

Northborough Fire Station Project Status Update



Current Fire Station

- Apparatus in Service 1974 -



1973 Maxim Pumper Engine



1958 Ford Pumper Engine



1965 Ford Pumper Engine



1973 International Engine



1949 Ford Water Tanker



1969 GMC Rescue




1964 Pick-up Truck

Current Fire Station


- Current Apparatus in Service -

 Engine 1 Pumper - 2nd Due


 Engine 2 Pumper – 1st Due


 Engine 3 Water Tanker / Pumper


 Rescue 1 Heavy Rescue / Pumper

 Tower 1 Aerial / Pumper


 Medic 1 Ram Ambulance


 Medic 2 International Ambulance

 Medic 3 International Ambulance


 Forestry 1 Off Road Brush Pumper


 Squad 4 Mini Attack/Multi-Use


 Car 1 Ford SUV Explorer


 Car 2 Chevy SUV Tahoe


 Car 3 Chevy Pick-up

 Gator 1 John Deere ATV/UTV

 Boat 1 Rescue Boat W/Trailer/Motor

 All Hazards Trailer 20' x 7'

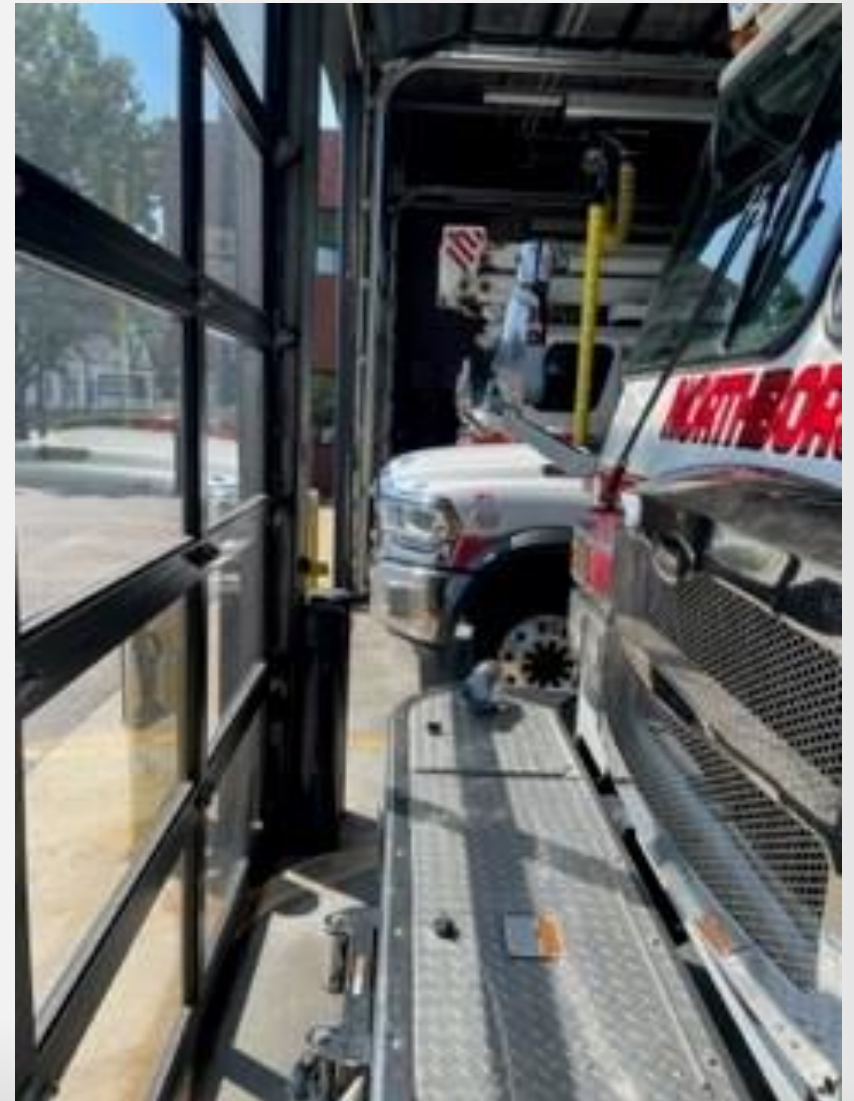
 Hazardous Materials Trailer 15' x 6'

 Open Spice Protection Trailer 21' x 8'



Current Fire Station

- Current Apparatus in Service -



- Firefighter Health-

CANCER AWARENESS FIREFIGHTERS ARE AT RISK!

FIREFIGHTERS HAVE
A HIGHER RISK
of contracting

ALL

types of cancer than the
general U.S. population.

Synthetic building materials
used in modern structures,
including furniture and paint,
RELEASE CARCINOGENS
when burned.



**WE HAVE AN
OPPORTUNITY
TO SAVE LIVES!**
Cancer is a leading threat
ALL to firefighters.



For every 5° increase in temperature,
skin becomes up to
400% MORE ABSORBENT.

The hotter you
are, the more
carcinogens
your skin
absorbs

MORE THAN
60%

Since 2002, the IAFF has attributed more than
60% of its firefighter LODDs
TO CANCER
MORE THAN ANY OTHER CAUSE

FIVE THINGS YOU CAN DO

1



Wear your SCBA from
the fire attack through
overhaul to limit
inhalation of
carcinogens.

2



Clean yourself off
during gross decon to
remove soot as soon
as possible.

3



Keep contaminated
gear out of your
station's living and
sleeping quarters.
Also, don't take
contaminated gear
home.

4



Make sure your gear
is cleaned and
inspected regularly by
a verified ISP.

5



Maintain a personal
exposure log of all
fire calls.

NotInOurHouse.com



STOP CANCER AT THE DOOR



- Five steps to a clean fire station:

Read and learn about cancer-causing carcinogens in fire stations.

- a. Sources and Exposure
- b. Contamination
- c. Transfer to the Station
- d. Cross contamination within the station

Examine decontamination procedures for personnel returning from incidents.

- a. Bag turnout gear
- b. Shower within an hour
- c. Clean uniforms
- d. Hand, face and neck washing
- e. Exhaust control systems

Consider healthy 'green' elements in the station

- a. Natural materials
- b. Visual interest and richness
- c. Organic shapes, forms and artwork

Review the Hot Zone design plan and apply it to existing zones in your station

- a. Apparatus Bays – clean cabs, tools, and equipment storage areas; no food or ice machines in the bays
- b. Transitional areas – decon and cleaning areas; walk-off mats; closed doors; hand sinks and boot wash stations; airlocks and vestibules
- c. Living areas – limit turnout gear; fully separated from apparatus/equipment areas; confine workout and exercise areas to living area (isolate from the bays)

Focus on the physical and mental health of personnel

- a. Natural lighting
- b. Views of the exterior
- c. Outdoor activity areas
- d. Practice good sleep hygiene

<https://www.firehouse.com/stations/article/21274471/the-concept-of-clean-fire-stations-in-2022>

New Fire Station Project

- Interior Design -

CLEAN STATION CONCEPT



New Fire Station Project

- Timeline -

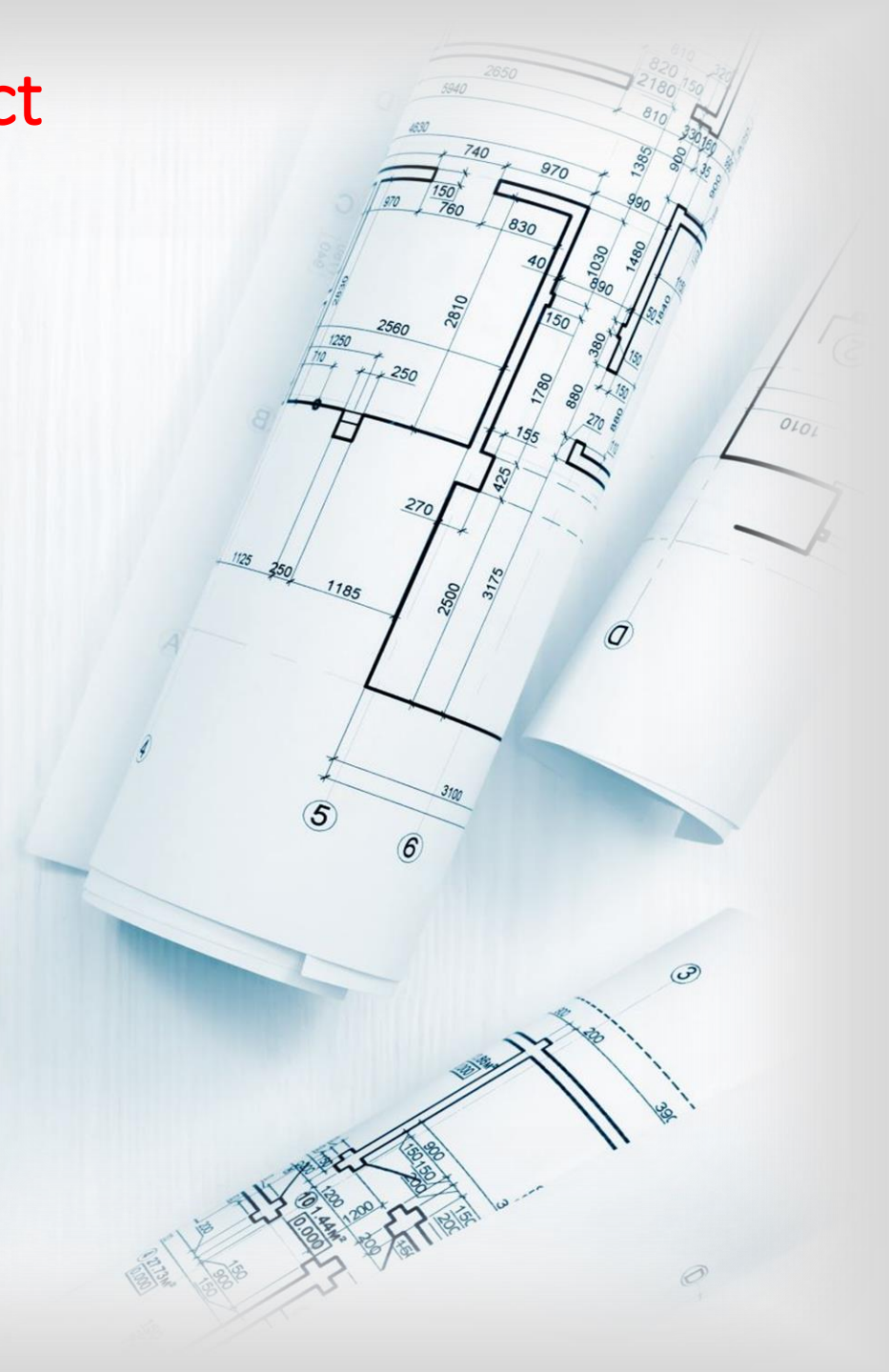
2023 – Present

09/15/2023 – 02/28/2024

- **Program Development**
 - Discussions with Fire Department Leadership
 - Survey of department personnel
 - Space needs determined
- **Schematic Design Phase**
 - FSBC meetings
 - Joint Mtg with DR & MPIC
 - Public Input meetings
 - Design Review meeting

02/29/2024 – 05/29/2024

- **Design Development Phase**
 - FSBC meetings
 - Design Review meetings (4/11/24)
 - ZBA meeting (3/26/24)
 - Planning Board meetings (4/16/24)



New Fire Station Project

- Timeline -

What's Next?

05/30/2024 – 09/20/2024

- Construction Documents
- FSBC Meetings
- Planning Board Meeting

09/24/2024

Deadline for SB to place project on the Ballot

No Later than 10/14/2024

Special Town Meeting (10/7/24)

11/05/2024

Debt Exclusion Vote



New Fire Station Project

- Site Design -

Secure Firefighter parking

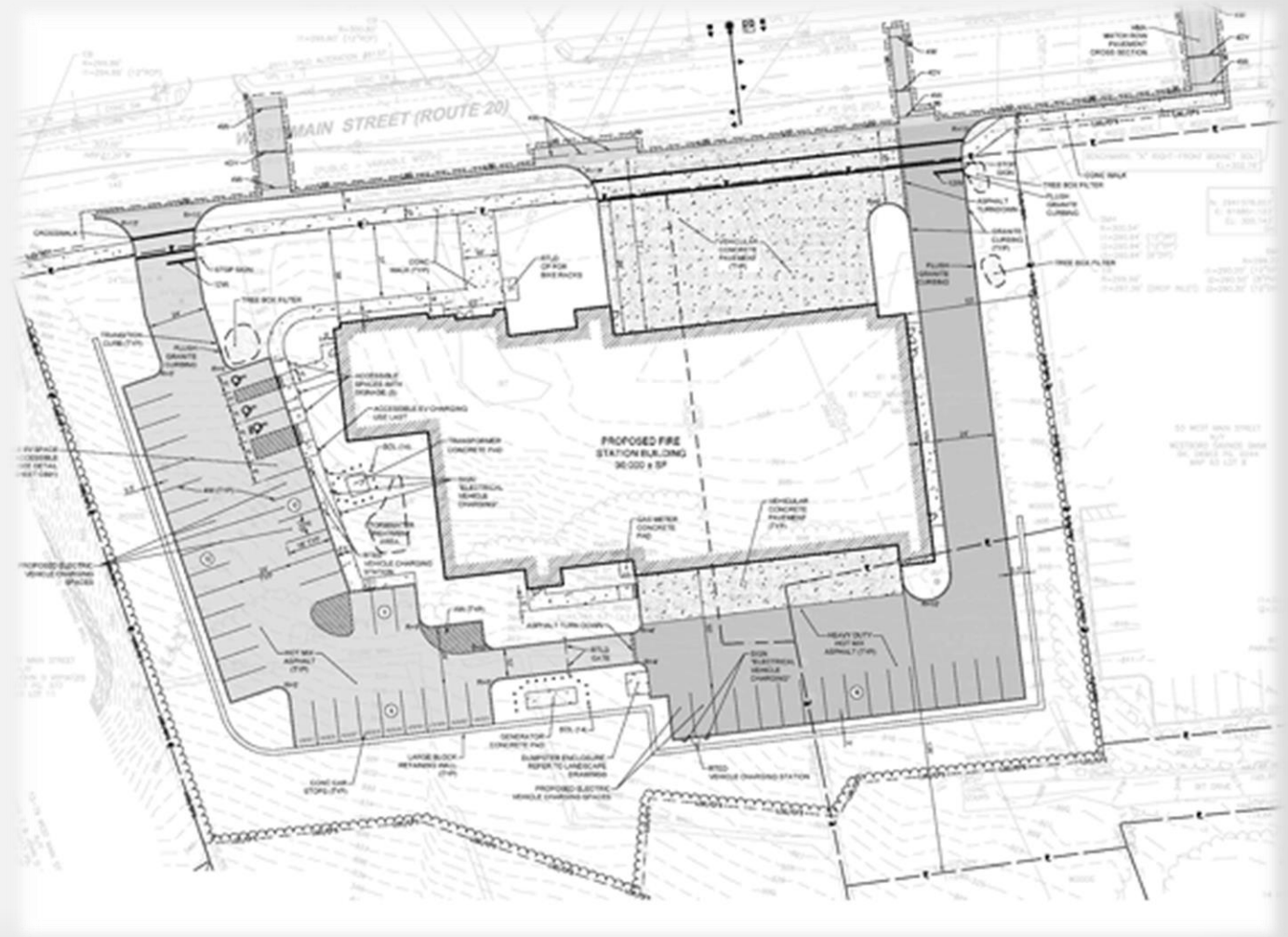
Guest parking separated from operations

Building Placement

Designed to allow PV panels on apparatus bay

EV charging stations (6-11)

Heated apparatus aprons extends 25' from the building to encourage snow melt which assists with response and snow removal

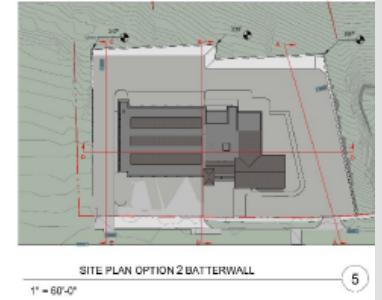
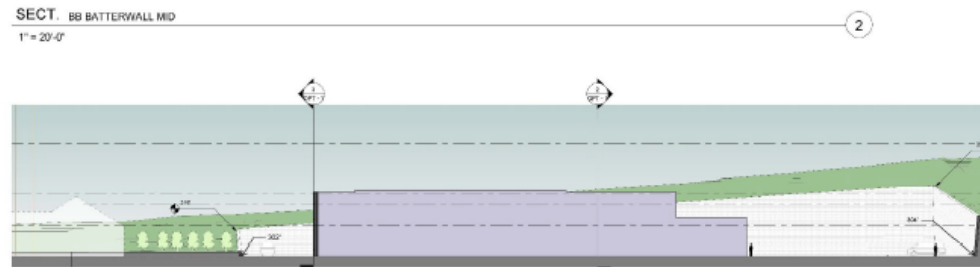
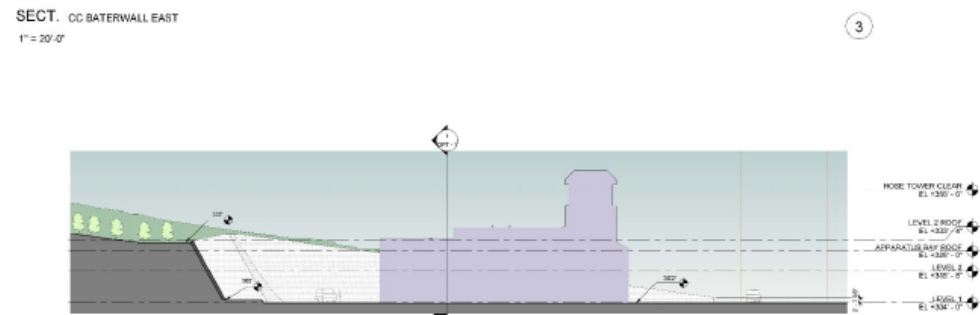
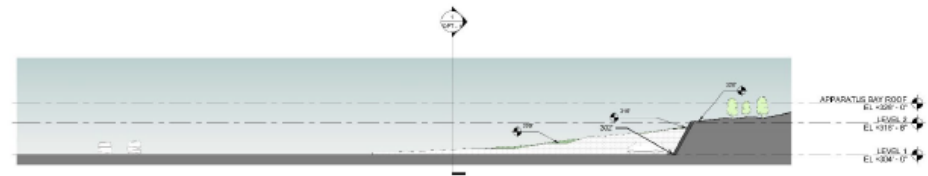
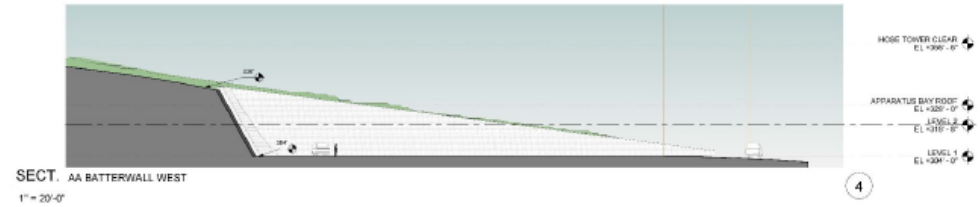


New Fire Station Project

- Site Design -

RETAINING WALL – BATTER WALL OPTION

- Geogrid not anticipated for batter
- Straight wall with geogrid on east + west sides
- 30' high - 17'-2 1/2" deep batter wall on south side

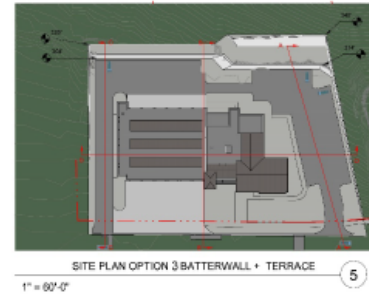
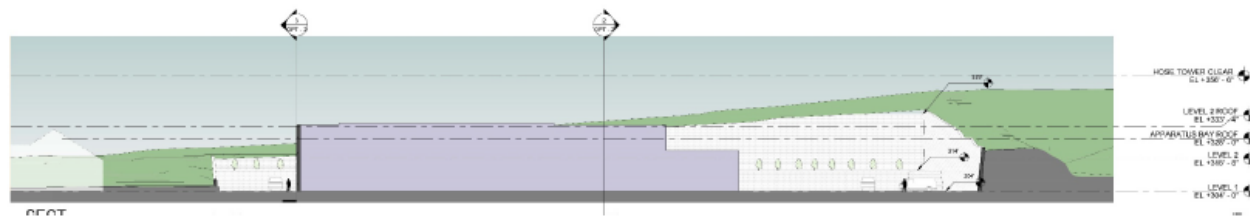
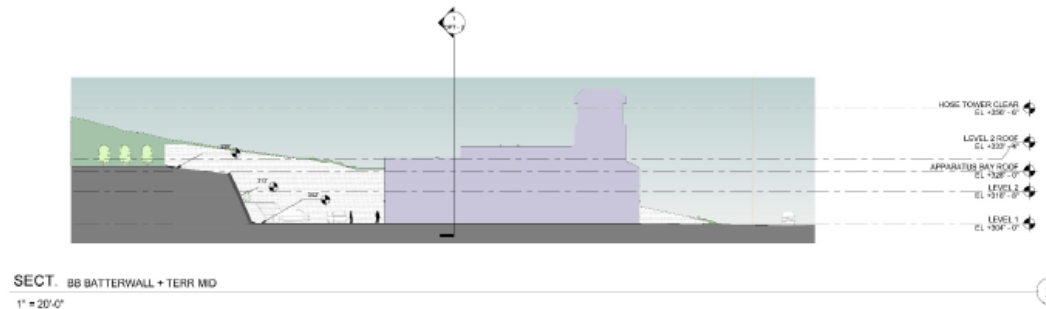
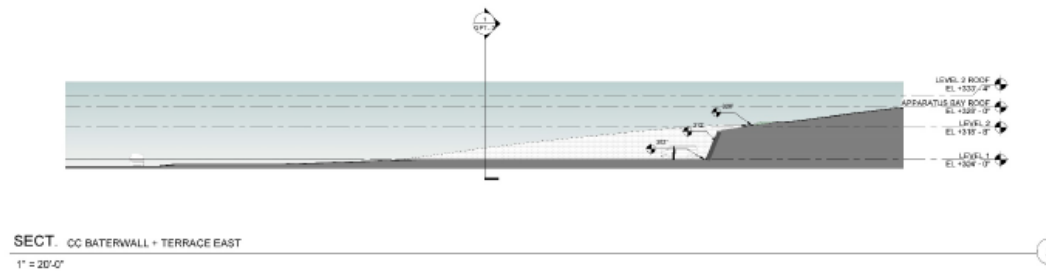
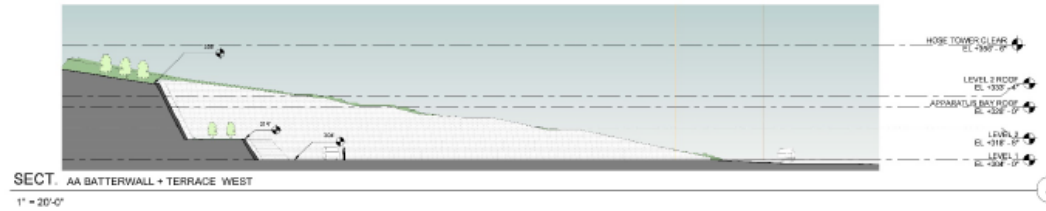
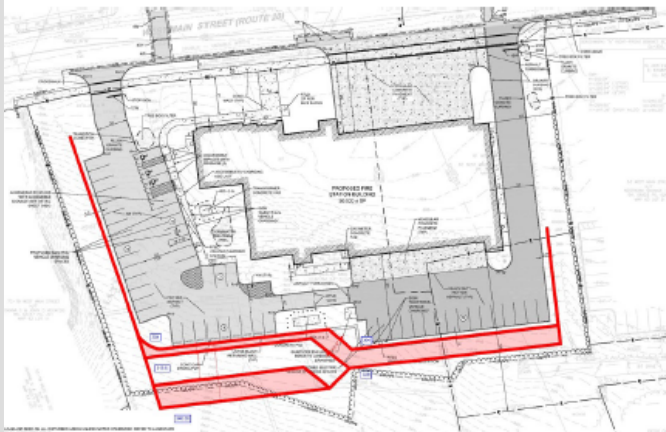


New Fire Station Project

- Site Design -

RETAINING WALL – BATTER + TERRACE WALL OPTION

- Geogrid not anticipated for batter
- Straight wall with geogrid on east + west sides
- 36'-6" high - 40'-10" deep
- 9.5' high 9" batter wall
- Terrace +/- 20' deep

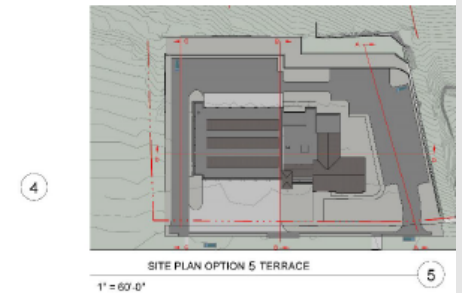
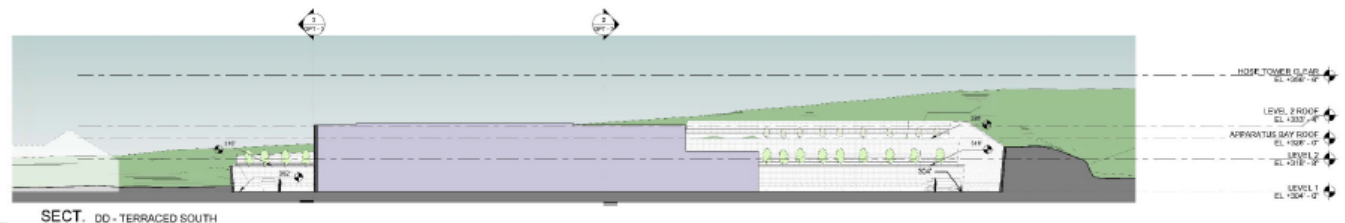
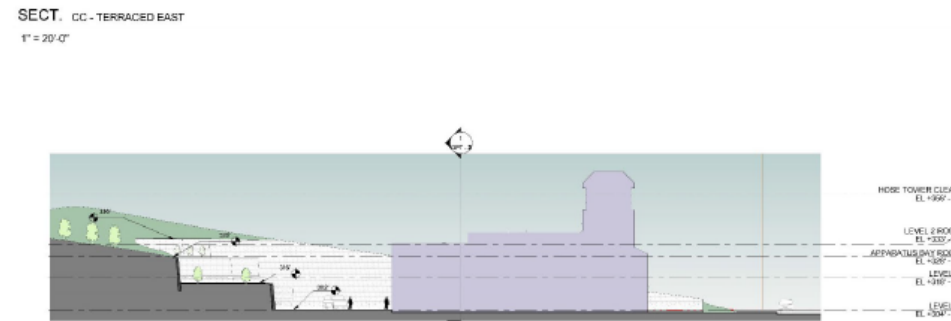
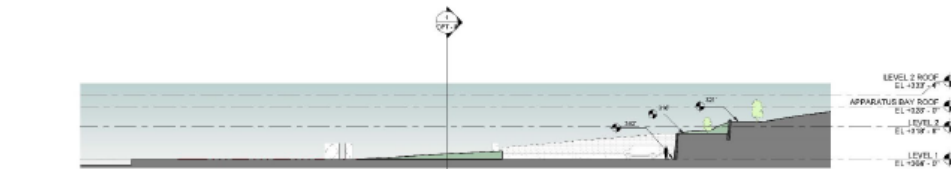
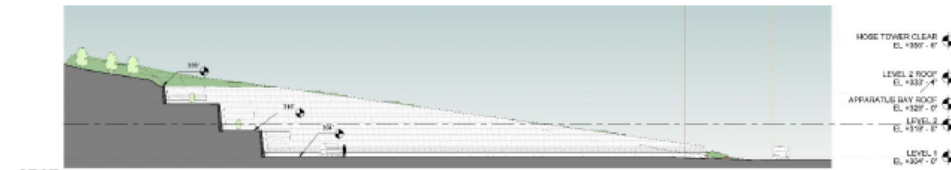


New Fire Station Project

- Site Design -

RETAINING WALL – 2 TERRACE WALL OPTION

- Geogrid not required
- Straight wall with geogrid on east + west sides
- 36'-0" high - 45'-10" deep
- 3 - 12" terrace walls
- Terrace +/- 18' deep



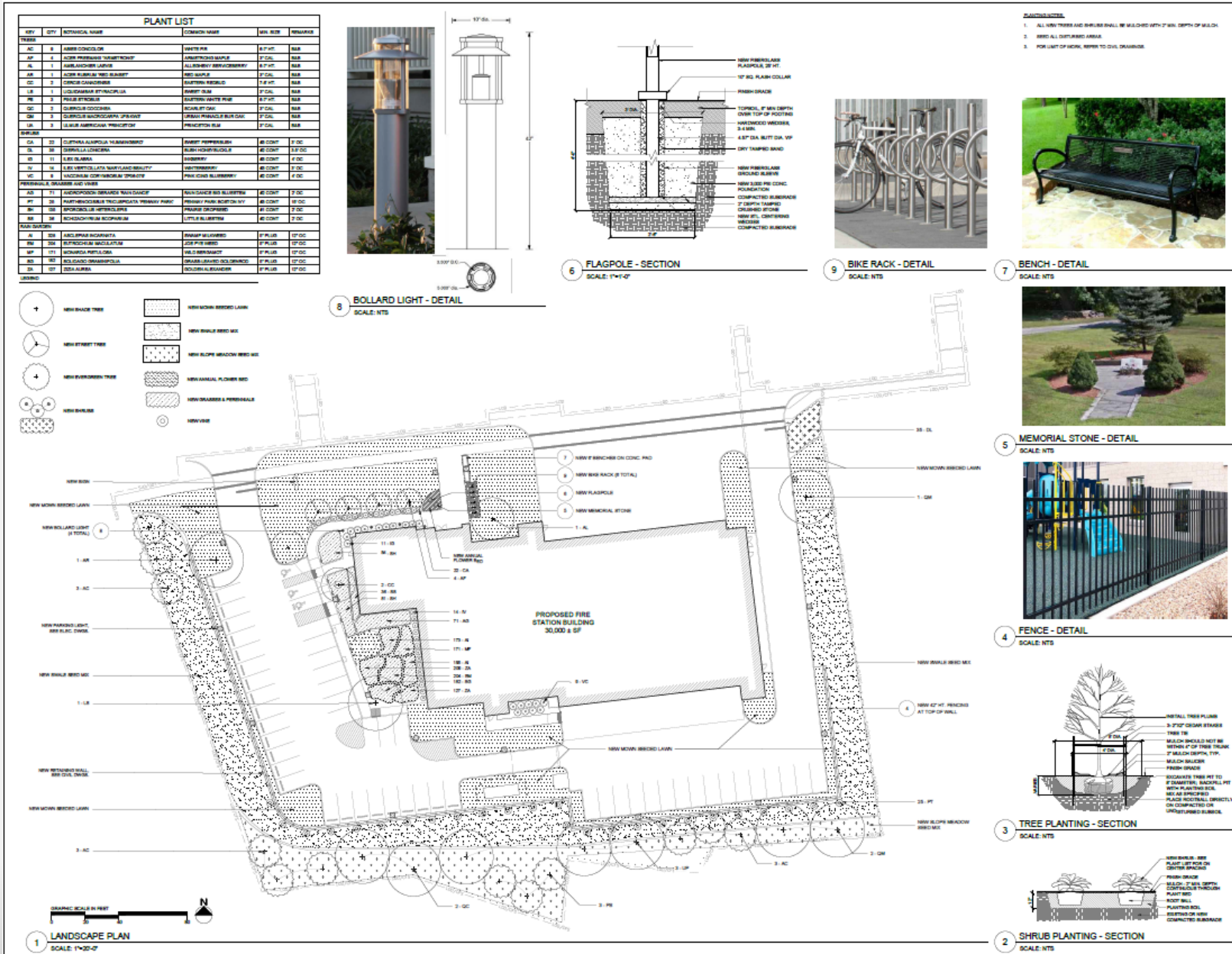
4

3

2

5

New Fire Station Project - Landscape Design -



New Fire Station Project

- Interior Design - First Floor

Total Square Feet: 22,000

Designed as a “Clean Station”

Four distinct areas

- Operations
- Administration
- EOC/Training/Public access
- Mechanicals

EOC: Emergency Operations Center



New Fire Station Project

- Interior Design - Second Floor

Total Square Feet: 8,000

Rooms:

- Dorms (7)
- Day-Room/Kitchen
- Fitness area
- Individual restrooms (2)
- Individual restrooms with showers (3)

Features:

- Green roof
- Terrace with pergolas
- Training tower
- Fire pole (1)



New Fire Station Project

- Exterior Design -



- Red Brick Construction to compliment current downtown buildings
- Built to withstand harsh weather with minimal on-going maintenance
- 2 Arches over bay doors to maintain “Fire Station” feel.
- Training tower with clock to mirror historical look found in many New England Towns
- Arch over main entrance extends out 4’ and windows provide view of antique fire apparatus.

New Fire Station Project
- Exterior Design –
Birds Eye From Northeast



New Fire Station Project
- Exterior Design –
Birds Eye From Southwest



New Fire Station Project
- Exterior Views -
Northeast Elevation



New Fire Station Project
- Exterior Views -
Northwest Elevation





New Fire Station Project

- Exterior Views -

Address Sign



Dimensions
5'8" x 9"

New Fire Station Project

- Exterior Views -

West & Southwest Elevations



West Elevation

Southwest Elevation



New Fire Station Project

- Exterior Views -

South Elevation



New Fire Station Project

- Exterior Views -

East & Southeast Elevations



Southeast Elevation



East Elevation

TOTAL PROJECT COSTS – SCHEMATIC DESIGN OPTIONS + ANALYSIS

- Hard Construction Costs
 - HKT Team Schematic Estimating Package consisted of limited drawings + outline specifications + engineering narratives
 - At the schematic design level documents are not fully developed. Where information was not available, the professional cost estimator was directed to make assumptions based on knowledge + experience
 - The Statement of Probable Costs includes design + pricing contingencies of 10% to allow for the unknowns
 - Includes 14 Alternate Options + 1 Allowance Order of Magnitude Alternate
 - Categories include sustainable strategies, envelope upgrades potentially required to meet new energy code, alternate material explorations, retaining wall options, HVAC system options + underground conduit for antenna on water tank

TOTAL PROJECT COSTS – SCHEMATIC DESIGN OPTIONS + ANALYSIS

- Soft Costs – Other Project Costs outside the Scope of the Builder
 - Furnishings, Fixtures and Equipment
 - Loose Furnishings
 - Program Related Equipment
 - Data/Telecom Equipment
 - AV Equipment
 - Security
 - Other Specialty Items
 - Fees and Expenses
 - Designer and OPM Fees
 - Commissioning
 - Legal
 - Utility Assessment
 - Materials Testing Fees During Construction
 - Contingency
 - Construction
 - Owner's Project
- **Total Project Costs =**
Hard Cost (Construction Costs) + Soft Costs

COMPARING 2019 FEASIBILITY STUDY TO 2024 PROJECT DESIGN

- The 2019 plan was developed as part of a Feasibility Study.
- The 2024 design is based on actual programmed current + future space needs of the fire department for interior + exterior spaces.
- Comparisons between estimates in 2019 + 2024 must be made based on actual historic escalation of construction costs for Massachusetts municipal projects bid under MGL Chapter 149.
 - Prior to 2020, historic escalation averaged 3.8% to 4.0% annually.
 - With the Covid Pandemic beginning in 2020, supply chain issues, worker shortages + company closures resulted in unprecedented escalation of construction costs.
 - Inflation since 2020 has remained high impacting multiple market sectors including construction.
 - As a result, historic escalation figures for Massachusetts municipal projects bid under MGL Chapter 149 post-2020 have fluctuated, ranging from 8% to up to 15% annually.
 - Our analysis, applying escalation to the 2019 Study cost estimate, demonstrated the current + previous estimates are comparable after adjusting for inflation, additional site costs + major building elements that were not included in the study document.

TOTAL PROJECT COSTS – SCHEMATIC DESIGN ESTIMATE

ITEM	BUDGET RANGE
Construction Estimate	\$30.9 million
Alternates	\$2.1 - \$6.7 million
Total Construction	\$33 - \$37.6 million
Furnishings Fixtures and Equipment Loose Furnishings, Program related Equip., Data/Telecom, AV, Security	\$.73 - \$1.35 million
Fees and Expenses Architect and Sub Consultants, Project Manager, Commissioning, Legal, Utility Assessment, Materials Testing, Moving	\$5.1 - \$6.25 million
Contingency Construction, Owner's Project	\$4.1 - 4.7 million
Range of Total Project Cost	\$43 - 49.9 million

HARD COSTS – ALTERNATES – APPROXIMATE ESTIMATED COST

- Some of these may require additional soft costs
- 14 Alternate Options + 1 Allowance Order of Magnitude Alternate

Green			Energy Code Upgrades		
11 EV Ready Charging Stations	PV on sloped and flat roofs - 63.696 KW	Green roof in lieu of TPO at front	Triple glazed punched windows in lieu of double glazed	Triple glazed change to all curtainwall in lieu of double glazed storefront / curtainwall	Add closed cell insulation between studs in the exterior walls
\$129,000	\$577,000	\$32,000	\$337,000	\$444,000	\$165,000
add	add	add	add	add	add

Materials Options				Retaining Wall	
Asphalt shingle roofing at sloped roofs in lieu of standing seam	Overhead glazed door at apparatus doors in lieu of folding doors	Brick Veneer in lieu of Arriscraft	Aluminum composite metal panels or cementitious panels in lieu of zinc panels around the apparatus bay doors	Terrace retaining walls in lieu of base	Batter retaining walls in lieu of base
(\$307,000)	\$172,000	\$165,000	(\$49,000)	\$612,000	\$297,000
deduct	add	add	deduct	add	add

HVAC		Antenna
Air Source Variable Refrigerant Flow (VFR) system (option 2) in lieu of Base (option 1)	Ground Water to Variable Refrigerant Flow/Volume (VFR/VRV) (Option 3) in lieu of Base (Option 1)	Allowance Order of Magnitude - Conduit underground between the fire station and the water tank
(\$292,000)	\$2,260,000	\$700,000 to \$900,000
deduct	add	add

Note from TCI Construction Cost Estimating

- **Note: This cost estimate includes escalation and market bidding conditions contingency until late 2024 bids. If bidding is delayed, the annual increase would be in the 7% - 10% range each year.**

New Fire Station Project

- Best Source For Information & Progress Updates -

www.NB-FireStation.org



Thank you
for your time and support