

University of Colorado Boulder
SEEL Building
Colorado Shared Instrumentation in Nanofabrication and Characterization (COSINC) Fabrication Lab
Design Review Board - Introduction/Conceptual 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 1,134 sf.

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Funding

Project cost: ~\$4 Million

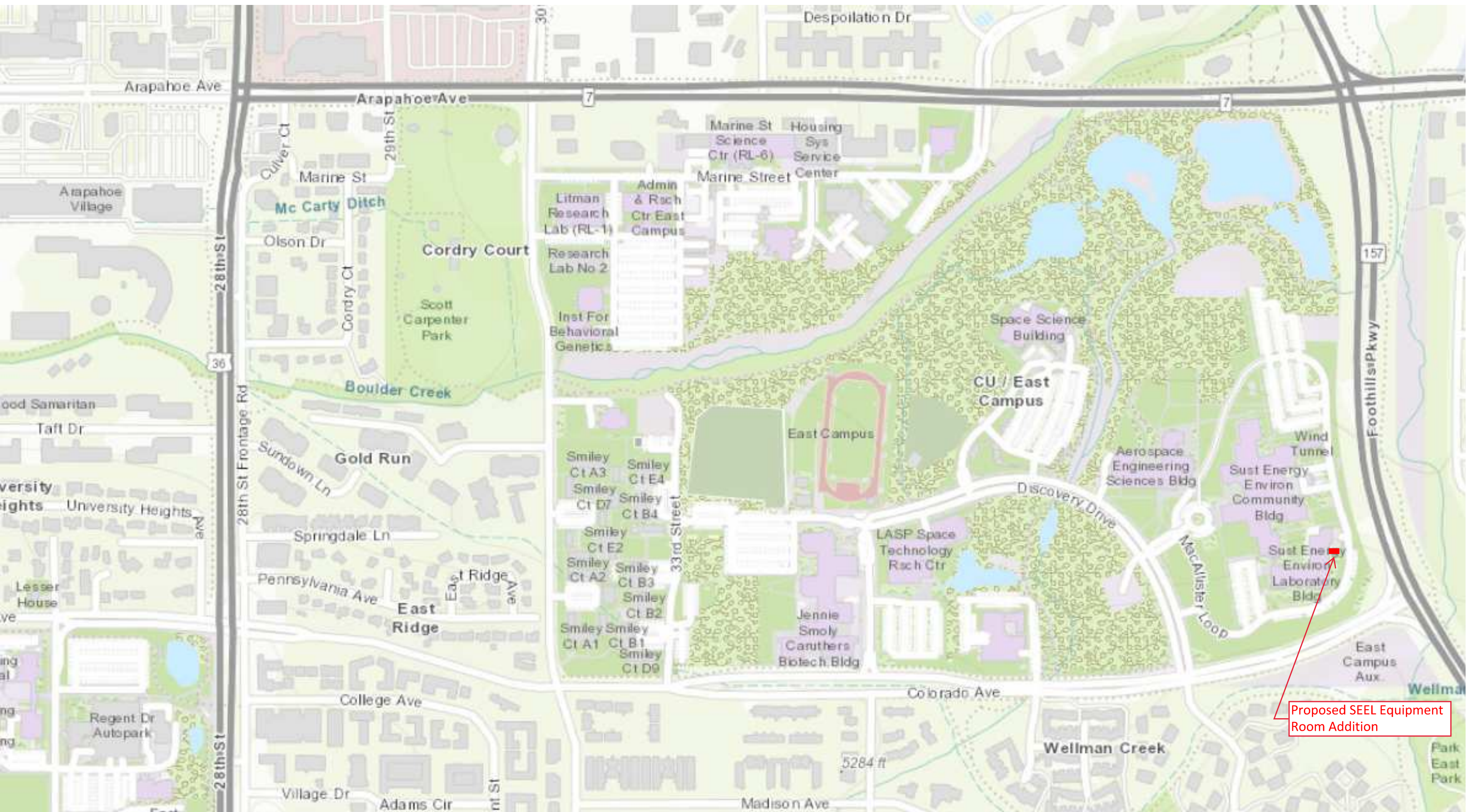
Funded by College of Engineering and Applied Science

DRB Review Schedule

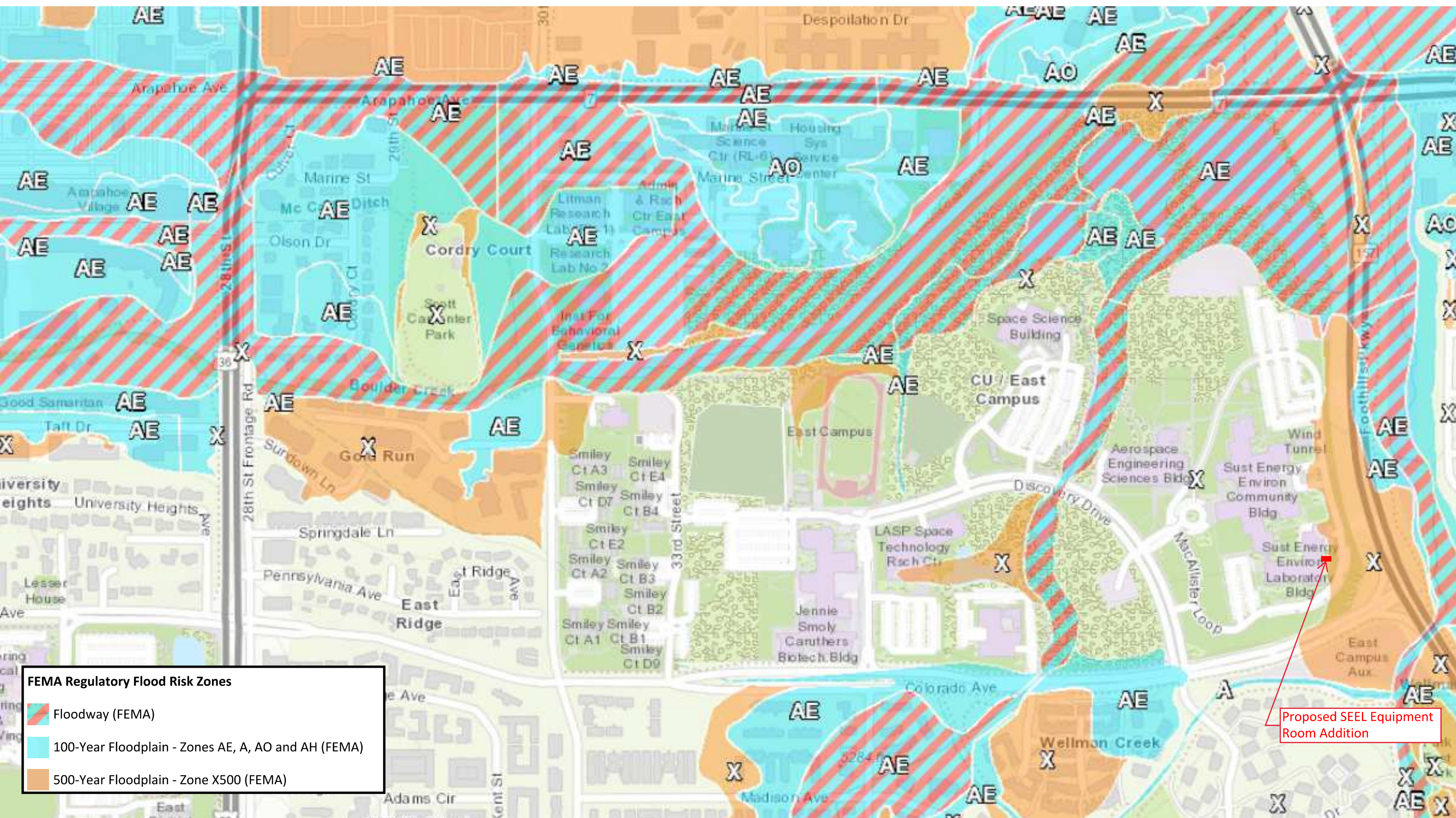
Introduction/Concept Design: June 2020

Schematic Design/Design Development: August 2020

Estimated Construction Start: February 29, 2021



East Campus - Context



Flood Plain - Context

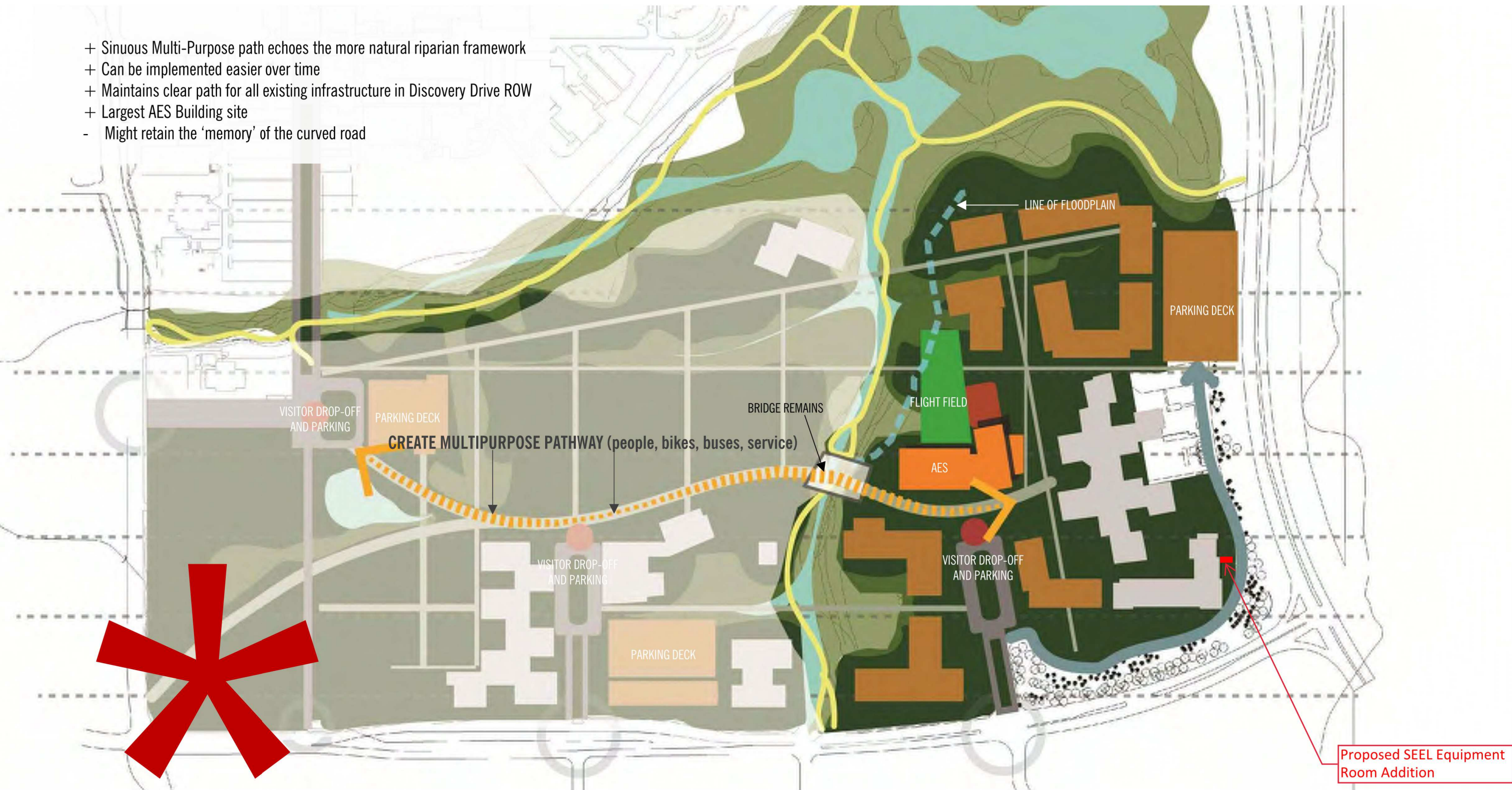


Building Space Types - Context



Proposed SEEL Equipment Room Addition

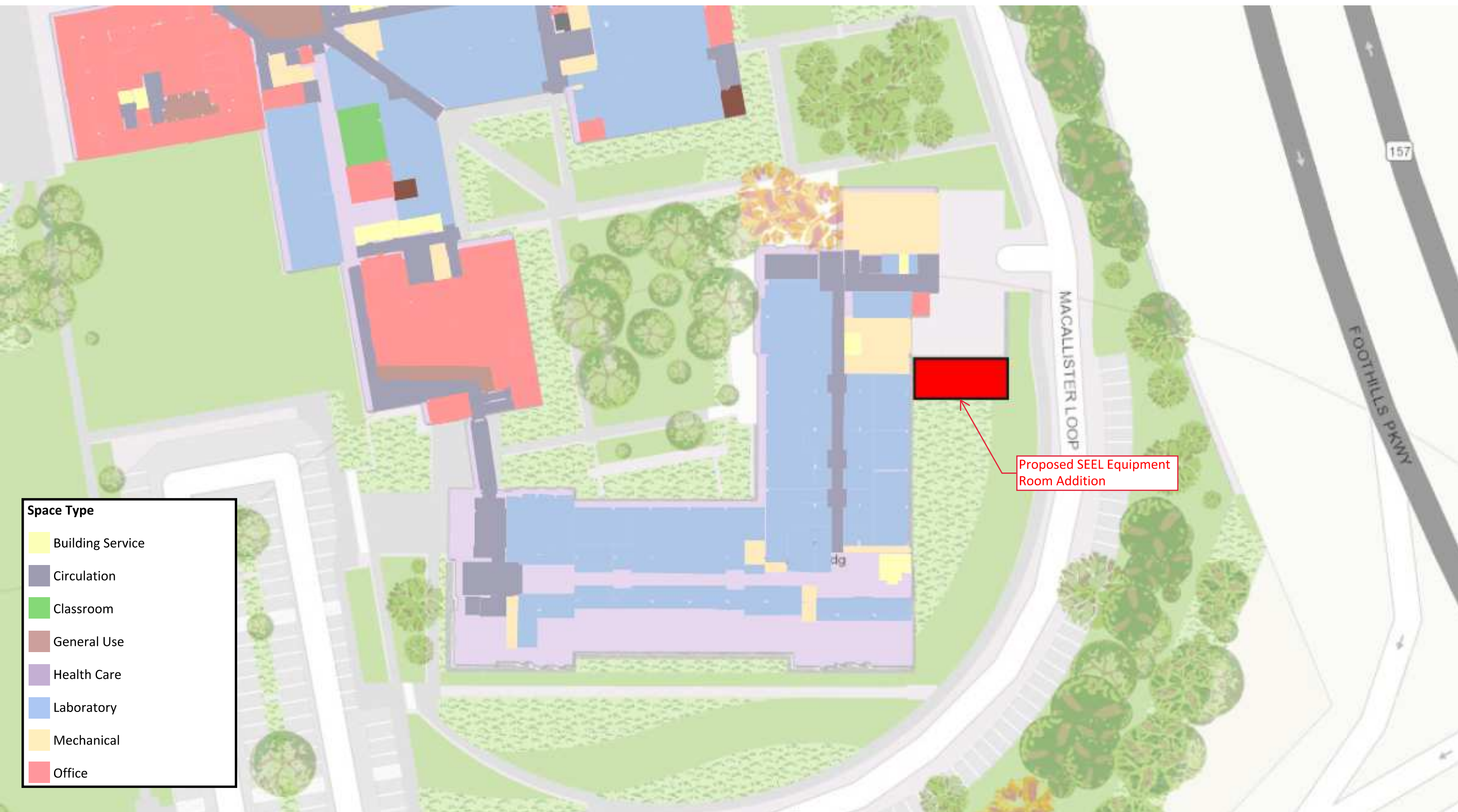
- + Sinuous Multi-Purpose path echoes the more natural riparian framework
- + Can be implemented easier over time
- + Maintains clear path for all existing infrastructure in Discovery Drive ROW
- + Largest AES Building site
- Might retain the 'memory' of the curved road



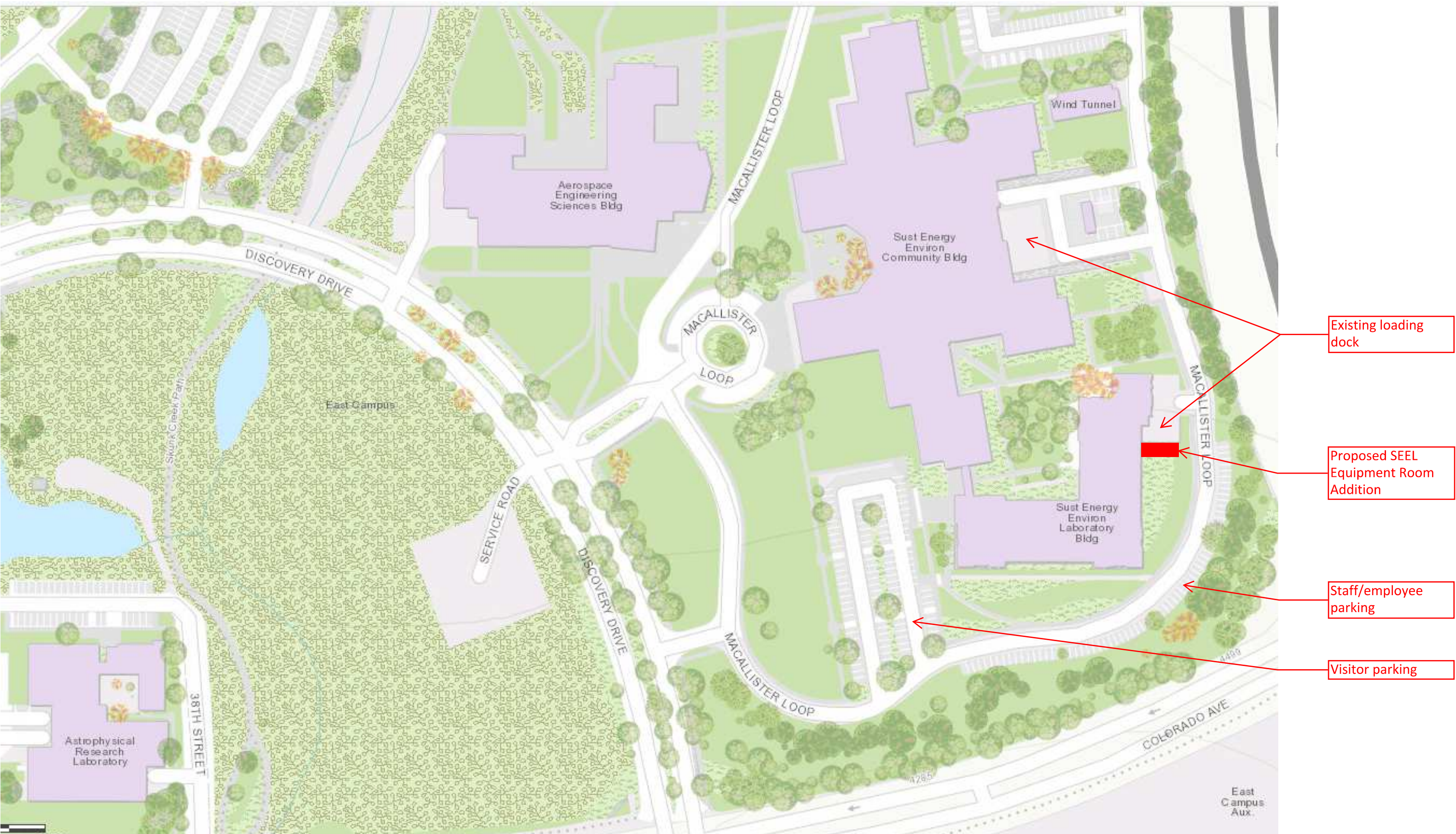
CURVE

AES Building | University of Colorado **Boulder**

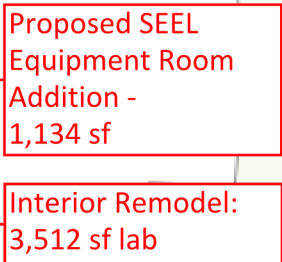
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Enlarged Site Plan



Enlarged Area Plan



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A



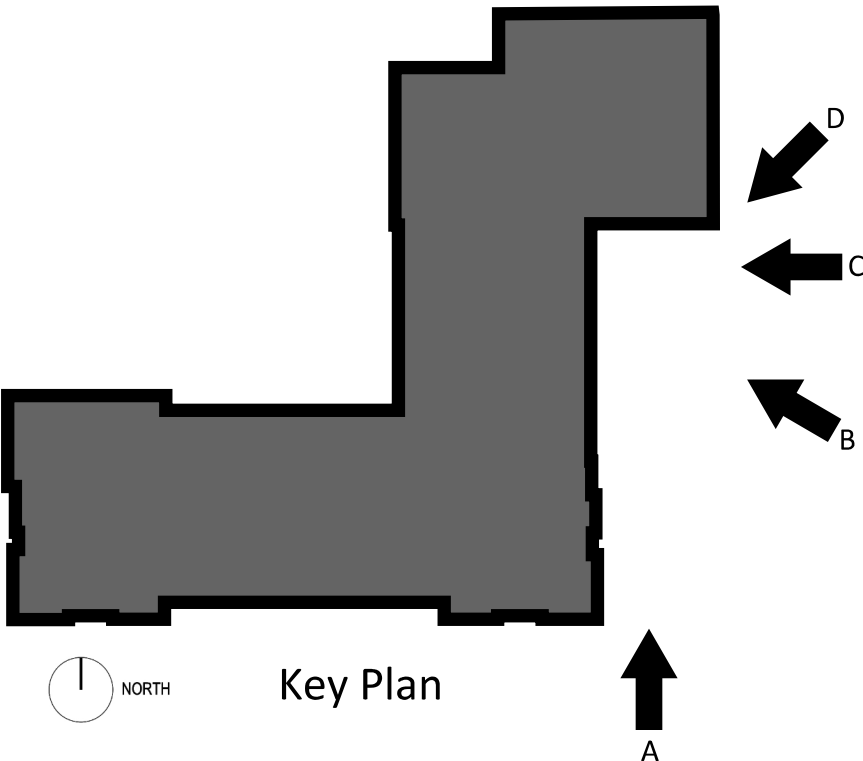
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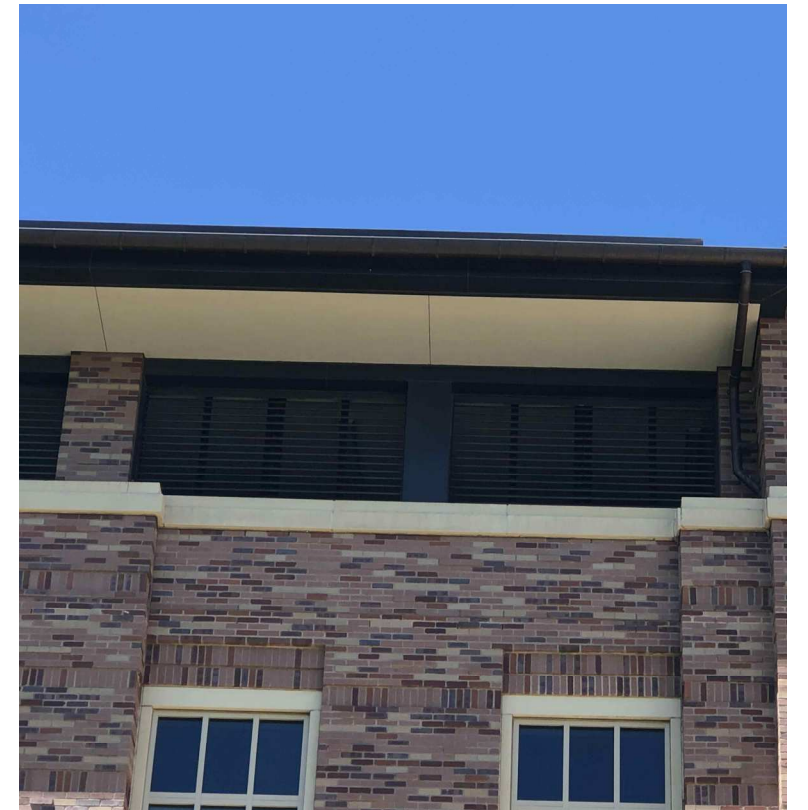
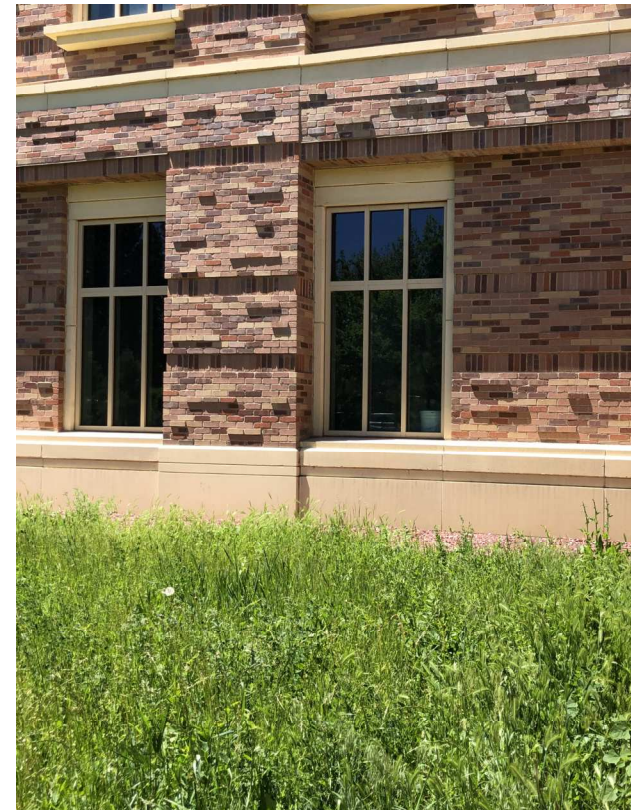
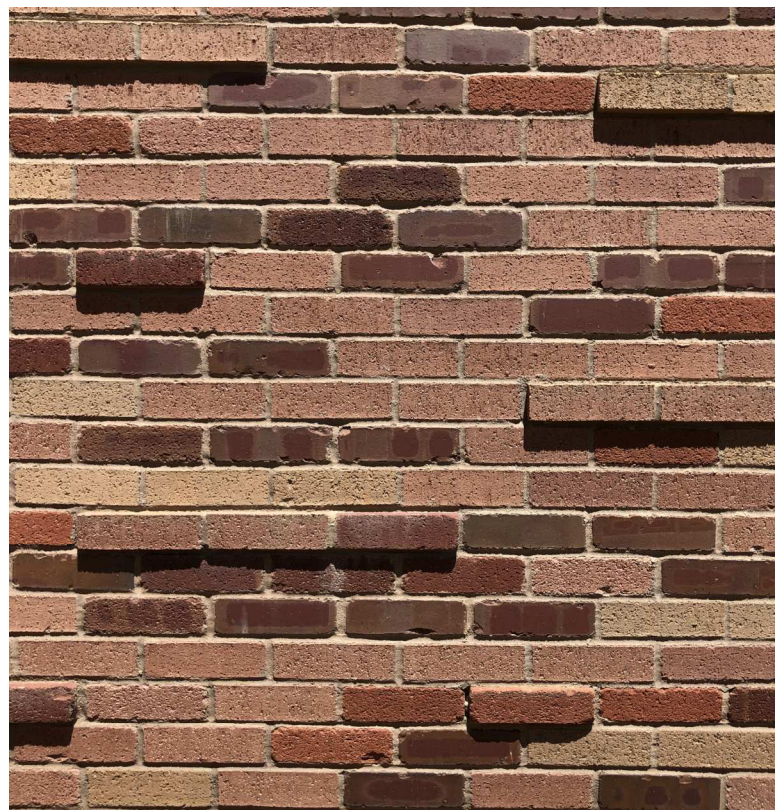


C



D

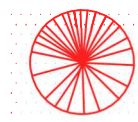




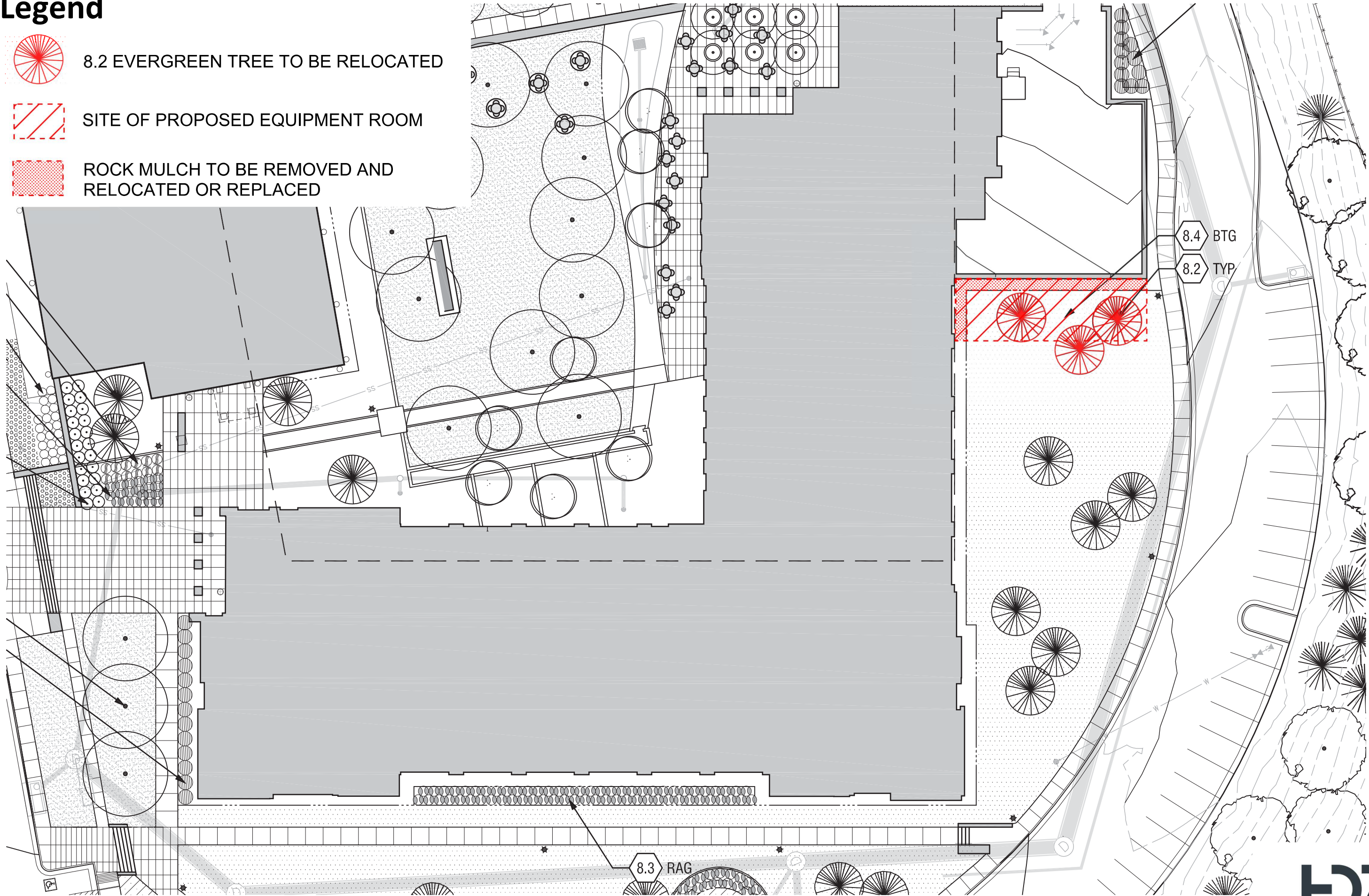




Massing Diagram

Legend


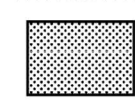
-  8.2 EVERGREEN TREE TO BE RELOCATED
-  SITE OF PROPOSED EQUIPMENT ROOM
-  ROCK MULCH TO BE REMOVED AND RELOCATED OR REPLACED

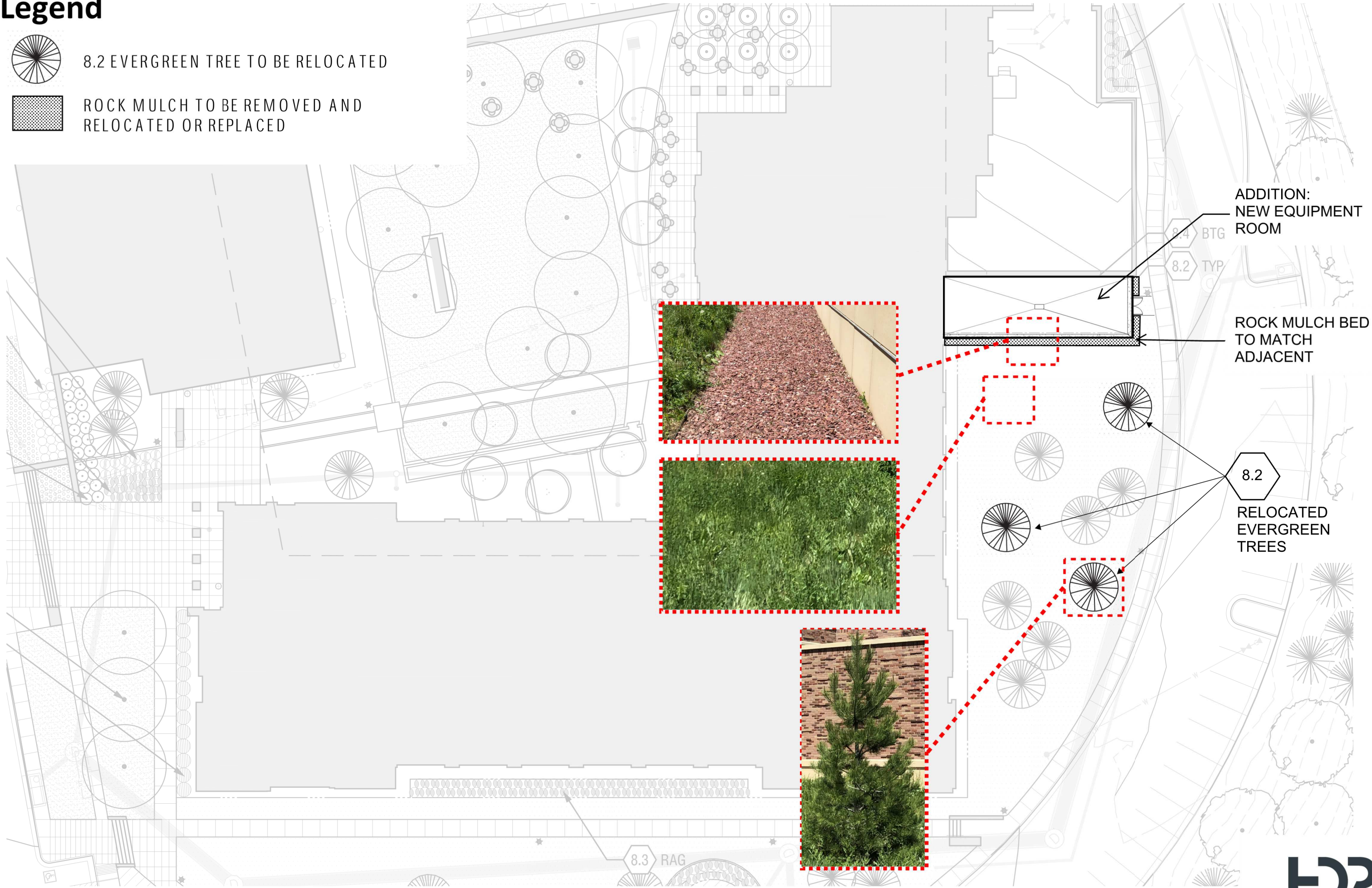


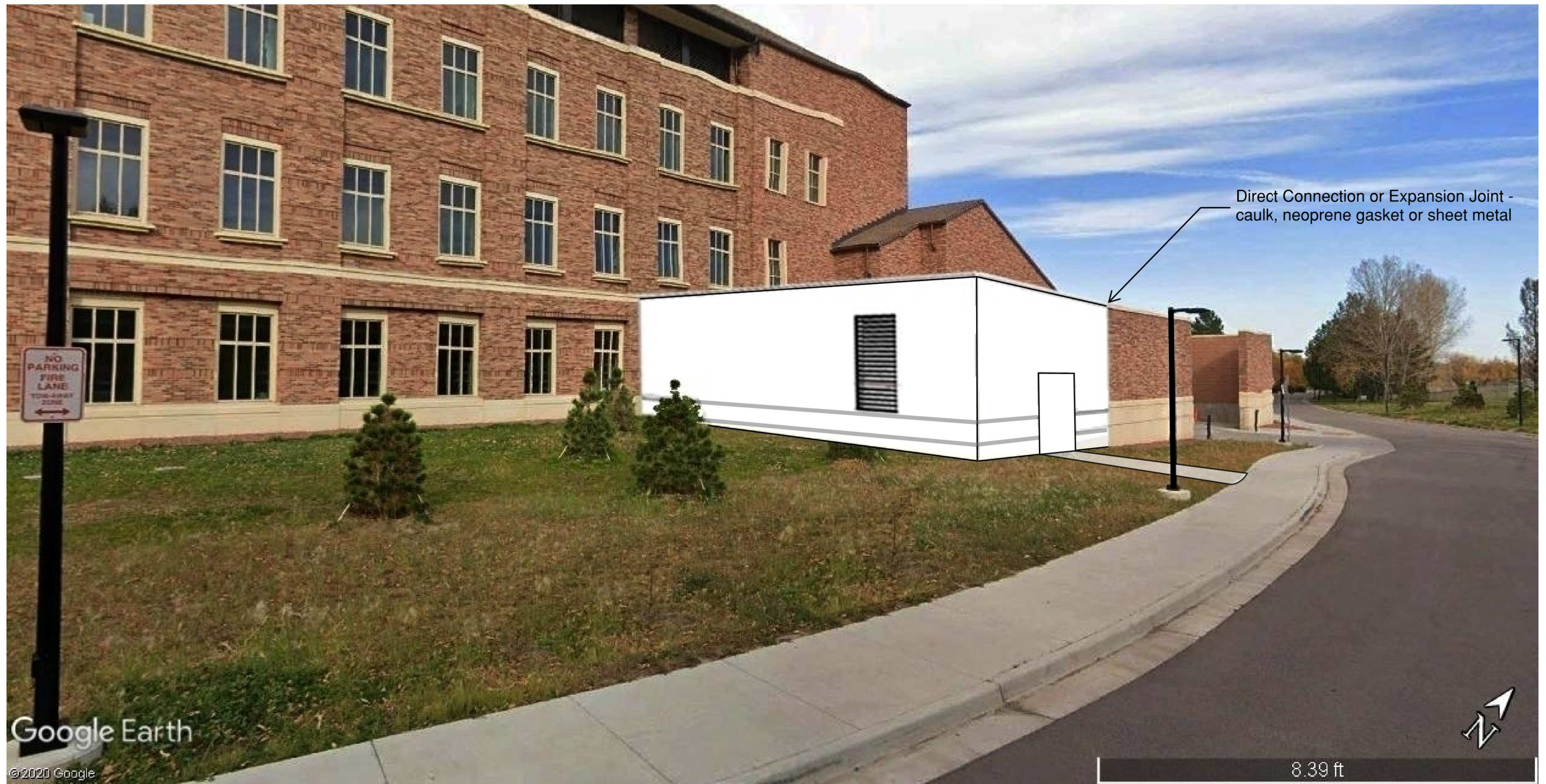
Conceptual Landscape Plan - Demolition



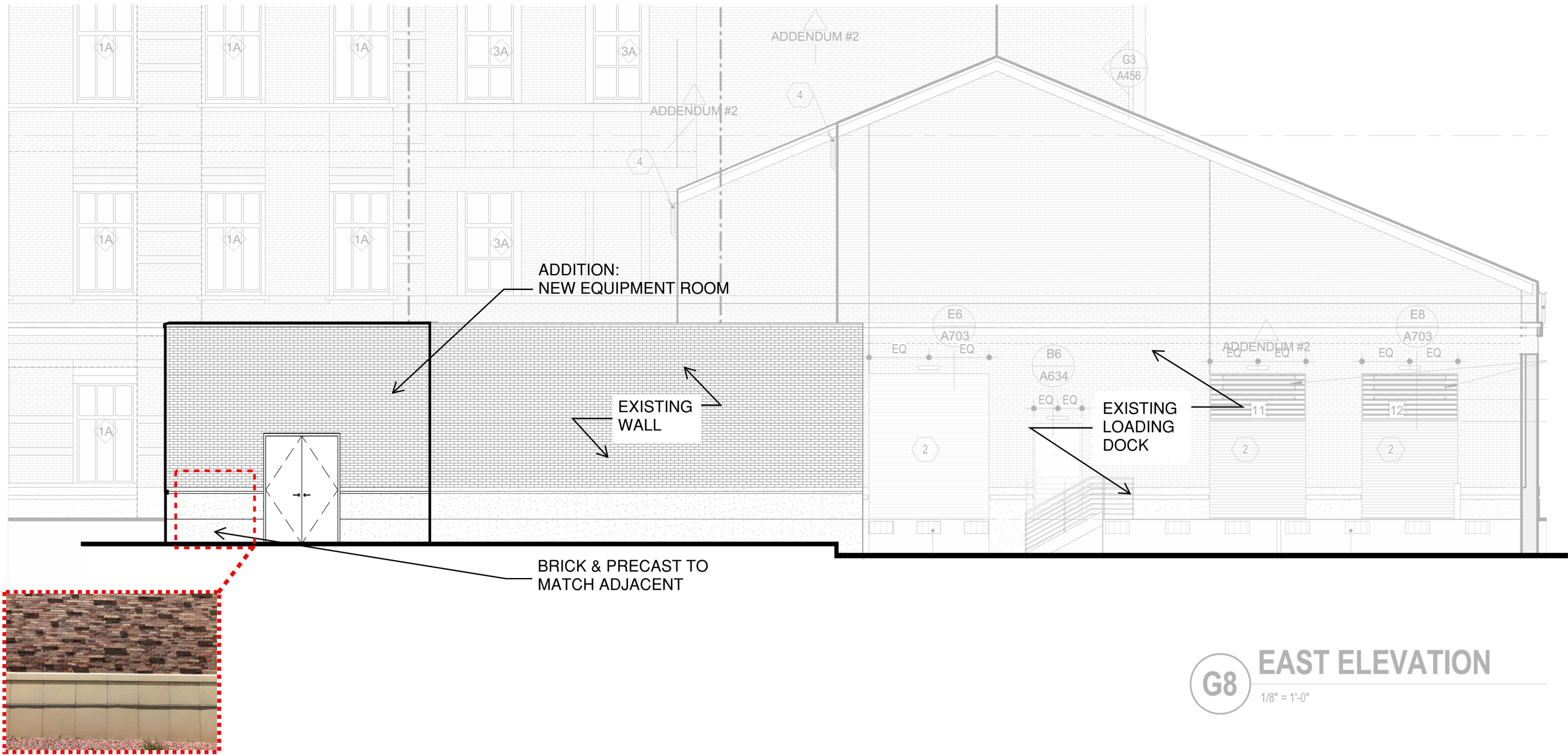
Legend

-  8.2 EVERGREEN TREE TO BE RELOCATED
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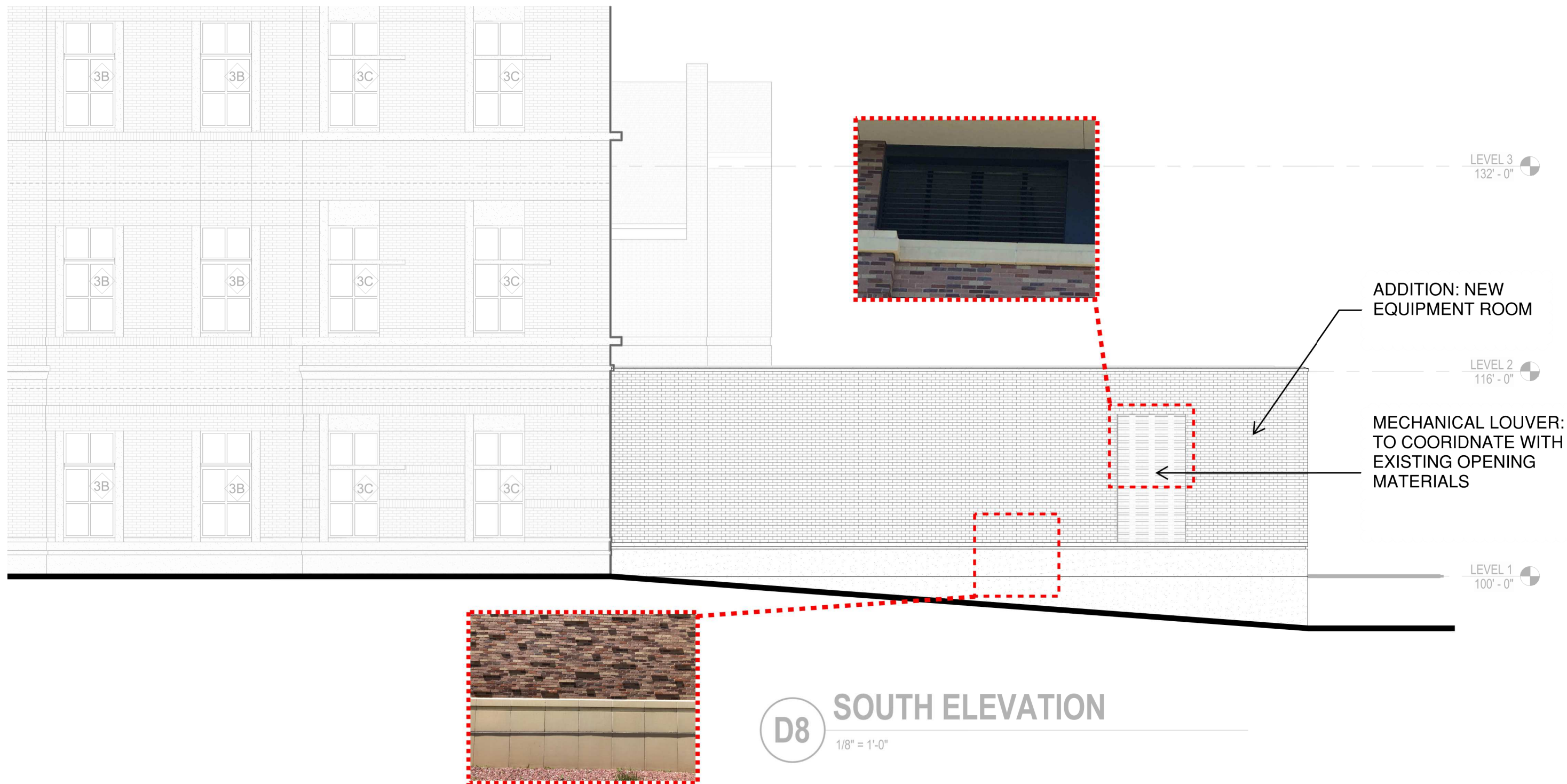
CU and Design Team see two options for the addition: one is to match the look of the loading dock and two is to match the look of the building. The team is proposing to move forward with integrating the addition into the loading dock.



G8 EAST ELEVATION
1/8" = 1'-0"

Conceptual East Elevation





Conceptual South Elevation





OPTION 2: CU and the Design Team proposes an alternate massing of the addition if coplanar to the loading dock is not preferred. Option 2 considers that the East wall of the addition to extend 1 panel width, or approximately 2 feet beyond the East wall of the loading dock.