

University of Colorado Boulder
SEEL Building
Colorado Shared Instrumentation in Nanofabrication and Characterization (COSINC) Fabrication Lab
Design Review Board - Schematic Design

Project Description

Create a new Clean Room for the COSINC-FAB group currently located in the Engineering Building. The new fabrication lab will provide leading edge micro and nano fabrication processing equipment for CU Boulder PI's and regional industrial partners. The fabrication clean room will also be used for CU Boulder student education and hands-on training.

Project History

Third Floor Location - The project started on the third floor of the SEEL building which allowed for the Air Handling Unit (AHU) to go into the penthouse. The other support equipment was planned to go inside the interior of the lab space. After further discussion the building decided to use the third floor space for other purposes.

First Floor Location - It was decided to move this lab to the first floor of the SEEL building. The first floor space has less square footage so the lab space will need to shrink and there is limited space for the lab equipment. After reviewing the building mechanical shafts it was determined there isn't enough room to run new ductwork from this new space to the penthouse. After reviewing the other support equipment there are also concerns with the vibration and noise from the equipment. Because of these reasons the team decided to pursue an exterior addition located outside of the lab space.

Goals/Objectives

- Research Goals:
 - o Cleanliness: Mix of ISO 5 and ISO 6 space
 - o Temperature: +/- 2 deg C
 - o Humidity: 40% +/- 5%
 - o Vibration: VC-C
 - o Exhaust: 9,700 cfm
- Existing Infrastructure:
 - o Existing makeup air handling unit is already at capacity with existing users
 - o Additional ventilation required to meet research needs
 - o Existing building compressed air pressure too low for lab needs and not oil free
 - o Building does not have a humidity control system
 - o Process Vacuum, Acid Waste Neutralization (AWN), Nitrogen Generator, and DI Water to be provided by lab

The new proposed COSINC-FAB lab is comprised of 3,512 sf in the interior with an addition to hold the equipment planned for 1,206 gsf.



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Funding

Project cost: ~\$4 Million

Funded by College of Engineering and Applied Science

DRB Review Schedule

Introduction/Concept Design: June 2020

Schematic Design: October 2020

Estimated Construction Start: April 2021





SEEL First Floor Plan



Massing Diagram



A



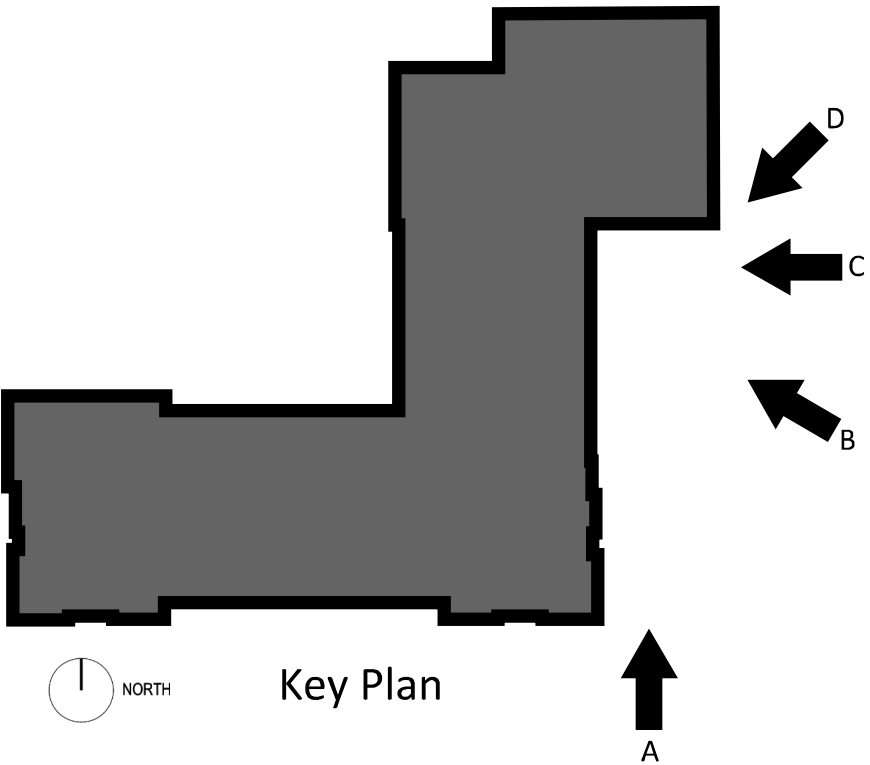
B



C



D



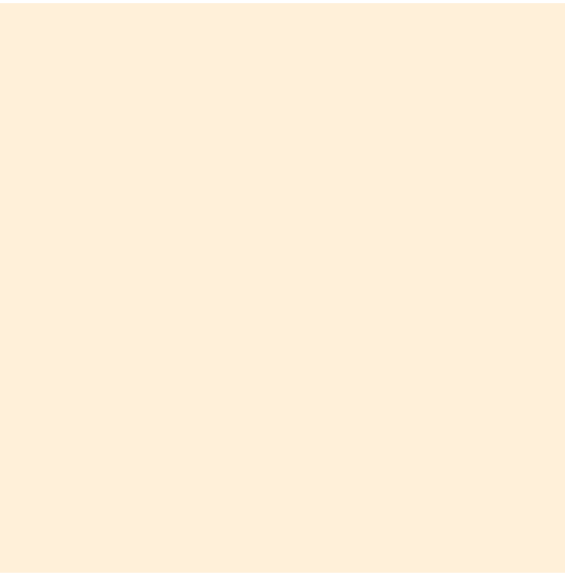


ROOF MEMBRANE COLOR: BASE

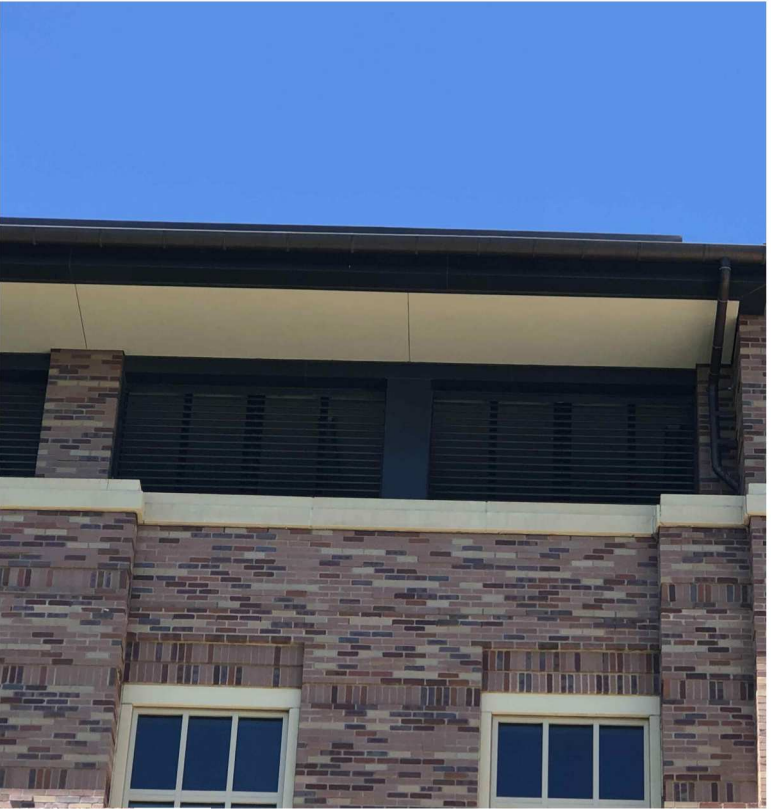
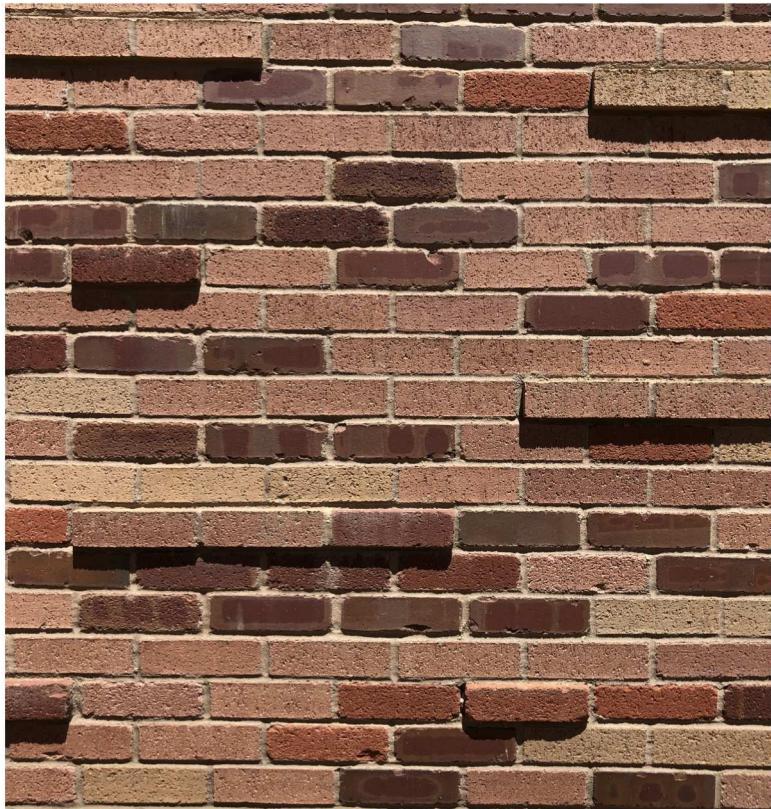


Gray

ROOF MEMBRANE COLOR: ALT



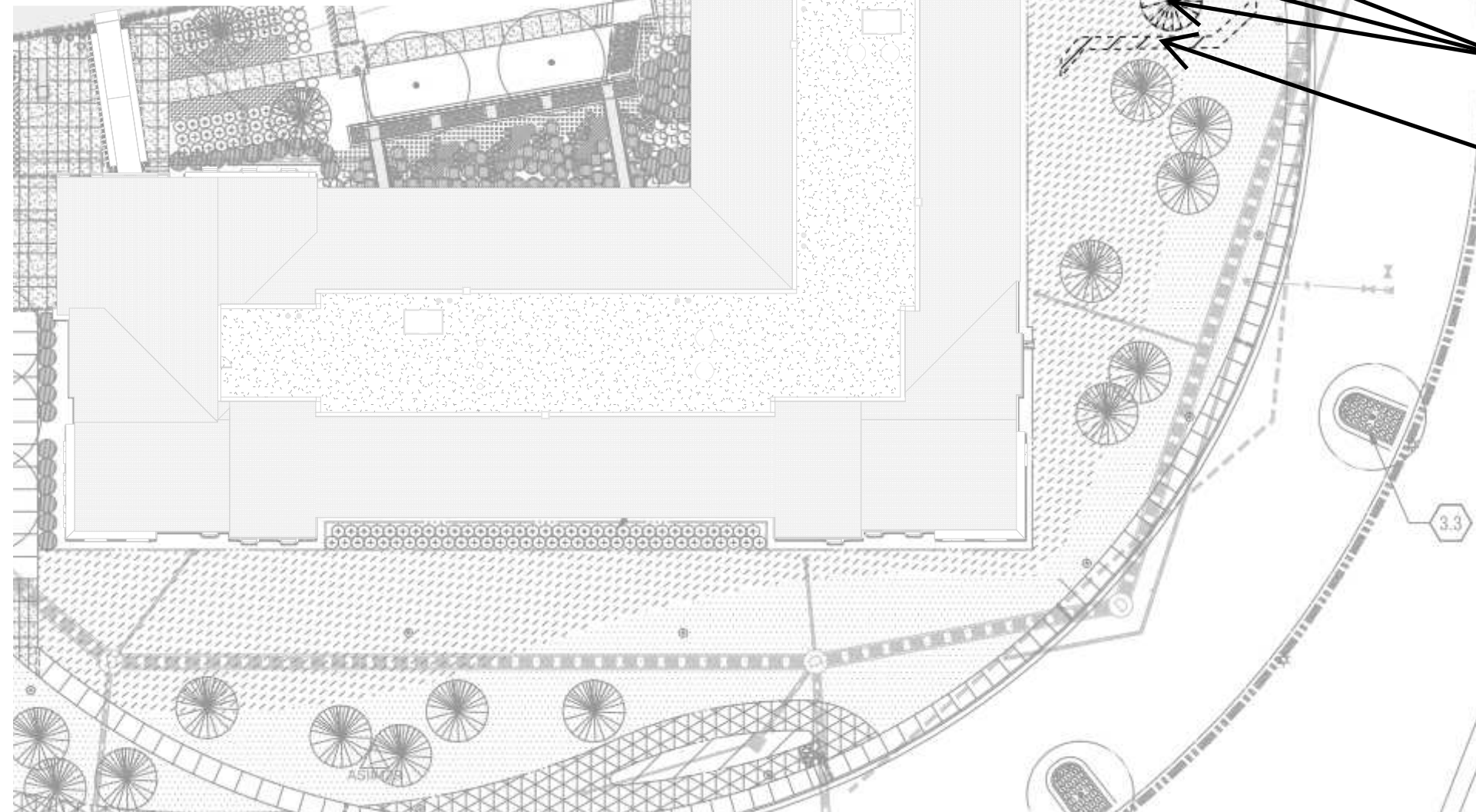
Tan





Legend

- D.1** EXCAVATE SITE AS REQUIRED FOR NEW EQUIP. ROOM ADDITION
- D.2** REMOVE EXISTING MINERAL MULCH AND SALVAGE FOR REUSE
- D.3** REMOVE EVERGREEN TREES TO BE RELOCATED OR REPLACED
- D.4** REMOVE ASPHALT, CURB AND GUTTER TO TIE PERIMETER DRAIN INTO STORM DRAIN
- D.5** PROVIDE TRENCH TO RELOCATE IRRIGATION LINE TO TIE INTO MAIN LINE



D.1

D.2

D.4

D.3

D.5

AD050

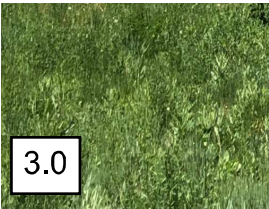
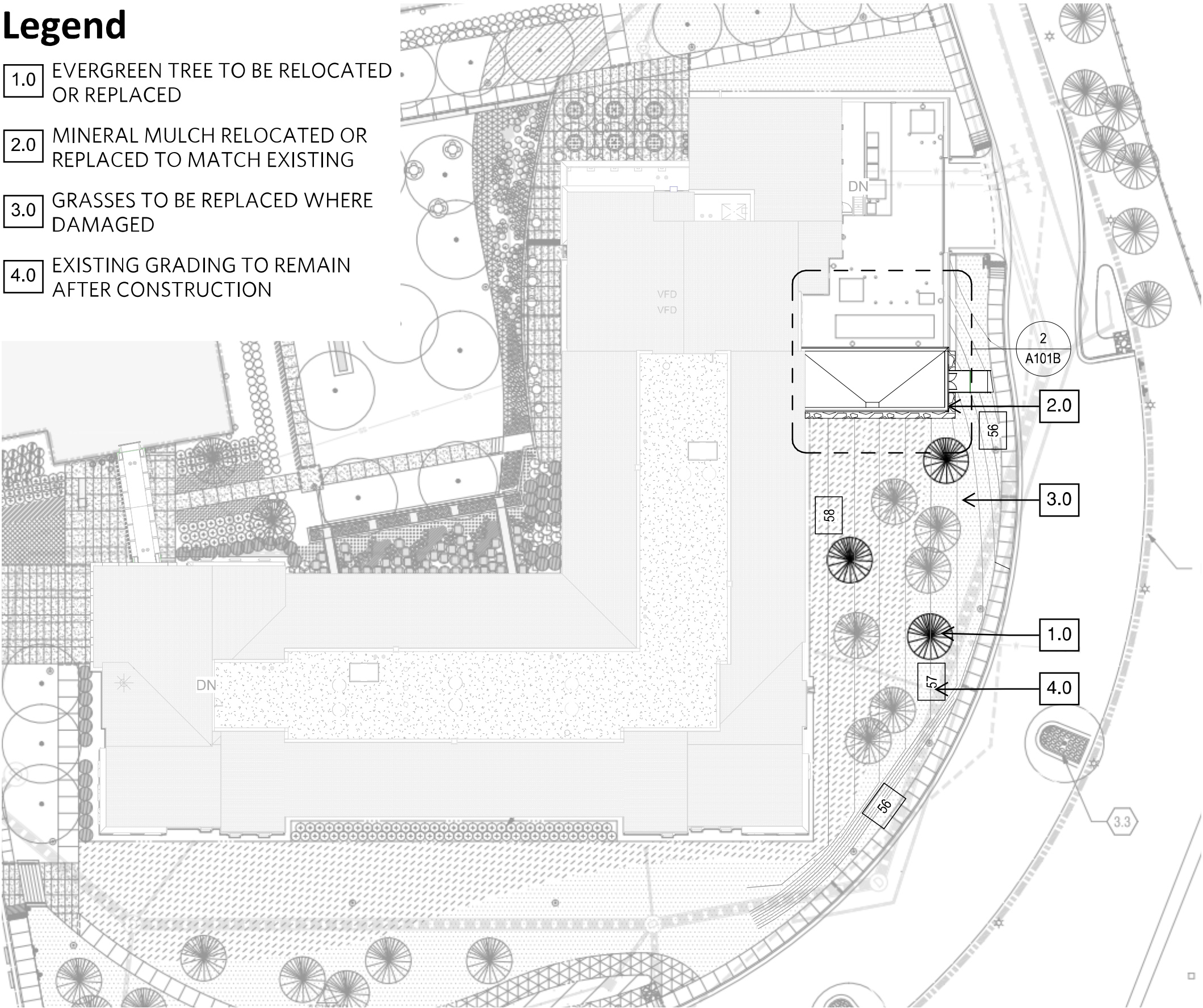
1" = 40'-0" N
DEMOLITION SITE PLAN



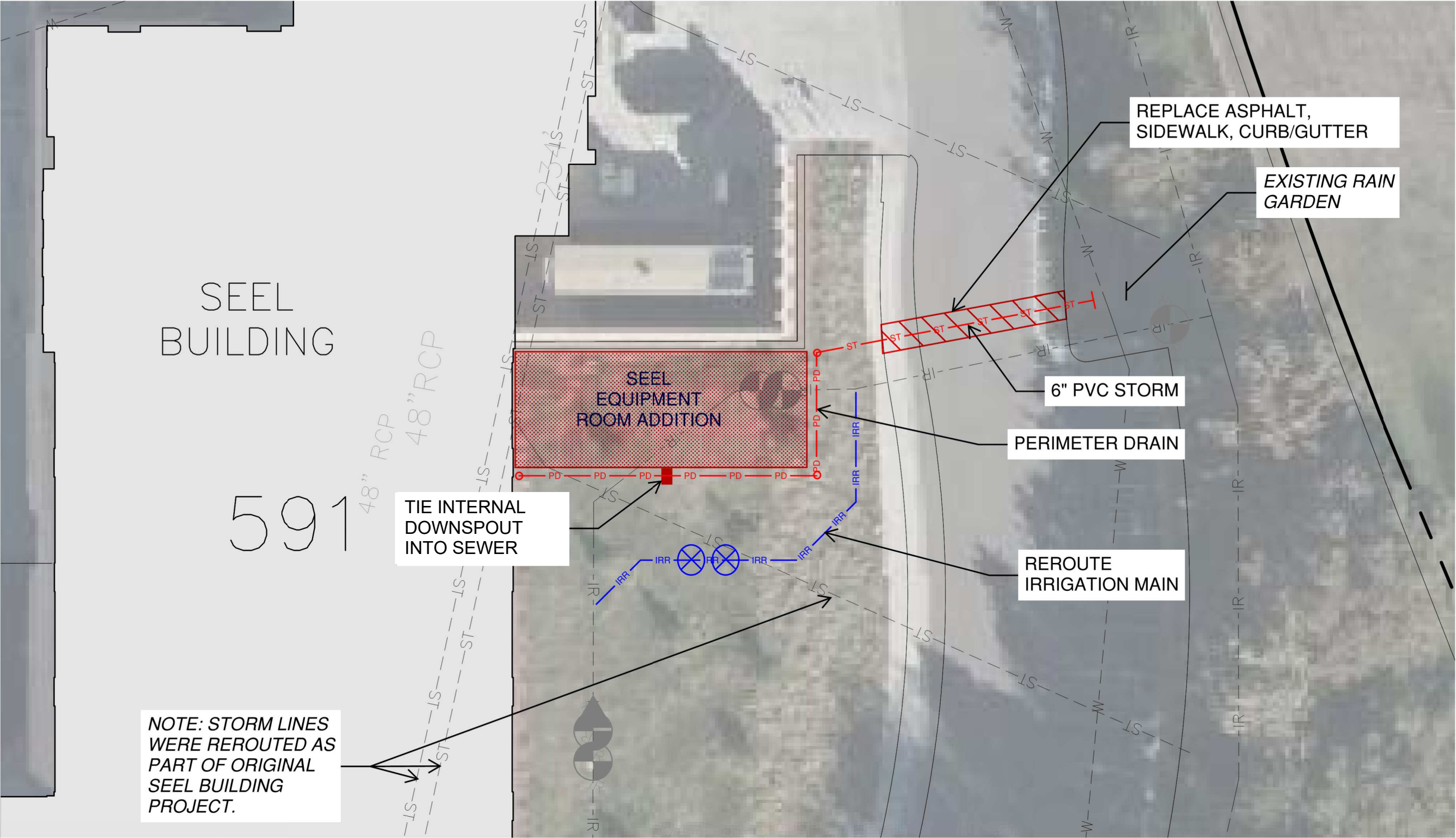


Legend

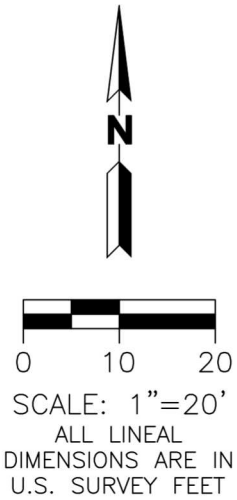
- 1.0 EVERGREEN TREE TO BE RELOCATED OR REPLACED
- 2.0 MINERAL MULCH RELOCATED OR REPLACED TO MATCH EXISTING
- 3.0 GRASSES TO BE REPLACED WHERE DAMAGED
- 4.0 EXISTING GRADING TO REMAIN AFTER CONSTRUCTION



A050



C100



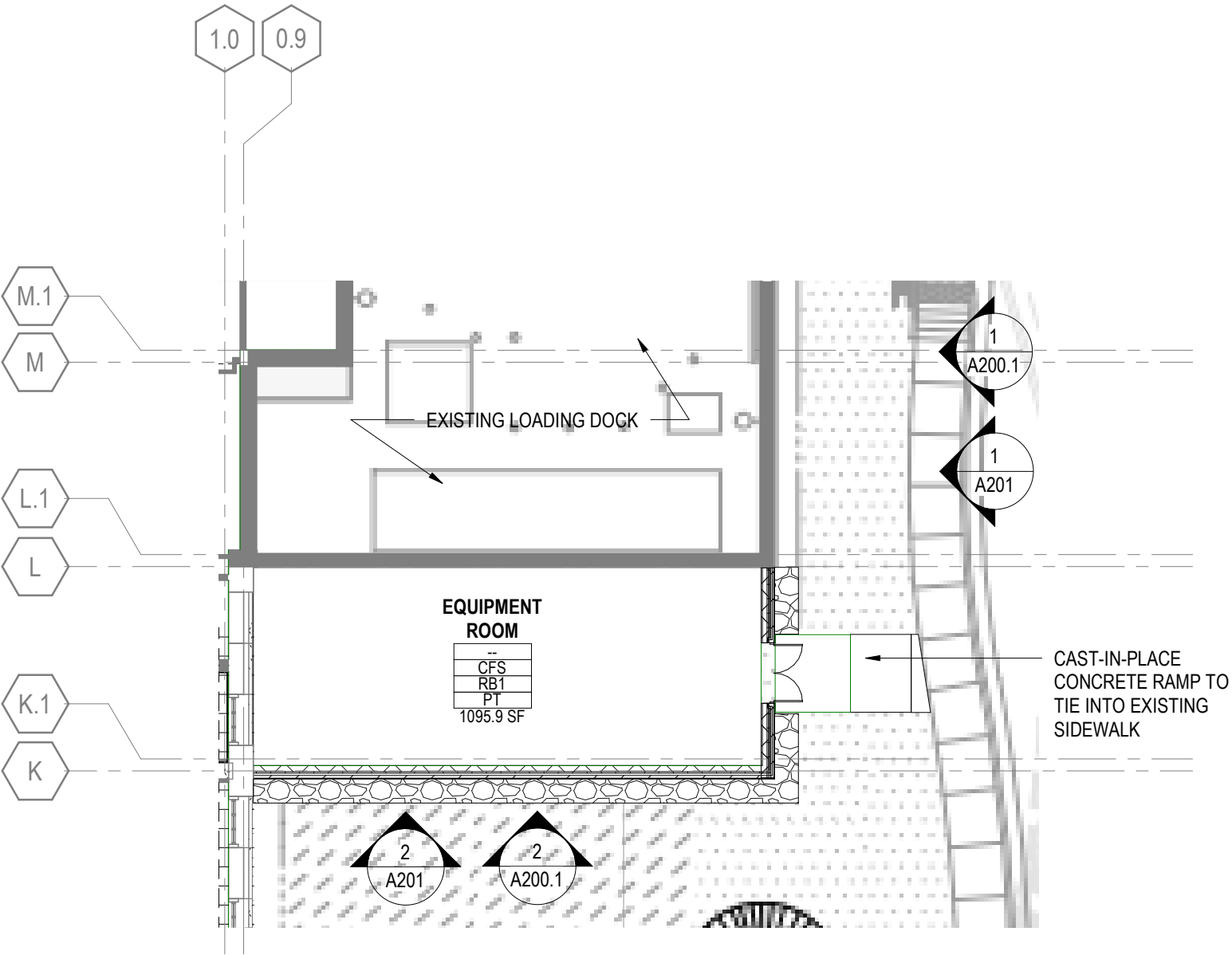
LEGEND

- IR--- IRRIGATION LINE
- ST--- STORM SEWER
- W--- WATER LINE



UTILITY EXHIBIT

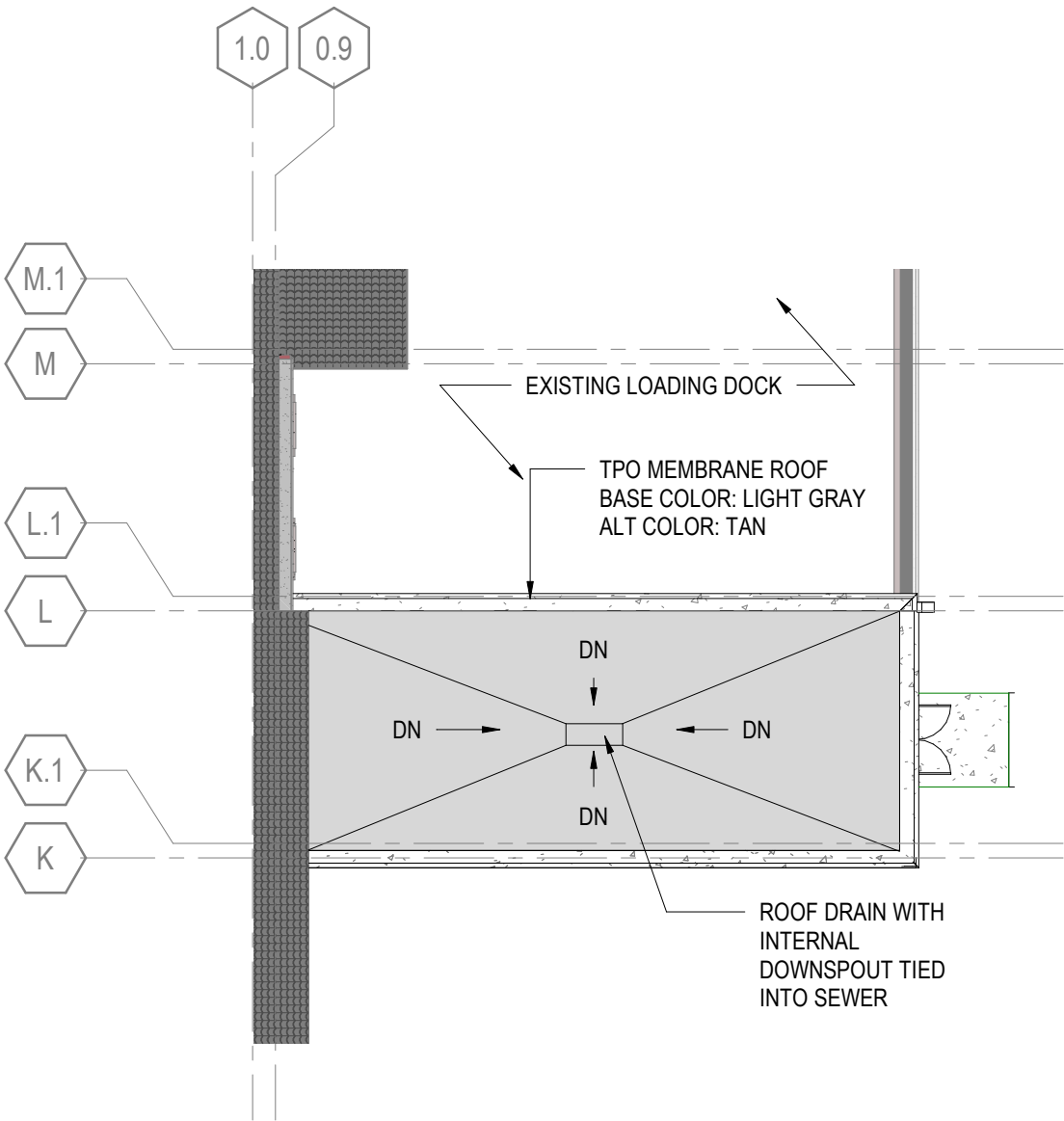




1

FLOOR PLAN - EQUIPMENT ROOM

1/16" = 1'-0"



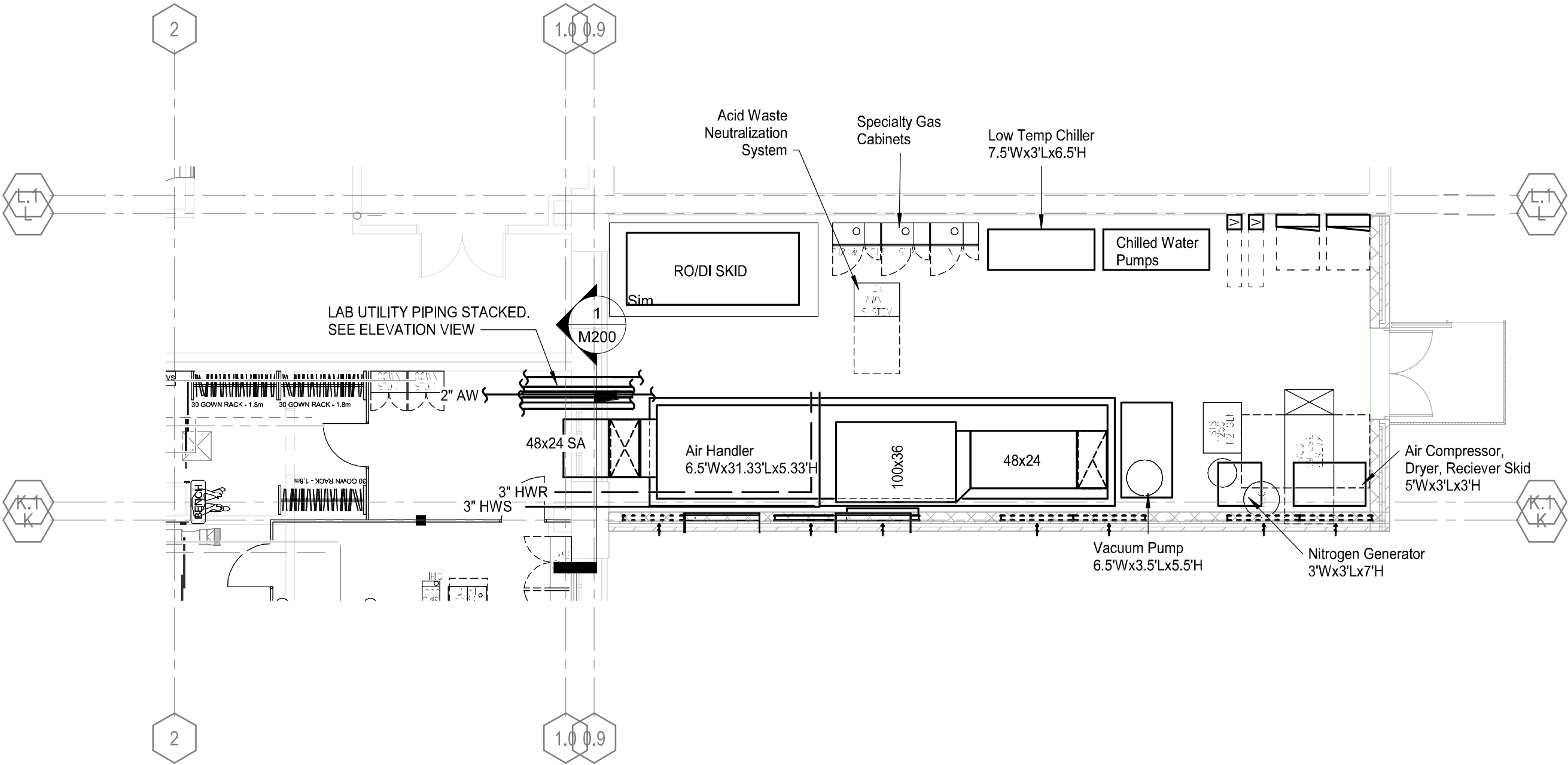
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ROOF PLAN - EQUIPMENT ROOM

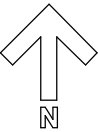
1/16" = 1'-0"

A101B





M100

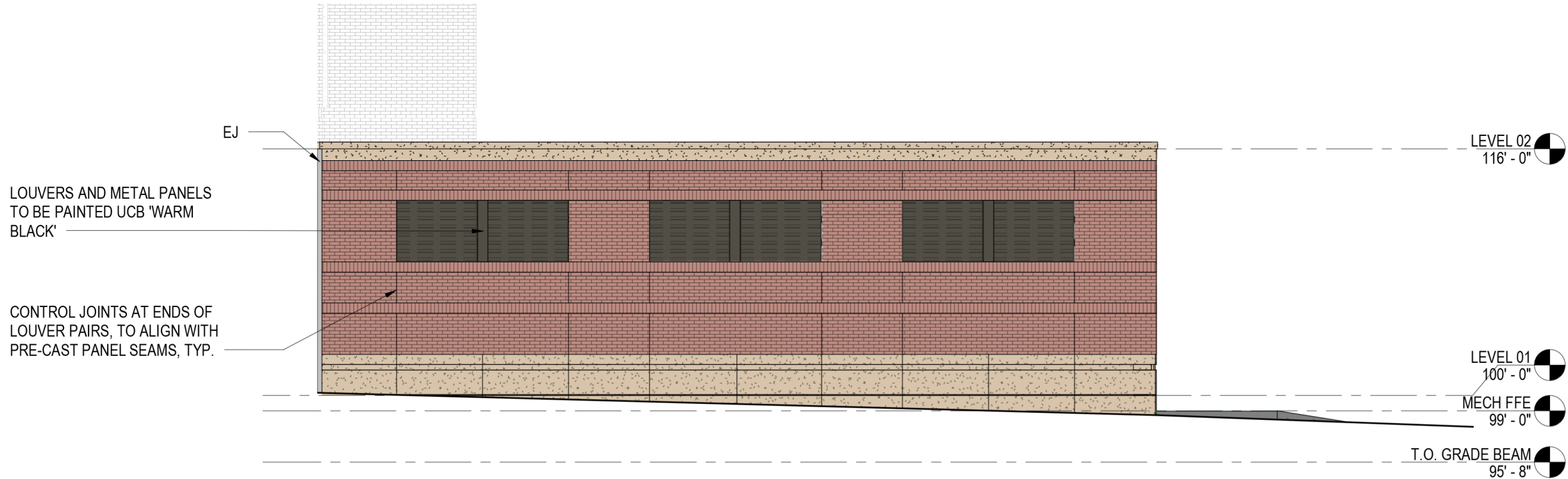


EQUIPMENT ROOM PLAN

SCALE: 1/8" = 1'-0"

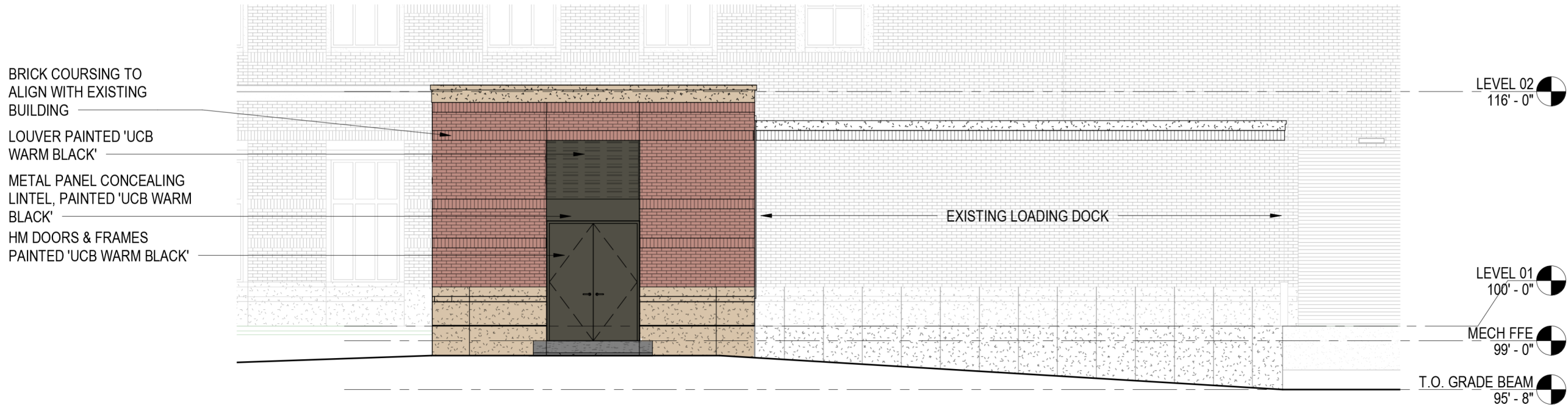
1/8" = 1'-0"
PLAN





A200.1

2 EXTERIOR ELEVATION - EQUIPMENT ROOM ADDITION SOUTH
1/8" = 1'-0"



1 EXTERIOR ELEVATION - EQUIPMENT ROOM ADDITION EAST
1/8" = 1'-0"

ELEVATIONS - EQUIPMENT ROOM ADDITION - PREFERRED OPTION

1/8" = 1'-0"



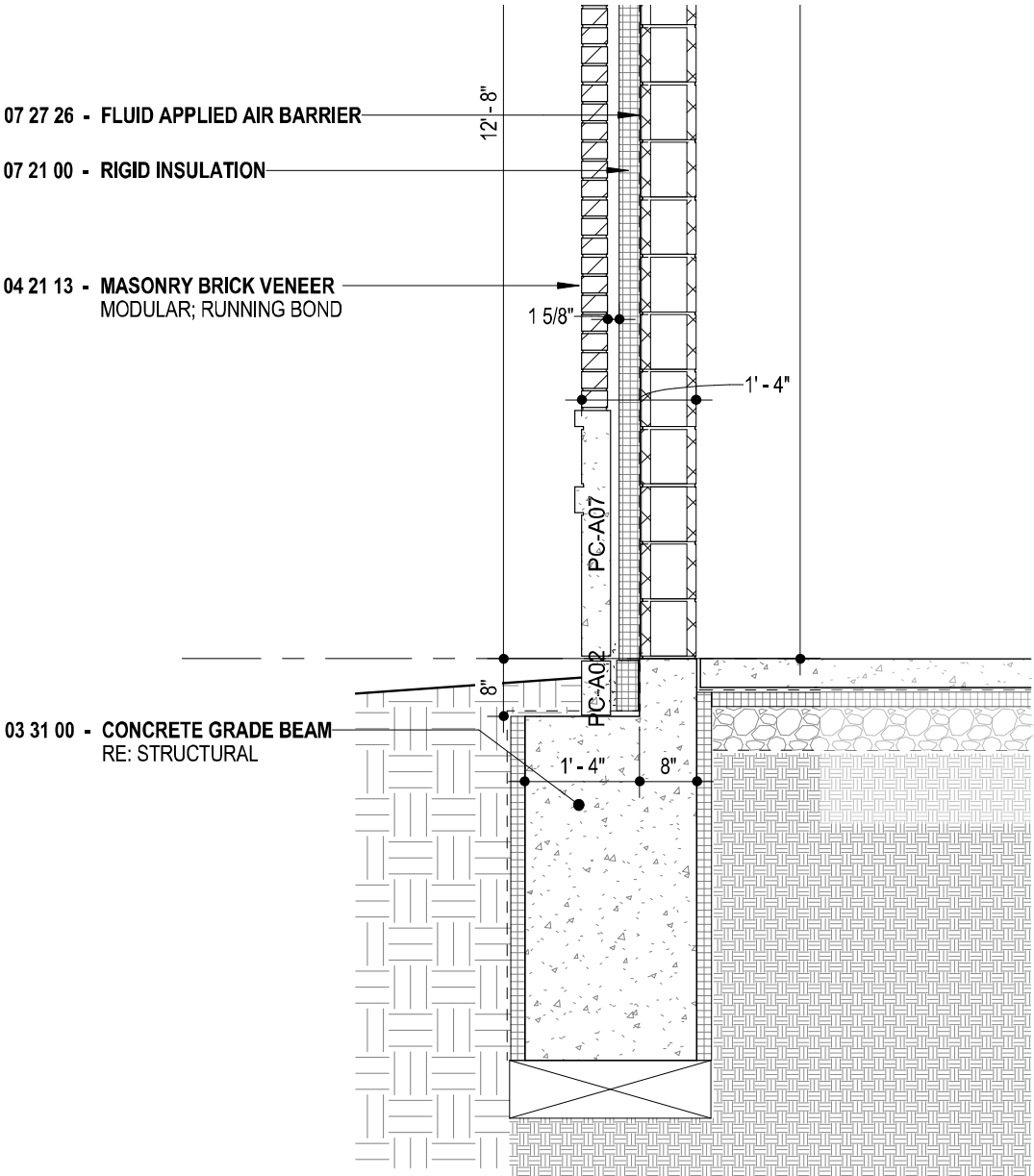


A900

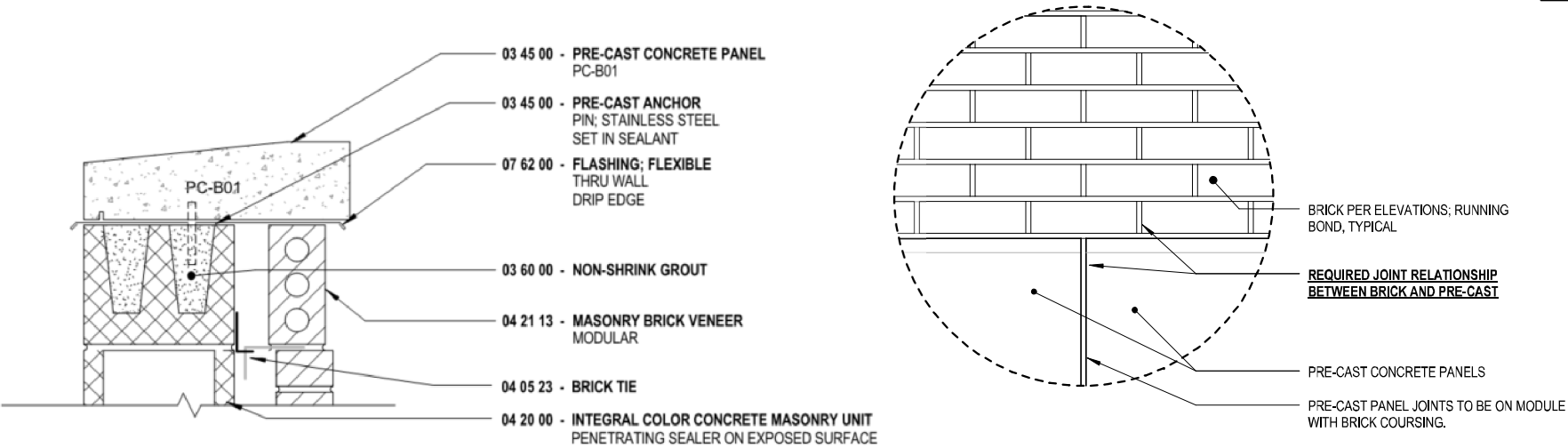
***PREFERRED OPTION**

EQUIPMENT ROOM ADDITION PERSPECTIVE





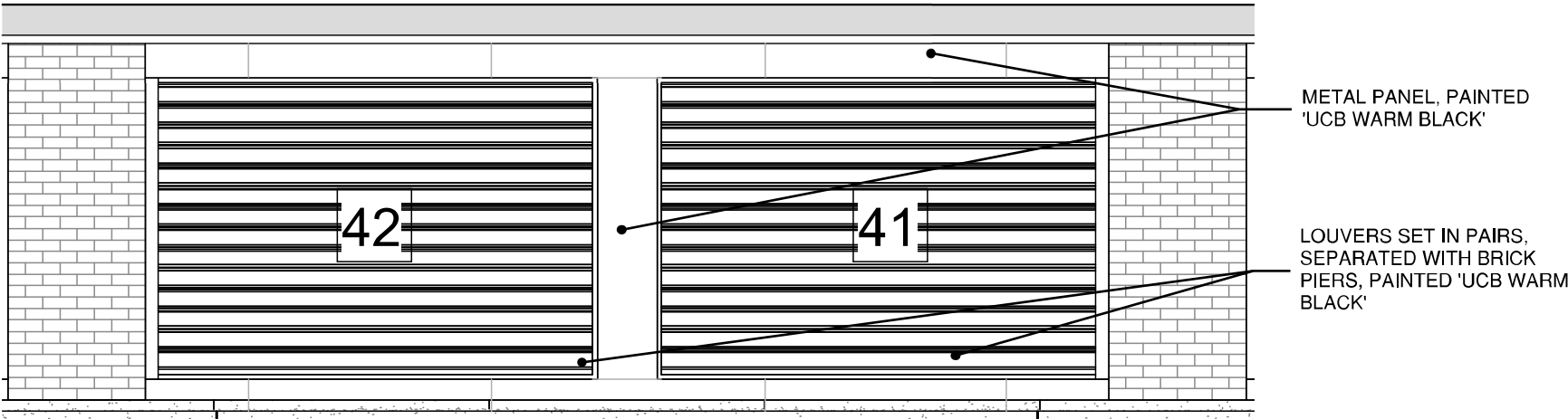
WALL SECTION AT CHILLER ROOM
NTS



PRE-CAST CONCRETE PARAPET CAP
NTS

VERTICAL JOINT ALIGNMENT @
PRECAST PANELS AND BRICK
NTS

A500



LOUVER LAYOUT AT MECHANICAL PENTHOUSE
NTS

CONSTRUCTION DETAILS TO MATCH



THANK YOU