

April 25, 2019

Village Mayor/Clerk
Village of Belmont
1 Schuyler Street
Belmont, NY 14813

RE: Letter of Transmittal: Belmont Fire Department for the Village of Belmont

Dear Rick Hoshal,

We would like to inform you about the progress in designing the new fire hall building for the Village of Belmont. Following different rules and regulations we worked to produce various content which includes:

- References such as floodplain information and analysis of site and structure
- Contract Specifications
- Contract drawings

This structure is 25,059 SF which will support up to 7 full size fire trucks. Site design and building design (Structural, Architectural, and foundation) have been completed for the entire property of interest.

Lastly, the project must be presented to the Village of Belmont for approval. We will field any and all questions regarding project and scope of work and services. It was a pleasure in working with everybody in the Village of Belmont on this project and hope to follow up with everybody in a timely matter every step of the way.

Sincerely,

Steven Manicki

Martin Koegst

Jose Romero

Dakota Corrello

Village of Belmont

1 Schuyler Street
Belmont, NY 14813

Fire Department Building For the Village of Belmont Engineering Report



April 2019

DMSJ Engineers & Architects Project # 000-01

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Project Planning

1.1 Introduction

The Village of Belmont is in need and looking to upgrade current Fire Facility so it meets their functionality needs and fulfills needs for the future of growing their fire department.

1.2 Location

The Village of Belmont's idea of location with respect to a new building was as simple as already owning a large piece of land that was shovel ready. The acreage of this property was 11.8 acres with a creek on the East side of the property and railroad tracks not too far from the location. The location is right outside of the Village of Belmont and in the Town of Amity. Figure 1 displays the approximate property line per New York State GIS Clearing house website and Allegheny tax maps. Figure 2 provides a street map view, Figure 3 provides floodplain information, and Figure 4 is a wetlands mapper.

Figure 1:



Figure 2 (Street Map view):

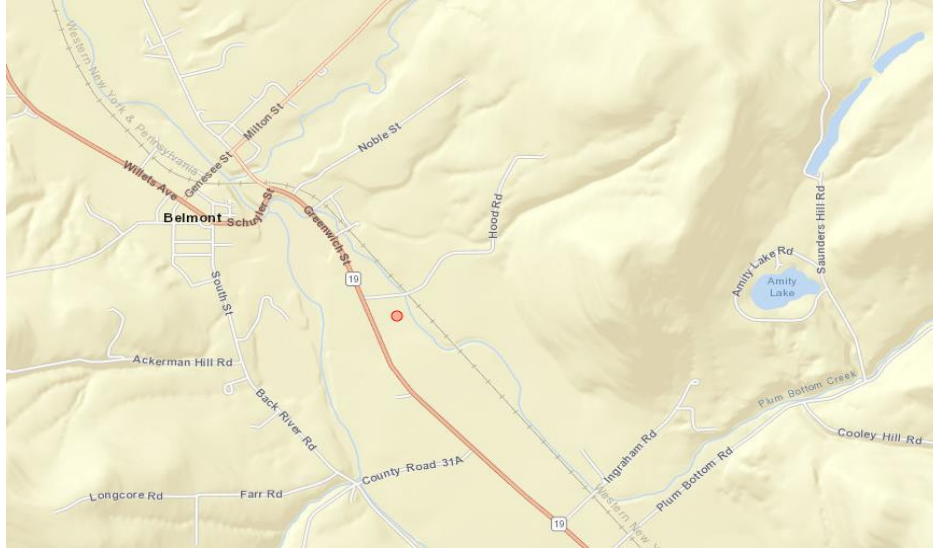


Figure 3 (Floodplains):



Figure 4 (Wetlands):



1.3 Population Trends

The project is for the Village of Belmont within the Town of Amity in Allegany County. As of the 2010 U.S. Census, the Village has a population of 2,520. Approximately twenty-five percent fall under the age of twenty, fifty-nine percent fall in the range of twenty and sixty-four years, and sixteen percent are aged sixty-five or older. There is a total of 1,016 Households located in the Village of Belmont in which the median income is approximately \$46,339 per the 2017 American Community Survey. The proposed project would also be overseeing a total of 34,541 total housing units, with 32,925 being occupied housing units and 1,616 being vacant housing units, per the 2010 U.S. Census.

Source:

<https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

1.4 Community Engagement

The Belmont Volunteer Fire Department established a strong relationship with their community as they train and accept volunteers. Establishing this relationship is a huge step within the community. Most importantly it allows for a community engagement response team or at least presenting fire routines for the community. It is a critical component of citizen engagement for the dedicated fire department and volunteers to know that they are well versed in such emergencies. The new facility will be able to house and allow the fire department to host such events and teach the community about emergencies. This demonstrates to the community that a new facility is needed and supersedes their needs in the community.

Existing Facilities

2.1 Location Map



<https://cris.parks.ny.gov/>

2.2 History

The Village of Belmont was first a village in 1833 and was actually named Philipsburg in honor of Philip Church. The village was incorporated on February 1, 1853 as Philipsville, but everything east of the Genesee River was called Miltonville. In 1870 a referendum was held at a local hotel and 70 voters decided on the name Belmont which originated from the French “Beaumont” meaning “beautiful hills”. The Fire Hall was constructed in the 1930’s along with the development and construction of a county courthouse, sheriff departments, and social services.

<http://www.belmontny.org/html/history.html>

2.3 Condition of Existing Facilities

2.3.1 Building

Being established in 1942, the existing facility has been part of a growing community. Currently there are 5 service trucks being housed in a 100 ft x 60 ft existing volunteer fire department facility. The area in which the fire trucks are housed is constrained as it does only house the trucks but also house lockers. Upon doing the walkthrough, it was pointed out by the firefighters that the areas are too small as they have to nearly squeeze in between trucks and only have a 1” from either side of truck when entering. There was not a separate

room for communications as it was shared with the fire chief. There existing conference hall was also noticed that was too small to host safety meetings, training or even just events for the public. In regards to their equipment, all room areas are required to take more than they can handle as some of these areas are used as storage for equipment that should have their own room.

2.3.2 Site/Roadways

The major issue with the existing site location is that it is susceptible to flooding. The Genesee River is located in front of the property and has caused major issues. This area is also on a flood plain zone which the facility has had issues with in the past. The facility is not equipped to handle these circumstances as there are drainage problems around the facility. Water has managed to enter the facility and cannot be easily drained out. The existing parking lot was also noticed that there was not enough parking slots and no designated parking for public and for employees. This has also created issues for the employees as some cars are forced to maneuver and park around the existing small lot.

2.3.3 Utilities

Based on the initial information provided by the Fire Chief, it is understood that there are all major utilities provided for the needs of the existing facility. All major utilities include water service, sewer, gas and electric. As for the new location, either existing or new utilizes have been installed along Greenwich Street, which would be used to make all connections to provide service for the proposed facility.

2.4 Financial Status of Any Existing Facilities

2.4.1 Revenues

General Taxation, fundraisers, and events.

2.4.2 Expenditures

Building upkeep, general building maintenance, and full time employees. (2 full timers). No other major expenditures were recorded.

Purpose and Need for Project

3.1 Purpose of the Project

3.1.1 Project Goals

The goal of this project is to outline a plan where the Village of Belmont can function with a growing number of firefighters and first responders. The current facility is outdated and needs major updates as a lot of the current facility cannot fulfill their needs anymore. The village of Belmont is looking to upgrade by adding additional bays for new fire trucks and the possibility of combining fire departments with an additional township.

3.2 Need for the Project

Need for the project included an expansion of fire truck bays in order to incorporate a merger between municipalities. New rooms for better functionality within the building, firefighters complained with the lack of room to move around and outdated mechanical systems and just general dysfunction.

Alternatives Considered

4.1 Description

Photovoltaic Systems, commonly known as solar panels are becoming more common in the country as they are energy efficient and money saving. With that being said, the Engineers have added Solar Panels as an alternative for the proposed fire hall. These solar panels will be designed so it will be able to provide the required output energy to have the proposed fire hall running. A summary of the engineer's system types is provided below as well as cost estimates for installing and utilizing the solar panels for primary source of energy.

4.2 Design Criteria

Using the U.S Energy Information Administration, on an average consumption for site electricity, a fire hall consumes 11.8 kW per hour per square foot. This would be rounded to 12 kW per hour per square foot which would be the design factor. A conservative value to use for as a solar panels capacity is 10 watts per square feet or for every kW that is generated, they will need 100 square feet of solar panels. As noted, 12 kW is needed, therefore the building would need 1,200 square feet of solar panels to be fully functional. It would be at best interest to contact a qualified manufacturer to provide a fully detailed design for installation. For installation feasibility, it would be best to install the solar panels on parts of the flat roof, as it provides the most area to suffice the 1,200 sq. ft. requirement and allows for preservation of land.

4.3 Maps

See appendix A

4.4 Environmental Impacts

Solar Panels are widely known for allowing the consumers to have savings in regard to their electric bill. However, on a larger scale, the environment also gains positive outtake as solar panels provide solar energy that do not produce air pollution, water pollution or greenhouse gases. Because of the zero-emission factor, solar panels don't contribute to

climate changes or health issues. This also helps reduce the use of other energy sources that have larger effects on the environment and allow for more growth in nearby locations.

4.5 Land Requirements

Solar panels are likely located on land areas or on roofs. However, in this scenario, it would be best suited for the fire hall to have the solar panels located on the roof. This eliminates the need of having to use land required for space reservation that the solar panels would need. For the proposed Fire Hall, the amount of energy required would be 12 kW. As discussed in design criteria, this would require 1,200 square feet amount of space for the solar panels which is feasible with the amount of space provided by the roof. Solar panels would also require the site to be free from shading which is not an issue with the proposed area. Solar Panels are ideally oriented towards true south but isn't required as solar panels can produce up to 95 percent of their capacity with just 20 degrees of the sun's direction.

4.6 Cost Estimates

The alternative of solar panels would allow the fire department to be more energy efficient. Their primary source of energy would be highly dependent on the sun which will vary on a day to day basis as clouds can cover up the sun. According to the U.S. Energy Information Administration, the average consumption of electricity is 11.8 kW per hour per sq. ft. A typical month would consist of 730 hours and an average price of \$0.10 for a kW per hour, which would be \$73 for 730 kWh of electricity. With the proposed building of 27,080 sq. ft., the price for electricity can be \$861.40 for 730 kWh of electricity. On average, a solar panel system of 10 kW can cost up to \$70,000 and would require a minimum of 1,200 sq. ft. for the panels, which is the proposed option for the solar panels. The option of installing the solar panels is much cheaper on a month to month basis, with the only major concern being the upfront price of \$70,000 for purchasing the solar panels.

4.7 Non-Monetary Factors

A major attribute, as stated earlier, is the impacts of positive environmental impacts. The proposed fire hall can be seen as a leader to the Village of Belmont, as it is introducing solar panels to the area. This also allows for growth in the nearby areas as it discourages emissions that harm the environment. Another positive outcome is the longevity of the solar panels. Most solar panels have a life time of 20 years and don't require much maintenance. Some manufacturer provides warranty or buyout options for new solar panels which is an option for the fire hall. A major flaw for the solar panels for the proposed location would be the maintenance and repairs that will cause an issue. The solar panels will be subjected to large amounts of snow loads and cold climates which can cause degradation. A way to work around this would be to install the solar panels in a façade which will raise the installation fee.

Proposed Project

5.1 Preliminary Project Design

5.1.1 Site

See C102 in full set of drawings

5.1.2 Utilities

See C102 in full set of drawings

5.1.3 Structurals

See S100-S103 in full set of drawings

5.1.4 Architecturals

See A100-A302 in full set of drawings

5.2 Project Schedule

5.2.1 Major Project Milestones

Milestone	Date
Bidding to GCs	4/26/2019 - 5/17/2019
Bid Due Date	5/17/2019
Award of Contract	5/20/2019
GC Mobilization	7/1/2019
Certificate of Occupancy	7/1/2020

5.2.2 Proposed Construction Timeline

Trade	Projected Start Date
Sitework	7/2/2019
Foundations	7/8/2019
Masonry	10/21/2019
MEPs	12/16/2019
Finishes	2/10/2020
Flooring/Specialties	5/14/2020

5.3 Permit Requirements

See Appendix D

5.4 Sustainability Considerations

5.4.1 Green Infrastructure

Green infrastructure will potentially include solar panels. For the proposed Fire Hall, the amount of energy required would be 12 kW. As discussed in design criteria, this would require 1,200 square feet amount of space for the solar panels which is feasible with the

amount of space provided by the roof. Solar panels would also require the site to be free from shading which is not an issue with the proposed area.

5.5 Total Project Cost Estimate

5.5.1 See Appendix G

5.6 Annual Operating Budget

5.6.1 Debt Repayments

Annual Operation and Maintenance				
Task	Unit	Unit Cost	Estimate/Year	Total
Insurance	annual	\$ 5,000.00	1.0	\$ 5,000
Utilities Bill	monthly	\$ 1,000.00	12.0	\$ 12,000
Sealcoat Asphalt	per visit	\$ 5,000.00	0.1	\$ 500
HVAC System Repair	per visit	\$ 2,000.00	0.3	\$ 666
Snow Plowing	per visit	\$ 150.00	20.0	\$ 3,000
Debris Removal from Stormwater Pond	per visit	\$ 100.00	1.0	\$ 100
Plumbing Fixture Repair	per visit	\$ 1,000.00	0.3	\$ 333
Mow	per visit	\$ 150.00	10.0	\$ 1,500
Total O&M Cost Per Year				\$ 23,099

6.0 Conclusion

The completion of the 25,000 SF proposed fire hall will be housing more than 7 full sized fire trucks, as it will be able to supply the needs of the volunteer fire fighters. This project will also include the needs for visitors as it will have more than 200 parking spaces, and private entrance. The current standing of the facility does not supply these needs as the main entrance for fire trucks and visitors are congested into one entrance/exit. As well as the overall integrity of the facility, due to the space constraints and previous flooding issues, suggest the need of an upgraded facility at the new location.

As discussed in the earlier sections, the new facility will be more than capable of providing the necessary needs for the Village of Belmont, Town of Amity and Town of Ward. The facility will not only house 7 full sized trucks, but will provide equipped rooms such as chief's office, communication, conference room, etc. There will be more than enough parking spaces for public utilization with its own entrance and exit along Hood Road. The main entrance/exit for the fire trucks will be along State Road 19, which is intended to be used only by fire trucks. Due to having utilities along State Road 19, this would allow for feasibility and tapping into existing lines such as water, sewer and gas, through excavation means to allow the facility to be powered. The proposed location is exposed to flooding, which would require the land to be filled and raised.

Overall, there is more than enough room to provide means of growth or addition to the facility by the owner. It may be recommended that the owner take into consideration some of the alternatives provided as they will be able to be used for practical purposes and benefit the areas of service. The addition of solar panels will allow the client to save money on electricity and can lead the way to a green sustainable community. Having a backup generator will help the facility with any power outages or serve the public as an emergency shelter. The addition of a new training facility will allow for spacious training within the facility.

REFERENCES

- 1.) <http://ny-idf-projections.nrcc.cornell.edu/>
- 2.) <http://www.energy.wsu.edu/Documents/SolarPVforBuildersOct2009.pdf>
- 3.) <https://www.solarpowerauthority.com/how-much-does-it-cost-to-install-solar-on-an-average-us-house/>
- 4.) <https://cris.parks.ny.gov/>
- 5.) <https://www.alleganyco.com/>
- 6.) <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>
- 7.) https://www.dec.ny.gov/docs/water_pdf/swdm2015entire.pdf
- 8.) <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>
- 9.) <http://www.get-a-quote.net/>

APPENDIX A

Project location	Floodplain
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Wetlands	
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Soil Map



MAP LEGEND	MAP INFORMATION
<p>Area of Interest (AOI)</p> <ul style="list-style-type: none"> Area of Interest (AOI) <p>Soils</p> <p>Soil Rating Polygons</p> <ul style="list-style-type: none"> A A/D B B/D C C/D D Not rated or not available <p>Soil Rating Lines</p> <ul style="list-style-type: none"> A A/D B B/D C C/D D Not rated or not available <p>Soil Rating Points</p> <ul style="list-style-type: none"> A A/D B B/D 	<p>Water Features</p> <ul style="list-style-type: none"> Streams and Canals <p>Transportation</p> <ul style="list-style-type: none"> Rails Interstate Highways US Routes Major Roads Local Roads <p>Background</p> <ul style="list-style-type: none"> Aerial Photography
	<p>The soil surveys that comprise your AOI were mapped at 1:24,000.</p> <p>Warning: Soil Map may not be valid at this scale. Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.</p> <p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service Web Soil Survey URL: websoilsurvey.sc.egov.usda.gov Coordinate System: Web Mercator (EPSG:3857)</p> <p>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: Allegany County Area, New York Survey Area Data: Version 24, Sep 5, 2018</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Aug 31, 2012—May 8, 2016</p> <p>The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.</p>

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
25A	Chenango gravelly silt loam, 0 to 3 percent slopes	A	10.7	97.2%
26A	Chenango channery silt loam, fan, 0 to 3 percent slopes	A	0.3	2.8%
Totals for Area of Interest			11.0	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Hydrologic Soil Group—Allegheny County Area, New York

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX B



0644089821

NOTICE OF INTENT



New York State Department of Environmental Conservation
Division of Water

625 Broadway, 4th Floor NYR (See DEC use only)
Albany, New York 12233-3505

Stormwater Discharges Associated with Construction Activity Under State
Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

- IMPORTANT -
RETURN THIS FORM TO THE ADDRESS ABOVE
OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

V I L L A G E O F B E L M O N T

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

H O S H A L

Owner/Operator Contact Person First Name

R I C H

Owner/Operator Mailing Address

1 S C H U Y L E R S T R E E T

City

B E L M O N T

State

N Y

Zip

1 4 8 1 3 -

Phone (Owner/Operator)

5 8 5 - 2 6 8 - 5 5 2 2

Fax (Owner/Operator)

- - - -

Email (Owner/Operator)

d e v e l o p m e n t @ a l l e g a n y c o . c o m

FED TAX ID

-

(not required for individuals)

6401089828

Project Site Information	
Project/Site Name	
B E L M O N T F I R E D E A P A R T M E N T	
Street Address (NOT P.O. BOX)	
Side of Street	
<input type="radio"/> North <input type="radio"/> South <input checked="" type="radio"/> East <input type="radio"/> West	
City/Town/Village (THAT ISSUES BUILDING PERMIT)	
V I L L A G E O F B E L M O N T	
State	Zip
N Y	1 4 8 1 3 -
County	DEC Region
A L L E G A N Y	9
Name of Nearest Cross Street	
H O O D R O A D	
Distance to Nearest Cross Street (Feet)	Project In Relation to Cross Street
2 0	<input type="radio"/> North <input checked="" type="radio"/> South <input type="radio"/> East <input type="radio"/> West
Tax Map Numbers Section-Block-Parcel	Tax Map Numbers
1 8 5 . - 1 - 4 8 . 1 2	1 8 5 . - 1 - 4 8 . 1 2

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you must go to the NYSDEC ~~Stormwater~~ Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i" (identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)

1	3	0	0	7	8
---	---	---	---	---	---

Y Coordinates (Northing)

8	0	8	4	0	6
---	---	---	---	---	---

2. What is the nature of this construction project?

- New Construction
- Redevelopment with increase in impervious area
- Redevelopment with no increase in impervious area

4107089829

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use	Post-Development Future Land Use	Number of Lots
<input type="radio"/> FOREST	<input type="radio"/> SINGLE FAMILY HOME	<input type="text"/> <input type="text"/> <input type="text"/>
<input checked="" type="radio"/> PASTURE/OPEN LAND	<input type="radio"/> SINGLE FAMILY SUBDIVISION	
<input type="radio"/> CULTIVATED LAND	<input type="radio"/> TOWN HOME RESIDENTIAL	
<input type="radio"/> SINGLE FAMILY HOME	<input type="radio"/> MULTIFAMILY RESIDENTIAL	
<input type="radio"/> SINGLE FAMILY SUBDIVISION	<input type="radio"/> INSTITUTIONAL/SCHOOL	
<input type="radio"/> TOWN HOME RESIDENTIAL	<input type="radio"/> INDUSTRIAL	
<input type="radio"/> MULTIFAMILY RESIDENTIAL	<input type="radio"/> COMMERCIAL	
<input type="radio"/> INSTITUTIONAL/SCHOOL	<input checked="" type="radio"/> MUNICIPAL	
<input type="radio"/> INDUSTRIAL	<input type="radio"/> ROAD/HIGHWAY	
<input type="radio"/> COMMERCIAL	<input type="radio"/> RECREATIONAL/SPORTS FIELD	
<input type="radio"/> ROAD/HIGHWAY	<input type="radio"/> BIKE PATH/TRAIL	
<input type="radio"/> RECREATIONAL/SPORTS FIELD	<input type="radio"/> LINEAR UTILITY (water, sewer, gas, etc.)	
<input type="radio"/> BIKE PATH/TRAIL	<input type="radio"/> PARKING LOT	
<input type="radio"/> LINEAR UTILITY	<input type="radio"/> CLEARING/GRADING ONLY	
<input type="radio"/> PARKING LOT	<input type="radio"/> DEMOLITION, NO REDEVELOPMENT	
<input type="radio"/> OTHER	<input type="radio"/> WELL DRILLING ACTIVITY *(Oil, Gas, etc.)	
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	

*Note: for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

5. Do you plan to disturb more than 5 acres of soil at any one time? Yes No

6. Indicate the percentage of each Hydrologic Soil Group (HSG) at the site.

A	B	C	D
<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>

7. Is this a phased project? Yes No

8. Enter the planned start and end dates of the disturbance activities.

Start Date	End Date
<input type="text"/> <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> <input type="text"/> / <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>



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15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? Yes No Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

V I L L A G E O F B E L M O N T

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? Yes No Unknown

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? Yes No

19. Is this property owned by a state authority, state agency, federal government or local government? Yes No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) Yes No

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? Yes No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? Yes No
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? Yes No

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24. The ~~Stormwater~~ Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- Professional Engineer (P.E.)
- Soil and Water Conservation District (SWCD)
- Registered Landscape Architect (R.L.A)
- Certified Professional in Erosion and Sediment Control (CPESC)
- Owner/Operator

Other

S T U D E N T

SWPPP Preparer

S T E V E N M A N I C K I

Contact Name (Last, Space, First)

M A N I C K I , S T E V E N

Mailing Address

4 2 5 5 E A S T R I V E R R O A D

City

W E S T H E N R I E T T A

State Zip

N Y 1 4 5 8 6 -

Phone

7 1 6 - 5 2 3 - 4 8 9 4

Fax

- - -

Email

s m 3 5 4 4 @ r i t . e d u

SWPPP Preparer Certification

I hereby certify that the ~~Stormwater~~ Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-15-002. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name

S T E V E N

MI

Last Name

M A N I C K I

Signature

Date

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Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- Preservation of Undisturbed Areas
- Preservation of Buffers
- Reduction of Clearing and Grading
- Locating Development in Less Sensitive Areas
- Roadway Reduction
- Sidewalk Reduction
- Driveway Reduction
- Cul-de-sac Reduction
- Building Footprint Reduction
- Parking Reduction

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- Compacted areas were considered as impervious cover when calculating the WQv Required, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

acre-feet

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

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Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

RR Techniques (Area Reduction)	Total Contributing Area (acres)		Total Contributing Impervious Area (acres)	
	□	□	□	□
<input type="checkbox"/> Conservation of Natural Areas (RR-1)	□	□	□	□
<input type="checkbox"/> Sheetflow to Riparian Buffers/Filters Strips (RR-2)	□	□	□	□
<input type="checkbox"/> Tree Planting/Tree Pit (RR-3)	□	□	□	□
<input type="checkbox"/> Disconnection of Rooftop Runoff (RR-4)	□	□	□	□
RR Techniques (Volume Reduction)				
<input type="checkbox"/> Vegetated Swale (RR-5)	□	□	□	□
<input type="checkbox"/> Rain Garden (RR-6)	□	□	□	□
<input type="checkbox"/> Stormwater Planter (RR-7)	□	□	□	□
<input type="checkbox"/> Rain Barrel/Cistern (RR-8)	□	□	□	□
<input type="checkbox"/> Porous Pavement (RR-9)	□	□	□	□
<input type="checkbox"/> Green Roof (RR-10)	□	□	□	□
Standard SMPs with RR Capacity				
<input type="checkbox"/> Infiltration Trench (I-1)	□	□	□	□
<input checked="" type="checkbox"/> Infiltration Basin (I-2)	□	□	0	0 1 0
<input type="checkbox"/> Dry Well (I-3)	□	□	□	□
<input type="checkbox"/> Underground Infiltration System (I-4)	□	□	□	□
<input type="checkbox"/> Bioretention (F-5)	□	□	□	□
<input type="checkbox"/> Dry Swale (O-1)	□	□	□	□
Standard SMPs				
<input type="checkbox"/> Micropool Extended Detention (P-1)	□	□	□	□
<input type="checkbox"/> Wet Pond (P-2)	□	□	□	□
<input type="checkbox"/> Wet Extended Detention (P-3)	□	□	□	□
<input type="checkbox"/> Multiple Pond System (P-4)	□	□	□	□
<input type="checkbox"/> Pocket Pond (P-5)	□	□	□	□
<input type="checkbox"/> Surface Sand Filter (F-1)	□	□	□	□
<input type="checkbox"/> Underground Sand Filter (F-2)	□	□	□	□
<input type="checkbox"/> Perimeter Sand Filter (F-3)	□	□	□	□
<input type="checkbox"/> Organic Filter (F-4)	□	□	□	□
<input type="checkbox"/> Shallow Wetland (W-1)	□	□	□	□
<input type="checkbox"/> Extended Detention Wetland (W-2)	□	□	□	□
<input type="checkbox"/> Pond/Wetland System (W-3)	□	□	□	□
<input type="checkbox"/> Pocket Wetland (W-4)	□	□	□	□
<input type="checkbox"/> Wet Swale (O-2)	□	□	□	□



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**Table 2 - Alternative SMPs
(DO NOT INCLUDE PRACTICES BEING
USED FOR PRETREATMENT ONLY)**

<u>Alternative SMP</u>	<u>Total Contributing Impervious Area (acres)</u>			
<input type="radio"/> Hydrodynamic				
<input type="radio"/> Wet Vault				
<input type="radio"/> Media Filter				
<input type="radio"/> Other				

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRy provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRy capacity identified in question 29.

Total RRy provided
 0 . 0 1 0 acre-feet

31. Is the Total RRy provided (#30) greater than or equal to the total WQv required (#28).

Yes No

If Yes, go to question 36.
 If No, go to question 32.

32. Provide the Minimum RRy required based on HSG.
 [Minimum RRy Required = (P) (0.95) (Ai) / 12, Ai = (S) (Aic)]

Minimum RRy Required
 0 . 0 1 0 acre-feet

32a. Is the Total RRy provided (#30) greater than or equal to the Minimum RRy Required (#32)?

Yes No

If Yes, go to question 33.

Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

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33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining

Total WQx (=Total WQx Required in 28 - Total RRx Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQx provided (i.e. WQx treated) by the SMPs identified in question #33 and Standard SMPs with RRx Capacity identified in question 29.

WQx Provided

		0	.	6	7	
--	--	---	---	---	---	--

 acre-feet

Note: For the standard SMPs with RRx capacity, the WQx provided by each practice = the WQx calculated using the contributing drainage area to the practice - RRx provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRx provided (#30) and the WQx provided (#33a).

		0	.	6	8	0
--	--	---	---	---	---	---

35. Is the sum of the RRx provided (#30) and the WQx provided (#33a) greater than or equal to the total WQx required (#28)? Yes No

If Yes, go to question 36.
 If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPx) required and provided or select waiver (36a), if applicable.

CPx Required CPx Provided

		.		
--	--	---	--	--

 acre-feet

		.		
--	--	---	--	--

 acre-feet

36a. The need to provide channel protection has been waived because:

- Site discharges directly to tidal waters or a fifth order or larger stream.
- Reduction of the total CPx is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development	Post-development										
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;">.</td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table> CFS			.			<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;">.</td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table> CFS			.		
		.									
		.									

Total Extreme Flood Control Criteria (Qf)

Pre-Development	Post-development										
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;">.</td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table> CFS			.			<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;">.</td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table> CFS			.		
		.									
		.									



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Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

S T E V E N

MI

Print Last Name

M A N I C K I

Owner/Operator Signature

Date

0 4 / 0 3 / 2 0 1 9

Existing

Worksheet 3: Time of Concentration (T_c) or travel time (T_t)

Project Village of Belmont Fire Dept.	By: DMSJ ENGINEERS ARCHITECTS	Date 3/25/2019
Location Allegheny County, NY	Checked	Date 4/2/2019

Check one: Present Developed
 Check one: T_c T_t through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet. Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_c only)

	Segment ID	1	2	
1. Surface description (table 3-1)		Smooth surface (Barrel)	Loose - light underbrush	
2. Manning's roughness coefficient, n (table 3-1)		0.011	0.40	
3. Flow length, L (total L \leq 300 ft)	ft	300	40	
4. Two-year 24-hour rainfall, P_2	in	4.30	4.30	
5. Land slope, s	ft/ft	0.013	0.075	
6. $T_t = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$ Compute T_t	hr	0.0498	0.087	= 0.1368 hrs

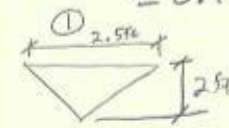
Shallow concentrated flow

	Segment ID	1	2	
7. Surface description (paved or unpaved)		unpaved	unpaved	
8. Flow length, L	ft	654	58	
9. Watercourse slope, s	ft/ft	0.013	0.08	
10. Average velocity, V (figure 3-1)	ft/s	1.4	5.0	
11. $T_t = \frac{L}{3600 V}$ Compute T_t	hr	0.1297	0.0032	= 0.1329 hr

Channel flow

	Segment ID	1	2	
12. Cross sectional flow area, a	ft ²	2.5	2.5	
13. Wetted perimeter, P_w	ft	6.40	6.40	
14. Hydraulic radius, $r = \frac{a}{P_w}$ Compute r	ft	0.39	0.39	
15. Channel slope, s	ft/ft	0.013	0.075	
16. Manning's roughness coefficient, n		0.011	0.40	
17. $V = 1.49 r^{2/3} s^{1/2}$ Compute V	ft/s	8.21	0.524	
18. Flow length, L	ft	398	59	
19. $T_t = \frac{L}{3600 V}$ Compute T_t	hr	0.01347	0.0307	= 0.04417
20. Watershed or subarea T_c or T_t (add T_t in steps 6, 11, and 19)	hr			0.3387

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Sheet ① FLOW	Existing T_c		
	$n = 0.011$ flow length = 300 ft 2-yr 24hr rainfall, $P_2 \rightarrow 4.30$ in		② $n = 0.40$ $L = 40$ ft $P_2 = 4.30$ in
	$S = \frac{4 \text{ ft}}{300 \text{ ft}} = 0.013$		$S = \frac{3 \text{ ft}}{40 \text{ ft}} = 0.075$
	$T_t = \frac{0.007 ((0.011)(300 \text{ ft}))^{0.8}}{(4.30 \text{ in})^{0.5} (0.013)^{0.4}}$		$T_t = \frac{0.007 ((0.40)(40 \text{ ft}))^{0.8}}{(4.30 \text{ in})^{0.5} (0.075)^{0.4}}$
	$T_t = 0.0498$ hr		$T_t = 0.087$ hr
	$\Sigma T_t = 0.0498 \text{ hr} + 0.087 \text{ hr} = 0.1368$ hr		
Shallow Concentrated Flow	①		②
	$L = 654$ ft		$L = 58$ ft
	$S = \frac{4 \text{ ft}}{300 \text{ ft}} = 0.013$		$S = \frac{5 \text{ ft}}{58 \text{ ft}} = 0.08$
	$V = 1.4$ ft/s		$V = 5.0$ ft/sec
	$T_t = \frac{L}{3600V} = \frac{654 \text{ ft}}{3600(1.4)} = 0.1297$		$T_t = \frac{58 \text{ ft}}{3600(5 \text{ ft/sec})} = 0.0032$
Channel Flow			②
	$q = 2.5 \text{ ft}^2$		$q = 2.5 \text{ ft}^2$
	$P_w = 2y\sqrt{1+z^2}$		$P_w = 6.40$ ft
	$P_w = 2(2.5)\sqrt{1+1.25^2}$		$r = 0.39$ ft
	$P_w = 6.40$ ft		$S = 0.075$
	$r = \frac{q}{P_w} = \frac{2.5 \text{ ft}^2}{6.40 \text{ ft}} = 0.39$ ft		$V = 0.542$ ft/s
	$S = 0.013$		$L_1 = 398$ ft $L_2 = 59$ ft
	$V = \frac{1.49r^{2/3} S^{1/2}}{n} = \frac{1.49(0.39 \text{ ft})^{2/3} (0.013)^{1/2}}{0.011}$		$T_t = \frac{398}{3600(0.21)}$ $T_t = \frac{59}{3600(0.524)}$
	$V = 8.21$ ft/s		$T_t = 0.01347$ $T_t = 0.0307$
	Watershed $T_c = 0.1368$ hrs + 0.1329 hrs + 0.04417 hrs Watershed $T_c = 0.31387$ hrs		

Proposed

Worksheet 3: Time of Concentration (T_C) or travel time (T_T)

Project <u>Village of Belmont Fire Department</u>	By <u>DMSJ ENGINEERS & ARCHITECTS</u>	Date <u>3/25/2009</u>
Location <u>Allegheny County</u>	Checked	Date <u>4/2/2009</u>

Check one: Present Developed

Check one: T_C T_T through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet. Include a map, schematic, or description of flow segments.

Sheet flow (Applicable to T_C only)

	Segment ID	1	2	
1. Surface description (table 3-1)		Smooth surface	light untreated	
2. Manning's roughness coefficient, n (table 3-1)		0.011	0.40	
3. Flow length, L (total L \leq 300 ft)	ft	240	245	
4. Two-year 24-hour rainfall, P_2	in	2.60	2.60	
5. Land slope, s	ft/ft	0.009	0.0238	
6. $T_1 = \frac{0.007 (nL)^{0.8}}{P_2^{0.5} s^{0.4}}$ Compute T_1	hr	0.06211	+ 0.759	= 0.821 hr

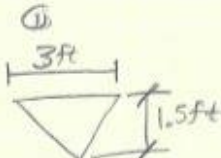
Shallow concentrated flow

	Segment ID	1	2	
7. Surface description (paved or unpaved)		paved	unpaved	
8. Flow length, L	ft	266	315	
9. Watercourse slope, s	ft/ft	0.0075	0.0095	
10. Average velocity, V (figure 3-1)	ft/s	1.65	1.58	
11. $T_1 = \frac{L}{3600 V}$ Compute T_1	hr	0.045	+ 0.0554	= 0.1004 hr

Channel flow

	Segment ID	1	2	
12. Cross sectional flow area, a	ft ²	2.25	2.25	
13. Wetted perimeter, P_w	ft	7.21	7.21	
14. Hydraulic radius, $r = \frac{a}{P_w}$ Compute r	ft	0.31	0.31	
15. Channel slope, s	ft/ft	0.0075	0.0095	
16. Manning's roughness coefficient, n		0.011	0.40	
17. $V = \frac{1.49 r^{2/3} s^{1/2}}{n}$ Compute V	ft/s	5.37	0.1663	
18. Flow length, L	ft	335	345	
19. $T_1 = \frac{L}{3600 V}$ Compute T_1	hr	0.0173	+ 0.5763	= 0.5936 hr
20. Watershed or subarea T_C or T_T (add T_1 in steps 6, 11, and 19)	hr			1.52

(210-VI-TR-66, Second Ed., June 1986) D-3

	Proposed T_c	
Shed Flow	① $n = 0.011$ flow length = 240ft $P_2 = 2.60in$ $S = \frac{1ft}{110ft} = 0.009$ $T_c = \frac{0.007(0.011)(240ft)^{0.8}}{(2.60in)^{0.48}(0.009)^{0.4}}$ $T_c = 0.06211$	② $n = 0.40$ flow length = 245ft $P_2 = 2.60in$ $S = \frac{3ft}{126ft} = 0.0238$ $T_c = \frac{0.007((0.40)(245ft))^{0.8}}{(2.60in)^2(0.0238)^{0.4}}$ $T_c = 0.759$
	$T_c = 0.06211hr + 0.759hr = 0.8211hrs.$	
Shallow Concentrated flow	$L = 266ft$ $S = 0.0075$ $V = 1.65 ft/s$ $T_c = \frac{266ft}{3600 \times 1.65} = 0.045hr$	$L = 315ft$ $S = 0.0095$ $V = 1.58 ft/s$ $T_c = 0.0554hr.$
	$T_c = 0.045hr + 0.0554hr = 0.1004 hrs$	
channel flow	① 	②
	$q = \frac{1}{2}(3ft)(1.5ft) = 2.25ft^2$ $P_w = 2y\sqrt{1+z^2}$ $P_w = 2(1.5)\sqrt{1+1.5^2}$ $P_w = 7.21ft$ $r = \frac{q}{P_w} = \frac{2.25ft^2}{7.21ft} = 0.31ft$ $S = 0.0075$ $n = 0.011$ $V = \frac{1.49(0.31)^{2/3}(0.0075)^{1/2}}{0.011}$ $V = 5.37ft/sec$ $L = 335ft$ $T_c = \frac{335ft}{3600(5.37)} = 0.0173hr$	$q = 2.25ft^2$ $P_w = 7.21ft$ $r = 0.31ft$ $S = 0.0095$ $n = 0.40$ $V = \frac{1.49(0.31ft)^{2/3}(0.0095)^{1/2}}{0.40}$ $V = 0.1663ft/sec$ $L = 345ft$ $T_c = \frac{345ft}{3600(0.1663)} = 0.5763hr$
$\Sigma T_c = 0.5936hrs$		
Watershed $t_c = 0.8211hrs + 0.1004hrs + 0.5936hrs$ $\approx 1.52hrs$		

Pond Sizing

$$WQ_v = \frac{P \times R_v \times A}{12}$$

Figure 4.1 in NYSDEC Manual
Says our location is $P=1$
(90% Rainfall event Number)

Table 4.2

$$WQ_v = \frac{1(0.68)(11.8)}{12}$$

$$WQ_v = 0.67 \text{ acre-ft}$$

Water Quality Volume

$$RR_v = \frac{P \times R_v \times A_{ic} \times S}{12} = \frac{1 \times [0.05 + 0.009 \times 100] \times 0.235 \times 0.55}{12}$$

↑
Runoff Reduction Volume

HSG=A → S=0.55

$$= 0.01023 \text{ acre-ft}$$

$$\text{Pond Volume} = WQ_v - RR_v$$

$$\text{Pond Volume} = (0.67 \text{ acre-ft} - 0.01023 \text{ acre-ft}) \left(\frac{43,560 \text{ ft}^2}{1 \text{ acre}} \right)$$

$$\text{Pond Volume} = 28,740 \text{ ft}^3$$

<p>New York State Department of Environmental Conservation Division of Water 625 Broadway, 4th Floor Albany, New York 12233-3505 *(NOTE: Submit completed form to address above)*</p>	
<p>NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity</p>	
<p>Please indicate your permit identification number: NYR _____</p>	
I. Owner or Operator Information	
1. Owner/Operator Name: Village of Belmont	
2. Street Address: 1 Schuyler Street	
3. City/State/Zip: NY	
4. Contact Person: Rich Hoshal	4a. Telephone: 585-268-5522
4b. Contact Person E-Mail: development@alleganyco.com	
II. Project Site Information	
5. Project/Site Name: Village of Belmont Fire Department	
6. Street Address: Scio Road	
7. City/Zip: 14813	
8. County: Allegany	
III. Reason for Termination	
9a. <input checked="" type="checkbox"/> All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. *Date final stabilization completed (month/year): 04/09/2020	
9b. <input checked="" type="checkbox"/> Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR _____ (Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)	
9c. <input type="checkbox"/> Other (Explain on Page 2)	
IV. Final Site Information:	
10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no (If no, go to question 10f.)	

<p>10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no (If no, explain on Page 2)</p>
<p>10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?</p> <p>The owner's maintenance team will be responsible for long-term operation and maintenance of practices.</p>
<p>NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued</p>
<p>10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no</p>
<p>10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality. <input checked="" type="checkbox"/> Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s). <input type="checkbox"/> For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record. <input type="checkbox"/> For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.
<p>10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? (acres) 0.235</p>
<p>11. Is this project subject to the requirements of a regulated, traditional land use control MS4? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no (If Yes, complete section VI - "MS4 Acceptance" statement</p>

<p>V. Additional Information/Explanation: (Use this section to answer questions 9c. and 10b., if applicable)</p>	
<p>VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)</p>	
<p>I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.</p>	
<p>Printed Name: Steven Manicki</p>	
<p>Title/Position: Student</p>	
<p>Signature: <i>Steven Manicki</i></p>	<p>Date: 04/09/2020</p>

<p>NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued</p>	
<p>VII. Qualified Inspector Certification - Final Stabilization:</p>	
<p>I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.</p>	
<p>Printed Name: Steven Manicki</p>	
<p>Title/Position: SWPPP Inspector</p>	
<p>Signature: <i>Steven Manicki</i></p>	<p>Date: 04/09/2020</p>

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):	
I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name: Steven Manicki	
Title/Position: SWPPP Inspector	
Signature: <i>Steven Manicki</i>	Date: 04/09/2020
IX. Owner or Operator Certification	
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name: Steven Manicki	
Title/Position: Student	
Signature: <i>Steven Manicki</i>	Date: 04/09/2020

(NYS DEC Notice of Termination - January 2015)

APPENDIX C

2019

American with Disabilities Act (ADA) of 1990 Assignment

STEVEN MANICKI, MARTIN KOEGST, JOSE ROMERO, & DAKOTA CORRELLO



Cash register counter (Golisano Hall) maximum height to be ADA complaint is 36”.

Per ADA Code 7.2, there must be a portion of the main encounter that is no more than 36 inches high. If this weren't the case, then there must a lower auxiliary counter or folding shelf provided.



Lights in ENT turn on automatically (motion sensor) in front entranceway.

Per ADA Code 10.3, fixed facilities must be usable by persons with vision impairment. Facilities with mechanical or motion sensors are more likely to help those who are impaired.



Door lever is parallel to floor and opens with little downward pressure.

Per ADA Code 4.13, doors must be opened without too much force. If this weren't the case, then lighter doors or automatic door openers must be installed.



Automatic door opener button in front entrance of Golisano Hall. Height is 36”.

Per ADA Code 4.13, a person using a wheelchair or crutches needs to be able to open doors without assistance. For their assistance, automatic door openers must be provided.



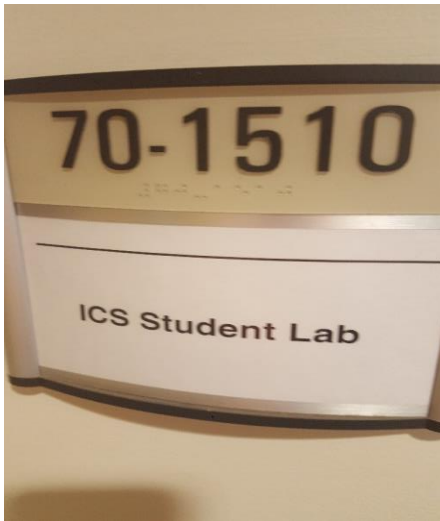
Elevator call button is 43”.

Per ADA Code 4.27, all controls must be available for use by the public such that it is a maximum range reach of 54 inches.



Elevator buttons are low enough to accommodate a person in a wheelchair. (36”)

Per ADA Code 4.10, all call buttons are no higher than 42 inches. If this weren't the case, then the buttons must be lowered.



Door signs in Golisano Hall equipped with braille lettering for the sight-impaired.

Per ADA Code 4.30, raised and brailled characters shall be provided to aid impaired public.



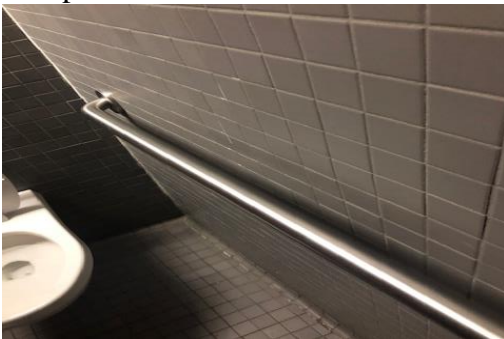
Tables located in Golisano Hall provide 22” depth for a wheelchair to fit comfortably underneath.

Per ADA Code 4.2, knee spaces at accessible tables are at least 19 inches deep. If this weren’t the case, then the tables must be replaced with other tables that comply with the codes.



Drinking fountain in Golisano Hall height is 36" and provides enough space for wheelchair to fit underneath.

Per ADA Code 4.15, drinking fountains must be located with clear floor space at no higher than 36 inches from the ground. If drinking fountains don't comply with the code, then cup dispensers must be provided.



Grab bar in ENT located on left side of toilet to provide stability for a person in a wheelchair.

Per ADA Code 4.17, accessible stalls must be provided with grab bars behind and on the side wall of the nearest to the toilet.



Handicapped parking space located in front of ENT hall. Striped area on the left of the space provides enough room for a wheelchair to maneuver.

Per ADA Code 4.8, parking and drop-off areas are the spaces closest to the accessible entrance.



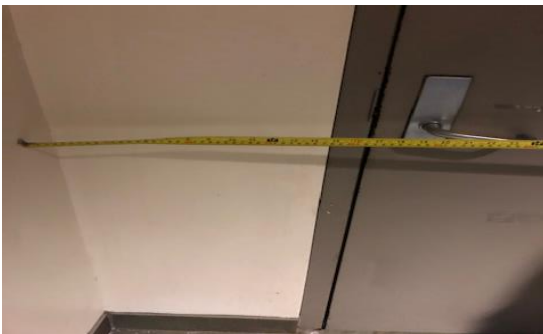
Per ADA Code 4.9, stairs have continuous rails on both sides, with continuous rails on both sides, with extensions beyond the top and bottom stairs.

Staircase equipped with railing on both sides to provide people with more stability walking up stairs.



Emergency call button in ENT front entrance located 36" above floor to provide ease of use to people in wheelchair.

Per ADA Code 4.27, all controls that are available for use by the public, should be located at an accessible height. These self-service controls must be within 54 inches of reach.



Women's room entrance door located 18" away from wall to provide room for people in wheelchair to comfortably open door.

Per ADA Code 4.13, there must be at least 18 inches of clear wall space on the pull side of the door to allow room for a person using a wheelchair or crutches. If not, then remove or relocate furnishings, or move door to allow for room.



Payphone located in Golisano Hall place 36” above floor to provide ease of access to people in wheelchair.

Per ADA Code 4.31, public phones must be no higher than 48 inches. If it does not meet this requirement, then the phone must be lowered.



ADA complaint push door handle to provide ease for people in wheelchairs to exit building.

Per ADA Code 4.13, doors must be opened without too much force. It would be best to install power-assisted, door bars or automatic door openers.



Stairs in front entrance of ENT with non-slip treads to provide stable surface to walk up and down.

Per ADA Code 4.9, the treads must have a non-slip surface. If there are none presented, then they must be added to the treads.



Hallway in Golisano Hall is 8' wide, (Minimum 36") to accommodate wheelchair use.

Per ADA Code 4.3, the route must be at least 36 inches wide to accommodate wheelchair use. If they are not, then the area must be modified or furnishing moved to allow route of travel.



Curb reveal next to ENT building and Institute Hall. Flush to crosswalk to provide access to wheelchairs.

Per ADA Code 4.6, the access aisles must be part of the accessible route. If not then curbs, curb ramps must be added, or the sidewalk must be reconstructed.



Fire Alarm in ENT building equipped with flashing light to warn the hearing-impaired.

Per ADA Code 4.28, emergency systems provided must have both flashing lights and audible signals. If they are not present, then they must be added to the facility.

ADA Items related to the Belmont Fire Hall Project:

- Handicap parking spaces
- Curb reveal
- Fire alarms with light warning
- 36" hallway
- Grab bars and other ADA complaint toilet accessories
- Handicap buttons for entrance doors
- Tables that provide enough height/depth to accommodate wheelchair use
- Drinking fountains the provide enough height and depth to accommodate wheelchair use
- ADA complaint door handles

APPENDIX D

March 6, 2019

Village Mayor
Village Board Members
Village of Belmont
1 Schuyler St
Belmont, NY 14813

RE: Village of Belmont Fire Hall Project
SEQR

Dear Rich:

We have completed the State Environmental Quality Review (SEQR) for the construction of the Belmont Fire Hall Project. We have determined that this action has a SEQR Status of **Type I Action** due to the project physically altering more than 10 acres, section 617.4 (b)(6). This action requires a coordinated review.

Enclosed, please find one copy of the following:

- The SEQR Short Environmental Assessment Form for the Belmont Fire Hall Project.
- The SEQR Part 2 & 3 Form.
- A suggested resolution for accepting the SEQR determination and Negative Declaration for the Belmont Fire Hall Project.

Please review the completed documents and sign as indicated. We recommend that the Town Board act on the proposed Resolution.

Please call with questions.

Sincerely,

Steven Manicki

Martin Koegst

Jose Romero

Dakota Corrello

SEQR RESOLUTION
RESOLUTION DETERMINING THAT PROPOSED ACTION IS A TYPE I ACTION
FOR PURPOSES OF THE NEW YORK STATE ENVIRONMENTAL QUALITY REVIEW ACT

By Trustee _____ March 6, 2019

WHEREAS, the Town desires to comply with New York State Environmental Quality Review Act ("SEQR") and the regulations adopted by the Department of Environmental Conservation of the State of New York, being 6 NYCRR Part 617, with respect to the Project, **Belmont Fire Hall**; and

WHEREAS, the Project is subject to review under SEQR since it involves an action that involves a physical alteration of more than 10 acres, which is listed as a "Type I Action" under Section 617.7 NYCRR. This Type I Action requires a coordinated review.

RESOLVED that the Village Board concurs with the SEQR resolution prepared by DMSJ Engineers and Architects, which states the Belmont Fire Hall project will not negatively impact the environment.

FURTHER RESOLVED that the Board of the Village of Belmont agrees with DMSJ Engineers and Architects, and accepts the Environmental Assessment of this Project prepared by DMSJ.

BE IT FURTHER RESOLVED, that this resolution shall take effect immediately. Seconded by Trustee _____.

Upon being put to a vote, the resolution was _____.

STATE OF NEW YORK:
COUNTY OF ALLEGHANY:
VILLAGE OF BELMONT

Permits and Approvals Log
Belmont Fire Hall 03/06/2019

Agency/Department	Permit/Approval	Notes
NYS Department of Transportation	Permits	Utilities, Access Road, Emergency Signal
NYS Department of Environmental Conservation	Permits	Water Supply, SWPPP, Wetlands
NYS SHPO	Approval	
NYS Department of Agriculture	Approval	Zoning Requirements
NYS Department of Health	Approval	Water supply testing
County Highway	Approval	
Town Building Department	Permit	Building Permit
Zoning Board	Approval	Change of Zoning
Town Board	Approval	Project Approval

Short Environmental Assessment Form

Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

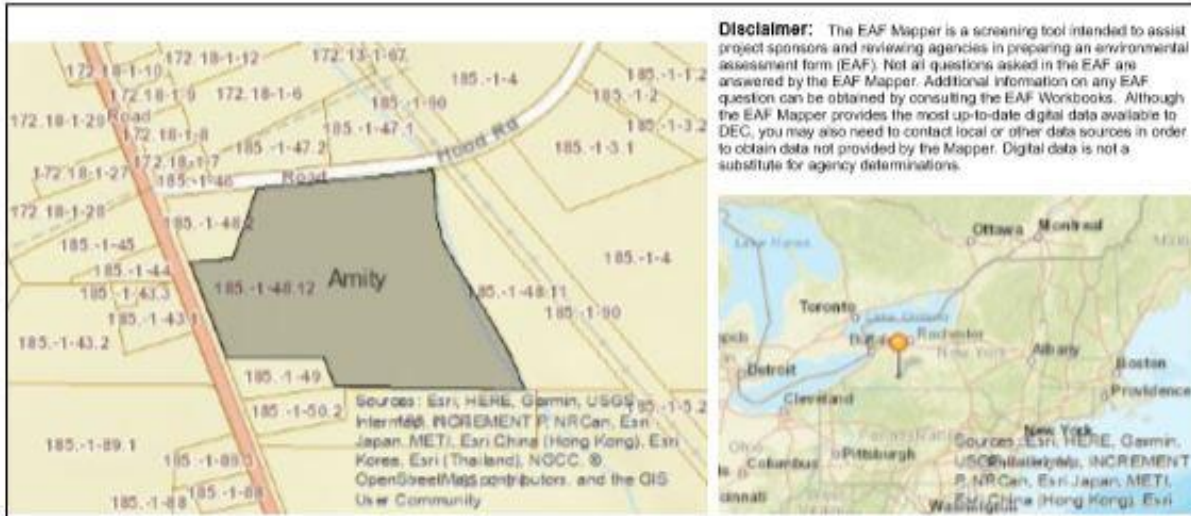
Part 1 – Project and Sponsor Information			
Belmont Fire Hall/Town of Belmont			
Name of Action or Project: Belmont Fire Hall New Building			
Project Location (describe, and attach a location map): State Route 19 and Hood Rd			
Brief Description of Proposed Action: Proposed new build of Belmont fire department building on 12 acre agricultural use lot. Building footprint is approximately 26000 square feet. Driveway access on both State Route 19 and Hood Road. New water, sanitary, storm, gas and electric utilities will be constructed. No residential units included in proposal.			
Name of Applicant or Sponsor: Village Of Belmont		Telephone: 585-268-5305 E-Mail: mk7592@rit.edu	
Address: 1 Schuyler St			
City/PO: Belmont		State: NY	Zip Code: 14813
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.		NO <input type="checkbox"/>	YES <input type="checkbox"/>
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval: NYS DOT, NYS DEC, County Highway, Town, RGE, Water Dept.		NO <input type="checkbox"/>	YES <input checked="" type="checkbox"/>
3. a. Total acreage of the site of the proposed action?		_____ 12 acres	
b. Total acreage to be physically disturbed?		_____ 12 acres	
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor?		_____ 12 acres	
4. Check all land uses that occur on, are adjoining or near the proposed action:			
5. <input type="checkbox"/> Urban <input type="checkbox"/> Rural (non-agriculture) <input type="checkbox"/> Industrial <input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Residential (suburban)			
<input type="checkbox"/> Forest <input checked="" type="checkbox"/> Agriculture <input type="checkbox"/> Aquatic <input checked="" type="checkbox"/> Other(Specify): Railroad			
<input type="checkbox"/> Parkland			

5. Is the proposed action,	NO	YES	N/A
a. A permitted use under the zoning regulations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Consistent with the adopted comprehensive plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	NO	YES	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?	NO	YES	
If Yes, identify: _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	NO	YES	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b. Are public transportation services available at or near the site of the proposed action?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9. Does the proposed action meet or exceed the state energy code requirements?	NO	YES	
If the proposed action will exceed requirements, describe design features and technologies: _____ _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
10. Will the proposed action connect to an existing public/private water supply?	NO	YES	
If No, describe method for providing potable water: _____ _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
11. Will the proposed action connect to existing wastewater utilities?	NO	YES	
If No, describe method for providing wastewater treatment: _____ _____	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	NO	YES	
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	NO	YES	
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____ Plum Bottom Creek is located on the SE corner of the property. Proposed action does not physically alter Plum Bottom Creek. _____ _____			

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply: <input type="checkbox"/> Shoreline <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Agricultural/grasslands <input type="checkbox"/> Early mid-successional <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Urban <input type="checkbox"/> Suburban		
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	NO	YES
	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16. Is the project site located in the 100-year flood plan?	NO	YES
	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes,	NO	YES
a. Will storm water discharges flow to adjacent properties?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
If Yes, briefly describe: Storm Drainage will be designed to flow to storm-water collection pond.		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)? If Yes, explain the purpose and size of the impoundment:	NO	YES
	<input checked="" type="checkbox"/>	<input type="checkbox"/>
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe:	NO	YES
	<input checked="" type="checkbox"/>	<input type="checkbox"/>
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe:	NO	YES
	<input checked="" type="checkbox"/>	<input type="checkbox"/>
I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE Applicant/sponsor/name: <u>Village Of Belmont</u> Date: <u>03/06/2019</u> Signature: <u>Village Of Belmont</u> Title: <u>Village</u>		

EAF Mapper Summary Report

Wednesday, March 06, 2019 6:17 PM



Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	Yes
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
Part 1 / Question 20 [Remediation Site]	No

Agency Use Only [If applicable]
 Project: Belmont Fire Hall
 Date: 03/06/2019

Short Environmental Assessment Form
Part 2 - Impact Assessment

Part 2 is to be completed by the Lead Agency.

Answer all of the following questions in Part 2 using the information contained in Part 1 and other materials submitted by the project sponsor or otherwise available to the reviewer. When answering the questions the reviewer should be guided by the concept "Have my responses been reasonable considering the scale and context of the proposed action?"

	No, or small impact may occur	Moderate to large impact may occur
1. Will the proposed action create a material conflict with an adopted land use plan or zoning regulations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Will the proposed action result in a change in the use or intensity of use of land?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Will the proposed action impair the character or quality of the existing community?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Will the proposed action have an impact on the environmental characteristics that caused the establishment of a Critical Environmental Area (CEA)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Will the proposed action result in an adverse change in the existing level of traffic or affect existing infrastructure for mass transit, biking or walkway?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Will the proposed action cause an increase in the use of energy and it fails to incorporate reasonably available energy conservation or renewable energy opportunities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Will the proposed action impact existing:		
a. public / private water supplies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. public / private wastewater treatment utilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Will the proposed action impair the character or quality of important historic, archaeological, architectural or aesthetic resources?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Will the proposed action result in an adverse change to natural resources (e.g., wetlands, waterbodies, groundwater, air quality, flora and fauna)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Will the proposed action result in an increase in the potential for erosion, flooding or drainage problems?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Will the proposed action create a hazard to environmental resources or human health?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

PRINT FORM

Agency Use Only (If applicable)
 Project: Belmont Fire Hall
 Date: 03/06/2019

**Short Environmental Assessment Form
 Part 3 Determination of Significance**

For every question in Part 2 that was answered "moderate to large impact may occur", or if there is a need to explain why a particular element of the proposed action may or will not result in a significant adverse environmental impact, please complete Part 3. Part 3 should, in sufficient detail, identify the impact, including any measures or design elements that have been included by the project sponsor to avoid or reduce impacts. Part 3 should also explain how the lead agency determined that the impact may or will not be significant. Each potential impact should be assessed considering its setting, probability of occurring, duration, irreversibility, geographic scope and magnitude. Also consider the potential for short-term, long-term and cumulative impacts.

Question 1: Proposed site is currently zoned for agricultural use. New use will be zoned as heavy industry (public safety use).

Question 2: Proposed site will no longer be used for agricultural purposes. Land will be used for public safety use. The existing water and sewer infrastructure can handle the additional load.

<input type="checkbox"/>	Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action may result in one or more potentially large or significant adverse impacts and an environmental impact statement is required.
<input checked="" type="checkbox"/>	Check this box if you have determined, based on the information and analysis above, and any supporting documentation, that the proposed action will not result in any significant adverse environmental impacts.
Village Of Belmont	03/06/2019
Name of Lead Agency	Date
Richard Hoshal	PM
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Signature of Responsible Officer in Lead Agency	Signature of Preparer (if different from Responsible Officer)

PRINT FORM

APPENDIX E

SQUARE FOOTING CALLS

TYP SQ

ASSUMPTIONS

- BEARING CAPACITY = $q_{allow} = 3000 \text{ PSF}$
- WATER TABLE = DEEP, NOT USED IN CALL

LOADS ASCE 7-10

ROOF LIVE :	20 PSF	} LRFD COMPOS
ROOF DEAD :	25 PSF	
SNOW LOAD :	44 PSF	

1) $1.4 D = 1.4(25) = 35$
 2) $1.2D + 1.6L + 0.5S(6) = 84$
 * 3) $1.2D + 1.6(3) + L = 120.4$ ← GOVERNS

FACORED LOAD = AREA × LOADING
 $20' \times 20' = 120.4 \text{ psf}$
 LOAD = 48160 lbs = 48.16 kip

Design

Area of sq. ftg = $\frac{48160 \text{ lbs}}{3000 \text{ psf}} = 16.05 \text{ ft}^2 \Rightarrow$ 4' x 4' Square ftg

REBAR

min reinforcement ratio = 0.0033

$A_s = 0.0033(4' \times 12" \times 1.5)$
 $A_s = 1.31 \text{ in}^2$

USE 5 #5 Bars @ 10" O.C.
 $A_s = 1.55 \text{ in}^2$

STRIP FOOTING CALC

- STRIP FOOTING LOADS

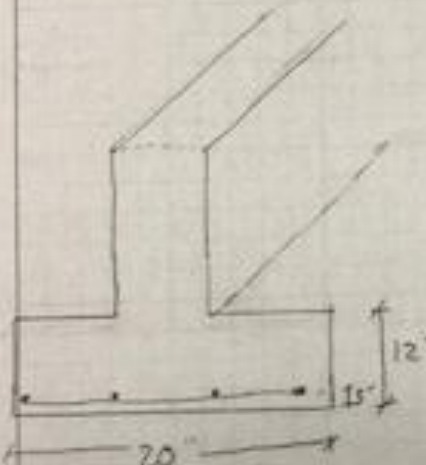
	PER LF	TOTAL
TYPICAL EXT WALL = 90 psf	22' x h	1980 lbs
ROOF DEAD = 25 psf	10'	250 lbs
ROOF LIVE = 20 psf	10'	200 lbs
SNOW LOAD = 44 psf	10'	440 lbs
		<u>2870 lbs</u>

TOTAL = 2870 lbs

- Bearing Capacity = 3000 psf

$\frac{2870 \text{ lbs}}{3000 \text{ psf}} = 0.956 \rightarrow$ use light load footing

20" x 12"



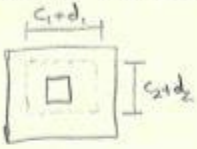
Footing

① Required footing area = $\frac{\text{Total service load}}{\text{Net allowable soil pressure}} = \frac{126 \text{ k} + 10 \text{ k}}{3 \text{ ksf}} = 11.867 \text{ ft}^2$

Size = $\sqrt{11.867 \text{ ft}^2} = 3.44 \text{ ft} \times 3.44 \text{ ft} \approx 4 \text{ ft} \times 4 \text{ ft}$

② Factored soil pressure = $\frac{\text{Factored load}}{\text{Footing area}} = \frac{48.16 \text{ k}}{4 \text{ ft} \times 4 \text{ ft}} = 3.01 \text{ ksf}$

③ Assumed thickness: 20"



④ Two way shear Effective depth = $d = 20'' - 3'' - 0.5'' = 16.5''$

V_u (two-way) = P_u (footing area - critical section area)

Column is 16 in so $c = 16 \text{ in} = c_1 = c_2$

Critical section size = $(16 + 16.5) \text{ in} \times (16 + 16.5) \text{ in} = 2.71 \text{ ft} \times 2.71 \text{ ft}$

$V_u = (4 \text{ ft} \times 4 \text{ ft} - 2.71 \text{ ft} \times 2.71 \text{ ft}) (3.01 \text{ ksf})$

$V_u = 26.05 \text{ k}$ $b_o = 4(16 + 16.5) = 130 \text{ in}$

$V_c = 4 \lambda \sqrt{f_c'} b_o d$ $V_c = 4(1) \sqrt{3000} (170 \text{ in}) (26.5)$ $V_c = 986.99 \text{ k}$ $\phi V_c = (0.75)(986.99 \text{ k})$ $= 740.24 \text{ k}$	$V_c = \left(\frac{c+d}{b_o} + 2\right) \lambda \sqrt{f_c'} b_o d$ $V_c = \left(\frac{40}{130 \text{ in}} + 2\right) (1) \sqrt{3000} (130 \text{ in}) (16.5)$ $V_c = 831.44 \text{ k}$ $\phi V_c = (0.75)(831.44 \text{ k})$ $= 623.58 \text{ k}$	$V_c = \left(2 + \frac{4}{2}\right) \lambda \sqrt{f_c'} b_o d$ $V_c = \left(2 + \frac{4}{2}\right) (1) \sqrt{3000} (130) (16.5)$ $V_c = 469.95 \text{ k}$ $\phi V_c = (0.75)(469.95 \text{ k})$ $= 352.46 \text{ k}$
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

$352.46 \text{ k} > V_u (26.05 \text{ k})$ **OK**

V_u (one-way) = $P_u \times B \times G$

$G = (B - c) / 2 - d$

$G = \left(\frac{4 - 16}{2}\right) - 16.5 / 12$

$G = 4.27 \text{ ft}$

$V_u = 3.01 \text{ ksf} \times 4 \text{ ft} \times 4.27 \text{ ft}$

$V_u = 51.41 \text{ k}$

$\phi V_n = \phi V_c = \phi 2 \sqrt{f_c'} b d$

$\phi V_c = (0.75)(2) \sqrt{3000} (4)(12)(16.5) \left(\frac{1}{1000}\right)$

$\phi V_c = 65.1 \text{ k} > V_u$ **OK**

$M_u = \frac{P_u L^2}{2} \times B$

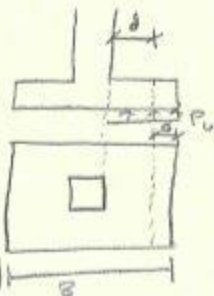
$L = (B - c) / 2$

$L = (4 - 16 / 12) / 2$

$L = 1.33$

$M_u = \frac{(3.01)(1.33)^2}{2} \times 4$

$M_u = 10.65 \text{ k-ft}$



APPENDIX F

Beam Design

$f_c' = 4000$ $f_y = 60,000$
 $8' \times 30'$
 $20 \text{ PSF} = 32 \text{ PLF}$
 $25 \text{ PSF} = 30 \text{ PLF}$
 $40 \text{ PSF} = 64 \text{ PLF} = 126 \text{ PSF}$
 195 lbs

$126 (8 \cdot 30) = 30,240 \text{ lbs} + 195$
 $30,435 \text{ lbs} = 30.4 \text{ kips}$

$\frac{(30.4 \text{ k})(25 \text{ ft})}{3} = 253.3 \text{ k-ft} = \phi M_n$

$\phi M_n = \bar{K} b d^2$
 $(253.3 \text{ k-ft})(12 \text{ ft}) = \bar{K} (12 \text{ in})(21 \text{ in})^2$
 $\bar{K} = 0.5744 \rightarrow \text{table A-10} \rightarrow \bar{K} = 0.5765 \rightarrow \rho = 0.0106$

$A_s = \rho b d = (0.0106)(12 \text{ in})(21 \text{ in}) = 2.67 \text{ in}^2$
Table A-2 $\rightarrow 3 \#9 \rightarrow A_s = 3.00 \text{ in}^2$

The diagram shows a rectangular cross-section of a beam. The height is labeled as 24 in and the width is labeled as 12 in. There are three circles representing reinforcement bars at the top, labeled 3#9. There are also three circles representing reinforcement bars at the bottom, labeled 3#9.

12x12 columns

$f_c' = 4000 \text{ psi}$ $\rho_g = 0.01$
 $f_y = 60,000 \text{ psi}$ $\phi = 0.65$
 $h = 15 \text{ ft}$ #3 Tie bar
 $L = 12 \text{ in}$
 $w = 12 \text{ in}$
 $A_g = 144 \text{ in}^2$

$P_u = 48.16 \text{ K}$
 $e = \frac{M_u}{P_u} = \frac{30 \text{ K}\cdot\text{ft}}{48.16 \text{ K}} = 0.63$ $\frac{e}{h} = \frac{0.63 \text{ ft}}{15 \text{ ft}} = 0.042 < 0.10$
small eccentricity

$(A_g)_{\text{required}} = \frac{48.16 \text{ K}}{(0.80)(0.65)[(0.85)(4)(1-0.01) + (60)(0.01)]} = 23.35 \text{ in}^2 < 144 \text{ in}^2$

$\phi P_n = 0.80 \phi [0.85 f_c' (A_g - A_{st}) + f_y A_{st}]$ $A_{st} = \rho_g A_g$
 $\phi P_n = (0.80)(0.65)[0.85(4)(144 - 1.44) + (60)(1.44)]$ $A_{st} = (0.01)(144 \text{ in}^2)$
 $\phi P_n = 296.97 \text{ K} > P_u (48.16 \text{ K})$ **OK** $A_{st} = 1.44 \text{ in}^2$

Bar Selections:

14 #3	1.54 in ²
8 #4	1.60 in²
4 #6	1.76 in ²

$16 \times \frac{1}{2} = 8 \text{ in}$
 $48 \times 0.375 = 18 \text{ in}$
 least dimension = 12 in

#4 @ 8 in c/c

16x16 Columns

$f'_c = 4000 \text{ psi}$ $\rho_g = 0.01$
 $f_y = 60,000 \text{ psi}$ $\phi = 0.65$
 $h = 15 \text{ ft}$ #3 Tie bar
 $L = 16 \text{ in}$
 $w = 16 \text{ in}$
 $A_g = 256 \text{ in}^2$

$P_u = 48.16 \text{ K}$
 $e = \frac{M_u}{P_u} = \frac{30 \text{ K}\cdot\text{ft}}{48.16 \text{ K}} = 0.63$ $\frac{e}{h} = \frac{0.63 \text{ ft}}{15 \text{ ft}} = 0.042 < 0.10$
Small eccentricity

$(A_g)_{\text{required}} = \frac{48.16 \text{ K}}{0.80(0.65)[(0.85)(4)(1-0.01)] + (60)(0.01)} = 23.35 \text{ in}^2 < 256 \text{ in}^2$

$\phi P_n = 0.80 \phi [0.85 f'_c (A_g - A_{st}) + f_y A_{st}]$ $A_{st} = \rho_g A_g$
 $\phi P_n = (0.80)(0.65) [(0.85)(4)(256 - 2.56) + (60)(2.56)]$ $A_{st} = (0.01)(256 \text{ in}^2)$
 $\phi P_n = 527.95 \text{ K} > P_u (48.16 \text{ K})$ $A_{st} = 2.56 \text{ in}^2$

Bar Selections

13#4	2.60 in ²	16 x 1/2 = 8 in
6#6	2.64 in ²	48 x 0.375 = 18 in
4#8	3.16 in ²	least dimension = 16 in
8#8	6.32 in²	

#8 @ 8" c/c

APPENDIX G



Building - Belmont Fire Hall		Location - Belmont, NY					Estimate - 1	
Architect - DMSJ		Owner - Belmont Fire Dept.					Bid Date: TBD	
							Bid Time: TBD	
		QTY	UNIT	Unit Price	OH&P Multiplier	Subtotal	Division Total	Notes
DIV 1	General Requirements							
	General Conditions	1	LS	\$ 200,000.00	1.0	\$ 200,000.00		
						Total:	\$ 200,000.00	
DIV 3	Concrete							
31000	Concrete Forms & Accessories	2000	SF	\$ 6.00	1.2	\$ 13,800.00		
32000	Concrete Reinforcement	5	TON	\$ 1,500.00	1.2	\$ 9,000.00		Rebar/Mesh
33000	Cast-In-Place Concrete	4000	CY	\$ 10.00	1.2	\$ 48,000.00		Footings, Piers
33500	Concrete Finishing	10000	SF	\$ 1.50	1.2	\$ 18,000.00		Sealed Concrete
						Total:	\$ 88,800.00	
DIV 4	Masonry							
42400	CMU Block, 8"	20000	SF	\$ 10.00	1.2	\$ 240,000.00		
42650	Masonry Mortar & Grout	20	CY	\$ 100.00	1.2	\$ 2,400.00		
48100	Unit Masonry Assemblies	5000	SF	\$ 15.00	1.2	\$ 90,000.00		
						Total:	\$ 332,400.00	
DIV 5	Metals							
51200	Structural Steel	6	TON	\$ 2,000.00	1.2	\$ 14,400.00		
55000	Metal Fabrications (misc.)	1	ls	\$ 10,000.00	1.2	\$ 12,000.00		
55100	Metal Stairs and Ladders	1	ea	\$ 6,000.00	1.2	\$ 7,200.00		
						Total:	\$ 33,600.00	
DIV 6	Woods & Plastics							
61000	Rough Carpentry	1	LS	\$ 24,000.00	1.2	\$ 28,800.00		Truss Labor = Material x2
61063	Exterior Rough Carpentry	1	LS	\$ 5,000.00	1.2	\$ 6,000.00		
61753	Shop-Fabricated Wood Trusses	1	LS	\$ 24,000.00	1.2	\$ 28,800.00		\$300/Truss x 80 trusses
62023	Interior Finish Carpentry	1	LS	\$ 15,000.00	1.2	\$ 18,000.00		
						Total:	\$ 81,600.00	
DIV 7	Thermal & Moisture Protection							
72100	Thermal Insulation	30000	SF	\$ 1.10	1.2	\$ 39,600.00		
76100	Sheet Metal Roofing	26000	SF	\$ 3.20	1.2	\$ 99,840.00		
76200	Sheet Metal Flashing and Trim	500	SF	\$ 18.00	1.2	\$ 10,800.00		
77100	Roof Specialties	1	LS	\$ 3,000.00	1.2	\$ 3,600.00		
77200	Roof Accessories	1	LS	\$ 3,000.00	1.2	\$ 3,600.00		
79200	Joint Sealants	1	LS	\$ 10,000.00	1.2	\$ 12,000.00		
						Total:	\$ 169,440.00	
DIV 8	Doors & Windows							
81113	Hollow Metal Doors and Frames	1	LS	\$ 10,000.00	1.2	\$ 12,000.00		
83113	Access Doors and Panels	1	LS	\$ 5,000.00	1.2	\$ 6,000.00		
83323	Overhead Doors	6	EA	\$ 7,500.00	1.2	\$ 54,000.00		Truck Bay doors probably more than \$5000
84413	Glazed Aluminum Curtain Walls	1000	SF	\$ 16.00	1.2	\$ 19,200.00		
85113	Aluminum Windows	20	EA	\$ 400.00	1.2	\$ 9,600.00		
87100	Door Hardware	1	LS	\$ 2,000.00	1.2	\$ 2,400.00		
88000	Glazing	1	LS	\$ 20,000.00	1.2	\$ 24,000.00		
88300	Mirrors	1	LS	\$ 3,000.00	1.2	\$ 3,600.00		
89516	Wall Vents	1	LS	\$ 5,000.00	1.2	\$ 6,000.00		
						Total:	\$ 136,800.00	
DIV 9	Finishes							
92216	Non-Structural Metal Framing	1	LS	\$ 30,000.00	1.2	\$ 36,000.00		
92900	Gypsum Board	30000	SF	\$ 3.50	1.2	\$ 126,000.00		
93013	Ceramic Tiling	5000	SF	\$ 8.00	1.2	\$ 48,000.00		Tile in Bathrooms/Locker rooms
95113	Acoustical Panel Ceilings	10000	SF	\$ 3.00	1.2	\$ 36,000.00		
97200	Wall Coverings	1	LS	\$ 10,000.00	1.2	\$ 12,000.00		FRP in Kitchen and decon room
99123	Interior Painting	30000	SF	\$ 2.00	1.2	\$ 72,000.00		
						Total:	\$ 330,000.00	
DIV 10	Specialties							
101100	Visual Display Screen	1	EA	\$ 3,000.00	1.2	\$ 3,600.00		
101200	Display Cases	1	LS	\$ 10,000.00	1.2	\$ 12,000.00		
101423	Panel Signage	1	LS	\$ 5,000.00	1.2	\$ 6,000.00		
102800	Toilet, Bath, and Laundry Accessories	1	LS	\$ 15,000.00	1.2	\$ 18,000.00		Bathrooms: \$2200/ea. Decon Room: \$10600
104413	Fire Protection Cabinets	1	LS	\$ 3,000.00	1.2	\$ 3,600.00		
105113	Metal Lockers	1	LS	\$ 7,000.00	1.2	\$ 8,400.00		
						Total:	\$ 51,600.00	
DIV 11	Equipment							
114000	Food Service Equipment	1	LS	\$ 15,000.00	1.2	\$ 18,000.00		Kitchen Equipment
						Total:	\$ 18,000.00	
DIV 12	Furnishings							
123213	Manufactured Wood Faced Casework	1	LS	\$ 10,000.00	1.2	\$ 12,000.00		
123623	Plastic-Laminate-Clad Countertops	1	LS	\$ 10,000.00	1.2	\$ 12,000.00		
124813	Floor Mats and Frames	1	LS	\$ 5,000.00	1.2	\$ 6,000.00		
129300	Site Furnishings	1	LS	\$ 15,000.00	1.2	\$ 18,000.00		Will increase if training area built
						Total:	\$ 48,000.00	

	Parcel Count	County TTAV	Notes
AMITY	554	\$ 31,149,832	
AMITY	28	\$ 1,279,862	
AMITY	13	\$ 633,080	
AMITY	89	\$ 8,628,153	
AMITY	61	\$ 4,523,168	
AMITY	119	\$ 3,659,095	
AMITY	3	\$ 57,700	
AMITY	6	\$ 429,405	
AMITY	1	\$ 51,600	
AMITY Commercial	71	\$ 6,853,750	
AMITY Agricultural	19	\$ 466,180	
AMITY Agricultural	1	\$ 153,820	
AMITY Agricultural	3	\$ 282,800	
AMITY Agricultural	4	\$ 733,168	
AMITY Vacant Land	320	\$ 5,176,445	
1/3 WARD	22	\$ 6,729,882	
1/3 WARD	1	\$ 57,400	
1/3 WARD Agriculture	20	\$ 4,652,700	
1/3 WARD	21	\$ 3,846,660	
1/3 WARD	70	\$ 2,452,000	
Village of Belmont			Included in Town of AMITY
TOTAL	1426	\$ 81,816,700.00	

***Data from: <http://orps1.orps.ny.gov/cfapps/MuniPro>

Annual Operation and Maintenance				
Task	Unit	Unit Cost	Estimate/Year	Total
Insurance	annual	\$ 5,000	1.0	\$ 5,000
Utilities Bill	monthly	\$ 1,000	12.0	\$12,000
Sealcoat Asphalt	per visit	\$ 5,000	0.1	\$ 500
HVAC System Repair	per visit	\$ 2,000	0.3	\$ 666
Snow Plowing	per visit	\$ 150	20.0	\$ 3,000
Debris Removal from Stormwater	per visit	\$ 100	1.0	\$ 100
Plumbing Fixture Repair	per visit	\$ 1,000	0.3	\$ 333
Mow	per visit	\$ 150	10.0	\$ 1,500
Total O&M Cost Per Year				\$23,099
Short Lived Assets				
Task	Unit	Unit Cost	QTY	Total
RTUs (15 years)	ea	\$ 15,000	2	\$30,000
Electric Heaters (10 years)	ea	\$ 1,000	5	\$ 5,000
Hot Water Heaters (25 years)	ea	\$ 10,000	2	\$20,000
Total Short Lived Assets				\$55,000

APPENDIX H

Table of Contents

<u>Section</u>	<u>Description</u>	<u>Pages</u>
Division 00	Contracting Requirements	
000101	Project Title Page	1
000115	List of Drawing Sheets	1
001XXX	Bidding Documents	X
003113	Preliminary Schedule	1
003143	Permit Application	1
Division 01	General Requirements	
011000	Summary of Work	1
012300	Alternates	1
013100	Project Management and Coordination	1
014000	Quality Requirements	1
017419	Construction Waste Management and Disposal	1
Division 2	Existing Conditions (NONE) (No BLDG Demo needed)	
Division 3	Concrete	
033000	Cast-in-Place Concrete	1
033543	Polished Concrete Finishing	1
Division 4	Masonry	
042000	Unit Masonry	1
042200	Concrete Unit Masonry	1
042613	Masonry Veneer	1
Division 5	Metals	
051200	Structural Steel Framing	1
051213	Architecturally Exposed Structural Steel Framing	1
052100	Steel Joist Framing	1
055213	Pipe and Tube Railings	1
Division 6	Wood, Plastics, and Composites	
061000	Rough Carpentry	1
061063	Exterior Rough Carpentry	1
061753	Shop-Fabricated Wood Trusses	1
062023	Interior Finish Carpentry	1
Division 7	Thermal and Moisture Protection	
072100	Thermal Insulation	1
072119	Foamed-in-Place Insulation	1
072500	Weather Barriers	1
073113	Asphalt Shingles	1
076100	Sheet Metal Roofing	1
076200	Sheet Metal Flashing and Trim	1
077100	Roof Specialties	1
077200	Roof Accessories	1
079200	Joint Sealants	1

Division 8	Openings	
081113	Hollow Metal Doors and Frames	1
083113	Access Doors and Frames	1
083323	Overhead Doors	1
084413	Glazed Aluminum Curtain Walls	1
085113	Aluminum Windows	1
087100	Door Hardware	1
088000	Glazing	1
088300	Mirrors	1
089516	Wall Vents	1
Division 9	Finishes	
092216	Non-Structural Metal Framing	1
092900	Gypsum Board	1
093013	Ceramic Tiling	1
095113	Acoustical Panel Ceilings	1
096513	Resilient Base and Accessories	1
096516	Resilient Sheet Flooring	1
097200	Wall Coverings	1
099113	Exterior Painting	1
099123	Interior Painting	1
Division 10	Specialties	1
101100	Visual Display Units	
101200	Display Cases	1
101423	Panel Signage	1
102800	Toilet, Bath, and Laundry Accessories	1
104413	Fire Protection Cabinets	1
105113	Metal Lockers	1
Division 11	Equipment	
114000	Foodservice Equipment	1
Division 12	Furnishings	
123213	Manufactured Wood-Veneer-Faced Casework	1
123623	Plastic-Laminate-Clad Countertops	1
124813	Entrance Floor Mats And Frames	1
129300	Site Furnishings	1
Division 21	Fire Suppression	
211100	Facility Fire-Suppression Water-Service Piping	1
211300	Fire-Suppression Sprinkler Systems	1
212000	Fire Extinguishing Systems	1
Division 22	Plumbing	
221113	Facility Water Distribution Piping	1
221319	Sanitary Waste Piping Specialties	1
221413	Storm Drainage Piping Specialties	1
224213	Commercial Plumbing Fixtures	1
224223	Commercial Showers	1
224500	Emergency Plumbing Fixtures	1

Division 23	Heating Ventilating and Air Conditioning	
230800	Commissioning of HVAC	1
231123	Facility Natural-Gas Piping	1
232000	HVAC Piping and Pumps	1
Division 26	Electrical	
260543	Underground Ducts and Raceways for Electrical Systems	1
Division 31	Earthwork	
311000	Site Clearing	1
312000	Earth Moving	1
312200	Grading	1
315000	Excavation Support and Protection	1
Division 32	Exterior Improvements	
321216	Asphalt Paving	1
321313	Concrete Paving	1
321713	Parking Bumpers	1
321723	Pavement Markings	1
Division 33	Utilities	
330500	Common Work Results for Utilities	1
331000	Water Utilities	
334100	Storm Utility Drainage Piping	1
334611	Stormwater Ponds	1

Excavating

Section 315000

Done by: Steven Manicki

PART 1 GENERAL

1.1 SECTION INCLUDES:

- A. Excavation for building foundations and down to pile caps.
- B. Excavation for slabs on grade, paving and landscaping.
- C. Excavation for site structures

1.2 RELATED SECTIONS

- A. Inspection of bearing surfaces
- B. Barriers, water controls, erosion and sediment control
- C. Protection of existing facilities
- D. Site clearing – strip 6” of topsoil, then excavate
- E. Backfill with 2” crusher run where utilities are being installed.
- F. Trenching, excavation for underground utilities
- G. General rock removal, use a quality rock hound. Set landscape up to grow quality vegetation.

1.3 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the work are as indicated.

PART 2 EXECUTION

2.1 Preparation

- A. Identify required lines, levels, contours, and datum. Review geotechnical report and other available site information pertaining to site of interest.
- B. Identify known underground, above ground, and other utilities. Stake and flag locations.
- C. Notify utility company to remove and relocate utilities as needed at Contractor’s expense.
- D. Protect above and below grade utilities which will remain.
- E. Protect current vegetation with burlap and other vegetation protection.
- F. Protect benchmarks, existing structures, fences, sidewalks, paving, and curbs from excavation equipment and other traffic.
- G. Excavations shall be in complete accordance with all details of applicable codes, rules, and regulations including all local, state, and federal regulations including OSHA.

2.2 CLASSIFICATION OF EXCAVATED MATERIAL

A. Classifications of excavated materials are as follows:

- 1. Unclassified excavation – includes all material excavated within the authorized lines and grades prescribed in the Drawings.

2. Common Excavation - "Common excavation" shall include all excavation except "rock excavation." All unconsolidated material, rippable rock, loose rock, soft mineral matter, weathered rock, and soft or friable shale which is removable with normal earth excavation equipment shall be considered "common excavation." All boulders and detached pieces of solid rock or concrete or masonry less than 1 cubic yard in volume shall be classified as "common excavation."

3. Rock Excavation - "Rock excavation" shall include all sound solid masses, layers and ledges of consolidated rock or mineral matter of such hardness, durability and/or texture that it is not rippable or cannot be excavated with normal earth excavation equipment.

3.1 When rock is encountered in excavations, it shall be removed by blasting methods, jackhammering or any other method suitable and safe considering the proximity of existing utilities or facilities.

3.2 Blasting operations shall conform to the requirements of National Fire Protection Association (NFPA) 495 - Code for Explosive Materials, and by applicable state or local regulations.

2.3 EXCAVATING

- A. Underpin adjacent structures which may be damaged by excavation work, including utilities and pipe chases.
- B. Excavate subsoil required to accommodate building foundations, slabs-on-grade paving site structures, and construction operations.
- C. Excavate to working elevations for piling work and coordinate special requirements for piling.
- D. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- E. Hand trim excavation to required undisturbed subgrade. Remove loose matter.
- F. Remove lumped subsoil, boulders, and rock under 1 cubic yard, measured by volume. Refill voids with Mix "C" concrete or compacted gravel/crushed stone.
- G. Notify Engineer of unexpected subsurface conditions, or of questionable soils encountered at required subgrade elevations, and discontinue work in area until notified to resume operations.

H. Should the Contractor, through negligence or otherwise carry his excavation below the designated subgrade, Mix "C" concrete or such other materials as may be approved by the Engineer, shall be furnished and placed as backfill in sufficient quantities to reestablish the designated subgrade surface.

I. All excavated materials must remain on site. Stockpile excavated material in area designated on-site and remove excess material not being reused, from site. Remove excavated material from site.

2.4. DISPOSAL OF MATERIAL

A. All excavated material except reusable topsoil or reusable fill shall be classified as surplus material and disposed of off-site unless Owner designates an on-site location.

B. On-site disposal of surplus material will be allowed only at locations designated by Owner and approved by Engineer.

C. Make all arrangements for disposal sites, unless the Owner designates special locations. All expenses for disposal shall be borne by the Contractor. Bidders shall carefully investigate all aspects of surplus material disposing operations.

D. Prior to depositing surplus material at any off-site location, obtain a written agreement between Contractor and the owner of the property on which the disposal of the material is proposed. The agreement shall state that the owner of the property gives permission for the Contractor to enter and deposit material of a particular classification on the owner's property at no expense to the project Owner, and shall include any other conditions pertinent to the situation as agreed upon by each party. A copy of said agreement shall be furnished to the Owner.

2.5. FIELD QUALITY CONTROL

A. Field inspection will be performed by Owner's representative and Engineer's representative.

B. Provide for visual inspection of bearing surfaces.

2.6. PROTECTION

A. Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.

B. Protect bottom of excavations and soil adjacent to and beneath foundation, from freezing.

C. Exposed subgrade surfaces shall remain undisturbed, drained, and maintained as uniform, plane areas, shaped to receive the foundation components of the building or structure.

END OF
SECTION

SECTION 079200
JOINT SEALANTS
Done by: Jose Romero

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Silicone joint sealants
- B. Latex joint sealants
- C. Solvent-release-curing joint sealants

Part 2 – PRODUCTS

2.01 SILICONE JOINT SEALANTS

A. Single-Component, Neutral-Curing Silicone Joint Sealant

- 1. Products subject to compliance with requirements and applicable standards for their materials.

2.02 LATEX JOINT SEALANTS

A. Acrylic latex and/or siliconized acrylic latex

- 1. Products subject to compliance with requirements and applicable standards for their materials.

2.03 SOLVENT-RELEASE-CURING JOINT SEALANTS

A. Butyl-Rubber-Based Joint Sealant.

- 1. Products subject to compliance with requirements and applicable standards for their materials.

Part 3 – Execution

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Clean out joints immediately prior to installing joint sealants.
- B. Apply primer to the joints to comply with joint sealant manufacturer's written instructions.
- C. Use masking tape where required to prevent contact of sealant with the adjoining surfaces that would be permanently stained or damaged.

3.03 INSTALLATION

A. All joint sealants to comply with joint sealant manufacturer's written instructions

- B. Measure joint dimensions and size joint backers to achieve desired width-to-depth ratio, neck dimension as recommended by manufacturer.

- C. Install bond-breaker tape behind sealants where sealants backing is not used between sealants and back of joints.

- D. Install bond breaker backing tape where backer rod cannot be used.

- E. Install sealant free of air pockets, foreign embedded matter, ridges, sags and without getting sealant on adjacent surfaces.
- F. Remove tape immediately after tooling without disturbing joint sealant.

Part 4 – MEASUREMENT AND PAYMENT

4.01 ALL CONTRACTS

Not used.

Concrete Unit Masonry
042200
Done By: Dakota Corrello

PART 1 GENERAL

1.01 SUMMARY

A. Provide materials, labor, and equipment necessary for the completion of concrete masonry work as indicated on the drawings and specified here.

1.02 REFERENCES

A. ASTM C-90 – Standard Specification for Loadbearing Concrete Masonry Units.

1.03 CODES AND STANDARDS

A. Perform work with materials complying with ASTM and ACI specifications.

1.04 INSPECTION

A. Conform to the requirements of Section 01401 – Testing and Inspections.

1.05 SUBMITTALS

A. Submittal procedures and quantities are specified in Section 01300 – Submittal.

B. Submit copies of manufacture's product information and installation instructions for each item and accessory.

C. Submit samples of exposed masonry units, indicating special shapes, textures, and colors.

1.06 QUALITY ASSURANCE

A. Before installation of concrete masonry, a sample panel must be assembled by the mason, then approved by the architect.

B. The panel shall be at least 4 feet long by 4 feet high and shall show the proposed color, texture, bond, pattern, mortar joints, and workmanship for concrete masonry. The panel shall be cleaned according to Section 3.05 Final Clean Down; the same methods and materials used to clean the sample panel shall be used to clean the building.

C. upon approval by the architect, the sample panels shall become the standard of comparison for concrete masonry construction on the project and shall not be taken down without written permission from the architect.

PART 2 PRODUCTS

2.01 CONCRETE UNIT MASONRY

A. Load bearing concrete masonry units shall comply with ASTM C90 (latest edition) and provide required shapes such as double ends, bullnose, bond beams, lintels, sills, etc. as required by the project.

B. Provide the following type of concrete masonry units as indicated on the drawings:
Regular 10" standard blocks.

2.02 MORTAR AND GROUT MIXES

A. For color consistency and quality consistency, premixed mortar is required

B. When using concrete masonry units that contain integral water repellent, the installer shall use only mortar containing integral water repellent mortar admixture at the manufacturer's recommended addition rate and mix according to the manufacturer's recommended instructions.

PART 3 EXECUTION

3.1 GENERAL ERECTION REQUIREMENTS

A. Install units level, aligned, plumb, and true unless otherwise indicated. Install only quality units; reject all defective units.

B. In order to assure optimum blending of product when using blended color units of any type, stage cubes so that two or more cubes can be worked off of at the same time. Mason is to lay wall off at least two cubes of blended color product at the same time for even distribution of color. Avoid constructing wall that have a "spotty" visual effect.

C. Neatly cut units utilizing a power masonry saw to obtain crisp, sharp edges that fit neatly with all adjoining work.

D. Place adequate lighting a reasonable distance from the masonry work to ensure even illumination of the area. Do not use trough lighting.

E. Lay units with full mortar coverage on head and bed joints, taking care not to obstruct or file cores to be grouted or insulated. Keep cavity areas free of debris.

F. Tuck-point the joints of rake scored units and tool with a concave profile finish to match surrounding units.

G. Tool all mortar joints when thumb print hard. Remove all excess mortar from the face of masonry units before it sets.

H. Cover and keep dry all materials stored at the jobsite. At the end of work each day, cover the top of the wall in such a way that rain or snow will not get into the cores or wall cavity.

3.2 CONTROL JOINTS AND HORIZONTAL JOINT REINFORCEMENT

A. Do not continue Bond Beam Reinforcement or Horizontal Joint Reinforcement across control joints unless otherwise shown on plans as indicated by the Structural Engineer.

B. Install preformed joint filler material at locations indicated on drawings. Space control joints as shown on drawings; spacing however should not exceed 1 ½ times the height of the building or 25 feet (whichever is less) for structural walls or 1 ½ times the height or 20 feet (whichever is less) for veneer walls.

C. Install horizontal joint reinforcement at 16" vertical spacing except space at 8" below finished floors and in parapet walls and where otherwise indicated on drawings. Horizontal Joint Reinforcement should always be overlapped a minimum of 6 inches and should be used on all depths of Concrete Masonry including Veneer Depth units. Do not extend horizontal reinforcement through control joints unless dictated by the Structural Engineer.

3.3 FLASHING AND WEEP HOLES

A. Install flashing and end dams at all locations shown in the plans. Keep flashing free of mortar debris. Install flashing in strict accordance with the details shown.

B. Install weep holes 32" O.C. at courses above grade, above flashing, and at waterstops over doors, windows, and beam areas.

C. If weep holes are used, only 100% cotton rope is to be used in weep holes; synthetic materials are specifically prohibited.

3.4 DAILY CLEANING

A. Clean completed work daily using brushes, clean rags, and/or burlap. Do not allow excess mortar to dry and harden on the face of the wall.

3.5 FINAL CLEAN DOWN

A. Job site mixed muriatic acid is specifically prohibited; use Eco Chem NMD 80 in strict accordance with the manufacturer's recommendations. Thoroughly pre-wet the area to be cleaned. Allow product to work and thoroughly rinse with clean, potable water when complete. All work is to be done in accordance with manufacturer's recommendations. Job site sample panel must first be cleaned (using the same methods that will be used on the rest of the project) and approved by the architect before proceeding with the cleaning of the building. Job site sample panel will not be discarded or destroyed unless specifically approved (in writing) by the architect.

3.6 INSPECTION

A. The face of the finished wall shall be free of chips, cracks, or other imperfections that would detract from the overall appearance of the wall when viewed from a right angle at a distance of 20 feet under normal diffused lighting.

SECTION 03 3001**CONCRETE SIDEWALKS, CURBS AND EXTERIOR CONCRETE FLATWORK**

Done by: Martin Koegst

PART 1 GENERAL**1.01 SUMMARY**

A. This Section includes exterior Portland cement concrete paving for the following:

1. Curbs.
2. Walkways.

1.02 SUBMITTALS

A. General: Submit the following, according to the Conditions of the Contract.

1. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, joint systems, curing compounds, dry-shake finish materials, and others if requested by Architect.
2. Design mixes for each class of concrete. Include revised mix proportions when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
 3. Laboratory test reports for evaluation of concrete materials and mix design tests.

1.03 QUALITY ASSURANCE

A. Concrete Standards: Comply with provisions of the following standards,

1. American Concrete Institute (ACI) 301, "Specification for Structural Concrete for Buildings."
2. ACI 318-14, "Building Code Requirements for Structural Concrete".
3. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice".

B. Concrete Manufacturer Qualifications: Manufacturer of ready-mixed concrete products complying with ASTM C94 requirements.

1.04 PROJECT CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 PRODUCTS**2.01 FORMS**

A. Form Materials: Plywood, metal, metal-framed plywood, or other acceptable panel-type materials to provide full-depth, continuous, straight, smooth exposed surfaces.

2.02 REINFORCING MATERIALS

A. Reinforcing Bars and Tie Bars: ASTM A 615, Grade 60, deformed.

B. Deformed-Steel Welded Wire Fabric: ASTM A 497.

C. Supports for Reinforcement: Chairs, spacers, dowel bar supports and other devices for spacing, supporting, and fastening reinforcing bars, welded wire fabric, and dowels in place. Use wire bar-type supports complying with CRSI Specifications.

2.03 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I.

1. Use one brand of cement throughout Project unless otherwise acceptable to Architect.

B. Fly Ash: ASTM C 618, Type F.

C. Normal-Weight Aggregates: ASTM C 33, Class 4, and as follows. Provide aggregates from a single source.

1. Maximum Aggregate Size: 1-1/2 inch.

2. Do not use fine or coarse aggregates that contain substances that cause spalling.

3. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Architect.

D. Water: Portable, having maximum acceptable 0.5 mg/l total chlorine residual.

2.04 ADMIXTURES

A. Provide concrete admixtures that contain not more than 0.1 percent chloride ions.

B. Air-Entraining Admixtures: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

C. Water-Reducing Admixture: ASTM C 494, Type A.

D. High-Range Water-Reducing Admixture: ASTM C 494, Type F or Type G.

E. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.

F. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

G. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

1. Air-Entraining Admixture:

a. Air-Mix; Euclid Chemical Co.

b. Darex AEA or Daravair; GCP Applied Technologies.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

A. Proof-roll prepared subbase surface to check for unstable areas and verify need for additional compaction. Do not begin Paving Work until such conditions have been corrected and are ready to receive paving.

B. Remove loose material from compacted subbase surface immediately before placing concrete.

3.02 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for paving to required lines, grades, and elevations. Install forms to allow continuous progress of Work and so that forms can remain in place at least 24 hours after concrete placement.

3.03 PLACING REINFORCEMENT

A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "placing reinforcing bars" for placing and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement in accordance with ACI 318.

3.04 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and compete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. Remove snow, ice, or frost from sub-base surface and reinforcing before placing concrete. Do not place concrete on surfaces that are frozen or have standing water.

C. Moisten sub-base to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.

D. Comply with requirements and with ACI 304R for measuring, mixing, transporting, and placing concrete.

E. Place and spread concrete in a continuous operation between joints.

3.05 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Evaporation Control: In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material.

C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:

1. Moisture Curing: Keep surfaces continuously moist for not less than 14 days with the following materials:

a. Water.

- b. Continuous water-fog spray.
- c. Absorptive surfaces and edges with a minimum 12 inch lap over adjacent absorptive covers.

3.06 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 Quality Requirements.
- B. Tests of concrete and materials will be performed by compressive strength tests, slump tests, and air content tests according to ASTM Standards.