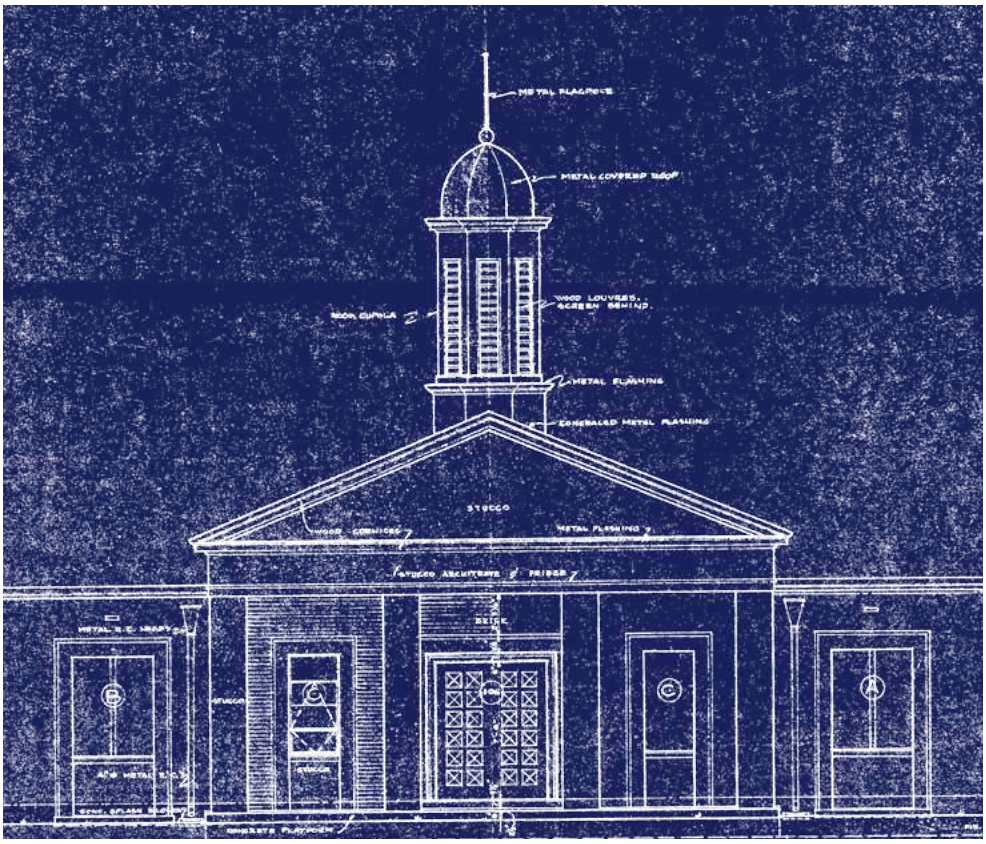
Town of Ashland
Town Hall Evaluation

May 23, 2017



PMA
ARCHITECTURE

Town Hall Evaluation - Town of Ashland, Virginia

This evaluation was performed by PMA Architecture at the request of the Town of Ashland, by the action of the Town Council. The evaluation consists of a space needs study to estimate the current town office space needs and the future space needs over the next twenty years. The author wishes to acknowledge the following individuals who participated in making this study possible:

Town Council

James Foley - Mayor

James Murray - Vice Mayor

Steve Trivett

George Spagna

Kathy Abbott

Town Hall Planning Committee

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Evaluation of the Town Hall, Ashland, Virginia

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CHAPTER 1 - ASSESSMENT OF THE EXISTING FACILITY

A. HISTORICAL DEVELOPMENT OF THE TOWN

The current Town Hall building was built in 1955 on a former open park bounded by Thompson Street, Hanover Avenue and Duncan Street. At the time of construction, the building was designed to accommodate Town offices, a courtroom, jail and fire station. The design established a classically based central gabled form flanked by one-story wings on either side to create the appearance of an older central building with Colonial Revival roots that might have been expanded at a later date. The cupola and terne metal roof and portico give the building the feeling of a courthouse.

Over the 20th Century the Town Hall has been located at various places and has grown in size in response to the growth of the Town, as illustrated in Figure 1. In 1908 the town offices were located on what is Duncan Street today to the west of the existing Town Hall building. By 1929 a new building had been constructed with the Fire Department on the first floor and Town Offices on the second floor, with a jail building located immediately behind. A park was established on the triangular parcel bounded by Thomspon Street, and Hanover Avenue where the earlier town offices had been located. Maps indicate that by 1941, this facility was expanded rear-ward to include a meeting space which may have served for Town Council meetings and possibly District Court hearings. Today this series of buildings houses the Herald Progress.

A new building was designed in 1954 and built across the street on the former park site to accommodate offices for the fire department, police, a courtroom, town manager, planning office and a three bay fire engine garage. This larger building is indicative of the growth of the Town of Ashland related to mid-Twentieth Century growth and the increased influence of automotive travel at the time.

Since that time, the Police Department, Fire Department and Court uses have been relocated to other facilities to address growth and the facility has been expanded to address the growing needs of for Town Hall offices and expansion of services required a growing College Town located on the outer ring of the Richmond Metropolitan Area.

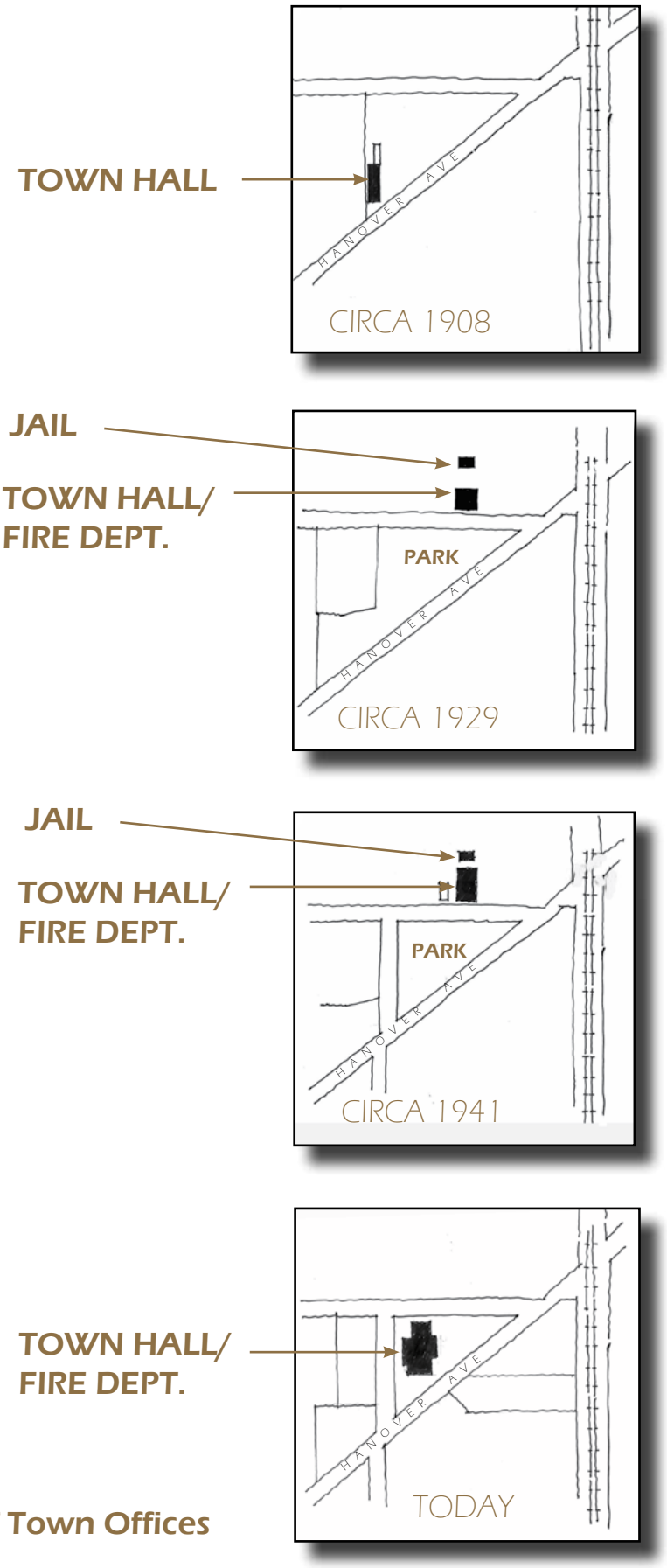
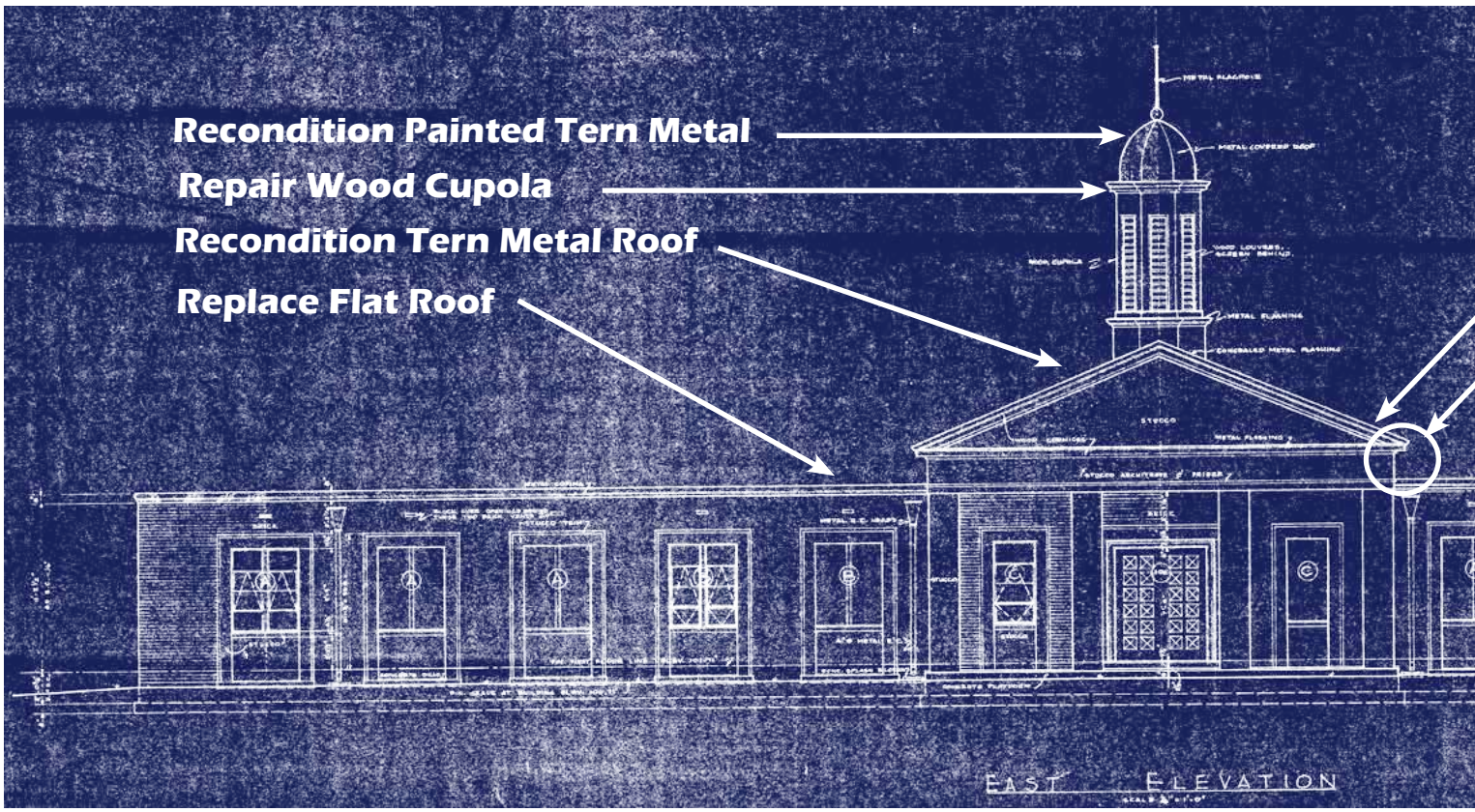


Figure 1 Historical Locations of Town Offices

B. EVALUATION OF THE TOWN HALL BUILDING & SOILS

This section provides an assessment of the physical condition of existing Town Hall Building and an assessment of the soils conditions.

1. Condition of the Roof - The roof coverings on the building appear to be the original roofing materials installed when the building was built or installed when additions were made to the building. The report cites evidence of roof leaks throughout the areas of building that have flat roofs. The Flat roof areas of the original building consist of gravel built-up roof which does not provide a positive sloped path for rainwater to reach roof drains. This can result in water build up on the roof surface until it gets deep enough to reach a roof drain or wall scupper. Although this was a common practice in the 1950's and 1960's, it is not an acceptable condition for roof installations today which are expected to drain all of the water off the roof and have a long service life with a manufacturer's warranty. Also of concern is the parapet around the perimeter of the flat roof areas which could allow water to pond on the roof if roof scuppers were blocked and/or a winter snow/rain event allowed water to back-up on the roof. Water ponding on flat roofs is problematic as it can subject all areas of the



roof and roof penetrations to exposure to water infiltration as well as structural overloading of the roof structure. Several problems were identified with the green painted "Tern-metal" roof (also referred to as a tin roof) which covers the sloped central part of the Town Hall. The internal gutters along the eaves of the roof have deteriorated and are leaking. As a result the wood eaves and soffit trim of the central part of the building are rotted and deteriorated. The report also cites the deterioration of the cupola as a contributor to water infiltration into the building.

The roof condition survey concludes that the flat roof areas must be replaced, flashings and copings must be replaced and that the roof-top mechanical equipment should be removed to install a new insulated single ply roof system with proper slope to drain. The sloped metal roof can be reworked to remove the built-in gutters, repaired and repainted. The Cupola will require extensive repair and flashing to prevent water infiltration.

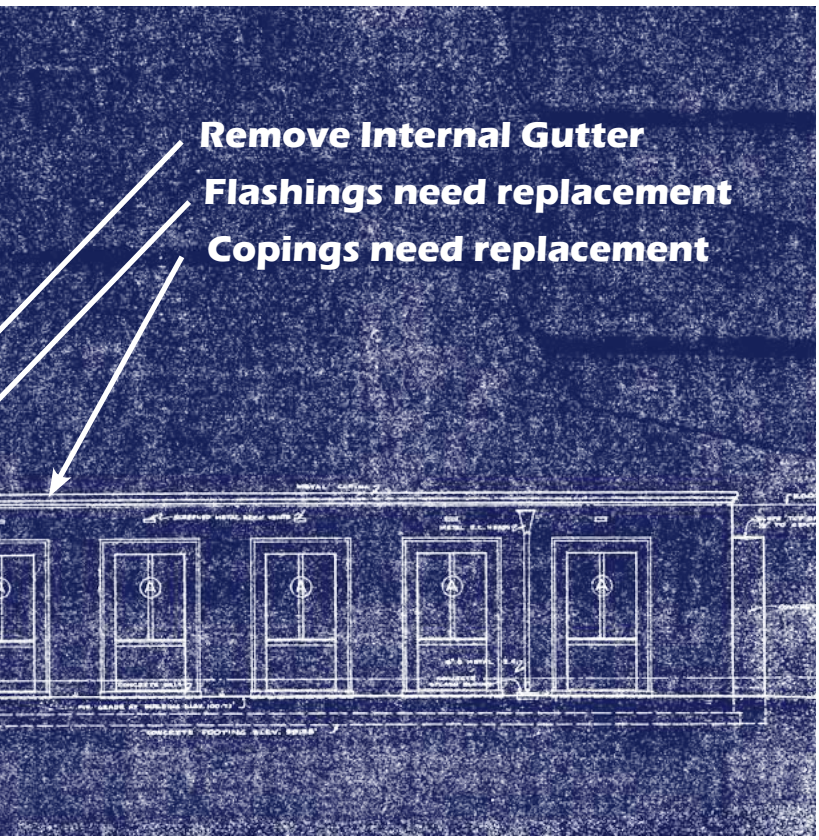


Figure 2 Front Elevation of Town Hall

2. Condition of the Building Exterior - The exterior shell of the building along with the roof are responsible for managing rainfall, solar and thermal elements of the natural environment to provide a dry, comfortable, clean work place for the functions of the Town Hall. Since the initial construction of the existing facility, there have been many advances in the expectations and standards for construction, expected durability, energy efficiency, lighting, and accessibility. This section provides a discussion of the components of the exterior shell of the building and an evaluation of their capacity to meet current requirements for 21st Century building requirements.

Exterior Walls - The exterior walls of the original building are constructed typically of load bearing concrete block with a brick masonry veneer applied directly to the block. Cement stucco applied directly to concrete block or brick is used in many places to form window surrounds, window sills, column and beam finishes and wall surfaces. There is no provi-

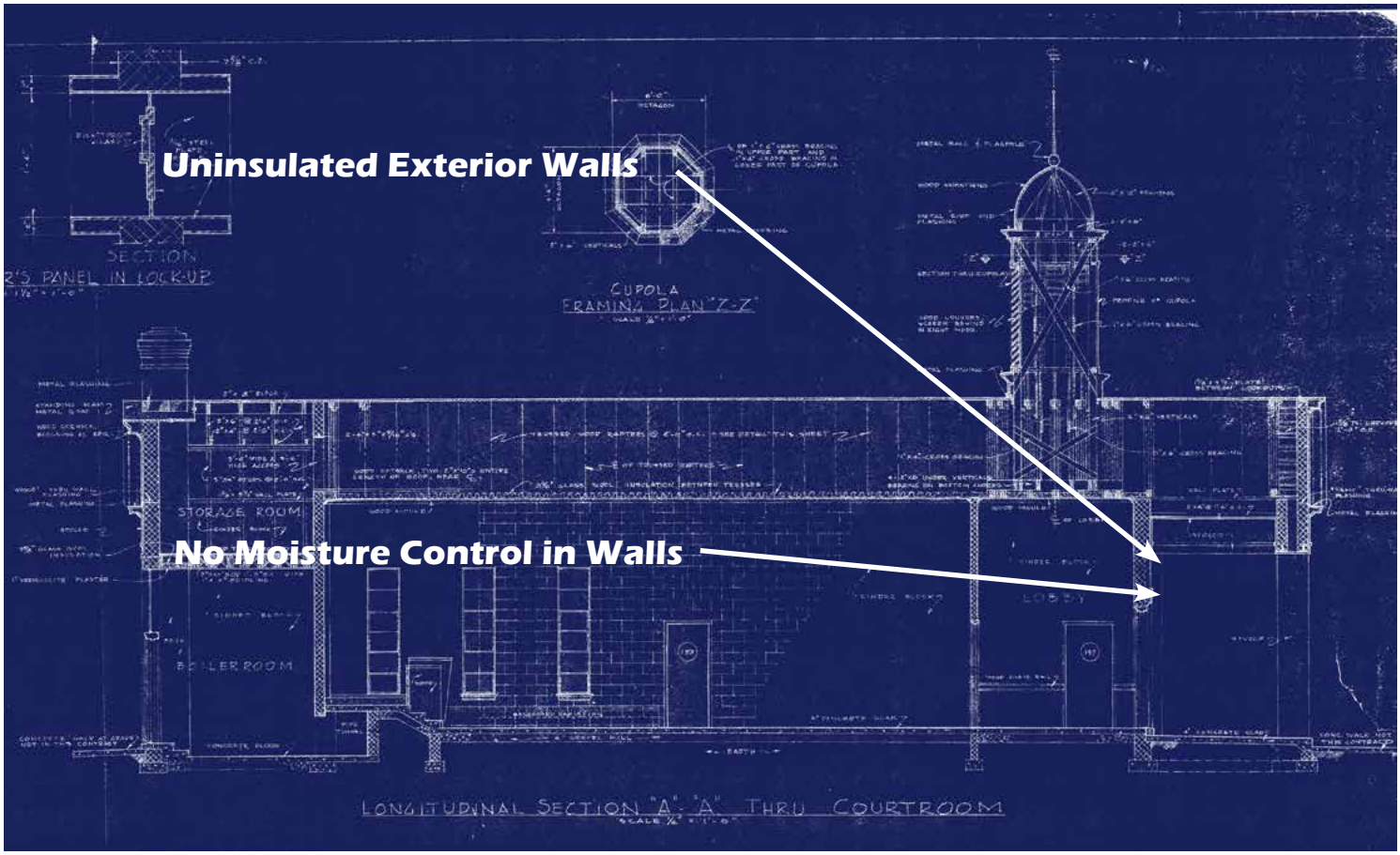


Figure 3 - Cross Section Showing Wall Construction

sion for insulation or moisture control in the wall assembly as would be expected in standard construction and as required by the building code today. The lack of insulation is a major issue and must be addressed in order to meet current energy codes and the desire to minimize utility costs. The lack of moisture control is also a serious problem that must be corrected.

The top of the exterior walls are flashed with metal flashing below the roof level; however, there is no head or sill flashing detailed in the original drawings for the building. From observations of the building, it does not appear that proper through-wall flashing exists at the window and door heads or sills. Based on a visual inspection of the exterior finishes, it appears that the brick veneer is stable and it is not exhibiting cracking . This indicates stability of the brick veneer and concrete block structural wall as well as a stable footing condition at the base of the wall. However, there is widespread cracking evident in the cement stucco around windows, doors, columns and beams around the building exterior. This is indicative of water penetration into the wall and moisture problems behind the stucco finishes due to the lack of proper flashing. Cracking can develop from expansion and contraction and/or freeze-thaw behavior in the exterior wall. In summary, the exterior walls lack insulation and moisture control barriers that are necessary to keep water out of the building and manage moisture that is necessary with 21st Century buildings required under the Virginia Uniform Statewide Building Code and other codes for building construction. These deficiencies must be addressed for the future use of the building.

Windows - Windows have been replaced with more energy efficient insulated glass windows throughout the facility and they appear to be in good condition.

"In the United States, the buildings accounted for about 41% of primary energy consumption in 2010, 44% more than the transportation sector and 36% more than the industrial sector" [2]

2 Building Energy Data Book, US Department of Energy, Energy Efficiency and Renewable Energy, 2011 Edition.

Cupola and Exterior Wood Trim - The cornice trim and cupola around the central gable structure of the building are constructed of wood which are in poor and deteriorated condition. Extensive replacement of these materials and reconstruction will probably be required in order to make the cupola weather resistant. The scope of this study did not assess the testing and identification of lead paint in the building. If lead paint exists on these exterior components, then replacement of all wood trim and the cupola will likely be the most economical approach to addressing this concern.

3. Condition of the Building Interior - There are numerous indications of water intrusion in the ceilings as well as around windows. This provides direct evidence of the deficiencies of the exterior of the building to manage moisture in the building shell. Hallways

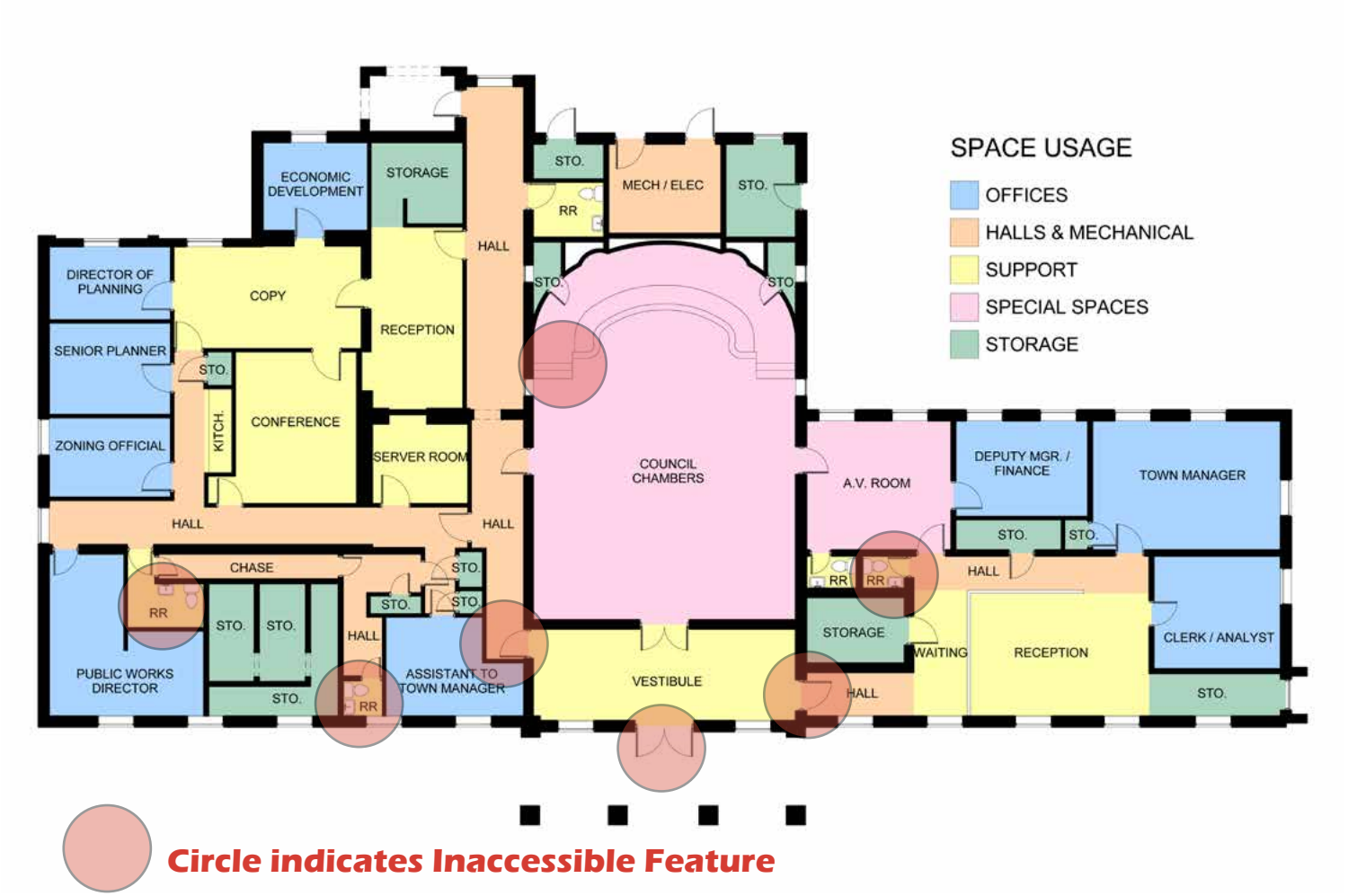


Figure 4 - Accessibility Barriers at the Existing Town Hall

and circulation elements within the building are too narrow and generally inadequate to accommodate the level of occupants and circulation in a Town Hall building.

Accessibility for Disabled Users - Figure 4 highlights areas of the building that do not meet accessibility requirements for building components under the Americans with Disability Act (ADA) or International Building Code accessibility requirements. The Town falls under Title II of the ADA which requires that publicly accessible parts of the Town Hall comply with the accessibility requirements. Even though some efforts were made in the 1990 renovation to add grab bars to restrooms and an entrance ramp at the rear entrance to the building, there are many problems with insufficient access and maneuvering clearances at restrooms, offices, doorways and hallways that the public must use to access services in the building. The Town Council Chamber does not have any provision for wheel chair access to the dais in the event that a council member has a disability.

Restroom facilities - The restroom facilities for the public are wholly inadequate for a public place of assembly. The building should have accessible restroom facilities for Men and Women directly accessible from the public lobby near the entrance of the building. Staff restrooms should be separate from the public restrooms for security purposes. All restrooms should be accessible for disabled users.

4. Condition of the Structure - The building structure was evaluated by structural engineers from Speight Marshall and Francis, P.C. to examine the feasibility of maintaining the current use of the building. Engineers performed a visual investigation and reviewed drawings from the original construction, a 1990's renovation and drawings from the 2001 renovation of the Town Council meeting chamber as well as the work performed in 2013 to stabilize a portion of the floor slab. The full report by the structural engineer is included in Appendix A of this report. Of particular concern to the engineers were the following:

a. **Slab-on-Grade differential settlement** - The report recommends the following: "Although remediation efforts were taken previously to repair the slab-on-grade settlement, the settlement issues will most likely return in the future. It is our recommen-

dation to remove the existing slab-on-grade and replace the existing fill with a more suitable fill and replace the slab."[2]

b. **Cracking of interior walls due to settlement of the slab-on-grade** - Settlement of the floor slab has caused some interior walls to settle and crack. These walls are in the vicinity of the original jail cells in the building. In order to address this, the report recommends the walls and slab be removed in this area and soil compacted before reconstruction of the area to avoid settlement in the future.

c. Cracking in the exterior walls - Cracks in some areas of the exterior walls are showing up on the interior side of the wall in the concrete block. The engineer believes this may be due to a lack of joint reinforcement (which was not included in the original construction) and some overstressing of the wall. The cracking generally does not continue to the exterior brick and is considered a minor problem. However the wall construction will not meet current building codes for wind load, shear and uplift resistance which place limits on the future use of the building.

5. Condition of the Electrical System - Electrical engineers from Van Sant & Gusler evaluated the existing Town Hall to assess the condition of the existing electrical system and its suitability for expansion as documented in Appendix B of this report. The building is served by pole mounted transformers feeding overhead power drops to the building. If the building power service was expanded, this service would need to be upgraded to a ground mounted transformer with underground service. Power is distributed to five (5) Load Centers. These load centers are exhibiting dust and corrosion due to humidity and lack of maintenance. One load center has the incorrect breakers installed. The wiring throughout the building is a mixture of romex, flexible conduit (MC), metallic conduit (EMT) and liquid tight flexible metallic conduit (LFMC). In general the electrical system is a residential grade system and not suitable for expansion or major alteration as a commercial office building. None of the load centers are equipped with Arc Flash Hazard Warning labels or labeled circuits. The electrical engineer recommends a complete replacement of the electrical system in order to meet commercial electrical codes in the event that the Town decides to expand and renovate the building.

2 Appendix A -Ashland Town Hall Facilities Study and Design, Ashland, VA by Speight Marshall and Francis, P.C., January 20, 2017

6. Condition of the Mechanical System - Mechanical engineers from Van Sant and Gusler evaluated the mechanical system of the existing building and its suitability to be expanded in a renovation/expansion scenario. Their full report is included in Appendix B. The heating and cooling systems in the building include a mixture of systems. The perimeter of the building is heated with a combination of hot water radiant heat and electric baseboard heat. This is probably due to the absence of insulation in the exterior walls. The majority of the interior space is heated and cooled with roof top mounted package units or split systems of varying ages. There are several major issues with this equipment as listed below:

a. The required amount of fresh air, under the mechanical code, is not being provided with the current system.

b. All units are under individual single thermostat control and incapable of being controlled as part of a building-wide energy management system. In addition, current equipment is inefficient in use of power for cooling and heating.

c. Most systems are 20 years or older and will need to be replaced in the foreseeable future.

d. Refrigerant in the air conditioning systems is being phased out and its availability for maintenance will likely be diminished by 2020. Replacement of the rooftop air-conditioning equipment and boiler in the next 5 year should be planned. The mechanical engineer recommends a completely new heating and cooling system if the building is considered for renovation. Such a new system should be digitally controlled over the entire building. In addition to upgrading the mechanical system, the building will need to be insulated to current building code requirements. If energy-efficiency and/or LEED certification is pursed then options involving geothermal heat pumps and/or more efficient split systems could be appropriate.

Another important limitation of the existing building is its limited height from floor slab to roof deck of 11 feet. Modern buildings must have at least 15 feet between floors in order to accommodate structure, mechanical ductwork, lighting and other systems. There is insufficient room for duct distribution of air above the ceiling. Given this issue, more expensive systems may be necessary to accomplish heating and cooling of the existing building.

7. Condition of the Plumbing System - The plumbing system of the Town Hall building was surveyed on November 2, 2016 by engineers from Van Sant and Gusler. They evaluated the domestic hot water heating equipment, plumbing fixtures, building domestic water service and sanitary sewer drain system conditions. The engineer's report on the plumbing system can be found in Appendix B.

The engineer's report concludes that if the Ashland Town Hall is going to be renovated, the plumbing fixtures should be demolished and new plumbing fixtures should be provided throughout. The quantity of standard and ADA accessible plumbing fixtures should be evaluated in connection with any proposed renovation work. Also in connection with any renovation plans, flush valve water closets should be considered. Flush valves allow faster recovery time after flushing and accommodate more people in a shorter period of time. In order to utilize flush valve water closets, the water service piping to the building must be increased in size to 2 inches. New domestic hot and cold water piping should be provided to the renovated restrooms. Previous repairs have been required to some areas of the under slab plumbing which have required removal of the floor slab and replacement of sanitary plumbing. Due to the age of the building and its multiple additions, it is likely that the underslab plumbing is cast iron which is failing. The entire sanitary drain system should be scoped with a video camera and replaced if the evidence supports it.

8. Soil Conditions at the Site - A soils study was performed at the site by the Timmons Group on December 20, 2016 in order to evaluate the suitability of the existing soils at the site to support building foundation loads for planning purposes. The full soils report is included in Appendix C. Of the four soil samples taken, two were adjacent to the existing Town Hall facility and two were taken in the vacant lot on the west side of Duncan Street. In general, soil conditions are suitable for building construction of light to moderate loading in the range of 2,000 to 3,000 pounds per square foot. Filled areas of the site are not considered acceptable for building foundations and should be over excavated and filled with suitable fill material. Some undercutting of underslab areas should be anticipated.

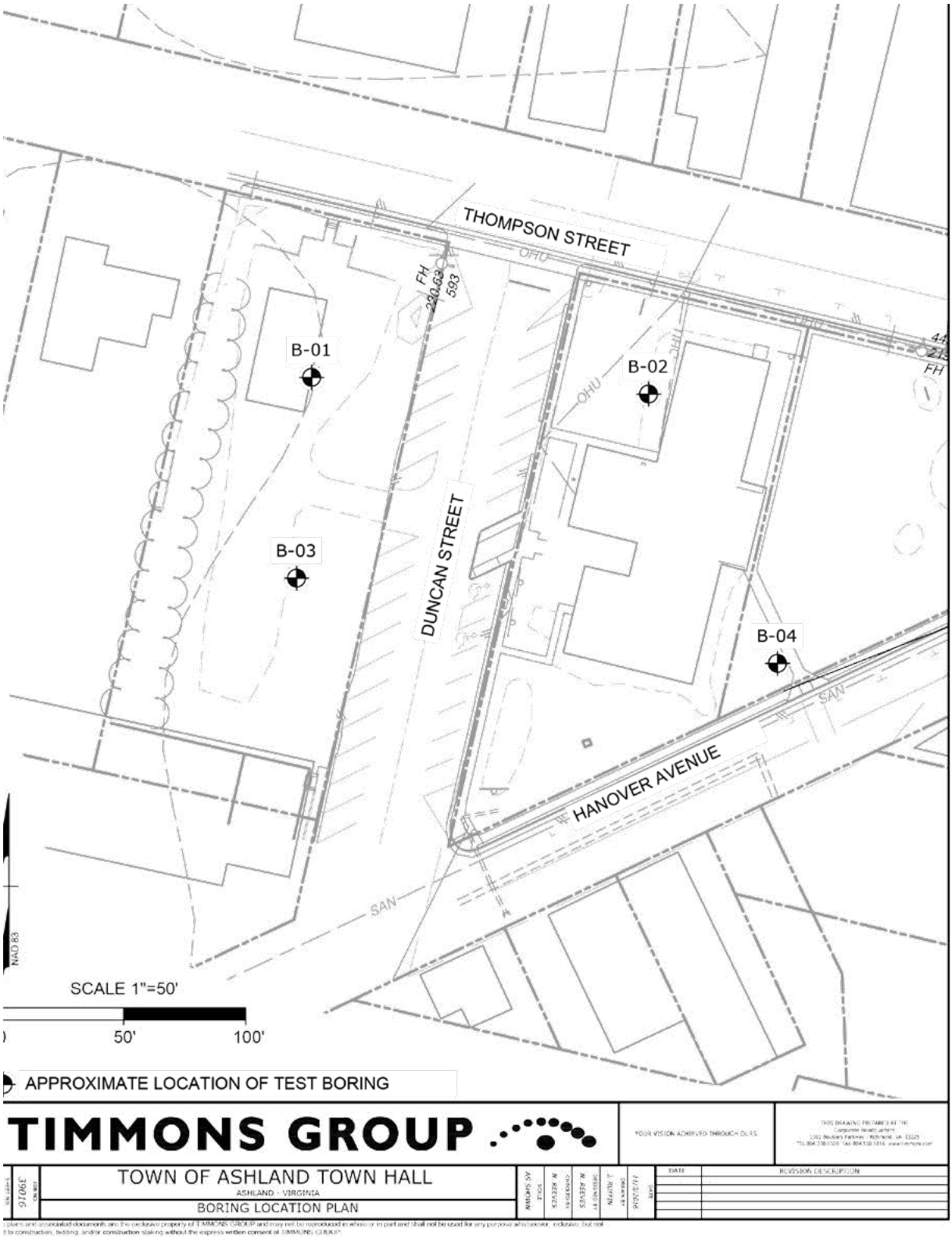


Figure 5 - Location of Soil Borings at the Existing Town Hall

CHAPTER 2 - ASSESSMENT OF DEPARTMENTAL SPACE NEEDS

Determining Space Needs - PMA Architecture identified the building floor space requirements for the Town of Ashland by a thorough review of the office needs of the personnel positions currently working in the existing Town Hall and Town Annex. Meetings with department heads and the town manager were conducted to review and estimate how personnel needs may change in the next 5 year (2022) and 10 year (2027) increments. Personnel positions projections were developed for these future years and appear in Figure 8 and are detailed in Appendix F. A space standard was matched with each position in order to identify the net floor area needed for each office or activity to carry out its function. These spaces include office spaces, conference rooms, copier rooms, file rooms, council chambers and other spaces required by personnel positions and support functions. Figure 7 illustrates some of these space standards and a full list of all space standards is included in Appendix E. Overhead space for the building is estimated by multiplying the net floor area requirements for personnel and support spaces by a factor of 1.4 to account for hallways, restrooms, mechanical space, walls and other support areas included in the overall building. The area for the Town Council Chambers and AV support room are not multiplied by this factor because the circulation space is already accounted for in the calculated overhead space.

Figure 8 presents a summary table of the current personnel positions and support space needed. Total space estimated for the Town Hall is 10,324 gross square feet "NOW", 11,142 gross square feet by year 2022 and 11,310 gross square feet by year 2027.

This includes the following departments and positions:

Town Manager – The Town Manager requires an office with a meeting table within the office for meetings with visitors, staff, council members. The office needs to be near the reception area and near the Assistant to the Town Manager. Currently these two offices are in separate parts of the building reducing the effectiveness of communication. The town manager also needs to be adjacent to the finance operation and clerk. Access to a larger conference room is also required.

Assistant to the Town Manager – The Assistant to the Town Manager currently handles human resources work as well as purchasing activities. In the future it is envisioned that the work load for human resources and purchasing will require additional personnel, which is projected to occur in the next five years. The Assistant to the Town Manager must be located near the Town Manager, reception, and have access to a conference area. The suggested space for this position includes a small meeting table to accommodate one-on-one meetings in the office for personnel issues. A part-time clerk is also envisioned to be needed in the next 5 years.

Finance Director – The Finance Director manages the financial operation of the Town. It is envisioned that an accounting technician will be needed to assist the director sometime in the next five years. This position needs to be adjacent to the Town Manager, a central filing room, the Account Technician and conference rooms for the general staff.

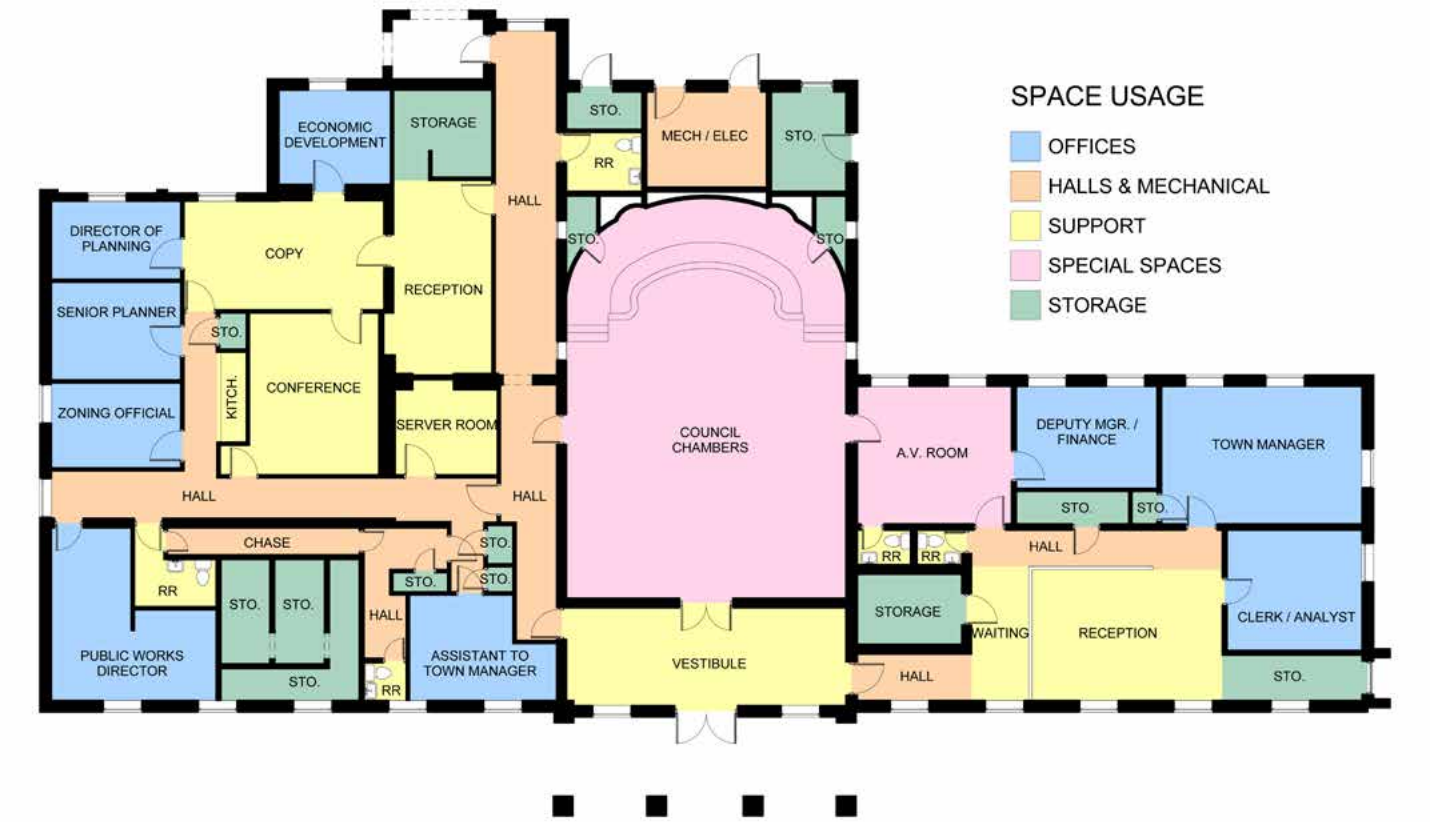


Figure 6 - Layout of the Existing Town Hall

Town Attorney – A space for the Town Attorney to work needs to be provided. This space should have a small meeting table in the office in addition to normal office space needs. It should be located near the Town Manager with good access to the Council Chamber area.

Clerk/Management Analyst – The Clerk maintains records of the Town and Council Meetings. This position includes the responsibilities of management analysis to support the Town Manager. This position requires access to a dedicated file storage space to store the Town records.

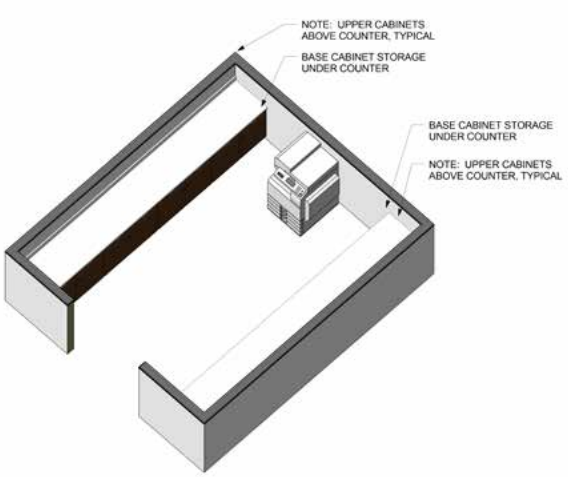
Accounting Clerk – The Accounting Clerk works with the public to collect payments and provide information at the central reception area of the Town Hall. This position needs access to a service counter where payment transactions and information can be provided to customers and citizens. This service area should also be located centrally to enable customers and citizens to be greeted and directed to conference rooms and/or individual offices where they can meet with the appropriate Town staff member. It may be desirable to combine Public Works and Planning assistants into this space so that the front reception area for the Town Hall can be staffed throughout the day.

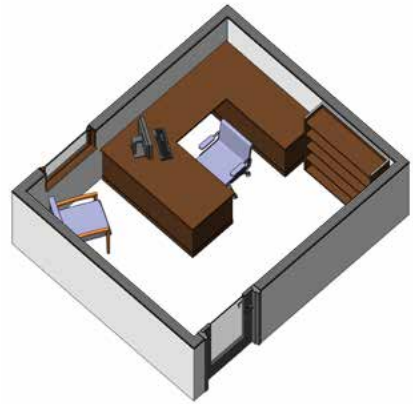
Planning Director – The Planning Director requires a moderately-sized office with sufficient space to meet with personnel and customers who need to discuss projects. The office should be located near the reception area and near conference rooms to accommodate larger meetings. It also needs to be located near the Planning File Room.

Planning Administrative Assistant – This position supports the Planning, Zoning and Economic Development activities and needs to be located near a customer service counter. As mentioned, it may be desirable to locate this space in an open-office work area near a central reception area combined with the Accounting Clerk and Public Works Assistant.

Zoning Administrator – The Zoning Administrator works closely with the Planning Director and requires access to conference rooms and a front service counter.

Economic Development Director – The Economic Development Director meets with prospective businesses and individuals to promote economic activity in the Town. This position





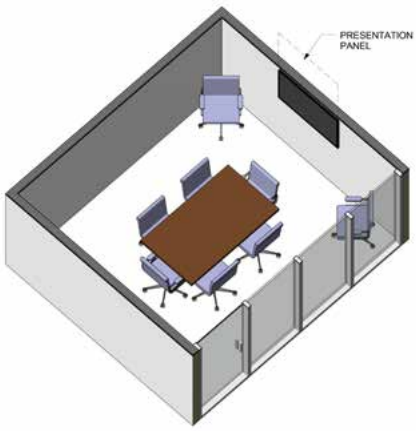


Figure 7 - Examples of Space Planning Modules

(see Appendix E for all space types)

needs access to the Town Manager, Planning, Zoning and the conference meeting spaces. This office should be prominently located near the reception area for easy access. It is envisioned that this department will need a support position over the next 10 years.

Public Works Director – The Public Works Director requires an office which can accommodate a meeting table in addition to a regular work desk. The space must be large enough to accommodate drawing layout for projects. It should be located near the reception area and in proximity to the Public Works Department offices and Public Works File Room.

Public Works Administrative Assistant – This position supports the Public Works department and serves as the primary contact for visitors and inquiries to the department. As mentioned previously, it may be desirable to locate this position in a central workspace near a central reception point to support a single point of customer service for the Town Hall.

Town Engineer – The Town Engineer must be centrally located around the Public Works department personnel with access to the Administrative Assistant, Public Works File Room and the Director of Public Works. This office should be sized and equipped with large desks that enable plan review.

Civil Engineer – The Town Civil Engineer must be centrally located around the Public Works department.

Public Works Project Managers – These project managers spend part of their day in the field working on the administration of ongoing projects and part of their time in the office. Their desk areas need to be large enough to accommodate plans and computer work stations. Intern work areas are needed to support these operations from time to time and it is anticipated that 2 to 3 interns should be accommodated.

Town of Ashland - Statement of Space Needs

4/1/2017

	Existing Floor Area (sf)	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices				Now	2,022	2,027	Now	2,022	2,027
Town Manager	279	GG	280	1	1	1	280	280	280
Assistant to Town Man.	136	D	168	1	1	1	168	168	168
Part-time clerk		A	64	1	1	1	64	64	64
Human Resources		D	168	0	1	1	0	168	168
Purchasing		D	168	0	0	1	0	0	168
Finance Director	145	E	192	1	1	1	192	192	192
Accounting Technician		C	120	0	1	1	0	120	120
Clerk-Man. Analyst	164	D	168	1	1	1	168	168	168
Accounting Clerk		B	80	1	1	1	80	80	80
Planning Director	102	D	168	1	1	1	168	168	168
Administrative Assistant		B	80	1	1	1	80	80	80
Senior Planner	128	C	120	1	1	1	120	120	120
Zoning Administrator	111	C	120	1	1	1	120	120	120
Econ. Development Dir.	106	C	120	1	1	1	120	120	120
Econ. Development Support			120	0	0	1	0	0	120
PW Director	217	V	240	1	1	1	240	240	240
Administrative Assit.		B	80	1	1	1	80	80	80
Town Engineer		E	192	1	1	1	192	192	192
Civil Engineer		D	168	1	1	1	168	168	168
PW- Project Manager		C	120	3	3	3	360	360	360
Intern Work Areas		A	64	2	3	3	128	192	192
Town Attorney		G	216	1	1	1	216	216	216
A -Total Personnel and Space Requirement	***1,388***			**21**	**24**	**26**	**2,944**	**3,296**	**3,584**
Support Spaces									
Council Chambers Lobby	277	J	288	1	1	1	288	288	288
Large Conference Rm	221	I	270	1	1	1	270	270	270
Medium Conference Rm		D	168	1	1	1	168	168	168
Small / Admin Conf. Room		T	100	1	1	1	100	100	100
Reception Work Counter	197		160	1	1	1	160	160	160
Administrative Reception/Waiting Area	330	K	200	1	1	1	200	200	200
Clerk Storage Room	73	C	120	1	1	1	120	120	120
Planning File Rm		U	500	1	1	1	500	500	500
Public Works Files		F	224	1	1	1	224	224	224
Copier/Mailroom		O	168	1	1	1	168	168	168
Finance File Room		C	120	1	1	1	120	120	120
Lunchroom/Kitchenette	27	L	252	1	1	1	252	252	252
Staff Restrooms (male/female)	126	N	56	2	2	2	112	112	112
Server Room	92	S	120	1	1	1	120	120	120
Plotter/ Printer Room	221	F	224	1	1	1	224	224	224
Supply Closet		P	120	1	1	1	120	120	120
Storage Room	567	P	120	1	1	1	120	120	120
B - Total Support Space Requirement	***1,854***						**3,266**	**3,266**	**3,266**
Combined Personnel and Support Space (A+B)							**6,210**	**6,562**	**6,850**
Halls and Mechanical Space Grossing Factor = .40							**2,484**	**2,625**	**2,740**
Special Spaces									
Council Chambers	**1,075**	H	**1,600**	**1**	**1**	**1**	**1,600**	**1,600**	**1,600**
AV Support Room	**215**	S	**120**	**1**	**1**	**1**	**120**	**120**	**120**
Total Space Requirement							**10,414**	**10,907**	**11,310**

Figure 8 - Statement of Space Needs (see Appendix F for details)

Support Spaces are required in addition to the space required for personnel work areas and offices. These include the following:

- **Council Chamber Lobby**
- **Council Chambers for 80-100**
- **A/V Room to support the Council Chambers**
- **Conference Room for Executive Sessions and Large Meetings (Capacity of 16)**
- **Medium Conference Room (Capacity of 10)**
- **Small Conference Room (Capacity of 4-6)**
- **Clerk Storage Area**
- **Planning File Room**
- **Public Works File Room**
- **Copier/Mail Room**
- **Finance File Room**
- **Lunchroom/Kitchenette**
- **Server Room**
- **Plotter/Printer Room**
- **Supply Closet**
- **Storage Room**

CHAPTER 3 - ALTERNATIVES TO MEET SPACE NEEDS

Range of Alternatives Considered - This evaluation focused on examining alternatives on the existing site to meet the five-year future space need (year 2022) that is forecast in Figure 8, which indicates a gross floor area requirement of 11,000 square feet of area. The five-year forecast of required space will be the most appropriate target due to the fact that it will take several years to complete the project and during this time the staff and space requirements will continue to grow. We have evaluated several alternatives on this site ranging from expanding the existing building to one-story and two- story arrangements located in various positions on the site as follow:

Expanding the Existing Facility - The existing Town Hall can be expanded to meet the future projected needs of Administration, Public Works and Planning and Zoning as shown in Figure 9. However, due to the limitations of the existing building layout and the inflex-

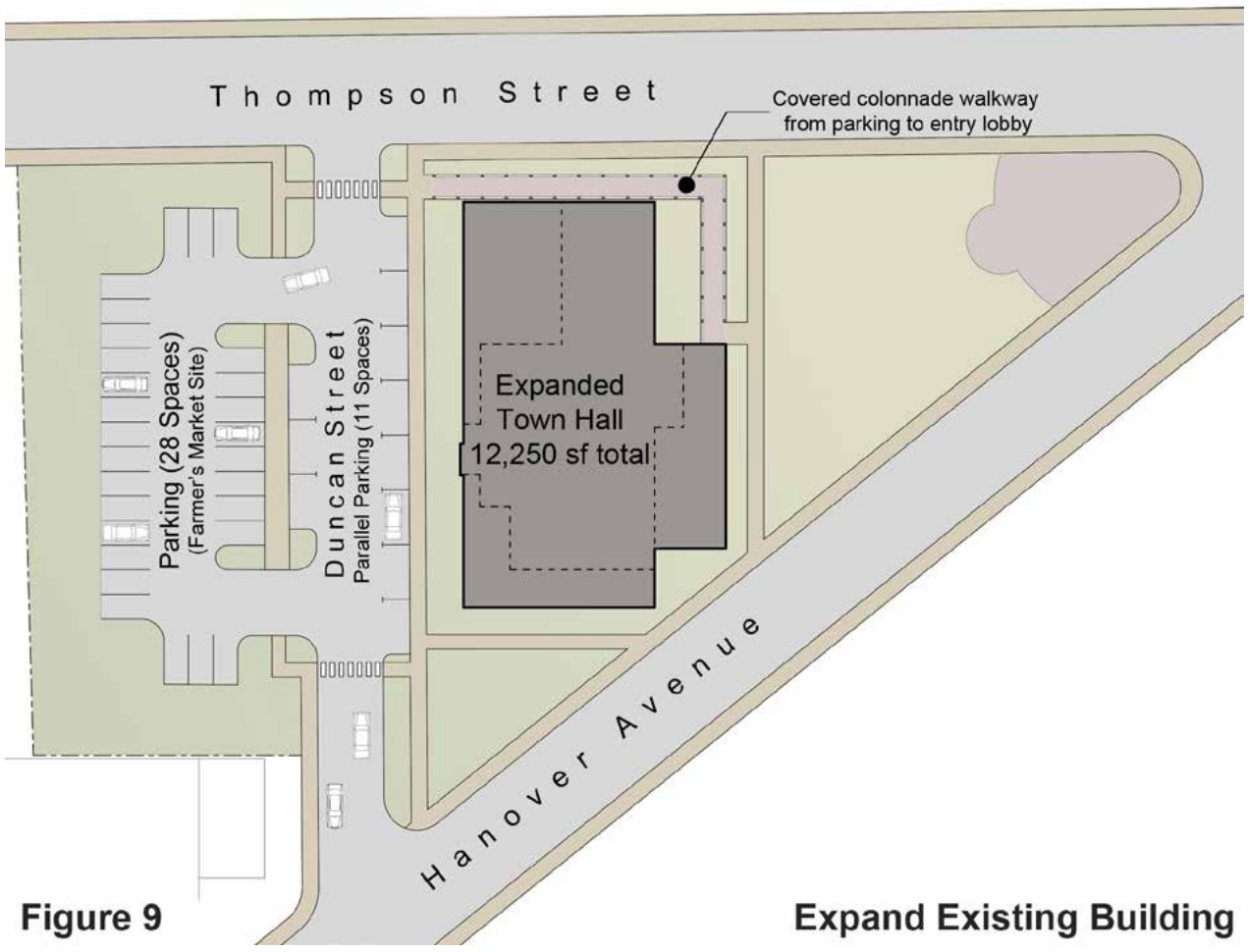


Figure 9 Expand Existing Building

ibility of existing load bearing walls, the layout will be less efficient than is ideal resulting in a larger building. Given these limitations, it will be necessary to expand the building to a total of 12,250 square feet of floor area in order to meet all of the departmental requirements due to these inefficiencies. When compared to the space need forecast of 11,000 square feet it is obvious that using the existing building will be less efficient. These inefficiencies will also limit the ability to locate departments adjacent to one another in order to create a more ideal centralized customer service concept. A public entrance would be created on the front of the building and it would be desirable to create a covered walkway from the parking lot to the front of the building. The rear entry to the building would not be a public entrance and it would be dedicated as a staff entry.

While this is an option, it would be the most expensive option and would not achieve the proper work environment and internal relationships that are needed to improve the efficiency and effectiveness of the Town Hall staff and operations. Corridors would continue to be too narrow in places, some staff would be located more remotely in the building than is desirable necessitating more walking and loss of productivity during the work day. This would be the most expensive alternative because of the following factors:

- Most of the existing building will have to be removed and rebuilt or upgraded resulting in very little savings by reusing the building. At best, only the structural shell will be usable and it will need to modified and augmented extensively to meet building code and thermal/moisture requirements.

- Perhaps the greatest problem is with the logistics of moving the existing operation out of the building while a renovation could occur. This would require temporary facilities either in rental space or temporary trailers. Either of these alternatives carry a potentially high cost to the project. We have assumed that this could add upwards of $500,000 to the project cost. This would double moving expenses, network and telephone wiring costs and add an additional 18 months to the project time line. This additional construction time would increase construction costs by adding more construction overhead costs and potential cost escalation.

- HVAC systems would be more expensive due to the limits of ceiling height and other factors of the existing construction.

- A centralized entry will need to be created at the front of the building which will not be convenient to any of the parking resources. Visitors to the building will be exposed to the weather unless a long covered walkway is added to the project.

- Many inadequacies with the original structure would continue to be a problem in the future.

As presented in Figure 13, we believe that the cost to expand the building to meet the Town's needs will exceed $6 million dollars resulting in a building that has real limitations to serve the organization needs and public needs now and in the future. We do not believe this a viable option based on logistics, time requirements and cost. We also do not believe that it would produce a long-term high-quality solution for the Town Hall.

Alternative 1 - One-Story Town Hall - As shown in Figure 10, a one-story building could be built on the open area currently used for the Farmer's Market west of Duncan Street. Due to the footprint of the building area, this would require relocation of Duncan Street to ac-

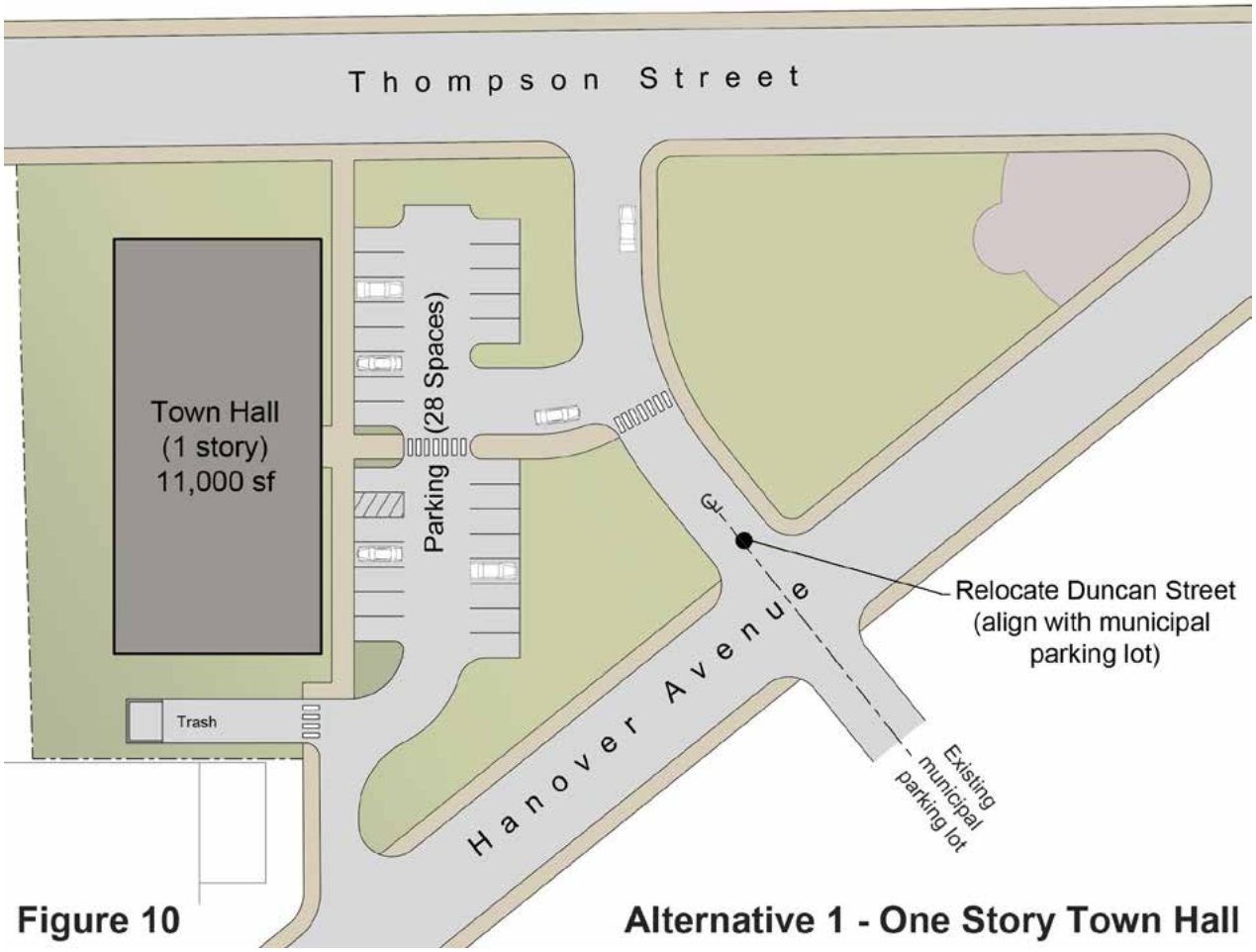


Figure 10 Alternative 1 - One Story Town Hall

commodate the new building and parking that would be necessary. The arrangement shown in Figure 10 proposes Duncan Street moved slightly eastward to align with the entrance to the new municipal parking lot which would improve circulation and greater accessibility to more parking than can be created on the existing Town Hall site. This plan would allow all departments and functions to be on one level and allow the best internal arrangement possible from a functional point of view.

This alternative appears to be the least expensive option as well. As shown in Figure 13, this alternative is in the $5 million dollar range of cost. There are some uncertainties related to moving Duncan Street that need to be examined to determine the cost to move utilities and feasibility of traffic flow that would be involved.

Alternative 2 - Two-Story Town Hall at the Corner- As shown in Figure 11, it is possible to locate a

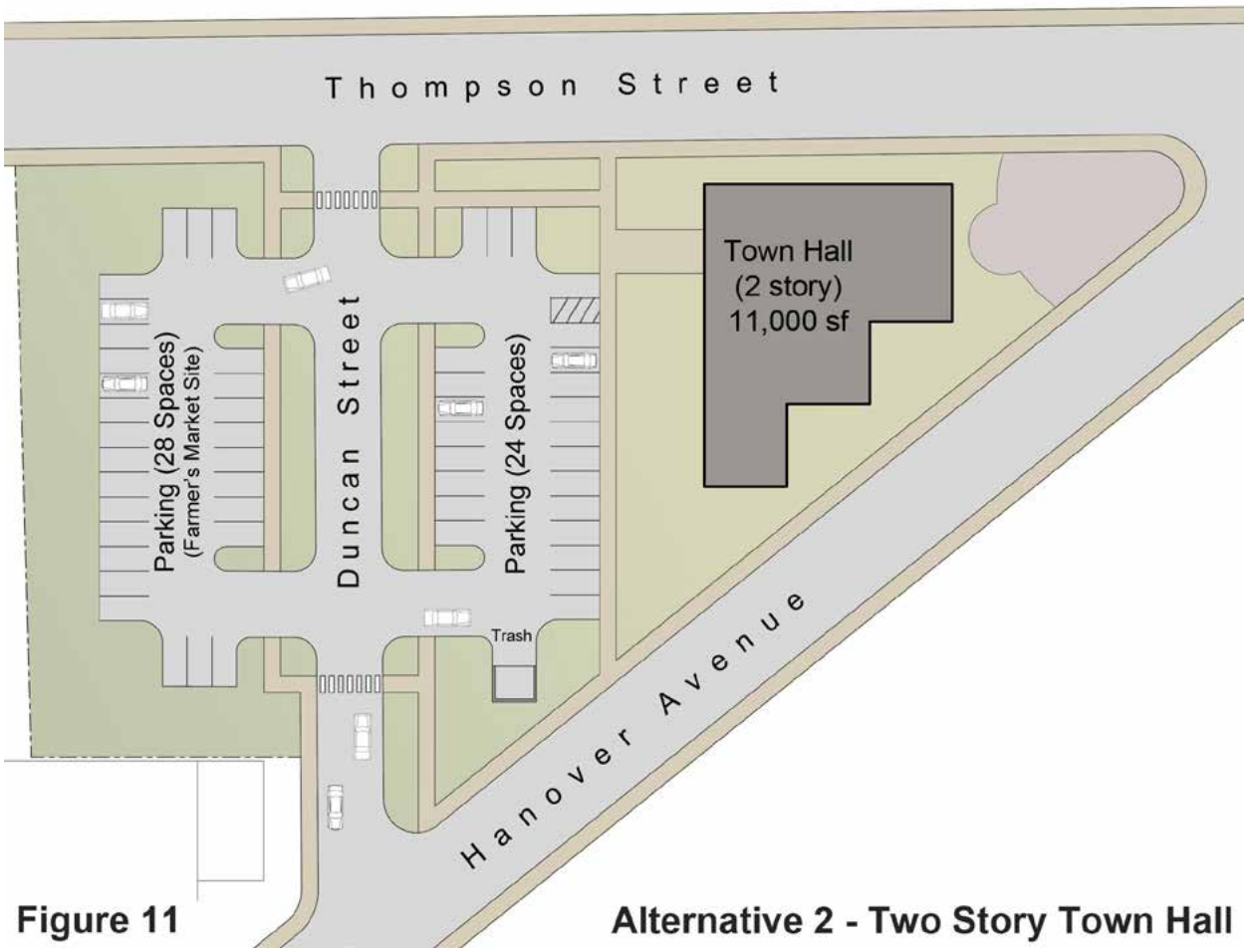


Figure 11 Alternative 2 - Two Story Town Hall

two-story building on the corner where the current park is located and achieve a very efficient use of the site which allows the creation of an additional 28 parking spaces. This alternative would put the new Town Hall front and center at the corner of Thompson Street and Hanover Street. This would make the Town Hall a prominent statement and contribution to the architectural character of the Town. This alternative utilizes Duncan Street in its current location and allows for better traffic flow and control of parking. The Public Works Department would likely occupy the second floor.

The cost for this alternative is projected to be 5.9 million dollars (5.7 million for the building and one parking lot and another $200,000 dollars for the second parking lot). This option is higher in cost as a result of two-story construction being more costly and complex to design and build.

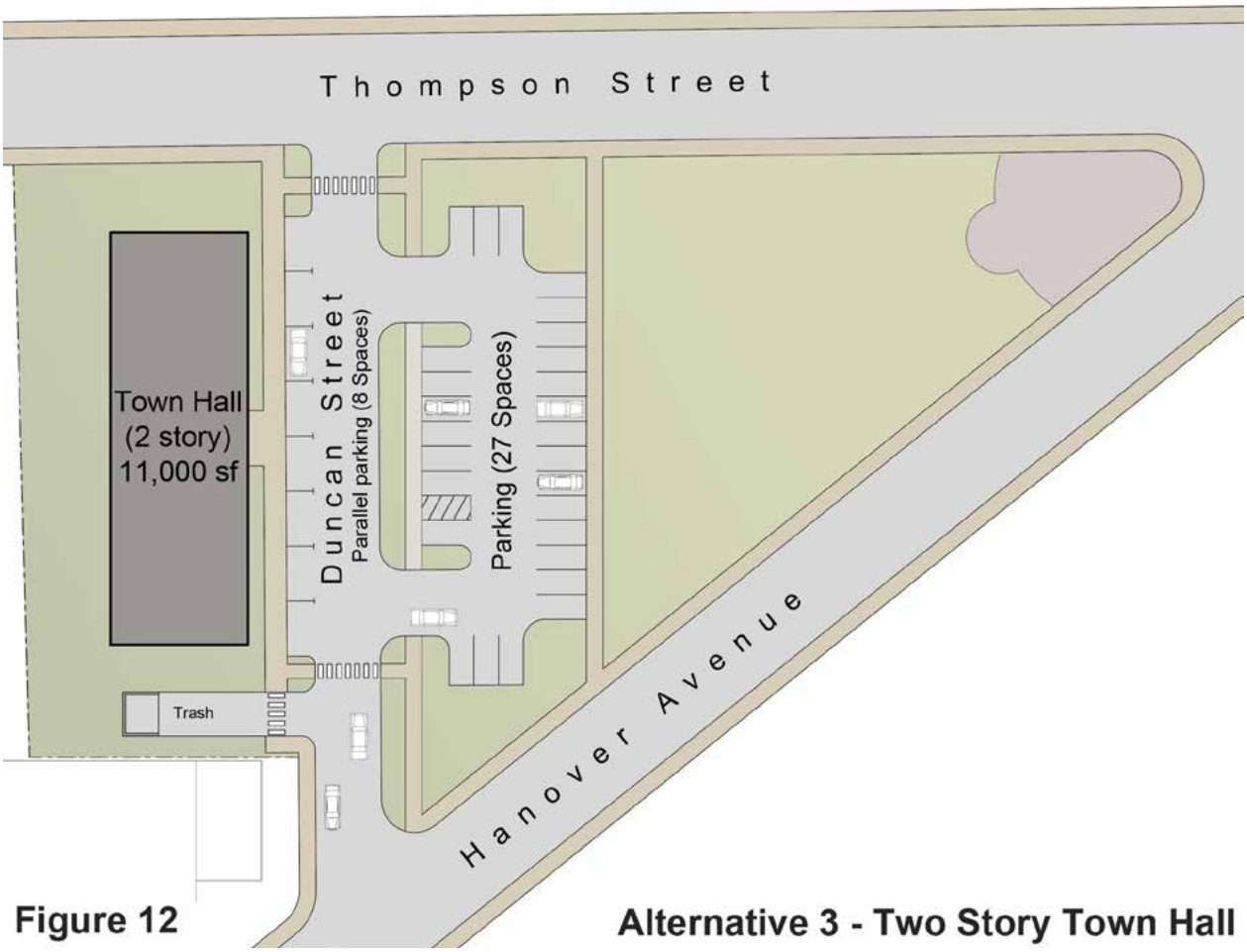


Figure 12 Alternative 3 - Two Story Town Hall

Alternative 3 - Two-Story Town Hall on the West Side- As shown in Figure 12, a two-story building could be located on the west side of the site as well. This would also allow the use of Duncan Street in its current location. This alternative would leave the park area open but would not allow for additional parking as in Alternative 3, nor would it provide a good connection to the Municipal lot. This alternative appears to cost 5.7 million dollars as shown in Figure 13.

Project Budget Development and Comparison - Figure 13 presents a breakdown of costs related to each of the alternatives including design fees, our opinion of the probable construction costs, allowances for many other categories of costs associated with the project and some general soils and project contingencies. These figures do not represent exact or guaranteed costs for the scope of work and detail of an alternative but are intended to represent a general cost the alternative is likely to cost at this point in time. The intent of this cost comparison is to begin to establish a general budget for each alternative so that they can be compared for decision making purposes. Further project planning, design and development will be necessary to establish a final project budget that incorporates the decisions of the Town Council, citizens and the staff.

It is important to note that these costs are based on 2017 data and that as time goes by, the actual construction costs for a project will likely increase due to inflation and price escalation that is a function of the construction and materials markets at the time the project is released for bidding. It is recommended that an escalation of 6% per year be applied to these figures for each year the project is delayed in the future.

Evaluative Factors for Consideration - Figure 14 provides a chart of how each alternative meets or relates to certain important goals, concerns or issues that need to be addressed by the project. These are color coded to indicate whether the alternative deals with each of these factors positively, negatively or is relatively neutral. In general, if more red or orange appear under an alternative then the alternative may require more inquiry or be less effective than an alternative with more green boxes.

Town Hall - Town of Ashland
4/18/2017 - Prepared by PMA Architecture
Preliminary Opinion of Probable Construction Cost and Project Budget Components

	ALTERNATIVES			
Project Components	*Expand Existing Building*	*Alternative #1*	*Alternative #2*	*Alternative #3*
Architect and Engineering Fees	**487,165**	**376,369**	**450,830**	**433,723**
Design Cost Estimate	487,165	376,369	450,830	433,723
Construction and Inspections	**4,284,712**	**3,968,688**	**4,713,297**	**4,542,234**
Demolition of Existing Building	75,000	100,000	100,000	100,000
Hazardous Materials Allowance	50,000	50,000	50,000	50,000
Building Construction	3,146,227	2,681,250	3,423,750	3,423,750
Site Costs	437,813	541,250	586,563	437,813
GC O&P for site	65,672	81,188	87,984	65,672
Fire Sprinkling and Alarm System	250,000	250,000	250,000	250,000
Electrical Service	75,000	125,000	75,000	75,000
Site Lighting (16 street lights)	85,000	85,000	85,000	85,000
Special Inspections (structural engineer)	50,000	20,000	20,000	20,000
Commissioning	30,000	20,000	20,000	20,000
Quality assurance testing	20,000	15,000	15,000	15,000
Other	**887,000**	**362,000**	**362,000**	**362,000**
Temporary Space	500,000	-	-	-
Moving costs	50,000	25,000	25,000	25,000
Furniture	150,000	150,000	150,000	150,000
Chambers Casework	75,000	75,000	75,000	75,000
Security System	25,000	25,000	25,000	25,000
Wiring costs (telephone & computer)	40,000	40,000	40,000	40,000
Telephone system	35,000	35,000	35,000	35,000
Bidding costs	12,000	12,000	12,000	12,000
Contingency	**350,000**	**350,000**	**350,000**	**350,000**
Soils Contingency	100,000	100,000	100,000	100,000
Project Contingency	250,000	250,000	250,000	250,000
Total Project Budget	**6,008,877**	**5,057,056**	**5,876,127**	**5,687,958**

Figure 13 - Project Budget Comparison of Alternatives

Concern, Goal or Issue	***Expand on Site***	***Alternative #1***	***Alternative #2***	***Alternative #3***
Internal Functionality of the Plan	Poor - Internal circulation and adjacencies of offices not ideal	Excellent	Very Good (note #1)	Very Good (note #1)
Expandability	Yes (note #2)	Yes (note #2)	Yes (note #2)	Yes (note #2)
Impact to Traffic	Minimal	To be Determined	Minimal	Minimal
Contribution to Urban Form of Ashland	Least change	Low - Emphasizes Park not Town Hall	High - Emphasizes Town Hall as visible Landmark	Low - Emphasizes Park not Town Hall
Parking	Improved - Provides 39 spaces	Provides 28 spaces with direct connection to Municipal Lot	Provides 24 spaces and Farmers Market can be paved to add 28 additional spaces	Provides 35 spaces
Farmers Market	Must move	Must move	Remains	Must move
Park	Preserves the Park Setting	Minimal Impact on the Park	Park is used for Town Hall	Minimal Impact on the Park
Length of time Required	3.5 - 5 years	2-3 years	2-3 years	2-3 years
Cost	6 million dollars - most expensive and difficult option	5 million dollars - least expensive option	5.7 million dollars minimum	5.7 million dollars minimum
Uncertainties	Unknown building conditions and inflation of the project due to longer time required to complete	Traffic Impact and Complexity of Moving Duncan St.	Condition of Soils at Corner	Minimal Uncertainties

Notes	
Note #1	Requires Public Works Department to be located on Second Floor
Note #2	Expansion requires use of existing park or parking lot

Figure 14 - Evaluative Factors of Each Alternative

Appendix A
Structural Analysis

ASHLAND TOWN HALL FACILITIES STUDY & DESIGN

101 Thompson Street
Ashland, VA 23005

for:

PMA Architecture
10325 Warwick Blvd.
Hilton Village, VA 23601

SMF No.: 16.243

January 20, 2017

by:

SPEIGHT, MARSHALL
& FRANCIS, P.C.
STRUCTURAL ENGINEERS
2125 McComas Way, Suite 103
Virginia Beach, Virginia 23456
(757) 427-1020
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COMMONWEALTH OF VIRGINIA
JONATHAN M. CAPOZZOLA
Lic. No. 056529
1/20/17
PROFESSIONAL ENGINEER

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report represents the results of our structural investigation of the Ashland, Virginia Town Hall Building constructed in the 1950's.

Our initial scope of work is to complete a cursory structural assessment of the existing facility and the feasibility to maintain use of the building. One of our main concerns is the settlement of the slab-on-grade that has occurred in several areas of the building, most notably in the south-east and north-west corners. During our inspection we noted several structural deficiencies that should be addressed to maintain the use of the building.

Detailed herein, we make the following conclusions:

- The slab-on-grade has sustained damage due to differential settlement.
- Several interior CMU walls have been damaged due to settlement of the slab-on-grade.
- There are cracks in the exterior CMU backup walls at several locations.

INTRODUCTION

Ashland Town Hall Municipal Building is a single-story structure constructed in the 1950's with additions and renovations constructed in the 1990's and 2000's. The purpose of this structural investigation was to evaluate the present structural condition of the building.

We used the following means to conduct our investigation:

- Site visit to perform a cursory visual inspection.
- Review of Architectural record drawings prepared by John Efford dated July 15, 1954. Sheets utilized were one (1) to seven (7).
- Review of Architectural record drawings prepared by Hardwicke Associates dated March 20, 1990.
- Review of Architectural record drawings prepared by Architectural Resources dated October 11, 2000 with addendums dated December 13, 200 and May 14, 2001. Sheets utilized were A1.1, A2.1, A3.1, and A4.1.
- Technical Foundations, Inc. letter to Timmons Group regrading sub slab void probing, dated January 9, 2013.
- Past experience with similar structures.
- Discussion with Ashland Town Hall personnel.

NATURE OF PROFESSIONAL SERVICES PERFORMED

The professional services for this evaluation and report have been performed, the findings obtained, and the conclusions drawn in accordance with generally accepted principles and practices. **Speight, Marshall and Francis, P.C.** is not responsible for the conclusions, opinions or recommendations made by others based on the data presented in this report. The conclusions contained herein are based solely on the information obtained during our investigation and represent a professional opinion based on past experiences and our judgment. **Speight, Marshall & Francis, P.C.** only performed minor destructive demolition to aide in our investigation, thus our investigation is limited to what can be seen.

GENERAL DESCRIPTION OF STRUCTURAL SYSTEMS

The structural systems of the existing facility are as follows:

- **Foundations:** Shallow 8" thick x 20" wide concrete wall footings (no reinforcement noted on record drawings).

- **Slab-on-Grade**: Concrete slab cast and supported on grade (varying thickness).

- **Bearing Walls:** CMU walls of varying thicknesses with steel lintels and beams. No vertical wall reinforcing was specified on record drawings. Exterior CMU walls are bonded with brick veneer.

- **Flat Roof Structure (South Side):** Ten (10) and eighteen (18) inch deep open web steel bar joists spaced at 4'-0" on-center supporting steel roof deck and roofing.

- **Flat Roof Structure (North Side):** Wood 2 x 12's or 2 x 10's spaced at 1'-4" on-center supporting plywood sheathing.

- **Gable Roof Structure:** Gable wood roof trusses spaced at 2'-0" on-center supporting plywood sheathing.

STRUCTURAL ISSUES, DISCUSSION, AND RECOMMENDATIONS

The following structural deficiencies were noted during the structural investigation:

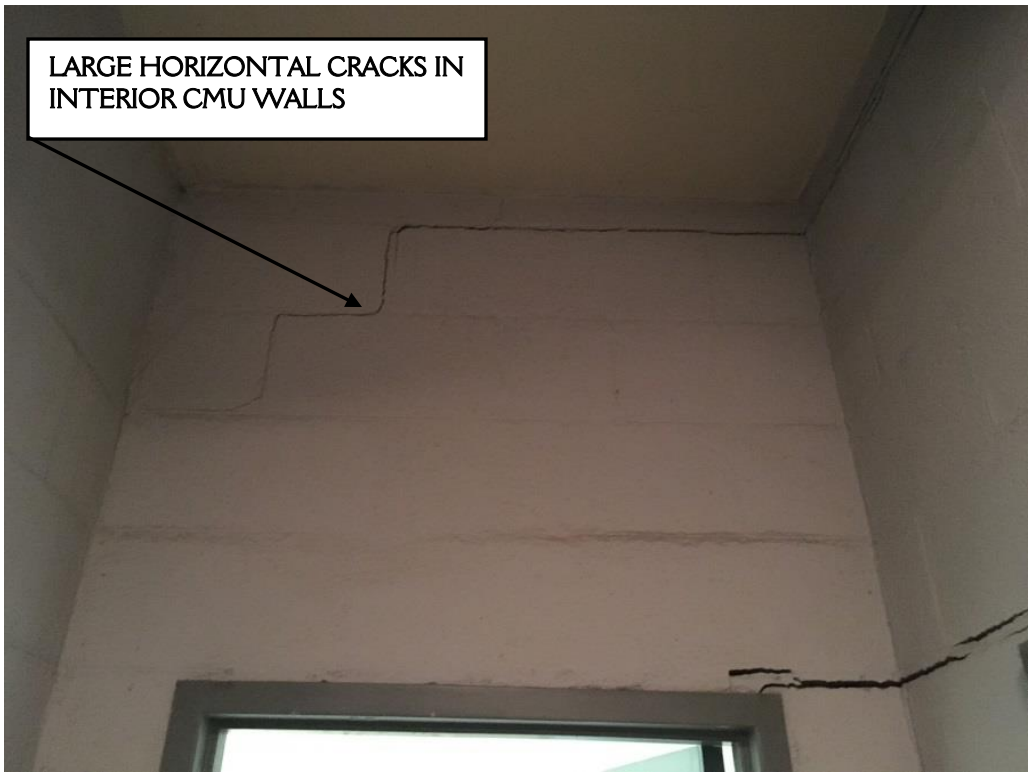
ITEM #1

Issue: The slab-on-grade has sustained damage due to differential settlement.
Discussion: Ashland Town Hall personnel and Technical Foundations, Inc. noted up to two (2) inches of settlement of the existing slab-on-grade which caused existing furniture to lean noticeably. This settlement was most likely caused by voids formed beneath the slab-on-grade. Existing photos we observed that were taken during slab removal showed multiple piping runs in the area of settlement.
Recommendations: Although remediation efforts were taken previously to repair the slab-on-grade settlement, the settlement issues will most likely return in the future. It is our recommendation to remove the existing slab-on-grade and replace the existing fill with a more suitable fill and replace the slab.

ITEM #2

Issue: Several interior CMU walls have been due to settlement of the slab-on-grade.
Discussion: There are several interior CMU walls (non-loading bearing) that were placed directly on top of the slab-on-grade and these interior CMU walls have developed large horizontal cracks.
Recommendations: The damaged walls should be replaced with new CMU walls which sit on concrete wall footings. The soil below the new walls can be compacted to avoid future settlement issues.

PHOTOGRAPH 1



PHOTOGRAPH 2

ITEM #3

Issue: There are cracks in the exterior CMU backup walls at several locations.
Discussion: Cracks have developed in some pf the exterior walls. These cracks can most likely be attributed to a lack of wall reinforcement. The walls may overstressed and started to exhibit signs of cracking.
Recommendations: The cracks do not appear on the exterior of the building and do not run through the entire thickness of the wall. Therefore, the issue appears to be minor, but as constructed does not meet current code requirements.

PHOTOGRAPH 3

CONCLUSIONS

The structural condition of Ashland Town Hall can be best described as fair to poor. The existing fill below the slab-on-grade itself must be replaced to mitigate any settlement concerns. A geotechnical engineer should be consulted to evaluate the existing sub-grade and recommend settlement mitigation techniques. Additionally, the damaged interior CMU walls need to be removed so that new foundation walls are in place. Overall there is a significant amount of work that must be performed to bring the existing Ashland Town Hall facility to a satisfactory structural condition. If the desire is to bring the facility up to current code requirements, a substantial amount of remediation and upgrades would be required.

Appendix B

Analysis of Electrical, Mechanical and Plumbing Systems in the Building

ELECTRICAL

The existing Town Hall building can be divided into three sections: Council Chambers; Finance; and Public Works

Part 1. DESCRIPTION OF BUILDING SYSTEMS

Electrical Service and Distribution

The building's electrical system has been modified multiple times over the years to accommodate building additions, renovations, reconfigured space and the addition of a portable backup power generator. Currently the building is served by three 25kVA pole mounted transformers. The transformers appear to be configured in a Wye configuration. (See Picture 1) The overhead service enters the building via two weather heads to a C/T cabinet located in the main electrical room. Located next to the C/T cabinet is the electrical service meter. See Attached Power Riser Diagram.

As a general note for all load centers observed at the building, there was evidence of dust. Many of the load centers have evidence of rust. For all load center in the building, the circuit breakers for have not been exercised or maintained in accordance with NFPA 70B. The condition of the electrical system lends itself to a buildup of oxidation on the electrical components preventing the circuit breakers from operating properly.

The electrical distribution consists of 3 service disconnects serving Load Center A, B and E. None of the Load Centers are labeled as in accordance with the code as service disconnects. All load centers in the building are residential grade. No load center has been provided with code required Arc Flash Hazard Warning labels. Load centers are identified with marker instead of labels. (See Picture 2, 3, and 4)

Load Center A is a 200A, 120/208V, 3 phase 4 wire G.E. Power Mark Plus Load Center located in the main electrical room served from the C/T cabinet through Load Center E. Load Center A appeared to be in a fair state of repair with visible signs of wear and degradation mostly likely due to high levels of moisture in the unconditioned space.

Load Center B is a 125A, 120/208V, 3 phase 4 wire G.E. Power Mark Plus Load Center located in the main electrical room served from the C/T cabinet through Load Center E and Load Center A. Load Center B serves the portable generator panel. Load Center B appeared to be in a good state of repair but with evidence that water may have entered the load center cover. (See Picture 5)

Load Center C is a 100A, 120/208V, 3 phase 4 wire G.E. Power Mark Plus Load Center located in the corridor outside of the receptionist office and served from load center E. Load Center C appeared to be in a good state of repair but with no evidence of wear or degradation. The load center cover is the only load center located in a public accessible location. The load center is not equipped with a locking cover. (See Picture 6)

Load Center D is a 100A, 120/208V, 3 phase 4 wire G.E. Load Center located in the main electrical room served from load center E. Load Center D appeared to be in a fair state of repair but with visible signs of wear and degradation mostly likely due to high levels of moisture in the unconditioned space.

Load Center E is a 400A, 120/208V, 3 phase 4 wire. The manufacture appeared to be a G.E. although the load center cover appears to be a replacement. Bryant circuit breakers are installed in the load center. Bryant circuit breakers are not listed for use in a G.E. load center. The load center is located in the main electrical room served from the C/T cabinet. Load Center E appeared to be in a fair state of repair with visible signs of wear and degradation and rust mostly likely due to high levels of moisture in the unconditioned space.

The portable generator power panelboard is a Murry 60A 120/208V 1 phase load center. Murry is the residential brand of Siemens Energy & Automation, Inc. The connection to the portable generator is a male 30A, 4 blade plug in a weather proof enclosure mounted on the exterior of the electrical room. (See Picture 7)

Wiring Methods

Wiring throughout the building is conductors in Electrical Metallic Tubing (EMT), Metal Clad Cabling (MC), non-metallic sheathed cabling (NMS/ Romex), and surface mounted raceway. Most interior conduits appeared to be in a good state of repair, although some conduits observed appeared to be abandoned and/or not supported in accordance with the code. (See Picture 8 and 9) Conduits on the exterior of the bldg. appeared to all be galvanized EMT and liquid tight flexible metallic conduit (LFMC) with the exception of conduits on the bldg.'s roof were found to be in a poor state of repair having failed exposing conductors to physical damage and the weather. (See Picture 10 and 11)

Interior Lighting

The interior lighting is mostly comprised of recessed troffers, surface mounted wrap troffers, linear strips, downlights, and keyless lamp holders. The wraps, troffers, strips and downlights, and keyless luminaires appeared to be in a good state of repair. (See Picture 12) The Council Chambers is illuminated by wall translucent white pendants, matching wall sconces, 2x2 recessed troffers and downlighting. (See Picture 13) Emergency lighting is provided by wall mounted emergency battery units (EBU's). The luminaires throughout the bldg. are controlled by snap switches with the exception of one restroom where a wall mounted occupancy sensor is used and the Council Chambers where advanced dimming and scene control is used. There are pendant and luminaires are controlled from the council desk. Lutron dimmers are located in the closet behind the council seats. The lamps used throughout the bldg. are T8 32W linear fluorescents, 32W U-lamp fluorescents, various wattage self-ballast compact fluorescents, compact fluorescent and incandescent lamps. (See Picture 14)

Exterior Lighting

The exterior lighting for the bldg. is comprised of downlighting at the entrances, wall mounted colonial lanterns, wall mounted flood lights, and colonial post tops in the front of the bldg. (See Picture 15) The

exterior luminaires was found to be in a good state of repair. The exterior lighting was controlled by time clock located in the main electrical room. The lamps use for the exterior lighting were high pressure sodium (HPS) for the post tops, self-ballast compact fluorescent lamps in the downlights and wall mounted colonial lanterns. (See Picture 16) An evaluation the night lighting level was not conducted, however the lighting is believed to provide adequate lighting levels for the entrances and sidewalks leading to the building. Other than the downlighting, the exterior lighting does not comply with current full cutoff and Backlight-Uplight-Glare (BUG) criteria.

Power

Receptacles throughout the building are 20A three grounded type receptacles. There is a combination of recessed and surface mounted receptacles. The receptacles are in various states of repair which appear to be caused by poor installation, wear and tear. (See Picture 17) Single receptacles located near windows presumably to serve window unit air conditioners have been painted over and may be abandoned in place. (See Picture 18) Plugin surge suppression devices were observed in the A/V room. There were no visible signs of failure or disrepair but due to its age it is very likely to be at or have exceeded its service life. Isolated Ground type receptacles were observed in the A/V room. The building's electrical system is not believed to contain an isolated ground bus.

There was not a receptacle observed on the roof over the finance area with in the code required distance of the roof top air conditioning unit.

The disconnect switch serving the air handler in the Public Works area does not have the code required clearance. (See picture 19)

Fire Alarm

The building is not equipped with a fire alarm system. Single stage smoke detectors where observed in the administration addition and outside the file room in the area. (See photo 20) A fire alarm system is not required given the building is a type B occupancy with less than 500 persons.

Telephone and Communication System

The telephone service appears to enter the building from the South side of the building served by underground feeders coming to the bldg. then run up the bldg. to enter the bldg. above the ceiling. The main telephone backboard is located in the former jail, now storage area chase. At the telephone backboard is the secured access control panel. (See Picture 21)

There is abandon computer networking/telephone system equipment throughout the building. (See Picture 22)

Access Control

The access controls system to the bldg. is comprised of key pads and electric door strikes connected to a access control panel located in the storage room of Public Works area at the telephone backboard . (See

Picture 22 and 23) The access control system controller is an Altronix Access Power Controller. The access controller is connected to a Fire Alert Security System panel. The security system has an access console in the reception area of the Public Works area of the bldg. The access control system appeared to be a good state of repair with no visible signs of deterioration or malfunction.

Part 2. RECOMMENDATIONS

The entire electrical distribution exhibits signs of the system being compromised. An infrared scan of the electrical load centers could be conducted to identify hot spots of high resistance and mitigation measures such as oxidation removal from the bus bars, lugs and related equipment and replacement of circuit breakers can be conducted to correct deficiencies in the electrical system, however the expense, length of power outage associated with these measures would be extensive and given that the electrical system is residential grade to begin with, replacement of the electrical system in its entirety is recommended.

Load center C is could remain, however consideration should be given to replace the cover provide an addition of a pad lock or other means to prevent access by other than qualified personnel.

Options should be developed to reduce the humidity levels in the main electrical room in an effort to improve the performance and service life of the electrical system. Such options could include but are not limited to conditioning the space and removing vents allowing unconditioned air to enter the space, providing an exhaust fan and providing a unit heater.

Due to the important and sensitive nature of the information that is conducted at this building it is recommended that a surge suppression device (SPD) be provided on the electrical distribution equipment. Type 3 SPD's could be provided at servers and A/V equipment to provide additional levels of protection.

Receptacles that are improperly installed or have been compromised should replaced or repaired with proper installation and functioning components.

Replacement of compromised safety switch, conduit and cabling system should be replaced to prevent electric shock hazard and equipment failure. Roof top HVAC units, conduits in attic spaces were observed to require remediation.

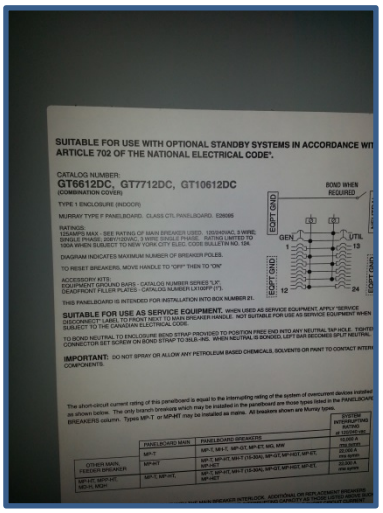
Conduit, receptacle and data systems that have been abandoned in place should be removed in their entirety.

Picture 1

Picture 2

Picture 3

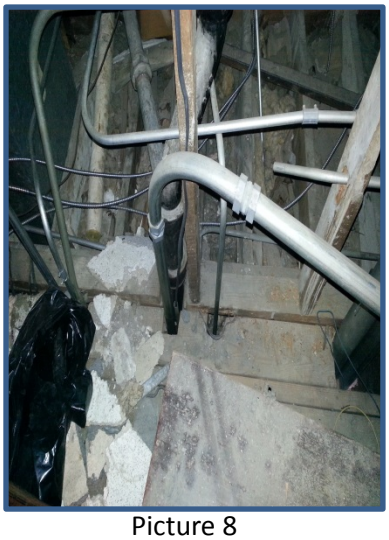
Picture 4



Picture 5

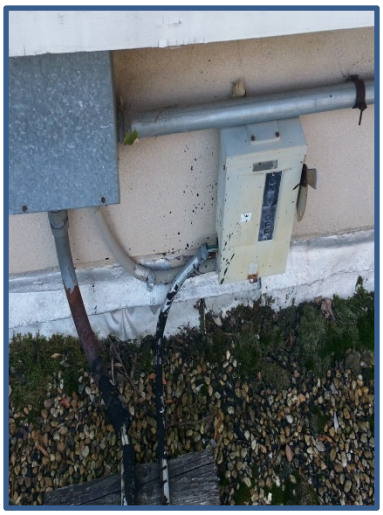
Picture 6

Picture 7



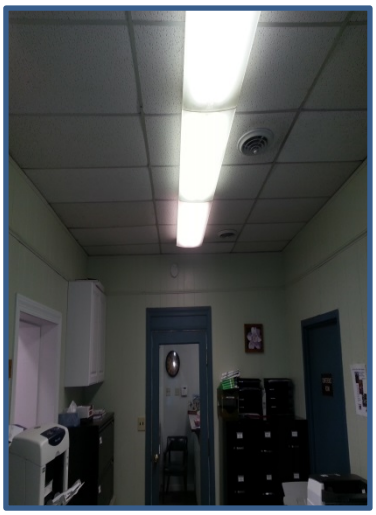
Picture 8

Picture 9

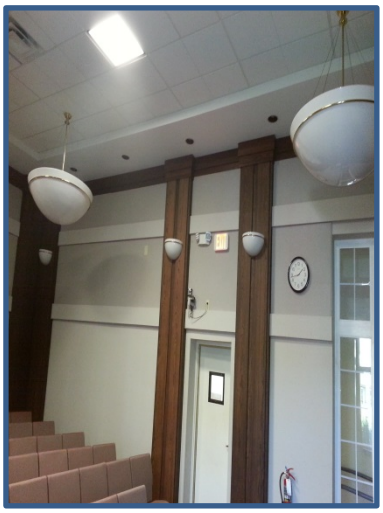


Picture 10

Picture 11



Picture 12

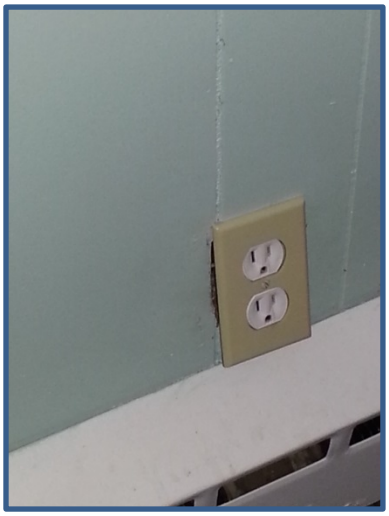


Picture 13

Picture 14

Picture 15

Picture 16



Picture 17

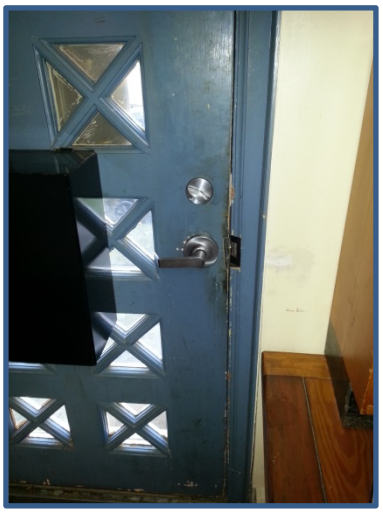
Picture 18

Picture 19

Picture 20

Picture 21

Picture 22



Picture 23

Picture 24

HVAC

Part 1. DESCRIPTION OF BUILDING SYSTEMS

The Ashland Town Hall HVAC system was surveyed on November 2, 2016, for the purpose of observing the heating ventilating and air conditioning equipment conditions in connection with plans for renovating the facilities. The existing heating equipment consists of a gas-fired boiler, hot water distribution pumps, piping, finned tube radiation units, and baseboard electric heaters for building perimeter heat; and a combination of split systems and packaged rooftop heat pumps for the rest of the building. The cooling equipment consists of split systems and packaged rooftop heat pumps. One ductless split air conditioning system conditions the server room. Two thru-the-wall air conditioners serve a documents storage room and one supplements the HVAC system in the Town Manager's Office.

The boiler is located in the mechanical room. The boiler appears functional but is approaching 26 years old. According to the American Society of Heating Refrigerating and Air Conditioning Engineers (ASHRAE) Handbook 2015, the service life of a typical hot water boiler is 24 years. The packaged rooftop units are 20 years old, the split system heat pump serving the Council Chambers is 12 years old, and the split system heat pump serving the Public Works Admin areas is 8 years old. According to ASHRAE Handbook 2015, the service life of packaged rooftop units and split system heat pumps is 15 years.

Although a complete survey and test was not performed throughout the building, asbestos containing materials (ACM) may be present, based on observations of the pipe insulation on existing hot water heating piping (see Picture 1) in the attic space above the mechanical room and Council Chambers.

COUNCIL CHAMBERS

The Council Chambers HVAC system is supplied by a single zone 5 ton split system heat pump. The air handling unit is located in a mechanical closet with access from an exterior door and the ductwork is routed in the attic (see Picture 2) to ceiling diffusers. Return air is drawn through closets constructed beside the council stage and then back to the air handling unit. The outdoor unit is mounted on the roof (see Picture 2). The temperature in the Council Chambers is controlled by a wall mounted thermostat located in one of the return air closets. The entry to the council chambers is heated by electric baseboard heaters. The entry does not have cooling or heating air distribution, so that area is conditioned by carry over air from adjacent spaces when the council doors or the doors from the finance and public works areas are open. Two (2) wall mounted thermostats control the electric baseboard heaters.

FINANCE

One 5 ton single zone packaged rooftop unit (see Picture 3) serves the finance areas which includes the Town Manager's Office. The perimeter of the finance areas is heated with hot water finned tube baseboard radiation units. Hot water zone pumps located near the boiler in the mechanical room control the flow of heating hot water to the radiation units. Ductwork from the rooftop unit is routed to

ceiling diffusers in each space. Return air is drawn through a central return air grille and return air ductwork back to the rooftop unit. A wall mounted thermostat located near the central return air grille controls the temperature for the entire finance spaces.

PUBLIC WORKS

One 5 ton single zone packaged rooftop unit (see Picture 4) serves the majority of spaces of the Public Works Department, including Planning Admin Office, the Public Works Offices and the office of the Public Works Director. Ductwork from the rooftop unit is routed to ceiling diffusers in each space. Return air is drawn through two central return air grilles, one located in the Planning Admin Office and one in the entry hallway. Return air ductwork associated with the central return air grilles is routed back to the rooftop unit. A wall mounted thermostat located in the Planning Admin Office controls the temperature for the entire Public Works spaces. One 3 ton single zone split system heat pump serves the Conference Room, corridor and break area. The air handling unit is mounted in an interior mechanical closet and the supply air ductwork is routed to ceiling diffusers. Return air is drawn through a return air register in the Conference Room and through a return air grille in the corridor over the break area and ducted above the ceiling back to the air handling unit. The outdoor heat pump (see Picture 5) is mounted on grade just outside the office adjacent to the mechanical closet. The area that once served as the holding cell is not air conditioned, but has approximately 15 linear feet of hot water finned tube baseboard radiation for heating. One 1 ton ductless split system air conditions the server room and its outdoor unit is mounted on grade in the vicinity of the secondary entrance to the Public Works Department.

ANALYSIS

Although a test was not performed, the existing HVAC system appeared, generally, operational. However, the systems are old and inefficient. Ventilation air for the building comes through operable windows, leading to periods when humidity in the spaces cannot be controlled to acceptable standards. All systems are single zone, meaning that there is only one thermostat and individual room temperature control is not possible.

The packaged roof top units and the split system heat pump serving the Council Chambers operate on R-22 refrigerant. The Montreal Protocol requires the U.S. to reduce its consumption of HCFCs by 99.5% below the U.S. baseline. Refrigerant that has been recovered and recycled/reclaimed will be allowed beyond 2020 to service existing systems, but chemical manufacturers will no longer be able to produce R-22 to service existing air conditioners and heat pumps. In essence, that means that if existing compressors fail, replacement compressors will not be available, and the rooftop units will need to be replaced with units using R-410a refrigerant. In some instances, R-22 may still be available to re-charge existing units that are tested and found to be low on refrigerant. But that availability will be diminished by 2020.

Part 2. RECOMMENDATIONS

If the Ashland Town Hall is going to be renovated, the entire HVAC system should be demolished and a new HVAC system should be provided. The ductless split system that conditions the server room could be salvaged and reused.

The proposed HVAC system should meet the Commonwealth of Virginia Uniform Statewide Building Code including ASHRAE Standard 90.1, "Energy Standard for Buildings Except Low Rise Residential Buildings," and ASHRAE Standard 62.1, "Ventilation for Acceptable Indoor Air Quality," and have the capability of individual room temperature control. Multiple gas fired packaged rooftop variable air volume (VAV) systems with VAV terminals or a variable refrigerant flow (VRF) system with ducted fan coil units, a dedicated outdoor air unit, and outdoor condensing units would meet the standards. The VRF system would consist of multiple small air handling units or ductless units with individual thermostats, would be connected to roof mounted air cooled condensing units by refrigerant piping, and could be installed either as floor mounted console units, on side walls or concealed above ceilings in non-conspicuous locations in each room of the Finance, Public Works and Council Chambers.

For long term energy efficiency, a VRF system could be linked with a geothermal water source condenser loop tied in to water cooled condensers located in the mechanical room. The system would be energy efficient, and meet LEED standards. Domestic hot water could be generated from a central heat pump tied to the geothermal loop located in the mechanical room. The geothermal wells would need to be constructed in the ground, on the property, in an accessible area. The loop pumps would need to be located in the mechanical room. For the geothermal system, no outdoor condensing units would be used.

Picture 1

Picture 2

Picture 3

Picture 4

Picture 5

Picture 6

PLUMBING

Part 1. DESCRIPTION OF BUILDING SYSTEMS

The Ashland Town Hall plumbing system was surveyed on November 2, 2016, for the purpose of observing the domestic hot water heating equipment, plumbing fixtures, building domestic water service and sanitary sewer drain system conditions in connection with plans for renovating the facilities. The existing domestic hot water is generated by two tank type electric water heaters (see Picture 1) and one electric instantaneous water heater. A 1-inch domestic water line with an exterior backflow preventer was observed for the building. Two (2) wall mounted exterior hose bibbs were observed on the building. The sewer drain system could not be observed. One (1) electric water cooler with bottle filler (see Picture 2) is wall mounted in the Council Chambers Entry area.

The existing fixtures consist of flush tank and flush valve water closets and wall hung lavatories (see Picture 3). No urinals exist in the building. One ADA accessible unisex bathroom is located off the corridor at the west entrance to the Planning Department. One Janitors closet with a wall mounted service sink (see Picture 4) exists that serves the entire building.

The flat roofs are served with interior roof drains and secondary overflow parapet drains (see Pictures 5 and 6).

COUNCIL CHAMBERS

The Council Chambers do not have direct access to the ADA unisex restroom. However, it is apparent that during use of the Council Chambers, that restroom is the only one available. The maximum occupancy in the Council Chambers is estimated at 78 people.

FINANCE

Two individual restrooms, consisting of one water closet and one lavatory each, serve the finance areas. The maximum occupancy of the finance area is estimated at 17 people.

PUBLIC WORKS

Two individual unisex restrooms, consisting of one water closet and one lavatory each, serve the Public Works areas. The maximum occupancy of the Public Works area is estimated at 16 people.

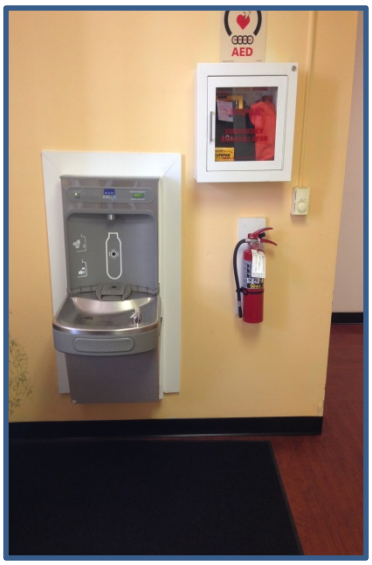
ANALYSIS

The plumbing fixtures are old and do not meet energy and water consumption requirements of today's standards. The quantity of standard and ADA accessible plumbing fixtures should be evaluated in connection with any proposed renovation work. According to the International Plumbing Code, Chapter 4, "Fixtures, Faucets and Fixture Fittings," separate men's and women's restrooms are required. As a result, it appears that the overall quantities of fixtures are adequate, but the building is deficient in separate men's and women's restrooms.

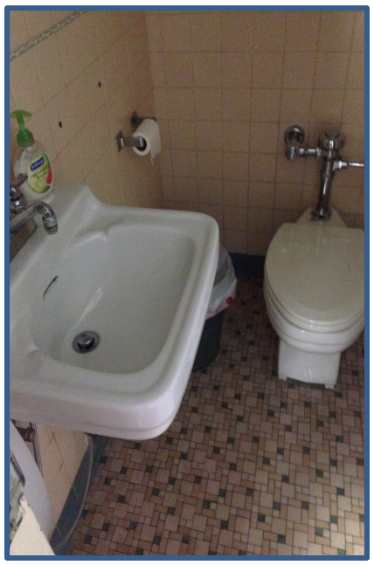
Part 2. RECOMMENDATIONS

If the Ashland Town Hall is going to be renovated, the plumbing fixtures should be demolished and new plumbing fixtures should be provided throughout. The quantity of standard and ADA accessible plumbing fixtures should be evaluated in connection with any proposed renovation work. Also in connection with any renovation plans, flush valve water closets should be considered. Flush valves allow faster recovery time after flushing and accommodate more people in a shorter period of time. In order to utilize flush valve water closets, the water service piping to the building must be increased in size to 2 inches. New domestic hot and cold water piping should be provided to the renovated restrooms. The entire sanitary drain system should be scoped with a video camera and replaced if the evidence supports it.

Picture 1



Picture 2



Picture 3

Picture 4

Picture 5

Picture 6

Appendix C

Analysis of Soils on the Existing Town Hall Site

PRELIMINARY GEOTECHNICAL ENGINEERING REPORT

TOWN OF ASHLAND TOWN HALL
101 THOMPSON STREET
ASHLAND, VIRGINIA

JOB NUMBER: 39016

PREPARED FOR:

PMA PLANNERS & ARCHITECTS
10325 WARWICK BOULEVARD
NEWPORT NEWS, VIRGINIA 23601

December 20, 2016

TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

TABLE OF CONTENTS

APPENDICES

EXECUTIVE SUMMARY

For your convenience, this report is summarized in outline form below. This brief summary should not be used for preliminary planning and preliminary design purposes without reviewing the details contained in this report.

1. The subsurface exploration included a visual site reconnaissance, performance of four test borings to a depth of approximately 20 feet below the ground surface and quantitative laboratory testing.

2. The borings encountered approximately 2 to 6 inches of surficial topsoil and gravel. Existing fill soils were encountered in all the borings to depths of typically 1.5 feet below the ground surface, with the exception of Boring B-04 which encountered deeper fill deposits of approximately 10.5 feet below the ground surface. Fill soils consisted of loose to medium dense sands and stiff to very stiff clays. Beneath the fill, undisturbed coastal plain soils were encountered to depths up to 20 feet below the ground surface. These soils consisted of loose to very dense sands and stiff to very stiff clays. At the time of exploration, water was encountered in several of the borings at depths ranging from 16 to 18 feet below the ground surface.

3. We recommend that site grading be conducted during the typically drier summer months.

4. Near-surface soils consist of existing fill. Some of the fill appeared relatively loosely compacted. Our experience with existing fill is that it is often erratically compacted and of variable stiffness. Therefore, some repairs to existing fill should be anticipated, particularly during poor weather conditions.

5. We expect that near-surface natural soils and suitable well compacted fill are capable of supporting a light to moderate building loads (up to 125 kip column loads) on shallow foundations. A preliminary allowable bearing pressure in the range of 2,000 to 3,000 psf is anticipated for shallow foundation design. Existing fill soils are not considered acceptable for foundation and should be over excavated and replaced with VDOT No. 57 stone where they are present below foundations. In addition, undercutting and replacement of existing fill could be required below building slabs.

6. Once final site and grading plans are available, we recommend that additional borings and laboratory testing be performed so that more specific recommendations can be made for the proposed building and site grading scheme. Design phase foundation recommendations can be provided once a building layout, structural loads and a more detailed geotechnical exploration is performed.

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December 20, 2016

PMA Planners & Architects
10325 Warwick Boulevard
Newport News, Virginia 23601

Attention: Mr. Jeff Stodgill

Re: **Preliminary Geotechnical Engineering Report**
Town of Ashland Town Hall
101 Thompson Street
Ashland, Virginia
Timmons Group Project No. 39016

Mr. Stodgill:

Timmons Group is pleased to submit this preliminary geotechnical engineering report for the referenced project. The objectives of our services were to explore subsurface conditions and provide our preliminary geotechnical recommendations for site grading and foundation support.

1. PROJECT INFORMATION

The project is located at 101 Thompson Street in Ashland, Virginia. The site currently separated by Duncan Street. The Ashland Municipal Building, which is a single story brick building, is located in the east portion of the site. The remainder of the site includes a partially covered gravel parking lot west of Duncan Street. Reviewing historical aerials of the site has revealed a residential building was located along the western edge of the site near Thompson Street.

We understand the site is being considered for possible new building construction. At the issue of this report, a preliminary site layout plan was not available.

2. FIELD EXPLORATION

The field exploration included a visual site reconnaissance by a representative of Timmons Group and performance of four soil test borings (B-01 through B-04). Boring locations were selected by Timmons Group. A representative of Timmons Group established locations in the field using GPS equipment. Approximate boring locations are shown on Figure 2 in Appendix A.

Borings were performed to a depth of approximately 20 feet below the existing ground surface with hollow stem drilling techniques. Split-spoon samples of subsurface soils were taken within soil test borings at approximate 2-foot intervals above a depth of 10 feet and at 5 foot intervals below 10 feet. One bulk sample of near-surface soil cuttings was also collected. Standard penetration tests were conducted in conjunction with split-spoon sampling in general accordance with ASTM D 1586-99.

Water levels were measured in open boreholes at the time of drilling. Upon completion, boreholes were then backfilled up to the original ground surface with drill cuttings. Representative portions of split-spoon soil samples and the bulk sample were returned to our laboratory for quantitative testing and visual classification in general accordance with Unified Soil Classification System guidelines.

Boring logs and a generalized soil profile (Figure 3), which present specific information from the borings, are included in the Appendix. Stratification lines shown on the boring logs and profile are intended to represent approximate depths of changes in soil types. Naturally, transitional changes in soil types are often gradual and cannot be defined at particular depths. Ground surface elevations shown on these documents were interpolated from the publically available GIS data and should be considered very approximate.

3. LABORATORY TESTING

Laboratory testing was performed on representative split-spoon samples obtained from the borings. This testing consisted of natural moisture content, Atterberg limits and grain size analyses. Laboratory tests were performed in general accordance with applicable ASTM procedures. Individual laboratory test data sheets are provided in the Appendix. A summary of laboratory test data is provided in the tables below.

Natural Moisture and Classification Tests

Boring	Sample	Depth (Feet)	Natural Moisture Content (%)	Atterberg Limits			Grain Size Analysis			USCS Classification
				LL	PL	PI	% Sand	% Fines*	% Gravel	
B-01	S-2	2-3.5	15.8	25	13	12	48.7	51.3	0.0	CL
B-01	S-3	4-5.5	17.4	33	17	16	43.9	56.1	0.0	SC
B-02	S-2	2-3.5	13.1	18	11	7	44.6	55.4	0.0	CL
B-03	S-3	4-5.5	20.0	37	15	22	51.7	48.3	0.0	SC

*****Material passing No. 200 sieve (clay and silt)
******Visual Classification

Based on the Atterberg limits testing, near-surface soils are of low to moderate plasticity.

4. SITE GEOLOGY

According to the 1993 Geologic Map of Virginia, the project site is located in the Coastal Plain Physiographic Province. The coastal plain is characterized by unconsolidated marine to fluvial sediments, varying from clay to gravel, poorly to well sorted, with lateral variation in thickness, although generally increasing in thickness towards the east. Vertical variation within the geologic formations of the coastal plain is often controlled by cyclic sequences that fine or coarsen with depth, with formations separated by unconformities. Regionally, the stratigraphy of the coastal plain can be generalized as a wedge of sediments composed of fluvial and coastal plain sands and gravels of Quaternary and upper Tertiary age, underlain by marine, deltaic, and fluvial clays, silts, and sands of lower Tertiary age, underlain by fluvial-deltaic to shallow-shelf sands and clays of Cretaceous age, underlain by crystalline bedrock. Depth to bedrock varies from tens of feet near the western extent of the coastal plain at the Fall Line (approximate Interstate I-95 corridor) to over 3,000 feet near the Atlantic coastline.

According to the Map, the site appears to be locally underlain by Pliocene Sand and Gravel, which typically consists of Upper Pliocene aged deposits of fluvial sand and gravel with thin beds of clay and silt.

5. SUBSURFACE CONDITIONS

The following is a summary of subsurface conditions encountered during the exploration.

5.1 Ground Surface Cover

The borings encountered approximately 2 to 6 inches of surficial topsoil or gravel.

5.2 Existing Fill Soils

Existing fill soils were encountered in all the borings to depths of typically 1.5 feet below the ground surface, with the exception of Boring B-04 which encountered deeper fill deposits of approximately 10.5 feet below the ground surface. These soils consisted of loose to medium dense silty sand (SM), stiff to very stiff highly plastic clay (CH) and lean clay (CL). The often contained gravel or roots. Standard Penetration Test (SPT) N-values within the fill ranged from 4 to 30 blows per foot (bpf).

It should be noted that soils encountered below a depth of 6 feet in boring B-04 were classified as fill only because we observed trace fine roots in the soil samples. The SPT N-values in these soils (24 and 30 bpf) suggest the soils could be undisturbed. Further exploration would be needed to determine if these are actually undisturbed soils.

At shallow depths in boring B-02, our drilling subcontractor noted a foreign chemical odor that was assumed to be emitting from the borehole. The type of chemical is not known, as our scope was only to explore the soil profile and not determine any potential chemical constituents in the soil.

5.3 Coastal Plain

Beneath the fill, undisturbed coastal plain soils were encountered to depths up to 20 feet below the ground surface. These soils consisted of loose to very dense sands (SM, SC), and stiff to very stiff highly plastic clay (CH) and lean clay (CL). SPT N-values within these soils ranged from 5 to 53 blows per foot (bpf).

5.4 Groundwater

At the time of exploration, water was encountered in a majority of the borings at depths ranging from 16 to 18 feet below the ground surface. It is important to realize that groundwater levels will fluctuate with changes in rainfall and evaporation rates. In addition, perched groundwater could be encountered within near-surface soils, particularly after rainfall.

6. PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based upon our borings, laboratory testing, engineering analysis, and past experience with similar projects and subsurface conditions

When reviewing our recommendations, it is important to note the prior development activities have occurred at this site. Based on our past experience with previously developed sites, unexpected subsurface conditions are often encountered. These conditions could include additional zones of low-consistency fill, debris-laden materials, abandoned utilities, and others. These conditions, if encountered, can be addressed by on-site engineering evaluation at the time of construction.

6.1 Site Preparation

6.1.1 General

Site grading will be difficult during periods of extended rainfall and low temperatures that generally occur during the winter months. Near-surface soils were relatively soft/loose in one of the four borings performed during the exploration. If grading is conducted during a wet time period, soils will tend to rut and pump under rubber-tired traffic and provide poor subgrade support for pavements. Heavy rubber-tired construction equipment should not be allowed to operate on wet or unstable subgrades at this site due to the potential for rutting and other damage to the soils.

To reduce potential earthwork problems, site preparation and grading should be scheduled during the typically drier summer months, if possible. We recommend that exposed subgrades be sloped and sealed at the end of each day to promote runoff and reduce infiltration from rainfall.

Site preparation should begin with clearing and grubbing of existing trees, stripping of topsoil, removal of existing utilities, removal of existing buildings (where planned) and their foundations, removal of pavements, and removal of any other unsuitable materials. Approximately 2 to 6 inches of ground surface cover was encountered in the borings. However, stripping activities often mix topsoil with underlying "clean" soils and cause stripping depths to be greater than actual cover depths, particularly during wet periods of the year. Ground surface cover materials should be wasted from the site.

6.1.2 Subgrade Evaluation

After topsoil stripping and removal of ground surface cover, exposed soil subgrades in areas to receive fill, and finished subgrades, should be evaluated by the Geotechnical Engineer or his representative. To aid the engineer during this evaluation, exposed soil subgrades should be proofrolled with a loaded tandem axle dump truck or equivalent. Proofrolling will help to reveal the presence of unstable or otherwise unsuitable surface materials. The following methods are typically used to repair soil subgrades that are observed to rut, pump, or deflect excessively during proofrolling:

- Undercut the unstable soils to firm soils and replace them with suitable, well compacted fill.
- In-place repair of near-surface soils by scarifying, drying and recompacting, when weather conditions are suitable.

6.1.3 Existing Fill Soils

Existing fill soils were encountered in all the borings to depths of typically 1.5 feet. Boring B-04 encountered significantly deeper deposit of fill soils of approximately 10.5 feet. Further, historical aerials show there was a house that was demolished in the vicinity of Boring B-01, and this could indicate additional deeper fill deposits. Our experience is that existing fill can be very erratically compacted and have variable stiffness. Some repair of existing fill should be anticipated. The amount of repairs required can only be determined in the field by subgrade evaluation during construction.

6.2 Structural Fill

Structural fill should consist of non-organic, debris-free soils that are of low plasticity and compacted in thin, loose lifts. A compaction effort in the range of 95 to 98 percent of the Standard

Proctor maximum dry density is common for newly-placed structural fill supporting buildings and pavements. Additional recommendations for structural fill materials and their placement can be made during the design-phase geotechnical exploration.

Site preparation, including fill placement and compaction, should be observed by a qualified soils technician working under the direction of the Geotechnical Engineer. During fill placement, a sufficient amount of in-place density tests should be conducted to confirm that compaction and fill moisture is in accordance with our recommendations.

6.3 Preliminary Building Foundation Recommendations

Based on the borings, our preliminary recommendations are the site is capable of supporting light to moderate building loads (up to 125 kip column loads) on shallow foundations bearing in undisturbed soils or well-compacted structural fill. A preliminary allowable bearing pressure in the range of 2,000 to 3,000 psf is anticipated for foundation design, assuming a tolerable foundation settlement of one inch. Existing fill soils are not considered acceptable for foundation support and will require over excavation and replacement with VDOT No. 57 stone or lean concrete where present below foundations. Over excavation of fill could be considerable in the general vicinity of boring B-04, where existing fill extends relatively deep.

Undercutting and replacement of fill beneath future building slabs could also be required. Additional exploration, such as borings and test pits, can be performed during the design-phase exploration to further evaluate the characteristics of existing fill and provide recommendations for repairs in building slab areas.

7. ADDITIONAL EXPLORATION

Once proposed site and grading plans are available and structural loads are known, we recommend that additional borings and laboratory testing be performed so that more specific recommendations can be made for the buildings and site grading scheme.

8. LIMITATIONS OF REPORT

The preliminary recommendations contained in this report are made on the basis of the site information made available to us and the surface and subsurface conditions that existed at the time of the exploration. While this exploration has been conducted in accordance with generally accepted geotechnical engineering practices, there remains some potential for variation of the subsurface conditions in unexplored areas of the site. If the subsurface conditions encountered during construction vary significantly from those presented in this report, we should be notified to reevaluate our recommendations. No other warranty, expressed or implied, is made as to the professional advice included in this report.

9. CLOSURE

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this study or if we can be of further assistance, please contact us at (804) 200-6500.

Respectfully submitted,
TIMMONS GROUP

Julian M. Ruffin IV, P.E.
Geotechnical Engineer

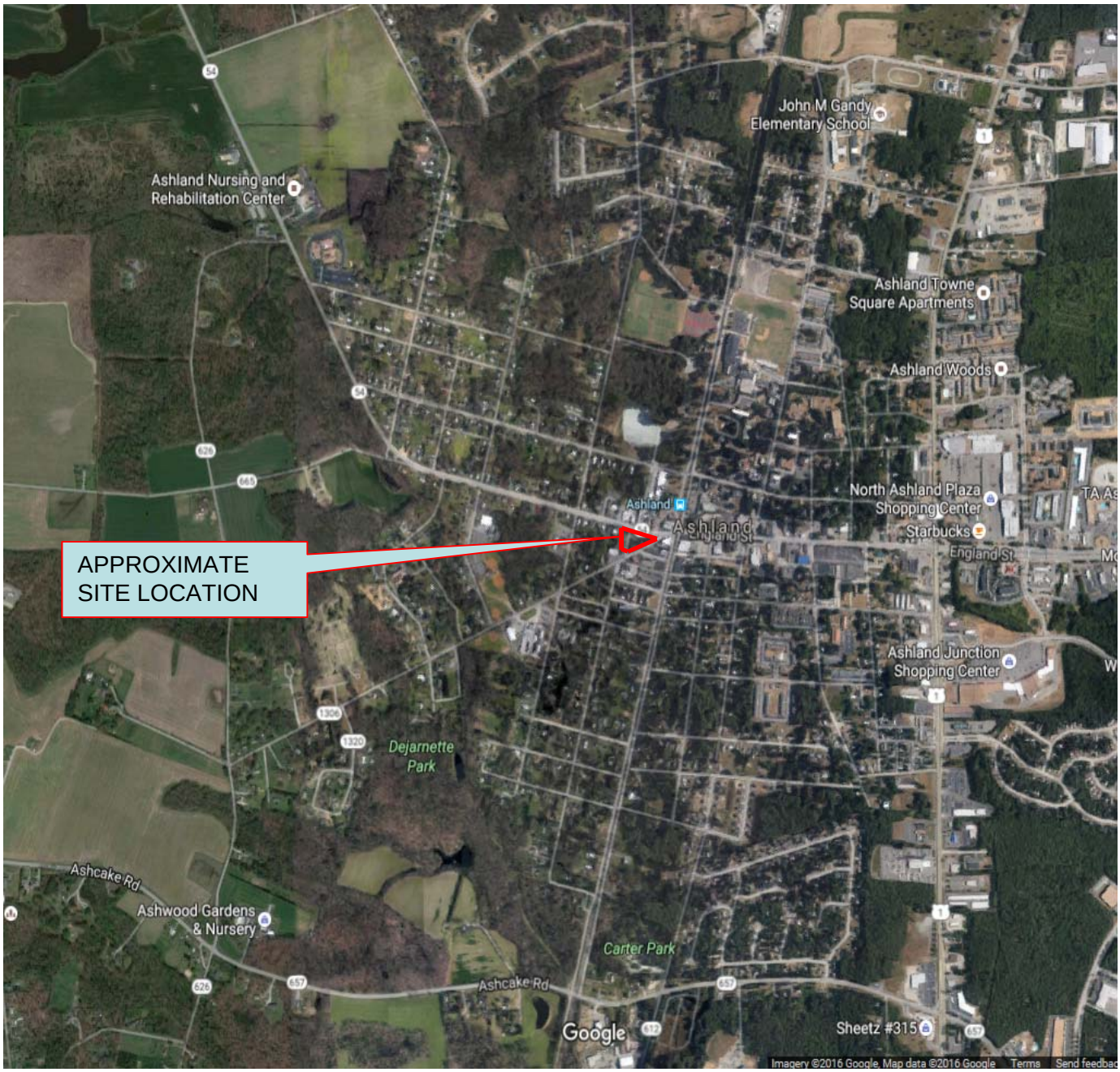
COMMONWEALTH OF VIRGINIA
JNR
12/20/16
J NATHAN REEVES
No. 049619
PROFESSIONAL ENGINEER

J. Nathan Reeves, P.E.
Geotechnical Engineer
VA Registration No. 049619

APPENDIX A

FIGURES

NORTH



Source: Google Maps

SCALE:	**NTS**	TIMMONS GROUP YOUR VISION ACHIEVED THROUGH OURS.	**SITE VICINITY MAP** **TOWN OF ASHLAND TOWN HALL** **THOMPSON STREET** **ASHLAND, VA**	**FIGURE** **1**
CHECKED BY:	**JNR**			
PLOTTED BY:	**JMR**			
DATE:	**11-4-2016**	**PROJECT NUMBER: 39016**		

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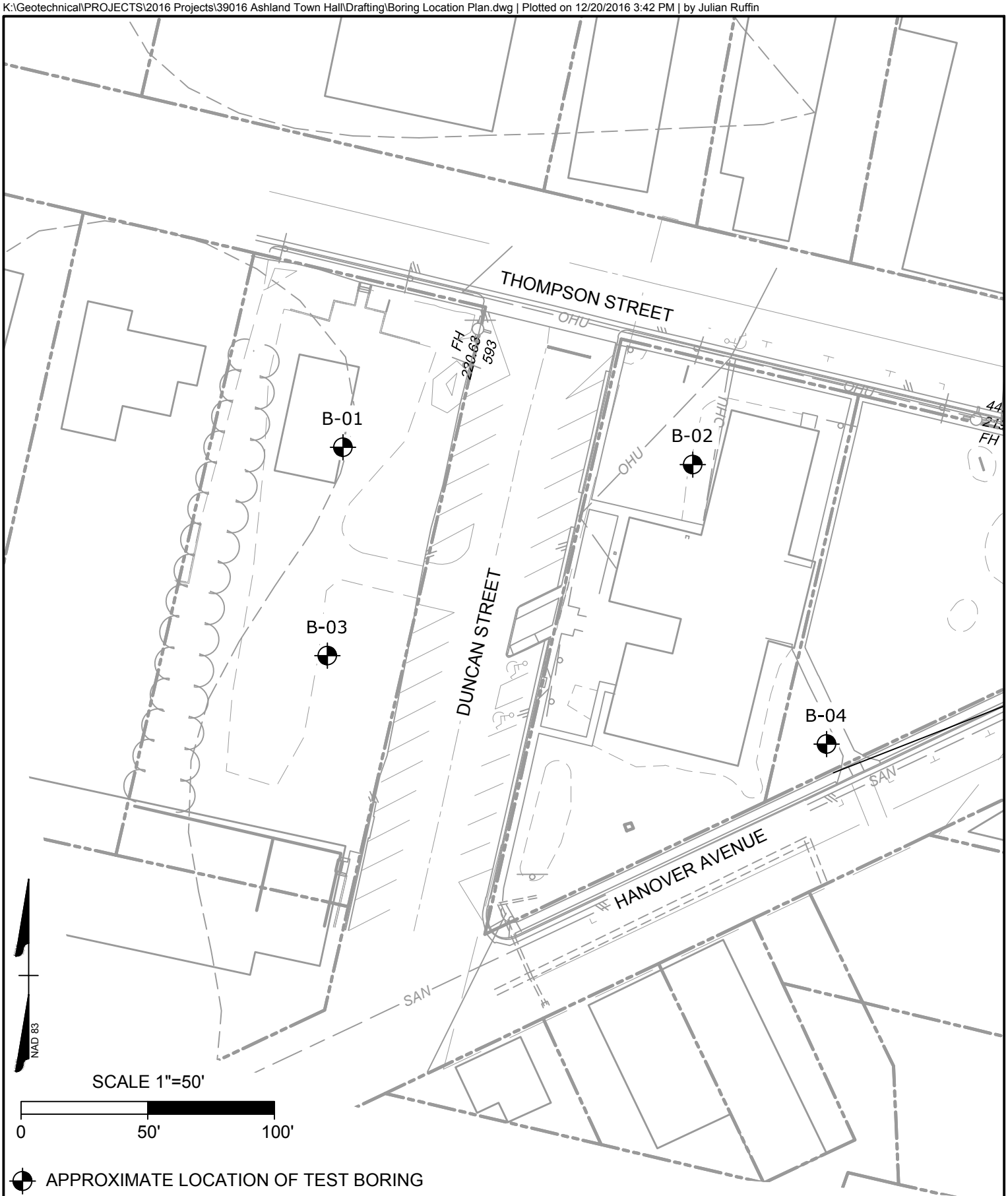

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THIS DRAWING PREPARED AT THE
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1001 Boulders Parkway | Richmond, VA 23225
TEL 804-200-6500 FAX 804-560-1016 www.timmons.com

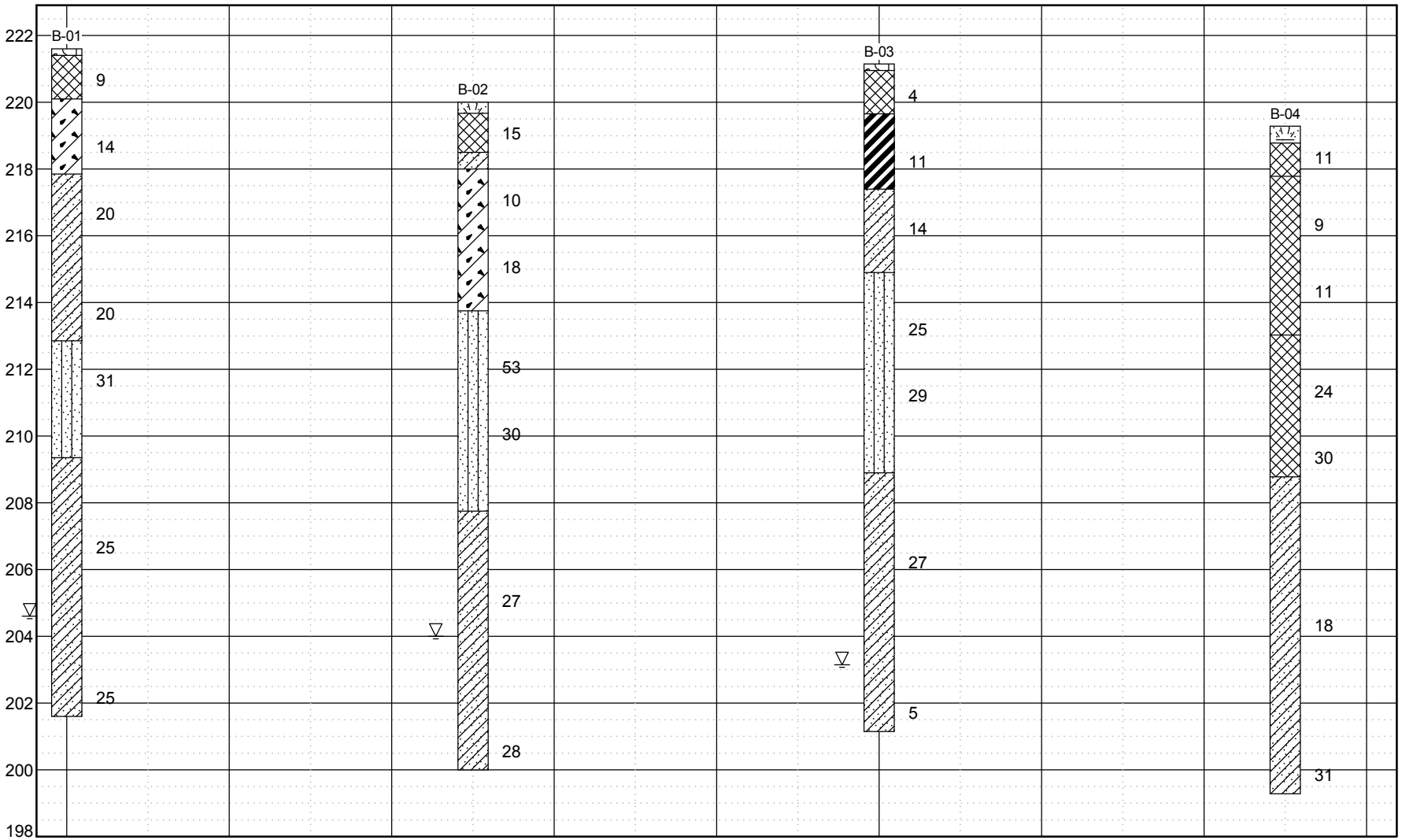
TOWN OF ASHLAND TOWN HALL

ASHLAND - VIRGINIA

BORING LOCATION PLAN

SHEET NO.	JOB NO.	SCALE	CHECKED BY	DESIGNED BY	DRAWN BY	DATE
2	39016	AS SHOWN	N. REEVES	N. REEVES	J. RUFFIN	11/3/2016

DATE	REVISION DESCRIPTION
-	-



Lithology Symbols

- Poorly-graded Gravel
- Fill (made ground)
- Low Plasticity Clay
- Clayey Sand
- Silty Sand
- Topsoil
- High Plasticity Clay

Groundwater Symbols

▽ At End of Drilling ▼ At 24 Hours

Exploration Symbols

B-01 (Exploration ID)

13 (N-Value)

53% 98%(RQD REC)

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Timmons Group
1001 Boulders Parkway, suite 300
23225

Fence Diagram

Town of Ashland Town Hall

Ashland, Virginia

PROJECT NUMBER	DRAWN BY	DATE DRAWN
39016	JR	12/16/2016
HORIZONTAL SCALE	APPROVED BY	FIGURE
VERTICAL SCALE	NR	3

APPENDIX B

BORING LOGS

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Timmons Group
1001 Boulders Parkway, suite 300
23225

BORING B-01

PROJECT NUMBER 39016 **PROJECT NAME** Town of Ashland Town Hall

CLIENT PMA Planners & Architects **PROJECT LOCATION** Ashland, Virginia

DATE STARTED 11/14/2016 **COMPLETED** 11/14/2016 **GROUND ELEVATION** 221.6 ft **HOLE DEPTH** 20 feet

DRILLING CONTRACTOR Ayers & Ayers, Inc. **BOREHOLE WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger ▽ **AT END OF DRILLING** 17.00 ft / Elev 204.60 ft

LOGGED BY Julian Ruffin **CHECKED BY** ▼ **AT 24 HOURS DRILLING** ---

NOTES **CAVE DEPTH**

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOL	SAMPLING BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	LAB TESTS	REMARKS
0	220	CRUSHED STONE: (2 Inches) SILTY SAND, (SM): black, fine to medium grained, moist, loose, contains gravel, fill		S-1, SPT 3-4-5 (9)			
		SANDY LEAN CLAY, (CL): light grayish brown, moist, stiff		S-2, SPT 5-7-7 (14)			
5	215	CLAYEY SAND, (SC): orangeish brown and gray, fine to medium grained, moist, medium dense		S-3, SPT 7-9-11 (20)			
				S-4, SPT 9-10-10 (20)			
10	210	SILTY SAND, (SM): brown and gray, fine to medium grained, moist, dense		S-5, SPT 10-14-17 (31)			
		CLAYEY SAND, (SC): brown, fine to medium grained, moist, medium dense		S-6, SPT 9-11-14 (25)			
15	205	▽					
20		Wet		S-7, SPT 10-11-14 (25)			

Bottom of borehole at 20.0 feet.

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Timmons Group
1001 Boulders Parkway, suite 300
23225

BORING B-02

PROJECT NUMBER 39016 **PROJECT NAME** Town of Ashland Town Hall

CLIENT PMA Planners & Architects **PROJECT LOCATION** Ashland, Virginia

DATE STARTED 11/14/2016 **COMPLETED** 11/14/2016 **GROUND ELEVATION** 220 ft **HOLE DEPTH** 20 feet

DRILLING CONTRACTOR Ayers & Ayers, Inc. **BOREHOLE WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger ▽ **AT END OF DRILLING** 16.00 ft / Elev 204.00 ft

LOGGED BY Julian Ruffin **CHECKED BY** ▼ **AT 24 HOURS DRILLING** ---

NOTES Chemical odor dtected during exploration **CAVE DEPTH**

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOL	SAMPLING BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	LAB TESTS	REMARKS
0	220	TOPSOIL: (4 Inches)		S-1, SPT 6-7-8 (15)			
		SILTY SAND, (SM): gray, fine to medium grained, moist, medium dense, fill					
		CLAYEY SAND, (SC): brown and gray, fine to medium grained, moist, medium dense		S-2, SPT 3-4-6 (10)			
		SANDY LEAN CLAY, (CL): gray, moist, stiff					
5	215	Very stiff		S-3, SPT 5-8-10 (18)			
		SILTY SAND, (SM): gray, fine to medium grained, moist, very dense		S-4, SPT 19-25-28 (53)			
10	210	Medium dense		S-5, SPT 9-14-16 (30)			
		CLAYEY SAND, (SC): brown and gray, fine to medium grained, moist, medium dense					
15	205	▽		S-6, SPT 9-13-14 (27)			
		Orangeish brown, wet, contains gravel					
20	200			S-7, SPT 10-12-16 (28)			

Bottom of borehole at 20.0 feet.

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Timmons Group
1001 Boulders Parkway, suite 300
23225

BORING B-03

PROJECT NUMBER 39016 **PROJECT NAME** Town of Ashland Town Hall

CLIENT PMA Planners & Architects **PROJECT LOCATION** Ashland, Virginia

DATE STARTED 11/14/2016 **COMPLETED** 11/14/2016 **GROUND ELEVATION** 221.15 ft **HOLE DEPTH** 20 feet

DRILLING CONTRACTOR Ayers & Ayers, Inc. **BOREHOLE WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger ▽ **AT END OF DRILLING** 18.00 ft / Elev 203.15 ft

LOGGED BY Julian Ruffin **CHECKED BY** ▼ **AT 24 HOURS DRILLING** ---

NOTES **CAVE DEPTH**

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOL	SAMPLING BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	LAB TESTS	REMARKS
0	220	CRUSHED STONE: (2 Inches)		S-1, SPT 1-2-2 (4)			
		SILTY SAND, (SM): black, fine to medium grained, moist, loose, fill					
		SANDY FAT CLAY, (CH): orangeish brown, moist, stiff		S-2, SPT 4-5-6 (11)			
5	215	CLAYEY SAND, (SC): brown, fine to medium grained, moist, medium dense		S-3, SPT 6-6-8 (14)			
		SILTY SAND, (SM): light orangeish brown and gray, fine to medium grained, moist, medium dense		S-4, SPT 9-11-14 (25)			
10	210			S-5, SPT 11-13-16 (29)			
		CLAYEY SAND, (SC): brown and gray, fine to medium grained, moist, medium dense					
15	205			S-6, SPT 10-13-14 (27)			
		▽					
20		(SC): orangeish brown, loose		S-7, SPT 2-2-3 (5)			

Bottom of borehole at 20.0 feet.

TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

Timmons Group
1001 Boulders Parkway, suite 300
23225

BORING B-04

PROJECT NUMBER 39016 **PROJECT NAME** Town of Ashland Town Hall

CLIENT PMA Planners & Architects **PROJECT LOCATION** Ashland, Virginia

DATE STARTED 11/14/2016 **COMPLETED** 11/14/2016 **GROUND ELEVATION** 219.28 ft **HOLE DEPTH** 20 feet

DRILLING CONTRACTOR Ayers & Ayers, Inc. **BOREHOLE WATER LEVELS:**

DRILLING METHOD Hollow Stem Auger **AT END OF DRILLING** --- not encountered

LOGGED BY Julian Ruffin **CHECKED BY** **AT 24 HOURS DRILLING** ---

NOTES **CAVE DEPTH**

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	SYMBOL	SAMPLING BLOW COUNTS (N-VALUE)	POCKET PEN. (tsf)	LAB TESTS	REMARKS
0		TOPSOIL: (6 Inches)		S-1, SPT 4-5-6 (11)			
		SILTY SAND, (SM): gray, fine to medium grained, moist, medium dense, trace roots, fill					
		FAT CLAY WITH SAND, (CH): brown and gray, moist, stiff, contains roots, fill		S-2, SPT 3-4-5 (9)			
	215			S-3, SPT 4-5-6 (11)			
5		LEAN CLAY WITH SAND, (CL): gray, moist, very stiff, contains roots, fill		S-4, SPT 10-11-13 (24)			
	210	Contains roots		S-5, SPT 11-14-16 (30)			
10		CLAYEY SAND, (SC): brown and gray, fine to medium grained, moist, medium dense					
	205			S-6, SPT 6-8-10 (18)			
15							
	200	CLAYEY SAND WITH GRAVEL, (SC): light orangeish brown, fine to coarse grained, dense, contains gravel		S-7, SPT 12-14-17 (31)			
20		Bottom of borehole at 20.0 feet.					

APPENDIX C

LABORATORY TEST RESULTS

Sieve Analysis of Soils

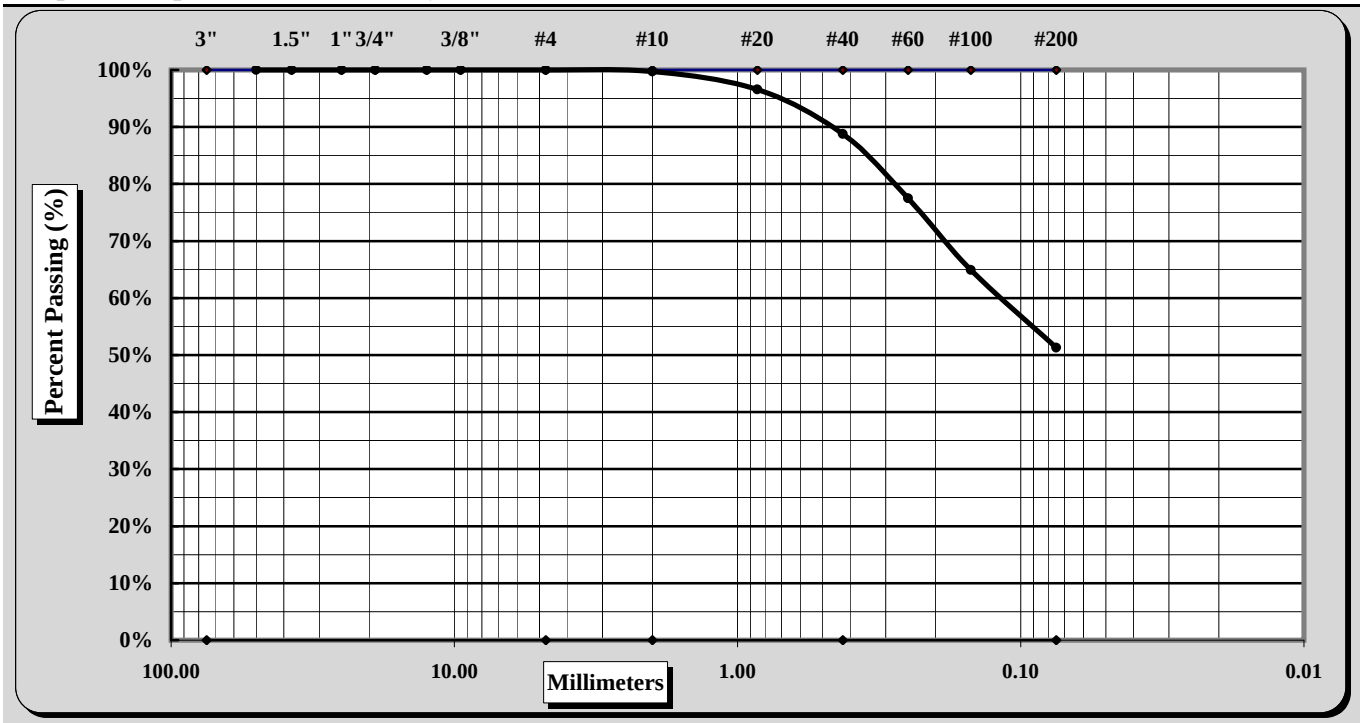
ASTM D 6913

Quality Assurance

S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

Project #:	**39016**	Report Date:	12/9/16
Project Name:	Town of Ashland Town Hall	Test Date(s):	12/5 - 12/9/16
Client Name:	Timmons Group		
Client Address:	101 Boulders Parkway, Suite 300, Richmond, VA 23225		
Boring No.: B-01	Sample: S-2	Sample Date:	N/A
Location: Site-Borehole	Offset: N/A	Depth (ft):	2 - 3.5 ft.

Sample Description: Tan Sandy CLAY (CL)



Cobbles	< 300 mm (12") and > 75 mm (3")	Fine Sand	< 0.425 mm and > 0.075 mm (#200)
Gravel	< 75 mm and > 4.75 mm (#4)	Silt	< 0.075 and > 0.005 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Clay	< 0.005 mm
Medium Sand	< 2.00 mm and > 0.425 mm (#40)	Colloids	< 0.001 mm

Maximum Particle Size	#4	Coarse Sand	0.3%	Fine Sand	37.5%
Gravel	0.0%	Medium Sand	10.9%	Silt & Clay	51.3%
Liquid Limit	25	Plastic Limit	13	Plastic Index	12
Specific Gravity	ND			Moisture Content	15.8%
Coarse Sand	0.3%	Medium Sand	10.9%	Fine Sand	37.5%

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

Notes / Deviations / References: ND=Not Determined.

ASTM D 4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

ASTM D 2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System)

Mal Krajan, ET		Laboratory Manager	12/10/2016
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D4318-T89-90
Revision No. 0
Revision Date: 11/20/07

Liquid Limit, Plastic Limit, and Plastic Index

S&ME

Test Methods. *ASTM D 4318* ☒ *AASHTO T 89* ☐ *AASHTO T 90* ☐ ***Quality Assurance***

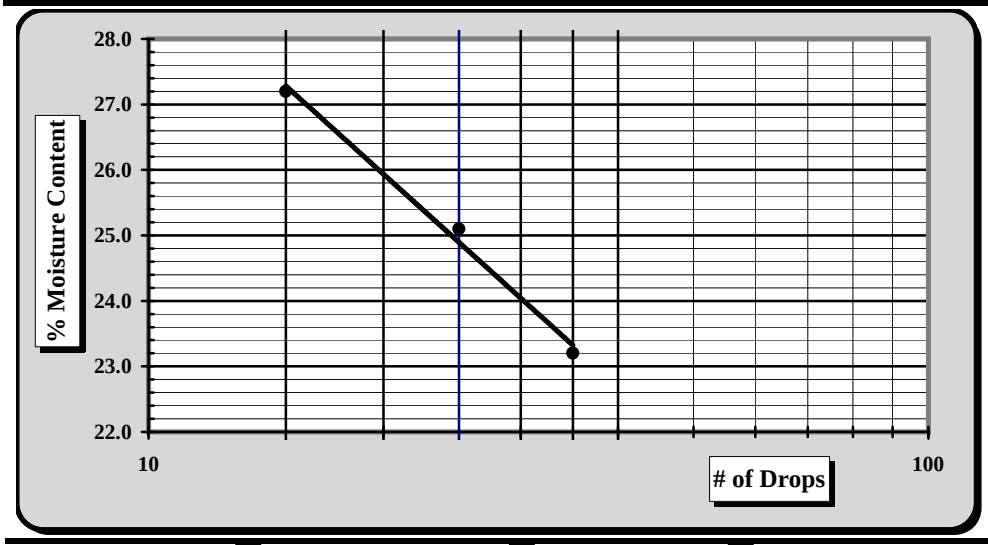
S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

Project #:	**39016**	Report Date:	12/9/16
Project Name:	Town of Ashland Town Hall	Test Date(s)	12/5 - 12/9/16
Client Name:	Timmons Group		
Client Address:	101 Boulders Parkway, Suite 300, Richmond, VA 23225		

Boring #:	B-01	Sample #: S-2		Sample Date: N/A	
Location:	Site-Borehole	Offset: N/A		Depth (ft): 2 - 3.5 ft.	
Sample Description:	Tan Sandy CLAY (CL)				

Type and Specification	*S&ME ID #*	*Cal Date:*	*Type and Specification*	*S&ME ID #*	*Cal Date:*
Balance (0.01 g)	1024	11/6/2016	Grooving tool	S-1	5/18/2016
LL Apparatus	1084	8/17/2016			
Oven	1545	10/7/2016			

Pan #		Liquid Limit						Plastic Limit		
	Tare #:									
A	Tare Weight	21.19	13.70	16.75				11.14	16.75	
B	Wet Soil Weight + A	34.00	25.85	28.71				18.75	27.50	
C	Dry Soil Weight + A	31.59	23.41	26.15				17.90	26.32	
D	Water Weight (B-C)	2.41	2.44	2.56				0.85	1.18	
E	Dry Soil Weight (C-A)	10.40	9.71	9.40				6.76	9.57	
F	% Moisture (D/E)*100	23.2%	25.1%	27.2%				12.6%	12.3%	
N	# OF DROPS	35	25	15				*Moisture Contents determined by ASTM D 2216*		
LL	LL = **F** * FACTOR									
Ave.	*Average*							**12.5%**		



One Point Liquid Limit			
N	**Factor**	**N**	**Factor**
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic	☐
Liquid Limit	**25**
Plastic Limit	**13**
Plastic Index	**12**
Group Symbol	**CL**
Multipoint Method	☑
One-point Method	☐

Wet Preparation ☐ Dry Preparation ☐ Air Dried ☑ *Percent Passing on the #200 Sieve:* 51.3%

Notes / Deviations / References:

ASTM D 2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

Mal Krajan, ET		Laboratory Manager	12/10/2016
Technical Responsibility	*Signature*	*Position*	*Date*

Sieve Analysis of Soils

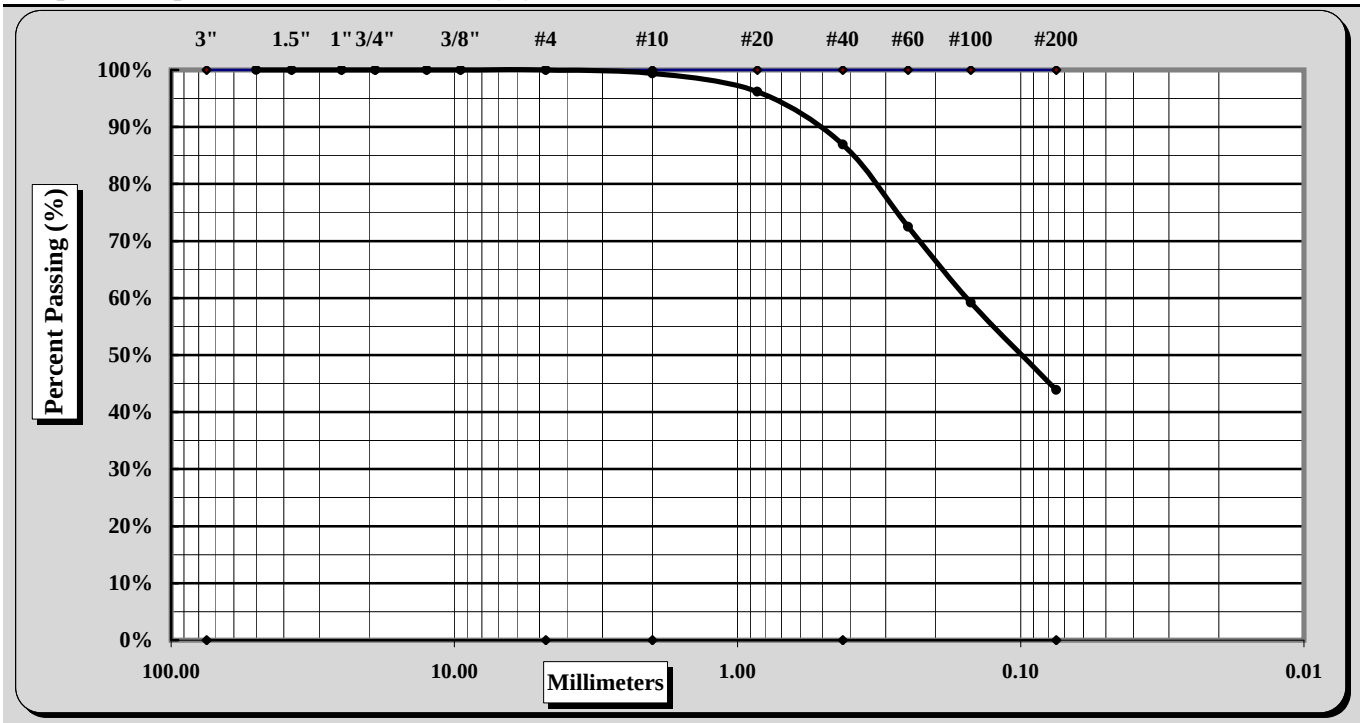
ASTM D 6913

Quality Assurance

S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

Project #:	**39016**	Report Date:	12/9/16
Project Name:	Town of Ashland Town Hall	Test Date(s):	12/5 - 12/9/16
Client Name:	Timmons Group		
Client Address:	101 Boulders Parkway, Suite 300, Richmond, VA 23225		
Boring No.: B-01	Sample: S-3	Sample Date:	N/A
Location: Site-Borehole	Offset: N/A	Depth (ft):	4 - 5.5 ft.

Sample Description: Tan-Brown Clayey SAND (SC)



Cobbles	< 300 mm (12") and > 75 mm (3")	Fine Sand	< 0.425 mm and > 0.075 mm (#200)
Gravel	< 75 mm and > 4.75 mm (#4)	Silt	< 0.075 and > 0.005 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Clay	< 0.005 mm
Medium Sand	< 2.00 mm and > 0.425 mm (#40)	Colloids	< 0.001 mm

Maximum Particle Size	#4	Coarse Sand	0.6%	Fine Sand	43.0%
Gravel	0.0%	Medium Sand	12.5%	Silt & Clay	43.9%
Liquid Limit	33	Plastic Limit	17	Plastic Index	16
Specific Gravity	ND			Moisture Content	17.4%
Coarse Sand	0.6%	Medium Sand	12.5%	Fine Sand	43.0%

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

Notes / Deviations / References: ND=Not Determined.

ASTM D 4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

ASTM D 2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System)

Mal Krajan, ET		Laboratory Manager	12/10/2016
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D4318-T89-90
Revision No. 0
Revision Date: 11/20/07

Liquid Limit, Plastic Limit, and Plastic Index

S&ME

Test Methods. *ASTM D 4318* ☒ *AASHTO T 89* ☐ *AASHTO T 90* ☐ ***Quality Assurance***

S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

Project #:	**39016**	Report Date:	12/9/16
Project Name:	Town of Ashland Town Hall	Test Date(s)	12/5 - 12/9/16
Client Name:	Timmons Group		
Client Address:	101 Boulders Parkway, Suite 300, Richmond, VA 23225		

Boring #:	B-01	Sample #: S-3		Sample Date: N/A	
Location:	Site-Borehole	Offset: N/A		Depth (ft): 4 - 5.5 ft.	
Sample Description:	Tan-Brown Clayey SAND (SC)				

Type and Specification	*S&ME ID #*	*Cal Date:*	*Type and Specification*	*S&ME ID #*	*Cal Date:*
Balance (0.01 g)	1024	11/6/2016	Grooving tool	S-1	5/18/2016
LL Apparatus	1084	8/17/2016			
Oven	1545	10/7/2016			

Pan #		Liquid Limit						Plastic Limit		
	Tare #:									
A	Tare Weight	13.04	12.93	11.02				15.33	16.73	
B	Wet Soil Weight + A	23.95	23.05	22.03				23.53	25.02	
C	Dry Soil Weight + A	21.36	20.53	19.18				22.34	23.88	
D	Water Weight (B-C)	2.59	2.52	2.85				1.19	1.14	
E	Dry Soil Weight (C-A)	8.32	7.60	8.16				7.01	7.15	
F	% Moisture (D/E)*100	31.1%	33.2%	34.9%				17.0%	15.9%	
N	# OF DROPS	30	23	18				*Moisture Contents determined by ASTM D 2216*		
LL	LL = **F** * FACTOR									
Ave.	*Average*							**16.5%**		

One Point Liquid Limit			
N	**Factor**	**N**	**Factor**
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic	☐
Liquid Limit	**33**
Plastic Limit	**17**
Plastic Index	**16**
Group Symbol	**SC**

Multipoint Method ☑
One-point Method ☐

Wet Preparation ☐ Dry Preparation ☐ Air Dried ☑ *Percent Passing on the #200 Sieve:* 43.9%

Notes / Deviations / References:

ASTM D 2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

Mal Krajan, ET		Laboratory Manager	12/10/2016
Technical Responsibility	*Signature*	*Position*	*Date*

Sieve Analysis of Soils

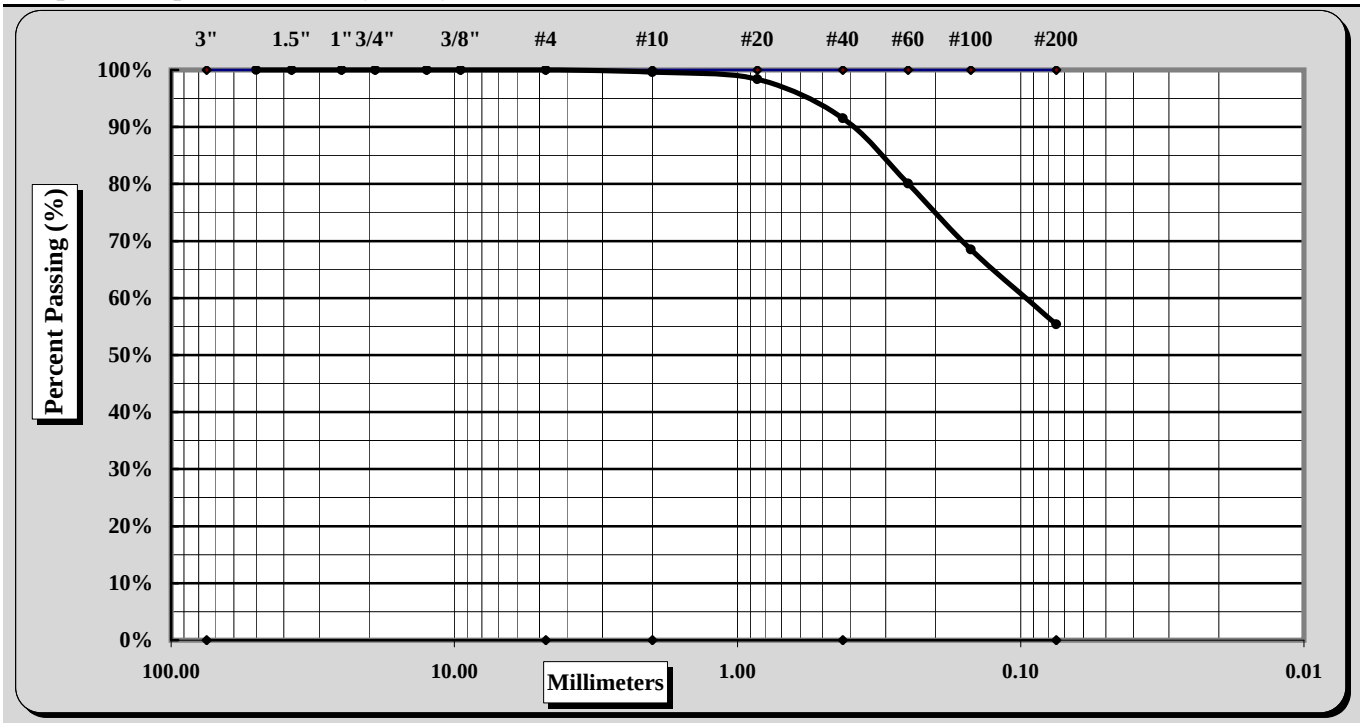
ASTM D 6913

Quality Assurance

S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

Project #:	**39016**	Report Date:	12/9/16
Project Name:	Town of Ashland Town Hall	Test Date(s):	12/5 - 12/9/16
Client Name:	Timmons Group		
Client Address:	101 Boulders Parkway, Suite 300, Richmond, VA 23225		
Boring No.: B-02	Sample: S-2	Sample Date:	N/A
Location: Site-Borehole	Offset: N/A	Depth (ft):	2 - 3.5 ft.

Sample Description: Gray Sandy CLAY (CL)



Cobbles	< 300 mm (12") and > 75 mm (3")	Fine Sand	< 0.425 mm and > 0.075 mm (#200)
Gravel	< 75 mm and > 4.75 mm (#4)	Silt	< 0.075 and > 0.005 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Clay	< 0.005 mm
Medium Sand	< 2.00 mm and > 0.425 mm (#40)	Colloids	< 0.001 mm

Maximum Particle Size	#4	Coarse Sand	0.4%	Fine Sand	36.1%
Gravel	0.0%	Medium Sand	8.1%	Silt & Clay	55.4%
Liquid Limit	18	Plastic Limit	11	Plastic Index	7
Specific Gravity	ND			Moisture Content	13.1%
Coarse Sand	0.4%	Medium Sand	8.1%	Fine Sand	36.1%

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

Notes / Deviations / References: ND=Not Determined.

ASTM D 4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

ASTM D 2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System)

Mal Krajan, ET		Laboratory Manager	12/10/2016
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D4318-T89-90
Revision No. 0
Revision Date: 11/20/07

Liquid Limit, Plastic Limit, and Plastic Index

Test Methods. *ASTM D 4318* ☒ *AASHTO T 89* ☐ *AASHTO T 90* ☐ ***Quality Assurance***

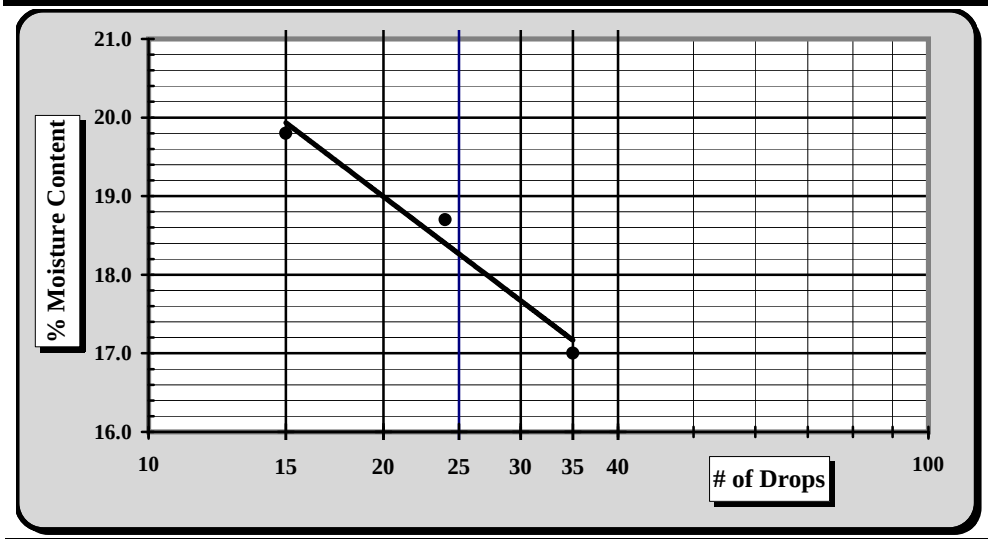
S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

Project #:	**39016**	Report Date:	12/9/16
Project Name:	Town of Ashland Town Hall	Test Date(s)	12/5 - 12/9/16
Client Name:	Timmons Group		
Client Address:	101 Boulders Parkway, Suite 300, Richmond, VA 23225		

Boring #:	B-02	Sample #: S-2		Sample Date: N/A	
Location:	Site-Borehole	Offset: N/A		Depth (ft): 2 - 3.5 ft.	
Sample Description:	Gray Sandy CLAY (CL)				

Type and Specification	*S&ME ID #*	*Cal Date:*	*Type and Specification*	*S&ME ID #*	*Cal Date:*
Balance (0.01 g)	1024	11/6/2016	Grooving tool	S-1	5/18/2016
LL Apparatus	1084	8/17/2016			
Oven	1545	10/7/2016			

Pan #		Liquid Limit						Plastic Limit		
	Tare #:									
A	Tare Weight	13.00	12.89	11.01				16.72	15.32	
B	Wet Soil Weight + A	23.94	25.19	23.25				27.10	27.48	
C	Dry Soil Weight + A	22.35	23.25	21.23				26.05	26.28	
D	Water Weight (B-C)	1.59	1.94	2.02				1.05	1.20	
E	Dry Soil Weight (C-A)	9.35	10.36	10.22				9.33	10.96	
F	% Moisture (D/E)*100	17.0%	18.7%	19.8%				11.3%	10.9%	
N	# OF DROPS	35	24	15				*Moisture Contents determined by ASTM D 2216*		
LL	LL = **F** * FACTOR									
Ave.	*Average*							**11.1%**		



One Point Liquid Limit			
N	**Factor**	**N**	**Factor**
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic	☐
Liquid Limit	**18**
Plastic Limit	**11**
Plastic Index	**7**
Group Symbol	**CL**
Multipoint Method	☑
One-point Method	☐

Wet Preparation ☐ Dry Preparation ☐ Air Dried ☑ *Percent Passing on the #200 Sieve:* 55.4%

Notes / Deviations / References:

ASTM D 2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

Mal Krajan, ET		Laboratory Manager	12/10/2016
Technical Responsibility	*Signature*	*Position*	*Date*

Sieve Analysis of Soils

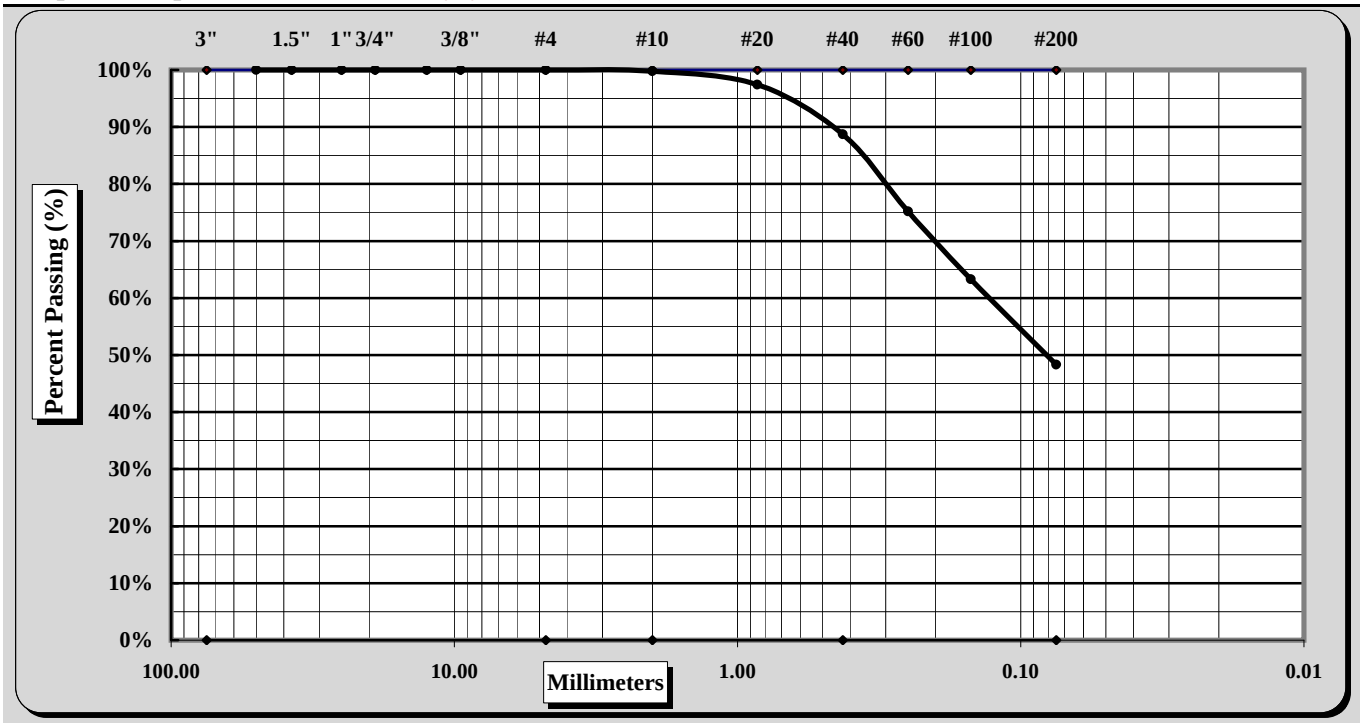
ASTM D 6913

Quality Assurance

S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

Project #:	**39016**	Report Date:	12/9/16
Project Name:	Town of Ashland Town Hall	Test Date(s):	12/5 - 12/9/16
Client Name:	Timmons Group		
Client Address:	101 Boulders Parkway, Suite 300, Richmond, VA 23225		
Boring No.: B-03	Sample: S-3	Sample Date:	N/A
Location: Site-Borehole	Offset: N/A	Depth (ft):	4 - 5.5 ft.

Sample Description: Brown Clayey SAND (SC)



Cobbles	< 300 mm (12") and > 75 mm (3")	Fine Sand	< 0.425 mm and > 0.075 mm (#200)
Gravel	< 75 mm and > 4.75 mm (#4)	Silt	< 0.075 and > 0.005 mm
Coarse Sand	< 4.75 mm and >2.00 mm (#10)	Clay	< 0.005 mm
Medium Sand	< 2.00 mm and > 0.425 mm (#40)	Colloids	< 0.001 mm

Maximum Particle Size	#4	Coarse Sand	0.2%	Fine Sand	40.4%
Gravel	0.0%	Medium Sand	11.1%	Silt & Clay	48.3%
Liquid Limit	37	Plastic Limit	15	Plastic Index	22
Specific Gravity	ND			Moisture Content	20.0%
Coarse Sand	0.2%	Medium Sand	11.1%	Fine Sand	40.4%

Description of Sand & Gravel Particles: Rounded ☐ Angular ☒

Hard & Durable ☒ Soft ☐ Weathered & Friable ☐

Notes / Deviations / References: ND=Not Determined.

ASTM D 4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

ASTM D 2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System)

Mal Krajan, ET		Laboratory Manager	12/10/2016
Technical Responsibility	*Signature*	*Position*	*Date*

Form No. TR-D4318-T89-90
Revision No. 0
Revision Date: 11/20/07

Liquid Limit, Plastic Limit, and Plastic Index

Test Methods. *ASTM D 4318* ☒ *AASHTO T 89* ☐ *AASHTO T 90* ☐ ***Quality Assurance***

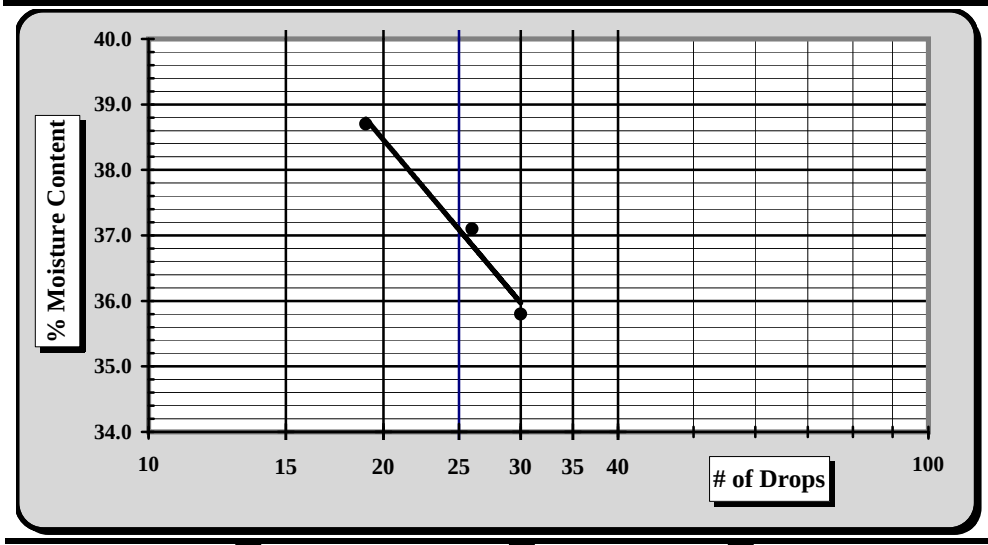
S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

Project #:	**39016**	Report Date:	12/9/16
Project Name:	Town of Ashland Town Hall	Test Date(s)	12/5 - 12/9/16
Client Name:	Timmons Group		
Client Address:	101 Boulders Parkway, Suite 300, Richmond, VA 23225		

Boring #:	B-03	Sample #: S-3		Sample Date: N/A	
Location:	Site-Borehole	Offset: N/A		Depth (ft): 4 - 5.5 ft.	
Sample Description:	Brown Clayey SAND (SC)				

Type and Specification	*S&ME ID #*	*Cal Date:*	*Type and Specification*	*S&ME ID #*	*Cal Date:*
Balance (0.01 g)	1024	11/6/2016	Grooving tool	S-1	5/18/2016
LL Apparatus	1084	8/17/2016			
Oven	1545	10/7/2016			

Pan #		Liquid Limit						Plastic Limit		
	Tare #:									
A	Tare Weight	15.22	16.59	11.12				16.70	10.99	
B	Wet Soil Weight + A	25.88	27.39	21.83				25.01	19.21	
C	Dry Soil Weight + A	23.07	24.47	18.84				23.88	18.13	
D	Water Weight (B-C)	2.81	2.92	2.99				1.13	1.08	
E	Dry Soil Weight (C-A)	7.85	7.88	7.72				7.18	7.14	
F	% Moisture (D/E)*100	35.8%	37.1%	38.7%				15.7%	15.1%	
N	# OF DROPS	30	26	19				*Moisture Contents determined by ASTM D 2216*		
LL	LL = **F** * FACTOR									
Ave.	*Average*							**15.4%**		



One Point Liquid Limit			
N	**Factor**	**N**	**Factor**
20	0.974	26	1.005
21	0.979	27	1.009
22	0.985	28	1.014
23	0.99	29	1.018
24	0.995	30	1.022
25	1.000		

NP, Non-Plastic	☐
Liquid Limit	**37**
Plastic Limit	**15**
Plastic Index	**22**
Group Symbol	**SC**
Multipoint Method	☑
One-point Method	☐

Wet Preparation ☐ Dry Preparation ☐ Air Dried ☑ *Percent Passing on the #200 Sieve:* 48.3%

Notes / Deviations / References:

ASTM D 2487: Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 4318: Liquid Limit, Plastic Limit, & Plastic Index of Soils

Mal Krajan, ET		Laboratory Manager	12/10/2016
Technical Responsibility	*Signature*	*Position*	*Date*

Laboratory Determination of Water Content

S&ME

ASTM D 2216 ☑ *AASHTO T 265* ☐ ***Quality Assurance***

S&ME, Inc. Raleigh, 3201 Spring Forest Road, Raleigh, North Carolina 27616

Project #:	39016	Report Date:	12/6/16
Project Name:	Town of Ashland Town Hall	Test Date(s):	12/5 - 12/6/16
Client Name:	Timmons Group		
Client Address:	101 Boulders Parkway, Suite 300, Richmond, VA 23225		
Sample by:	Timmons Group	Sample Date(s):	N/A
Sampling Method:	Borehole	Drill Rig :	N/A

Method: **A (1%)** ☐ **B (0.1%)** ☑ *Balance ID.* ***1024*** *Calibration Date:* ***11/6/16***

Boring No.	Sample No.	Sample Depth	Tare #	Tare Weight	Tare Wt.+ Wet Wt	Tare Wt. + Dry Wt	Water Weight	Percent Moisture
		ft.		grams	grams	grams	grams	%
B-01	S-2	2 - 3.5		128.93	241.84	226.47	15.37	**15.8%**
B-01	S-3	4 - 5.5		126.64	244.24	226.84	17.40	**17.4%**
B-02	S-2	2 - 3.5		134.82	234.35	222.84	11.51	**13.1%**
B-03	S-3	4 - 5.5		111.40	249.29	226.34	22.95	**20.0%**

Notes / Deviations / References

AASHTO T 265: Laboratory Determination of Moisture Content of Soils

ASTM D 2216: Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass

Mal Krajan, ET		Laboratory Manager	12/10/2016
Technical Responsibility	*Signature*	*Position*	*Date*

Appendix D

Roofing Evaluation

(provided by the Town of Ashland)

ROOF CONDITION SURVEY

Ashland Town Hall

101 Thompson Street, Ashland, VA

Survey Date: October 21, 2015

Prepared By: **PCC**ompany, LLC
12191 Winns Church Road, Glen Allen, Virginia 23059
804.798.1234 off
804.798.8680 fax

TO: Wanda Cornwell- Assistant to the Town of Ashland

SURVEY DATE: October 21, 2015

PROJECT: Town of Ashland - Building Roof Condition Survey

LOCATION: 101 Thompson Street, Ashland, VA 23005

IN ATTENDANCE: Ron Patterson

The following was observed:

EXISTING CONDITIONS-

Per your request a roof condition survey was conducted at the above referenced project location. Our survey is based on visual observations. The building consists of four roof panels. The original portions of the building have two flat roof panel areas connected with a double sloped roof panel which is elevated approximately four feet above the flat roof areas. A large cupola is located on the ridge of the double sloped roof panel. A building addition was installed at a later date which was an infill area of a recessed building entrance. This addition roof panel area has a flat roof with a small steep sloped hip roof which is elevated approximately 12 inches above the flat roof area.

Original Flat Roof Areas-
A core sample was taken during our site visit to determine the roof system components of the original flat roof areas. The roof system consists of a 1" layer of perlite roof insulation set in hot asphalt on the roof deck followed by a single layer of 1" thick wood fiber board set in hot asphalt. The roof membrane is a 4 ply built up roof membrane with a thick layer of gravel surface aggregate set in a heavy flood coat of asphalt. The roof system manufacturer is unknown. The building height is 18 feet to the top of parapet wall and the parapet wall is 10" above the flat roof. The age of the roof system is not known although it appears to be over 30 years old. The roof system is thought to be original. Parapet wall base flashings have been recently repaired and coated with aluminum fibered roof coating. The roof deck is corrugated metal. There is approximately 4,625 square feet of original flat roof area. There is no roof slope. One 4" roof drain is located in each of the two original flat roof panels. There are 4" square through wall scuppers located in each parapet wall which drain into conductor heads with down spouts connected to below grade drain lines. Roof drainage appears to be adequate although the recent repairs to the through wall scuppers are not done well. A portion of the double sloped roof area

drains onto the original flat roof panel areas. Roof leaks were observed in several locations throughout the original flat roof areas. One of the two original flat roof areas has a HVAC unit installed on the built up roof system. It is supported directly on the roof surface aggregate by the use of pressure treated 4" x 4" wood lumber. The weight of the HVAC unit has caused the 4" x 4" supports to sink down into the roof membrane and has likely damaged the roofing felts. The associated ductwork penetrates the roof system and likely contributes to the roof leak issues observed. A decorative bull nosed style metal wall coping is installed on top of the parapet walls. While offering a somewhat unique design element to the building, they too likely contribute to water infiltration into the parapet walls and exterior masonry walls.

Flat Roof Addition-

A core sample was taken during our site visit to determine the roof system components of the flat roof addition area. The roof system consists of a 2" layer of ISO roof insulation on the roof deck followed by a single layer of 1/2" thick wood fiber board. The method of insulation attachment was not evident from the core sample. The roof membrane consists of four plies of asbestos built up roofing felts with a top coating of aluminum fibered roof coating. The roof system manufacturer is unknown. The building height is 18 feet to the top of parapet wall and the exterior parapet walls are 10" above the flat roof. The age of the roof system is not known although it is thought to be over 20 years old. The roof system appears to be original. Parapet wall base flashings have been recently repaired and coated with aluminum fibered roof coating. Additionally, the roof area has been repaired with the use of modified bitumen membrane. The flat roof addition roof area has been separated from the adjacent original flat roof area by the use of parapet walls which are approximately 12" above the roof surface. There are several through wall scuppers in the parapet walls which allows roof drainage to occur between the original and addition roof areas. The roof deck is wood particle board. There is approximately 625 square feet of flat roof addition roof area. There is no roof slope. There are 4" square through wall scuppers located in the exterior parapet walls which drain into conductor heads with down spouts connected to below grade drain lines. Roof drainage appears to be adequate although the recent repairs to the through wall scuppers are not done well. A portion of the double sloped roof area drains onto the flat roof addition. Roof leaks were observed in several locations throughout the addition flat roof area. The addition flat roof area has a HVAC unit installed on the built up roof system. It is supported with the use of a metal curb although the membrane base flashings are poorly done. The associated ductwork penetrates the roof system and likely contributes to the roof leak issues observed. A decorative bull nosed style metal wall coping has been installed on top of the parapet walls. While offering a somewhat unique design element to the building, they too likely contribute to water infiltration into the parapet walls and exterior masonry walls. Along

the exterior wall area of the flat roof addition there is a hipped roof structure with a steep sloped roof with a prefinished standing seam metal roof system. The structure is used to define the building entrance and has a base dimension of approximately 8 feet square. Two sides of the hipped roof structure have a 5" half round eave gutter installed for roof drainage and the other two sides drain onto the flat roof addition roof area. The standing seam roof is in good condition.

Double Sloped Roof-
The double sloped roof area consists of standing seam terne coated metal roofing commonly referred to as "tin roofing". It has a built in eave gutter made of terne coated metal that is located in the low eave soffit area along each side of the entire roof length. The built in gutter has 3" x 4" down spouts installed which discharge the roof drainage onto the original flat roof areas. The eave gutter has support straps that are faced nailed through the tin roofing then poorly sealed with plastic roofing cement. These support straps are located approximately 24" on center. At some point a membrane was installed in the bottom of the built in gutter likely as a repair method to stop leaks that occur into the building soffit and overhang. This membrane is poorly installed and is causing the terne coated metal to rust out. Leaks through the built in gutter have caused rotting conditions to occur in the wood soffit and fascia. We observed many cracks in the stucco walls below the built in gutter which likely is exacerbated by the water infiltration from the built in eave gutter.

The terne coated standing seam metal roofing has been painted as is required to maintain longevity and prevent rusting conditions. The paint is in poor condition and rusting of the terne coated metal is obvious throughout the roof area. Located on the double sloped roof ridge is a large cupola used to vent the attic space. It has a terne coated metal roof on the cupola base and on the cupola roof. The cupola is approximately 10' tall and is fabricated from wood trims. The paint is in poor condition and the wood joints require caulking. The poor condition of the cupola is likely a source of water infiltration into the building.

<u>CONCERNS AND DEFICIENCIES-</u>
There are many potential areas of water infiltration associated with the various roof systems. In general, the original flat roof built up membrane roofing is in serviceable condition. An infrared scan of the roof system did not reveal any pockets of moisture in the insulation system although there are many areas of concern at roof penetrations and at base flashings. Given the age of the roof system, it is not thought to be cost effective to consider a major roof refurbishment to address the flashing issues because removal of the thick gravel surface aggregate will make proper tie ins difficult. All potential sources of

water infiltration must be addressed at one time. These sources consist of the HVAC ductwork, parapet wall base flashings, parapet wall copings, through wall scuppers, HVAC units, cracks in stucco walls, cracks in wood joinery on cupola, built in eave gutters on double sloped roof, strap hanger supports for built in gutter, and poor paint finish on the tin roofing. The severity of the roof leaks observed are not considered excessive and as such are likely the result of several of the sources listed previously. We believe these water infiltration sources can best be addressed in a total roof replacement project. The extent of the necessary repairs will become evident as each area is disassembled and investigated for sources of water infiltration.

An alternate cost savings specification would be a roof recovery system where the existing roof system would remain intact. A new roof system would be installed over the existing flat roof system. A roof recovery board and / or a layer of ISO roof insulation would be attached to the existing flat roof system then a new single ply roof system would be installed. The additional layers of new roofing over old would create issues with the existing through wall scupper elevations and would likely require enlargement of the masonry openings to accommodate the additional underlayment thicknesses.

RECOMMENDATIONS-

It is our recommendation that the existing built up roofing on the flat roof areas be removed and replaced with a new 30 year single ply roof system with an R-24 roof insulation, an improved roof drainage system and new parapet wall copings. All associated HVAC equipment and ductwork should be redesigned and potentially relocated to eliminate penetrations through the roof system. All cracks in the wall stucco must be addressed in a proper manner which may require an overlay of a synthetic type stucco system with proper provisions for expansion and contraction. We do not believe that a major built up roof refurbishment will be cost effective. The anticipated roof life expectancy of the existing built up roof system is 5 to 8 years with a major investment required to address current sources of water infiltration that could in effect require cutting into approximately one third of the existing built up roof system at curbs, parapet walls, and HVAC units.

The double sloped standing seam roof system can be refurbished. It will require proper preparation and application of paint. The cupola will require carpentry work to tighten up the wood joinery followed by sanding, priming and painting. The cupola louvers must be investigated to see if they are functioning as intended and are watertight. We suggest that the built in eave gutters be abandoned and covered over with metal and allow the roof drainage to fall to the flat roof areas. The wood trim on the low eave will require carpentry repairs and paint.

An opinion of probable cost to install a new roof system on the flat roof areas, refurbish the standing seam tin roofing, apply stucco repairs and associated carpentry work is as follows:

Flat Roof Built Up Roof Replacement-	5,250 SF @ $ 15=	$ 78,750.00
Refurbishment of the Tin Roofing-	3000 SF @ $ 10=	$ 30,000.00
Associated Carpentry Work-	Lot Lump Sum =	$ 25,000.00
Stucco Repairs-	Lot Lump Sum =	$ 9,600.00
Total Suggested Budget:		$ 143,350.00

Note- There is no cost included to address HVAC unit issues.

Flat Roof Built Up Roof Recovery:	5,250 SF @ $ 8=	$ 42,000.00

We can prepare a Request For Proposal to receive competitive bids from qualified roofing contractors to determine firm costs for the roof replacement project. The above cost are an opinion of probable cost based on our experience with projects having a similar scope of work.

Reported By,

PCCompany, LLC

Ron Patterson

Original Flat Roof Core Sample

Flat Roof Addition Roof Core Sample

Water Infiltration into Masonry Wall

Water Infiltration into Masonry Wall

Spalling of Precast Window Trim from Water Infiltration

Cracking of Precast Window Trim Occurs at Most Windows

Damage to Soffit Overhang from Leaking Built In Gutter

Damage to Soffit Trim from Leaks in Built In Gutter

Cracks in Stucco Band Below Built In Gutter

Cracks Common in Stucco Band Below Built In Gutter

Typical Conductor Head and Down Spout

Very Poor Through Wall Scupper Repair

Original Flat Roof Area (South Roof Panel)

Original Flat Roof Area (North Roof Panel)

Flat Roof Addition Roof Area

Double Sloped Standing Seam Roof (Tin Roofing)

Cupola on Double Sloped Standing Seam Roofing

Built In Eave Gutter in Standing Seam (Tin Roofing)

Eave Gutter Support Strap Attachment to Standing Seam Roofing

Open End Lap Joints in Parapet Wall Coping

HVAC Unit and Associated Ductwork on Flat Roof Addition

Steep Sloped Standing Seam Hip Roof

HVAC Unit and Associated Ductwork on Original Flat Roof Area

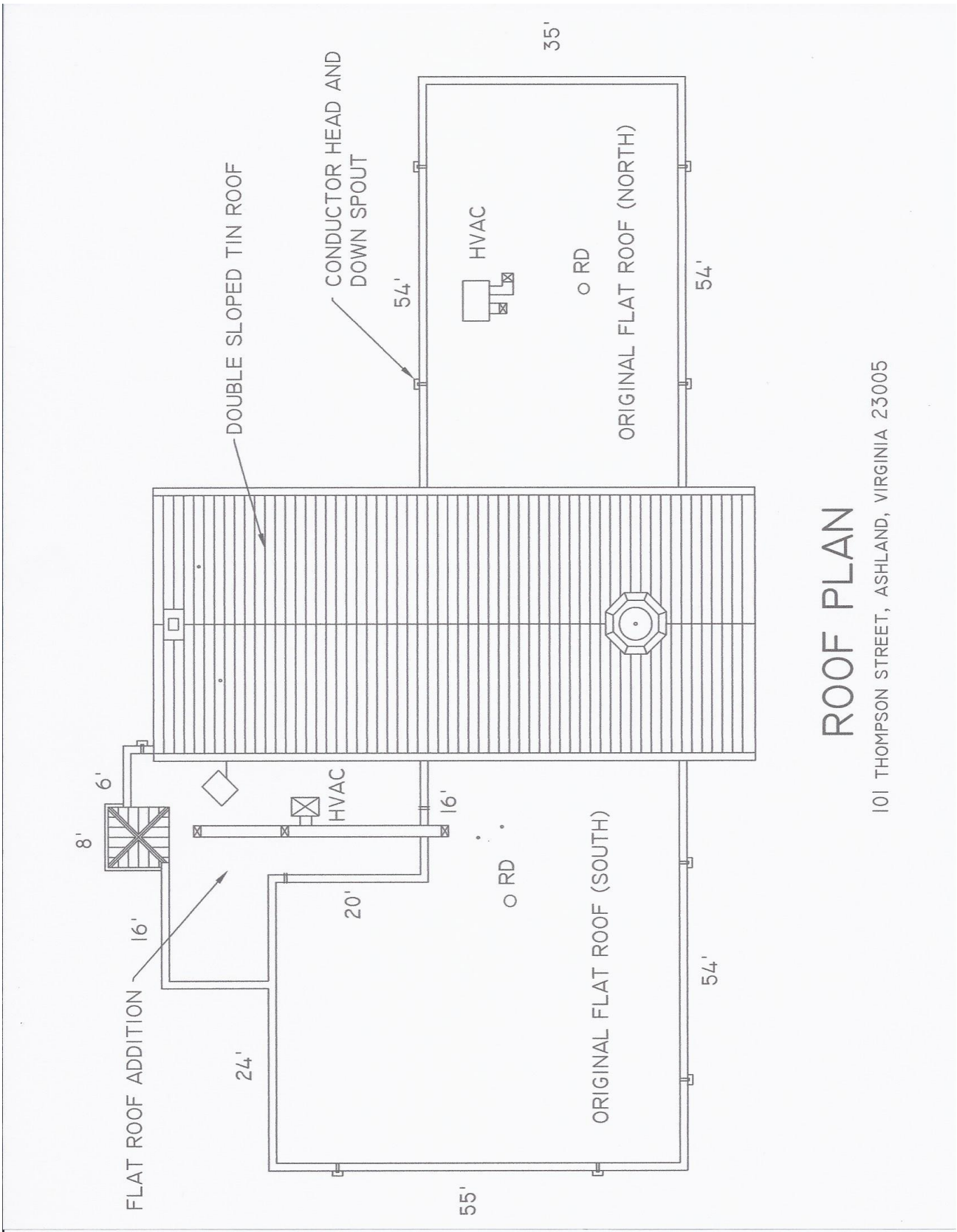
4 x 4 Lumber Supports for HVAC Unit- Notice how they are embedded into the membrane.

Typical Through Wall Scupper and Conductor Head

Typical Roof Drain- One of Two

Repairs to Stucco Band below Double Sloped Standing Seam Roof

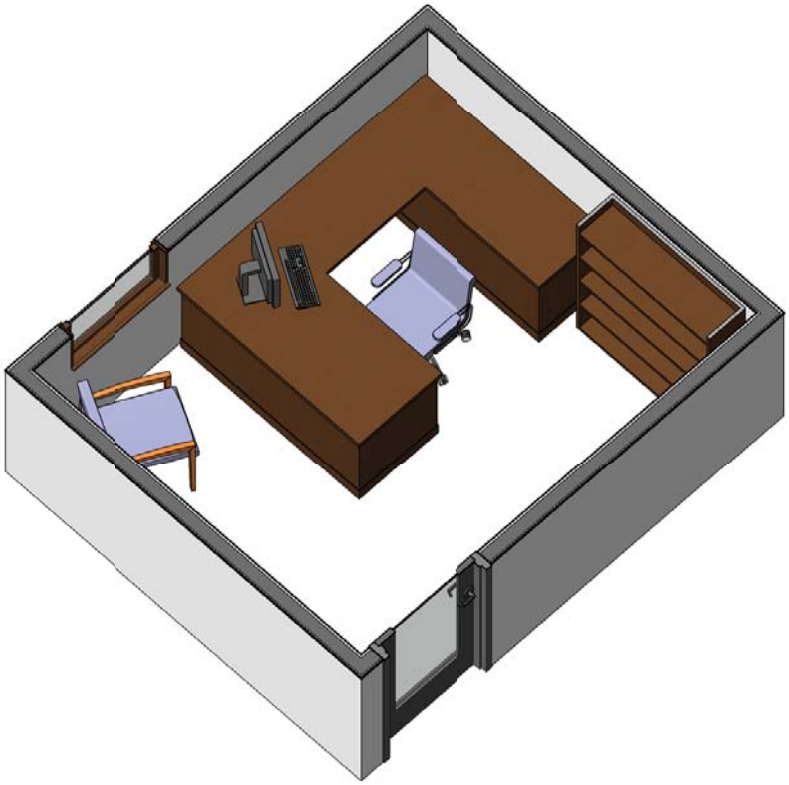
Damaged Fascia Trim

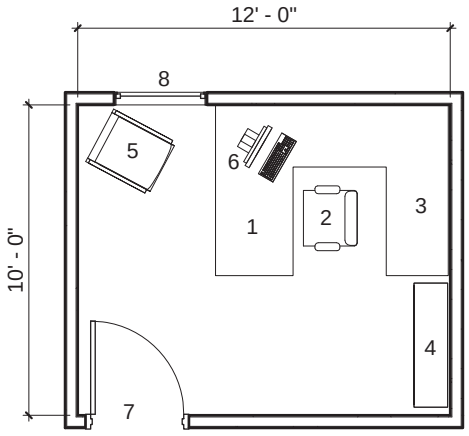

ROOF PLAN
101 THOMPSON STREET, ASHLAND, VIRGINIA 23005
DOUBLE SLOPED TIN ROOF
CONDUCTOR HEAD AND DOWN SPOUT
35'
54'
HVAC
RD
ORIGINAL FLAT ROOF (NORTH)
54'
6'
8'
HVAC
16'
RD
20'
ORIGINAL FLAT ROOF (SOUTH)
54'
FLAT ROOF ADDITION
16'
24'
55'

Appendix E

Space Planning Standards

(prepared by PMA Architecture)





1. U-SHAPED DESK
2. TASK CHAIR
3. CREDENZA
4. BOOKCASE AND/OR FILES
5. GUEST CHAIR
6. MONITOR(S)
7. DOOR W/ GLASS LITE
8. WINDOW

ACCOUNTING TECH.
SENIOR PLANNER
ZONING ADMIN.
ECON. DEVELOP. DIRECTOR
PW. PROJECT MANAGER OFFICES -
SPACE TYPE 'C'
120 SQ. FT.

SPACE TYPE 'C'

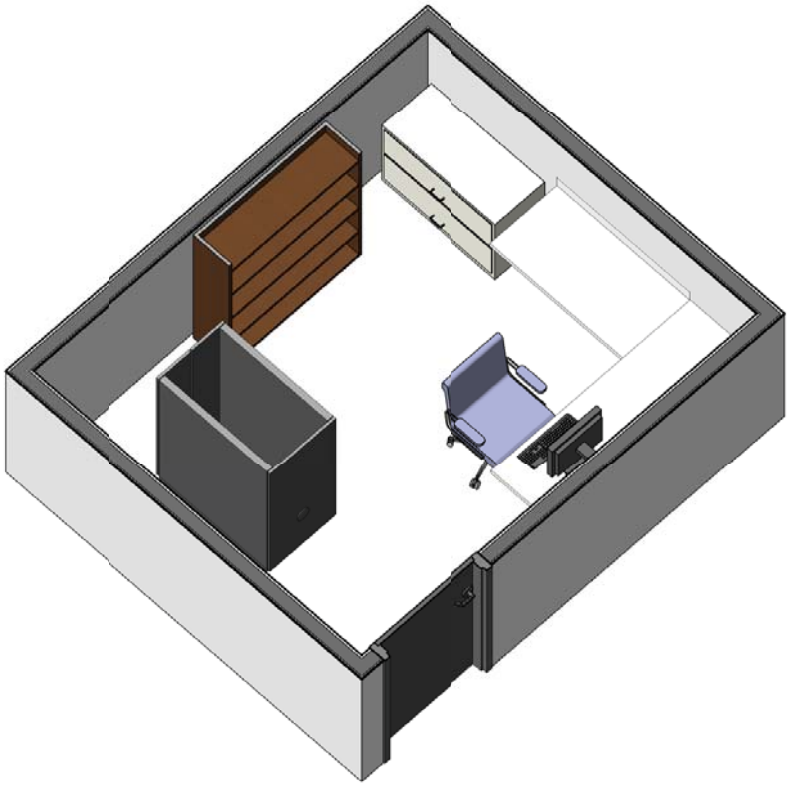
SCALE: 1/4" = 1'

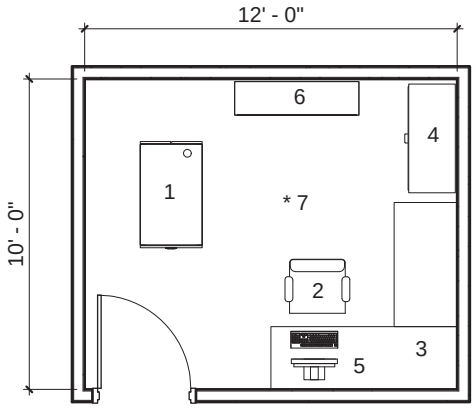
PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'C' - ACCOUNTING TECH., SENIOR PLANNER, ZONING ADMIN., ECON. DEVELOP. DIRECTOR, & PW. PROJECT MANAGER OFFICES

12/14/16





1. SERVER RACK
2. TASK CHAIR
3. L-SHAPED DESK
4. LATERAL FILE
5. MONITOR
6. BOOKCASE
7. SEPARATE A/C

SERVER ROOM- SPACE TYPE 'S'
120 SQ. FT.

SPACE TYPE 'S'

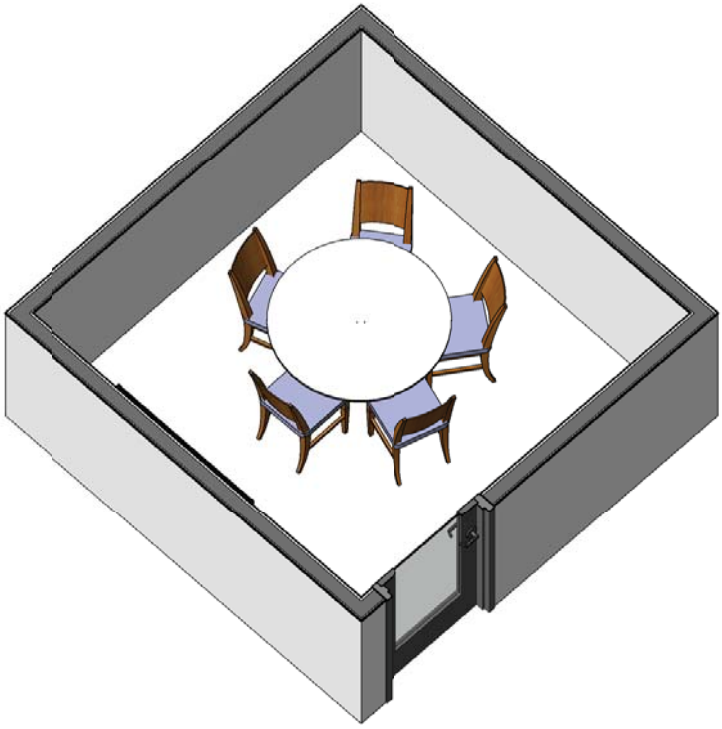
SCALE: 1/4" = 1'

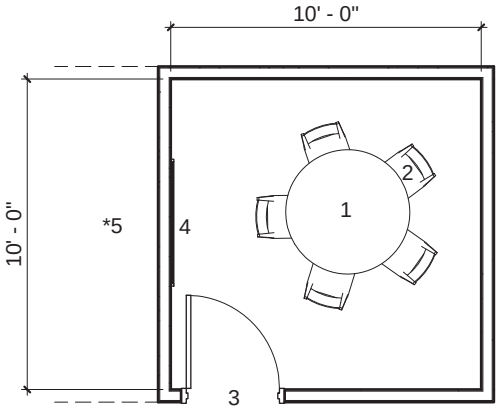
PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'S' - SERVER ROOM

12/14/16





1. ROUND TABLE
2. GUEST CHAIR, TYP.
3. DOOR W/ GLASS LITE
4. PRESENTATION PANEL
5. LOCATE ADJACENT TO HUMAN RESOURCES OFFICE

SMALL / ADMIN CONFERENCE ROOM - SPACE TYPE 'T'
100 SQ. FT.

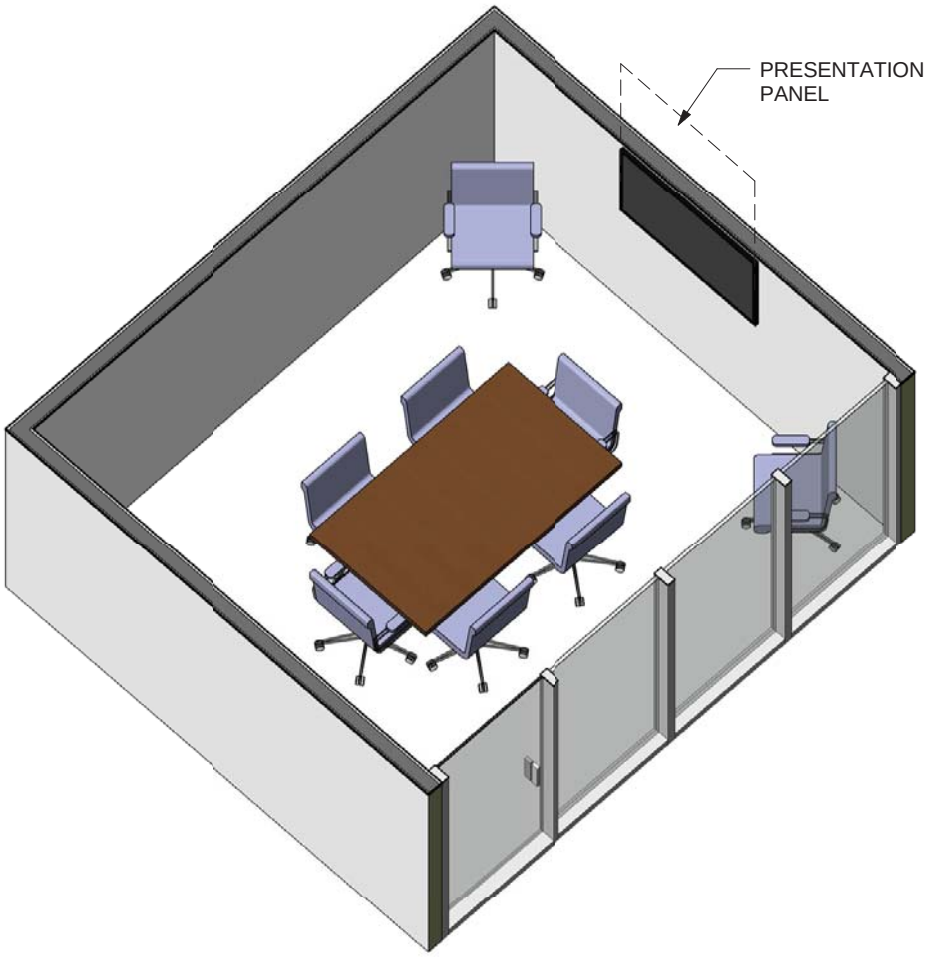
SPACE TYPE 'T'

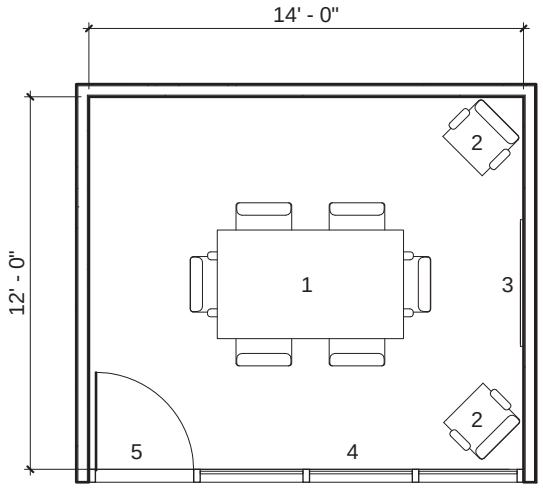
SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'T' - SMALL / ADMIN CONFERENCE ROOM 12/14/16





1. CONFERENCE TABLE
2. SIDE CHAIRS
3. PRESENTATION PANEL
4. GLASS WALL
5. GLASS LITE @ DOOR

MEDIUM CONFERENCE - SPACE TYPE 'D'
168 SQ. FT.

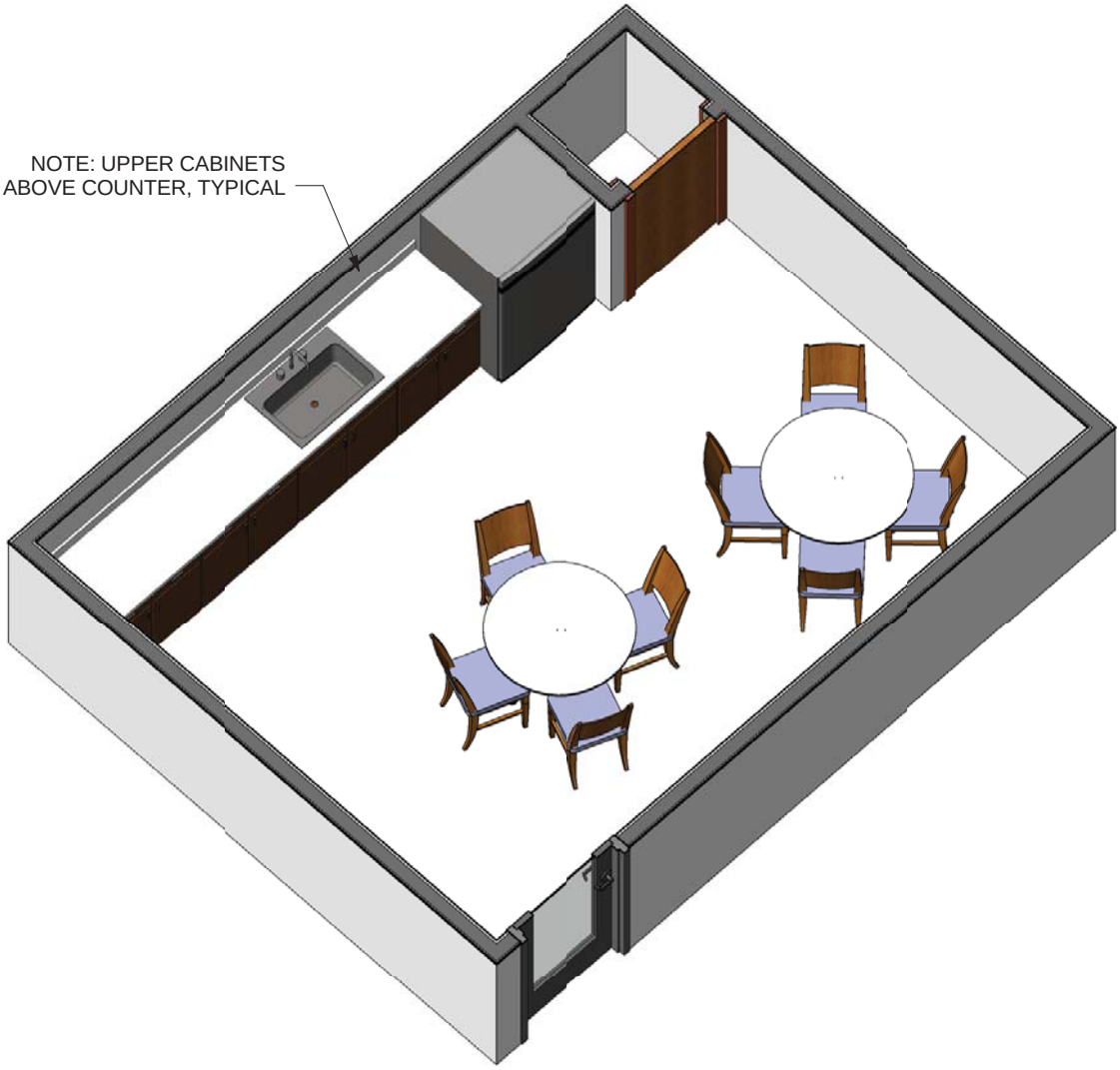
SPACE TYPE 'D'

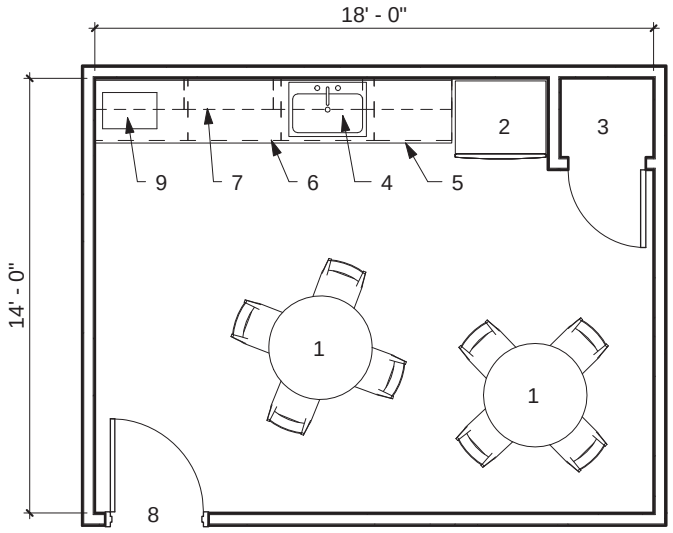
SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'D' - MEDIUM CONFERENCE ROOM 12/14/16





1. TABLE
2. REFRIGERATOR
3. MOP CLOSET
4. SINK
5. COUNTER
6. BASE CABINETS
7. UPPER CABINETS
8. DOOR W/ GLASS LITE
9. MICROWAVE

KITCHENETTE - SPACE TYPE 'L'
252 SQ. FT.

SPACE TYPE 'L'

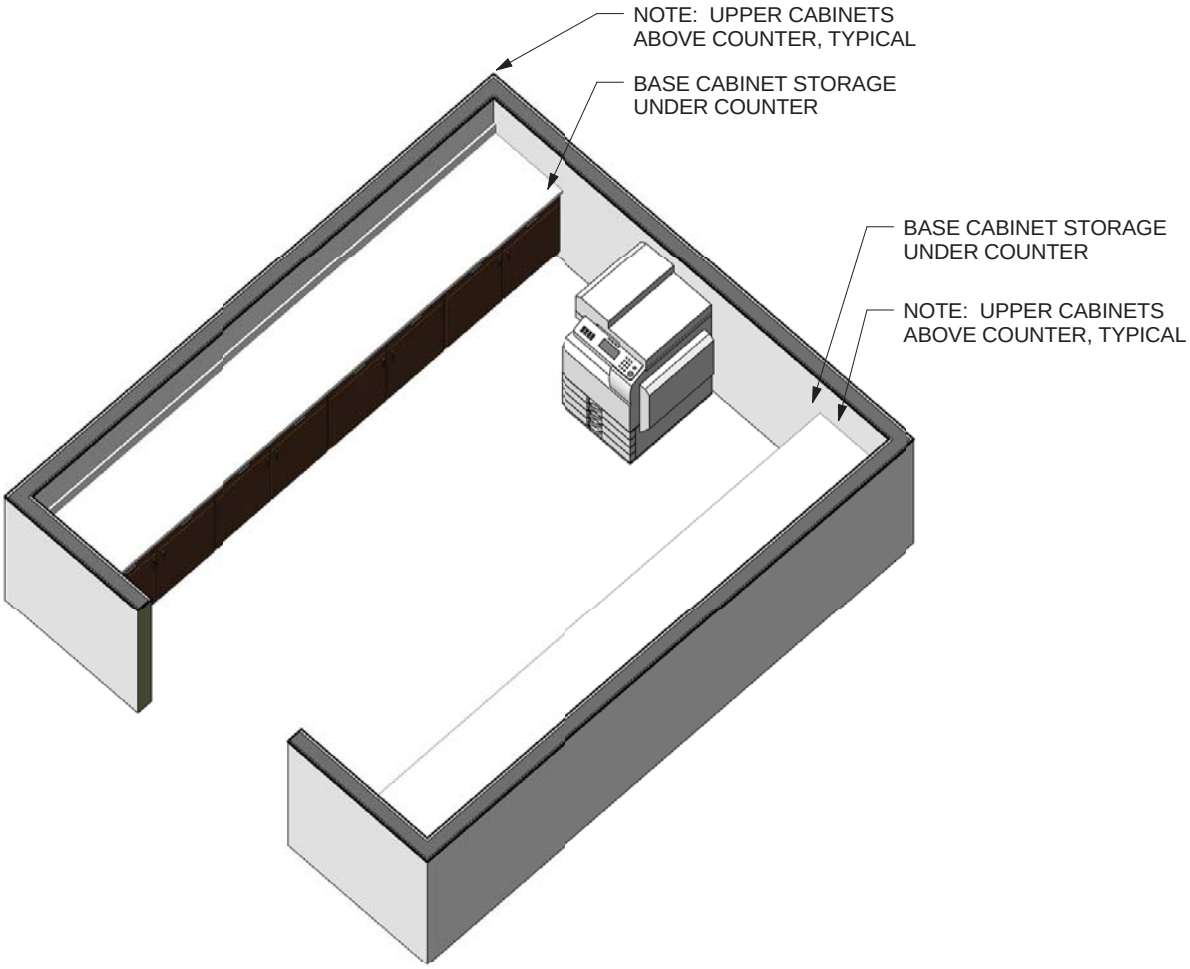
SCALE: 1/4" = 1'

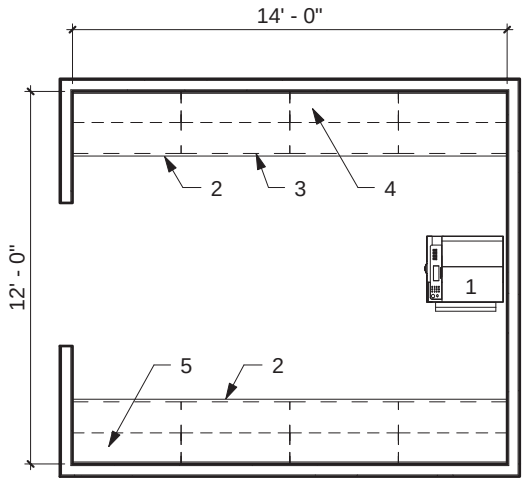
PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'L' - KITCHENETTE

12/14/16





1. COPIER
2. WORK COUNTER
3. BASE CABINETS
4. UPPER CABINETS
5. MAILBOX CUBBIES

COPIER / MAILROOM - SPACE TYPE 'O'
168 SQ. FT.

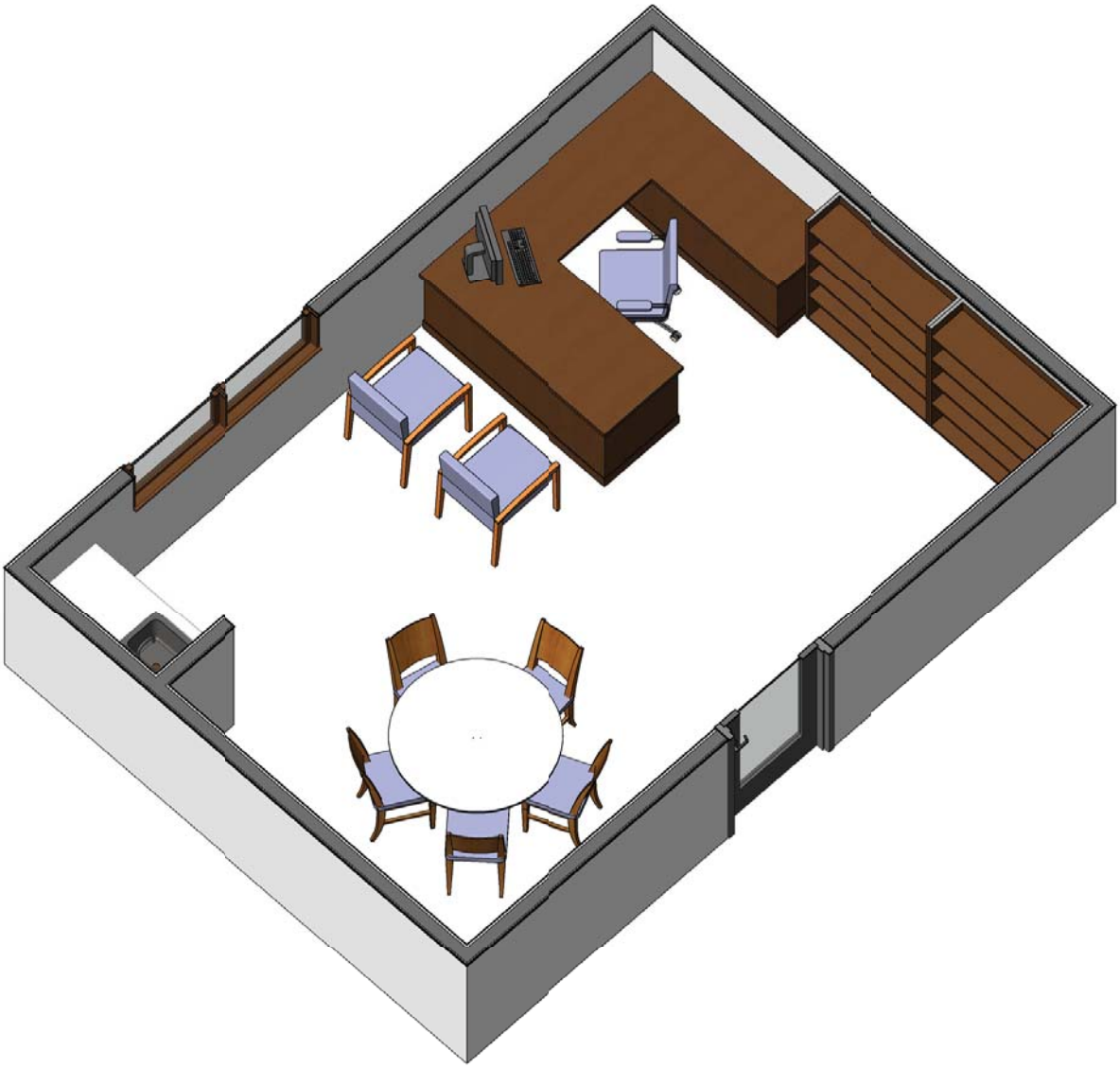
SPACE TYPE 'O'

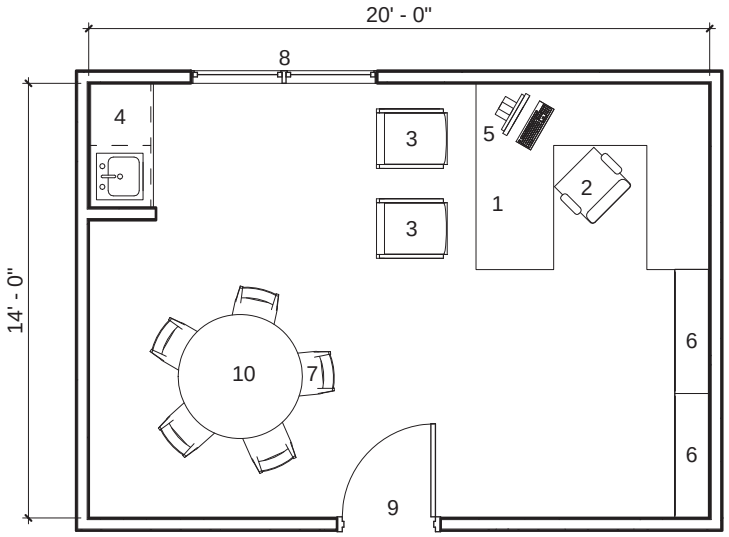
SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'O' - COPIER / MAILROOM 12/14/16





1. 30" DEEP U-SHAPED DESK
2. TASK CHAIR
3. GUEST CHAIR
4. COFFEE BAR
5. MONITOR(S)
6. BOOKCASE AND/OR FILES
7. GUEST CHAIR, TYP.
8. WINDOW
9. DOOR W/ GLASS LITE
10. MEETING TABLE

TOWN MANGER - SPACE TYPE 'GG'
280 SQ. FT.

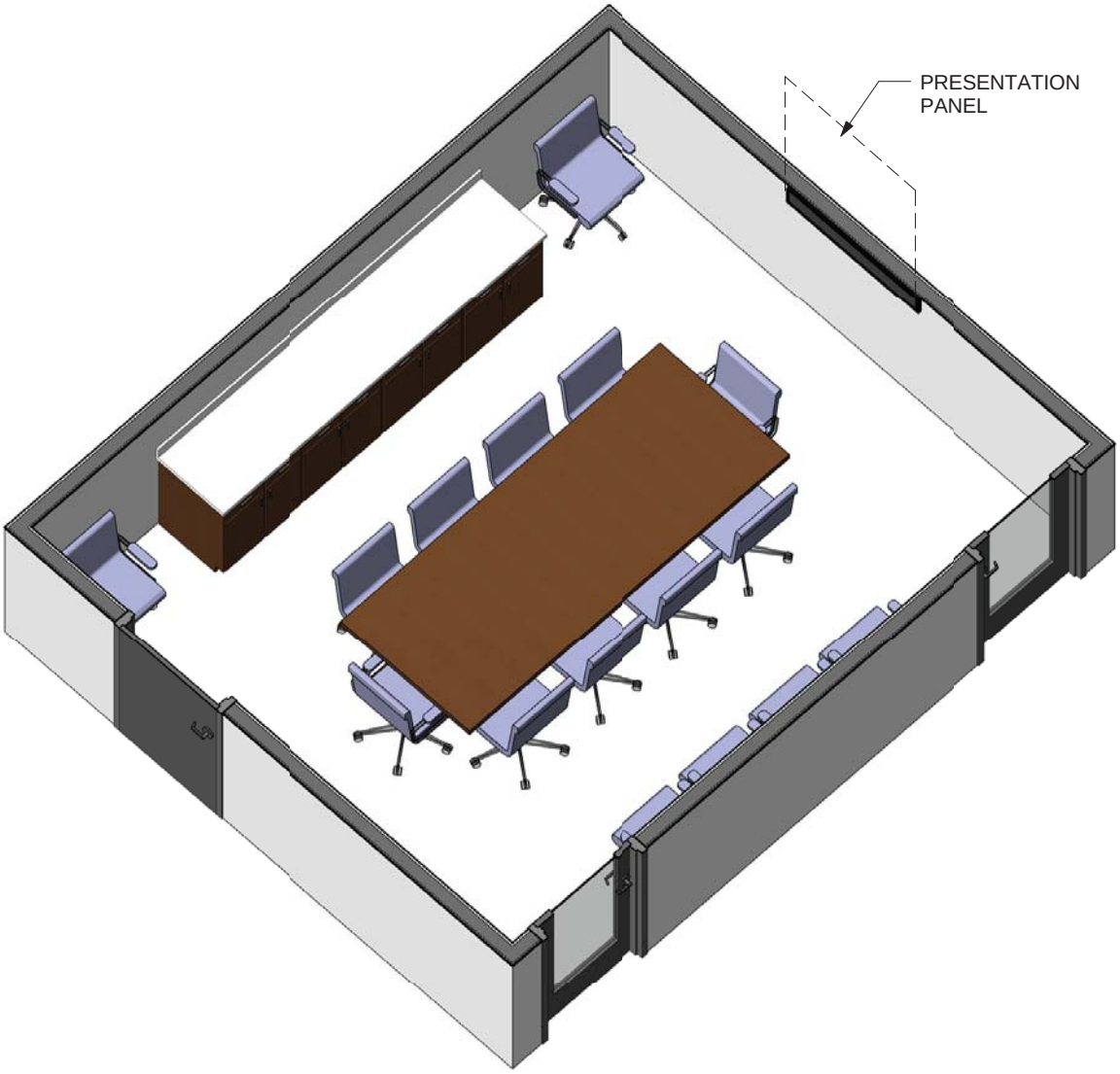
SPACE TYPE 'GG'

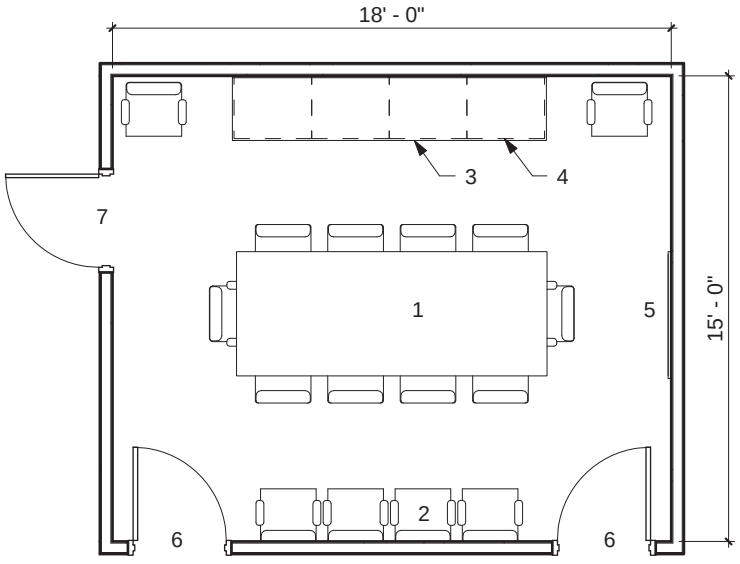
SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'GG' - TOWN MANAGER 12/14/16





1. CONFERENCE TABLE
2. SIDE CHAIR, TYP.
3. COUNTER
4. BASE CABINETS
5. PRESENTATION PANEL
6. DOOR W/ GLASS LITE
7. DOOR TO TOWN COUNCIL CHAMBERS PASSAGE WAY

LARGE CONFERENCE - SPACE TYPE 'I'
270 SQ. FT.

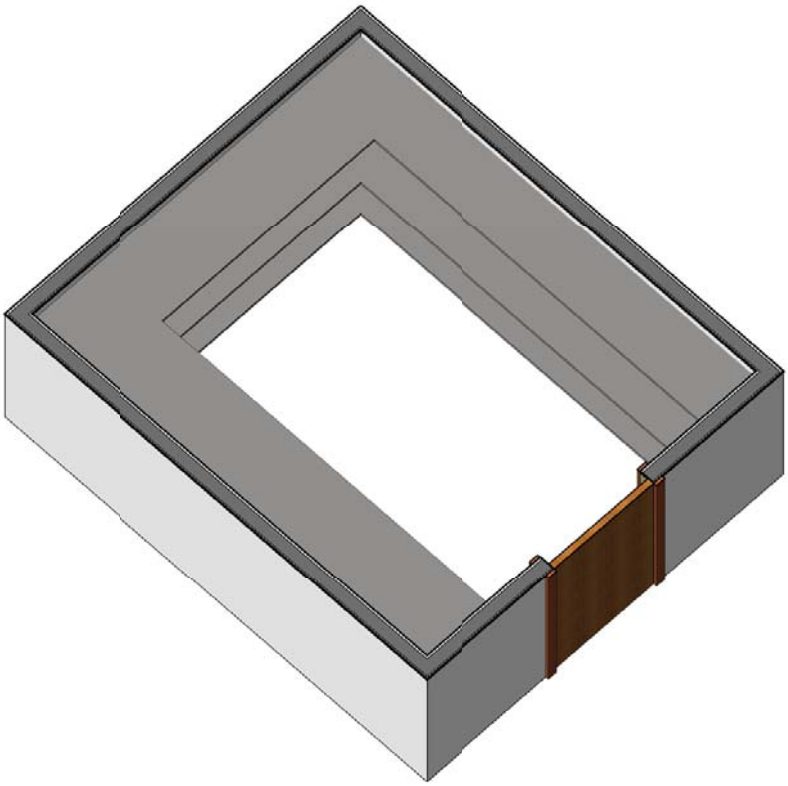
SPACE TYPE 'I'

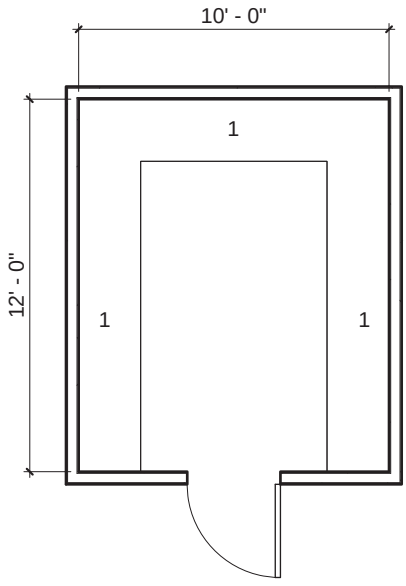
SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'I' - LARGE CONFERENCE (16 PERSON) 12/14/16





1. 24" DEEP SHELVING

STORAGE ROOM & SUPPLY CLOSET -
SPACES TYPE 'P'
120 SQ. FT.

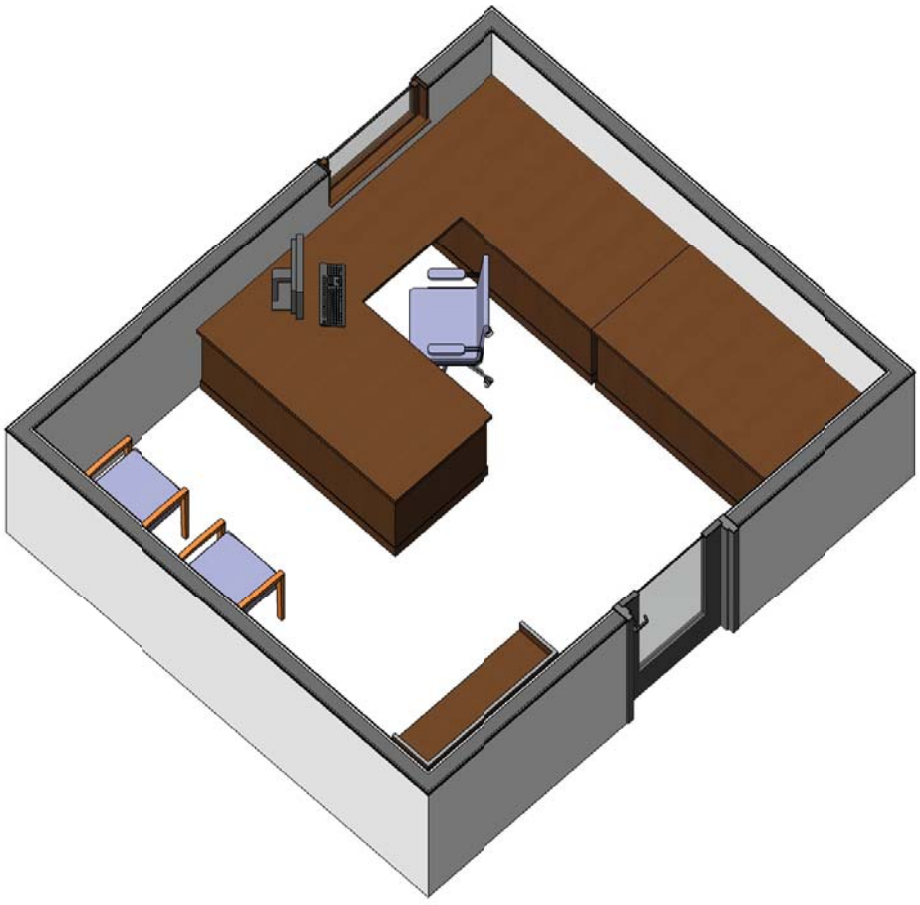
SPACE TYPE 'P'

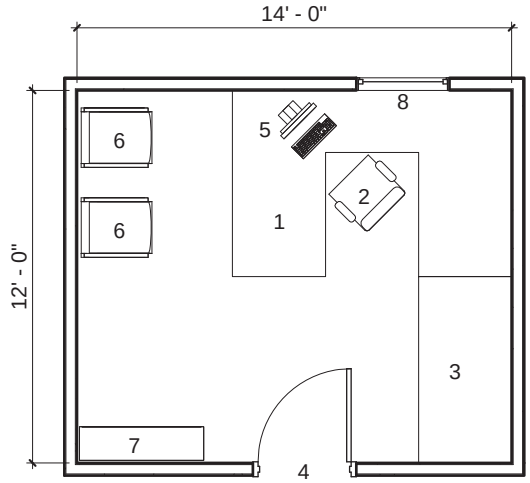
SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'P' - STORAGE ROOM & SUPPLY CLOSET 12/14/16





1. 36" DEEP U-SHAPED DESK
2. TASK CHAIR
3. 36" DEEP CREDENZA
4. DOOR W/ GLASS LITE
5. MONITOR(S)
6. GUEST CHAIR
7. BOOKCASE AND/OR FILES
8. WINDOW

ASSISTANT TO TOWN MANAGER
HUMAN RESOURCES
PURCHASING
CLERK-MAN. ANALYST
PLANNING DIRECTOR -
SPACE TYPE 'D'
168 SQ. FT.

SPACE TYPE 'D'

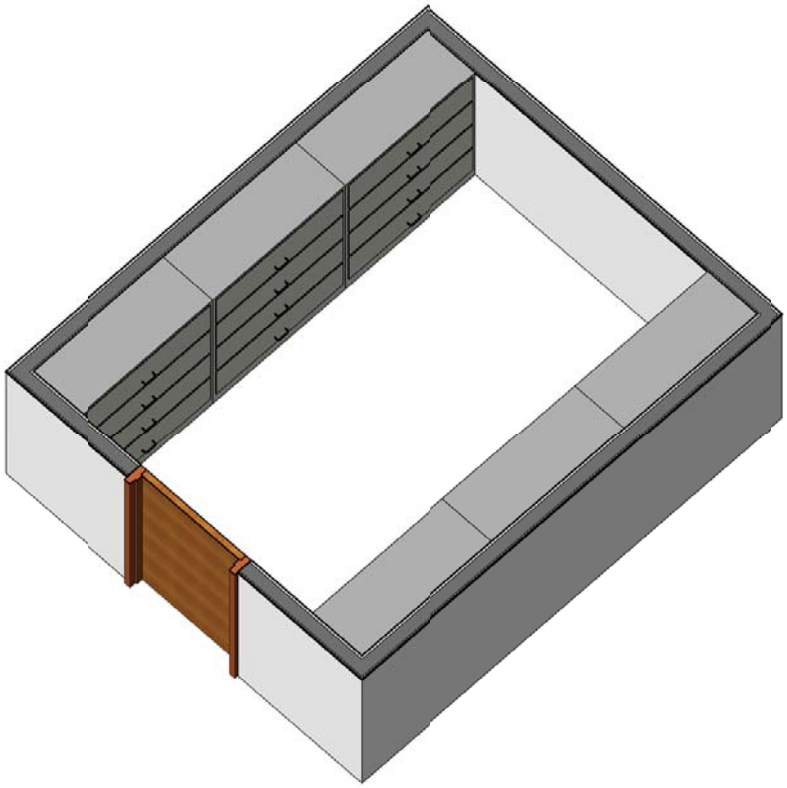
SCALE: 1/4" = 1'

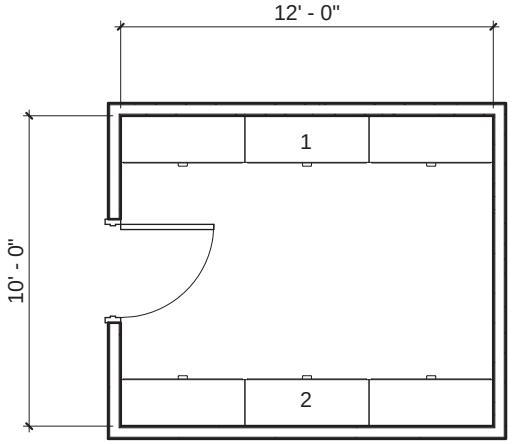
PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'D' - ASSIST. TO TOWN MANAGER, HUMAN RESOURCES, PURCHASING, CLERK-MAN. ANALYST, & PLANNING DIRECTOR

12/14/16





1. 48" WIDE 4 DRAWER LATERAL FILES, TYP.
2. OPEN SHELVING OR LATERAL FILES

CLERK STORAGE ROOM & FINANCE
FILE ROOM - SPACES TYPE 'F'
120 SQ. FT.

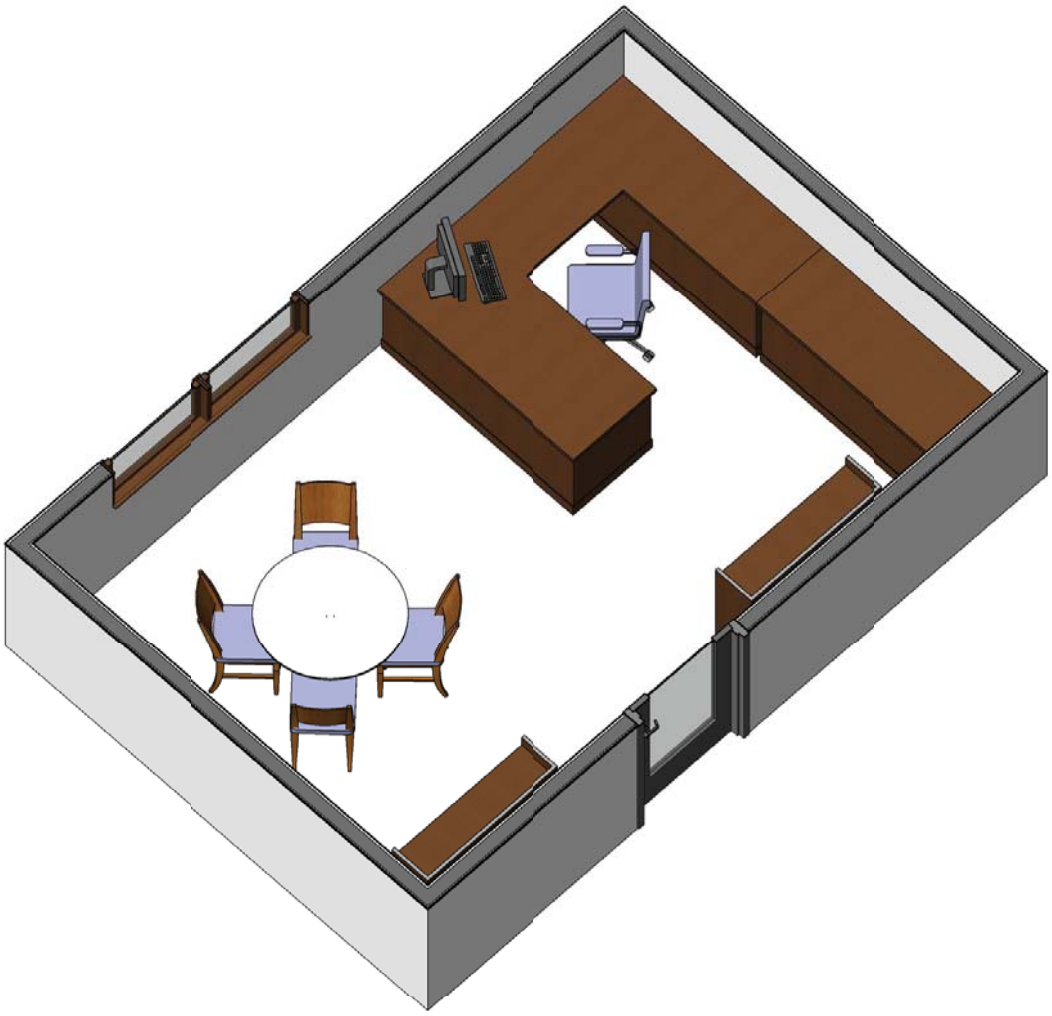
SPACE TYPE 'C'

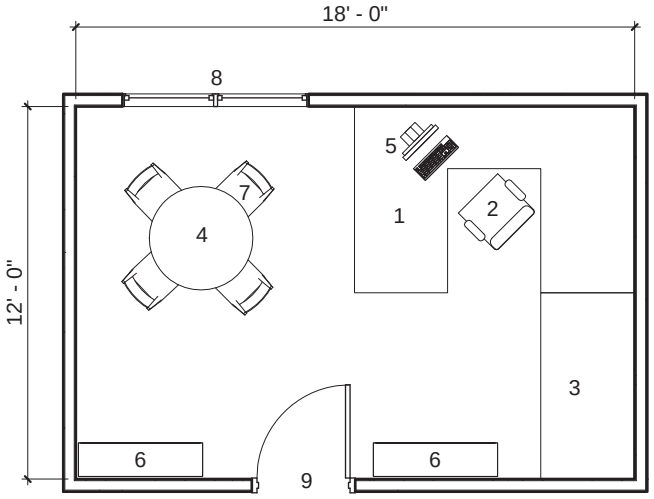
SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'C' - CLERK STORAGE ROOM & FINANCE FILE ROOM 12/14/16





1. 36" DEEP U-SHAPED DESK
2. TASK CHAIR
3. CREDENZA
4. TABLE
5. MONITOR(S)
6. BOOKCASE AND/OR FILES
7. GUEST CHAIR, TYP.
8. WINDOW
9. DOOR W/ GLASS LITE

TOWN ATTORNEY - OFFICE 'G'
216 SQ. FT.

SPACE TYPE 'G'

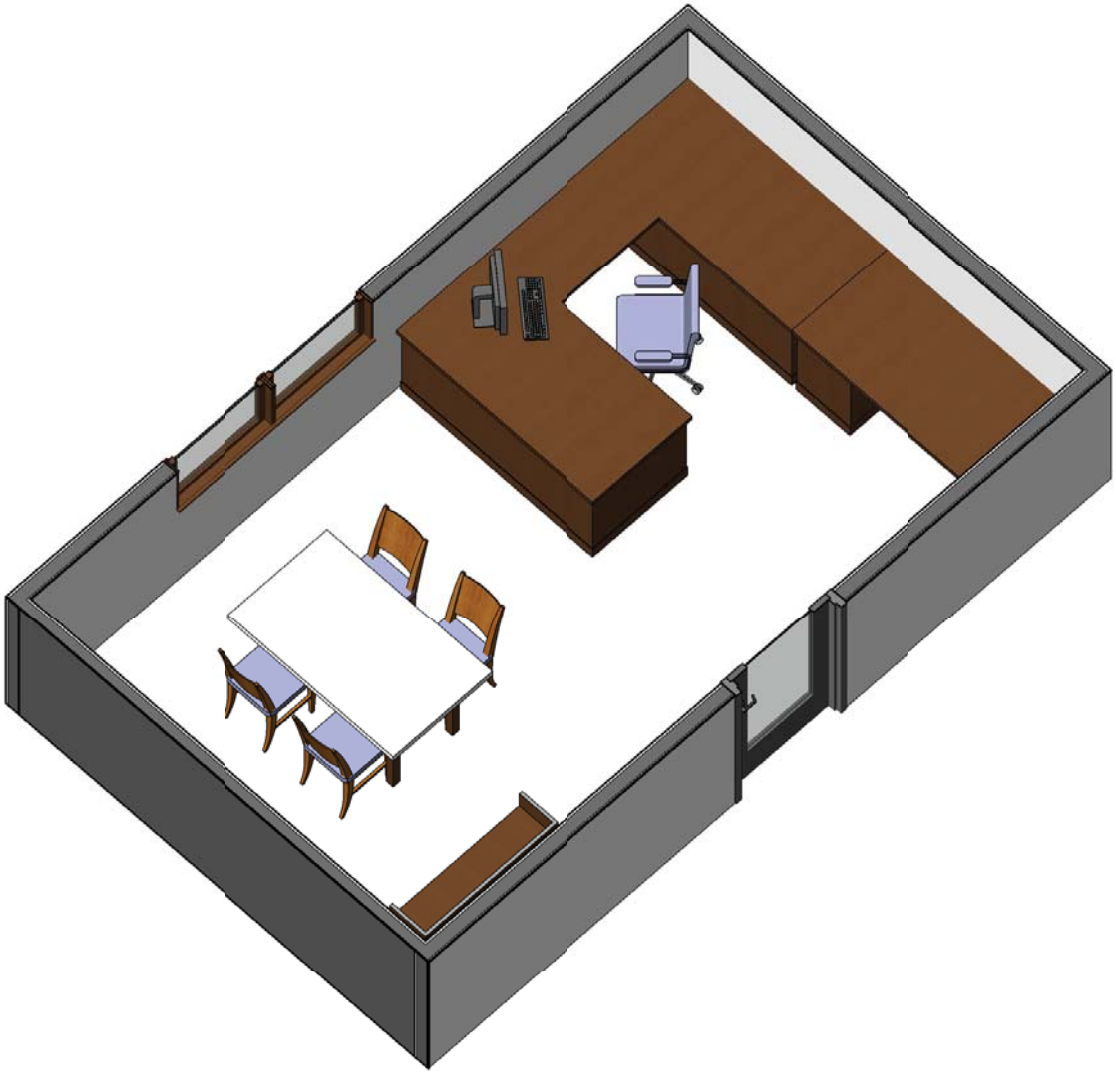
SCALE: 1/4" = 1'

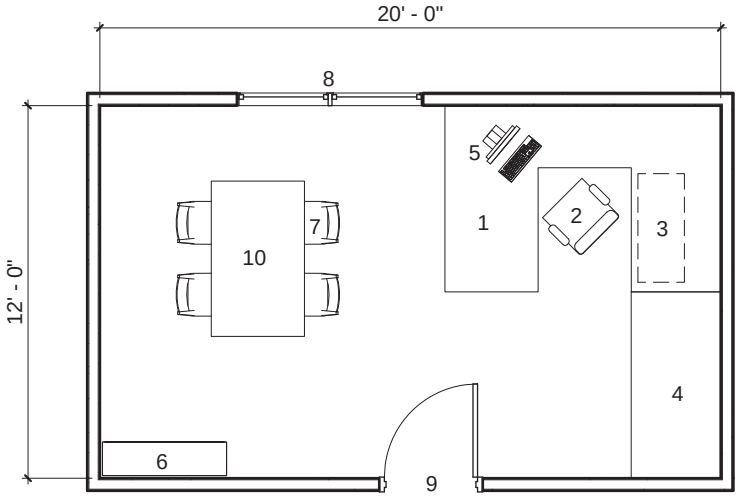
PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'G' - TOWN ATTORNEY

12/14/16





1. 36" DEEP U-SHAPED DESK
2. TASK CHAIR
3. LATERAL FILE
4. DRAWING LAYOUT DESK
5. MONITOR(S)
6. BOOKCASE
7. GUEST CHAIR, TYP.
8. WINDOW
9. DOOR W/ GLASS LITE
10. DRAWING REVIEW TABLE

PUBLIC WORKS DIRECTOR - OFFICE 'V'
240 SQ. FT.

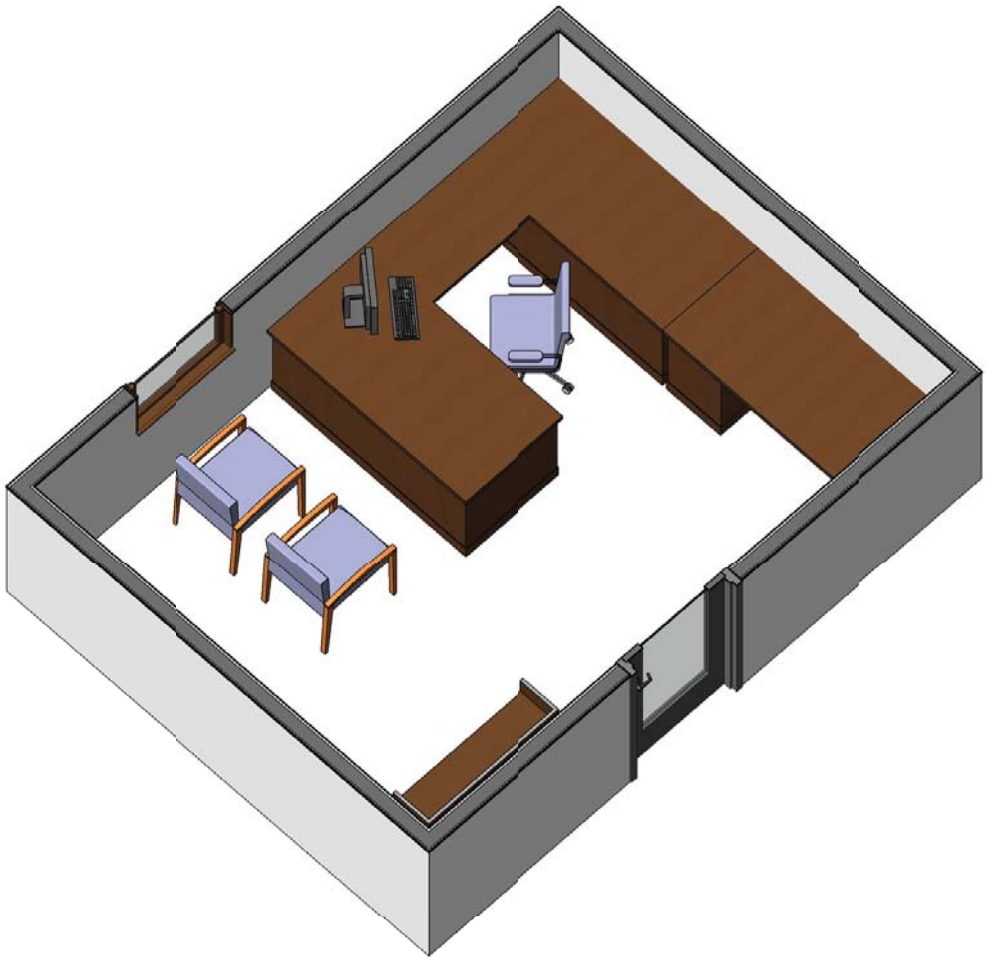
SPACE TYPE 'V'

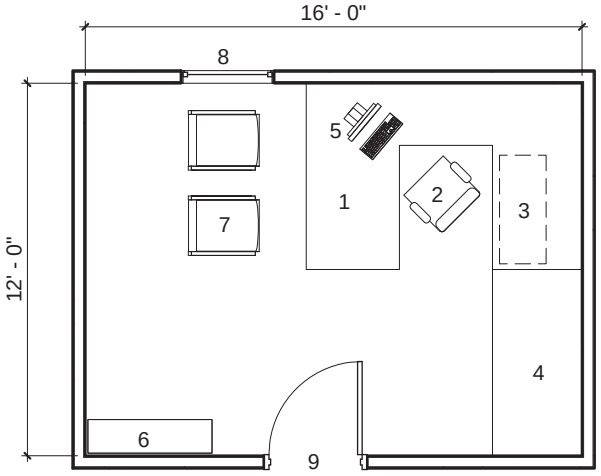
SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'V' - PUBLIC WORKS DIRECTOR 12/14/16





1. 36" DEEP U-SHAPED DESK
2. TASK CHAIR
3. LATERAL FILE
4. DRAWING LAYOUT DESK
5. MONITOR(S)
6. BOOKCASE
7. GUEST CHAIR, TYP.
8. WINDOW
9. DOOR W/ GLASS LITE

TOWN ENGINEER - OFFICE 'E'
192 SQ. FT.

SPACE TYPE 'E'

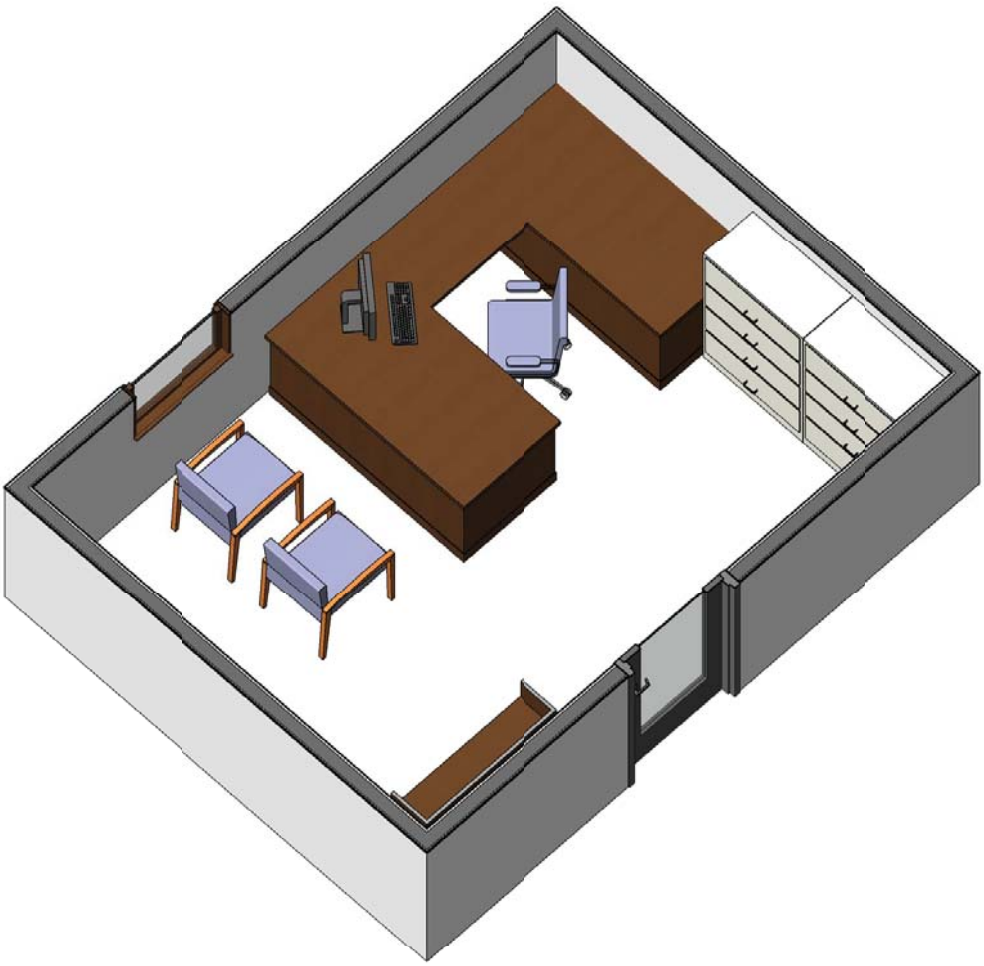
SCALE: 1/4" = 1'

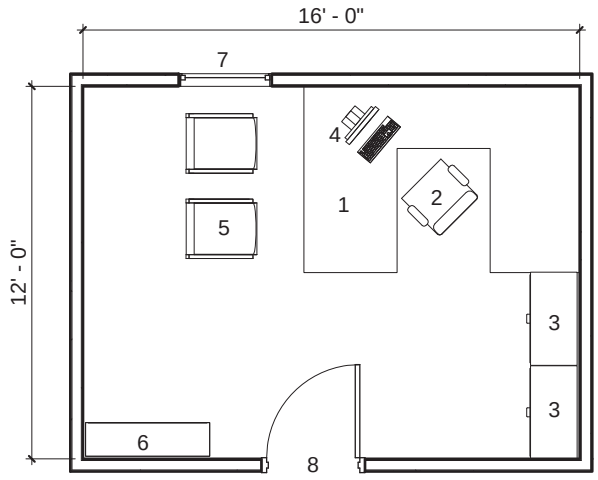
PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'E' - TOWN ENGINEER

12/14/16





1. 36" DEEP U-SHAPED DESK
2. TASK CHAIR
3. BOOKSHELVES OR FILE CABINETS
4. MONITOR(S)
5. GUEST CHAIR, TYP.
6. BOOKCASE
7. WINDOW
8. DOOR W/ GLASS LITE

FINANCE DIRECTOR - OFFICE 'E'
192 SQ. FT.

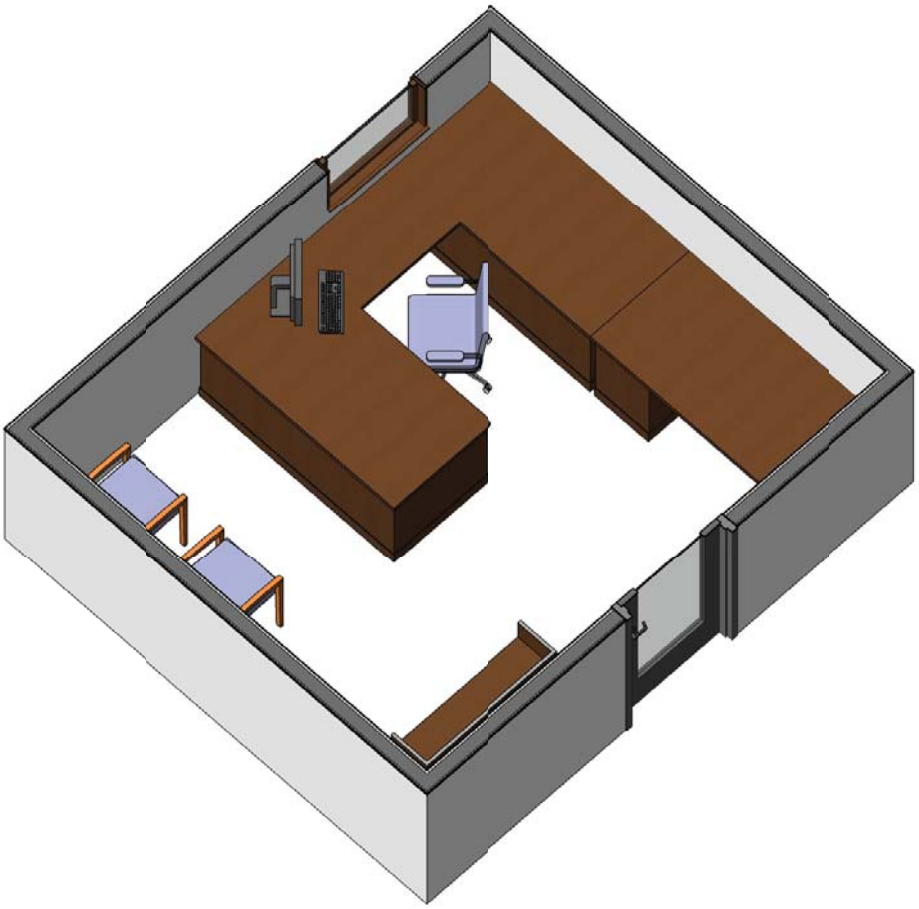
SPACE TYPE 'E'

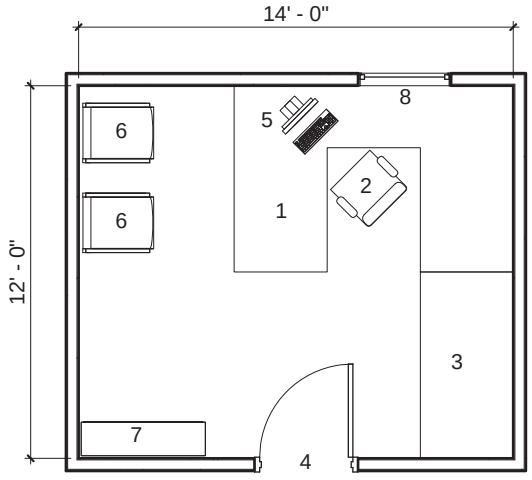
SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'E' - FINANCE DIRECTOR 12/14/16





1. 36" DEEP U-SHAPED DESK
2. TASK CHAIR
3. DRAWING LAYOUT DESK
4. DOOR W/ GLASS LITE
5. MONITOR(S)
6. GUEST CHAIR
7. BOOKCASE AND/OR FILES
8. WINDOW

CIVIL ENGINEER - SPACE TYPE 'D'
168 SQ. FT.

SPACE TYPE 'D'

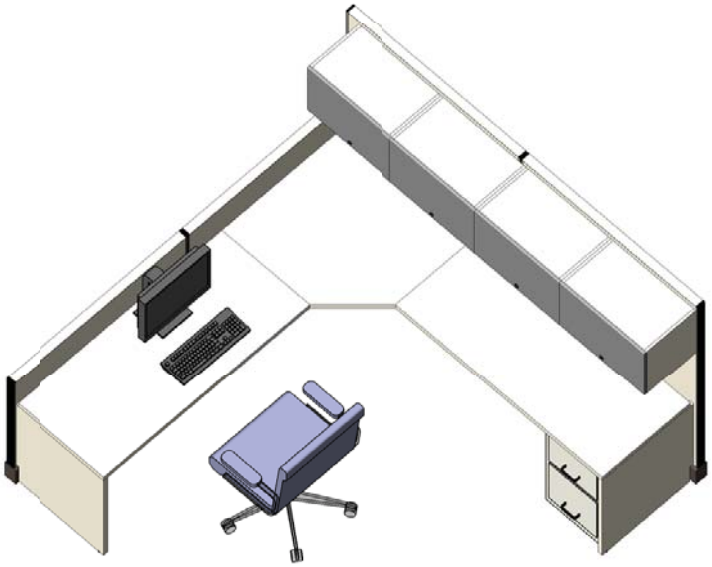
SCALE: 1/4" = 1'

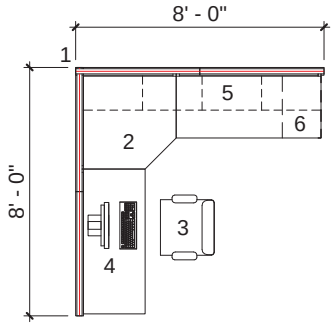
PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'D' - CIVIL ENGINEER

12/14/16





1. OFFICE SYSTEM WALLS
2. L-SHAPED DESK
3. TASK CHAIR
4. MONITOR(S)
5. WALL MOUNTED STORAGE
6. UNDER DESK FILE BOX

OPEN OFFICE MODULAR WORKSTATION -
SPACE TYPE 'A' - 64 SQ. FT.

SPACE TYPE 'A'

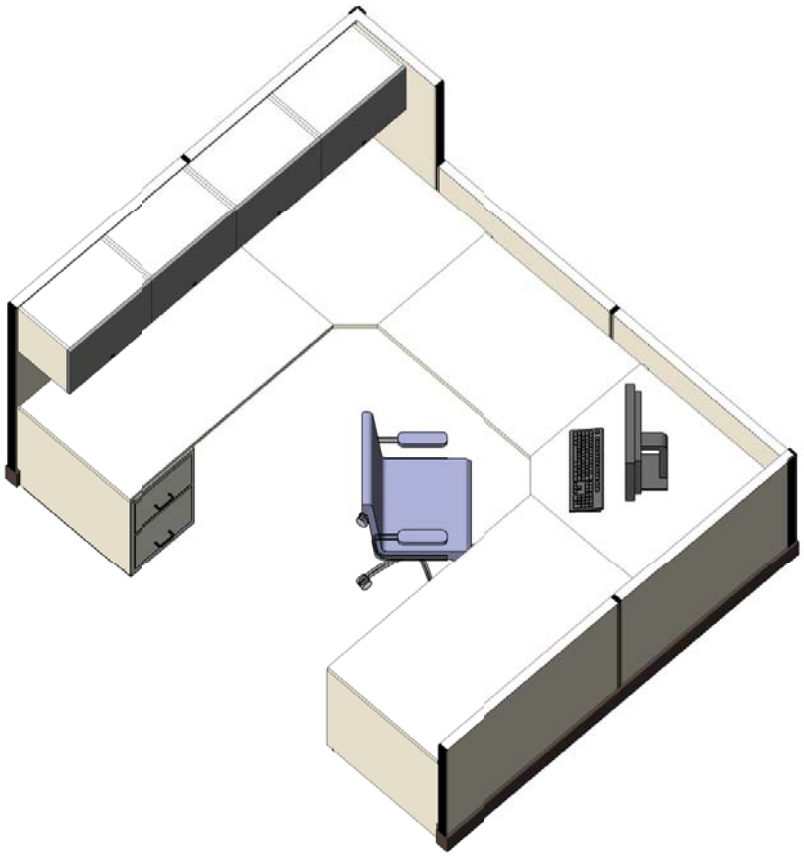
SCALE: 1/4" = 1'

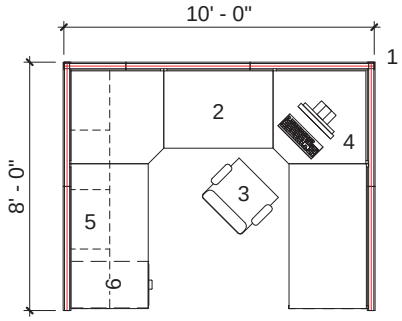
PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'A' - OPEN OFFICE

12/14/16





1. OFFICE SYSTEM WALLS
2. U-SHAPED DESK
3. TASK CHAIR
4. MONITOR(S)
5. WALL MOUNTED STORAGE
6. UNDER DESK FILE BOX

OPEN OFFICE MODULAR WORKSTATION -
SPACE TYPE 'B' - 96 SQ. FT.

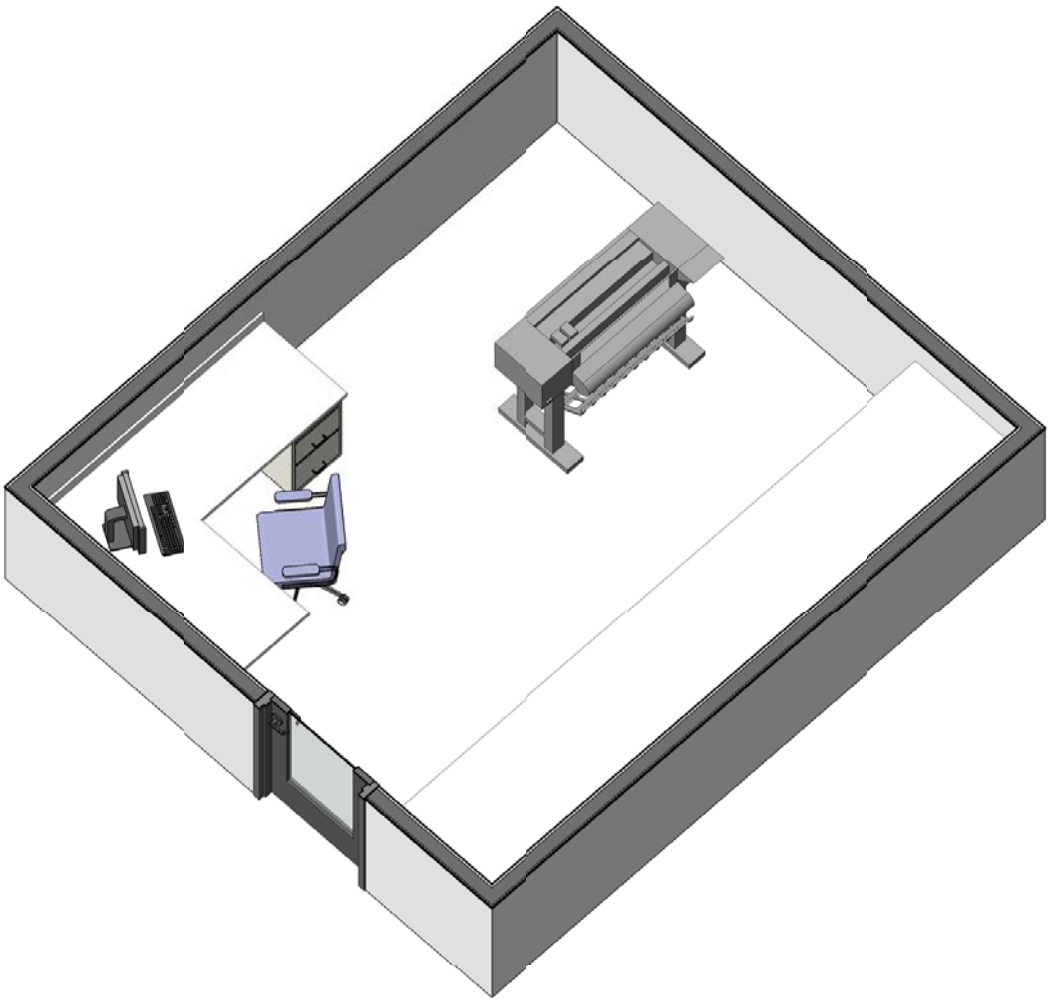
SPACE TYPE 'B'

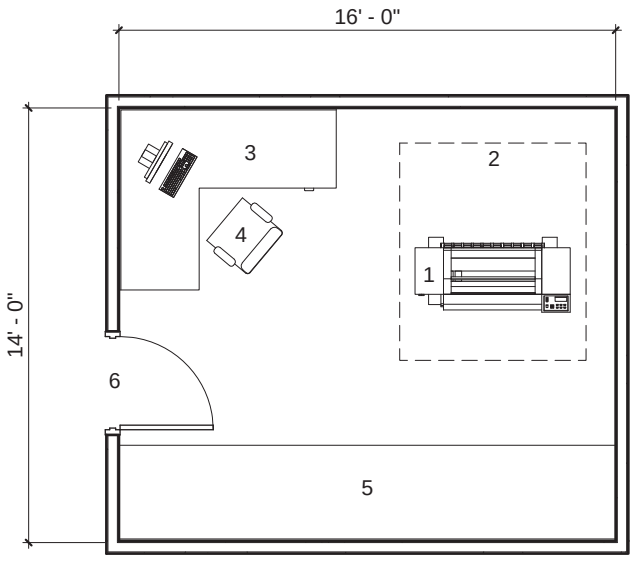
SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'B' - OPEN OFFICE 12/14/16





1. PLOTTER
2. PLOTTER CLEARANCE AREA
3. INTERN WORK STATION
4. TASK CHAIR
5. 36" DEEP LAYOUT COUNTER
6. DOOR W/GLASS LITE

PLOTTER / PRINTER ROOM - SPACE TYPE 'F'
244 SQ. FT.

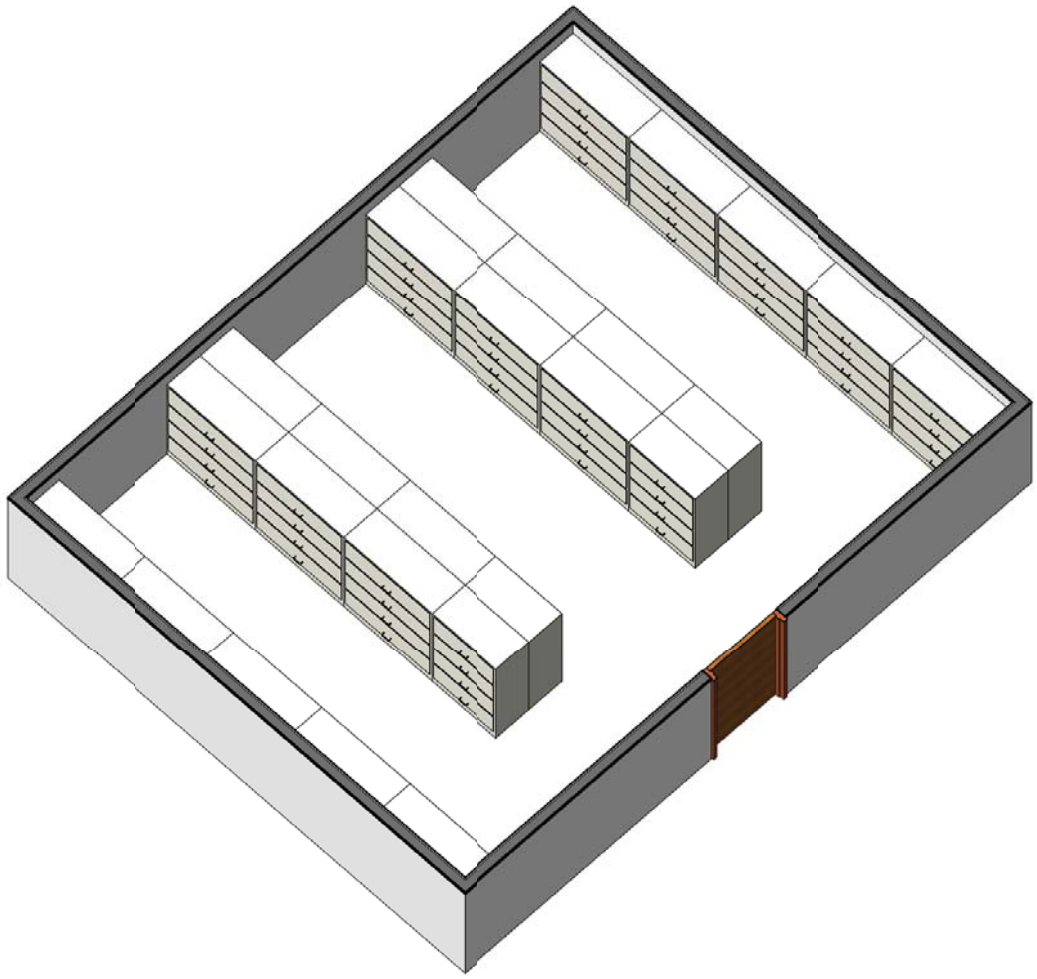
SPACE TYPE 'F'

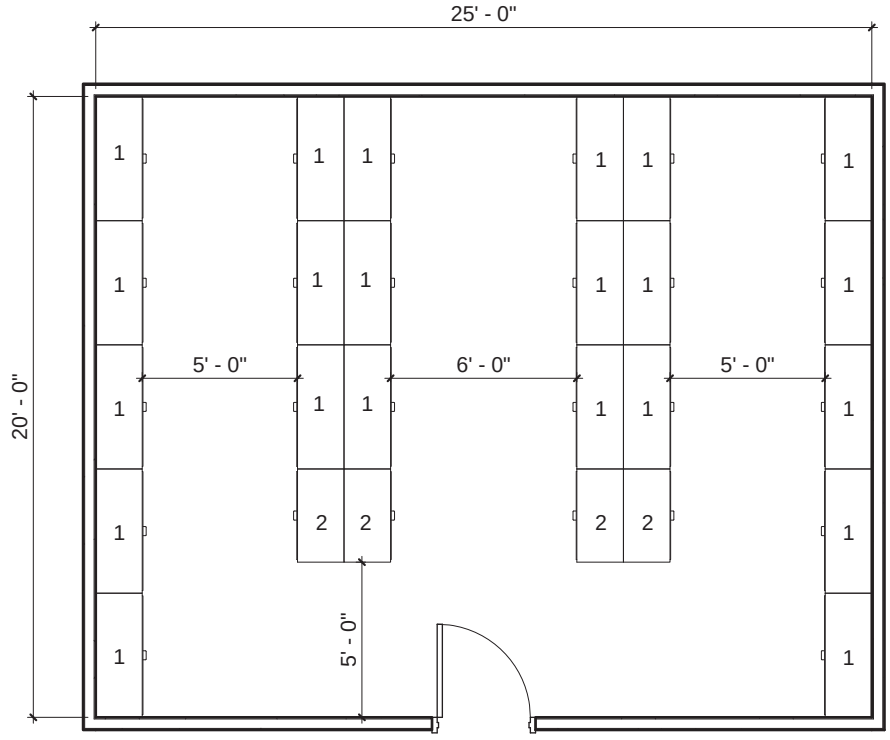
SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'F' - PLOTTER / PRINTER ROOM 12/14/16





1. (22) 48" WIDE 4 DRAWER LATERAL FILE, TYP
2. (4) 36" WIDE 4 DRAWER LATERAL FILE

SPACE TYPE 'U'

PLANNING FILE ROOM - SPACE 'U'
500 SQ. FT.

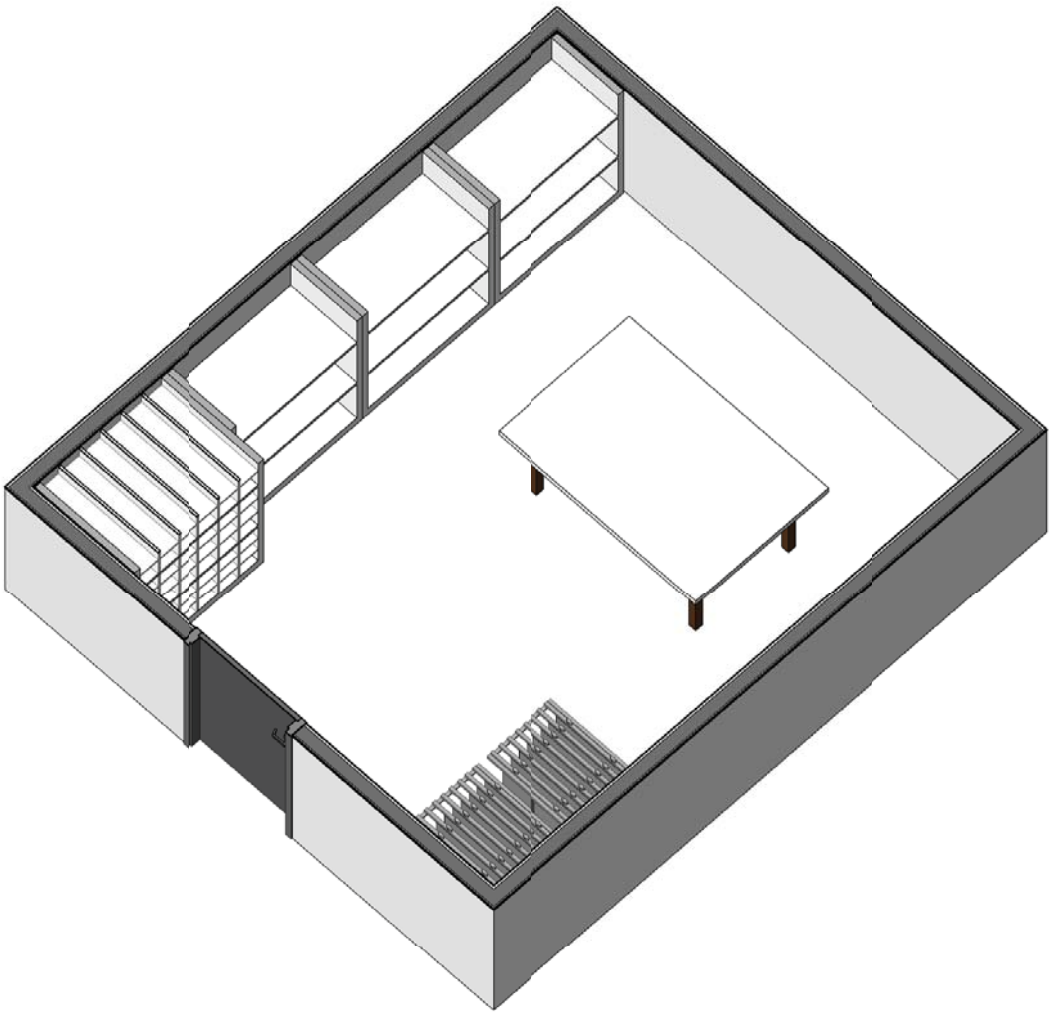
SCALE: 1/4" = 1'

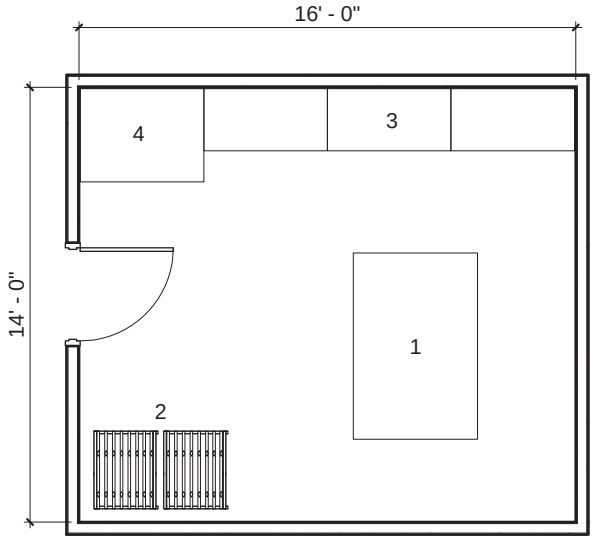
PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'U' - PLANNING FILE ROOM

12/14/16





1. 4X6 LAYOUT TABLE
2. HANGING FILE RACKS
3. BOX STORAGE SHELVING
4. ROLLED DRAWING STORAGE

PUBLIC WORKS FILE ROOM - SPACE TYPE 'F'
244 SQ. FT.

SPACE TYPE 'F'

SCALE: 1/4" = 1'

PMA ARCHITECTURE

ASHLAND TOWN OFFICES

SPACE TYPE 'F' - PUBLIC WORKS FILE ROOM 12/14/16

Appendix F

Departmental Space Needs Projection

(prepared by PMA Architecture)

Town of Ashland - Statement of Space Needs

4/1/2017

	Existing Floor Area (sf)	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices				Now	2,022	2,027	Now	2,022	2,027
Town Manager	279	GG	280	1	1	1	280	280	280
Assistant to Town Man.	136	D	168	1	1	1	168	168	168
Part-time clerk		A	64	1	1	1	64	64	64
Human Resources		D	168	0	1	1	0	168	168
Purchasing		D	168	0	0	1	0	0	168
Finance Director	145	E	192	1	1	1	192	192	192
Accounting Technician		C	120	0	1	1	0	120	120
Clerk-Man. Analyst	164	D	168	1	1	1	168	168	168
Accounting Clerk		B	80	1	1	1	80	80	80
Planning Director	102	D	168	1	1	1	168	168	168
Administrative Assistant		B	80	1	1	1	80	80	80
Senior Planner	128	C	120	1	1	1	120	120	120
Zoning Administrator	111	C	120	1	1	1	120	120	120
Econ. Development Dir.	106	C	120	1	1	1	120	120	120
Econ. Development Support			120	0	0	1	0	0	120
PW Director	217	V	240	1	1	1	240	240	240
Administrative Assit.		B	80	1	1	1	80	80	80
Town Engineer		E	192	1	1	1	192	192	192
Civil Engineer		D	168	1	1	1	168	168	168
PW- Project Manager		C	120	3	3	3	360	360	360
Intern Work Areas		A	64	2	3	3	128	192	192
Town Attorney		G	216	1	1	1	216	216	216
A -Total Personnel and Space Requirement	***1,388***			**21**	**24**	**26**	**2,944**	**3,296**	**3,584**
Support Spaces									
Council Chambers Lobby	277	J	288	1	1	1	288	288	288
Large Conference Rm	221	I	270	1	1	1	270	270	270
Medium Conference Rm		D	168	1	1	1	168	168	168
Small / Admin Conf. Room		T	100	1	1	1	100	100	100
Reception Work Counter	197		160	1	1	1	160	160	160
Administrative Reception/Waiting Area	330	K	200	1	1	1	200	200	200
Clerk Storage Room	73	C	120	1	1	1	120	120	120
Planning File Rm		U	500	1	1	1	500	500	500
Public Works Files		F	224	1	1	1	224	224	224
Copier/Mailroom		O	168	1	1	1	168	168	168
Finance File Room		C	120	1	1	1	120	120	120
Lunchroom/Kitchenette	27	L	252	1	1	1	252	252	252
Staff Restrooms (male/female)	126	N	56	2	2	2	112	112	112
Server Room	92	S	120	1	1	1	120	120	120
Plotter/ Printer Room	221	F	224	1	1	1	224	224	224
Supply Closet		P	120	1	1	1	120	120	120
Storage Room	567	P	120	1	1	1	120	120	120
B - Total Support Space Requirement	***1,854***						**3,266**	**3,266**	**3,266**
Combined Personnel and Support Space (A+B)							**6,210**	**6,562**	**6,850**
Halls and Mechanical Space Grossing Factor = .40							**2,484**	**2,625**	**2,740**
Special Spaces									
Council Chambers	**1,075**	**H**	**1,600**	**1**	**1**	**1**	**1,600**	**1,600**	**1,600**
AV Support Room	**215**	**S**	**120**	**1**	**1**	**1**	**120**	**120**	**120**
Total Space Requirement							**10,414**	**10,907**	**11,310**

PMA ARCHITECTURE

Town Manager 12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,022	2,027
Town Manager	GG	280	1	1	1	280	280	280

Furniture/Req.	Quantity	Size	Notes
Desk	1	3x6	
Return	1	2.5x4	
Credenza	1	2.5x4	
Bookcase	1	1x4	
48" round table	1	4' dia.	5 person table
Guest Chairs	7		
Executive Desk Chair	1		
Coffee Counter	1	48" Long	

Support Spaces			Now	2022	2027	Now	2022	2027

Adjacency Requirements	
Assitant to Town Manager	
Finance office	
Clerk	
Management Analyst	
Conference Room	
Reception	

Comments						
Provide Coffee Counter	In office space provided					

PMA ARCHITECTURE

Assistant to Town Manager

12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
Assistant to Town Man.	D	168	1	1	1	168	168	168
Part-time clerk	A	64	1	1	1	64	64	64
Human Resources	D	168	0	1	1	0	168	168
Purchasing	D	168	0	0	1	0	0	168

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Credenza	1		2.5'x4'
Bookcase	1		4'
Guest Chairs	1		
Executive Desk Chair	1		
Open office desk			For Part Time Person

Support Spaces			Now	2022	2027	Now	2022	2027
Small / Admin Conf. Room	T	100	1	1	1	100	100	100

Adjacency Requirements	
Town Manager	
Reception	
Central files	
HR	
Purchasing	

Comments	
Farmer's Market Storage Closet	Currently Manages Farmer's Market

PMA ARCHITECTURE

Finance

12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
Finance Director	E	192	1	1	1	192	192	192
Accounting Technician	C	120	0	1	1	0	120	120

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Credenza	1		2.5'x4'
Bookcase	1		4'
Guest Chairs	2		
Executive Desk Chair	1		

Support Spaces			Now	2022	2027	Now	2022	2027
Finance File Room	C	120	1	1	1	120	120	120

Adjacency Requirements	
Assistant to Town Manager	
Town Manager	
Management Analyst	
Accounting Clerk	
Planning Administrator	
Reception	
Central File Room	

Comments	
Finance Director also manages IT	This is planned to transiton to a contract in future in order to free up Finance Director of these responsibilites in the future.
Mail slot	Provide for afterhours dropoff

PMA ARCHITECTURE

Clerk

12/12/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
Clerk-Man. Analyst	D	168	1	1	1	168	168	168

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Credenza	1		2.5'x4'
Bookcase	1		4'
Guest Chairs	2		
Executive Desk Chair	1		

Support Spaces			Now	2022	2027	Now	2022	2027
Clerk Storage Room	C	120	1	1	1	120	120	120

Adjacency Requirements	
Assistant to Town Manager	
Town Manager	
Management Analyst	
Accounting Clerk	
Planning Administrator	
Central File Room	

Comments	
Finance Director also manages IT	This is planned to transiton to a contract in future in order to free up Finance Director of these responsibilites in the future.
Mail slot	Provide for afterhours dropoff

PMA ARCHITECTURE

Accounting Clerk 12/16/2012

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
Accounting Clerk	B	80	1	1	1	80	80	80

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Task Chair	1		

Support Spaces			Now	2022	2027	Now	2022	2027

Adjacency Requirements	
Recption	
Finance Director	
File Room	
Copy Room	
PW Admin Assist.	
Planning Admin Assist.	

Comments	
Desk is open office system	

PMA ARCHITECTURE

Public Works Director 12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
PW Director	V	240	1	1	1	240	240	240

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Credenza	1		2.5'x4'
Bookcase	1		4'
Guest Chairs	2		
Executive Desk Chair	1		
Drawing Layout desk	1		3'x6'

Support Spaces			Now	2022	2027	Now	2022	2027

Adjacency Requirements
PW Adm. Assist.
PW Staff
PW file room
Plotter Room
Planning Staff

Comments

PMA ARCHITECTURE

PW Town Engineer 12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
Town Engineer	E	192	1	1	1	192	192	192

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Credenza	1		2.5'x4'
Bookcase	1		4'
Guest Chairs	2		
Desk Chair	1		
Drawing Layout desk	1		3'x6'

Support Spaces			Now	2022	2027	Now	2022	2027

Adjacency Requirements	
PW Adm. Assist.	
PW Staff	
PW file room	
Plotter Room	
Planning Staff	
PW Director	

Comments	

PMA ARCHITECTURE

PW Civil Engineer 12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
Civil Engineer	D	168	1	1	1	168	168	168

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Bookcase	1		4'
Guest Chairs	2		
Desk Chair	1		
Drawing Layout desk	1		3'x6'

Support Spaces			Now	2022	2027	Now	2022	2027

Adjacency Requirements	
PW Adm. Assist.	
PW Staff	
PW file room	
Plotter Room	
PW Director	

Comments	

PMA ARCHITECTURE

Planning Director

12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
Planning Director	D	168	1	1	1	168	168	168
Administrative Assistant	B	80	1	1	1	80	80	80

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Credenza	1		2.5'x4'
Bookcase	1		4'
Guest Chairs	2		
Executive Desk Chair	1		
File Cabinets	1		
Open Office System for Admin. Assist.	1		8x13

Support Spaces			Now	2022	2027	Now	2022	2027

Adjacency Requirements	
Assistant to Town Manager	
Town Manager	
Planning File Room	
Plotter Room	
Planning Staff	

Comments	
Locate Office With Window	

PMA ARCHITECTURE

Senior Planner

12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
Senior Planner	C	120	1	1	1	120	120	120

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Credenza	1		2.5'x4'
Bookcase	1		4'
Guest Chairs	1		
Executive Desk Chair	1		

Support Spaces			Now	2022	2027	Now	2022	2027

Adjacency Requirements	
Director of Planning	
Planning File Room	
Plotter Room	
Planning Staff	

Comments	

PMA ARCHITECTURE

Zoning Administrator 12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
Zoning Administrator	C	120	1	1	1	120	120	120

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Credenza	1		2.5'x4'
Bookcase	1		4'
Guest Chairs	1		
Executive Desk Chair	1		

Support Spaces			Now	2022	2027	Now	2022	2027

Adjacency Requirements	
Director of Planning	
Planning File Room	
Plotter Room	
Planning Staff	

Comments	

PMA ARCHITECTURE

Economic Development 12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
Econ. Development Dir.	C	120	1	1	1	120	120	120
Economomic Development Support	C	120	0	0	1	0	0	120

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Credenza	1		2.5'x4'
Bookcase	1		4'
Guest Chairs	1		
Executive Desk Chair	1		

Support Spaces			Now	2022	2027	Now	2022	2027

Adjacency Requirements	
Director of Planning	
Planning File Room	
Plotter Room	
Planning Staff	

Comments	

PMA ARCHITECTURE

PW-Administrative Assitant

12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,020	2,025	Now	2,020	2,025
Administrative Assit.	B	80	1	1	1	80	80	80

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x8'
Return	1		3'x8'
File Cabinet	2		2 drawer
Task Chair	1		

Support Spaces			Now	2020	2025	Now	2020	2025

Adjacency Requirements	
Public Works Director	
Town Manager	
Management Analyst	
Accounting Clerk	
Plotter Room	
Planning Administrator	
PW Files	

Comments	

PMA ARCHITECTURE

PW -Project Manager

12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,020	2,025	Now	2,020	2,025
PW- Project Manager	C	120	3	3	3	360	360	360

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x8'
Return	1		3'x8'
Bookcase	1		4'
File Cabinet	2		2 drawer
Task Chair	1		

Support Spaces			Now	2020	2025	Now	2020	2025

Adjacency Requirements	
Public Works Director	
Town Manager	
Management Analyst	
Accounting Clerk	
Plotter Room	
Planning Administrator	
PW Files	

Comments	

PMA ARCHITECTURE

Intern Work Areas

12/16/2016

Space Needs Summary

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,020	2,025	Now	2,020	2,025
Intern Work Areas	A	64	2	3	3	128	192	192

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x8'
Return	1		3'x8'

Support Spaces			Now	2020	2025	Now	2020	2025

Adjacency Requirements	

Comments	
Space is an open office system	

PMA ARCHITECTURE

Town Attorney 12/16/2016 **Space Needs Summary**

	Space Type Needed	Space Required (sf)	Personnel Need			Space Required (s.f.)		
Offices			Now	2,022	2,027	Now	2,020	2,027
Town Attorney	G	216	1	1	1	216	216	216

Furniture/Req.	Quantity	Size	Notes
Desk	1		3'x6'
Return	1		2.5'x4'
Credenza	1		2.5'x4'
Bookcase	1		4'
Guest Chairs	4		
Round Table	1		
Executive Desk Chair	1		

Support Spaces			Now	2022	2027	Now	2022	2027

Adjacency Requirements	
PW Adm. Assist.	
PW Staff	
PW file room	
Plotter Room	
Planning Staff	

Comments	

A	64	8'x8'	Modular Workstation	
B	80	8'x10'	Modular Workstation	
C	120	10'x12'	Office 1	
D	168	12'x14'	Office 2	
E	192	12'x16'	Office 3	
F	224	14'x16'	Central File	
G	216	12'x18"	Office 5	
GG	280	14x20	Town Manager Office	
H	1600	40'x40'	Council Chambers	80 seats
I	270	15'x18'	Large Conference Room	
J	288	16'x18'	Lobby at Council Chambers	
K	200	10'x20'	Reception/Waiting at Administration	
L	252	14'x18'	Kitchenette	
M	144	8'X18'	Public Restroom	
N	56	7'x8'	Staff Restroom	
O	168	12'X14'	Copy/Mailroom	
P	120	10'X12'	Storage	
S	120	10'X12'	Server	
T	100	10'X10'	Administrative Conference Room - HR	
U	500	25'x20'	Central File-Planning	
V	240	12'X20'	Office 6	