WARREN PUBLIC SAFETY COMPLEX FEASIBILITY STUDY

TOWN OF WARREN, MASSACHUSETTS

ISSUED: OCTOBER 2024

Tecton
ARCHITECTS

THIS PAGE IS INTENTIONALLY LEFT BLANK

EXECUTIVE SUMMARY

1

Tecton
ARCHITECTS

In July 2023, the Town of Warren, Massachusetts, contracted with Tecton Architects, pc, of Hartford, CT, in partnership with H2M Architects & Engineers, to conduct Architectural & Engineering Services for a Public Safety/Municipal Complex Feasibility Study. Design Services were sought to perform the following tasks:

Space Needs Assessment

a) ***Existing Documentation Review*** – Review any previous studies or reports.
b) ***Working Group Meeting*** – Schedule a meeting with the Owner to build an understanding of all the ways the buildings are utilized, and to plan for more effective future use. This is to include overcoming space or parking deficiencies in the existing facilities.
c) ***Space Needs Assessment and Program Development*** – Conduct interviews with designated departments, staff, and project stakeholders to collect data and build an understanding of operational needs and the space required to satisfy those needs. Consider detailed requirements for each space need and include assessment of future growth. The Space Needs Summary includes both the "net areas" and the net-to-gross square footage adjustment.
d) ***Room Descriptions*** – From the Space Needs Assessment, prepare detailed room descriptions with room names and sizes, functional requirements, equipment needs, any special mechanical, electrical, plumbing needs, furniture and built-in casework needs, security needs, special finish needs, and adjacency requirements.
e) ***Fleet Inventory*** – Working with the department(s), collect an inventory of all fleet vehicles currently in use and those that are anticipated for future acquisition.
f) ***Staffing Projections*** – When establishing the space needs, the program should take into consideration possible future department staffing and allow for adaptability over the next fifty years.
g) ***Site Needs Assessment*** – Identify and document the site needs for each facility. This is to include parking, circulation, site utilities, communications infrastructure, training equipment, green space, and staff amenities.
h) ***Best Practices Review*** – By conducting a review of recently completed new or renovated stations in similar communities in Massachusetts, identify best practices and incorporate those into the program and design solutions.

Site Evaluation and Test Fits

a) ***Site Evaluation Desktop Review*** – Site evaluations shall consider available site area, utilities, topography, wetland, and environmental limitations. Review all documentation provided by the municipality or department related to potential sites. Identify property easements, floodplain and resource area limits, and land-use regulations for each site.
b) ***Site Test Fits*** – Prepare site test fit options to determine if the site is capable of appropriately supporting the programmatic functions of Police, Fire and Town Administration.
c) ***Wetland Assessment*** - Any wetland locations to be identified utilizing MassGIS data and on-site observations.
d) ***Environmental Assessment*** – Conduct a preliminary environmental investigation to determine historic previous uses and Massachusetts DEP records to determine if any previous hazards have been identified/remediated and if additional testing should be recommended. Conduct a preliminary archaeological investigation of historic records to determine if any further archaeological investigations should be recommended.

e) ***Geotechnical Investigation*** – Conduct preliminary geotechnical investigation (3-5 borings in the area of anticipated development) to determine if sub-surface conditions may require additional activities that may impact construction costs.

Preliminary Schematics / Conceptual Design

a) Based upon the programming information, prepare block plans to explore design options.
b) Upon consensus by project stakeholders on the preferred block plan design options, continue the development to a Conceptual Schematic design level, inclusive of site plans, floor plans, building elevations and perspective views to clearly demonstrate the design intent.

Cost Estimates and Cost Evaluation

a) After the conclusion of Conceptual Schematic Design, provide a total cost budget, which includes all project costs related to the design and construction for each developed option. Provide a complete project schedule including realistic deadlines for future design development, construction documentation, bidding, and construction phases.

Tecton with their partner H2M toured the existing fire and police stations to build an understanding of current operations, existing conditions, and any limitations imposed by the available facilities. The Design Team also reviewed Town offices, identifying such items as code/ADA concerns, but with a primary focus on programmatic needs only.

To identify the space needs, the Design Team's programmers conducted interviews with Town and Department personnel. The interviews discussed current operations, anticipated future growth, anticipated operational needs, and possible changes in the delivery of service to the community. An essential component for all public safety agencies is the provision of proper training. As such, the available and required training facilities were discussed in detail. The identification of potential site needs for each agency covered topics such as parking needs, site security, pedestrian access, and site equipment.

The results of the interview sessions were compiled into a document that represented the needs and wants of the various groups. Through a series of meetings with the department representatives, Tecton Architects, H2M and the Working Group, the documents were challenged and the rationale for inclusion of various program components was tested. In many cases, program elements were combined into multi-use spaces. This was followed by an allocation exercise, which explored the assignment of different programmatic elements to each available site location. These discussions identified the benefits, sacrifices, potential added cost, adjacency needs, duplication, response time impacts, cross staffing, and available building/site capacity, for each potential scenario. Ultimately this exercise resulted in multiple different program allocation options, with the Fire and Police Combination as the preferred scheme. This was in part due to a lack of significant synergy between town offices and public safety needs, therefore further consideration for a joint town/public safety facility was no longer warranted. This testing of program elements continued through the Conceptual Design process, as real depictions of the spaces further illustrated the program elements and their capacities. Ultimately the wish list was refined into a statement of Space Needs, which is included in this report.

To illustrate the feasibility of the sites and to establish a basis for preparing opinion of probable costs, the design team prepared three conceptual design solutions, with one design variation to address wetland concerns, for the stated building and site needs. These concepts were presented to the Working Group and to the departments for comment. These were reviewed against several factors, including response to programmatic needs, optimal adjacencies, compliance with current code and public safety standards, firefighter/officer safety and security, site accommodations and additional cost implications. The resultant comments were incorporated into the revised conceptual solutions and are included in this report.

The design team prepared ***Opinions of Probable Project Costs***. These budget documents include the conceptual estimates for construction costs based on the current market and are escalated to the mid-point of construction. The budgets also include allowances for project "soft costs" including design and project manager fees, furniture, equipment, materials testing, inspections, owner contingencies, etc. The Opinions of Probable Cost are included in this report.

Ultimately the study identified three potentially viable site for the Town's proposed new public safety facility. As always there are pros and cons to each site option which will impact the final site selection by the Town. The three sites are as follows:

87 & 0 Brimfield Road – The area of the site southwest of the existing DPW Building offers space for development of the public safety building. Preliminary environmental and subsurface investigations were conducted with no limiting findings.

Projected Project Development Cost: approximately $25.7 M

PROS

- Town owned land
- Good access to Brimfield Road
- No environmental concerns
- Good soil conditions except an area of fill

CONS

- The site area is confined and may limit future expansion of Public Safety and DPW
- Could benefit from small area of acquisition of the property to the south
- Likely will require underground storm water infiltration
- Requires relocation of DPW stockpiles to an area north of the DPW that will need excavation/regrading
- May not permit segregated secure parking for public safety staff and fleet

48 High Street & 100 Maple Avenue -expands the Town Office complex through the acquisition of adjacent property. No preliminary environmental evaluation or subsurface investigations conducted as yet due to transitioning ownership of 100 Maple Steet.

Projected Project Development Cost: approximately $25 M

PROS

- Co-location of Municipal functions
- Permits leaving Firearms simulator in existing location

CONS

- Emergency vehicles will need to negotiate through Town Office traffic at times

- Maple Street slope to southwest will reduce acceleration of large apparatus
- Doesn't permit segregated secure parking for public safety staff and fleet
- Would benefit from upgrade of existing campus roadways and parking areas

0 Old West Warren Road – This is a privately owned parcel with access to Old West Warren Road and Route 67. Preliminary subsurface investigations were conducted with no limiting findings.

Projected Project Development Cost: approximately $29.5 M

PROS

- Good access to Route 67
- No rock encountered by preliminary geotechnical investigation
- Sufficient area to support t entire program with future available space
- Preliminary review by Conservation Commission with few limiting criteria

CONS

- Site acquisition required
- Box culvert required for stream crossing; NOI required to Conservation Commission
- Limited secure segregation of staff and fleet parking
- Retaining walls required to accommodate 50' of grade change
- Highest preliminary project budget

To move forward with a potential project the Town of Warren must consider the options presented in this report and select the most advantageous site location. Considerations in that decision should include meeting programmatic needs, appropriateness to adjacent uses, potential for future change, site development challenges and total development cost. In the case of parcels requiring site acquisition, the Town may wish to further engage with current landowners to determine if site purchase is a viable avenue. Engaging with the Community for feedback on site options may also prove a valuable step in progressing the project.

PROGRAMMING & BUILDING ALLOCATION

2

Tecton
ARCHITECTS

Establishing the Spatial Requirements

Tecton along with their partner H2M met with designated staff and project stakeholders to collect data and build an understanding of operational needs and the space required to satisfy those needs. We met over several meetings to conduct these interviews and discussed administrative office space, public interface, meeting space, record retention storage needs, broadcasting space, types of training needs, living accommodations, apparatus response, vehicle and equipment storage, prisoner processing and detention areas, patrol functions, emergency communication needs, as wells as, opportunities for shared amenities.

The results of the interview sessions were compiled into a three-part document as follows:

1. ***Space Needs Summary:*** this portion of the document represents an overall look at the space needs of each Department with a listing of all the required rooms and their proposed area. For the buildings, a net to gross adjustment is applied to approximate the area required for circulation, wall thicknesses, MEP chases, etc. so that a total required building area is determined
2. ***Room Descriptions:*** this portion of the programming report provides detail about the rooms/spaces that were discussed during the interviews. The details can include furniture needs, special mechanical, plumbing or electrical needs, special security requirements, or applicable codes and standards relative to the function of the space. Most importantly, these details are used by our programmers to establish the square footage of each room/space included in the Summary.
3. ***Site Needs:*** the site needs are also outlined in this part of the programming report. Site needs can be anything from parking areas, outdoor program space, clearances around training props, site setbacks, utility yards, storm water retention and green space. The calculation in the site needs assessment helps to determine the minimum required buildable area of a site that will satisfy the overall program.

Once the first draft is compiled, the programmers met again with the user group to review the findings and make any necessary adjustments. Sometimes seeing the needs in writing can change the initial thinking from the interview session. Several areas were adjusted in our review of the draft program.

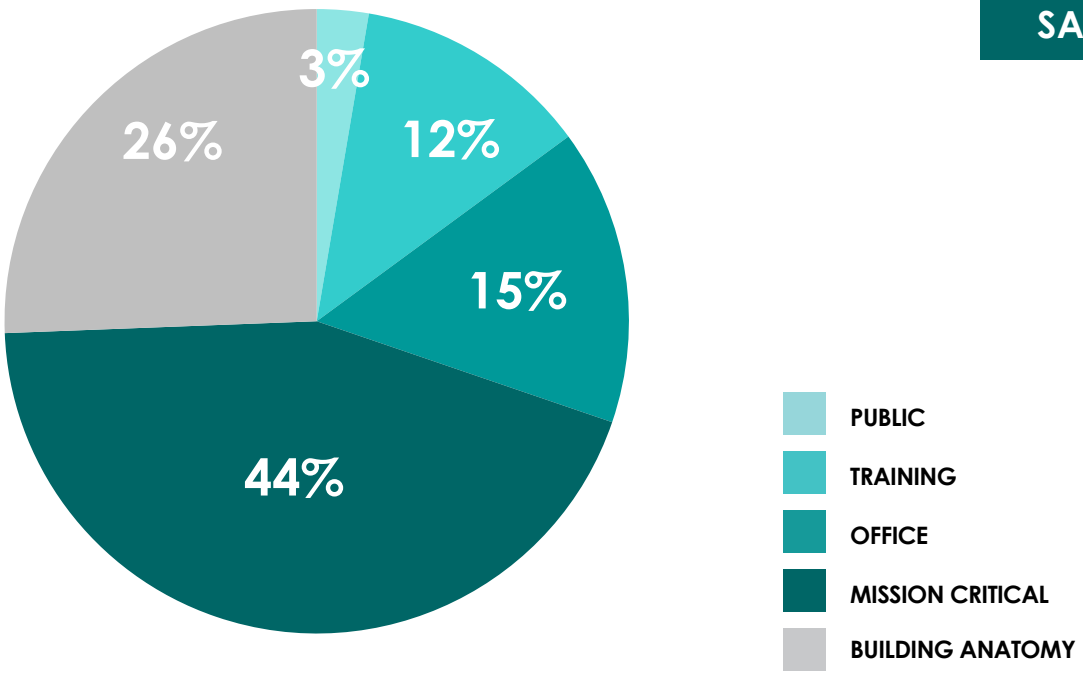
The final programming document included herein includes all comments, feedback, and changes from the review sessions. This program represents a comprehensive look at the needs of the Town, as whole, and not simply for a specific department. Ultimately, it was determined that a lack of significant synergy existed between town hall needs and public safety needs, therefore further consideration for a joint town/public safety facility was no longer warranted.

PROGRAM SCHEMES SUMMARY TABLE

PROGRAM SCHEME	FACILITY GROSS SF AREA	TOTAL SITE AREA
FIRE	16,670 SF	90,700 SF (2.09 AC)
POLICE	9,875 SF	48,010 SF (1.10 AC)
TOWN	15,430 SF	63,210 SF (1.45 AC)
FIRE + POLICE	25,400 SF → 26,545 SF	105,600 SF (2.43 AC)
PUBLIC SAFETY (WITH TOWN)	40,185 SF → 41,975 SF	149,800 SF (3.44 AC)

There is a realized savings by consolidating similar programs, (Fire + Police) in addition to the spatial efficiencies and program synergies created in the process. However, when introducing Town programs as well, the value of combining all three of these programs is not as prevalent. Since the square footage, spatial efficiencies and program synergies are not greatly advanced by the introduction of Town program (and the cost to do so *is* advanced), this strongly influenced the decision to move forward with an emphasis on Fire + Police in combination, without Town programs.

PUBLIC SAFETY



PROGRAM ALLOCATION NARRATIVE

PUBLIC

This category represents all spaces within the program that are "public-facing". This includes lobby and reception areas, public restrooms, meeting rooms, etc. ***Public comprises 3% of the program.***

TRAINING

This category represents all spaces within the program that advance skills and elevate the delivery of service. This includes conference and training rooms, firearms simulator, de-escalation spaces, etc. ***Training comprises 12% of the program.***

OFFICE

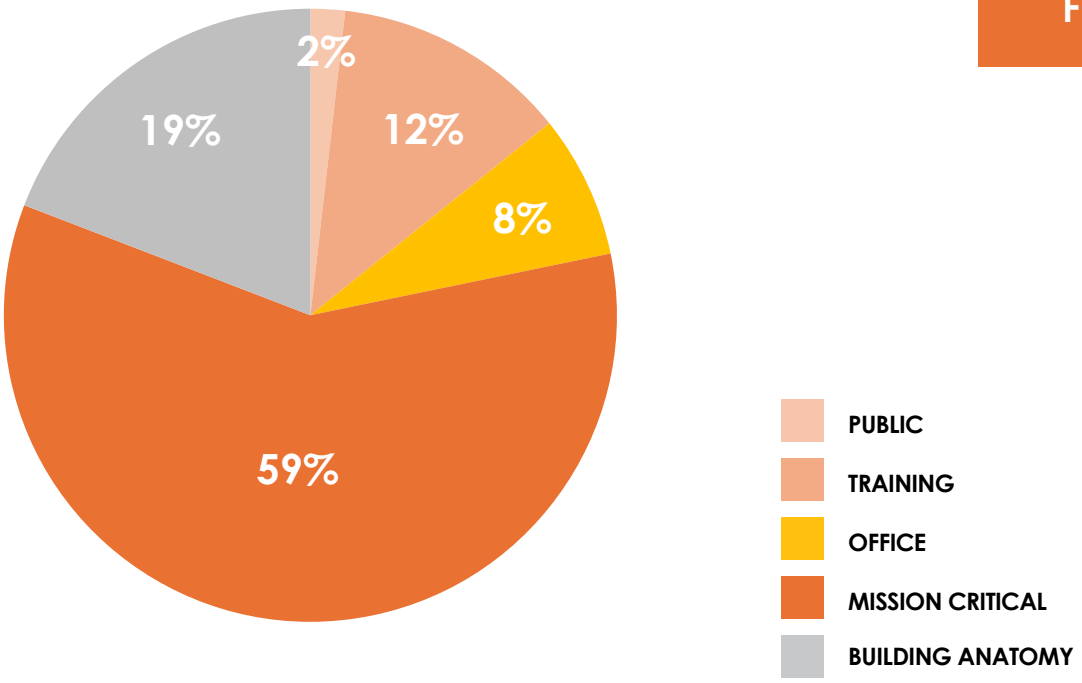
This category represents all spaces within the program that are "task-driven". This includes open office areas/workstations, private offices, department offices and administration areas, conference rooms, etc. ***Office comprises 15% of the program.***

MISSION CRITICAL

This category represents all spaces within the program that are critical to the department. These spaces are public safety specific and their sizes are directly driven to meeting accreditation requirements, best practices, custodial responsibilities, code requirements and standard recommendations. Since these spaces are so directly tied to specific tasks, there is very limited opportunities to reduce these portions of the program. This includes the sally port, detention areas/ cells, prisoner processing, evidence, dispatch, apparatus bays, transition zones, firematic support spaces, living quarters, etc. ***Mission Critical comprises 44% of the program.***

BUILDING ANATOMY

This category represents all components necessary to construct a building. These are all the spaces required to house building systems and infrastructure, as well as "the net to gross ratio". This includes circulation, wall thickness, utility/mechanical/electrical rooms, janitorial closets, etc. ***Building Anatomy comprises 26% of the program.***



PROGRAM ALLOCATION NARRATIVE

PUBLIC

This category represents all spaces within the program that are "public-facing". This includes lobby and reception areas, public restrooms, meeting rooms, etc. ***Public comprises 2% of the program.***

TRAINING

This category represents all spaces within the program that advance skills and elevate the delivery of service. This includes conference and training rooms, firearms simulator, de-escalation spaces, etc. ***Training comprises 12% of the program.***

OFFICE

This category represents all spaces within the program that are "task-driven". This includes open office areas/workstations, private offices, department offices and administration areas, conference rooms, etc. ***Office comprises 8% of the program.***

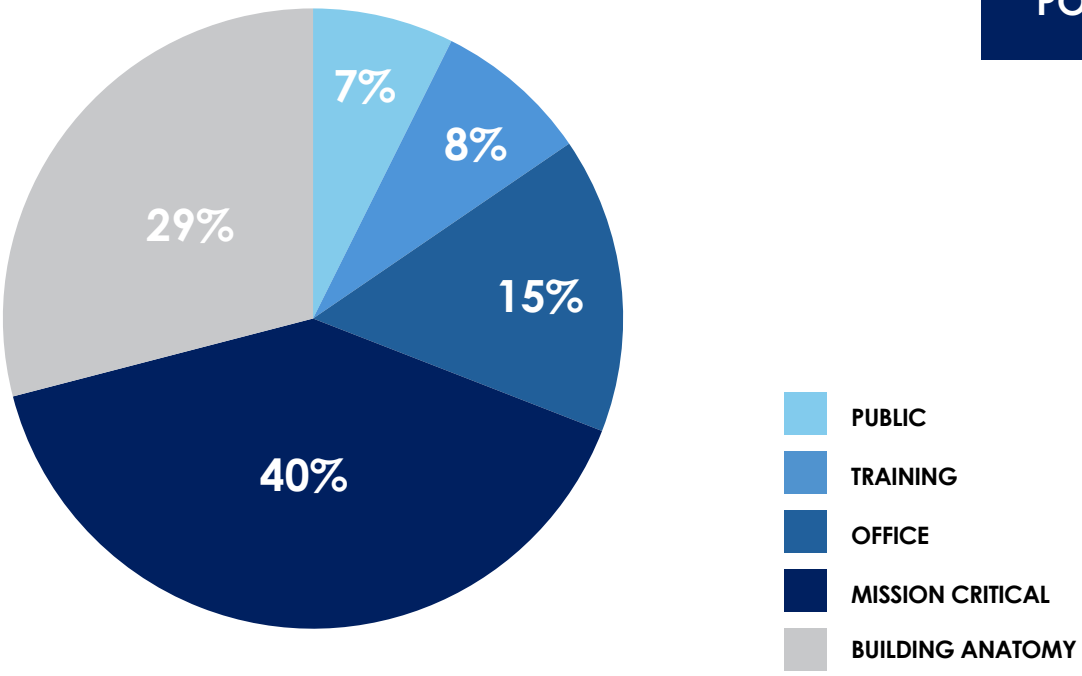
MISSION CRITICAL

This category represents all spaces within the program that are critical to the department. These spaces are public safety specific and their sizes are directly driven to meeting accreditation requirements, best practices, custodial responsibilities, code requirements and standard recommendations. Since these spaces are so directly tied to specific tasks, there is very limited opportunities to reduce these portions of the program. This includes apparatus bays, transition zones, firematic support spaces, living quarters, etc. ***Mission Critical comprises 59% of the program.***

BUILDING ANATOMY

This category represents all components necessary to construct a building. These are all the spaces required to house building systems and infrastructure, as well as "the net to gross ratio". This includes circulation, wall thickness, utility/mechanical/electrical rooms, janitorial closets, etc. ***Building Anatomy comprises 19% of the program.***

POLICE



PROGRAM ALLOCATION NARRATIVE

PUBLIC

This category represents all spaces within the program that are "public-facing". This includes lobby and reception areas, public restrooms, meeting rooms, etc. ***Public comprises 7% of the program.***

TRAINING

This category represents all spaces within the program that advance skills and elevate the delivery of service. This includes conference and training rooms, firearms simulator, de-escalation spaces, etc. ***Training comprises 8% of the program.***

OFFICE

This category represents all spaces within the program that are "task-driven". This includes open office areas/workstations, private offices, department offices and administration areas, conference rooms, etc. ***Office comprises 15% of the program.***

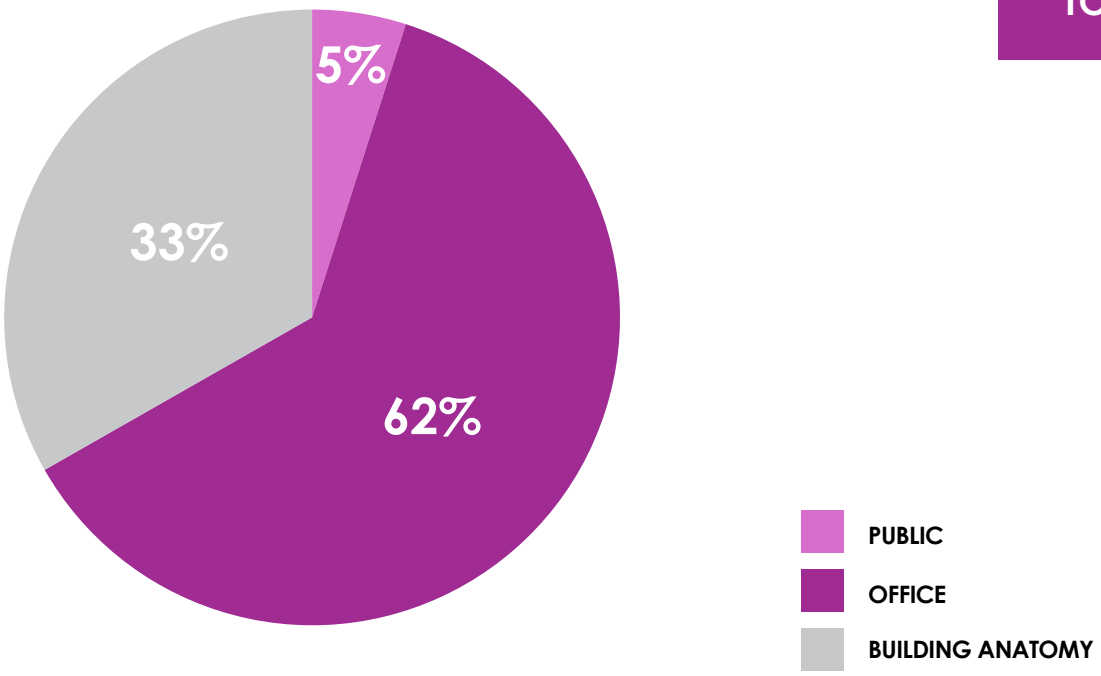
MISSION CRITICAL

This category represents all spaces within the program that are critical to the department. These spaces are public safety specific and their sizes are directly driven to meeting accreditation requirements, best practices, custodial responsibilities, code requirements and standard recommendations. Since these spaces are so directly tied to specific tasks, there is very limited opportunities to reduce these portions of the program. This includes the sally port, detention areas/ cells, prisoner processing, evidence, dispatch, etc. ***Mission Critical comprises 40% of the program.***

BUILDING ANATOMY

This category represents all components necessary to construct a building. These are all the spaces required to house building systems and infrastructure, as well as "the net to gross ratio". This includes circulation, wall thickness, utility/mechanical/electrical rooms, janitorial closets, etc. ***Building Anatomy comprises 29% of the program.***

TOWN



PROGRAM ALLOCATION NARRATIVE

PUBLIC

This category represents all spaces within the program that are "public-facing". This includes lobby and reception areas, public restrooms, meeting rooms, etc. ***Public comprises 5% of the program.***

OFFICE

This category represents all spaces within the program that are "task-driven". This includes open office areas/workstations, private offices, department offices and administration areas, conference rooms, etc. ***Office comprises 62% of the program.***

BUILDING ANATOMY

This category represents all components necessary to construct a building. These are all the spaces required to house building systems and infrastructure, as well as "the net to gross ratio". This includes circulation, wall thickness, utility/mechanical/electrical rooms, janitorial closets, etc. ***Building Anatomy comprises 33% of the program.***

PREFERRED PROGRAM SCHEME

Tecton
ARCHITECTS

Public Safety Facility [Police + Fire]

Shared Spaces

New Programmed Area Name			Program Area
A . Public			
	A.01	Vestibule	65 s.f.
	A.02	Lobby	240 s.f.
	A.03	Reception	100 s.f.
	A.04	Supply/Storage Closet	12 s.f.
	A.05	Unisex Restroom x 2	140 s.f.
		Subtotal:	557 s.f.
B . Community, Training & EOC			
	B.01	Training Room	720 s.f.
	B.02	EOC Supply Storage	20 s.f.
	B.03	Training Storage	20 s.f.
	B.04	Furniture Storage	80 s.f.
	B.05	Emergency Management Office	100 s.f.
	B.06	Emergency Management Storage	150 s.f.
		Subtotal:	1,090 s.f.
C . Staff Facilties			
	C.01	Radio/Back-Up Dispatch	100 s.f.
	C.02	Break Area (Kitchen/Dining/Day Room)	750 s.f.
	C.03	Wellness/Physical Fitness Center	600 s.f.
		Subtotal:	1,450 s.f.
D . Building Services			
	D.01	Custodial Closet	40 s.f.
	D.02	Mechanical Room	500 s.f.
	D.03	Air Handling Equipment Room	TBD s.f.
	D.04	Electrical Room	60 s.f.
	D.05	Emergency Electrical Room	40 s.f.
	D.06	Network/IT & Communications Equipment Room	120 s.f.
		Subtotal:	760 s.f.

Public Safety Facility [Police + Fire]

New Programmed Area Name			Program Area	
Fire Dedicated Spaces				
1 .	***Public***			
	Included within Shared Spaces			
2 .	***Training***			
	Included within Shared Spaces			
3 .	**Administration**			
3.01	Office #1 - Chief's Office		100	s.f.
3.02	Office #2 - EMS Coordinator		80	s.f.
3.03	Office #3 - Administraive Office		192	s.f.
3.04	Conference Room		280	s.f.
3.05	*Included within Shared Spaces*			
3.06	*Included within Shared Spaces*			
3.07	Records/File Storage		240	s.f.
3.08	Work Space (Central Photocopy/Mail)		40	s.f.
3.09	Unisex Restroom		70	s.f.
		Subtotal:	1,002	s.f.
4 .	**Firefighters/EMTs**			
4.01	Private Entry		70	s.f.
4.02	*Included within Shared Spaces*			
4.03	*Included within Shared Spaces*			
4.04	Firefighter Single Bunk Room(s) x 2		160	s.f.
4.05	Firefighter Double Bunk Room(s) x 2		320	s.f.
4.06	Firefighter Bunk Lockers		38	s.f.
4.07	Laundry/Housekeeping Storage		40	s.f.
4.08	Unisex Single Bath/Shower(s) x 3		192	s.f.
		Subtotal:	820	s.f.
5 .	**Apparatus/Training**			
5.01	Apparatus Bays (10) - 5 double-deep at 70' deep		6300	s.f.
		Subtotal:	6,300	s.f.

Public Safety Facility [Police + Fire]

New Programmed Area Name			Program Area	
6 .	**Firematic Support**			
	6.01	Mezzanine	1260	s.f.
	6.02	Storage Room #1 - Fire and EMS Storage	80	s.f.
	6.03	Storage Room #2 - Fire and Emergency Management	320	s.f.
	6.04	Mechanic's Work Room	160	s.f.
	6.05	Fire/EMS DeCon Laundry	160	s.f.
	6.06	Safety Materials/Training Storage Room	80	s.f.
	6.07	Air Room (SCBA)	160	s.f.
	6.08	Turnout Gear Room	500	s.f.
	6.09	*Included within Shared Spaces*		
	6.10	Unisex Restroom for Apparatus Bays (Hot Zone)	70	s.f.
	6.11	Transition Zone	60	s.f.
		Subtotal:	2,850	s.f.

Police Dedicated Spaces

1 .	**Public**			
	1.01	*Included within Shared Spaces*		
	1.02	*Included within Shared Spaces*		
	1.03	Public Interview/Meeting Room	120	s.f.
	1.04	*Included within Shared Spaces*		
		Subtotal:	120	s.f.
2 .	***Community, Training & EOC***			
		Included within Shared Spaces		
3 .	***Reception and Back-up Dispatch***			
		Included within Shared Spaces		
4 .	**Records Office**			
	4.01	Records Office	180	s.f.
	4.02	Reprographics Area	20	s.f.
	4.03	Records Archive Room	100	s.f.
		Subtotal:	300	s.f.

Public Safety Facility [Police + Fire]

New Programmed Area Name			Program Area
5 .	***IT***		
		Included within Shared Spaces	
6 .	**Patrol Facilities**		
	6.01	Report Preparation/Roll Call	220 s.f.
	6.02	Patrol Equipment (Quartermaster)	50 s.f.
	6.03	Weapons Cleaning	20 s.f.
	6.04	Department Armory	40 s.f.
		Subtotal:	330 s.f.
7 .	**Department Administration**		
	7.01	Chief's Office	175 s.f.
	7.02	Conference Room	240 s.f.
	7.03	Lieutenant's Office	160 s.f.
	7.04	Sergeant's Office	220 s.f.
		Subtotal:	795 s.f.
8 .	**Staff Facilities**		
	8.01	Male Restroom/Shower	180 s.f.
	8.02	Male Locker Room	220 s.f.
	8.03	Female Restroom/Shower	180 s.f.
	8.04	Female Locker Room	100 s.f.
	8.05	*Included within Shared Spaces*	
	8.06	*Included within Shared Spaces*	
	8.07	Miscellaneous Toilet	70 s.f.
		Subtotal:	750 s.f.
9 .	**Property and Evidence**		
	9.01	Evidence Receiving	30 s.f.
	9.02	Evidence Storage	220 s.f.
	9.03	Bulk Evidence/Found Property	100 s.f.
		Subtotal:	350 s.f.

Public Safety Facility [Police + Fire]

New Programmed Area Name			Program Area	
10 .	**Prisoner Processing**			
10.01	Sally Port (2-cruiser deep)		720	s.f.
10.02	Cruiser Supply		20	s.f.
10.03	Officer Decontamination		65	s.f.
10.04	Processing Area		240	s.f.
10.05	Intoxilyzer Area		20	s.f.
10.06	Custodial Closet		20	s.f.
10.07	Interview Room		100	s.f.
		Subtotal:	1185	s.f.
11 .	**Detention Facilities**			
11.01	Standard Adult Cell Block x 1		120	s.f.
11.02	HC Accessible Juvenile Unisex Cell x 1		150	s.f.
		Subtotal:	270	s.f.
12 .	**De-escalation and Firearms Training**			
12.01	Fire Arms Training Simulator		750	s.f.
		Subtotal:	750	s.f.
13 .	**Storage and Maintenance**			
13.01	General Storage		100	s.f.
13.02	Outdoor Seasonal Storage		65	s.f.
		Subtotal:	165	s.f.
	Summation			
	Facility net area:		19,844	s.f.
	Net to gross adjustment	28%	5,556	s.f.
	Facility gross area total:		**25,400**	s.f.

Public Safety Facility [Police + Fire]

New Programmed Area Name	Program Area

A . Public

A.01 Vestibule — 65 s.f.

Security
- free access from exterior
- emergency lockdown of inner doors
- ballistic protection in any wall interfacing staff areas
- aiphone for video communication to desk

Electrical
- fire alarm annunciator panel
- audio/visual phone in lobby

A.02 Lobby — 240 s.f.

General
- design should reflect an environment of service to the community; should feel welcoming, professional and open

Security
- free access with emergency lockdown provisions
- proximity access control to secure areas
- remote release of doors from Desk Officer
- ballistic protection in walls interfacing staff areas
- audio/video monitoring

Furniture
4 waiting chairs

Casework and built-ins
2 large pamphlet/form rack for community information
- prescription drug and needles/sharps drop off

Display
2 flat panel information monitor
2 display cases for small historic artifacts

Mechanical
- do not recirculate air into staff areas

Plumbing
1 drinking fountain (accessible)

A.03 Reception — 100 s.f.

General
- this space will serve as the main public reception point
- security monitoring capabilities

Casework and built-ins
8 lineal foot service counter at windows

Public Safety Facility [Police + Fire]

New Programmed Area Name	Program Area

Furniture
1 "U" workstation with chair

Equipment
- display monitors above service window

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Security
- proximity access control
- ballistic protection in walls interfacing public areas
1 ballistic service windows to lobby w/ natural voice transmission
- ballistic deal tray to lobby

A.04 Supply/Storage Closet 12 s.f.

Casework and Built-ins
- five tier x 4' wall shelving on standards

A.05 Unisex Restroom x 2 140 s.f.

Plumbing
1 water closet
1 sink
1 floor drain with trap primer

Equipment
- toilet accessories as required
- mirrors at sinks
- changing station

Security
- ballistic protection in walls interfacing staff areas
- avoid concealed areas within room or above ceiling

B . Community, Training & EOC

B.01 Training Room 720 s.f.

Occupants 40

General
- will be utilized for community events, internal department training, city meetings and as an Emergency Operations Center, if enacted.
- space should be flexible in order to accommodate in-person, hybrid, and fully virtual meetings with appropriate audio visual capabilities
- considerations and accommodations for broadcasting and press briefings

Public Safety Facility [Police + Fire]

New Programmed Area Name	Program Area

Acoustics
- partitions to extend to underside of structure
- sound batt insulation in stud partitions

Furniture
20 2'x6' tables with chairs
1 "smart" podium

Casework and Built-ins
12 lineal feet base cabinets with counter

Equipment
1 wall telephone

Display
1 4' x 8' marker board
4 flat panel monitors, multiple each side of the room
2 4'x4' tack boards
2 short throw projector
- writeable/projectable wall covering at presentation wall

Plumbing
- sink in counter

Electrical
- connectivity for portable dispatch
- connectivity for cable access TV
- tel/data floor boxes for tables
- several levels of lighting control
- dispatch radio speakers (with volume control) through PA system

Special Design Considerations
- direct access to public lobby & to secure staff corridor

Security
- proximity access control
- interlock to switch control point
- ballistic protection in walls interfacing staff areas
- ballistic resistant glazing

B.02 EOC Supply Storage 20 s.f.

Furniture
2 24" x 36" x 72" metal shelving

Security
- standard commercial lockset

B.03 Training Storage 20 s.f.

General
- CPR, Defense Tactics Equipment

Public Safety Facility [Police + Fire]

New Programmed Area Name	Program Area

Furniture
4 24" x 36" x 72" metal shelving

Security
- standard commercial lockset

B.04 Furniture Storage 80 s.f.

General
- space for stacked chairs and tables

Security
- standard commercial lockset

B.05 Emergency Management Office 100 s.f.

Furniture
1 "U" shaped workstation
3 three drawer lateral file cabinet
2 visitor's chairs

Casework and built-ins
8 lineal foot countertop over files
16 lineal feet of wall shelving over files

Equipment
1 computer at desk
1 telephone at desk

Comments/Adjacencies
- immediate adjacency to the Fire Department Offices

B.06 Emergency Management Storage 150 s.f.

Furniture
6 24" x 36" x 72" five tier metal shelving

Comments/Adjacencies
- immediate adjacency to Emergency Management Office

C . Staff Facilties

C.01 Radio/Back-Up Dispatch 100 s.f.

General
- security monitoring capabilities

Casework and built-ins
8 lineal foot counter for back-up dispatch equipment

Public Safety Facility [Police + Fire]

New Programmed Area Name	Program Area

Furniture

2 "L" shaped workstations, (1) main console and (1) support
4 3-drawer file cabinets for dispatch, portable radios, small charging station
1 chair at dispatch counter

Security

- proximity access control
- door operation and bay lighting control
- backup alarm

Equipment

- internal paging system
- EMS report writing computer equipment
- closed circuit TV, phones, weather station
- rechargeable portable radios
- base radio
- display monitors

Acoustics

- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Comments/Adjacencies

- cool zone, remote backup alarm, adhere to HIPPA, acknowledgement button
- located off of lobby; main public point of contact; view of apparatus bays is also preferred but not required

C.02 Break Area (Kitchen/Dining/Day Room) 750 s.f.

General

- kitchen is separate but open to dining
- all commercial equipment and appliances, stainless steel
- easily cleaned

Casework and Built-ins

- prep island
- 2'-6" solid surface countertops
2 pantries, separate food storage for each shift
- self closing doors and drawers for all cabinetry

Furniture

6 loungers
- end tables
- AV credenza
1 table for 10

Public Safety Facility [Police + Fire]

New Programmed Area Name	Program Area

Equipment

1 gas stove with 4-6 burners + griddle (provided by owner)
1 oven (provided by owner)
1 range hood
1 dishwasher
1 microwaves
2 sinks, one deep bowl
2 refrigerator with freezer (provided by owner)
- wall mounted TV
- exterior grill

Plumbing

- floor drain

Comments/Adjacencies

- easy access to bays
- proximate to exterior patio area

C.03 Wellness/Physical Fitness Center 600 s.f.

General

- access to natural daylight
- free floor space

Casework and Built-ins

- storage for medicine balls
- towel storage

Equipment

- incline, decline & flat benches
- bike
- stair climber
1 treadmill
- universal machine
- pull-up bar
- high wall mounted TV
- music
- mats

Special

- recycled rubber floor
- mirrors full height one wall
- handrails
- window to hall
- solid blocking in all walls

Mechanical

- dedicated exhaust and AC unit
- overhead fan

Public Safety Facility [Police + Fire]

New Programmed Area Name	Program Area

Electrical
- sound system/paging capabilities
- two-way radio/speakers/telephone

Acoustics
- sound batt insul. in stud partitions

Security
- standard commercial lockset

Comments/Adjacencies
- proximate to Male & Female Locker Rooms
- proximate to Apparatus Bays for response

D . Building Services

D.01 Custodial Closet — 40 s.f.

Plumbing
1 mop sink

Equipment
1 mop rack

Security
- standard commercial lockset

D.02 Mechanical Room — 500 s.f.

- confirm size with system selection

Security
- standard commercial lockset

D.03 Air Handling Equipment Room — TBD s.f.

- Use attic or roof top

D.04 Electrical Room — 60 s.f.

- confirm size with system selection

Security
- standard commercial lockset

D.05 Emergency Electrical Room — 40 s.f.

- confirm size with system selection

Security
- standard commercial lockset
- 2-hour fire rated construction

Public Safety Facility [Police + Fire]

New Programmed Area Name	Program Area

D.06 Network/IT & Communications Equipment Room 120 s.f.

General
- non-static flooring
- partitions to extend to underside of structure
- sound batt insulation in stud partitions
- verify sound attenuation will mitigate equipment noise

Casework and Built-ins
4 lineal feet of open counter

Equipment
5 electronic equipment racks
20 lineal feet of 8' high plywood backboard
1 telephone
- UPS
- cable tray over racks

Mechanical
- dedicated cooling units sized per actual equipment demand

Electrical
- all systems on ups and emergency generator

4 4" conduit to antenna/microwave
2 future 4"conduit to roof

Fire Protection
- chemical fire suppression system

Security
- proximity access control
- 2 hour fire rating
- security system and CCTV

Comments/Adjacencies
- Reception and Back-up Dispatch

Public Safety Facility [Police + Fire]

	New Programmed Area Name	Quantity	Programmed Area	
S.1	**Building Area**			
	Building Footprint	**2 story**	15,880	s.f.
	Future Building Growth (25% of programmed area)		3,970	s.f.
	Subtotal:		19,850	s.f.
S.2	**Parking Area**			
	Visitor Parking	**40 spaces**	6,600	s.f.
	Visitor Handicapped Parking	2 spaces	540	s.f.
	Staff Parking	**18 spaces**	2,970	s.f.
	Staff Handicapped Parking	1 spaces	270	s.f.
	Covered Cruiser Parking (Carport)	**8 spaces**	1,800	s.f.
	Impound Lot	2 spaces	650	s.f.
	Travel Lane Allowance		11,800	s.f.
	Apron Allowance	10 doors	9,000	s.f.
	Subtotal:		33,630	s.f.
S.3	**Site Utilities**			
	Electrical Transformers		100	s.f.
	Emergency Generator		1000	s.f.
	AC Equipment		400	s.f.
	Dumpsters		240	s.f.
	Storm Water Retention		5,400	s.f.
	Subtotal:		7,140	s.f.
S.4	**Site Amenities**			
	Outdoor Patio		200	s.f.
	Subtotal:		200	s.f.
S.5	**Setbacks and Green Space**			
	Green space		30,400	s.f.
	Setbacks		14,400	s.f.
	Subtotal:		44,800	s.f.
	Summation			
	Minimum useable site area		105,600	s.f.
	Minimum useable site acreage		**2.43**	**ac.**

ALTERNATIVE PROGRAM SCHEMES

- SPACE NEEDS: FIRE
- SPACE NEEDS: POLICE
- SPACE NEEDS: TOWN
- SPACE NEEDS: PUBLIC SAFETY (WITH TOWN)

REFER TO 'APPENDIX A' FOR ROOM DETAILS AND SITE NEEDS

Fire Headquarters

New Programmed Area Name			Program Area	
1 .	**Public**			
1.01	Public Entry Area		162	s.f.
1.02	Unisex Restroom(s) x 2		140	s.f.
		Subtotal:	302	s.f.
2 .	**Training**			
2.01	Training/Community Room		720	s.f.
2.02	Training Storage Room		80	s.f.
		Subtotal:	800	s.f.
3 .	**Administration**			
3.01	Office #1 - Chief's Office		100	s.f.
3.02	Office #2 - EMS Coordinator		80	s.f.
3.03	Office #3 - Administraive Office		192	s.f.
3.04	Conference Room		280	s.f.
3.05	Emergency Management Office		100	s.f.
3.06	Emergency Management Storage		150	s.f.
3.07	Records/File Storage		240	s.f.
3.08	Work Space (Central Photocopy/Mail)		40	s.f.
3.09	Unisex Restroom		70	s.f.
		Subtotal:	1,252	s.f.
4 .	**Firefighters/EMTs**			
4.01	Private Entry		70	s.f.
4.02	Firefighters/EMTs Day Room/Kitchen/Dining		750	s.f.
4.03	Fitness Room		336	s.f.
4.04	Firefighter Single Bunk Room(s) x 2		160	s.f.
4.05	Firefighter Double Bunk Room(s) x 2		320	s.f.
4.06	Firefighter Bunk Lockers		38	s.f.
4.07	Laundry/Housekeeping Storage		40	s.f.
4.08	Unisex Single Bath/Shower(s) x 3		192	s.f.
		Subtotal:	1,906	s.f.
5 .	**Apparatus/Training**			
5.01	Apparatus Bays (10) - 5 double-deep at 70' deep		6300	s.f.
		Subtotal:	6,300	s.f.

Fire Headquarters

New Programmed Area Name			Program Area	
6 .	**Firematic Support**			
	6.01	Mezzanine	1260	s.f.
	6.02	Storage Room #1 - Fire and EMS Storage	80	s.f.
	6.03	Storage Room #2 - Fire and Emergency Management	320	s.f.
	6.04	Mechanic's Work Room	160	s.f.
	6.05	Fire/EMS DeCon Laundry	160	s.f.
	6.06	Safety Materials/Training Storage Room	80	s.f.
	6.07	Air Room (SCBA)	160	s.f.
	6.08	Turnout Gear Room	500	s.f.
	6.09	Radio/Communications Room	80	s.f.
	6.10	Unisex Restroom for Apparatus Bays (Hot Zone)	70	s.f.
	6.11	Transition Zone	60	s.f.
		Subtotal:	2,930	s.f.
7 .	**Building Facilities**			
	7.01	Custodial Closet(s)	40	s.f.
	7.02	Mechanical Room	320	s.f.
	7.03	Network/IT	40	s.f.
		Subtotal:	400	s.f.
	Summation			
		Facility net area:	13,890	s.f.
		Net to gross adjustment (20%)	2,780	s.f.
		Facility gross area total:	**16,670**	s.f.

Police Headquarters

New Programmed Area Name			Program Area
1 . Public			
1.01	Vestibule		65 s.f.
1.02	Lobby		240 s.f.
1.03	Public Interview/Meeting Room		120 s.f.
1.04	Unisex Restroom x 2		140 s.f.
		Subtotal:	565 s.f.
2 . Community, Training & EOC			
2.01	Training Room		680 s.f.
2.02	EOC Supply Storage		20 s.f.
2.03	Training Storage		20 s.f.
2.04	Furniture Storage		80 s.f.
		Subtotal:	800 s.f.
3 . Reception and Back-up Dispatch			
3.01	Reception and Back-up Dispatch		150 s.f.
3.02	Supply/Storage Closet		12 s.f.
		Subtotal:	162 s.f.
4 . Records Office			
4.01	Records Office		180 s.f.
4.02	Reprographics Area		20 s.f.
4.03	Records Archive Room		100 s.f.
		Subtotal:	300 s.f.
5 . IT			
5.01	IT Server & Communications Equipment Room		100 s.f.
		Subtotal:	100 s.f.
6 . Patrol Facilities			
6.01	Report Preparation/Roll Call		220 s.f.
6.02	Patrol Equipment (Quartermaster)		50 s.f.
6.03	Weapons Cleaning		20 s.f.
6.04	Department Armory		40 s.f.
		Subtotal:	330 s.f.

Police Headquarters

New Programmed Area Name			Program Area
7 .	**Department Administration**		
7.01	Chief's Office	175	s.f.
7.02	Conference Room	240	s.f.
7.03	Lieutenant's Office	160	s.f.
7.04	Sergeant's Office	220	s.f.
	Subtotal:	795	s.f.
8 .	**Staff Facilities**		
8.01	Male Restroom/Shower	180	s.f.
8.02	Male Locker Room	220	s.f.
8.03	Female Restroom/Shower	180	s.f.
8.04	Female Locker Room	100	s.f.
8.05	Officer Wellness/Physical Fitness Center	400	s.f.
8.06	Break Area	250	s.f.
8.07	Miscellaneous Toilet	70	s.f.
	Subtotal:	1400	s.f.
9 .	**Property and Evidence**		
9.01	Evidence Receiving	30	s.f.
9.02	Evidence Storage	220	s.f.
9.03	Bulk Evidence/Found Property	100	s.f.
	Subtotal:	350	s.f.
10 .	**Prisoner Processing**		
10.01	Sally Port (2-cruiser deep)	720	s.f.
10.02	Cruiser Supply	20	s.f.
10.03	Officer Decontamination	65	s.f.
10.04	Processing Area	240	s.f.
10.05	Intoxilyzer Area	20	s.f.
10.06	Custodial Closet	20	s.f.
10.07	Interview Room	100	s.f.
	Subtotal:	1185	s.f.

Police Headquarters

New Programmed Area Name			Program Area
11 . Detention Facilities			
11.01	Standard Adult Cell Block x 1		120 s.f.
11.02	HC Accessible Juvenile Unisex Cell x 1		150 s.f.
		Subtotal:	270 s.f.
12 . De-escalation and Firearms Training			
12.01	Fire Arms Training Simulator		750 s.f.
		Subtotal:	750 s.f.
13 . Storage and Maintenance			
13.01	General Storage		100 s.f.
13.02	Outdoor Seasonal Storage		65 s.f.
		Subtotal:	165 s.f.
14 . Building Services			
14.01	Custodial Closet		25 s.f.
14.02	Mechanical Room		300 s.f.
14.03	Air Handling Equipment Room		TBD s.f.
14.04	Electrical Room		60 s.f.
14.05	Emergency Electrical Room		40 s.f.
		Subtotal:	425 s.f.
Summation			
	Facility net area:		7,597 s.f.
	Net to gross adjustment (30%)		2,278 s.f.
	Facility gross area total:		**9,875** s.f.

Town Offices

New Programmed Area Name			Program Area
1 . Public			
	1.01	Vestibule	100 s.f.
	1.02	Lobby	300 s.f.
	1.03	Public Male Restroom	180 s.f.
	1.04	Public Female Restroom	180 s.f.
		Subtotal:	760 s.f.
2 . Shared Meeting Facilities			
	2.01	Meeting Room	200 s.f.
	2.02	Conference Room	260 s.f.
	2.03	Executive Conference Room	280 s.f.
	2.04	Board Meeting Room (sub-dividable)	2000 s.f.
	2.05	Furniture Storage	180 s.f.
	2.06	AV Equipment	20 s.f.
		Subtotal:	2940 s.f.
3 . Board of Selectmen and Town Administration			
	3.01	Administrative Assistant	170 s.f.
	3.02	Supply/Storage Closet	30 s.f.
	3.03	Town Administrator's Office	175 s.f.
		Subtotal:	375 s.f.
4 . Town Accountant			
	4.01	Town Accountant's Office	245 s.f.
		Subtotal:	245 s.f.
5 . Treasurer and Tax Collector			
	5.01	Treasurer's and Tax Collector's Office	680 s.f.
	5.02	File/Storage Area	300 s.f.
		Subtotal:	980 s.f.
6 . Multi-Department Shared Office: Building, Planning, Conservation and Assessor's			
	6.01	Shared Office	720 s.f.
	6.02	File Storage Room	360 s.f.
		Subtotal:	1080 s.f.

Town Offices

New Programmed Area Name			Program Area
7 .	**Town Clerk**		
7.01	Town Clerk's Office		680 s.f.
7.02	Library		100 s.f.
7.03	Storage Closet		20 s.f.
		Subtotal:	800 s.f.
8 .	**Board of Health**		
8.01	Board of Health Office		280 s.f.
8.02	Storage Closet		20 s.f.
		Subtotal:	300 s.f.
9 .	**Multi-Department Shared Office: Historic Commission, Veterans, CemetaryCommission, Parks & Rec.**		
9.01	Shared Office		625 s.f.
9.02	Storage Room		150 s.f.
		Subtotal:	775 s.f.
10 .	**Sewer Department**		
10.01	Sewer Department Office		240 s.f.
		Subtotal:	240 s.f.
11 .	**Multi-department Shared Office - Animal Control, Parking Clerk**		
11.01	Shared Office		255 s.f.
11.02	Storage Room		80 s.f.
		Subtotal:	350 s.f.
12 .	**Cable Access Television**		
12.01	CATV Studio		400 s.f.
12.02	Storage Room		80 s.f.
		Subtotal:	480 s.f.
13 .	**Office Support Facilities**		
13.01	Copy/Mail Room		30 s.f.
13.02	Archive Storage		320 s.f.
		Subtotal:	350 s.f.

Town Offices

New Programmed Area Name			Program Area
14 . Staff Facilities			
14.01	Male Restroom		180 s.f.
14.02	Female Restroom		180 s.f.
14.03	Break Area		265 s.f.
		Subtotal:	625 s.f.
15 . Custodian			
15.01	Custodian's Office		100 s.f.
15.02	Custodial Closet x2		50 s.f.
		Subtotal:	150 s.f.
16 . Storage and Maintenance			
16.01	General Storage		500 s.f.
16.02	Voting Storage		200 s.f.
16.03	Outdoor Seasonal Storage		120 s.f.
		Subtotal:	820 s.f.
17 . Building Services			
17.01	Mechanical Room		500 s.f.
17.02	Air Handling Equipment Room		TBD s.f.
17.03	Electrical Room		100 s.f.
		Subtotal:	600 s.f.
Summation			
	Facility net area:		11,870 s.f.
	Net to gross adjustment (30%)		3,560 s.f.
	Facility gross area total:		**15,430** s.f.

Public Safety Facility [Police + Fire + Town]

New Programmed Area Name			Program Area	
Shared Spaces				
A .	**Public**			
A.01	Vestibule		65	s.f.
A.02	Lobby		240	s.f.
A.03	Reception		100	s.f.
A.04	Supply/Storage Closet		12	s.f.
A.05	Unisex Restroom x 2		140	s.f.
		Subtotal:	557	s.f.
B .	**Community, Training & EOC**			
B.01	Training Room		720	s.f.
B.02	EOC Supply Storage		20	s.f.
B.03	Training Storage		20	s.f.
B.04	Furniture Storage		80	s.f.
B.05	Emergency Management Office		100	s.f.
B.06	Emergency Management Storage		150	s.f.
		Subtotal:	1,090	s.f.
C .	**Staff Facilties**			
C.01	Radio/Back-Up Dispatch		100	s.f.
C.02	Break Area (Kitchen/Dining/Day Room)		750	s.f.
C.03	Wellness/Physical Fitness Center		600	s.f.
		Subtotal:	1,450	s.f.
D .	**Building Services**			
D.01	Custodial Closet		40	s.f.
D.02	Mechanical Room		720	s.f.
D.03	Air Handling Equipment Room		TBD	s.f.
D.04	Electrical Room		120	s.f.
D.05	Emergency Electrical Room		40	s.f.
D.06	Network/IT & Communications Equipment Room		120	s.f.
		Subtotal:	1,040	s.f.

Public Safety Facility [Police + Fire + Town]

New Programmed Area Name			Program Area	
Fire Dedicated Spaces				
1 .	*Public*			
	Included within Shared Spaces			
2 .	*Training*			
	Included within Shared Spaces			
3 .	**Administration**			
3.01	Office #1 - Chief's Office		100	s.f.
3.02	Office #2 - EMS Coordinator		80	s.f.
3.03	Office #3 - Administraive Office		192	s.f.
3.04	Conference Room		280	s.f.
3.05	*Included within Shared Spaces*			
3.06	*Included within Shared Spaces*			
3.07	Records/File Storage		240	s.f.
3.08	Work Space (Central Photocopy/Mail)		40	s.f.
3.09	Unisex Restroom		70	s.f.
		Subtotal:	1,002	s.f.
4 .	**Firefighters/EMTs**			
4.01	Private Entry		70	s.f.
4.02	*Included within Shared Spaces*			
4.03	*Included within Shared Spaces*			
4.04	Firefighter Single Bunk Room(s) x 2		160	s.f.
4.05	Firefighter Double Bunk Room(s) x 2		320	s.f.
4.06	Firefighter Bunk Lockers		38	s.f.
4.07	Laundry/Housekeeping Storage		40	s.f.
4.08	Unisex Single Bath/Shower(s) x 3		192	s.f.
		Subtotal:	820	s.f.
5 .	**Apparatus/Training**			
5.01	Apparatus Bays (10) - 5 double-deep at 70' deep		6300	s.f.
		Subtotal:	6,300	s.f.

Public Safety Facility [Police + Fire + Town]

New Programmed Area Name			Program Area	
6 .	**Firematic Support**			
6.01	Mezzanine		1260	s.f.
6.02	Storage Room #1 - Fire and EMS Storage		80	s.f.
6.03	Storage Room #2 - Fire and Emergency Management		320	s.f.
6.04	Mechanic's Work Room		160	s.f.
6.05	Fire/EMS DeCon Laundry		160	s.f.
6.06	Safety Materials/Training Storage Room		80	s.f.
6.07	Air Room (SCBA)		160	s.f.
6.08	Turnout Gear Room		500	s.f.
6.09	*Included within Shared Spaces*			
6.10	Unisex Restroom for Apparatus Bays (Hot Zone)		70	s.f.
6.11	Transition Zone		60	s.f.
		Subtotal:	2,850	s.f.

Police Dedicated Spaces

1 .	**Public**			
1.01	*Included within Shared Spaces*			
1.02	*Included within Shared Spaces*			
1.03	Public Interview/Meeting Room		120	s.f.
1.04	*Included within Shared Spaces*			
		Subtotal:	120	s.f.
2 .	***Community, Training & EOC***			
	Included within Shared Spaces			
3 .	***Reception and Back-up Dispatch***			
	Included within Shared Spaces			
4 .	**Records Office**			
4.01	Records Office		180	s.f.
4.02	Reprographics Area		20	s.f.
4.03	Records Archive Room		100	s.f.
		Subtotal:	300	s.f.

Public Safety Facility [Police + Fire + Town]

New Programmed Area Name			Program Area
5 .	*IT*		
		Included within Shared Spaces	
6 .	**Patrol Facilities**		
	6.01	Report Preparation/Roll Call	220 s.f.
	6.02	Patrol Equipment (Quartermaster)	50 s.f.
	6.03	Weapons Cleaning	20 s.f.
	6.04	Department Armory	40 s.f.
		Subtotal:	330 s.f.
7 .	**Department Administration**		
	7.01	Chief's Office	175 s.f.
	7.02	Conference Room	240 s.f.
	7.03	Lieutenant's Office	160 s.f.
	7.04	Sergeant's Office	220 s.f.
		Subtotal:	795 s.f.
8 .	**Staff Facilities**		
	8.01	Male Restroom/Shower	180 s.f.
	8.02	Male Locker Room	220 s.f.
	8.03	Female Restroom/Shower	180 s.f.
	8.04	Female Locker Room	100 s.f.
	8.05	*Included within Shared Spaces*	
	8.06	*Included within Shared Spaces*	
	8.07	Miscellaneous Toilet	70 s.f.
		Subtotal:	750 s.f.
9 .	**Property and Evidence**		
	9.01	Evidence Receiving	30 s.f.
	9.02	Evidence Storage	220 s.f.
	9.03	Bulk Evidence/Found Property	100 s.f.
		Subtotal:	350 s.f.

Public Safety Facility [Police + Fire + Town]

New Programmed Area Name			Program Area
10 . Prisoner Processing			
10.01	Sally Port (2-cruiser deep)		720 s.f.
10.02	Cruiser Supply		20 s.f.
10.03	Officer Decontamination		65 s.f.
10.04	Processing Area		240 s.f.
10.05	Intoxilyzer Area		20 s.f.
10.06	Custodial Closet		20 s.f.
10.07	Interview Room		100 s.f.
		Subtotal:	1185 s.f.
11 . Detention Facilities			
11.01	Standard Adult Cell Block x 1		120 s.f.
11.02	HC Accessible Juvenile Unisex Cell x 1		150 s.f.
		Subtotal:	270 s.f.
12 . De-escalation and Firearms Training			
12.01	Fire Arms Training Simulator		750 s.f.
		Subtotal:	750 s.f.
13 . Storage and Maintenance			
13.01	General Storage		100 s.f.
13.02	Outdoor Seasonal Storage		65 s.f.
		Subtotal:	165 s.f.

Town Offices Dedicated Spaces

1 . Public			
1.01	Vestibule		100 s.f.
1.02	Lobby		300 s.f.
1.03	Public Male Restroom		180 s.f.
1.04	Public Female Restroom		180 s.f.
		Subtotal:	760 s.f.

Public Safety Facility [Police + Fire + Town]

New Programmed Area Name			Program Area
2 . Shared Meeting Facilities			
2.01	Meeting Room		200 s.f.
2.02	Conference Room		260 s.f.
2.03	Executive Conference Room		280 s.f.
2.04	Board Meeting Room (sub-dividable)		2000 s.f.
2.05	Furniture Storage		180 s.f.
2.06	AV Equipment		20 s.f.
		Subtotal:	2940 s.f.
3 . Board of Selectmen and Town Administration			
3.01	Administrative Assistant		170 s.f.
3.02	Supply/Storage Closet		30 s.f.
3.03	Town Administrator's Office		175 s.f.
		Subtotal:	375 s.f.
4 . Town Accountant			
4.01	Town Accountant's Office		245 s.f.
		Subtotal:	245 s.f.
5 . Treasurer and Tax Collector			
5.01	Treasurer's and Tax Collector's Office		680 s.f.
5.02	File/Storage Area		300 s.f.
		Subtotal:	980 s.f.
6 . Multi-Department Shared Office: Building, Planning, Conservation and Assessor's			
6.01	Shared Office		720 s.f.
6.02	File Storage Room		360 s.f.
		Subtotal:	1080 s.f.
7 . Town Clerk			
7.01	Town Clerk's Office		680 s.f.
7.02	Library		100 s.f.
7.03	Storage Closet		20 s.f.
		Subtotal:	800 s.f.

Public Safety Facility [Police + Fire + Town]

New Programmed Area Name			Program Area
8 .	**Board of Health**		
8.01	Board of Health Office		280 s.f.
8.02	Storage Closet		20 s.f.
		Subtotal:	300 s.f.
9 .	**Multi-Department Shared Office: Historic Commission, Veterans, CemetaryCommission, Parks & Rec.**		
9.01	Shared Office		625 s.f.
9.02	Storage Room		150 s.f.
		Subtotal:	775 s.f.
10 .	**Sewer Department**		
10.01	Sewer Department Office		240 s.f.
		Subtotal:	240 s.f.
11 .	**Multi-department Shared Office - Animal Control, Parking Clerk**		
11.01	Shared Office		255 s.f.
11.02	Storage Room		80 s.f.
		Subtotal:	350 s.f.
12 .	**Cable Access Television**		
12.01	CATV Studio		400 s.f.
12.02	Storage Room		80 s.f.
		Subtotal:	480 s.f.
13 .	**Office Support Facilities**		
13.01	Copy/Mail Room		30 s.f.
13.02	Archive Storage		320 s.f.
		Subtotal:	350 s.f.
14 .	**Staff Facilities**		
14.01	Male Restroom		180 s.f.
14.02	Female Restroom		180 s.f.
14.03	Break Area		265 s.f.
		Subtotal:	625 s.f.

Public Safety Facility [Police + Fire + Town]

New Programmed Area Name				Program Area	
15 .	**Custodian**				
	15.01	Custodian's Office		100	s.f.
	15.02	Custodial Closet x2		50	s.f.
			Subtotal:	150	s.f.
16 .	**Storage and Maintenance**				
	16.01	General Storage		500	s.f.
	16.02	Voting Storage		200	s.f.
	16.03	Outdoor Seasonal Storage		120	s.f.
			Subtotal:	820	s.f.
17 .	**Building Services**				
	17.01	*Included within Shared Spaces*			
	17.02	*Included within Shared Spaces*			
	17.03	*Included within Shared Spaces*			
	Summation				
		Facility net area:		31,394	s.f.
		Net to gross adjustment	28%	8,791	s.f.
		Facility gross area total:		**40,185**	s.f.

3

BEST PRACTICES & UTILIZATION

Tecton
ARCHITECTS

Best Practices: The "Must-Do's", the "Should-Do's" and the "Can-Do's"

Overview

The question is commonly asked, "how do you establish the utilization of best practices and industry standards for public safety design and for our station specifically." And in truth, this is typically a multi-faceted answer, dependent on several factors including, but not limited to, cost impact, risk, feasibility, current priorities, and future facility planning. With that being said, many of the industry standards for public safety design can be organized into three major categories: The "Must-Do's", The "Should-Do's" and The "Can-Do's".

The Must-Do's include items such as building code compliance, ADA and other federal guidelines, energy code requirements, applicable NFPA compliance and Health Department regulations. The Should-Do's are items that may not necessarily be required by code, but are standards and best practices, that ensure an operationally sound environment intended on full supporting the department's needs. Typically, these items do not add much, if any additional costs, to new construction schemes because many of these are tied to configuration, adjacency, and/or building system control. With that being said, in a renovation, it may become more challenging to achieve and could drive up costs. In this case, an assessment of benefits, disadvantages and risks should be explored. The Can-Do's are not as common, however they can provide the opportunity to future-proof your facility design. By looking through a future lens of potential trends that may be expected over the next fifty years, we can provide insight and decision-ready information to ensure that if a low-cost opportunity exists today to plan for the future potential, that the Town and Departments have the knowledge to do so.

The Must Do's

General Code Requirements

International Building Code, Includes Chapter 16, structural requirements for "Essential Services Facilities". These requirements are designed to keep essential services such as fire, police, hospitals and other facilities operating during man-made and natural disasters. Code enhancements include flood resistance, seismic resistance (foundations, walls, structural frame and more), and the systems and infrastructure of the building and site.

Public or municipal facilities must be fully accessible in accordance with the American Disabilities Act (ADA). The entire site and facility must be accessible. ADA is NOT a code; it is civil law. There are numerous determinations from the Department of Justise (DOJ) stating this to municipalities. Designers must comply on behalf of their municipal clients. From a building code standpoint, Massachusetts' requirements include 521 CMR Architectural Access Board (AAB) and the requirements of MGL Chapter 149.

For renovation type projects, it is also worth noting, that AAB 521 CMR requires full compliance of the entire building when the total of work performed amounts to 30% or more of the full and fair cash value. The ADA requirements are more complex. These requirements will be defined by the level of alteration, the budget outlay, perceived value of the renovation compared to the overall facility and could include building renovation codes that specifically refer to ANSI and the ADA.

Energy Code Compliance

Compliance with the Massachusetts Stretch Energy Code, and its counterpart the Specialized Stretch Energy Code, is dependent on adoption by the local municipality. These codes are some of the most sustainable and strictest in the country. With that being said, Warren adopted the Stretch Energy Code in 2016. There are also many low-hanging fruit, related to building envelope construction, that can be utilized. Meeting the Stretch Energy Code can have upfront cost impacts, but it can also result in greater operational efficiency down the road. Performing an in-depth life cycle cost analysis for all sustainability related items on this project would be recommended in future design phases, to ensure these solutions are right sized for your community's long-term objectives and current fiscal capacities.

Health Department Regulations

The health department regulates temporary holding, provision for suicide resistance, holding cell design and cell checks, through 105 CMR 470. These specify items such as design details, water supply, environmental impacts, size of cells, security devices, bedding/bunk requirements and color considerations.

Should Do's

Public Safety Trends and Requirements

Our team will assess the relevant codes, regulatory requirements and operational guidelines for your station. The following is a sample of the rules and current best practices that will allow the facility to adapt and serve well into the future.

We reference and follow fire and EMS industry guidelines during design such as FEMA FA-168, "Safety and Health Considerations for the Design of Fire and Emergency Medical Services Stations." Best practices for apparatus bays include:

- Proper bay height to work (min. 18') on the apparatus bed or tip the cabs for maintenance
- Column free space for safety, ease of apparatus movement, maximize available space, etc.
- Continuous trench drains or catch basins under vehicles tied into the sanitary system
- Proper LED adjustable lighting, sound system and alerting systems
- Epoxy painted walls on hard, durable surfaces such as CMU
- Properly sloped to drain concrete floors treated with sealers or coated with a system such as epoxy or other type of high-grade, heavy-duty bay flooring
- Commercial, 14' x 14' high-grade overhead doors and hardware or four-fold doors
- Low temperature, water based in-floor radiant heating systems
- Hose reels, electric drops, compressed air, and other hookups as needed

Many of the current design trends and recommendations stem from the National Fire Protection Association (NFPA). NFPA are not code requirements unless they are adopted by a municipality. They are, however, the recommendations that almost every fire department adopts for fire and rescue operations. Designers of these facilities also utilize NFPA for best practices and up to date trends in fire protection, health, safety and welfare. Following are just a sample of the types of NFPA recommendations used in station design.

- The design should incorporate elements of NFPA recommendations such as 1710 "Standards for the Organization and Deployment… by Career Fire Departments" or 1720 "…by Volunteer Fire Departments."
- Proper gear lockers and storage (dedicated room) to create an environment to extract, dry, and ventilate bunker gear and protect it from UV radiation per NFPA 1581
- SCBA compressors that can use room air through filtration. Fill stations, oxygen storage and delivery and SCBA O2 quality for responders will be guided by NFPA 1989
- NFPA 1581 makes recommendations for health and infection control. Properly separating living (cold zones) and working areas (hot zones) and following recommendations such as an exterior entrance into the DeCon room and a bay-side restroom can protect responder health.
    - Distinguish "hot zones" and clean spaces to promote responder health and safety. Concentrate on the latest critical thinking that responds to long-term health and safety issues. Examine and follow the upcoming NFPA 1585, Chapter 5, Emergency Services Organization Facilities.
- Higher air pressure living areas with lower air pressure bays helps to control cross-contamination.
- Doors from living areas to the bays are fully weather-stripped, have closers and thresholds
- We will design towards and respond to the upcoming consequences of the soon to be adopted NFPA 1585, Emergency Responders Occupational Health
- We recommend adherence to NFPA 1500, Article 9.1.6 "shall prevent exposure to fire fighters and contamination of living and sleeping areas to exhaust emissions." NIOSH/OSHA requirements call for reduction of vehicle emissions to the lowest feasible level These are important considerations when assessing fume exhaust systems and their effect on responder health.

Likewise, many of the standards of State and International Accreditation requirements are also not code driven but represent the best practices in police facility design.

- Monitoring of detainees in the cell block/processing area utilizing CCTV and documented physical checks of each cell block or holding area.
- Layers of security credentials for preserving the viability of general evidence versus drugs, weapons and valuables evidence.
- Retention of records of police activities including stops, arrests, and security checks.
- Provision of sight, sound separation for holding facilities for male, female and juvenile detainees.
- Provision of controlled environments for prisoner transfer from cruiser to detention facilities.
- Provision of policy around chain of custody of evidentiary control.
- Requirements for record retention and control.

Other best practices that should be considered include:

- Identify crucial operations, priorities, security/public protocols, important response issues and operational efficiencies
- Examine changing requirements, look at critical issues of cross-contamination, responder health and well-being and how the COVID pandemic has changed the emergency service and public interaction
- Describe critical functions, specific requirements, and activities within the building and on the site. These could include sheltering in place, hardening, security, community uses, etc.
- Identify gender equity needs, procedures and future changes.
- Response Time and Location Analysis
- Population Growth Projections and Staffing Models
- Continued Service Delivery during Demolition/Construction
- Perimeter Security and Envelope Security

- Sleep Deprivation
- Internal and External Response Route Planning

Can Do's

Energy Efficiency and Sustainability

We look to achieve sustainability and energy efficiency throughout the course of your project. Your station can embrace additional energy efficiency through other construction standards, like LEED, WELL Building, Living Building Challenge, etc.

- The design can enhance energy-efficiency and utilize other sustainability principles
- The building can utilize all-electric technology, equipping stations for the future.
    - Provision for electric response vehicles, drones and robotic equipment.
        - Although fully planning for this today may not be cost effective, the potential for including an additional electrical service or conduits for future use, while the site is under construction, may be an avenue worth exploring

Current Trends and Best Practices

Many of the current design trends and recommendations begin at the programming stage and continue through conceptual design to final documents. Public safety facilities need to be operationally correct, serve the departments and Town, now and into the future, and needs to anticipate changing requirements and varied response. Some of these current trends and practices include:

- Design the responder's living environment such as bunks, kitchen and other personal spaces with expansion and flexibility for the future. If a duty crew, cadet, or student bunker program starts and evolves, the living environment can also evolve with the program.
- Review transition areas, possible triage space, and overall disinfecting and cleanliness issues.
- Explore current and future technologies and assess the possibility for integrated training regimens for both active and classroom training.
- Address energy use, resiliency, and sustainability issues as they pertain to operations, scope, response and long-term viability.
- Consider the integration of law enforcement adjacent services, such as social services, probate, mental health, addiction, etc.
- Consider the integration of comprehensive training space, including de-escalation, community engagement, simulation, live fire, defense tactics, etc.

SITE ANALYSIS

4

Tecton
ARCHITECTS

Site Positioning & Analysis Narrative

The Town had multiple, different sites under consideration for this project. When considering alternatives or when analyzing your existing sites, there are few components to consider when determining their feasibility to house a public safety facility. The first question to address is where the site is positioned in Town, before you have even analyzed the site itself. As an emergency response facility, it is paramount that the necessary equipment and responders are located within appropriate areas of Town to decrease response time and maintain ISO ratings. In addition, in the areas surrounding the site, the department would need to ensure that access for responders was possible and efficient. Easy access to main thoroughfares without requiring circuitous routes, inevitably increasing response time, is of prime importance. After the site's position has been satisfied, it is at that point, where we can take a deeper dive into the specifics of the site parcel itself. There are three tiers of information that the design team, including the civil engineers, will analysis when determining the ultimate validity of a site: Core Criteria, Public Safety Criteria, and "You" Criteria. These items are described below.

CORE CRITERIA

Physical
Property boundary (size & shape)
Topography
Utilities (on site & in street)
Bedrock
Groundwater

Acquisition/Logistics
Ownership/purchase costs
Relocate existing uses

Environmental
Wetlands and watercourses
Endangered species
Public water supplies
Floodplain/floodway
Contamination

PUBLIC SAFETY CRITERIA

Access
Access to main roads
Two access points
Response times
Inviting public access

Parking/Circulation
Separation of use

Resiliency
Operations
Can withstand extreme weather

"YOU" CRITERIA

Does this location make sense for your community?

What is the surrounding context? Does it align with this potential use?

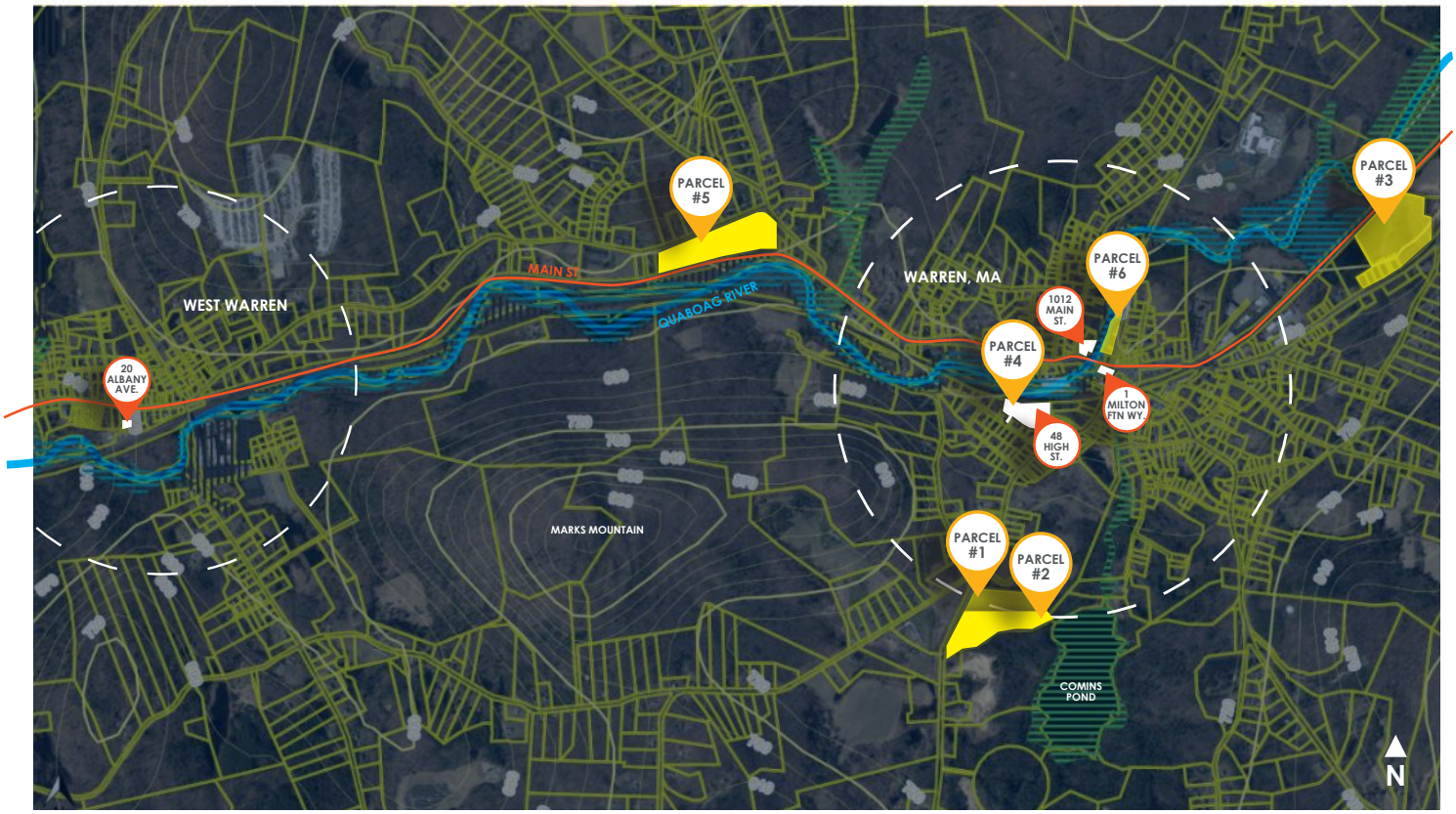
Does this site location allow for Community Engagement?

Does this site align with other master planning efforts?

Also, when considering an existing site, where current operations exist, you also must contemplate how to maintain those uses on site during potential construction activities. This can be achieved several different ways but may result in additional incurred costs. This needs to be considered against the potential use of a "greenfield" or undeveloped site. Although, if that parcel is not currently owned, the cost of acquisition could easily offset any developmental or time savings.

The design team prepared initial site test-fits for a number of potential locations to determine if the available site areas were sufficient for the different programming scenarios. The resulting test-fits included herein demonstrate that complete compliance with program requirements was possible on several sites, partial compliance was possible on a few sites and some sites demonstrated no possible compliance.

COMPREHENSIVE MAP:



Existing Facility Locations:

1012 MAIN STREET | FIRE DEPARTMENT HEADQUARTERS

20 ALBANY STREET | FIRE DEPARTMENT STATION #2

1 MILTON O FOUNTAIN WAY | POLICE DEPARTMENT

48 HIGH STREET | TOWN HALL & OFFICES

Possible Sites for NEW Public Safety Facility:

PARCEL #1 | 0 BRIMFIELD ROAD

PARCEL #2 | 87 & 0 BRIMFIELD ROAD

PARCEL #3 | 0 MAIN STREET

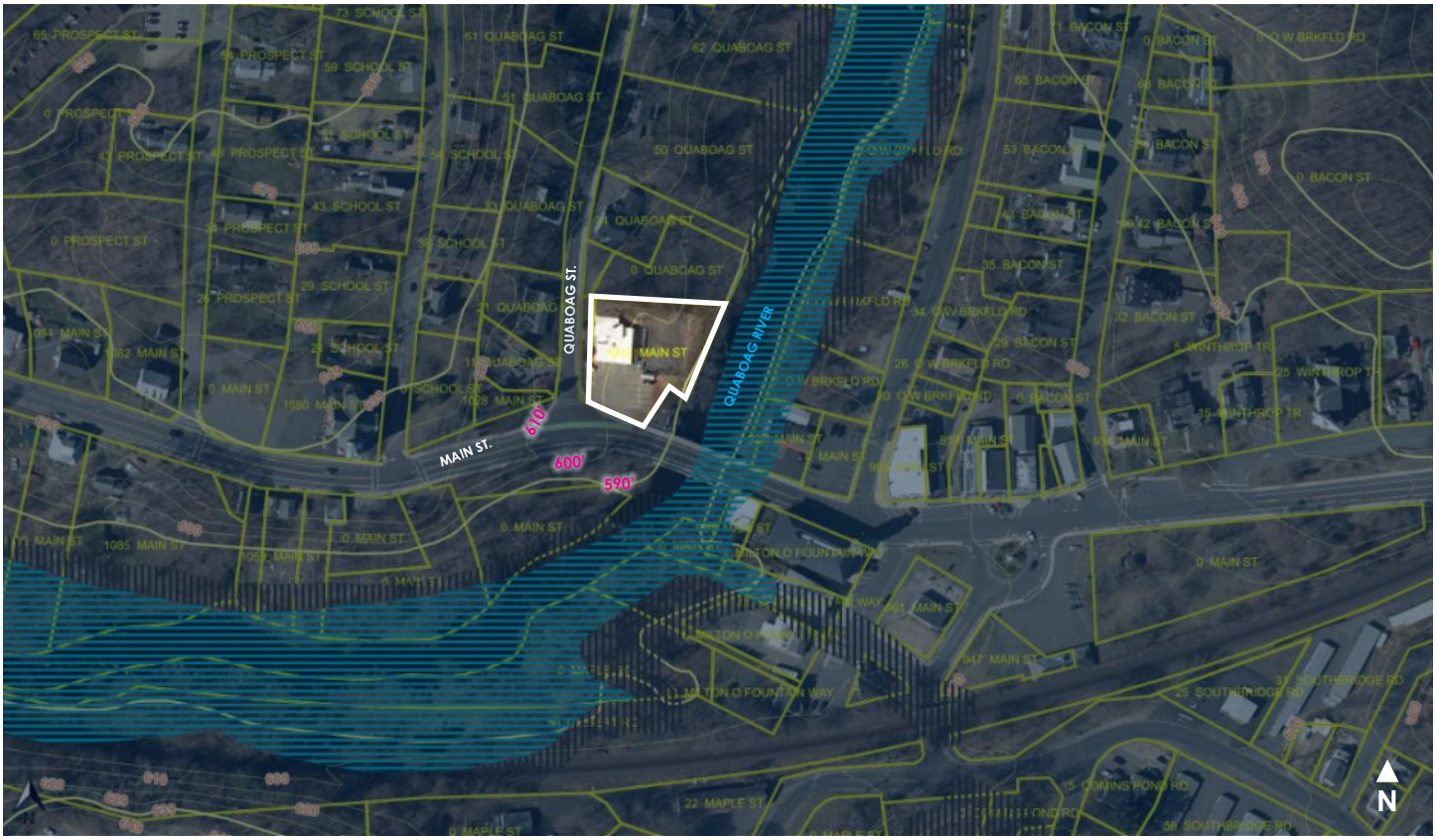
PARCEL #4 | 48 HIGH STREET & 100 MAPLE STREET

PARCEL #5 | 0 OLD WEST WARREN ROAD

PARCEL #6 | 0 OLD WEST BROOKFIELD ROAD

EXISTING FACILITY LOCATION:

1012 MAIN STREET | FIRE DEPARTMENT HEADQUARTERS



ACREAGE | 0.65

ZONING | VIL

ELEVATION | 590'-600'

FEMA FLOOD PLAIN | NONE

WETLAND | NONE

BODY OF WATER / HYDROLOGIC CONNECTION | NONE

EXISTING FACILITY LOCATION:

20 ALBANY STREET | FIRE DEPARTMENT STATION #2

ACREAGE | 0.1593

ZONING | VIL

ELEVATION | 531'

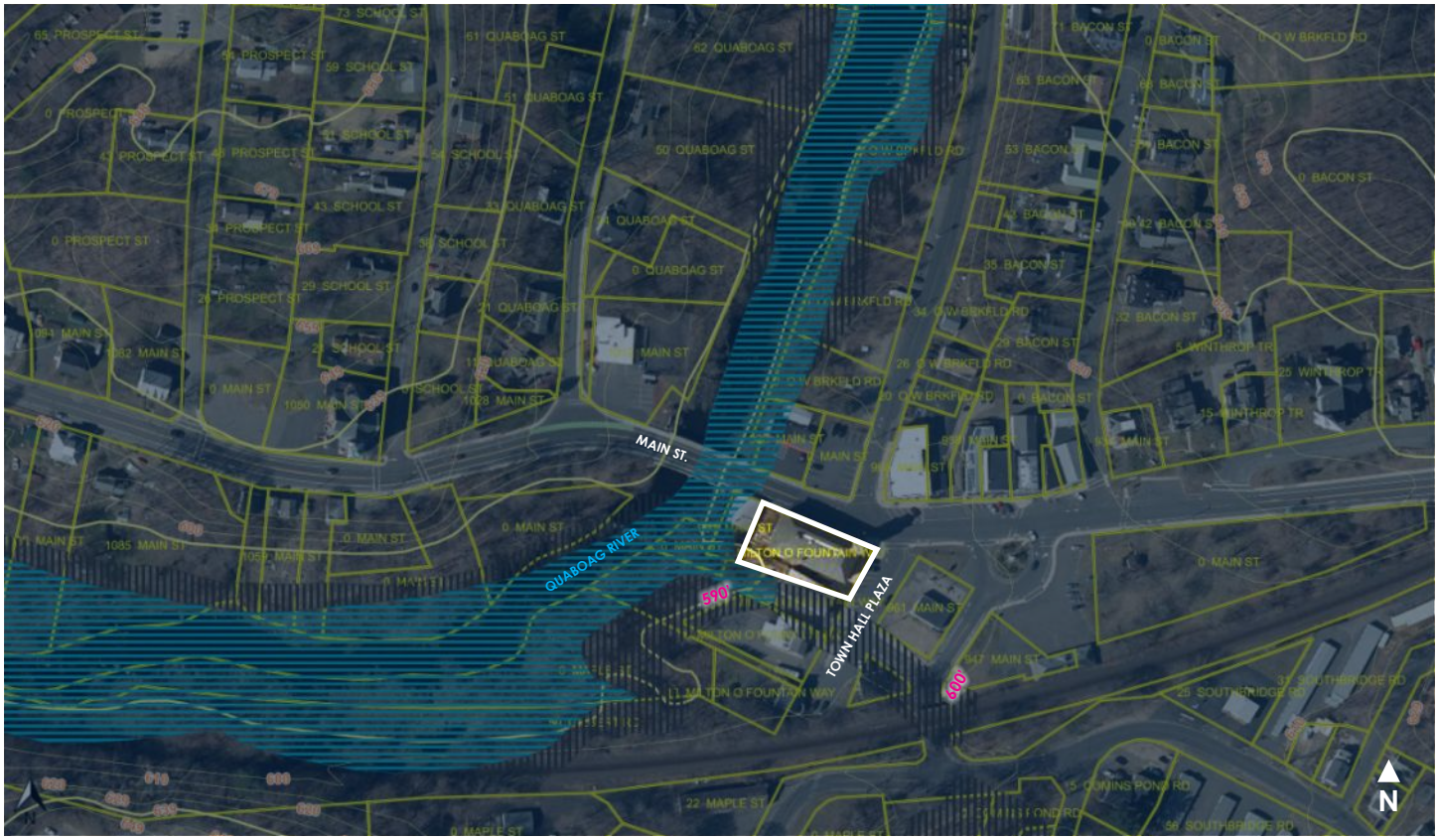
FEMA FLOOD PLAIN | NONE

WETLAND | NONE

BODY OF WATER / HYDROLOGIC CONNECTION | **NONE**

EXISTING FACILITY LOCATION:

1 MILTON O FOUNTAIN WAY | POLICE DEPARTMENT



ACREAGE | 0.34

ZONING | VIL

ELEVATION | 590'

FEMA FLOOD PLAIN | NONE

WETLAND | NONE

BODY OF WATER / HYDROLOGIC CONNECTION | NONE

EXISTING FACILITY LOCATION:

48 HIGH STREET | TOWN HALL & OFFICES

ACREAGE | 3.3001

ZONING | VIL

ELEVATION | 639'-659'

FEMA FLOOD PLAIN | NONE

WETLAND | NONE

BODY OF WATER / HYDROLOGIC CONNECTION | NONE

POSSIBLE NEW FACILITY LOCATION:

PARCEL #1 | 0 BRIMFIELD ROAD

ACREAGE | 5.507

ZONING | RES

ELEVATION | 669'-728'

FEMA FLOOD PLAIN | NONE

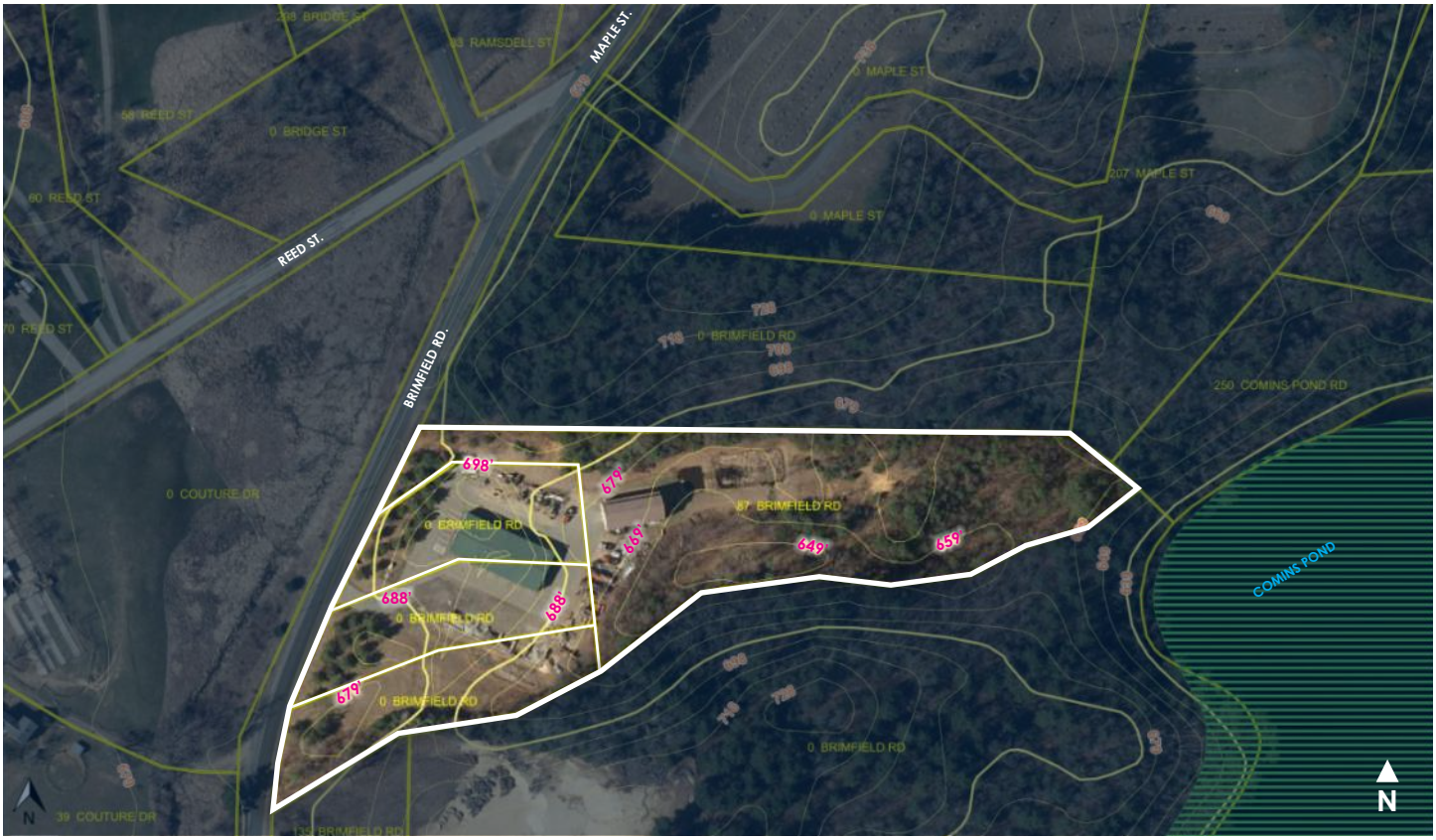
WETLAND | NONE

BODY OF WATER / HYDROLOGIC CONNECTION | NONE

WELLHEAD PROTECTION AREA (IWPA) | YES

POSSIBLE NEW FACILITY LOCATION:

PARCEL #2 | 87 & 0 BRIMFIELD ROAD



ACREAGE | 7.4644

ZONING | RUR

ELEVATION | 649'-698'

FEMA FLOOD PLAIN | NONE

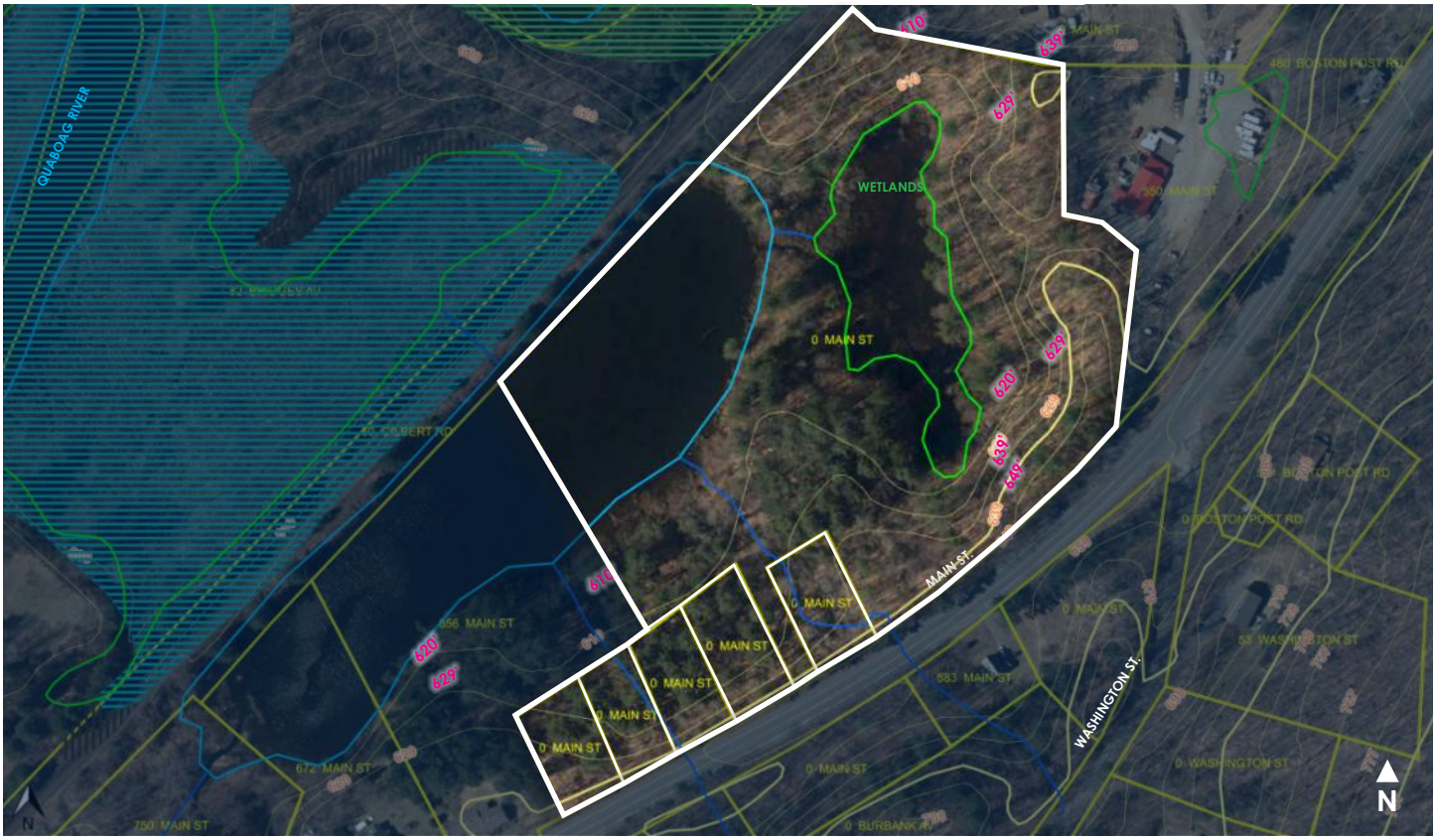
WETLAND | NONE

BODY OF WATER / HYDROLOGIC CONNECTION | **NONE**

WELLHEAD PROTECTION AREA (IWPA) | YES

POSSIBLE NEW FACILITY LOCATION:

PARCEL #3 | 0 MAIN STREET



ACREAGE | 14.2606

ZONING | RES / VIL

ELEVATION | 610'-649'

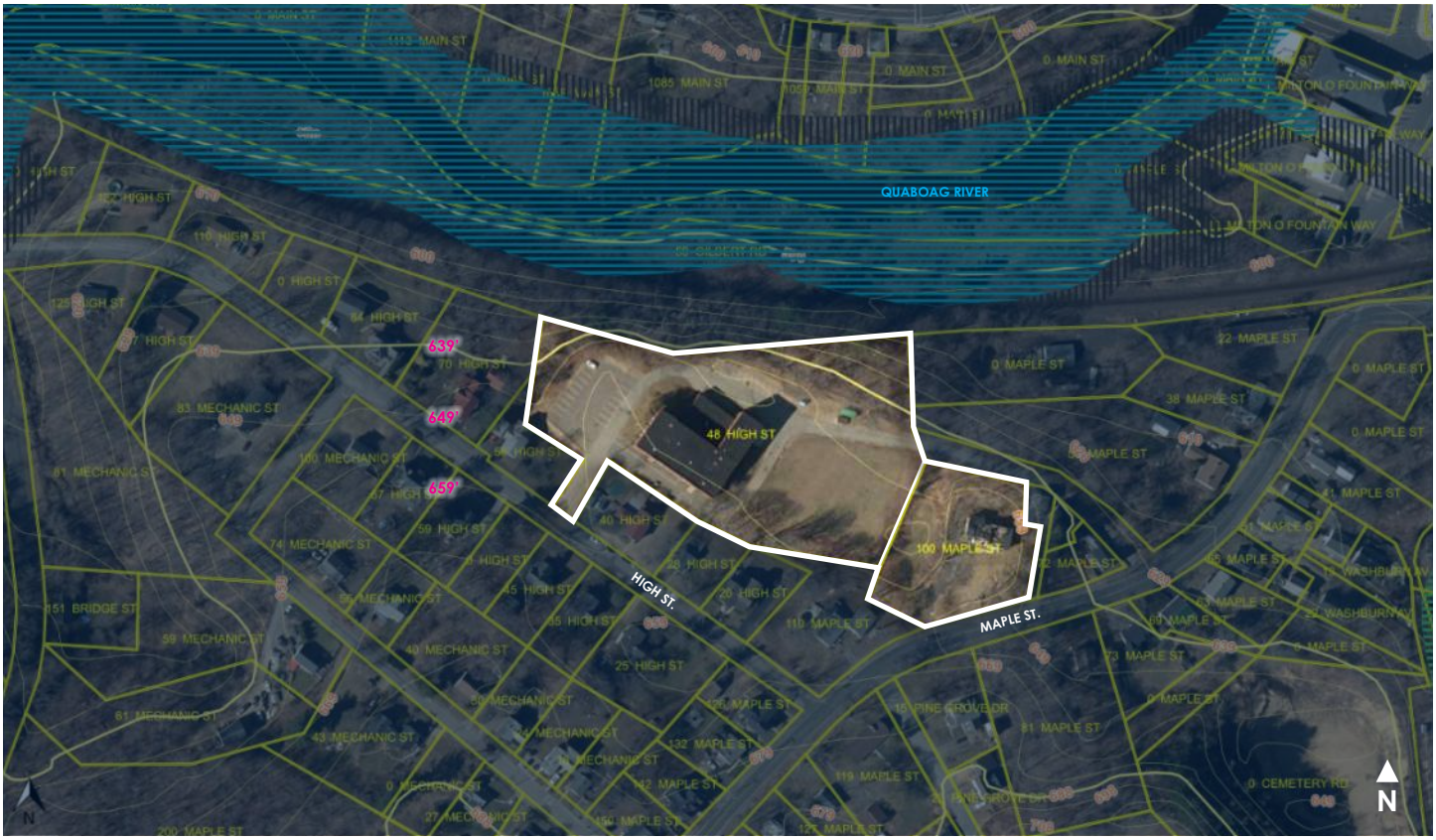
FEMA FLOOD PLAIN | NONE

WETLAND | YES

BODY OF WATER / HYDROLOGIC CONNECTION | YES

POSSIBLE NEW FACILITY LOCATION:

PARCEL #4 | 48 HIGH STREET & 100 MAPLE STREET



ACREAGE | 4.2301

ZONING | VIL

ELEVATION | 639'-659'

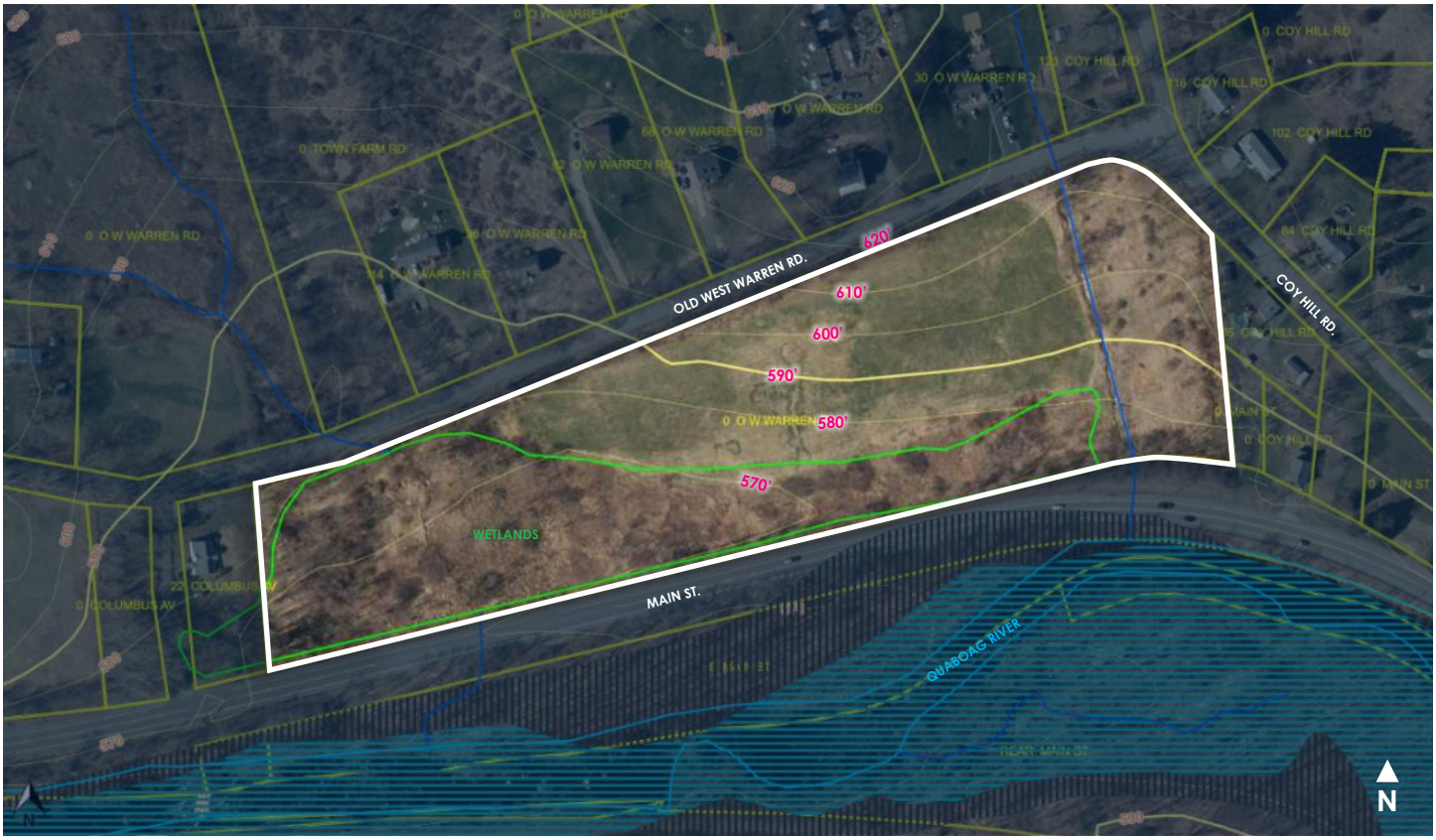
FEMA FLOOD PLAIN | NONE

WETLAND | NONE

BODY OF WATER / HYDROLOGIC CONNECTION | NONE

POSSIBLE NEW FACILITY LOCATION:

PARCEL #5 | 0 OLD WEST WARREN ROAD



ACREAGE | 11.5811

ZONING | RUR

ELEVATION | 570'-620'

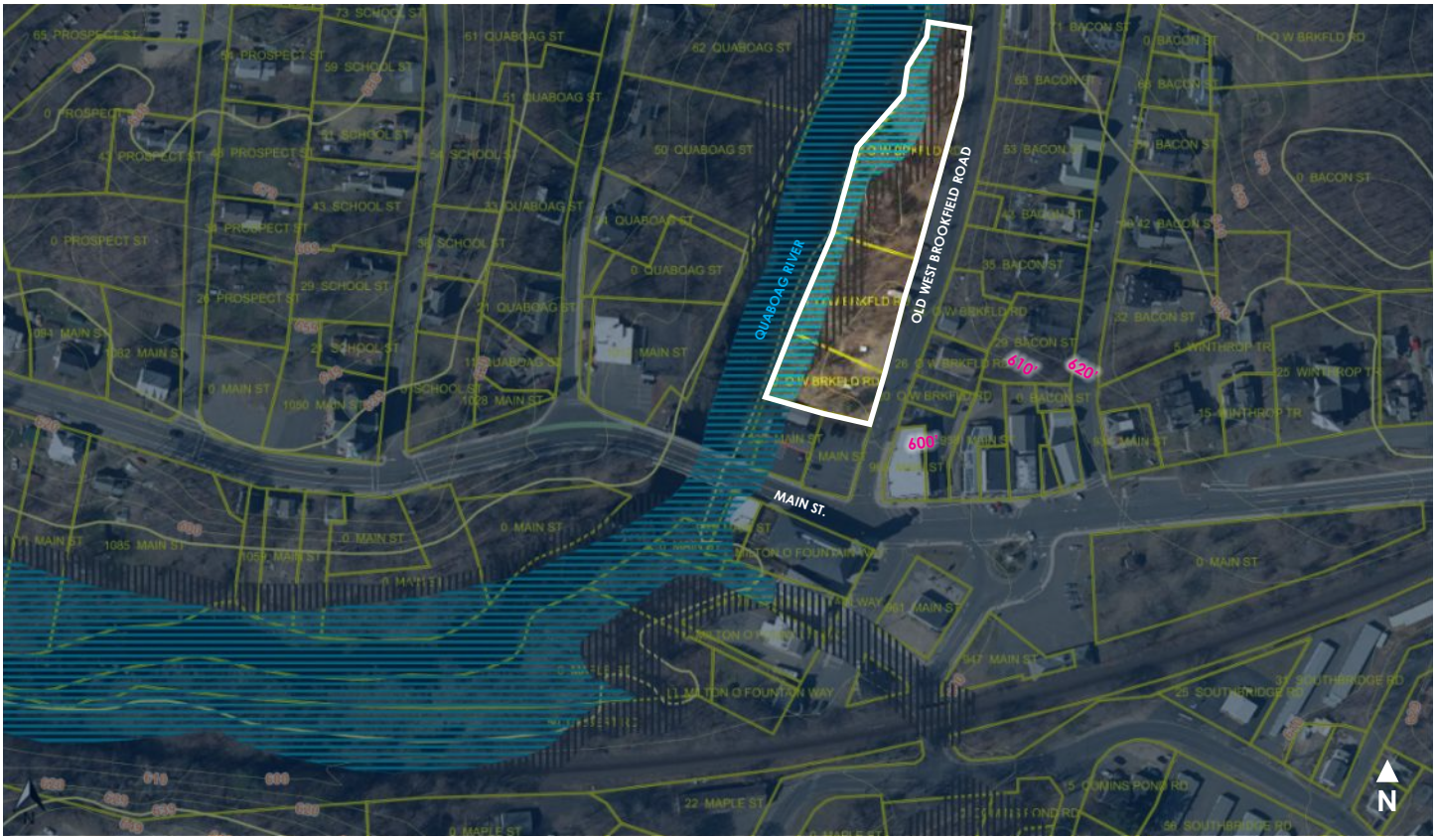
FEMA FLOOD PLAIN | NONE

WETLAND | YES

BODY OF WATER / HYDROLOGIC CONNECTION | YES

POSSIBLE NEW FACILITY LOCATION:

PARCEL #6 | 0 OLD WEST BROOKFIELD ROAD



ACREAGE | 1.65

ZONING | VIL

ELEVATION | 600'

FEMA FLOOD PLAIN | NONE

WETLAND | NONE

BODY OF WATER / HYDROLOGIC CONNECTION | YES

SITE TEST FITS

Tecton
ARCHITECTS

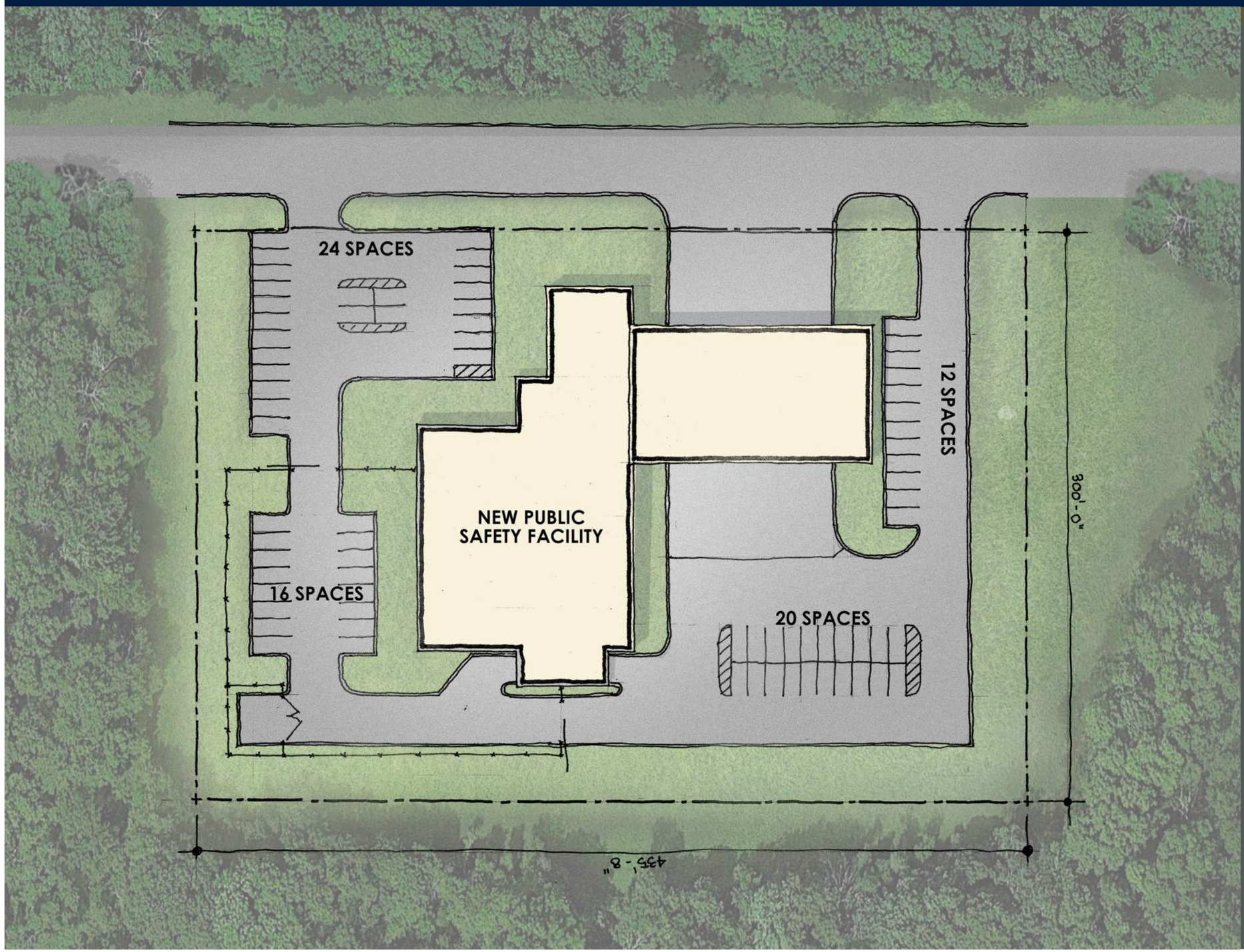
What is a Site Test Fit?

A site test fit is a tool we use to determine if a site can support the intended project. It is developed by an experienced designer who imagines a building and site circulation patter that best supports the program and the characteristics of the site. Many sites may demonstrate sufficient area to meet the program, but if that area has lots of topography, or slope, has an unusual or awkward shape, has environmental or land use restrictions (such as setbacks or right of ways) you may find that more area is required to meet the program need. For instance, sloping sites may require regrading to create flatter areas for vehicle parking, or for heavy fire apparatus to get up to speed. To achieve those flatter areas, you may have area between the flat spots where slope builds up and becomes unusable. Of course, you might be able to overcome these slope challenges with retaining walls. But you will have to accept the extra cost of building the walls. Likewise, you may have an environmental restriction such as a wetland with its development setback that makes a portion of the site unusable.

By preparing a site test fit we can determine early if the limitations of the site are actually barriers to developing the site for the intended purpose. Interestingly, some test fits prove that what appears to be an unwieldy site can actually be viable, and conversely what appears to be viable may in fact not be.

It is important to remember that a test fit is not a final engineered site plan, that takes many months to develop. But it is an early look at the viability of a site and a tool for identifying any extra development costs that may be required. Some tested sites are under private ownership and would require acquisition by the Town.

SITE TEST FIT - IDEAL SITE



IDEAL TEST FIT
No specific Site Identified

This site test fit was prepared at the request of a member of the Select Board to help illustrate what an "ideal" site for the public safety facility might look like. Although it was not the first test fit prepared for this study, it seems fitting to start out with demonstrating what the optimal conditions might look out prior to examining the other test fits that were prepared.

The design imagines the most optimal conditions for a public safety site. The site would be very nearly flat and level with just enough slope to facilitate storm water drainage across the site. It would have good street frontage with clear site lines so that fire apparatus leaving the site we be able to see both ways and safely exit the apron onto the roadway. The site would have sufficient depth to allow for drive through bays with a fifty-foot minimum apron at the front and back of the bays, plus room to circulate behind and even park some firefighter cars near the bays. The site would be wide enough to permit a looping vehicular flow around the station thus providing a minimum of two ways off the site for police cruisers. This arrangement also allows for a non-secure public parking zone, a secure parking zone, and a separate entrance for responding call fire fighters. Finally, the efficiency of the layout would use the minimum of land area. Oddly shaped sites, sites with excessive topography or environmental restrictions often erode the efficiency of the site plan and require more land area to create the effective zones and flow for a public safety building.

PROS
- Efficient use of land area
- Space for drive through bays
- Two points of ingress/egress
- Clear site lines for apparatus
- No environmental or topography constraints

CONS
- The study did not find this site available in Warren

SITE ANALYSIS

SITE TEST FIT - PARCEL 1 - OPTION A

0 BRIMFIELD ROAD
Site ID 27-0-14

This was the first site test fit prepared for this study. The site was the initially preferred site since it is Town owned property adjacent to the DPW Garage. However, the site is long and narrow and has over 60' of elevation change across the narrow direction of the site. This topography change is not necessarily a challenge for all types of buildings, but does become a challenge for negotiating fire apparatus, especially in an emergency response situation. This test fit attempted to push the building part way up the slope from Brimfield Road and bury the back of the apparatus bays into the hill. Most of the remainder of the police and fire spaces would be on top of the apparatus bay and accessed from behind. This resulted in two unfortunate outcomes. First, this approach does not allow for drive through bays, which the Fire Department considers an essential outcome for the success of this project. Second, since heavy fire apparatus has difficulty with steep slopes, the response route was stretched along Brimfield Road to keep the pitch within acceptable limits. The outcome was a 180 degree turn to access Brimfield Road in the south bound direction. Further the slope on Brimfield Road along with the gentle sweeping curve at this location does not result in optimal site lines for apparatus to avoid traffic on the road.

PROS
- Town owned land adjacent to other Town assets
- Sufficient available site area

CONS
- Significant topography across the narrow dimension of the site
- Significant topography from Brimfield Road
- Does not provide drive through bays
- May require columns in the bays
- Difficult intersection of response drive and Brimfield Road
- Limited call fire fighter parking adjacent to bays

CONCLUSION:
This site is not viable as it does not provide for drive through bays.

SITE TEST FIT - PARCEL 1 - OPTION B

0 BRIMFIELD ROAD
Site ID 27-0-14

This test fit was an attempt to overcome some of the challenges presented in the prior test fit. Instead of pushing the building up the hill from Brimfield Road this solution carves out the site directly from the road. This allows for a properly sloped apron form the apparatus bays directly out the roadway avoiding slope issues and sharp turns. This solution still buries the back of the bays into the hill. Attempts to carve out the site enough to allow for drive through bays resulted in very significant and costly retaining walls, not to mention the expense of removing excess soil at prevailing wages. If earth removal could be accomplished through an agreement with private resources, it could create somewhat more favorable cost impact for excess soil removal. This solution did add an additional front-line bay to the apparatus room, again in an attempt to make the one-way bay more favorable. The Fire Department still prefers an outcome that includes drive through bays. This solution illustrates a total parking area more in alignment with the program and provides an opportunity to segregate secure parking within the overall lot. There is still limited parking adjacent to the bays for call fire fighters. The use of more retaining walls on the northern leg of the property could increase call parking, but at a cost. It was necessary to manage the slope on the access driveway to the rear parking lot, so it does extend across the property line with the DPW Garage. Since this is common ownership, it should not be a problem.

PROS
- Town owned land adjacent to other Town assets
- Sufficient available site area

CONS
- Significant topography across the narrow dimension of the site
- Significant topography from Brimfield Road
- Does not provide drive through bays
- May require columns in the bays
- Limited call fire fighter parking adjacent to bays

CONCLUSION:
This site is not viable as it does not provide for drive through bays.

SITE TEST FIT - PARCEL 2

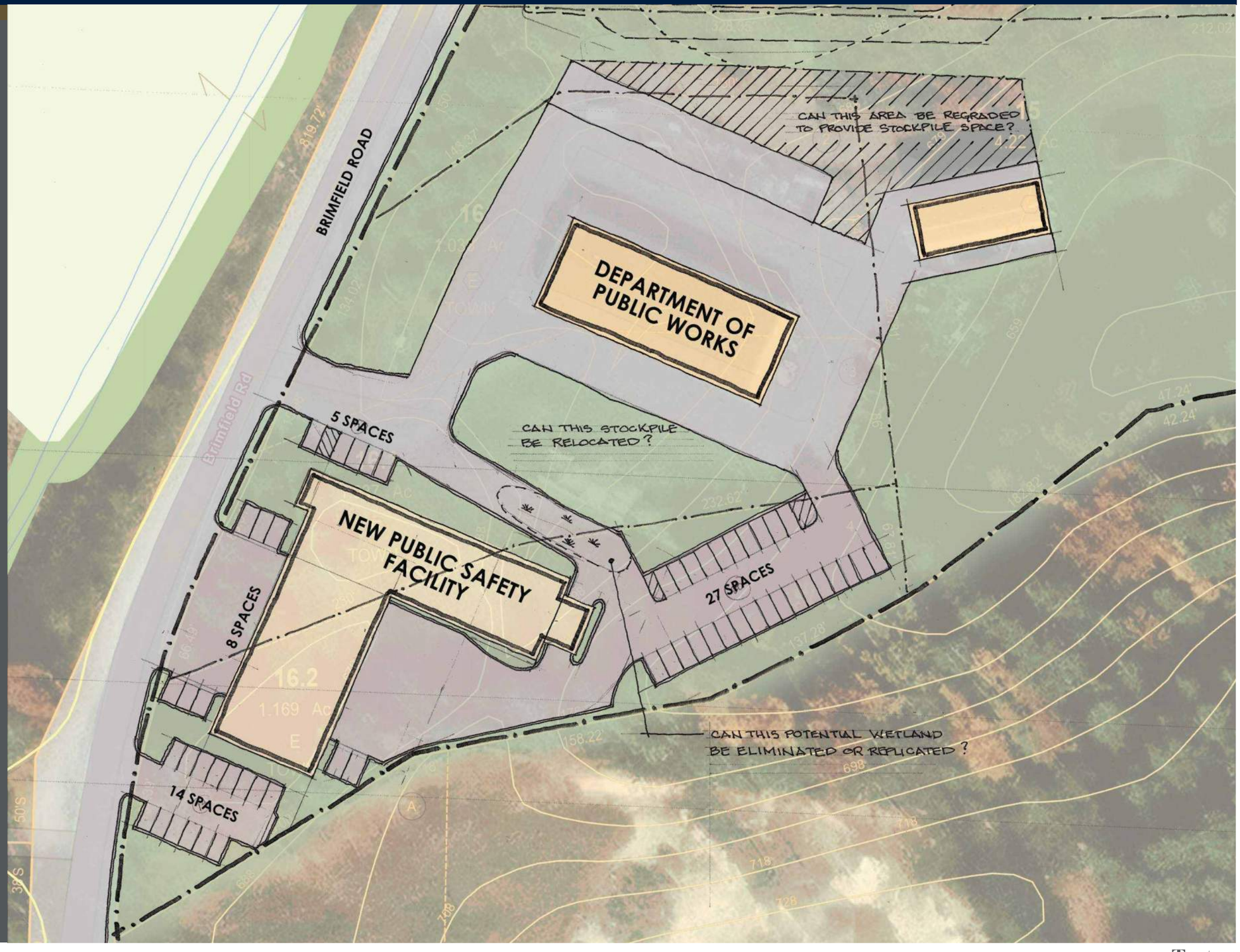
87 & 0 BRIMFIELD ROAD
Site ID 27-0-15, 27-0-16, 27-0-16.1, 27-0-16.2

This combination of Town owned properties south of the DPW Garage was added for consideration after the prior site north of the DPW Garage failed to provide an optimal result. Several questions were raised by field observed conditions. The DPW is currently stockpiling materials south of their garage, a better design result may be achieved if an area was regraded north of the garage to allow for the stockpiles. There is also an area that may be a drainage basin or may be a wetland. If it is a drainage basin, then this drainage capacity will need to be accommodated in the new design solution. If it is a wetland this could have approval restrictions. Subsequent investigation by a wetland scientist determined that this is an overgrown drainage basin. The design solution provides a two-story building adjacent to a taller apparatus bay. The site allows for drive through apparatus bays with an apron to directly to the roadway. A small parking lot adjacent to the southerly property line provides call fire fighter parking, though the area is snug. Additional call fire fighter parking is provided off the aprons. Cruiser parking was located to the rear of the site to avoid the possible wetland and stockpile areas. A modest public lot was located adjacent to the front entry. The police program occupies much of the ground floor, while the fire department office and staff facilities occupy the upper floor. This solution limits future growth of the public safety building and may restrict growth of the DPW to the area to the north. It should also be noted that the actual observed topography differs from what is shown on GIS maps, so site plan assumptions are based on observations.

PROS
- Town owned land adjacent to other Town assets
- Sufficient available site area with some DPW adjustment
- Provides drive through bays
- Sufficient call fire fighter parking near bays

CONS
- Site area is somewhat limited requiring development close to property line
- Without relocation of DPW facilities, parking area is limited

CONCLUSION:
This site is a viable option with restrictions identified.



SITE TEST FIT - PARCEL 3

0 MAIN STREET
Property ID 19-0-1, 19-0-2, 19-0-3, 19-0-4, 19-0-5, 19-0-6

This combination of properties is Town owned land on Main Street northeast of the Town center. There is a significant drop off adjacent to the road which quickly falls off by 30-40 feet. The topography required a design response that stretches out the apparatus response drives parallel to the road. This is necessary to allow the drive to slowly increase in height. Best practices would limit the maximum slope on an apparatus drive to 8% with 4% being preferred. This design results in slopes of 12-14%. The entry floor of the facility would be 18-20' below the roadway, and the apparatus bays will be nearly 40' below the roadway. Substantial retaining walls will be required.

PROS
- Town owned land
- Sufficient available site area, though topography challenged
- Provides drive through bays
- Sufficient call fire fighter parking near bays

CONS
- Excessive topography requires long drives and retaining walls to overcome grade
- The building will be lower than the roadway which limits visibility and increase security risk
- Exceeds best practice for slope on apparatus drive
- Rear of site close to wetland elevation

CONCLUSION:
This site is not viable due to excessive topography that prevents compliance with best practice slope on apparatus drive.

SITE ANALYSIS

SITE TEST FIT - PARCEL 4 - OPTION A

48 HIGH STREET & 100 MAPLE STREET
Property # 23-0-12, 23-0-17

The open space adjacent to the Town Offices was also placed under consideration, but to gain sufficient space required the potential acquisition of an adjacent parcel. 100 Maple Street was identified as a possible candidate. The combined parcel allows sufficient area for a two-story building with a one-story taller apparatus bay adjacent. Space for a general parking lot, a cruiser lot and a call firefighter/staff lot are also available, although securing of the cruiser lot is not accomplished in this layout. The main vehicular entry to the site shares the Town Offices entry, but also provides a secondary route to Maple Street via Hitchcock Avenue. The Fire Department expressed concerns over the use of Hitchcock as it is narrow and often has on street parking from the residences. It also intersects Maple Street at an area where the slope is steep, and the intersection exceeds 90 degrees heading up Maple Street.

PROS
- Sufficient available site area
- Provides drive through bays
- Sufficient call fire fighter parking near bays

CONS
- Site acquisition required
- Poor access via Hitchcock Avenue
- Steep slope and sharp intersection at Maple Street
- Vehicle flow around Town Office Building

CONCLUSION:
This site is not viable as depicted due to Hitchcock Avenue and Maple Street Intersection challenges.

SITE TEST FIT - PARCEL 4 - OPTION B

48 HIGH STREET & 100 MAPLE STREET
Property # 23-0-12, 23-0-17

In response to concerns raised by the Fire Department, an additional site test fit was prepared for this site. The focus here was to create a new apparatus drive through the Maple Street site directly to Maple Street with a 90-degree intersection. The building orientation is changed to more directly address the response route. Parking zone segregation is also achieved, but some low retaining walls were introduced to handle grade around parking and the apparatus drive. The Fire Department raised a concern about return access to the rear of the bays, but a cut through from the apron through the easterly lot can resolve that concern. Although the connection to Maple Street is improved, Maple Street is still fairly steep at this location.

PROS
- Sufficient available site area
- Provides drive through bays
- Sufficient call fire fighter parking near bays

CONS
- Site acquisition required
- Steep slope at Maple Street
- Vehicle flow around Town Office Building

CONCLUSION:
This site is viable with consideration to the slope concerns on Maple Street.

SITE TEST FIT - PARCEL 5

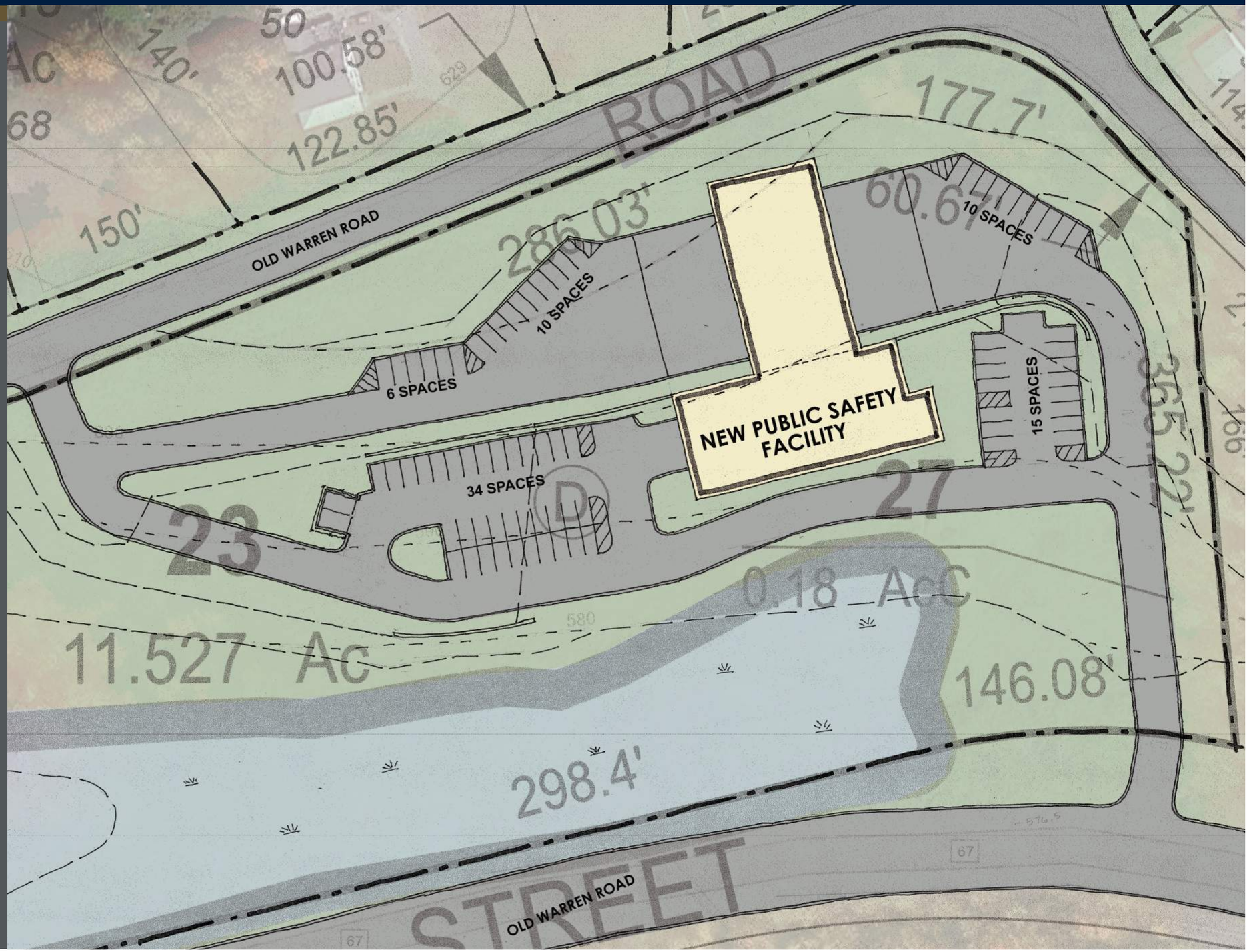
0 OLD WEST WARREN ROAD
Parcel # 06-0-23

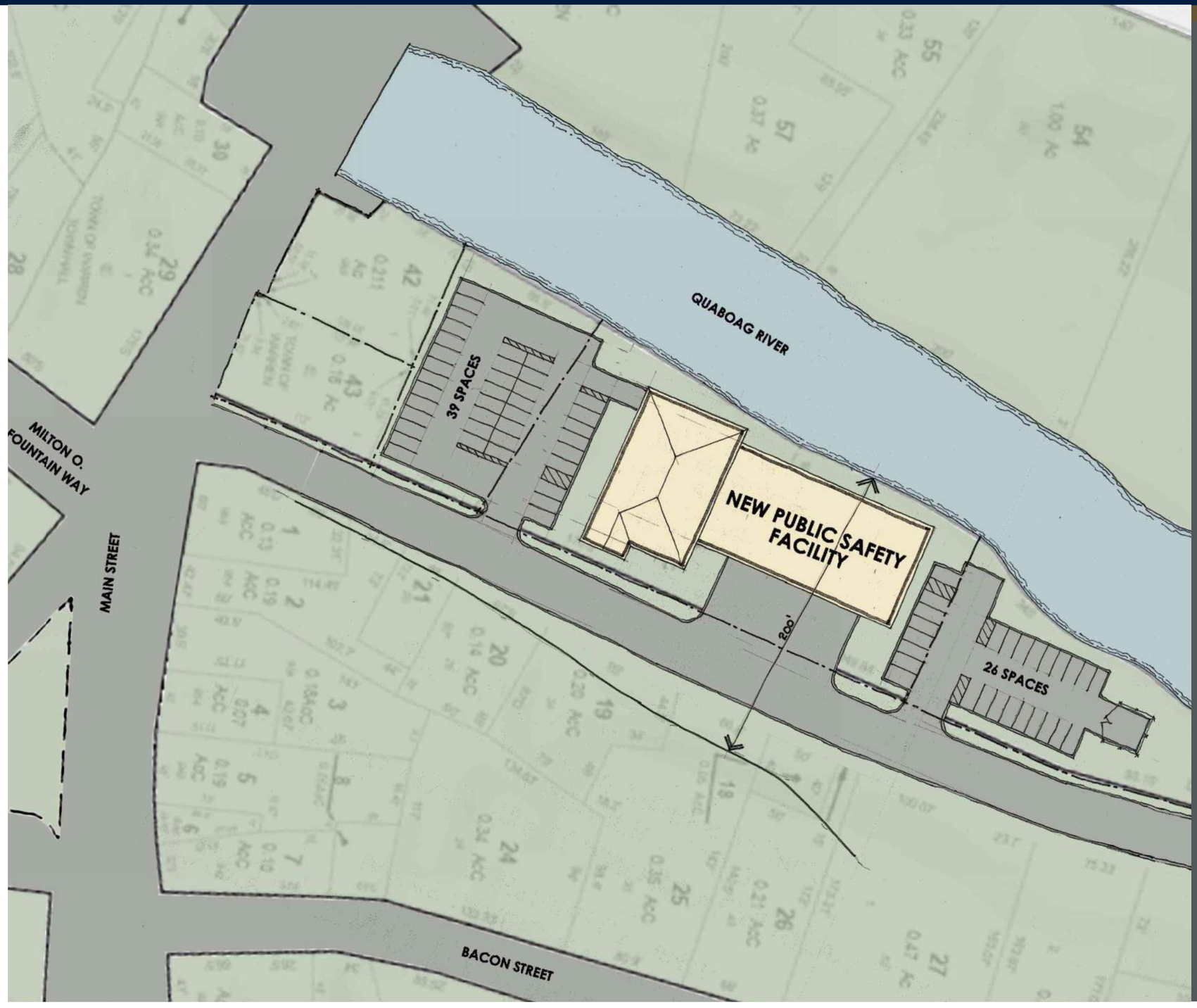
This parcel is private property located west of the Town center on Main Street. The property is 250 -400' deep. From Route 67 to Old West Warren Road the site gains just shy of 50' in elevation. According to GIS data there is a swath of wetland which runs along Route 67 almost the entire length of the site. The primary considerations in this test fit are how do we keep driveway slopes within acceptable best practice limits, and how will the building step up the slope. This solution stretches the program along the length of the contour lines. It has a two-story component running parallel to Route 67, and a one-story apparatus bay behind. But unlike some of the previous solutions, the apparatus bay aligns with the upper floor of the two-story section as the site steps up approximately 14'. Retaining walls extending from the ends f the two-story component help to absorb the grade and spread out the drive aisles. The primary site entrance and response route is located to the far east edge of the site and has a maximum down hill slope of 7%. A secondary egress route reaches along Old West Warren Road to meet the grade at a 90-degree intersection. Public parking is in the southeast corner, call fire fighter parking is along the response apron and the balance of staff and cruiser parking in located southwest of the building. Substantial earthwork and retaining walls are required to carve the program into the site terrain, but otherwise the site accommodates the program needs.

PROS
- Sufficient available site area
- Provides drive through bays
- Sufficient call fire fighter parking near bays

CONS
- Site acquisition required
- Significant slope from Route 67 to Old West Warren Road
- Wetlands constrains some site layout options

CONCLUSION:
This site is viable with consideration to the cost of managing the slope.





SITE TEST FIT - PARCEL 6

0 OLD WEST BROOKFIELD ROAD
Parcel # 18-0-7, 18-0-8, 18-0-9

This combination of parcels once housed a dry-cleaning operation, which has been reduced to the concrete pad only. The site is entirely located within the 200' riverfront protection zone of the Quaboag River, which means that development beyond previously disturbed areas, particularly right along the waterfront, will be restricted. As the test fit illustrates a two-story building beside a one-story apparatus bay, along with the needed parking causes development over almost the entire property. Further the rear of the building is in very close proximity to the river's edge. This test fit is likely to face significant approval hurdles and may not be approved. In addition, the site does not permit a drive through apparatus bay. A requirement that the Fire Department has stated is a critical requirement.

PROS
- Central location within the Town
- Sufficient call fire fighter parking near bays

CONS
- Site acquisition required
- Site depth is insufficient to support critical program requirement of drive through bays.
- Site is entirely within 200' river front protection zone
- No segregated secure parking for cruisers

CONCLUSION:
This site is not viable as it has approval challenges and does not provide drive through bays.

SITE ANALYSIS

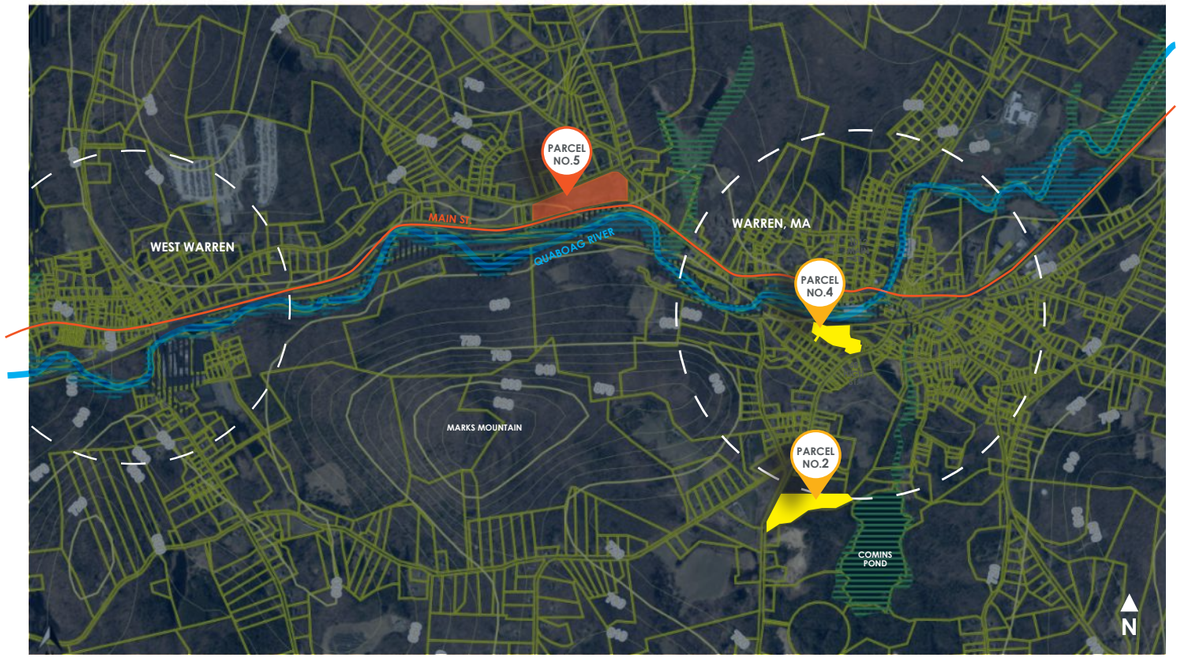
Site Short List

The result of the site test fit exercise has identified three viable site candidates that may be worthy of further consideration. The sites are:

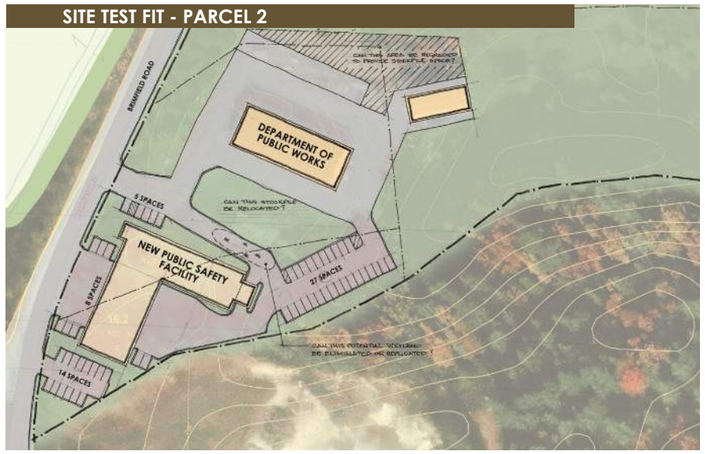
Parcel No. 2: 87 and 0 Brimfield Road, Parcel # 27-0-15, 27-0-16, 27-0-16.1, 27-0-16.2
Parcel No. 4: 48 High Street and 100 Maple Street, Property # 23-0-12, 23-0-17
Parcel No. 5: 0 Old West Warren Road, Parcel # 06-0-23

These three site are further studied with site investigations and conceptual design solutions later in this report.

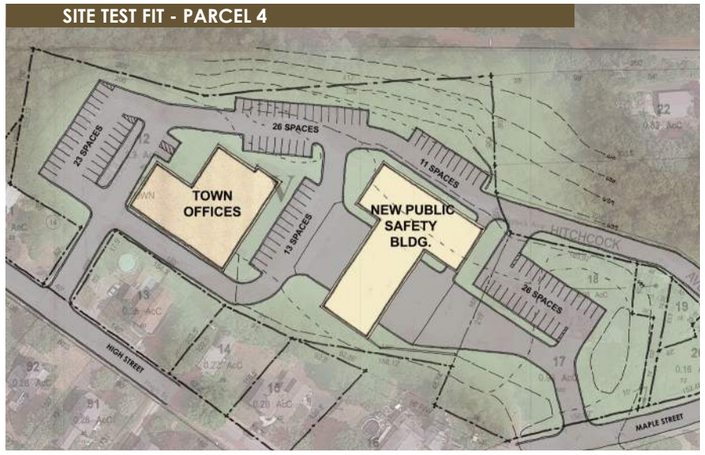
COMPREHENSIVE MAP SHOWING PREFERRED SITES:



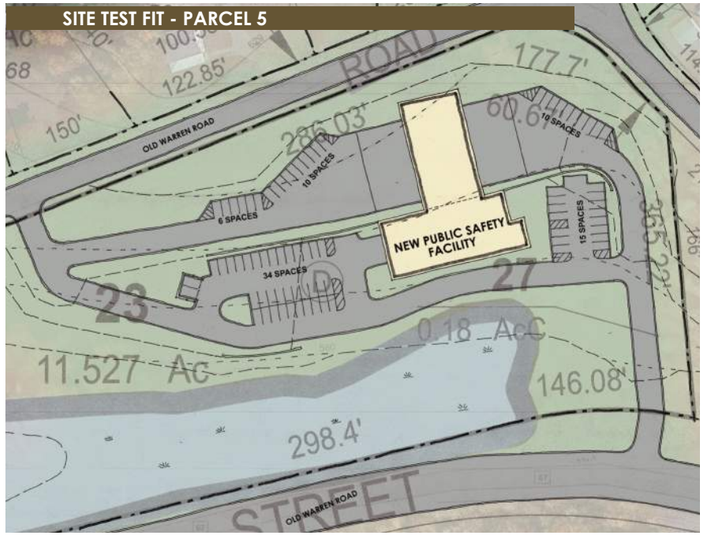
SITE TEST FIT - PARCEL 2



SITE TEST FIT - PARCEL 4



SITE TEST FIT - PARCEL 5



THIS PAGE IS INTENTIONALLY LEFT BLANK

CONCEPTUAL DESIGN

5

Tecton
ARCHITECTS

THIS PAGE IS INTENTIONALLY LEFT BLANK

Conceptual Design Narrative

Conceptual Schematic Design is the key to a successful project. This portion of the study is to explore possibilities and to build consensus on the design direction. This is not just a study to understand multiple separate buildings, but facilities that share a common purpose. The program allocation between each building needed to be achieved in unison in order to create the most value for the project, and the best efficiency in the department's operations and delivery of service. This phase of development is where the program was tested in close collaboration with the Town to ensure that the needs will be met within the constraints of the sites and existing facilities. The Working Group explored new construction options for all sites. By utilizing the space needs established as a framework, we discussed the advantages and disadvantages of each option. We also continued to reference the project goals and priorities to ensure each solution aligned, resulting in the best return on investment. Establishing a realistic project budget at this point will set the foundation for successful cost and timeline management in future project stages.

The programming and allocation exercises resulted in Fire and Police ultimately being selected as the preferred option. This determined the needed square footage for each location. This is a total need of approximately 25,400 SF of building, on 2.43 acres.

Our goal was to refine the conceptual ideas into an overall design solution that depicts the architecture, the function, and ultimately the cost of the facility. We looked to merge facility and local design considerations to provide functional facilities that are architecturally appropriate to the communities they serve. This included informal presentations with Town Boards to seek preliminary feedback and engage in fruitful conversations about potential solutions. With that being said, those initial meetings were just the beginning of community engagement opportunities. Future community discussions will become a critical component of subsequent design phases to ensure each design solution is right-sized, not only meeting the needs of the Department, but aligning with the community's priorities, as well. Whether that might be a highly sustainable solution or something that is a better fit with the financial capacity of the Town, these future phases allow for a much deeper exploration.

Out of the many options explored, the solutions that ultimately were selected included a new construction fire and police public safety headquarters. **The three preferred design concepts are included in this report.**

PREFERRED DESIGN OPTIONS:

CONCEPTUAL DESIGN DETAIL | ***PARCEL NO. 2***

- SITE PLAN
- FLOOR PLANS
- EXTERIOR ELEVATIONS
- RENDERING

Tecton
ARCHITECTS

CONCEPTUAL SITE DESIGN

After this site was identified as a viable site for further development, the design team's wetlands consultant conducted a site visit to review the identified possible wetland concerns*. The area identified south of the DPW stockpiles was determined to be a drainage basin and not an actual regulated wetland. This means that the basin can be relocated/replicated elsewhere on the site, or the drainage load can be incorporated into any new storm drainage structures. The consultant also reviewed the "drainage swale" along the southeastern property line. The vegetation in this area was identified as upland varieties and not indicative of a wetland. Although there are significant wetlands located east of the DPW Garage, the area under consideration for the Public Safety Facility does not appear to have wetlands. There is an area at the front of the Public Safety site described as the "Grove" which will be impacted by the proposed development. Anecdotal evidence suggests the Grove may have been requested by the Conservation Commission when the DPW Garage was developed.

The conceptual site plan is based upon the ideas demonstrated in the test fit for this site, but the floor plan shown now is based on conceptual floor plan designs rather than just generic assumptions. The entry point to the site remains the DPW Garage drive which will be shared between the two facilities. The apparatus bays have direct access to Brimfield Road via the apron which connects directly to the roadway. An additional curb cut allows access for call firefighter parking. With the possibility of relocating the drainage basin established, the public and staff/cruiser parking lots were combined and moved closer to the building. Visitor spaces will be designated closest to the main entry, while the balance of parking is close to the staff entry. Drive-through bays are illustrated though the rear bay facing the southeast has a slightly reduced apron depth, so this bay should be used for a smaller vehicle. Eighteen call firefighter spaces are available near the apparatus bays. The Police Department's sally port, used for transferring detainees from cruiser to building, is located at the rear of the building and allows for drive through access. A proposed expansion of the DPW lot by regrading into the hill on the northern edge of the site is proposed for relocating the stockpiles of material.

**The wetland determinations are based on field observations of vegetation types and visible soil conditions. A formal wetland flagging by a wetland scientist and the Town's Conservation agent was not conducted but should be included if any additional design work is anticipated for the site.*

SITE PLAN: 87 & 0 BRIMFIELD ROAD

CONCEPTUAL FLOOR PLAN - LOWER LEVEL

CONCEPTUAL FLOOR PLAN DESIGN

The building has a two-story component which houses the police functions on the ground floor and the fire department functions on the upper floor. Shared functions such as the training room, fitness room and kitchen are located for easy access by both departments. The training room is just off the main lobby which means it can be used for either department, for hosting outside department joint training, or even for department meetings with the community.

(Continued on next page)

0' 2' 4' 8' 16' 32'

CONCEPTUAL FLOOR PLAN - UPPER LEVEL

The fitness, firearms training simulator and kitchen are located upstairs, near the stair from the Police Department, and proximate to the Police locker rooms. Both stairs feed down both to the apparatus bays and to the building exterior, allowing quick response for the Fire Department. Apparatus support spaces are located on the sides of the bays, with areas servicing the call fire fighters located near the call fire fighter parking lot. The Police Department prisoner areas and sally port are to the rear of the building near an exterior door to serve for prisoner release.

CONCEPTUAL EXTERIOR ELEVATIONS

EXTERIOR ELEVATION LEGEND

MATERIALS

- ASPHALT SHINGLES
- BRICK
- ARRISCRAFT
- FIBER CEMENT SIDING
- FIBER CEMENT BOARD & BATTEN
- GLASS
- LOUVERS

CONCEPTUAL BUILDING EXTERIOR DESIGN

The building exterior uses a combination of masonry, cementitious siding, and some metal siding. The two-story mass of the building will be of conventional wood frame construction, while the apparatus bays will use a pre-engineered steel frame, with a combination of masonry and metal siding. The design uses traditional volumes to reflect the character of the community but employs some more contemporary details to demonstrate this is s modern public safety facility.

NORTH ELEVATION

SOUTH ELEVATION

0' 2' 4' 8' 16' 32'

CONCEPTUAL EXTERIOR ELEVATIONS

EXTERIOR ELEVATION LEGEND

MATERIALS

- ASPHALT SHINGLES
- BRICK
- ARRISCRAFT
- FIBER CEMENT SIDING
- FIBER CEMENT BOARD & BATTEN
- GLASS
- LOUVERS

WEST ELEVATION

EAST ELEVATION

0' 2' 4' 8' 16' 32'

CONCEPTUAL RENDERING

RECOMMENDATION

The conceptual design indicates that although the proposed layout is tight to the property line and may impose certain limitations on future growth of both the Public Safety Facility and the Highway Garage, it is a viable solution.

PREFERRED DESIGN OPTIONS:

CONCEPTUAL DESIGN DETAIL | ***PARCEL NO. 4***

- SITE PLAN
- FLOOR PLANS
- EXTERIOR ELEVATIONS
- RENDERING

Tecton
ARCHITECTS

CONCEPTUAL SITE DESIGN

This site was initially not selected for further consideration, as it required acquisition of privately owned property that was amidst an ownership transition with as yet undetermined development intent. However, after the Old West Warren Road/Route 67 site faced concerns over future Conservation Commission approval, this site was brought back for further consideration.
No wetlands are identified on the GIS maps for this site, so Conservation Commission approval is not expected to be required. Preliminary geotechnical investigations and environmental reviews have not been conducted for this site.

The conceptual site plan is based upon the ideas demonstrated in the test fit for this site, but the floor plan shown now is based on conceptual floor plan designs rather than just generic assumptions. There are multiple vehicular access points on this site. The Town Offices drive is anticipated to remain the primary access point for Town Office staff and visitors to the campus. Hitchcock Avenue also connects through from Maple Street to the campus, but the roadway is narrow and frequently has on-street parking associated with the residences near Maple Street. This route is not viable for emergency response vehicles. A new connection to Maple Street is planned further West on Maple Street which is anticipated to be the response and return route for emergency vehicles. The Fire Chief has expressed some concern that although this entrance is further up the hill from Hitchcock Avenue, fire trucks heading to the West will immediately face a hill climb as they turn onto Maple Street. The Fire Chief is also concerned about emergency vehicles circulating through the Town Offices roadway. Particularly, the drive that passes by the Town Office main entry as it is narrow and currently has on street parking. The site plan does suggest improvements to the roadway which wraps around the Town Offices to the North with the possibility of additional staff and visitor parking.

Visitor parking at the Public Safety Facility would be directly in front of and adjacent to the Main entrance on the North side of the structure. Police cruiser parking would be opposite that drive overlooking the slope. Public Safety staff and on-call firefighter parking is located near the West side of the Bays and in the lot to the east. The driveway onto Maple Street can be added to allow for sufficient staff ingress and fire apparatus egress from that drive.

Some smaller retaining walls are required to handle grade along the southern property line with the neighbors, and along the downhill side of the cruiser lot.

SITE PLAN: 48 HIGH STREET & 100 MAPLE STREET

CONCEPTUAL FLOOR PLAN - LOWER LEVEL

CONCEPTUAL FLOOR PLAN DESIGN

The floor plan for this site is the same as the Brimfield Road site except that the Sally Port orientation has been adjusted to allow for site grading considerations. Instead of a single, double deep, drive through bay, this plan uses aside by side double bay with a drive-in, back-out configuration. The building has a two-story component which houses the police functions on the ground floor and the fire department functions on the upper floor. Shared functions such as the training room, fitness room and kitchen are located for easy access by both departments. The training room is just off the main lobby which means it can be used for either department, for hosting outside department joint training, or even for department meetings with the community.

(Continued on next page)

0' 2' 4' 8' 16' 32'

The fitness and kitchen are located upstairs, near the stair from the Police Department, and proximate to the Police locker rooms. Both stairs feed down both to the apparatus bays and to the building exterior allowing quick response for the Fire Department. Apparatus support spaces are located on the sides of the bays, with areas servicing call fire fighters located near the call fire fighter parking lot. The Police Department prisoner areas and sally port are to the rear of the building near an exterior door to serve for prisoner release.

CONCEPTUAL FLOOR PLAN - UPPER LEVEL

CONCEPTUAL EXTERIOR ELEVATIONS

EXTERIOR ELEVATION LEGEND

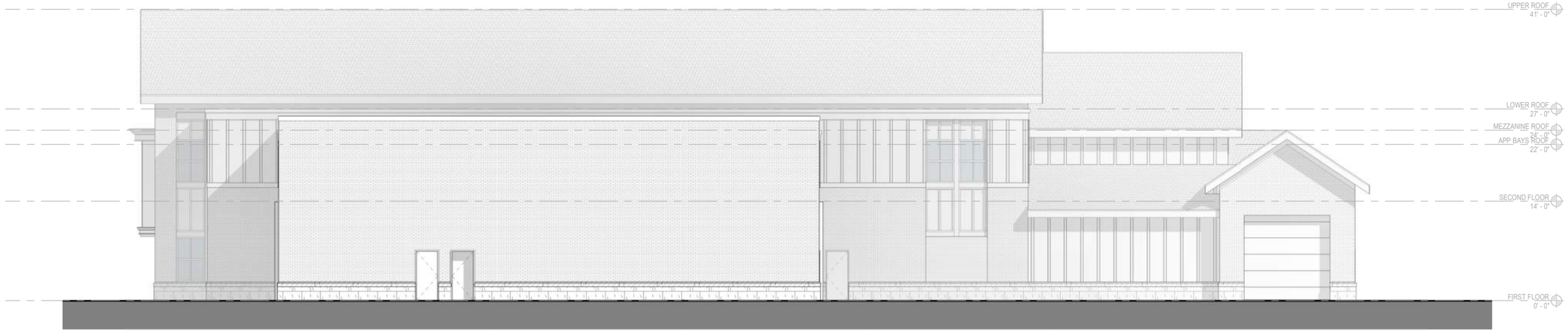
MATERIALS

- ASPHALT SHINGLES
- BRICK
- ARRISCRAFT
- FIBER CEMENT SIDING
- FIBER CEMENT BOARD & BATTEN
- GLASS
- LOUVERS

CONCEPTUAL BUILDING EXTERIOR DESIGN

The building exterior uses a combination of masonry, cementitious siding, and some metal siding. The two-story mass of the building will be of conventional wood frame construction, while the apparatus bays will use a pre-engineered steel frame, with a combination of masonry and metal siding. The design uses traditional materials and volumes to reflect the character of the community but employs some more contemporary details to demonstrate this is a modern public safety facility.

NORTH ELEVATION



SOUTH ELEVATION

0' 2' 4' 8' 16' 32'

CONCEPTUAL EXTERIOR ELEVATIONS

EXTERIOR ELEVATION LEGEND

MATERIALS

- ASPHALT SHINGLES
- BRICK
- ARRISCRAFT
- FIBER CEMENT SIDING
- FIBER CEMENT BOARD & BATTEN
- GLASS
- LOUVERS

WEST ELEVATION

EAST ELEVATION

0' 2' 4' 8' 16' 32'

CONCEPTUAL RENDERING

RECOMMENDATION

The conceptual design indicates that although there are concerns about hazards associated with emergency vehicles flowing through the Town Offices campus and challenges turning uphill onto Maple Street, it is a viable solution.

CONCEPTUAL DESIGN DETAIL | ***PARCEL NO. 5***

- SITE PLAN
- FLOOR PLANS
- EXTERIOR ELEVATIONS
- RENDERING
- ALTERNATE SITE PLAN

Tecton
ARCHITECTS

CONCEPTUAL SITE DESIGN

This parcel has a significant wetland on the south and west portions of the site as shown on GIS mapping. The sit also has significant slope rising to 50 feet from the lowest contour in the wetland to the highest contour on Old West Warren Road.

Our wetlands consultant also conducted research and a site visit for this location*. Almost immediately she discovered a stream that hadn't appeared on the initial GIS map. The stream location resulted in a need to move the facility further to the southwest then it was shown on the initial site test fit, to a location where the site depth is narrower between Old West Warren Road and the wetland that runs along Route 67. Our consultant felt that a wetlands crossing would be necessary to make this site viable and suggested we contact the Conservation Committee Chair to discuss the viability of such a crossing. The discussion with the Conservation Commission Chair brought to light that the source of the stream is stormwater runoff and not a body of water or a wetland, and as such the stream is not subject to waterway regulations. As such, it is possible to cross the stream with a box culvert and avoid the expense and approval process of crossing a wetland and possible replicating wetland area.

**The wetland determinations are based on field observations of vegetation types and visible soil conditions. A formal wetland flagging by a wetland scientist and the Town's Conservation agent was not conducted but should be included if any additional design work is anticipated for the site.*

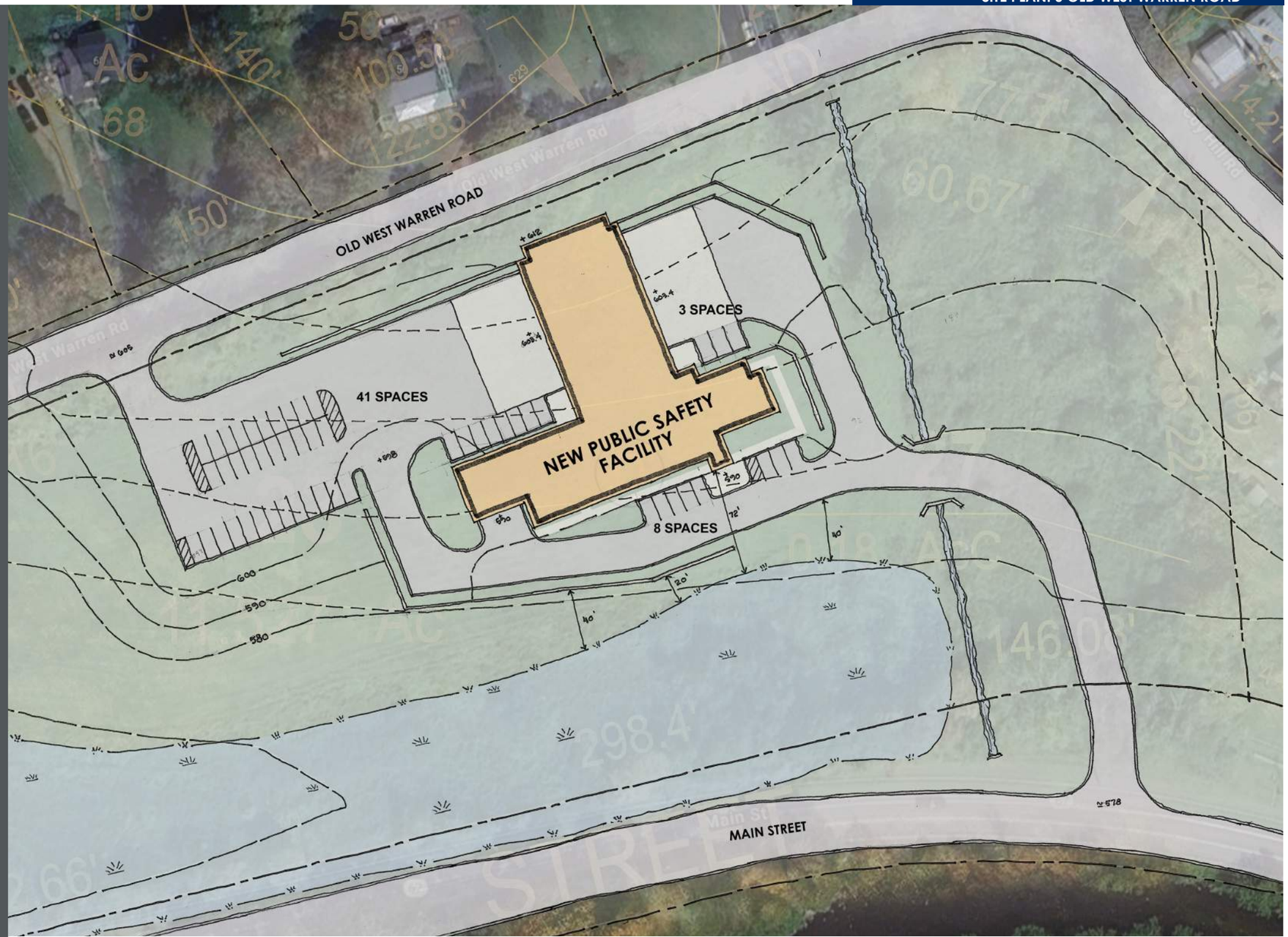
The site plan illustrates the results of the feedback from the Conservation Commission Chair, except that concern was also raised over the proximity of development within 50' of the wetland. It was determined that the best course of action was to submit an RDA to the Conservation Commission and solicit the feedback of the entire Commission.

The site plan depicts a building that steps up the slope. The police station is on the lower slope of the site, while the fire station offices and living quarters are above, aligning with the apparatus bays on the upper tier of the site. With this arrangement, no stairs are required along the response route to the bays. The back of the police station serves as a retaining wall, allowing the site to step up to the fire department level. Excess grade must still be accommodated to the rear of the site along Old West Warren Road with retaining walls along the apron and parking areas.

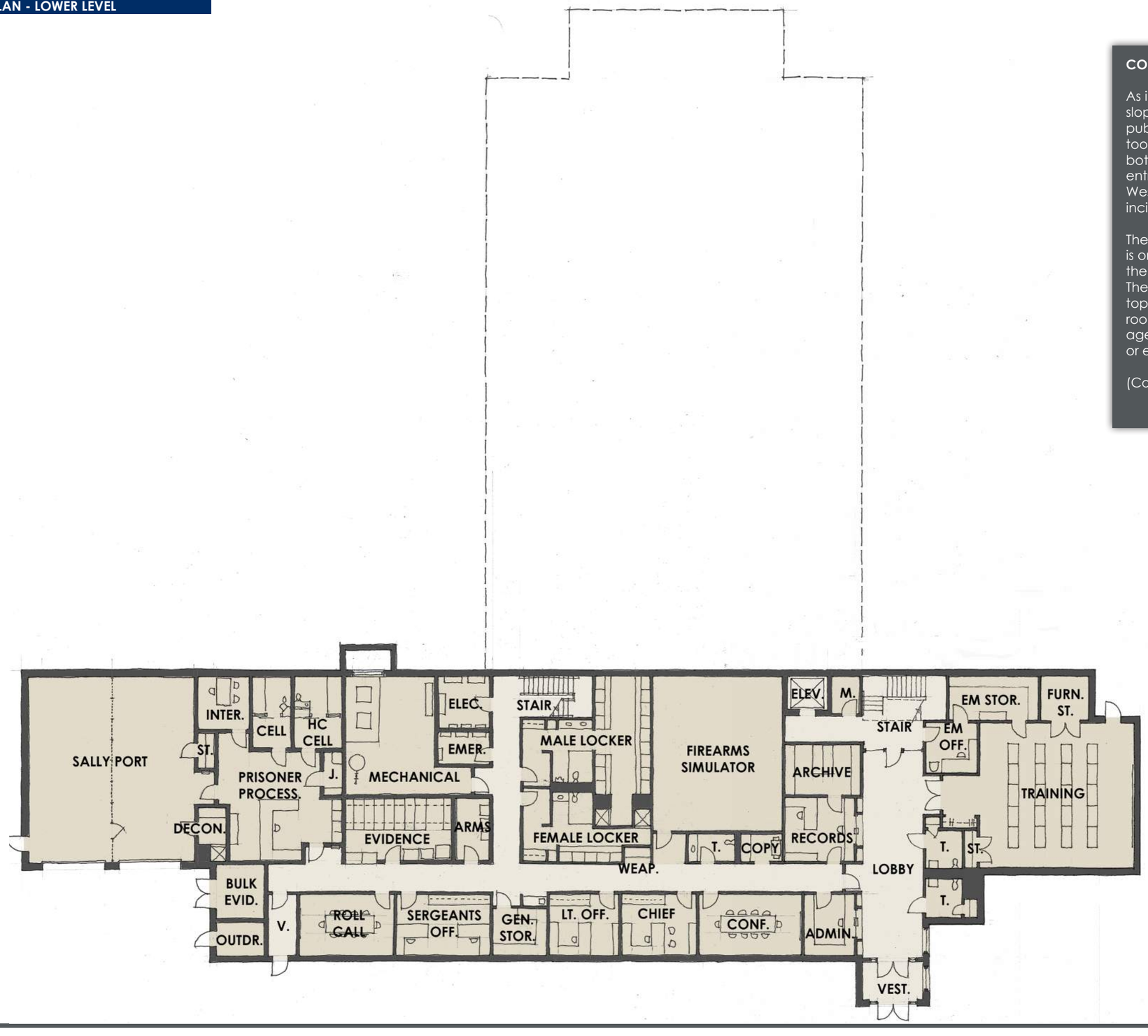
In preparation for the Conservation Commission meeting, an alternative site plan was developed (included in this report) to determine if the setback from wetland to developed area could be increased to fifty feet. This solution takes on long bay out of the floor plan and relocates it along Old West Warren Road as four shorter bays to house the smaller department vehicles. As a result, the overall building depth is shorter and the setback to the wetland can be increased to fifty feet.
The Conservation Commission review determined that based on the presented information, the alternative site plan would be viable with the following requirements:

- The wetland edge will need to be flagged and recorded on a survey to establish the actual setback from wetland to developed area.
- The setback from the wetland and to the stream should be maintained at fifty feet.
- A Notice of Intent (NOI) will be required for the stream crossing.

SITE PLAN: 0 OLD WEST WARREN ROAD



CONCEPTUAL FLOOR PLAN - LOWER LEVEL



CONCEPTUAL FLOOR PLAN DESIGN

As indicated in the site narrative, the floor plan steps up the slope from Route 67 to Old West Warren Road. The main public entry faces Route 67 and will serve as a way finding tool for public visitors. The apparatus drive loops around both ends of the facility to connect to the primary vehicular entry/exit on Route 67. A rear drive also connects to Old West Warren Road to provide a second exit should an incident occur on Route 67.

The police station inhabits the lowest tier of the facility and is on grade at the low side of the site. All functions except the shared kitchen and fitness room are on this lowest level. The two shared spaces are immediately adjacent to the top of the stair on the fire level above. The shared training room is located off the public lobby so it can serve either agency, and it can host joint training with outside agencies or even public meetings.

(Continued on next page)

The fire offices and living quarters are on the floor above the police and align with the apparatus bays on the upper tier of the sloping site. This allows for direct grade response routes from the office area to the bays. All apparatus support spaces are flanking the bays. The rear wall of the apparatus bays along Old West Warren Road will serve as a retaining wall as the site once again steps up to the roadway.

CONCEPTUAL FLOOR PLAN - UPPER LEVEL

CONCEPTUAL EXTERIOR ELEVATIONS

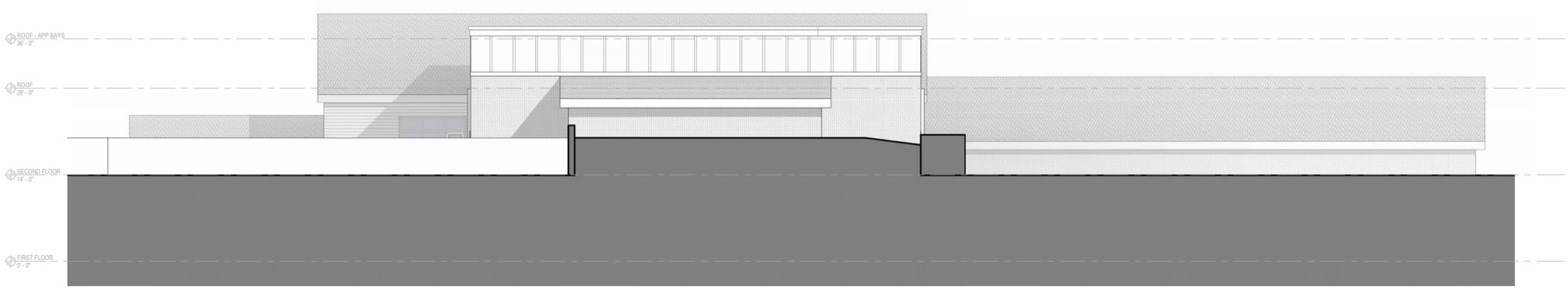
EXTERIOR ELEVATION LEGEND

MATERIALS

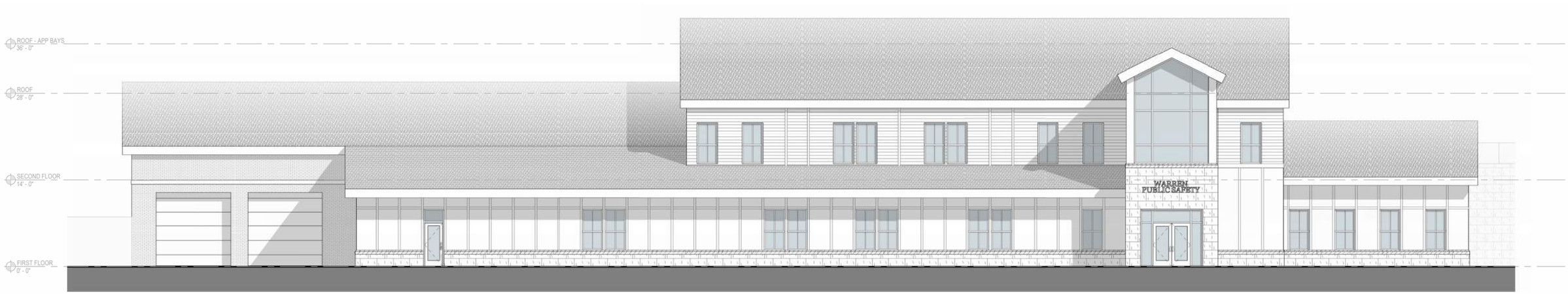
- ASPHALT SHINGLES
- BRICK
- ARRISCRAFT
- FIBER CEMENT SIDING
- FIBER CEMENT BOARD & BATTEN
- GLASS
- LOUVERS

CONCEPTUAL BUILDING EXTERIOR DESIGN

The building exterior uses a combination of masonry, cementitious siding, and some metal siding. The two-story mass of the building will be of conventional wood frame construction, while the apparatus bays will use a pre-engineered steel frame, with a combination of masonry and metal siding. The design uses traditional volumes to reflect the character of the community but employs some more contemporary details to demonstrate this is a modern public safety facility.



NORTH ELEVATION



SOUTH ELEVATION

0' 2' 4' 8' 16' 32'

CONCEPTUAL EXTERIOR ELEVATIONS

EXTERIOR ELEVATION LEGEND

MATERIALS

- ASPHALT SHINGLES
- BRICK
- ARRISCRAFT
- FIBER CEMENT SIDING
- FIBER CEMENT BOARD & BATTEN
- GLASS
- LOUVERS

WEST ELEVATION

EAST ELEVATION

0' 2' 4' 8' 16' 32'

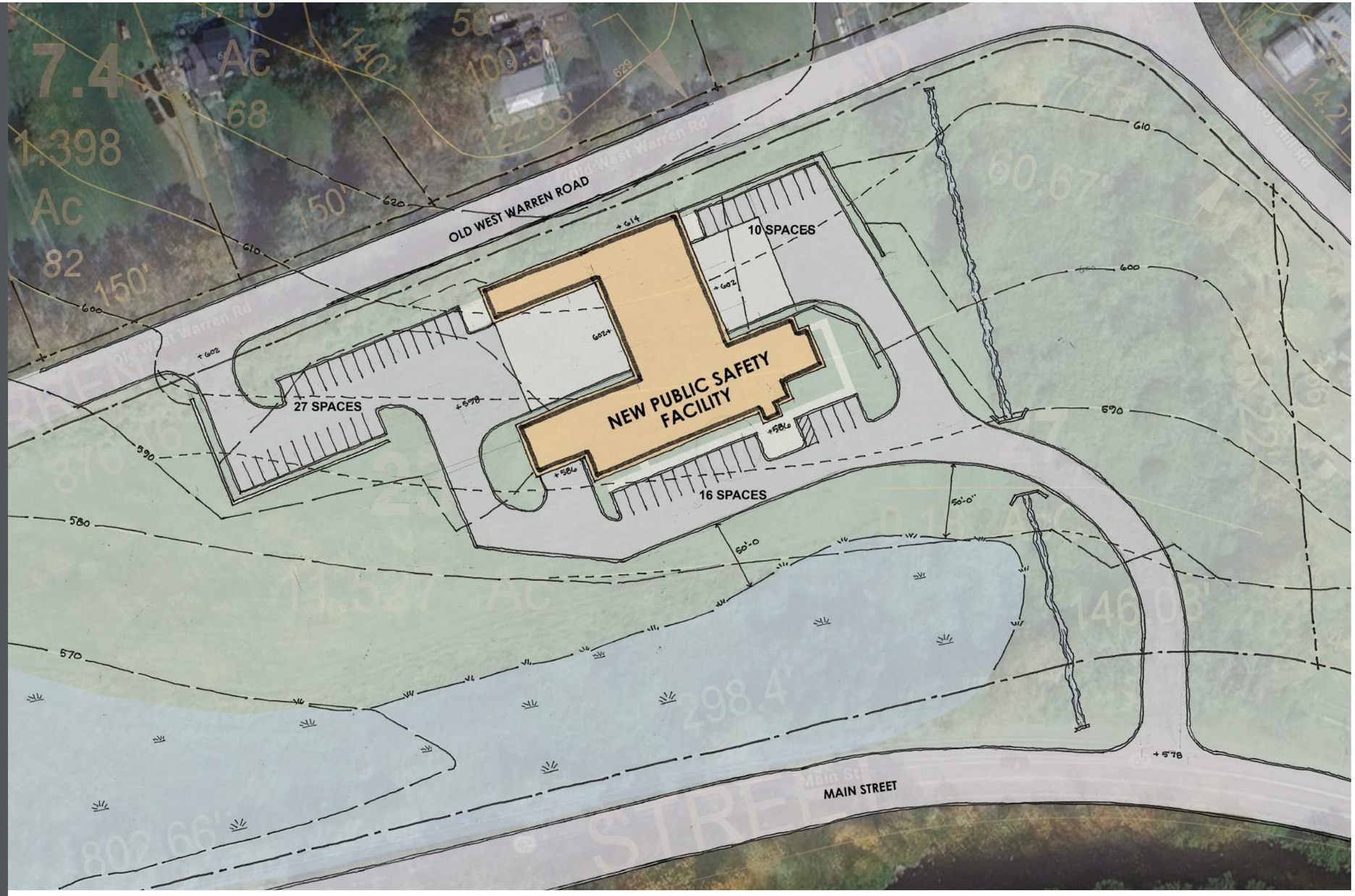
CONCEPTUAL RENDERING

RECOMMENDATION

Although there are several successful features in this design, there are three major hurdles to considering this site viable. First, the final design solution will require substantial compliance with the requirements of the Conservation Commission. Second, this parcel is privately owned and requires acquisition by the Town. Third, the extensive excavation and use of site retaining walls is expensive and, in conjunction with the acquisition cost, makes this solution substantially more costly that other solutions.

CONCEPTUAL SITE DESIGN

This is the alternative site plan developed in response to concerns expressed by the Conservation Commission. The plan relies on removing one apparatus bay that was programmed to house smaller vehicles and relocating smaller bays along the apron to the west. This move would reduce the overall north to south depth of the building by about twenty-five feet (25') and permits the buffer to the wetland to be increased to the necessary fifty feet (50').



THIS PAGE IS INTENTIONALLY LEFT BLANK

ENVIRONMENTAL / CIVIL

- GEOTECHNICAL REPORT
- PRELIMINARY ENVIRONMENTAL REVIEW

6

Tecton
ARCHITECTS

GEOTECHNICAL REPORT

Tecton
ARCHITECTS

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

August 30, 2024
J2241-14-01

Jeffery R. McElravy, NCARB, AIA
Tecton Architects, Inc.
34 Sequassen Street, Suite 200
Hartford, Connecticut 06106

Re: Preliminary Geotechnical Recommendations
Proposed Warren Public Safety Complex
Warren, Massachusetts

Dear Mr. McElravy:

O'Reilly, Talbot & Okun Associates, Inc. (OTO) is pleased to provide this letter report summarizing our preliminary geotechnical engineering recommendations for the proposed public safety complex in Warren, Massachusetts. The information in this report is intended to help in assessing the feasibility of locating the new development and to provide data for preliminary design. At the time of this report, two project Site options were being considered: 0 Old West Warren Road ("Site 1") and 87 Brimfield Road ("Site 2"). A Site Locus is provided as Figure 1.

Our geotechnical recommendations are based upon subsurface conditions observed in four borings at Site 1 and five borings at Site 2. Our services consisted of the full-time observation of the borings, review of the logs and samples, engineering analyses, and preparation of this report. This report is subject to the attached limitations.

We note that additional explorations will be necessary for final design.

1.0 PROJECT & SITE DESCRIPTIONS

We understand that the project is in the conceptual design stage and various options are being considered. The final location, layout and size of the structure has not been established; however, preliminary concepts were provided to OTO.

The preliminary project design calls for the construction of an approximately 16,000 square foot (footprint) public safety complex. At the time of this report, two project Site options were being considered: 0 Old West Warren Road ("Site 1") and 87 Brimfield Road ("Site 2"). Additional details are provided below.

Site 1 – Old West Warren Road

Site 1 consists of the 11.5 acre property located at 0 Old West Warren Road. The Site is accessed from the north (Old West Warren Road), and consists of a grassy field surrounded by wooded areas. The Site is bounded by Old West Warren Road followed by

293 Bridge Street Suite 500 Springfield MA 01103 | 413.788.6222 | www.OTO-ENV.com

residential properties to the north, residential properties to the east and west, and Main Street (Route 67) to the south. The Quaboag River in this area is located south of Main Street and flows from east to west.

Topography slopes downward from the north (approximate elevation 620 near Old West Warren Road) to the south (approximate elevation 570). The ground surface elevation within the proposed building area in the eastern portion of the Site varies approximately between 620 to 590 feet.

We understand that the new construction at Site 1 would most likely consist of a multi-story, split level structure. Preliminary concepts include cuts of up to 14 feet in the northern portion of building footprint. A Site Sketch for Site 1 is provided as Figure 2.

Site 2 – Brimfield Road

Site 2 consists of the southern portion of the existing DPW property at 87 Brimfield Road. The Site currently is a grassy field, with a small wetland northeast of the proposed building and ornamental trees to the west. A driveway leading to the existing Warren DPW facility is directly to the north and undeveloped parcels are located to the east. Directly to the south is a sand quarry owned by the Fountain and Sons Construction Company.

Topography across the Site generally slopes downward from the southeast portion of the Site (approximate elevation 700) towards the wetland in the northeast (approximately 680) and west to Brimfield Road (approximate elevation 690). The ground surface elevation within the proposed building area varied between elevation 670 feet and 680 feet.

We understand that the new construction at Site 2 would most likely consist of a slab on grade structure with cuts and fills to balance the Site. A Site Sketch for Site 2 is provided as Figure 3.

2.0 PRELIMINARY SUBSURFACE EXPLORATIONS & TESTING

Investigations and testing at these Sites included borings and preliminary grain size analyses.

Borings

Preliminary subsurface borings consisted of four to five soil borings at each of the Sites. The borings were performed by Seaboard Drilling of Chicopee, Massachusetts. Borings using a D-50 track mounted drill rig, using hollow stem drilling techniques.

Soil samples were collected using a two-inch diameter split spoon sampler, driven 24 inches with a 140-pound automatic hammer falling 30 inches (American Society for Testing and Materials Test Method D1586 “Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils”). The number of blows required to drive the sampler each six inches was recorded. The standard penetration resistance, or N-value, is the number of blows required to drive the sampler the middle 12 inches. Soil properties, such

as strength and density, are related to the N-value. The field N-values are corrected to a standard 60% hammer efficiency, known as N_{60}, to account for differing hammer efficiencies for each hammer type and drill rig. The N-values presented on the boring logs are field values, which are not adjusted for hammer efficiency. However, the adjusted N_{60} values were used in our engineering calculations and analysis.

An O'Reilly, Talbot & Okun Associates, Inc. (OTO) engineer observed and logged the borings. Samples were described according to a modified version of the Burmister Soil Classification System. After drilling, bore holes were backfilled with soil cuttings. Additional details for each Site are provided below.

- Site 1 – Old West Warren Road: Borings WW-1 through WW-5 were performed on July 26, 2024. Each of the borings were performed within or near the footprint of the proposed building and were extended to depth between 4 and 15.5 feet below ground surface. Soil samples were generally collected continuously from the ground surface to a depth of four feet below ground surface, at five feet, and continuously thereafter. Boring locations are shown on Figure 2.

- Site 2 – Brimfield Road: Borings BR-1 through BR-4 were performed on July 25, 2024. Each of the borings were performed within or near the footprint of the proposed building and were extended to depth between 4 and 27 feet below ground surface. Soil samples were generally collected continuously from the ground surface to a depth of four feet below ground surface, from five to nine feet, and every five feet thereafter. Boring locations are shown on Figure 2.

  Laboratory Testing

Three soil samples were analyzed for grain size distribution by Allied Testing Laboratories, Inc. of Springfield, Massachusetts. Soil samples analyzed were obtained from: Old West Warren Site (Site 1) - Boring WW-3; and Brimfield Road Site (Site 2) – Boring BB-2. Laboratory data sheets are attached, and results are discussed below.

SUBSURFACE CONDITIONS

This discussion of subsurface conditions at each Site is based upon published geologic information, general knowledge of the Site location and nearby vicinity, and the soil investigations performed during this study.

Site 1: Old West Warren Road

The geologic map for the Old West Warren Site indicates that soil conditions consist of a "thin" glacial till. These soil deposits are likely underlain by bedrock. The map indicates the underlying bedrock also consists of a schist of the Littleton Formation or a granodiorite of the Devonian era. The soil conditions observed in borings WW-1 through WW-5 were generally consistent with published geologic information; however, no bedrock was encountered during the preliminary borings.

Based upon the borings, the subsurface profile consisted of 12 to 16 inches of topsoil over a sandy glacial till. Glacial till is a very dense, heterogeneous mixture of silt, clay, sand and gravel, and is generally present immediately above bedrock throughout New England. The borings terminated within the glacial till; therefore, the depth to bedrock is unknown.

Auger refusal/very slow drilling was observed in boring WW-1 at a depth of 4 feet; however, continuous split spoon sampling was performed to a depth of 12.5 and 15.5 feet, respectively, at the other two uphill boring locations (higher ground surface elevation), WW-2 and WW-3. This indicates that the near surface soils at the higher elevation consist of soil; i.e. no bedrock was encountered. However, bedrock surfaces can vary significantly in short distances and additional investigations will be needed for final design. Downhill borings WW-4 and WW-5 were terminated in the dense, glacial till at a depth of 4 feet below ground surface.

Groundwater was present at a depth of 9 feet below ground surface (approximately elevations 596 and 609) in borings WW-2 and WW-3.

Two soil samples collected from boring WW-3 were analyzed for grain size distribution by Allied Testing Laboratories, Inc. of Springfield Massachusetts. Sample WW-3 (0.5'-5') generally represented the upper silty sand layer and sample WW-3 (5'-11') generally represented the lower glacial till layer. These samples were chosen as preliminary representations of soils from potential cut areas, to aid in evaluation of on-Site soils for re-use. We note that the sample collected between 5 to 11 feet was composited from individual samples collected from the split spoon sampler; thereover, any gravel with a diameter greater than 2 inches was omitted.

Laboratory samples were generally classified as fine to medium sand, with varying amounts of gravel, silt, and fine to coarse sand, which is consistent with glacial till. Based upon the tests performed, the near surface soils are not suitable for use as Sand and Gravel fill or Gravel Base Course below pavements. Both samples nearly met gradation requirements for re-use a Granular Fill; however, the fines content in each sample (passing No. 200 sieve) was slightly over the recommended 15 percent passing by weight (20 and 24 percent). Therefore, native soil may be suitable for use in landscaped areas and as deep fills in pavement areas if sandy in nature, kept dry and protected, and if properly placed and compacted. Additional sampling and evaluation should be performed during future design phases.

Site 2: Brimfield Road

The geologic map for the Brimfield Road Site indicates that soil conditions consist of coarse granular deposits over glacial till. The soil conditions observed in the borings at the Brimfield Road Site (BR-1 through BR-4) were generally consistent with published geologic information.

Based upon the borings performed for this study, the subsurface profile generally consisted of 4 to 6 inches of topsoil over granular deposits. At boring location BR-3, which was performed in the southern portion of the proposed building footprint, approximately 7

feet of non-engineered fill was encountered. The fill consisted of loose to very loose, light brown to brown, fine sand, trace organics (bark, woodchips, roots) and varying amounts of medium to coarse sand and gravel. One piece of asphalt was observed at a depth of 6.5 feet. The fill appears to be reworked site soils mixed with woodchips, roots and trace (-) debris (asphalt). Additional explorations (borings and/or test pits) should be performed to determine the extents of the fill pocket and/or if other fill pockets are located within the proposed development area.

Immediately below the topsoil layer (or fill layer in BR-3), native soils consisting of medium dense, fine sand with trace silt and varying amounts of medium sand were encountered. The sand extended to the maximum depth explored, 22 and 27 feet below ground surface.

No groundwater was observed at the time of drilling. We note that a small wetland area is located north of the proposed building footprint; however, this appears to be an isolated condition.

One soil sample collected from boring BR-2 was analyzed for grain size distribution by Allied Testing Laboratories, Inc. of Springfield Massachusetts. Sample BR-2 (0.5'-5') generally represented the native sand from potential cut areas, to aid in evaluation of on-Site soils for re-use.

The laboratory sample was generally classified as fine sand with some amount of silt, and trace (-) amounts of medium and course sand and fine gravel. This soil is not suitable for use as engineered fills due to its uniformity and silt content. These soils may be suitable for use in landscaped areas if kept near optimum moisture content and properly placed and compacted. Additional sampling and evaluation should be performed during future design phases.

SIGNIFICANT GEOTECHNICAL ISSUES

The significant geotechnical issues addressed in this preliminary report include the following: foundation bearing capacity and settlement; seismic design considerations; groundwater and surface water control; and the potential re-use of on-site soils.

PRELIMINARY DESIGN RECOMMENDATIONS

The recommendations in this report refer to the 9th Edition of the Massachusetts State Building Code (MSBC), which includes amendments to the 2015 International Building Code. We note that the 10th Edition of the MSBC is expected to become effective in 2024. However, a date or length of concurrency period has not been announced. We recommend that information provided in this report be reviewed and updated if the final version of the new building code is published and becomes effective and this project falls outside of the concurrency period.

In general, subsurface conditions appear favorable for the proposed construction at each Site. A significant geotechnical consideration at Site 1 (Old West Warren Road) is that groundwater and perched water layers may be encountered during construction and during the life of the proposed building and pavements. We note that given the high silt

content of the native Site soils, it may be difficult to place and compact these soils during wet periods, and Site access may be difficult due to the soft ground conditions during cold and wet periods.

A significant geotechnical consideration at Site 2 is the presence of the non-engineered fill encountered in boring location BR-3. Supplemental subsurface investigations will indicate the approximate horizontal and vertical extents of this fill layer.

Preliminary geotechnical recommendations are provided below.

Foundations

Based upon the observed subsurface conditions, it appears that the new building can be supported on normal spread footings bearing on native, glacial till or compacted engineered fill (Site 1) or densified, native granular soils (Site 2). The footings should be embedded at least four feet for frost protection. Other requirements of the MSBC should be followed.

Site 1: Old West Warren Road

A maximum allowable bearing pressure of 4,500 pounds per square foot may be used for preliminary design of exterior and isolated column footings bearing on undisturbed glacial till or compacted engineered fill. At this time, we recommend that footing subgrades extending into the silty glacial till be over-excavated and that six inches of crushed stone be placed to protect the subgrade from disturbance. If competent bedrock is encountered at footing subgrade level, the allowable bearing capacity will not govern design, and footings should be designed based upon minimum widths contained in buildings codes.

If deep fill areas beneath structures are incorporated into the project, these soils should be placed early on in construction since settlement due to soil self-weight can be up to 1 percent of the thickness of the fill.

Site 2: Brimfield Road

As was discussed above, non-engineered fill was encountered in the upper 6.5 feet at boring location BR-3 at Site 2. The fill consisted of fine sand, trace organics (bark, woodchips, roots), trace debris (asphalt) and varying amounts of medium to coarse sand and gravel. The non-engineered fill was loose to very loose in density. This fill is an unsuitable bearing material for the proposed building due to the variability of the composition and density of this material. Additional borings or test pits should be performed to determine the approximate limits of the non-engineered fill.

Based upon the nature and variable density of the fill layer, these soils should be removed from beneath the new building footprint, and the resulting excavation should be backfilled with compacted engineered fill to slab and footing subgrade level. To treat any loose areas at the base of the excavation and within the building pad, we recommend that the entire footprint be thoroughly proof compacted, prior to the placement of any engineered fill. This

will ensure that the footings bear on a firm dense surface and will limit differential settlement.

Given the nature of the material, it is unlikely that the fill containing debris can be re-used as engineered fill for the project. However, it may be possible to re-use some of the excavated material in landscaped areas provided over-sized and deleterious materials (debris) are removed.

Provided that any non-engineered fill is removed, a maximum allowable bearing pressure of 4,000 per square foot may be used for preliminary design of exterior and isolated column footings bearing on undisturbed native soils or engineered fill. At this time, we recommend that preliminary design include that footing subgrades extending into the uniform natural sand be over-excavated and that a minimum of six inches of crushed stone be placed to protect the subgrade from disturbance.

Groundwater and Surface Water Control

As part of our preliminary study, we considered the need for stormwater control and drainage features at each Site.

Site 1: Old West Warren Road

Groundwater was encountered at a depth of nine feet below ground surface in two of the borings. In addition, perched groundwater layers are likely present at shallow depths across the Site, given the low permeability of the glacial till soils and the tendency for perched groundwater to accumulate on the glacial till surface or within saturated lenses of groundwater may form within coarse grain portions of the glacial till. In addition, significant runoff will occur off earth slopes. Underdrains will likely be required beneath and around the perimeter of the building and may be required below pavements. Since the glacial till soils are relatively impermeable, it will not be possible to infiltrate significant amounts of surface water runoff into the subsurface.

Furthermore, the native soils at the Site are highly susceptible to disturbance when wet, as described below. Establishing and maintaining proper surface drainage during construction will be necessary to maintain a stable soil subgrade during construction. We note that special provisions (such as reinforced access roads) will be required to facilitate access for construction equipment (such as cranes or lifts) during construction.

Site 2: Brimfield Road

There are no significant concerns for groundwater or surface water control at Site 2. We note that a small wetland area is located immediately to the north of the proposed building footprint. These wet conditions appear to be isolated and not consistent with the nearby investigations performed for this study. However, supplemental investigations should be performed during final design.

Site Class and Earthquake Design Factors

Earthquake loadings must be considered under requirements in Section 1613 and 1806 of the 9th Edition (October 2017) of the Massachusetts State Building Code (MSBC). The 9th Edition of the MSBC is based upon the International Building Code 2015 (IBC) with Massachusetts amendments. Note that the IBC refers to ASCE-7 (2010), Minimum Design Loads for Buildings and Other Structures.

Section 1613 of the IBC covers lateral forces imposed on structures from earthquake shaking and requires that every structure be designed and constructed to resist the effects of earthquake motions in accordance with ASCE-7. Lateral forces are dependent on the type and properties of soils present beneath the Site, along with the geographic location. the maximum considered earthquake spectral response acceleration at short periods (S_s) and at 1-sec (S_1) was determined per Table 1604.11 for Warren, Massachusetts.

Soil properties are represented through Site Classification. Procedures for the Site-specific determination of Site Classification are provided in Chapter 20 of ASCE-7. At each of these Sites, we evaluated Site Classification using one of the parameters allowed, Standard Penetration Resistance (N-value).

The Site Class was determined based upon soil data collected. Furthermore, the Site coefficients F_a and F_v were determined according to Tables 1613.3.3(1) and 1613.3.3(2) of the IBC (2015), using both the S_s and S_1 values and the Site Class. Preliminary seismic parameters determined for the Site are presented in Table 2.

Table 2
Preliminary Seismic Design Parameters

Design Parameter	Design Value	
	Old West Warren Road	Brimfield Road
Site Class	C	D
S_S	0.173	0.173
S_1	0.065	0.065
F_a	1.2	1.6
F_v	1.7	2.4

As noted within Table 2, seismic design parameters vary for each Site. Therefore, we recommend these different seismic considerations be taken into account during final design and additional investigations be performed during final design.

If retaining walls or basements are incorporated into the final design, basement and retaining walls should be designed to resist dynamic lateral earth forces in accordance with Section 1610.2 of the MSBC. The seismic earth forces as defined in Section 1610.2 should be applied as an inverted triangle over the height of the wall and added to the static

lateral pressures. For purposes of the calculation, a total unit weight of 125 pounds per cubic foot should be used for the backfill against the retaining wall.

Liquefaction

Section 1806.4 relates to the liquefaction potential of the underlying soils. The liquefaction potential was evaluated for saturated Site soils, using Figure 1806.4b or 1806.4c of the MSBC. However, based upon the observed density, it is unlikely that liquefaction would occur under the design earthquake. In addition, we do not anticipate that loose soil layers will be present below the maximum depth explored.

Preliminary Evaluation of Earthwork Considerations

We anticipate that earthwork for this project will include the following: removal of non-engineered fill (where present); cuts and fills to form the new building pad and surrounding proposed features; excavations for footings; placement of compacted engineered fill beneath the building, floor slabs, and pavements; and the treatment of the existing soils to address any localized loose areas that may be present.

Site 1: Old West Warren Road

Site 1 includes a hillside consisting of native glacial till soils. As described above, glacial till soils have low permeability; therefore, temporary (during construction) and permanent drainage design will be a significant consideration for this Site. Provided the soils are kept dry and protected, preliminary testing indicates they can be used in deep fill areas, if properly placed and compacted. Consideration to weather, scheduling and protection of soils is critical to the successful re-use of these soils as fills, as well as the prevention of disturbance to exposed soil surfaces. Since these soils are susceptible to disturbance under traffic loads, particularly during construction, where they experience worse-case conditions. Repeated construction traffic further exacerbates the disturbance of these materials. Temporary haul roads may be needed during construction.

Fill for use immediately below footings, slabs and pavements will need to be imported.

Recommendations for the protection of exposed soil surfaces, water control and re-use of on-Site soils should be provided during final design.

Site 2: Brimfield Road

Non-engineered fill was encountered at one boring location, as described above. These soils are not suitable for bearing and will need to be removed and replaced. The native near surface soils at the Site consist of a uniform silty, fine sand. These soils will need to be kept near optimum water content to prevent disturbance under too dry or too wet conditions. The native soils are not suitable for use as engineered fills due to their uniformity and silt content. These soils may be suitable for use in landscaped areas if kept near optimum moisture content properly placed and compacted. Therefore, engineered fill will need to be imported.

Preliminary Geotechnical Engineering Recommendations
Warren Public Safety
Warren, Massachusetts
August 30, 2024

SUPPLEMENTAL INVESTIGATIONS

This preliminary study indicates that conditions are favorable for the project. However, design phase explorations will be necessary prior to final design. The number and scope of additional explorations will depend upon the final location and slab elevation of any new building and associated improvements. Typically, design phase borings should be completed at a spacing of 100 feet, or less. The design phase geotechnical study should include also grain size distribution analyses to evaluate the suitability of Site soils for re-use as engineered fill and testing to evaluate the hydraulic conductivity of Site soils at proposed stormwater disposal locations (although it appears unlikely that the native Site soils are suitable for stormwater infiltration). If significant quantities of soil are to be removed from the Site, environmental testing of the soils would be appropriate.

- At the Old Warren Road Site, borings/test pits should also be performed along utility lines and in any deep cuts to evaluate if bedrock or large boulders may be present.
- At the Brimfield Road Site, borings/test pits should also be performed in the area of non-engineered fill, or other potential fill areas.

We appreciated the opportunity to be of service on this project. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely yours,
O'Reilly, Talbot & Okun Associates, Inc.

Caren Irgang, PE (NY)
Engineer II

Ashley L. Sullivan, P.E.
Principal

Attachments: Limitations, Site Loci, Site Sketches, Boring Logs, Laboratory Data Sheets

LIMITATIONS

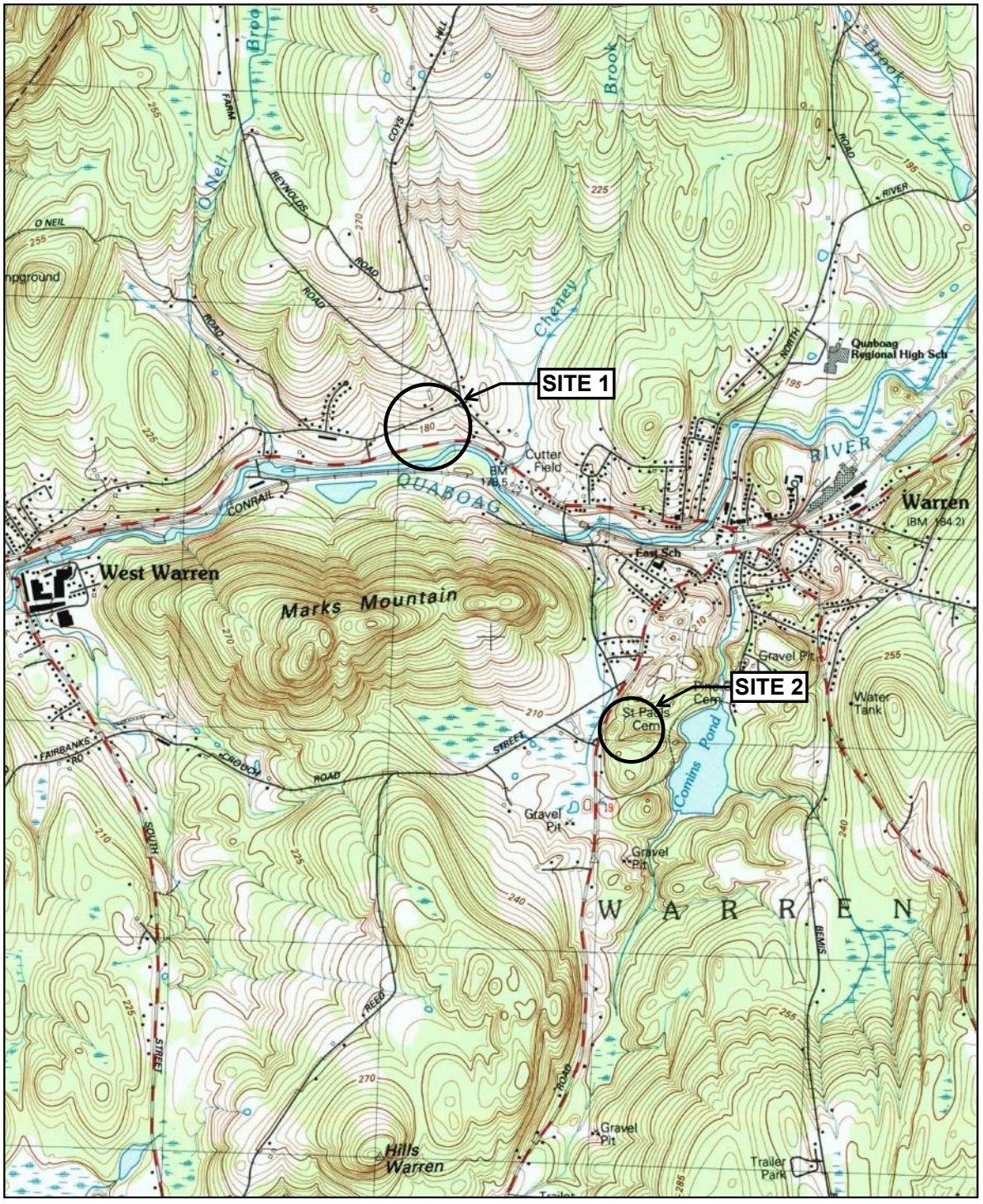
1. The observations presented in this report were made under the conditions described herein. The conclusions presented in this report were based solely upon the services described in the report and not on scientific tasks or procedures beyond the scope of the project or the time and budgetary constraints imposed by the client. The work described in this report was carried out in accordance with the Statement of Terms and Conditions attached to our proposal.

2. The analysis and recommendations submitted in this report are based in part upon the data obtained from widely spaced subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it may be necessary to reevaluate the recommendations of this report.

3. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.

4. In the event that any changes in the nature, design or location of the proposed structures are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by O'Reilly, Talbot & Okun Associates Inc. It is recommended that we be retained to provide a general review of final plans and specifications.

5. Our report was prepared for the exclusive benefit of our client. Reliance upon the report and its conclusions is not made to third parties or future property owners.



1:25,000 SCALE NATIONAL GEODETIC VERTICAL DATUM 1929 10 FOOT CONTOUR INTERVAL

O:\J2200\2241 Tecton Architects Incl\14-01 Warren MA PS - Preliminary Geotech\Figures

O'Reilly, Talbot & Okun ENGINEERING ASSOCIATES 293 Bridge Street, Suite 500 Springfield, MA 01103 413.788.6222 www.OTO-ENV.com	PRELIMINARY WARREN PUBLIC SAFETY COMPLEX BRIMFIELD ROAD & OLD WEST WARREN ROAD WARREN, MASSACHUSETTS SITE LOCUS	Topographic Map Quadrant: WARREN, MA Map Version: 1982 Current As Of: 1996 Date: AUGUST 2024	PROJECT No. J2241-14-01 FIGURE No. 1

NOTES:

1. BASE MAP PROVIDED TO OTO IN ELECTRONIC FORMAT. ORIGINAL DRAWING TITLED "NEW BACKGROUND (OLD WEST WARREN ROAD) OTO" 6/12/2024
2. SAMPLE LOCATIONS ARE SHOWN ACCORDING TO GPS COORDINATES OBTAINED IN THE FIELD USING A MOBILE DEVICE
3. ALL DATA IS TO BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED IN THE DEVELOPMENT OF THIS PLAN

LEGEND:

- APPROXIMATE SOIL BORING LOCATION PERFORMED BY SEABOARD DRILLING ON 7/26/2024, OBSERVED BY OTO
- PROPOSED BUILDING FOOTPRINT (PRELIMINARY CONCEPT)

SCALE IN FEET
1" = 100'
100' 0' 100'

FIGURE No. 2

PROJECT No. J2241-14-01

PRELIMINARY WARREN PUBLIC SAFETY COMPLEX

OLD WEST WARREN ROAD
WARREN, MASSACHUSETTS

SITE SKETCH

DESIGNED BY: CYI
DRAWN BY: CYI
CHECKED BY: ALS
DATE: 8/7/2024
REV. DATE:

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES
293 Bridge Street, Suite 500 Springfield, MA 01103 413.788.6222
www.OTO-ENV.com

O:\J2200\2241 Tecton Architects Inc\14-01 Warren MA PS - Preliminary Geotech\Figures

NOTES:

1. BASE MAP PROVIDED TO OTO IN ELECTRONIC FORMAT. ORIGINAL DRAWING TITLED "WARREN PUBLIC SAFETY SITE TEST FIT OPTION B" DECEMBER 2023
2. SAMPLE LOCATIONS ARE SHOWN ACCORDING TO GPS COORDINATES OBTAINED IN THE FIELD USING A MOBILE DEVICE
3. ALL DATA IS TO BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHODS USED IN THE DEVELOPMENT OF THIS PLAN

LEGEND:

APPROXIMATE SOIL BORING LOCATION PERFORMED BY SEABOARD DRILLING ON 7/25/2024, OBSERVED BY OTO

PROPOSED BUILDING FOOTPRINT

SCALE IN FEET
1" = 150' (APPROXIMATE)

75' 0' 150'

FIGURE No. 4

PROJECT No. J2241-14-01

PRELIMINARY WARREN PUBLIC SAFETY COMPLEX

BRIMFIELD ROAD
WARREN, MASSACHUSETTS

SITE SKETCH

DESIGNED BY: CYI
DRAWN BY: CYI
CHECKED BY: ALS
DATE: 8/7/2024
REV. DATE:

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES
293 Bridge Street, Suite 500 Springfield, MA 01103 413.788.6222
www.OTO-ENV.com

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

BORING LOGS

SUMMARY OF THE BURMISTER SOIL CLASSIFICATION SYSTEM (MODIFIED)

RELATIVE DENSITY (of non-plastic soils) OR CONSISTENCY (of plastic soils)

STANDARD PENETRATION TEST (SPT)
Method: Samples were collected in accordance with ASTM D1586, using a 2" diameter split spoon sampler driven 24 inches. If samples were collected using direct push methodology (Geoprobe), SPTs were not performed and relative density/consistency were not reported. N-Value: The number of blows with a 140 lb. hammer required to drive the sampler the middle 12 inches. WOR: Weight Of Rod (depth dependent) WOH: Weight Of Hammer (140 lbs.)

COHESIONLESS SOILS		COHESIVE SOILS	
BLOWS/FOOT (SPT N-Value)	RELATIVE DENSITY	BLOWS/FOOT (SPT N-Value)	CONSISTENCY
0-4	Very loose	<2	Very soft
4-10	Loose	2-4	Soft
10-30	Medium dense	4-8	Medium Stiff
30-50	Dense	8-15	Stiff
>50	Very dense	15-30	Very stiff
*Based upon uncorrected field N-values		>30	Hard

MATERIAL: (major constituent identified in CAPITAL letters)

COHESIONLESS SOILS		
MATERIAL	FRACTION	GRAIN SIZE RANGE
GRAVEL	Coarse	3/4" to 3"
	Fine	1/4" to 3/4"
SAND	Coarse	1/16" to 1/4"
	Medium	1/64" to 1/16"
	Fine	Finest visible & distinguishable particles
SILT/CLAY	see adjacent table	Cannot distinguish individual particles
COBBLES	3" to 6" in diameter	
BOULDERS	> 6" in diameter	
Note: Boulders and cobbles are observed in test pits and/or auger cuttings.		

COHESIVE SOILS		
SMALLEST DIAMETER	PLASTICITY	IDENTITY
None	Non-plastic	**SILT**
1/4" (pencil)	Slight	**clayey SILT**
1/8"	Low	**SILT & CLAY**
1/16"	Medium	**CLAY & SILT**
1/32"	High	**Silty CLAY**
1/64"	Very High	**CLAY**
Wetted sample is rolled in hands to smallest possible diameter before breaking.		

ORGANIC SILT: Typically gray to dark gray, often has strong H2S odor. May contain shells or shell fragments. Light weight.
Fibrous PEAT: Light weight, spongy, mostly visible organic matter, water squeezed readily from sample. Typically near top of layer.
Fine grained PEAT: Light weight, spongy, little visible organic matter, water squeezed from sample. Typically below fibrous peat.
DEBRIS: Detailed contents described in parentheses (wood, glass, ash, crushed brick, metal, etc.)
BEDROCK: Underlying rock beneath loose soil, can be weathered (easily crushed) or competent (difficult to crush).

ADDITIONAL CONSTITUENTS

TERM	% OF TOTAL
and	35-50%
some	20-35%
little	10-20%
trace	1-10%

COMMON TERMS

Glacial till: Very dense/hard, heterogeneous mixture of sand, silt, clay, sub-angular gravel. Deposited at base of glaciers, which covered all of New England.

Varved clay: Fine-grained, post-glacial lake sediments characterized by alternating layers (or varves) of silt, sand and clay.

Fill: Material used to raise ground, can be engineered or non-engineered.

COMMON FIELD MEASUREMENTS

Torvane: Undrained shear strength is estimated using an E285 Pocket Torvane (TV). Values in tons/ft2.

Penetrometer: Unconfined compressive strength is estimated using a Pocket Penetrometer (PP). Values in tons/ft2.

RQD: Rock Quality Designation is determined by measuring total length of pieces of core 4" or greater and dividing by the total length of the run, expressed as %. 100-90% excellent; 90-75% good; 75-50% fair; 50-25% poor; 25-0% very poor.

PID: Soil screened for volatile organic compounds (VOCs) using a photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume.

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING BR-1

PROJECT	Warren Public Safety Complex - Brimfield Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	27.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	688.0	FOREMAN	Jarett	CASING	
START DATE	7/25/2024	DISTURBED SAMPLES	8	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/25/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	NE portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	3/4/7/8	24/24	S-1 (0-2')	--	Top 6": Medium dense, brown, fine SAND, little medium sand, little coarse sand, little some silt, trace organics (roots), damp (TOPSOIL) Next 6": Medium dense, light brown to brown, fine to medium SAND, little coarse sand, trace organics (roots in top 6"), some silt, trace gravel, damp	TOPSOIL REWORKED SOIL 1.5 686.5 FINE SAND	1
	7/7/7/7	18/24	S-2 (2-4')	--	Bottom 4": Medium dense, very light brown, fine SAND, little silt, damp Top 4": Medium dense, very light brown, little silt, damp Bottom 14": Medium dense, light orange, fine to medium SAND, little silt, damp (orange to (banding throughout)		
5'	5/4/5/5	16/24	S-3 (5-7')	--	Loose, light brown to orange, fine SAND, trace medium sand, little silt, damp (banding throughout, middle 5" brown fine sand with little silt, moist)		
	4/4/5/6	18/24	S-4 (7-9')	--	Loose, very light gray to light orange, fine SAND, trace medium sand, trace silt, damp (banding throughout)		
10'	5/6/8/7	23/24	S-5 (10-12')	--	Medium dense, very light brown to light orange, fine SAND, trace silt, damp (banding throughout)		
15'	4/5/6/7	18/24	S-6 (15-17')	--	Medium dense, very light brown, medium SAND, little fine sand, trace silt, damp (bottom 3" fine to medium sand)		
20'	5/7/8/9	16/24	S-7 (20-22')	--	Top 9": Medium dense, very light brown, medium SAND, trace fine sand, trace silt, damp Next 5": Medium dense, very light brown to light orange, fine SAND, trace medium sand, trace silt, damp (banding throughout) Bottom 2": Medium dense, very light brown, fine to medium SAND, trace silt, damp		
25'	7/6/8/9	24/24	S-8 (25-27')	--	Medium dense, very light brown, fine SAND, trace silt, damp (gray to light orange banding throughout)	27.0 661.0	
					End of exploration at 27'		

Remarks:
1. Drill with auger plug.

PROJECT NO. 2241-14-01

LOG OF BORING BR-1

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING BR-2

PROJECT	Warren Public Safety Complex - Brimfield Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	22.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	678.0	FOREMAN	Jarett	CASING	
START DATE	7/25/2024	DISTURBED SAMPLES	7	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/25/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	NW portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	1/2/4/4	21/24	S-1 (0-2')	--	Top 6": Loose, brown to dark brown, fine to medium SAND, some silt, little organics (roots, tree roots), damp Next 5": Loose, light brown, fine SAND, some silt, trace organics (roots, tree roots), damp Bottom 9": Loose, light brown to light orange, fine SAND, trace silt, damp	TOPSOIL FINE TO MEDIUM SAND	1
	6/7/6/6	19/24	S-2 (2-4')	--	Top 10": Medium dense, light brown to orange to very light brown, fine SAND, some silt, damp (hardened sand layer at bottom) Bottom 9": Medium dense, very light brown, fine SAND, little silt, damp (banding in top 3")		
5'	3/4/4/5	17/24	S-3 (5-7')	--	Loose, very light brown to orange, fine SAND, some medium sand, little silt, damp		
	5/6/8/7	15/24	S-4 (7-9')	--	Medium dense, very light brown, fine to medium SAND, trace silt, damp (banding throughout)		
10'	4/5/6/7	15/24	S-5 (10-12')	--	Medium dense, very light brown, fine to medium SAND, trace silt, damp (banding in top 4" and middle 2")		
15'	6/10/9/10	17/24	S-6 (15-17')	--	Medium dense, light brown, fine to medium SAND, trace silt, damp		
20'	5/8/9/11	23/24	S-7 (20-22')	--	Medium dense, light brown, fine SAND, trace silt, damp	22.0 656.0	
25'					End of exploration at 22'		

Remarks:
1. Drill with auger plug.

PROJECT NO. 2241-14-01

LOG OF BORING BR-2

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING BR-3

PROJECT	Warren Public Safety Complex - Brimfield Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	13.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	678.0	FOREMAN	Jarett	CASING	
START DATE	7/25/2024	DISTURBED SAMPLES	6	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/25/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	SW portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	2/2/2/2	18/24	S-1 (0-2')	--	Top 4": Loose, dark brown, fine SAND, some silt, little medium sand, little organics (roots, tree roots, trace coarse sand, trace gravel, damp	TOPSOIL	
					Bottom 14": Loose, brown, fine SAND, little medium sand, little coarse sand, little silt, trace gravel, trace organics (treebark and woodchips at 2" from bottom and middle), damp	NON-ENGINEERED FILL	1
	2/1/1 for 12"	16/24	S-2 (2-4')	--	(sand piece at 3" from bottom, 1" dark brown layer in middle) Top 5": Very loose, brown, fine SAND, little medium sand, little silt, trace coarse sand, organics (woodchips and roots), trace gravel, damp Middle 9": Very loose, very light brown, fine SAND, trace medium to coarse sand, trace organics (woodchips and roots), trace silt, damp		
5'					Bottom 2": Very loose, brown, fine SAND, little medium to coarse sand, little silt, trace		
	2/2/3/6	16/24	S-3 (5-7')	--	gravel, trace organics (woodchips) Top 10": Loose, brown to light brown, fine SAND, little medium to coarse sand, little silt, trace gravel, trace organics (woodchips throughout), damp		
					Bottom 6": Loose, light brown, medium SAND, little fine to coarse sand, trace gravel,	7.0 671.0	
	6/7/9/8	16/24	S-4 (7-9')	--	little silt, trace debris (asphalt), damp Top 1/4": Medium dense, brown, fine SAND and SILT, damp Bottom 15 3/4": Medium dense, very light brown, fine SAND, trace silt, damp (banding throughout)	FINE SAND	
	4/5/5/5	21/24	S-5 (9-11')	--	Loose, very light brown, fine SAND, trace silt, damp		
10'							
	6/6/8/9	20/24	S-6 (11-13')	--	Medium dense, very light brown, fine SAND, trace silt, damp (trace medium sand in bottom 15")		
						13.0 665.0	
					End of exploration at 13'		
15'							
20'							
25'							

Remarks:
1. Auger scraping from 1 to 2'.

PROJECT NO. 2241-14-01

LOG OF BORING BR-3

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING BR-4

Page 1 of 1

PROJECT	Warren Public Safety Complex - Brimfield Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	4.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	678.0	FOREMAN	Jarett	CASING	
START DATE	7/25/2024	DISTURBED SAMPLES	2	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/25/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	South portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	5/5/6/6	23/24	S-1 (0-2')	--	Top 4": Medium dense, dark brown, fine to medium SAND, little coarse sand, some silt, organics (roots), damp Bottom 19": Medium dense, brown to light brown, fine to medium SAND, little coarse sand, trace gravel, some silt, damp	TOPSOIL REWORKED SOILS	
	11/11/10/9	20/24	S-2 (2-4')	--	Top 5": Medium dense, dark brown, fine SAND, some silt, little medium to coarse sand, gravel, damp Bottom 15": Medium dense, very light orange, fine SAND, trace medium sand, little silt, damp (banding at middle and bottom)	2.5 675.5 FINE SAND 4.0 674.0	
5'					End of exploration at 4'		
10'							
15'							
20'							
25'							

Remarks:

PROJECT NO. 2241-14-01

LOG OF BORING BR-4

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING WW-1

Page 1 of 1

PROJECT	Warren Public Safety Complex - Old West Warren Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	4.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	615.0	FOREMAN	Jarett	CASING	
START DATE	7/26/2024	DISTURBED SAMPLES	2	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/26/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	N portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	2/3/4/3	14/24	S-1 (0-2')	--	Top 12": Loose, very dark brown, fine SAND, some medium sand, some silt, little coarse sand, trace gravel, little organics (roots), damp (TOPSOIL)	TOPSOIL 1.0 614.0	
					Bottom 2": Loose, orange to brown, fine SAND, some medium sand, some silt, trace organics (roots), little coarse sand, trace gravel, damp	SILTY SAND	
	5/9/14/15	13/24	S-2 (2-4')	--	Top 7": Medium dense, brown, fine SAND, some medium sand, some silt, trace organics (roots), little coarse sand, trace gravel, damp (fractured cobbles throughout)	3.0 612.0	
					Bottom 6": Medium dense,light brown, fine to medium SAND, some coarse sand, little little silt, damp	GLACIAL TILL 4.0 611.0	1 2
5'					Auger refusal at 4'		
10'							
15'							
20'							
25'							

Remarks:
1. Auger mildly scraping from 3.5 to 4'.
2. Minimal cuttings observed.

PROJECT NO. 2241-14-01

LOG OF BORING WW-1

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING WW-2

Page 1 of 1

PROJECT	Warren Public Safety Complex - Old West Warren Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	12.5	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	605.0	FOREMAN	Jarett	CASING	
START DATE	7/26/2024	DISTURBED SAMPLES	6	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/26/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	Center portion of proposed building	FIRST (ft)	9.0	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	3/2/3/4	14/24	S-1 (0-2')	--	Top 9": Loose, very dark brown, fine to medium SAND, some silt, trace coarse sand, trace organics (roots), trace gravel, damp (TOPSOIL) Bottom 5": Loose, orange brown, fine to medium SAND, some silt, trace coarse sand, trace organics (roots), trace gravel, damp	TOPSOIL SILTY SAND 2.0 603.0	1
	18/25/29/32	19/24	S-2 (2-4')	--	Top 9": Fractured small boulder Bottom 10": Very dense, brown, fine to medium SAND, some coarse sand, some silt, little gravel, damp (2.5" alternating layers of some to trace silt)	GLACIAL TILL	
5'	20/24/22/21	20/24	S-3 (5-7')	--	Dense, brown, fine to medium SAND, some gravel, some silt, little coarse sand, damp		
	17/22/18/18	13/24	S-4 (7-9')	--	Top 10": Dense, brown, fine to medium SAND, some gravel, some silt, little coarse sand, moist Bottom 3": Fractured small boulder	▽ 596.0	
10'	21/38/32/36	8/24	S-5 (9-11')	--	Very dense, brown, highly fractured boulder, wet		
	25/49/50 for 6"	8/24	S-6 (11-13')	--	Very dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, wet	12.5 592.5	
15'					Spoon refusal at 12.5'		
20'							
25'							

Remarks:
1. Auger scraping from 0 to 5'.

PROJECT NO. 2241-14-01

LOG OF BORING WW-2

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING WW-3

PROJECT	Warren Public Safety Complex - Old West Warren Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	15.5	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	618.0	FOREMAN	Jarett	CASING	
START DATE	7/26/2024	DISTURBED SAMPLES	8	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/26/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	N of proposed building	FIRST (ft)	9.0	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	4/5/6/5	15/24	S-1 (0-2')	--	Top 12": Medium dense, very dark brown, fine to medium SAND, some silt, little coarse sand, trace gravel, trace organics (roots), damp Bottom 3": Medium dense, orange, fine to medium SAND, some silt, little coarse sand, trace gravel, trace organics (roots), damp	TOPSOIL 1.0 617.0 SILTY SAND	1
	5/8/8/12	15/24	S-2 (2-4')	--	Top 2": Medium dense, orange, fine to medium SAND, some silt, little coarse sand, trace gravel, damp Bottom 13": Medium dense, brown, fine to medium SAND, some silt, little coarse sand, little silt, damp		
5'						5.0 613.0	
	15/18/23/23	23/24	S-3 (5-7')	--	Dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, damp (frost mottling throughout)	GLACIAL TILL	
	21/25/45/26	17/24	S-4 (7-9')	--	Very dense, brown, medium SAND, some fine sand, some silt, little coarse sand, little moist (2" cobble in bottom 4")		
						▽ 609.0	
10'	18/14/16/20	20/24	S-5 (9-11')	--	Dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, wet		
	80/46/46/56	17/24	S-6 (11-13')	--	Very dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, wet		
	64/89/ 100 for 5"	9/24	S-7 (13-14.5')	--	Very dense, brown, fine to medium SAND and SILT, little coarse sand, little gravel, wet		
15'	70/100 for 4"	8/24	S-8 (14.5-15.5')	--	Very dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, wet	15.5 602.5	
					Spoon refusal at 15.5'		
20'							
25'							

Remarks:
1. Auger scraping from 0.5-2' and 3-4'.

PROJECT NO. 2241-14-01

LOG OF BORING WW-3

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING WW-4

Page 1 of 1

PROJECT	Warren Public Safety Complex - Old West Warren Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	4.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	598.0	FOREMAN	Jarett	CASING	
START DATE	7/26/2024	DISTURBED SAMPLES	2	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/26/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	SE portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	2/3/3/10	21/24	S-1 (0-2')	--	Top 16": Loose, very dark brown, fine to medium SAND, some silt, trace coarse sand, trace gravel, little organics (roots, sediment), damp Botton 5": Loose, brown to orange, fine to medium SAND, some silt, little coarse sand, little gravel, damp (frost mottling)	TOPSOIL 1.5 596.5	
	16/18/26/23	20/24	S-2 (2-4')	--	Top 9": Dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, Bottom 11": Dense, brown to orange, medium SAND, some fine sand, little to some silt, coarse sand, little gravel, damp (frost mottling throughout)	GLACIAL TILL 4.0 594.0	
5'					End of exploration at 4'		
10'							
15'							
20'							
25'							

Remarks:

PROJECT NO. 2241-14-01

LOG OF BORING WW-4

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING WW-5

PROJECT	Warren Public Safety Complex - Old West Warren Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	4.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	595.0	FOREMAN	Jarett	CASING	
START DATE	7/26/2024	DISTURBED SAMPLES	2	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/26/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	SW portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	2/2/3/4	11/24	S-1 (0-2')	--	Loose, very dark brown, fine to medium SAND, some silt, trace gravel, trace coarse sand, trace organics (roots), damp (orange fine sand, some medium sand, some silt, little coarse sand sand, trace gravel at tip)	TOPSOIL 1.0 594.0	
	11/13/27/32	22/24	S-2 (2-4')	--	Top 11": Dense, brown, fine to medium SAND, some silt, trace coarse sand, trace gravel Bottom 11": Dense, brown, medium SAND, some fine to coarse sand, some silt, little damp (orange at top), (gravel piece in top 1"), (1/4" silt pocket in middle), (bottom 2" fractured cobble)	SILTY SAND 2.0 593.0 GLACIAL TILL	
5'					End of exploration at 4'		
10'							
15'							
20'							
25'							

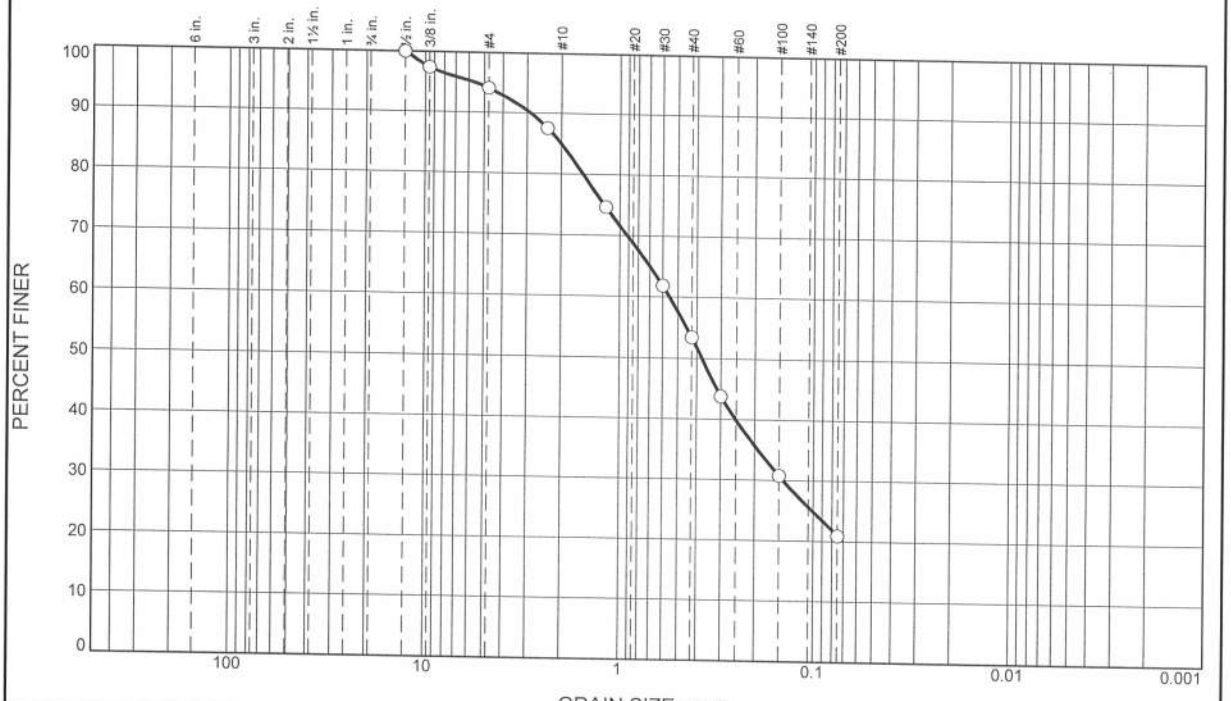
Remarks:

PROJECT NO. 2241-14-01

LOG OF BORING WW-5

Particle Size Distribution Report

ASTM C117 & C136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.9	9.2	31.4	32.6	20.9	

Test Results (ASTM C117 & C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
1/2	100.0			
3/8	97.4			
#4	94.1			
#8	87.6			
#16	74.6			
#30	61.8			
#40	53.5			
#50	43.8			
#100	30.8			
#200	20.9			

* (no specification provided)

Material Description

WW-2 (0.5'-5')

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.8876 D_{85}= 2.0098 D_{60}= 0.5527
D_{50}= 0.3758 D_{30}= 0.1432 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

This sample was delivered to ATL. This sample was washed.

Sample Number: 0333

Sample Date: 8/20/24

ALLIED TESTING LABORATORIES, INC.
Springfield, Massachusetts

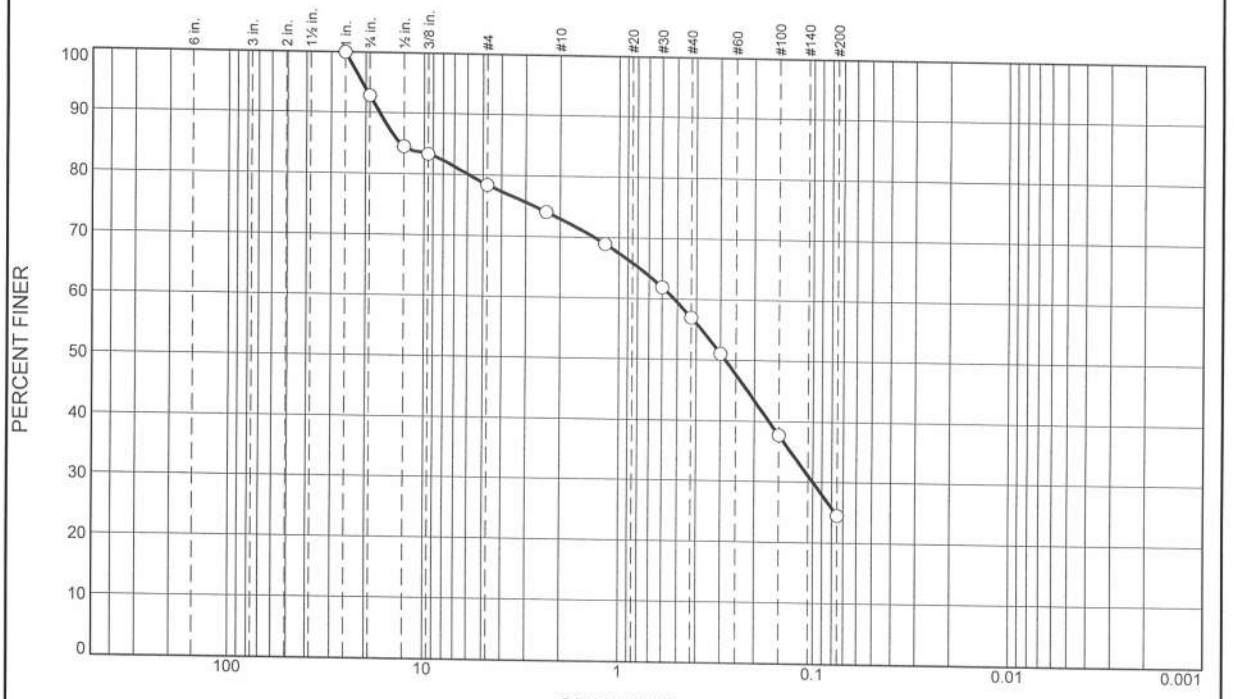
Client: OTO
Project: Warren PS
Project No: 2241-14-01

Figure

Checked By: John McGreevy

Particle Size Distribution Report

ASTM C117 & C136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.2	14.4	5.5	15.9	32.6	24.4	

Test Results (ASTM C117 & C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
1	100.0			
3/4	92.8			
1/2	84.5			
3/8	83.3			
#4	78.4			
#8	74.0			
#16	68.9			
#30	61.9			
#40	57.0			
#50	51.0			
#100	37.7			
#200	24.4			

* (no specification provided)

Material Description

WW-3 (5'-11')

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 16.9027 D_{85}= 13.2172 D_{60}= 0.5200
D_{50}= 0.2837 D_{30}= 0.1002 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

This sample was delivered to ATL. This sample was washed.

Sample Number: 0334

Sample Date: 8/20/24

ALLIED TESTING LABORATORIES, INC.
Springfield, Massachusetts

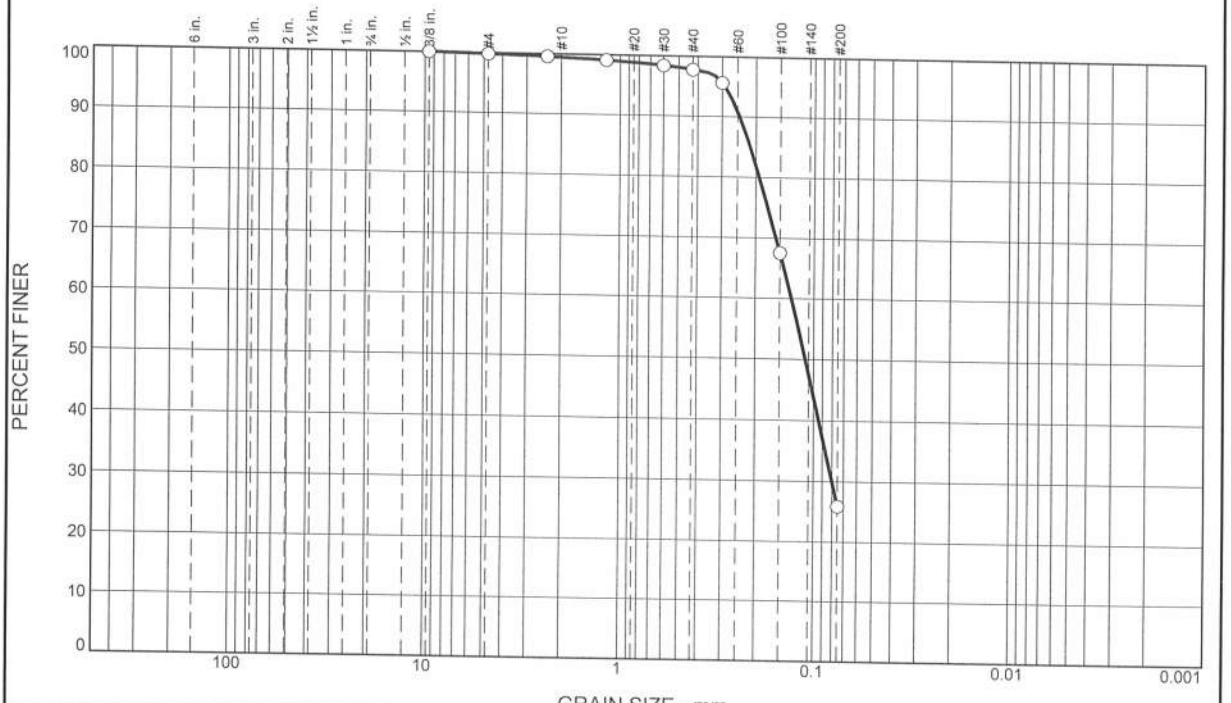
Client: OTO
Project: Warren PS
Project No: 2241-14-01

Figure

Checked By: John McGreevy

Particle Size Distribution Report

ASTM C117 & C136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.4	1.7	71.9	25.8	

Test Results (ASTM C117 & C136)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3/8	100.0			
#4	99.8			
#8	99.5			
#16	99.1			
#30	98.4			
#40	97.7			
#50	95.6			
#100	67.6			
#200	25.8			

* (no specification provided)

Material Description

BR-2 (0.5'-5')

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.2441 D_{85}= 0.2150 D_{60}= 0.1304
D_{50}= 0.1103 D_{30}= 0.0803 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Test Remarks

This sample was delivered to ATL. This sample was washed.

Sample Number: 0335

Sample Date: 8/20/24

ALLIED TESTING LABORATORIES, INC.
Springfield, Massachusetts

Client: OTO
Project: Warren PS
Project No: 2241-14-01

Figure

Checked By: John McGreevy

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

BORING LOGS

SUMMARY OF THE BURMISTER SOIL CLASSIFICATION SYSTEM (MODIFIED)

RELATIVE DENSITY (of non-plastic soils) OR CONSISTENCY (of plastic soils)

STANDARD PENETRATION TEST (SPT)
Method: Samples were collected in accordance with ASTM D1586, using a 2" diameter split spoon sampler driven 24 inches. If samples were collected using direct push methodology (Geoprobe), SPTs were not performed and relative density/consistency were not reported. N-Value: The number of blows with a 140 lb. hammer required to drive the sampler the middle 12 inches. WOR: Weight Of Rod (depth dependent) WOH: Weight Of Hammer (140 lbs.)

COHESIONLESS SOILS		COHESIVE SOILS	
BLOWS/FOOT (SPT N-Value)	RELATIVE DENSITY	BLOWS/FOOT (SPT N-Value)	CONSISTENCY
0-4	Very loose	<2	Very soft
4-10	Loose	2-4	Soft
10-30	Medium dense	4-8	Medium Stiff
30-50	Dense	8-15	Stiff
>50	Very dense	15-30	Very stiff
*Based upon uncorrected field N-values		>30	Hard

MATERIAL: (major constituent identified in CAPITAL letters)

COHESIONLESS SOILS		
MATERIAL	FRACTION	GRAIN SIZE RANGE
GRAVEL	Coarse	3/4" to 3"
	Fine	1/4" to 3/4"
SAND	Coarse	1/16" to 1/4"
	Medium	1/64" to 1/16"
	Fine	Finest visible & distinguishable particles
SILT/CLAY	see adjacent table	Cannot distinguish individual particles
COBBLES	3" to 6" in diameter	
BOULDERS	> 6" in diameter	
Note: Boulders and cobbles are observed in test pits and/or auger cuttings.		

COHESIVE SOILS		
SMALLEST DIAMETER	PLASTICITY	IDENTITY
None	Non-plastic	**SILT**
1/4" (pencil)	Slight	**clayey SILT**
1/8"	Low	**SILT & CLAY**
1/16"	Medium	**CLAY & SILT**
1/32"	High	**Silty CLAY**
1/64"	Very High	**CLAY**
Wetted sample is rolled in hands to smallest possible diameter before breaking.		

ORGANIC SILT: Typically gray to dark gray, often has strong H2S odor. May contain shells or shell fragments. Light weight.
Fibrous PEAT: Light weight, spongy, mostly visible organic matter, water squeezed readily from sample. Typically near top of layer.
Fine grained PEAT: Light weight, spongy, little visible organic matter, water squeezed from sample. Typically below fibrous peat.
DEBRIS: Detailed contents described in parentheses (wood, glass, ash, crushed brick, metal, etc.)
BEDROCK: Underlying rock beneath loose soil, can be weathered (easily crushed) or competent (difficult to crush).

ADDITIONAL CONSTITUENTS

TERM	% OF TOTAL
and	35-50%
some	20-35%
little	10-20%
trace	1-10%

COMMON TERMS

Glacial till: Very dense/hard, heterogeneous mixture of sand, silt, clay, sub-angular gravel. Deposited at base of glaciers, which covered all of New England.

Varved clay: Fine-grained, post-glacial lake sediments characterized by alternating layers (or varves) of silt, sand and clay.

Fill: Material used to raise ground, can be engineered or non-engineered.

COMMON FIELD MEASUREMENTS

Torvane: Undrained shear strength is estimated using an E285 Pocket Torvane (TV). Values in tons/ft2.

Penetrometer: Unconfined compressive strength is estimated using a Pocket Penetrometer (PP). Values in tons/ft2.

RQD: Rock Quality Designation is determined by measuring total length of pieces of core 4" or greater and dividing by the total length of the run, expressed as %. 100-90% excellent; 90-75% good; 75-50% fair; 50-25% poor; 25-0% very poor.

PID: Soil screened for volatile organic compounds (VOCs) using a photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume.

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING WW-1

Page 1 of 1

PROJECT	Warren Public Safety Complex - Old West Warren Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	4.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	615.0	FOREMAN	Jarett	CASING	
START DATE	7/26/2024	DISTURBED SAMPLES	2	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/26/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	N portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES PENETR. RESIST. (bl / 6 in)	SAMPLES REC. (in)	SAMPLES TYPE/ NO.	SAMPLES FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	2/3/4/3	14/24	S-1 (0-2')	--	Top 12": Loose, very dark brown, fine SAND, some medium sand, some silt, little coarse sand, trace gravel, little organics (roots), damp (TOPSOIL)	TOPSOIL 1.0 614.0	
					Bottom 2": Loose, orange to brown, fine SAND, some medium sand, some silt, trace organics (roots), little coarse sand, trace gravel, damp	SILTY SAND	
	5/9/14/15	13/24	S-2 (2-4')	--	Top 7": Medium dense, brown, fine SAND, some medium sand, some silt, trace organics (roots), little coarse sand, trace gravel, damp (fractured cobbles throughout)	3.0 612.0	
					Bottom 6": Medium dense,light brown, fine to medium SAND, some coarse sand, little little silt, damp	GLACIAL TILL 4.0 611.0	1 2
5'					Auger refusal at 4'		
10'							
15'							
20'							
25'							

Remarks:
1. Auger mildly scraping from 3.5 to 4'.
2. Minimal cuttings observed.

PROJECT NO. 2241-14-01

LOG OF BORING WW-1

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING WW-2

Page 1 of 1

PROJECT	Warren Public Safety Complex - Old West Warren Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	12.5	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	605.0	FOREMAN	Jarett	CASING	
START DATE	7/26/2024	DISTURBED SAMPLES	6	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/26/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	Center portion of proposed building	FIRST (ft)	9.0	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	3/2/3/4	14/24	S-1 (0-2')	--	Top 9": Loose, very dark brown, fine to medium SAND, some silt, trace coarse sand, trace organics (roots), trace gravel, damp (TOPSOIL) Bottom 5": Loose, orange brown, fine to medium SAND, some silt, trace coarse sand, trace organics (roots), trace gravel, damp	TOPSOIL SILTY SAND 2.0 603.0	1
	18/25/29/32	19/24	S-2 (2-4')	--	Top 9": Fractured small boulder Bottom 10": Very dense, brown, fine to medium SAND, some coarse sand, some silt, little gravel, damp (2.5" alternating layers of some to trace silt)	GLACIAL TILL	
5'	20/24/22/21	20/24	S-3 (5-7')	--	Dense, brown, fine to medium SAND, some gravel, some silt, little coarse sand, damp		
	17/22/18/18	13/24	S-4 (7-9')	--	Top 10": Dense, brown, fine to medium SAND, some gravel, some silt, little coarse sand, moist Bottom 3": Fractured small boulder	▽ 596.0	
10'	21/38/32/36	8/24	S-5 (9-11')	--	Very dense, brown, highly fractured boulder, wet		
	25/49/50 for 6"	8/24	S-6 (11-13')	--	Very dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, wet	12.5 592.5	
15'					Spoon refusal at 12.5'		
20'							
25'							

Remarks:
1. Auger scraping from 0 to 5'.

PROJECT NO. 2241-14-01

LOG OF BORING WW-2

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING WW-3

PROJECT	Warren Public Safety Complex - Old West Warren Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	15.5	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	618.0	FOREMAN	Jarett	CASING	
START DATE	7/26/2024	DISTURBED SAMPLES	8	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/26/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	N of proposed building	FIRST (ft)	9.0	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	4/5/6/5	15/24	S-1 (0-2')	--	Top 12": Medium dense, very dark brown, fine to medium SAND, some silt, little coarse sand, trace gravel, trace organics (roots), damp Bottom 3": Medium dense, orange, fine to medium SAND, some silt, little coarse sand, trace gravel, trace organics (roots), damp	TOPSOIL 1.0 617.0 SILTY SAND	1
	5/8/8/12	15/24	S-2 (2-4')	--	Top 2": Medium dense, orange, fine to medium SAND, some silt, little coarse sand, trace gravel, damp Bottom 13": Medium dense, brown, fine to medium SAND, some silt, little coarse sand, little silt, damp		
5'						5.0 613.0	
	15/18/23/23	23/24	S-3 (5-7')	--	Dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, damp (frost mottling throughout)	GLACIAL TILL	
	21/25/45/26	17/24	S-4 (7-9')	--	Very dense, brown, medium SAND, some fine sand, some silt, little coarse sand, little moist (2" cobble in bottom 4")		
						▽ 609.0	
10'	18/14/16/20	20/24	S-5 (9-11')	--	Dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, wet		
	80/46/46/56	17/24	S-6 (11-13')	--	Very dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, wet		
	64/89/ 100 for 5"	9/24	S-7 (13-14.5')	--	Very dense, brown, fine to medium SAND and SILT, little coarse sand, little gravel, wet		
15'	70/100 for 4"	8/24	S-8 (14.5-15.5')	--	Very dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, wet	15.5 602.5	
					Spoon refusal at 15.5'		
20'							
25'							

Remarks:
1. Auger scraping from 0.5-2' and 3-4'.

PROJECT NO. 2241-14-01

LOG OF BORING WW-3

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING WW-4

PROJECT	Warren Public Safety Complex - Old West Warren Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	4.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	598.0	FOREMAN	Jarett	CASING	
START DATE	7/26/2024	DISTURBED SAMPLES	2	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/26/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	SE portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	2/3/3/10	21/24	S-1 (0-2')	--	Top 16": Loose, very dark brown, fine to medium SAND, some silt, trace coarse sand, trace gravel, little organics (roots, sediment), damp Botton 5": Loose, brown to orange, fine to medium SAND, some silt, little coarse sand, little gravel, damp (frost mottling)	TOPSOIL 1.5 596.5	
	16/18/26/23	20/24	S-2 (2-4')	--	Top 9": Dense, brown, fine to medium SAND, some silt, little coarse sand, little gravel, Bottom 11": Dense, brown to orange, medium SAND, some fine sand, little to some silt, coarse sand, little gravel, damp (frost mottling throughout)	GLACIAL TILL 4.0 594.0	
5'					End of exploration at 4'		
10'							
15'							
20'							
25'							

Remarks:

PROJECT NO. 2241-14-01

LOG OF BORING WW-4

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING WW-5

PROJECT	Warren Public Safety Complex - Old West Warren Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	4.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	595.0	FOREMAN	Jarett	CASING	
START DATE	7/26/2024	DISTURBED SAMPLES	2	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/26/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	SW portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	2/2/3/4	11/24	S-1 (0-2')	--	Loose, very dark brown, fine to medium SAND, some silt, trace gravel, trace coarse sand, trace organics (roots), damp (orange fine sand, some medium sand, some silt, little coarse sand sand, trace gravel at tip)	TOPSOIL 1.0 594.0	
	11/13/27/32	22/24	S-2 (2-4')	--	Top 11": Dense, brown, fine to medium SAND, some silt, trace coarse sand, trace gravel Bottom 11": Dense, brown, medium SAND, some fine to coarse sand, some silt, little damp (orange at top), (gravel piece in top 1"), (1/4" silt pocket in middle), (bottom 2" fractured cobble)	SILTY SAND 2.0 593.0 GLACIAL TILL	
5'					End of exploration at 4'		
10'							
15'							
20'							
25'							

Remarks:

PROJECT NO. 2241-14-01

LOG OF BORING WW-5

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

BORING LOGS

SUMMARY OF THE BURMISTER SOIL CLASSIFICATION SYSTEM (MODIFIED)

RELATIVE DENSITY (of non-plastic soils) OR CONSISTENCY (of plastic soils)

STANDARD PENETRATION TEST (SPT)
Method: Samples were collected in accordance with ASTM D1586, using a 2" diameter split spoon sampler driven 24 inches. If samples were collected using direct push methodology (Geoprobe), SPTs were not performed and relative density/consistency were not reported. N-Value: The number of blows with a 140 lb. hammer required to drive the sampler the middle 12 inches. WOR: Weight Of Rod (depth dependent) WOH: Weight Of Hammer (140 lbs.)

COHESIONLESS SOILS		COHESIVE SOILS	
BLOWS/FOOT (SPT N-Value)	RELATIVE DENSITY	BLOWS/FOOT (SPT N-Value)	CONSISTENCY
0-4	Very loose	<2	Very soft
4-10	Loose	2-4	Soft
10-30	Medium dense	4-8	Medium Stiff
30-50	Dense	8-15	Stiff
>50	Very dense	15-30	Very stiff
*Based upon uncorrected field N-values		>30	Hard

MATERIAL: (major constituent identified in CAPITAL letters)

COHESIONLESS SOILS		
MATERIAL	FRACTION	GRAIN SIZE RANGE
GRAVEL	Coarse	3/4" to 3"
	Fine	1/4" to 3/4"
SAND	Coarse	1/16" to 1/4"
	Medium	1/64" to 1/16"
	Fine	Finest visible & distinguishable particles
SILT/CLAY	see adjacent table	Cannot distinguish individual particles
COBBLES	3" to 6" in diameter	
BOULDERS	> 6" in diameter	
Note: Boulders and cobbles are observed in test pits and/or auger cuttings.		

COHESIVE SOILS		
SMALLEST DIAMETER	PLASTICITY	IDENTITY
None	Non-plastic	**SILT**
1/4" (pencil)	Slight	**clayey SILT**
1/8"	Low	**SILT & CLAY**
1/16"	Medium	**CLAY & SILT**
1/32"	High	**Silty CLAY**
1/64"	Very High	**CLAY**
Wetted sample is rolled in hands to smallest possible diameter before breaking.		

ORGANIC SILT: Typically gray to dark gray, often has strong H2S odor. May contain shells or shell fragments. Light weight.
Fibrous PEAT: Light weight, spongy, mostly visible organic matter, water squeezed readily from sample. Typically near top of layer.
Fine grained PEAT: Light weight, spongy, little visible organic matter, water squeezed from sample. Typically below fibrous peat.
DEBRIS: Detailed contents described in parentheses (wood, glass, ash, crushed brick, metal, etc.)
BEDROCK: Underlying rock beneath loose soil, can be weathered (easily crushed) or competent (difficult to crush).

ADDITIONAL CONSTITUENTS

TERM	% OF TOTAL
and	35-50%
some	20-35%
little	10-20%
trace	1-10%

COMMON TERMS

Glacial till: Very dense/hard, heterogeneous mixture of sand, silt, clay, sub-angular gravel. Deposited at base of glaciers, which covered all of New England.

Varved clay: Fine-grained, post-glacial lake sediments characterized by alternating layers (or varves) of silt, sand and clay.

Fill: Material used to raise ground, can be engineered or non-engineered.

COMMON FIELD MEASUREMENTS

Torvane: Undrained shear strength is estimated using an E285 Pocket Torvane (TV). Values in tons/ft2.

Penetrometer: Unconfined compressive strength is estimated using a Pocket Penetrometer (PP). Values in tons/ft2.

RQD: Rock Quality Designation is determined by measuring total length of pieces of core 4" or greater and dividing by the total length of the run, expressed as %. 100-90% excellent; 90-75% good; 75-50% fair; 50-25% poor; 25-0% very poor.

PID: Soil screened for volatile organic compounds (VOCs) using a photoionization detector (PID) referenced to benzene in air. Readings in parts per million by volume.

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING BR-1

Page 1 of 1

PROJECT	Warren Public Safety Complex - Brimfield Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	27.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	688.0	FOREMAN	Jarett	CASING	
START DATE	7/25/2024	DISTURBED SAMPLES	8	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/25/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	NE portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	3/4/7/8	24/24	S-1 (0-2')	--	Top 6": Medium dense, brown, fine SAND, little medium sand, little coarse sand, little some silt, trace organics (roots), damp (TOPSOIL) Next 6": Medium dense, light brown to brown, fine to medium SAND, little coarse sand, trace organics (roots in top 6"), some silt, trace gravel, damp	TOPSOIL REWORKED SOIL 1.5 686.5 FINE SAND	1
	7/7/7/7	18/24	S-2 (2-4')	--	Bottom 4": Medium dense, very light brown, fine SAND, little silt, damp Top 4": Medium dense, very light brown, little silt, damp Bottom 14": Medium dense, light orange, fine to medium SAND, little silt, damp (orange to (banding throughout)		
5'	5/4/5/5	16/24	S-3 (5-7')	--	Loose, light brown to orange, fine SAND, trace medium sand, little silt, damp (banding throughout, middle 5" brown fine sand with little silt, moist)		
	4/4/5/6	18/24	S-4 (7-9')	--	Loose, very light gray to light orange, fine SAND, trace medium sand, trace silt, damp (banding throughout)		
10'	5/6/8/7	23/24	S-5 (10-12')	--	Medium dense, very light brown to light orange, fine SAND, trace silt, damp (banding throughout)		
15'	4/5/6/7	18/24	S-6 (15-17')	--	Medium dense, very light brown, medium SAND, little fine sand, trace silt, damp (bottom 3" fine to medium sand)		
20'	5/7/8/9	16/24	S-7 (20-22')	--	Top 9": Medium dense, very light brown, medium SAND, trace fine sand, trace silt, damp Next 5": Medium dense, very light brown to light orange, fine SAND, trace medium sand, trace silt, damp (banding throughout) Bottom 2": Medium dense, very light brown, fine to medium SAND, trace silt, damp		
25'	7/6/8/9	24/24	S-8 (25-27')	--	Medium dense, very light brown, fine SAND, trace silt, damp (gray to light orange banding throughout)	27.0 661.0	
					End of exploration at 27'		

Remarks:
1. Drill with auger plug.

PROJECT NO. 2241-14-01

LOG OF BORING BR-1

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING BR-2

PROJECT	Warren Public Safety Complex - Brimfield Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	22.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	678.0	FOREMAN	Jarett	CASING	
START DATE	7/25/2024	DISTURBED SAMPLES	7	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/25/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	NW portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	1/2/4/4	21/24	S-1 (0-2')	--	Top 6": Loose, brown to dark brown, fine to medium SAND, some silt, little organics (roots, tree roots), damp Next 5": Loose, light brown, fine SAND, some silt, trace organics (roots, tree roots), damp Bottom 9": Loose, light brown to light orange, fine SAND, trace silt, damp	TOPSOIL FINE TO MEDIUM SAND	1
	6/7/6/6	19/24	S-2 (2-4')	--	Top 10": Medium dense, light brown to orange to very light brown, fine SAND, some silt, damp (hardened sand layer at bottom) Bottom 9": Medium dense, very light brown, fine SAND, little silt, damp (banding in top 3")		
5'	3/4/4/5	17/24	S-3 (5-7')	--	Loose, very light brown to orange, fine SAND, some medium sand, little silt, damp		
	5/6/8/7	15/24	S-4 (7-9')	--	Medium dense, very light brown, fine to medium SAND, trace silt, damp (banding throughout)		
10'	4/5/6/7	15/24	S-5 (10-12')	--	Medium dense, very light brown, fine to medium SAND, trace silt, damp (banding in top 4" and middle 2")		
15'	6/10/9/10	17/24	S-6 (15-17')	--	Medium dense, light brown, fine to medium SAND, trace silt, damp		
20'	5/8/9/11	23/24	S-7 (20-22')	--	Medium dense, light brown, fine SAND, trace silt, damp	22.0 656.0	
25'					End of exploration at 22'		

Remarks:
1. Drill with auger plug.

PROJECT NO. 2241-14-01

LOG OF BORING BR-2

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING BR-3

PROJECT	Warren Public Safety Complex - Brimfield Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	13.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	678.0	FOREMAN	Jarett	CASING	
START DATE	7/25/2024	DISTURBED SAMPLES	6	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/25/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	SW portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	2/2/2/2	18/24	S-1 (0-2')	--	Top 4": Loose, dark brown, fine SAND, some silt, little medium sand, little organics (roots, tree roots, trace coarse sand, trace gravel, damp	TOPSOIL	
					Bottom 14": Loose, brown, fine SAND, little medium sand, little coarse sand, little silt, trace gravel, trace organics (treebark and woodchips at 2" from bottom and middle), damp	NON-ENGINEERED FILL	1
	2/1/1 for 12"	16/24	S-2 (2-4')	--	(sand piece at 3" from bottom, 1" dark brown layer in middle) Top 5": Very loose, brown, fine SAND, little medium sand, little silt, trace coarse sand, organics (woodchips and roots), trace gravel, damp		
5'					Middle 9": Very loose, very light brown, fine SAND, trace medium to coarse sand, trace organics (woodchips and roots), trace silt, damp		
	2/2/3/6	16/24	S-3 (5-7')	--	Bottom 2": Very loose, brown, fine SAND, little medium to coarse sand, little silt, trace gravel, trace organics (woodchips) Top 10": Loose, brown to light brown, fine SAND, little medium to coarse sand, little silt, trace gravel, trace organics (woodchips throughout), damp		
					Bottom 6": Loose, light brown, medium SAND, little fine to coarse sand, trace gravel,	7.0 671.0	
	6/7/9/8	16/24	S-4 (7-9')	--	little silt, trace debris (asphalt), damp Top 1/4": Medium dense, brown, fine SAND and SILT, damp	FINE SAND	
					Bottom 15 3/4": Medium dense, very light brown, fine SAND, trace silt, damp (banding throughout)		
10'	4/5/5/5	21/24	S-5 (9-11')	--	Loose, very light brown, fine SAND, trace silt, damp		
	6/6/8/9	20/24	S-6 (11-13')	--	Medium dense, very light brown, fine SAND, trace silt, damp (trace medium sand in bottom 15")	13.0 665.0	
					End of exploration at 13'		
15'							
20'							
25'							

Remarks:
1. Auger scraping from 1 to 2'.

PROJECT NO. 2241-14-01

LOG OF BORING BR-3

O'Reilly, Talbot & Okun
ENGINEERING ASSOCIATES

LOG OF BORING BR-4

PROJECT	Warren Public Safety Complex - Brimfield Road			CONTRACTOR	Seaboard Environmental Drilling		
JOB NUMBER	2241-14-01	FINAL DEPTH (ft)	4.0	DRILLING EQUIPMENT	D-50 Track Mounted Rig		
LOCATION	Warren, MA	EST SURFACE ELEV (ft)	678.0	FOREMAN	Jarett	CASING	
START DATE	7/25/2024	DISTURBED SAMPLES	2	HELPER	Dale	CASE DIAMETER	N/A
FINISH DATE	7/25/2024	UNDISTURBED SAMPLES	0	BIT TYPE	Hollow Stem Auger	HAMMER WGT	N/A
ENGINEER/SCIENTIST	Caren Irgang	WATER LEVEL		ROD TYPE	A (1 5/8" O.D.)	HAMMER DROP	N/A
BORING LOCATION	South portion of proposed building	FIRST (ft)	N/E	SAMPLER	2" O.D. Split Spoon	ROCK CORING INFORMATION	
		LAST (ft)	N/A	HAMMER TYPE	Automatic	TYPE	N/A
		TIME (hr)	N/A	HAMMER WGT/DROP	140 lb / 30"	SIZE	N/A

DEPTH (ft)/ SAMPLES	SAMPLES: PENETR. RESIST. (bl / 6 in)	SAMPLES: REC. (in)	SAMPLES: TYPE/ NO.	SAMPLES: FIELD TEST DATA	SAMPLE DESCRIPTION (MODIFIED BURMISTER)	PROFILE DEPTH (ft) ELEV.	REMARKS/ WELL CONSTRUCTION
	5/5/6/6	23/24	S-1 (0-2')	--	Top 4": Medium dense, dark brown, fine to medium SAND, little coarse sand, some silt, organics (roots), damp Bottom 19": Medium dense, brown to light brown, fine to medium SAND, little coarse sand, trace gravel, some silt, damp	TOPSOIL REWORKED SOILS	
	11/11/10/9	20/24	S-2 (2-4')	--	Top 5": Medium dense, dark brown, fine SAND, some silt, little medium to coarse sand, gravel, damp Bottom 15": Medium dense, very light orange, fine SAND, trace medium sand, little silt, damp (banding at middle and bottom)	2.5 675.5 FINE SAND 4.0 674.0	
5'					End of exploration at 4'		
10'							
15'							
20'							
25'							

Remarks:

PROJECT NO. 2241-14-01

LOG OF BORING BR-4

ENVIRONMENTAL REPORT

PHASE 1 SITE ASSESSMENT

Tecton
ARCHITECTS

FUSS & O'NEILL
1550 Main Street, Suite 400
Springfield, MA 01103
413.452.0445
www.fando.com

Phase I Environmental Site Assessment

87 Brimfield Road
Warren, Massachusetts

Tecton Architects, PC
Hartford, Connecticut

August 2024

DRAFT

Project No. 20230532.A10

FUSS & O'NEILL
1550 Main Street, Suite 400
Springfield, MA 01103
413.452.0445
www.fando.com

August 23, 2024

Mr. Jeffrey R McElravy, NCARB, AIA
Principal
Tecton Architects, PC
34 Sequassen Street, Suite 200
Hartford, Connecticut 06106

RE: Phase I Environmental Site Assessment
87 Brimfield Road, Warren, Massachusetts

Dear Mr. McElravy:

We are pleased to submit the enclosed report of the Phase I Environmental Site Assessment (Phase I ESA) for the above-referenced subject property (hereinafter referred to as the "site"). The assessment was conducted in conformance with Standard Practice E 1527-21 for Environmental Site Assessments published by ASTM International.

We did not identify any recognized environmental conditions associated with the Site.

Note ASTM 1527-21 Standard requires that certain elements of a Phase I ESA be updated if the report is to be relied upon more than 180 days following its completion. If updated, the report will remain viable for up to one year. The earliest completed activity that would require updating was the Environmental Database Review which was completed on July 31, 2024. With that date as a reference, we recommend you contact us to discuss your options to update or develop a new report after January 27, 2025.

In accordance with the requirements of the ASTM 1527-21 Standards, I declare that to the best of my professional knowledge and belief, I meet the definition of an environmental professional as defined in § 312.10 of 40 C.F.R. § 312 and have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all appropriate inquiries in conformance with the standards and practices set forth in 40 C.F.R. Part 312.Thank you for the opportunity to conduct this work. Please contact us if we can be of further assistance.

Sincerely,

DRAFT

Timoth Clinton, CPG, LSP
Senior Project Manager

FUSS & O'NEILL

List of Figures

End of Text

List of Appendices

End of Text

FUSS & O'NEILL

1 Introduction

Fuss & O'Neill, Inc. (Fuss & O'Neill) has been retained by Tecton Architects, PC (Tecton) to conduct a Phase I Environmental Site Assessment (Phase I ESA) of the subject property located at 87 Brimfield Road in Warren, Massachusetts (hereinafter the "Site"). We understand that Tecton requested this Phase I ESA as part of environmental due diligence to prepare for the potential expansion of the Site to include a new public safety facility.

1.1 Objective

This Phase I ESA was performed in conformance with American Society for Testing and Materials (ASTM) Practice E1527-21, *Standard Practice for Environmental Site Assessments, Phase I Environmental Site Assessment Process* (ASTM, 2021).

The objective of this Phase I ESA was to identify recognized environmental conditions (RECs) present at the Site. As defined by in ASTM Practice E1527-21, REC means:

> *… (1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment.*

1.2 Scope of Services

This Phase I ESA was performed in conformance with ASTM Practice E1527-21.

Unless otherwise stated in this report, assessments for other business environmental risks such as building materials containing asbestos-containing materials (ACM), building materials containing polychlorinated biphenyls (PCBs), lead-based paint or plumbing materials, naturally occurring radon gas, mold, and substances not defined as hazardous substances were not conducted as part of this Phase I ESA. Furthermore, we did not investigate the potential for the Site to contain wetlands, endangered species, ecological resources or historic/cultural resources. Environmental compliance or permitting issues were not considered during this investigation.

Refer to *Appendix A* for the scope of work and restrictions of this ESA and to *Section 9* of this report for limitations on this work product. The qualifications of the Environmental Professional and other staff involved in the preparation of this document are included in *Appendix B*.

2 Site Overview

2.1 Site Information

2.1.1 Property Location, Size of Parcel, and Site Plan

The Site, the Town of Warren Highway Department facility located on 87 Brimfield Road, was located on the west side of Brimfield Road in a rural zone of Warren, Massachusetts (Worcester County). A portion of a United States Geological Survey (USGS) topographic map showing the subject site location is provided as *Figure 1*.

According to Town of Warren (the Town) records, the Site consists of five (5) parcels totaling approximately 13-acres. Parcel 27-0-14 has been owned by the Town since February 1963. Parcels 27-0-17, 27-0-16, 27-0-16.1, and 27-0-16.2 have been owned by the Town since June 2003. Structures located on the parcels include an 8,520-square foot steel and aluminum garage building and a 3,360-square foot salt storage shed. The Site was occupied by the Town Highway Department at the time of inspection. A Site plan is provided as *Figure 2*. Copies of the property record cards from the Town Tax Assessor's office are attached as *Appendix C*. A description of the Site developed during the site reconnaissance is presented in *Section 6*.

The acreage of each parcel based on the Assessor's mapping and property record cards are listed below:

Listed Address	Parcel ID	Acreage	Building Description (if applicable)
Brimfield Road	Map 27, parcel 27-0-14	5.5 acres	N/A
87 Brimfield Road	Map 27, parcel 27-0-15	4.24 acres	Garage
Brimfield Road	Map 27, parcel 27-0-16	1.03 acres	N/A
Brimfield Road	Map 27, parcel 27-0-16.1	1.07 acres	N/A
Brimfield Road	Map 27, parcel 27-0-16.2	1.16 acres	N/A

2.1.2 Utilities

Water and Sewer

According to municipal sewer connection permits from the Town Sewer Department and Mr. Jeremy Olson, highway surveyor at the Town of Warren Highway Department, the Site has been served by municipal sewer and water since 2007.

Heat

According to the property record cards from the Town Tax Assessor's Office, the garage building on the Site was heated by a forced hot water system fueled by heating oil. A 500-gallon above ground storage tank (AST) and associated filling port was located in the northwest corner of the main garage bay.

Other Utilities

Electric utilities entered the Site via overhead utility lines from Brimfield Road, connecting to the western half of the Site building.

2.1.3 Adjoining Land Use

Based on observations made during the site reconnaissance and available mapping, properties adjoining the Site include the following:

Address	Description	Direction from Site
39 Couture Drive	Residential	West
207 Maple Street	Cemetery – St. Paul's Cemetery and The Town of Warren Pine Grove Cemetery	North
250 Comins Pond Road	Municipal – Town of Warren Water District	East
135 Brimfield Road	Commercial – Fountain and Son's Construction Co.	South

2.2 Environmental Setting

2.2.1 Physical Setting

Topography and Geology

The topography of the Site is generally flat but gradually slopes towards the south (USGS, 2021). The regional topography is varied but peaks at 1,100 feet above sea level at the peak of Marks Mountain before sloping down gradually to the north towards the Quaboag River and to the east towards Comins Pond.

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey, the surficial material at the Site is mapped as Hinckley loamy sand and Windsor loamy sand. (USDA, 2023).

Bedrock beneath the Site is mapped as Lower Devonian Goshen formation well-bedded micaceous quartzite or quartz schist grading upwards into light to dark-gray, carbonaceous aluminous schist in beds 5 to 15 cm thick, (Zen, 1983). Depth to bedrock is estimated to be at least 25 feet below grade according to well completion reports for various domestic wells advanced at nearby properties northwest of the Site on Bridge Street. Note: depth to bedrock located at the Site may differ from the depths encountered in the well completion reports from the nearby properties due to differences in elevation.

Bedrock outcroppings were not observed on the property during the Site inspection.

Hydrology and Hydrogeology

Groundwater

In the context of the Massachusetts Contingency Plan (310 CMR 40.0932), groundwater at the Site was classified as GW-3.

All groundwater in the Commonwealth of Massachusetts is considered a potential source of discharge to surface water and shall be categorized, at a minimum, as category GW-3.

Groundwater is additionally defined as GW-1 if the groundwater is located within a Current Drinking Water Source Area or a Potential Drinking Water Source Area (in the context of the MCP). According to information provided by Environmental Data Resources (EDR) included in *Appendix D* and the MassGIS MassMapper online mapping tool, the Site is not located in a Current or Potential Drinking Water Source Area. According to MassMapper, the Site is located within a Non-Potential Drinking Water Source Area. Therefore, GW-1 does not apply to the Site.

Groundwater is additionally defined as GW-2 if the groundwater is located within 30 feet of an occupied structure and the average annual depth to groundwater in that area is 15 feet or less. While no records of monitoring wells exist for the Site, well drilling records for nearby monitoring wells available on the Massachusetts Department of Environmental Protection (MassDEP) Executive Office of Energy & Environmental Affairs (EEA) online data portal indicate that depth to groundwater in the area ranges from 25-30 feet below grade (fbg). Therefore, GW-2 does not apply.

Based on the location of Comins Pond just east of the Site, the inferred groundwater flow direction is towards the east. No field sampling, piezometric mapping, or water level gauging was conducted by Fuss & O'Neill to confirm the inferred groundwater flow direction and depth.

Surface Water

Several stormwater detention basins are located on the Site, as depicted on Figure 2. The nearest mapped surface water body, Comins Pond, is located approximately 120-feet east of the subject site (USGS, 2021). Comins Pond is not listed in the Massachusetts Surface Water Quality Standards (314 CMR 4.00). Therefore, Comins Pond is considered an "Other Water" in accordance with 314 CMR 4.00. Other Waters are classified as Class B.

According to 314 CMR 4.05, Class B surface waters are "designated as a habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth, and other critical functions, and for primary and secondary contact recreation. Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value."

The next closest, and nearest listed surface water body, the Quaboag River is located 0.69 miles north of the Site. The Quaboag River is designated Class B surface water according to 314 CMR 4.00.

2.2.2 Wetlands & Flood Zone Mapping

Based on the MassGIS Wetland and Wetland Change Areas Map, no mapped wetlands are located on the Site. The closest mapped wetland is a 2.58-acre shallow marsh meadow 166-feet to the west of the Site and located on the abutting parcel to the west. Note that Fuss & O'Neill did not independently determine wetland boundaries or the presence of wetlands as part of this assessment.

Based on the Federal Emergency Management Agency (FEMA) Flood Map (2503420004B, effective date 12/1/1981), no mapped floodplains are located on the Site.

2.2.3 Location of Public Water Supply Sources

Fuss & O'Neill used data available from the Office of Geographic Information, Commonwealth of Massachusetts, Information Technology Division (MassGIS), to obtain the information regarding public water supply wells and aquifer protection areas in the vicinity of the subject site. Two (2) community groundwater wells (1311001-01G and 1311001-02G) were located approximately 1,780 and 1,894-feet south of the Site respectively. Based on the inferred groundwater flow direction, it is unlikely that any releases that may have occurred at the Site would have an adverse impact on groundwater quality within the aquifer protection area.

2.3 Previous Environmental Investigations

RESERVED

3 Site History

The following sources were used to develop the history of the Site and, to the extent required by ASTM Practice E 1527-21, the nearby properties:

- A summary of city street directories provided by Environmental Data Resources (EDR) for the Years 2010 and 2014
- Aerial photographs provided by EDR for the years 1938, 1952, 1960, 1967, 1972, 1975, 1986, 1997, 1998, 2006, 2010, 2014, and 2018.
- Historical USGS topographic maps provided by EDR for the years 1890, 1893, 1908, 1915, 1921, 1946, 1954, 1969, 1975, 1982, 2012, 2015, 2018, and 2021.
- Files and personnel at the Town of Warren offices of the Assessor's Office, Building Department, Planning/Zoning Boards, Conservation Commission, Health Department, Sewer Department, and Fire Marshall's Office.

The past uses of the Site and nearby properties based on the sources above are summarized below.

Site

According to historical topographic mapping provided by EDR, Brimfield Road existed in its approximate present-day location in 1890 and the Site was undeveloped. Based on aerial photographs, the earliest of

which were dated to 1938, the Site was forested until 1975, when a clearing within the central portion of the Site was apparent. Two small structures appear to be present in this clearing.

An additional small clearing can be seen on the southern-most portion of the Site in aerial photos from 1986. By 1998, this clearing had grown larger, encompassing much of the southwest corner of the Site. Evidence of vehicular traffic and possible earthwork can be seen in the 1998 aerial photo as well. By 2006, the cleared area had expanded east into the central portion of the site. By 2010, aerial photos depict the addition of the Town Highway department building, which according to the property record card for the Site, was constructed in 2008. A smaller outbuilding can be seen to the northeast of the larger, main garage. Paved parking areas as well as a paved driveway providing access to the Site from Brimfield Road can also be seen in the 2010 aerial photos. A small square-shaped pond to the east of the outbuilding can also be seen in these images. From 2010 to 2018, no further changes to the Site were observed aside from minor landscaping additions to the Site like the row of trees along the western edge of the Site boundary with Brimfield Road.

Nearby Properties

The earliest available mapping of the area surrounding the Site is depicted in the 1890 USGS historical topographic map. In this mapping, the Warren town center is present with a cluster of neighborhoods and houses to the north of the Site. The town center is depicted as being situated within a flat area wedged between multiple hills, mountains, and other areas of topographic prominence. The Quaboag River can be seen bisecting the top third of the map from the west to the east and Cumins Pond can be seen to the east of the Site. A rail line can also be seen adjacent to the Quaboag River following roughly the same path. The hilly areas to the north and south of the Site were largely undeveloped in 1890 with houses being sparse and geographically distant from each other in those portions of the map.

Aerial photographs from 1938 depict the surrounding region as largely forested and undeveloped to the east of Brimfield Road. To the west of Brimfield Road, open fields and pastures are visible. The agricultural use of these fields is unclear though evidence of row crops are not visible in these photos. In 1952, the roof of a single barn-like structure is visible on the corner of Couture Drive and Reed Street although in later years, it appears to gradually decay into a dilapidated state. Development is seen in the aerial photos to the north of the Site with numerous houses and town buildings visible in the Warren town center. The 1982 topographic map depicts gravel pits proximal to the Site to the south, east, and west.

No major changes to the immediate area around the Site can be seen until 2006. In the aerial photos from that year, eleven new houses can be seen occupying lots to the west of the Site. In the parcel directly abutting the Site to the south, a clearing in the wooded area can be seen. Evidence of earthwork and sand and gravel mining can also be observed, and by 2014, the roof of a building is visible on the property. The clearing in this area can be seen expanding up to the most recent available aerial photographs from 2018. No other major changes to the landscape were observed in the aerial photographs between 1938 and 2018.

4 Federal, State, and Local File Review

Files of Federal, State and local agencies were reviewed for environmentally-related issues pertinent to the Site and nearby parcels, such as permits, inspection reports, enforcement history or documented releases of hazardous materials. The sources of information listed in the following table were researched to identify properties of concern within distances of the Site specified by ASTM Practice E 1527-21.

Information Source*	Search Distance
Federal Files	
National Priorities List (NPL)	1 mile
Delisted NPL Sites	0.5 mile
Resource Conservation and Recovery Act (RCRA) CORRACTS list (RCRA Site Subject to Corrective Action)	1 mile
Resource Conservation and Recovery Act (RCRA) Treatment, Storage or Disposal Facility (TSDF) List	0.5 mile
Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) List, including No Further Remedial Action Planned (NFRAP) sites	0.5 mile
RCRA Generators List	property and adjoining
RCRA No Longer Regulated (NLR) List	property and adjoining
Federal Institutional / Engineered Control List	property only
Emergency Response and Notification (ERNS) List	property only
State Files	
Hazardous Waste Site List (State sites equivalent to NPL)	1 mile
Hazardous Waste Site List (State sites equivalent to CERCLIS)	0.5 mile
Landfill and Solid Waste Site	0.5 mile
Leaking Underground Storage Tank (LUST) List	0.5 mile
State Voluntary Clean-up or Brownfield Sites	0.5 mile
Oil & Chemical Spills Database	property and adjoining
Registered Underground Storage Tank (UST) List	property and adjoining
State Institutional / Engineered Control List	property only

* Fuss & O'Neill used Environmental Data Resources, Inc. (EDR), an environmental database search service, to obtain the information referenced in the above table. EDR provides access to publicly available environmental databases maintained by various Federal, State, and local agencies. A copy of the information provided by EDR relative to the Site and nearby properties is included in *Appendix* __. The listed information sources are defined and described in detail in the EDR report.

4.1 Summary of Regulatory Database Information

Site

The Site is listed in the following databases in the EDR report.

RCRA-VSQG: The Site is listed in the EPA's Resource Conservation Recovery Act (RCRA) as very small quantity generator (VSQG) of hazardous waste. The classification is described as an "active conditionally exempt small quantity generator (less than 100 kg/month)" and the listed waste was Tetrachloroethylene (PCE).

ECHO/FINDS: The Site is listed on the EPA's Enforcement & Compliance History Information and Facility Index System/Facility Registry System lists. No violations were identified on either of these lists.

Nearby Properties

As reported in the EDR Report in *Appendix D,* several properties were identified in the environmental databases within the minimum search radii required by ASTM Practice 1527-21. Based on distance from the Site, the nature of the reported environmental concerns, and the local hydrogeology, these parcels are not anticipated to have a negative effect on the subject property.

However, the EDR Report does indicate that the Warren Water District has performed testing of drinking water sources for per- and poly-fluorinated alkyl substances (PFAS). Low level detections of PFAS were reported at several sampling locations.

4.2 State File Review

Fuss & O'Neill reviewed files available from the MassDEP online file viewer to identify files applicable to the Site and adjoining properties.

No correspondence files for the Site and adjoining properties were available via the MassDEP online file viewer.

4.3 Local File Review

The following record of ownership for the Site was obtained from records maintained by the Worcester County Registry of Deeds. Note that this review does not constitute a full title search.

Date	Volume/Page	Grantor	Grantee
6/6/2003	30316/53	Robert J. Fijol, Lois M. Fijol, Fijol Family Realty Trust	Town of Warren
7/5/1995	17160/101	Gerard J. and Janelle N. Morin	Robert J. Fijol, Lois M. Fijol, Fijol Family Realty Trust
8/31/1977	6276/132	Roland C. and Helen A. Stedt	Gerard J. and Janelle N. Morin
3/13/1951	3326/237	Rubin E. Olson et ux.	Roland C. and Helen A. Stedt
3/11/1946	2990/167	Peter Skorupski et ux.	Rubin E. Olson et ux.
8/7/1941	2826/197	Albert J. Couture et ex.	Peter Skorupski et ux.
10/31/1927	2452/328	Ernest L. Davies et al.	Bella Couture et al.

Files and personnel at the Town Assessor's Office, Building Department, Planning/Zoning Boards, Conservation Commission, Health Department, Sewer Department, Water District, and Fire Marshall's Office were queried regarding environmental concerns at the Site and surrounding properties. The information below was identified. No environmental concerns were identified in the files provided. Copies of pertinent files are included in *Appendix C*.

Assessor's Office

Ms. Laurie Stockley, a records access officer for the Town, provided Fuss & O'Neill with copies of property record cards for each of the five parcels that consisted of the Site.

Sewer Department

Ms. Laurie Stockley provided Fuss & O'Neill with copies of a municipal sewer connection permit dated to July 2007. A certificate of liability insurance was also provided with the permit.

5 User-Provided Information

ASTM Practice 1527-21 describes certain tasks to be performed by the user of this assessment that will help to identify RECs at the parcel if they exist. ASTM Practice 1527-21 defines the user as "the party seeking to use Practice E 1527 to complete an environmental site assessment of the subject property."

As part of our agreement to conduct this work, we provided Mr. James J. Ferrera with a User Questionnaire. A copy of the completed questionnaire is provided in *Appendix E*.

The responses to this questionnaire were used to address the items in the subsections below.

5.1 Record of Environmental Liens or Activity and Use Limitations

Chain of title and title restriction records filed under Federal, tribal, State or local law often contain records of environmental liens or activity and use limitations (AULs).

Mr. Ferrera reported that he has no actual knowledge of an environmental lien or AULs recorded against the property.

Fuss & O'Neill reviewed the electronically available MassDEP files for the Site to identify recorded AULs. No AULs were identified for the Site.

5.2 Specialized Knowledge or Experience of the User

Mr. Ferrera reported that he has no specialized knowledge with respect to the Site or activities conducted at the Site.

5.3 Property Valuation, Reduction for Environmental Issues

The Site is not being transferred; therefore, this section does not apply.

5.4 Commonly Known or Reasonably Ascertainable Knowledge

Mr. Ferrera reported that he is not aware of any commonly known or reasonably ascertainable knowledge within the local community that could assist the environmental professional with the identification of RECs.

5.5 Degree of Obviousness of the Presence or Likely Presence of Contamination

Mr. Ferrera reported that he is not aware of any obvious indicators that point to the presence or likely presence of releases at the subject property.

6 Site Reconnaissance and Interviews

6.1 Interviews

Owner/Key Site Manager

This assessment included an interview with the following key site manager(s) representing the Town:

- Mr. Jeremy Olson, Highway Surveyor, 9 years of experience with the Site.
- Mr. James J. Ferrara, Town Administrator, 2 years of experience with the Site.

Mr. Olson and Mr. Ferrera were interviewed by Mr. Jonathan Kittredge of Fuss & O'Neill on August 6, 2024 during the site reconnaissance. Information provided by him is presented below and in previous sections of this report.

- Mr. Olson stated that the Town Highway Department facility was built in 2007-2008. Prior to this, the Site was used as a gravel/sand pit. During Mr. Olson's tenure with the Site, no environmental spills or releases were reported.
- Mr. Ferrara reported that only the southern portion of the Site was being considered for the development of a new public safety facility. The buildings currently located on Site would remain in place.

6.2 Site Reconnaissance

The site reconnaissance was conducted on August 6th , 2024 by Mr. Jonathan Kittredge of Fuss & O'Neill, accompanied by Mr. Ferraraand Mr. Olson. The reconnaissance included the physical observation of the interior and exterior of the highway department buildings as well as the site grounds. Photographs taken during the site reconnaissance are presented in *Appendix F*.

Site Description

The Site consists of a 13-acre, irregularly shaped parcel improved with an approximately 8,500 -square-foot highway department facility, a 3,360-square foot outbuilding, and associated paved parking areas. The remaining portions of the Site consist of drainage ponds, landscaped areas, and forested areas. Access to the Site is via Brimfield Road, and the buildings are located in the central portion of the Site. The paved parking areas surround the main garage in all directions of the building. Refer to *Figure 2* for a site plan.

Building

The Site's main building is subdivided into three main sections. The easternmost portion of the building houses offices and bathrooms for employees as well as an electrical room. The section of the building just east of the offices houses two garage style spaces dedicated to vehicle maintenance and vehicle washing. The remaining half of the building consists of the main garage floor which is used for vehicle and equipment storage as well as maintenance activity.

- **Housekeeping Observations** – The highway department facility was in overall good housekeeping condition. The main garage floor was cluttered in some areas where vehicles were not being stored.

- **Staining and Floor Conditions** - No staining or evidence of spills were observed on the floors of the Site building with the exception of minor grease stains on the walls and floor of the vehicle washroom. Mr. Olson reported that the wastewater from the vehicle washing process was collected in the floor drainage system located in the room and directed to underground separator tanks located beneath the paved area south of the Site building to remove grease and salt from the wastewater.

- **Hazardous Wastes/materials** – The main garage floor, maintenance room, and vehicle washroom contained several paint cans (<5 gallons), motor oil containers (<5-gallons), bar and chain oil

containers (<5 gallons), and 5-gallon buckets of Quikcrete brand concrete patching compound. Several drums, barrels, and buckets between 5 and 55-gallons were observed and are described further below.

- **Heating Oil AST** – A 500-gallon aboveground storage tank (AST) used to store heating oil was located in the northwest corner of the main garage. An associated fill pipe was located on the outside of the Site building. The floor underneath the AST was obscured by stored materials at the time of the inspection. However, the AST appeared to be in good condition with no evidence of leaks.

- **Drums**, Buckets, and Barrels – Numerous drums and barrels ranging in size from 5-gallons to 55-gallons were observed stored throughout the facility. Mr. Olson indicated that some of these barrels were empty and being repurposed as storage for tools or debris and did not contain petroleum products. Labeling on the barrels indicated that they contained or once contained a variety of substances ranging from water and cleaning products to hydraulic oil for vehicle maintenance. The observed barrels and drums appeared to be in good condition with no visual or olfactory evidence of a release.

- **Floor Drains** – Five (5) floor drains in total were observed within the Site building. Two were located on the shower floors in men's and women's restroom. The remaining three were located in the vehicle washroom, the maintenance bay, and the main garage floor. These drains discharged to the previously mentioned separator tanks.

- **Patched Flooring** – No patched flooring or pathways to the subsurface were observed. The drain in the designated maintenance room was partially covered with a steel plate at the time of the inspection to preserve the structural integrity of the system.

- **Maintenance Areas** – The designated maintenance room as well as the main garage floor both served as spaces for vehicle repair.

- **PFAS Use –** Mr. Olson stated that, to his knowledge, PFAS containing fire suppressant foam was not stored on Site.

Grounds

The exterior grounds of the Site were either paved or landscaped. Parking areas were present on the western side of the paved area around the Site.

- **Filling Port and Associated AST–** A 2,500-gallon diesel AST and attached self-service dispenser pump were located northwest of the Site Building on a concrete slab. The AST was in good condition and no leaks or nearby surface stains were observed. In addition, the tank was located within a larger secondary containment structure designed to capture and prevent leaks or spills from infiltrating the subsurface.

- **Salt Shed –** A 3,360 square-foot wooden and concrete shed containing ice melt salt for roadway application was located to the east of the main Site building.

- **Gravel and Materials Storage –** Several piles of crushed gravel and other soil and aggregate materials used for road grading and restoration were located south of the main Site building.

- **Dry Wells** – Four (4) dry wells which receive rainwater collected on the roof were located on each corner of the building in the paved area surrounding the facility. An additional dry well corresponding to the Salt Shed was not visible during the inspection but was identified in Site Plans belonging to the Waren Highway Department.

- **Drainage Ponds** – Four (4) lined drainage ponds for stormwater detention were located in the eastern and southern portions of the Site. These ponds are fed by drainage conveyance and discharge to the nearby Comins Pond, east of the Site

- **Pavement Cuts or Patched Asphalt** – Pavement cuts were seen in the areas surrounding the dry wells.

- **Storage Tanks, Containers, Dumpsters** – Various dumpsters, metal shipping containers, and rusted drums were seen in the Site grounds to the north and east of the Site building. These containers contained equipment related to road repairs, snow removal, and other tasks carried out by the highway department. The rusted drums were reported to be empty by Mr. Olson and served as makeshift solid waste receptacle.

- **Debris** – Small amounts of debris including discarded tires, concrete, wooden pallets, discarded street signs and metal fencing material were located on the Site grounds to the East of the Site building near the salt shed**.**

- **Monitoring Wells/Supply Wells** – Mr. Olson was aware of the existence of at least two (2) monitoring wells in the east half of the Site used to monitor water quality near the drainage ponds.

- **USTs** – No underground storage tanks (USTs) for heating oil were observed or reported by Mr. Olson.

- **Transformers** – No transformers were located on the Site grounds.

7 Data Gaps, Findings and Conclusions

7.1 Data Gaps

Standard Practice 1527-21 requires the identification and evaluation of data gaps or data failures, which are defined as a lack of or inability to obtain information required by the practice despite good faith efforts by the environmental professional to gather such information. No significant data gaps or data failures were identified during this investigation.

7.2 Findings and Conclusions

Fuss & O'Neill, Inc. prepared this Phase I ESA report in conformance with the scope and limitations of ASTM Practice E 1527-21 for the site. Any exceptions to, or deletions from, this practice are described in *Appendix A* of this report.

7.2.1 Identified RECs

As previously introduced an REC is defined as: *(1) the presence of hazardous substances or petroleum products in, on, or at the subject property due to a release to the environment; (2) the likely presence of hazardous substances or petroleum products in, on, or at the subject property due to a release or likely release to the environment; or (3) the presence of hazardous substances or petroleum products in, on, or at the subject property under conditions that pose a material threat of a future release to the environment.*

This assessment has revealed no RECs in connection with the Site.

Controlled RECs

ASTM 1527-21 defines controlled CREC (CREC) as a recognized environmental condition affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority, or authorities, with hazardous substances or petroleum products allowed to remain in place subject to implementation of required controls (for example, activity and use limitations, or other property use limitations. No CRECs associated with the Site were identified.

Historical RECs

ASTM 1527-21 defines a historical RECs (HREC) as a previous release of hazardous substance or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority, or authorities, and meeting unrestricted use criteria established by applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations). A historical recognized environmental condition is not a recognized environmental condition. No HRECs associated with the Site were identified.

Other Considerations

Although not identified as an REC, the following should be considered when evaluating the Site:

Debris: Although not identified as an REC, small amounts of debris including discarded tires, concrete, wooden pallets, discarded street signs, and metal fencing material were found on the Site grounds to the East of the Site building near the salt shed**.** This debris should be removed, and if any evidence of a release (including staining, stressed or dead vegetation, or odors) is found, soil sampling is recommended.

7.2.2 Business Environmental Risks

ASTM E1527-21 defines Business Environmental Risks as risks which can have a material environmental or environmentally driven impact on the business associated with the current or planned use of commercial real

estate, but which are not RECs. The following conditions were identified in connection with the site and may represent Business Environmental Risks:

- **Natural Arsenic:** The Site is located proximal to a north-south trending area, the so-called "Worcester Arsenic Belt," where USGS has determined that arsenic is frequently present in the soil or groundwater as a result of naturally occurring minerals. Arsenic contained within the naturally occurring soil is exempted from certain notification and response action obligations under the Massachusetts regulations (per 310 CMR 40.0317[22]) due to this recognized geological condition. However, this regulatory exemption applies to site-specific background conditions, and may not apply to material generated and disposed of off-site. Furthermore, a robust scope of testing may be necessary to confirm that the conditions are solely derived from natural background conditions. If soil disposal is warranted as part of planned development at the site, soil testing may be necessary to support excavation and disposal at an appropriately licensed receiving facility. Furthermore, management of soil containing arsenic as part of construction may be regulated by the Occupational Safety and Health Administration (OSHA), and construction soil management activities may require additional planning and care to prevent windblown dust or similar conditions from occurring.

- **Per- and Polyfluoroalkyl Substances (PFAS)**: The USEPA indicated that PFAS, short for poly- and perfluoroalkyl substances, are "forever chemicals" due to their innate chemical stability and have been found as ubiquitous environmental contaminants [1]. In April 2024, PFAS compounds (perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS)) were designated as a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) by the USEPA. PFAS exposure in soil and groundwater pose health risks including cancer to the liver and heart, and immune and developmental damage to infants and children[2]. PFAS are one of several compounds linked to contamination of drinking water supplies in sand and gravel aquifers with groundwater discharges of wastewater (septic systems)[3]. We have not specifically identified PFAS as a REC,but have identified potential PFAS-containing products (i.e. vehicle maintenance and cleaning products, paints, etc.) that are stored and used on the Site. To date, MassDEP does not require the testing of PFAS unless it is associated with a known release, solid waste disposal facility, or public water supply. MassDEP has not identified a concentration of "anthropogenic background" for PFAS. Disposal facilities do not currently require testing for PFAS unless environmental media is suspected of containing PFAS. However, disposal facility sampling criteria is anticipated to be modified in the near future. Thus, the presence of PFAS in soil or groundwater may complicate soil and/or groundwater management practices during future redevelopment.

- **Dry Wells**: The five (5) dry wells located on the Site grounds may require additional permitting in accordance with MassDEP Underground Injection Control (UIC) Regulations should closure of these structures be necessary during future development activities at the Site**.**

[1] Evich, M., M. Davis, J. McCord, B. Acrey, J. Awkerman, D. Knappe, A. Lindstrom, T. Speth, C. Stevens, M. Strynar, Z. Wang, E. Weber, W. Henderson, AND J. Washington. Per- and polyfluoroalkyl substances in the environment. SCIENCE. American Association for the Advancement of Science (AAAS), Washington, DC, 375(6580):eabg9065, (2022).

[2] April 2024, Biden-Harris Administration Finalizes Critical Rule to Clean up PFAS Contamination to Protect Public Health. Environmental Protection Agency. Accessible via https://www.epa.gov/newsreleases/biden-harris-administration-finalizes-critical-rule-clean-pfas-contamination-protect

[3] Schaider, L., Ackerman, J., Rudel, R., 2016. Septic systems as sources of organic wastewater compounds in domestic drinking water wells in shallow sand and gravel aquifer. Science of the Total Environment. 547, 470-481.

- **ASTs**: Due to their apparent good condition, location within containment structures, and age within the context of the typical AST service lifespan, the ASTs located on-Site were not identified as RECs. However, these two (2) ASTs may require additional permitting and specialized waste handling practices should removal of the ASTs be necessary during future development activities at the Site.

7.2.3 Appropriateness of Investigations

Fuss & O'Neill has followed the guidelines described in ASTM E1527-21 to identify the RECs at this Site in a manner consistent with standard practice in the industry; however, as indicated in the ASTM standard, "No environmental site assessment can wholly eliminate uncertainty regarding the potential for RECs in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for RECs in connection with a property, and the practice recognizes reasonable limits of time and cost."

In accordance with Section 12.6.1 of ASTM Standard Practice E 1527-21, the appropriateness of additional investigations necessary to determine the presence or absence of identified RECs was evaluated. Based on the opinion of the Environmental Professional, no additional investigations would be necessary to confirm that the conditions discussed herein are not RECs in accordance with ASTM standards.

8 References

American Society for Testing and Materials, 2021. Practice E1527-21, Standard Practice for Environmental Site Assessments; Phase I Environmental Site Assessment Process.

Massachusetts Department of Environmental Protection, 2014, 310 CMR 40.0000: Massachusetts Contingency Plan.

Massachusetts Department of Environmental Protection, 2007, 314 CMR 4.00: Surface Water Quality Standards.

Office of Geographic Information, Commonwealth of Massachusetts, Information Technology Division (MassGIS); via https://maps.massgis.digital.mass.gov/MassMapper/MassMapper.html, accessed August 2024.

USGS, 2021. Warren Quadrangle, Massachusetts, 7.5-Minute Series Topographic Map; United States Department of the Interior, U.S. Geological Survey.

USDA, 2023. United States Department of Agriculture, Natural Resources Conservation Services Soil Survey Geographic (SSURGO) Data Base, accessed August 2024.

Zen, Ean, 1983. Bedrock Geologic Map of Massachusetts; United State Department of the Interior, U.S. Geological Survey, in cooperation with the Commonwealth of Massachusetts Department of Public Works and Joseph A. Sinnot, State Geologist.

FUSS & O'NEILL

9 Limitations of Work Product

This document was prepared for the sole use of Tecton Architects, PC the only intended beneficiaries of our work. Those who may use or rely upon the report and the services (hereafter "work product") performed by Fuss & O'Neill, Inc. and/or its subsidiaries or independent professional associates, subconsultants and subcontractors (collectively the "Consultant") expressly accept the work product upon the following specific conditions.

1. Consultant represents that it prepared the work product in accordance with the professional and industry standards prevailing at the time such services were rendered.

2. The work product may contain information that is time sensitive. The work product was prepared by Consultant subject to the particular scope limitations, budgetary and time constraints and business objectives of the Client which are detailed therein or in the contract between Consultant and Client. Changes in use, tenants, work practices, storage, Federal, state or local laws, rules or regulations may affect the work product.

3. The observations described and upon which the work product was based were made under the conditions stated therein. Any conclusions presented in the work product were based solely upon the services described therein, and not on scientific or engineering tasks or procedures beyond the scope of described services.

4. In preparing its work product, Consultant may have relied on certain information provided by state and local officials and information and representations made by other parties referenced therein, and on information contained in the files of state and/or local agencies made available at the time of the project. To the extent that such files which may affect the conclusions of the work product are missing, incomplete, inaccurate or not provided, Consultant is not responsible. Although there may have been some degree of overlap in the information provided by these various sources, Consultant did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this project. Consultant assumes no responsibility or liability to discover or determine any defects in such information which could result in failure to identify contamination or other defect in, at or near the site. Unless specifically stated in the work product, Consultant assumes no responsibility or liability for the accuracy of drawings and reports obtained, received or reviewed.

5. If the purpose of this project was to assess the physical characteristics of the subject site with respect to the presence in the environment of hazardous substances, waste or petroleum and chemical products and wastes as defined in the work product, unless otherwise noted, no specific attempt was made to check the compliance of present or past owners or operators of the subject site with Federal, state, or local laws and regulations, environmental or otherwise.

6. If water level readings have been made, these observations were made at the times and under the conditions stated in the report. However, it must be noted that fluctuations in water levels may occur due to variations in rainfall, passage of time and other factors and such fluctuations may affect the conclusions and recommendations presented herein.

7. Except as noted in the work product, no quantitative laboratory testing was performed as part of the project. Where such analyses have been conducted by an outside laboratory, Consultant has relied upon the data provided, and unless otherwise described in the work product has not conducted an independent evaluation of the reliability of these tests.

8. If the conclusions and recommendations contained in the work product are based, in part, upon various types of chemical data, then the conclusions and recommendations are contingent upon the validity of such data. These data (if obtained) have been reviewed and interpretations made by Consultant. If indicated in the work product, some of these data may be preliminary or screening-level data and should be confirmed with quantitative analyses if more specific information is necessary. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time and other factors.

9. Chemical analyses may have been performed for specific parameters during the course of this project, as described in the work product. However, it should be noted that additional chemical constituents not included in the analyses conducted for the project may be present in soil, groundwater, surface water, sediments or building materials at the subject site.

10. Ownership and property interests of all documents, including reports, electronic media, drawings and specifications, prepared or furnished by Consultant pursuant to this project are subject to the terms and conditions specified in the contract between the Consultant and Client, whether or not the project is completed.

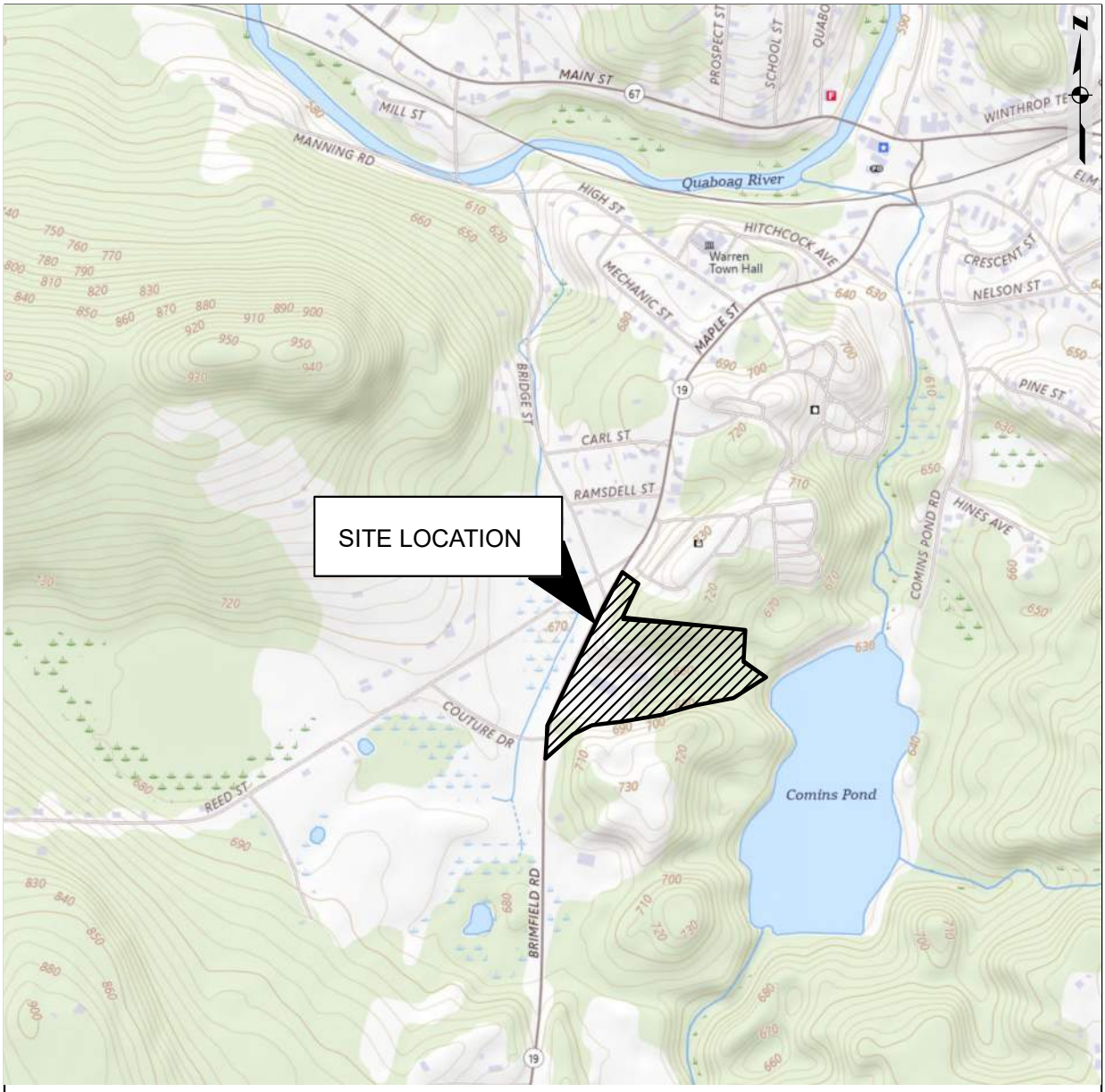
11. Unless otherwise specifically noted in the work product or a requirement of the contract between the Consultant and Client, any reuse, modification or disbursement of documents to third parties will be at the sole risk of the third party and without liability or legal exposure to Consultant.

12. In the event that any questions arise with respect to the scope or meaning of Consultant's work product, immediately contact Consultant for clarification, explanation or to update the work product. In addition, Consultant has the right to verify, at the party's expense, the accuracy of the information contained in the work product, as deemed necessary by Consultant, based upon the passage of time or other material change in conditions since conducting the work.

13. Any use of or reliance on the work product shall constitute acceptance of the terms hereof.

FUSS & O'NEILL

Figures



MAP REFRENCE: USGS Topo
Accessed on : 8/2/2024
From: https://basemap.nationalmap.gov/arcgis/rest/services/USGSTopo/MapServer

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road data; Natural Earth Data; U.S. Department of State HIU; NOAA National Centers for Environmental Information

Map Reference Location

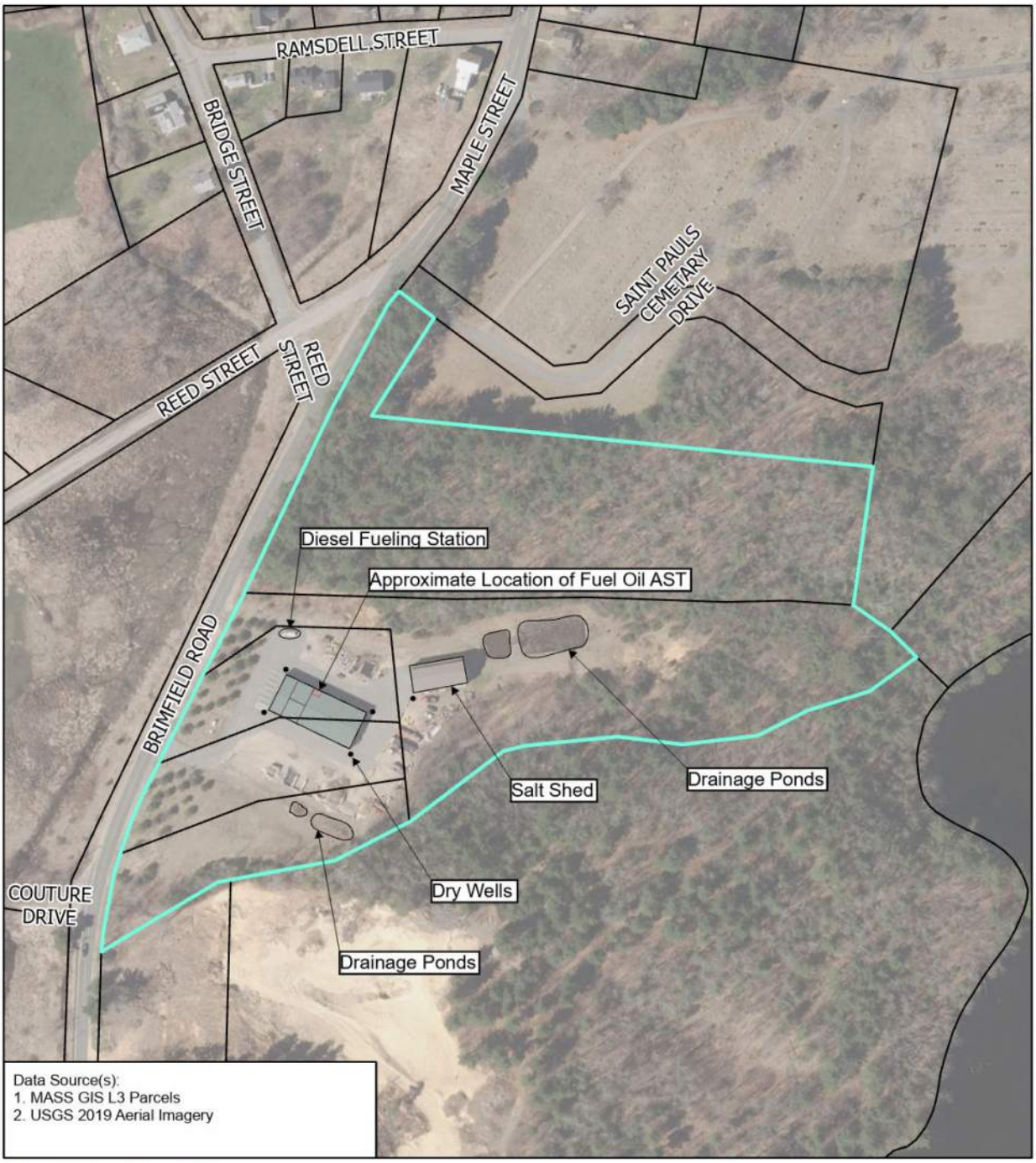
0 400 800
GRAPHIC SCALE
SCALE: 1" = 819'

FUSS & O'NEILL

TECTON ARCHITECTS, PC
SITE LOCATION MAP
87 BRIMFIELD ROAD
WARREN MASSACHUSETTS

PROJ No.: 20230532.A10
DATE: Aug 2024
FIGURE 1

Folder: F:\P2023\0532\A10\Deliverables\Report\Phase 1 ESA Reports\87 Brimfield Road\Figures\Warren Phase 1 Map\ Project: Warren Phase 1 Map Layout: clsc_8.5x11_Portrait_Bottom Map: Main Data Frame Map Frame
Date Exported: 8/2/2024 4:47 PM User: Jonathan.Kittredge Date Saved: 8/2/2024 4:46 PM


RAMSDELL STREET
BRIDGE STREET
MAPLE STREET
SAINT PAULS CEMETARY DRIVE
REED STREET
REED STREET
Diesel Fueling Station
Approximate Location of Fuel Oil AST
BRIMFIELD ROAD
Salt Shed
Drainage Ponds
COUTURE DRIVE
Dry Wells
Drainage Ponds
Data Source(s):
1. MASS GIS L3 Parcels
2. USGS 2019 Aerial Imagery
Parcel Boundary
Site Boundary
0 50 100 200 Feet
N
TECTON ARCHITECTS, PC
SITE PLAN
87 BRIMFIELD ROAD
WARREN
FUSS & O'NEILL
1550 Main Street, Suite 400
Springfield, MA 01103
413.452.0445| www.fando.com
FIGURE 2
Disclaimer: This map is not the product of a Professional Land Survey. It was created by Fuss & O'Neill, Inc. for general reference, informational, planning and guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. Fuss & O'Neill, Inc. makes no warrantee, express or implied, related to the spatial accuracy, reliability, completeness, or currentness of this map.
Folder: C:\Users\jkittredge\OneDrive - fando.com\Documents\ArcGIS\Projects\87 Brimfield Road - Figure 2\ Project: 87 Brimfield Road - Figure 2 Layout: Figure 1 Map: Main Data Frame Map Frame
Date Exported: 8/23/2024 4:14 PM User: jonathan.kittredge Date Saved: 8/14/2024 2:27 PM

FUSS & O'NEILL

Appendix A

Scope of Work and Restrictions

FUSS & O'NEILL

All Appropriate Inquiry Phase I ESA Scope of Work

Fuss & O'Neill uses Standard Practice E 1527-21 as the general standards for conducting Phase I ESAs. For consistency, this scope of work is generally presented based on the outline of our standard Phase I ESA report. The descriptions of the procedures and sources for obtaining the information for each section follow the section headings. As specified by Standard Practice E 1527-21, the scope of work described below allows for use of professional judgment to determine the extent to which specific sources are reviewed.

Unless otherwise specified, the following items are not considered in the course of completing an ASTM E 1527-21 Phase I ESA:

- Asbestos, Lead (paint/plumbing), Radon, Mold, Fluorescent Light Ballasts
- Wetlands, Ecological Resources, Historical/Cultural Resources
- Regulatory and Health & Safety Compliance
- Endangered species

These items typically present little environmental risk to the grounds of a site; however, these items may be liabilities during property transfer, regulatory audits, construction, renovation, or demolition projects.

1.0 Introduction

The objective of the ESA and the party that this ESA was conducted for are identified in this section.

2.0 Site Overview

2.1 Site Information

2.1.1 Property Location, Size of Parcel, and Site Plan

Review of USGS topographic maps, local assessor and zoning maps and property description cards, field observations and sketches, and, if available, plans provided by a contact for the Site. A site plan is included that is derived from these sources.

2.1.2 Potable Water Supply and Sewage Disposal

Query the local Department of Public Works, local Engineering Department, appropriate local utilities, and/or other local municipal sources and/or a knowledgeable site contact.

2.1.3 Adjoining Land Use

Site reconnaissance and assessor's mapping.

2.2 Environmental Setting of Site

2.2.1 Physical Setting

Site reconnaissance, USGS topographic maps, and available geological maps.

2.2.2 Groundwater

Site reconnaissance, USGS topographic maps, and 310 CMR 40.0000 (the Massachusetts Contingency Plan).

2.2.3 Surface Water

Site reconnaissance, USGS topographic maps, and 314 CMR 4.00 (MassDEP Surface Water Quality Standards).

2.2.4 Location of Public Water Supply Sources

Site reconnaissance and mapping available in local departments queried as part of the ESA.

2.3 Previous Environmental Investigations

Provided by the appropriate site contact or identified by other means during the course of conducting the ESA.

3.0 Site History

Site reconnaissance, knowledgeable site contacts, aerial photographs available from MassGIS, Sanborn fire insurance maps and street directories provided by an environmental database search service (note that street directories are reviewed at approximately five year intervals, but may be reviewed at smaller intervals for multi-tenant properties), and local municipal sources (local municipal Building Department, Engineering Department, Planning and Zoning Department, Health Department, and Fire Marshal).

4.0 Federal, State, and Local File Review

4.1 Summary of Regulatory Database Information

Regulatory databases specified by Standard Practice E 1527-21 are reviewed using Environmental Data Resources, Inc.

The report provided by Environmental Data Resources, Inc. is reviewed in detail. Sites that are inferred to present a significant risk to adversely impact the Site are identified and explained within the ESA report. However, sites inferred to pose little risk to adversely impact the Site are disclaimed within the attached Environmental Data Resources, Inc. report.

4.2 MassDEP File Review

Limited MassDEP file information is provided for the subject site and nearby properties in an environmental database search report. Reviews of files located at MassDEP Regional offices are not conducted unless specifically requested.

If a file review is to be conducted, files for the subject site and/or nearby properties are requested from the appropriate MassDEP Regional office. If available, these files are reviewed for pertinent information, which is either copied or noted.

4.3 Local File Review

Files for the local municipal Tax Assessor, Building Department, Planning and Zoning Department, Health Department, and Fire Marshal are reviewed.

5.0 User Provided Information

Information provided by the user as required by the practice is discussed in this section.

6.0 Site Reconnaissance, Interviews and Non-Scope Considerations

6.1 Interviews

An attempt needs to be made to interview the owner and/or a key site manager identified by the owner. Note the owner can be the key site manager. Prior to conducting the interview, send the Owner/Key Site Manager Questionnaire. A reasonable attempt needs to be made to interview the owner/key site manager during the site visit.

6.2 Site Reconnaissance

Field observations and the results of required interviews are discussed in this section. In addition, surveys conducted to identify non-scope considerations are addressed.

7.0 Data Gaps, Findings and Conclusions

Data gaps relevant to the identification of recognized environmental conditions are discussed and recognized environmental conditions are summarized in this section. In addition, recommendations for further investigations and surveys conducted to identify non-scope considerations are addressed as well.

8.0 References

References used as part of the ESA are presented here.

FUSS & O'NEILL

Appendix B

Qualifications of Environmental Professionals

FUSS & O'NEILL

Appendix C

Town of Warren File Information

F:\P2023\0532\A10\Deliverables\Report\Phase 1 ESA Reports\87 Brimfield Road\DRAFT_87_Brimfield_Phase_1_ESA .docx

Appendix D

EDR Resources

FUSS & O'NEILL

Appendix E

Completed Questionnaires

FUSS & O'NEILL

Appendix F

Photo Log

FUSS & O'NEILL

F:\P2023\0532\A10\Deliverables\Report\Phase 1 ESA Reports\87 Brimfield Road\DRAFT_87_Brimfield_Phase_1_ESA .docx

Updated July 2023

THIS PAGE IS INTENTIONALLY LEFT BLANK

7

PROBABLE COST

Tecton
ARCHITECTS

Probable Costs Narrative

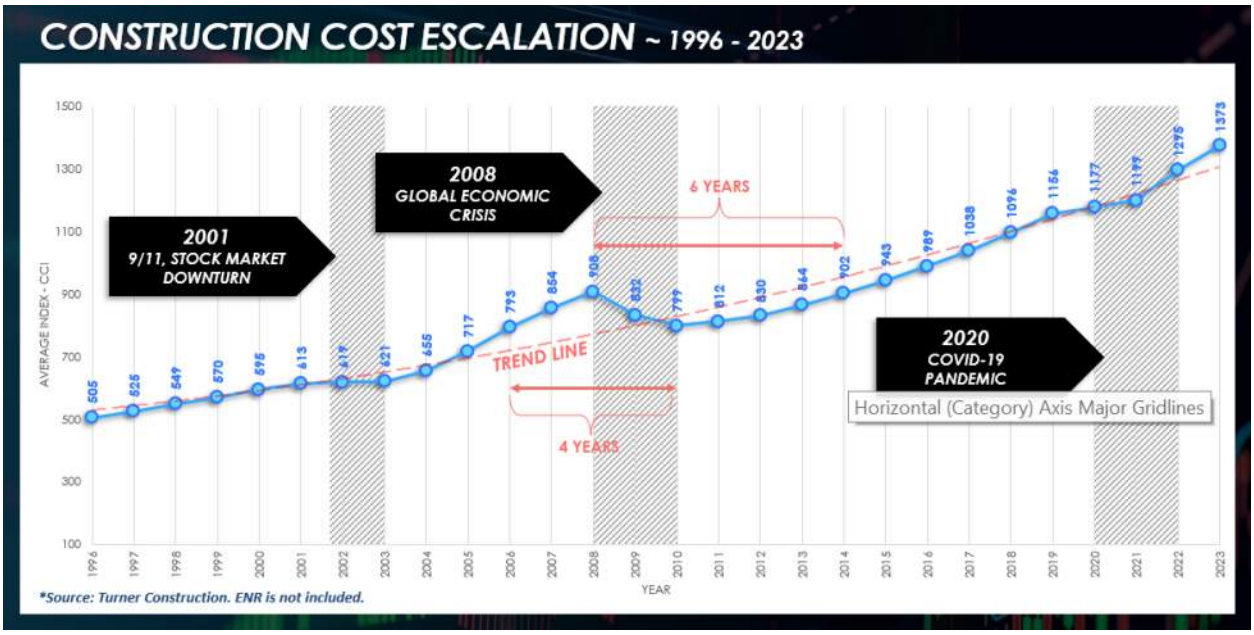
A conceptual per square foot construction cost budget range was discussed based on the Program for a new Public Safety Facility. Additionally, we reviewed current estimates and bids to corroborate the probable construction cost range for a new building in the Warren, New England locale. Once the preferred schemes were finalized, we issued a set of Conceptual Design documents to a third-party estimator to better inform what the cost impacts were. These were presented as fully detailed, total project costs. The numbers reflect project costs adjusted for the geographic area and current marketplace conditions. As a municipal project funded by municipal money, the project is subject to the requirements of Massachusetts public bidding. Additionally, there are still the effects of supply chain issues.

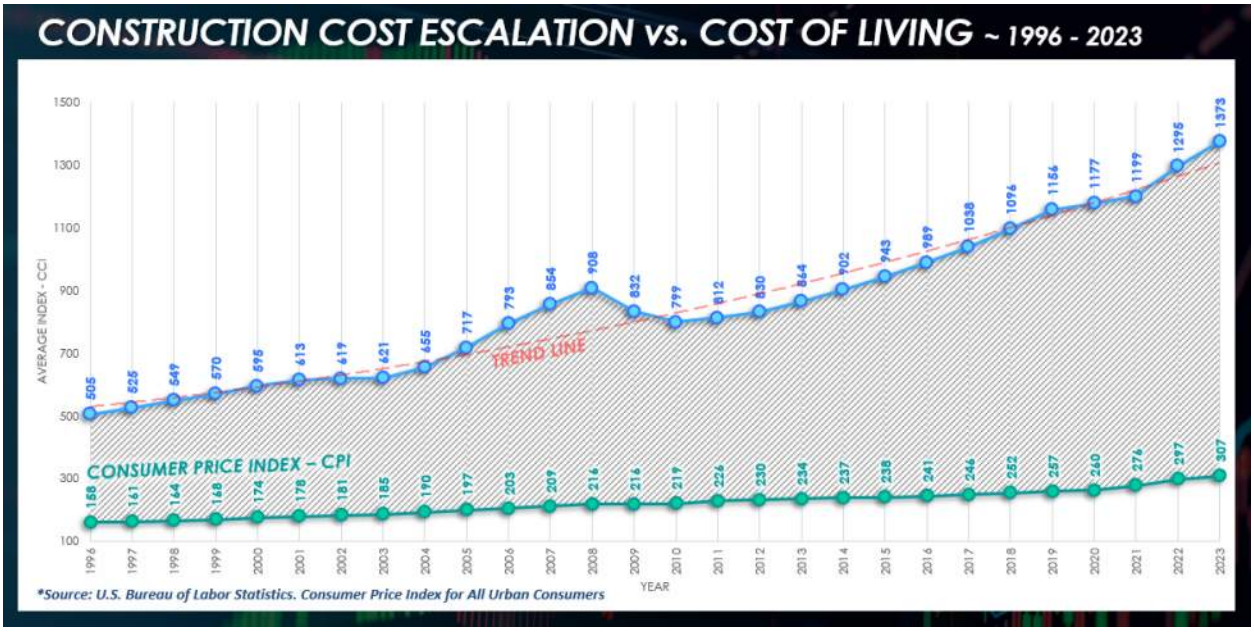
To develop a meaningful set of budget guidelines, we must establish the criteria necessary for evaluation. Public Safety Facilities are high-use, service buildings classified by the International Building Code as an **"essential facility"** and by FEMA as a **"critical facility"**. These designations trigger mandatory requirements for structural strengthening, critical construction oversight and system protections that are significantly more rigorous than other building types. During natural or man-made emergencies, essential facilities such as public safety buildings, need to remain open and operational to respond and serve the community. These mandated requirements and the design needed to implement them have an impact on construction costs. It may seem illogical for a renovation project that a "perfectly good" building may require structural upgrades. For older buildings, especially those constructed prior to the 1990s, the building code for seismic design has changed considerably; even if earthquakes/windstorms are not a regular local phenomenon, or if the existing buildings have performed well to date, the "Essential Facility" classification can lead to extensive strengthening requirements. For significant renovations or additions, these code conditions will often trigger requirements that the entire existing facility be brought up to current structural standards. Where this happens, our recommendations may advise against renovation/addition due to the cost and complexity of design and construction involved.

Hard Costs vs. Soft Costs

Hard Costs are defined as the cost of materials and labor to construct a building. These costs include site work and built-in components of the building. Hard costs are sometimes referred to as "sticks and bricks". Soft Costs are any other project cost that is not a construction cost. Examples of soft costs may include professional design fees, topographic survey, geotechnical report, fixtures, furnishings and equipment (FF&E), phones, security, software, communications equipment, kitchen appliances, special inspections, testing and owner's project contingency. Costs for hazardous materials abatement, traffic signalization and off-site costs are NOT considered in this report due to the many unknown variables in such costs.

A description of the quality of materials and types of systems expected in a modern, low-maintenance, energy-efficient, sustainable and long-lasting facility are outlined herein and form the basis of the expected level of construction and finishes included in conceptual budgeting. This is important to understand the nature of the end-product. Budgets include architectural, structural, mechanical, electrical, plumbing, fire protection, specialty systems and site work. We assume the projects follow general sustainability principles but will not achieve certification.





The above graphs illustrate that the construction escalation norm is in the 4-5% range per annum. There have been certain specific events that contributed to higher escalation. Example of these events are the great depression, the stock market downturn of 2001, the global economic crisis of 2008 and the 2020 COVID-19 pandemic. All these events have demonstrated, short term impacts to the construction cost trend line with costs returning after a relatively short period of time. Likewise, this escalation trend line has always outpaced the cost of living/inflation, due to a variety of factors, including, not limited to meeting stricter building code requirements, designing to last 50+ years, unique building components, density of specialized technology, advanced training elements, additional programmatic demands, lack of grant availability, and increased awareness around officer health, wellness and safety.

Cost of Doing Nothing

What is the cost of doing nothing? Understandably, there are budgetary constraints to projects and it is important to be responsible with those community taxpayer dollars by providing the best and highest value as a result of their investment. When weighing the options, inevitably the question arises: "What if we just live with what we have and make it work?" That option may seem like a low/no cost option at face value, but it is important to understand and communicate that there is always a cost to "doing nothing", and that cost carries implications that are beyond financial – those are as follows:

- Recruitment and retention, erosion of department morale.
- Increased long term cost to the community – eventually something will need to be done and market trends suggest it will cost the Town more to build in the future than today.
- Increased cost to purchase custom equipment to fit within existing facilities.
- Continued investment to maintain aging facilities.
- Risk of safety issues and potential workers compensation claims against the Town.
- Risk of custodial responsibility during prisoner detention
- Risk of health issues related to a failure to provide appropriate separation of Hot and Cold zones within the fire department

THIS PAGE IS INTENTIONALLY LEFT BLANK

Warren, MA Public Safety Facility

Opinion of Probable Project Costs
September 13, 2024

87 and 0 Brimfield Road, Parcel # 27-0-15, 27-0-16, 27-0-16.1, 27-0-16.2

	Start Date	Months	End Date
Assumed Project Start Date	3/1/2026	Mid-point	11/1/2026
Assumed Project Duration (months)	16	From Today	26

Heading	Quantity		Unit Cost		Subtotal
Public Safety Building Construction Costs					
PM&C Construction Cost Estimate	24,860	s.f.	$649.49	/s.f.	$16,146,412
Added space for Simulator	785	s.f.	$649.49	/s.f.	$510,000
Allowance for DPW Stockpile area	10,000	s.f.	$25.00	/s.f.	$250,000
Allowance for excess site meaterial removal	500,000	l.s.	1	l.s.	$500,000
	Subtotal:		**$649.50**	**/s.f.**	**$16,656,412**
Design/Estimating Contingency			*10.0%*		$1,666,000
	Subtotal:		**$714.46**	**/s.f.**	**$18,322,412**
Escalation Allowance to mid-point of Construction			*4.0%*	/yr	$1,508,000
	Total:		**$773.27**	**/s.f.**	**$19,830,412**
Project Development and Equipment Costs					
Designer Fees			*9.8%*		$1,952,000
OPM Fees			*4.0%*		$793,000
Interior Furnishings and Loose Equipment					$385,000
Furniture and Equipment Design Fees					$39,000
Hazardous Materials Abatement Allowance					$0
Hygienists Fees Allowance					$0
Environmental Soil Investigation & Abatement Allowance					$0
LSP Fees Allowance					$0
Survey and Borings					$40,000
Envelope Commissioning					$38,000
MEP Commissioning					$51,000
Materials Testing					$99,000
Phones, AV and Computer Equipment					$100,000
Communications, Radios and Specialty Systems					$100,000
Bidding Expenses - Advertising and Reprographics					$25,000
Builder's Risk Insurance					$40,000
Utility Backcharges					$40,000
Relocation Costs					$25,000
Bonding and Legal Fee					$10,000
	Subtotal:		**19%**		**$3,737,000**

Warren, MA Public Safety Facility

Opinion of Probable Project Costs
September 13, 2024

87 and 0 Brimfield Road, Parcel # 27-0-15, 27-0-16, 27-0-16.1, 27-0-16.2

Construction and Project Contingency		
Construction/Owner's Contingency	*5.0%*	$992,000
Project Development Contingency	*5.0%*	$187,000
Subtotal:		**$1,179,000**

Opinion of Total Project Costs:	**$24,746,412**

Warren, MA Public Safety Facility

Opinion of Probable Project Costs
September 16, 2024

48 High Street and 100 Maple Street, Property # 23-0-12, 23-0-17

	Start Date	Months	End Date
Assumed Project Start Date	3/1/2026	Mid-point	11/1/2026
Assumed Project Duration (months)	16	From Today	26

Heading	Quantity		Unit Cost		Subtotal
Public Safety Building Construction Costs					
PM&C Construction Cost Estimate	24,860	s.f.	$649.49	/s.f.	$16,146,412
Added space for Simulator	785	s.f.	$649.49	/s.f.	$510,000
Allowance for Additional Paving/prep	35,000	s.f.	$5.00	/s.f.	$175,000
	Subtotal:		**$656.32**	**/s.f.**	**$16,831,412**
Design/Estimating Contingency			*10.0%*		$1,683,000
	Subtotal:		**$721.95**	**/s.f.**	**$18,514,412**
Escalation Allowance to mid-point of Construction			*4.0%*	/yr	$1,524,000
	Total:		**$781.38**	**/s.f.**	**$20,038,412**
Project Development and Equipment Costs					
Site Acquisition/Demolition/Hazardous Materials					$225,000
Designer Fees			*9.8%*		$1,973,000
OPM Fees			*4.0%*		$802,000
Interior Furnishings and Loose Equipment					$385,000
Furniture and Equipment Design Fees					$39,000
Hazardous Materials Abatement Allowance					$0
Hygienists Fees Allowance					$0
Environmental Soil Investigation & Abatement Allowance					$0
LSP Fees Allowance					$0
Survey and Borings					$40,000
Envelope Commissioning					$38,000
MEP Commissioning					$51,000
Materials Testing					$100,000
Phones, AV and Computer Equipment					$100,000
Communications, Radios and Specialty Systems					$100,000
Bidding Expenses - Advertising and Reprographics					$25,000
Builder's Risk Insurance					$40,000
Utility Backcharges					$40,000
Relocation Costs					$25,000
Bonding and Legal Fee					$10,000
	Subtotal:		**20%**		**$3,993,000**

Warren, MA Public Safety Facility

Opinion of Probable Project Costs
September 16, 2024

48 High Street and 100 Maple Street, Property # 23-0-12, 23-0-17

Construction and Project Contingency		
Construction/Owner's Contingency	*5.0%*	$1,002,000
Project Development Contingency	*5.0%*	$200,000
Subtotal:		**$1,202,000**

Opinion of Total Project Costs:	**$25,233,412**

Warren, MA Public Safety Facility

Opinion of Probable Project Costs
September 16, 2024

0 Old West Warren Road, Parcel # 06-0-23

	Start Date		Months	End Date
Assumed Project Start Date	3/1/2026		Mid-point	11/1/2026
Assumed Project Duration (months)	16		From Today	26

Heading	Quantity		Unit Cost		Subtotal
Public Safety Building Construction Costs					
PM&C Construction Cost Estimate	24,545	s.f.	$812.21	/s.f.	$19,935,701
	Subtotal:		**$812.21**	**/s.f.**	**$19,935,701**
Design/Estimating Contingency			*10.0%*		$1,994,000
	Subtotal:		**$893.45**	**/s.f.**	**$21,929,701**
Escalation Allowance to mid-point of Construction			*4.0%*	/yr	$1,805,000
	Total:		**$966.99**	**/s.f.**	**$23,734,701**
Project Development and Equipment Costs					
Site Acquisition					$399,000
Designer Fees			*9.8%*		$2,333,000
OPM Fees			*4.0%*		$949,000
Interior Furnishings and Loose Equipment					$368,000
Furniture and Equipment Design Fees					$37,000
Hazardous Materials Abatement Allowance					$0
Hygienists Fees Allowance					$0
Environmental Soil Investigation & Abatement Allowance					$0
LSP Fees Allowance					$0
Survey and Borings					$40,000
Envelope Commissioning					$37,000
MEP Commissioning					$49,000
Materials Testing					$119,000
Phones, AV and Computer Equipment					$100,000
Communications, Radios and Specialty Systems					$100,000
Bidding Expenses - Advertising and Reprographics					$25,000
Builder's Risk Insurance					$47,000
Utility Backcharges					$40,000
Relocation Costs					$25,000
Bonding and Legal Fee					$10,000
	Subtotal:		**20%**		**$4,678,000**

Warren, MA Public Safety Facility

Opinion of Probable Project Costs
September 16, 2024

0 Old West Warren Road, Parcel # 06-0-23

Construction and Project Contingency			
Construction/Owner's Contingency		*5.0%*	$1,187,000
Project Development Contingency		*5.0%*	$234,000
	Subtotal:		**$1,421,000**

Opinion of Total Project Costs:	**$29,833,701**

LIQUIDATED VALUE & TAX IMPACT

8

Tecton
ARCHITECTS

LIQUIDATED VALUE

PROPERTY	ID	LAND	YARD	BUILDING	SUBTOTAL
FIRE					
MAPLE ST (0.5 AC)	17-0-58	$4,400	$ -	$ -	$4,400
1012 MAIN ST (0.65 AC)	17-0-59	$62,600	$12,300	$115,300	$190,200
20 ALBANY ST (0.1593 AC)	21-0-95	$46,500	$25,300	$248,700	$320,500
POLICE					
1 TOWN HALL PLAZA (0.34 AC)	23-0-29	$52,500	$ -	$1,215,200	$1,267,700
TOWN					
48 HIGH ST (3.3001 AC)	23-0-12	$77,700	$4,600	$2,284,900	$2,367,200
	TOTAL	$243,700	$42,200	$3,864,100	$4,150,000

TAX IMPACT

ANNUAL COST PER TAXPAYER

AVERAGE SINGLE FAMILY VALUE (PER DLS 2023) $263,443

BORROWED AMOUNT	ESTIMATED INTEREST RATE	$ / YEAR	$ / MONTH	$ / DAY
$25,000,000	3.75%	$705	$58.75	$1.93
$30,000,000	3.75%	$850	$70.83	$2.33

Note: Estimated tax impact based on average single family home value. Market conditions at actual time of borrowing could affect the final interest rate.

NEXT STEPS

9

Tecton
ARCHITECTS

THIS PAGE IS INTENTIONALLY LEFT BLANK

Next Steps

In conclusion, it was recommended by the Working Group that the Town of Warren pursue a new construction project for a Public Safety Facility on one of the three sites identified in this study.

Although this feasibility study was extensive, there are many design phases ahead. This includes full Schematic Design, Design Development, Construction Documentation and Bidding. At the culmination of each phase, an additional cost estimate will occur to ensure budgetary alignment.

Additional next steps may include:

- Community Feedback Sessions
- Input from Town Boards
- Future Funding Requests
- Design Phase Workshops & Educational Sessions

Below is a Site Evaluation Matrix which ranks the three candidate sites on various technical criteria. The scoring system is based on 1 to 5 stars, with five stars representing the most optimal technical outcome. There are few 2's and no 1's since these sites made it through previous evaluations throughout the course of the study and represent the most beneficial sites to support the program. The matrix can be valuable guidance in making decisions, but be aware that in some instances less technical criteria may be deemed more important for the Community overall.

SITE RANKING CHART

	0 OLD WEST WARREN RD. (RTE 67)	48 HIGH ST. & 100 MAPLE ST.	0 BRIMFIELD RD. (ADJ. TO HIGHWAY)
SATISFIES PROGRAM NEED	5	5	5
PROJECT COST	3	5	5
SITE ACQUISITION REQUIRED	3	2	5
ENVIRONMENTAL CHALLENGES	5	3	3
GEOTECHNICAL CHALLENGES	4	3	5
SPACE FOR FUTURE GROWTH	5	3	2
GRADE ALONG RESPONSE ROUTES	5	2	5
COMPATABLE ADJOINING LAND USES	4	3	5
IMPACT ON RESPONSE TIME	5	4	5
DOT CURB CUT PERMITTING	3	5	5
CONSERVATION COMMISSION REVIEW	3	5	5
TOTALS	**45**	**40**	**50**

APPENDIX

- ROOM DETAIL & SITE NEEDS: FIRE
- ROOM DETAIL & SITE NEEDS: POLICE
- ROOM DETAIL & SITE NEEDS: TOWN
- SITE NEEDS: PUBLIC SAFETY (WITH TOWN)

A

Tecton
ARCHITECTS

THIS PAGE IS INTENTIONALLY LEFT BLANK

Fire Headquarters

New Programmed Area Name	Program Area

1. Public

1.01 Public Entry Area — 162 s.f.

General

- lobby design should reflect an environment of service to the community and visitors
- vestibule
- public reception area

Security

- secure entry into any private or administrative areas

Furniture

4 waiting chairs

Casework and built-ins

1 pamphlet/form rack for community information
- display case

Display

- wall space for plaques & pictures/artwork

Comments/Adjacencies

- access to trainning room and rest rooms

1.02 Unisex Restroom(s) x 2 — 140 s.f.

Plumbing

- water closet, wall hung
- sink

1 floor drain with trap primer

Equipment

- toilet accessories as required
- mirrors at sinks

Finishes

- all tile floors and walls

2. Training

2.01 Training/Community Room — 720 s.f.

Occupants 40

General

- used as classroom and for training
- district, department, and outside agency programs
- county programs
- public access

Fire Headquarters

New Programmed Area Name	Program Area

Furniture

20 2' x 6' nesting training tables with two (2) chairs each
1 "smart" podium

Equipment

- writable, projectable wall covering
- two ceiling mount mid point monitors
- one ceiling mount confidence monitor

Display

- dual projectors

Casework and Built-ins

- materials storage cabinets at rear of room
- counter for coffee bar

Electircal

- lighting control system with preset scenes
- sound system
- power and data to training tables and podium location

Comments/Adjacencies

- direct access from lobby
- near restrooms

2.02 Training Storage Room — 80 s.f.

Furniture

4 24" x 36" x 72" shelving

Equipment

- firematic training equipment (CPR, etc..)
- radios
- telephones
- A/V

3 . Administration

3.01 Office #1 - Chief's Office — 100 s.f.

Furniture

1 "U" workstation with chair w/ file storage
2 visitor chairs

Casework and Built-ins

- wardrobe cabinet

Fire Headquarters

New Programmed Area Name	Program Area

Equipment
- phone
- computer
- 4 plex at desk

Comments/Adjacencies
- near administrative assistant
- near conference room

3.02 Office #2 - EMS Coordinator **80 s.f.**

Furniture
1 "U" workstation with chair w/ file storage
1 visitors' chair

Equipment
- phone
- computer
- 4 plex at desk

Comments/Adjacencies
- near administrative office

3.03 Office #3 - Administraive Office **192 s.f.**

Furniture
4 6' x 5' "L" workstation with chair
2 visitors' chairs
2 three drawer lateral files

Casework and Built-ins
6 lineal feet counter over files

Equipment
4 phone
4 computer
4 4 plex at desks

Comments/Adjacencies
- near administrative assistant

3.04 Conference Room **280 s.f.**

Occupants 10

General
- meetings for officers/admin

Furniture
1 conference table
10 chairs

Fire Headquarters

New Programmed Area Name	Program Area

1 credenza

Equipment

- wi-fi and cable

Display

1 tv monitor
1 white board

3.05 Emergency Management Office 100 s.f.

Furniture

1 "U" workstation with chair w/ file storage
2 visitor's chairs

Casework and built-ins

- wardrobe cabinet

Equipment

1 computer at desk
1 telephone at desk

Comments/Adjacencies

- immediate adjacency to the Fire Department Offices

3.06 Emergency Management Storage 150 s.f.

Furniture

10 24" x 36" x 72" five tier metal shelving

Comments/Adjacencies

- immediate adjacency to Emergency Management Office

3.07 Records/File Storage 240 s.f.

Furniture

44 four drawer file cabinets

Security

- proximity access control

Comments/Adjacencies

- near administrative assistant

3.08 Work Space (Central Photocopy/Mail) 40 s.f.

Casework and Built-ins

8 lineal feet base cabinets w/ countertop

Equipment

1 multi-function printer
1 wall telephone

Comments/Adjacencies

Fire Headquarters

New Programmed Area Name	Program Area

- near administrative assistant

3.09 Unisex Restroom — 70 s.f.

Plumbing

1 water closet
1 sink

Equipment

- toilet accessories as required
- mirror at sink

Comments/Adjacencies

- all hard washable surfaces, moisture resistant ceiling

4. Firefighters/EMTs

4.01 Private Entry — 70 s.f.

General

- vestibule

Security

- secure entry into any private or administrative areas

Comments/Adjacencies

- access to living quarters

4.02 Firefighters/EMTs Day Room/Kitchen/Dining — 750 s.f.

Furniture

6 loungers
- end tables
- AV credenza

1 table for 10

Equipment

- wall mounted tv monitor

General

- kitchen is separate but open to dining
- all commercial equipment and appliances, stainless steel
- easily cleaned

Casework and Built-ins

- prep island
- 2'-6" solid surface countertops

2 pantries, separate food storage for each shift

- self closing doors and drawers for all cabinetry

Equipment

1 gas stove with 4-6 burners + griddle (provided by owner)
1 oven (provided by owner)
1 range hood
1 dishwasher
1 microwaves
2 sinks, one deep bowl
2 refrigerator with freezer (provided by owner)
- wall mounted TV
- exterior grill

Plumbing

- floor drain

Comments/Adjacencies

- easy access to bays

4.03 Fitness Room 336 s.f.

Equipment

- weight racks
- benches
- elliptical
- treadmill
- universal machine
- pull-up bar
- high wall mounted TV
- music
- mats

Special

- ceiling height for stepper
- recycled rubber floor
- mirrors full height one wall
- handrails
- window to hall
- solid blocking in all walls

Mechanical

- proper ventilation with overhead fan
- dedicated exhaust and AC unit

4.04 Firefighter Single Bunk Room(s) x 2 160 s.f.

General

- quiet suite
- direct access through Hot Zone transition into bays

Fire Headquarters

New Programmed Area Name	Program Area

Furniture

1 bed
1 desk
1 nightstand

Equipment

- overhead fan

Comments/Adjacencies

- NFPA 1581 3-3.1

4.05 Firefighter Double Bunk Room(s) x 2 — 320 s.f.

General

- quiet suite
- direct access through Hot Zone transition into bays

Furniture

2 bed
2 desk
2 nightstand

Equipment

- overhead fan

Comments/Adjacencies

- NFPA 1581 3-3.1

4.06 Firefighter Bunk Lockers — 38 s.f.

General

- within corridor adjacent to firefighter bunks

Furniture

6 lockable wardrobes

4.07 Laundry/Housekeeping Storage — 40 s.f.

General

- domestic only (not used for turn-out gear)

Equipment

1 washer
1 dryer
1 fold away ironing board

Plumbing

- floor drains

Mechanical

- dryer vent

Fire Headquarters

New Programmed Area Name	Program Area

Comments/Adjacencies
- near bunk suite

4.08 Unisex Single Bath/Shower(s) x 3 — 192 s.f.

General
- private, individual rooms

Casework and Built-ins
- solid surface countertop for sink
- small storage area

Plumbing
1 toilet
1 urinal
1 sink
1 shower
- floor drain
- manual lever type handles for sink

Comments/Adjacencies
- near bunk suite

5 . Apparatus/Training

5.01 Apparatus Bays (10) - 5 double-deep at 70' deep — 6300 s.f.

Vehicles - total of 13
- Engine 1: 1991 International (35'-9")
- Engine 2: 2001 American LaFrance Eagle (30'-5")
- Engine 3: TBD
- Ambulance 1: 2022 Dodge Ram/PL 4x4 (26'-2")
- Brush 1: 2022 Dodge Ram/CET 315 (19'-5")
- Squad 1: 1986 Humvee 4x4 (17"-0", with trailer 33'-4")
- Squad 2: 2023 Chevrolet Silverado 4x4 250 HD (20'-3", w/ plow 25'-7")
- Car 1: 2021 Cheverolet Tahoe (18'-5")
- Boat trailer (14'-9")
- RTV Trailer (17'-6")
- Hovercraft Trailer (17'-2")
- Rope trailer (20'-4")
- Room for Back-Up Engine (assume 36')

General
5 drive-thru - respond in both directions
- all double deep, back to back
- in-place wash bay

10 14' x 14' overhead doors
  - 3 rows of glass with UV and low-e protection

Fire Headquarters

New Programmed Area Name	Program Area

Storage
- foam in 5 gallon pails

Plumbing
- trench drains at each bay
- oil/water separator
- Hose reels
  - equal to Hannay 75' x 3/4" hose reels
  - between front door
  - one at rear of bays
  - wall mounted
  - one with hot and cold water
- air drops at each bay
- truck fills

2 1 3/4" wall hydrants with gate valve, each side of bay

- compressed air
  - 3 drops on reels with hose
- wash reels in front to wash outside
- electric water fountain
- power washer

1 deep bowl utility sink

HVAC
- Plymovent Exhaust System - hydraulic
- overhead fans BAF or eq.

Electrical
- drops for all apparatus

Sprinkler
- fire service entrance accessible for training

Finishes
- Epoxy flooring, non-slip, multi-color with safety stripes

6 . Firematic Support

6.01 Mezzanine — 1260 s.f.

General
- training and storage, not for mechanical equipment

Training Elements
- roof training built on mezzanine
- confined space (manhole)
- maze provisions
- forcible entry prop

Fire Headquarters

New Programmed Area Name	Program Area

6.02 Storage Room #1 - Fire and EMS Storage — 80 s.f.

Furniture

7 24" x 36" x 72" shelving

Equipment

- EMS items stored in totes
- spare extinguishers, valves, nozzles, SCBA

Electrical

- electrical outlets for charging

Comments/Adjacencies

- adjacent to apparatus bay area

6.03 Storage Room #2 - Fire and Emergency Management — 320 s.f.

Furniture

8 24" x 36" x 72" shelving
1 heavy duty mobile clothing rack

Equipment

- additional and spare PPE

Security

- proximity access control

Comments/Adjacencies

- vented and separate from hot zones

6.04 Mechanic's Work Room — 160 s.f.

General

- minor repair work; large repairs by outside mechanic

Furniture

- stainless steel wall cabinets

Equipment

1 workbench
1 rolling cabinet for tool storage (hand tools)
1 tool chest
1 wall-mounted air drop for tools

Plumbing

1 deep bowl stainless steel sink with sideboards
1 floor drain

Comments/Adjacencies

- space should include task lighting

Fire Headquarters

New Programmed Area Name	Program Area

6.05 Fire/EMS DeCon Laundry — 160 s.f.

Equipment

1 laundry sink with sprayer and side boards
- sink accessories: wash masks and packs, 8 hooks above sinks

1 stackable washer and dryer
1 dryer
1 gear extractor
1 gear dryer/dehydrator type cabinet (6 sets of PPE)
1 boot wash
- Backboard cleaning
- red bag
- bags for soiled linen

Plumbing

1 Eye Wash
1 drench Shower, with hooks for backboards
1 hand sink
1 floor drain

Comments/Adjacencies

- DeCon done at hospital, NFPA 1581
- Direct access to Hot Zone and transition area
- Exterior door
- Concrete pad for extractor

6.06 Safety Materials/Training Storage Room — 80 s.f.

Furniture

3 24" x 36" x 72" stainless steel shelving

Equipment

- daily supplies
- bandages, IV fluid, towels
- EMS equipment

Security

- access control not required; no narcotics

6.07 Air Room (SCBA) — 160 s.f.

Equipment

1 air compressor in own room, with remote fill station
20 scba racks
1 workbench
1 air compressor
4 face shield hangers

O2 Storage

- 7 O2 cylinders

- vendor access for O2 resupply

Plumbing

1 two bowl sink
1 floor drain

Comments/Adjacencies

- large amount of supply air
- mask hooks over sink and training packs hang on wall (12 spare packs)

6.08 Turnout Gear Room — 500 s.f.

General

30 24" x 24" Gear-Grid lockers, 2 sets of gear per locker
- lockers fixed on walls or floor
- benches (within aisle, as required)

Mechanical

- constant exhaust
- wall mounted HEPA filter

Electrical

- 4-plex outlets around room at top of lockers for rechargables

Plumbing

- floor drains

Comments/Adjacencies

- near DeCon Laundry
- near Apparatus Bays

6.09 Radio/Communications Room — 80 s.f.

Furniture

2 "L" shaped workstations, (1) main console and (1) support
4 3-drawer file cabinets for dispatch, portable radios, small charging station

Security

- access control
- door operation and bay lighting control
- backup alarm

Equipment

- internal paging system
- EMS report writing computer equipment
- closed circuit TV, phones, weather station
- rechargeable portable radios
- base radio

Fire Headquarters

New Programmed Area Name	Program Area

Comments/Adjacencies

- cool zone, remote backup alarm, adhere to HIPPA, acknowledgement button
- located off of lobby; main public point of contact; view of apparatus bays is also preferred but not required

6.10 Unisex Restroom for Apparatus Bays (Hot Zone) — 70 s.f.

Plumbing

1 water closet
1 urinal
1 sink
1 hose bibb for cleaning
1 floor drain with trap primer

Equipment

- toilet accessories as required
- mirrors at sinks

Comments/Adjacencies

- all hard washable surfaces, moisture resistant ceiling

6.11 Transition Zone — 60 s.f.

Plumbing

1 sink
- floor drain

Equipment

- hand sanitizer
- clothing hooks

Comments/Adjacencies

- all hard washable surfaces, match bay flooring

7 . Building Facilities

7.01 Custodial Closet(s) — 40 s.f.

General

- one near training room, one near bays

Plumbing

- mop sink
- floor drain

Equipment

- *mop holder, shelving*

8 *lineal feet wall shelving on standards*

Fire Headquarters

New Programmed Area Name	Program Area

7.02 Mechanical Room — 320 s.f.

General
- as determined after system selection

Comments/Adjacencies
- *to serve entire facility*

7.03 Network/IT — 40 s.f.

General
- non-static flooring

Security
- promixity access control

Furniture
2 flexible racks

Equipment
- security system and CCTV
- access controls
- UPS
- cable trays

Mechanical
- constant HVAC on alarm

Fire Headquarters

	New Programmed Area Name	Quantity	Programmed Area	
S.1	**Building Area**			
	Building Footprint	**1 story**	16,670	s.f.
	Future Building Growth (25% of programmed area)		4,170	s.f.
	Subtotal:		20,840	s.f.
S.2	**Parking Area**			
	Visitor Parking	**32 spaces**	5,280	s.f.
	Visitor Handicapped Parking	2 spaces	540	s.f.
	Staff Parking	**10 spaces**	1,650	s.f.
	Staff Handicapped Parking	1 spaces	270	s.f.
	Travel Lane Allowance		7,500	s.f.
	Apron Allowance	10 doors	9,000	s.f.
	Subtotal:		24,240	s.f.
S.3	**Site Utilities**			
	Electrical Transformers		100	s.f.
	Emergency Generator		1000	s.f.
	AC Equipment		400	s.f.
	Dumpsters		240	s.f.
	Storm Water Retention		4,600	s.f.
	Subtotal:		6,340	s.f.
S.4	**Site Amenities**			
	Outdoor Patio		200	s.f.
	Subtotal:		200	s.f.
S.5	**Setbacks and Green Space**			
	Green space		25,800	s.f.
	Setbacks		13,300	s.f.
	Subtotal:		39,100	s.f.
	Summation			
	Minimum useable site area		90,700	s.f.
	Minimum useable site acreage		**2.09**	**ac.**

Police Headquarters

New Programmed Area Name	Program Area

1 . Public

1.01 Vestibule — 65 s.f.

Security
- free access from exterior
- emergency lockdown of inner doors
- ballistic protection in any wall interfacing staff areas
- aiphone for video communication to desk

Electrical
- fire alarm annunciator panel
- audio/visual phone in lobby

1.02 Lobby — 240 s.f.

General
- design should reflect an environment of service to the community; should feel welcoming, professional and open

Security
- free access with emergency lockdown provisions
- proximity access control to secure areas
- remote release of doors from Desk Officer
- ballistic protection in walls interfacing staff areas
- audio/video monitoring

Furniture
4 waiting chairs

Casework and built-ins
1 large pamphlet/form rack for community information
- prescription drug and needles/sharps drop off

Display
2 flat panel information monitor
2 display cases for small historic artifacts

Mechanical
- do not recirculate air into staff areas

Plumbing
1 drinking fountain (accessible)

1.03 Public Interview/Meeting Room — 120 s.f.

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Police Headquarters

New Programmed Area Name	Program Area

Public Interview/Meeting Room - continued

Security
- proximity access control
- ballistic protection in walls interfacing staff areas
- panic device
- audio / visual monitoring

Furniture
1 table w/ four chairs

Equipment
1 computer & monitor for community meetings

1.04 Unisex Restroom x 2 — 140 s.f.

Plumbing
1 water closet
1 sink
1 floor drain with trap primer

Equipment
- toilet accessories as required
- mirrors at sinks
- changing station

Security
- ballistic protection in walls interfacing staff areas
- avoid concealed areas within room or above ceiling

2 . Community, Training & EOC

2.01 Training Room — 680 s.f.

Occupants 20

General
- will be utilized for community events, internal department training, city meetings and as an Emergency Operations Center, if enacted.
- space should be flexible in order to accommodate in-person, hybrid, and fully virtual meetings with appropriate audio visual capabilities
- considerations and accommodations for broadcasting and press briefings

Acoustics
- partitions to extend to underside of structure
- sound batt insulation in stud partitions

Police Headquarters

New Programmed Area Name	Program Area

Training Room- continued

Furniture
10 2'x6' tables with chairs
1 "smart" podium

Casework and Built-ins
12 lineal feet base cabinets with counter

Equipment
1 wall telephone

Display
1 4' x 8' marker board
4 flat panel monitors, multiple each side of the room
2 4'x4' tack boards
2 short throw projector
- writeable/projectable wall covering at presentation wall

Plumbing
- sink in counter

Electrical
- connectivity for portable dispatch
- connectivity for cable access TV
- tel/data floor boxes for tables
- several levels of lighting control
- dispatch radio speakers (with volume control) through PA system

Special Design Considerations
- direct access to public lobby & to secure staff corridor

Security
- proximity access control
- interlock to switch control point
- ballistic protection in walls interfacing staff areas
- ballistic resistant glazing

2.02 EOC Supply Storage — 20 s.f.

Furniture
2 24" x 36" x 72" metal shelving

Security
- standard commercial lockset

2.03 Training Storage — 20 s.f.

General
- CPR, Defense Tactics Equipment

Furniture
4 24" x 36" x 72" metal shelving

Police Headquarters

New Programmed Area Name	Program Area

Training Storage-continued

Security
- standard commercial lockset

2.04 Furniture Storage — 80 s.f.

General
- space for stacked chairs and tables

Security
- standard commercial lockset

3 . Reception and Back-up Dispatch

3.01 Reception and Back-up Dispatch — 150 s.f.

General
- this space will serve as the main public reception point
- security monitoring capabilities

Casework and built-ins
8 lineal foot service counter at windows
8 lineal foot counter for back-up dispatch equipment

Furniture
1 "U" workstation with chair
1 chair at dispatch counter

Equipment
- display monitors above service window

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Security
- proximity access control
- ballistic protection in walls interfacing public areas

1 ballistic service windows to lobby w/ natural voice transmission

- ballistic deal tray to lobby

3.02 Supply/Storage Closet — 12 s.f.

Casework and Built-ins
- five tier x 4' wall shelving on standards

Police Headquarters

New Programmed Area Name	Program Area

4 . Records Office

4.01 Records Office — 180 s.f.

Furniture
- chair at service counter
1 "L" workstation w/ chair
3 four drawer lateral file cabinets

Casework and Built-ins
9 lineal feet service counter at window
6 lineal feet form cubbies (over base cabinet)

Equipment
1 telephones - one at front counter
2 computers - one at front counter

Security
- proximity access control to staff
- ballistic protection in walls interfacing public areas
- ballistic service windows to lobby w/ natural voice transmission, rolling shutter to close off after hours
- ballistic deal tray to lobby

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

4.02 Reprographics Area — 20 s.f.

Furniture
- 3' x 2' x 6' paper storage cabinet

Equipment
1 large multi-function device
1 paper shredder

4.03 Records Archive Room — 100 s.f.

Furniture
8 24" x 36" x 72" five tier metal shelving units

Security
- proximity access control

5 . IT

5.01 IT Server & Communications Equipment Room — 100 s.f.

Casework and Built-ins
4 lineal feet of open counter

Police Headquarters

New Programmed Area Name	Program Area

IT Server & Communications Equipment Room - continued

Equipment
- 3 electronic equipment racks
- 20 lineal feet of 8' high plywood backboard
- 1 telephone
- cable tray over racks

Mechanical
- dedicated cooling units sized per actual equipment demand

Electrical
- all systems on ups and emergency generator
- 4 4" conduit to antenna/microwave
- 2 future 4"conduit to roof

Fire Protection
- chemical fire suppression system

Security
- proximity access control
- 2 hour fire rating
- partitions to extend to underside of structure
- sound batt insulation in stud partitions
- verify sound attenuation will mitigate equipment noise

Comments/Adjacencies
- Reception and Back-up Dispatch

6 . Patrol Facilities

6.01 Report Preparation/Roll Call — 220 s.f.

Design Considerations:
- Used for report writingand roll call

Furniture
- 3 6' computer workstations - spaced out

Casework and Built-ins
- 5 lineal feet of four form cubbies
- 10 lineal feet base cabinets with countertop

Equipment
- multifunction device
- 3 telephones
- 3 computers

Display
- 1 roll call monitor
- 1 4' x 4' marker board

Police Headquarters

New Programmed Area Name	Program Area

6.02 Patrol Equipment (Quartermaster) — 50 s.f.

General
- daily Patrol equipment storage and distribution

Casework and Built-ins
12 lineal feet of five tier open shelving

Electrical
- power for all rechargeable equipment

Security
- proximity access control

6.03 Weapons Cleaning — 20 s.f.

Furniture
1 six foot stainless steel workbench
1 3' x 2' x 6' supply storage cabinet

Equipment
- weapons clearing trap

Mechanical
- exhaust for cleaning fluid

Security
- none

6.04 Department Armory — 40 s.f.

General
3 long guns
6 spare hand guns

Furniture
4 24" x 36" x 72" - five tier metal shelving
6 lineal feet of long gun rack with handgun shelving above
- ammunition storage - 2,000 rounds

Security
- proximity access control
- video survailance

Comments/Adjacencies
- proximate to Firearms Training Range & Armorer's Room

Police Headquarters

New Programmed Area Name	Program Area

7 . Department Administration

7.01 Chief's Office — 175 s.f.

Furniture
- 1 executive desk w/ two visitor chairs
- 1 credenza
- 3 two drawer lateral file cabinets

Casework and Built-ins
- 9 lf open countertop (over files)
- 12 lf wall shelving (over files)

Equipment
- 1 computer (@ workstation)
- 1 printer (@ workstation)
- 1 telephone (@ workstation)
- 1 tv monitor
- 1 body worn camera station

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Security
- standard commercial lockset

Accessory Areas
- coat closet

7.02 Conference Room — 240 s.f.

Furniture
- 1 conference table with 6 chairs
- 1 credenza

Equipment
- 1 telephone
- 1 laptop/projection provision at table
- 1 flat panel monitor
- 1 floor box under table to monitor
- 1 polycom

Acoustics
- partitions to extend to underside of structure
- sound batt insulation in stud partitions

Security
- standard commercial lockset

Police Headquarters

New Programmed Area Name	Program Area

7.03 Lieutenant's Office — 160 s.f.

Furniture
- 1 "U" workstation w/ two visitor chairs
- 2 two-drawer lateral file cabinets

Casework and Built-ins
- 6 lineal feet of open countertop (over files)
- 12 lineal feet of wall shelving (over files)

Equipment
- 1 computer (@ workstation)
- 1 telephone (@ workstation)

Security
- standard commercial lockset

Accessory Area
- coat closet

7.04 Sergeant's Office — 220 s.f.

Furniture
- 2 "L" workstation with visitor chair
- 4 three drawer lateral file cabinets

Casework and Built-ins
- 12 lf open countertop (over files)
- 24 lf wall shelving (over files)

Equipment
- 2 computer (@ workstation)
- 1 printer (@ counter)
- 2 telephone (@ workstation)

Security
- standard commercial lockset

8 . Staff Facilities

8.01 Male Restroom/Shower — 180 s.f.

Casework and Built-ins
- 6 lf open countertop
- 4 lf bench

Plumbing
- 1 hc toilet stall
- 1 urinals
- 1 Sink
- 1 Shower

Police Headquarters

New Programmed Area Name	Program Area

Male Restroom/Shower - continued

Security
- standard commercial push/pull

8.02 Male Locker Room — 220 s.f.

Equipment
11 2' x 2.5' x 6' lockers, vented with quad power
3 20% space for future lockers
1 3' wet gear rack
1 shoe shine station
1 clearing trap

Security
- standard commercial push/pull

8.03 Female Restroom/Shower — 180 s.f.

Casework and Built-ins
4 lf open countertop
3 lf bench

Plumbing
1 hc toilet stall
1 sink
1 shower

Security
- standard commercial push/pull

8.04 Female Locker Room — 100 s.f.

Equipment
4 2 'x 2.5' x 6' lockers, vented with quad power
1 20% space for future lockers
1 2' wet gear rack
1 shoe shine station
1 clearing trap

Security
- standard commercial push/pull

8.05 Officer Wellness/Physical Fitness Center — 400 s.f.

General
- access to natural daylight
- free floor space

Casework and Built-ins
- storage for medicine balls
- towel storage

Police Headquarters

New Programmed Area Name	Program Area

Officer Wellness/Physical Fitness Center - continued

Equipment
- incline, decline & flat benches
- bike
- stair climber
1 treadmill
- universal machine
- pull-up bar
- high wall mounted TV
- music
- mats

Special
- recycled rubber floor
- mirrors full height one wall
- handrails
- window to hall
- solid blocking in all walls

Mechanical
- dedicated exhaust and AC unit
- overhead fan

Electrical
- sound system/paging capabilities
- two-way radio/speakers/telephone

Acoustics
- sound batt insul. in stud partitions

Security
- standard commercial lockset

Comments/Adjacencies
- proximate to Male & Female Locker Rooms

8.06 Break Area — 250 s.f.

Furniture
1 table for six people

Casework and Built-ins
12 lf of base and upper cabinets

Equipment
1 refrigerator
1 microwave
1 coffee machine (provision)
- four burner cook top
- television monitor
- trash/recycling

Police Headquarters

New Programmed Area Name	Program Area

Break Area - continued

Mechanical
1 residential style ventilation hood for cook top

Plumbing
1 double bowl sink

Comments/Adjacencies
- proximate to exterior patio area

8.07 Miscellaneous Toilet — 70 s.f.

Plumbing
1 water closet
1 sink
1 floor drain with trap primer

Equipment
- toilet accessories as required
- mirrors at sinks

9 . Property and Evidence

9.01 Evidence Receiving — 30 s.f.

Furniture
1 computer station w/printer

Casework and Built-ins
3 lineal feet of base cabinet for storage of packaging materials
1 lineal feet of 6 - tier form cubbies

Equipment
1 pass thru locker unit
1 refrigerated pass thru (in units above)

Security
- cctv monitoring

9.02 Evidence Storage — 220 s.f.

Furniture
2 24" x 36" x 72" metal shelving
80 lineal feet of high - density, 6 - tier evidence storage system

Equipment
1 refrigerator
1 2' x 3' x 6' locking metal drug cabinet
1 valuables safe

Police Headquarters

New Programmed Area Name	Program Area

Evidence Storage - continued

Security
- proximity access control w/ "pin" keypad
- cctv monitoring

9.03 Bulk Evidence/Found Property — 100 s.f.

General
1 double door to exterior

Furniture
6 24" x 36" x 72" five-tier metal shelving

Security
- double door with proximity access control
- cctv monitoring

10 . Prisoner Processing

10.01 Sally Port (2-cruiser deep) — 720 s.f.

General
2 12' x 12' overhead doors for each bay
1 man door
- bay long enough for an ambulance (doors open with stretcher)

Plumbing
1 eye wash/emergency shower
1 floor drain per bay

Security
- interlock all doors for one at a time operation
- cctv monitoring of interior and approach
- audio monitoring within sally port
- proximity access control in/out to Pris. Proc.

10.02 Cruiser Supply — 20 s.f.

Furniture
2 18" x 36" x 72" five tier metal shelving

Security
- proximity access control

10.03 Officer Decontamination — 65 s.f.

Furniture
- 24" x 36" x 72" metal supply cabinet
- 36" bench

Police Headquarters

New Programmed Area Name	Program Area

Officer Decontamination - continued

Plumbing
- 1 hc shower stall
- 1 boot wash
- 1 slop sink

Comments/Adjacencies
- proximate to sallyport

10.04 Processing Area — 240 s.f.

Casework and Built-ins
- 1 booking control workstation and booking bench

Equipment
- 1 automated fingerprint machine
- 1 telephone with two handsets for language line services
- 1 computer (@ workstation)
- 4 property lockers - two large enough for guitars/backpacks
- 1 mug shot camera on mount (@ workstation)
- static gray back drop (to match registry of motor vehicles) w/ height markers

Security
- proximity access control & keypad
- cctv monitoring of all areas with audio
- panic devices throughout
- prisoner release exit
- weapons locker outside all entrances

10.05 Intoxilyzer Area — 20 s.f.

Casework and Built-ins
- 6 lineal feet base cabinet w/ epoxy resin countertop
- 1 booking bench w/ cuff rail

Electrical
- 1 tel/data for intoxilyzer

10.06 Custodial Closet — 20 s.f.

Plumbing
- 1 mop sink

Equipment
- 1 mop rack

Security
- high security lockset

Police Headquarters

New Programmed Area Name	Program Area

10.07 Interview Room — 100 s.f.

General
- provide man trap/vestibule near prisoner release exit

Furniture
1 fixed table w/ two chairs

Electrical
1 light switch w/ "in use" light
1 panic device

Equipment
1 phone discreetly located
1 all-in-one camera/microphone/speaker for virtual arraignment

Acoustics
- partitions to extend to underside of structure
- acoustic wall panels on one wall

Security
- proximity access control in and out
- discreet CCTV audio and video surveillance w/ local control

11 . Detention Facilities

11.01 Standard Adult Cell Block x 1 — 120 s.f.

General
- sight, sound separated individual cell block with passage

Casework and Built-ins
1 32" x 72" x 18" concrete bunk

Plumbing
1 detention combination fixture

Electrical
1 detention grade light fixtures

Security
- minimum 10' high ceilings
- detention grade sliding door hardware
- audio/video surveillance
- tamper resistant hvac grills - 1/8" holes maximum

11.02 HC Accessible Juvenile Unisex Cell x 1 — 150 s.f.

General
- sight, sound separated individual accessible cell block with passage

Casework and Built-ins
1 32" x 17" x 18" concrete bunk

Police Headquarters

New Programmed Area Name	Program Area

HC Accessible Juvenile Unisex Cell x 1 - continued

Plumbing
1 detention combination fixture

Electrical
1 detention grade light fixtures

Security
- minimum 10' high ceilings
- detention grade sliding door hardware
- audio/video surveillance

12 . De-escalation and Firearms Training

12.01 Fire Arms Training Simulator — 750 s.f.

Furniture
1 table with two chairs for simulator equipment
2 metal storage cabinets

Acoustics
- extend all walls to deck above, fill with sound batt
- sound absorbing panels on rear wall

Equipment
- firearms simulator including computer, screen, hit detector, etc.
  - Milo Theater 300 of eq. (3 screen - back projected system)
  - Minimum room dimensions = 27x23'

1 weapons storage locker
1 pistol locker outside room, 4 door

Security
- standard commercial lockset

13 . Storage and Maintenance

13.01 General Storage — 100 s.f.

Furniture
8 24" x 36" x 72" five-tier metal shelving

13.02 Outdoor Seasonal Storage — 65 s.f.

General
- outdoor equipment, snow blower, plow, lawn mower, etc.
- salt and sand storage, plow, etc.

Furniture
1 8'x 8' overhead door

Police Headquarters

New Programmed Area Name	Program Area

14 . Building Services

14.01 Custodial Closet — 25 s.f.

Plumbing
1 mop sink

Equipment
1 mop rack

Security
- standard commercial lockset

14.02 Mechanical Room — 300 s.f.

- confirm size with system selection

Security
- standard commercial lockset

14.03 Air Handling Equipment Room — TBD s.f.

- Use attic or roof top

14.04 Electrical Room — 60 s.f.

- confirm size with system selection

Security
- standard commercial lockset

14.05 Emergency Electrical Room — 40 s.f.

- confirm size with system selection

Security
- standard commercial lockset
- 2-hour fire rated construction

Police Headquarters

	New Programmed Area Name	Quantity		Programmed Area	
S.1	**Building Area**				
	Main Building Footprint	**1**	**story**	9,880	s.f.
	Future Building Growth (25% of foot print area)			2,500	s.f.
	Subtotal:			12,380	s.f.
S.2	**Parking Area**				
	Visitor Parking	**12**	**spaces**	1,980	s.f.
	Visitor Handicapped Parking	1	spaces	270	s.f.
	Staff Parking	**8**	**spaces**	1,320	s.f.
	Staff Handicapped Parking	1	spaces	270	s.f.
	Covered Cruiser Parking (Carport)	**8**	**spaces**	1,800	s.f.
	Impound Lot	2	spaces	650	s.f.
	Travel Lane Allowance			5,300	s.f.
	Subtotal:			11,590	s.f.
S.3	**Site Utilities**				
	Electrical Transformers			100	s.f.
	Emergency Generator			1,000	s.f.
	AC Equipment			400	s.f.
	Dumpsters			240	s.f.
	Storm Water Retention			2,400	s.f.
	Subtotal:			4,140	s.f.
S.4	**Site Amenities**				
	Subtotal:			0	s.f.
S.5	**Setbacks and Green Space**				
	Green space			11,000	s.f.
	Setbacks			8,900	s.f.
	Subtotal:			19,900	s.f.
	Summation				
	Minimum useable site area			48,010	s.f.
	Minimum useable site acreage			**1.1**	**ac.**

Town Offices

New Programmed Area Name	Program Area

1 . Public

1.01 Vestibule — 100 s.f.

Security
- free access from exterior

Electrical
- fire alarm annunciator panel

1.02 Lobby — 300 s.f.

Furniture
8 waiting chairs

Casework and built-ins
1 large pamphlet/form rack for community information

Display
2 flat panel information monitor
2 display cases for small historic artifacts

Mechanical
- do not recirculate air into staff areas

Plumbing
1 drinking fountain (accessible)

1.03 Public Male Restroom — 180 s.f.

Casework and Built-ins
6 lineal feet open countertop

Plumbing
1 hc toilet stall
2 urinals
2 sink

Security
- standard commercial push/pull

1.04 Public Female Restroom — 180 s.f.

Casework and Built-ins
6 lf open countertop

Plumbing
1 hc toilet stall
2 toilet stalls
2 sink

Security
- standard commercial push/pull

Town Offices

New Programmed Area Name	Program Area

2 . Shared Meeting Facilities

2.01 Meeting Room — 200 s.f.

Furniture
- 1 conference table with 6 chairs
- 1 credenza

Equipment
- 1 telephone
- 1 laptop/projection provision at table
- 1 flat panel monitor
- 1 floor box under table to monitor
- 1 polycom

Acoustics
- partitions to extend to underside of structure
- sound batt insulation in stud partitions

Security
- standard commercial lockset

2.02 Conference Room — 260 s.f.

Furniture
- 1 conference table with 10 chairs
- 1 credenza

Equipment
- 1 telephone
- 1 laptop/projection provision at table
- 1 flat panel monitor
- 1 floor box under table to monitor
- 1 polycom

Acoustics
- partitions to extend to underside of structure
- sound batt insulation in stud partitions

Security
- standard commercial lockset

2.03 Executive Conference Room — 280 s.f.

Furniture
- 1 conference table with 12 chairs
- 1 credenza

Town Offices

New Programmed Area Name	Program Area

Executive Conference Room - continued

Equipment

1 telephone
1 laptop/projection provision at table
1 flat panel monitor
1 floor box under table to monitor
1 polycom

Acoustics

- partitions to extend to underside of structure
- sound batt insulation in stud partitions

Security

- standard commercial lockset

2.04 Board Meeting Room (sub-dividable) 2000 s.f.

Occupants 60

General

- one large room with a movable partition to divide for simultaneous Board meetings, or to open up for larger meetings
- space should be flexible in order to accommodate in-person, hybrid, and fully virtual meetings with appropriate audio visual capabilities
- arrange each side for optimal viewing of presentations by both board and audience

Acoustics

- high NRC movable partition
- sound amplification system
- partitions to extend to underside of structure
- sound batt insulation in stud partitions

Furniture

2 board tables with seating for five (mobile)
60 audience chairs (20 per side when partition closed, 60 when open)
2 "smart" podium

Equipment

2 wall telephone (one each side of partition)

Display

2 short throw projectors
2 retractable projection screens

Town Offices

New Programmed Area Name	Program Area

Board Meeting Room (sub-dividable) - continued

Electrical
- connectivity for cable access TV
- tel/data floor boxes for tables
- several levels of lighting control

Required Adjacency
- directly adjacent to executive conference room

2.05 Furniture Storage **180 s.f.**

General
- space for stacked chairs and tables

Security
- standard commercial lockset

2.06 AV Equipment **20 s.f.**

Equipment
1 electronic equipment rack
1 telephone

Security
- proximity access control

3 . Board of Selectmen and Town Administration

3.01 Administrative Assistant **170 s.f.**

Furniture
1 "U" workstation with chair
4 four drawer lateral files
2 visitor's chairs
1 storage credenza

Casework and built-ins
14 lineal foot counter over files
14 lineal foot wall shelving over counter above

Equipment
1 computer (@ workstation)
1 printer (@ workstation)
1 telephone (@ workstation)

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Security
- standard commercial lockset

Town Offices

New Programmed Area Name	Program Area

3.02 Supply/Storage Closet — 30 s.f.

Casework and Built-ins
- five tier x 4' wall shelving on standards
- space for portable projection screens

3.03 Town Administrator's Office — 175 s.f.

Furniture
1 executive desk w/ two visitor chairs
1 credenza
3 two drawer lateral file cabinets

Casework and Built-ins
9 lf open countertop (over files)
18 lf wall shelving (over files)
1 wardrobe cabinet

Equipment
1 computer (@ workstation)
1 printer (@ workstation)
1 telephone (@ workstation)
1 tv monitor
1 body worn camera station

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Security
- standard commercial lockset

Required Adjacency
- directly adjacent to executive conference room

4 . Town Accountant

4.01 Town Accountant's Office — 245 s.f.

Furniture
1 "U" workstation with chair
6 four drawer lateral files
2 visitor's chairs
1 6' benching station

Casework and built-ins
21 lineal foot counter over files
14 lineal foot wall shelving over counter above

Town Offices

New Programmed Area Name	Program Area

Town Accountant's Office - continued

Equipment
- 2 computer (@ workstation and benching station)
- 1 printer (@ workstation)
- 2 telephone (@ workstation and benching station)

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Security
- standard commercial lockset

5 . Treasurer and Tax Collector

5.01 Treasurer's and Tax Collector's Office — 680 s.f.

Furniture
- 4 "U" workstations with chairs
- 4 three drawer lateral files

Casework and built-ins
- 1 20' transaction counter with storage cabinets, knee space, two file cabinets below
- service window to corridor
- 12 lineal feet of counter over two drawer files

Equipment
- 5 computer (@ workstations and transaction counter)
- 5 telephone (@ workstations and transaction counter)
- 1 free standing multi-function device
- 1 paper shredder
- 1 typewriter with stand (verify)
- 1 floor safe

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Security
- standard commercial lockset

5.02 File/Storage Area — 300 s.f.

Casework and built-ins
- 4' x 30' high density file system
- 12 lineal feet of five tier 2' deep wall shelving
- 1 large floor safe

Town Offices

New Programmed Area Name	Program Area

File/Storage Area - Continued

Security
- no door required

6 . Multi-Department Shared Office: Building, Planning, Conservation and Assessor's

6.01 Shared Office — 720 s.f.

Furniture
- 6 "U" workstations with chairs
- worktable with four chairs
- 6 two drawer lateral files
- 1 flat file

Casework and built-ins
- 1 12' transaction counter with storage cabinets, knee space below
- service window to corridor
- 12 lineal feet of three-tier shelving with counter over
- 12 lineal feet open countertop (over files)
- 2' x 5' x 6' wardrobe cabinet

Equipment
- 7 computer (@ workstations and transaction counter)
- 7 telephone (@ workstations and transaction counter)
- 1 multi-function device
- 1 free standing multi-function device
- 1 paper shredder

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Security
- standard commercial lockset

6.02 File Storage Room — 360 s.f.

Casework and built-ins
- 6' x 30' high density file system
- 36" x 72" x 72" rolled drawing storage rack
- 12 lineal feet of five tier 2' deep wall shelving

Security
- no door required

Town Offices

New Programmed Area Name	Program Area

7 . Town Clerk

7.01 Town Clerk's Office — 680 s.f.

Furniture
- 3 "U" workstations with chairs
- 5 four drawer file cabinets

Casework and built-ins
- 1 6' transaction counter with storage cabinets, knee space below
- • service window to corridor
- 16 lineal feet of two tier shelving with counter over

Equipment
- 3 computer (@ workstations)
- 3 telephone (@ workstations)
- 1 free standing multi-function device
- 1 printer
- 2 large floor safe

Acoustics
- • partitions to extend to underside of structure
- • sound batt insul. in stud partitions

Security
- • standard commercial lockset

7.02 Library — 100 s.f.

Casework and Built-ins
- 20 lineal feet of 18" deep six-tier book shelving

Security
- • no door required

7.03 Storage Closet — 20 s.f.

Furniture
- 6 lineal feet of five tier 2' deep wall shelving

Security
- • standard commercial lockset

8 . Board of Health

8.01 Board of Health Office — 280 s.f.

Furniture
- 1 "U" workstations with chairs
- 8 four drawer lateral files

Town Offices

New Programmed Area Name	Program Area

Board of Health Office - continued

Casework and built-ins
- 1 8' transaction counter with storage cabinets, knee space below
- • service window to corridor
- 1 2' x 3' x 6' storage cabinet
- 10 lineal feet of two-tier shelving with counter on top

Equipment
- 2 computer (@ workstation and benching station)
- 2 telephone (@ workstation and benching station)
- 1 multi-function device at workstation
- 1 paper shredder

Acoustics
- • partitions to extend to underside of structure
- • sound batt insul. in stud partitions

Security
- • standard commercial lockset

8.02 Storage Closet 20 s.f.

Furniture
- 6 lineal feet of five tier 2' deep wall shelving

Security
- • standard commercial lockset

9 . Multi-Department Shared Office: Historic Commission, Veterans, CemetaryCommission, Parks & Rec.

9.01 Shared Office 625 s.f.

Furniture
- 6 "L" workstations with chairs
- 6 visitors chairs
- 12 four drawer lateral files

Casework and Built-ins
- 6 lineal feet five-tier wall shelving

Equipment
- 6 computer (@ workstation)
- 6 telephone (@ workstation)
- 1 multi-function device

Acoustics
- • partitions to extend to underside of structure
- • sound batt insul. in stud partitions

Town Offices

New Programmed Area Name	Program Area

Shared Office - continued

Security
- standard commercial lockset

9.02 Storage Room — 150 s.f.

Casework and Built-ins
30 lineal feet, five-tier, 24" deep wall shelving

Security
- standard commercial lockset

10 . Sewer Department

10.01 Sewer Department Office — 240 s.f.

Furniture
1 "U" workstation with chair
2 visitor's chairs
6 four drawer lateral files

Equipment
1 telephone
1 computer

Acoustics
- partitions to extend to underside of structure
- sound batt insulation in stud partitions

Security
- standard commercial lockset

11 . Multi-department Shared Office - Animal Control, Parking Clerk

11.01 Shared Office — 255 s.f.

Furniture
2 "L" workstation with chair
2 visitor's chairs
4 two drawer lateral files

Casework and Built-ins
6 lineal feet open countertop (over files)
- 2' x 3' x 6' wardrobe cabinet

12 lineal feet wall shelving (two rows over files)

Equipment
2 telephone
2 computer

Town Offices

New Programmed Area Name	Program Area

Shared Office - continued

Acoustics
- partitions to extend to underside of structure
- sound batt insulation in stud partitions

Security
- standard commercial lockset

11.02 Storage Room — 80 s.f.

Casework and Built-ins
15 lineal feet, five-tier, 24" deep wall shelving

Security
- standard commercial lockset

12 . Cable Access Television

12.01 CATV Studio — 400 s.f.

Furniture
3 L" workstations with chairs
2 mixing workstations
1 worktable with four chairs

Casework and Built-ins
6 lineal feet open countertop (over files)
3 2' x 3' x 6' storae cabinets
12 lineal feet wall shelving (two rows over files)

Equipment
3 telephone
3 computer

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Security
- standard commercial push/pull

12.02 Storage Room — 80 s.f.

Casework and Built-ins
15 lineal feet, five-tier, 24" deep wall shelving

Security
- standard commercial lockset

Town Offices

New Programmed Area Name	Program Area

13 . Office Support Facilities

13.01 Copy/Mail Room — 30 s.f.

Casework and Built-ins
10 lineal feet base cabinets with countertop
20 mail cubbies

Equipment
1 telephone
1 shredder
1 free standing multifunction device

Acoustics
- partitions to extend to underside of structure
- sound batt insul. in stud partitions

Security
- standard commercial push/pull

13.02 Archive Storage — 320 s.f.

Casework and Built-ins
40 lineal feet, five-tier, 24" deep wall shelving
28 lineal feet of 24", five tier free standing shelving

Security
- standard commercial lockset

14 . Staff Facilities

14.01 Male Restroom — 180 s.f.

Casework and Built-ins
6 lineal feet open countertop

Plumbing
1 hc toilet stall
2 urinals
2 sink

Security
- standard commercial push/pull

14.02 Female Restroom — 180 s.f.

Casework and Built-ins
6 lf open countertop

Plumbing
1 hc toilet stall
2 toilet stalls
2 sink

Town Offices

New Programmed Area Name	Program Area

Female Restroom - continued

Security
- standard commercial push/pull

14.03 Break Area — 265 s.f.

Furniture
1 table for six people

Casework and Built-ins
12 lf of base and upper cabinets

Equipment
1 refrigerator
1 microwave
1 coffee machine (provision)
- four burner cook top
- roll call monitor
- television monitor
- trash/recycling

Mechanical
1 residential style ventilation hood for cook top

Plumbing
1 double bowl sink

15 . Custodian

15.01 Custodian's Office — 100 s.f.

Furniture
1 "L" workstation with chair
2 two drawer lateral files

Casework and Built-ins
6 lineal feet open countertop (over files)
12 lineal feet wall shelving (two rows over files)

Equipment
1 telephone
1 computer

Security
- standard commercial push/pull

15.02 Custodial Closet x2 — 50 s.f.

Plumbing
1 mop sink

Equipment
1 mop rack

Town Offices

New Programmed Area Name	Program Area

Custodial Closet - continued

Security
- standard commercial lockset

16 . Storage and Maintenance

16.01 General Storage — 500 s.f.

Furniture
48 lineal feet of free standing 24", five-tier shelving

16.02 Voting Storage — 200 s.f.

Furniture
48 lineal feet of free standing 24", five-tier shelving

16.03 Outdoor Seasonal Storage — 120 s.f.

General
- outdoor equipment, snow blower, plow, lawn mower, etc.
- salt and sand storage, plow, etc.

1 8'x 8' overhead door

17 . Building Services

17.01 Mechanical Room — 500 s.f.

- confirm size with system selection

Security
- standard commercial lockset

17.02 Air Handling Equipment Room — TBD s.f.

- Use attic or roof top

17.03 Electrical Room — 100 s.f.

- confirm size with system selection

Security
- standard commercial lockset

Town Offices

New Programmed Area Name		Quantity		Programmed Area	
S.1	**Building Area**				
	Main Building Footprint	**1**	**story**	15,430	s.f.
	Future Building Growth (25% of foot print area)			3,900	s.f.
	Subtotal:			19,330	s.f.
S.2	**Parking Area**				
	Visitor Parking	**12**	**spaces**	1,980	s.f.
	Visitor Handicapped Parking	1	spaces	270	s.f.
	Staff Parking	**28**	**spaces**	4,620	s.f.
	Staff Handicapped Parking	1	spaces	270	s.f.
	Travel Lane Allowance			7,000	s.f.
	Subtotal:			14,140	s.f.
S.3	**Site Utilities**				
	Electrical Transformers			100	s.f.
	Emergency Generator			1,000	s.f.
	AC Equipment			400	s.f.
	Dumpsters			240	s.f.
	Storm Water Retention			3,400	s.f.
	Subtotal:			5,140	s.f.
S.4	**Site Amenities**				
	Subtotal:			0	s.f.
S.5	**Setbacks and Green Space**				
	Green space			14,500	s.f.
	Setbacks			10,100	s.f.
	Subtotal:			24,600	s.f.
	Summation				
	Minimum useable site area			63,210	s.f.
	Minimum useable site acreage			**1.45**	**ac.**

Public Safety Facility [Police + Fire + Town]

	New Programmed Area Name	Quantity	Programmed Area	
S.1	**Building Area**			
	Building Footprint	**2 story**	25,120	s.f.
	Future Building Growth (25% of programmed area)		6,280	s.f.
	Subtotal:		31,400	s.f.
S.2	**Parking Area**			
	Visitor Parking	**52 spaces**	8,580	s.f.
	Visitor Handicapped Parking	3 spaces	810	s.f.
	Staff Parking	**46 spaces**	7,590	s.f.
	Staff Handicapped Parking	1 spaces	270	s.f.
	Covered Cruiser Parking (Carport)	**8 spaces**	1,800	s.f.
	Impound Lot	2 spaces	650	s.f.
	Travel Lane Allowance		18,500	s.f.
	Apron Allowance	10 doors	9,000	s.f.
	Subtotal:		47,200	s.f.
S.3	**Site Utilities**			
	Electrical Transformers		100	s.f.
	Emergency Generator		1000	s.f.
	AC Equipment		400	s.f.
	Dumpsters		240	s.f.
	Storm Water Retention		7,900	s.f.
	Subtotal:		9,640	s.f.
S.4	**Site Amenities**			
	Outdoor Patio		200	s.f.
	Subtotal:		200	s.f.
S.5	**Setbacks and Green Space**			
	Green space		44,200	s.f.
	Setbacks		17,200	s.f.
	Subtotal:		61,400	s.f.
	Summation			
	Minimum useable site area		149,800	s.f.
	Minimum useable site acreage		**3.44**	**ac.**

Tecton
ARCHITECTS

BETTER BY DESIGN

34 SEQUASSEN STREET SUITE 200, HARTFORD, CT 06106 | 860.548.0802
317 IRON HORSE WAY, SUITE 101, PROVIDENCE, RI, 02908 | 401. 596.7555
TECTONARCHITECTS.COM