

# Wide Field Imaging Beamline Plans

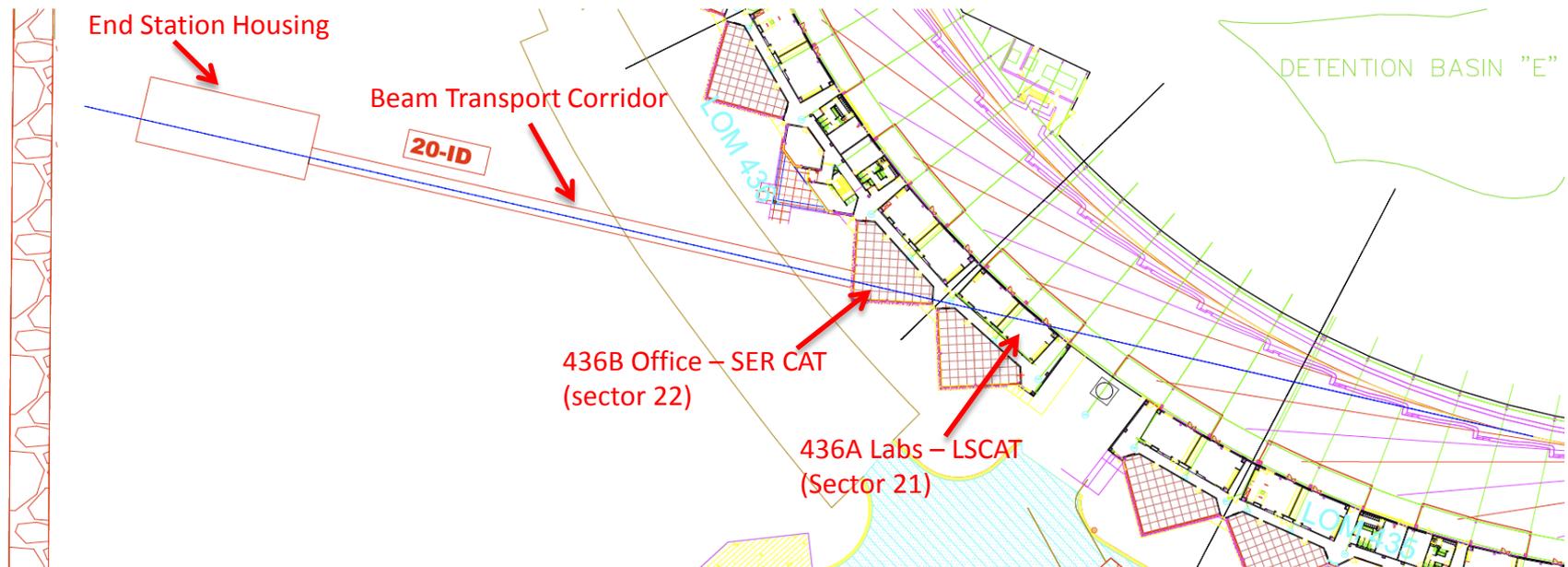


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September 24, 2012

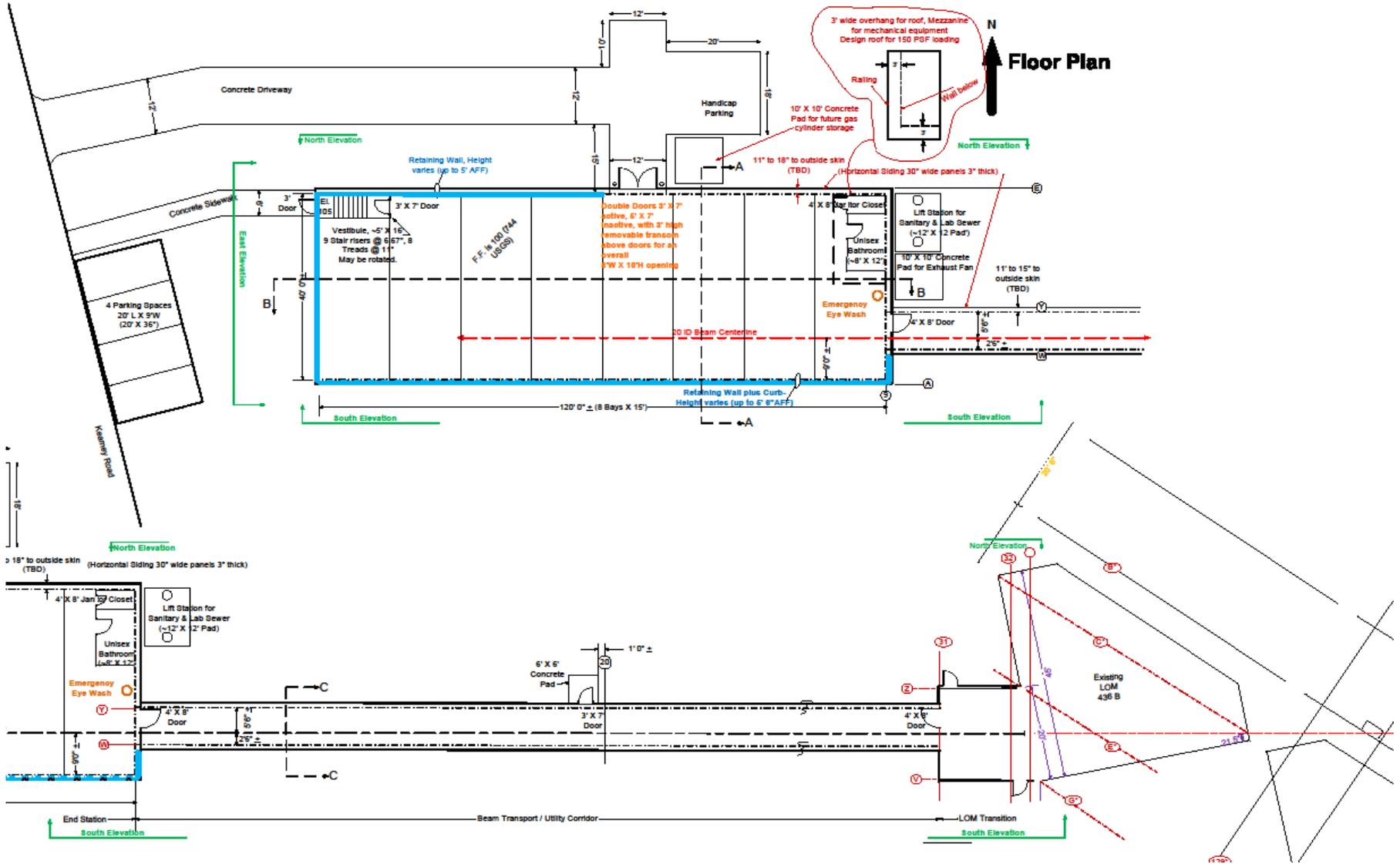
# Wide-Field Imaging Beamline Plans

- A 250-m-long beamline with two end stations in an external building
- Provide a new (~ 4400 sq ft) hi-bay structure to house the end stations for the new beamline and a 100-m-long beam transport utility corridor
- Beamline will go through both labs of 436A LSCAT (currently the two labs are configured as one)
- Beamline will go through one side of 436B SER CAT Office space



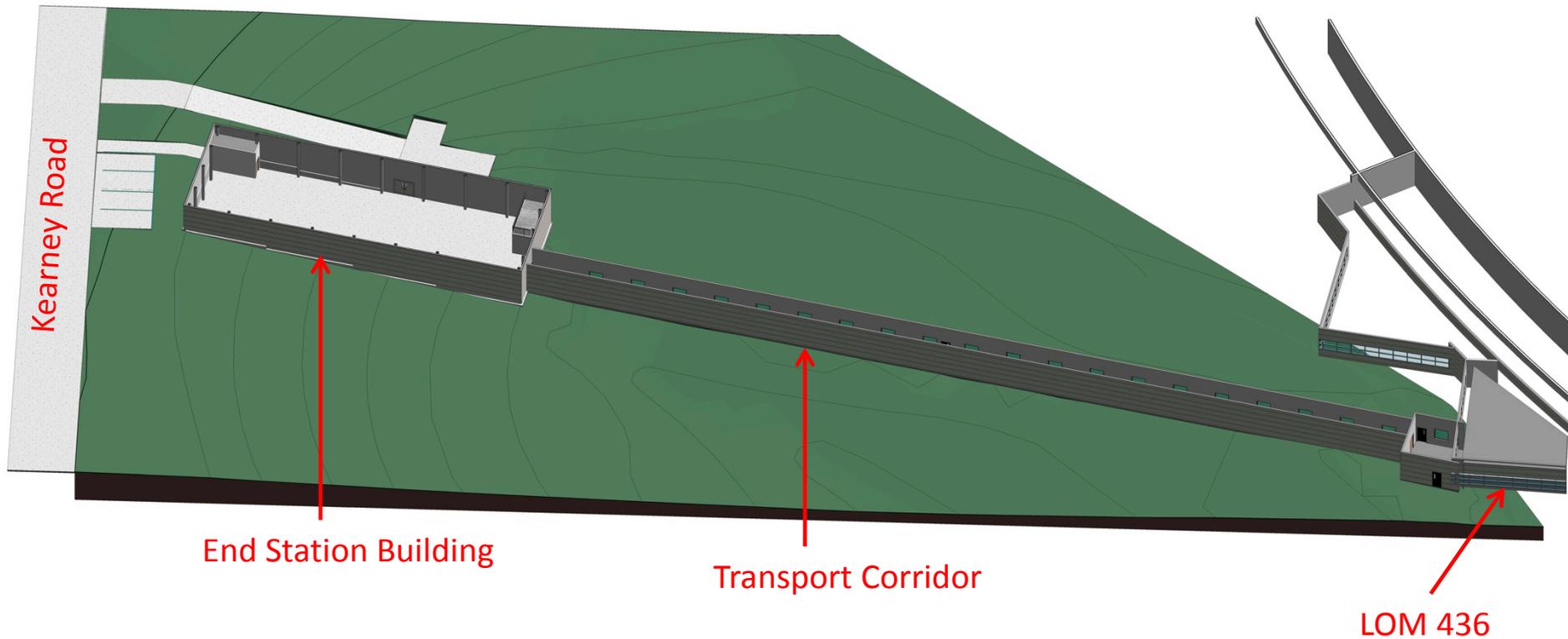
Advanced Photon Source Upgrade (APS-U) project

# Facility Plan



# Architectural Renderings

- Beam Transport from LOM436 to the end station building ( beam travels from right to left)
- End Station building - Kearney road is about 7 feet higher than the base of the building



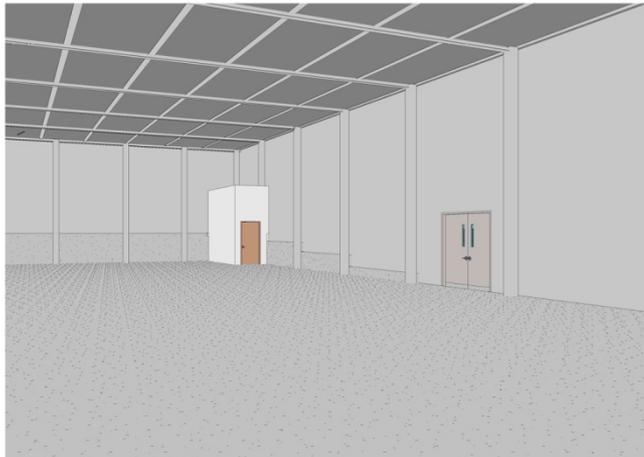
# Architectural Renderings



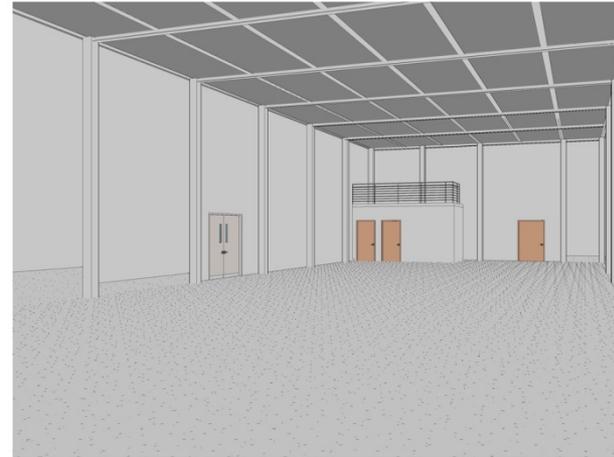
View from Kearney Rd



View from LOM 436



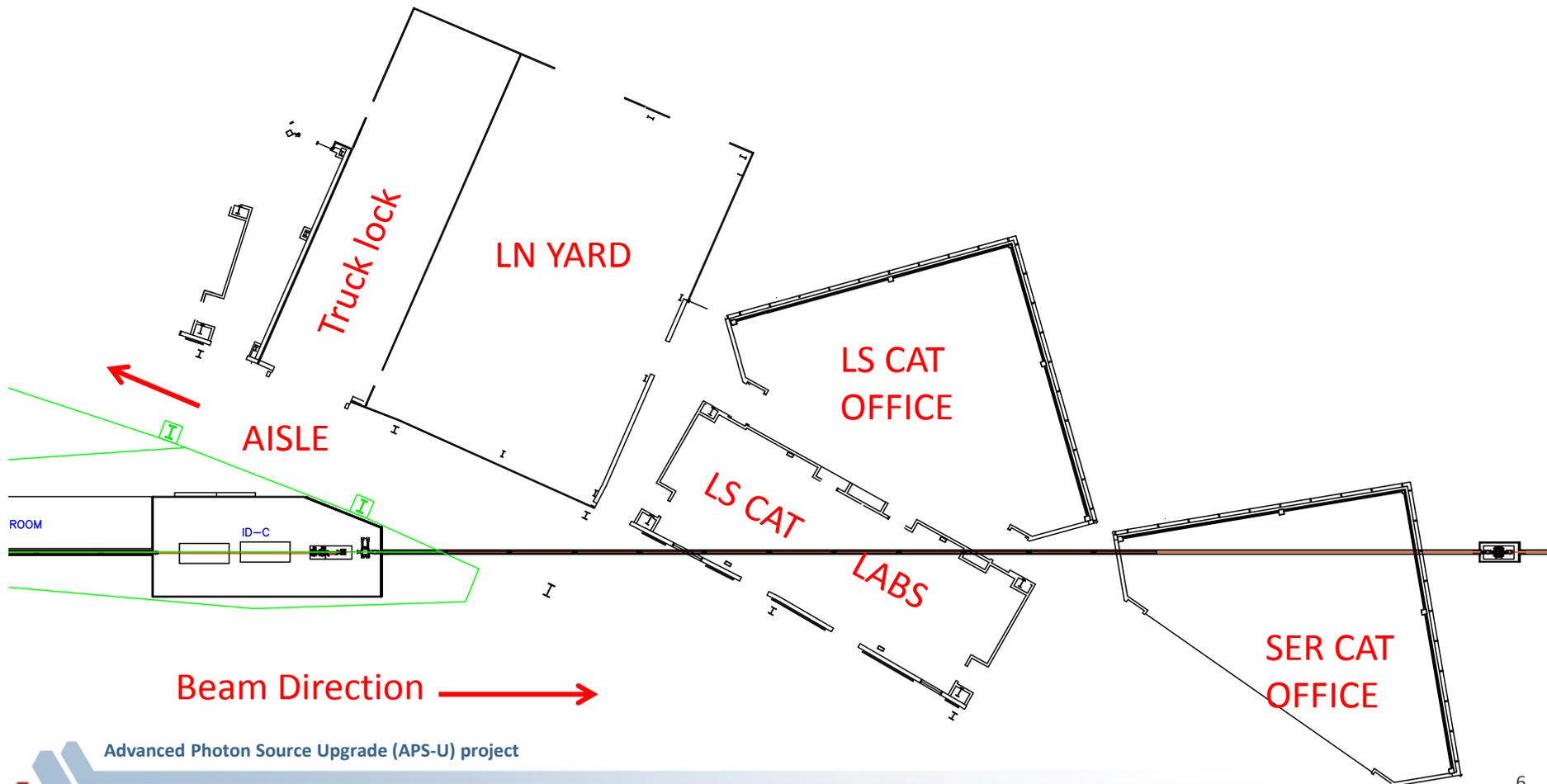
Looking Downstream



Looking Upstream

# Beamline Layout

- Beam transport from 20-ID through LOM436 (beam travels from left to right)
- End Station building - The road is about 7 feet higher than the base of the building



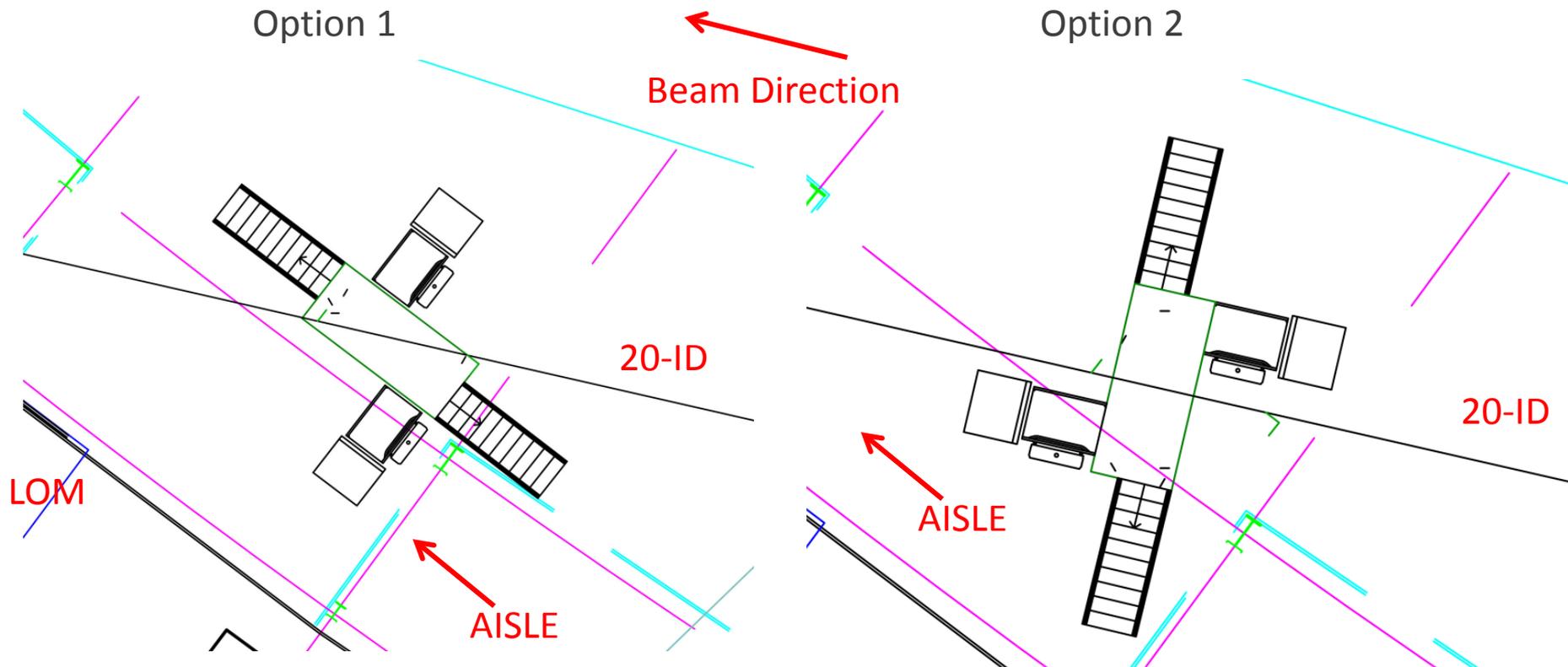
# Impact to Aisle

- Beamline will traverse the APS main aisle at an angle from 20-ID entering LOM 436A laboratory at the door
- Beamline will be a white beam transport at 1400 mm elevation.
  - Transport will likely be a shielded transport.
  - Need to support the beam transport in the aisle way ( 12 m distance)
- No direct impact to truck lock of 435
- Access to truck lock of 435 will be restricted to sector 21 and higher
  - Nearest load lock is located between 437 & 438 (close to sector 27)
  - Provision to have beam transport removable during machine maintenance period
- Access to Liquid Nitrogen fill station will be restricted to beamlines 21ID and above
  - Will provide an additional Liquid Nitrogen fill station on the north side of sector 20 (near sector 22-24 area)
- Will disrupt traffic along the aisle
- **An underpass under the transport was considered not feasible**
- Current plans to provide overpass with stairs and lift on either side of transport
  - Lift capable of moving hardware and wheelchair. (similar to top of SR near bridge)
  - Size will determine whether the overpass will have removable stairs and the final

location



# Aisle Options - Early Concept



Options shown above have not taken the beamline stations under considerations. Work in progress with layout with actual stations - Different approaches being explored based on same concept

# Impact to LOM 436

- Beam transport will go through the main aisle at an angle – leaving sector 20 and entering LOM 346A lab at the door location
- LS CAT (sector 21) laboratories (436A) will be divided into two halves diagonally.
- SER CAT (sector 22) offices (436B) will have a beam transport through one half of the LOM offices
- Discussions with both LS CAT and SER CAT staff
- Initial Proposal - **Not acceptable to both LS CAT and SER CAT**
  - Relocate LS-CAT from 436A to 435 E (sector 20 LOM office-lab space)
  - Relocate SER-CAT Offices from 436B to 436A (Labs remain the same)
  - WFI takes possession of affected space: 436 A Laboratories and 436 B Offices
- Current Proposal
  - LS CAT will stay with beam pipe through their LABs.
    - Have requested some office space on north side (21-ID side) of beam transport
    - Rearrangement of sector boundaries between 20 and 21
  - SER CAT will stay in LOM436B will only half of the offices
    - Would like to convert the cold room into offices
    - Would like to have office enclosures in 22-BM area for few offices

# Path Forward

- Refine the drawings to match the actual layouts
- Complete various layouts for the overpass
- Complete beam transport design through the aisle way and LOM
- Complete plans for liquid nitrogen drop by sector 22-24 area.
- Work with both LS CAT and SER CAT to reach an agreeable plan

