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TOWN OF CHESTER
POLICE DEPARTMENT ADDITION/RENOVATION
Chester, New Hampshire
PROJECT #18539

November 21, 2019

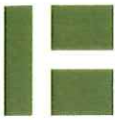
Schematic Design Narrative and Drawings





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CHESTER POLICE DEPARTMENT SCHEMATIC DESIGN NARRATIVE

INTRODUCTION

The Chester, NH Police Department hired Harriman to continue the work created in the Space Needs Analysis of its Police Department and complete Schematic Design of the proposed police department. Project scope is based on a partial renovation of the existing Chester Town Hall complex, referred to as 'The Annex' and new construction connected to the existing complex.

Major goals of the design include providing appropriate space for the police department to operate, improving conditions of office and specialized works areas, creating better separation between the Town Hall functions and the police department, improving site circulation and parking, and making the Chester Police Department entry visible from Chester Street.

Information describing the major building systems and materials as well as building layout and design are included in the Schematic Design submission.



CHESTER POLICE DEPARTMENT SCHEMATIC DESIGN NARRATIVE

CIVIL ENGINEERING

Summary

This project at the existing Chester Town Hall and Police Department includes the construction of a new police department building and sallyport, in addition to renovations for the existing Annex building. Various site modifications are also proposed, including near access drives, parking areas, walkways, landscaping, and others identified in the schematic design development documents and summarized in this narrative.

Existing Conditions

The existing site and buildings were formerly utilized as an elementary school for the Town of Chester, with latest site modifications occurring in 1975 (septic system upgrades). Currently, the buildings are utilized for various Town purposes (town hall, multi-purpose room, annex building), as well as the police department.

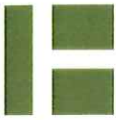
The majority of the parking is located to the east of the buildings, with some parallel parking available in front of the main entry within a paved loop and approximately six spaces (four ADA spaces) in front of the existing multi-purpose room. Circulation to enter into the main entry loop in the front of the building is only permitted from the western curb cut in front of the multi-purpose room. Additional circulation around the west of the building is available via a gravel drive, which leads to a paved parking lot in the back of the site. In general, the paved areas are in various states of disrepair, with major cracking and differential settlement observed surrounding existing utility infrastructure (catch basins, manholes, etc.).

The site has a large clearing behind the building, which consists of grass and gently slopes to the north. The field appears like it may be utilized for field recreational activities.

Proposed Development

Proposed development of the site to accommodate the expansion of the existing building consists of the following:

- Addition of approximately 11,500 sq. ft. to house the majority of the police station space program;
- Renovation of approximately 1,800 sq. ft. of the interior of the Annex to house the balance of the police station program;
- Renovation to the exterior and roof of the Annex in order to extend the life of the Annex building;
- Additional parking areas and circulation to the back of the buildings, including installation of curbing;
- Reconstructed pavement areas where necessary to properly promote drainage and utilize existing infrastructure;



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- General site grading activities, including the construction of retaining walls and fencing as necessary to maintain existing finished floor elevations throughout the existing and proposed buildings;
- Construction of stormwater management infrastructure, including detention basins, catch basins, drywells, etc.; and
- Planting of trees, landscaping, and vegetated areas for green spaces within the newly developed areas.

Additional utility infrastructure will also likely be necessary, including lighting for the new parking lot areas. These improvements will be developed as the design moves into subsequent phases.

Permitting

Site improvements will result in a significant amount of impervious area and will likely trigger the need for an Alteration of Terrain (AOT) permit through the New Hampshire Department of Environmental Services (NHDES). It is unclear what level of stormwater permitting has been completed to date, and Harriman will need to work with the NHDES to understand what, if anything, has been permitted through the state agency.

In addition, these changes will require local permitting through the planning department. Additional permits through the Town, or otherwise, will also be explored as design moves into subsequent phases.



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ARCHITECTURAL

Summary

The Chester, NH Police Department Schematic Design scope is based on a partial renovation of the existing Chester Town Hall complex and new construction connected to the existing complex. Renovation scope is limited to a 2,500 SF portion of the Annex building (980 SF major renovation and 1,520 SF of minor renovation) plus an 11,528 GSF connected single story addition and associated site work. The building will be framed in wood with wood truss roof framing. The goal of the new construction is to provide program square footage required to meet current operational needs as well as space for future growth expectations.

New Addition Construction Systems

The new addition is broken into several areas that have specific construction requirements for security and level of finish.

Exterior

The majority of the addition is 2x6 wood framing with mineral fiber panels below the window sill, a continuous sill element, and fiber cement clapboard siding. New construction is insulated with 3" mineral fiber boards around the entire perimeter with supplemental mineral fiber batts in stud cavities.

Attic framing for mechanical systems to be 380 SF wood framed space with floor framing and 2x4 stud walls to top of roof above the mechanical and server rooms.

Roof framing to be pre-fabricated wood trusses.

Roofing at sloped sections will be asphalt shingle and flat portions will be internally drained EPDM systems.

Openings to be fiberglass unit window and fiberglass storefront systems.

Interior

Typical interior partitions include 2x4 wood stud with 5/8" painted GPDW finish. Conference, Roll Call, and the 2 interview rooms are to include mineral fiber batts for sound attenuation and an additional layer of 5/8" GPDW on the interior face of partitions.

Typical ceilings include Fine Fissured style 2x4 lay in ACT systems. Lobby and Training Room/Community Meeting Room to have 2x2 9/16" tegular ACT system with a NRC rating at or above .70. Booking area ceilings to be constructed with 2x 5/8" abuse-resistant GPDW.

Typical flooring to be LVT in corridors and public spaces and carpet tile in offices and meeting rooms with 4" vinyl base. Booking area and Sallyport floors to be poured epoxy with integral base. Utility rooms to be sealed concrete. Evidence areas, locker rooms, and toilet rooms to be sheet linoleum with integral base and welded seams. Gym floor to be sports flooring. Lobby to be carpet tile walk-off matt.

The Lobby area (including public toilet and Soft Interview Room) and Training room/Community Meeting Room are considered non-secure spaces. A continuous line separating these spaces and the rest of the Police Department will include 8'-0" minimum of UL ballistic rated Level 3 panel installed between the stud and GPDW finish on the non-secure side of the partition.



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The Booking area: (790 GSF) is to be constructed of 8" CMU partitions, 2x 5/8" abuse-resistant GPDW ceilings, and penal-grade/anti-ligature fixtures and accessories.

The Sallyport: (2,230 GSF) is a high bay style utility area with lower grade of finish, exposed structure

Equipment to include 24" wide x 24" deep personal duty lockers as shown on plans. Lockers to have integral wood bench and boot drawer with plug and play power option.

The new construction area will be fully sprinkled. Water pressure has not been confirmed at this time.

Major Renovation Construction Systems

Major renovation areas in the Annex are focused on two single existing rooms that will be converted into a corridor and Evidence area and the Gym. To protect evidence, a new partition will be constructed that includes a heavy gage expanded metal lath, 2x4 wood stud framing, and 5/8" GPDW. This new partition will run continuously around the inside perimeter of the Evidence area. The Gym will receive new sports flooring, ACT ceiling, lighting, and wall paint.

Minor renovation include the corridor and service spaces on the secure police side of the Annex. These areas will be cleaned, painted, and new LVT flooring installed.

Renovation Alternate

The Annex will be completely renovated (in addition to the scope areas identified in the base bid:

- Building exterior upgrades to include
 - Structural upgrades to the roof system
 - Upgraded thermal insulation at roof and walls
 - New exterior siding to match Police Department
 - New fiberglass windows
 - New finishes to Annex to match typical interior finishes in Police Department.



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BUILDING - MECHANICAL

General Description

Building heating, cooling and ventilation loads will be calculated using Trace 700 V 6.2 and shall meet or exceed energy efficiency requirements in accordance with IMC for standard office spaces.

Exact equipment sizes, capacities, systems, energy performance, code compliance, etc. will be also be designed in compliance with:

IBC 2015

IMC 2015

NFPA 2015

Airside System

Two new modular air handling units (7,000 cfm each) will be provided in a new mechanical room located within the attic space. These units will consist of variable speed supply and return fans and will provide heating, cooling and ventilation to the building. The tempering of the air will be controlled within the air handling unit and the localized variable air volume boxes (VAV) boxes with hot water reheat. Heated air will be produced with a hot water heating coil. Cooled air will be first be provided with an air economizing cooling cycle and then by a VRF coil. The VRF coils will be connected to a condensing unit (~25 ton) mounted outdoor on a concrete pad. The distribution system will be with overhead ductwork and introduced into the spaces with VAV boxes.

Heating System

The buildings hot water system will be served by two condensing LP boilers. These boilers will operate at lower than the industry standard supply temperatures resulting in greater efficiencies. The boilers will be two 250MBH boilers sized at 60 percent of the load for redundancy. Each space will also be served with low temperature hot water baseboard radiation. The spaces are individually zoned to allow optimum occupant comfort control.

Cooling System

It is proposed to provide cooling to the air handlers via two 25-ton variable refrigerant flow (VRF) condensing units. These units will be piped directly to the air handler coils. These units will maximize energy efficiency with their ability to vary the compressor speed and to operate extremely well at part load conditions.



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FIRE PROTECTION

Summary

This project at the existing Chester Town Hall and Police Department includes the construction of a new police department building and sally port, in addition to renovations for the existing Annex building. The proposed addition is 11,100 square feet. The annex is approximately 6,300 square feet with the same square footage of sloped attic space. The total proposed scope for fire protection is 17,500 sf.

Existing Conditions

The multipurpose building is the only building on site with a fire protection system. The existing Police Department and Annex does not have a sprinkler system.

Proposed Scope

Provide fire protection system within the addition and the existing Annex. The fire protection system will have the following features:

- The sprinkler system will be designed for Light Hazard Occupancy.
- The entire addition and Annex including the attic will be protected by a wet pipe sprinkler system.
- Sprinklers will be provided above and below ceilings due to the wood framing structure.
- The Annex attic will be converted from a cold attic to a warm attic when the proposed roof and insulation are installed.
- A 10,000 gallon buried concrete sprinkler storage tank will support the sprinkler system for a minimum of 30 minutes as required per NFPA 13.
- An electric powered vertical turbine fire pump will provide pressure to the system from the storage tank. The pump will have a capacity of 250 gallons per minute.
- The electric fire pump will be housed in a separate room near the exterior wall of the addition.
- Sprinklers within ceilings will be white glass bulb, quick response type with two piece escutcheons.
- Sprinkler within gypsum ceilings will be white concealed plate type.
- Sprinklers within the holding rooms will be vandal resistant institutional type.
- Sprinklers above ceilings will be brass upright, glass bulb quick response type.
- Sprinkler piping will be black steel with a coating to prevent internal corrosion. Piping will be a combination of threaded pipe and grooved pipe with mechanical couplings.
- A Storz type fire department connection will be provided outside the sprinkler room or where required by the fire department.



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PLUMBING

Summary

This project at the existing Chester Town Hall and Police Department includes the construction of a new police department building and sally port, in addition to renovations for the existing Annex building.

Existing Conditions

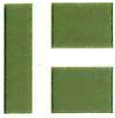
The existing plumbing systems and fixtures in the Multipurpose building and original building will remain as-is.

The existing water heating system in the Annex will be replaced with equipment located in the proposed addition.

Proposed Scope

The plumbing system will incorporate the following features in the addition and the Annex building renovations.

- The building addition will have a separate 4" sanitary sewer exiting the building.
- The sewer will connect to the existing septic tank and leach field.
- Domestic water will be extended from the existing well. Two hydropneumatic well water pressure tanks will be provided in the mechanical room.
- Toilets will be 1.28 gallons per flush tank type fixtures for the staff and visitors.
- Staff and visitor restrooms will be ADA compliant.
- Locker Room restroom and showers will be ADA compliant.
- Showers will be 36" x 36" one piece acrylic shower stalls. One shower in each locker room will have grab bars, 1/2" high threshold, fold-up seat with shower valve and adjustable hose spray.
- The non ADA shower in the Men's Locker will be 36" x 36" with a shower valve with adjustable shower head on a heavy duty institutional wall bracket.
- A floor drain will be located outside each shower stall.
- A floor drain will also be located near each toilet in the locker rooms.
- The toilet and lavatory in the holding restrooms will be vandal and ligature resistant, white enamel coated stainless steel. The fixture heights will be ADA compliant.
- The kitchen/ Break Room sink will be two-bowl under mount stainless steel with a chrome plated kitchen faucet and pull-out adjustable sprayer.
- Hot water will be generated by a 80 gallon high efficiency L.P. fired water heater.
- A digital thermostatic mixing valve will be provided to deliver stable hot water at 120° f to the building.
- All lavatories will have a thermostatic mixing valve set to deliver 105° f from the faucet.
- The domestic hot water piping will be recirculated through a small stainless steel pump to maintain hot water to the fixtures at all times.
- Domestic water piping will be type "L" copper with pressed fittings and joints.
- All water piping will be insulated to meet ASHRAE standards.



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- Drainage piping will be schedule 40 solid wall PVC above and below grade.
- Each restroom will have a vandal resistant floor drain.
- The Vehicle Evidence Bay and the Sally Port will each have a 12" square floor drain with heavy duty grate and integral oil & sand separator. The floor will be sloped in each bay to the two drains.
- The liquid propane tank farm of three tanks will be doubled in size to provide fuel for the proposed building heating boilers and the domestic water heating equipment.
- An underground fuel line will be run from the tank farm to the proposed boiler room. The line will be installed by the fuel supplier. The excavation and backfill will be provided by the building contractor for the fuel line from the tanks to the building.
- The building contractor will be responsible for the gas piping from the building exterior gas regulator to the proposed mechanical equipment.
- A soil gas (radon) stack with fan above the roof will be provided for the addition.
- A 20 foot section of perforated 4" drainage pipe will be provided within the crushed stone below the building slab.
- Cast iron roof drains with aluminum dome strainers will be provided for the flat roof areas of the addition. The roof drains will be collected via Schedule 40 PVC storm drainage piping and discharged to the site storm drainage system. All storm drainage piping above the slab will be insulated to prevent condensation.

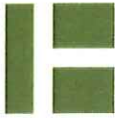


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BUILDING - ELECTRICAL

Power

- Power distribution system will be a new single phase 120/240 volt service entrance from the street with the appropriate labels on the Main distribution panel (service entrance 3 of 3).
- Portions of the new addition to the building will be wired for a critical operations power system (COPS) (future COP).
- The building does not have to meet the National Electric Code article 708 for a critical operations power system (COPS), (dispatch is done off site, suspects can be held at different facilities, etc.). Portion of the facility should be constructed as a Critical operations center then the following (but not limited to) would need to be met to meet the NEC. Critical Operation Areas: The National Electrical Code list Power Systems requirements for Critical Operation Areas i.e. Critical Operations Power Systems (COPS) including but not limited to the following:
 1. Wiring shall be protected from Physical damage.
 2. Feeders shall have a 2-hour fire rating.
 3. Receptacles shall be identified with a distinctive color or marking so as to be readily identifiable.
 4. Feeder distribution equipment shall be located in a space with a 2-hour fire resistance rating.
 5. Surge protection is required at all voltage levels.
 6. Where the COPS is supplied by a single generator a means to connect a portable generator shall be provided.
 7. The alternate power shall be capable of operating the COPS for 72 hours.
- There will be three electrical power distribution systems in the building:
 1. Normal
 2. Critical Operations Power Systems (COPS) wired for future
 3. Standby loads (from existing generator)
- Each locker will have a duplex electrical receptacle with USB charging capability.
- Reserve space for three automatic transfer switches (ATS)
- Branch panelboards to serve small receptacle loads i.e. electrical receptacles one per wall in offices, conference rooms, and similar rooms, receptacles for kitchen equipment, fitness equipment etc. power for mechanical equipment.



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Lighting:

- Office lighting will be 2'x2' recessed LED
- Holding cells will be prison grade surface mounted LED fixtures with Night lights built in.
- Corridors will be 2'x2' recessed LED
- Sallyport Vandal resistant 4' led surface mounted
- Attic will be 4' enclosed LED strip light rated for cold weather
- Kitchen will be 2'x2' recessed LED
- Break rooms will be 2'x2' recessed LED
- Weight room surface mounted LED wrap around fixtures
- Locker areas will be 2'x2' recessed LED
- Outside lighting building mounted vandal resistant LED with photocell on/off.

Emergency Lighting – Exit signage and Egress Lighting:

- Exit signs for public areas RED "EXIT" with white housing, LED, Battery backup.
- Exit signs for Suspect areas RED "EXIT" with vandal resistant housing, LED, Battery backup.
- Emergency Lighting for public areas LED with battery backup.
- Emergency Lighting for holding areas vandal resistant LED battery back up
- Emergency Lighting for Sally port area vandal resistant LED battery back up rated for cold weather.

Fire Alarm:

- Fire Alarm: extend buildings Mircom Fire Alarm system. provide smoke detectors through out and notification including ADA strobes duct detectors with remote indicating stations, pull stations near each exit. Pullstations shall have guards with sounders (Safety Technologies (STI)).

Intrusion detection systems:

- Intrusion detection system for the evidence room – this shall be a standalone system with audible notification of a breach.
- Intrusion detection system for the remainder of the building.



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Surveillance system (cctv cameras):

- High density of CCTV cameras located both internally and externally budget for minimum of 20 3megapixels cameras. DVR/NVR with high capacity storage 50 terabytes.

Technology:

- Data infrastructure for the building i.e. data two drops in each office, conference room, interview rooms and similar spaces.
- Extension of telephone service to the building for phone lines.