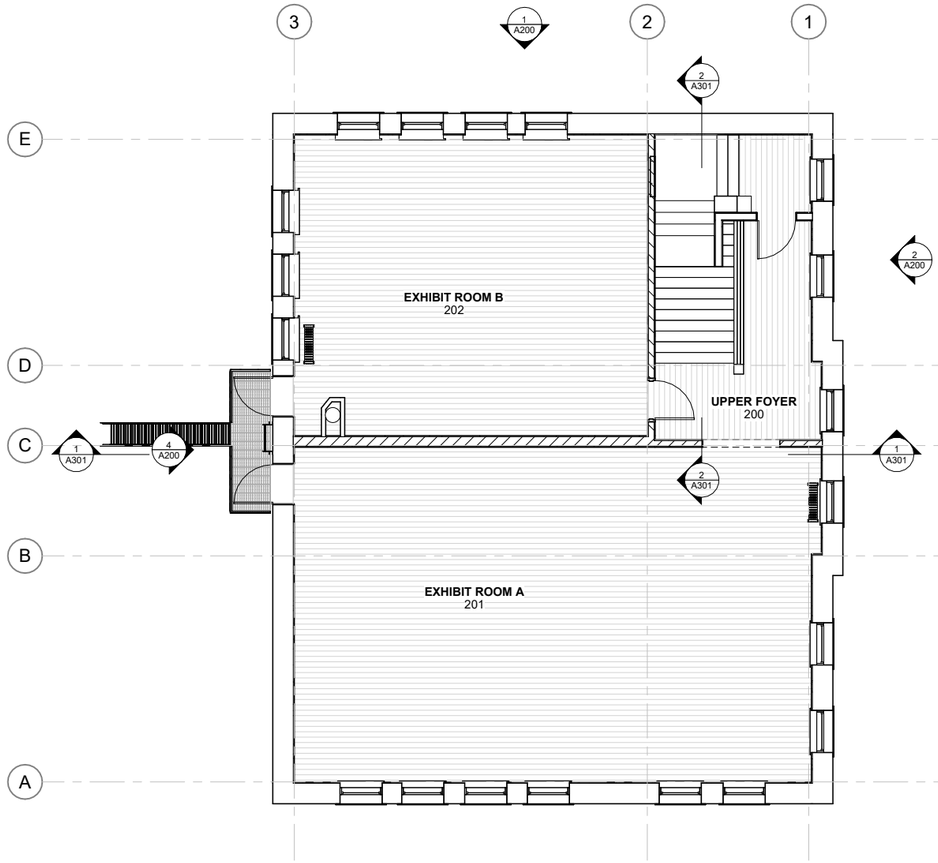
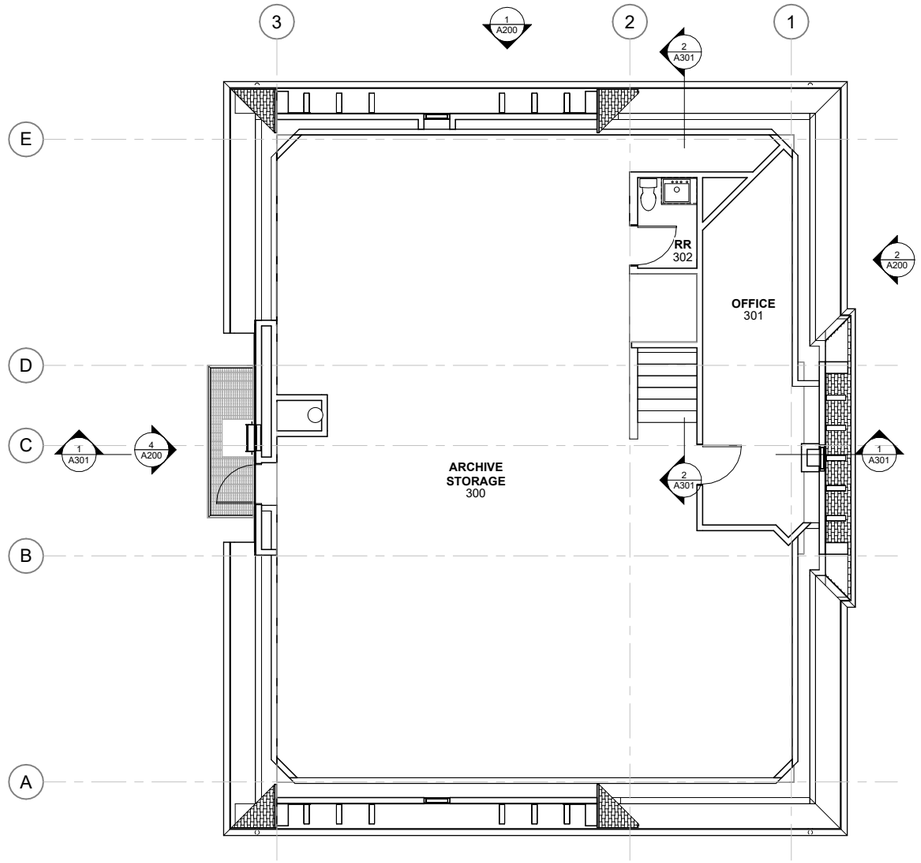
Archive Docs:2023290 La Plata County Historic Society Animas Museum\2023290 La Plata County Animas Museum-BIM360-v24.rvt




1 **03 SECOND FLOOR**
3/16" = 1'-0"




2 **04 ATTIC LEVEL**
3/16" = 1'-0"


ANDERSON
HALLAS
ARCHITECTS

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|---|---|
| Project Number | 2023290 |
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| Checked By | LM |

FLOOR PLANS

A102

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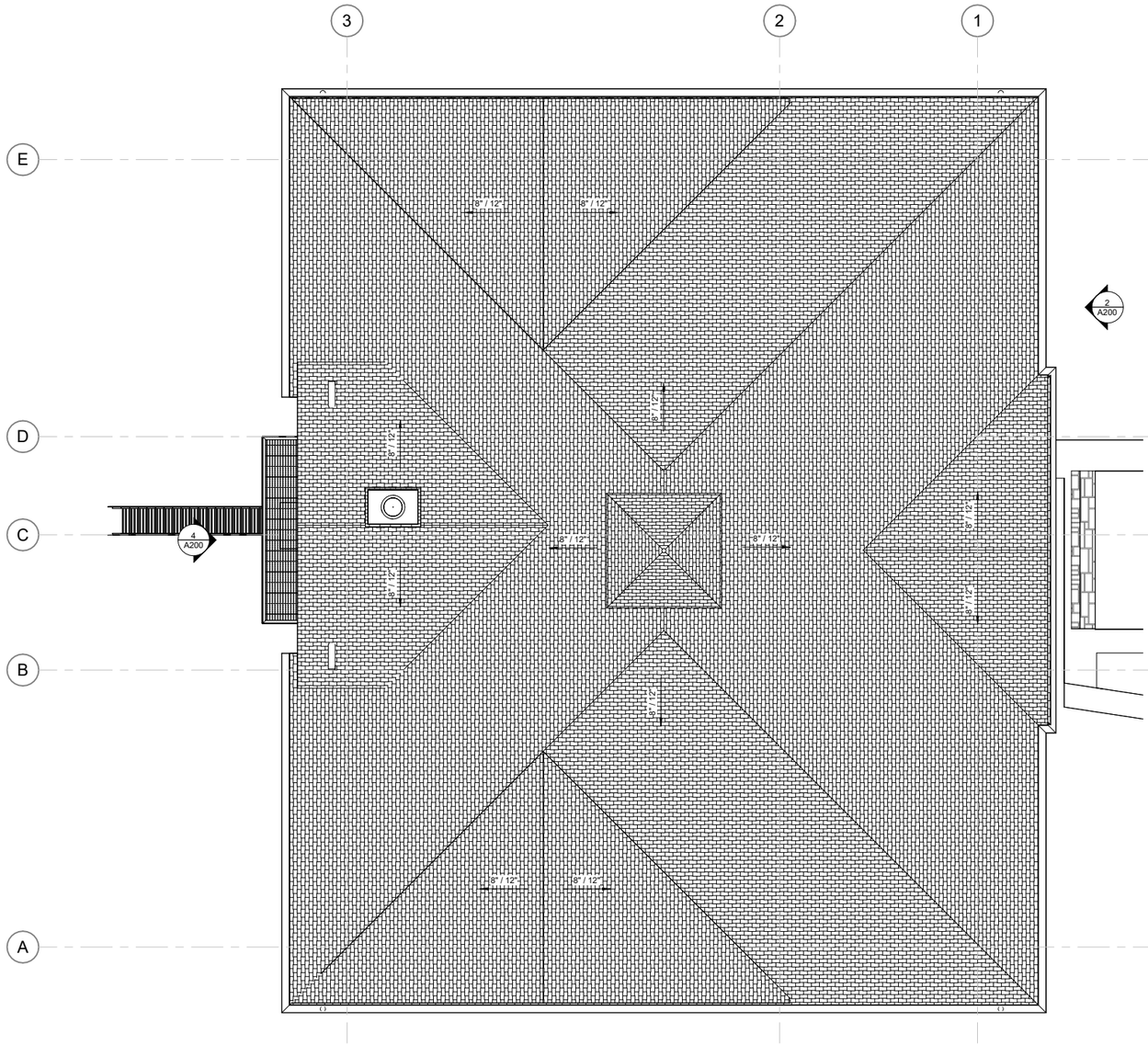


1 **ROOF PLAN**
1/4" = 1'-0"

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|---|---|---|
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ROOF PLAN

A112

NORTH
BUILDING
NORTH

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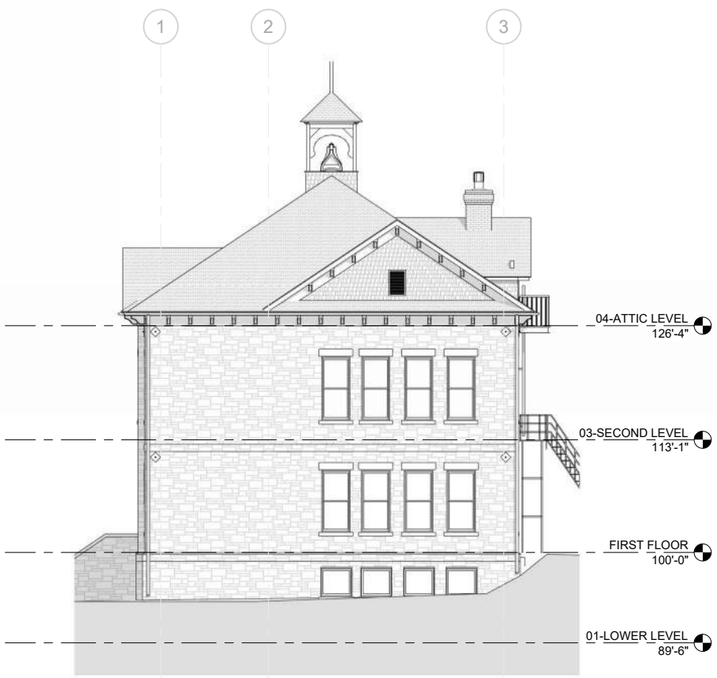
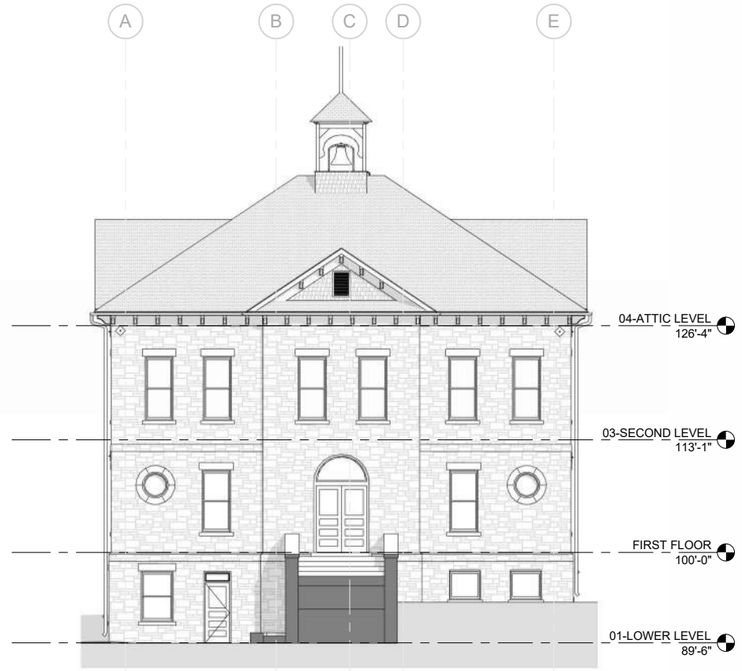
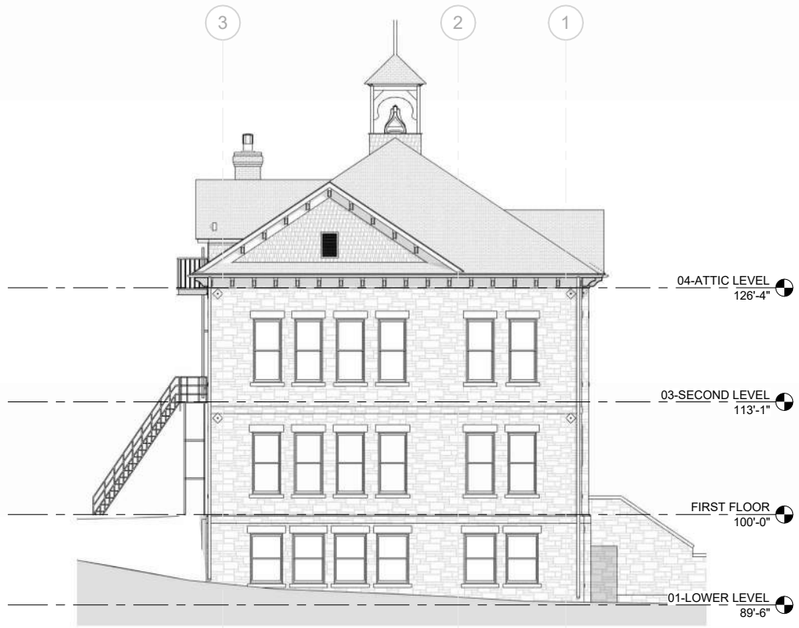


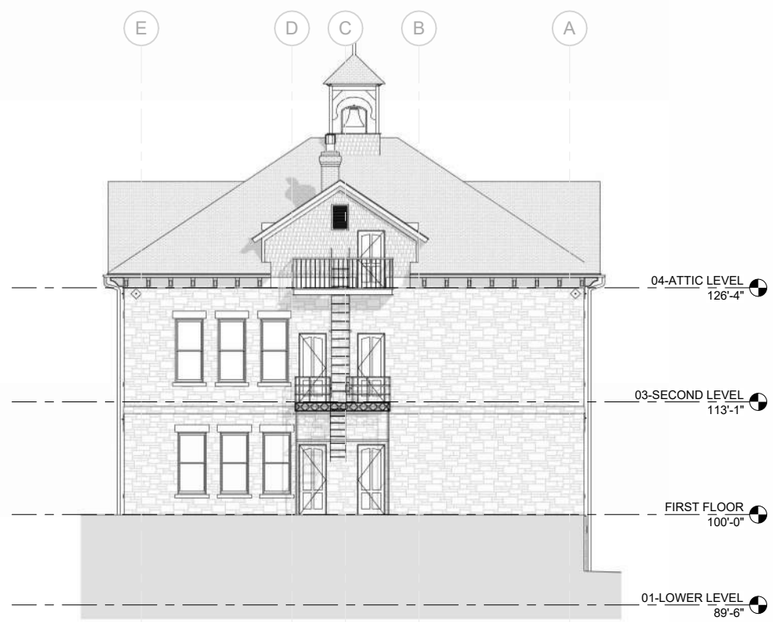

1 **NORTH BUILDING ELEVATION**
1/8" = 1'-0"




2 **EAST BUILDING ELEVATION**
1/8" = 1'-0"




3 **SOUTH BUILDING ELEVATION**
1/8" = 1'-0"




4 **WEST BUILDING ELEVATION**
1/8" = 1'-0"

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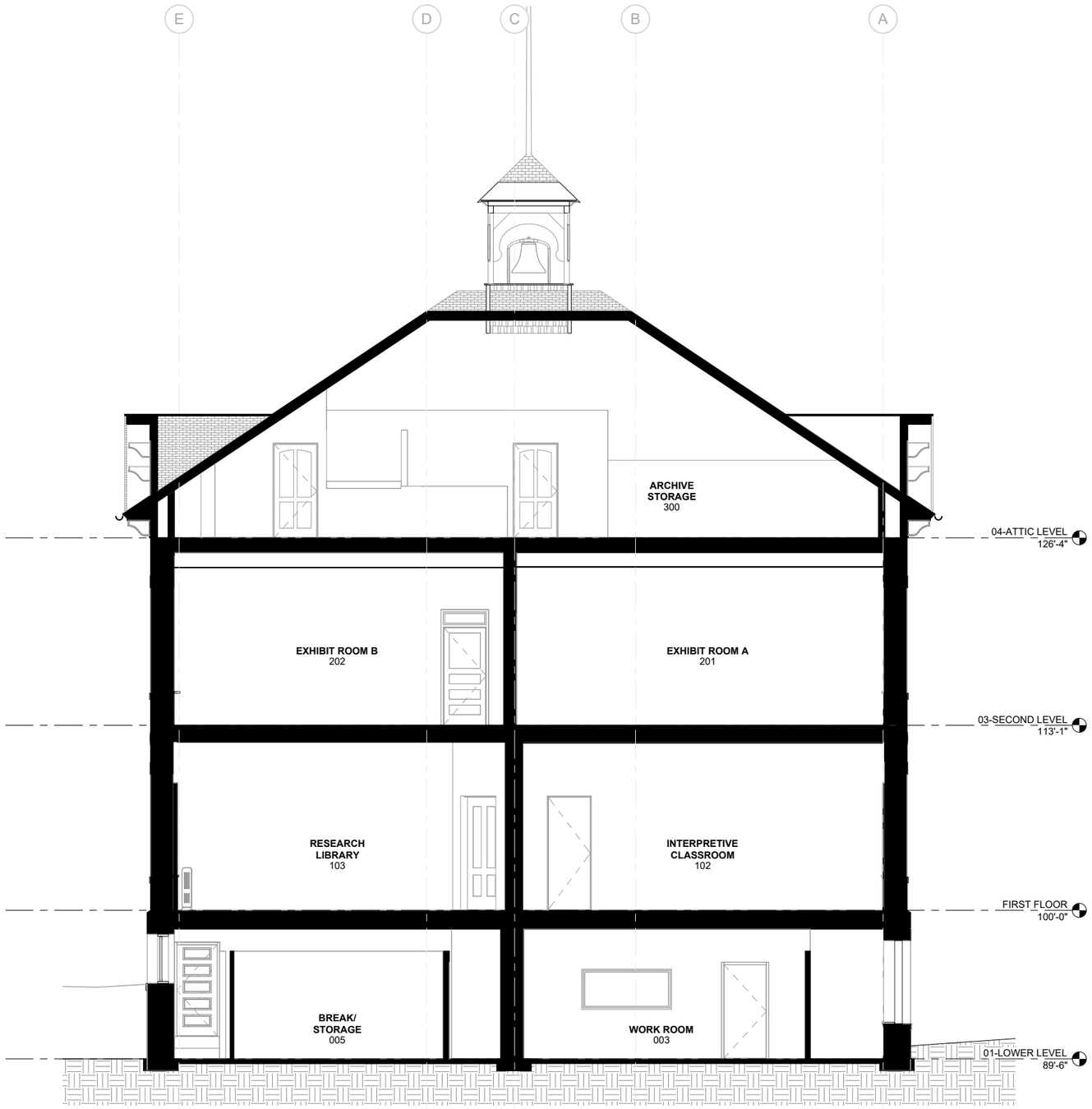
| | |
|---|---|
| Project Number | 2023290 |
| Issue | |
| Date | 03/25/2024 |
| Drawn By | DAM |
| Checked By | LM |

BUILDING ELEVATIONS

A200

99 Existing Condition Drawings




1 A300 BUILDING SECTION 1
N.T.S.

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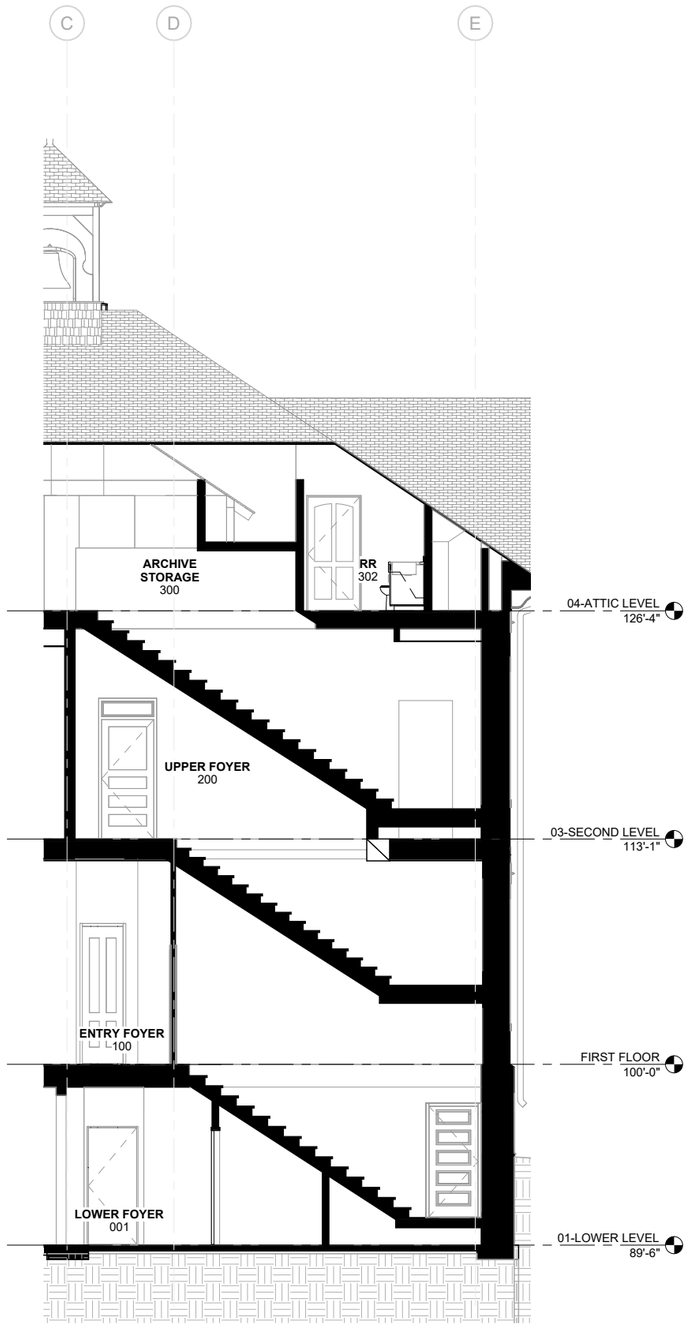
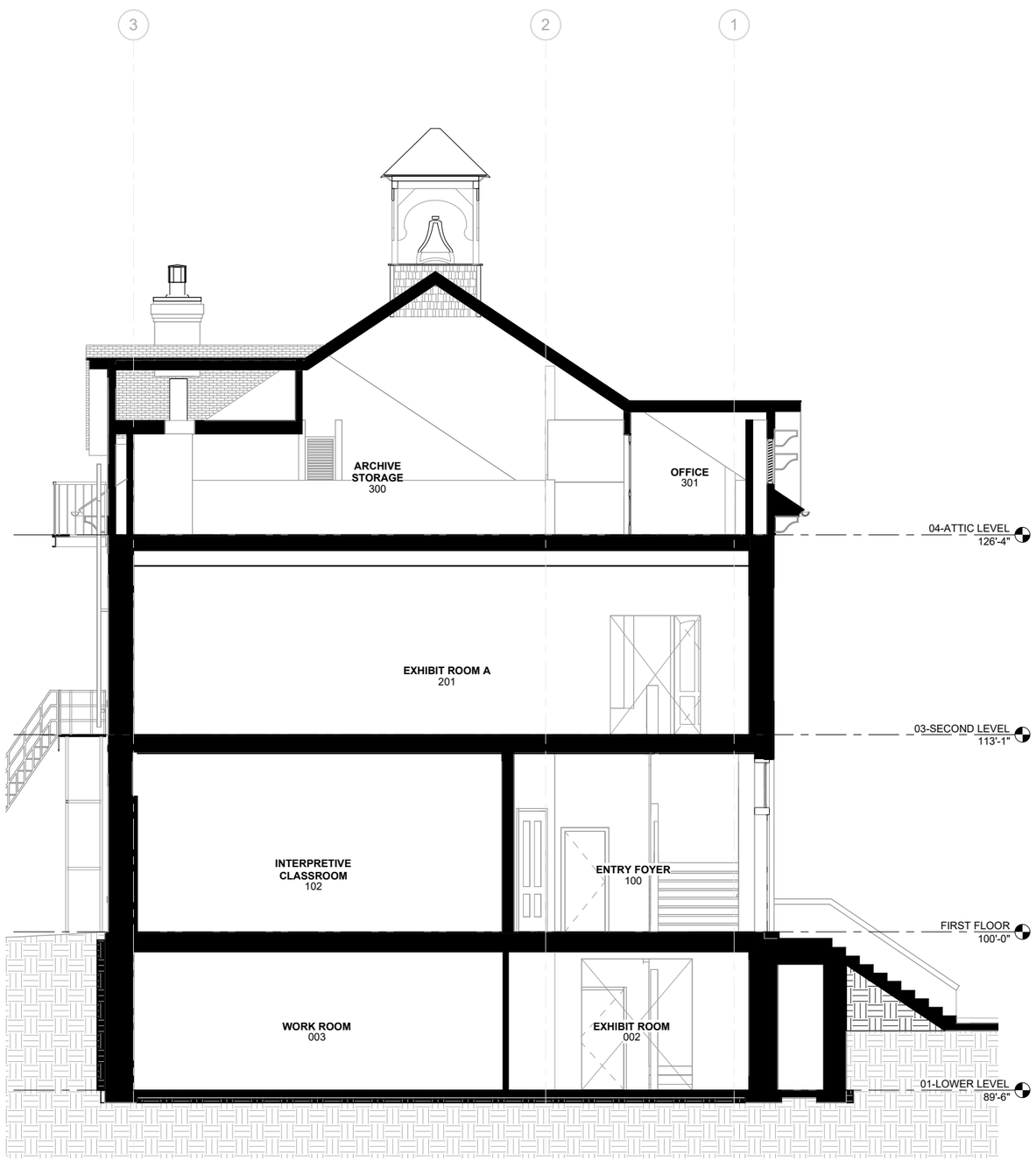
BUILDING SECTIONS

A300

100 Existing Condition Drawings




2 A301 SECTION AT STAIRS
N.T.S.




1 A301 BUILDING SECTION
N.T.S.

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# La Plata County Historical Society Animas Museum

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| Drawn By | DAM |
| Checked By | LM |

BUILDING SECTIONS

A301

101 Existing Condition Drawings

Thank you!