THE NEW
W. EDWARD BALMER SCHOOL
NORTHBRIDGE, MASSACHUSETTS

SCHOOL BUILDING COMMITTEE MEETING

APRIL 24, 2019

SMMA
Project Management

NORTHBRIDGE PUBLIC SCHOOLS

Massachusetts School Building Authority
Funding Affordable, Sustainable, and Efficient Schools in Partnership with Local Communities

FONTAINE BROS., INC.
CONSTRUCTION MANAGERS
GENERAL CONTRACTORS

D&W
DORE & WHITTIER
ARCHITECTS, INC.

AGENDA

- CD Progress Report
- Prior Meeting Minutes Action Items
- Follow up to Owner's Comments
- Value Engineering Items
- Proprietary Materials

CD PROGRESS REPORT

4/3	Submit Conservation Committee permit package
4/5	Submit DD document package to MSBA
4/8	**Construction Documents (CD) Phase begins**
4/9	Submit Planning permit package
4/10	Working Group - Technology Meeting
4/10	Mechanical Systems & Controls Meeting
4/11	CD Phase Consultant Kickoff/ LEED Status meeting
4/15-19	Internal coordination, consultant coordination, Drawing & Specification progress.
4/19	Coordination call with Fontaine – site phasing & logistics
4/23	Planning Board meeting
4/25	Safety Committee meeting

OUTSTANDING MINUTES ITEMS

40.12 T.

Hengelsberg to refine the sidewalk layouts for a future Committee meeting.

South plan sidewalks highlighted

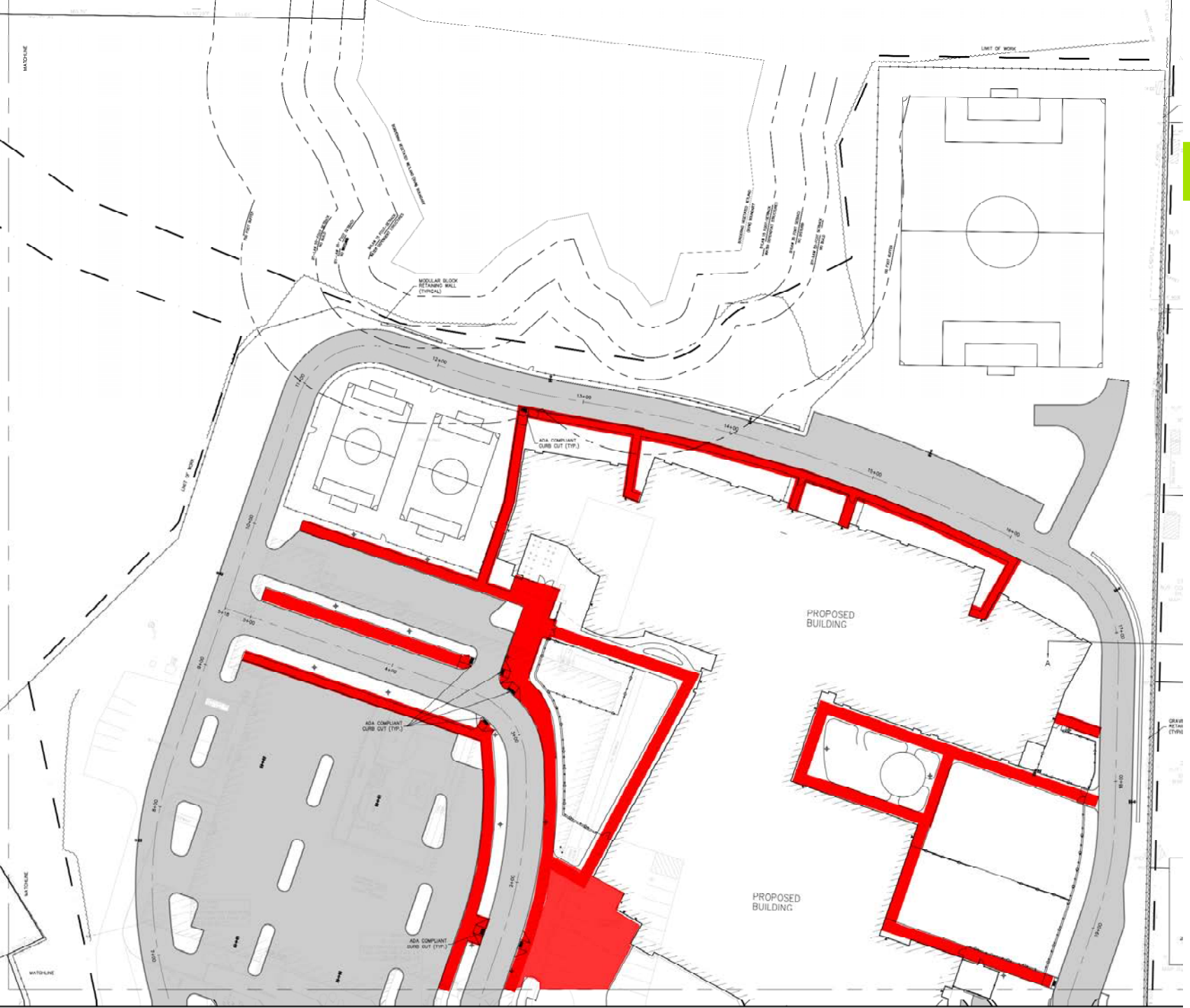
(VE L02) Vail Field walks are bituminous

OUTSTANDING MINUTES ITEMS

40.12 T.

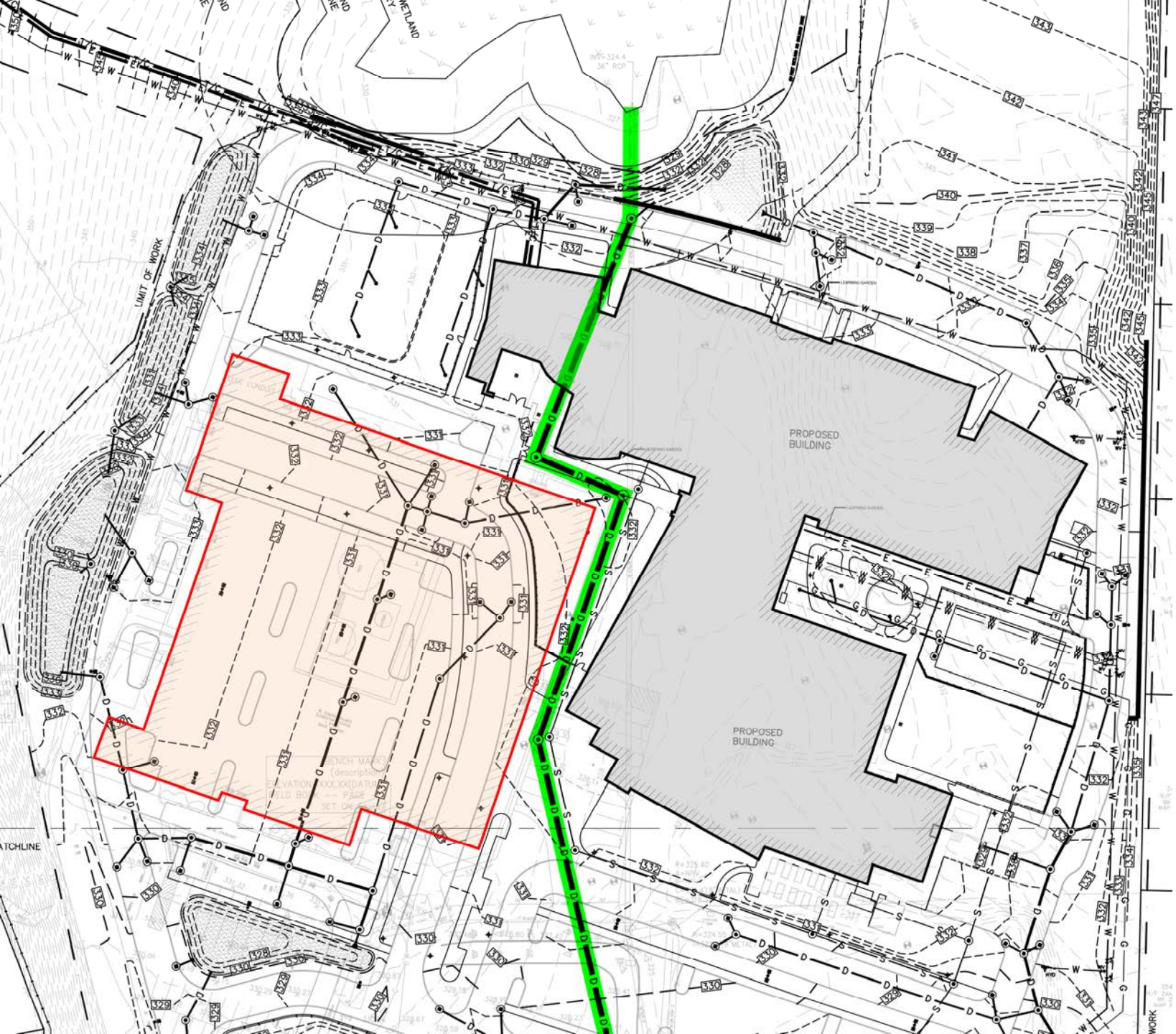
Hengelsberg to refine the sidewalk layouts for a future Committee meeting.

North plan sidewalks highlighted



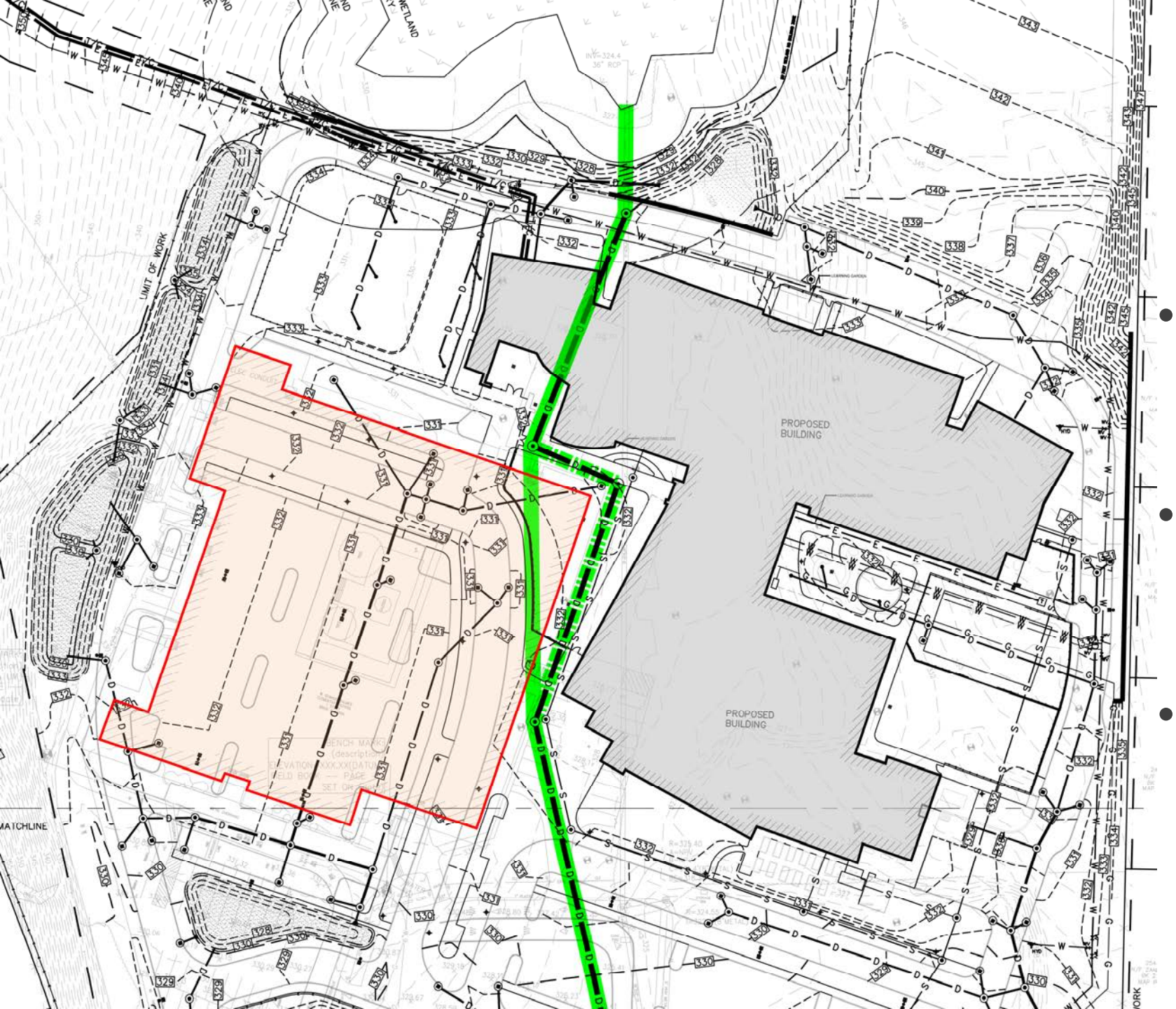
OUTSTANDING MINUTES ITEMS

40.13 T. Hengelsberg to provide options to the routing of the 36 inch storm line for review, such as reducing the depth of the line, installing a temporary line until Phase 2, routing around the building, use of concrete piping.



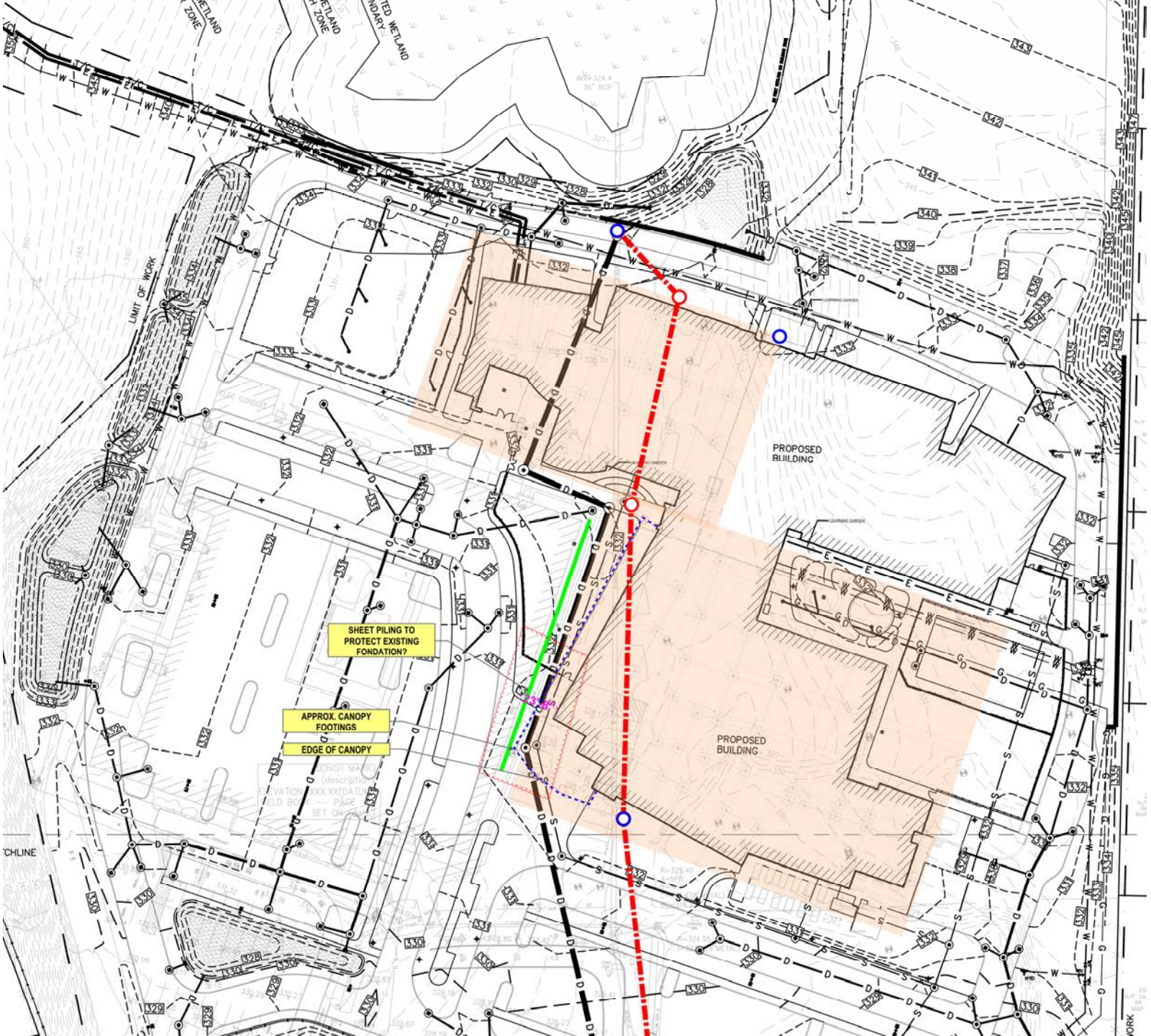
36” STORM DRAIN LINE – SD DESIGN OPTION 1

- Pipe shown as sketch to convey idea
- Rejected due to proximity and depth of excavation right next to existing building; would require shoring.
- Conflicts with new building foundations



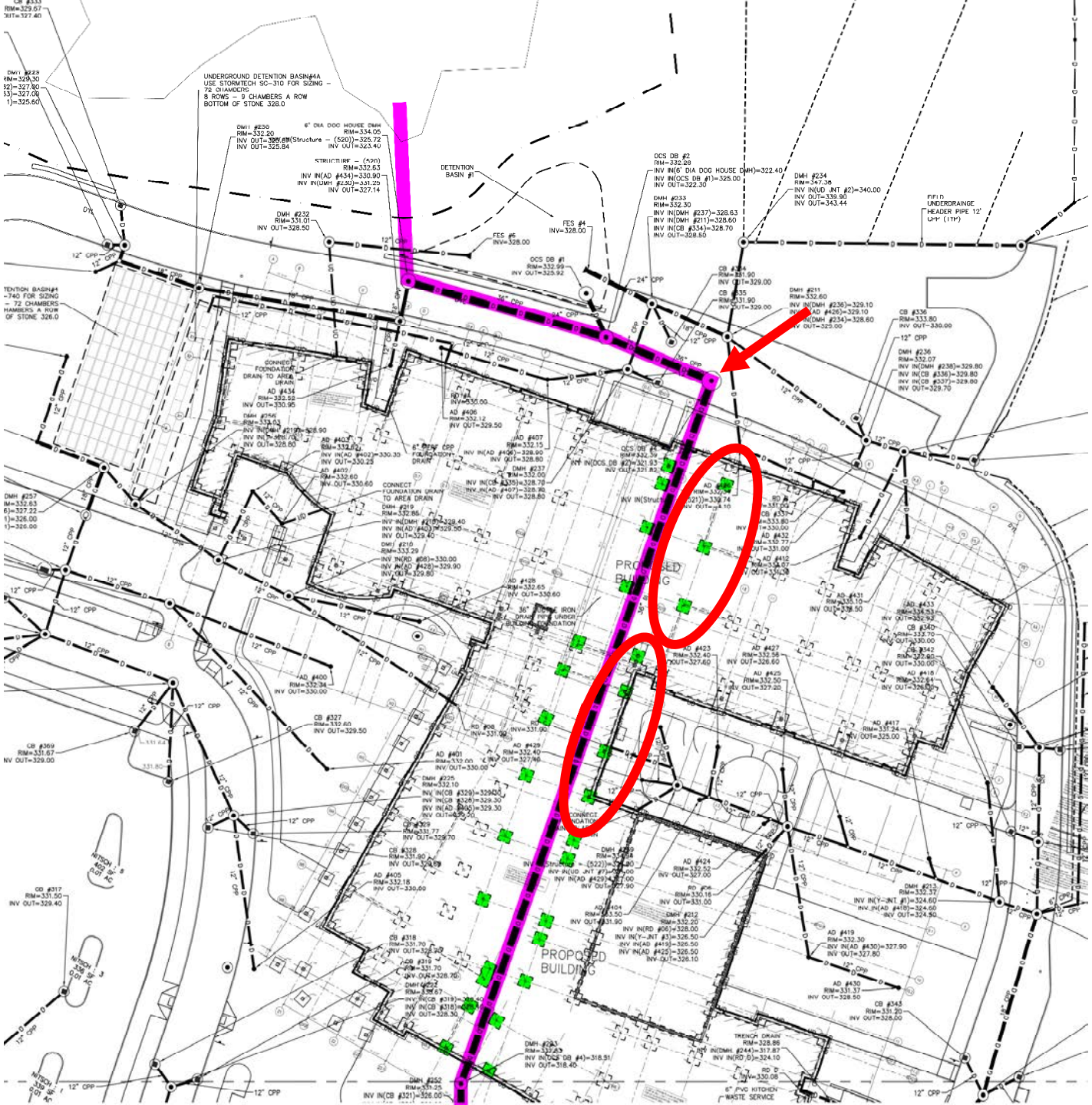
36” STORM DRAIN LINE – SD DESIGN OPTION 1A

- Step 1 - temporary drain during construction (dashed line)
- Step 2 - Install permanent drain when existing building demo’ed
- Sequence and depth of excavation did not work with summer schedule for bus lane going on-line for Fall 2021



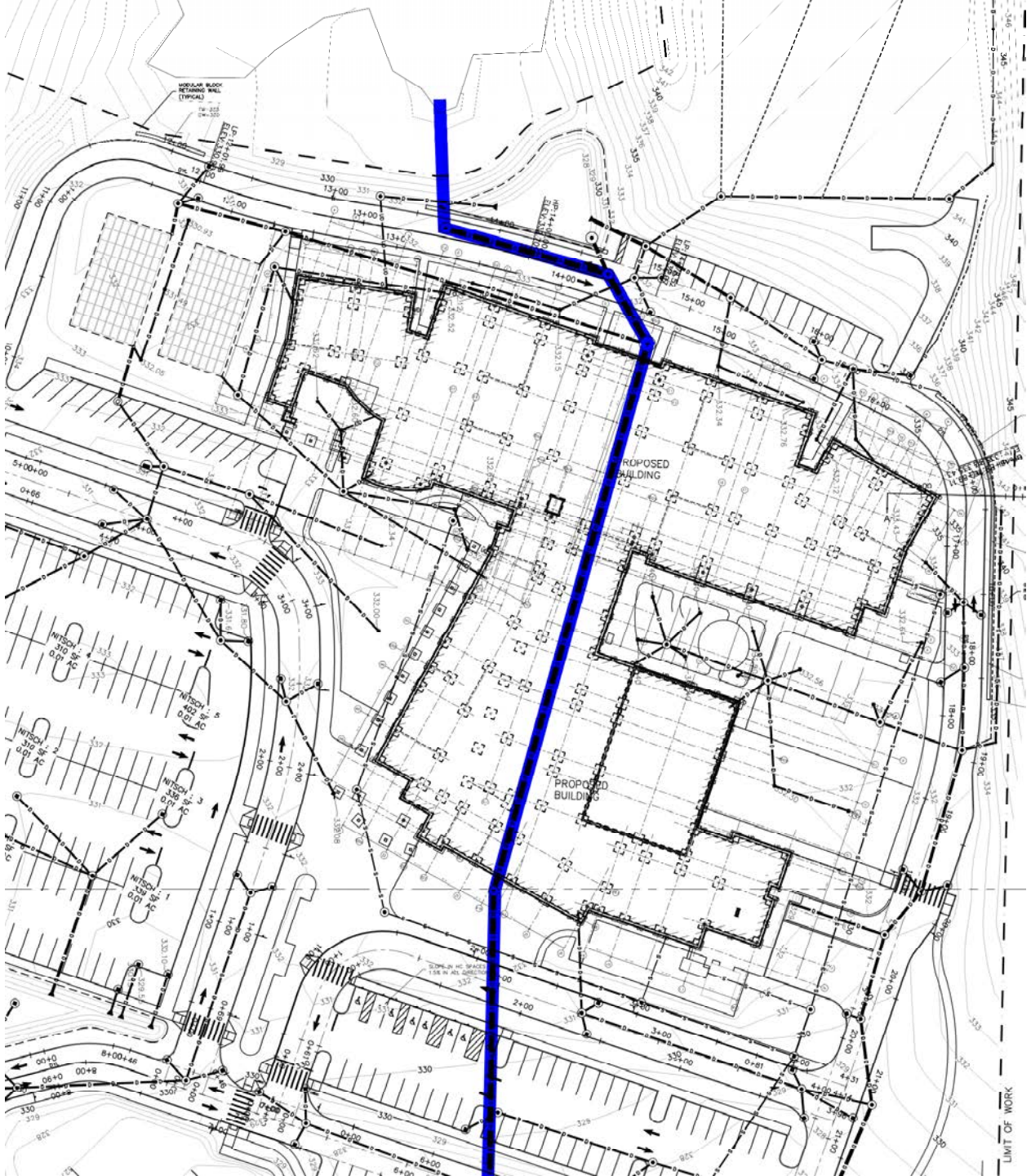
36” STORM DRAIN LINE – DD DESIGN OPTION 2

- Two-run drain pipe under A-Wing then C-Wing
- Rejected due to diagonal alignment to building geometry creating too much interference with foundations
- Also more beneficial for construction to be further away from the existing building



36” STORM DRAIN LINE – DD DESIGN OPTION 4

- Single-run drain pipe down the middle of the building
- Aligned normal to building geometry, however…
- A greater number of areas of interference with foundations, causes more footings to be deeper
- Pipe located further into hillside – slightly deeper excavation
- Right angle bend in line not ideal



36” STORM DRAIN LINE – DD DESIGN OPTION 3

- Single-run drain pipe down the middle of the building
- Line of best fit, aligned well to building geometry with least amount of interference with foundations
- Beneficial for construction to be further away from the existing building
- **PREFERRED ALTERNATIVE**

COST COMPARISON OF THREE MAJOR OPTIONS

W.E. BALMER ELEMENTARY SCHOOL
DESIGN DEVELOPMENT BUDGET WORKSHEET 36'' DRAIN ROM LAYOUT OPTIONS

Item	Drawing	Date	Design Phase	Item - Description	ROM Est	Variance +-	Remarks/ Comments
1	C5.02	3/13/2018	SD Design	36'' Drain SD Phase Configuration - Between Existing & Proposed/New Building	$499,310	$312,410	**Adjacent to existing occupied School. Requires additional piping and costly/earth support/underpinning. See Cost Details Tab** - Includes Plan View Screen Shots/Final Quantities - Concrete upon final design requirements. ****Expectation is for grade beams to span over pipe and footings to be designed at **optimum elevation to alleviate any **unnecessary requirement for over excavation.**
2	C5.00 / C5.02	2/22/2019	DD Base Design	36'' Drain DD Phase Configuration - Through Building At Angle	$186,900	$ -	**Least impactful option. See Cost Details Tab** - Includes Plan View Screen Shots/Final Quantities - Concrete upon final design requirements. ****Expectation is for grade beams to span over pipe and footings to be designed at **optimum elevation to alleviate any **unnecessary requirement for over excavation.**
3	C5.05	4/5/2019	DD Design Option 1	36'' Drain DD Phase Configuration - Through Building Running Parallel And Shifted Easterly Towards H.5 Foundation Wall Line	$214,730	$27,830	**Due to alignment shifted eastly and parallel to H.5 line greater impact on foundation cost +. See Cost Details Tab** - Includes Plan View Screen Shots/Final Quantities - Concrete upon final design requirements. ****Expectation is for grade beams to span over pipe and footings to be designed at **optimum elevation to alleviate any **unnecessary requirement for over excavation.**

SD OPTION 1 - $499,310

→ DD OPTION 3 - $186,900

DD OPTION 4 - $214,730

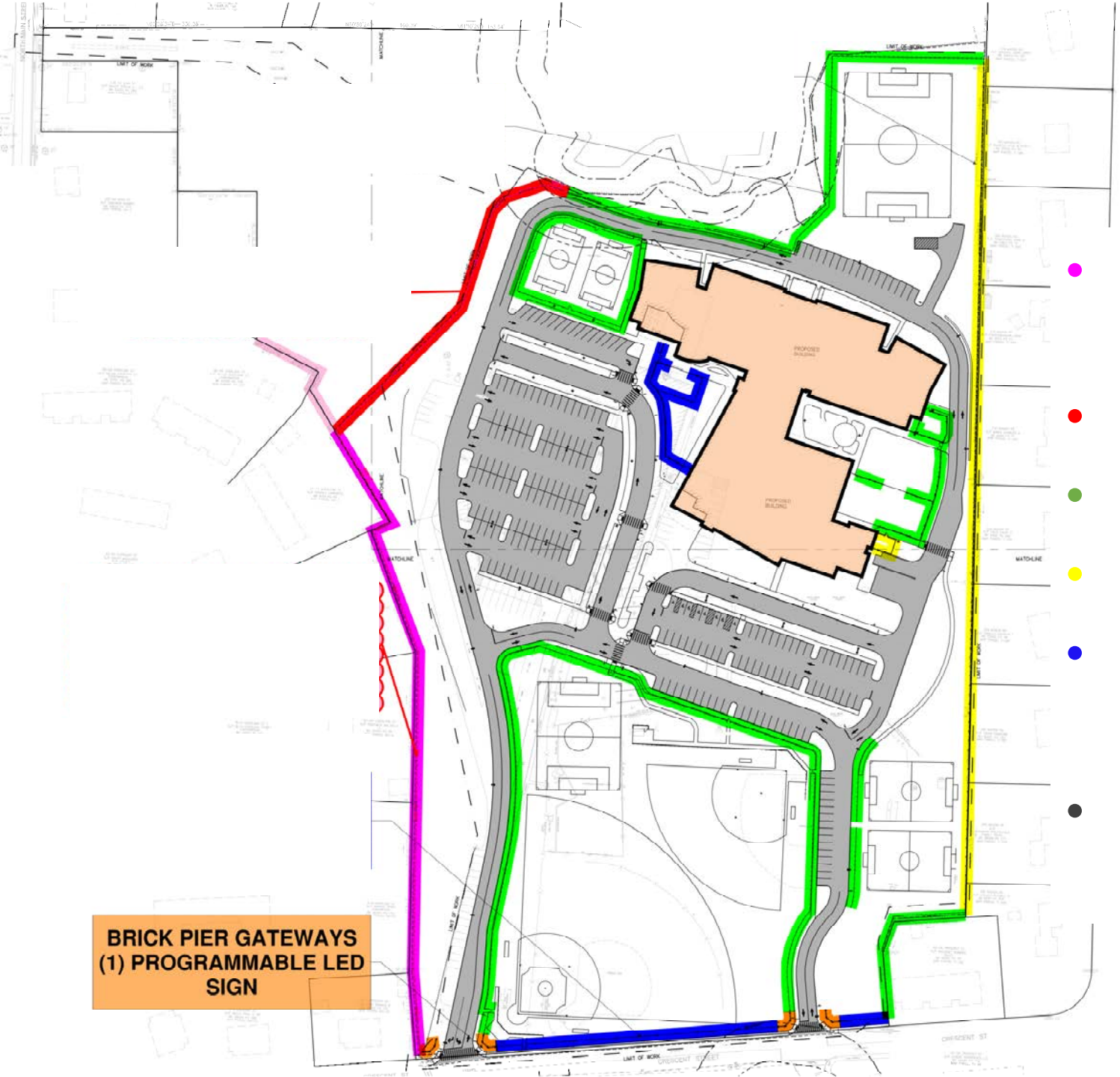
OUTSTANDING MINUTES ITEMS

40.17 T. Hengelsberg to review if the 2-hour fire wall and horizontal sliding doors can be eliminated if fire proofing was added to the Wing A-B and Wing C structure, in addition to the areas around the egress stairs [already in the project].

In SD phase (3/20/18), project cost estimator PM&C provided an analysis that deleted the fire wall and Won-Doors and added spray-applied fireproofing to the entire building to raise the Construction Type from IIB to IIA.

This option would cost approximately $259,000 more.

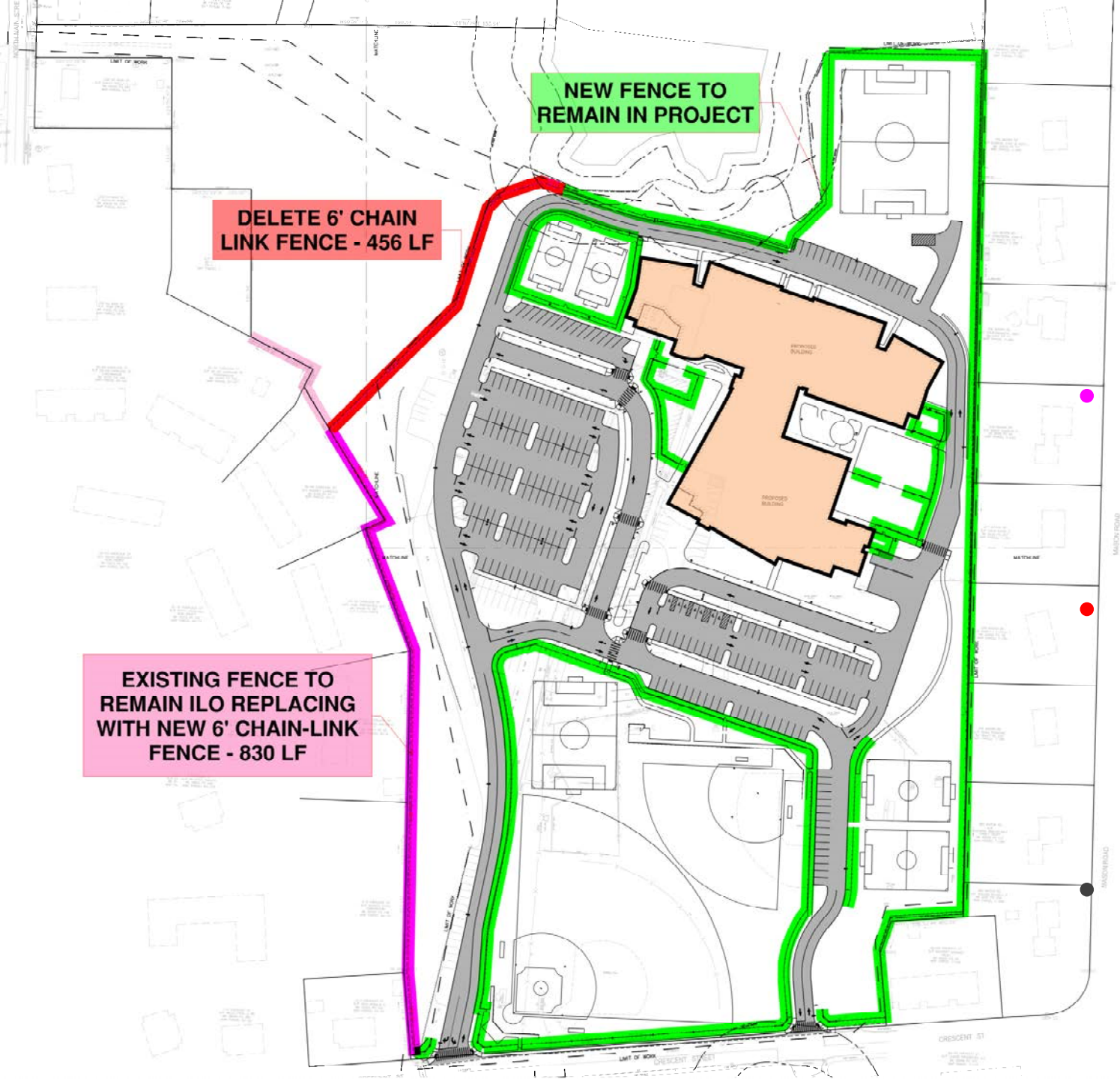
CURRENT FENCE PLANS



- Replace existing 8’ chain link fence with new 6’ chain link fence
- New 6’ chain link fence
- New 4’ chain link fence
- New 6’ wood stockade fence
- New 4’ ornamental metal fence

- All chain link fence proposed to be black PVC

VE UPDATE: ITEM # L03 CHAIN LINK FENCE

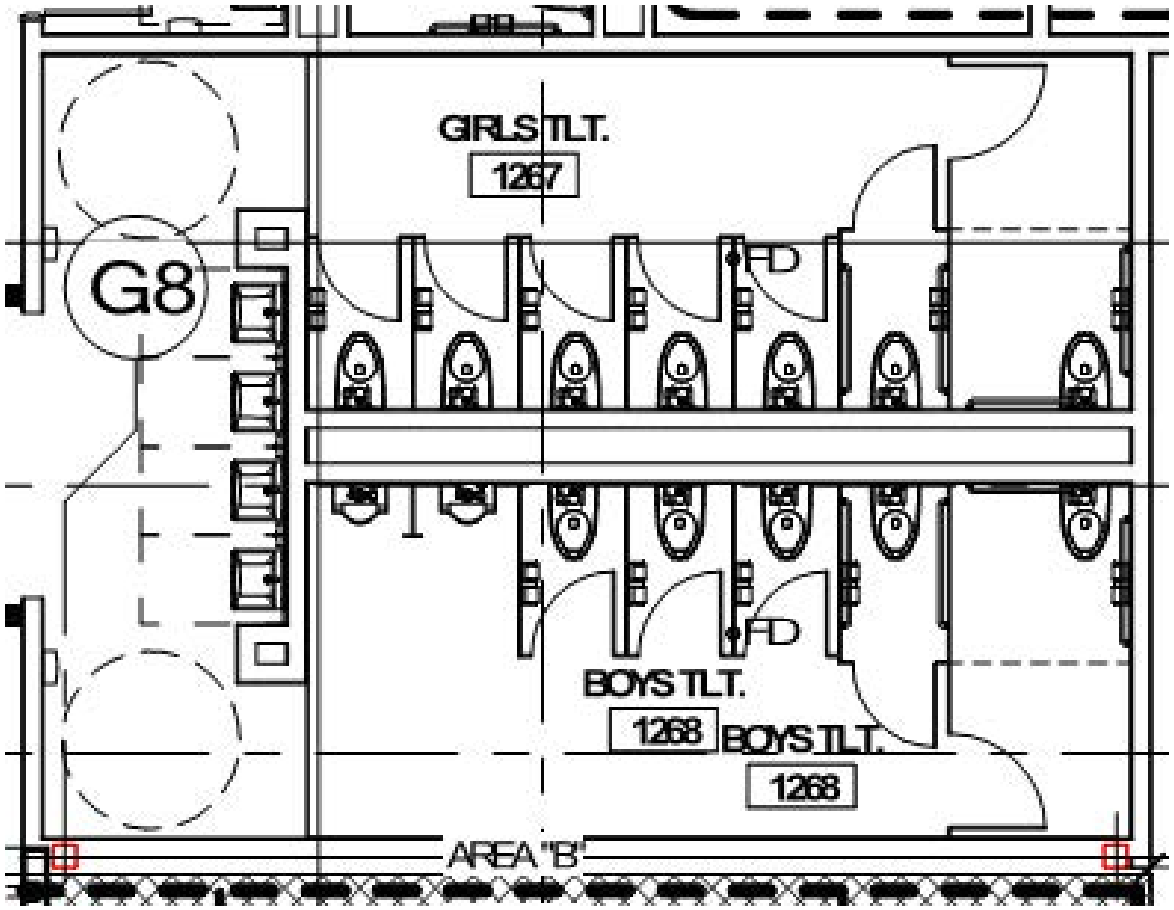


- **West property line – existing 8' chain link fence to remain; repair any broken sections**
- **Delete segment of new fence that connects the west property line to the NW corner near wetland**
- Rest of the project fencing intact

Option 1: Deduct ($83,590)

FOLLOW-UP TO OWNER'S COMMENTS

#2 & 39 - TOILET ROOM PLAN – LAYOUT WITH ENTRANCE SPLIT

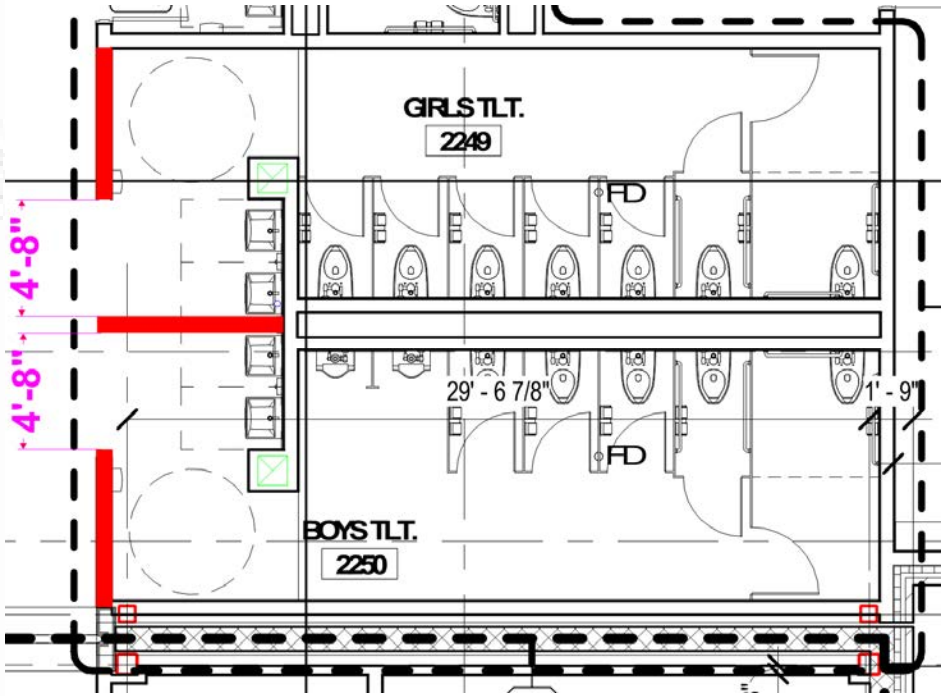


FOLLOW-UP TO OWNER'S COMMENTS

#2 & 39 - TOILET ROOM PLAN – LAYOUT WITH ENTRANCE SPLIT

An assessment guide for school restrooms put together by the National Clearinghouse for Educational Facilities identifies these design features as characteristics that improve the safety and security of restrooms and address health concerns associated with hand washing. The document summarizes that sinks and hand dryers should be installed in publicly exposed areas to deter vandalism and encourage hand washing. Installing sinks within view of the corridor reduces the amount of time students are away from supervision. This increased supervision also reduces behavior issues such as harassment and bullying. The National Center for Education Statistics Indicators of School Crime and Safety: 2012 noted 11% of students who reported being bullied at school in 2011 said the incident occurred in a bathroom or locker room. The visual and auditory supervision provided by the proposed design will reduce the likelihood of these behaviors occurring at this age level and promote respectful behavior among students.

SBC requested divider partition at sinks (illustration)

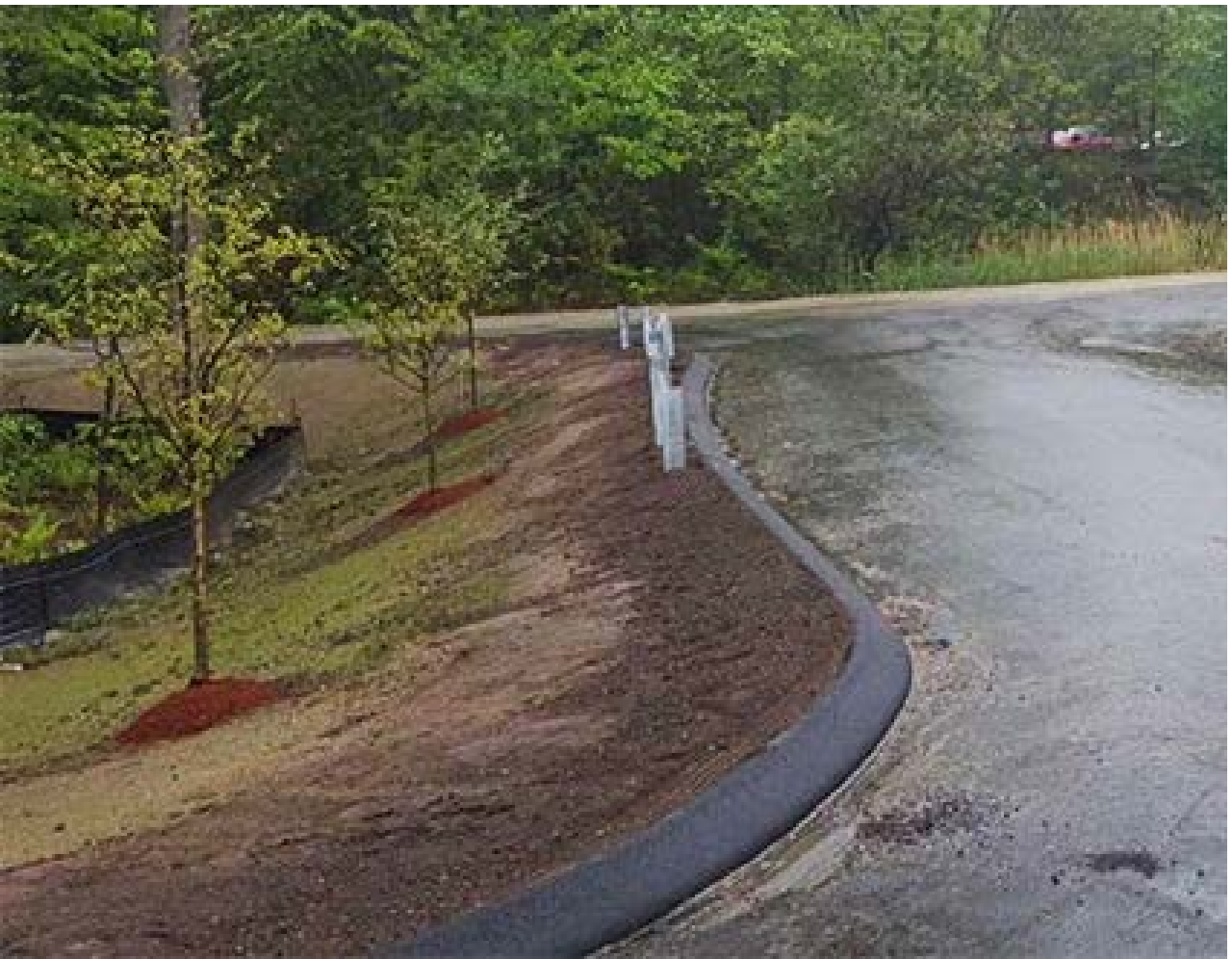


Design Team Recommendation: Keep as designed.

FOLLOW-UP TO OWNER'S COMMENTS

#33 - D&W Proposal: replace cape cod berm with sloped granite.

ADD $36,006



FOLLOW-UP TO OWNER'S COMMENTS

#19 - WON-DOOR Horizontal-Acting Fire Door – additional code information

- Complying horizontal sliding fire doors may be used in place of side-hinged swing doors in a Means of Egress (in other than Group H occupancies).
- The Won-Door FireGuard fire door meets all performance criteria for horizontal sliding fire doors when used in a Means of Egress as set forth in the IBC, NFPA 101 Life Safety Code and NFPA 80, Chapter 9.
- *2018 IBC: 1010.1.4.3 Special purpose horizontal sliding, accordion or folding doors*
- *2018 NFPA 101 Life Safety Code: 7.2.1.14 Special-Purpose Horizontally Sliding Accordion or Folding Door Assemblies*
- *2019 NFPA 80: Chapter 9, Special-Purpose Horizontally Sliding Accordion or Folding Doors*

FOLLOW-UP TO OWNER'S COMMENTS

#19 - WON-DOOR Horizontal-Acting Fire Door – operation information

- The door assembly operates on a 12 volt DC system which includes batteries, a transformer and a microprocessor.
- A 120 volt line connected to a junction box in the storage pocket continually charges the batteries at 13.8 volts.
- Upon activation of a building alarm, the door will close automatically. The speed is typically 10 inches per second.
- Concurrent with the building alarm will be the activation of the horn, an audible signal sounding a steady tone indicating that the system is in the "Fire Mode." It will remain in this condition until the system is physically reset.

FOLLOW-UP TO OWNER'S COMMENTS

#19 - WON-DOOR Horizontal-Acting Fire Door – operation information

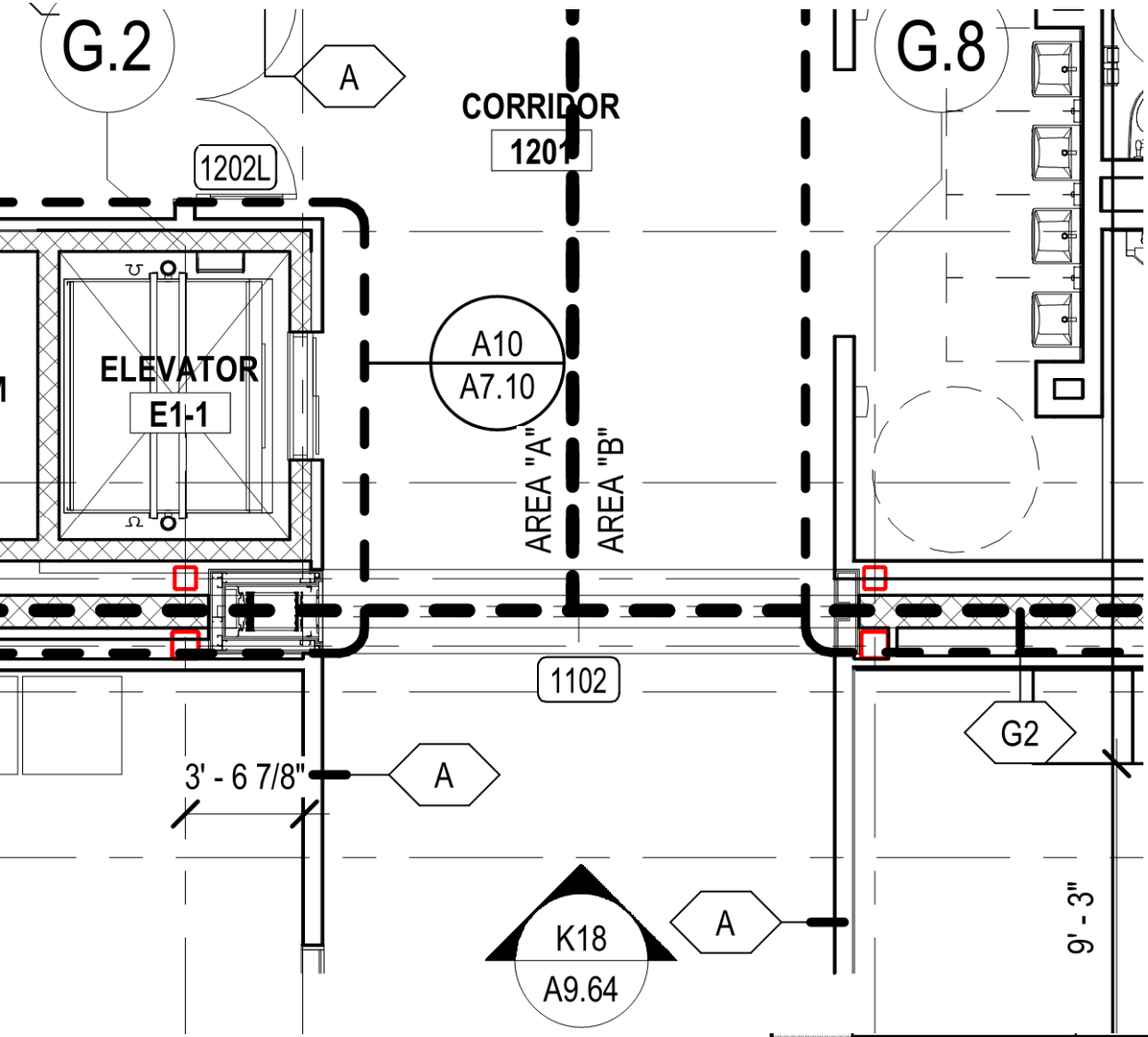
- The leading edge of the door is equipped with a sensor. Upon encountering an obstruction the door will stop, pause momentarily, then continue closing.
- Once the door is in the fully closed position it can be reopened by:
  - pressing the Close/Clear rocker switch which will engage the motor and open the partition. This switch is located on one side near the leading edge of the door assembly.
  - depressing the exit hardware pressure plate will cause the door to retract.
  - operating it manually by physically pushing the door back to create an opening. This method can be used if there is a complete loss of power.

FOLLOW-UP TO OWNER'S COMMENTS

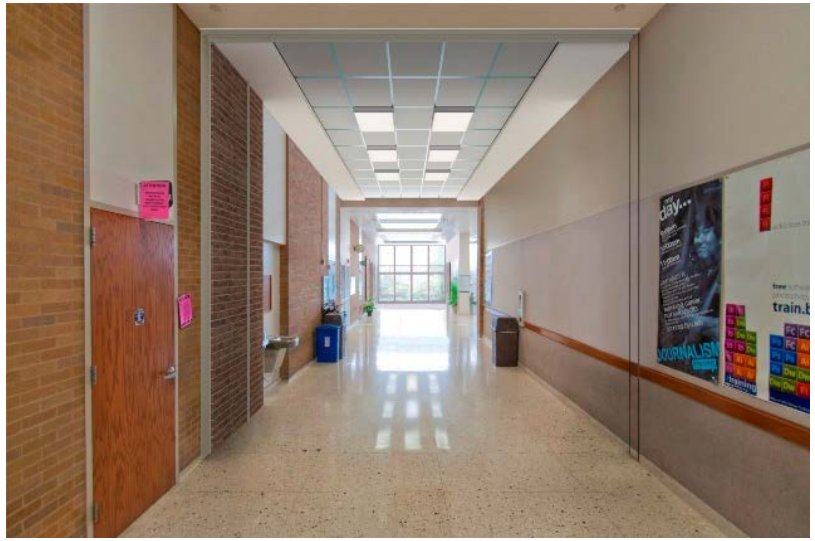
#19 - WON-DOOR Horizontal-Acting Fire Door – operation information

- It is recommended that the Won-Door FireGuard assembly be routinely operated at least quarterly. This can be done without setting the building into an alarm condition by using the rocker switch.
- The door is designed, and can be optionally installed, so that it will close upon power loss in the building. If this occurs, the door can be reset into the pocket by pressing the rocker switch to the door open position after the power has been restored.
- Alarm activation will be the major reason that resetting the door will be necessary. Assuming that the condition which initiated the alarm has been cleared, resetting the system is accomplished by operating the rocker switch.

VE LIST: A04-ITEM 19 AS DESIGNED



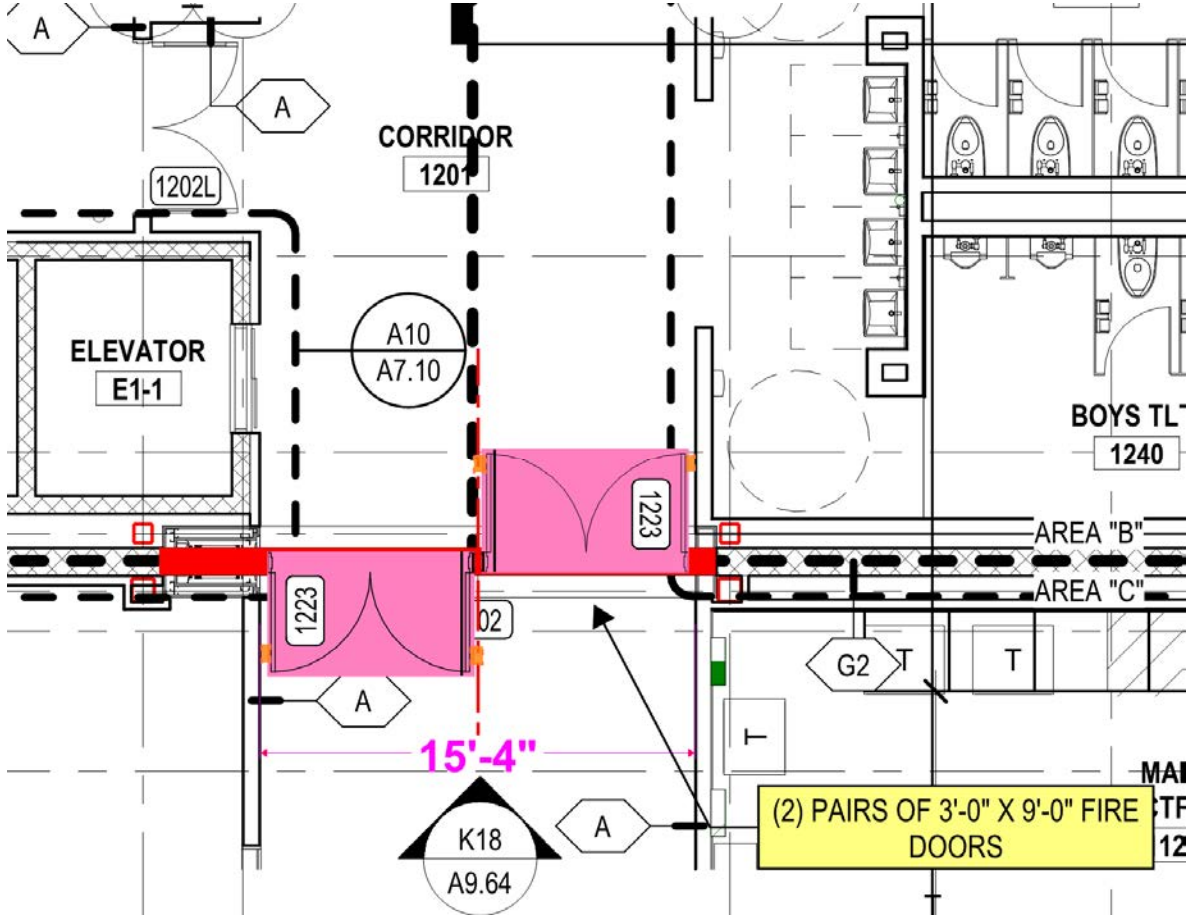
Double egress fire doors in open position



Won-Door open position

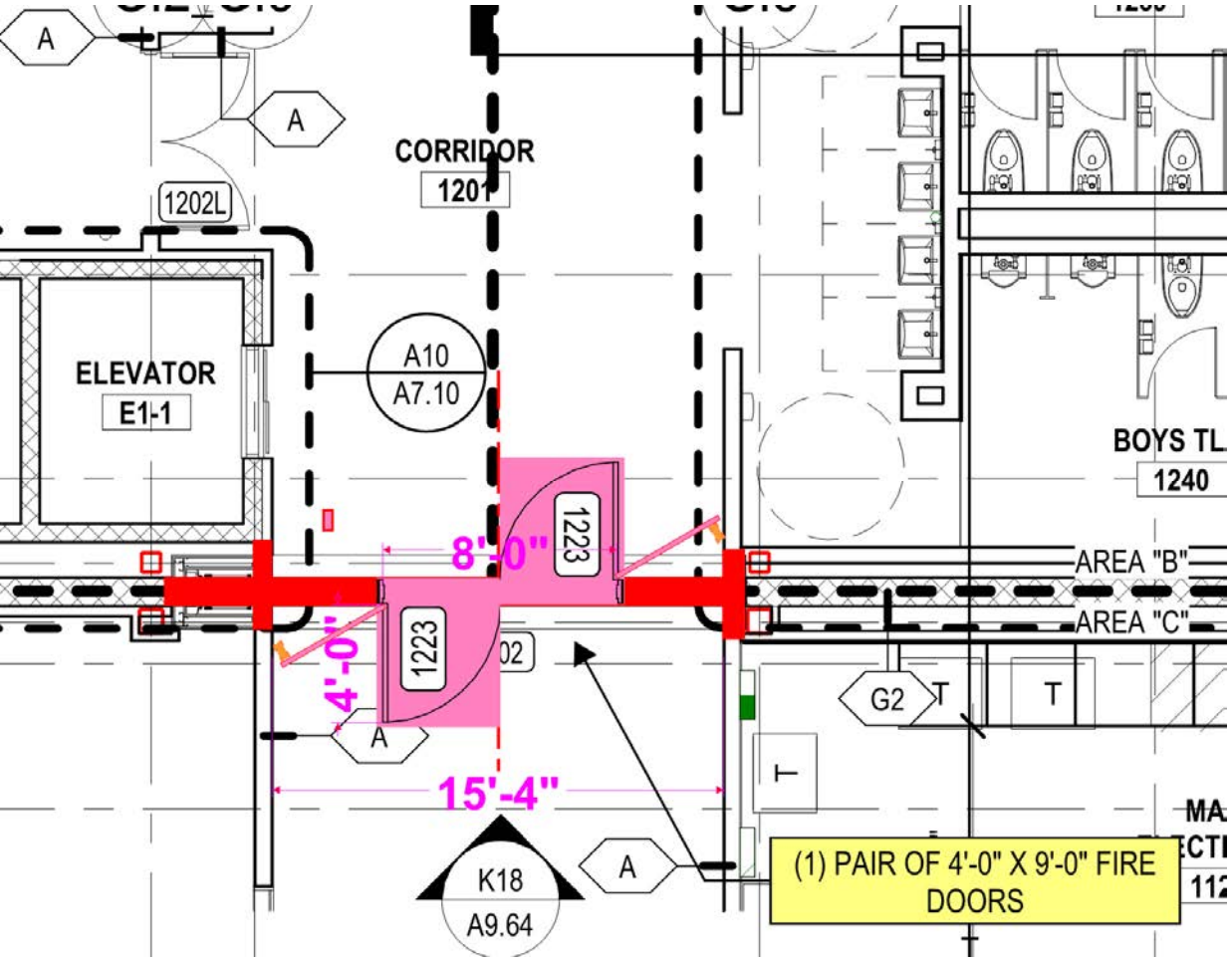
A04	Item 19	Provide swinging full-height fire doors [(2) pairs @ 4' w x 9' tall] ILO "Won-Door" sliding fire door (3 levels)	($66,932)

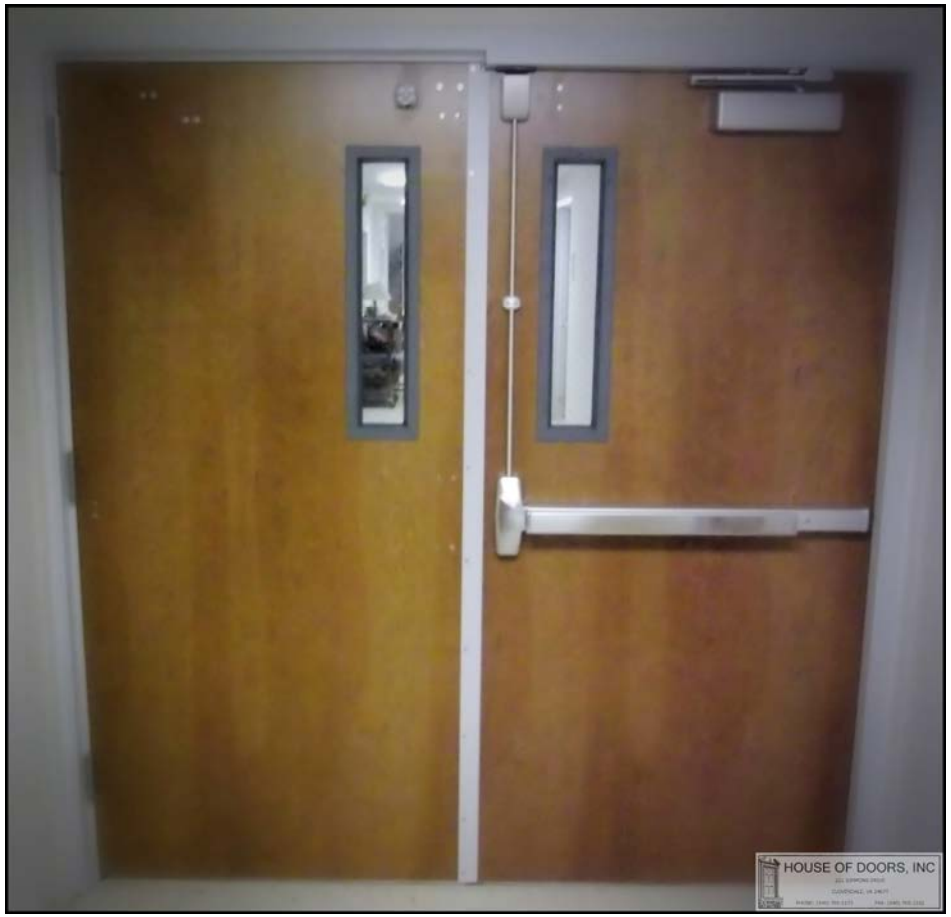
VE LIST: A04-ITEM 1 OPTION 1



A04	Item 19	Provide swinging full-height fire doors [(2) pairs @ 4' w x 9' tall] ILO "Won-Door" sliding fire door (3 levels)	($66,932)

VE LIST: A04-ITEM 19 OPTION 2

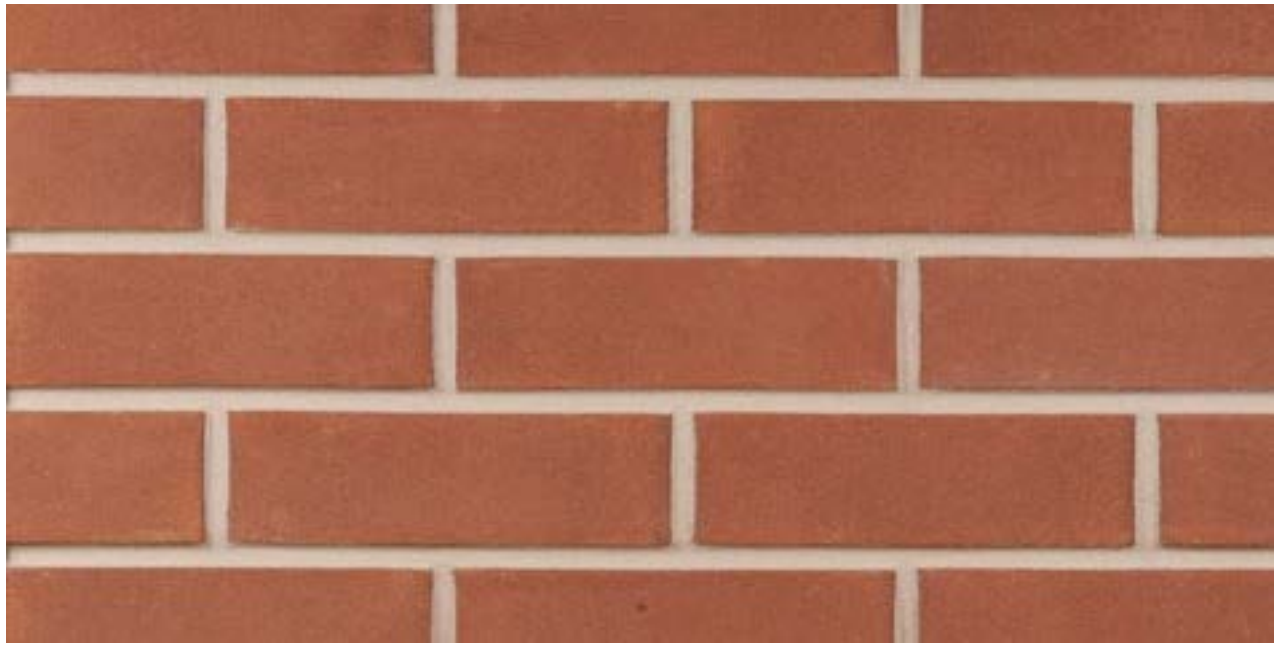




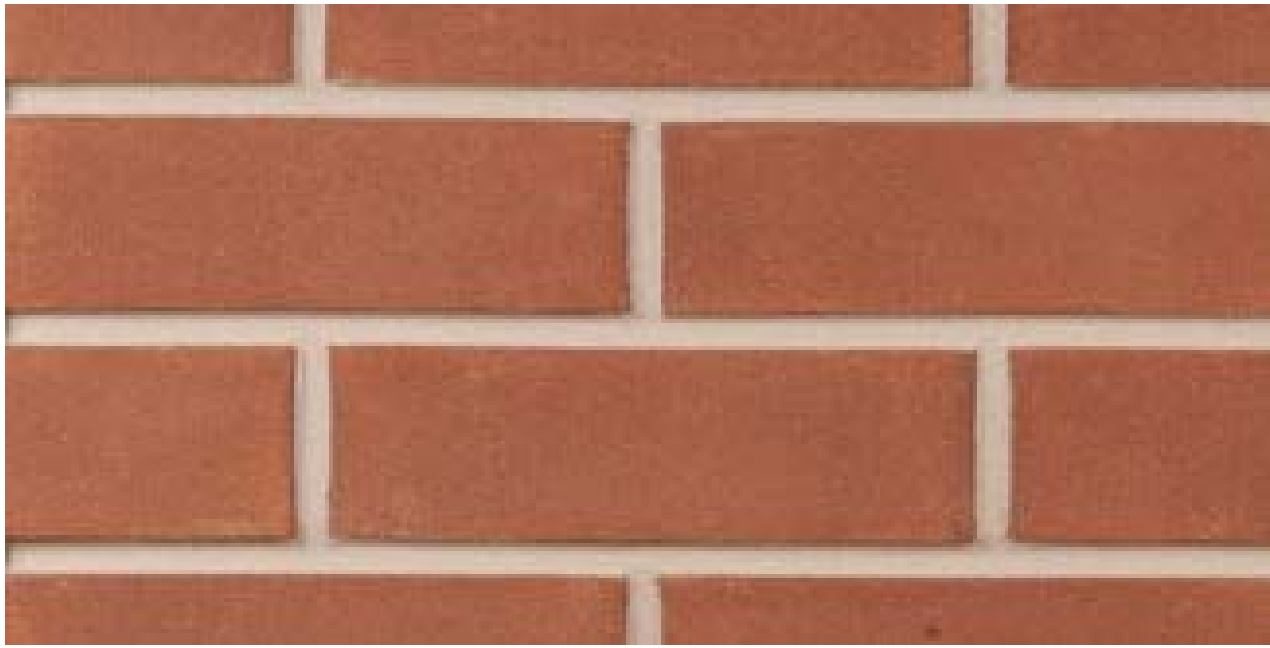
VE LIST: A01- OWNER'S ITEM 16

Design Team Recommendation:
Keep As designed

MODULAR



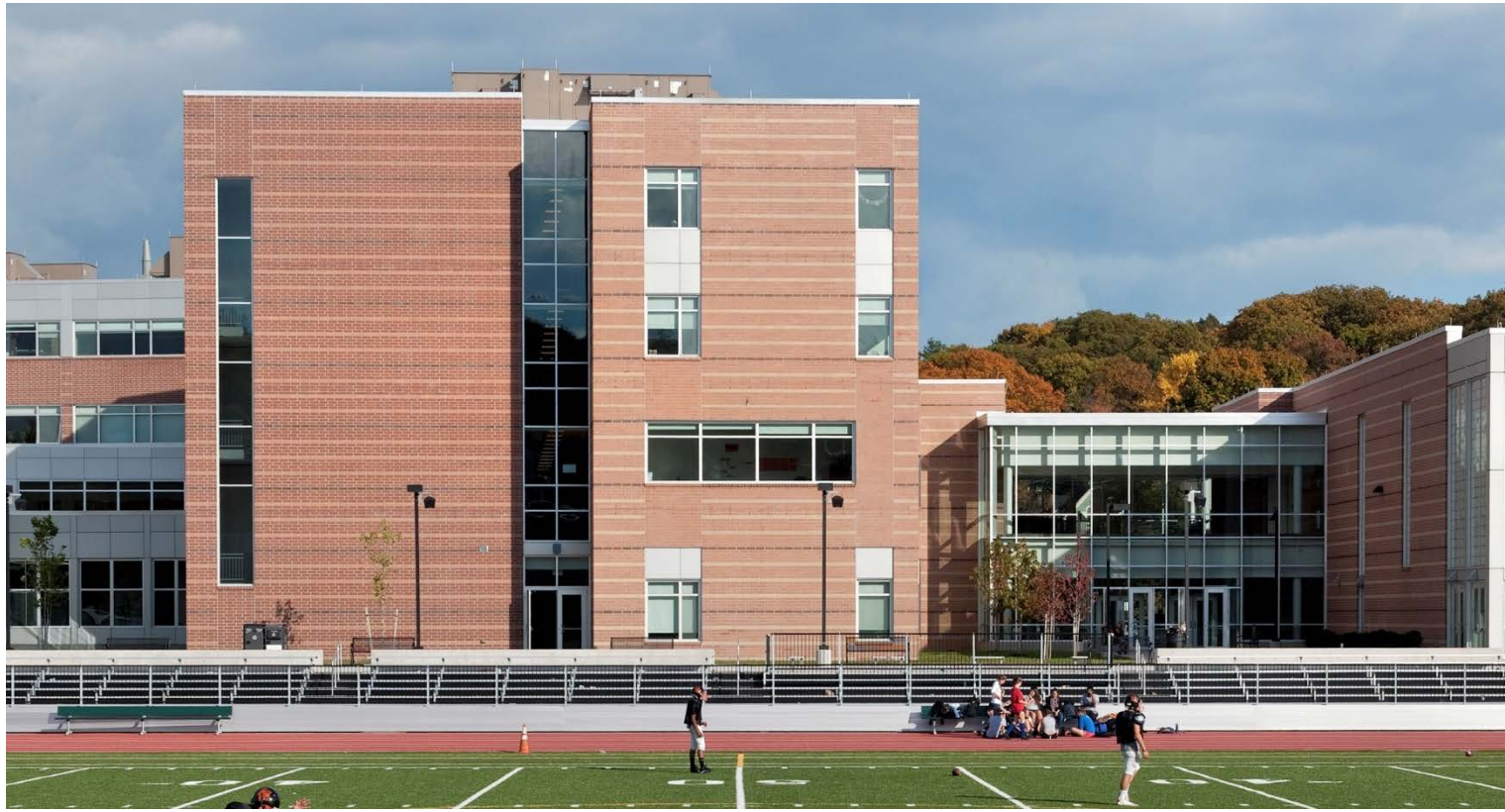
UTILITY



A01	A4 dwgs / **Item 16**	Provide Utility brick ILO standard Modular brick on entire building.	($90,585)

MODULAR

UTILITY

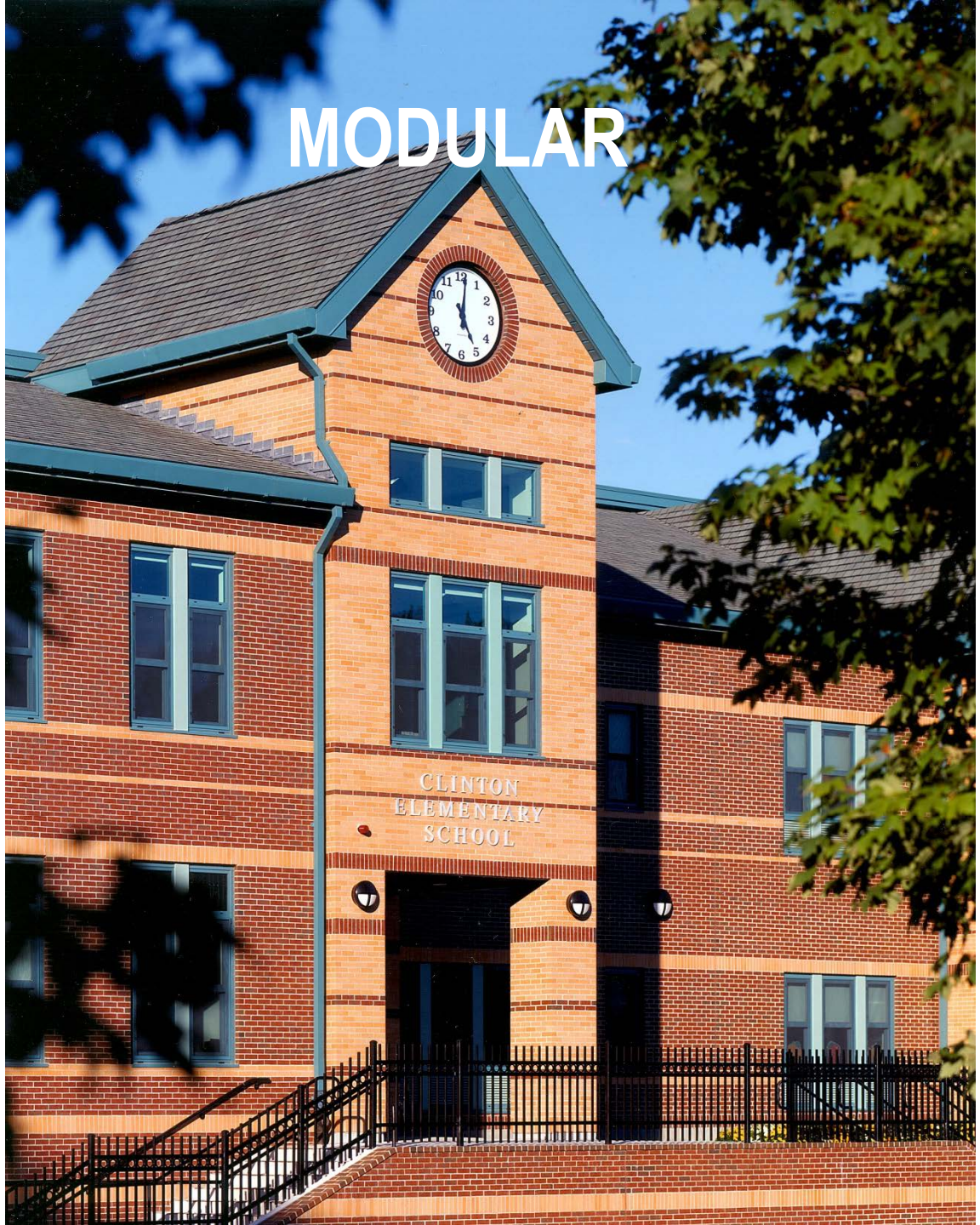


MODULAR

UTILITY

MODULAR

UTILITY


MODULAR
CLINTON
ELEMENTARY
SCHOOL


UTILITY

FAÇADE AS CURRENTLY DESIGNED:
STANDARD MODULAR BRICK, “SHOULDICE” STONE-LOOK CMU

FAÇADE OPTION 1:
UTILITY BRICK (NOM 4 X 4 X 12”), “SHOULDICE” STONE-LOOK CMU BASE

- Estate Stone is a quality Concrete Masonry Unit.
- Estate Stone exceeds the ASTM C-55-11 specifications.
- Estate Stone will not flake or deteriorate whether it is used above grade, at grade or even below grade.
- **Maximum water absorption by mass not to exceed 8 percent.**
- Manufactured using an integral water repellent agent which inhibits water absorption and efflorescence for a lifetime of performance.
- Minimum compressive strength 4,000 PSI

"Concrete masonry units (CMUs) are characteristically porous building materials. When manufactured in accordance with the industry standard, ASTM C90, *Standard Specification for Load-bearing Concrete Masonry Units*, commonly used lightweight CMUs **absorb up to 17 percent of their weight in water.**

Furthermore, the geographical location where the CMUs are manufactured affects permeability."

- Construction Specifier, **"Durable Waterproofing for Concrete Masonry Walls: Redundancy Required" June 24, 2014**

"ESTATE STONE" CMU:

"SPLIT FACE" CMU

Design Team Recommendation: Keep As designed

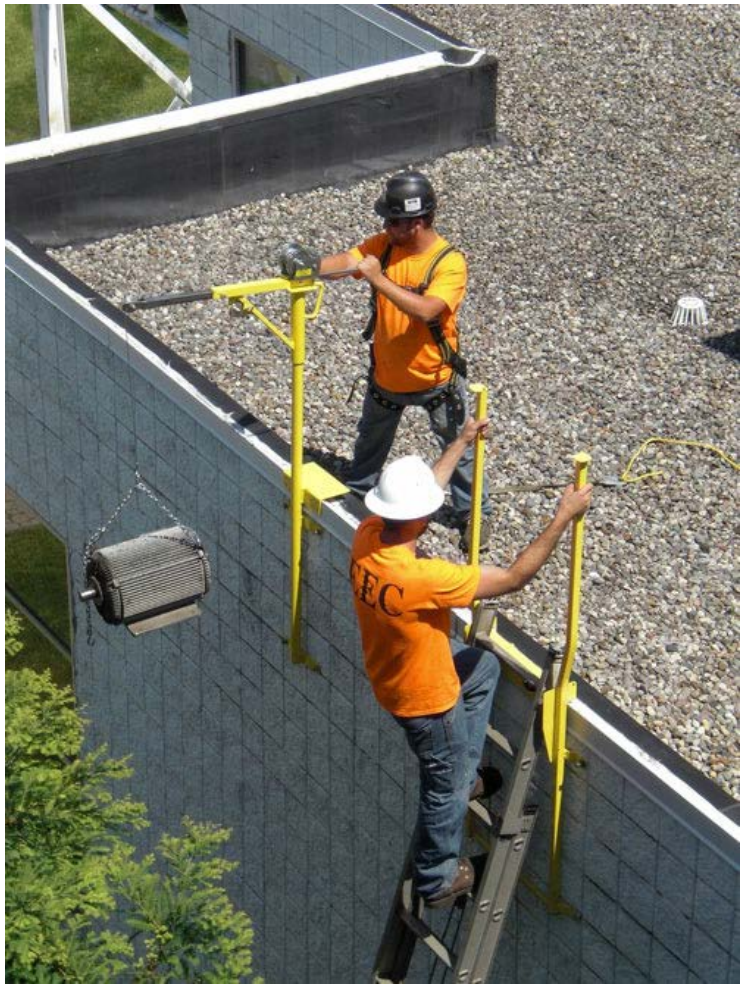
VE LIST: ITEM 17

Item 17	Provide Split Face CMU in lieu of Cast Stone Base	($76,500)

FAÇADE OPTION 2:
UTILITY BRICK (NOM 4 X 4 X 12”), SPLIT-FACED CMU BASE

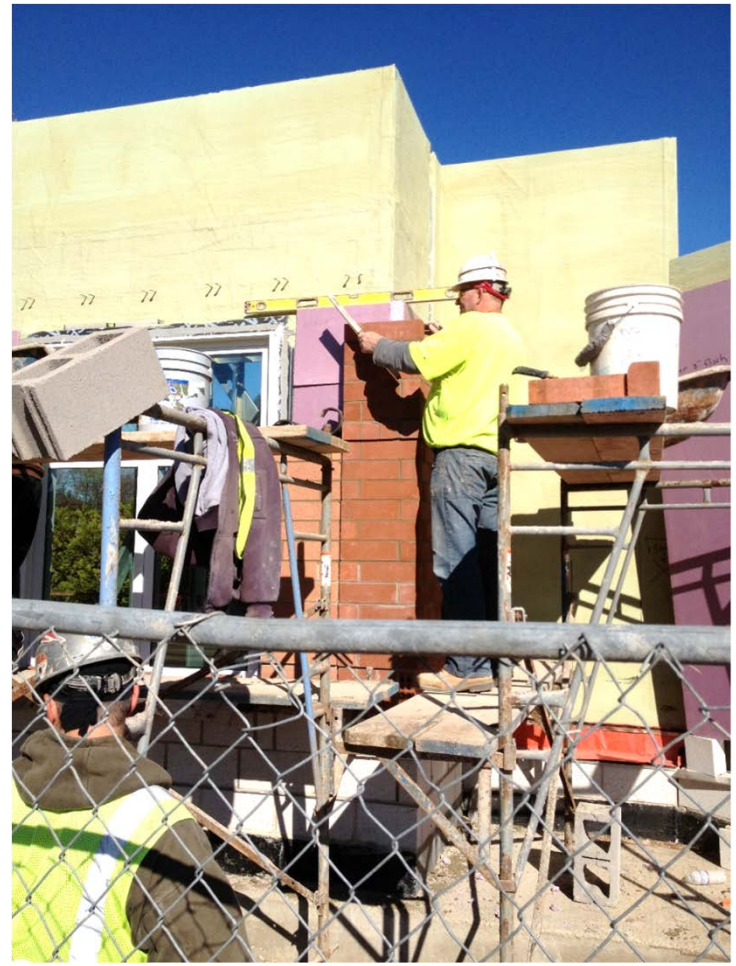
Design Team Recommendation: Suggest carrying as an Equipment cost in the FF&E budget

VE LIST: ITEM 18 ROOFTOP HOISTS



Item 28	Delete specified exterior mock-ups and go with in-place ILO	($41,000)

VE LIST: ITEM 28



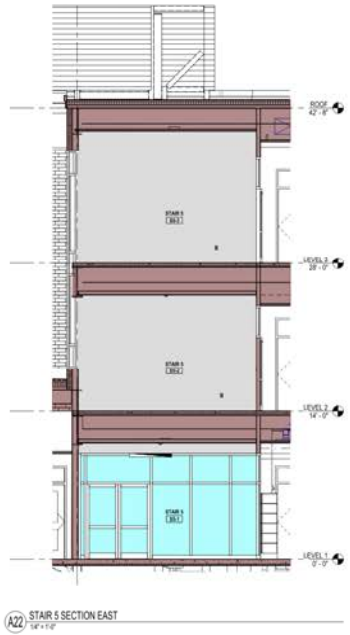
D&W and Fontaine Bros Recommend Stand-Alone Mock Ups

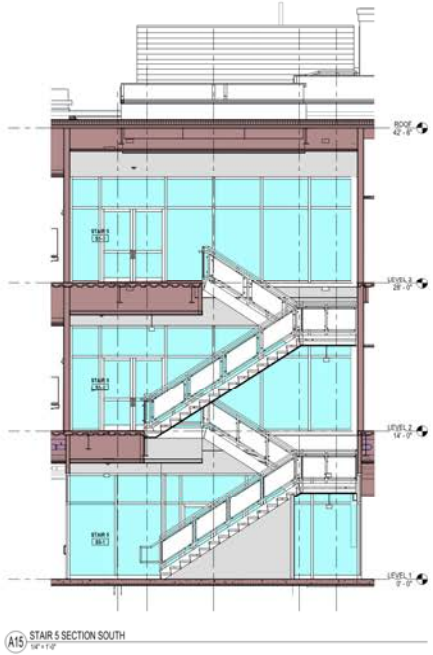
Design Team Recommendation:
Keep As designed

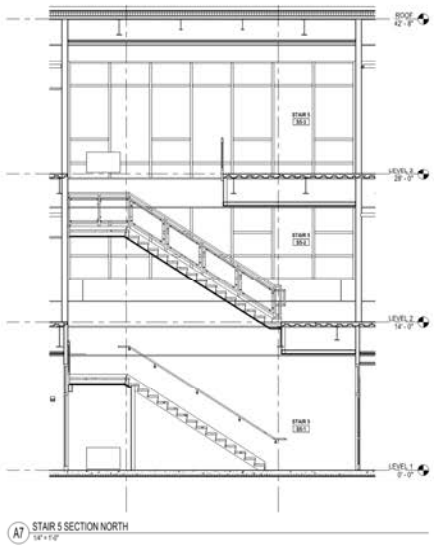
VE LIST: ITEM A13

- reduce glazed area by ~25%
- Deduct: $56,635

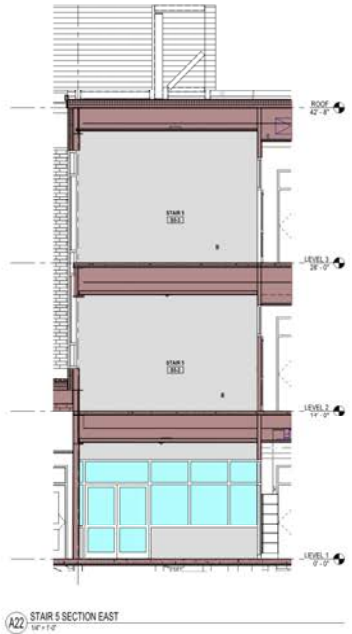
STAIR 5 ENCLOSURE
(AS DESIGNED)

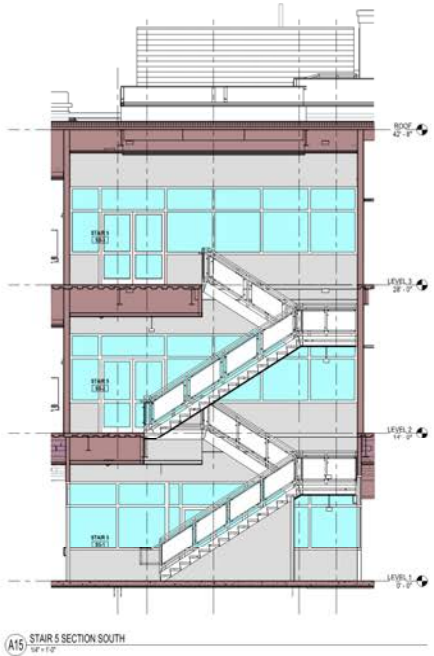


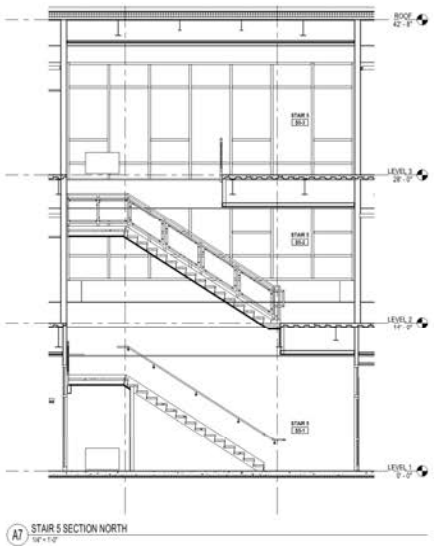




STAIR 5 ENCLOSURE
(REDUCED FG AREA)



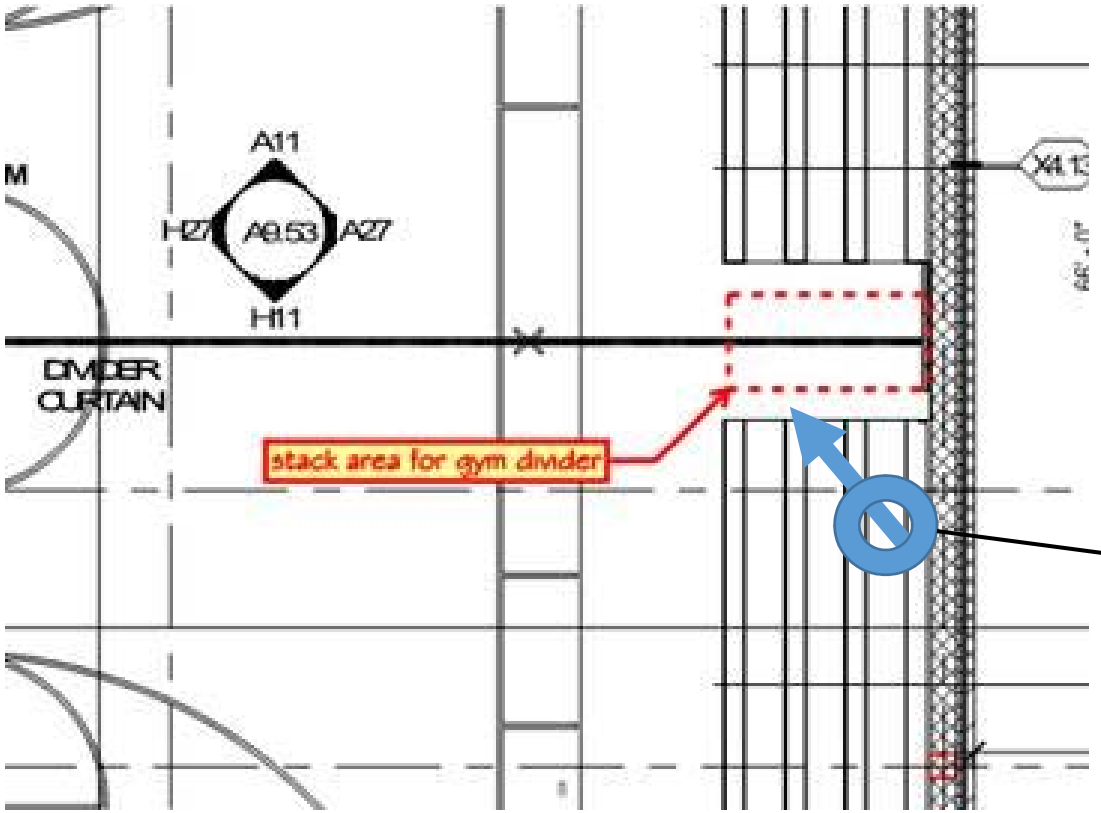




- Stair 5 transparency is central design element
- Main communicating stair for full population
- Lightwell at top to disseminates light through deep floor plate – all levels
- Full view to areas of refuge in case of fire

VE LIST: ITEM A12

- Previously accepted
- Sight line issues



Sightline interference with folded partition

Provide Operable Partition at Gym

Design Team Recommendation: Good VE application

VE LIST: ITEM E01

ESE Lightning Preventer 3565

- A lightning **protection** system is designed to carry current through the building.
- Multiple conductors wired together
- Widely utilized in commercial construction

- The lighting **preventer** works to deionize the charge in air
- There is a guarantee from the mfgr for property loss ($10million)
- Single conductor
- Works well for buildings with large roof areas

Lightning Preventer System ILO Lightning Protection System ($50,845)

PROPRIETARY ITEMS

23 00 10	BMS/ Mechanical Controls	Building HVAC Controls
27 20 00	Data Communication System, Network Switches: Aruba 5400 series	At MDF Room.
27 20 00	Data Communication System, VOIP Telephone System: TBD	Throughout the school.
27 20 00	Data Communication System, Wireless Access Points: Aerohive, AP250 and/or AP550.	Throughout the school.
28 10 00	Integrated Access Control/ Intrusion Detection/ Video Surveillance Platform/System: TBD	Throughout the school.

CONTROLS WILL BE OPEN SPEC

NO OTHER CHANGES

EARLY RELEASE PACKAGES

Construction Cost Control Budget Breakdown

Early Site Package (ERP #1)	$10,913,588
Concrete/Steel Package (ERP # 2)	$11,113,448
Final Package	$57,453,407
Total	$79,480,442


Thank You!