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P.O. Box 157
10405 Merrill Road
Hamburg, Michigan 48139

A GREAT PLACE TO GROW

**SPECIAL MEETING OF THE HAMBURG TOWNSHIP PLANNING
COMMISSION**

**MONDAY, APRIL 8, 2019 7:00 P.M.
HAMBURG TOWNSHIP HALL BUILDING
10405 MERRILL ROAD, HAMBURG, MICHIGAN**

- 1. CALL TO ORDER**
- 2. PLEDGE TO THE FLAG**
- 3. APPROVAL OF AGENDA**
- 4. APPROVAL OF MINUTES**
 - February 20, 2019 regular meeting minutes
 - February 27, 2019 special meeting minutes
 - February 28, 2019 special meeting minutes
- 5. CALL TO THE PUBLIC**
- 6. OLD BUSINESS**
 - None
- 7. NEW BUSINESS**

COPUD 19-001: Final site plan review for a commercial planned unit development to allow a senior housing development of the property at 4715-25-100-105 (6.5 Acres). The property is currently accessed off the end of Veterans Memorial Drive on the east side of the roadway. This senior housing development proposes a mix of independent living, assisted living, and memory care units.

- 8. ZONING ADMINISTRATOR'S REPORT**
- 9. ADJOURNMENT**



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**Planning Commission
Hamburg Township
10405 Merrill Rd., P.O. Box 157
Hamburg Township, Michigan 48139
February 20, 2019
7:00p.m.**

1. CALL TO ORDER:

Present: Goetz, Hamlin, Koeble, Leabu, Muck, Muir & Priebe

Absent: None

Also Present: Amy Steffens, Planning & Zoning Administrator, Scott Pacheco, Planning & Zoning Director, and Brittney Stein, Zoning Coordinator

2. PLEDGE TO THE FLAG:

3. APPROVAL OF THE AGENDA:

Motion by Muir, supported by Priebe

To approve the agenda as presented

Voice vote: Ayes: 7 Nays: 0 Absent: 0 MOTION CARRIED

4. APPROVAL OF MINUTES:

a. November 28, 2018 meeting minutes

Motion by Hamlin, supported by Koeble

To approve the November 28, 2018 meeting minutes as presented

Voice vote: Ayes: 7 Nays: 0 Absent: 0 MOTION CARRIED

b. December 12, 2018 meeting minutes

Motion by Koeble, supported by Priebe

To approve the December 12, 2018 meeting minutes as presented

Voice vote: Ayes: 7 Nays: 0 Absent: 0 MOTION CARRIED

c. December 19, 2018 meeting minutes

Motion by Hamlin, supported by Muir

To approve the December 19, 2018 meeting minutes as presented

Voice vote: Ayes: 7 Nays: 0 Absent: 0 MOTION CARRIED

5. CALL TO THE PUBLIC:

Chairman Goetz opened the call to the public for any item not on the agenda. Hearing no public comment, the call was closed.

6. OLD BUSINESS:

7. NEW BUSINESS:

- a. Special Use Permit and Site Plan Review applications (SUP and SPA 19- 001) to consider allowing the outdoor use of the property at 5520 M-36 (TID#15-22-400-010) for training and outdoor event associated with commercial use of the property. The site plan review application also includes the demolition and replacement of the existing elevated deck and stairway off the rear of the structure and the existing fence around the property. The property is currently occupied by the offices for Stiggy's Dogs. This organization rescues and trains shelter dogs to be service dogs for military veterans living with posttraumatic stress disorder ("PTSD") or traumatic brain injury ("TBI").

Christine Myran, applicant, stated that Stiggy's Dogs purchased the building at the corner of M-36 & Petty's Road in June 2017. They rescue dogs from shelters and train them at prison facilities in Saginaw and Lapeer. They do not have any dogs at their facility. They remain at the prison until they pair them with a veteran who is suffering from PTSD or TBI. They will continue to train them together until they are a full fledge service dog, which takes six months to a year. They have been using the building as a training center 3-4 days per week and know that they need to have a special use permit in order to use the backyard for training. They would like to have a secure area while the dogs are training. Currently, the largest group that comes to the facility is 7-8 dogs at a time with trainers for a session that would last approximately 2 hours per day. They are a non-profit organization, and both the chain link and privacy fences have been donated. It has taken approximately six months to raise the funds for the special use permit.

Discussion was held on choosing a rescue dog. Myran stated that they do temperament testing and look for certain characteristics. About 20% of the dogs do not make it in the program past two weeks. There is about 350 hours of training, and even if they complete the training, they may not be fit to be service animals.

Chairman Goetz opened the call to the public. Hearing no public comment, the call was closed.

Scott Pacheco, Planning & Zoning Director, stated that this property is located in the Neighborhood Service zoning district. Under that zoning district, open air businesses are required to have a special use permit. This is to make sure that certain businesses work well together. This is a unique situation as this property stands alone. There is property adjacent in the Neighborhood Service District, but that property currently has a residential home on it and not being used for commercial purposes. The proposed improvements to the site include the replacement of the fence around the rear area, construction of a new 160 square foot shed and installation of a dog training course and replacement of the existing stairway to the second story. He stated that this use to be a Montessori school and they did have outdoor activity. This is somewhat less intensive than that use. There are some requirements of our zoning ordinance. Whenever you go through a site plan review or special use permit, we can bring the buildings up to current regulations. However, because of the location of the site and the parking, the greenbelt between the street and the building is very limited. It would be very hard to add any trees to this location. A buffer zone is required between commercial uses or commercially zoned properties. The closest neighboring structure is a residential use, although it is zoned commercial. They do have a six-foot fence halfway down the property line, he has suggested they extend that fence the length of the property line to act as a buffer instead of planting any trees on that side of the property. Another requirement is compatibility with the Master Plan. This is a very important corner in the future of the

Township. He is not sure that the Commission would want to enforce this standard because of the cost. Eventually we will want a sidewalk on both Petty's Road and M-36. Our Master Plan strongly suggests that the Township develop secondary connections from the Lakeland Trail to the surrounding community. His feeling is that this property owner would be willing to work with the Township if we could come up with donation funds. He would suggest that we put in some caveat that if sometime in the future, if grant funds, etc. may become available, that they work with us on easements, etc., for the sidewalk installation.

Pacheco stated that currently they hold charity events on the site. The biggest concern is that they are not increasing the parking. If we did not limit the size of the event, that could be a problem. He has suggested a condition that if a special event is being held at this site and the number of attendees of the event is greater than the number of people that currently visit the site during normal business operation, a Land Use Permit for a Special Event shall be obtained. We do have a Special Event Permit that they could apply for. Some of the requirements that we have through planning are things such as providing a shuttle service, etc. He further reviewed his suggested conditions. He stated that the site plan that they have provided is not accurate. It does not show the Petty's right-of-way. You have to build the fence outside of the right-of-way. In an effort to help reduce the cost to the applicant, he has suggested that either a survey be provided or that the fence shall be located at a minimum 35 feet from the east edge of the improved roadway to guarantee the fence is not located within the right-of-way. There are some wetlands at the back of the property. The applicant shall verify the location of the wetlands with the MDEQ and any improvements within the wetland area shall be approved by the MDEQ prior to issuance of a land use permit. Because it is not shown on the site plan where everything is going to be, he has suggested a condition that the agility course and shed be built within the fenced rear yard and outside of the required setbacks for an accessory structure. Staff suggests that with these conditions or modified conditions by the Commission, that the project would meet the standards of both the Special Use Permit approval and Site Plan.

Discussion was held on special events. Commissioner Muir asked the capacity of the building. Pacheco stated that he is not sure what the capacity is. It will have to be posted within the building.

Ms. Myran stated that they do have a survey scheduled to determine the property lines. They will work with the DEQ regarding the wetlands.

The question was asked if the agility items are temporary. Ms. Myran stated that they were going to put some footings in. It is an Eagle Scout project. There will be three permanent structures with the rest being moveable.

Discussion was held on the placement of the fence. The question was asked that if they have a survey, do we want the fence set back 35 feet from the edge of the roadway. Pacheco stated that our ordinance does not require, on commercial properties, that a fence be setback from the right-of-way.

Discussion was held on the authorization letter from the property owner. It was stated that there is a land contract on this property. Amy Steffens, Planning & Zoning Administrator, stated that we would want the authorization letter to include the replacement of the deck. It was stated that the agility course should also be included because that will be permanently affixed to the ground.

Further discussion was held on special events. It was indicated that these special events would be for approximately 20 people. Pacheco stated that they have 11 parking spaces, which they have always had, and the use has always been larger. Discussion was held on what is involved with a permit. Pacheco stated that it would be an over the counter special use permit at a fee of \$25 for non-profits. The question was asked if we should put in a specific number. Discussion was held on shared parking agreements with one of the larger strip malls.

Discussion was held on the condition of providing a pedestrian trail. Pacheco stated that as the Planner, he would recommend that they do a trail as the Master Plan requires. But, he does understand the reality. They are not doing any physical changes to the building at this time. It might be more appropriate to wait until another user purchases the property. If we ever do receive grant money, this property owner seems willing to work with the community.

Pacheco stated that the Site Plan Amendment does not need to go to the Township Board because it is a minor amendment. Therefore, both the Amendment and the Special Use Permit can be approved in one motion.

Motion by Muir, supported by Priebe

The Planning Commission approves the Special Use Permit and Site Plan Amendments (SUP19-001 and SPA19-001) to allow the outdoor use of the property at 5520 M-36 (TID#15- 22-400-010) for training and outdoor events associated with commercial use of the property and replacement of a fence and exterior stairway to access the second story of the existing building. The project, with the following recommended conditions, will meet all the discretionary standards for Special Use Permits under Article 3 , Site Plan Review under Article 4, as described at this hearing and as presented in the February 20, 2019 Staff Report.

Conditions:

1. If a special event is being held at this site with over 30 attendees, a Land Use Permit for a Special Event shall be obtained from the Township as required in section 8.10 of the Zoning Ordinance.
2. The fence along the east property line shall be 6 foot privacy fencing to match the rest of the privacy fencing to extend the entire length of the property.
3. The applicant shall provide a survey showing the location of the road right of way along the west side of the site. The fence shall be located at the right-of-way or a minimum 35 feet from the east edge of the improved roadway to guarantee the fence is not located within the road right-of-way.
4. The applicant shall verify the location of the wetlands with the MDEQ, and any improvements within the wetland area shall be approved by the MDEQ prior to issuance of a land use permit.
5. The agility course and shed will be built within the fenced in rear yard area and outside of the required setbacks for an accessory structure.

Voice vote: Ayes: 7 Nays: 0 Absent: 0 MOTION CARRIED

- b. Public hearing of a Zoning Text Amendment to codify the Hamburg Township Zoning Ordinance to include zoning text amendments adopted between May 6, 2009 and December 31, 2018 and to make administrative changes to correct for clerical errors.

Amy Steffens, Planning & Zoning Administrator, stated that our current Zoning Ordinance was readopted in 2009. Since then, multiple zoning text amendments have been made but have not been inserted into the code. When you go to our website, you see the ordinance, but you have to continue to find the multiple text amendments. It is difficult to use and explain to residents. We have known that it needed to be codified for a long time. Three members of the planning department staff have gone line-by-line through the current ordinance and inserted or deleted, as appropriate, the text of zoning amendments. Since 2009, the township has adopted zoning text amendments that changed 39 provisions of the Zoning Ordinance. The bulk of the amendments have been centered around a few Articles. She presented and reviewed a table showing which Articles have and have not been amended. She stated that significant changes have been made to the non-conforming buildings and Uses. That has gone very far in reducing the number of variance requests to the ZBA. She stated that staff has also verified the proper publication of the amendments. She discussed the list provided of the zoning amendments adopted since 2009 by Article and Section, which also provides the date that the amendment went into effect. Also included in the codification are some administrative changes to account for the section number changes in Article 8 and other clerical errors. We have reserved some section numbers so that if we ever do another amendment, we can put that in without having to change the numbering. We are nearing completion of a codification of all township General Ordinances. Once the General Ordinances are codified and the Zoning Ordinance is codified and adopted, the township will explore the possibility of using an outside company, such as Municode or American Legal Publishing Corporation, to do the review and maintenance of the ordinance. If there are changes through the year, they will take care of inserting them where they need to be and keeping it up to date. Livingston County Planning does not need to see the codified documents. Upon approval by the Planning Commission, it will go directly to the Township Board. Upon the Board's approval, legal notice of the approved ordinance will be published. It will become effective 30 days after that, and we will have a new ordinance that is easy to use.

The question was asked if there will be hard copies available. Steffens stated that after it is adopted, we will make sure that the Planning Commission and ZBA members receive a hard copy.

Discussion was held on the time frame. Steffens stated that this can go to the Board on March 5th. We can get a notice published that week. By the week of April 8th, this should be complete.

Chairman Goetz opened the call to the public. Hearing no public comment, the call was closed.

Motion by Priebe, supported by Koeble

To recommend to the Township Board approval of the codified Hamburg Township Zoning Ordinance

Voice vote: Ayes: 7 Nays: 0 Absent: 0 MOTION CARRIED

8. ZONING ADMINISTRATOR'S REPORT:

Planning & Zoning Administrator Steffens stated that we have our Annual meeting of the Township Board, Planning Commission, Zoning Board of Appeals and Parks & Recreation next Wednesday, February 27th at 7:00 p.m. This will be a year in review with a full accounting of what was done in 2018 including, permits, enforcement, zoning text amendments, variances and Planning Commission hearings. We will also address some of the Zoning text amendments that we think we should pursue. If you have anything you would like to discuss, now is the time to let us know. Kathleen Kline-Hudson from Livingston County will be here as well.

Steffens stated that if there are any trainings or workshops you would like to attend, please let her know. There is money in the budget for training.

Steffens stated that we are going to have a special meeting on February 28th for the senior housing facility.

Discussion was held on the PUD ordinance review. Discussion was held on some of the other ordinances that will be coming up for discussion including wind and solar power, etc. Pacheco stated that he has put together an extensive list that can be prioritized. We would like to get the Master Plan update complete before we start working on another ordinance. The Steering Committee should be seeing a draft of some of the chapters soon.

9. ADJOURNMENT:

Motion by Priebe, supported by Leabu

To adjourn the meeting

Voice vote: Ayes: 7 Nays: 0 Absent: 0 MOTION CARRIED

The Regular Meeting of the Planning Commission was adjourned at 7:58 p.m.

Respectfully submitted,

Julie C. Durkin
Recording Secretary

The minutes were approved as presented/Corrected: _____

Fred Goetz, Chairperson

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Supervisor: Pat Hohl
Clerk: Mike Dolan
Treasurer: Jason Negri
Trustees: Bill Hahn
Annette Koeble
Chuck Menzies
Jim Neilson

**HAMBURG TOWNSHIP BOARD OF TRUSTEES, ZONING
BOARD OF APPEALS, PLANNING COMMISSION, PARKS
AND RECREATION
Special Joint Meeting
Hamburg Township Hall Board Room
Wednesday, February 27, 2019
7:00 p.m.**

1. Call to Order

Supervisor Hohl called the meeting to order at 7:00 p.m.

2. Pledge to the Flag

3. Roll Call of the Board

Hamburg Township Board

Present: Supervisor Hohl, Dolan (also on Parks & Recreation), Negri, Koeble (also on Parks & Recreation and Planning Commission), and Neilson (also on the Zoning Board of Appeals).

Absent: Hahn, Menzies (also on the Planning Commission,)

Planning Commission

Present - Leabu, Goetz, Muir, Priebe (also on Zoning Board of Appeals), Muck, Hamlin, Koeble (Trustee on the Township Board and on Parks & Recreation)

Absent: None

Zoning Board of Appeals

Present: Chairman Priebe (also on Planning Commission), Watson, Neilson (Trustee on the Hamburg Township Board), Bohn

Absent: Auxier (also on Parks & Recreation)

Parks & Recreation

Present: Dolan (Hamburg Township Clerk), Koeble (Trustee on the Hamburg Township Board and on Planning Commission), Muck

Absent: Auxier (also on ZBA)

Also Present: Amy Steffens, Planning Commission and Zoning Board of Appeals Administrator; Scott Pacheco, Township Planner; Deby Henneman, Parks Coordinator; Brittany Stein, Zoning Department Coordinator; Bill Anderson, Livingston County Planning Commissioner; Kathleen Kline-Hudson, Livingston County Planning; Brenda Richardson, Township Videographer

4. Call to the Public

Brenda Richardson, 1658 Sandy Shore Dr, Township Videographer for the joint meeting, discusses how to use the microphones in the room to produce good audio levels for the live streaming and video recording of the meeting.

5. Correspondence

There was no correspondence presented.

6. Approval of Agenda

Motion by Dolan, second by Neilson, to approve the Agenda as presented.

Voice Vote: AYES – 5, ABSENT – 2 (Hahn, Menzies)

MOTION CARRIED

7. Current Business

A. Kathleen Kline-Hudson, Livingston County Planning, presentation of Livingston County Master Plan Update

Kline-Hudson presented and handed out a summary of the Livingston County Master Plan that was adopted in October of 2018. This summary includes the Vision Plan as well as Current Trends with the “Best Practices” of how to support the trend. A collection of Planning & Zoning ideas that they hope each one of the local communities will look at and incorporate. To make this inclusion easier the 2018 Livingston County Master Plan includes links within it that will assist in language and ideas. Kline-Hudson is looking forward to serving as a member on the committee for our own Master Plan. She also informed the group about the Press Release that was handed out at the table for the 30 Day public review and comment on the Livingston County Parks & Open Space Plan.

B. Parks and Recreation Committee Parks Master Plan update

Henneman reviewed the Parks & Recreation Master Design Plan that included many new projects. Some of these being walking trails in East Park, completion of trails in West Park, baseball diamond irrigation, ADA bathrooms, a pickleball court, updated playgrounds and a new tot lot, additional parking, phase two of the adult workout area, and the addition of a picnic area. Henneman also informed about the progress and next steps of the General Ordinance Project which is moving right along and will soon be ready for codification.

C. Planning and Zoning Department 2018 year in review

Steffens reviewed her 2018 Annual Report for the Planning Commission, Zoning Board of Appeals, and the Planning & Zoning Department. Starting with the Planning Commission, Steffens stated that they had three special meetings and eight regular meetings presenting a chart showing a brief description of those meetings and what the results were. She also went over the 2018 Floodplain Activity and asked that the township direct the staff to research the necessity and impact of adopting a “cumulative value” ordinance into the floodplain regulations. Steffens went over CRS (community rating system) and that FEMA has scheduled our audit for April 9, 2019. Steffens stated that staff processed 8 lot combinations, 2 land divisions, and 6 boundary adjustments.

Stein then went over the Zoning Board of Appeals functions and stated that the ZBA considered 12 variances in 2018, of those 12 variances that were heard by the ZBA, 10 were approved, and 2 were denied. Those variances were presented in the packet. Stein also covered Land Use Permits stating the process used to issue a Land Use Permit and showed a chart showing that in 2018, 586 Land Use permits were issued. Stein stated that the township received 26 permits issued by the DEQ for projects. Stein also went over the training and professional activities that the staff participated in throughout 2018 and touched on training opportunities for 2019.

D. 2018 Code Enforcement year in review

Steffens discussed the 2018 Code Enforcement introducing Code Enforcement Officer Mike Sumeracki and his theory to approaching Code Enforcement, the “Broken Windows Theory”, if you take care of the small things then the big things don’t become so big. In 2018, we received 181 new complaint cases, with 150 of those being closed in 2018. The largest number of complaints in 2018 was blight. She also discussed the Code Enforcement Goals for 2019.

E. Zoning Amendments 2018-2019

Pacheco reviewed Zoning Text Amendments (ZTAs) of 2018 and upcoming Zoning Text Amendments for 2019 including fence revisions, wireless revisions, planned unit development (PUD) revisions, wind and solar farms, senior housing ordinance (overlay district), short term rental use, tiny houses, village center zoning district revisions, collection drop boxes, public hearing notification requirements, and expansion of non-conforming structures. Pacheco also stated that the staff is cleaning up the General Ordinances working toward the codification of the Township Municipal Code.

Motion by Hohl, second by Neilson, to direct the Zoning Department to prioritize a list including the following: an amendment to the fence ordinance (eliminating the back yard fence), revisions to the wireless ordinance, revisions to the PUD development including but not limited to specific definitions of exemplary projects, specific schedules for density bonuses, and to consider home and lot size and cottage home construction oriented to empty nesters. Not to make a priority of solar and wind farm ZTAs. To proceed with discretion on a senior housing overlay district. And to bring back to the Board for approval a revision of the 2015 proposal for short term rentals, provide proposals for tiny housing, village center district revisions that will enhance development in the village center district specific to development in close proximity to historic village, collection drop boxes, on-site public notice to include administrative function, eliminate unintended consequences of Section 11.3.1, which have negative impact on applicants while maintaining integrity of district, and amendment to the Accessory Dwelling Unit (ADU) ordinance to allow ADUs on riparian lots.

Voice Vote: AYES: 5, ABSENT: 2

MOTION CARRIED

F. 2020 Master Plan Update Timeline and Process

Pacheco reviewed the 2020 Master Plan Update. Stating that they are looking at a September 2019 approval date.

8. Call to the Public

A call was made with no response.

9. Planning Commission Comments

None.

10. Adjournment

Motion by Leabu, second by Muir, to adjourn meeting.

Voice Vote: AYES: 7, ABSENT: 0

MOTION CARRIED

Meeting adjourned at 9:23 p.m.

Respectfully submitted,



Courtney L. Paton
Recording Secretary

Joyce Priebe, Chair
Zoning Board of Appeals



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**Special
Planning Commission
Hamburg Township
10405 Merrill Rd., P.O. Box 157
Hamburg Township, Michigan 48139
February 28, 2019
7:00p.m.**

1. CALL TO ORDER:

Present: Goetz, Koeble, Leabu, Muck, Muir & Priebe

Absent: Hamlin

Also Present: Amy Steffens, Planning & Zoning Administrator, & Scott Pacheco, Planning & Zoning Director

2. PLEDGE TO THE FLAG:

APPROVAL OF THE AGENDA:

Motion by Koeble, supported by Muir

To approve the agenda as presented

Voice vote: Ayes: 6 Nays: 0 Absent: 1 MOTION CARRIED

3. APPROVAL OF MINUTES: None

4. CALL TO THE PUBLIC:

Chairman Goetz opened the call to the public for any item not on the agenda. Hearing no public comment, the call was closed.

5. OLD BUSINESS:

6. NEW BUSINESS:

- a. COPUD 19-001: Public hearing for preliminary site plan review for a commercial planned unit development to allow a senior housing development of the property at 4715-25-100-105 (6.5 Acres). The property is currently accessed off the end of Veterans Memorial Drive on the east side of the roadway. This senior housing development proposes a mix of independent living, assisted living, and memory care units.

Mr. Scott Bell of Lapham Associates stated that they are the Planning and Environmental Engineering firm for the developer on the proposed senior housing development at the end of Veteran's Memorial Drive. They have the project divided into two separate phases. Phase 1 would be assisted living with a variety of types of units to meet various types of needs with 16 memory care units as part of the first phase, which is the western portion of the site. Phase 2 would consist of 16 smaller cottage type independent living homes. There is parking available and

accessible to the units as well. There is a retention basin in the middle. He presented and explained the renderings of the buildings. There is a similar development in Brighton with a slightly different configuration. He described the different elevations and architectural features. He stated that as an assisted living facility, it is licensed through the State. They are licensed typically in increments of 20 units. Each one is required to have its own dining and kitchen facilities, nurse stations, etc. There are also a salon, exercise room, theatre room, etc. scattered throughout. The entire facility would be sprinkled. He discussed the water and sewer connections. He discussed the storm water and retention basin. He discussed the proposed landscaping. He stated that they have distributed the parking throughout the site and stated that they will be looking at the number of spaces to meet the requirements. He discussed the parking needs for this type of facility. He further stated that there are sidewalks proposed to allow residents to walk to nearby businesses. They have met the setbacks for the underlying zoning district, but have pushed the front of the building right out to the street as the ordinance looks for in the Village corridor.

Scott Pacheco, Planning & Zoning Director, stated that we are here tonight to consider the preliminary site plan. The architecture, material & design will all have to be taken care of through final site plan review as well as the final engineering, fire district, landscaping, etc. He gave a brief history of the project. He stated that this property was purchased in 2016 by Hamburg Township so this project is in conjunction with the Township through an RFP. We did a Phase 1 and 2 Environmental Site Assessment, a Baseline Environmental Assessments and an initial senior housing market feasibility study. The feasibility study showed that there is a market for 110 market rate assisted living units, 70 market rate independent living units, and 20-40 market rate memory care units. After we received that study, the Township decided to put out a proposal to garner interest in building a senior housing facility on this site. This developer came in with a proposal, and the Township Board directed staff to move forward with site plan review. Their plans are preliminary, and depending on how the Commission decides, they can make suggestions to the plans etc. He has outlined a number of concerns in his staff report on the preliminary plans, and he has not seen the architectural plans before tonight. We will look at that between preliminary and final site plan review.

Pacheco stated that this property is located within the Village Center Master Plan area with the north portion of the site in the Village Core District, which is a higher use type area. The rear of the property is designated as Village Residential-10, which is a higher density residential. A senior housing facility is not truly a residential facility and it is not a true medical facility. It is a mixture of the two. It goes well with the Village Center Core, and as you move back on the site, it becomes more residential. They are proposing a 55,000 square foot main structure broken down into four separate portions. There will be four quadplexes each with four 950 square foot units. Originally, they proposed that every other unit had a garage. As it has been indicated, the project will be broken down into two phases. With our RFP, one of the things that we requested was the extension of Village Center Drive not only for the water and sewer connections but also because it will make a better connection for transportation purposes. You will be able to access the site by either the stop light at Village Center Drive or Veterans Memorial Drive. Assisted living seniors and memory care seniors very rarely have vehicles of their own and the independent living will have less cars than typical residential. This is going through a Commercial PUD process. In our Village Center district we have a maximum building size of 30,000 square feet. This building will be 55,580 square feet, so they are asking for a waiver. They are also asking for a waiver to the front setback from Village Center Drive. In this district, we have a requirement that buildings shall be placed no more than 20 feet from the front property line to create a more "downtown" type appearance. The independent living units are close to the roadway, however because of the location of the parking lot and their design, they could not meet that requirement. This type of use does not lend well to be put that close to the roadway because it is so large. He stated that we do not have an exact parking requirement for senior living facility but we do list convalescent care in our ordinance. They are asking for a waiver to that requirement as well.

Pacheco stated that after the Township Board reviewed the applications for the RFP, they directed staff to work with these developers to go through this process. He discussed the process for review of a commercial PUD. The Planning Commission must conduct a public hearing on the preliminary CPUD, which is what we are doing tonight, and review the plans and make a decision to determine if the project meets the eligibility requirements for a CPUD. Pacheco provided a table outlining the zoning requirements and staff analysis. He did provide an exhibit to help guide the developer in the final site plan review, which was all of the requirements including landscaping, lighting requirements, signage, etc. both from the zoning regulations as well as the Village Center Master Plan. He has also

included the discretionary standards. Once we get the plans, we will want to meet with the developer to talk about what we are looking for to meet those discretionary standards.

Pacheco discussed the zoning regulations that apply to the proposed project. He discussed his suggested conditions of approval. He has not seen where the road right-of-ways are going to be, how the roads are going to be, etc. We are going to want to have some sort of right-of-way agreement with the developer so that those right-of-ways can be used into the future. There has also been discussion with the Road Commission to see if there is opportunity for them to receive these as public roads. Our Water and Sewer Departments will also need easements around the lines that will be installed. This will all be discussed through the final site plan review as well as landscaping, signage, lighting, etc. He stated that parking is an item that could have needed a CPUD or we could say that this is similar to convalescent homes, orphanage or other similar uses. If it was a similar use, it would require one parking space for four beds plus one parking space for every two employees, which would be a total of 34 spaces. This development is proposing 45 spaces. This developer has other facilities and they looked at what they have at those facilities and how many get used. They came up with one space for every 2.5 beds plus one parking space for every employee. Then for the independent units, they have 29 spaces with 50% of those having a garage and the others would have to share the on-street parking spaces. It does sound like that would be way more than adequate. These types of uses usually have some type of ride-sharing facilities. The developer indicated that they do not provide that type of service, but he has suggested that they look into it. There are a lot of things we want to connect these people to such as the senior center, grocery, etc. and be as mobile as possible. There are some services that the facility does provide as well as transportation to other events. When we have a final site plan, federal and state requirements regarding handicap parking and access shall be applied. The final site plan shall also include all information required by Section 4.4.2 of the Township Zoning Ordinance and approvals from all appropriate township, county, state and federal agencies. There are some CPUD requirements that have to be met, and this project meets all of those. He reviewed the discretionary review criteria and eligibility criteria in order to qualify as a CPUD including to promote the goals and objectives of the Master Plan, Village Plan and M-36 Corridor Plan. The only item of the Village Center Master Plan that the project could have done better was the open space criteria requirements. Most of the open space they are proposing is the private space in the court yards. The only public open space is along the sidewalks and roadways. He has made a suggestion that the east wing of the structure could be reduced and a neighborhood park could be added to the south side of the large main building. It would break up the long elevation along Side Street and allow the residents to have some outdoor space and allow for a larger buffer between future residential properties to the south. He stated that there is a large need for senior housing. Our population is aging rapidly and will continue until 2045. This development would help to fill that need. The facility loads on utilities for senior living are much less than normal residential development or commercial development. This will also lessen trip generation and reduced impact on the roadways. This project establishes land use patterns compatible with existing or planned uses by creating the larger building to the north of the property and more residential structures to the south. The front portion is future designated as a more commercial type use and the rear a more residential use. The property to the south is also Village Residential-10. This use is allowed in the Village Center zoning district so they are not looking to go against the use. They are looking for a waiver to make it better and make it a more effective senior housing facility. This is not a purely residential project so you cannot say that the density is a specific number because it does not equate to a single family residential unit. Again, we do not have a lot of landscaping information at this time. The independent living side of the project will blend well with the future residential and with some work, he feels that the large building could blend well with the surrounding community also. Through final site plan review, we will be looking at all of those items to make sure they have a high quality design.

Chairman Goetz opened the call to the public. Hearing no public comment, the call was closed.

Commissioner Leabu stated that he had the opportunity to look at the developer's Ricket Road facility. It would be fine with him if this site looked similar. We do have architectural guidelines for the Village Center. He discussed the re-design that would be required to accommodate a pocket park. He stated that he can live without that park. Because the courtyards are open, he feels that it is open and would like to see more landscape in those areas. He further discussed the use of rolled curbing that would allow for additional parking along the road in the event of a large party, etc.

Commissioner Priebe stated that she would like to see the garages put back. She is also wondering if there is something different that can be done rather than the parallel parking. Pacheco stated that they originally did have regular parking, but it does push the buildings back. Mr. Bell stated that there is not a lot of room now that they have the size of the basin. He further discussed the need to widen the road if you put in perpendicular spaces. He stated that he can look at other configurations.

Commissioner Priebe stated that she agrees that she does not care much about the pocket park given the nature of the facility.

Commissioner Muck stated that he also would like to see the garages come back. He would go either way with the pocket park. He is not in agreement with requiring the developer to make connections with the transportation companies. With the increase in ride-share opportunities such as Uber and future transportation that may come to the county, he does not feel that it is necessary to require this. He asked if the canopy in front is drive-through. It was stated that it is for drop-off and pick up. Commissioner Muck asked if there is an emergency generator for the entire complex or just the main building. Mr. Bell stated that it will be for the whole facility.

Commissioner Koeble stated that the facility in Brighton is a quite impressive and has very quality items. She agrees that the garages should come back if possible.

Commissioner Muir stated that at some point, there will be residential development to the south and feels that we need to pay attention to the architecture and elevation of the building on the south side. He discussed the sidewalk to the post office. Mr. Bell stated that they have proposed putting the sidewalk to the property line. They are going to be putting in the utilities and road, and he will explore the sidewalk issue more. They do not own that property. It was stated that at some point there will be a sidewalk when that site is developed.

Chairman Goetz stated that he agrees with what has been said by the commissioners. He would concur with the comments about detail on the back of the building because it will eventually be facing residential.

Mr. Bell discussed the issue of the pocket park. He stated that they did look at that, but it did not make sense given that you would lose more units. You also have to look at the 20 bed limit, firewalls, etc. Discussion was held on this being memory care and the need to have the area self-contained, etc.

Mr. Bell stated that he would agree with the right-of-way agreements and shared parking agreements. He further discussed parking availability. He stated that they did receive the cut-sheets on the lighting, and the village street lights will be implemented into the development.

Further discussion was held on the requirement to work with LETS or other service provider for transportation. Commissioner Muir stated that he feels that it is an unfair requirement. Other Commissioner agreed. It was stated that the requirement of the neighborhood park should also be eliminated. Commissioner Priebe stated that she would like to add the requirement that 50% of the independent living units be provided a garage.

Motion by Priebe, supported by Muck

The Planning Commission recommends to the Township Board approval of the preliminary CPUD site plan because the project as conditioned meets the Eligibility Criteria A-H in section 17.3 of the zoning ordinance as discussed at the meeting tonight and as presented in the staff report.

The Planning Commission will allow waivers from the following Zoning Requirements:

1. Section 7.6.1 (P) (Footnote 11) requires that in VC zoning "No building shall be greater than thirty thousand (30,000) square feet gross floor area except for a group of uses, each with individual pedestrian entrances." The proposed main building is 55,580 square feet with 45,672 square foot for the 54 assisted living unit and 9,908 for the 16 memory care units.
2. Section 7.6.1 (P) (Footnote 12) requires that in the VC zoning district "Buildings shall be placed no more than twenty (20) feet from the front lot line." The main building will be setback between 75 to

- 80 feet from Village Center Drive and approximately 65 feet from the side street. This distance will allow the parking areas to be located near the entrances for visitors, residence and the general public.
3. The Township Zoning Ordinance does not specifically address senior housing facilities in the parking requirements within the Zoning Ordinance. The proposed project will have 45 parking spaces associated with the main building and 29 parking spaces associated with the 4 independent living quadplexes.

Conditions of Approval:

1. Prior to review of the final CPUD site plan, the applicant shall submit a final CPUD site plan which contains all information required by Section 4.4.2 of the Township Zoning Ordinance and approvals from all appropriate township, county, state and federal agencies, including, but not limited to, the Hamburg Township fire district, Hamburg Township engineering review, the Livingston County Road Commission, Livingston County Drain Commissioner, Livingston County Health Department and the Michigan Department of Transportation. The process described in section 17.6.4 shall be followed.
2. As a part of the final CPUD site plan review, the project plan shall contemplate the location of the road right-of-ways and how the property will be split under the proposed use.
3. The following note shall be included on the final CPUD site plan: "As future development occurs adjacent to the subject site and utilities, pedestrian and vehicle connections are deemed appropriate by the Planning Commission, the opportunity for these connections shall be provided."
4. Prior to a decision on the final CPUD site plan, the developer shall work with the Livingston County Road Commission on making the roadways within the project public. If the roadways remain private, the required Development Agreement (DA) between the Township and the Developer shall include a requirement that creates any easements, curb to curb, that include Village Center Drive, the north/south side street, and the one way circular street that accesses the independent living units, and that all through traffic on the site has open access along these roadway from current developments or future developments. This easement shall be dedicated upon request to any municipality that may now or in the future control the roadways and wishes to except these easements as public roadways.
5. Prior to construction of the project, the applicant shall have an agreement with the surrounding property owners to extend the improvements to Veterans Memorial Drive and Village Center Drive on the properties to the west and east as shown on the CPUD site plan.
6. A note shall be added to the final CPUD plan that states the parking spaces associated with the main building shall be open to use by the future residence of the entire project including the residents and guest of the independent living units.
7. 50% of the independent units shall have garages as originally shown

It was stated that these are the conditions of the preliminary approval. Pacheco stated that we will have engineering, etc. for final approval. If there are any conditions at that time, they will be addressed at final. We are not considering landscaping, lighting, etc. at this time.

Voice vote: Ayes: 6 Nays: 0 Absent: 1 MOTION CARRIED

Pacheco stated that it is likely that they will come back for final site plan review just for Phase 1 then come back later for Phase 2.

Discussion was held on timing of the project. Mr. Bell stated that 75% of the engineering has been done. He is anticipating final site plan submittal for review next week. They are hoping to break ground in the spring.

7. ZONING ADMINISTRATOR'S REPORT: None

8. ADJOURNMENT:

Motion by Koeble, supported by Priebe

To adjourn the meeting

Voice vote: Ayes: 6 Nays: 0 Absent: 1 MOTION CARRIED

The Regular Meeting of the Planning Commission was adjourned at 8:21 p.m.

Respectfully submitted,

Julie C. Durkin
Recording Secretary

The minutes were approved as presented/Corrected: _____

Fred Goetz, Chairperson

PHONE: 810-231-1000
FAX: 810-231-4295



P.O. Box 157
10405 Merrill Road
Hamburg, Michigan 48139-0157

To: Planning Commissioners
From: Scott Pacheco, AICP
Hamburg Township
Township Planner
Date: April 8, 2019
Agenda Item: 7
Project Number: Commercial Planned Unit Development 19-001
Project Location: Parcel #: 15-25-100-105
Owner: Hamburg Township
Applicant: Sam Martin
Agent: Lapham Associates, Scott Bell

PROJECT DISCRIPTION:

The proposed project includes five buildings: one 55,580 square foot main building with 54 senior assisted living units and 16 senior memory care units; and four 3,744 square foot, quadplex buildings with 4 senior independent living units in each building for a total of 16 senior independent living units. The main building is separated into 4 separated spaces by interior fire walls. However, only the fire doors between the assisted living unit and the memory care unit will be locked, for security and safety purposes. The facility will be licensed by the State of Michigan as an Adult Foster Care and will be operated by a staff of experienced and qualified persons.

The project will extend the utilities, roadways and pedestrian sidewalk systems both on and off of the site. On-site, Village Center Drive will be the east/west street connecting to Veterans Memorial Drive to the west and a new north/south street (Hampton Street) will be created that will be extend in the future through developments south of the subject site to Pearl Street and Stone Street in old downtowns Hamburg. A small one way circular street with on street parallel parking will also be created to access the independent living units proposed on the south east portion of the site. Off-site, Village Center Drive will be extended onto the property to the east to where it currently ends by the existing post office building and Veterans Memorial Parking will be extended to the south as a fire roadway, allowing better access to the site and traffic circulation of the area. The extension of Village Center Drive will also allow for a better connection to the existing water and sewer facilities.

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The project will be built in two phases. Phase 1 will include the main structure with all of the improvements associated with that structure including the extensions of the off-site roadways and utilities. Phase 2 will include the 16 independent living units and the improvements associated with those units.

Phase 1:

Tonight the Planning Commission is reviewing the Final CPUD Site Plan for **Phase 1** of the project. This phase of the project includes the 55,580 square foot main building that will house the 54 assisted living units and the 16 memory care units. This Phase also includes the construction of the following roadway; Village Center Drive, Hampton Street and the extension of Veterans Memorial Drive; the removal of 18 trees; the installation of new landscaping, sidewalks, parking, lighting, stormwater facilities, utilities and other improvements associated with this main structure.

Phase 2

Final site plan review for Phase 2 of the project will be submitted for Planning Commission review prior to construction of that phase of the project.

The extensions of Veterans Memorial Drive and Village Center Drive as shown on the CPUD plan are required as a part of Purchase and Development Agreement, Item 7 Development of Property (G), between the Township and the Developer. Because the utilities are extended along Village Center Drive from the west and fire access is necessary along Veterans Memorial Parkway to the south side of the main structure. The completion of these extensions should be required as a part of Phase 1.

Suggested Condition 1:

Prior to receipt of a Certificate of Occupancy on the main building the extension of Village Center and Veterans Memorial Drive shall be complete.

PROJECT HISTORY:

On February 28, 2019 the Planning Commission held a special public hearing to consider the Preliminary CPUD site plan for this project. At this meeting the Commission recommended that the Township Board approved the preliminary CPUD site plan with the following three waivers to the zoning regulations and seven conditions of project approval:

Waivers from the following Zoning Requirements:

- 1) **Section 7.6.1 (P) (Footnote 11) requires that in VC zoning “No building shall be greater than thirty thousand (30,000) square feet gross floor area except for a group of uses, each with individual pedestrian entrances.” The proposed main building is 55,580 square feet with 45,672 square foot for the 54 assisted livings unit and 9,908 for the 16 memory care units.**
- 2) **Section 7.6.1 (P) (Footnote 12) requires that in the VC zoning district “Buildings shall be placed no more than twenty (20) feet from the front lot line.” The main building will be setback between 75 to 80 feet from Village Center Drive and approximately 65 feet from the side street. This distance will allow the parking areas to be located near the entrances for visitors, residence and the general public.**

- 3) **The Township Zoning Ordinance does not specifically address senior housing facilities in the parking requirements within the Zoning Ordinance. The proposed project will have 45 parking spaces associated with the main building and 29 parking spaces associated with the 4 independent living quadplexes.**

Conditions as part of the preliminary site plan approval in **bold** followed by staff comments:

- 1) **Prior to review of the final CPUD site plan the applicant shall submit a final CPUD site plan which contains all information required by Section 4.4.2 of the Township Zoning Ordinance and approvals from all appropriate township, county, state and federal agencies, including, but not limited to, the Hamburg Township fire district, Hamburg Township engineering review, the Livingston County Road Commission, Livingston County Drain Commissioner, Livingston County Health Department and the Michigan Department of Transportation. The process described in section 17.6.4 shall be followed.**

Staff Comment:

The applicant has submitted their plans to the Township Engineer and Fire Districts their review letters are attached as **Exhibit B and C**. The applicant will be required to show that all required approvals are obtained prior to issuance of a building permit for phase 1 of the development.

Suggested Condition 2:

Prior to issuance of a building permit for Phase 1 of Hampton Manor or Hamburg approvals from all appropriate township, county, state and federal agencies, including, but not limited to, the Hamburg Township fire district, engineering and utilities, the Livingston County Road Commission, Drain Commissioner, Health Department and Water Authority and the Michigan Department of Transportation and Environmental Quality shall be obtained.

- 2) **As a part of the final CPUD site plan review the project plan shall contemplate the location of the road right-of-ways and how the property will be split under the proposed use.**

Staff Comment:

The property will remain under single ownership and will not be split or divided. The Roadway will have a curb to curb easement and will either be public or private. If the roadways remain private the developer will follow the requirements under condition 3.

Suggested Conditions 3:

If the street remains private the final development agreement will include wording that requires a curb to curb easement for all the roadways on the subject site, that all through traffic has open access along these roadways, and that the easement shall be dedicated upon request to any municipality that may now or in the future control the roadways and wishes to except these easements as public roadways.

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- 3) **The following note shall be included on the final CPUD site plan “As future development occurs adjacent to the subject site and utilities, pedestrian and vehicle connections are deemed appropriate by the Planning Commission, the opportunity for these connections shall be provided.”**

Staff Comment:

This note was added to page C-4 of the site plan and this wording will also be included in the development agreement for the project that will need to be approved by the Township Board.

- 4) **Prior to a decision on the final CPUD site plan the developer shall work with the Livingston County Road Commission on making the roadways within the project public. If the roadways remain private the required Development Agreement (DA) between the Township and the Developer shall include a requirement that creates an easements, curb to curb, that include Village Center Drive, the north/south side street, and the one way circular street that accesses the independent living units and that all through traffic on the site has open access along these roadway from current developments or future developments. This easement shall be dedicated upon request to any municipality that may now or in the future control the roadways and wishes to except these easements as public roadways.**

Staff Comment:

The developer is continuing to work with the Livingston County Road Commission in an attempt to get them to consider taking Village Center Drive and Veterans Memorial Drive as public roads. Wording has been included in the draft Development Agreement and will be required as a part of the final Development Agreement that is approved by the Township Board.

See Suggested Condition 3 on page 3.

- 5) **Prior to construction of the project the applicant shall have an agreement with the surrounding property owners to extend the improvements to Veterans Memorial Drive and Village Center Drive on the properties to the west and east as shown on the CPUD site plan.**

Staff Comment:

The developer continues to work with these surrounding property owners on agreements to extend these roadways and other improvements on their properties.

Suggested Condition 4:

Prior to issuance of a building permit the developer will either have approvals from the surrounding property for the off-site improvements or will provide the township with a performance guarantee for the project as required in the development agreement for this project.

- 6) A note shall be added to the final CPUD plan that states the parking spaces associated with the main building shall be open to use by the future residence of the entire project include the residence and guest of the independent living units.

Staff Comment:

This note has been added to page C-4 of the site plan documents.

- 7) Fifty percent of the independent living units will have garages.

Staff Comments:

This condition is in regards to **Phase 2** of the project and will need to be considered when the Final CPUD site plan is submitted for Phase 2 of the project.

On March 5, 2019 the Township Board reviewed the project along with the Planning Commission's recommendation and approved the preliminary CPUD site plan with the waivers and conditions as recommended by the Planning Commission.

The March 5, 2019 Township Board report is are attached to this report for your review (**Exhibit A**).

PROJECT ANALYSIS:

The staff report includes the following:

- An updated list (Table 1) of the zoning regulations that the Phase 1 Final CPUD site plan project needs to meet or that has been requested by the applicant to be waived by the Planning Commission as a part of the Final CPUD site plan review.
- The CPUD and Final Site Plan Review Standards outlined in Sections 17.5 and 4.5.6 Site Plan Standards of the Zoning Ordinance in **Bold** followed by staff analysis of each requirement.
- An example recommendation of approval motion including a list of suggested conditions that will be required as a part of the final site plan review. The list of conditions includes the identified specific requirements or standards of the Zoning Ordinance which may be waived or modified upon approval of the final CPUD site plan.

Zoning Regulations:

The subject site is within the Village Center (VC) Zoning District. Table 1 summarizes the zoning regulations that apply for the proposed project:

Table 1
Phase 1 Final Site Plan: Development Review Compliance Table

Criteria/Regulation	Required by Regulations	Proposed Project	Status
GENERAL REQUIREMENTS:			
VC Setbacks: Main Building			

Criteria/Regulation	Required by Regulations	Proposed Project	Status
Front Yard(VC Drive): Front Yard (Side Street): Front Yard (VM Drive): RearYard:	20' max 20' max 20' max 15'	80' 65' 18' 35'	CPUD CPUD ✓ ✓
Number of Stories/ Height:	2.5 story/ 35 feet	1 story/ 26.5 feet	✓
Structure Size:	30,000 sq ft max	55,580 sq ft	CPUD
Lot Size: Total Lot Size: Totals Lot Size (-row) Phase 1 (-row): Phase 2 (-row):		283,946 236,670 169,073 67597	 ✓ ✓ ✓
Lot Coverage: Phase 1(only): Building: Total Impermeable: Total Project: Buildings: Total Impermeable	 50% 80% 50% 80%	 23.5% 35.6% 30.6% 46,5%	 ✓ ✓ ✓ ✓
LANDSCAPING:			
Greenbelt :	20 feet wide* 1 canopy tree and 4 shrubs for every 40 liner feet of street frontage. Village Center Drive 455'/ 12 trees and 48	<20' wide 8 Trees 33 Shrubs	* The width may be reduced in the Village Center zoning district. Planning Commission Waiver

Criteria/Regulation	Required by Regulations	Proposed Project	Status
	<p>Shrubs Required</p> <p>Veterans Memorial Drive 300' / 8 trees and 36 shrubs</p> <p>Hampton Street 490' / 13 trees and 52 shrubs</p>	<p>8 trees 0 shrubs</p> <p>13 trees 21 shrubs</p>	<p>Planning Commission Waiver</p> <p>Planning Commission Waiver</p>
Buffer Zone			
Multifamily/ Multifamily/Single Family	<p>(B) 6 foot high continuous wall or berm, and 1 canopy tree, 1 evergreen tree and 4 shrubs per each 30 linear feet along the property line</p> <p>South Property Line 630' 21 Evergreen Trees, 21 Canopy Trees, and 84 Shrubs</p>	<p>No Wall, Fence or Berm.</p> <p>5 Canopy 15 Evergreen and 74 Shrubs</p>	<p>Planning Commission Waiver</p> <p>Planning Commission Waiver</p>
Parking Lot	<p>1 canopy tree for each (2,000) square feet of paved driveway and parking lot surface is required within 18 feet of the parking areas.</p> <p>17,860 Total Square foot of parking area 9</p>	<p>3 Canopy Trees</p>	<p>Planning Commission Waiver</p>

Criteria/Regulation	Required by Regulations	Proposed Project	Status
	trees.		
<p>The total required landscaping planting are; 63 canopy trees, 21 evergreen trees and 220 shrubs. The applicant is proposing planting 37 canopy trees, 15 evergreen trees and 128 Shrubs.</p> <p>Staff Comment: Because of the proposed use and design of this project it cannot meet all the landscaping requirements of the zoning code. There are roadways on three sides of this main building and parking along two of those roadways. To meet the required planting in these areas the project would need to have both the parking and the greenbelt planting requirements in the little area between the roadways and the building.</p> <p>The south property line borders a vacant piece of property and there is no roadway proposed in this location. This lot is likely to be developed in the future as residential. The proposed project does not include a fence or wall along this property line. The proposed landscaping in this area includes 5 canopy, 15 evergreen and 74 shrubs.</p> <p>Suggested Condition 5 and 6: 5. Additional shrubs shall be planted along the north, east and west building elevation to provide better landscape screen for the future building. 6. Three additional canopy trees shall be planted south of the courtyards to provide a landscape screen from the future development south of the site.</p> <p>Waivers and Modifications. The Planning Commission may waive or modify the fencing or landscape buffering requirements upon a determination that a solid fence or landscaping buffer will not be necessary or effective for screening. In making such a determination, the following shall be considered. 1. Need for security; 2. Abutting district or existing use; 3. Extent that existing natural vegetation provides the desired screening; 4. Topography which would eliminate the benefits of required landscaping; 5. Building heights and views in relation to existing topography and vegetation as well as views from adjacent uses; 6. Similar conditions existing such that no good purpose would be served by providing the required landscaping plan.</p>			
LIGHTING:			
Zoning Ordinance	Fully shielded and directed		✓

Criteria/Regulation	Required by Regulations	Proposed Project	Status
Section 9.11.4 (applicable)	<p>downward and away from residential uses, roads, glass, water or other reflective materials</p> <p>No flashing, moving or intermittent type</p> <p>Except where used for security purposes light shall be turned off between 11:00 p.m. and sunrise,</p> <p>No light emitting surface shall be visible from any residential area or public/private roadway, walkway, trail or other public way when viewed at ground level.</p> <p>Not to exceed (footcandles) 10</p> <p>1 at property line</p> <p>0.5 at residential property lines</p>		<p>✓</p> <p>Condition 5</p> <p>✓</p> <p>✓</p> <p>✓Except for the street lights</p> <p>✓Except for the street lights</p>
Sec. 9.11.5. Sign Lighting Standards (applicable):	Laser light source, searchlights or any similar not allowed.		✓
<p>Lighting Staff Analysis: The project includes 16 street lights and 15 exterior wall lights on the building. The street light will match the existing street lights along Veterans Memorial Drive (<u>Exhibit D</u>).</p> <p>No plans have been submitted showing the proposed sign lighting. If plans are submitted that show the sign lighting prior to the April 8th Meeting I will review and provide my analysis of the sign lighting at that meeting.</p>			

Criteria/Regulation	Required by Regulations	Proposed Project	Status
SIGNS:			
Zoning Ordinance Article 18 (Applicable Standards)	Freestanding signs must be: ground mounted		No Plans Submitted
	Architecturally harmonious with the character of the building.		No Plans Submitted
	Size: Maximum 32 square feet		No Plans Submitted
	Height: Maximum 6 feet		No Plans Submitted
<p>Sign Staff Analysis: The applicant has stated that the only proposed sign will be a freestanding monument signs. However, no plans have been submitted showing the proposed sign design or location. If these plans are submitted prior to the April 8th Meeting I will review and provide my analysis of the sign lighting at that meeting.</p> <p>Suggested Condition 7: If no plans are submitted staff would suggest that a condition of approval be that any future signs proposed on the project will require planning commission approval as required in Article 18, Section 18.10.</p>			
PARKING:			
<p>Main Building (70 units/ 75 beds): The Township's zoning regulations for parking in Article 10 Section 10.3.1 Schedule of Parking Space Requirements does not include a subcategory comparable to the proposed senior housing facility use for the main building. The most closely related use mentioned in the section 10.3.1 is <u>Convalescent home, orphanage, or similar use</u> which require one (1) parking space for each four (4) beds plus one (1) space for each two (2) employees.</p> <p>The main building will have 75 beds and 15 employees; if the convalescent home, orphanage, or similar use parking requirement where uses for this project 34 parking spaces would be required.</p> <p>Base on other projects that the applicants have built or are in the process of building the applicant has proposes the following parking for the main building: one (1) parking space be provided for every 2.5 beds plus one (1) parking space for every employee. The total number of parking spaces proposed as a part of the main building is 45.</p>			

Criteria/Regulation	Required by Regulations	Proposed Project	Status
As stated by staff, recommended by the Planning Commission and approved by the Township Board the Main Building will have 45 parking spaces associated with in and built as a part of Phase 1 of the project.			
<p>10.2.3. Off-Street Loading.</p> <p>A. Uses involving the receipt or distribution by vehicles of materials or merchandise shall provide and permanently maintain adequate space for standing, loading, and unloading services in order to avoid undue interference with public use of the streets or alleys, and thus, help relieve traffic congestion.</p> <p>Based on the use the applicant has stated the following <i>“There are only small deliveries that are made typically by van and a designated loading zone does not get used. We propose that deliveries will be made at the front door at the porte-cochere.”</i></p> <p>It would appear to staff that feeding 75 people per day would require deliver of large amount of food.</p> <p>Suggested Condition 8: All deliveries shall be made by vehicles no larger than a van if any deliveries are made in vehicles larger than a van the area in the porte-cochere by the front door shall be used as the loading space. Prior to Final Site Plan approval by the Township Board the applicant shall show the 12’ by 25’ loading space on the site plan.</p> <p>B. Every such building or structure housing such a use and having over 5000 square feet of gross floor area shall be provided with at least one truck standing, loading, and unloading space on the premises not less than 12 feet in width, 25 feet in length, and 14 feet in height. One additional truck space of these dimensions shall be provided for every additional 20,000 square feet or fraction thereof of gross floor area in the building.</p> <p>Although the proposed building is 55,580 square feet the applicants have stated that there are only small deliveries based on the use and therefor no loading spaces are required.</p> <p>C. Off-street loading space and access drives shall be paved, drained, lighted, and shall have appropriate bumper or wheel guards where needed. Any light used for illumination shall be so arranged as to reflect the light away from adjoining premises and streets. The requirement for paving may be waived by Planning Commission</p>			

Criteria/Regulation	Required by Regulations	Proposed Project	Status
<p>through paragraph 10.2.1.I.</p> <p>As suggested in Condition #3 if there are any deliveries made to this site in vehicles the area under the porte-cohere will be used as a loading space this is paved, drained and lite.</p> <p>D. Loading spaces shall not be construed as supplying off-street parking space.</p> <p>The proposed area within the porte-cohere is not a parking space.</p>			
<p>General Parking Requirements:</p> <ol style="list-style-type: none"> 1. Off-street parking for non-residential uses shall be located on the same lot or parcel or within three hundred (300) feet of the building it is intended to serve provided the provisions of Section 10.2.2., Collective Parking, are met. 2. A minimum area of 200 square feet shall be provided for each vehicle parking space and each space shall be designated and reserved for parking. 3. A suitable means of ingress and egress shall be provided and located to minimize traffic congestion and interference with pedestrian movement. The location of all entrances and exits and directional signs, shall be approved by the Planning Commission, and where required by the Livingston County Road Commission and the Michigan Department of Transportation. 4. Parking areas with a capacity of four or more vehicles shall be hard surfaced (either concrete, bituminous asphalt or other stabilized engineered surface) prior to occupancy and shall provide adequate drainage facilities to dispose of all collected surface water. The requirement for paving may be waived by the Planning Commission through paragraph 10.2.1.I. 5. Except for single-family residential lots, lighting shall be provided for use when a parking area is in operation. The installation of such lighting shall be so hooded or shielded as to reflect the light away from abutting or neighboring property. 6. When required off-street parking in a non-residential district abuts a residential district, there shall be located a landscaped buffer strip fifteen (15) feet wide and parallel to the mutual boundary. The buffer strip 			<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>

Criteria/Regulation	Required by Regulations	Proposed Project	Status
shall be composed of trees and/or foliage. In lieu of a buffer strip, the Planning Commission may permit or require a solid fence or wall between six (6) and eight (8) feet in height shall be located along the mutual boundary. 7. Federal and State requirements regarding handicapped parking and access shall apply.			See Suggested Condition 1
USE:			
Section 7.5.1 (P) VC permitted uses: Main building State Licensed Residential Facilities			✓

DISCRETIONARY REVIEW CRITERIA

The following are the applicable discretionary standards for Final CPUD site plan review within the Township's Zoning Ordinance in **bold**, followed by staff analysis of the project as it applies to the each standard. The Planning Commission should review the project and determine if the project meet each standard (reminder this is only the final site plan review for Phase 1 of the project, prior to the construction of Phase 2 of the project final CPUD site plan will be required for Phase 2):

CPUD Design Standards Section 17.5

A CPUD development must meet the intent and guidelines related to site design as stated in the Site Design Chapter of the M-36 Corridor Plan, and the Village Design Chapter of the Hamburg Township Village Plan, where applicable. Along with other appropriate site design standards, guidelines, and principles, the following site development elements shall also be reviewed for consistency with the applicable guidelines of the Village Center and M-36 Corridor Plans:

A. Sidewalks/Pedestrian Circulation

The sidewalks and pedestrian circulation was reviewed as a part of the preliminary CPUD site plan review for this project. The sidewalks will connect to the existing developments on the surrounding property and will allow for future connections to the surrounding properties that are currently vacant or underdeveloped.

The Village Center Master Plan states that sidewalks within the Village Center Residential Districts should be a minimum of 6 feet wide and wider when deemed appropriate.

The widths of the proposed sidewalks is unclear on the submitted plans; however,

staff would suggest that all new sidewalk be a minimum of 6 feet wide as required in the Village Center Master Plan.

Suggested Condition 9:

All sidewalks shall be a minimum of 6 feet wide.

B. Parking/Loading Areas

The number and location of the parking spaces was reviewed as a part of the preliminary CPUD site plan review for the project. As stated in the zoning regulations section and as a part of the preliminary CPUD site plan approvals the 45 parking spaces proposed as a part of phase one will appear adequate for the main structure and the proposed uses.

The applicant is proposing that the front portico area will be used as a loading space.

C. Architecture

The main building which is proposed as a part of phase 1 of this project. Because of the use, type and location of this main building the Village Core design criteria are more applicable than the Village Residential design criteria. The village center master plan has the following design requirements for building in the Village Core area:

Façade Requirements: Three or more of the following methods of articulation shall be used to provide visual interest and create a human scale:

- **Providing a balcony, bay window, porch, patio, deck, or clearly defined entry for each interval.**
- **Providing a lighting fixture, trellis, prominent ornamental tree or other landscape feature within each interval.**
- **Providing architectural features such as setbacks, indentations, overhangs, projections, cornices, bays, canopies, building modulations, or awnings.**
- **Use of material variations such as contrasting colors, brick or metal banding, or textural changes.**

The two longest elevation are the north and east elevation. The north elevation is 380 feet long and is broken up by the use of bay windows, varying roof designs, multiple siding materials, large porch areas and clearly defined entry areas. The east elevation is 395 feet long and is not as well articulated as the north elevation; although, a variety of roof designs and materials are used on this side; there are no bay windows and the main entry to the memory care facility has a small covered porch that does not appear to adequately break up the façade and appears to be out of scale with the size of the elevation and structure.

The west elevation is a shorter elevation at 185 feet in length. This elevation will be visible along Veterans Memorial Drive and is articulated by the use of a variety of materials and roof designs. Because this elevation is going to

be highly visible from Veterans Memorial Drive in the future this elevation should be further articulated by adding a three or two window area with a gable roof similar to the three areas on the west side of the north elevation.

The south elevation is broken up by the two court yard areas. The variety of material was not wrapped around to this side of the structure as it is the rear elevation. The interior elevations of the court yards are broken up by patio areas off of the rooms. The southernmost elevation include entry doors however, these doors are not clearly defined.

Suggested Condition 9:

Prior to final site plan approval by the Township Board the applicant shall work with staff and a two person architectural subcommittee made up of two planning commissioners and revise the architecture of the building as follows:

- 1) A larger more clearly defined entrance feature to the Memory Care Facility shall be added on the east elevation;
- 2) A three or two window area with a gable roof similar to the three areas on the west side of the north elevation shall be added to the middle of the west elevation; and
- 3) Side windows and a small overhang shall be added to the three doorways off of the south elevations.

Roofline Requirements: Roof lines shall be varied through two or more of the following methods. The maximum roof length without a variation shall be forty feet.

1. **Dormers:** A projection from a sloping roof that contains a window.
2. **Roof Line with Architectural Focal Point:** A prominent rooftop feature such as a peak, tower, gable, dome, barrel vault or roof line trellis structure.
3. **Roof Line Variation:** The roof line articulated through a variation or step in roof height or detail, such as:
 - a. **Projecting Cornice:** Roof line articulated through a variation or step in cornice height or detail. Cornices must be located at or near the top of the wall or parapet.
 - b. **Articulated Parapet:** Roof line parapets shall incorporate angled curved or stepped detail elements.
 - c. **Pitched Roof or Full Mansard:** A roof with angled edges, with or without a defined ridgeline and extended eaves.
4. **Terraced Roof:** A roof line incorporating setbacks for balconies, roof gardens, or patios.

The proposed building uses a variety of roof slopes and designs to break up the mass of the building and the roof line. Because the south elevation will be viewed from future residential development to the south the proposed hip roof could be created with a gable reveal similar to the roofs north corner of the east elevation.

Suggested Condition 10:

Prior to final site plan approval by the Township Board the applicant shall work with staff and a two person architectural subcommittee made up of two planning commissioners and revise the architecture of the building to revise the hip roofs facing the south elevations to include a gable detail similar to the roofs over the north portion of the east elevation.

D. Signs

The applicants have stated that only one freestanding sign will be proposed as a part of this project. No plans for this sign have yet been submitted. If these plans are submitted prior to the April 8th Meeting I will review and provide my analysis of the sign lighting at that meeting. If these plans are not completed by the hearing please see Suggest Condition 7 on page 10. The applicable sign standards in the Village Center Master Plan are:

General Requirements: Signs shall be architecturally consistent with the style, materials, colors, and composition of the building.

All signs shall be externally illuminated.

Freestanding Signs: Freestanding signs must be ground mounted and architecturally harmonious with the character of the building. They must meet the size requirements of the Zoning Ordinance and be located in a landscaped area.

E. Street and Access Design

The street layout and access was reviewed as a part of the preliminary CPUD site plan.

Phase 1 of the project includes three roadways: the connection of Village Center Drive to Veterans Memorial Drive as the main east/west street; a new south/north street (Hampton Drive) which will run through the site west of the main building, this street will eventually connect to future development to the south and to downtown Old Hamburg; and the extension of Veterans Memorial Drive to the south for fire access.

These roadways will meet the minimum width requirements under the fire district regulations and will be built to the required standards for roadways within Hamburg Township. The Township Engineer and Fire Department have done their initial reviews of this project and their letters are attached as Exhibit B and C.

See suggested conditions 1 on page 2 and condition 3 on page 3.

F. Lighting

The Village Center Master Plan required that street lighting within the Village Core and the Village Residential future land use districts be 50 feet off center. In the

Village Core area street lights can be a max of 15 feet tall where in the Village Residential District they should be a maximum of 12 feet tall. Parking lot light in the Village Core District can be 20 feet tall and must be painted black.

The lighting proposed is show on page C-14 of the project plans. The street light fixture are not 50 feet off center along Village Center Drive. However, only the lights on the south side of the street are proposed as a part of this project the lights on the north side of this street would be on the properties north of the subject site. The street lights on Hampton Street are 50 feet off center and are staggered from the east to the west side of the street. There are no street lights proposed along Veteran Memorial Drive.

There proposed street lights are 16 feet tall. The developer is proposing to use the same street lights that are being used along Veterans Memorial Drive. The height of the existing lights used in the Village Center and shown in Exhibit D is 16 feet tall to the top of the pole and 15 feet to the light for the fixtures in the Village Core area. The street light fixtures used around the main building should be the 16 foot tall fixtures as the proposed use is more comparable to the village core. There is one existing street light along Veterans Memorial Drive that will need to be removed. Staff Suggest that the developer be allowed to use it as conditioned below.

Suggested Condition 12:

Three street light fixtures shall be added to the site plan and installed along the east side of the extended Veterans Memorial Drive as a part of this project. The one existing street light may be used by the developer in this location.

F. Landscaping

See analysis under in Table 1 Landscaping.

Site Plan Review Standards Section 4.5.7.

In the review of all site plans, the Zoning Administrator and the Planning Commission shall endeavor to assure the following:

A. The proposed development conforms to all provisions of the Zoning Ordinances.

Please see staff analysis in table 1 on pages 5 to 12.

B. All required information has been provided.

It appears that the necessary information has been provided to make a determination of the final CPUD site plan for phase one of the project. Prior to any construction on Phase 2 of the project final CPUD site plan review and approval of that phase will be required.

As conditioned in suggested condition 1 on page 3 of this report it appears that all required information will be provided prior to final construction of the project.

C. The movement of vehicular and pedestrian traffic within the site and in relation to access streets and sidewalks will be safe and convenient.

See staff analysis under Village Center Master Plan Standard 1 (E) Street and Access design on page 16. Along with that analysis the township engineer and fire district has done their initial review of the street plans include the sign types and locations. However prior to approval of a land use permit the final approval from the Township Engineer and Fire District will be required.

See suggested condition 2 on page 3

D. The proposed development will be harmonious with existing and future uses in the immediate area and the community.

Phase one of this project include the larger assisted living structure. This structure is situated on the site to face north towards M-36 and existing commercial uses. As the project moves south on the site the uses are less intense with Phase two of the project including independent living quadplex located in the south west corner of the subject property.

Phase one has been designed to have the more intense uses such as the main entry, secondary entry and the parking areas located north and east elevations of the building. This design helps to protect the properties to the south and west which will likely be developed with future residential projects.

As conditioned landscaping is proposed around all sided of this main structure to make the development more harmonious with the future uses in the immediate area.

See suggested conditions 5 and 6 on page 8.

E. The proposed development provides the necessary infrastructure improvements, such as roads, drainage, pedestrian facilities and utilities, to serve the site, and be adequately coordinated with the current and future use of adjacent properties.

The site plan includes roadways, sidewalks, drainage, and utility improvements. These improvements are coordinated with the existing facilities on the developed adjacent properties and are designed to coordinate with the future uses of the adjacent vacant sites.

As conditioned it appears that the proposed development will provides the necessary infrastructure improvements, such as roads, drainage, pedestrian facilities and utilities, to serve the site, and be adequately coordinated with the current and future use of adjacent properties.

F. The applicable requirements of Township, County and State agencies are met regarding grading and surface drainage and for the design and construction of storm sewers, storm water holding facilities, water mains, and sanitary sewers.

The developer has submitted the grading and drainage plan to the Township Engineer and Utilities Departments and to the MDEQ for review. The townships engineering comments are attached as Exhibit B. Prior to issuance of a building permit final approval from all the required department will be required.

See condition 2 on page 3.

- G. Natural resources will be preserved to the maximum extent possible in the site design by developing in a manner which will not detrimentally affect or destroy natural features such as lakes, ponds, streams, wetlands, steep slopes, and woodlands.**

The project will remove 18 trees from the site. Most of the site is devoid of natural vegetation due to prior use of the property. There are not lakes, ponds, streams, wetlands, steep slopes or woodlands on the property.

Because of the lack of significant natural resources on the site the proposed development will have a minimal impact on the natural resources in the area. The developer has submitted a Natural Features Impact Statement (Exhibit E) that further describes the impacts the project may have on that natural environment.

- H. The proposed development shall respect the natural topography to the maximum extent possible by minimizing the amount of cutting, filling, and grading required.**

Because of the topography of the subject site minimal grading is proposed as a part of this project.

- I. The proposed development will not cause soil erosion or sedimentation.**

In order to start construction the Livingston County Drain Commission (LCDC) will be required approval of a soil erosion and sediment control plan.

See suggested condition on page 3

- J. Landscaping, including trees, shrubs and other vegetative material is provided to maintain, improve and/or restore the aesthetic quality of the site.**

See staff analysis and conditions in Table 1 landscaping on pages 6 to 8.

- K. Conformance to the adopted Hamburg Township Engineering and Design Standards. (Amended 3/10/87)**

The Township Engineer has provided their initial review comments for the project (Exhibit B). Final approval of the plans from the Township Engineer are required prior to issuance of a land use permit.

See condition 2 on page 3.

L. All proposed commercial, office, industrial, institutional and multiple family development shall utilize quality architecture to ensure that buildings are compatible with surrounding uses, protect the investment of adjacent landowners, blend harmoniously into the streetscape and meet the objectives the Township Master Plan. New buildings, additions and renovations shall be designed to preserve or complement the design character of existing development provide visual harmony between old and new buildings, and create a positive image for the Township's various commercial shopping nodes. Commercial, office, industrial, institutional and multiple family architecture shall be reviewed by the Planning Commission under the following criteria:

- 1. Buildings shall front towards and relate to the public street. Buildings shall be located to create a define streetscape through uniform setbacks and proper relationship to adjacent structures. Proper relationship to existing structures in the area shall be maintained through building mass, proportion, scale, roof line shapes and rhythm. Buildings within the area designated on the M-36 Corridor Plan/Master Plan as the "Hamburg Village" shall be compatible with the historic character of the unincorporated place commonly referred to as the "Old Hamburg Village."**

This main building is constructed to meet most of the Village Center design criteria, because of the size of the building it will be the only building currently directly fronting on Village Center Drive. As stated under the Village Center Master Plan standard 1 (C) Architecture on pages 14-16 the building will be designed to break up the building mass by the use of bay windows, varying roof designs, multiple siding materials, large porch areas and clearly defined entry areas. However the design could be improved see condition 10 and 11 on page 15 and 16.

- 2. Building materials and colors shall relate well and be harmonious with the surrounding area. Roof shape and materials shall be architecturally compatible with adjacent buildings and enhance the predominant streetscape. For any side of a principal building facing a public or private street, at least fifty percent (50%) of the facade shall be constructed of, or covered with, the following materials:**
 - a. Brick;**
 - b. Fluted or scored concrete block;**
 - c. Cut stone;**
 - d. Vinyl siding;**
 - e. Wood siding;**
 - f. Glass; or,**
 - g. Other materials similar to the above as determined by the Planning Commission.**

The proposed building will utilize a tan (oyster shell) mix composite lap, grey (Westchester farmledge) cultured stone veneer, and natural cedar style shake siding. The roof will be black asphalt shingles. As previously stated the building and roof are designed to break up any large building mass.

The proposed architecture, colors and materials allows the structure to blend with the small town residential construction that will be located to the south and is in the old downtowns area while still being compatible with the commercial structures to the north and west along M-36. The applicant may want to consider using a brick veneer instead of the stone to better match the existing commercial structures to the north.

- 3. Buildings shall possess architectural variety, but enhance the overall cohesive community character. Buildings shall provide architectural features, details and ornaments such as archways, colonnades, towers, cornices or peaked roof lines.**

The building design utilizes covered porches, bay windows, a large entry portico, overhanging eaves, a variety of siding materials and a unique roof design to break up the mass and scale of the building. This design allow the large structure to better blend into the overall community and area.

- 4. Building walls over 100 feet in length shall be broken up with a combination of the following: varying building lines, windows, architectural accents and trees.**

As stated before the mass of the building is broken up in a variety of different ways.

- 5. Building entrances shall utilize windows, canopies and awnings; provide unity of scale, texture, and color; and provide a sense of place.**

The main building entrance and other entrances off of the north elevation are well defined utilizing large porches, columns and windows to provide a sense of place. As suggested in condition 10 (a) and (c) on page 15 address the entrances on the east and south elevations and if required these entrances will also be designed to provide a sense of place.

See suggested condition 10 (a) and (c) on page 15.

- 6. Where the rear facade of a building will be visible from a residential zoning district, or the rear of the site will be used for public access or parking, such rear facade shall be constructed to a finished quality comparable to the front facade.**

The stone veneer does not wrap around the south elevation of the building. However, because of the design of the structure only small elevation on the south elevation will be near the south property line and these smaller elevation will be broken up by defined entry ways and interesting rooflines if suggested conditions 10 (c) on page 15 and 11 on page 16 are required as a part of the approvals.

7. **Signs, landscaping, lighting and other site elements shall be coordinated and compatible with the building design, as well as harmonious with other nearby developments. Developments shall provide site features such as decorative entry signs, ornamental lighting, pedestrian plazas and/or pedestrian furniture.**

Please see the review under Signs, Landscaping, lighting and architecture in both Table 1 on pages 5 to 13, Village Center Master Plan Standard 1 pages 13 to 17 for staff analysis of this project.

Staff Recommendations:

Staff believe that as conditioned the propose phase 1 of the project is in substantial compliance CPUD design standard in section 17.5 and the Site Plan Review Standards in section 4.5.7 of the zoning ordinance.

Recommend the Planning Commission review the Phase 1 final CPUD site plan application, the submitted materials including the project plans and this staff report and consider the discretionary standards under section 17.5 and 4.5.7 of the zoning ordinance and either table the project and request additional information as needed, recommend approval of the project to the Township Board or recommend denial of the project.

Example Approval Motion:

The Planning Commission recommends approval of the Phase 1 final CPUD site plan because the project as conditioned below meets the CPUD standard in section 17.5 and the site plan review standards in Section 4.5.7 of the zoning ordinance as discussed at the meeting tonight and as presented in the staff report.

The Planning Commission will allow waivers from the following Zoning Requirements:

- 1) Section 7.6.1 (P) (Footnot11) requires that in VC zoning *“No building shall be greater than thirty thousand (30,000) square feet gross floor area except for a group of uses, each with individual pedestrian entrances.”* The proposed main building is 55,580 square feet with 45,672 square foot for the 54 assisted livings unit and 9,908 for the 16 memory care units.
- 2) Section 7.6.1 (P) (Footnote 12) requires that in the VC zoning district *“Buildings shall be placed no more than twenty (20) feet from the front lot line.”* The main building will be setback between 75 to 80 feet from Village Center Drive and approximately 65 feet from the side street. This distance will allow the parking areas to be located near the entrances for visitors, residence and the general public.

- 3) The Township Zoning Ordinance does not specifically address senior housing facilities in the parking requirements within the Zoning Ordinance. The proposed project will have 45 parking spaces associated with the main building and 29 parking spaces associated with the 4 independent living quadplexes.

Conditions of Approval:

1. Prior to receipt of a Certificate of Occupancy on the main building the extension of Village Center and Veterans Memorial Drive shall be complete (page 2)
2. Prior to issuance of a building permit for Phase 1 of Hampton Manor or Hamburg approvals from all appropriate township, county, state and federal agencies, including, but not limited to, the Hamburg Township fire district, engineering and utilities, the Livingston County Road Commission, Drain Commissioner, Health Department and Water Authority and the Michigan Department of Transportation and Environmental Quality shall be obtained. (page 3)
3. If the street remain private the final development agreement will include wording that requires a curb to curb easement for all the roadways on the subject site, that all through traffic has open access along these roadways, and that the easement shall be dedicated upon request to any municipality that may now or in the future control the roadways and wishes to except these easements as public roadways. (page 3)
4. Prior to issuance of a building permit the developer will either have approvals from the surrounding property for the off-site improvements or will provide the township with a performance guarantee for the project as required in the development agreement for this project. (page 4)
5. Additional shrubs shall be planted along the north, east and west building elevation to provide better landscape screen for the future building. (page 8)
6. Three additional canopy trees shall be planted south of the courtyards to provide a landscape screen from the future development south of the site. (page 8)
7. If no plan are submitted staff would suggest that a condition of approve be included in the project that the state any future signs proposed on the project will required planning commission approval as required in Article 18, Section 18.10. (page 10)
8. All deliveries shall be made by vehicles no larger than a van if any deliveries are made in vehicles larger than a van the area in the porte-cochere by the front door shall be used as the loading space. Prior to Final Site Plan approval by the Township Board the applicant shall show the 12' by 25' loading space on the site plan. (page 11)
9. All sidewalks shall be a minimum of 6 feet wide. (page 14)
10. Prior to final site plan approval by the Township Board the applicant shall work with staff and a two person architectural subcommittee made up of two planning commissioners and revise the architecture of the building as follows:
 - a. A larger more clearly defined entrance feature to the Memory Care Facility shall be added on the east elevation;
 - b. A three or two window area with a gable roof similar to the three areas on the west side of the north elevation shall be added to the middle of the west elevation; and

- c. Side windows and a small overhang shall be added to the three doorways off of the south elevations. (page 15)
11. Prior to final site plan approval by the Township Board the applicant shall work with staff and a two person architectural subcommittee made up of two planning commissioners and revise the architecture of the building to revise the hip roofs facing the south elevations to include a gable detail similar to the roofs over the north portion of the east elevation. (page 16)
12. Three street light fixtures shall be added to the site plan and installed along the east side of the extended Veterans Memorial Drive as a part of this project. The one existing street light may be used by the developer in this location. (page 17)
13. Prior to issuance of a building permit the applicant shall record the executed Development Agreement and all attachments in the County records.

Next Steps:

If the Planning Commission recommends approval of the Phase 1 final CPUD site plan, the Township Board shall consider the Planning Commission recommendation and public hearing comments and shall take action to approve, deny or remand the site plan back to the Planning Commission for further review.

Upon receipt of the recommendation of the Planning Commission, the Township Board shall review all findings. If the Township Board determines that approval would be appropriate, it shall instruct the Township Attorney to prepare a contract setting forth the conditions upon which such approval is based (Development Agreement) . Such conditions shall include, where appropriate, identification of the phases and time table for development, and an estimate of the costs of implementing each phase.

To expedite the process the applicant had requested that Township Staff and the Township Attorney prepare a draft Development Agreement (Exhibit F) for the project. This DA was prepared by the Township and has been reviewed by the applicant. At the same Township Board meeting that the Board reviews the final CPUD site plan for this project they will also be able to approve the DA by resolution.

After approval by resolution of the Township Board, the DA shall be executed by the Township and the applicant and recorded in the County records. Approval shall be granted only upon the Township Board determining that all qualification requirements, conditions of approval, and provisions of this and other Township Ordinances have been met, and that the proposed development will not adversely affect the public health, welfare and safety. Approval shall further be subjected to the condition that the DA will be properly recorded.

Approval of a CPUD site plan shall be effective upon recording the contract and filing proof of recording with the Township Clerk.

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Once an area has been included, within the boundaries of an approved CPUD, no development may take place in the CPUD except in accordance with the Township Board-approved CPUD site plan.

Prior to any development within the area involved, an approved CPUD site plan may be terminated by the applicant or the applicant's successors or assigns, by filing with the Township and recording in the County records an affidavit so stating. The approval of the plan shall terminate upon such recording.

No approved plan shall be terminated after development commences except with the approval of the Township Board and of all parties having an equity interest in the land.

Site plan approval granted pursuant to approval of a CPUD Plan shall remain valid for a period of two (2) years from the date of approval. If required Township permits have not been issued and work lawfully commenced within this two (2) year period, the Township Board may terminate and revoke the CPUD plan approval and contract by written notice to the owner and recording an affidavit in the county records.

Exhibits:

- Exhibit A: Preliminary CPUD site plan application and materials
- Exhibit B: Township Engineer's review letter
- Exhibit C: Township Fire District review letter
- Exhibit D: Proposed Street Light and Wall Light Design
- Exhibit E: Natural Features Impact Statement
- Exhibit F: Draft Development Agreement
- Exhibit G: Project Plans (24" by 36" Commissioners Only)
- Exhibit H: Applicant engineer review response letter
- Exhibit I: Color elevation

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P.O. Box 157
10405 Merrill Road
Hamburg, Michigan 48139

Addendum to Memorandum

To: Township Board of Trustees

From: Scott Pacheco

Date: March 5, 2019

Re: CPUD 19-001: Preliminary site plan review for a commercial planned unit development for a senior housing facility on a 6.5-acre township owned parcel (4715-25-100-105).

The memo to the Township Board that is in the published packet for the March 5, 2019 board meeting does not clearly identify the three waivers to the zoning ordinance that were recommended for approval by the Planning Commission at the February 28, 2019 public hearing, although the waivers are included on page 16 of Exhibit A of the Board packet.

The three waivers recommended for approval by the Planning Commission are as follows:

The Planning Commission will allow waivers from the following Zoning Requirements:

- 1) Section 7.6.1 (P) (Footnote 11) requires that in VC zoning *"No building shall be greater than thirty thousand (30,000) square feet gross floor area except for a group of uses, each with individual pedestrian entrances."* The proposed main building is 55,580 square feet with 45,672 square foot for the 54 assisted livings unit and 9,908 for the 16 memory care units.
- 2) Section 7.6.1 (P) (Footnote 12) requires that in the VC zoning district *"Buildings shall be placed no more than twenty (20) feet from the front lot line."* The main building will be setback between 75 to 80 feet from Village Center Drive and approximately 65 feet from the side street. This distance will allow the parking areas to be located near the entrances for visitors, residence and the general public.
- 3) The Township Zoning Ordinance does not specifically address senior housing facilities in the parking requirements within the Zoning Ordinance. The proposed project will have 45 parking spaces associated with the main building and 29 parking spaces associated with the 4 independent living quadplexes.

The Planning Commission recommended the following conditions as part of the preliminary site plan approval:

- 1) Prior to review of the final CPUD site plan the applicant shall submit a final CPUD site plan which contains all information required by Section 4.4.2 of the Township Zoning Ordinance and approvals from all appropriate township, county, state and federal agencies, including, but not limited to, the Hamburg Township fire district, Hamburg Township engineering review, the Livingston County Road Commission, Livingston

County Drain Commissioner, Livingston County Health Department and the Michigan Department of Transportation. The process described in section 17.6.4 shall be followed.

- 2) As a part of the final CPUD site plan review the project plan shall contemplate the location of the road right-of-ways and how the property will be split under the proposed use.
- 3) The following note shall be included on the final CPUD site plan “As future development occurs adjacent to the subject site and utilities, pedestrian and vehicle connections are deemed appropriate by the Planning Commission, the opportunity for these connections shall be provided.”
- 4) Prior to a decision on the final CPUD site plan the developer shall work with the Livingston County Road Commission on making the roadways within the project public. If the roadways remain private the required Development Agreement (DA) between the Township and the Developer shall include a requirement that creates an easements, curb to curb, that include Village Center Drive, the north/south side street, and the one way circular street that accesses the independent living units and that all through traffic on the site has open access along these roadway from current developments or future developments. This easement shall be dedicated upon request to any municipality that may now or in the future control the roadways and wishes to except these easements as public roadways.
- 5) Prior to construction of the project the applicant shall have an agreement with the surrounding property owners to extend the improvements to Veterans Memorial Drive and Village Center Drive on the properties to the west and east as shown on the CPUD site plan.
- 6) A note shall be added to the final CPUD plan that states the parking spaces associated with the main building shall be open to use by the future residence of the entire project include the residence and guest of the independent living units.
- 7) Fifty percent of the independent living units will have garages.

Recommendation:

The Township Board should review the project and the recommendation to approve the preliminary site plan application from the Planning Commission and either approve or deny the Preliminary CPUD Site Plan application.

If the Township Board approves the preliminary site plan application (CPUD 19-001) for the senior housing facility development at TID 4715-25-100-105 staff would suggest that the three waivers and seven conditions of project approval that the Planning Commission suggested at the February 28, 2019 hearing be made conditions of project approval.

FAX 810-231-4295
PHONE 810-231-1000



P.O. Box 157
10405 Merrill Road
Hamburg, Michigan 48139

A GREAT PLACE TO GROW

**SPECIAL MEETING OF THE HAMBURG TOWNSHIP PLANNING
COMMISSION**

**WEDNESDAY, FEBRUARY 28, 2019 7:00 P.M.
HAMBURG TOWNSHIP HALL BUILDING
10405 MERRILL ROAD, HAMBURG, MICHIGAN**

- 1. CALL TO ORDER**
- 2. PLEDGE TO THE FLAG**
- 3. APPROVAL OF AGENDA**
- 4. APPROVAL OF MINUTES**
- 5. CALL TO THE PUBLIC**
- 6. OLD BUSINESS**
None
- 7. NEW BUSINESS**

COPUD 19-001: Public hearing for preliminary site plan review for a commercial planned unit development to allow a senior housing development of the property at 4715-25-100-105 (6.5 Acres). The property is currently accessed off the end of Veterans Memorial Drive on the east side of the roadway. This senior housing development proposes a mix of independent living, assisted living, and memory care units.

- 8. ZONING ADMINISTRATOR'S REPORT**
- 9. ADJOURNMENT**

PHONE: 810-231-1000
FAX: 810-231-4295



P.O. Box 157
10405 Merrill Road
Hamburg, Michigan 48139-0157

To: Planning Commissioners
From: Scott Pacheco, AICP
Hamburg Township
Township Planner
Date: February 28, 2019
Agenda Item: 7
Project Number: Commercial Planned Unit Development 19-001
Project Location: Parcel #: 15-25-100-105
Owner: Hamburg Township
Applicant: Sam Martin
Agent: Lapham Associates, Scott Bell

PROJECT HISTORY:

In summer of 2016 Hamburg Township purchased the 6.5-acre subject site through the state tax sale. Under Township ownership a Phase 1 and 2 Environmental Site Assessment, a Baseline Environmental Assessments and an initial senior housing market feasibility study were commissioned and prepared for the subject site. The high level market feasibility study was prepared by Plante Moran in June of 2018 and showed that the market could support 70 market rate independent living unit, 110 market rate assisted living units and 20-40 market rate memory care units. In October of 2018 the Township prepared and distributed a request for proposals seeking a purchaser and development team to construct, operate, manage, and provide a senior housing facilities on the site to provide a public benefit to the residence. In January of 2019 the Township Board selected the applicant and their development team to move forward with the proposed project on the subject site.

The environmental assessments and the market feasibility study can be found on the Township's webpage <http://www.hamburg.mi.us> under The Village Center Senior Housing Request for Proposals as Appendix 1 and Appendix 2, respectively.

SITE INFORMATION:

Location:

The 6.5-acre subject Site (parcel 15-25-100-105) is located off of the east side of Veterans Memorial Parkway. The Hamburg Township Fire District building is located at 10100 Veterans Memorial Drive on a five-acre property west of the subject Site; Livingston EyeCare is located in a commercial structure at 10105 Veterans Memorial Drive on a 1.87-acre property

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north of the subject Site fronting on M-36; a single family structure is located at 7250 E M-36 on a 1.87-acre property north of the subject Site; the CVS and Hamburg Post Office are located on a 11.5-acre property off of Village Center Parkway east of the subject Site; and a 22-acre property south of the Site is developed with one single family home. (See Location Map)

Location Map



Master Plan:

The subject Site is located within the Village Center area and therefore is discussed in the Village Center Master Plan (VCMP). The VCMP designates the north portion of this Site as Village Core District while the south portion of the site is Village Residential-10. (See VCMP Future Land Use Map)

VCMP Future Land Use Map



The purpose of the Village Core/Village Gateway Districts is to provide for community-wide retail uses while integrating with smaller scale shops. These districts should connect to neighboring residential streets. The intent is to allow for commercial uses while creating a pedestrian connection to adjacent neighborhoods and open space.

The purpose of the Village Residential Districts are to provide a variety of predominantly residential uses which include different housing opportunities while providing services such as parks, schools and convenience shops designed to encourage walking and biking thus minimizing the impact of automobile traffic. The intent is to create high quality residential neighborhoods integrated with other neighborhoods and other districts.

PROJECT DESCRIPTION:

The proposed project includes five buildings: one 55,580 square foot main building with 54 senior assisted living units and 16 senior memory care units; and four 3,744 square foot, quadplex building with 4 senior independent living units in each building for a total of 16 senior independent living units. The main building is separated into 4 separated spaces by interior fire walls. However, only the fire doors between the assisted living unit and the memory care unit will be locked, for security and safety purposes. The facility will be licensed by the State of Michigan as an Adult Foster Care and will be operated by a staff of experienced and qualified persons.

The project will extend the utilities, roadways and pedestrian sidewalk systems both on and off of the site. On-site, Village Center Drive will be the east/west street connecting to Veterans Memorial Drive to the west and a new north/south street will be created that will extend in the future through developments south of the subject site to Pearl Street and Stone Street in old downtowns Hamburg. A small one way circular street with on street parallel parking will also be created to access the independent living units proposed on the south east portion of the site. Off-site, Village Center Drive will be extended onto the property to the east to where it currently ends by the existing post office building and Veterans Memorial Parking will be extended to the south as a fire roadway, allowing better access to the site and traffic circulation of the area. The extension of Village Center Drive will also allow for a better connection to the existing water and sewer facilities.

The project will be built in two phases. Phase 1 will include the main structure with all of the improvements associated with that structure including the extensions of the off-site roadways and utilities. Phase 2 will include the 16 independent living units and the improvements associated with those units.

As a part of the preliminary CPUD site plan application the applicant has requested that the following Zoning Ordinance requirements be waived as a part of the project:

1. Section 7.6.1 (P) (Footnot11) requires that in Village Center (VC) zoning *“No building shall be greater than thirty thousand (30,000) square feet gross floor area except for a group of uses, each with individual pedestrian entrances.”* The proposed main building is 55,580 square feet with 45,672 square foot for the 54 assisted livings unit and 9,908 for the 16

memory care units. As stated in the materials submitted by the applicant the building is separated into four different areas, 3 for the assisted living units and 1 for the memory care units. Each of these areas are separated by fire walls for state licensing requirements. There are separate entrances into each of the four areas; however, there is one main entrance for the three assisted living areas off of the north elevation of the building and a secondary entrance off of the west side of the main building for the Memory Care units. The door between the memory care units and the assisted living units is secured.

2. Section 7.6.1 (P) Footnote (12) requires that in the VC zoning district “*Buildings shall be placed no more than twenty (20) feet from the front lot line.*” The main building will be setback between 75 to 80 feet from Village Center Drive and approximately 65 feet from the side street. This distance will allow the parking areas to be located near the entrances for visitors, residence and the general public.
3. The Township Zoning Ordinance does not specifically address senior housing facilities in the parking requirements within the Zoning Ordinance. The applicant has proposed 45 parking spaces associated with the main building and 29 parking spaces associated with the 4 independent living quadplexs.

The main building will include 23 parking spaces in the parking lot area north of the building to the east and west of the main entrance. This parking area will be utilized mostly by visitor and residents of the assisted living facility. There are an addition 22 perpendicular parking spaces to the east of the building along the north south side street. These spaces will be used by visitor to the memory care unit and the employees of the project.

Fifty percent (8) of the independent unit will have a single car garage and a driveway large enough to provide a second outdoor parking space for those units. Thirteen parallel parking spaces along the circular street in front of the independent living units will provide parking for the other 8 independent living units.

A detailed description of the project has been submitted by the applicant as a part of the application (Exhibit A)

COMMERCIAL PLANNED UNIT DEVELOPMENT REVIEW PROCESS (SECTION 17.6)

After the Township Board reviewed the applications for the Village Center Senior Housing RFP they directed staff to work with the applicant on the proposed senior housing project. Because of the scope of this project a CPUD application was required and submitted.

Pre-Application Meeting

An optional pre-application conference to review applicability of the CPUD ordinance to the proposed site and uses was held on January 23, 2019. This conference included township staff from the Police, Fire and Planning Departments; Livingston County staff from the building department, drain commission and road commission, and representatives from the Township Planning Commission and Board. The concept and draft project plans were discussed at this meeting and the applicant was directed to move forward with the CPUD process.

Conceptual Review and Preliminary CPUD Site Plan Review and Public Hearing.

Because this project was part of an extensive RFP process through the Township and the concept of the project was reviewed multiple time by the Township Board. The conceptual review of the project and the Preliminary site plan review will both be discussed as a part of this Planning Commission meeting to help streamline the review process.

The draft preliminary site plan will be reviewed by the Planning Commission. The preliminary site plan includes the information needed to convey to the Planning Commission how the site is proposed to be used. The application and associated materials submitted (Exhibit A and D) appears to contain enough detail to explain the proposed uses, relationship to adjoining parcels, vehicular and pedestrian circulation patterns, open spaces and landscape areas, and building density or intensity.

The Planning Commission will conduct a public hearing on the preliminary CPUD site plan on February 28, 2019. Following the public hearing, the Planning Commission will gives direction to the applicant and takes action to either table the project or recommend approval or denial of the preliminary CPUD site plan project to the Township Board. This decision should be based upon if the project meets the eligibility requirements as outlined in Section 17.03.

A recommendation of approval for the Preliminary CPUD site plan shall be accompanied by a description of the minimum conditions under which the proposal will be considered for final approval. In describing such conditions, the Planning Commission may identify specific requirements or standards in the Zoning Ordinance which could be waived or modified upon approval of the final CPUD site plan.

PROJECT ANALYSIS:

The staff report includes the following:

- A list (Table 1) of the zoning regulations that the preliminary CPUD site plan project needs to meet or that has been requested by the applicant to be waived by the Planning Commission as a part of the preliminary CPUD site plan review.
- The CPUD Eligibility Requirements outlined in Section 17.03 of the Zoning Ordinance in **Bold** followed by staff analysis of each requirement.
- An example recommendation of approval motion including a list of suggested conditions that will be required as a part of the final site plan review. The list of conditions includes the identified specific requirements or standards of the Zoning Ordinance which may be waived or modified upon approval of the final CPUD site plan.

To help guide the applicant prepare the necessary project plans for the final CPUD site plan review; Staff has included in Exhibit B a list of the information required for submittal of the final CPUD site plan in section 4.5.5. of the Township Zoning Ordinance; a summary of the regulations in the zoning ordinance and Village Center Master Plan regarding landscaping, lighting, and signage; and a list of the discretionary standards that the Final CPUD site plan will need to meet for the Planning Commission to make the finding to recommend approval of the

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project.

Zoning Regulations:

The subject site is within the Village Center (VC) Zoning District. Table 1 summarizes the zoning regulations that apply for the proposed project:

Table 1
Development Review Compliance Table

Criteria/Regulation	Required by Regulations	Proposed Project	Status
VC Setbacks: Main Building Front Yard(VC Drive): Front Yard (Side Street): Front Yard (VM Drive): RearYard:	20' max 20' max 20' max 15'	80' 65' 18' 35'	CPUD CPUD ✓ ✓
Quadplexs Front Yard: RearYard: Minimum Side:	20' max 15' 10'	<20' to edge of roadway 20' 15'	✓ ✓ ✓
Number of Stories/ Height	2.5 story/ 35 feet	Needs to submit building elevations as a part of the Final Site Plan Review.	
Structure Size:	30,000 sq ft max	55,580 sq ft	CPUD
Lot Size:	283,946	The proposal does not explain how the lot will be separated as a part of this project or if the site will remain as a single lot. The roadways right-of-ways will still be	✓

Criteria/Regulation	Required by Regulations	Proposed Project	Status
		required to be removed from the lot size.	
<p>Suggested Condition 1: As a part of the final site plan review the project plan shall contemplate the location of the road right-of-ways and how the property will be split under the proposed use.</p> <p>As it has in the past the Township will required that the final site plan include the following note “As future development occurs adjacent to the subject site and a connection is deemed appropriate by the Planning Commission, appropriate connections must be provided.”</p> <p>Please note that should the Township Board approve the final CPUD site plan, the Township Ordinance will require a Development Agreement with the developer that would include the following conditions: A curb to curb easement shall be created for all roadways within the project. This easement shall be dedicated to any municipality that may now or in the future control the roadways and wishes to except the easement and make the roadways public. All through traffic on the site shall have open access along these roadway from current developments or future developments.</p>			
<p>Lot Coverage:</p> <p style="text-align: right;">Building:</p> <p style="text-align: right;">Total Impermeable:</p>	<p>50%</p> <p>80%</p>	<p>31.3%</p> <p>73%</p>	<p>✓</p> <p>✓</p>
<p>Landscaping: Conceptual landscaping has been shown on the preliminary site plan. However, no key has been provided. A detailed landscape plan that meets the requirements of the Zoning Ordinance and the intent of the Village Center Master Plan will be required as a part of the Final Site Plan Review.</p>			
<p>Lighting: The preliminary site plan submitted appears to show the locations for future street lighting, however, no key was provided with the site plan to clearly identify what the depictions on the preliminary site are of. A detailed lighting plan will be required as a part of the final site plan review and shall meet the requirements of the zoning ordinance and the Village Center Master Plan.</p>			
<p>Signs: No signs where submitted as a part of the application materials for the preliminary review. Any signage proposed for the project will be provided as a part of the final site plan review of the project and shall meet the requirements of the zoning regulations and the Village Center Master Plan.</p>			

Criteria/Regulation	Required by Regulations	Proposed Project	Status
<p>Parking:</p> <p>Main Building (70 units/ 75 beds): The Township's zoning regulations for parking in Article 10 Section 10.3.1 Schedule of Parking Space Requirements does not include a subcategory comparable to the proposed senior housing facility use for the main building. The most closely related use mentioned in the section 10.3.1 is <u>Convalescent home, orphanage, or similar use</u> which require one (1) parking space for each four (4) beds plus one (1) space for each two (2) employees.</p> <p>The main building will have 74 beds and 15 employees; if the convalescent home, orphanage, or similar use parking requirement where uses for this project 34 parking spaces would be required.</p> <p>Base on other projects that the applicants have built or are in the process of building the applicant has proposes the following parking for the main building: one (1) parking space be provided for every 2.5 beds plus one (1) parking space for every employee. The total number of parking spaces proposed as a part of the main building is 45.</p> <p>The residents of the assisted and memory care units in the senior housing facility will likely drive less frequently that a normal senior because of their need for assistance. However, the applicant has stated that the management of the seniors living facility does not restricted the residents from having vehicles. The seniors in the independent living units will likely still have at least one vehicle.</p> <p>To better provide the resident's access to local businesses and to community services the applicant should provide bus and car services to residents of the project. These service will provide trips to local grocery stores, shopping areas, event, and personal off site appointments. These type of services would also reduce the need to use a personal vehicle for any of the residents that may still have a vehicle, further reducing the parking need and the traffic trip generated by the project.</p> <p>The applicant has stated that the facility will bring doctors, dentists, hair stylists and other professionals on to the site to provide needed services to the residents. This will also reduce the need for personal vehicles, parking and will reduce traffic to and from the site.</p> <p>Independent Living Units (16 units): The independent living unit will be very similar to the elderly cottage housing opportunity (echo) housing units allowed under Article 15 of the Zoning Ordinance. 2 parking spaces are required per unit for an ECHO housing project.</p>			

Criteria/Regulation	Required by Regulations	Proposed Project	Status
<p>Fifty percent, eight (8) of the independent unit will have a single car garage and a driveway large enough to provide a second outdoor parking space for those units. Thirteen parallel parking spaces along the circular street in front of the independent living units will provide parking for the other 8 independent living units.</p> <p>It appears that the 45 parking spaces provide with the main building and the 29 spaces provided with the independent living units will be adequate because of the use of the site and the additional service provided by the facilities.</p> <p>Suggestion Conditions 2 and 3:</p> <ol style="list-style-type: none"> 2. The applicant shall either work with an existing service provider or independently operate a service for the residence that offers transportation options to local shopping (grocery stores), events (Hamburg Senior Center and Library), and personal off site appointments. They should also work on providing transportation to special events directly from the location if they do not already plan trips. 3. The parking spaces associated with the main building shall be open to use by the future residence of the entire project include the residence and guest of the independent living units. 			
<p>General Parking Requirements:</p> <ol style="list-style-type: none"> 1. Off-street parking for non-residential uses shall be located on the same lot or parcel or within three hundred (300) feet of the building it is intended to serve provided the provisions of Section 10.2.2., Collective Parking, are met. 2. A minimum area of 200 square feet shall be provided for each vehicle parking space and each space shall be designated and reserved for parking. 3. A suitable means of ingress and egress shall be provided and located to minimize traffic congestion and interference with pedestrian movement. The location of all entrances and exits and directional signs, shall be approved by the Planning Commission, and where required by the Livingston County Road Commission and the Michigan Department of Transportation. 4. Parking areas with a capacity of four or more vehicles shall be hard surfaced (either concrete, bituminous asphalt or other stabilized engineered surface) prior to 			<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>

Criteria/Regulation	Required by Regulations	Proposed Project	Status
<p>occupancy and shall provide adequate drainage facilities to dispose of all collected surface water. The requirement for paving may be waived by the Planning Commission through paragraph 10.2.1.I.</p> <p>5. Except for single-family residential lots, lighting shall be provided for use when a parking area is in operation. The installation of such lighting shall be so hooded or shielded as to reflect the light away from abutting or neighboring property.</p> <p>6. When required off-street parking in a non-residential district abuts a residential district, there shall be located a landscaped buffer strip fifteen (15) feet wide and parallel to the mutual boundary. The buffer strip shall be composed of trees and/or foliage. In lieu of a buffer strip, the Planning Commission may permit or require a solid fence or wall between six (6) and eight (8) feet in height shall be located along the mutual boundary.</p> <p>7. Federal and State requirements regarding handicapped parking and access shall apply.</p>			<p>Lighting Plan Needed</p> <p>✓</p> <p>See Suggested Condition 4</p>
<p>Suggested Condition 4:</p> <p>4. Prior to review of the final CPUD site plan the applicant shall submit a final CPUD site plan which contains all information required by Section 4.4.2 of the Township Zoning Ordinance and approvals from all appropriate county, state and federal agencies, including, but not limited to, the Livingston County Road Commission, Livingston County Drain Commissioner, Livingston County Health Department and the Michigan Department of Transportation. The process describe in section 17.6.4 shall be followed.</p>			
Uses (Section 7.5.1 (P) VC permitted uses)			
Main building			✓
State Licensed Residential Facilities			✓
Independent Living Quadplexs			✓
Duplex's and Townhomes			
<p>CPUD Requirements:</p> <p>Section 17.4 Project Characteristics</p> <p>1) Location. A CPUD shall only be created on development sites within the Township which have a portion of the property located within the</p>			✓

Criteria/Regulation	Required by Regulations	Proposed Project	Status
Neighborhood Service (NS), Community Service (CS), Mixed Use Development (MD), Village Center (VC) zoning districts or which have a portion of the property designated for commercial future land uses as indicated by the Hamburg Township Master Plan, M-36 Corridor Plan or Hamburg Township Village Plan.			
2) Size. A CPUD shall only be created on development sites one (1) acre in area or greater.			✓
3) Permitted Uses. A. Uses that are listed as Permitted Uses or Special Uses in the underlying zoning district or uses identified in the underlying future land use category of the Township Master Plans may be permitted in a CPUD development. Expansion of or renovation to a building containing a use that is not listed as a Permitted Use or Special Use may be permitted by the Planning Commission upon making the determination that:			✓
B. Uses that are listed as Permitted Uses or Special Uses in the Village Center (VC) zoning district may be permitted in the CPUD, with the exception that residential uses as described in the Village Center (VC) shall not be permitted in a CPUD			✓

DISCRETIONARY REVIEW CRITERIA

The following are the applicable discretionary standards for preliminary CPUD site plan review within the Township's Zoning Ordinance in **bold**, followed by staff analysis of the project as it applies to the each standard. The Planning Commission should review the project and determine if the project meet each standard:

Eligibility Criteria (Section 17.3)

In order for a development to qualify as a Commercial Planned Unit Development, it must be demonstrated that all of the following criteria will be met:

A. A CPUD shall promote the goals and objectives of the Township Master Plan, M-36 Corridor Plan and Hamburg Township Village Plan.

The subject property is located within the Village Center area and the future land use designation of the north quarter of the property is designated Village Core and the rest of the property is designated Village Residential-10. The proposed senior housing facility use is a mixture of medical and residential uses which both contemplated by these designations.

The following are some of the goals, in *italics*, of the Master Plan, Village Center Master Plan and M-36 Corridor Plan that this project complies with and help to implement, followed by staff analysis:

2011 Master Plan:

1. *“To direct future development to those areas most suited for that type of development.”*

This property is well suited for a senior housing facility because the site has access to both public water and sewer; is well connected to the roadways system within the Township being located on the corner of two roadway both having access to M-36, one with an existing traffic signal and the subject site is in close proximity to the emergency services and local shopping.

2. *“Encourage the development of the Village Center as indicated in the Village Center Master Plan.”*

See analysis of the Village Center Master Plan on pages 11-13 of this report.

3. *“Provide an avenue for attainable housing within the village center”*

The project provide three different types of senior housing units including 16 independent living fourplexes with small 983 square foot unit, 54 assisted living units which include 2 bedroom, 1 bedroom and studio units ranging in size from 181 square foot one bedrooms to ____ square feet, and sixteen (16) 181 square feet memory care units.

Village Center Master Plan:

1. *“Encourage development and redevelopment consistent with the historic architecture, mixture of uses and compact layout of a traditional village”*

The independent living units are located on the south side of the site to allow the project to transition into a more residential use as you move south on the property away from M-36 and toward the future connection to old downtown Hamburg. The independent living unit will be designed with larger front porches and are sited on the property to be close to the front sidewalk and roadway. The roadway in this area will be one way and include on street parallel parking to create a village appearance.

As a part of the final site plan review the building architecture will be reviewed and it will be required that the proposed structure be designed to be consistent with the architecture commonly found in a traditional village setting.

2. *“Create a focal point for higher density attainable housing with a mixture of housing type”*

See staff analysis in the 2011 Master Plan Goals #3 above.

3. *“Establish a hierarchy of roads to designate future collectors. Permit more narrow local streets with on-street parking where streets are not intended to serve through traffic,”*

Veterans Memorial Drive and Village Center Drive are the main north south and east west streets in this area. The proposed project will extend Village Center Parkway to provide a connection from M-36 near the post office to Veterans Memorial Drive and will extend Veterans Memorial Drive for fire truck access to the southwest corner of the property. A secondary north south side street is also proposed as a part of this project and will have perpendicular parking access off of this roadway. This north south roadway will provide a future access point to future development on the property south of the subject site and eventually through to Pierce Street and Stone Street in the Old Downtown Hamburg area. A small one way circular street with on street parallel parking is used to access the independent living unit on the southeast corner of the site. The design of this roadway will allow for a more downtown residential village appearance.

As a part of the final site plan review the roadway design will be completed. The developer will work with staff to create roadway widths that meet all requirements and remain as narrow as possible.

4. *“Create an internal street system which provides improved access between the existing village center, township offices, Bennett Park, and surrounding existing and future development.”*

See analysis of Village Center Master Plan Standard 3 above. The new roads will provide a valuable connection between Village Center Drive and Veterans Memorial Drive. And the north south side street will be designed to provide future connections to the property south of the subject site.

5. *“Preserve street capacity and improve safety through control of traffic conflict points along M-36 by using a system of internal streets and well spaced access points”*

See analysis of Village Center Master Plan Standard 3 above.

6. *Open Space Criteria:*

- a. *“Providing smaller pocket parks with playgrounds for children or passive space for other residents to enjoy without having to cross major roadways should be a priority.”***
- b. *“Public and Private Community Parks f Promote the creative design of a wide variety of community parks for the residents and visitors. f Active community parks often contain multiple sports fields, community buildings and other active play areas. f Community parks shall be easily accessible while still providing appropriate buffers to adjacent neighborhoods. f Appropriately located, well-designed parking should be provided at community parks. f Parks should be used to define boundaries between districts. f Community parks should be designed to connect into the larger greenbelts in the planning area”***

Most of the open space areas proposed as a part of the project are either within the private court yard area of the main building or on the sidewalks along the roadways.

Providing a neighborhood pocket park south of the east wing of the assisted living/memory care structure would provide a public amenity that could be connected to and shared by the residents of the subject site and the surrounding future developments. This small park area would provide a buffer between the large main building on the subject site and future development on the properties to the south and southwest of the subject site. Staff would suggest reducing the east wing of the main building and including a small neighborhood park in this location with benches and a walking path. This could be done without reducing the number of beds or units in the main building. Staff has prepared a rough draft of the type of changes that could be proposed to site plan to accommodate this park area (Exhibit C).

Suggested Condition 5:

5. The east wing of the structure should be reduced and a neighborhood park should be added to the south west portion of the site.

M-36 Corridor Plan:

The proposed use will have less impacts on traffic because the senior housing facility use will create a lower number of vehicle trips per day than other uses contemplated on this site during the master plan process, and because the proposed project will extend Village Center Drive from Veterans Memorial Drive to M-36; the development will meet the goal and intent of the M-36 Corridor Plan.

B. A CPUD shall result in a higher quality of development than could be achieved under conventional zoning.

The proposed project will provide the existing aging population of Hamburg Township housing that they can transition into as they get older. The project will provide a mix of senior housing types with 16 independent living units for senior who do not need that much assistance, 54 assisted living unit that will provide different levels of assistance based on a resident's need and 16 memory care units which provide assistance for resident's with more intense needs for assistance.

The design, landscaping, lighting and signage proposed as a part of this project will be required to high quality and will be review during the final CPUD site plan review for this project.

C. A CPUD shall not be created in situations where the same land use objectives can be accomplished by the application of conventional zoning provisions or standards without the need for variances.

Because of the proposed use, the need for the use to be in a single 55,580 square foot structure, and the need for exterior parking areas for this building; the land use objectives for this use could not have been accomplished through the application of conventional zoning provisions.

D. A CPUD may be created only when the proposed land use will not add public service and facility loads beyond those contemplated in the Master Plan or other applicable plans or policies of the Township unless the applicant can demonstrate to the sole satisfaction of the Township Board that such added loads will be accommodated or mitigated by the

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proponent as part of the CPUD or by some other means deemed acceptable to the Township Board.

As stated before the subject property is located within the Village Center area and the future land use designation of the north quarter of the property is designated Village Core and the rest of the property is designated Village Residential-10. The proposed senior housing uses will have a much reduced impact on the public utilities and roadway systems than a more commercial or residential use that could have been approved on this property and met the criteria of the Master Plan and zoning regulations. Again because the proposed uses of the facility is restricted to seniors and mostly senior that require some type of assistance the traffic trips from this uses and the impacts on the sewer and water systems are greatly reduced from other allowed uses.

E. Creation of a CPUD shall establish land use patterns which are compatible with and protect existing or planned uses.

The larger assisted living structure is situated on the site to face north towards M-36 and existing commercial uses. As the project moves south on the site the uses are less intense with the independent living quadplex located in the south west corner of the subject property. This area is designed with reduced front yard setbacks and on street parking to blend into future residential uses on the property to the south.

To make the project better blend into future residential uses on the properties to the south and west of the subject site staff would suggest reducing the east wing of the main building and including a neighborhood park with benches and a walking path. This could be done without reducing the number of beds in the main building. This park would be an amenity for the residence of this project and future projects on adjacent sites and would provide a buffer area between the large main build and the properties to the south and southwest of the site. (Exhibit C)

Suggested Condition:

See condition #5 on page 14

F. The use of the CPUD option shall not be for the purpose of avoiding applicable zoning requirements of the underlying zoning district.

The CPUD waivers allow the senior housing facility to run more effectively and efficiently. The main structure will be all under a single roof making the facilities more accessible to all residents of this building. This will allow all amenities (cafeterias, libraries, seating areas, ext.) to be accessed by all residents without having to go outside. The need for a greater setback from the roadways for the main building allows for parking to be closer to the entrances.

G. A CPUD shall not be allowed solely as a means of increasing the density or intensity of development.

The population of Hamburg Township and the Country as a whole is aging with the population of people older than 65 years old increased by 79.3% between 2000 and 2010. This population trend is projected to continue until 2045. This population shift is due to the fact that the average age of the baby boomer generation is reaching an average age of 65 years old and that the

younger generations have reduced family sizes and are waiting longer to have children and that development has also slowed.

The CPUD is proposed to allow a much needed senior housing for the existing residence of the Township.

H. A CPUD shall improve the appearance of the Township through quality building design and site development, the provision of trees and landscaping consistent with or beyond minimum requirements; the preservation of unique and/or historic sites or structures; and the provision of open space or other desirable features of a site beyond minimum requirements.

The design of the building and landscaping will be reviewed as a part of the final CPUD site plan review for this project. As conditioned the site development included the location of the proposed uses and structure and the development of the roadway systems appears to blend well with the existing and future development of the surrounding properties.

Staff Recommendations:

Staff believe that as conditioned the proposes project is in substantial compliance with the Eligibility Criteria of the CPUD section 17.03.

Recommend the Planning Commission review the preliminary CPUD site plan application, the submitted materials including the project plan and this staff report approve and consider the Eligibility Criteria Section 17.3 A-H and either table the project and request additional information as needed, recommend approval of the project to the Township Board or recommend denial of the project.

Example Approval Motion:

The Planning Commission recommends approval of the preliminary CPUD site plan because the project as conditioned meets the Eligibility Criteria A-H in section 17.3 of the zoning ordinance as discussed at the meeting tonight and as presented in the staff report.

The Planning Commission will allow waivers from the following Zoning Requirements:

- 1) Section 7.6.1 (P) (Footnot11) requires that in VC zoning *“No building shall be greater than thirty thousand (30,000) square feet gross floor area except for a group of uses, each with individual pedestrian entrances.”* The proposed main building is 55,580 square feet with 45,672 square foot for the 54 assisted livings unit and 9,908 for the 16 memory care units.
- 2) Section 7.6.1 (P) (Footnote 12) requires that in the VC zoning district *“Buildings shall be placed no more than twenty (20) feet from the front lot line.”* The main building will be setback between 75 to 80 feet from Village Center Drive and approximately 65 feet from the side street. This distance will allow the parking areas to be located near the entrances for visitors, residence and the general public.
- 3) The Township Zoning Ordinance does not specifically address senior housing facilities in the parking requirements within the Zoning Ordinance. The proposed project will have 45 parking spaces associated with the main building and 29 parking spaces associated with the 4 independent living quadruples.

Conditions of Approval:

- 1) Prior to review of the final CPUD site plan the applicant shall submit a final CPUD site plan which contains all information required by Section 4.4.2 of the Township Zoning Ordinance and approvals from all appropriate township, county, state and federal agencies, including, but not limited to, the Hamburg Township fire district, Hamburg Township engineering review, the Livingston County Road Commission, Livingston County Drain Commissioner, Livingston County Health Department and the Michigan Department of Transportation. The process described in section 17.6.4 shall be followed.
- 2) As a part of the final CPUD site plan review the project plan shall contemplate the location of the road right-of-ways and how the property will be split under the proposed use.
- 3) The following note shall be included on the final CPUD site plan “As future development occurs adjacent to the subject site and utilities, pedestrian and vehicle connections are deemed appropriate by the Planning Commission, the opportunity for these connections shall be provided.”
- 4) Prior to a decision on the final CPUD site plan the developer shall work with the Livingston County Road Commission on making the roadways within the project public. If the roadways remain private the required Development Agreement (DA) between the Township and the Developer shall include a requirement that creates an easements, curb to curb, that include Village Center Drive, the north/south side street, and the one way circular street that accesses the independent living units and that all through traffic on the site has open access along these roadway from current developments or future developments. This easement shall be dedicated upon request to any municipality that may now or in the future control the roadways and wishes to except these easements as public roadways.
- 5) Prior to construction of the project the applicant shall have an agreement with the surrounding property owners to extend the improvements to Veterans Memorial Drive and Village Center Drive on the properties to the west and east as shown on the CPUD site plan.
- 6) As a part of the final CPUD site plan review the applicant shall either work with an existing service provider or independently operate a service for the residence of the project that offers transportation options to local shopping (grocery stores), events (Hamburg Senior Center and Library), and personal off site appointments. They should also consider providing transportation to special events directly from the location if they do not already plan trips.
- 7) A note shall be added to the final CPUD plan that states the parking spaces associated with the main building shall be open to use by the future residence of the entire project include the residence and guest of the independent living units.
- 8) As a part of the final CPUD site plan that applicant shall revise the plans so the east wing of the structure is reduced and a neighborhood park is added to the south west portion of the site.

Next Steps:

If the Planning Commission recommends approval of the preliminary CPUD site plan, the Township Board shall consider the Planning Commission recommendation and public hearing

Page 18

comments and shall take action to approve, deny or remand the site plan back to the Planning Commission for further review.

If the Township Board approves preliminary CPUD site plan The applicant shall submit a final CPUD site plan which contains all information required by Section 4.4.2 of the Township Zoning Ordinance and approvals from all appropriate county, state and federal agencies, including, but not limited to, the Livingston County Road Commission, Livingston County Drain Commissioner, Livingston County Health Department and the Michigan Department of Transportation.

The Planning Commission shall review the submitted Final CPUD site plan to insure compliance with all standards and criteria of Article 17, Commercial Planned Unit Development, the Hamburg Township Zoning Ordinance and the Hamburg Township Master Plan, M-36 Corridor Plan, Hamburg Township Village Plan, and the Southeast Livingston County Greenways Plan where applicable. The Planning Commission then takes action to recommend approval or denial of the Final CPUD site plan to the Township Board based upon compliance with the above referenced standards.

Upon receipt of the report and recommendation of the Planning Commission, the Township Board shall review all findings. If the Township Board determines that approval would be appropriate, it shall instruct the Township Attorney to prepare a contract setting forth the conditions upon which such approval is based. Such conditions shall include, where appropriate, identification of the phases and time table for development, and an estimate of the costs of implementing each phase.

After approval by resolution of the Township Board, the contract (Development Agreement) shall be executed by the Township and the applicant and recorded in the County records. Approval shall be granted only upon the Township Board determining that all qualification requirements, conditions of approval, and provisions of this and other Township Ordinances have been met, and that the proposed development will not adversely affect the public health, welfare and safety. Approval shall further be subjected to the condition that the contract will be properly recorded.

Exhibits:

Exhibit A: Preliminary CPUD site plan application and materials

Exhibit B: List of Final CPUD submittal requirements, zoning requirements and discretionary standards

Exhibit C: Staff's recommended changes to the project layout to allow for a pocket park.

Exhibit D: Project Plans (24" by 36" Commissioners Only)



FAX 810-231-4295
PHONE 810-231-1000

RECEIVED
FEB 15 2019
Hamburg Township
Planning and Zoning Department
P.O. Box 157
10405 Merrill Road
Hamburg, Michigan 48139

SITE PLAN APPROVAL APPLICATION

Please note: All required information, copies, fees, and other materials as appropriate must be submitted and complete before the Township Planning Commission will set a public hearing date on the Site Plan Approval Application.

Application fees and review fees are required at the time of application.

In the case of separate applications for Preliminary and Final reviews, separate application and review fees shall be collected. Review fees shall be placed into a non-interest bearing escrow account. Upon final review, review fee balances shall be returned upon receipt of final billing. The applicant shall be responsible for all costs incurred.

Note: Acreage calculations based upon the acreage being developed or utilized for the project (parking, buildings, walks, storm water retention etc.)

The undersigned hereby makes application for a Site Plan Approval for: (Check all that apply)

1. **TYPE OF PROJECT:**

<input type="checkbox"/> Open Space	<input type="checkbox"/> Echo	<input type="checkbox"/> Residential	<input type="checkbox"/> Condominium
<input type="checkbox"/> Commercial	<input type="checkbox"/> Industrial	<input checked="" type="checkbox"/> PUD	<input type="checkbox"/> Hardship PUD

2. **TYPE OF APPLICATION:**

<input checked="" type="checkbox"/> Preliminary Site Plan	<input type="checkbox"/> Optional Conceptual Site Plan Review by Planning Commission
<input type="checkbox"/> Final Site Plan	<input type="checkbox"/> Combined – Preliminary/Final Site Plan
<input type="checkbox"/> Site Plan Amendment (less than 25% area of site being changed)	<input type="checkbox"/> Site Plan Amendment (26% or more of site being changed)

3. **PROJECT NAME:** Hampton Manor of Hamburg Submittal Date: Feb. 14, 2019

4. **PROJECT ADDRESS:** Veterans Memorial Drive

Tax Code Numbers: 15 - <u>25-100-105</u>	15 - _____	15 - _____
15 - _____	15 - _____	15 - _____

☒ Metes & Bounds Parcel ☐ Subdivision _____ Lot Numbers: _____

Zoning District Classification: VC "Village Core" Floodplain Classification: Zone X

Number of Lots Proposed: N/A Acreage of Project: 6.5 Acres

5. **PROJECT DESCRIPTION:** Senior Housing Development with assisted living, memory care and independent living units.

6. **OWNER/PROPRIETOR INFORMATION:**

Name: Hamburg Township Phone Number(s): (810) 231-4295
Email: _____ Address: P.O. Box 157, 10405 Merrill Road
City: Hamburg State: MI Zip: 48139

7. **APPLICANT:**

Name: Sam Martin Phone Number(s): (989) 714-5007
Email: sammartin0243@yahoo.com Address: _____
City: _____ State: MI Zip: _____

8. **DESIGNER INFORMATION:**

Name: Lapham Associates Phone Number(s): (989) 345-5030
Email: scott.bell@laphamassoc.com Address: 116 S. 3rd Street
City: West Branch State: MI Zip: 48661

9. **SPECIAL USE PERMIT:**

Is a Special Use Permit required for this project? ☒ No ☐ Yes

IF YES, Attach Special Use Permit Application Form with this site plan review application form

APPLICANT CERTIFICATION:

I hereby certify that all structures and uses for which this application is made shall conform to the Ordinances of Hamburg Township, Livingston County and the State of Michigan. All information submitted as a part of the site plan application is to my knowledge accurate. If the information is determined either now or in the future to be inaccurate any permits granted for the incorrect information shall be void and any structures built or uses approved may be in violation of the required ordinances and must otherwise be brought into compliance with all regulations.

I further agree that any deviation from the plans submitted or the breach of any additional safeguards, conditions or requirements the Hamburg Township may impose in granting this application shall constitute a violation of the Ordinance and invalidate the permit granted.

PROPERTY OWNERS SIGNATURE:  DATE: Feb. 14, 2019

*If an agent submits the project to the Township for the property owner a letter authorizing must be submitted.

PRELIMINARY & FINAL SITE PLAN
CHECKLIST

Each preliminary & Final Site Plan submitted for review shall provide the following information at the time of application.

A. General Information

- ☒ 1. Name and address of the proprietor and proof of ownership, developer, and registered engineer, registered surveyor, registered architect, registered landscape architect, or registered community planner who prepared the site plan.
- ☒ 2. Date of plan preparation, north arrow, and scale of plan, which shall not be greater than one inch equals twenty feet (1" = 20') nor less than one inch equals two hundred feet (1" = 200').
- ☒ 3. Full legal description of parcel and dimensions of all lot and property lines showing the relationship to abutting properties, and in which district the subject property and abutting properties are located.
- ☒ 4. Area map showing the relationship of the parcel to the surrounding area within one-half mile.
- ☒ 5. The location and description of all existing structures within one hundred feet (100') of the parcel.

B. Physical Information

- ☒ 1. Proposed plans for site grading, surface drainage, water supply and sewage disposal.
- ☒ 2. The location of existing and proposed landscaping, buffer areas, fences, or walls on the parcel.
- ☒ 3. Existing and proposed structure information including the following:
 - a. Footprint location, dimensions and setbacks.
 - b. Finished floor and grade line elevations.
 - c. Elevations drawings that illustrate building design, size, height, windows and doors, and describe construction materials. Elevations shall be provided for all sides visible from an existing or proposed public street or a residential zoning district.
 - d. The Planning Commission may require a color rendering of the building elevation required in paragraph c.
 - e. Proposed materials and colors shall be specified on the site plan. Color chips or samples shall also be submitted at or prior to the Planning Commission meeting to review the site plan. These elevations, colors and materials shall be considered part of the approved site plan.
- ☒ 4. The location and dimensions of all existing and proposed streets, driveways, sidewalks, service lanes and other vehicular and pedestrian circulation features within and adjacent to the parcel.
- ☒ 5. The location, dimensions, and numbers of off-street parking and loading spaces.

☒ 6. Location of existing and proposed service facilities above and below ground, including:

- a. Well sites.
- b. Septic systems and other wastewater treatment systems. The location of the septic tank and drain field (soil absorption system) should be clearly distinguished.
- c. Chemical and fuel storage tanks and containers.
- d. Storage, loading, and disposal areas for chemicals, hazardous substances, salt and fuels.
- e. Water mains, hydrants, pump houses, standpipes, and building services and sizes.
- f. Sanitary sewers and pumping stations.
- g. Stormwater control facilities and structures including storm sewers, swales, retention and detention basins, drainage ways and other facilities, including calculations for sizes.
- h. Location of all easements.

☒ 7. Any other pertinent physical features.

— C. **Natural Features**

☒ 1. Map of existing topography at two-foot (2') contour intervals with existing surface drainage indicated.

☒ 2. Soil characteristics of the parcel to at least the detail provided by the U.S. Soil Conservation Service "Soil Survey of Livingston County, Michigan."

☒ 3. On parcels of more than one acre, existing topography with a maximum contour interval of two feet indicated. Topography on the site and beyond the site for a distance of 100 feet in all directions should be indicated. Grading plan, showing finished contours at a maximum interval of two feet, correlated with existing contours so as to clearly indicate required cutting, filling and grading.

N/A ☐ 4. Location of existing drainage courses, including lakes, ponds, rivers and streams, and all elevations.

N/A ☐ 5. Location of existing wetlands, delineated under the requirements of section 3.6, Wetland Determination. A Michigan Department of Natural Resources (MDNR) permit shall be required for activities in a regulated wetland or an inland lake or stream. A copy of any correspondence with and applications to the MDNR shall be submitted with the site plan application. The Planning Commission shall not grant final site plan approval until all necessary permits have been obtained.

☒ 6. Location of natural resource features, including woodlands and areas with slopes greater than 10 percent (one foot of vertical elevation for every 10 feet of horizontal distance).

N/A ☐ 7. Location of the required 50 foot natural features setback.

- ☒ 8. Storm water management systems and facilities will preserve the natural drainage characteristics and enhance the aesthetics of the site to the maximum extent feasible, with the development not substantially reducing the natural retention of storage capacity of any wetland, water body, or water course, or cause alterations which could increase flooding or water pollution on or off site.
- ☒ 9. Wastewater treatment systems, including on-site septic systems will be located to minimize any potential degradation of surface water or groundwater quality.
- N/A ☐ 10. Sites which include storage of hazardous materials or waste, fuels, salt, or chemicals will be designed to prevent spills and discharges or polluting materials to the surface of the ground, groundwater, or nearby water bodies.

D. Natural Features Impact Statement. The purpose of a Natural Features Impact Statement (NFIS) is to provide the Township with information regarding the impact of a proposed project on the physical, natural, social, and economic environment of the community. A complete report shall be required with all site plan applications. The Zoning Administrator (ZA) has the discretion to modify this requirement based on the specific application. When required the report will be reviewed by the ZA and Hamburg Environmental Review Board (HERB). The HERB may issue an Advisory Report to the Zoning Administrator for review by the Planning Commission. Contained in the Advisory Report will be a summary of the NFIS and appropriate comments and recommendations. The Advisory Report and the required site walk will be used to assist Zoning Ordinance Hamburg Township, Livingston County, Michigan, the Township Board and Planning Commission. The written NFIS will include the following information:

- ☒ 1. Name (s) and address (es) of person(s) responsible for preparation of the impact assessment and a brief statement of any relevant qualifications. The HERB may recommend a qualified individual to prepare the NFIS if deemed appropriate.
- ☒ 2. An impact assessment checklist on a form provided by the Township shall be completed and placed at the beginning of the document.
- ☒ 3. Map (s) and a written description/analysis of the project site including all existing structures, manmade facilities, and natural features. The analysis shall also include information for areas within 50 feet of the property. An aerial photograph or drawing may be used to delineate these areas.
- ☒ 4. Description of existing natural features: A description of the environmental characteristics of the site prior to development shall be provide in the form of written documentation and a site inventory map identifying the location of natural features consistent with subparagraph C of this section. In addition, dominant tree species shall be listed and all species greater than 16 inches caliper or greater. As defined in Article 2.00, natural features include but are not limited to: topography, soils, geology, ground water, wetlands, watercourses, plants and animals (including aquatic species), habitat, and scenery.
- ☒ 5. Impact on natural features: A written description of the impact on the identified existing natural features shall be provided. The report shall also provide a natural features protection plan, which identifies on a map the natural features potentially affected. Where disturbance of natural features both during and after construction is proposed, a written analysis of alternative plans, which were considered, shall be provided to justify the proposed plan. The HERB may recommend a

mitigation plan be required which will describe how disturbed natural features were relocated or replace. (See Article 2.00 for complete definition of terms)

- ☒ 6. Impact on storm water management: Description of natural drainage patterns and soil infiltration and unsaturated soil capacity. A description of changes to site drainage and storm water management facilities to be installed in compliance with the Township Storm Water Ordinance. Description of measures to control soil erosion and sedimentation during grading and construction operations and until a permanent ground cover is established. Recommendations for such measures may be obtained from the County Soil Conservation Service.
- ☒ 7. Special Provisions: Provide a general description of any existing deed restrictions, protective covenants, master deed or association bylaws as they relate to the protection of natural features. Zoning Ordinance Hamburg Township, Livingston County, Michigan
- ☒ 8. Information Sources: A list of all sources of information contained in the NFIS, if any shall be provided.
- N/A ☐ 9. Previous Submittals: Any impact assessment previously submitted relative to the site and proposed development, which fulfills the above requirements (and contains accurate information of the site) may be submitted as the required Impact Assessment.

February 15, 2019

RECEIVED

FEB 15 2019

Hamburg Township
Planning and Zoning Department

Scott Pacheco, AICP
Hamburg Township, Planning and Zoning
P.O. Box 157
Hamburg, MI 48139

RE: Proposed PUD plan for Parcel # 15-25-100-105 - Hamburg Twp. # CPUD 19-001

Mr, Pacheco,

We are pleased to submit plans for the proposed Commercial PUD. This project is proposed to be a senior housing development with a mix of assisted living, memory care and independent living units. We have proposed this as a phased development with the assisted living and memory care building being phase I with construction as soon as possible. The independent living portion is to be phase II with construction subsequent to the completion of the phase I construction. Phase II of the development would most likely begin in 3 to 4 years. This proposed development was in response to the Township's RFP from January of 2019 for a proposed senior housing development to revitalize a tax reverted property.

Our proposed development plan will consist of a building that has 54 assisted living units comprised of a mixture of various sizes and 16 dwelling units for memory care. The building will also contain a commercial kitchen and dining facilities for the residents as well as other ancillary uses such as gathering rooms, library, salon, and movie theater. This building will be licensed by the State of Michigan as an Adult Foster Care and will be operated by a staff of experienced and qualified persons. This facility will be manned 24 hours a day with three shifts with each shift having 8 to 10 employees. Units in the assisted living will be priced based on the feasibility study, but will run around \$4,800 / month. The independent living portion of the plan will consist of small single story cottage type quadplex with half of the units having attached garages. Assisted living facilities make a great transition between more dense commercial type uses and single family residential use.

Site development of this project will provide access roadways connecting the project to M-36 via the existing Veterans Memorial Drive and a connector street with the Village Center commercial area at Village Center Parkway. Also, a street connecting to the south through the property will provide for future expansion to the south in a similar fashion to your future land use map in the Village Center Master Plan. The assisted living development will front on the primary connector road with parking for the general public and visitors immediately adjacent to this road on the north side of the site. A porte-cochere will be located at the public's main entrance. Additional parking for employees and solid waste disposal access will be provided

along the east side of the building off the secondary street. The memory care portion of the building will have a separate entrance and parking off the secondary street. The quantity of parking spaces deemed necessary for this project has been based on zoning requirements from other communities for similar projects. (see parking requirements letter) We have proposed sidewalks throughout the development to provide egress from the building as required by the licensing requirements. These sidewalks will also providing pedestrian connections with adjacent properties. The access road and parking for the independent living portion will include a one-way access road with parallel parking and sidewalks to provide the village feel that is intended with your Village Center Master Plan. Buildings will have front porches with short connecting sidewalks to the main walkways. Small patios at the rear of some of the units will allow for additional exterior use.

Development impact on the township and the surrounding area will be minimal. Existing infrastructure will be sufficient for the development. Municipal water for fire suppression and potable water is available at the site and our development plan will loop the water main back to Village Center Parkway. Sanitary sewerage will be provided through the development by several pump stations connecting to the existing low pressure sewer connection on Veterans Memorial Drive. Water usage and waste flows for senior housing projects are typically lower than normal residential uses. Studies have shown that assisted living facilities will have typical flows around 1,100 GPD per 20 bed facility, and Independent living units will have typical flows of 100 GPD per unit. These flows will have a minimal impact on the existing infrastructure.

Traffic volumes are also minimal for these types of developments. Traffic generated by this project, based on the Institute of Transportation Engineers 9th Edition Trip Generation Rates, show an average of 206 daily trips for the assisted living facility and 59 daily trips for the independent living units. The annual average daily traffic (AADT) on M-36 at that segment is 19,492 with a commercial AADT of 1,226 based on MDOT's 2017 traffic data. The additional traffic added is just over 1% of the current daily traffic. A traffic Impact statement is being prepared by our traffic engineers and will be submitted under separate cover.

Natural resource impacts for the proposed development will provide an improvement to the existing conditions of the site. Current contamination from the former use will be mitigated by this development. The existing blighted buildings and rubbish on the site will be removed and a newly constructed building with manicured landscaping will replace the sparsely wooded site. There does not appear to be any significant natural features on the site and wetland inventory maps do not show any wetlands. Storm water will be managed in accordance with the Livingston County regulations and discharge will only be as allowed. Proposed detention

P190043
February 15, 2019

basins will hold storm-water which will provide a filtering of possible contaminants and slow down the release to downstream. A Natural Resource Impact Statement meeting the township's requirements is being prepared for this site and will be submitted under separate cover.

Enclosed with this letter is the site plan application and preliminary site plans for the PUD development. These plans do not yet contain all the final site engineering for utilities, grading and storm-water management, but have the general design concept. The final engineering design is currently underway. In addition to the plans we are enclosing a letter regarding the parking calculations and justification for determine the required parking, and a statement on the operational and management of the facility from the developer. Additional information from preliminary comments from your staff is also enclosed with this application.

Sincerely yours,

LAPHAM ASSOCIATES



Scott E. Bell, AICP Project Manager

ENCL: Site Plan Application
Preliminary Site Plan
Parking Calculations Justification
Table of Areas

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Other Facility Parking Requirements

Typically the residents in an assisted living facility do not drive and do not have a car and therefore the only parking is for employees and visitors. The information below is compiled from existing approved site plans for other similar assisted living developments that we have built or are currently under construction. It is typically not differentiated between assisted living and/or memory care for parking calculations as this is not an easy thing to observe and study and the requirements would be so similar. As you will notice in the examples below most communities base on the number of beds or units plus the number of employees. Our experience is that this is the most efficient method to determine parking needs.

Hampton Manor – Bay City (40 bed assisted living) Phase I

Required 1 space per bed + 1 space per employee at maximum shift
42 Beds + 8 employees max. = 50 spaces
40 spaces proposed with 11 spaces deferred.

Hampton Manor – Bay City (40 bed assisted living + 14 bed assisted living addition) Phase II

Required 1 space per bed + 1 space per employee at maximum shift
56 Beds + 8 employees max. = 64 spaces
64 spaces proposed.

Hampton Manor of Davison – (42 bed assisted living + 10 bed memory care)

Required 1 space per bed
52 Beds = 52 spaces
38 spaces proposed

Shelby Township (54 bed assisted living)

Required 1 space per bed
54 Beds + 8 employees max. = 62 spaces
62 spaces proposed

Hampton Manor of Brighton (61 bed assisted living + 22 bed memory care)

Required 1 space per 2 DU + 1 space per employee at maximum shift
76 DU/2 + 10 employees max. = 48 spaces
49 spaces proposed.

Conscious Senior Living in Chesterfield Township (58 bed assisted living)

Required 2 space per 3 beds + 1 space per employee at maximum shift
58 Beds $(2/3)$ + 6 employees max. = 44 spaces
45 spaces proposed.

Cape Coral (137 bed assisted living)

Required 1 space per 4 beds + 1 space per employee at maximum shift
137 Beds / 4 + 10 employees max. = 45 spaces
46 spaces proposed.

Dundee (72 bed assisted living)

Required 1 space per 4 beds + 1 space per 2 employees at maximum shift
72 Beds / 4 + 12 employees max. / 2 = 24 spaces
41 spaces proposed.

Proposed Senior Living PUD Areas

TOTAL SITE:

283,946ft²

Buildings: 72,476 ft²

55,580 ft² Total Assisted Living and Memory Care Building

45,672 ft² Assisted Living

9,908 ft² Memory Care

16,896 ft² Total Independent Living Development Buildings

14,976 ft² Total Independent Living dwellings 16 units at 936 ft² each

1,920 ft² Total Independent Living garages 8 garages at 240 ft² each

Impervious Areas: 134,553 ft²

52,193 ft² Total Streets

15,075 ft² Village Center Street (on-site) includes sidewalk

14,910 ft² Side Street (on-site)

10,250 ft² Independent Living Street

11,958 ft² Gravel Fire Access Drive (on-site)

24,255 ft² Total Parking lots

15,775 ft² Assisted Living Parking Lot (North side)

2,195 ft² Employee Parking Lot (East side)

3,810 ft² Memory Care Parking Lot (East side)

1,880 ft² Independent Living Parking (Concrete Drives)

595 ft² Dumpster Enclosure & Approach

58,105 ft² Total Sidewalks and Patios

10,130 ft² Building Sidewalks

21,000 ft² Assisted Living Patios

20,000 ft² Estimated Courtyard Elements

4,030 ft² Independent Living Sidewalks

2,175 ft² Independent Living Covered Porches

770 ft² Independent Living Patios

Exhibit B

FINAL SITE CPUD SITE PLAN REQUIRED INFORMATION

General Information

1. Name and address of the proprietor and proof of ownership, developer, and registered engineer, registered surveyor, registered architect, registered landscape architect, or registered community planner who prepared the site plan.
2. Date of plan preparation, north arrow, and scale of plan, which shall not be greater than one inch equals twenty feet (1" = 20') nor less than one inch equals two hundred feet (1" = 200').
3. Full legal description of parcel and dimensions of all lot and property lines showing the relationship to abutting properties, and in which district the subject property and abutting properties are located.
4. Area map showing the relationship of the parcel to the surrounding area within one-half mile.
5. The location and description of all existing structures within one hundred feet (100') of the parcel.

Physical Information

1. Proposed plans for site grading, surface drainage, water supply and sewage disposal.
2. The location of existing and proposed landscaping, buffer areas, fences, or walls on the parcel.
3. Existing and proposed structure information including the following:
 - a. Footprint location, dimensions and setbacks.
 - b. Finished floor and grade line elevations.
 - c. Elevations drawings that illustrate building design, size, height, windows and doors, and describe construction materials. Elevations shall be provided for all sides visible from an existing or proposed public street or a residential zoning district.
 - d. The Planning Commission may require a color rendering of the building elevations required in paragraph c.
 - e. Proposed materials and colors shall be specified on the site plan. Color chips or samples shall also be submitted at or prior to the Planning Commission meeting to review the site plan. These elevations, colors and materials shall be considered part of the approved site plan.
4. The location and dimensions of all existing and proposed streets, driveways, sidewalks, service lanes and other vehicular and pedestrian circulation features within and adjacent to the parcel.
5. The location, dimensions, and numbers of off-street parking and loading spaces.
6. Location of existing and proposed service facilities above and below ground, including:

- Well sites.
 - Septic systems and other wastewater treatment systems. The location of the septic tank and drainfield (soil absorption system) should be clearly distinguished.
 - Chemical and fuel storage tanks and containers.
 - Storage, loading, and disposal areas for chemicals, hazardous substances, salt and fuels.
 - Water mains, hydrants, pump houses, standpipes, and building services and sizes.
 - Sanitary sewers and pumping stations.

 - Stormwater control facilities and structures including storm sewers, swales, retention and detention basins, drainage ways and other facilities, including calculations for sizes.
 - Location of all easements.
7. Any other pertinent physical features.

Natural Features

1. Map of existing topography at two-foot (2') contour intervals with existing surface drainage indicated.
2. Soil characteristics of the parcel to at least the detail provided by the U.S. Soil Conservation Service "Soil Survey of Livingston County, Michigan."
3. On parcels of more than one acre, existing topography with a maximum contour interval of two feet indicated. Topography on the site and beyond the site for a distance of 100 feet in all directions should be indicated. Grading plan, showing finished contours at a maximum interval of two feet, correlated with existing contours so as to clearly indicate required cutting, filling and grading.
4. Location of existing drainage courses, including lakes, ponds, rivers and streams, and all elevations.
5. Location of existing wetlands, delineated under the requirements of section 3.6, Wetland Determination. A State of Michigan permit shall be required for activities in a regulated wetland or an inland lake or stream. A copy of any correspondence with and applications to the State of Michigan shall be submitted with the site plan application. The Planning Commission shall not grant final site plan approval until all necessary permits have been obtained.
6. Location of natural resource features, including woodlands and areas with slopes greater than 10 percent (one foot of vertical elevation for every 10 feet of horizontal distance).
7. Location of the required 50 foot natural features setback.
8. Storm water management systems and facilities will preserve the natural drainage characteristics and enhance the aesthetics of the site to the maximum extent feasible, with the development not substantially reducing the natural retention of storage capacity of any wetland, water body, or water course, or cause alterations which could increase flooding or water pollution on or off site.
9. Wastewater treatment systems, including on-site septic systems will be located to minimize any potential degradation of surface water or groundwater quality.
10. Sites which include storage of hazardous materials or waste, fuels, salt, or chemicals will be designed to prevent spills and discharges or polluting materials to the surface of the ground, groundwater, or nearby water bodies.

Natural Features Impact Statement.

The purpose of a Natural Features Impact Statement (NFIS) is to provide the Township with information regarding the impact of a proposed project on the physical, natural, social, and economic environment of the community. A complete report shall be required with all site plan applications. The Zoning Administrator (ZA) has the discretion to modify this requirement based on the specific application. When required the report will be reviewed by the ZA and the environmental consultant. The environmental consultant may issue an Advisory Report to the Zoning Administrator for review by the Planning Commission. Contained in the Advisory Report will be a summary of the NFIS and appropriate comments and recommendations. The Advisory Report and the required site walk will be used to assist the Township Board and Planning Commission. The written NFIS will include the following information:

1. Name (s) and address(es) of person(s) responsible for preparation of the impact assessment and a brief statement of any relevant qualifications. The Zoning Administrator or environmental consultant may recommend a qualified individual to prepare the NFIS if deemed appropriate.
2. An impact assessment checklist on a form provided by the Township shall be completed and placed at the beginning of the document.
3. Map (s) and a written description/analysis of the project site including all existing structures, manmade facilities, and natural features. The analysis shall also include information for areas within 50 feet of the property. An aerial photograph or drawing may be used to delineate these areas.
4. Description of existing natural features: A description of the environmental characteristics of the site prior to development shall be provided in the form of written documentation and a site inventory map identifying the location of natural features consistent with subparagraph C of this section. In addition, dominant tree species shall be listed and all species greater than 16 inches caliper or greater. As defined in Article 2.00, natural features include but are not limited to: topography, soils, geology, ground water, wetlands, watercourses, plants and animals (including aquatic species), habitat, and scenery.
5. Impact on natural features: A written description of the impact on the identified existing natural features shall be provided. The report shall also provide a natural features protection plan, which identifies on a map the natural features potentially affected. Where disturbance of natural features both during and after construction is proposed, a written analysis of alternative plans, which were considered, shall be provided to justify the proposed plan. The environmental consultant may recommend a mitigation plan be required which will describe how disturbed natural features were relocated or replaced. (See Article 2.00 for complete definition of terms)
6. Impact on storm water management: Description of natural drainage patterns and soil infiltration and unsaturated soil capacity. A description of changes to site drainage and storm water management facilities to be installed in compliance with the Township Storm Water Ordinance. Description of measures to control soil erosion and sedimentation during grading and construction operations and until a permanent ground cover is established. Recommendations for such measures may be obtained from the County Soil Conservation Service.
7. Special Provisions: Provide a general description of any existing deed restrictions, protective covenants, master deed or association bylaws as they relate to the protection of natural features.
8. Information Sources: A list of all sources of information contained in the NFIS, if any shall be provided.
9. Previous Submittals: Any impact assessment previously submitted relative to the site and proposed development, which fulfills the above requirements (and contains accurate information of the site) may be submitted as the required Impact Assessment.

LIST OF ZONING REGULATIONS:

Landscaping Requirements:

Greenbelt :

Within all multiple family residential, mobile home park, commercial and industrial districts, a twenty (20) foot wide greenbelt shall be planted along the public right-of-way including the equivalent of one (1) canopy tree and four (4) shrubs, rounded upward, for every forty (40) linear feet of frontage, planted within the greenbelt. The width of this greenbelt may be reduced by the Planning Commission in the Village Center zoning district.

Buffer Zone

- **Multifamily adjacent to Commercial (C)** No fence requirements and 1 canopy tree, 1 evergreen tree and 4 shrubs per each 30 linear feet along the property line.
- **Multifamily adjacent to Multifamily or Single Family (B)** 6 foot high continuous wall or berm, and 1 canopy tree, 1 evergreen tree and 4 shrubs per each 30 linear feet along the property line

Parking Lot

1 canopy tree for each (2,000) square feet of paved driveway and parking lot surface is required within 18 feet of the parking areas.

Waivers and Modifications.

The Planning Commission may waive or modify the fencing or landscape buffering requirements upon a determination that a solid fence or landscaping buffer will not be necessary or effective for screening. In making such a determination, the following shall be considered.

1. Need for security;
2. Abutting district or existing use;
3. Extent that existing natural vegetation provides the desired screening;
4. Topography which would eliminate the benefits of required landscaping;
5. Building heights and views in relation to existing topography and vegetation as well as views from adjacent uses;
6. Similar conditions existing such that no good purpose would be served by providing the required landscaping plan.

Lighting Requirements (See Attached Village Center Lighting Schematics):

Village Center Master Plan:

- **Village Core Lighting:** Streetlights within the VC/VG District must be as shown in figure L1 and spaced 50' o.c. Parking lot lighting may be a shoebox design with a maximum height of 20 feet and painted black. Additional lighting is recommended and may include building and signage lighting as well as accent up-lights on buildings or at landscaping.
- **Village Residential Lighting:** Streetlights should be scaled for lighting the

pedestrian way at approximately 12' in height and 50' o.c. Additional lighting may include accent lights along residential pathways or landscaping.

Section 9.11.4

- Exterior lighting shall be fully shielded and directed downward toward the Earth's surface, away from residential uses, roads, glass, water or other reflective materials which would create excessive off-site glare or incident rays.
- The Zoning Administrator and/or Planning Commission may approve decorative light fixtures as an alternative to shielded fixtures when it can be proven that there will be no off-site glare and the proposed fixtures will improve the appearance of the site.
- Lights on poles shall not be taller than the building whose area they illuminate nor taller than fifteen (15) feet whichever is shorter. Lights on poles may exceed fifteen (15) feet up to twenty (20) feet if the fixtures are located a minimum of seventy-five (75) feet from any planned, zoned or used residential areas.
- Lighting shall not be of a flashing, moving or intermittent type.
- Except where used for security purposes, all outdoor lighting fixtures, existing or hereafter installed and maintained shall be turned off between 11:00 p.m. and sunrise, except when used for commercial and industrial uses, such as in sales, assembly and repair areas, where such use is open for business after 11:00 p.m. but only for so long as such use open for business. Businesses with light fixtures used for security purposes are encouraged to use a motion detection device which is directed to detect motion within the property.
- Any light fixture must be placed in such a manner that no light emitting surface is visible from any residential area or public/private roadway, walkway, trail or other public way when viewed at ground level.
- The intensity of light within a site shall not exceed ten (10) footcandles or one (1) footcandle at any property line, except where it abuts a residentially used or zoned site whereby a maximum of 0.5 footcandles is permitted. The only exception is with gas station canopy and automobile dealership lighting, where a maximum of twenty (20) footcandles is permitted within the site but the above standards shall apply to intensity at the property line.

Sec. 9.11.5. Sign Lighting Standards.

- Indirect illumination of signs, canopies and buildings is permitted provided a maximum 125 watt bulb is utilized and there is no glare.
- The use of laser light source, searchlights or any similar high intensity light for outdoor advertisement or entertainment is prohibited.
- Luminous tube and exposed bulb fluorescent lighting is prohibited as part of a sign provided the proposed luminous tube or exposed bulb fluorescent lighting is determined to be consistent with the architectural character of the building.
- Internally illuminated signs shall have a minimum of 60% of the sign face composed of an opaque surface which allows no light to transmit through.

Sign Regulations:**Village Center Master Plan:**

- General Requirements: Signs shall be architecturally consistent with the style, materials, colors, and composition of the building.
- A sign program shall be developed for buildings which house more than one tenant. Signs shall at a minimum be consistent with one another.
- All signs shall be externally illuminated. All signs which project out from the building must have a minimum vertical clearance of nine feet.
- Wall Signs: Wall signs shall be placed generally within a sign band located above the storefront and not exceed 80% of the linear frontage. Maximum size, per façade, is .75 square feet per linear foot or 24 square feet. Letters shall not exceed 18 inches and shall be mounted flush against the wall.
- Awning and Canopy Signs: Sign lettering and/or logo shall not compromise more than 20% or 10 square feet of exterior surface. Awnings and canopies must be permanently attached to the building.
- Projecting Signs: Signs shall project no more than 48 inches from the building face. Signs are limited to five square feet per side. Projecting signs shall be visually appealing with wrought iron mounting hardware.
- Marquee Signs: Marquee signs are only allowed on theaters, cinemas, schools, performing arts facilities, parking structures, and religious institutions. The sign copy shall be limited to include only the facility's name and changeable copy related to present and future events. The facility portion shall be no larger than 40% of the sign area and the changeable copy portion no larger than 80%.
- Window Signs: Window signs shall not exceed 10% of the window so that visibility into and out of the window is not obscured. Window signs shall be directly applied to the window or hung inside the window, concealing all mounting hardware and equipment.
- Freestanding Signs: Freestanding signs must be ground mounted and architecturally harmonious with the character of the building. They must meet the size requirements of the Zoning Ordinance and be located in a landscaped area.
- A-Frame Sidewalk Signs: There shall only be one a-frame sign per business and it must be located within five feet of the main entrance. Five feet of clear sidewalk must be maintained at all times and signs must be stored indoors during closed hours. Portable sidewalk signs shall be made of wood or decorative metal, with cast iron brackets, and shall be architecturally compatible with the style, composition, materials, colors and details of the building. No portable sidewalk sign shall exceed an overall height of fortyfive (45) inches and an overall width of twenty-four (24) inches.

Article 18, Section 18.8 Signs Permitted in Residential Districts (CE, RAA, RA, RB, RC, WFR, NR, MHP, OH, and VR)**Signs allowed with a Sign Permit****1. Permanent Signs**

- a. Residential Development Sign: One (1) freestanding monument or wall sign to be located within 50 feet of entrance to a subdivision, condominium project, multiple-family complex or mobile home park not to exceed thirty-two (32) square feet in area. These signs may be located within the road right-of-way of the development as long as the proposed signs are approved as a part of the development improvements when the original project is approved.
 - b. Non-Residential Sign: One (1) freestanding monument and (1) wall- sign are allowed on lots with non-residential uses other than home occupations. The freestanding sign shall not exceed twenty (20) square feet in area. The wall sign shall not exceed one (1) square foot for every two (2) lineal feet of building frontage, or one-hundred (100) square feet, whichever is less.
 - c. Home Occupation Sign: One (1) freestanding, projecting, or wall sign not to exceed six (6) square feet in area on lots with an approved Home Occupation. Freestanding home occupation signs shall not exceed four (4) feet in height.
 - d. A sign or similar notice is allowed for every 150 feet along the property line of a lot, provided that each sign is no more than two square feet in area, is posted no higher than 4 feet above grade and is located entirely upon private property. These signs shall not be within 150 feet of another sign and are allowed on vacant sites.
 - e. Permanent signs in the residential zoning districts may be illuminated if they are located along one of the following roads: Bishop Lake Road, Chilson Road, Hamburg Road, M-36, McGregor Road, Pettysville Road, Strawberry Lake Road, Whitewood Road, and Winans Lake Road.
 - f. Permanent signs in residential zoning districts may be Electronic Display Signs with approval of a special use permit under Section 3.5 of the code, along one of the following roads: Bishop Lake Road, Chilson Road, Hamburg Road, M-36, McGregor Road, Pettysville Road, Strawberry Lake Road, Whitewood Road, and Winans Lake Road.
2. Temporary Signs
- a. Residential Development Sale and Lease Sign. One (1) freestanding or wall sign shall be permitted for an approved subdivision, condominium project, multiple-family complex or mobile home park. Such a sign is permitted for a period not to exceed two (2) years from the date of the approval of the project. Thereafter, if properties are still actively marketed for sale or lease in the development, extensions may be permitted on an annual basis with approval of a Land Use Permit. The sign shall not exceed twenty (20) square feet in area.

Signs allowed without a Sign Permit:

1. Temporary Signs

- a. Sale or lease signs. One (1) freestanding sign per roadway frontage shall be permitted on a site that is actively marketed for sale or lease. The sign shall not exceed 6 square feet in size. These signs are allowed on vacant properties.
- b. Portable wall or freestanding signs with the following restrictions:
 - i. The total area for all portable signs must not exceed twenty (20) square feet at one time.
 - ii. No more than 5 portable signs can be erected at one time.
 - iii. Signs of this type must be located solely on private property outside of any street right-of-way or corner clearance area.
 - iv. Signs of this type shall not be in place for longer than 45 days.

Article 18, Section 18.10 Signs Permitted in the Village Center (VC) and Mixed Use (MD)

- A. Non-Residential Multi-Tenant Developments must create a sign program, so the signs are consistent with one another. Sign Programs must be reviewed and approved by the Planning Commission and must meet the standards under Section 18.11.A.1.
- B. All permanent signage without an approved sign program within the Village Center (VC) and Mixed Use (MD) district requires Planning Commission approval. Permanent signage proposed in buildings with an approved sign program can be issued by the Zoning Administrator with a sign (land use) permit if the signs are consistent with the sign program.
- C. The following information is required to be submitted for approval of a Sign Program: (All Plans, accurately drawn to scale)
 1. Site Plan with the following:
 - a. Property lines with dimensions;
 - b. Outline and dimensions of all structures related to the use or activity to which the signage relates;
 - c. Location of all existing and proposed signage (i.e. directional, descriptive, identification, etc.).
 2. Written Inventory describing all existing and proposed signage:
 - a. Type (wall-mounted, freestanding, canopy, window, directional, etc.);

- b. Dimensions of all signs, total area of sign faces (for two-sided signs area of one side only), and percentage of wall or window coverage (where applicable). Sign areas are determined by calculating the smallest rectangle enclosing the entire sign face.
 3. Sign Design Plan indicating design, dimensions, exterior materials, lettering, graphics, colors, framing, attachments, and any other visual exterior details. Please also include a side section showing the sign thickness and projection from the building wall.
 4. Conceptual Building Elevation dimensioning the placement of the proposed sign(s) and indicating the building wall dimension.
- D. All signage in 18.8 and 18.9 is allowed in the VC and MD district with the following additional requirements:
1. Wall Signs: Wall signs shall be placed generally within a sign band located above the store front and not to exceed 80% of the linear frontage. Maximum size per façade is .75 square feet per linear foot up to 24 square feet. Letters shall not exceed 18 inches and shall be mounted flush against the wall.
 2. Awning Sign: Sign lettering and/or logo shall not comprise more than 20% or 10 square feet of the exterior surface of the canopy.
 3. Projecting Signs: signs shall not project more than 48 inches from the building face and shall have a maximum size of five (5) square feet per side. These signs shall have wrought iron mounting hardware.
 4. Window Signs: Window signs shall not exceed 10% of the window so that visibility into and out of the window is not obscured. Window signs shall be directly applied to the window or hung inside the window, concealing all mounting hardware and equipment.
 5. Freestanding Signs: Freestanding signs must be ground mounted and architecturally harmonious with the character of the building. They must meet the size requirements of the Zoning Ordinance and be located in a landscaped area.
 6. One Day Portable Signs: must be made of wood or decorative metal with cast iron brackets and shall be architecturally compatible with the style, composition, materials, colors, and details of the building.

DISCRETIONARY REVIEW STANDARDS FOR CPUD FINAL SITE PLAN REVIEW

CPUD Design Standards Section 17.5

A CPUD development must meet the intent and guidelines related to site design as stated in the Site Design Chapter of the M-36 Corridor Plan, and the Village Design Chapter of the Hamburg Township Village Plan, where applicable. Along with

other appropriate site design standards, guidelines, and principles, the following site development elements shall also be reviewed for consistency with the applicable guidelines of the Village Center and M-36 Corridor Plans:

- A. Sidewalks/Pedestrian Circulation**
- B. Parking/Loading Areas**
- C. Architecture**
- D. Signs**
- E. Street and Access Design**
- F. Lighting**
- G. Landscaping**

Site Plan Review Standards Section 4.5.7.

In the review of all site plans, the Zoning Administrator and the Planning Commission shall endeavor to assure the following:

- A. The proposed development conforms to all provisions of the Zoning Ordinances.**
- B. All required information has been provided.**
- C. The movement of vehicular and pedestrian traffic within the site and in relation to access streets and sidewalks will be safe and convenient.**
- D. The proposed development will be harmonious with existing and future uses in the immediate area and the community.**
- E. The proposed development provides the necessary infrastructure improvements, such as roads, drainage, pedestrian facilities and utilities, to serve the site, and be adequately coordinated with the current and future use of adjacent properties.**
- F. The applicable requirements of Township, County and State agencies are met regarding grading and surface drainage and for the design and construction of storm sewers, storm water holding facilities, water mains, and sanitary sewers.**
- G. Natural resources will be preserved to the maximum extent possible in the site design by developing in a manner which will not detrimentally affect or destroy natural features such as lakes, ponds, streams, wetlands, steep slopes, and woodlands.**
- H. The proposed development shall respect the natural topography to the maximum extent possible by minimizing the amount of cutting, filling, and grading required.**
- I. The proposed development will not cause soil erosion or sedimentation.**

- J. Landscaping, including trees, shrubs and other vegetative material is provided to maintain, improve and/or restore the aesthetic quality of the site.**
- K. Conformance to the adopted Hamburg Township Engineering and Design Standards. (Amended 3/10/87)**
- L. All proposed commercial, office, industrial, institutional and multiple family development shall utilize quality architecture to ensure that buildings are compatible with surrounding uses, protect the investment of adjacent landowners, blend harmoniously into the streetscape and meet the objectives the Township Master Plan. New buildings, additions and renovations shall be designed to preserve or complement the design character of existing development provide visual harmony between old and new buildings, and create a positive image for the Township's various commercial shopping nodes. Commercial, office, industrial, institutional and multiple family architecture shall be reviewed by the Planning Commission under the following criteria:**
 - 1. Buildings shall front towards and relate to the public street. Buildings shall be located to create a define streetscape through uniform setbacks and proper relationship to adjacent structures. Proper relationship to existing structures in the area shall be maintained through building mass, proportion, scale, roof line shapes and rhythm. Buildings within the area designated on the M-36 Corridor Plan/Master Plan as the "Hamburg Village" shall be compatible with the historic character of the unincorporated place commonly referred to as the "Old Hamburg Village."**
 - 2. Building materials and colors shall relate well and be harmonious with the surrounding area. Roof shape and materials shall be architecturally compatible with adjacent buildings and enhance the predominant streetscape. For any side of a principal building facing a public or private street, at least fifty percent (50%) of the facade shall be constructed of, or covered with, the following materials:**
 - a. Brick;**
 - b. Fluted or scored concrete block;**
 - c. Cut stone;**
 - d. Vinyl siding;**
 - e. Wood siding;**
 - f. Glass; or,**
 - g. Other materials similar to the above as determined by the Planning Commission.**
 - 3. Buildings shall possess architectural variety, but enhance the overall cohesive community character. Buildings shall provide architectural features, details and ornaments such as archways, colonnades, towers, cornices or peaked roof lines.**

- 4. Building walls over 100 feet in length shall be broken up with a combination of the following: varying building lines, windows, architectural accents and trees.**
- 5. Building entrances shall utilize windows, canopies and awnings; provide unity of scale, texture, and color; and provide a sense of place.**
- 6. Where the rear facade of a building will be visible from a residential zoning district, or the rear of the site will be used for public access or parking, such rear facade shall be constructed to a finished quality comparable to the front facade.**
- 7. Signs, landscaping, lighting and other site elements shall be coordinated and compatible with the building design, as well as harmonious with other nearby developments. Developments shall provide site features such as decorative entry signs, ornamental lighting, pedestrian plazas and/or pedestrian furniture.**

Exhibit B: March 19, 2019 township engineer review



March 19, 2019

Ms. Amy Steffens, Planning and Zoning Administrator
Hamburg Township
10405 Merrill Rd
P.O. Box 157
Hamburg, MI 48139

Re: Hampton Manor of Hamburg
Site Plan Review

Dear Ms. Steffens

We have received plans along with two subsequent revisions for the Hampton Manor of Hamburg, dated March 11, 2019 as prepared by Laphram Associates. This review is based on the revision received March 15, 2019. We offer the following comments for your consideration.

Roadways

1. The proposed roadway cross section for the roadway connecting to Village Center Parkway is appropriate for this project.
2. The proposed pavement cross section of the internal roadways and parking areas is appropriate for this project.
3. The plans do not appear to take into account drainage of the roadway connecting to Village Center Parkway. The plans should be modified accordingly, including providing a profile, limiting sheet flow to 400' and verifying the capacity of the existing catch basins if being used for drainage.

Grading

4. In general, the grading plans appear to be incomplete. Sheet C-3, Existing Topographic Survey, includes unlabeled proposed contours. Sheets C-15 and C-16, Grading Plan and Off Site Grading Plan, do not show how the proposed contours relate to the existing contours. The information provided needs to be clarified for further review. The proposed contours should be labelled and clearly identified.
5. Any offsite grading will require easement from the subject property owner. In addition to the proposed roadway connection to Village Center Parkway, offsite grading is shown on the northeast corner of the site, and the southern portion of the site to adjust the existing gravel driveway to the south.
6. Additional detail is needed on the northeastern and southern handicap parking/ ramp arrangements.

Water Main

7. The drawings shall include a basis of design of the water system per Livingston County Water Authority (LCWA) Standards. LCWA approval of the proposed watermain improvements is required prior to submittal of an Act 399 permit to the Michigan Department of Environmental Quality (MDEQ).
8. No water main valves are shown in the plan view. Valve should be included at watermain intersections, and every 500 feet for commercial areas, or 800 feet in residential areas in accordance with 10 States Standards.
9. The future connection point on the south side of the site should include a valve, watermain stub, and be capped off.
10. We are assuming a future watermain loop would feed the independent living cottages. The petitioner may want to consider adding tees, valves and stubs to facilitate future construction and avoid disrupting the road.
11. The drawings should include the LCWA water main details and specifications.
12. The drawings should include requirements for disinfection of the new watermain.

Sanitary Sewer

13. The Petitioner shall submit an Application for Commercial Property Sewer Connection per Hamburg Township Policy. This is required prior to submittal of the Part 41 permit to the MDEQ.
14. The manholes shall be numbered on all future submittals.
15. A drop connection required at the proposed manhole at Station 9+40 (near Village Center Parkway).
16. The proposed manhole at Station 4+00/24+00 that receives sewages from the south show different invert elevations for the sewer running to the south on sheets C-11 and C-12.
17. The petitioner should provide specifications for the sewer piping, including requirements for low pressure air testing, and ring deflection tests after installation.
18. The sanitary lead for the southernmost independent living units is not shown.

Storm Water

19. The petitioner shall include a storm water narrative on the drawings

20. The second basin does not include 1 foot of freeboard as required. We note that the elevation of the roadway adjacent to the second basin is lower than the elevation of the proposed overflow.
21. The proposed detention basin overflow appears to be directed off site to the south. Inadequate detail is included on the plans to evaluate the effectiveness of this design. Additionally, landscaping is proposed in the spillway.
22. The drawings show inconsistent information in regards to the run off coefficient calculations. The petitioner should clarify.

Additional Permits/ Authorizations

23. At a minimum, the following permits and approvals are required:

- Livingston County Water Authority
- Hamburg Township Sewer Connection
- MDEQ Act 399 (water main construction)
- MDEQ Part 41 (sewer construction)
- Livingston County Drain Commissioner – Soil Erosion and Sediment Control

We recommend these comments be addressed to the Township's satisfaction prior to the approval of the plans.

Please contact me at (734) 657.4925 with any questions.

Sincerely,
Process Results, Inc



Ted L. Erickson, P.E.
Principal

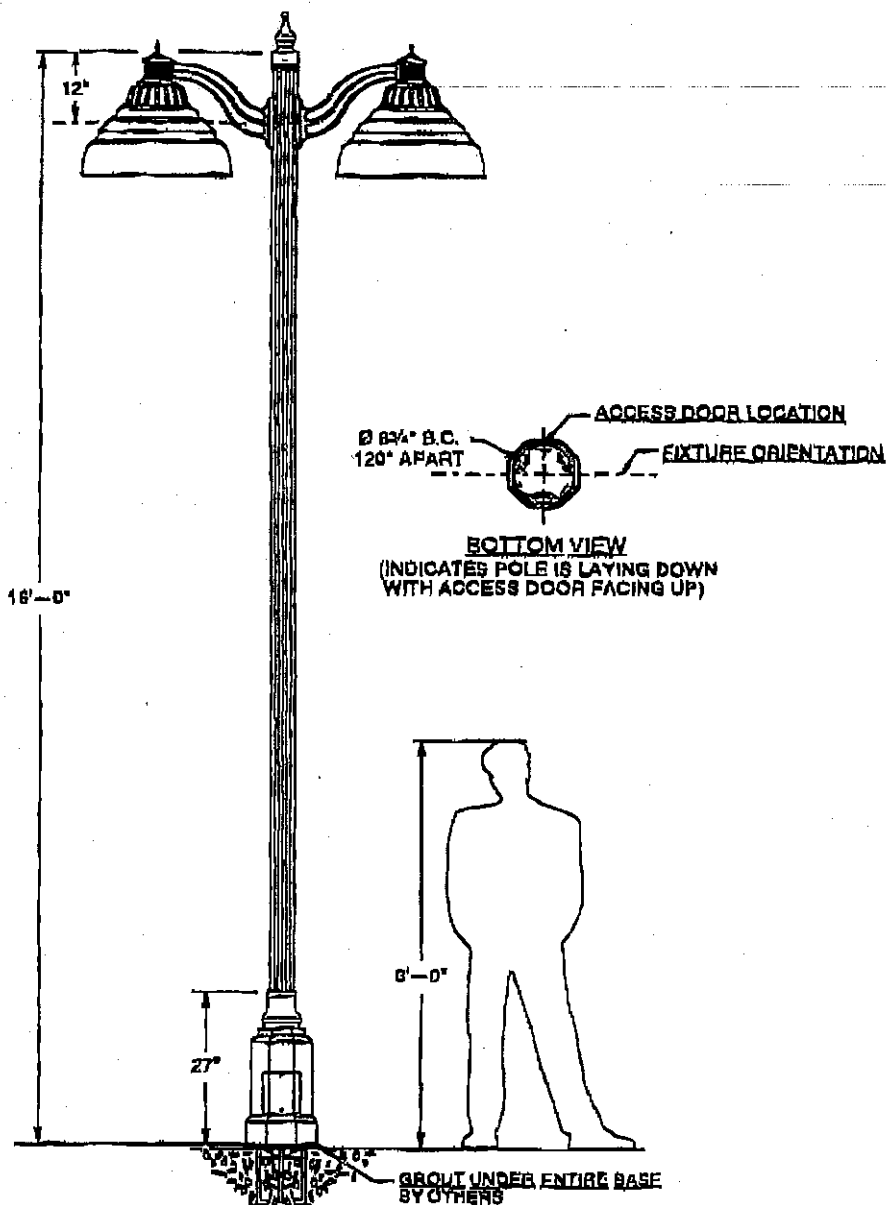
Exhibit C: Fire department review letter forthcoming

Exhibit D: street light and wall light design

10:1248542/110

P.2'S

Michigan Lighting System 248-542-2200



TYPE	
CATALOG NUMBER	
2-PRM2-H3-	
TRA5D-2-	
DB9-4F16-188	
FINISH: POLYESTER POWDER COAT.	
AAL COLOR: SPECIFY	
TO MATCH:	
PROVIDE A SAMPLE COLOR CHIP	
LAMPING	ED-2R
LAMP TYPE	PSMH
SOCKET	PULSE RATED MOGUL
WATTAGE	250
VOLTAGE	MT / 277
ALL BALLAST ARE HPF CON-STANT WATTAGE, 90 DEGREE STARTING, ALL SOCKETS ARE PORCELAIN, PULSE RATED AKVA.	
ANCHOR BOLTS	
QTY	3
SIZE	3/4" X 24" X 3"
BOLT CIRCLE	8 3/4"
PROJECTION	3 1/2"
F81/F82 OPTIONS: FUSE HOLDERS ONLY. FUSES BY OTHERS.	
LEVELING NUTS AND WASHERS MUST BE INSTALLED UNDER ALL BASES	
ONE APPROVED DRAWING MUST BE RETURNED TO A.A.L. BEFORE THIS PRODUCT CAN BE FABRICATED.	
WARNING: THIS FIXTURE MUST BE GROUNDED IN ACCORDANCE WITH LOCAL CODES OR THE NATIONAL ELECTRICAL CODE. FAILURE TO DO SO MAY RESULT IN SERIOUS PERSONAL INJURY.	

SOLD TO

PO#

JOB NAME

ELECTRA LUME M.MARLOW

CITY OF HAMBURG

ARCHITECTURAL

14248 Arista Blvd. P.O. Box 1869

La Mirada CA. 90838-1869

(714)994-2700 fax(714)994-0522

AREA

LIGHTING

Architectural Area Lighting Inc.
Reserves The Right To Change
Manufacturing Processes Without
Notice.DATE
06-20-06DRWN
A.F.M.

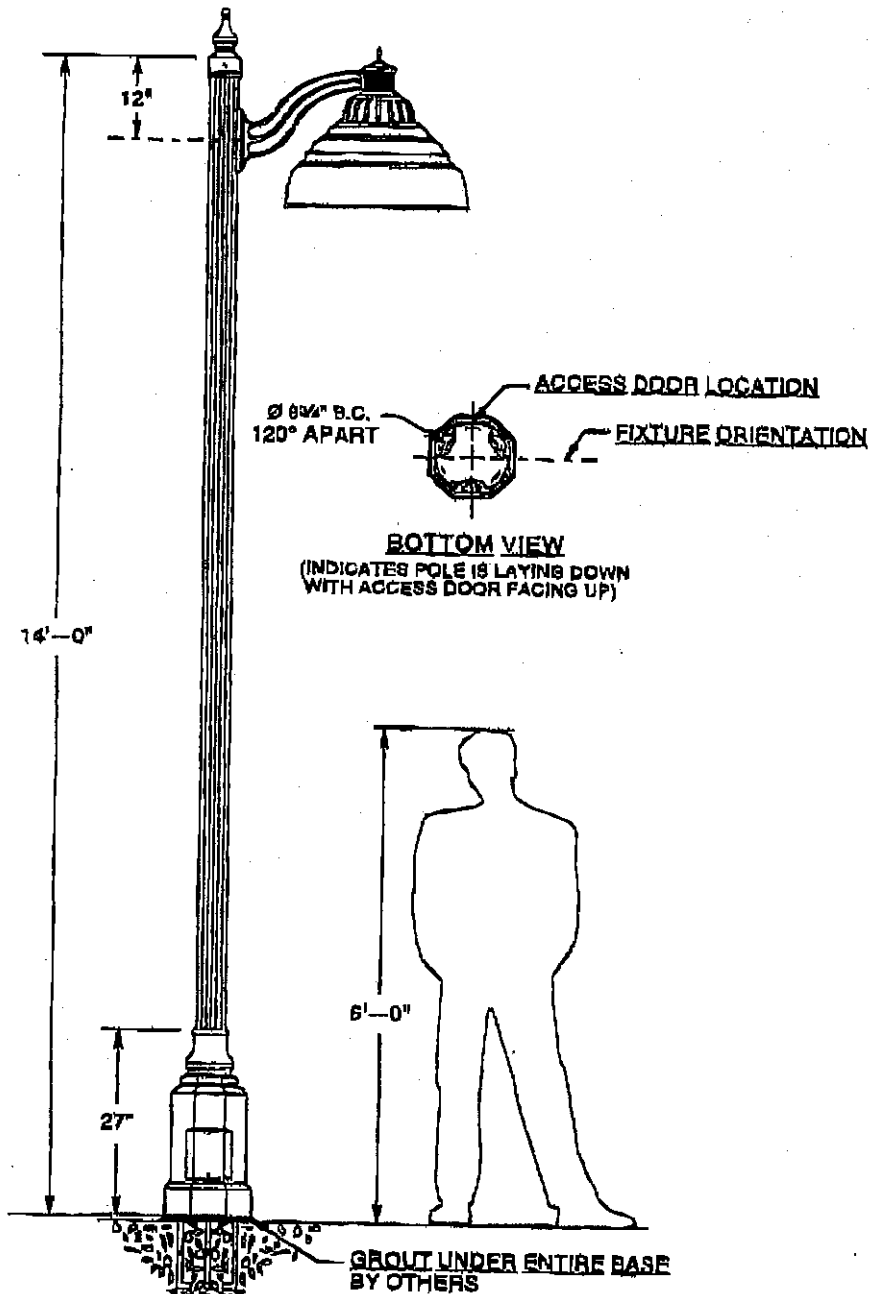
DATE

APPRVD

DATE

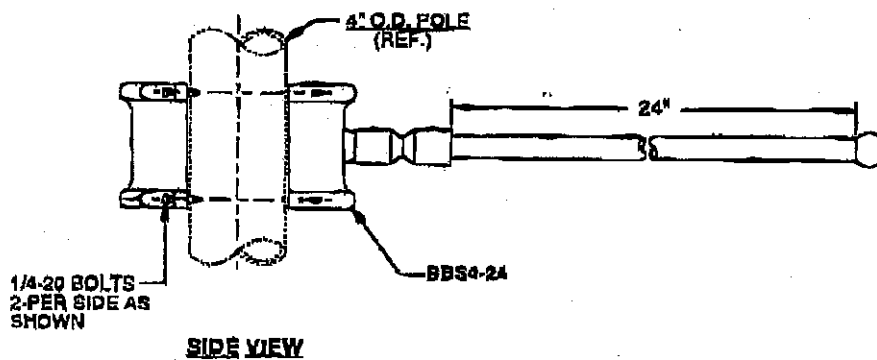
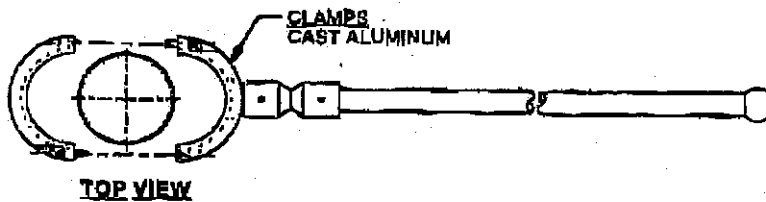
REV.

		TYPE CATALOG NUMBER PRM2-H3- TRA5D- DBB-4F16-18B-BBD4-24	
		FINISH: POLYESTER POWDER COAT. PAAL COLOR: SPECIFY TO MATCH: PROVIDE A SAMPLE COLOR CHIP	
		LAMPING ED-28 LAMP TYPE PSMH SOCKET PULSE RATED MOGUL WATTAGE 250 VOLTAGE MT / 277	
		ALL BALLAST ARE HPF CON- STANT WATTAGE, 30 DEGREE STARTING, ALL SOCKETS ARE PORCELAIN, PULSE RATED 4KVA.	
		ANCHOR BOLTS QTY 3 SIZE 3/4" X 24" X 3"	
		BOLT CIRCLE 8 3/4"	
		PROJECTION 3 1/2"	
		FB1/F32 OPTIONS: FUSE HOLDERS ONLY. FUSES BY OTHERS.	
		LEVELING NUTS AND WASHERS MUST BE INSTALLED UNDER ALL BASES	
		ONE APPROVED DRAWING MUST BE RETURNED TO A.A.L. BEFORE THE PRODUCT CAN BE FABRICATED.	
		WARNING: THIS FIXTURE MUST BE GROUNDED IN ACCORDANCE WITH LOCAL CODES OR THE NATIONAL ELECTRICAL CODE. FAILURE TO DO SO MAY RESULT IN SERIOUS PERSONAL INJURY.	
SOLD TO		PO#	
ELECTRA LUME M.MARLOW		JOB NAME	
CITY OF HAMBURG			
ARCHITECTURAL		14240 Artesia Blvd. P.O. Box 1868 La Mirada Ca. 90538-1868	
AREA		(714)294-2701 fax(714)294-0622	
LIGHTING		Architectural Area Lighting Inc. Reserves The Right To Change Manufacturing Processes Without Notice.	
DATE		DRWN	
08-20-06		A.F.M	
DATE		APPRVD	
DATE		REV.	



TYPE	
CATALOG NUMBER	
PRM2-H3-	
TRASD-	
DB9-4F14-180	
FINISH: POLYESTER POWDER COAT.	
AAL COLOR: SPECIFY	
TO MATCH:	
PROVIDE A SAMPLE COLOR CHIP	
LAMPING	ED-20
LAMP TYPE	PSMH
SOCKET	PULSE RATED MOGUL
WATTAGE	250
VOLTAGE	MT / 277
ALL BALLAST ARE MPF CON- STANT WATTAGE, 30 DEGREE STARTING. ALL SOCKETS ARE PORCELAIN, PULSE RATED 4KVA.	
ANCHOR BOLTS	
QTY	3
SIZE	3/4" X 24" X 3"
BOLT CIRCLE	8 3/4"
PROJECTION	3 1/2"
FS1/FS2 OPTIONS: FUSE HOLDERS ONLY. FUSES BY OTHERS.	
LEVELING NUTS AND WASHERS MUST BE INSTALLED UNDER ALL BASES	
ONE APPROVED DRAWING MUST BE RETURNED TO A.A.L. BEFORE THIS PRODUCT CAN BE FABRICATED.	
WARNING: THIS FIXTURE MUST BE GROUNDED IN ACCORDANCE WITH LOCAL CODES OR THE NATIONAL ELECTRICAL CODE. FAILURE TO DO SO MAY RESULT IN SERIOUS PERSONAL INJURY.	

SOLD TO		PO#	JOB NAME	CITY OF HAMBURG
			ELECTRA LUME M.MARLOW	
A A L	ARCHITECTURAL	14249 Artesia Blvd. P.O. Box 1869 La Mirada CA. 90638-1869		
	AREA	(714)954-2700 fax (714)954-0522		
	LIGHTING	Architectural Area Lighting Inc. Reserves The Right To Change Manufacturing Processes Without Notice.		
		DATE	DRWN	
		06-19-06	A.P.M	
		DATE	APPRVD	
		DATE	REV.	



TYPE

CATALOG NUMBER

BBS4-24

FINISH: POLYESTER POWDER
COAT.

FAL COLOR: SPECIFY

TO MATCH:

PROVIDE A SAMPLE COLOR CHIP

LAMPING

LAMP TYPE

SOCKET

WATTAGE

VOLTAGE

ALL BALLAST ARE MPF CON-
STANT WATTAGE, 30 DEGREE
STARTING. ALL SOCKETS ARE
PORCELAIN, PULSE RATED AKVA.

ANCHOR BOLTS

QTY

SIZE

BOLT CIRCLE

PROJECTION

FS1/FS2 OPTIONS:
FUSE HOLDERS ONLY.
FUSES BY OTHERS.LEVELING NUTS AND WASHERS
MUST BE INSTALLED UNDER ALL
BASESONE APPROVED DRAWING
MUST BE RETURNED TO A.A.L.
BEFORE THIS PRODUCT CAN BE
FABRICATED.WARNING: THIS FIXTURE MUST
BE GROUNDED IN ACCORDANCE
WITH LOCAL CODES OR THE
NATIONAL ELECTRICAL CODE.
FAILURE TO DO SO MAY RESULT
IN SERIOUS PERSONAL INJURY.

SOLD TO

PO#

ELECTRA LUME M.MARLOW

JOB NAME

CITY OF HAMBURG

ARCHITECTURAL

14249 Arlesia Blvd. P.O. Box 1889

La Mirada CA. 90638-1889

AREA

(714)988-2700 fax(714)994-0522

LIGHTING

Architectural Area Lighting Inc.
Reserves The Right To Change
Manufacturing Processes Without
Notice.DATE
06-20-08DRWN
A.F.M

DATE

APPRVD

DATE

REV.

DESCRIPTION

The patented Lumark Crosstour™ MAXX LED wall pack series of luminaires provides low-profile architectural style with super bright, energy-efficient LEDs. The rugged die-cast aluminum construction, back box with secure lock hinges, stainless steel hardware along with a sealed and gasketed optical compartment make Crosstour impervious to contaminants. The Crosstour MAXX wall luminaire is ideal for wall/surface, inverted mount for facade/canopy illumination, perimeter and site lighting. Typical applications include pedestrian walkways, building entrances, multi-use facilities, industrial facilities, perimeter parking areas, storage facilities, institutions, schools and loading docks.

SPECIFICATION FEATURES

Construction

Low-profile LED design with rugged one-piece, die-cast aluminum back box and hinged removable door. Matching housing styles incorporate both a full cutoff and refractive lens design. Full cutoff and refractive lens models are available in 58W, 81W and 102W. Patent pending secure lock hinge feature allows for safe and easy tool-less electrical connections with the supplied push-in connectors. Back box includes four 1/2" NPT threaded conduit entry points. The back box is secured by four lag bolts (supplied by others). External fin design extracts heat from the fixture surface. One-piece silicone gasket seals door and back box. Not recommended for car wash applications.

Optical

Silicone sealed optical LED chamber incorporates a custom engineered reflector providing high-efficiency illumination. Full cutoff models integrate an impact-resistant molded refractive prism optical lens assembly meeting requirements for Dark Sky compliance. Refractive lens models incorporate a molded lens

assembly designed for maximum forward throw. Solid state LED Crosstour MAXX luminaires are thermally optimized with eight lumen packages in cool 5000K, neutral 4000K, or warm 3000K LED color temperature (CCT).

Electrical

LED driver is mounted to the die-cast aluminum housing for optimal heat sinking. LED thermal management system incorporates both conduction and natural convection to transfer heat rapidly away from the LED source. 58W, 81W and 102W models operate in -40°C to 40°C [-40°F to 104°F]. High ambient 50°C [122°F] models available in 58W and 81W models only. Crosstour MAXX luminaires maintain greater than 89% of initial light output after 72,000 hours of operation. Four half-inch NPT threaded conduit entry points allow for thru-branch wiring. Back box is an authorized electrical wiring compartment. Integral LED electronic driver incorporates surge protection. 120-277V 50/60Hz, 480V 60Hz, or 347V 60Hz electrical operation. 480V is compatible for use with 480V Wye systems only.

Emergency Egress

Optional integral cold weather battery emergency egress includes emergency operation test switch (available in 58W and 81W models only), an AC-ON indicator light and a premium extended rated sealed maintenance-free nickel-metal hydride battery pack. The separate emergency lighting LEDs are wired to provide redundant emergency lighting. Listed to UL Standard 924, Emergency Lighting.

Area and Site Pole Mounting

Optional extruded aluminum 6-1/2" arm features internal bolt guides for supplied twin support rods, allowing for easy positioning of the fixture during installation to pole. Supplied with round plate adapter plate. Optional tenon adapter fits 2-3/8" or 3-1/2" O.D. Tenon.

Finish

Crosstour MAXX is protected with a super TGIC carbon bronze or summit white polyester powder coat paint. Super TGIC powder coat paint finishes withstand extreme climate conditions while providing optimal color and gloss retention of the installed life.

Warranty

Five-year warranty.



XTOR CROSSTOUR MAXX LED

APPLICATIONS:
WALL / SURFACE
INVERTED
SITE LIGHTING



CERTIFICATION DATA

UL/cUL Wet Location Listed
LM79 / LM80 Compliant
ROHS Compliant
NOM Compliant Models
3G Vibration Tested
UL924 Listed (CBP Models)
IP66 Rated
DesignLights Consortium® Qualified*

TECHNICAL DATA

40°C Ambient Temperature
External Supply Wiring 90°C Minimum

EPA

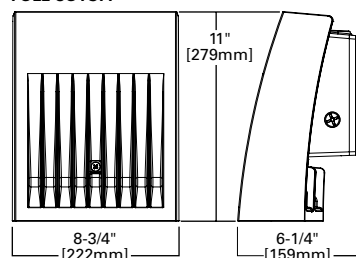
Effective Projected Area (Sq. Ft.):
XTOR6B, XTOR8B, XTOR12B=0.54
With Pole Mount Arm=0.98

SHIPPING DATA:

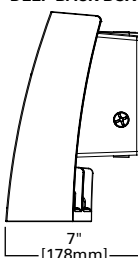
Approximate Net Weight:
12-15 lbs. [5.4-6.8 kgs.]

DIMENSIONS

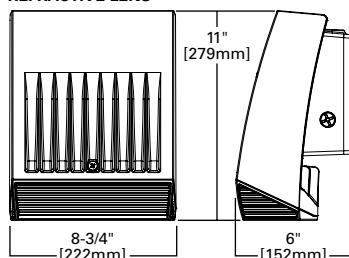
FULL CUTOFF



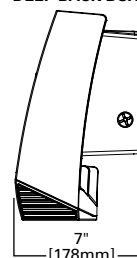
DEEP BACK BOX



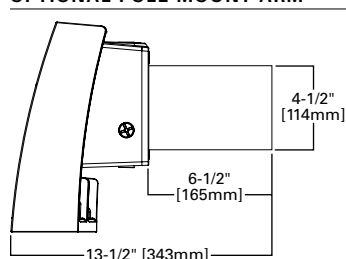
REFRACTIVE LENS



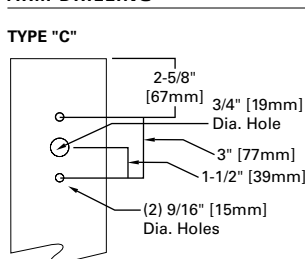
DEEP BACK BOX



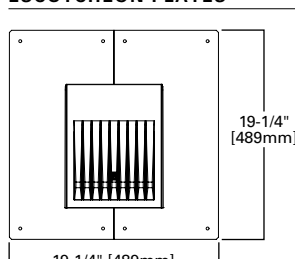
OPTIONAL POLE MOUNT ARM



ARM DRILLING



ESCUTCHEON PLATES



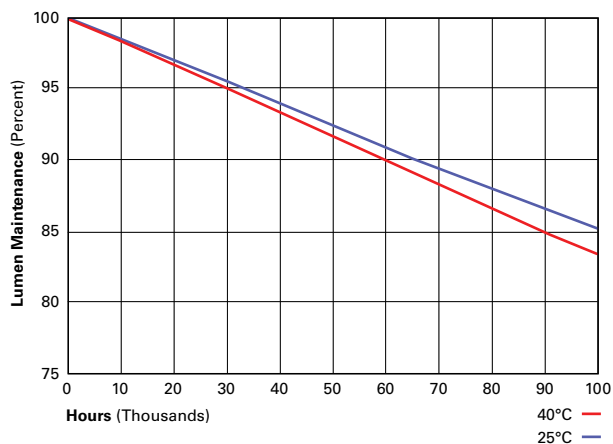
POWER AND LUMENS BY FIXTURE MODEL

58W Series						
LED Information	XTOR6B	XTOR6BRL	XTOR6B-W	XTOR6BRL-W	XTOR6B-Y	XTOR6BRL-Y
Delivered Lumens	6,129	6,225	6,038	6,133	5,611	5,826
B.U.G. Rating	B1-U0-G1	B2-U4-G3	B1-U0-G1	B2-U4-G3	B1-U0-G1	B2-U4-G3
CCT (Kelvin)	5000K	5000K	4000K	4000K	3000K	3000K
CRI (Color Rendering Index)	70	70	70	70	70	70
Power Consumption (Watts)	58W	58W	58W	58W	58W	58W
81W Series						
LED Information	XTOR8B	XTOR8BRL	XTOR8B-W	XTOR8BRL-W	XTOR8B-Y	XTOR8BRL-Y
Delivered Lumens	8,502	8,635	8,373	8,504	7,748	8,079
B.U.G. Rating	B2-U0-G1	B2-U4-G3	B2-U0-G1	B2-U4-G3	B2-U0-G1	B2-U4-G3
CCT (Kelvin)	5000K	5000K	4000K	4000K	3000K	3000K
CRI (Color Rendering Index)	70	70	70	70	70	70
Power Consumption (Watts)	81W	81W	81W	81W	81W	81W
102W Series						
LED Information	XTOR12B	XTOR12BRL	XTOR12B-W	XTOR12BRL-W	XTOR12B-Y	XTOR12BRL-Y
Delivered Lumens	12,728	13,458	12,539	13,258	11,861	12,595
B.U.G. Rating	B2-U0-G1	B2-U4-G3	B2-U0-G1	B2-U4-G3	B2-U0-G1	B2-U4-G3
CCT (Kelvin)	5000K	5000K	4000K	4000K	3000K	3000K
CRI (Color Rendering Index)	70	70	70	70	70	70
Power Consumption (Watts)	102W	102W	102W	102W	102W	102W

EGRESS Information	XTOR6B, XTOR8B and XTOR12B Full Cutoff CBP Egress LED	XTOR6B, XTOR8B and XTOR12B Refractive Lens CBP Egress LED
Delivered Lumens	509	468
B.U.G. Rating	N.A.	N.A.
CCT (Kelvin)	4000K	4000K
CRI (Color Rendering Index)	65	65
Power Consumption (Watts)	1.8W	1.8W

LUMEN MAINTENANCE

Ambient Temperature	TM-21 Lumen Maintenance (72,000 Hours)	Theoretical L70 (Hours)
XTOR6B Model		
25°C	> 90%	246,000
40°C	> 88%	217,000
50°C	> 88%	201,000
XTOR8B Model		
25°C	> 89%	219,000
40°C	> 87%	195,000
50°C	> 86%	181,000
XTOR12B Model		
25°C	> 89%	222,000
40°C	> 87%	198,000



CURRENT DRAW

Voltage	Model Series				
	XTOR6B	XTOR8B	XTOR12B	XTOR6B-CBP (Fixture/Battery)	XTOR8B-CBP (Fixture/Battery)
120V	0.51	0.71	0.94	0.60/0.25	0.92/0.25
208V	0.25	0.39	0.52	--	--
240V	0.25	0.35	0.45	--	--
277V	0.22	0.31	0.39	0.36/0.21	0.50/0.21
347V	0.19	0.25	0.33		--
480V	0.14	0.19	0.24		--

ORDERING INFORMATION

Sample Number: XTOR6B-W-WT-PC1

Series ¹	LED Kelvin Color	Housing Color	Options (Add as Suffix)
Full Cutoff XTOR6B =58W XTOR8B =81W XTOR12B =102W Refractive Lens XTOR6BRL =58W XTOR8BRL =81W XTOR12BRL =102W	[Blank] =Bright White (Standard) 5000K W =Neutral, 4000K Y =Warm, 3000K	[Blank] =Carbon Bronze (Standard) WT =Summit White BK =Black BZ =Bronze AP =Grey GM =Graphite Metallic DP =Dark Platinum	347V =347V ^{2, 3, 4, 5} 480V =480V ^{2, 3, 4, 5, 6} PC1 =Photocontrol 120V ⁷ PC2 =Photocontrol 208-277V ^{7, 8} PMA =Pole Mount Arm (C Drilling) with Round Adapter ^{3, 9} MS-L20 =Motion Sensor for ON/OFF Operation ^{2, 3, 10, 11} MS/DIM-L20 =Motion Sensor for Dimming Operation ^{2, 3, 10, 11, 12, 13, 14} CBP =Cold Weather Battery Pack ^{2, 3, 15, 16, 17} HA =50°C High Ambient ¹⁷
Accessories (Order Separately)			
WG-XTORMX =Crosstour MAXX Wire Guard PB120V =Field Installed 120V Photocontrol PB277V BUTTON PC =Field Installed 208-277V Photocontrol ⁸ VA1040-XX =Single Tenon Adapter for 3-1/2" O.D. Tenon ¹⁸ VA1041-XX =2@180° Tenon Adapter for 3-1/2" O.D. Tenon ¹⁸ VA1042-XX =3@120° Tenon Adapter for 3-1/2" O.D. Tenon ¹⁸ VA1043-XX =4@90° Tenon Adapter for 3-1/2" O.D. Tenon ¹⁸ VA1044-XX =2@90° Tenon Adapter for 3-1/2" O.D. Tenon ¹⁸ VA1045-XX =3@90° Tenon Adapter for 3-1/2" O.D. Tenon ¹⁸ VA1046-XX =2@120° Tenon Adapter for 3-1/2" O.D. Tenon ¹⁸		VA1033-XX =Single Tenon Adapter for 2-3/8" O.D. Tenon ¹⁸ VA1034-XX =2@180° Tenon Adapter for 2-3/8" O.D. Tenon ¹⁸ VA1035-XX =3@120° Tenon Adapter for 2-3/8" O.D. Tenon ¹⁸ VA1036-XX =4@90° Tenon Adapter for 2-3/8" O.D. Tenon ¹⁸ VA1037-XX =2@90° Tenon Adapter for 2-3/8" O.D. Tenon ¹⁸ VA1038-XX =3@90° Tenon Adapter for 2-3/8" O.D. Tenon ¹⁸ VA1039-XX =2@120° Tenon Adapter for 2-3/8" O.D. Tenon ¹⁸ EWP/XTORMX =Escutcheon Wall Plate, Carbon Bronze EWP/XTORMX-WT =Escutcheon Wall Plate, Summit White FSIR-100 =Wireless Configuration Tool for Occupancy Sensor ¹⁴	

- NOTES:**
- DesignLights Consortium® Qualified and classified for both DLC Standard and DLC Premium, refer to www.designlights.org for details.
 - Not available with HA option.
 - Deep back box is standard for 347V, 480V, CBP, PMA, MS-L20 and MS/DIM-L20.
 - Not available with CBP option.
 - Thru-branch wiring not available with HA option or with 347V.
 - Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
 - Not available with MS-L20 and MS/DIM-L20 options.
 - Use PC2 with 347V or 480V option for photocontrol. Factory wired to 208-277V lead.
 - Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
 - For use in downlight orientation only. Optimal coverage at mounting heights of 9'-20'.
 - 120V thru 277V only.
 - Factory set to 50% power reduction after 15-minutes of inactivity. Dimming driver included.
 - Includes integral photo sensor.
 - The FSIR-100 configuration tool is required to adjust parameters including high and low modes, sensitivity, time delay, cutoff, and more. Consult your lighting representative at Eaton for more information.
 - 120V or 277V operation only.
 - Operating temperatures -20°C to 25°C.
 - Not available in XTOR12B or XTOR12BRL models.
 - Replace XX with housing color.

STOCK ORDERING INFORMATION

58W Series	81W Series	102W Series
Full Cutoff		
XTOR6B =58W, 5000K, Carbon Bronze	XTOR8B =81W, 5000K, Carbon Bronze	XTOR12B =102W, 5000K, Carbon Bronze
XTOR6B-PC1 =58W, 5000K, 120V PC, Carbon Bronze	XTOR8B-PC1 =81W, 5000K, 120V PC, Carbon Bronze	
XTOR6B-WT = 58W, 5000K, Summit White	XTOR8B-WT =81W, 5000K, Summit White	
XTOR6B-W =58W, 4000K, Carbon Bronze	XTOR8B-PC2 =81W, 5000K, 208-277V PC, Carbon Bronze	
XTOR6B-PMA = 58W, 5000K, Pole Mount Arm, Carbon Bronze	XTOR8B-PMA =81W, 5000K, Pole Mount Arm, Carbon Bronze	
XTOR6B-PC2 = 58W, 5000K, 208-277V PC, Carbon Bronze	XTOR8B-347V =81W, 5000K, Carbon Bronze, 347V	
Refractive Lens		
XTOR6BRL =58W, 5000K, Refractive Lens, Carbon Bronze	XTOR8BRL =81W, 5000K, Refractive Lens, Carbon Bronze	XTOR12BRL =102W, 5000K, Refractive Lens, Carbon Bronze
XTOR6BRL-PC1 =58W, 5000K, Refractive Lens, 120V PC, Carbon Bronze	XTOR8BRL-PC1 =81W, 5000K, Refractive Lens, 120V PC, Carbon Bronze	XTOR12BRL-W =102W, 4000K, Refractive Lens, Carbon Bronze
XTOR6BRL-WT =58W, 5000K, Refractive Lens, Summit White	XTOR8BRL-WT =81W, 5000K, Refractive Lens, Summit White	XTOR12BRL-347V =102W, 5000K, Refractive Lens, Carbon Bronze, 347V
XTOR6BRL-W =58W, 4000K, Refractive Lens, Carbon Bronze	XTOR8BRL-PC2 =81W, 5000K, Refractive Lens, 208-277V PC, Carbon Bronze	
XTOR6BRL-PMA =58W, 5000K, Refractive Lens, Pole Mount Arm, Carbon Bronze	XTOR8BRL-PMA =81W, 5000K, Refractive Lens, Pole Mount Arm, Carbon Bronze	
XTOR6BRL-PC2 =58W, 5000K, Refractive Lens, 208-277V PC, Carbon Bronze	XTOR8BRL-W =81W, 4000K, Refractive Lens, Carbon Bronze	
XTOR6BRL-347V =58W, 5000K, Refractive Lens, Carbon Bronze, 347V	XTOR8BRL-347V = 81W, 5000K, Refractive Lens, Carbon Bronze, 347V	

Natural Features Impact Statement

PROPOSED DEVELOPMENT:

Name: Hamburg Manor (Proposed Commercial PUD for Senior Housing Project)
See Appendix A for Proposed Site Plan.

Location: Section 25, Hamburg Township, Livingston County, Michigan.

Site Address: 7244 E. M-36, Hamburg, Michigan 48139



Figure 1. Location Map.

SITE IMPACT ASSESSMENT:

I. Description/ Analysis of Site (included are all existing structures, manmade structures):

The site is approximately 6.5 acres of property located in a rural area of Hamburg Township. There are four buildings on the site associated with the former use of the site as Campbell Septic Service. Building #1 is 3,200 square feet, building #2 is 1,800 square feet, building #3 is 1,000 square feet, and building #4 is 300 square feet. Besides the buildings there are numerous gravel roads that traverse the property as well as provide access to the residence to the south. The remaining portions of the site is covered with various grasses, shrubs and small trees.

Various types of garbage and debris are scattered throughout the site. Items such as tires and piles of broken bricks and concrete are located on the site. Abandoned vehicles are also located on the property. This site also has historically had both above ground and underground storage tanks used for fuel. It is believed that all these tanks have been properly removed and disposed of. All of these items are to be properly demolition and/or removed from the site to allow for the proposed development of a senior housing project.



Figure 2. Site Schematic from PIESA.

II. Description/Analysis of surrounding properties within 50 feet of the Site (included are all existing structures, manmade structures):

The lands to the North are mixed use with the west side being commercial the middle being currently residential and the easterly portion wooded. The westerly portion has a commercial building used as professional services and it appears to have plans for future development of similar commercial buildings and parking. The residential lands have a single story wood framed dwelling with a garage and some storage sheds. To the east the lands are vacant woodlands. Further to the east is a commercial development for retail. It is anticipated that the lands between this property and the commercial development will someday also be a commercial use. The property to the south is residential use but wooded which extends around the westerly side of the property to Veterans Memorial Drive. To the northwest of the site is the fire department building.

III. Description of existing Natural Features (I.E. topography, soils, slopes, geology, ground water, wetlands, watercourses, plants and animals, habitat, wildlife corridors, and other unique natural features that may exist on the Site).

The site is relatively flat with the exception to two hills located on the site believed to be spoil locations from previous facility operations and steep banks on the adjacent properties. Soils based on the USDA Web Soil Survey are as follows: Approximately 85% of the site comprised of Wawasee Loam and approximately 15% of the site, mostly the southern portion of the site being Fox-Boyer complex. The USDA' Natural Resources Conservation Service's soil survey describes these map units as follows:

Wawasee Loam

"The Wawasee component makes up 90 percent of the map unit. Slopes are 0 to 2 percent. This component is on ground moraines on till plains. The parent material consists of calcareous loamy till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the F098XA010MI Fine Till Knolls ecological site. Nonirrigated land capability classification is 1. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 25 percent. There are no saline horizons within 30 inches of the soil surface."

And

Fox-Boyer complex

“The Fox component makes up 50 percent of the map unit. Slopes are 12 to 18 percent. This component is on moraines. The parent material consists of loamy over stratified sandy and gravelly glaciofluvial deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 15 percent. The Boyer component makes up 35 percent of the map unit. Slopes are 12 to 18 percent. This component is on moraines. The parent material consists of loamy over sandy and gravelly glaciofluvial deposits. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 4e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 15 percent.”



Figure 3. Soils Map.

The National Wetland Inventory maps do not indicate any wetlands on the site, nor are there any on-site indications of wetlands such as hydric soils or signs of hydrology. Although borings to a depth of only 1 to 1-1/2 feet depth were performed for the PIESA there was no groundwater encountered in any of the borings. It would be expected that groundwater be a depth greater than 2 foot on this site and that groundwater would generally be following the direction of the surface water which appears to be going in a southwestern direction towards the small unnamed stream by the railroad that discharges to the Huron River.



Figure 4. U.S. Fish & Wildlife Service's National Wetland Inventory Map.

Based on site visits and looking at photos the vegetation possibly identified is as follows: Wild Carrot, Spotted Knapweed, Chickaree, Autumn Olive, Box Elder, Barnyard Grass, Red Pine. The existing trees and grasses provide minimal habitat for some of the small animals that would

typically be found in surrounding woodlands such as whitetail deer, raccoon, squirrels, rabbits, fox, muskrat, possum, mink, beaver, porcupine, ground squirrels, and mice. Various species of birds are potentially utilizing this land for either nesting or seeking food sources. Resident bird species might include ruffed grouse, northern cardinal, American crow, blue jay, pileated woodpecker, wild turkey, chickadees, and nut hatchers. Neo-tropical migrants might include warblers, thrushes, fly catchers, sparrows, and swallows plus birds of prey—owls, hawks, and eagles.

IV. Recommendations regarding dominant tree species, any rare or unique specimen trees, and all tree species greater than 16 inches in diameter or greater.

There are several deciduous trees greater than 16 inches on this site but there does not appear to be any rare or unique specimen on the site. The site historically had been farm field which sat fallow for many years and has become overgrown with young trees and shrubs. Based on historic aerial photos of the area the site first became used as a septage hauler business sometime in the 1970's after which time the site appeared to be used for parking and storage until sometime after 1992 when trees and shrubs appear to start growing around the buildings and drives. Predominant larger trees on the site are oak or cottonwood trees with several other similar deciduous trees. Because of the winter season some of the trees were not able to be identified by our surveyors during mapping. Other grasses and groundcover are typical for this type of site in this area that has converted from prior agricultural fields.



Figure 5. Historic Aerial Photos 1969 Left and 1992 Right.

V. Potential Impact on Identified Existing Natural Features:

The natural features currently identified on this site will be minimally disrupted by the development of this senior housing project. The existing trees and grasses provide minimal habitat for some of the small animals and birds that would typically be found in surrounding

woodlands such as whitetail deer, raccoon, squirrels, rabbits, fox, muskrat, possum, mink, beaver, porcupine, ground squirrels, and mice. Some small animals and birds may be temporarily displaced to the adjacent vacant lands, but it is anticipated that they will find that when the project is completed the manicured lawns and trees will still allow for these creatures to continue their day to day living and migrate across the property to access adjacent habitat. We intend to encourage the continued migration of these creatures to provide residents with opportunities to view neighborhood wildlife.

VI. Recommendations regarding any disruption of existing natural features on Site.

Trees will be planted as landscaping on the site during the construction to offset some of the vegetation that will be removed. Similar habitat surrounds the site that the animals currently occupying and using the site can migrate onto and maintain or improve current life.

VII. Recommendations and concerns regarding storm water drainage and detention/retention systems for the Site.

The final engineering plans will include a detailed stormwater management plan which will detail the transmission and detention of on-site stormwater runoff. The plans will include detention basins with pre-treatment and an outlet designed to meet the allowable discharge rates of the Livingston County Drain Commission (LCDC). The LCDC requires that the stormwater management systems be designed in accordance with their *"PROCEDURES AND DESIGN CRITERIA FOR STORMWATER MANAGEMENT SYSTEMS AND SOIL EROSION AND SEDIMENTATION CONTROL PROGRAM"* which require plan submission and approval prior to construction. These requirements will provide for design criteria such as determination of runoff, calculations of detention required and allowable discharge rates. These requirements will not allow for stormwater discharge that will be detrimental to adjacent properties.

Our conceptual stormwater management plans will collect runoff from roofs through gutters and downspouts, and parking lots through catch basins and swales to direct this runoff to stormwater basins. Smaller basins with overflow structures will be utilized to retain smaller storm events, but allow for discharge when a larger storm event occurs. The larger basins will be designed so that a first flush pretreatment of smaller storm events will be detained and larger events can be released at a slower discharge rate allow for settling of sediment and pollutants to protect downstream properties from potential contamination or severe flooding.

VIII. Recommendations and concerns regarding sedimentation control during grading and construction of the Site.

The final engineering plans will include a detailed Soil Erosion and Sedimentation Control plan which will be submitted to the Livingston County Drain Commissioner's office for an Act 451

Part 91, Soil Erosion and Sedimentation Control permit. No earth changes or excavation shall be started prior to the issuance of this permit. The developer will hire a qualified contractor who shall protect all existing and proposed storm sewer facilities on and adjacent to the site during excavation and construction. All sediment shall be contained on site. Any silt in county drains, storm sewer, culverts, etc. as a result of this project, shall be removed by the developer at the cost of the developer.

The Soil Erosion and Sedimentation Control Plans will include temporary on-site grading to direct runoff, silt fence and protection of stormwater structures during the construction process. After construction permanent measures such as swales, storm sewers, basins and ground cover such as pavement and grasses will be utilized to stabilize the site.

CONCLUSION

This Natural Features Impact Statement is respectively submitted in accordance with the Hamburg Township Zoning Ordinance. The information contained herein is Lapham Associates opinion which was determined by numerous sources of information and site visits. Much of the information was gathered from the Phase I Environmental Site Assessment (PIESA) provide by the Township. This PIESEA contained historic aerial photos, topographic maps, and photos of the site.

Respectfully submitted this 27th day of February, 2019.



Adam Bishop, Environmental Scientist



Scott E. Bell, AICP



Timothy L. Lapham P.E., P.S.

Attachments: Appendix A: Proposed Site Plan
Appendix B: Natural Features Site Map
Appendix C: Preparer's Qualifications

Appendix A

Proposed Site Plan

Appendix B

Natural Features Site Map



Appendix C

Preparer's Qualifications

Corporate Profile

LAPHAM ASSOCIATES

Lapham Associates is a multi-discipline professional service firm offering state of the art civil engineering, surveying and environmental services to a wide variety of clients. In addition, we provide comprehensive land use planning for governmental jurisdictions and private developers. We have been in business since 1958.

In the area of civil engineering, *Lapham Associates* provides technical studies, water and sewer design, road and bridge design, structural engineering and construction management and inspection. A Licensed Professional Engineer supervises each project with staff engineers and technicians assigned according to the demands and complexities involved. This method of project management provides the client with the personal attention that serves both on-time delivery and cost accountability.

Our surveying division offers clients a full range of services for; retracement and remonumentation, construction staking, ALTA/ACSM Land Title Surveys, mortgage inspection reports, subdivision and condominium design, topographic mapping, GIS computer mapping, pipeline and electrical transmission lines, and highway route location. Our field crews are equipped with the most current generation of Global Positioning Systems (GPS), electronic total-stations and data collectors and are backed by in-house computerized equipment.

Our environmental staff provides an array of wetland related services including boundary delineation, permit applications (MDEQ 203 and 346, Corps of Engineers 404), GPS wetland mapping, remediation plans and mitigation procedures. The ecological consultation assistance we provide includes species inventory, threatened and endangered searches and tree inventory. We also provide Phase I Environmental Site Assessments and other site and groundwater contamination monitoring services.

Planning services for governmental jurisdictions and private developers include master and comprehensive plan preparation, zoning and land use regulation, parks and recreation, economic development, downtown development DDA/TIF, housing evaluation, land use, solid waste management, population analysis and infrastructure systems. Our planners can assist in economically meeting the challenge of providing needed services in communities with limited resources. In the area of private development, we perform highest and best use analysis for our clients to optimize their return on investment while maintaining compatibility with the surrounding environment.

Lapham Associates maintains modern, computerized facilities throughout central and northern lower Michigan. Our company headquarters is in Clare with a branch office in West Branch. Our multi-disciplined approach gives our clients the convenience and accountability that assures them quality service with cost conscious delivery. Highly specialized testing is furnished on a project need basis through the use of sub-consultants; thus keeping with our philosophy of economical client service.

Our dedication to quality service requires our personnel to constantly maintain and improve their skills and technical knowledge. *Lapham Associates* provides on-going training for all employees, both in-house and through the use of seminars and continuing education courses.

ADAM J. BISHOP, ENVIRONMENTAL SCIENTIST

PROFESSIONAL REGISTRATION

40 Hour HAZWOPER Certified, 2017

EDUCATION

UNIVERSITY OF MICHIGAN FLINT

Bachelor of Science - 2017

Environmental Science and Planning Major

Relevant Coursework: Physical Geography I and II, Geomorphology and Soils, Resource Planning and Management, Geology of Michigan, Watershed Management, Principles of Hydrology, Environmental Planning, Environmental Site Assessment, and Biogeography.

EMPLOYMENT

MENARDS

Receiving Team Member, 2013-2017

Responsible for operation and maintenance of forklift and motorized equipment, unloading and sorting freight from large trucks for proper disposition, transporting materials to proper departments, loading equipment and merchandise for customers, and giving great customer service.

LAPHAM ASSOCIATES

Environmental Scientist, December 2017 – present

Responsible for phase I environmental site assessments, marking wetland boundaries, prepare permit applications, mitigation design, due diligence, conduct research to identify and abate sources of pollutants, analyze and report measurements and observations of air, water, soil, etc. create presentations, reports, and studies as necessary, perform field inspections, make on-site visits and investigations.

SCOTT E. BELL, AICP, CST III

PROFESSIONAL REGISTRATION

- Certified Survey Technician Level III, Michigan, 1993
- Certified Storm Water Operator, Michigan, 1997
- Licensed Builder, Michigan, 1994
- Licensed Real Estate Salesman, Michigan, 1992-2009
- Licensed Real Estate Broker, Michigan, 2009
- American Institute of Certified Planners, 2015

EDUCATION

SAGINAW VALLEY STATE UNIVERSITY
Bachelor of Business Administration - 1999
Finance Major

LANSING COMMUNITY COLLEGE
Architectural Technology Program, 1988-1990

EMPLOYMENT

LAPHAM ASSOCIATES
CAD Technician, 1990 – 2000
Project Manager 2000 - 2015
Director of Engineering & Planning Services, 2015 - present

Responsible for project management, design, drafting, survey computations, construction cost estimates and construction staking and inspection as well as overseeing the networking and CAD computer systems. Mr. Bell has successfully worked with many clients on obtaining grants to funding for projects. Mr. Bell's expertise in zoning and planning together with his years of experience with site engineering and infrastructure design makes his site development skills an asset for both developers and municipal clients. Mr. Bell currently oversees our engineering and planning staff as well as our environmental staff and other contracted services as needed.

Mr. Bell has years of experience working with clients and regulators on prospective projects. He has an expertise in coordinating permitting and approvals, preparing final construction plans and construction engineering. Additionally Mr. Bell has experience working together with our environmental division in coordinating Phase I Environmental Site Assessments, Wetland Delineations, Groundwater Monitoring, Floodplain permitting and many other similar types of projects.

SEMINARS

- Exchange of CADD Files
- Softdesk Civil Level II
- GIS in Perspective
- Successful Field-to-Office Automation
- Various seminars offered by the Michigan Society of Professional Surveyors.
- Various seminars offered by the Michigan Association of Planning and the American Planning Association.

MEMBERSHIPS

- National Society of Professional Surveyors
- American Planning Association

TIMOTHY L. LAPHAM, P.E., P.S.

PROFESSIONAL REGISTRATION

- Professional Surveyor, Michigan, 1981
- Professional Engineer, Michigan, 1980

EDUCATION

UNIVERSITY OF MICHIGAN

Bachelor of Science, Cum Laude Graduate - 1976

Civil Engineering with a Geodetic Surveying Option

EMPLOYMENT

LAPHAM ASSOCIATES

President, 1996 – present

Vice-president, 1981 – 1996

Engineer and Surveyor, 1976 – 1995

Part-time Employee, 1968 – 1976

Responsibilities increased from Field Technician through Project Manager to Chief of Operations. Currently he is responsible for all phases of operation of the surveying and engineering departments.

Mr. Lapham's surveying responsibilities include abstracting historical survey documents, using the data for cadastral surveys and applying computer system and graphic technology to these surveys. He is involved extensively in retracing PLSS lines that were surveyed under the 1815, 1833 and 1850 general instructions. He is the Ogemaw County, Michigan Remonumentation Representative and is a remonumentation contract surveyor in Clare, Isabella, Gladwin, Midland and Ogemaw Counties. As contract surveyor, he is responsible for the retracement and recovery of GLO corners and the re-establishment of remaining lost or obliterated corners. He manages the field survey to set State Plane Coordinates on recovered or established corners as required in the contract and presentation of the corner history at peer review meetings.

He is responsible for the pre-construction, construction stakeout, and as built surveys required for a variety of municipal infrastructure projects such as; sanitary and storm sewers, public water systems, and road systems. Mr. Lapham is also responsible for the design and layout of Residential, Industrial and Recreational complexes. He manages the projects from the Conceptual Design Stage through all stages of development and construction.

Typical Civil Engineering Design projects include the design of municipal infrastructure such as; sanitary and storm sewers, public water systems, and road systems. Typical responsibilities include the administrative and technical oversight of preliminary design, final design, and construction inspection of these projects.

He is responsible for the acquisition of field data and computing river flood profiles for bridge and culvert design and flood plain determinations. He performs surveys for the determination of riparian ownership interests.

Mr. Lapham performs structural design for a variety of multi-family housing, commercial and industrial buildings. Also, formulating cost estimates for the design and construction of these projects.

Mr. Lapham is responsible for Cost Segregation Studies prepared by Lapham Associates, which have been prepared for residential and commercial buildings.

He also performs Investigative Engineering for a variety of banks, insurance providers, property owners, and attorneys to assist in the resolution of questions related to the quality of construction, compliance with applicable codes, and cause of damage to property.

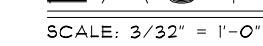
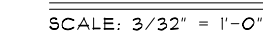
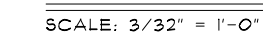
SEMINARS

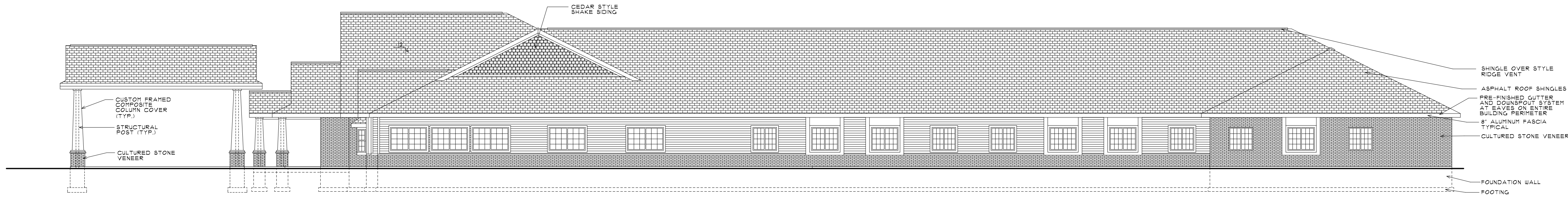
- Orientation to the Safe Drinking Water Act covering the general requirements, procedures and design details of public water supplies
- Flood Plain Hydraulics Workshop, a one-week seminar hosted by the University of Wisconsin on the computation of water surface profiles and the accurate modeling of river flow and flow through bridges.
- Storm Water Management Conference conducted by American Steel Pipe on the reduction of volume and disposal of storm water.
- Proposal Writing in Process conducted by Grants People, Inc. involving the entire grants process from searching for and applying for available grants to management of the funds after a successful grant application.
- Various seminars offered by the American Congress on Surveying and Mapping and the Michigan Society of Professional Surveyors.
- Investigative Engineering training, a one week seminar conducted by The Investigative Engineers Association on investigation procedures and analysis.

Exhibit F: Draft development agreement forthcoming



SCALE: 3/32" = 1'-0"

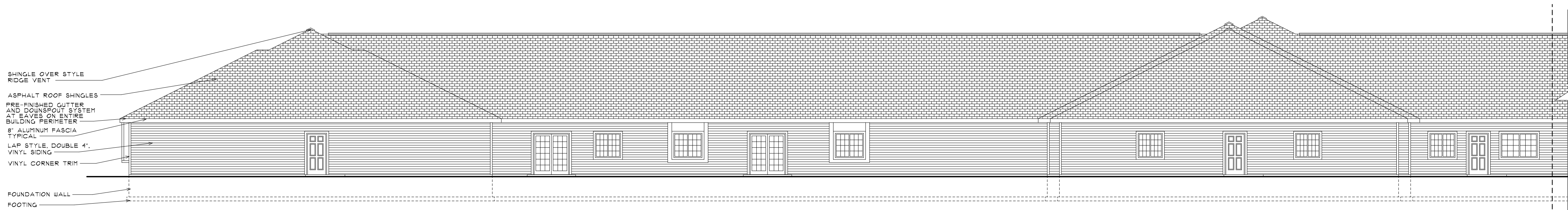




WEST ELEVATION

SCALE: 3/32" = 1'-0"

1
A2.2



SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

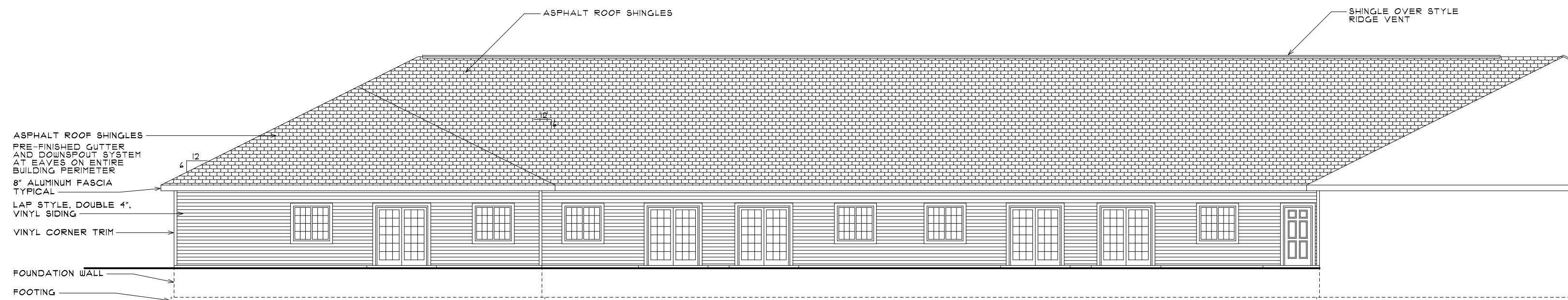
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A2.2



SOUTH ELEVATION

SCALE: 3/32" = 1'-0"

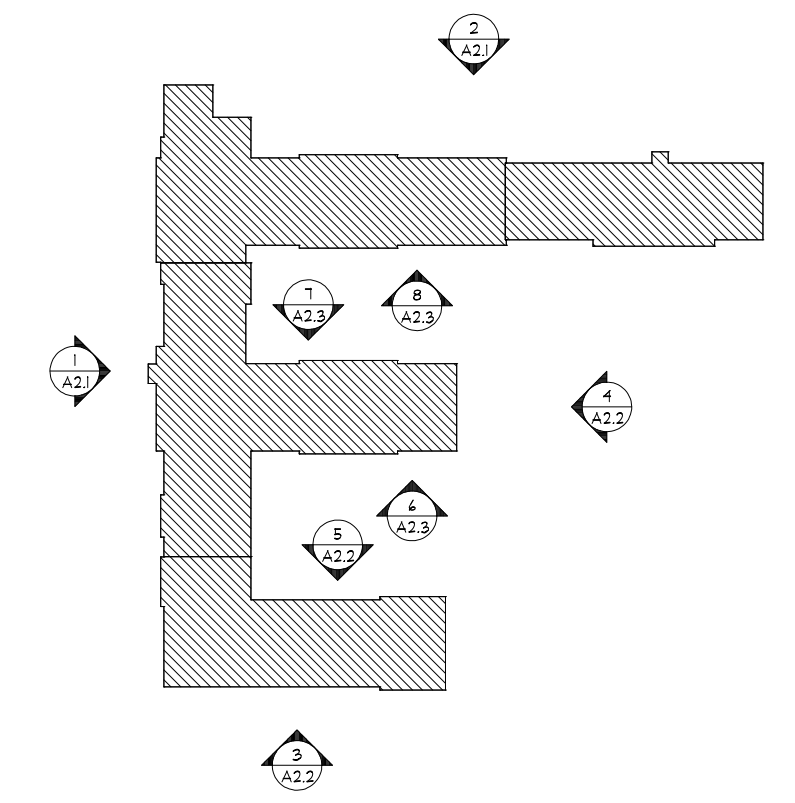
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A2.2



INSIDE ELEVATION

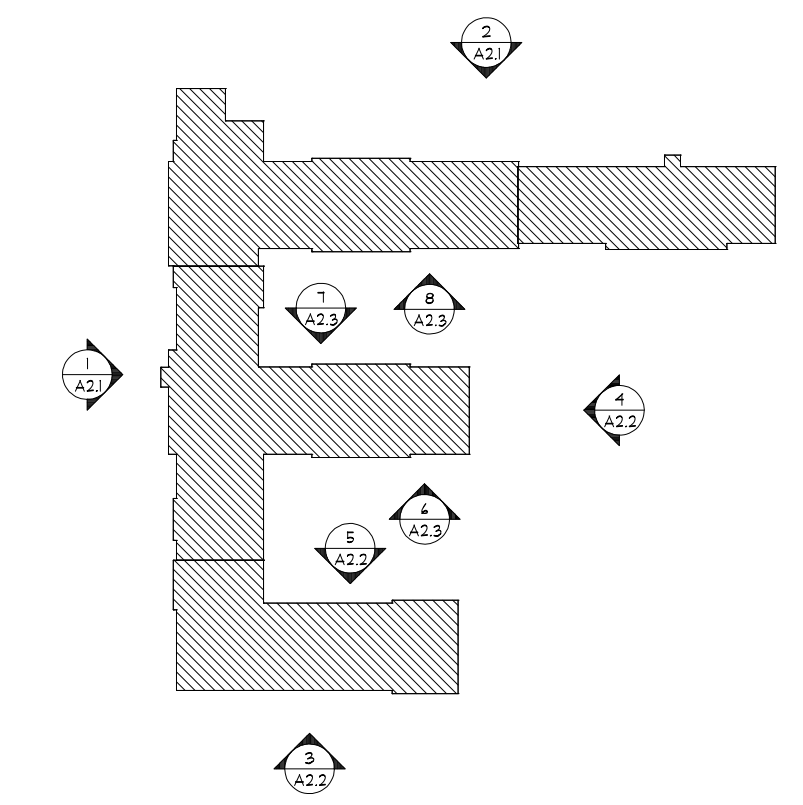
SCALE: 3/32" = 1'-0"

5
A2.2



KEY PLAN

PROJECT NO.		18-184		SHEET		A2.2	
THE VILLAGE CENTER SENIOR HOUSING		HAMBURG, MI 48139		VETERANS MEMORIAL DRIVE		PROJECT NO. 18-184	
COMMERCIAL		RESIDENTIAL		INDUSTRIAL		SEIDELL'S ARCHITECTS	
114 N. COURT AVE., STE. 201 CAYLOR, MICHIGAN 49734 PHONE (889) 731-0372 FAX (889) 731-6932							
CHECKED		T.L.S.		PLAN REVIEW		3/12/19	
APPROVED BY		T.L.S.					
DATE		01/29/2019		PRINT DATE			



6
A2.3

7
A2.3

8
A2.3

SHINGLE OVER STYLE RIDGE VENT

ASPHALT ROOF SHINGLES

PRE-FINISHED GUTTER AND DOWNSPOUT SYSTEM AT EAVES ON ENTIRE BUILDING PERIMETER

6" ALUMINUM FASCIA

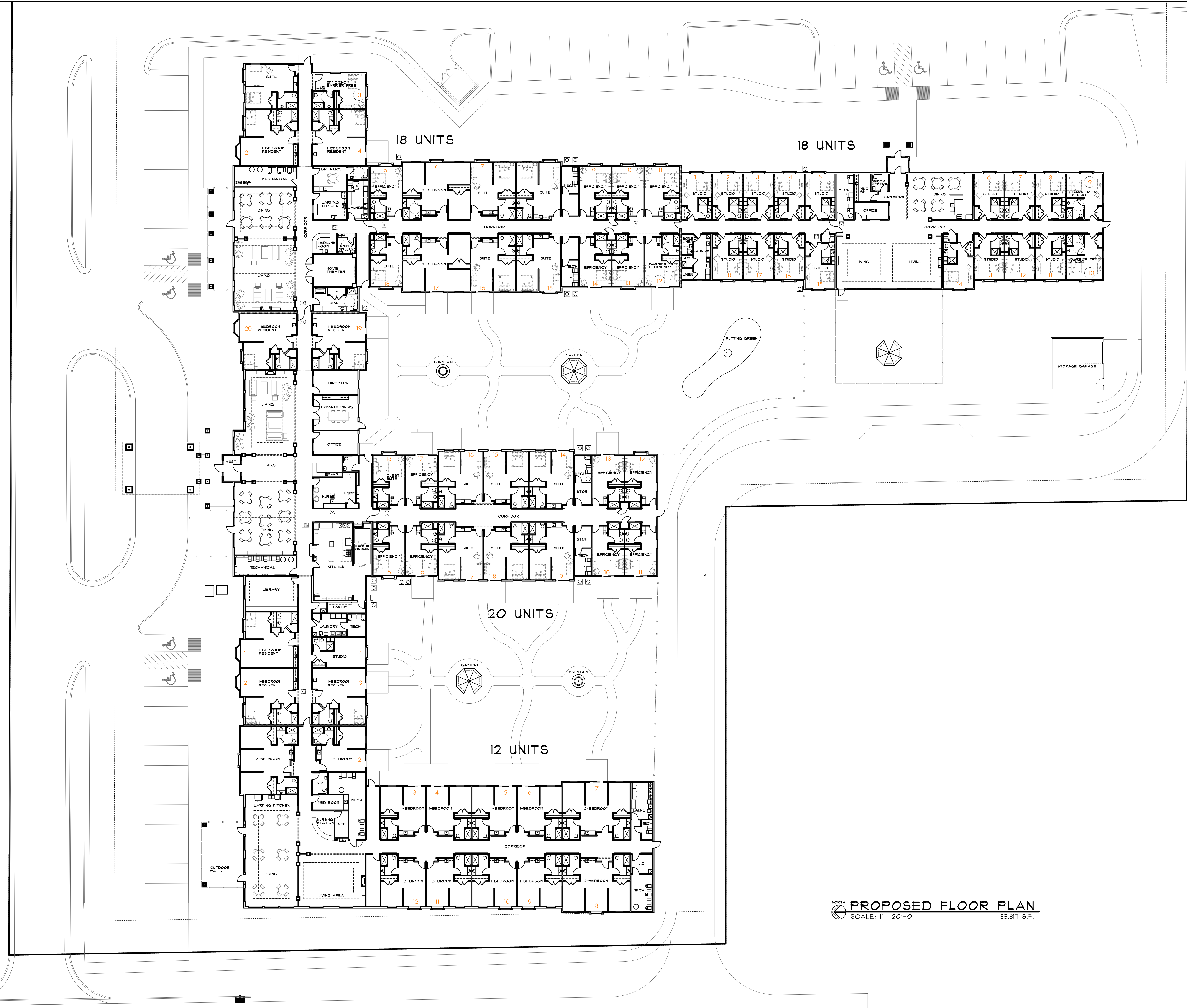
LAP STYLE DOUBLE 4" COMPOSITE SIDING

COMPOSITE CORNER TRIM

FOUNDATION WALL

FOOTING

 SEIDEL'S ARCHITECTS	PROJECT NO. 18-184		SHEET A2.3
	PROJECT: THE VILLAGE CENTER SENIOR HOUSING		
	. VETERANS MEMORIAL DRIVE HAYBURG, MI. 49039		
	COMMERCIAL RESIDENTIAL INDUSTRIAL		
	114 N. COURT AVE., STE. 201 PHONE (989) 731-0372 POST OFFICE BOX 289 FAX (989) 731-6332 GATLORD, MICHIGAN 49724		
ISSUED	DATE		
ISSUED	DATE		
DRAWN BY	T.A.B.		
CHECKED	T.L.S.	PLAN REVIEW	3/12/19
APPROVED BY	T.L.S.		
DATE	01/24/2019		
PRINT DATE			



PROPOSED FLOOR PLAN
SCALE: 1" = 20'-0"
55,811 S.F.

<div><div></div><div>PROJECT THE VILLAGE CENTER SENIOR HOUSING</div></div> <div>PROJECT NO. 18-184</div> <div><div></div><div>SHEET A1</div></div>	<div><div><div><div></div><div></div><div></div></div><div>SEIDELLS ARCHITECTS</div></div><div><div>COMMERCIAL 114 N. COURT AVE., STE. 201 POST OFFICE BOX 2189 GAYLORD, MICHIGAN 49734 PHONE (689) 731-0372 FAX (689) 731-6932</div><div>RESIDENTIAL</div><div>INDUSTRIAL</div></div></div>				DRAIN BY T.A.B		DATE	
	CHECKED T.L.S.		PLAN REVIEW					
	APPROVED BY T.L.S.							
	DATE 01/29/2019		PRINT DATE					
VETERANS MEMORIAL DRIVE HAMBURG, MI. 48339								

Hampton Manor of Hamburg

Prepared For

Hampton Manor of Hamburg

Section 25, Hamburg Township, Livingston County, Michigan

SITE ADDRESS: 7244 E. M-36, Hamburg, Michigan 48139

Exhibit G: March 29, 2019 site plans

Property Description:

Part of the Northwest 1/4 of Section 25, Town 1 North, Range 5 East, Township of Hamburg, Livingston County, Michigan, commencing at North 1/4 corner of said Section; thence along centerline of M-36 South 86 degrees 58 minutes 00 seconds West 1223.99 feet; thence South 03 degrees 55 minutes 00 seconds East 333.44 feet for point of beginning; thence North 86 degrees 58 minutes 00 seconds East 244.00 feet; thence South 03 degrees 55 minutes 00 seconds East 142.30 feet; thence North 86 degrees 58 minutes 00 seconds East 202.81 feet; thence South 03 degrees 55 minutes 00 seconds East 397.43 feet; thence South 86 degrees 58 minutes 00 seconds West 457.81; thence North 03 degrees 55 minutes 00 seconds West 211.00 feet; thence South 86 degrees 58 minutes 00 seconds West 200.00 feet; thence North 03 degrees 55 minutes 00 seconds West 328.73 feet; thence North 86 degrees 58 minutes 00 seconds East 211.00 feet to the point of beginning.

Including the use of a 33 foot wide private easement for ingress and egress as recorded in Liber 773, Page 497, Livingston County Records. Also including the use of a 20 foot wide private driveway easement being described as follows: Part of the Northwest 1/4 to Section 25, Town 1 North, Range 5 East, Hamburg Township, Livingston County, Michigan, described as follows: Commencing at the North 1/4 corner of said Section 25; thence along the North line of Section 25 and centerline of M-36 Highway, North 89 degrees 52 minutes 00 seconds West, a distance of 980.10 feet to the point of beginning of the 20 foot wide private driveway easement to be described; thence South 00 degrees 45 minutes 00 seconds East, a distance of 333.44 feet; thence North 89 degrees 52 minutes 00 seconds West, a distance of 20.00 feet; thence North 00 degrees 45 minutes 00 seconds West, a distance of 333.44 feet; thence along the North line of Section 25 and centerline of M-36 highway, South 89 degrees 52 minutes 00 seconds East, a distance of 20.00 feet to the point of beginning. Also subject to the rights of the public over the existing M-36 Highway (66 foot wide)

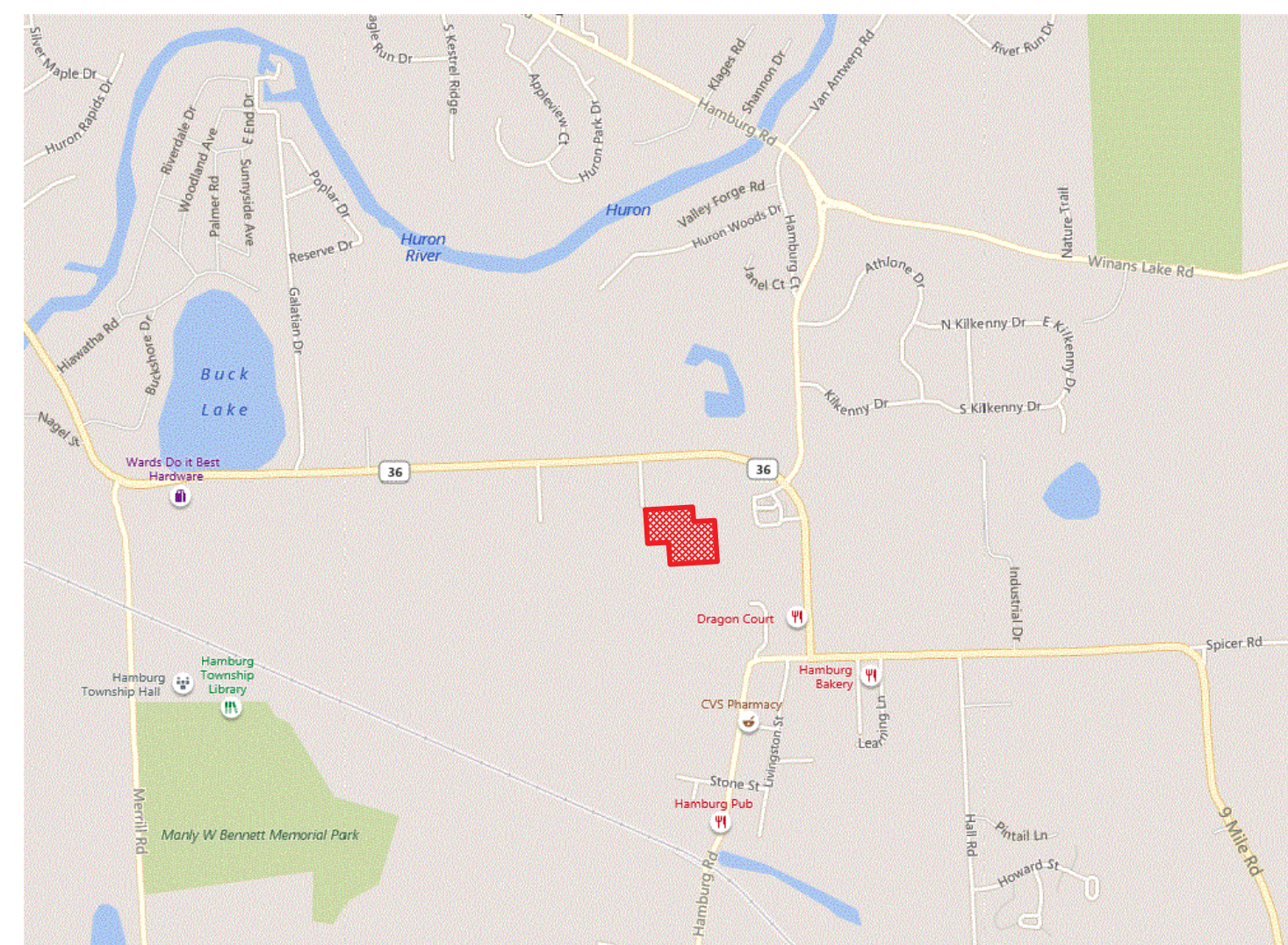
Tax ID No. 4715-25-100-105

Sheet Index:

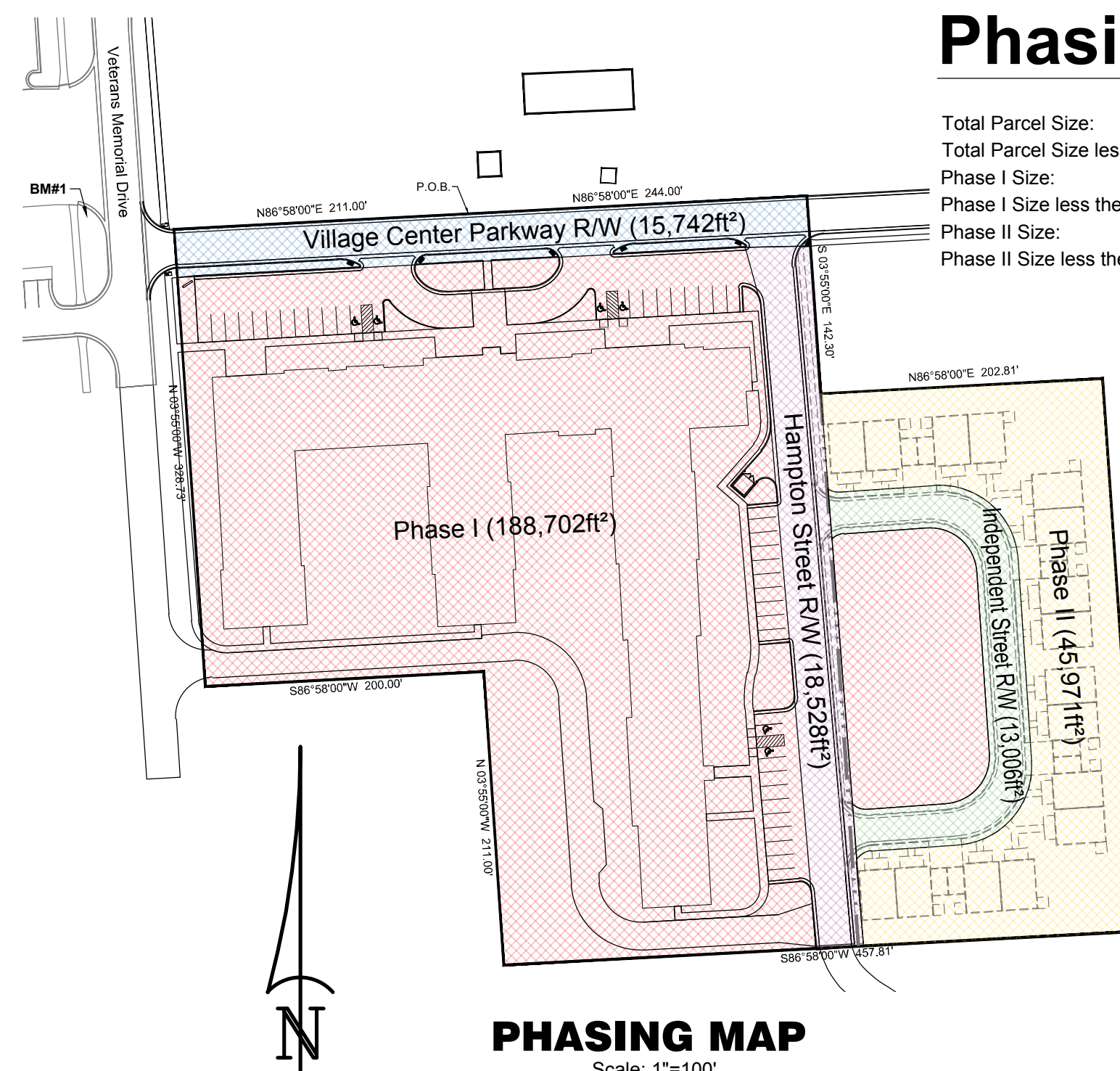
- | | |
|------|---|
| C-1 | Cover Sheet |
| C-2 | General Notes |
| C-3 | Existing Topographic Survey |
| C-4 | Demolition Plan |
| C-5 | Site Plan |
| C-6 | Site Details |
| C-7 | Landscaping Plan & Details |
| C-8 | Utility Plan |
| C-9 | Watermain Plan & Profile Sta. 0+00 to 10+38 |
| C-10 | Watermain Plan & Profile Sta. 20+00 to 25+02 & 30+00 to 32+30 |
| C-11 | Sanitary Sewer Plan & Profile Sta. 0+00 to 10+00 |
| C-12 | Sanitary Sewer Plan & Profile Sta. 20+00 to 24+00 |
| C-13 | Utility Details |
| C-14 | Site Lighting / Photometric Plan |
| C-15 | Grading Plan |
| C-16 | Off-Site Grading Plan |
| C-17 | Storm Water Management Plan |
| C-18 | Storm Water Management Calculations |
| C-19 | SESC Plan |
| C-20 | SESC Key |
| C-21 | Specifications |
| C-22 | Specifications |
| W1 | Livingston Community Water Authority Standard Details |
| W2 | Livingston Community Water Authority Standard Details |
| W3 | Livingston Community Water Authority Standard Details |

Phasing Areas:

Total Parcel Size:	6.5 acres (283,946ft ²)
Total Parcel Size less the R/W:	5.4 acres (236,676ft ²)
Phase I Size:	4.7 acres (203,343ft ²)
Phase I Size less the R/W:	3.9 acres (169,079ft ²)
Phase II Size:	1.8 acres (80,603ft ²)
Phase II Size less the R/W:	1.5 acres (67,597ft ²)



LOCATION MAP
Not to Scale



PHASING MAP
Scale: 1"=100'

Submission Table:

February 7, 2019	Submit initial preliminary site plans for PUD to Hamburg Township for their review. These plans are not to be used for construction.
March 11, 2019	Submit Construction Site Plans to Township for site plan review.
March 29, 2019	Revisions per Township's Engineer's review comments in letter dated March 19, 2019.



Cover Sheet
Hamburg Manor
For
Hampton Manor of Hamburg

LAPHAM ASSOCIATES
ENGINEERING
PLANNING
ENVIRONMENTAL
SURVEYING
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F (989) 345-7302
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C-1

PROJECT NUMBER: P-190043
ENGINEER: Timothy L. Lapham, P.E., P.S. 27595
REVISID: 03/29/19 per Twp Engineer's comments
DRAWN BY: S.E. Bell
DATE: March 11, 2019
SCALE: N/A
SHEET C-1

NOTE SHEET

- 1. SOIL EROSION:** The DEVELOPER shall submit a detailed Soil Erosion and Sedimentation Control plan and obtain an Act 451 Part 91, Soil Erosion and Sedimentation Control permit. This includes the payment of fees and the providing of necessary bonds. **No earth changes or excavation shall be started prior to the issuance of this permit.** The DEVELOPER shall protect all existing and proposed storm sewer facilities on and adjacent to the site during excavation and construction. All sediment shall be contained on site. Any silt in county drains, storm sewer, culverts, etc. as a result of this project, shall be removed by the DEVELOPER at the cost of the DEVELOPER.
- 2. NPDES STORM WATER DISCHARGE PERMIT:** The owner of the property shall obtain a NPDES Storm Water Discharge permit for construction activities from MDEQ as required under Public Act 451. The notice of coverage form shall be submitted through Livingston County with the Soil Erosion Control permit application. All MDEQ fees shall accompany the Notice of Coverage.
- 3. MUNICIPALITY SANITARY SEWER AND WATER PERMIT:** Prior to the issuance of a building permit by the local municipality, the developer shall be required to obtain a sanitary sewer and/or water tap-in permit from the local municipality.
- 4. STATE CONSTRUCTION PERMITS:** The sanitary sewer and water main construction permits from the Michigan Department of Environmental Quality shall be submitted to the MDEQ after approval of local municipality. Construction shall not begin until these state permits are issued.
- 5. Utility Warning -** Underground locations as shown on the plans were obtained from utility owners, and were not field located. A minimum of three (3) working days prior to beginning construction, the contractor shall notify "MISS DIG" (800-482-7171) and have all underground utilities staked before any work may begin. The contractor shall be responsible for the protection and/or relocation of all utilities that may interfere with construction. Three (3) Working Days Before You DIG - Call MISS DIG (1-800-482-7171).

OTHER NOTES

1. The contractor shall be responsible to review and be familiar with all portions of these plans. Any discrepancies between different portions of the plans shall be brought to the attention of the Engineer and shall be resolved prior to construction.

BENCHMARKS

Benchmark #1

Northeast bolt on flange of hydrant on west side of Veterans Memorial Drive north of subject property.
Elevation 910.96 (NAVD 88)

Benchmark #2

Southwest bolt on flange of hydrant on south side of Village Center Parkway east of subject property.
Elevation 906.07 (NAVD 88)

PLAN LEGEND

—O—ELECT.—	= OVERHEAD ELECTRIC LINE
—GAS—GAS—	= BURIED GAS LINE
—SAN—SAN—	= SANITARY SEWER
—WATER—	= WATER MAIN
—U.G.TELE.—	= UNDERGROUND TELEPHONE
⊙	= SANITARY MANHOLE
⊙	= STORM MANHOLE
●	= CATCH BASIN
⊠	= CURB INLET
⊙	= FIRE HYDRANT
⊠	= WATER VALVE
⊠	= LIGHT POLE
⊠	= STREET SIGN
⊠	= FENCE LINE
⊠	= UTILITY POLE
○	= FOUND CAPPED IRON
●	= SET CAPPED IRON
■	= BITUMINOUS PAVING
■	= CONCRETE PAVING OR WALKWAY
⊙	= PLS SYSTEM CORNER
R	= RECORDED AS IN TITLE DESCRIPTION
P	= PREVIOUSLY DESCRIBED
M	= MEASURED AS
⊠	= PROPOSED LIGHT POLE

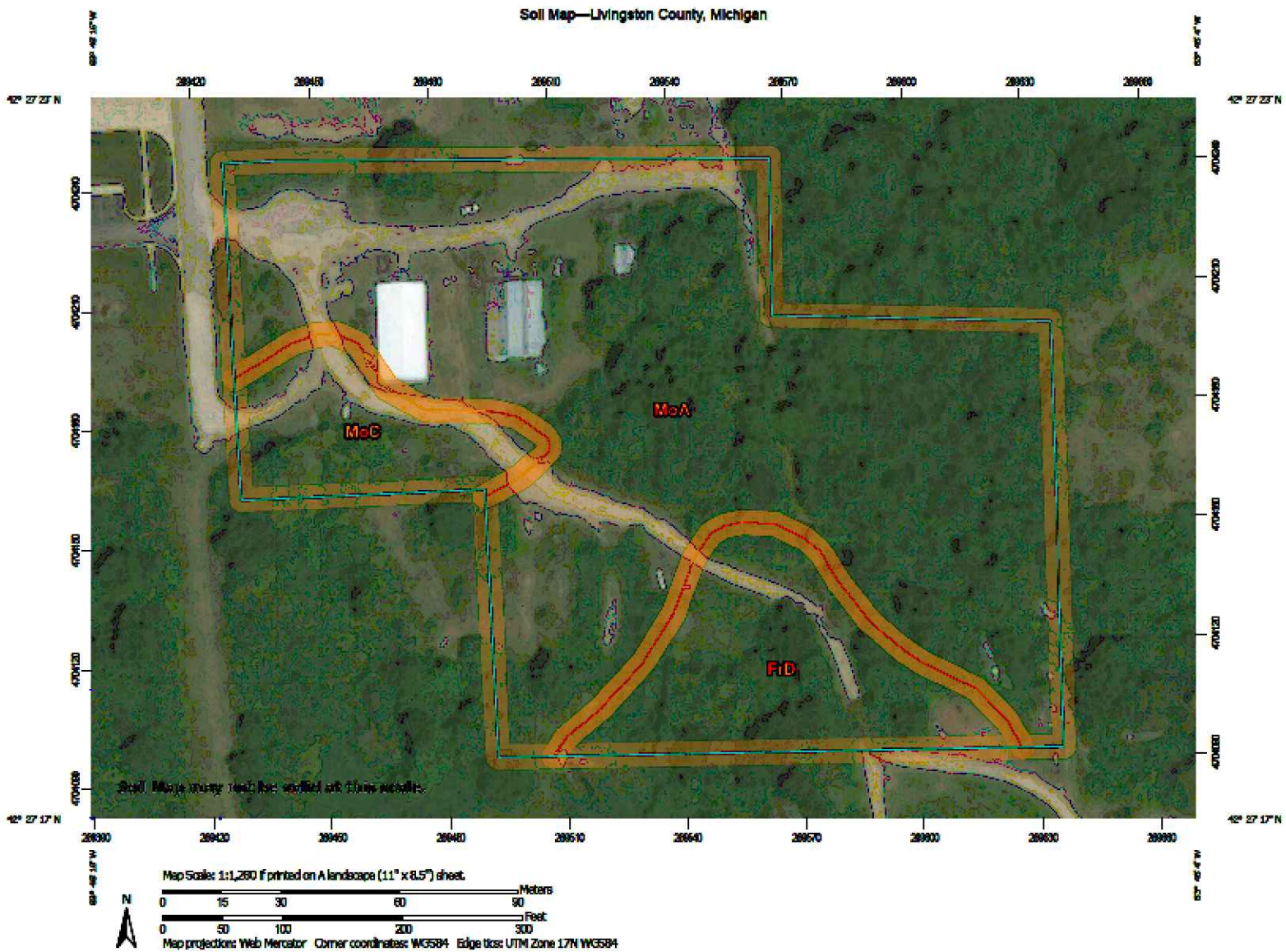
ABBREVIATIONS

LIST OF ABBREVIATIONS

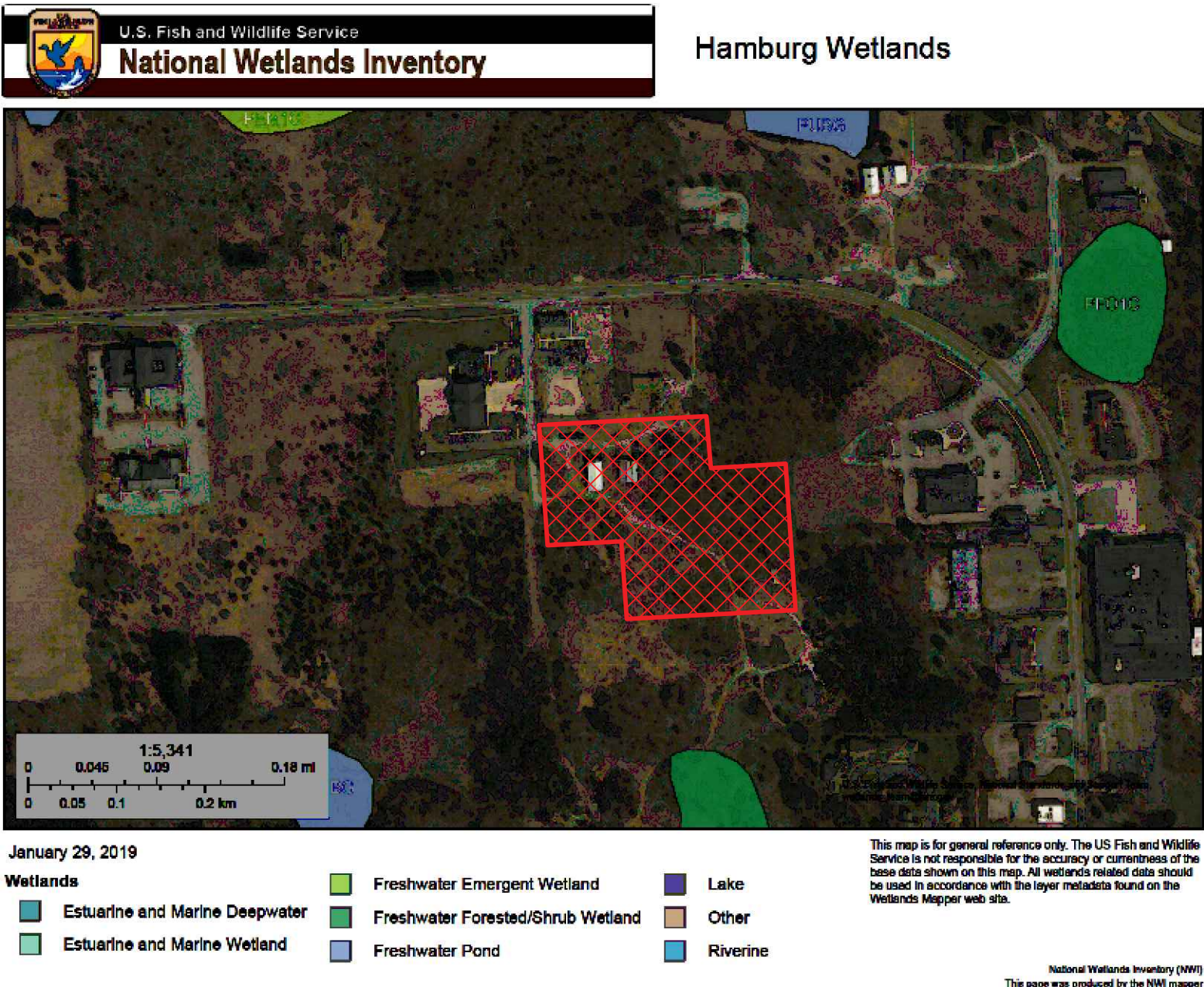
	Definitions
A.C.	Alternating Current
A.F.C.	Adult Foster Care
ASPH.	Asphalt Paving
ASTM	American Society of Testing Materials
AWS	American Welding Society
AWWA	American Waterworks Association
BLDG.	Building
CIP	Compacted in place
CL	Class
CONC.	Concrete
C.Y.d. or CYD	Cubic Yard
DR	Dimension Ratio
°	Degrees
EA	Each
EJ	East Jordan Iron Works
ELEV.	Elevation
EX	Existing
F.F.	Finish Floor
G.P.M.	Gallons Per Minute
I.Q.	Inside Diameter
Inv.	Invert
Lbs.	Pounds
LFT	Lineal Feet
L.S.	Lump Sum
Max.	Maximum
MDOT	Michigan Department of Transportation
M.H.	Manhole
Mil.	Millimeter
Min.	Minimum
MUW	Maximum Unit Weight at optimum moisture content
No.	Number
NSF	National Sanitation Foundation
OSHA	Occupational Safety Health Administration
PSIGP	Pounds per square inch gauge
PVC	Polyvinyl Chloride
R.O.W. or R/W	Right-of-Way
RAD.	Radius
SDR	Standard Dimension Ratio
SYD	Square Yard
T.D.H.	Total Dynamic Head
V.L.F.	Vertical Lineal Feet
'	Minutes of angles or Feet
"	Seconds of angles or Inches
%	Percent
#	Pounds

NRCS SOILS MAP

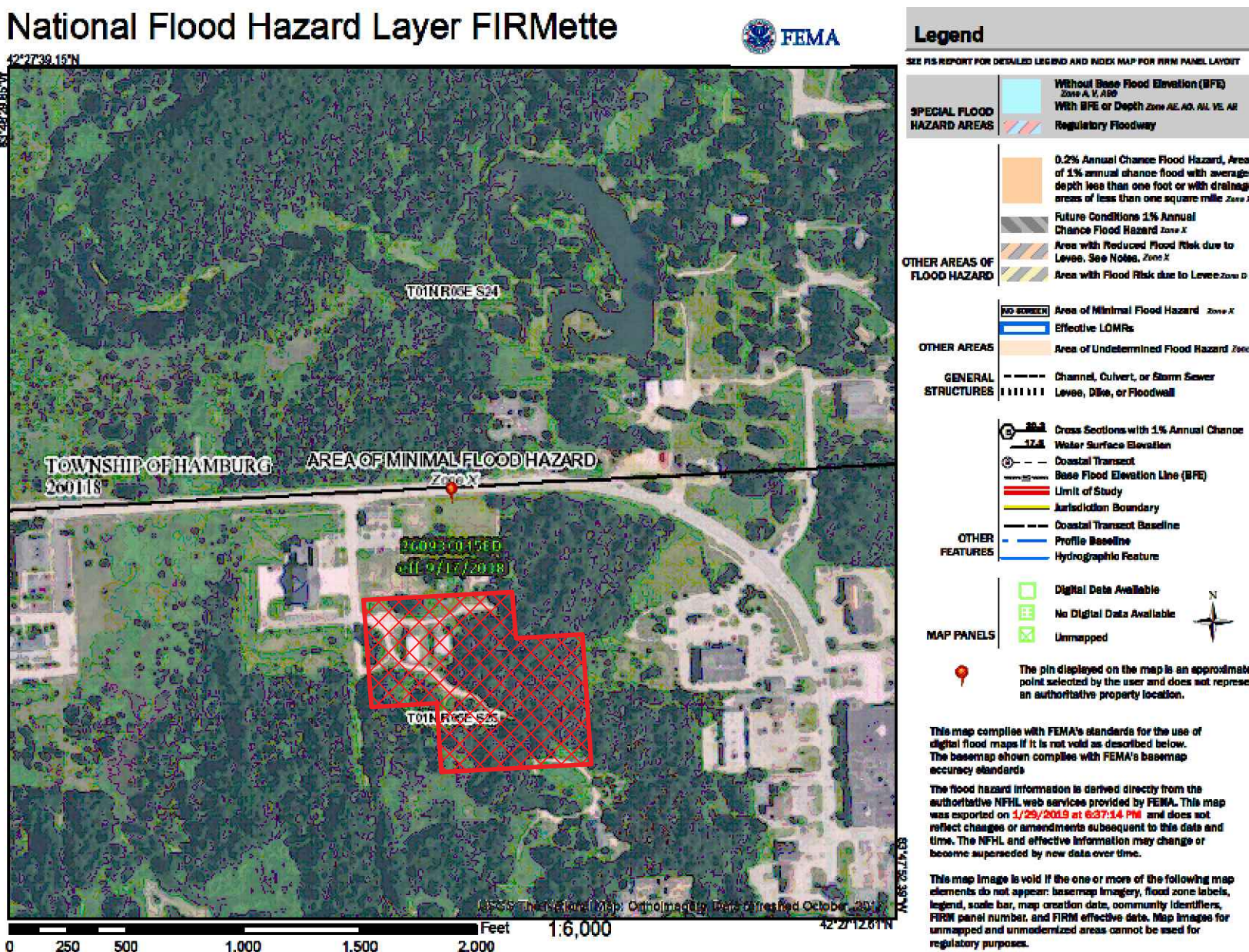
Map Unit Symbol	Map Unit Name	Acres In AOI	Percent of AOI
F1D	Fox-Boyer complex, 12 to 18 percent slopes	0.9	19.5%
MoA	Wewasee loam, 0 to 2 percent slopes	4.5	79.6%
MoC	Wewasee loam, 6 to 12 percent slopes	0.5	8.9%
Totale for Area of Interest		6.0	100.0%



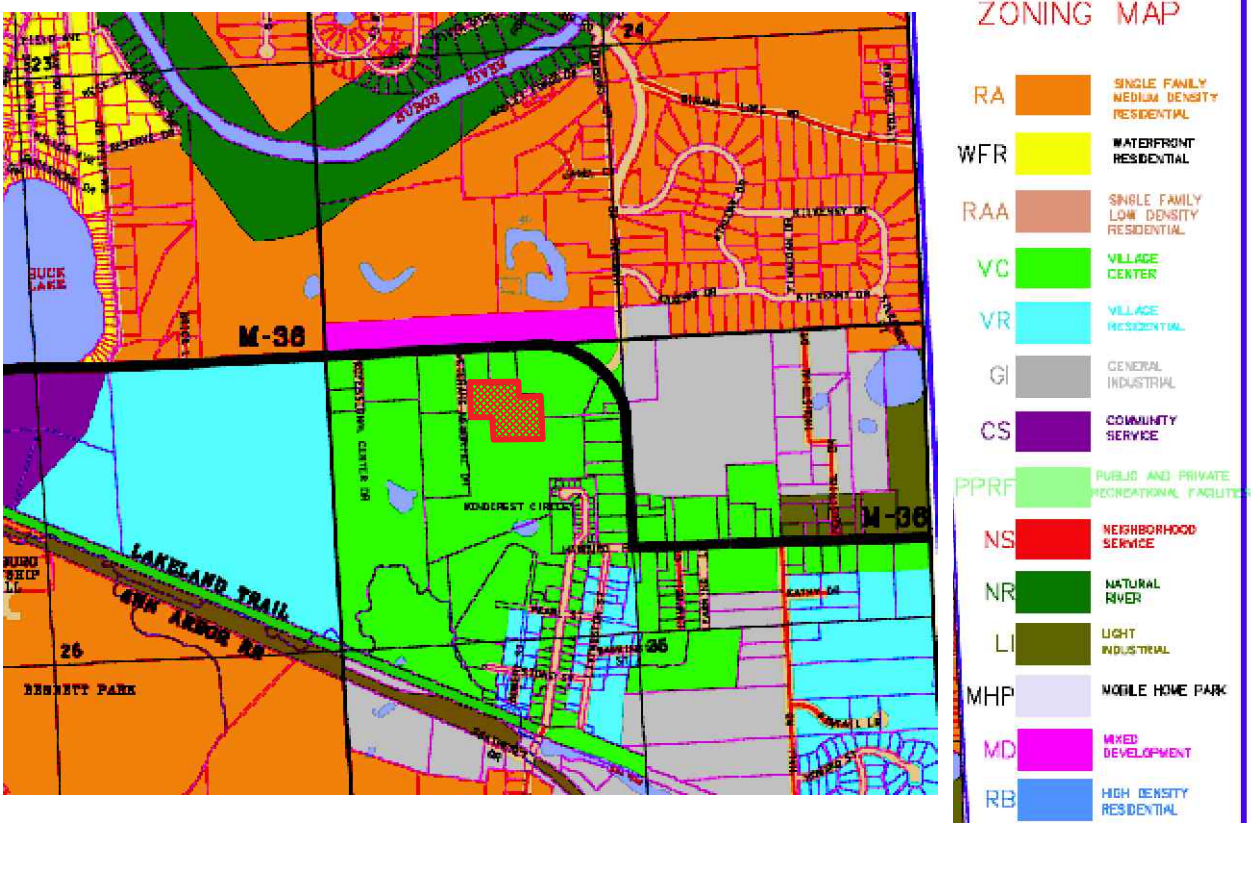
WETLAND MAP



FLOODZONE MAP



ZONING MAP

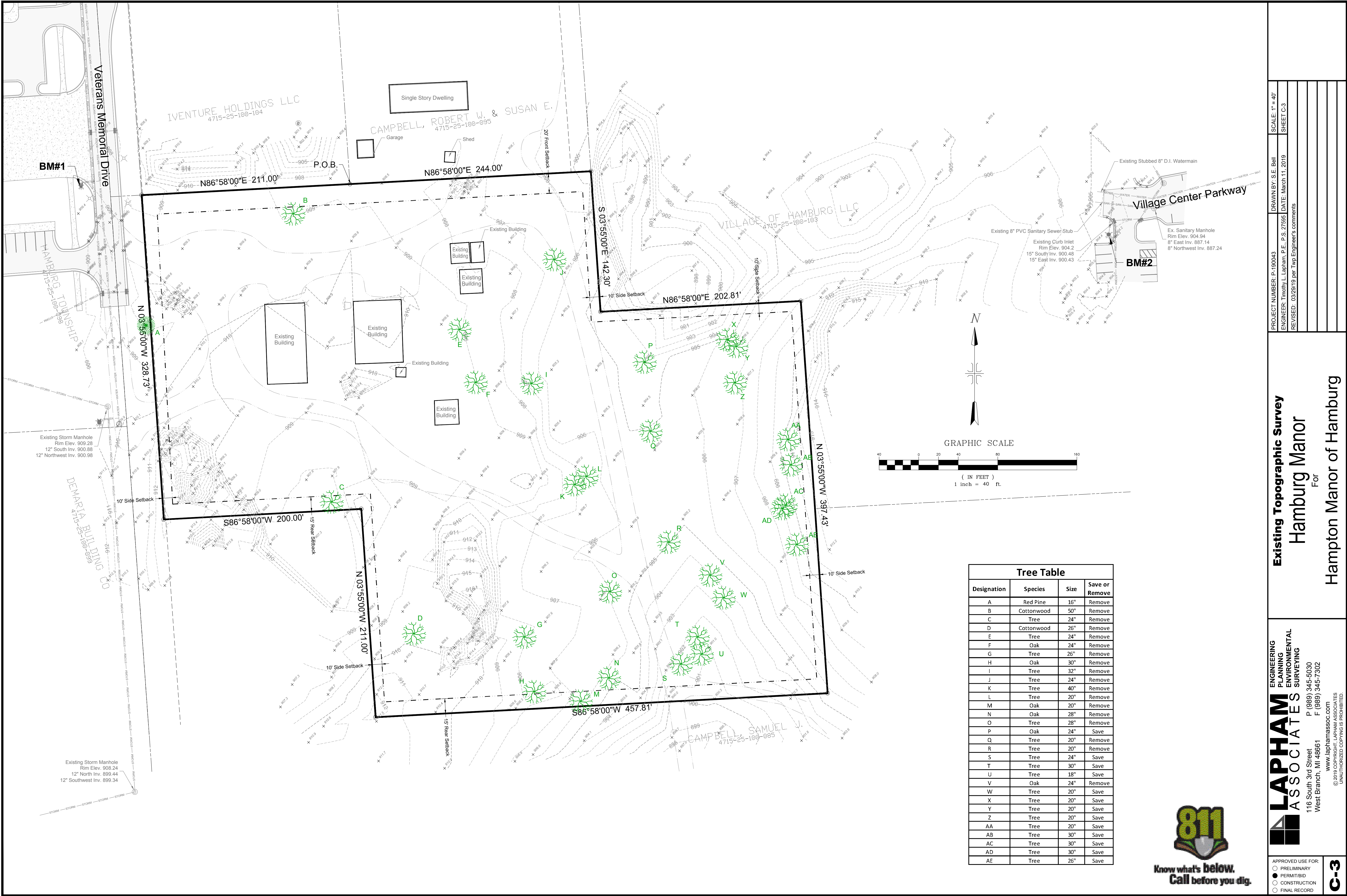


General Notes
Hamburg Manor
For
Hampton Manor of Hamburg

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SURVEYING
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C-2



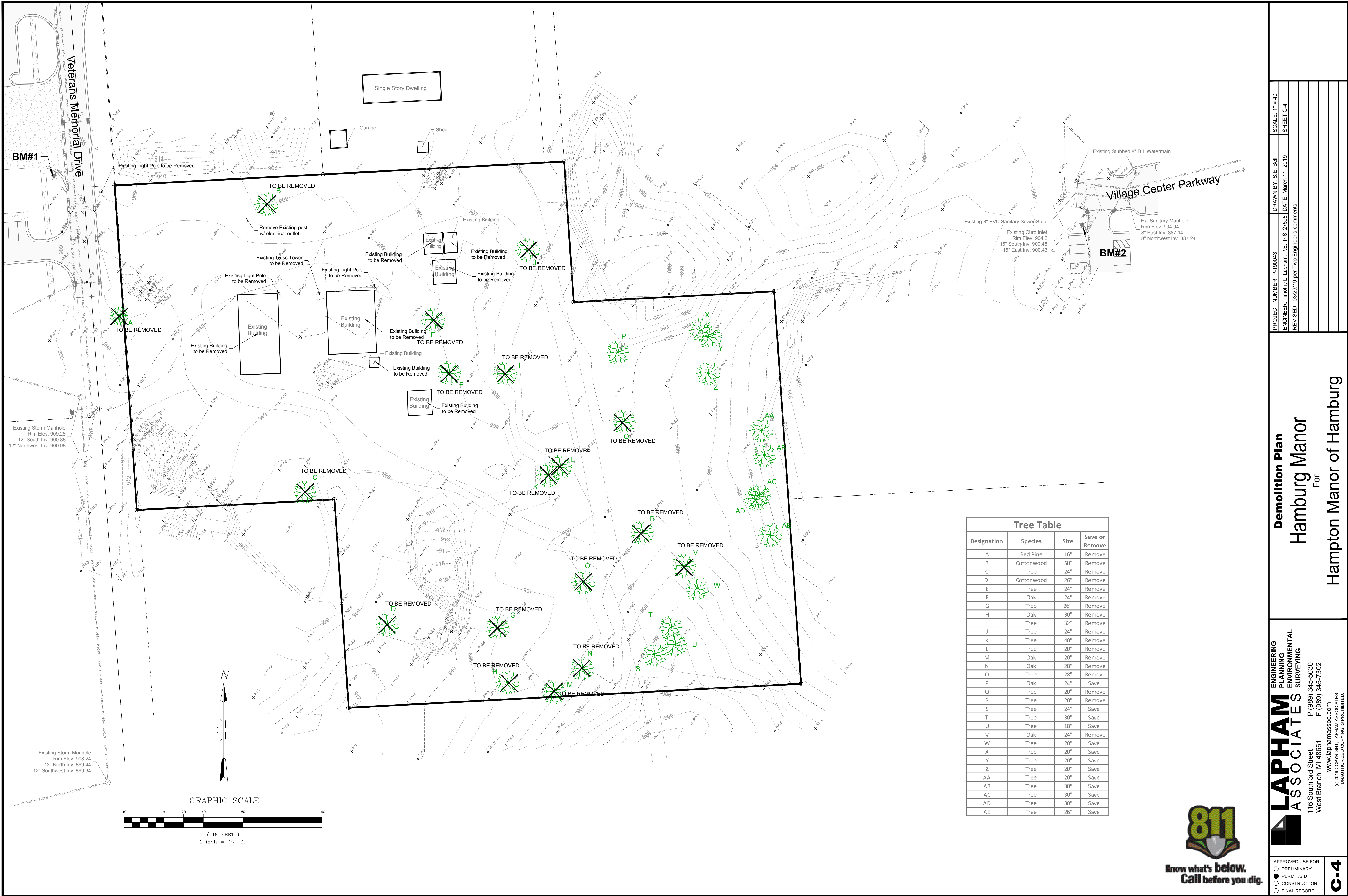
Existing Topographic Survey
Hamburg Manor
For
Hampton Manor of Hamburg

LAPHAM ASSOCIATES
ENGINEERING
PLANNING
ENVIRONMENTAL
SURVEYING
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PROJECT NUMBER: P-190043
ENGINEER: Timothy L. Lapham, P.E., P.S. 27595
REVISD: 03/28/19 per Twp Engineer's comments
DRAWN BY: S.E. Bell
SCALE: 1" = 40'
SHEET C-3





PROJECT NUMBER: P-190043
ENGINEER: Timothy L. Lapham, P.E., P.S. 27595
REVISER: 03/23/19 per Typ Engineer's comments

DRAWN BY: S.E. Bell
SCALE: 1" = 40'
SHEET: C-4

Demolition Plan

Hamburg Manor

For
Hampton Manor of Hamburg

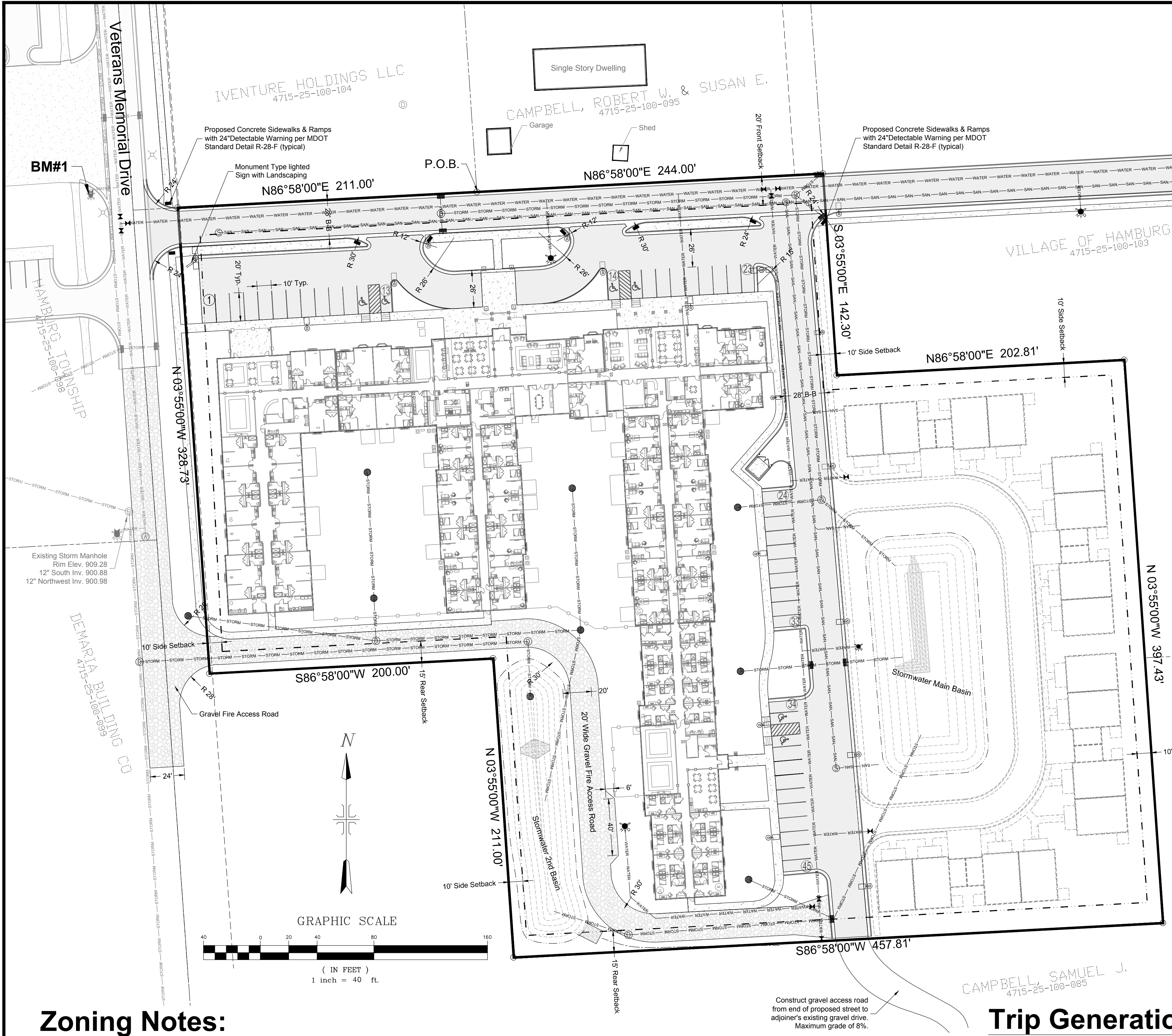
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C-4



Zoning Notes:

Owner:	Hamburg Manor
Use:	Senior Housing
Zoning:	VC Village Core District
Setbacks:	Front Setback 20' Max. per Sec. 7.6.1(P) (footnote 12) Sides Setback 10' Rear Setback 15'
Building Height:	Maximum height 30'
Density:	Total site area = 283,946ft ² HFA Building area = 55,580ft ² (54 units assisted living, 16 units memory care) Independent Living area = 14,976ft ² (16 units 936ft ²) Lot Coverage of Buildings = 25% Parking lot area = 32,030ft ² (excludes primary access roads) Lot Coverage of Parking = 11% (includes drives and independent living road)

Zoning Deviations:

- Front Setback in VC district is to be no more than 20' from the front lot line per Sec. 7.6.1(P) footnote # 12. Because of the unique situation of this PUD we believe that the position of the building relative to the front lot line is appropriate because of the proposed roadway and type of building.
- Maximum building square footage of 30,000 ft² per "Maximum Lot Coverage" column in Sec. 7.6.1(P) footnote # 11 is a potential conflict with the proposed Assisted living building which is in excess of 54,000 ft². Because the building is actually divided into 4 separate buildings by firewalls and licensing requirements this is technically not an issue, but as the building itself is all under one roof it does not meet the letter of the code.

Trip Generation Calculations:

Per ITE 9th Edition Trip Generation Rates, Pass-by rates from ITE 2nd edition Trip Generation Handbook.

Assisted Living (254)
Proposed Development with 75 Occupied Beds

Raw Trip Generation Total:
Average Vehicle Trip Ends - Weekday = 206 (103 Entering, 103 Exiting)
Average Vehicle Trip Ends - A.M. Peak = 14 (9 Entering, 4 Exiting)
Average Vehicle Trip Ends - P.M. Peak = 22 (11 Entering, 11 Exiting)

Senior Adult Housing-Detached (251)
Proposed Development with 16 Dwelling Units

Raw Trip Generation Total:
Average Vehicle Trip Ends - Weekday = 59 (29 Entering, 30 Exiting)
Average Vehicle Trip Ends - A.M. Peak = 4 (1 Entering, 2 Exiting)
Average Vehicle Trip Ends - P.M. Peak = 4 (3 Entering, 2 Exiting)

Parking Calculations:

HFA building does not fall into any of the uses listed in the Schedule of parking Space Requirements (Sec. 10.3.1). However, typical parking requirements in similar communities require 1 parking space per 2 dwelling units plus one space for each employee. Experience with similar developments shows this to be a reasonable requirement.

HFA Building:

70 dwelling units x 1 space / 2.5DU =	28 spaces
15 employees x 1 space / employee =	15 spaces
TOTAL SPACES REQUIRED =	43 spaces
TOTAL SPACES PROVIDED =	45 spaces

Independent Living: based on ECHO Village PUD Standards (Sec. 15.4 (M))

Required:	16 total units x 2 spaces / unit =	32 spaces
Provided:	off street parking spaces =	13 spaces
	driveways =	8 spaces
	garages =	8 spaces
TOTAL SPACES PROVIDED =		29 spaces

Site Plan Notes:

- These plans and specifications are subject to modification during construction when conditions develop that were not apparent during the design and preparation of these plans. All modifications must be approved by local jurisdiction prior to construction and/or implementation.
- In the event of any discrepancy between any drawing and the figures written thereon, the figures shall be taken as correct.
- Should it appear that the work to be done or any matter relative thereto is not sufficiently detailed or explained on these plans, the contractor shall contact the engineer for such further explanations as may be necessary.
- Before commencement of work, the contractor shall review all plans and specifications and the job site. The contractor shall notify the owner and the engineer of any discrepancies that may require modification to these plans or of any field conflicts.
- Contractor agrees that in accordance with generally accepted construction practices, the contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property. This requirement shall be made to apply continuously and not be limited to normal working hours.
- Contractor shall obtain all necessary permits prior to commencing construction involving right-of-ways, and for the construction, modification, or connection to facilities. All workmanship, equipment and materials shall conform to local jurisdiction standards and specifications.
- Traffic control shall be provided in accordance with local jurisdiction.
- The contractor shall provide all lights, signs, barricades, flag men, or other devices necessary to provide for public safety.
- Where soil or geologic conditions encountered in grading operations are different from those generally anticipated, or where conditions warrant changes to the recommendations contained therein, a report of soil or geologic conditions shall be submitted along with proposed changes for approval and shall be accompanied by an engineer's opinion as to the safety of the site from the possibility of land slippage, settlement and seismic activity.
- A preconstruction meeting shall be scheduled with the developer, services personnel and the developer's contractor. A preconstruction meeting shall take place prior to the starting of any construction on the site.
- Meet all current applicable ADA requirements for parking, signage, ramps, sidewalks, and warning notification on sidewalks approaching drives as required.
- A mutual Shared Parking Agreement between the assisted living facility and the independent living development shall be drafted and recorded that allows for both portions of this development the right to share parking spaces and access to the parking spaces.
- As future development occurs adjacent to the subject site and utilities, pedestrian and vehicle connections are deemed appropriate by the planning Commission, the opportunity for these connections shall be provided for.
- All water main and sanitary sewer mains shall be located in easements dedicated to the township as directed by the township. Any future connections or extensions shall be allowed as needed.

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C-5

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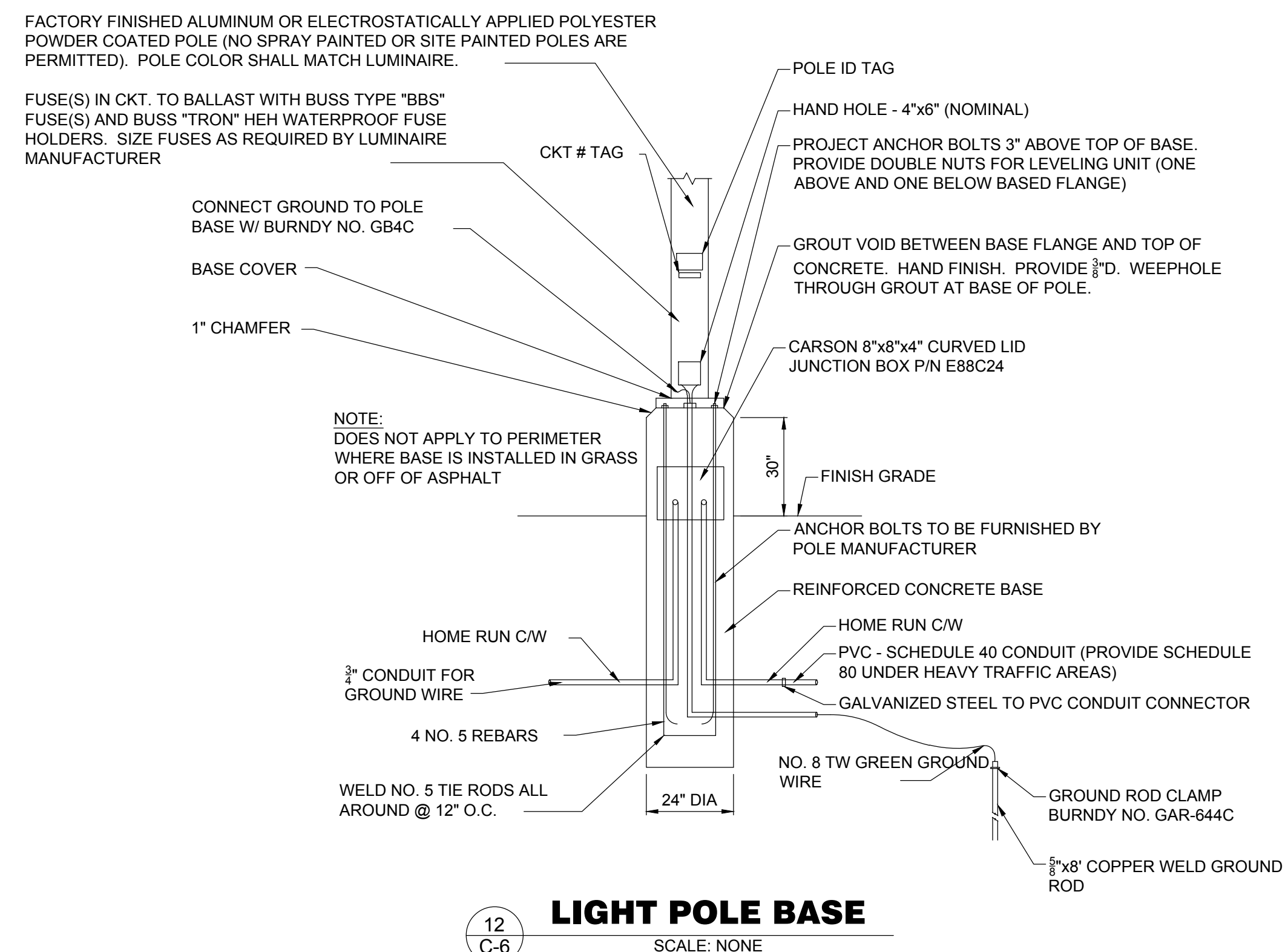
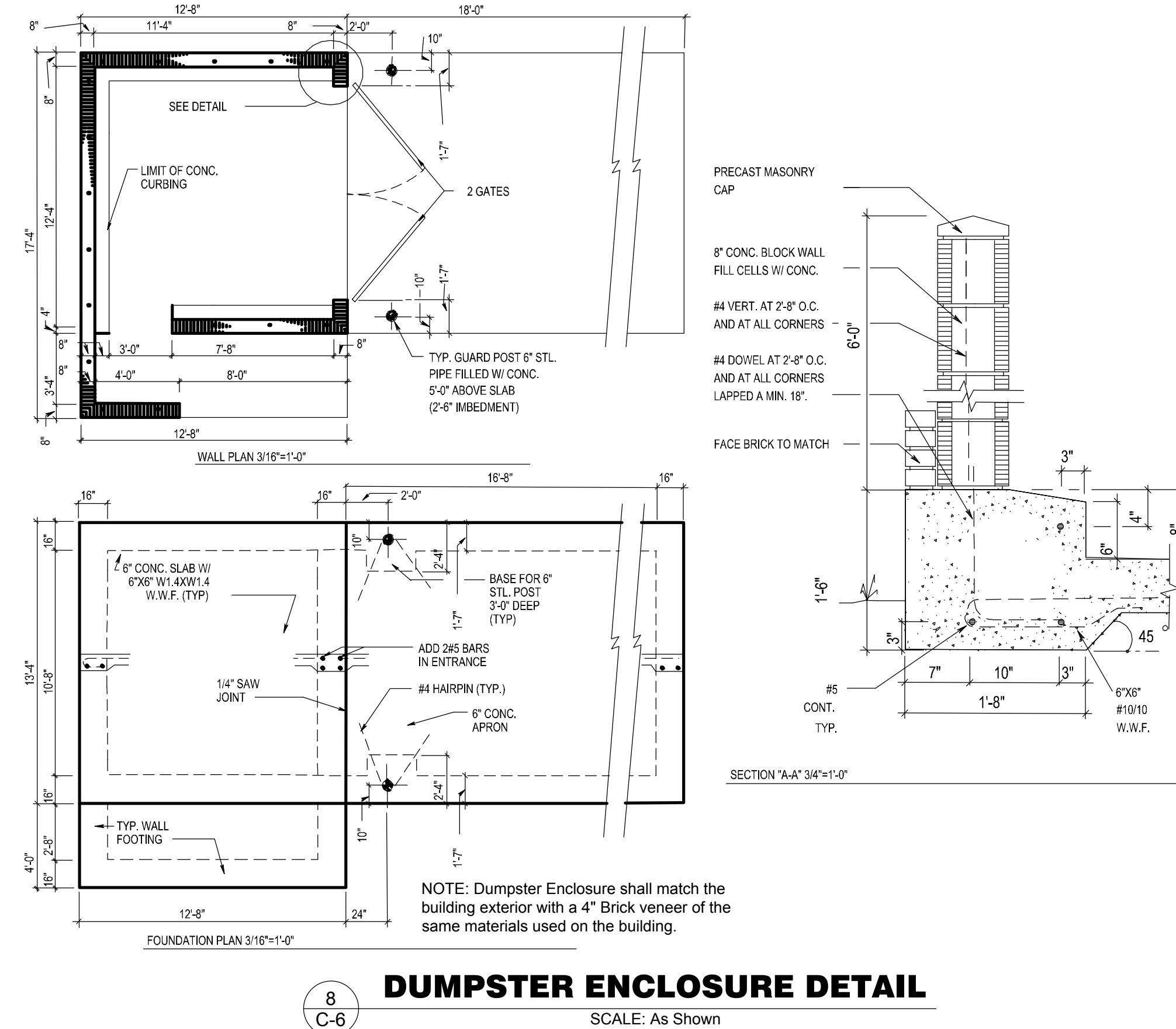
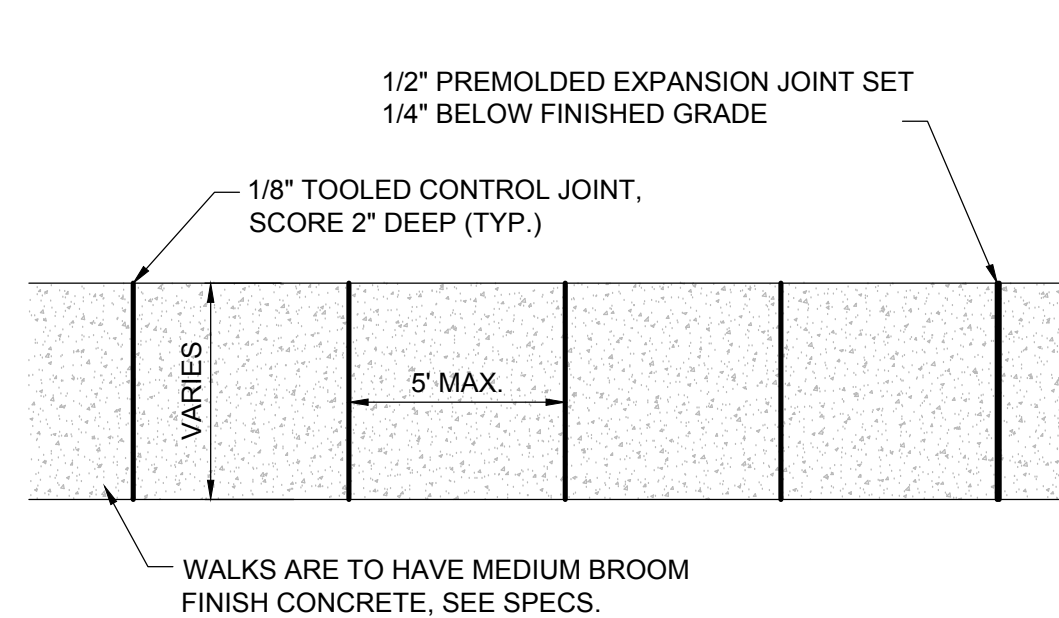
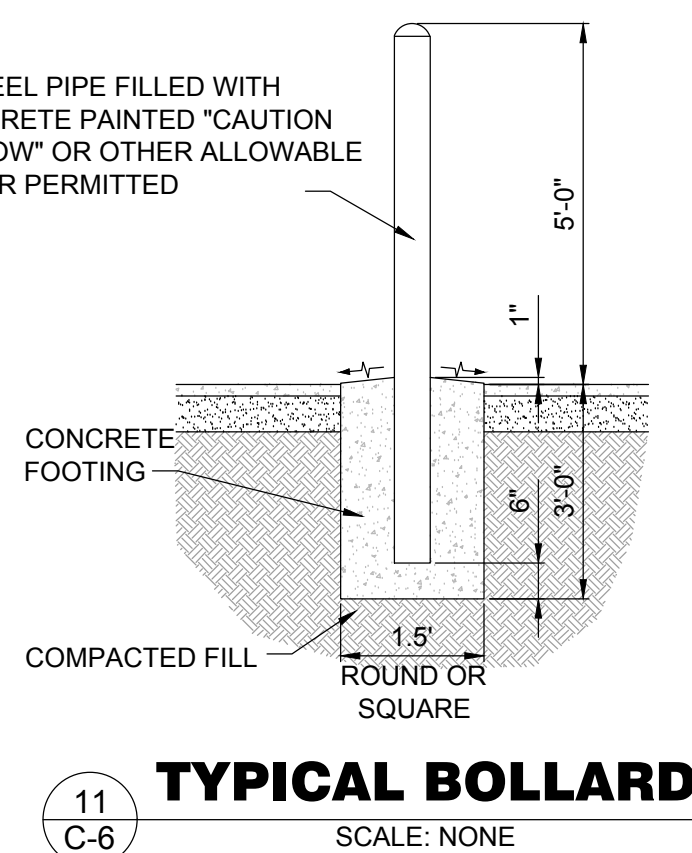
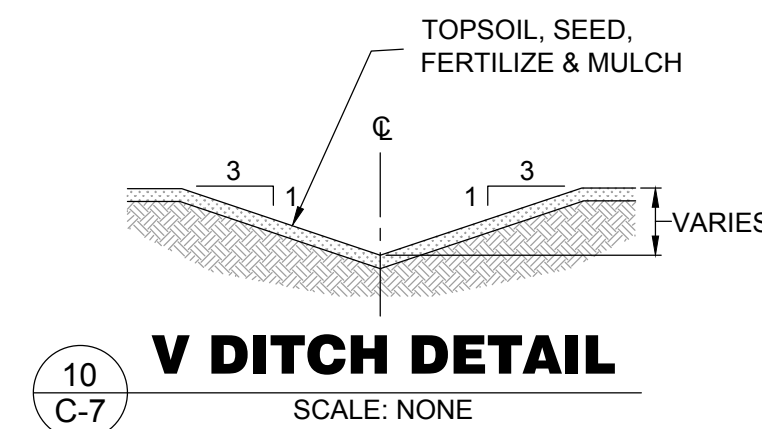
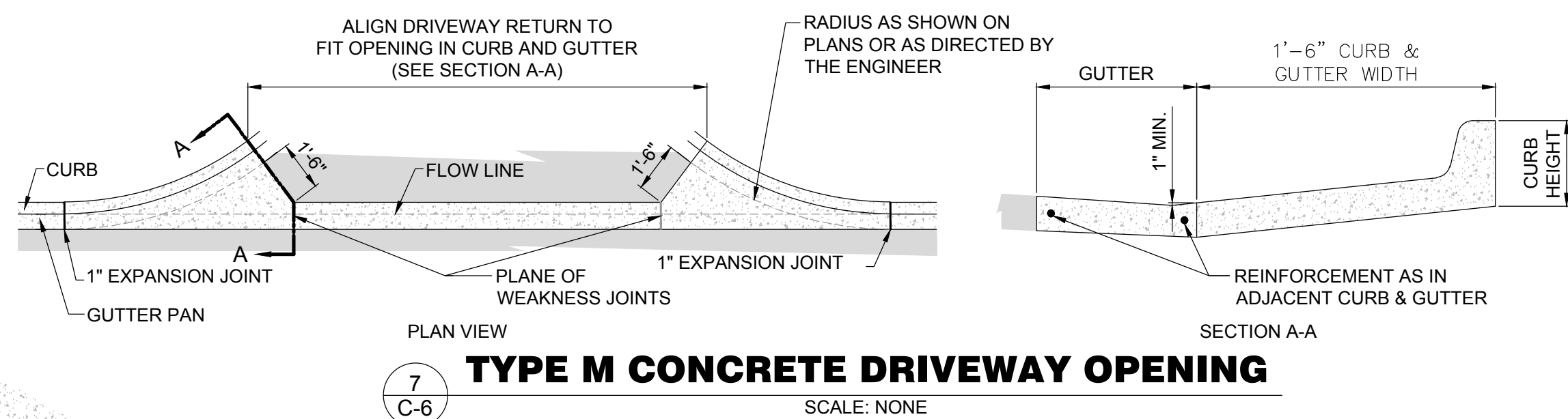
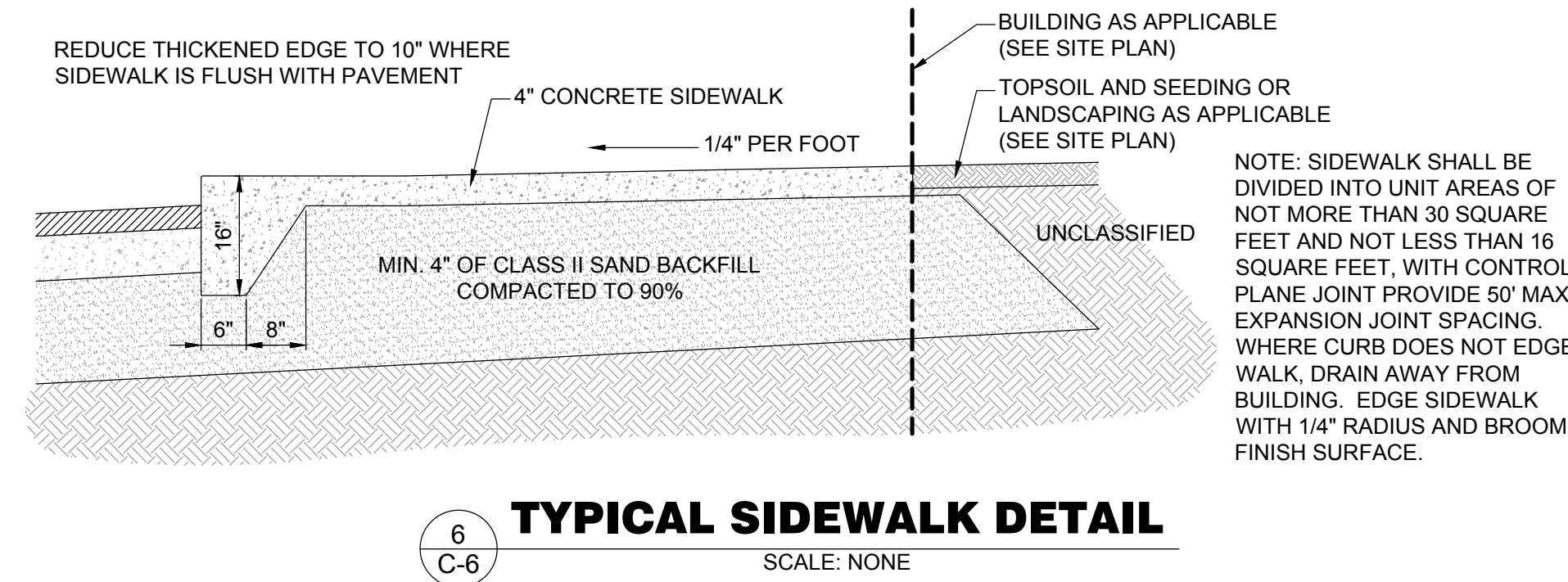
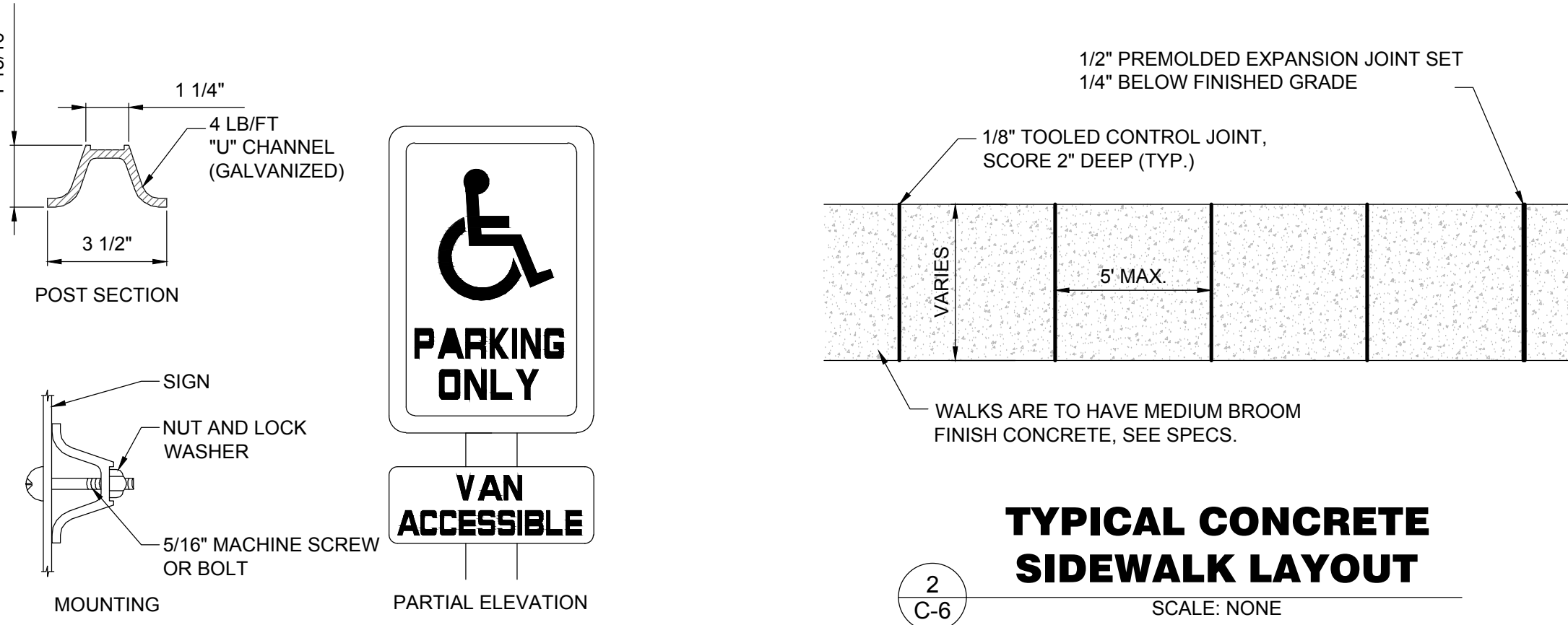
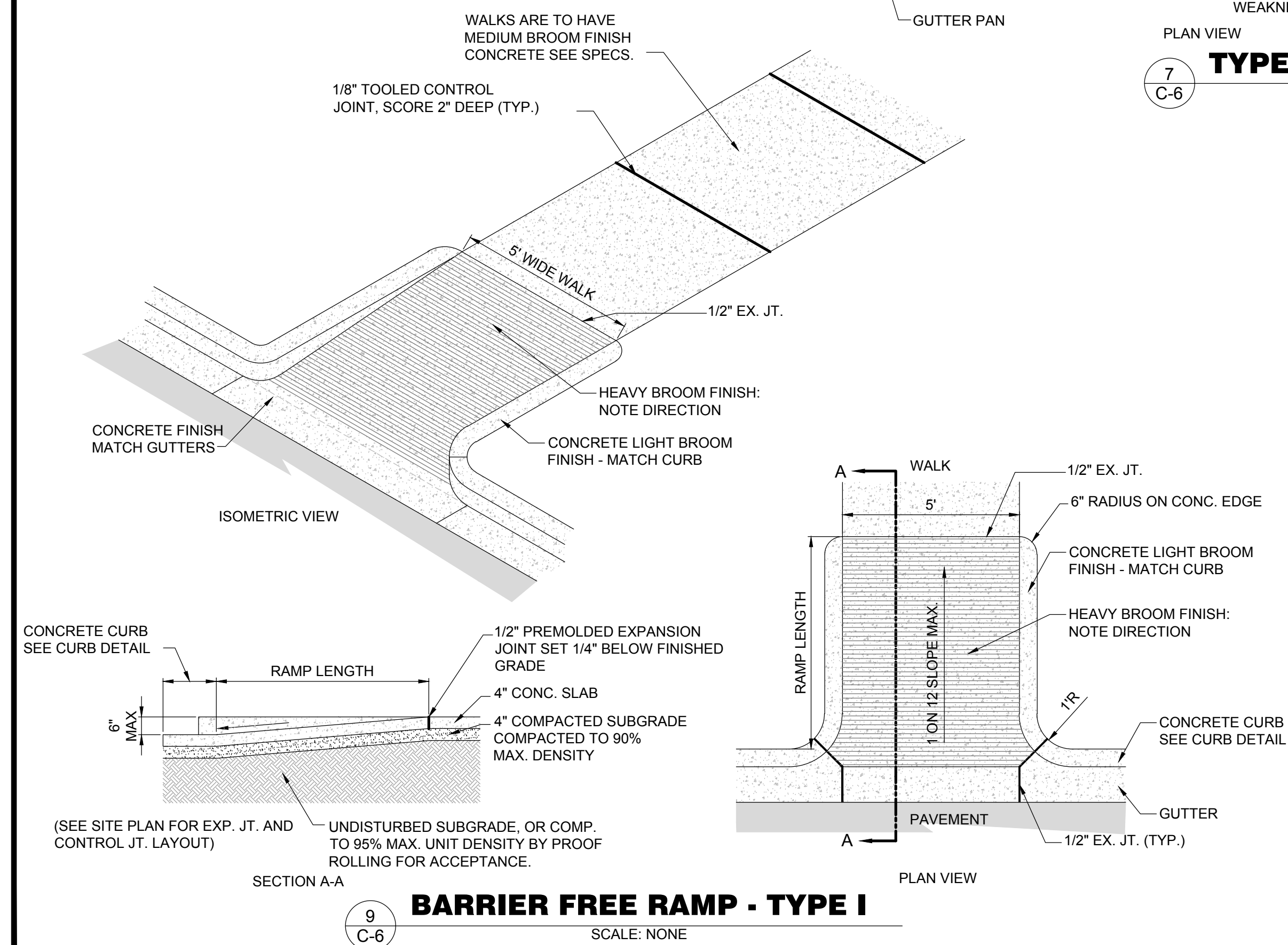
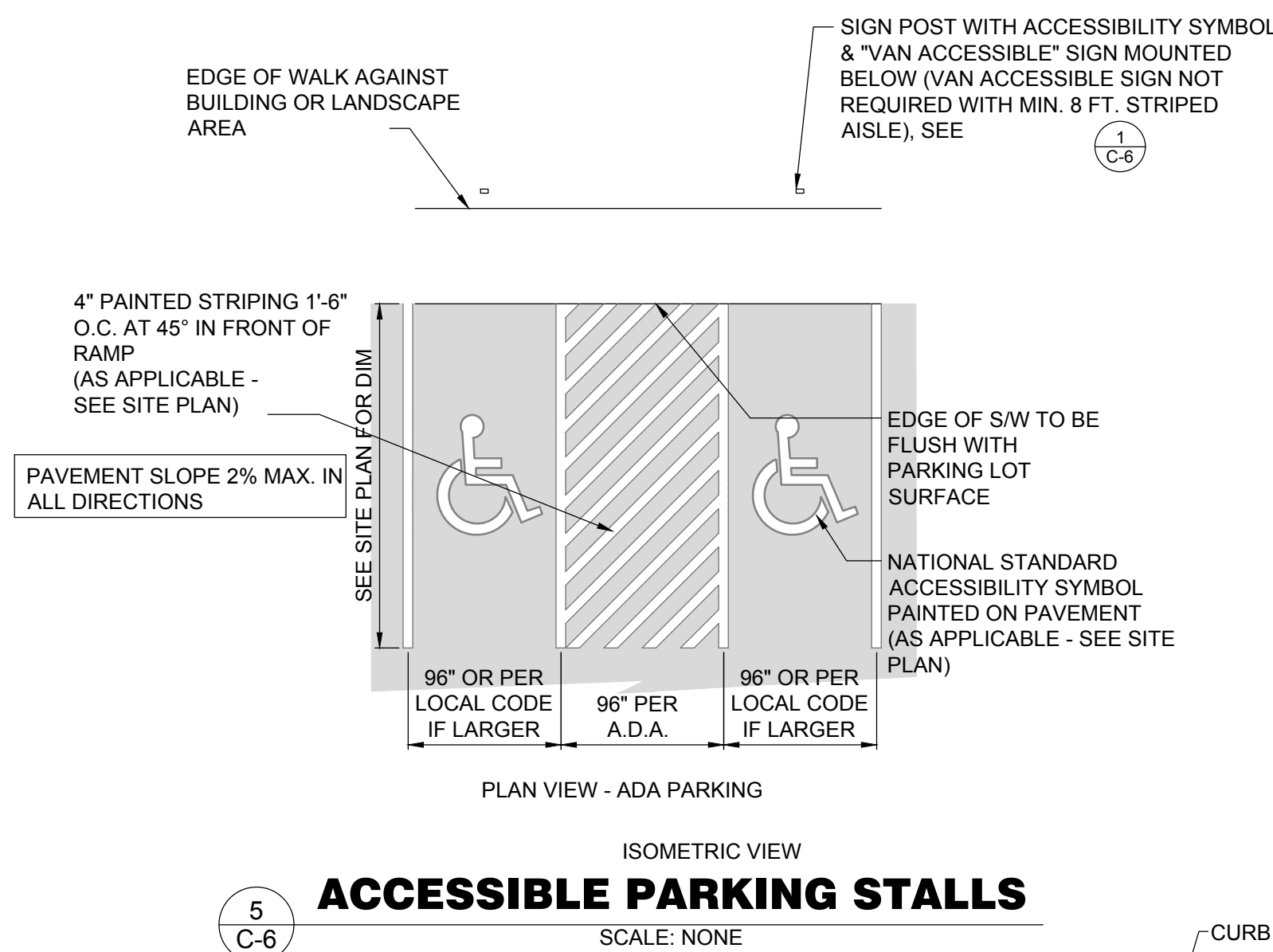
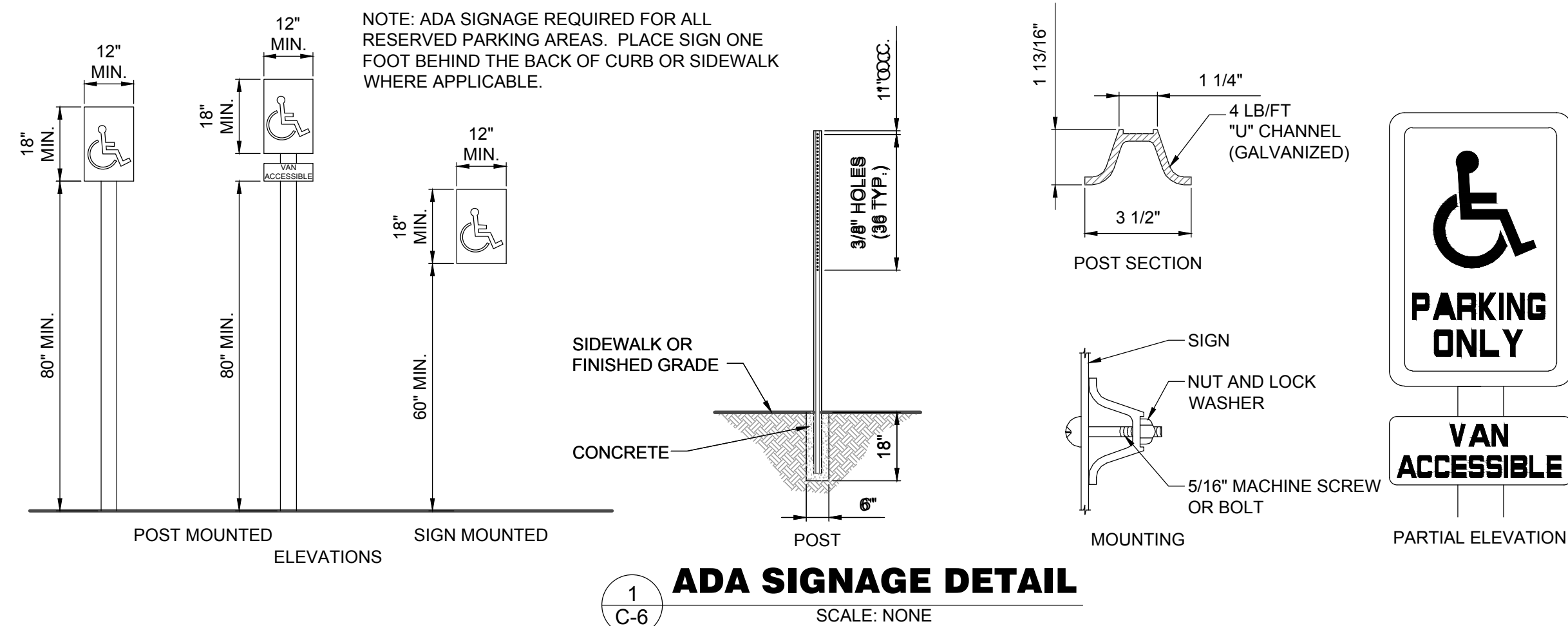
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Site Plan
Hamburg Manor
For
Hampton Manor of Hamburg

PROJECT NUMBER: P-190043
ENGINEER: Timothy L. Lapham, P.E., P.S. 27595
REVISER: 03/23/19 per Typ Engineer's comments

DRAWN BY: S.E. Bell
SCALE: 1" = 40'
SHEET C-5
DATE: March 11, 2019

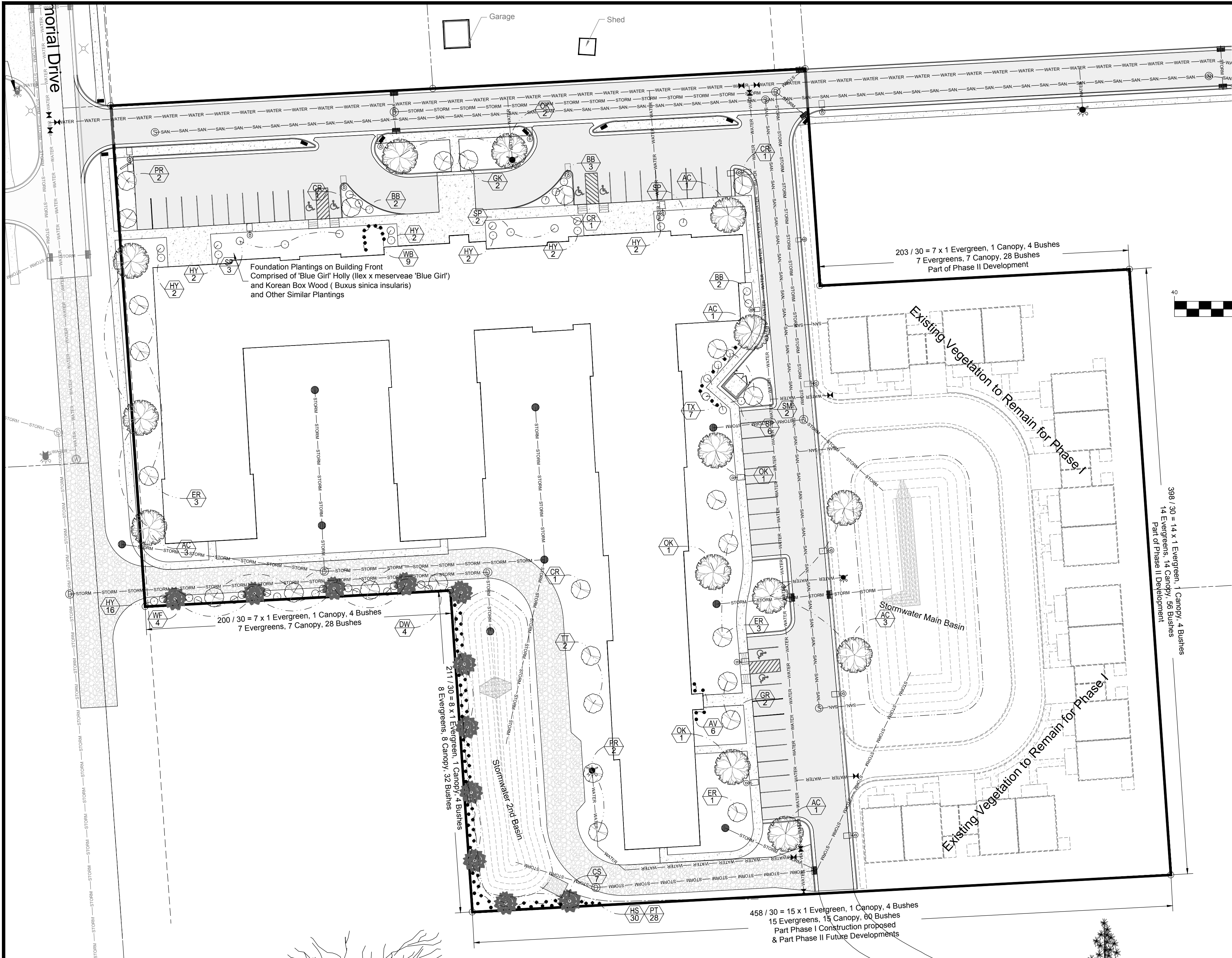


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C-6

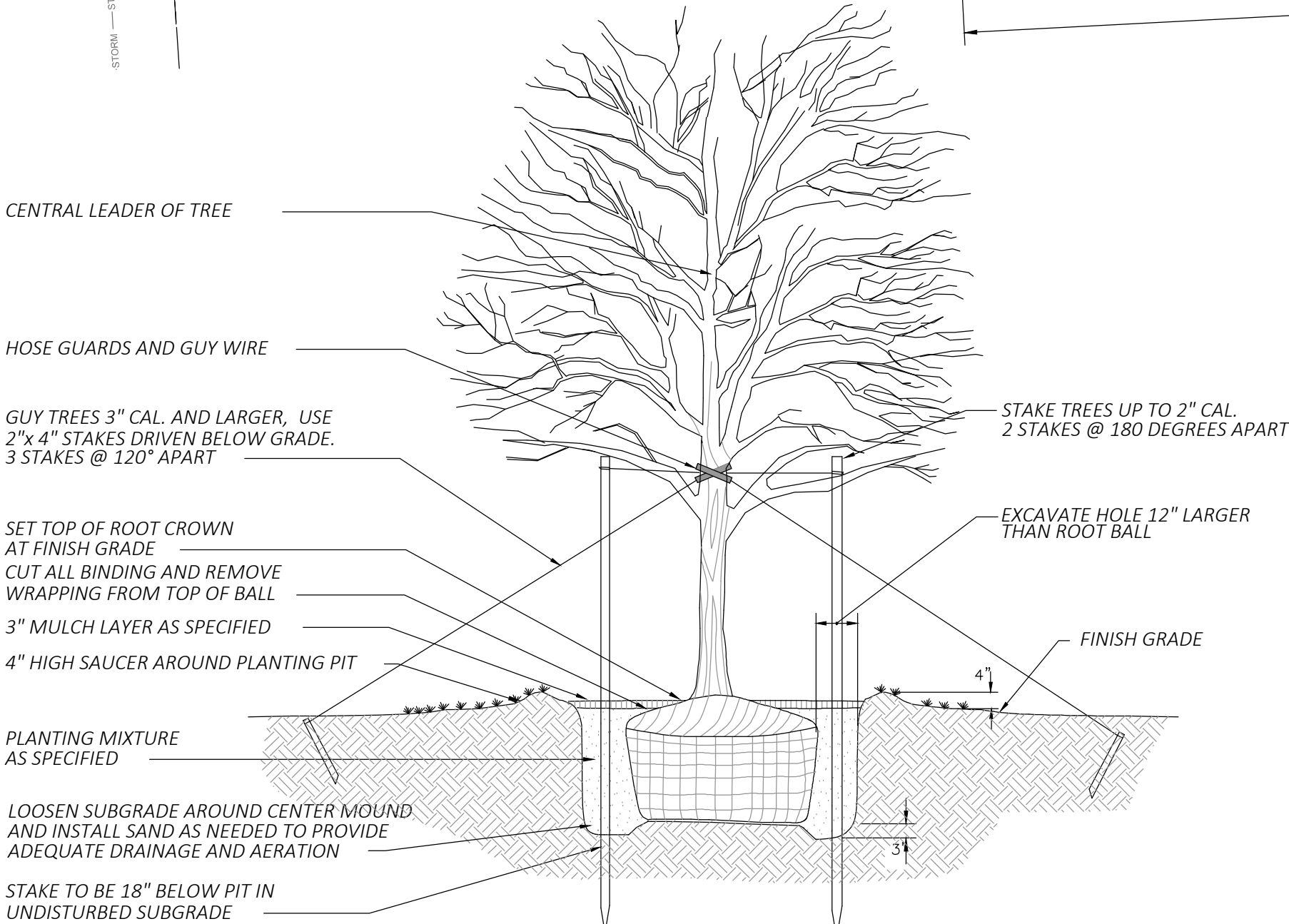


Landscaping Schedule:

QUANTITY	SYM.	COMMON (BOTANICAL) NAME	SIZE
5	OK	Oak (<i>Quercus spp.</i>)	2-1/2" Cal.
9	AC	Amur Maple(<i>Acer ginnala</i>)	2-1/2" Cal.
7	CS	Colorado Spruce (<i>Picea pungens</i>)	6' Height
4	WF	White Fir (<i>abies concolor</i>)	6' Height
4	GK	Maidenhair Tree (<i>Ginkgo biloba</i>)	2-1/2" Cal.
4	CR	Red Flowering Crabapple(<i>Mallus sp.</i>)	2-1/2" Cal.
2	TT	Tulip Tree (<i>Liriodendron tulipifera</i>)	2-1/2" Cal.
4	PR	Bradford Pear (<i>Pyrus calleryana</i> 'Bradford')	2-1/2" Cal.
7	TX	Japanese Yew (<i>Taxus cuspidata</i> 'densa')	18-24" High
9	WB	Wintergreen Boxwood (<i>Buxus microphylla</i> 'wintregreen')	18-24" High
28	HY	Oakleaf Hydrangea (<i>Hydrangea</i> 'quercifolia')	2-3' High
12	SP	Spiraea (<i>Bumalda</i> 'firelight' spirea)	2-3' High
7	BB	Dwarf Burning Bush (<i>Euonymus alatus</i> 'Compactus')	2-3' High
6	AV	Arrowwood Viburnum (<i>Viburnum dentatum</i>)	2-3' High
30	HS	Bush Honeysuckle (<i>Diervilla lonicera</i>)	2-3' High
28	PT	Shrubby Cinquefoil (<i>Potentilla fruticosa</i>)	2-3' High
80	DY	Grassleaf Day Lillies (<i>Hemerocallis minor</i>)	1 Gal.
2	SM	Saucer Magnolia (<i>Magnolia x soulang eana</i>)	2-1/2" Cal.
4	DW	Dogwood (<i>Cornus Florida</i>)	2-1/2" Cal.
7	ER	Eastern Redbud (<i>Cercis canadensis</i>)	2-1/2" Cal.

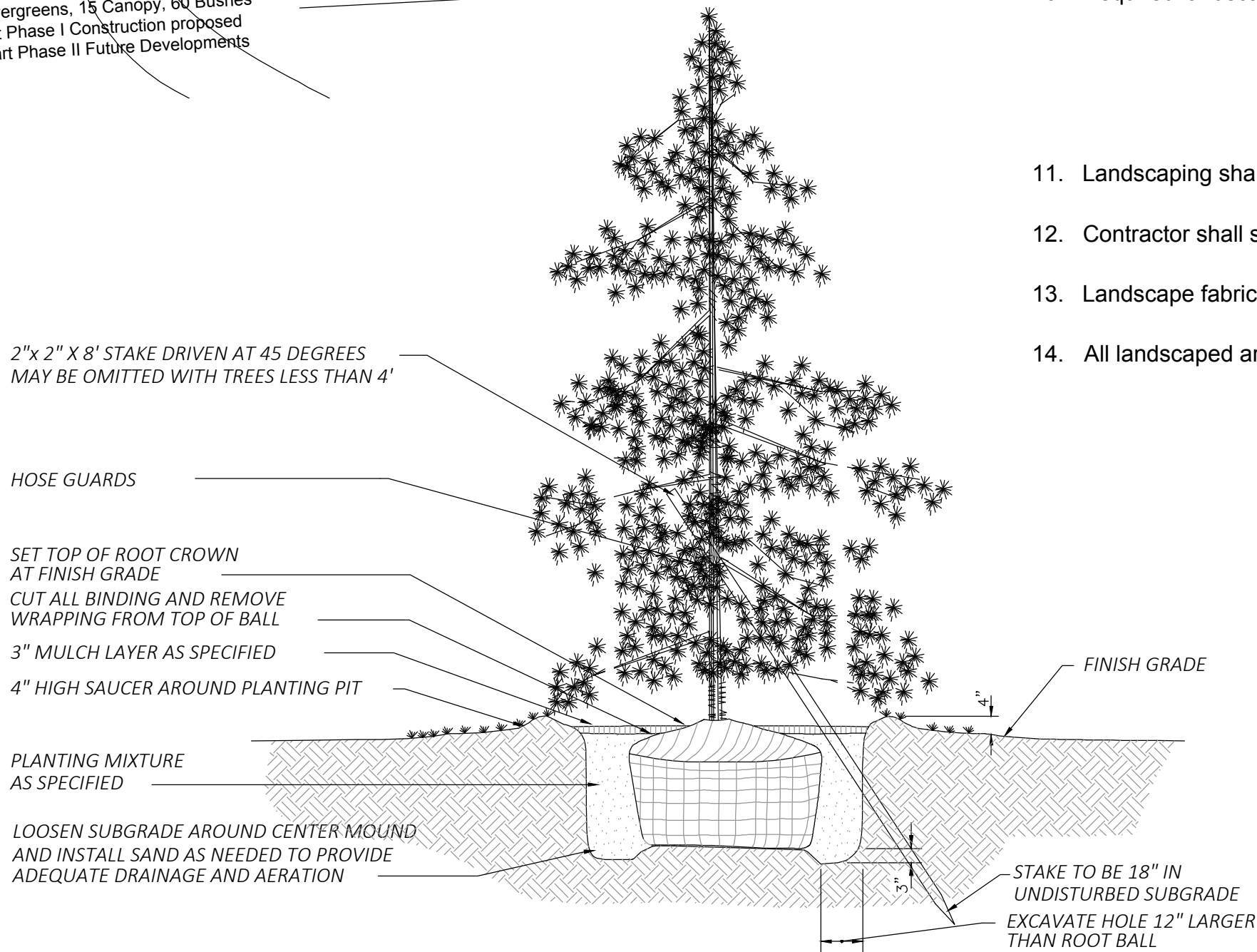
Landscaping Notes:

- Landscaping contractor shall verify the locations of all underground utilities prior to construction. Contact miss dig a minimum of 3 working days prior to commencing work. (800) 482-7171
- Landscaping contractor to confirm and provide all quantities and varieties of plants & other landscaping materials with bid. All plant substitutions shall be approved by the engineer.
- Precautions shall be taken to preserve existing vegetation as reasonably practical. New trees indicated on the drawing may be omitted if existing trees are located in a reasonable proximity to the indicated new locations. All existing trees to remain shall be of sound health.
- Landscape contractor shall finish grade and clean topsoil of large stones, branches, and debris, and fill and compact holes in seeded & sod areas. Grading contractor is responsible to replace topsoil and rough grade areas as necessary.
- All proposed lawn areas and other areas that were disturbed by construction shall receive a minimum of 4 inches of topsoil and a lawn seed mix base indicated.
- Landscape contractor shall fill plant beds with 6" of a planting soil mixture of 25% existing soil, 50% topsoil & 25% peat moss, with further amendments according to specifications.
- Planting shall be edged with 4" plastic or metal edging as indicated where necessary and staked in place every 2-4 feet.
- All plant and tree beds to be mulched with 3" of hardwood bark chips, except where indicated, all trees and shrubs to have positive drainage.
- The contractor will be responsible to replace all trees damaged by his negligence or actions. Prune all dead and broken branches from all plants immediately after installation.
- Required landscaping material shall satisfy American Assoc. of Nurserymen standards and be:
 - Nursery grown
 - State department of agriculture inspected
 - No. 1 grade with straight unscarred trunks and well developed uniform crown
 - Guaranteed for (1) year
- Landscaping shall not hide the building after several years of growth.
- Contractor shall strip, save and replace the topsoil on the site. Soils need to be tested and amended as necessary.
- Landscape fabric shall be commercial grade or approved equivalent.
- All landscaped areas shall be equipped with underground irrigation systems.



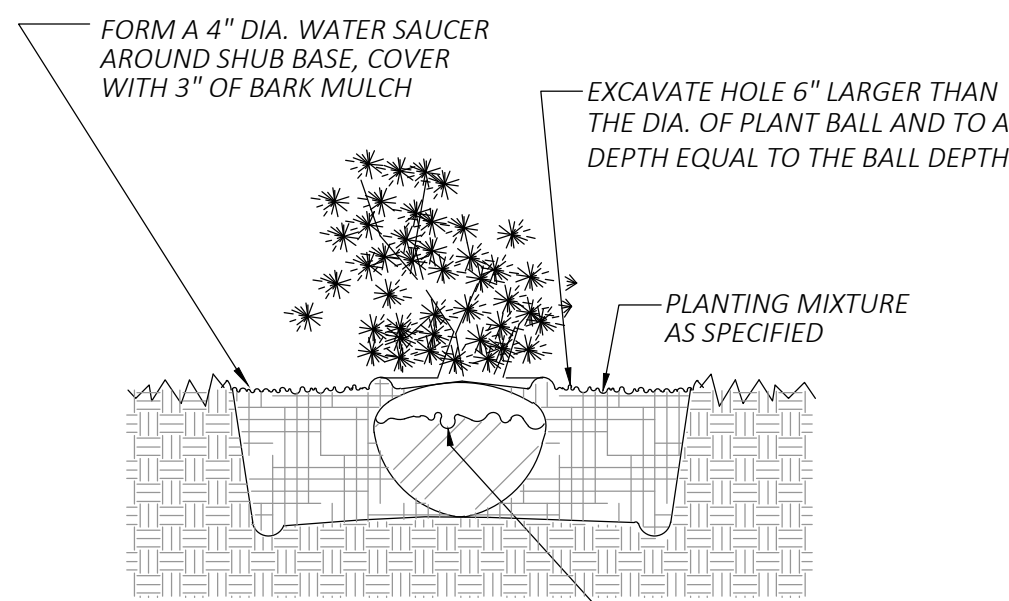
DECIDUOUS TREE PLANTING DETAIL

SCALE: NONE



EVERGREEN TREE PLANTING DETAIL

SCALE: NONE



SHRUB PLANTING DETAIL

SCALE: NONE

Landscaping Plan & Details

Hamburg Manor

For
Hampton Manor of Hamburg



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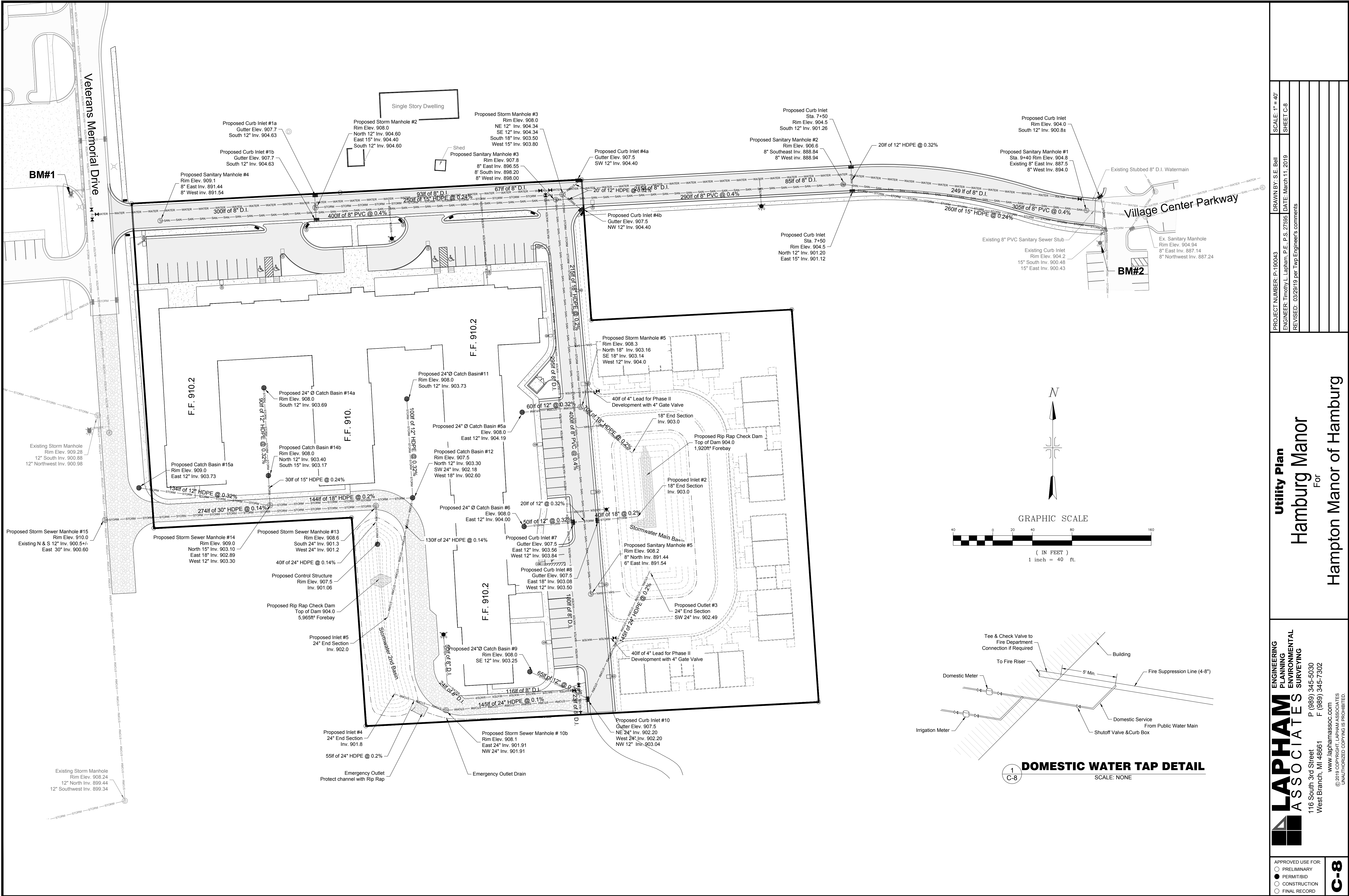
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C-7

SCALE: As Shown
SHEET C-7

DRAWN BY: S.E. Bell
DATE: March 11, 2019

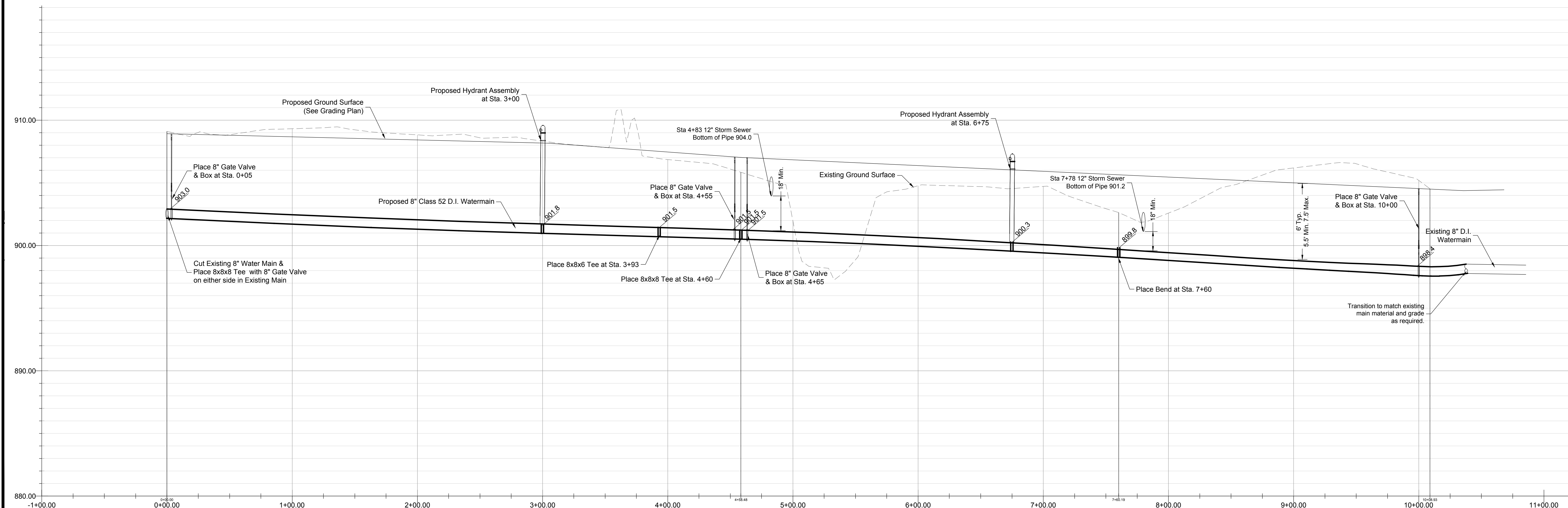
PROJECT NUMBER: P-190043
ENGINEER: Timothy L. Lapham, P.E., P.S. 27595
REVISED: 03/29/19 per Twp Engineer's comments



The area serviced by this extension in part of the township's Village Core district and will be fully developed as a Commercial PUD as a senior housing development. (see the Site Plan (Sheet C-5) for the service area map) The first phase will be an assisted living facility that will have 70 beds and the future phase will comprise of 16 independent living homes for seniors. Using the Hamburg Township REU factors we have developed the following REUs for the project:

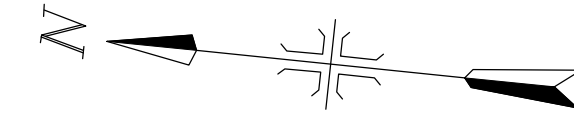
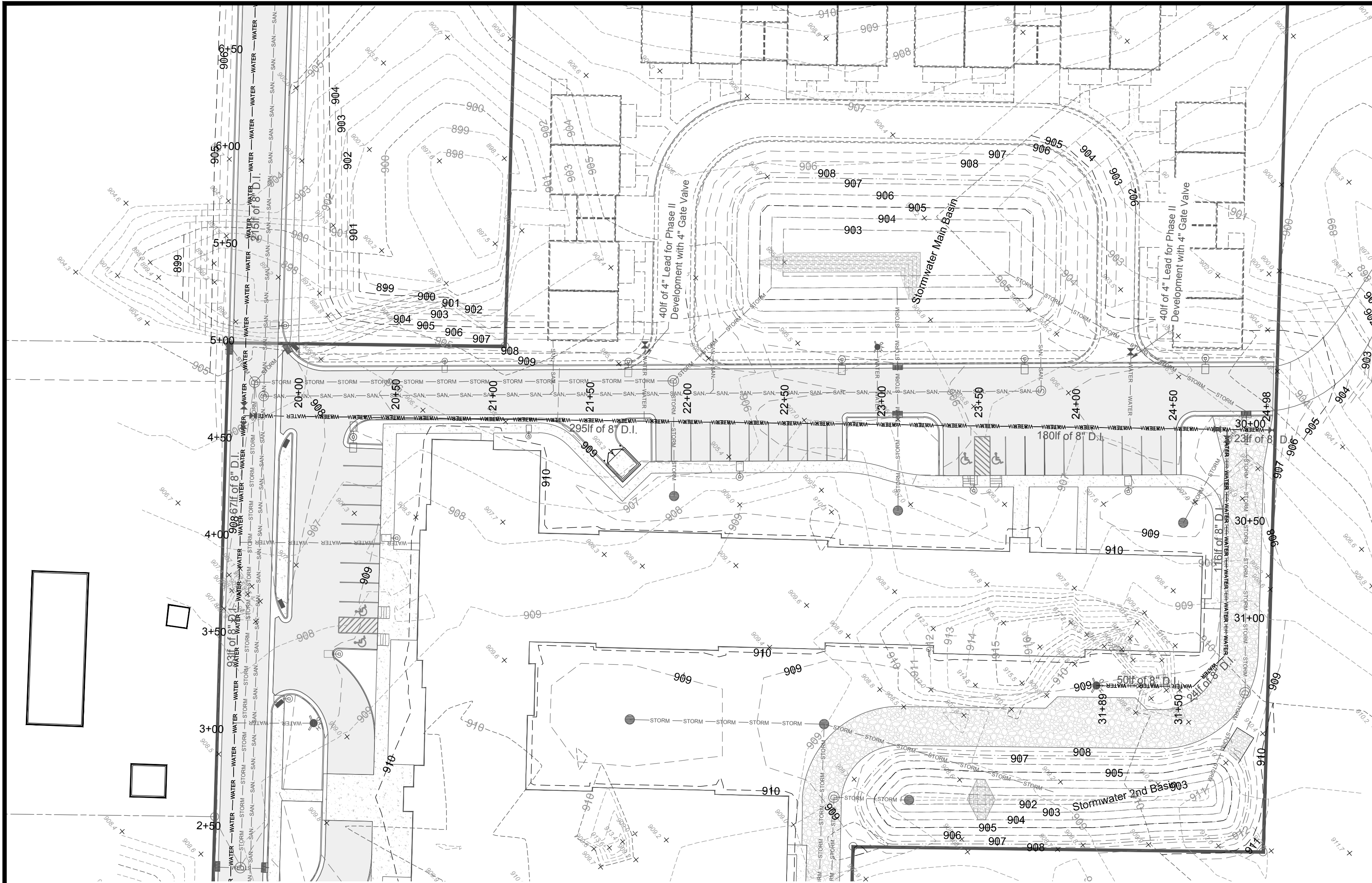
Initial design average day flow:	0.004 mgd
Initial design maximum day flow:	0.008 mgd
Total design average day flow:	0.008 mgd
Total design maximum day flow:	0.017 mgd
Required fire flows:	1500 gpm for 2 hours

1. All watermain work Shall Comply With Current Livingston County Water Authority's (LCWA) Design Standards and Standard Details & Specifications.
2. Watermain shall be placed at a minimum depth of 5.5' and a maximum depth of 7.5' from finish grade and shall include tracer wire.
3. Watermain shall be in a 20' wide public easement centered on the main dedicated to Hamburg Township.
4. All watermain shall be pressure tested as directed by the Township Engineer prior to disinfecting and bacteriological testing in accordance with LCWA's requirements prior to being accepted and placed into service.



90

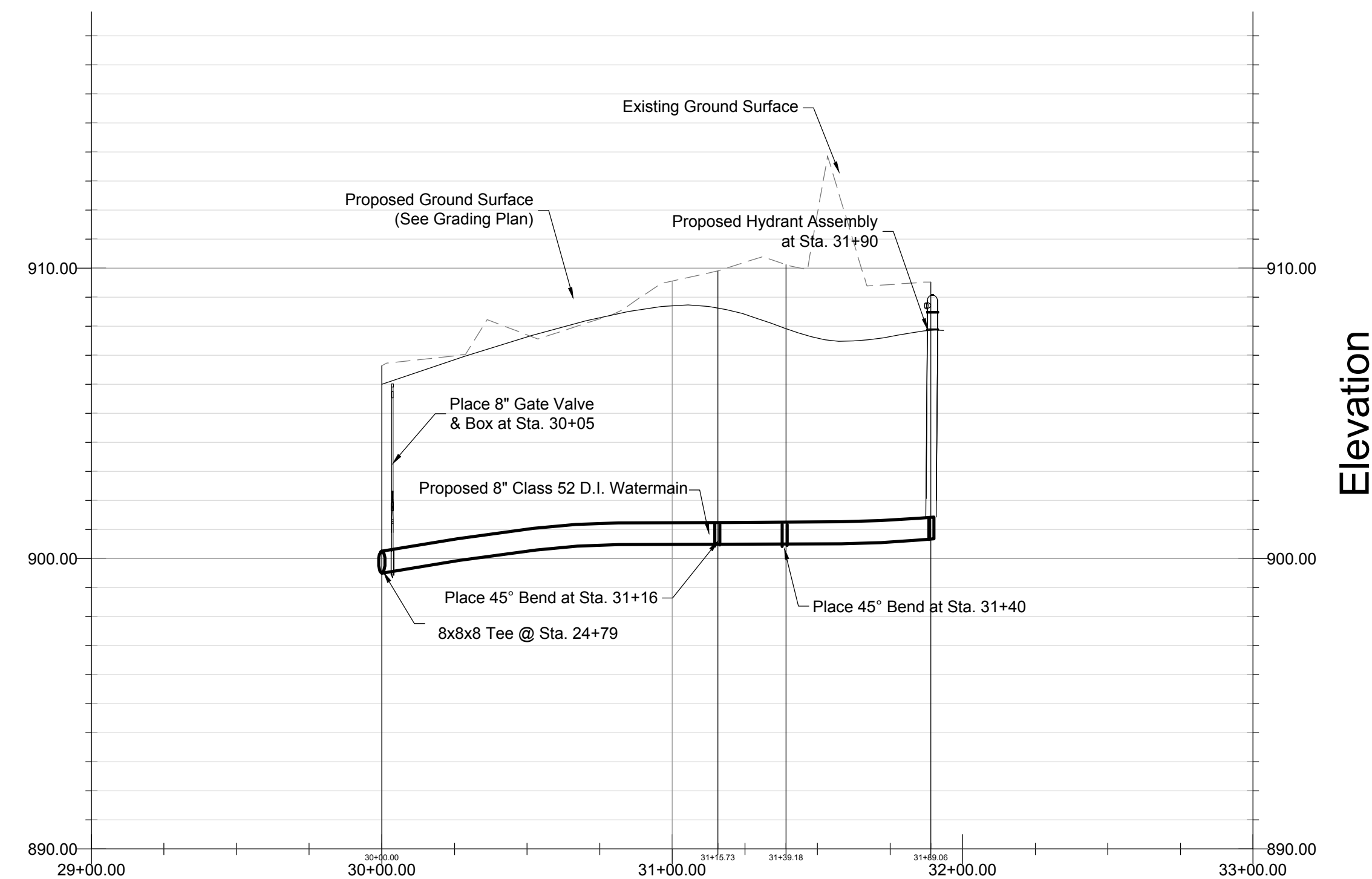
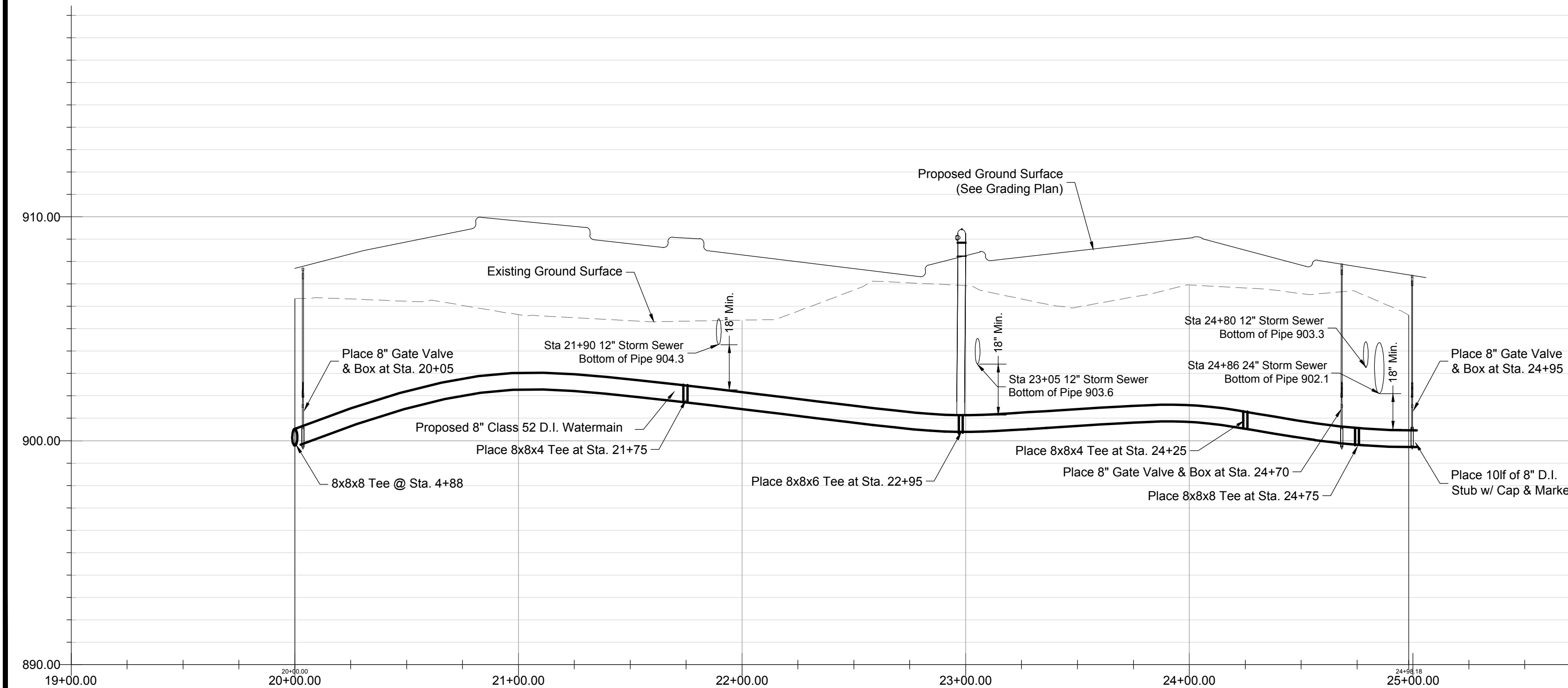
Hampton Manor of Hamburg



Scale:
Hor. 1" = 40'
Ver. 1" = 4'

WATER MAIN NOTES:

1. All watermain work Shall Comply With Current Livingston County Water Authority's (LCWA) Design Standards and Standard Details & Specifications.
2. Watermain shall be placed at a minimum depth of 5.5' and a maximum depth of 7.5' from finish grade and shall have tracer wire.
3. Watermain shall be in a 20' wide public easement centered on the main dedicated to Hamburg Township.
4. All watermains shall be pressure tested as directed by the Township Engineer prior to disinfecting and bacteriological testing in accordance with LCWA's requirements prior to being accepted and placed into service.



Watermain Plan & Profile Sta. 20+00 to 25+02 & 30+00 to 32+30

Hamburg Manor

For

Hampton Manor of Hamburg

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C-10

PROJECT NUMBER: P-190043

DRAWN BY: S.E. Bell

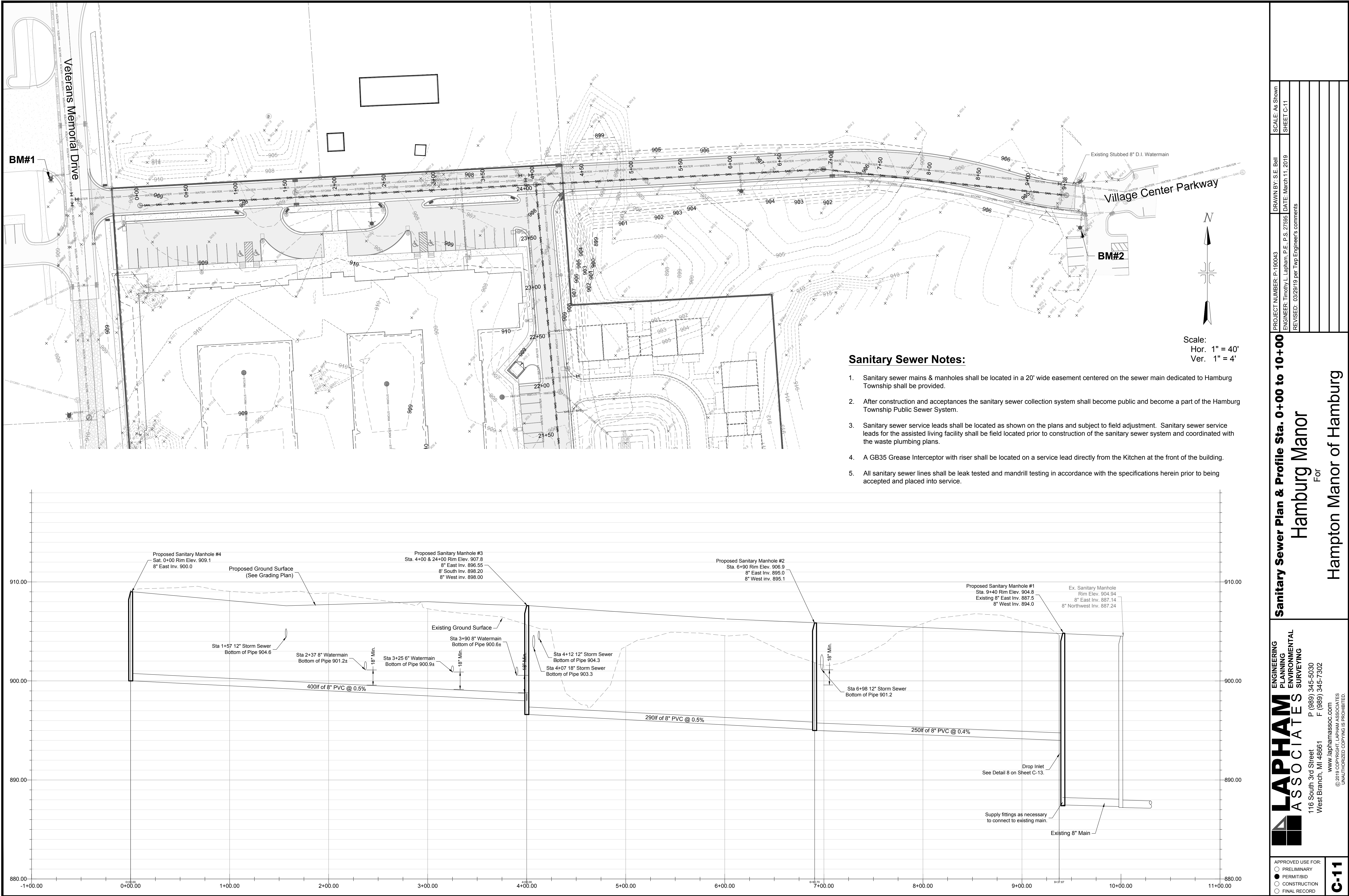
SCALE: As Shown

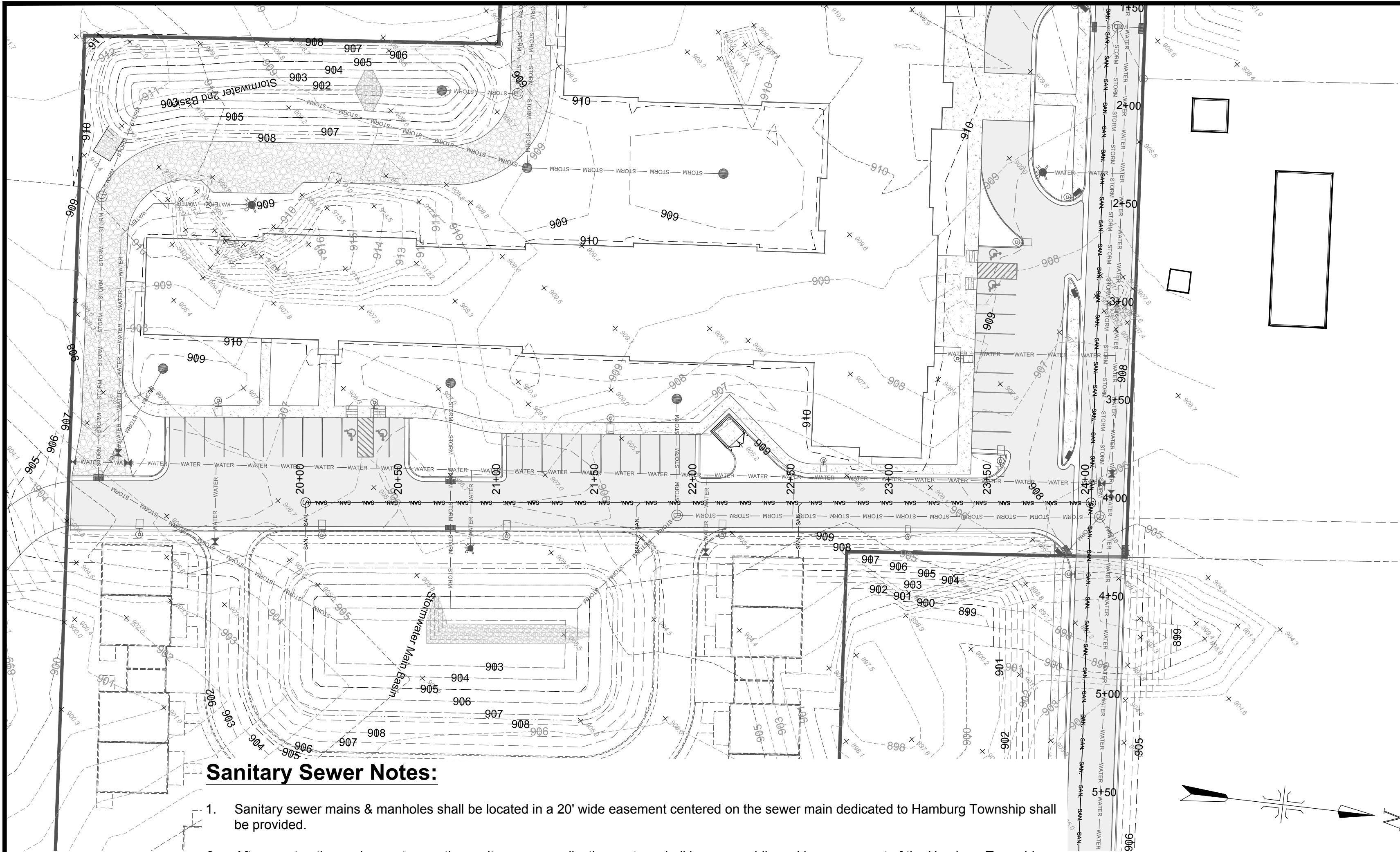
ENGINEER: Timothy L. Lapham, P.E., P.S. 27595

SHEET C-10

REVISION: 03/28/19 per Twp Engineer's comments

DATE: March 11, 2019

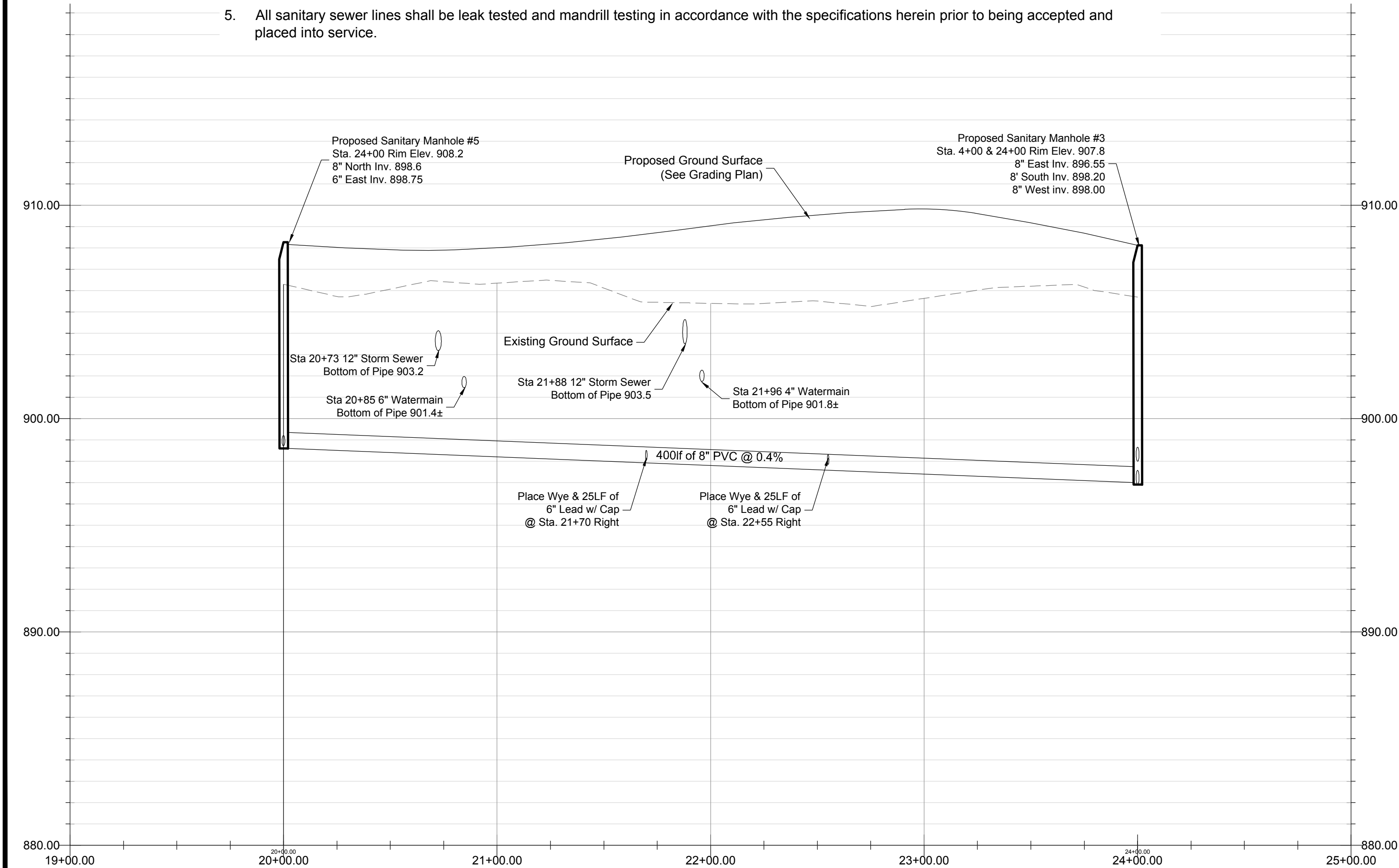




Sanitary Sewer Notes:

- Sanitary sewer mains & manholes shall be located in a 20' wide easement centered on the sewer main dedicated to Hamburg Township shall be provided.
- After construction and acceptance the sanitary sewer collection system shall become public and become a part of the Hamburg Township Public Sewer System.
- Sanitary sewer service leads shall be located as shown on the plans and subject to field adjustment. Sanitary sewer service leads for the assisted living facility shall be field located prior to construction of the sanitary sewer system and coordinated with the waste plumbing plans.
- A GB35 Grease Interceptor with riser shall be located on a service lead directly from the Kitchen at the front of the building.
- All sanitary sewer lines shall be leak tested and mandrill testing in accordance with the specifications herein prior to being accepted and placed into service.

Scale:
Hor. 1" = 40'
Ver. 1" = 4'



Sanitary Sewer Notes:

- Trench Excavation**
 - Trench excavation shall be made by open cut from the surface. Trenches in earth for pipes and conduits shall be excavated to a width at the level of the center of the pipe at least 12 inches greater than the nominal diameter of the pipe and, in all cases of sufficient width to permit the pipe or conduit to be laid properly, and shall not have overhanging sides, except at joint holes. The bottom of trenches in earth shall be carefully excavated and graded to the line and contour of the pipe to be laid. Care shall be taken not to disturb the original soil 6 inches below the pipe line; and if a subgrade is so disturbed, the space shall be refilled with selected material solidly tamped into place to form a firm foundation before the construction work proceeds. Where the finished subgrade, in the opinion of the Engineer, is not sufficiently stable for supporting piping, the Contractor shall excavate to the elevations and lines directed by the Engineer and he shall backfill the excavated area up to the elevation of the finished subgrade with selected material solidly tamped into place to form a firm foundation before the construction work proceeds.
- Amount of Trench Opening**
 - In excavating for sewers, the excavation shall at all times be finished to the required grade for an adequate distance in advance of the completed work, unless otherwise permitted by the Engineer. A maximum of 200 feet of trench shall be open at one time. The length of street which may be occupied by the construction work at any one time shall be subject to the direction of the Engineer and will be based on the requirements of use of the street by the public. Not more than 600 consecutive feet of length of street shall be occupied at one time and vehicular traffic through the street shall not be entirely stopped without the permission of the Engineer. Main and site service lead construction shall be within the 600 foot occupancy limit together and at the same time.
- Sheeting, Bracing, and Shoring**
 - Where required to properly support the area of excavation, in order to protect the construction work, adjacent work or workmen, sheeting, bracing, and shoring shall be provided. If the Engineer is of the opinion that at any point sufficient or proper supports have not been provided, he may order additional supports at the expense of the Contractor. Neither the placing of such additional supports by the order of the Engineer or the failure of the Engineer to order such additional supports placed, shall place any responsibility or liability for sufficiency or integrity of the work on the Engineer or Owner. The Contractor shall be solely responsible for the sufficiency of such supports and the integrity of the work. In the removing of sheeting and bracing after the construction has been completed, special care shall be taken to prevent any caving of the sides of excavation and injury to the completed work or to adjacent property.
- Sheeting Left in Place**
 - Sheeting, bracing, and shoring shall not be left in place after completion of the work, except as required by the Engineer. Where required to protect the work, adjacent structure or property, sheeting, bracing, and shoring shall be left in place, but shall be cut off or left not less than two feet below the established surface grade.
- Drainage of Excavations**
 - Water which may accumulate or be encountered in excavation shall be removed by pumping or other acceptable method and the excavation shall be kept dry until the work of this contract shall be completed. Drainage from excavation shall be disposed of in such manner as will not cause injury to property or to the work completed or in progress, or injury or inconvenience to the public.
 - Where excavations are in existing porous material and ground water seepage into the excavations create wet conditions, well pointing the excavation will be required. As an alternate to well pointing, over-excavating and backfilling with washed stone will be permitted to provide temporary pump wells for portable electric pumps during pipe placement.
- Laying of Sewer Pipe**
 - Pipe shall be carefully laid to the lines and grades shown on the plans and shall have bearing over its entire length. Line and grade shall be maintained by means of a laser system. Use of alternate methods on short or irregular runs will be considered by the Engineer, but must be approved by the Engineer prior to actual construction.
 - Joints that are connected in the trench shall be connected in a dry trench condition.
 - Care shall be taken to keep the interior of the pipe clean and free from dirt and other foreign materials, and bulkheads or other approved means shall be used at the open end of the pipe for this purpose. The Contractor shall set wyes, crosses, tees, bends, sleeves, and other special castings in the sewer main where shown on the plans, or as directed by the Engineer. All unconnected openings of such special castings shall be closed by standard plugs. All joints shall be water-tight so that a maximum infiltration rate of 50 gallons per inch diameter per mile per 24 hours (includes manhole) shall not be exceeded. Sewer alignment shall be such that a direct light beam can be passed between any two manholes.
- Backfilling Trenches**
 - As soon as practicable after the pipes or conduits are constructed and tested, the trench shall be backfilled. All the trenches under the roadbeds and driveways shall be backfilled with MDOT granular material, Class II, compacted to not less than 95% of maximum unit weight as determined at the existing moisture content. Backfill layer thickness in the above zone shall not exceed 12 inches before suitable compaction is achieved. All backfill material within 2 feet of the top of the pipe shall be free from rocks, debris, frozen and organic material.
 - Backfill around manholes shall be compacted to not less than 95% of maximum unit weight as determined at the existing moisture content. Backfill material under driveways shall be MDOT granular material, Class II.
 - During the process of excavation and backfilling, care shall be taken to reserve sufficient suitable material for the backfilling around pipes or conduits throughout the entire extent of the work, transporting such material where required.
 - Stones larger than 1-1/2 inches shall not be placed within 12 inches of any sewer.
 - Granular material, Class II, trench backfill shall be required to a height of one (1) foot above the sewer in areas outside the roadbed and driveways.
 - Trench backfill in areas inside the roadbed and driveways shall be in not more than 12-inch layers, compacted to not less than 95% of maximum unit weight as determined at the existing moisture content.
- Disposal of Excavated Material**
 - Excavated material, if suitable, shall be used in backfilling around pipes and other structures.
 - All material in excess of the quantity required for backfilling shall become the property of the Contractor and disposed of by the Contractor.
 - Trench backfill material shall be neatly rounded over the trench above the original ground line.
 - Wasting trench excavation material in the road right-of-way shall not be allowed unless approved in writing by the Engineer.
- Testing Sanitary Sewers**
 - For the purpose of exfiltration testing, the internal water level shall be equal to the external water level plus seven (7) feet as measured from the top of highest pipe in the system being tested. This could be either a house lead or a lateral.
 - The actual exfiltration or leakage from the sewer line can be measured by recording the volume of water lost over a given period of time in a stand pipe or pipes connected in the upstream and/or downstream manhole or the upstream manhole can be used, provided the test water level is below the bottom of the tapered section.

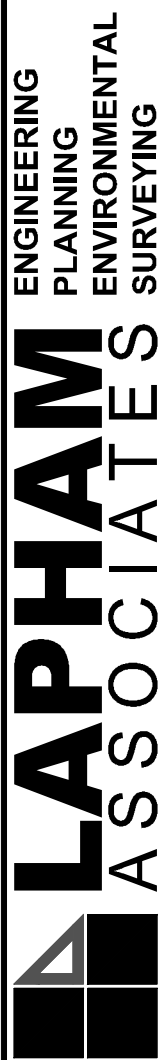
It may be necessary to add a measured amount of water during the testing time interval to maintain water in the stand pipe at the specified level such that the total volume of water lost would be based upon the amount of water added and the difference in elevation of water at end of testing converted to gallons. When the stand pipe method is used, the time interval to record the difference in elevation of the water surface shall be a minimum of fifteen (15) minutes. When the upstream manhole method is used, the time interval shall be a minimum of two (2) hours.
 - The rate of exfiltration shall not exceed 50 gallons per inch diameter per mile per 24 hours (includes manholes).
 - The rate of infiltration of the entire system shall not exceed 50 gallons per inch diameter per mile per 24 hours.
- Sewer Low Pressure Air Tests (as an alternate to stand pipe water test)**
 - The procedure for air testing of sewers shall be as follows:
 - The sewer line shall be tested in increments between manholes. The line shall be cleaned and plugged at each manhole. The plugs shall be designed to hold against the test pressure and shall provide an air-tight seal. The air supply line shall be fitted with suitable control valves and a pressure gauge for continually measuring the air pressure in the sewer. The pressure gauge shall have a minimum diameter of 3-1/2 inches and a range of 0-10 PSIG. The gauge shall have minimum divisions of 0-10 PSIG and an accuracy of + - 0.04 PSIG.
 - The sewer shall be pressurized to a 4 PSIG greater than the greatest back pressure caused by ground water over the top of the sewer pipe. At least two (2) minutes shall be allowed for the air pressure to stabilize between 3.5 and 4 PSIG. If necessary, air shall be added to the sewer to maintain a pressure of 3.5 PSIG or greater.
 - After the stabilization period, the air supply control valve shall be closed so that no more air will enter the sewer. The sewer air pressure shall be noted and timing for the test begun. The test shall not begin if the air pressure is less than 3.5 PSIG or such other pressure as is necessary to compensate for ground water level.
 - The time required for the air pressure to decrease 1.0 PSIG during the test shall not be less than 3.5 minutes.
 - If a sewer fails to pass any of the previously described tests, the contractor shall determine the location of the leaks, repair them, and retest the sewer. The tests shall be repeated until satisfactory results are obtained.
- Pipe Deflection Test**
 - If PVC or other flexible pipe is used, a deflection test will be required. A test mandrel, which has a diameter of 95% of the inside diameter of the sanitary sewer shall be required to pass through the sewer. Tests shall be run not earlier than thirty days after the trench is backfilled. Sewer lines failing the mandrel test shall be relaid and tests rerun at no expense to the Owner.
- Tamping Backfill**
 - In paved streets, roadways, or where structures are to be built above backfilled trenches or on earth fill and in places indicated on the plans or as directed by the Engineer, the backfilling for entire depth of the trench or earth fill up to the elevation of the footings or base of the structures, shall be carefully compacted by hand or machine tamping, or water flushing and allowed to thoroughly settle before structures are built. Compaction shall be 95% of relative density at optimum moisture content.
- Witnessing Sewer Site Leads**
 - Site leads shall be installed to between one foot and two feet from the road right-of-way line and properly plugged and witnessed by the Contractor with a No. 9 gauge wire anchored around a 2x4 12 inch long and placed beside the pipe barrel and running vertically from the pipe to a three foot long x 3/8 inch diameter bar driven into the ground flush with the ground surface at a point on the lot side of the right-of-way line. Plugged house leads shall also be witnessed by the Contractor, in the presence of the Inspector, to three of the nearest combinations of house corners, power poles or manholes, or other permanent physical features. Witnesses shall be recorded on the "as-built" plans or tabulated in a separate witness book by the Engineer. Depth of the service lead shall also be recorded. Witnesses that do not "plot" within five feet ± of each other shall be rewitnessed by the Contractor
- Manhole Castings**
 - Manhole castings shall be mortared in place according to MDOT Specifications for manhole construction.
- Type and Class of Pipe**
 - The following type and class of gravity flow sanitary sewer pipe may be used:
 - A.S.T.M. - D3034, PVC sewer pipe SDR26 with integral bell gasketed joints.
 - Other types of pipe may be used if approved in writing by the Engineer.

Sanitary Sewer Plan & Profile Sta. 20+00 to 24+00

Hamburg Manor

For

Hampton Manor of Hamburg



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C-12

SCALE: As Shown
SHEET C-12

DRAWN BY: S.E. Bell
DATE: March 11, 2019

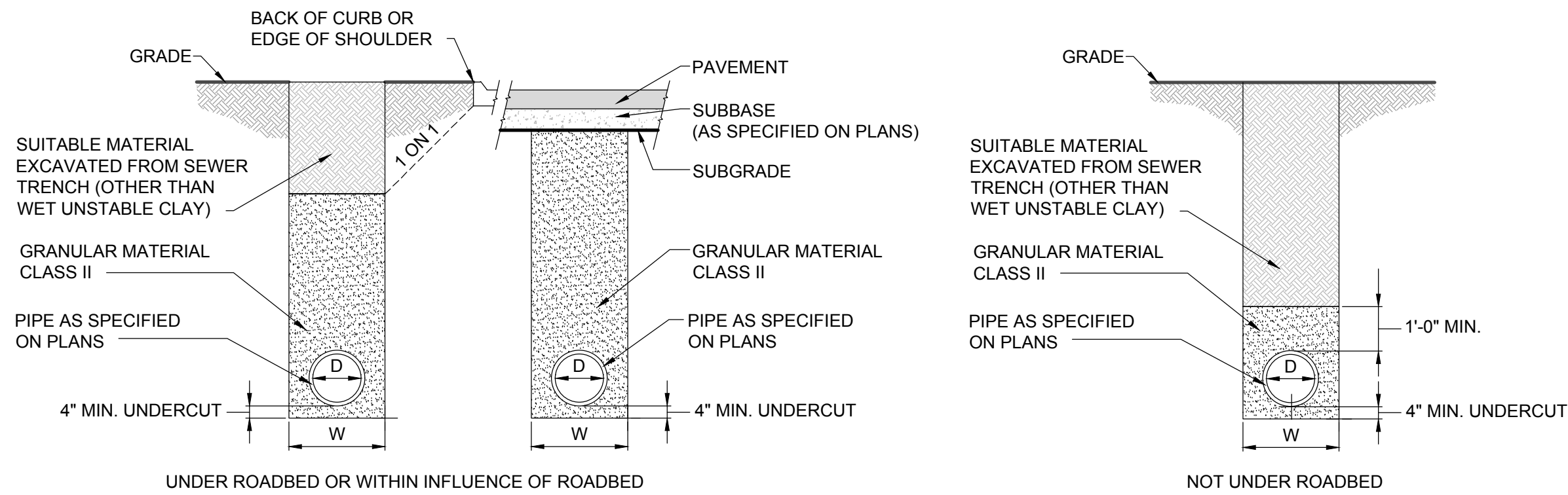
PROJECT NUMBER: P-190043
ENGINEER: Timothy L. Lapham, P.E., P.S. 27595
REVISED: 03/28/19 per Twp Engineer's comments

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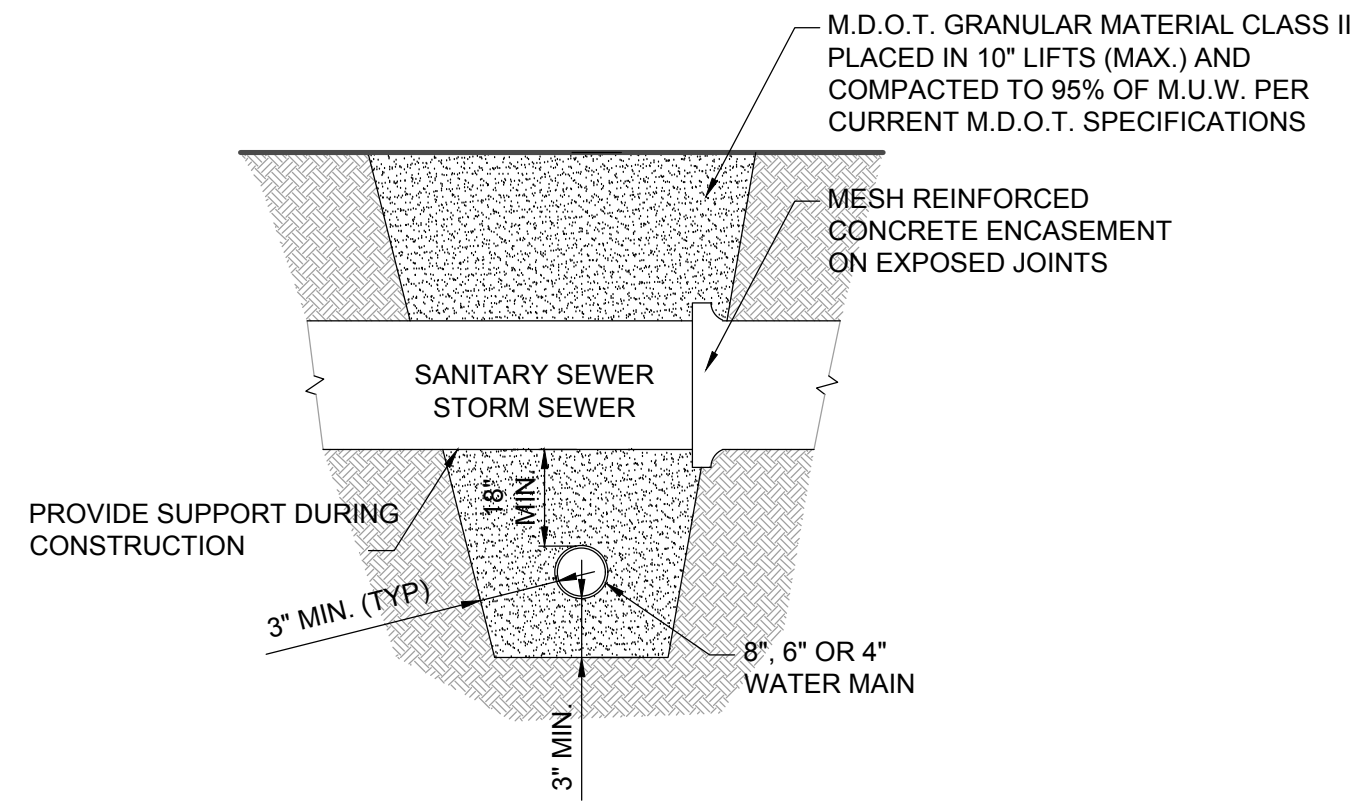
1
C-13
PIPE TRENCHES
SCALE: NONE

MINIMUM TRENCH WIDTHS					
I.D. PIPE SIZE (INCHES)	LESS THAN 18	21	24	30	36
"W" TRENCH WIDTH (FEET)	3.0	3.5	4.0	5.0	6.0

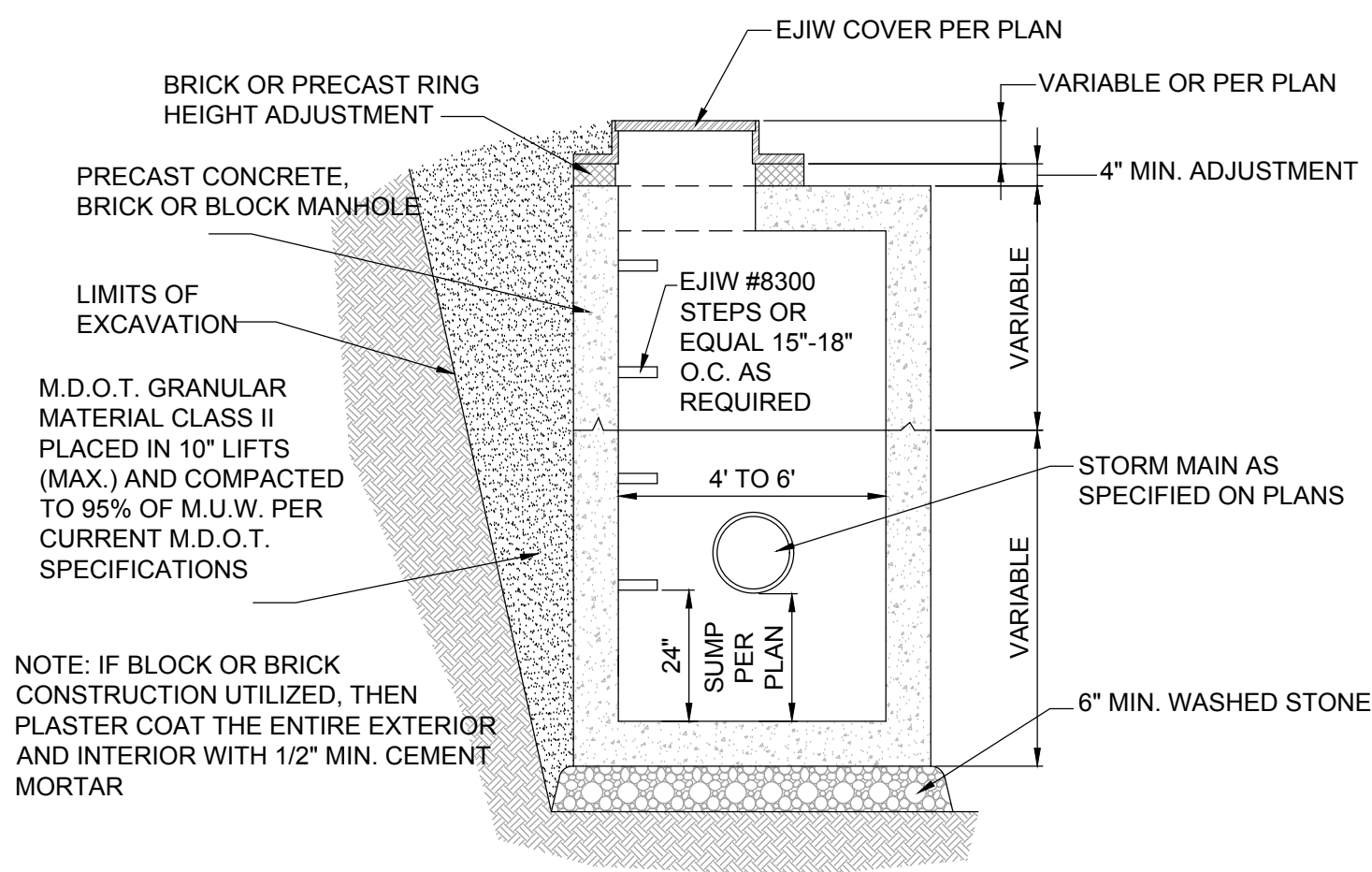
I.D. PIPE SIZE (INCHES)	42	48	54	60	66	72
"W" TRENCH WIDTH (FEET)	7.0	8.0	9.5	10.0	10.5	11.0

I.D. PIPE SIZE (INCHES)	78	84	90	96	102	108
"W" TRENCH WIDTH (FEET)	11.5	12.0	12.5	13.0	13.5	14.0

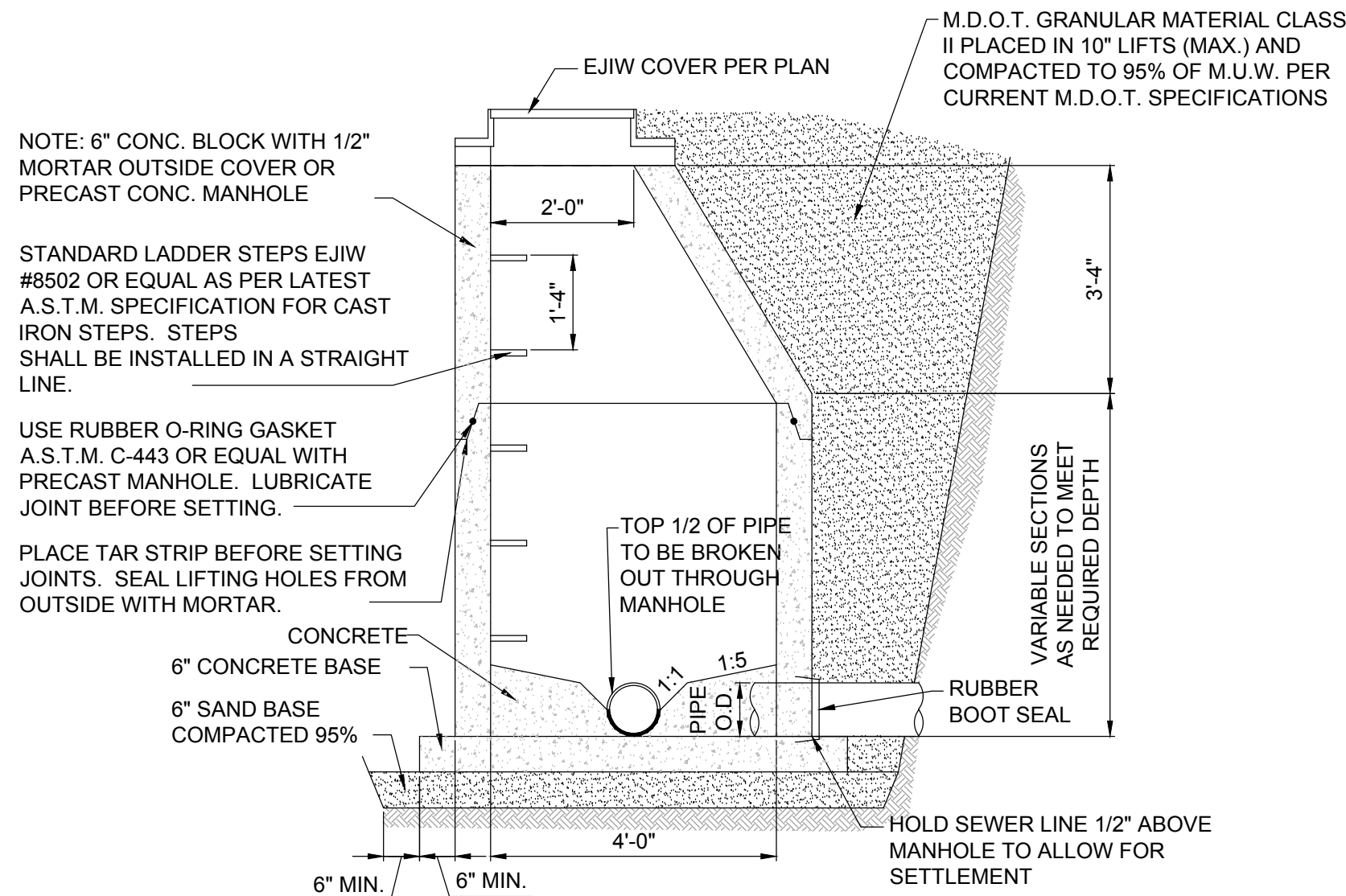
ESTIMATED PAVEMENT REMOVAL WIDTH IS TO BE TRENCH WIDTH "W" PLUS 1'-0" EACH SIDE OF THE TRENCH (6'-0" MINIMUM)



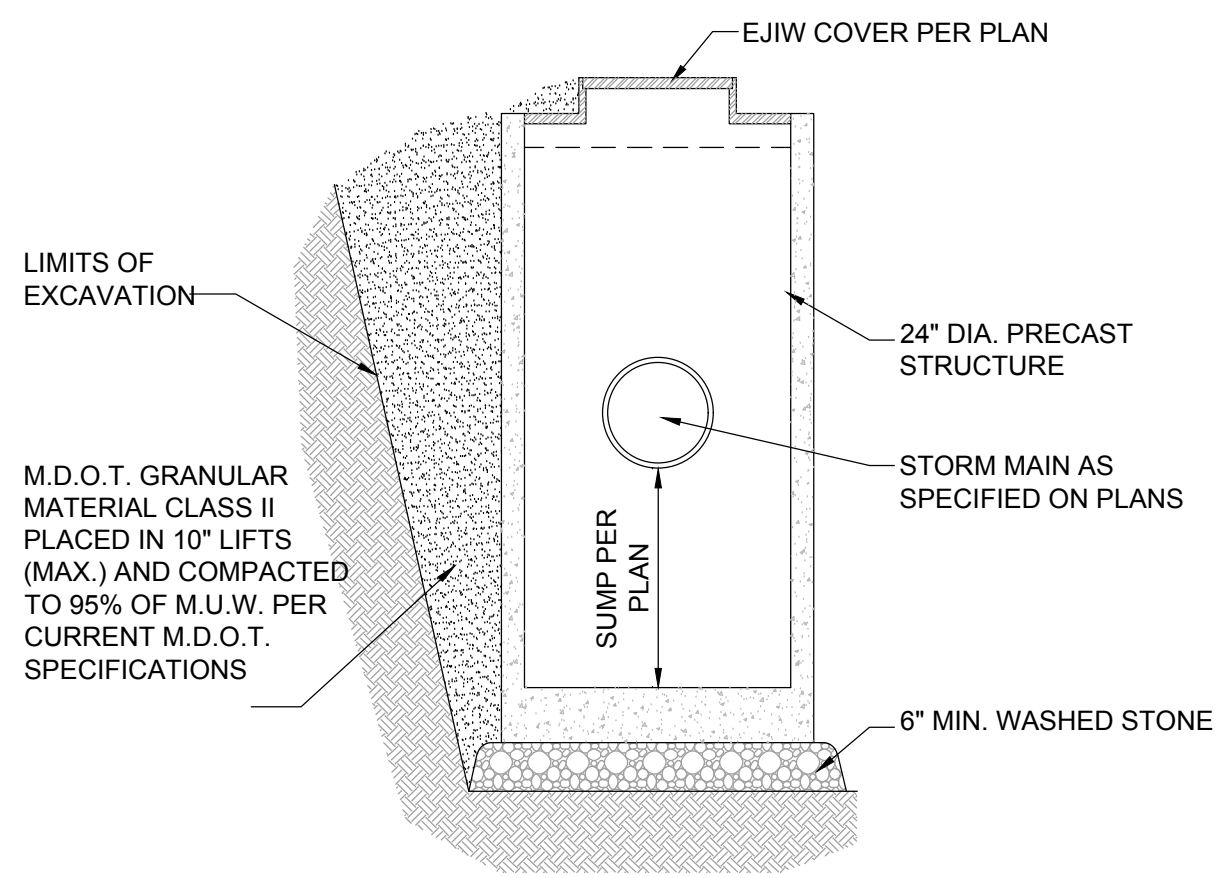
2
C-13
LIMITED ISOLATION POTABLE WATER CROSSINGS
SCALE: NONE



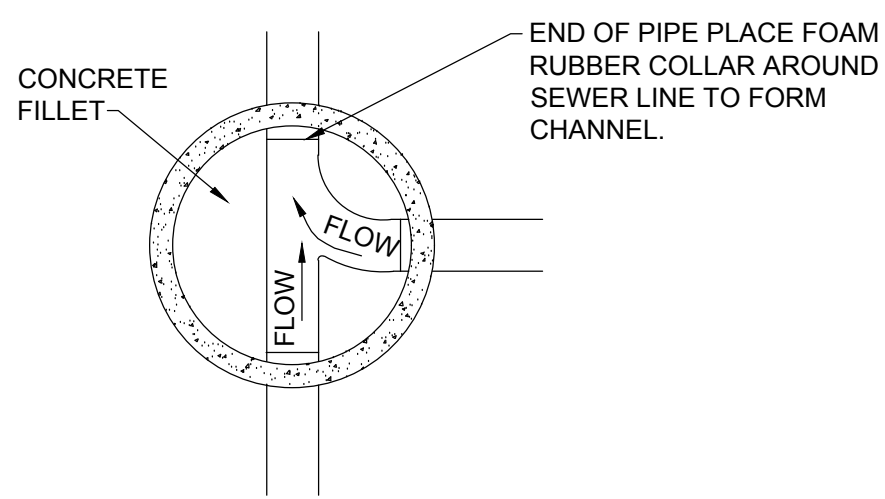
3
C-13
CATCH BASIN WITH SUMP
SCALE: NONE



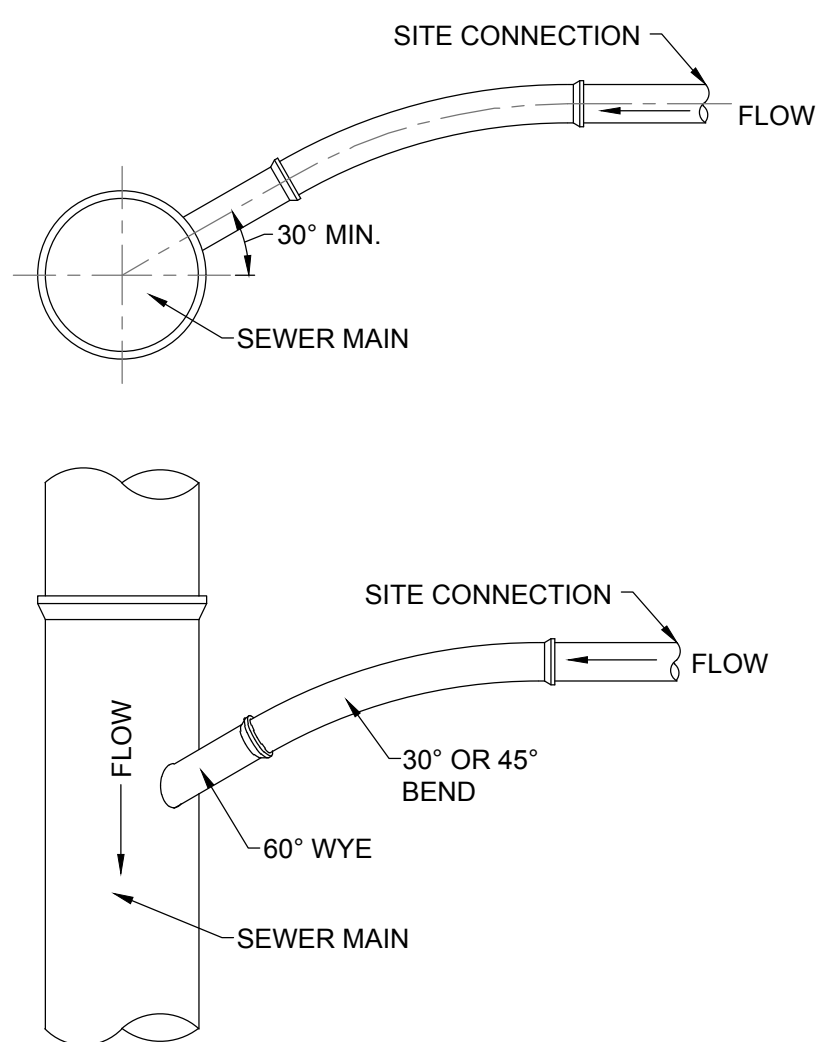
4
C-13
TYPICAL SANITARY MANHOLE
SCALE: NONE



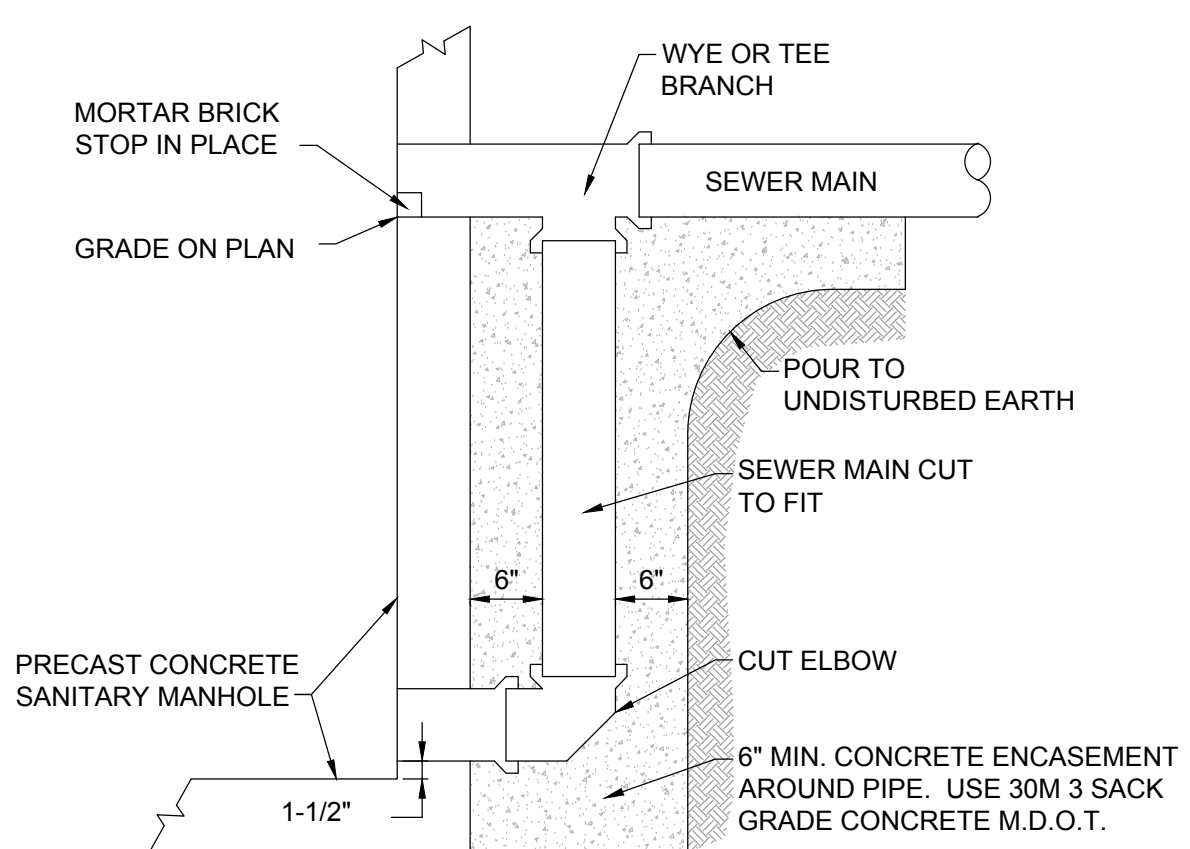
5
C-13
2' DIA. CATCH BASIN
SCALE: NONE



6
C-13
MANHOLE CHANNELIZATION
SCALE: NONE



7
C-13
SEWER CONNECTION
SCALE: NONE

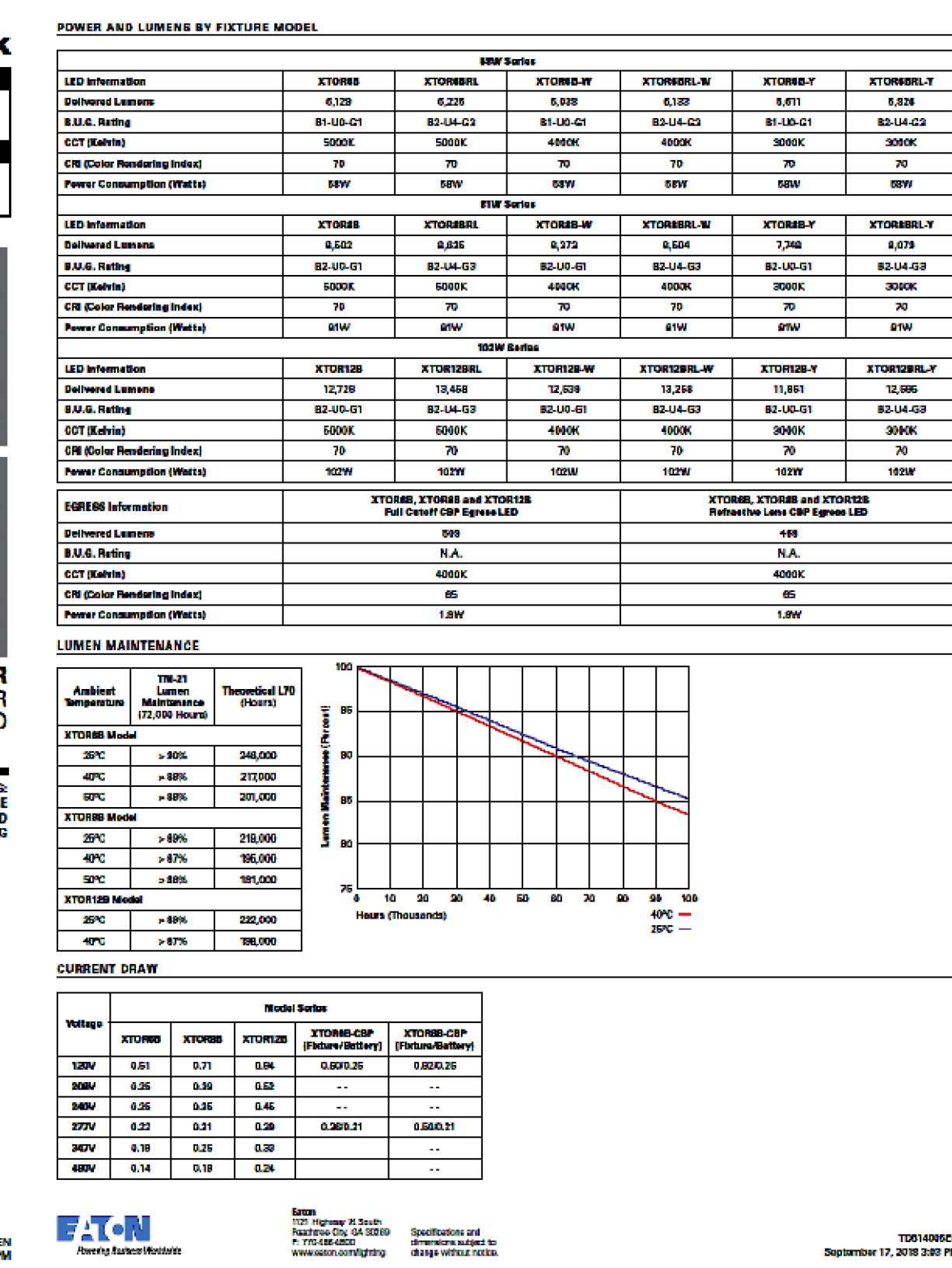
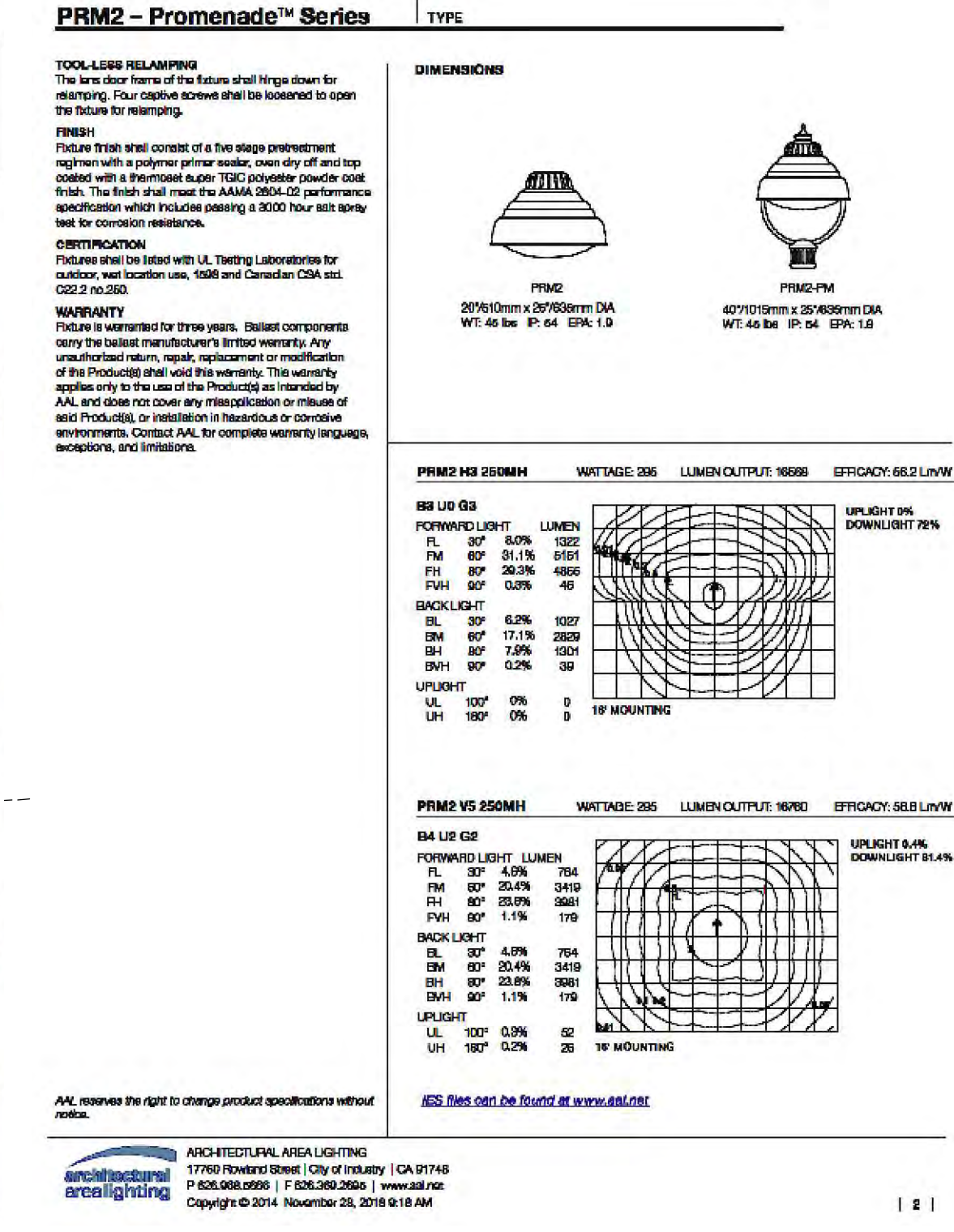
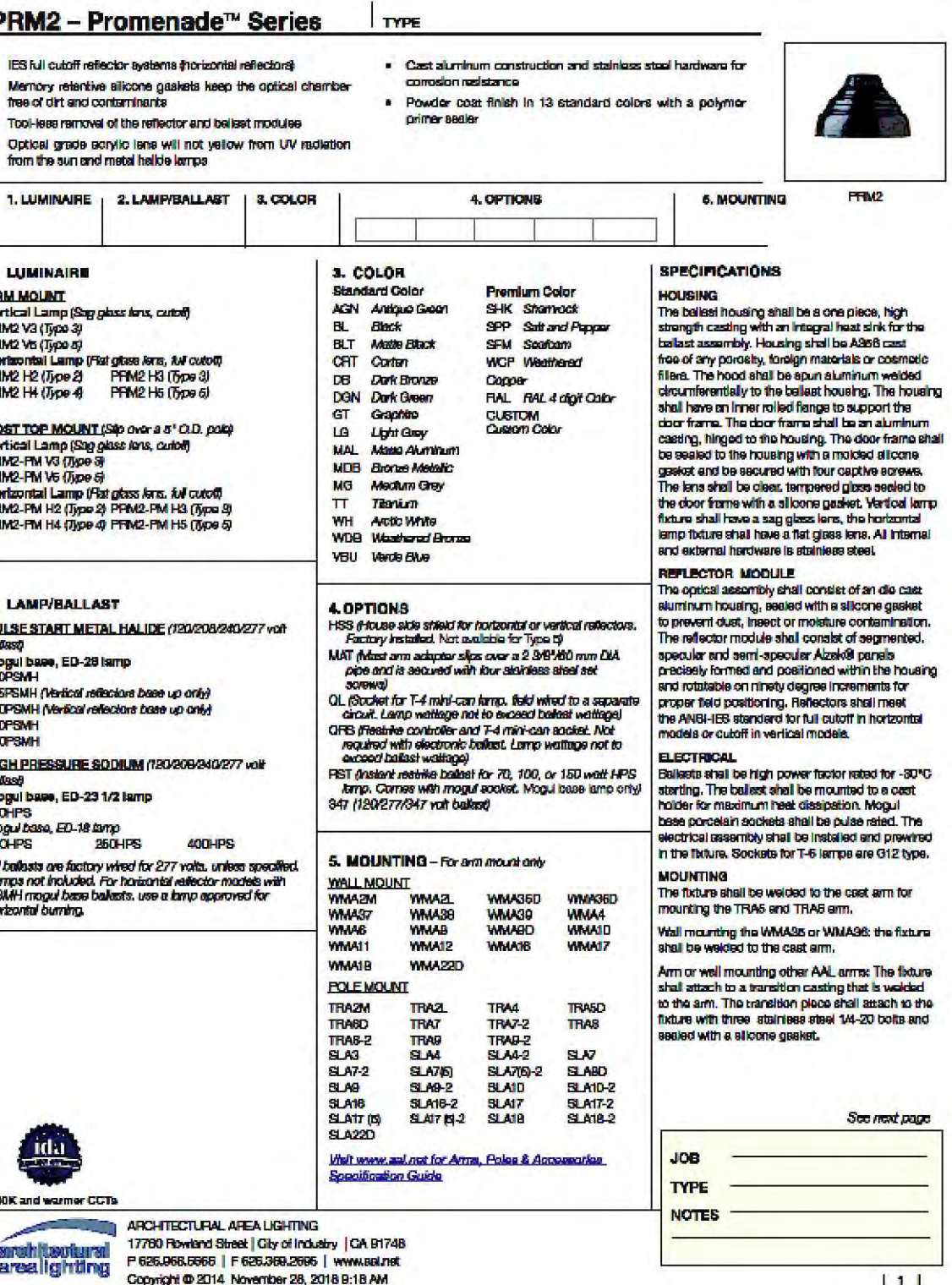



8
C-13
DROP INLET DETAIL
SCALE: NONE

Utility Details
Hamburg Manor
For
Hampton Manor of Hamburg

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<p>116 South 3rd Street West Branch, MI 48861</p>	<p>P (989) 345-5030 F (989) 345-7302</p>
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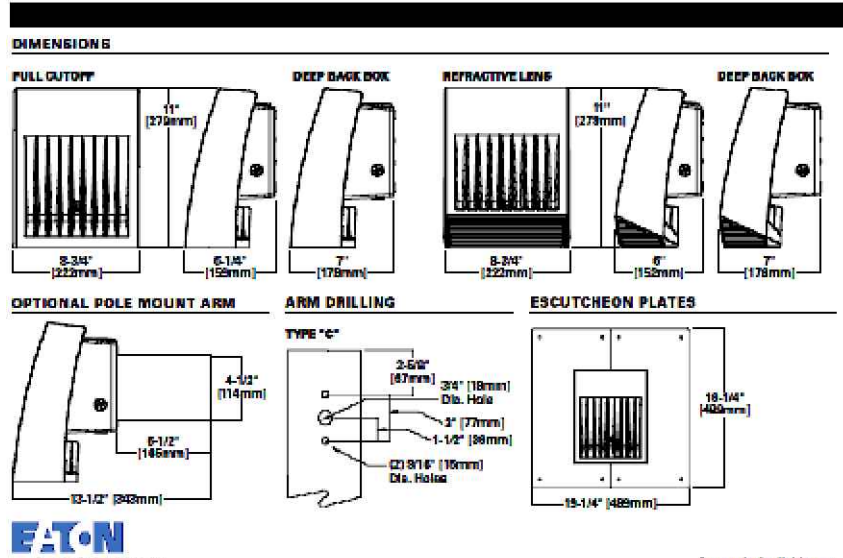
2-14

1. All parking lot lights shall be directed away from other properties and/or shielded.
2. All wall packs shall be downward directed and shielded from directing light towards neighbors.
3. Decorative Lights shall have a mounting height of 16'-0" per township standards from the Township's Village Center Masterplan.

Catalog Number	Object Type	Quantity	Quote Price	Extended Price
VP9-K-S20-3-LED-E1-T8-BZ	Fixture	1		
SM-BZ	Stanchion Mount, Bronze	1		

*The price of Accessories is not included within the price. It will be added within the order management system

Configuration Detail:	
Series	VF8 = Vision Flood 8mil
Mounting Type	K = Knuckle Mount
Number of Light/Airs	B2-3 = 28 LEDs at 353mA
Lamp Type	LED = Solid State Light Emitting Diodes
Voltage	E1 = Electronic (120-277V)
Distribution	T8 = Tight Spot
Color	BZ = Bronze
PC = Button Type Photocontrol	None Selected
Lens	None Selected
CRUCCCT	Standards (70 CRI / 4000K CCT)



**WALL / SURFACE
INVERTED
SITE LIGHTING**

CERTIFICATION DATA
UL916, Wall Location Listed
LM79 / LM80 Compliant
RoHS Compliant
100% Compliant Models
230V 50/60Hz Treated
UL924 Listed (ICDP Models)
IP68 Rated
DesignLights Consortium® Qualified

TECHNICAL DATA
40°C Ambient Temperature
External Supply Wiring 90°C Minimum

EPA
Effective Projected Area (Sq. Ft.):
XT0806, XT0808, XT08128-0.91
With Pole Mounts Arms=58

SHIPPING DATA:
Approximate Net Weight:
12-16 lbs. (5.4-6.8 kg.)

T0640000

Temp	40% ¹	75% ²
20°C	0.69W	1.16W
40°C	0.71W	1.00W
60°C	0.80W	0.90W

Temp	40% ¹	75% ²
20°C	0.69W	1.00W
40°C	0.71W	0.90W

CURRENT DRAW

Voltage	Model Status			
	AT100HS (Power-Saturated)	AT100LS (Power-Saturated)	AT100HS (Power-Saturated)	AT100LS (Power-Saturated)
5V _{DD}	0.01	0.71	0.00	0.00
5V _{DD}	0.36	0.30	0.03	0.00
5V _{DD}	0.06	0.35	0.03	0.00
5V _{DD}	0.21	0.31	0.30	0.00
5V _{DD}	0.14	0.19	0.26	0.00

Figure 1 is a line graph showing the effect of temperature on the rate of reaction. The x-axis represents temperature in degrees Celsius (40, 50, 60, 70, 80, 90, 100). The y-axis represents the rate of reaction (0 to 10). Two lines are plotted: a red line for 60°C and a blue line for 70°C. The 60°C line starts at (40, 0), rises to (50, 2), (60, 4), (70, 6), (80, 8), and ends at (90, 10). The 70°C line starts at (40, 0), rises to (50, 1), (60, 2), (70, 3), (80, 4), and ends at (90, 5).



Grading Notes:

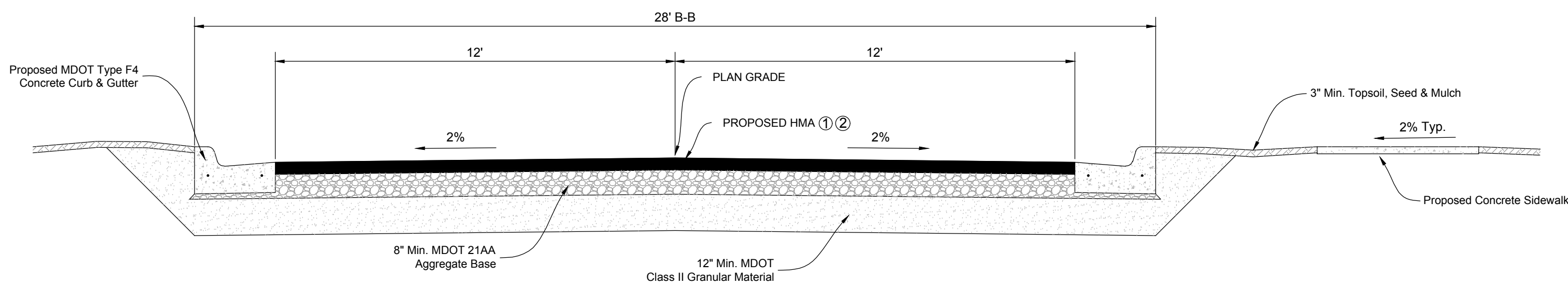
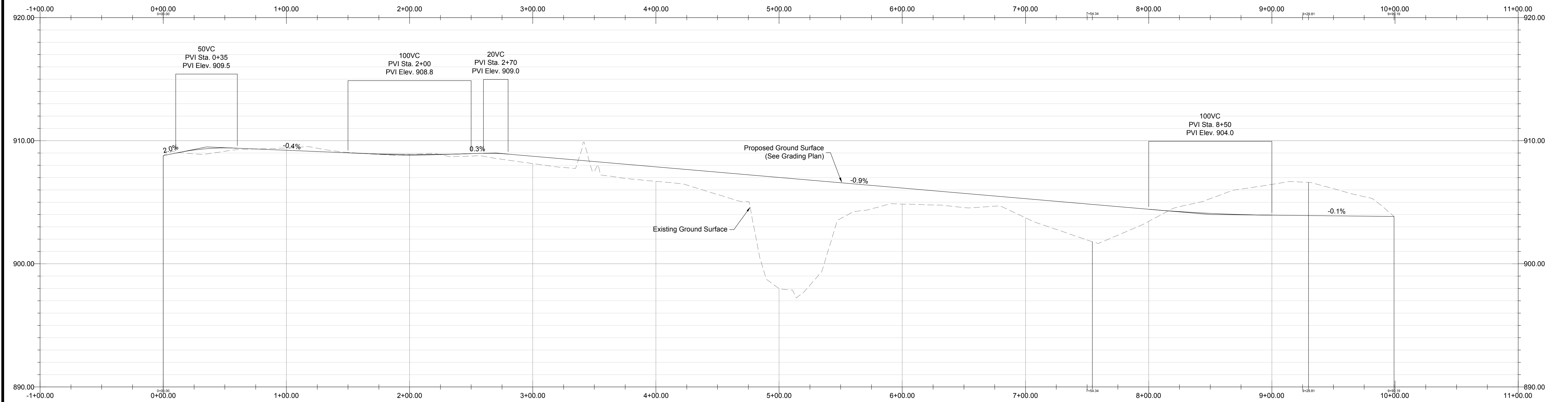
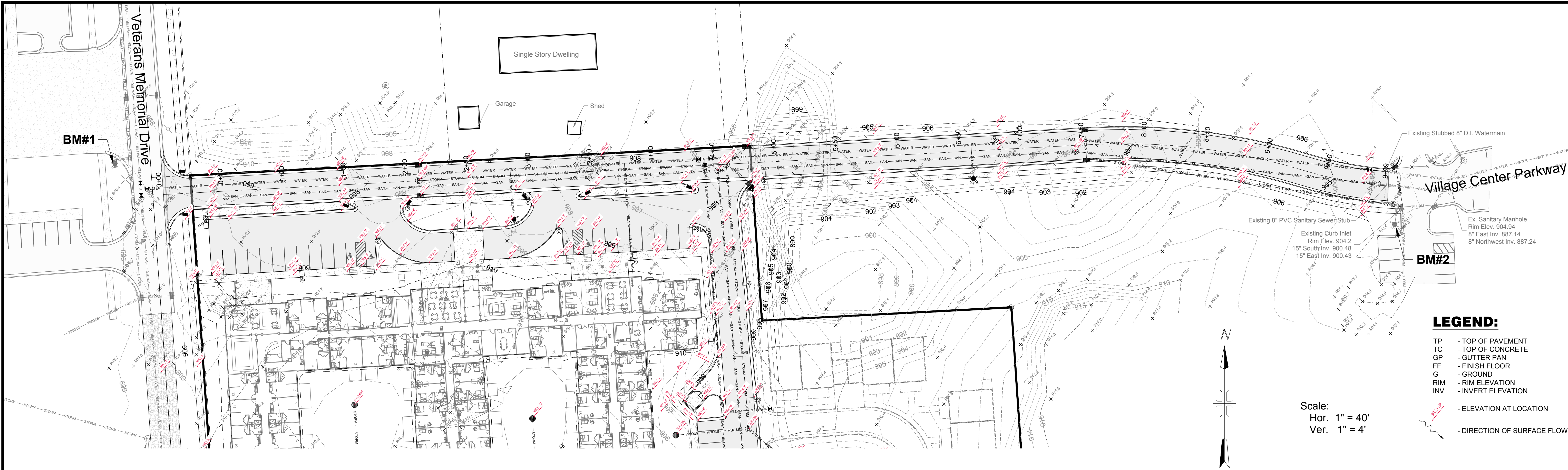
- The forms for concrete sidewalks, curbs, gutters, and driveways that are to be constructed to conform to existing roads shall be installed to the grades shown on these plans. Prior to placing concrete, the forms shall be inspected and approved by local jurisdiction for conformance to existing road improvements. Grades of new improvements are subject to field adjustment to fit conditions.
- The contractor shall be responsible for matching existing facilities to avoid any abrupt or apparent changes in grades or cross slopes, low spots, or hazardous conditions.
- All grading, back filling, excavation, etc., shall be in accordance with the specification or normal practice if not specified.
- Where unstable or unsuitable materials are encountered during subgrade preparation, the area in question shall be over excavated and replaced with engineered backfill material.
- If requested, a representative of the engineer shall be on the site during grading operations and shall observe the construction and identify any conditions that should be corrected and recommend corrective measures to the contractor.
- All grading, erosion, and sediment control and related work undertaken on this site shall be in accordance with local jurisdiction.
- The contractor shall not disturb any permanent survey points without the consent of local jurisdiction. Any points destroyed shall be replaced by a licensed surveyor at the contractor's expense.
- Grading at the boundaries shall be done so as not to obstruct the runoff of storm waters from adjacent properties.
- All disturbed areas shall be topsoiled, seeded, fertilized and mulched.
- Contractor to maintain all soil erosion control measures. Surrounding paved areas shall be power broomed as necessary to remove mud tracking from the site.
- Contractor shall obtain soil erosion permit prior to any construction.
- All structures, sidewalks, curbs and asphalt shall have a minimum of 12" of clean granular material (MDOT Class II) as a sub-base and compacted to 95% maximum unit density. If pumping or yielding is caused by the compactive efforts, the sand layer shall be increased until density can be obtained without pumping water through the subgrade.

Grading & Storm Water Notes:

- Roof Drains shall be connected to drain tiles and either discharge to swales or catch basins.
- All Grades subject to field adjustment.

LEGEND:

- | | |
|-----|-----------------------------|
| TP | - TOP OF PAVEMENT |
| TC | - TOP OF CONCRETE |
| GP | - GUTTER PAN |
| FF | - FINISH FLOOR |
| G | - GROUND |
| RIM | - RIM ELEVATION |
| INV | - INVERT ELEVATION |
| | - ELEVATION AT LOCATION |
| | - DIRECTION OF SURFACE FLOW |



PROPOSED TYPICAL STREET CROSS SECTION
NOT TO SCALE

HMA APPLICATION TABLE

IDENT. NO.	ITEM	RATE LBS/SYD	PERFORMANCE GRADE	AWI	REMARKS
①	HMA, 4C	220	58-28	MIN. 260	TOP COURSE
②	HMA, 4C	220	58-28		LEVELING COURSE
	HMA APPROACH	220 (1-COURSE)	58-28		HMA, 13A
	HMA BOND COAT*	0.05 TO 0.15 GAL PER SYD			

PROJECT NUMBER: P-190043
ENGINEER: Timothy L. Lapham, P.E., P.S. 27595
REVISED: 03/29/19 per Twp Engineer's comments

DRAWN BY: S.E. Bell
DATE: March 11, 2019
SHEET C-16

SCALE: 1" = 40'

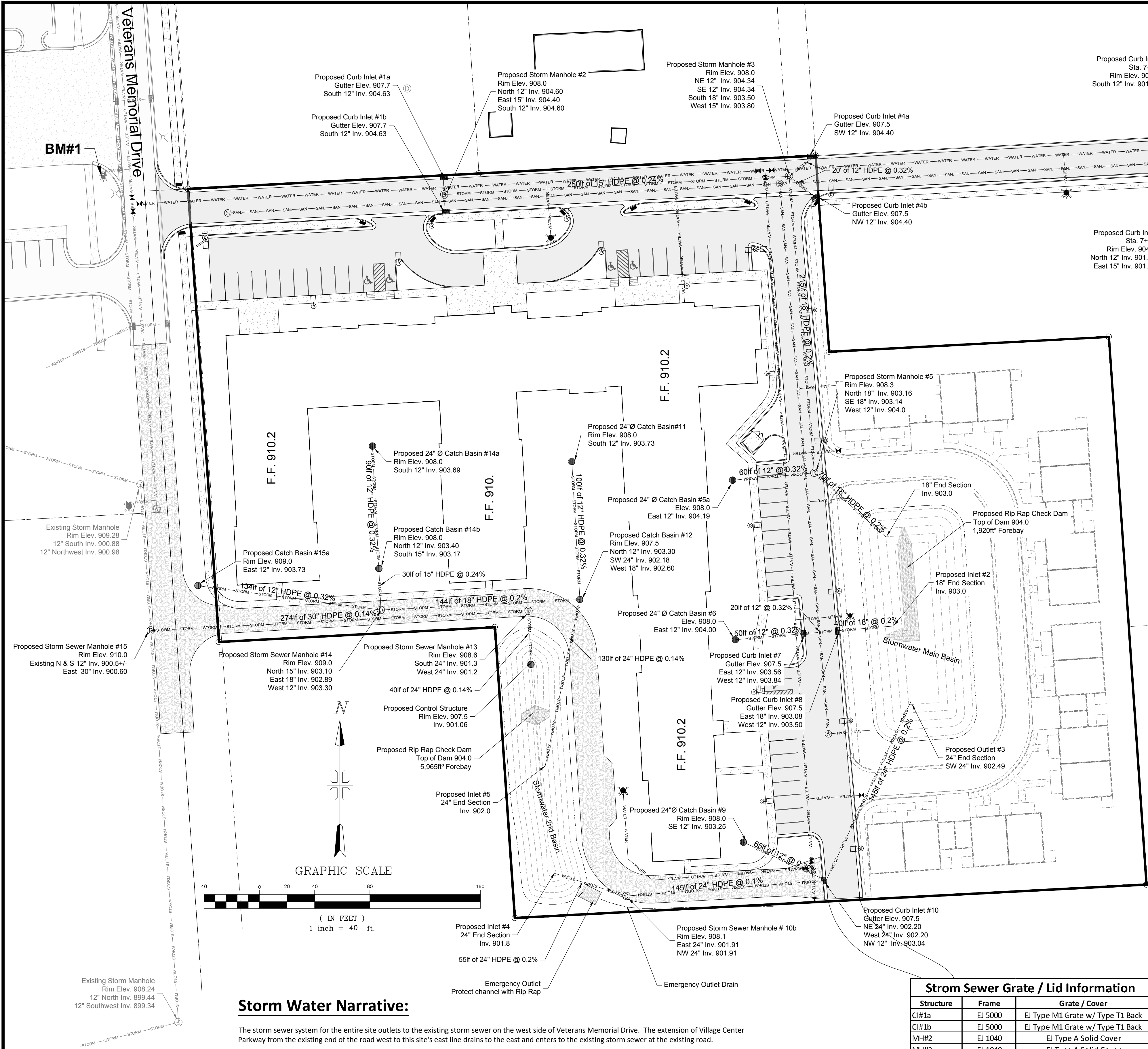
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Off-Site Grading Plan
Hamburg Manor
For
Hampton Manor of Hamburg

C-16



Storm Water Narrative:

The storm sewer system for the entire site outlets to the existing storm sewer on the west side of Veterans Memorial Drive. The extension of Village Center Parkway from the existing end of the road west to this site's east line drains to the east and enters the existing storm sewer at the existing road.

On the site the storm water from the north portion of the site and northerly two-thirds of the north-south connector drive is collected into the easterly detention basin in a fore-bay at the northeast corner of the basin. Any silt from these portions of the site will be collected in this fore-bay and will be periodically checked for sediment. The volume of this fore-bay was determined based on the area collected with the storm sewers entering this pond. When the sediment reached approximately one foot deep the fore-bay will be cleaned out.

The outlet from this detention basin flows through storm sewers to the second basin southwest of the first basin. The remainder of the proposed developed portion of the site is collected through storm sewers and empties into the southerly portion of this second basin. The volume of this fore-bay was determined based on the entire area of the site as all storm water from the site will eventually be collected and enter this pond. Any additional silt will collect in the second fore-bay which will be periodically checked for sediment and will be cleaned out when the sediment reaches approximately one foot deep.

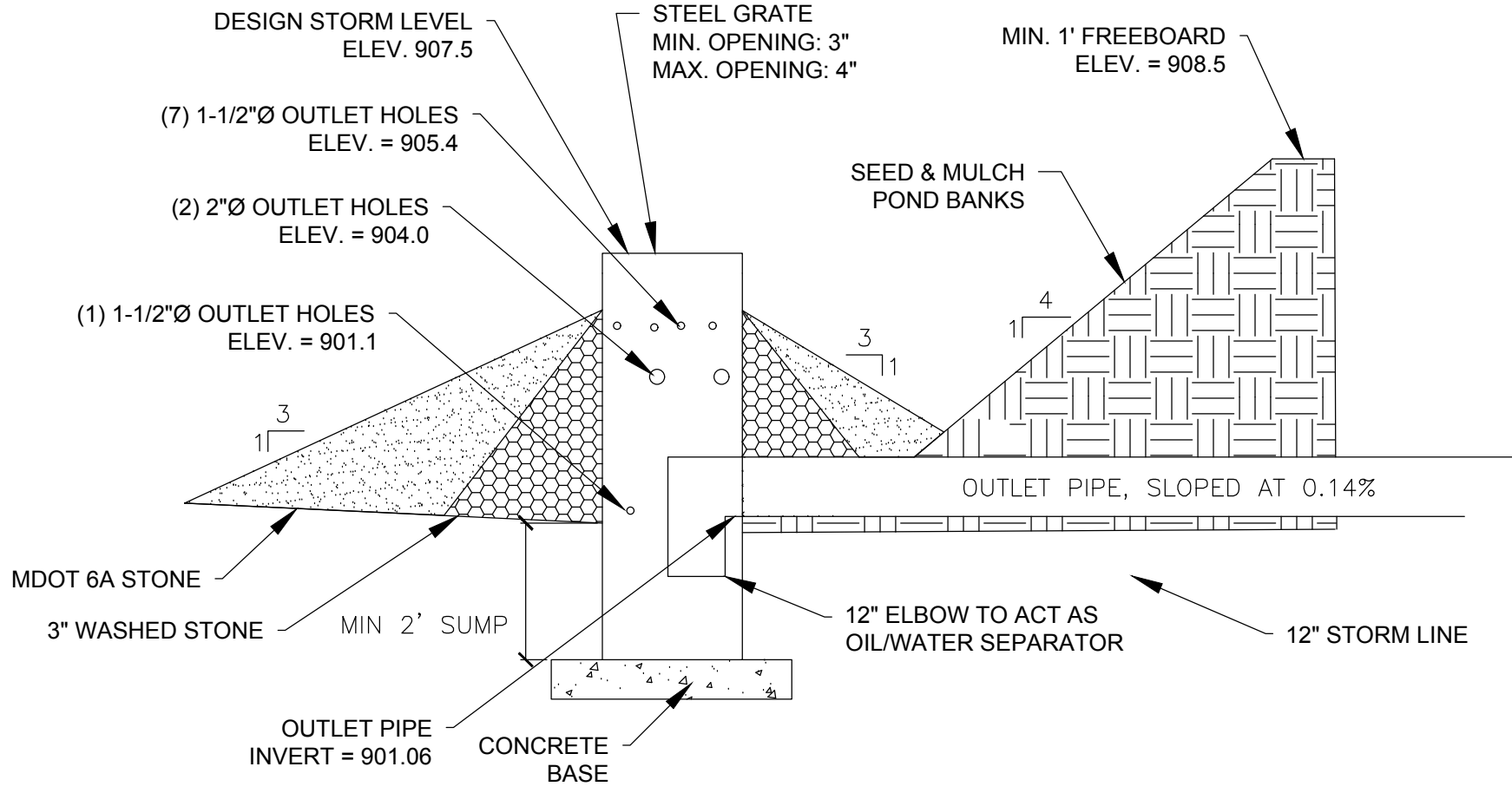
From this second detention basin there is a control structure that limits the outlet from the site to the allowable rates in accord with the requirements of the Livingston County Drain Commission.

The existing site generally all flows to the south. For extreme storms the second detention basin has an emergency overflow that will direct the emergency overflow waters to the south side of the site near the southerly end of the north-south drive and allow the extreme event to flow as it previously has, to the south.

The storm water from the portion of Village Center Parkway east of the site is collected and runs to the existing system for the existing road. The existing system appears to have been developed to allow for this addition based on stubbed sewer, water and storm sewer lines at the end of the existing road.

The storm sewer retention ponds and collection system have been sized to allow for the undeveloped eastern portion of the site to be directed to the first detention pond. The collection system for that area has not been designed at this time.

DETENTION POND OUTLET DETAIL



Grading & Storm Water Notes:

- All sidewalks to have an integral curb with an exposed face of typically 6" above paving unless a ramp at Barrier Free parking spaces.
- Roof Drains shall be connected to drain tiles and either discharge to swales or catch basins.
- All Grades subject to field adjustment.

First Flush Flow Rate		
1-1/2" Dia.		
Orifice Equation =	CFS =	C*A*(2*g*H) ^{0.5}
REQUIRED ORIFICE DIA (d)=	ft	0.123
Cumulative Area of Orifice (A) =	ft ²	0.01
Orifice Coefficient (C)=		0.62
Gravity Acceleration (G) =	ft/s ²	32.20
Depth of Orifice (H)=	ft	2.85
Orifice Equation =	CFS =	0.099
Approx. 32 hours		

Bank Full Flow Rate		
1-1/2" Dia.		
Orifice Equation =	CFS =	C*A*(2*g*H) ^{0.5}
REQUIRED ORIFICE DIA (d)=	ft	0.123
Cumulative Area of Orifice (A) =	ft ²	0.01
Orifice Coefficient (C)=		0.62
Gravity Acceleration (G) =	ft/s ²	32.20
Depth of Orifice (H)=	ft	4.20
Orifice Equation =	CFS =	0.121
2" Dia.		
Orifice Equation =	CFS =	C*A*(2*g*H) ^{0.5}
REQUIRED ORIFICE DIA (d)=	ft	0.167
Cumulative Area of Orifice (A) =	ft ²	0.02
Orifice Coefficient (C)=		0.62
Gravity Acceleration (G) =	ft/s ²	32.20
Depth of Orifice (H)=	ft	1.30
Orifice Equation =	CFS =	0.124
With 2 holes		
Orifice Equation =	CFS =	0.248
Total Bank Full CFS =		
0.369		

Maximum Release Flow Rate		
1-1/2" Dia.		
Orifice Equation =	CFS =	C*A*(2*g*H) ^{0.5}
REQUIRED ORIFICE DIA (d)=	ft	0.123
Cumulative Area of Orifice (A) =	ft ²	0.01
Orifice Coefficient (C)=		0.62
Gravity Acceleration (G) =	ft/s ²	32.20
Depth of Orifice (H)=	ft	6.40
Orifice Equation =	CFS =	0.149
2" Dia.		
Orifice Equation =	CFS =	C*A*(2*g*H) ^{0.5}
REQUIRED ORIFICE DIA (d)=	ft	0.167
Cumulative Area of Orifice (A) =	ft ²	0.02
Orifice Coefficient (C)=		0.62
Gravity Acceleration (G) =	ft/s ²	32.20
Depth of Orifice (H)=	ft	3.50
Orifice Equation =	CFS =	0.204
With 2 holes		
Orifice Equation =	CFS =	0.408
1-1/2" Dia.		
Orifice Equation =	CFS =	C*A*(2*g*H) ^{0.5}
REQUIRED ORIFICE DIA (d)=	ft	0.123
Cumulative Area of Orifice (A) =	ft ²	0.01
Orifice Coefficient (C)=		0.62
Gravity Acceleration (G) =	ft/s ²	32.20
Depth of Orifice (H)=	ft	2.60
Orifice Equation =	CFS =	0.095
With 7 holes		
Orifice Equation =	CFS =	0.664
Max. Release CFS =		
1.220		

Storm Sewer Plan
Hamburg Manor
For
Hampton Manor of Hamburg

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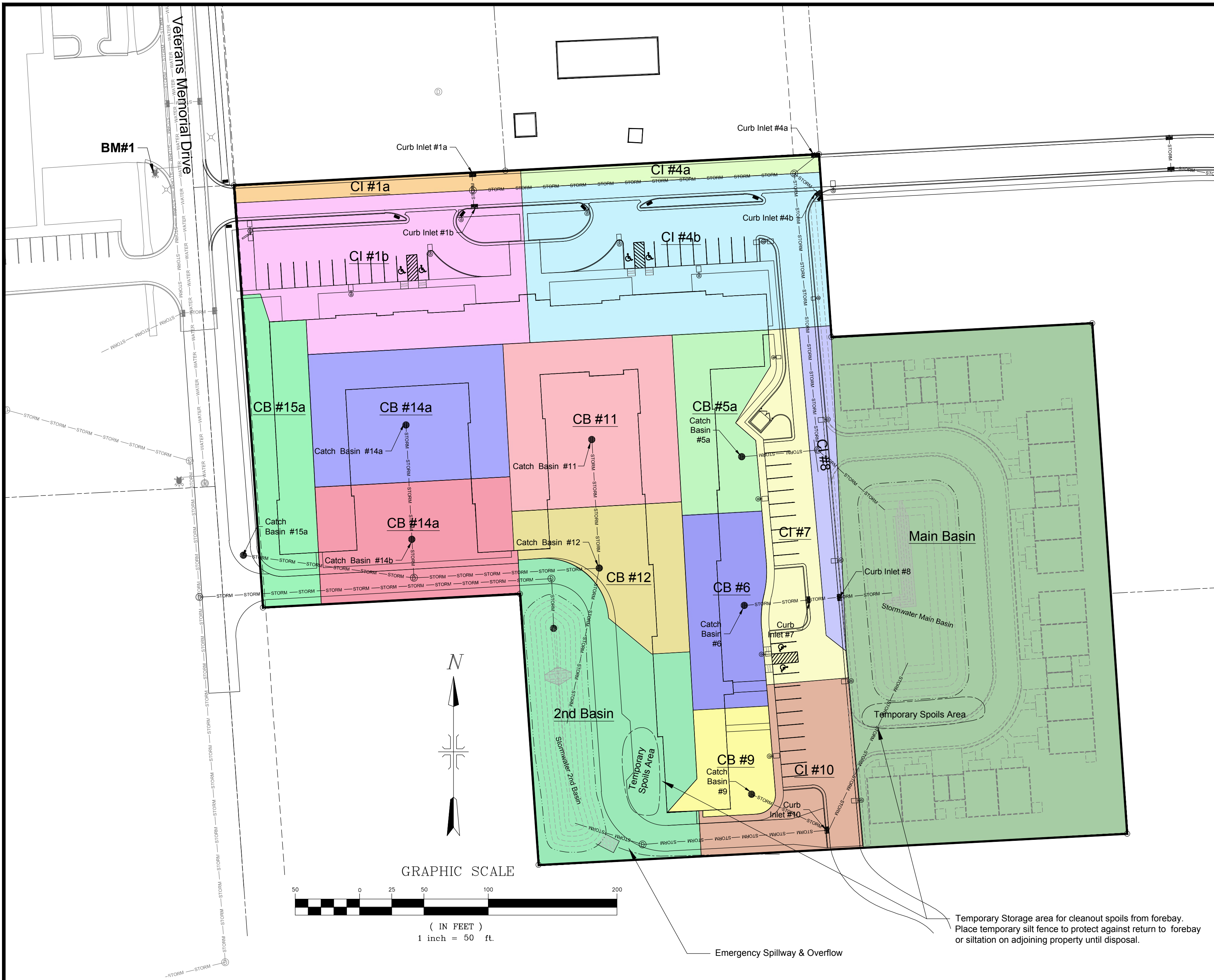
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C-17

PROJECT NUMBER: P-190043
ENGINEER: Timothy L. Lapham, P.E., P.S. 27595
REVISD: 03/28/19 per Twp Engineer's comments

DRAWN BY: S.E. Bell
DATE: March 11, 2019
SHEET C-17

SCALE: 1" = 40'



Tributary Name	Total Area SQFt	Impervious Area SQFT (0.95)	Lawn Area (0.2)	Weighted C
CI #1a	3100	3100	0	0.950
CI #1b	25020	20936	4084	0.828
CI #4a	3251	3251	0	0.950
CI #4b	28030	23553	4477	0.830
CB #5a	8803	5387	3416	0.659
CB #6	9038	4155	4883	0.545
CI #7	11860	9836	2024	0.822
CI #8	4903	3739	1164	0.772
Main Basin	81805	0	81805	0.200
CB #9	5186	2546	2640	0.568
CI #10	10382	9222	1160	0.866
CB #11	17133	12433	4700	0.744
CB #12	9876	4976	4900	0.578
2nd Basin	25234	9640	15594	0.487
CB #14a	15646	11046	4600	0.729
CB #14b	13931	9331	4600	0.702
CB #15a	10782	6400	4382	0.645

MAIN BASIN STORAGE TABLE				
ELEV	AREA (sq. ft.)	DEPTH (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)
903.0	2705	N/A	N/A	0
904.0	4526	1.0	3615	3615
905.0	6623	1.0	5574	9190
906.0	8955	1.0	7789	16979
907.0	11513	1.0	10234	27213
907.5	12877	0.5	6097	33311

2nd BASIN STORAGE TABLE				
ELEV	AREA (sq. ft.)	DEPTH (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)
901.5	80.2	N/A	N/A	0
902.0	671.4	0.5	188	188
903.0	2023.8	1.0	1348	1536
904.0	3487.0	1.0	2755	4291
905.0	5055.3	1.0	4271	8562
906.0	6728.1	1.0	5892	14454
907.5	7826.6	1.5	10916	25370

MAIN BASIN FOREBAY STORAGE TABLE				
ELEV	AREA (sq. ft.)	DEPTH (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)
903	121	N/A	N/A	0
904	688	1	405	405
905	1362	1	1035	1439

SEDIMENTATION FOREBAY (2nd BASIN) STORAGE TABLE				
ELEV	AREA (sq. ft.)	DEPTH (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)
901.5	29	N/A	N/A	0
902.0	435	0.5	116	116
903.0	1396	1.0	915	1031
904.0	2445	1.0	1921	2952

Hampton Manor of Hamburg
STORM WATER MANAGEMENT PLAN
Section 25, Hamburg Township, Livingston County
March 5, 2019

Overall Proposed Development Site (Total 6.5 Ac)

WEIGHTED COEFFICIENT

	COEFFICIENT	AREA	COEFFX AREA
Proposed Pavement	0.95	2.65	2.52
Proposed Buildings (including future)	0.95	1.28	1.22
2-6% slopes w/ heavy soils	0.2	2.58	0.52
TOTAL		6.51	4.25

WEIGHTED COEFFICIENT

0.65

Phase I & II Proposed Development

WEIGHTED COEFFICIENT

	COEFFICIENT	AREA	COEFFX AREA
Proposed Pavement	0.95	3.09	2.94
Proposed Buildings (including Phase I & II)	0.95	1.66	1.58
2-6% slopes w/ heavy soils	0.2	1.76	0.35
TOTAL		6.51	4.86

WEIGHTED COEFFICIENT

0.75

DETERMINATION OF REQUIRED DETENTION - 100 YEAR STORM
PER LIVINGSTON COUNTY DRAIN COMMISSION METHODS

PHASE 1 DEVELOPMENT

PHASE 1 DEVELOPMENT						
DRAINAGE AREA	6.5 ACRES					
ALLOWABLE OUTFLOW RATE	1.302 CFS					
COMPOUND RUNOFF COEFFICIENT	0.85					
DESIGN CONSTANT	K _s =A ^{0.19}	(3)	(4)	(5)	(6)	(7)
	4.2495					
STORM DURATION (Minutes)	INTENSITY FOR 100-YEAR STORM (IN/HR)	TOTAL RAIN = (2)*(3) (INCHES)	INFLOW VOLUME = (4)*K (CFT)	OUTFLOW VOL = (2)*(6) (CFT)	STORAGE VOL = (5) - (6) (CFT)	
5	0.08	0.76	11788	391	11397	
10	0.17	1.31	20208	781	19426	
15	0.25	1.72	26532	1172	25360	
20	0.33	2.04	31417	1562	29855	
30	0.50	2.50	38554	2344	36210	
60	1.00	3.24	49979	4687	45292	
90	1.50	3.59	55301	7031	48270	
120	2.00	3.80	58618	9374	49243	
180	3.00	4.02	62011	14062	47950	

CFT REQUIRED

49,243

FUTURE DEVELOPMENT (FINAL)

FUTURE DEVELOPMENT (FINAL)						
DRAINAGE AREA	6.5 ACRES					
ALLOWABLE OUTFLOW RATE	1.302 CFS					
COMPOUND RUNOFF COEFFICIENT	0.75					
DESIGN CONSTANT	K _s =A ^{0.19}	(3)	(4)	(5)	(6)	(7)
	4.8645					
STORM DURATION (Minutes)	INTENSITY FOR 100-YEAR STORM (IN/HR)	TOTAL RAIN = (2)*(3) (INCHES)	INFLOW VOLUME = (4)*K (CFT)	OUTFLOW VOL = (2)*(6) (CFT)	STORAGE VOL = (5) - (6) (CFT)	
5	0.08	0.76	13494	391	13103	
10	0.17	1.31	23132	781	22351	
15	0.25	1.72	30372	1172	29200	
20	0.33	2.04	35904	1562	34401	
30	0.50	2.50	44145	2344	41802	
60	1.00	3.24	57212	4687	52525	
90	1.50	3.59	63304	7031	56274	
120	2.00	3.80	67101	9374	57727	
180	3.00	4.02	70986	14062	56924	

CFT REQUIRED

57,727

Sediment Forebay Volume

	REQUIRED	PROPOSED
5% of 100 year storm volume		
Phase I	(CFT)	2462
Future Development	(CFT)	2886

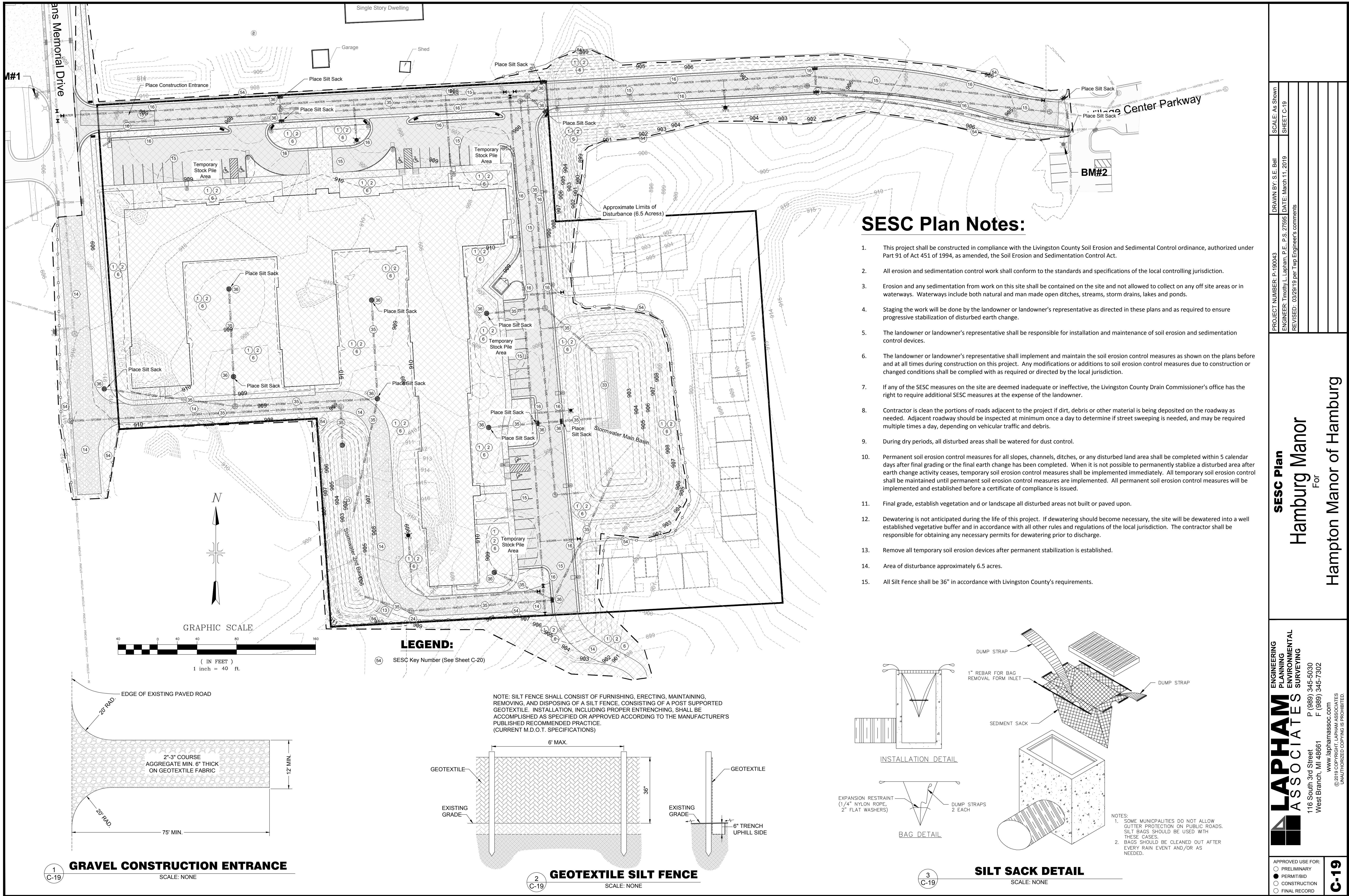
First Flush Calculation

	1815 * acreage * C	
Phase I	(CFT)	7713
Future Development	(CFT)	8829

Bankfull Calculation

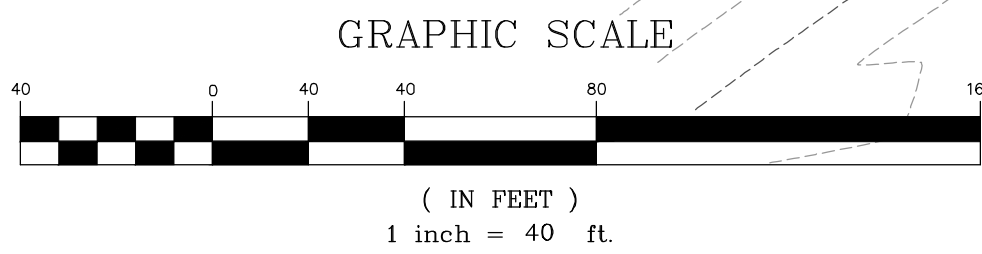
	8160 * acreage * C	
Phase I	(CFT)	34676
Future Development	(CFT)	39694

From MH	To MH	Increment Acres (A)	Runoff Coeff.(C)	Equiv. Area (CA)	Total Acres (CA)	Time of Conc. T (min)	Intensity I (In/Hr)	Flow Q=CIA (cfs)	full flow capacity of pipe (cfs)	Diameter of pipe (in)	Length of pipe run (ft)	Slope of pipe (%)	Full flow capacity V (ft/sec)	Pipe flow time (min)	Upper end Rim elev.	Upper end HG elev.	Lower end HG elev.	Upper end Inv. elev.	Lower end inv. Elev	Pipe Flow (%full)	pipe area (ft^2)	Wetted Perimeter (ft)	Hydraulic Radius	Structure	Minimum Cover	80% Out	80% IN	80% IN	80% IN
MH2	MH3	0.000	0.000	0.543	0.543	15.05	4.37	2.37	3.74	15	250	0.24	3.05	1.37	908.00	605.19	604.59	604.40	603.80	63	1.227	3.926988	0.3125	CB2	2.4	605.4	905.4	905.4	
MH3	MH5	0.000	0.000	0.605	1.148	16.42	4.22	4.85	5.55	18	215	0.20	3.14	1.14	908.00	904.90	904.47	903.59	903.16	87	1.767	4.712385	0.375	CB3	2.66	904.79	904.8	905.14	905.14
MH5	Pond1	0.000	0.000	0.133	1.281	17.56	4.11	5.27	5.55	18	70	0.20	3.14	0.37	908.00	904.56	904.42	903.14	903.00	95	1.767	4.712385	0.375	CB5	3.34	904.34	904.36	904.8	
CI 1a	CB2	0.071	0.950	0.068	0.068	15	4.38	0.30	2.38	12	10	0.32	3.03	0.05	907.70	904.76	904.72	904.63	904.60	12	0.785	3.14159	0.25	CI 1a	2.068				
CI 1b	CB2	0.574	0.828	0.476	0.476	15	4.38	2.08	2.38	12	10	0.32	3.03	0.05	907.70	905.51	905.47	904.63	904.60	87	0.785	3.14159	0.25	CI 1b	2.068				
CI 4a	CB3	0.075	0.950	0.071	0.071	15	4.38	0.31	2.38	12	20	0.32	3.03	0.11	907.50	904.53	904.47	904.40	904.34	13	0.785	3.14159	0.25	CI 4a	2.096				
CI4b	CB3	0.643	0.830	0.534	0.534	15	4.38	2.34	2.38	12	20	0.32	3.03	0.11	907.50	905.39	905.32	904.40	904.34	98	0.785	3.14159	0.25	CI4b	2.096				
CB5a	CB5	0.202	0.659	0.133	0.133	15	4.38	0.58	2.38	12	60	0.32	3.03	0.33	908.00	904.44	904.24	904.19	904.00	24	0.785	3.14159	0.25	CB5a	2.808				
CB6	CI7	0.207	0.545	0.113	0.113	15	4.38	0.49	2.38	12	50	0.32	3.03	0.27	908.00	904.21	904.05	904.00	903.84	21	0.785	3.14159	0.25	CB6	3				
CI7	CI8	0.272	0.822	0.224	0.337	15.27	4.35	1.46	2.38	12	20	0.32	3.03	0.11	907.50	904.18	904.11	903.56	903.50	61	0.785	3.14159	0.25	CI7	2.66	904.364	904.64		
CI8	Pond 1	0.113	0.772	0.087	0.424	15.38	4.33	1.84	5.55	18	40	0.20	3.14	0.21	907.50	903.58	903.50	903.08	903.00	33	1.767	4.712385	0.375	CI8	2.92	904.28	904.3		
Pond 1	CI10	1.878	0.550	1.033	2.738	17.56	4.11	11.26	11.96	24	145	0.20	3.81	0.63	907.00	904.37	904.08	902.49	902.20	94	3.142	6.28318	0.05	Pond 1	2.5				
CB 9	CI10	0.119	0.568	0.068	0.068	15	4.38	0.30	2.38	12	65	0.32	3.03	0.36	908.00	903.37	903.16	903.25	903.04	12	0.785	3.14159	0.25	CB9	3.752				
CI10	MH 10b	0.238	0.866	0.206	3.012	17.56	4.11	12.38	11.96	24	145	0.20	3.81	0.63	907.50	904.27	903.98	902.20	901.91	104	3.142	6.28318	0.5	CI10	3.3	903.8	903.84	903.8	
MH10b	Pond 2	0.000	0.000	0.000	3.012	17.56	4.11	12.38	11.96	24	55	0.20	3.81	0.24	908.40	903.98	903.87	901.91	901.80	104	3.142	6.28318	0.5	MH10b	4.49	903.51	903.51		
CB15a	CB14	0.248	0.645	0.160	0.160	15	4.38	0.70	2.38	12	134	0.32	3.03	0.74	909.00	904.02	903.59	903.73	903.30	29	0.785	3.14159	0.25	CB15a	4.2712				
CB11	CB12	0.393	0.744	0.293	0.293	15	4.38	1.28	2.38	12	100	0.32	3.03	0.55	908.00	903.86	903.54	903.32	903.00	54	0.785	3.14159	0.25	CB11	3.68				
CB14a	CB14b	0.359	0.729	0.262	0.262	15	4.38	1.15	2.38	12	90	0.32	3.03	0.49	908.00	904.17	903.88	903.69	903.40	48	0.785	3.14159	0.25	CB14a	3.312				
CB14b	CB14	0.320	0.702	0.225	0.486	15.49	4.32	2.10	3.74	15	30	0.24	3.05	0.16	908.00	903.87	903.80	903.17	903.10	56	1.227	3.926988	0.3125	CB14b	3.578	904.172	904.2		
CB14	CB12	0.000	0.000	0.000	0.646	15.66	4.30	2.78	5.55	18	144	0.20	3.14	0.76	909.00	903.64	903.35	902.89	902.60	50	1.767	4.712385	0.375	CB14	4.612	904.088	904.1	904.1	
CB12	Pond 2	0.227	0.578	0.131	1.070	16.42	4.22	4.52	10.00	24	130	0.14	3.18	0.68	907.50	903.09	902.90	902.18	902.00	45	3.142	6.28318	0.5	CB12	3.318	903.782	903.8	903.8	
Pond 2	CB 13	0.579	0.487	0.282	4.364	15	4.38	19.09	18.14	30	40	0.14	3.69	0.18	907.00	903.69	903.63	901.06	901.00	105	4.909	7.853975	0.625	Pond2	3.444				
CB13	MH15	0.000	0.000	0.000	4.364	15.18	4.36	19.01	18.14	30	274	0.14	3.69	0.12	910.50	903.60	903.22	900.98	900.60	105	4.909	7.853975	0.625	CB13	7	902.9836	903		



SESC Plan Notes:

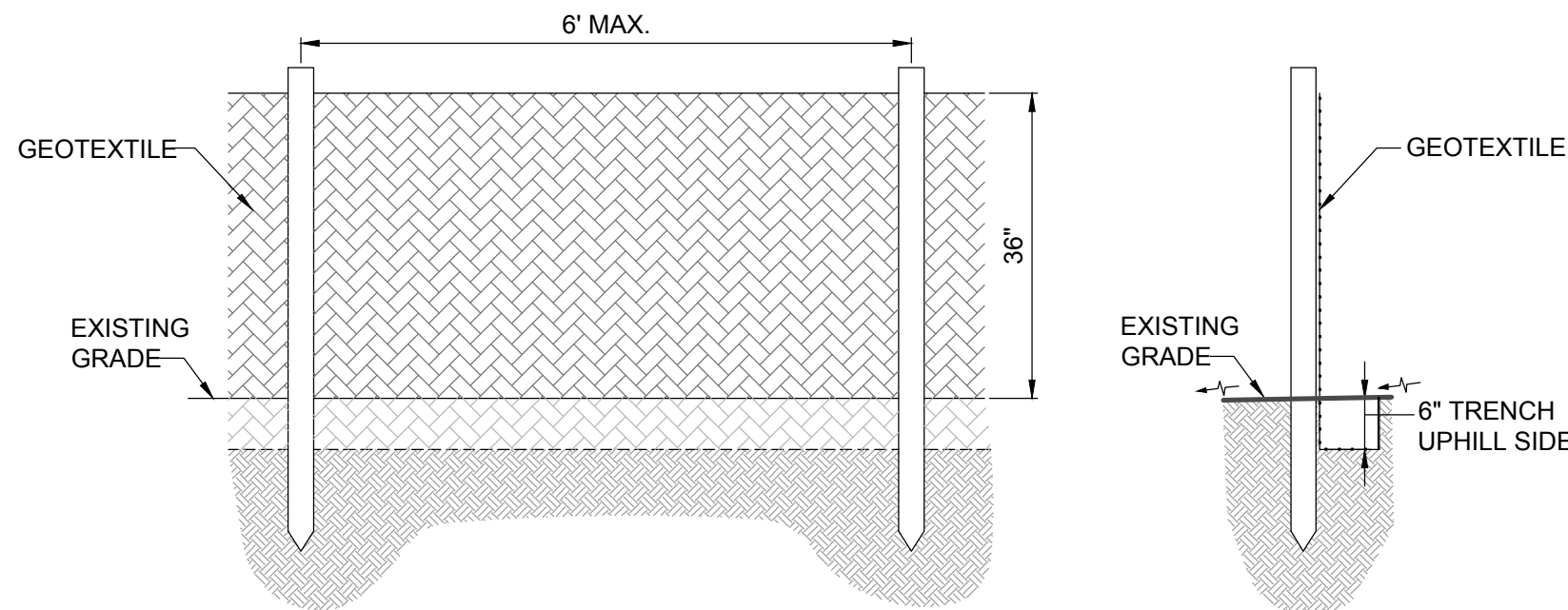
1. This project shall be constructed in compliance with the Livingston County Soil Erosion and Sedimental Control ordinance, authorized under Part 91 of Act 451 of 1994, as amended, the Soil Erosion and Sedimentation Control Act.
2. All erosion and sedimentation control work shall conform to the standards and specifications of the local controlling jurisdiction.
3. Erosion and any sedimentation from work on this site shall be contained on the site and not allowed to collect on any off site areas or in waterways. Waterways include both natural and man made open ditches, streams, storm drains, lakes and ponds.
4. Staging the work will be done by the landowner or landowner's representative as directed in these plans and as required to ensure progressive stabilization of disturbed earth change.
5. The landowner or landowner's representative shall be responsible for installation and maintenance of soil erosion and sedimentation control devices.
6. The landowner or landowner's representative shall implement and maintain the soil erosion control measures as shown on the plans before and at all times during construction on this project. Any modifications or additions to soil erosion control measures due to construction or changed conditions shall be complied with as required or directed by the local jurisdiction.
7. If any of the SESC measures on the site are deemed inadequate or ineffective, the Livingston County Drain Commissioner's office has the right to require additional SESC measures at the expense of the landowner.
8. Contractor is clean the portions of roads adjacent to the project if dirt, debris or other material is being deposited on the roadway as needed. Adjacent roadway should be inspected at minimum once a day to determine if street sweeping is needed, and may be required multiple times a day, depending on vehicular traffic and debris.
9. During dry periods, all disturbed areas shall be watered for dust control.
10. Permanent soil erosion control measures for all slopes, channels, ditches, or any disturbed land area shall be completed within 5 calendar days after final grading or the final earth change has been completed. When it is not possible to permanently stabilize a disturbed area after earth change activity ceases, temporary soil erosion control measures shall be implemented immediately. All temporary soil erosion control shall be maintained until permanent soil erosion control measures are implemented. All permanent soil erosion control measures will be implemented and established before a certificate of compliance is issued.
11. Final grade, establish vegetation and or landscape all disturbed areas not built or paved upon.
12. Dewatering is not anticipated during the life of this project. If dewatering should become necessary, the site will be dewatered into a well established vegetative buffer and in accordance with all other rules and regulations of the local jurisdiction. The contractor shall be responsible for obtaining any necessary permits for dewatering prior to discharge.
13. Remove all temporary soil erosion devices after permanent stabilization is established.
14. Area of disturbance approximately 6.5 acres.
15. All Silt Fence shall be 36" in accordance with Livingston County's requirements.



LEGEND:

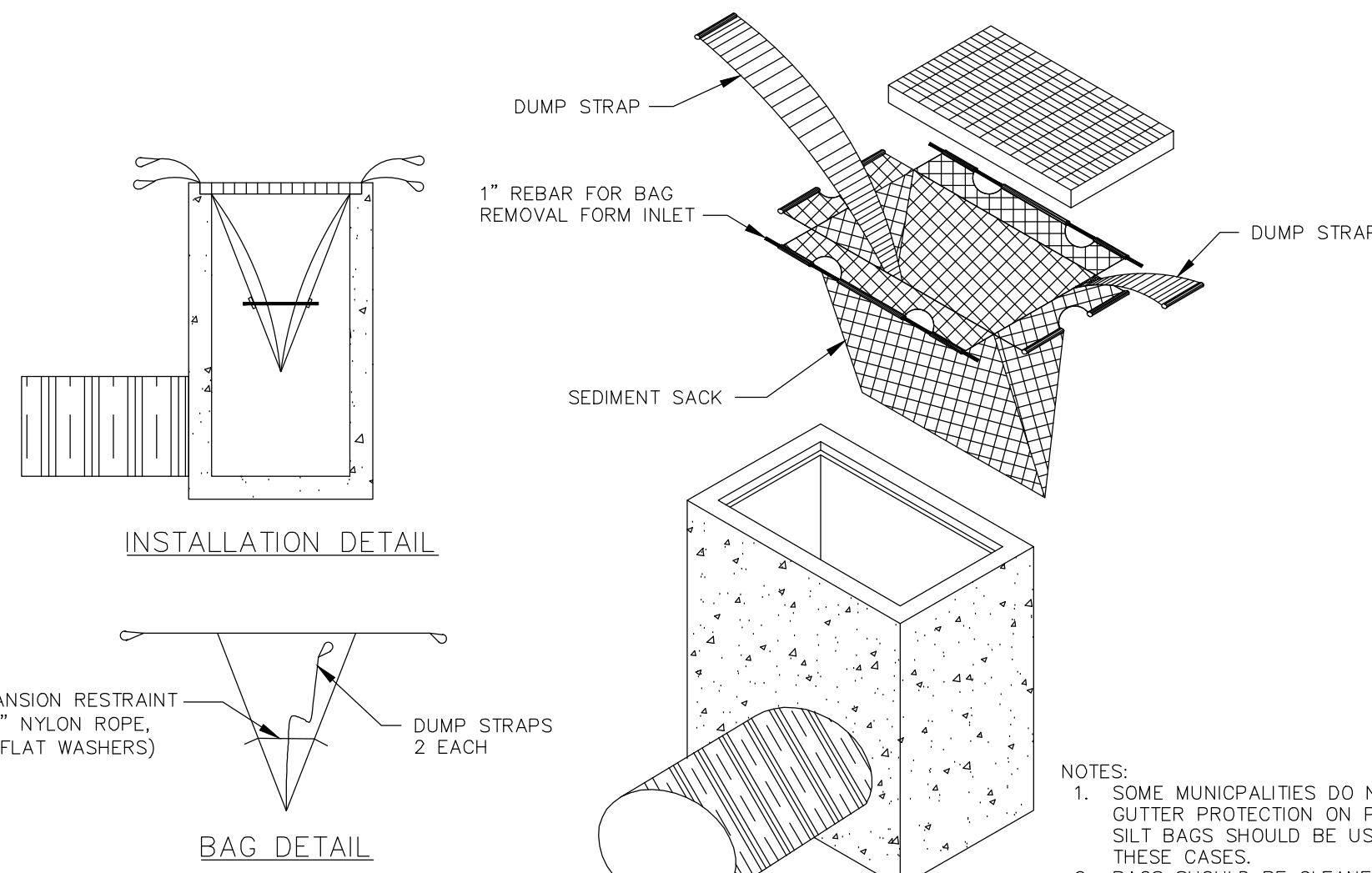
⑤4 SESC Key Number (See Sheet C-20)

NOTE: SILT FENCE SHALL CONSIST OF FURNISHING, ERECTING, MAINTAINING, REMOVING, AND DISPOSING OF A SILT FENCE, CONSISTING OF A POST SUPPORTED GEOTEXTILE. INSTALLATION, INCLUDING PROPER ENTRENCHING, SHALL BE ACCOMPLISHED AS SPECIFIED OR APPROVED ACCORDING TO THE MANUFACTURER'S PUBLISHED RECOMMENDED PRACTICE. (CURRENT M.D.O.T. SPECIFICATIONS)



GEOTEXTILE SILT FENCE

SCALE: NONE



SILT SACK DETAIL

SCALE: NONE

- NOTES:
1. SOME MUNICIPALITIES DO NOT ALLOW GUTTER PROTECTION ON PUBLIC ROADS. SILT BAGS SHOULD BE USED WITH THESE CASES.
 2. BAGS SHOULD BE CLEANED OUT AFTER EVERY RAIN EVENT AND/OR AS NEEDED.

LAPHAM ASSOCIATES
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PLANNING
ENVIRONMENTAL
SURVEYING

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SESC Plan

Hamburg Manor

For

Hampton Manor of Hamburg

PROJECT NUMBER: P-190043

DRAWN BY: S.E. Bell

SCALE: AS SHOWN

SHEET: C-19

ENGINEER: Timothy L. Lapham, P.E., P.S. 27595

DATE: March 11, 2019

REVISIONS: 03/23/19 per Typ Engineer's comments

APPROVED USE FOR:
○ PRELIMINARY
● PERMIT/BID
○ CONSTRUCTION
○ FINAL RECORD

C-19

MICHIGAN

SOIL EROSION & SEDIMENTATION CONTROL

GUIDEBOOK

FEBRUARY 1975

FIGURE 2



SEEDING ZONES

RATE OF APPLICATION (ALL ZONES)

TYPE OF SEED	PER/1000 SF	PER ACRE
SPRING OATS/BARLEY OR DOMESTIC RYEGRASS	2 LBS 1/2 LB	3 BU 20-25 LBS
SUDANGRASS	1 LB	30-40 LBS
RYE OR PERENNIAL RYE	3 LBS 1/2 LB	2-3 BU 20-25 LBS
WHEAT	3 LBS	2-3 BU

PERMANENT SEEDING GUIDE

	APR	MAY	JUN	JUL	AUG	SEP	OCT	
IRRIGATED AND/OR MULCH								ZONE 1
WITHOUT IRRIGATION OR MULCH								ZONE 2
IRRIGATED AND/OR MULCH								ZONE 3
WITHOUT IRRIGATION OR MULCH								

TEMPORARY SEEDING GUIDE

ZONE 1							
TYPE OF SEED	APR	MAY	JUN	JUL	AUG	SEP	OCT
SPRING OATS/BARLEY OR DOMESTIC RYEGRASS							
SUDANGRASS							
RYE OR PERENNIAL RYE							
WHEAT							
ZONE 2							
TYPE OF SEED	APR	MAY	JUN	JUL	AUG	SEP	OCT
SPRING OATS/BARLEY OR DOMESTIC RYEGRASS							
SUDANGRASS							
RYE OR PERENNIAL RYE							
WHEAT							
ZONE 3							
TYPE OF SEED	APR	MAY	JUN	JUL	AUG	SEP	OCT
SPRING OATS/BARLEY OR DOMESTIC RYEGRASS							
SUDANGRASS							
RYE OR PERENNIAL RYE							
WHEAT							

SOIL EROSION & SEDIMENTATION CONTROL PLAN

MICHIGAN UNIFIED KEYING SYSTEM

SESC GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TEMPORARY AND PERMANENT CONTROL MEASURES UNTIL VEGETATION HAS BEEN ESTABLISHED ON ALL DISTURBED AREAS. MAINTENANCE SHALL INCLUDE: PERIODIC INSPECTIONS, REMOVING ACCUMULATED SEDIMENT AND REPAIRING OR REPLACING DAMAGED CONTROL MEASURES. INSPECTIONS SHALL BE PERFORMED DAILY DURING THE CONSTRUCTION PROCESS. FOLLOWING CONSTRUCTION INSPECTIONS SHALL BE PERFORMED AT LEAST ON A WEEKLY BASIS AND AFTER EVERY SIGNIFICANT RAIN EVENT UNTIL VEGETATION HAS BEEN ESTABLISHED.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF TEMPORARY CONTROL MEASURES AFTER ALL DISTURBED AREAS HAVE BEEN RESTORED AND VEGETATION HAS BEEN ESTABLISHED. INSTALL FILTER FABRIC UNDER ALL CATCH BASIN GRATES UNTIL PERMANENT SOIL EROSION MEASURES HAVE TAKEN EFFECT. INSTALL SILT FENCES PRIOR TO ANY SITE WORK.

3. THE OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF PERMANENT CONTROL MEASURES AFTER THE ESTABLISHMENT OF VEGETATION ON DISTURBED AREAS. THE OWNER SHALL MAKE PERIODIC INSPECTIONS, AND REPLACE OR REPAIR DAMAGED PERMANENT CONTROL MEASURES AS REQUIRED.

4. TIMING SEQUENCE AND CONSTRUCTION SCHEDULE:

PHASE ONE - EARTH GRADE CHANGE, CONSTRUCT DITCHES, UTILITIES, PARKING LOT SUBGRADE, PLACE AND MAINTAIN TEMPORARY CONTROL MEASURES DURING THIS CONSTRUCTION PHASE.

- COVER CATCH BASINS
- GEOTEXTILE SILT FENCE AND/OR STRAW BALES.

5. ANTICIPATED START CONSTRUCTION DATES: To Be Determined - 2019 Construction Planned.

- Construct driveway entrance
- Start excavation
- Start foundation
- Start underground utilities
- Start parking lot and retention pond
- Pave parking lot
- Start landscaping

Contractor to supply dates after selection and prior to commencing construction.

6. PERMANENT CONTROL MEASURES SHALL BE COMPLETED WITHIN 15 CALENDAR DAYS AFTER FINAL EARTH CHANGE IS COMPLETED.

7. TEMPORARY SEEDING, OR DORMANT SEEDING SHALL BE UTILIZED FOR "WINTER STABILIZATION".

PHASE TWO - FINAL RESTORATION AND BITUMINOUS PAVING MAINTAIN TEMPORARY AND PERMANENT CONTROL MEASURES PLACE PERMANENT CONTROL MEASURES

- TOPSOIL, SEED, MULCH AND FERTILIZER IN ACCORDANCE WITH CURRENT MDOT STANDARDS AND SPECIFICATIONS. PERMANENT SEEDING REQUIRED BETWEEN MAY 1 THROUGH OCTOBER. DORMANT SEEDING REQUIRED AFTER NOVEMBER 15, BUT NOT ON FROZEN GROUND.

* INDICATES APPLICABILITY OF A SPECIFIC CONTROL MEASURE TO ONE OR MORE OF THE SEVEN PROBLEM AREAS

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
1	STRIPPING & STOCKPILING TOPSOIL	TOPSOIL MAY BE STOCKPILED ABOVE BORROW AREAS TO ACT AS A DIVERSION. STOCKPILE SHOULD BE TEMPORARILY SEED.	*				*	*	
2	SELECTIVE GRADING & SHAPING	WATER CAN BE DIVERTED TO MINIMIZE EROSION. FLATTER SLOPES EASE EROSION PROBLEMS.	*				*	*	*
3	GRUBBING OMITTED	SAVES COST OF GRUBBING, PROVIDES NEW SPROUTS, RETAINS EXISTING ROOT MAT SYSTEM, REDUCES WIND FALLOUT AT NEW FOREST EDGE, DISCOURAGES EQUIPMENT ENTRANCE	*				*	*	*
4	VEGETATIVE STABILIZATION	MAY UTILIZE A VARIETY OF PLANT MATERIAL. STABILIZES SOIL, SLOWS RUNOFF VELOCITY, FILTERS SEDIMENT FROM RUNOFF	*	*	*		*	*	*
5	SEEDING	INEXPENSIVE AND VERY EFFECTIVE. STABILIZES SOIL, THUS MINIMIZING EROSION. PERMITS RUNOFF TO INFILTRATE SOIL, REDUCING RUNOFF VOLUME. SHOULD INCLUDE PREPARED TOPSOIL BED	*		*		*	*	*
6	SEEDING WITH MULCH AND/OR MATTING	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER. EFFECTIVE FOR GRADEWAYS WITH LOW VELOCITY. EARLY PLACED IN SMALL QUANTITIES BY EXPERIENCED PERSONNEL. SHOULD INCLUDE PREPARED TOPSOIL BED	*		*		*	*	*
7	HYDRO-SEEDING	EFFECTIVE ON LARGE AREAS. MULCH TACKING AGENT USED TO PROVIDE IMMEDIATE PROTECTION UNTIL GRASS IS ROOTED. SHOULD INCLUDE PREPARED TOPSOIL BED	*				*	*	*
8	SODDING	PROVIDES IMMEDIATE PROTECTION. CAN BE USED ON STEEP SLOPES WHERE SEED MAY BE DIFFICULT TO ESTABLISH. EASY TO PLACE. MAY BE REPAIRED IF DAMAGED. SHOULD INCLUDE PREPARED TOPSOIL BED	*		*		*	*	*
9	VEGETATIVE BUFFER STRIP	SLOWS RUNOFF VELOCITY. FILTERS SEDIMENT FROM RUNOFF. REDUCES VOLUME OF RUNOFF ON SLOPES	*	*					*
10	MULCHING	USED ALONE TO PROTECT EXPOSED AREAS FOR SHORT PERIODS. PROTECTS SOIL FROM IMPACT OF FALLING RAIN. PRESERVES SOIL MOISTURE AND PROTECTS GERMINATING SEED FROM TEMPERATURE EXTREMES	*				*	*	
11	ROUGHENED SURFACE	REDUCES VELOCITY AND INCREASES INFILTRATION RATES. COLLECTS SEDIMENT. HOLDS WATER, SEED, AND MULCH BETTER THAN SMOOTH SURFACES	*				*		
12	COMPACTION	HELPS HOLD SOIL IN PLACE, MAKING EXPOSED AREAS LESS VULNERABLE TO EROSION	*				*		
13	RIPRAP, RUBBLE, GABIONS	USED WHERE VEGETATION IS NOT EASILY ESTABLISHED. EFFECTIVE FOR HIGH VELOCITIES OR HIGH CONCENTRATIONS. PERMITS RUNOFF TO INFILTRATE SOIL. DESIGNS ENERGY FLOW AT SYSTEM OUTLETS	*	*	*				
14	AGGREGATE COVER	STABILIZES SOIL SURFACE, THUS MINIMIZING EROSION. PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER. MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS					*		
15	PAVING	PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT INCREASES RUNOFF VOLUME AND VELOCITY. REGULAR SURFACE MAINT. HELPS FLOW VELOCITY	*				*		
16	CURB & GUTTER	KEEPS HIGH VELOCITY RUNOFF ON PAVED AREAS FROM LEAVING PAVED SURFACE. COLLECTS AND CONDUCTS RUNOFF TO ENCLOSED DRAINAGE SYSTEM OR PREPARED DRAINAGEWAY					*	*	*
17	BENCHES	REDUCES RUNOFF VELOCITY BY REDUCING EFFECTIVE SLOPE LENGTH. COLLECTS SEDIMENT. PROVIDES ACCESS TO SLOPES FOR SEEDING, MULCHING AND MAINTENANCE	*					*	
18	DIVERSION BERM	DIVERTS WATER FROM VULNERABLE AREAS. COLLECTS AND DIVERTS WATER TO PREPARED DRAINAGEWAYS. MAY BE PLACED AS PART OF NORMAL CONSTRUCTION OPERATION	*					*	*

* INDICATES APPLICABILITY OF A SPECIFIC CONTROL MEASURE TO ONE OR MORE OF THE SEVEN PROBLEM AREAS

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
19	DIVERSION DITCH	COLLECTS AND DIVERTS WATER TO REDUCE EROSION POTENTIAL. MAY BE INCORPORATED IN PERMANENT PROJECT DRAINAGE SYSTEMS	*					*	*
20	BERM & DITCH	DIVERTS WATER TO A PREPARED DRAINAGEWAY. MAY BE USED AT INTERVALS ACROSS SLOPE FACE TO REDUCE EFFECTIVE SLOPE LENGTH	*					*	*
21	FILTER BERM	CONSTRUCTED OF GRAVEL OR STONE. INTERCEPTS AND DIVERTS RUNOFF TO STABILIZED AREAS OR PREPARED DRAINAGE SYSTEMS. SLOWS RUNOFF AND COLLECTS SEDIMENT	*	*					*
22	BRUSH FILTER	USES SLASH AND LOGS FROM CLEARING OPERATIONS. CAN BE COVERED AND SEEDED RATHER THAN REMOVED. ELIMINATES NEED FOR BURNING OR REMOVAL OF MATERIAL FROM SITE							*
23	BARE CHANNEL	LEAST EXPENSIVE FORM OF DRAINAGEWAY. MAY BE USED ONLY WHERE GRADIENT IS VERY LOW AND WITH SOILS OF MINIMAL EROSION POTENTIAL			*				
24	GRASSSED WATERWAY	MUCH MORE STABLE FORM OF DRAINAGEWAY THAN BARE CHANNEL. GRASS TENDS TO SLOW RUNOFF AND FILTER OUT SEDIMENT. USED WHERE BARE CHANNEL WOULD BE ERODED			*				
25	SLOPE DRAIN (SURFACE PIPE)	PREVENTS EROSION ON SLOPES WHEN RUNOFF CANNOT BE DIVERTED TO EDGE OF SLOPE AREA. USUALLY PERMANENT. CAN BE CONSTRUCTED OR EXTENDED AS GRADING PROGRESSES	*						
26	SLOPE DRAIN (PIPE CHUTE)	PREVENTS EROSION ON SLOPES WHEN RUNOFF CANNOT BE DIVERTED TO EDGE OF SLOPE AREA. USUALLY PERMANENT. CAN BE CONSTRUCTED OR EXTENDED AS GRADING PROGRESSES	*						
27	SLOPE DRAIN (SUBSURFACE PIPE)	PREVENTS EROSION ON SLOPES WHEN RUNOFF CANNOT BE DIVERTED TO EDGE OF SLOPE AREA. USUALLY PERMANENT. CAN BE CONSTRUCTED OR EXTENDED AS GRADING PROGRESSES	*						
28	DROP SPILLWAY	SLOWS VELOCITY OF FLOW, REDUCING EROSION CAPACITY		*	*				
29	PIPE DROP	REDUCES RUNOFF VELOCITY. REMOVES SEDIMENT AND TURBIDITY. CAN BE DESIGNED TO HANDLE LARGE VOLUMES OF FLOW			*				
30	PIPE SPILLWAY	REMOVES SEDIMENT AND TURBIDITY FROM RUNOFF. MAY BE PART OF PERMANENT EROSION CONTROL PLAN			*				
31	ENERGY DISSIPATER	SLOWS RUNOFF VELOCITY TO NON-EROSIVE LEVEL. PERMITS SEDIMENT COLLECTION FROM RUNOFF	*		*	*			
32	LEVEL SPREADER	CONVERTS COLLECTED CHANNEL OR PIPE FLOW BACK TO SHEET FLOW. AVOIDS CHANNEL EASEMENTS AND CONSTRUCTION OF PROJECT SITE SIMPLE TO CONSTRUCT			*				
33	SEDIMENTATION TRAP	MAY BE CONSTRUCTED OF A VARIETY OF MATERIALS. TRAPS SEDIMENT AND REDUCES VELOCITY OF FLOW. CAN BE CLEANED AND EXPANDED AS NEEDED	*	*	*				
34	SEDIMENT BASIN	TRAPS SEDIMENT. RELEASES RUNOFF AT NON-EROSIVE RATES. CONTROLS RUNOFF AT SYSTEM OUTLETS. CAN BE VISUAL AMENITIES		*	*	*			
35	STORM SEWER	SYSTEM REMOVES COLLECTED RUNOFF FROM SITE, PARTICULARLY FROM PAVED AREAS. CAN ACCEPT LARGE CONCENTRATIONS OF RUNOFF. CONDUCTS RUNOFF TO MUNICIPAL SEWER SYSTEM OR STABILIZED OUTFALL LOCATION. USE CATCH BASINS TO COLLECT SEDIMENT			*	*	*	*	*
36	CATCH BASIN, DRAIN INLET	COLLECTS HIGH VELOCITY CONCENTRATED RUNOFF. MAY USE FILTER CLOTH OVER INLET					*	*	*

* INDICATES APPLICABILITY OF A SPECIFIC CONTROL MEASURE TO ONE OR MORE OF THE SEVEN PROBLEM AREAS

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
37	SOD FILTER	INEXPENSIVE AND EASY TO CONSTRUCT. PROVIDES IMMEDIATE PROTECTION. PROTECTS AREAS AROUND INLETS FROM EROSION				*			
38	STRAW BALE FILTER	INEXPENSIVE AND EASY TO CONSTRUCT. CAN BE LOCATED AS NECESSARY TO COLLECT SEDIMENT. MAY BE USED IN CONJUNCTION WITH SNOW FENCE FOR ADDED STABILITY				*			*
39	ROCK FILTER	CAN UTILIZE MATERIAL FOUND ON SITE. EASY TO CONSTRUCT. FILTERS SEDIMENT FROM RUNOFF				*			*
40	INLET SEDIMENT TRAP	EASY TO SHAPE. COLLECTS SEDIMENT. MAY BE CLEANED AND EXPANDED AS NEEDED				*			
41	STONE AND ROCK CROSSING	MAY BE ROCK OR CLEAN RUBBLE. MINIMIZES STREAM TURBIDITY. INEXPENSIVE. MAY ALSO SERVE AS DITCH CHECK OR SEDIMENT TRAP		*					
42	TEMPORARY CULVERT	ELIMINATES STREAM TURBULENCE AND TURBIDITY. PROVIDES UNOBSTRUCTED PASSAGE FOR FISH AND OTHER WATER LIFE. CAPACITY FOR NORMAL FLOW CAN BE PROVIDED WITH STORM WATER FLOWING OVER ROADWAY			*				
43	CULVERT SEDIMENT TRAP	EASY TO INSTALL AT INLET. KEEPS CULVERT CLEAN AND FREE FLOWING. MAY BE CONSTRUCTED OF LUMBER OR LOGS		*					*
44	CULVERT SEDIMENT TRAP	DEFLECTS CURRENTS AWAY FROM STREAMBANK AREAS		*					
45	TEMP. STREAM CHANNEL CHANGE	NEW CHANNEL KEEPS NORMAL FLOWS AWAY FROM CONSTRUCTION. REQUIRES STATE PERMIT		*					
46	SHEET PILING	PROTECTS ERODIBLE BANK AREAS FROM STREAM CURRENTS DURING CONSTRUCTION. MINIMAL DISRUPTION WHEN REMOVED		*					
47	COFFERDAM	WORK CAN BE CONTINUED DURING MOST ANTICIPATED STREAM CONDITIONS. CLEAR WATER CAN BE PUMPED DIRECTLY BACK INTO STREAM		*					
48	CONSTRUCTION DAM	PERMITS WORK TO CONTINUE DURING NORMAL STREAM STAGES. CONTROLLED FLOODING CAN BE ACCOMPLISHED DURING PERIODS OF INACTIVITY		*					
49	CHECK DAMS	REDUCES FLOW VELOCITY. CATCHES SEDIMENT. CAN BE CONSTRUCTED OF LOGS, STRAW, HAY, ROCK, LUMBER, MASONRY, OR SAND BAGS		*	*				
50	WEIR	CONTROLS SEDIMENTATION IN LARGE STREAMS. CAUSES MINIMAL TURBIDITY		*	*				
51	RETAINING WALL	REDUCES GRADIENT WHERE SLOPES ARE EXTREMELY STEEP. PERMITS RETENTION OF EXISTING VEGETATION, KEEPING SOIL STABLE IN CRITICAL AREAS. MINIMIZES MAINTENANCE	*						*
52	SEEPAGE CONTROL	PREVENTS PIPING AND SOIL SLIPPAGE ON CUT SLOPES	*						*
53	WINDBREAK	MINIMIZES WIND EROSION. MAY BE SNOW FENCE					*	*	
54	SILT FENCE	USES GEOTEXTILE FABRIC AND POSTS OR POLES. EASY TO CONSTRUCT AND LOCATE AS NECESSARY.				*		*	*

PROJECT NUMBER: P-190043
ENGINEER: Timothy L. Lapham, P.E., P.S. 27595
REVISED: 03/20/19 per Twp Engineer's comments

SCALE: N/A

DRAWN BY: S.E. Bell

DATE: March 11, 2019

SHEET: C-20

SESC Key

Hamburg Manor

For

Hampton Manor of Hamburg

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PLANNING
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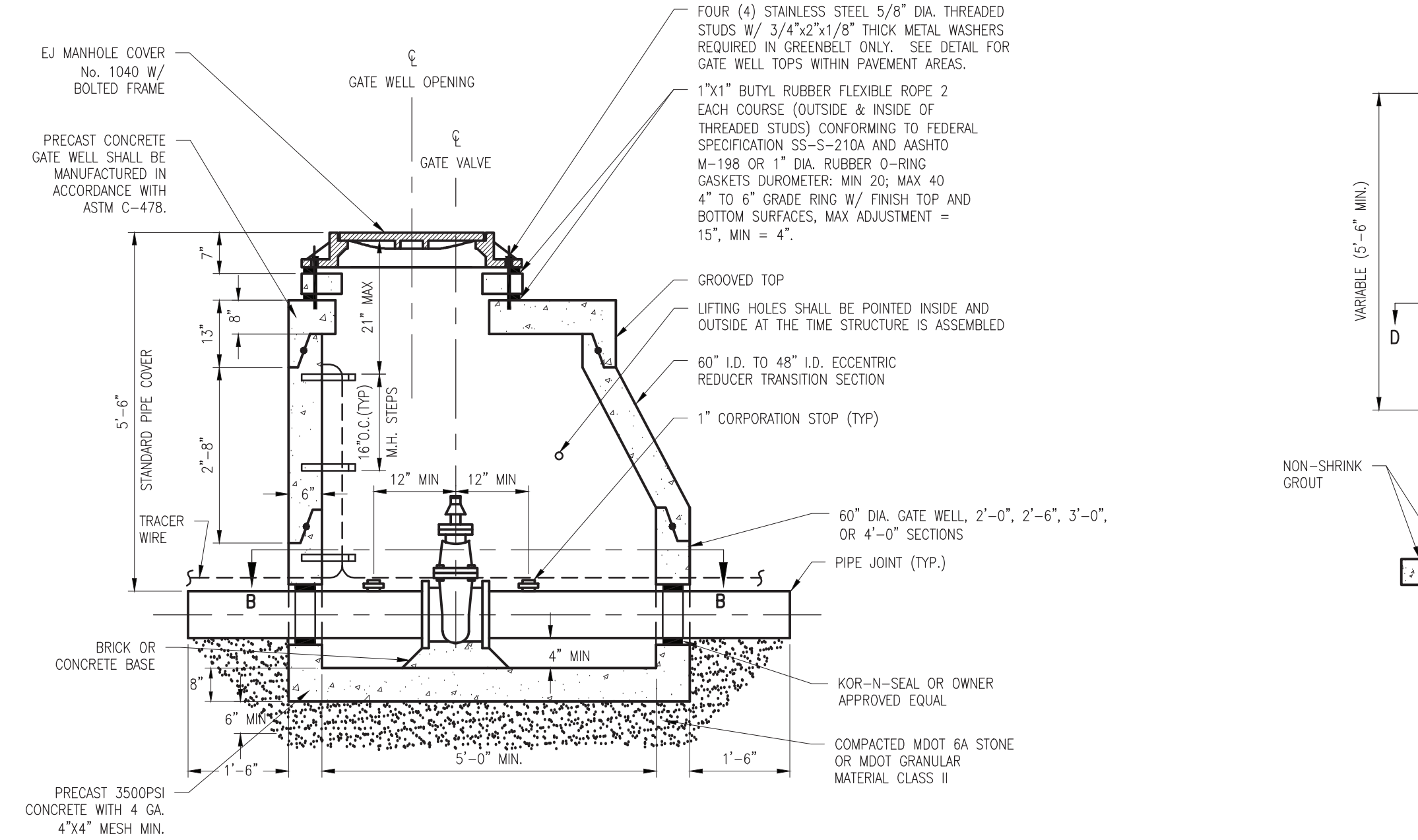
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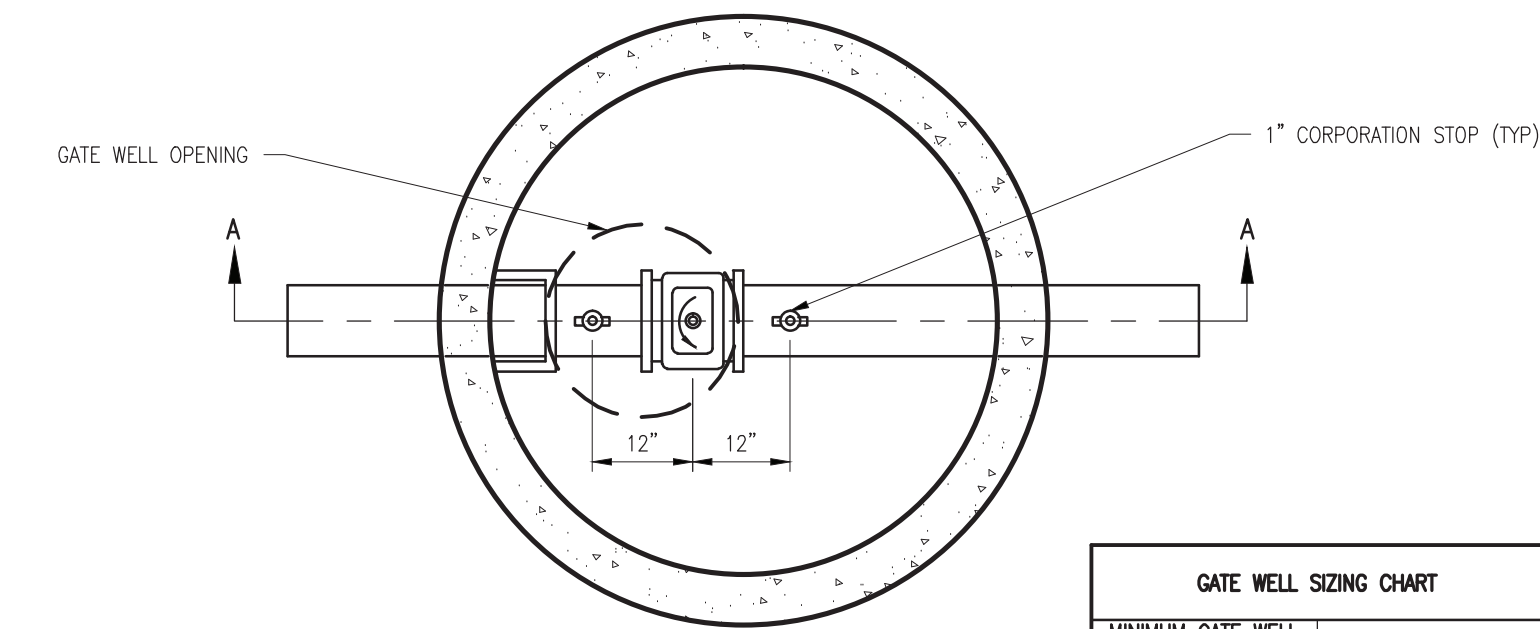
<div>CONCRETE FORMING</div> <div>DIVISION 03 10 00</div> <div>PART 1 GENERAL</div> <div>1.01 Scope:</div> <div>A. Provide, install and remove all concrete formwork and accessories necessary for concrete construction as indicated on the drawings and specified herein.</div> <div>1.02 Related Work Specified Elsewhere:</div> <div>A. Concrete Reinforcement -DIVISION 03 20 00</div> <div>B. Cast-in-place Concrete -DIVISION 03 30 00</div> <div>1.03 Referenced Standards:</div> <div>A. ACI, "ACI Manual of Concrete Practice"</div> <div>B. American Plywood Association, "Plywood for Concrete Forming"</div> <div>C. American Institute of Timber Construction, "Timber Construction Manual"</div> <div>D. National Forest Products Association, "Design of Wood Formwork for Concrete Structures"</div> <div>1.04 Design:</div> <div>A. The Design and Engineering of Concrete Formwork shall be the responsibility of the Contractor.</div> <div>PART 2 PRODUCTS</div> <div>2.01 Form Materials:</div> <div>A. Forms shall be either metal free of irregularities, dents, and/or sags; or plywood made specifically for concrete form use complying with APA "Plywood for Concrete Forming."</div> <div>2.02 Coatings and Release Agents:</div> <div>A. Steel Forms: Colorless mineral oil which will not stain concrete.</div> <div>2.03 Accessories:</div> <div>A. Form ties and spreaders shall be removable or snap-off commercially manufactured metal with cone ends leaving no metal exposed within 1" of finished face of concrete and causing no surface disfiguration greater than 3/4" in diameter.</div> <div>PART 3 EXECUTION</div> <div>3.01 General Requirements:</div> <div>A. Design, install, and remove Concrete Formwork specified herein in strict accordance with the Referenced Standards.</div> <div>3.03 Supplemental Requirements:</div> <div>A. Attach, as required elsewhere in the Construction Documents or as required to properly interface Concrete Work with the Work of other trades, all required accessories, anchor bolts, hangers, sleeves, slots and/or inserts.</div> <div>B. Unless indicated otherwise on the Drawings, provide 3/4" chamfer strips at all outside corners of exposed Cast-in-Place Concrete.</div> <div>C. Earth cuts may be used as forms where concrete is not to be exposed or to receive waterproofing.</div> <div>D. Formwork shall be constructed to the shape, line, and dimension as required by the plans. Do not scale off plans. Construction is to be according to written dimensions.</div> <div>E. Forms shall be sufficiently tight to prevent leakage of concrete and shall be properly braced and tied together to maintain position and shape during concrete placement.</div> <div>END OF SECTION</div> <div>CONCRETE REINFORCEMENT</div> <div>DIVISION 03 20 00</div> <div>PART 1 GENERAL</div> <div>1.01 Scope:</div> <div>A. Provide and install all concrete reinforcement and accessories, complete, as indicated on the drawings and specified herein.</div> <div>1.02 Related Work Specified Elsewhere:</div> <div>A. Concrete Forming -DIVISION 03 10 00</div> <div>B. Cast-in-Place Concrete -DIVISION 03 30 00</div> <div>1.03 Referenced Standards:</div> <div>A. ACE "ACI Manual of Concrete Practice"</div> <div>B. ASTM A185, "Welded Steel Wire Fabric for Concrete Reinforcement"</div> <div>C. ASTM A615, "Specifications for Pre formed and Plain Built-Steel Bars for Concrete Reinforcement"</div> <div>1.04 Storage of Materials:</div> <div>A. Materials shall be stored so as not to deteriorate due to excessive rusting or become contaminated by foreign substances.</div> <div>PART 2 PRODUCTS</div> <div>2.10 Bar Reinforcement:</div> <div>A. Shall comply with ASTM A615, grade 60 billet steel deformed bars, uncoated finish.</div> <div>2.02 Welded Wire Fabric:</div> <div>A. Shall conform to ASTM A185, plain type.</div> <div>2.03 Accessories:</div> <div>A. Tie Wire: Annealed steel, 16-gauge minimum.</div> <div>B. Reinforcement Supports: Galvanized steel bolster, chairs and supports with plastic coating where in contact with formwork.</div>	<div>PART 3 EXECUTION</div> <div>3.01 General Requirements:</div> <div>A. Design, fabricate and place Concrete Reinforcement specified herein in strict accordance with Referenced Standards.</div> <div>3.02 Supplemental Requirements:</div> <div>A. Unless indicated otherwise on the Drawings, maintain a minimum 3" clearance between all reinforcement specified and the outside face of the concrete enclosing the reinforcement through the use of concrete bricks and galvanized reinforcement bars anchored into adjacent earth where earth cut forms are utilized and through the use of prefabricated chairs and spreaders with vinyl coated feet where concrete formwork utilized.</div> <div>END OF SECTION</div> <div>CAST-IN-PLACE CONCRETE</div> <div>DIVISION 03 30 00</div> <div>PART 1 GENERAL</div> <div>1.01 Scope:</div> <div>A. Provide, place, patch, cure and finish all concrete as indicated on the Drawings and specified herein.</div> <div>1.02 Related Work Specified Elsewhere:</div> <div>A. Concrete Forming -DIVISION 03 10 00</div> <div>B. Concrete Reinforcement -DIVISION 03 20 00</div> <div>1.03 Submittals:</div> <div>A. Concrete test results.</div> <div>B. Concrete design mix proposed to comply with Specifications.</div> <div>C. Provide Specification indicating materials to actually be utilized under this Section if choice permitted.</div> <div>D. Concrete Truck batch ticket indicating presence of specified admixture and amount added.</div> <div>1.04 Referenced Standards:</div> <div>A. ACI, "Manual of Concrete Practice"</div> <div>B. ASTM C31, "Practice for Making and Curing Concrete Test Specimens in the field"</div> <div>C. ASTM C33, "Specification for Concrete Aggregates"</div> <div>D. ASTM C39, "Test Method of Compressive Strength of Cylindrical Concrete Specimens"</div> <div>E. ASTM C94, "Specification for Ready-Mixed Concrete"</div> <div>F. ASTM C143, "Test Method for Slump of Hydraulic Cement Concrete"</div> <div>G. ASTM C150, "Specification for Portland Cement"</div> <div>H. ASTM C172, "Method of Sampling Freshly Mixed Concrete"</div> <div>I. ASTM C231, "Test Method of Air Content of Freshly Mixed Concrete By the Pressure Method"</div> <div>J. ASTM C260, "Specification for Air-Entraining Admixtures for Concrete"</div> <div>1.05 Testing:</div> <div>A. Testing of concrete as specified in this section shall be arranged by the Contractor.</div> <div>B. Concrete shall be sampled, handled and tested in strict accordance with the following Referenced Standards for the procedure indicated.</div> <div>1) Sampling fresh Concrete: ASTM C172</div> <div>2) Slump Determination: ASTM C143</div> <div>3) Making, curing, protecting and transporting concrete test specimens: ASTM C31</div> <div>4) Testing Compressive Strength: ASTM C39</div> <div>5) Testing Air Content: ASTM C231</div> <div>C. The following information shall be recorded concerning each sampling by the Testing Technician:</div> <div>1) Name of Technician taking sample.</div> <div>2) Date and time of sampling.</div> <div>3) Air temperature and weather condition at time of sampling.</div> <div>4) Design compressive strength of Concrete being sampled.</div> <div>5) Source of Concrete, Truck Number and Ticket Number if batched offsite.</div> <div>6) List of Admixtures indicated to be present in Concrete on batch ticket.</div> <div>7) List of Admixtures and/or water added to the Concrete mix on site, whether added before or after sampling taken by Testing Technician and quantity of item added.</div> <div>8) Specific location in structure in which the concrete is placed after sampling.</div> <div>D. Tests shall be performed for each Concrete Sampling to determine the following:</div> <div>1) Concrete temperature at time of sampling.</div> <div>2) Concrete Slump.</div> <div>3) Concrete Air Content, if air entrainment specified, at the time of sampling.</div> <div>4) Compressive Strength of Test Cylinders in the following quantities at the following increments from the date of sampling:</div> <div>a) One test at 7 days</div> <div>b) Two tests at 28 days</div> <div>c) One specimen shall be retained in reserve for later testing if required.</div> <div>E. The Testing Laboratory shall prepare a report recording the information required in items C. and D. above and mail the report directly to the Owner, Engineer and Contractor the day of the compressive tests.</div> <div>F. Four cylinders shall be made for each test. Perform a minimum of one test for each 100 cubic yards per class of concrete placed, but in no case shall there be less than one test for each day's concreting per class of concrete.</div> <div>G. Concrete to be tested shall be randomly selected by the Testing Technician without direction from the Contractor or material supplier.</div> <div>PART 2 PRODUCTS</div> <div>2.01 Concrete:</div> <div>A. Concrete shall be composed of Portland Cement in conformance with ASTM C150, aggregates in conformance with ASTM C33 and water in conformance with ASTM C94, proportioned to achieve a compressive strength of 3,500 psi at 28 days unless noted otherwise in the specifications or on the drawings. Unless noted otherwise the maximum allowable slump shall be 4".</div> <div>B. Unless noted otherwise the water-cement ration shall not exceed .5 by weight.</div> <div>C. Air-entraining Admixture, where specified, shall conform with Referenced Standard ASTM C260. Provide air entraining admixture for all concrete exposed to freeze-thaw cycling. Air content shall be 7% +/- 1%.</div> <div>2.02 Additives:</div> <div>A. Admixtures containing thycocyanates or calcium chloride are not permitted.</div> <div>B. Water reducing chemical admixtures shall conform to ASTM C494 - Type A.</div>	<div>C. Unless specified herein, additives or admixtures shall not be used without written approval from the Engineer.</div> <div>2.03 Curing Compound:</div> <div>A. "Ellis Clear Acrylic cure 309" as manufactured by Ellis Construction Accessories, or equal meeting ASTM C309. Curing compound shall be an acrylic formula designed and certified to be compatible with resilient flooring adhesives.</div> <div>2.04 Non-Shrink Grout:</div> <div>A. "Masterflow 713" by Master Building Co.; "SonogROUT" by Sonnebrone Building Products; "Crystex", as manufactured by L&M Construction Chemicals, Inc., or approved equal; with a minimum compressive strength of 5 psi at 28 days.</div> <div>2.05 Vapor Barrier:</div> <div>A. 6 mil. polyethylene film.</div> <div>PART 3 EXECUTION</div> <div>3.01 General Requirements:</div> <div>A. Mix, transport, test, place, finish and cure all Cast-In-Place Concrete and other products specified herein in strict accordance with Referenced Standards and manufacturer's written specifications.</div> <div>B. Notify Testing Laboratory 24 hours prior to placement of all concrete.</div> <div>3.02 Supplemental Requirements:</div> <div>A. Grind smooth surface projections, remove loose concrete and patch with Non-shrink grout, in strict accordance with manufacturer's written specifications, all surface honeycombs, wall tie holes and other vertical wall surface deformations on concrete walls to be exposed or to receive waterproofing assembly.</div> <div>B. Provide light broom finish on sidewalks unless noted otherwise.</div> <div>C. Apply curing Compound to all slab concrete in strict accordance with manufacturer's written specifications. Apply in sufficient quantity and reapply if necessary depending on weather conditions to protect concrete from premature drying. Apply additional coat of Curing Compound to slab concrete immediately after final cleaning of floor.</div> <div>D. Perform Cold Weather Concreting operations in strict accordance with the requirements of ACI 306R.</div> <div>E. Perform Hot Weather Concreting operations in strict accordance with the requirements of ACI 305R.</div> <div>F. Secure and install items to be embedded in Cast-In-Place Concrete in strict accordance with the manufacturer's written specifications, Referenced Standards and/or as indicated in the Drawings and Specifications.</div> <div>3.03 Defective Concrete:</div> <div>A. Modify or replace concrete not conforming to required strength, levels, lines, details, and elevations.</div> <div>B. Repair or replace concrete not properly placed or not of the specified type or finish.</div> <div>END OF SECTION</div> <div>SITE CLEARING</div> <div>SECTION 31 10 00</div> <div>PART 1 - GENERAL</div> <div>1.01 DESCRIPTION OF WORK</div> <div>The extent of site preparation work expected to be minimal. This work includes, but is not limited to furnishing all labor, material, equipment, tools, incidentals, and services necessary for:</div> <div>Temporary silt fencing</div> <div>Protection of existing trees and vegetation</div> <div>Related work as required</div> <div>1.02 SOIL EROSION AND SEDIMENTATION CONTROL</div> <div>A. Purpose - The purpose of this section is to minimize soil erosion and control sedimentation as required by the Soil Erosion and Sedimentation Control Act, Part 91, PA 451 of 1994 of the State of Michigan as amended.</div> <div>B. Permit - It is anticipated that a Soil Erosion and Sedimentation Control Permit will be required for this project. If a permit is required it shall be obtained prior to construction and shall be the responsibility of the contractor.</div> <div>C. Implementation - It shall be the responsibility of the Contractor to implement the Soil Erosion and Sedimentation Control Plan for this project in strict accordance with the permit, if required to be obtained. Unless specified within other sections of the specifications, all work under this section shall be in strict accordance with the construction methods as prescribed by the State of Michigan Department of Natural Resources for the implementation of this legislation. Refer to Michigan Guidebook for Soil Erosion and Sedimentation Control, prepared for and distributed by the Water Resources Commission of the Department of Natural Resources, State of Michigan.</div> <div>1.03 JOB CONDITIONS</div> <div>A. Protection of Existing Improvements - Provide barricades, coverings or other types of protection necessary to prevent damage to existing improvements indicated to remain in place. Protect improvements on adjoining properties and on the Owner's property. Restore any improvements damaged by this work to the original condition as acceptable to the Owner and other parties or authorities having jurisdiction.</div> <div>PART 2 - PRODUCTS</div> <div>2.01 PREASSEMBLED SILT FENCE</div> <div>A. Geotextile fabric - Polypropylene woven fabric, 2.3 oz./sq.yd., UV resistance 80% PropeX® 2127, as mfd by Amoco Fabrics and Fibers Company, Austell, GA (770-944-4569), or approved equal.</div> <div>B. Silt Fence posts - As mfd by Amoco Fabrics and Fibers Company, Austell, GA (770-944-4569), or approved equal.</div> <div>PART 3 - EXECUTION</div> <div>3.01 GENERAL</div> <div>Call Miss Dig (1-800-482-7171) 72 hours prior to start of clearing and excavation work. Work shall not begin on site until after the project site has been marked by all utility companies.</div> <div>3.02 PREASSEMBLED SILT FENCE</div> <div>Install silt fencing where shown on drawings and prior to beginning site clearing and grubbing work. Unroll, stretch, and drive fence posts plumb. Posts shall be installed on the downward side of the fencing. The bottom of the fabric shall be placed under 6" of compacted soil to prevent sediment from flowing underneath the fence.</div>	<div>3.03 SITE CLEARING AND GRUBBING</div> <div>Remove vegetation, improvements or obstruction interfering with the installation of new construction. Clear the project site of trees, shrubs and other vegetation - except for those indicated to be left standing. Removal includes new and old stumps of trees and their roots. Carefully and cleanly cut roots and branches of trees indicated to be left standing, where such roots and branches obstruct new construction. Completely remove stumps, roots and other debris protruding through the ground surface. Use only hand methods for grubbing inside the drip line of trees indicated to be left standing. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated. Place fill material in horizontal layers not exceeding 0.5' loose depth, and thoroughly compact to a density equal to adjacent original ground.</div> <div>3.04 DISPOSAL OF WASTE MATERIALS</div> <div>Burning of combustible cleared and grubbed materials is not permitted on the Owner's property. Remove from the Owner's property and legally dispose of all waste materials and unsuitable or excess soils.</div> <div>3.05 TOPSOIL REMOVAL</div> <div>Topsoil is defined as friable clay loam surface soil found in a depth of not less than 0.4' or greater depth as indicated on the drawings. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones and other objects over 2.0" in diameter, and without weeds, roots and foreign materials. Strip topsoil from within the areas to be occupied by the construction and from other areas within the grading limits to be cut, filled or re-graded. Strip topsoil to whatever depth encountered in a manner to prevent intermingling with the underlying subsoil or objectionable material. Remove heavy growth of grass from areas before stripping. Where trees are indicated to be left standing, stop topsoil stripping at a sufficient distance to prevent damage to the main root system. Stockpile topsoil as indicated and where it will not interfere with construction operations or site work. Locate topsoil storage piles in areas shown or where otherwise directed. Construct storage piles to freely drain surface water and cover if required to prevent windblown dust. If soil or weather conditions are unsuitable, the Contractor shall cease topsoil removal operations and resume only when directed to do so by the owner or engineer. Dispose of excess topsoil the same as waste material, herein specified.</div> <div>3.06 SILT FENCE REMOVAL</div> <div>Upon completion of all work, remove the silt control fence and legally dispose off project site. Rake and smooth soil along location of silt fence, and seed as required.</div> <div>END OF SECTION</div> <div>EARTH MOVING</div> <div>SECTION 31 20 00</div> <div>PART 1 - GENERAL</div> <div>1.01 DESCRIPTION OF WORK</div> <div>The extent of Earthwork required is shown on the drawings. This work includes, but is not limited to furnishing all labor, material, equipment, tools, incidentals, and services necessary for:</div> <div>Site grading</div> <div>Placement of fill materials</div> <div>Related work as required</div> <div>1.02 QUALITY ASSURANCE</div> <div>A. Codes and Standards - Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.</div> <div>B. Lines and Grades - The Contractor shall provide all instrumental surveying required to lay out and construct this work in conformance with the drawings.</div> <div>1.03 JOB CONDITIONS</div> <div>A. Site Information - The Contractor shall make his or her own investigation, as he or she deems necessary prior to the bid opening. Data on surface or subsurface conditions is not intended as representations or warranties of accuracy or continuity of actual site conditions. It is expressly understood that the Owner and project consultants employed as representatives of the work will not be responsible for interpretations or conclusions drawn therefrom by the Contractor. Data made available is for the convenience of the Contractor.</div> <div>B. Existing Utilities - Call MISS DIG prior to beginning work on the site. Locate existing underground utilities in the areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult the utility owner immediately for directions. Cooperate with the Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to the satisfaction of the utility owner. Do not interrupt existing utilities serving facilities occupied and used by the Owner or others, except when permitted in writing by the owner or engineer, and then only after acceptable temporary utility services have been provided.</div> <div>C. Explosives - The use of explosives is not permitted.</div> <div>D. Protection of Persons and Property - Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washouts and other hazards created by earthwork operations.</div> <div>PART 2 - PRODUCTS</div> <div>2.01 DEFINITIONS</div> <div>A. Standards - Satisfactory soil materials are defined as those complying with American Association of State Highway and Transportation Officials (AASHTO) M145, soil classification Groups A-1, A-2-4, A-2-5 and A-3. Unsatisfactory soil materials are those defined in AASHTO M145 Soil Classification Groups A-2-6, A-2-7, A-4, A-6 and A-7. Also listed as unsatisfactory are peat and other highly organic soils. Cohesion-less soil materials include gravel, sand gravel mixture and gravelly sands. Cohesive soil materials include clay and silty gravel, sand clay mixtures, gravel silt mixtures, clay and silty sands, sand silt mixtures, clays, silts and very fine sands.</div> <div>B. Subbase Material - Subbase material shall be properly graded mixtures of natural or crushed gravel, crushed stone, crushed slag, or natural or processed sand that will readily compact to the required density complying with AASHTO M147, Grade A, unless otherwise indicated or acceptable to the owner or engineer.</div> <div>C. Topsoil - Topsoil shall be fertile, friable organic soil, characteristic of the soils in the project area that will produce heavy growths of vegetation. Topsoil shall be capable of supporting a healthy and vigorous stand of turf (lawn) grass.</div> <div>PART 3 - EXECUTION</div> <div>3.01 EXCAVATION</div> <div>A. Excavation consists of removal and disposal of material encountered when establishing required grade elevations. Earth excavation includes removal and disposal of pavements and other obstructions visible on the ground surface, underground structures and utilities indicated to be demolished and removed, material of any classification indicated in data on subsurface conditions, and other materials encountered that are not classified as rock excavation or unauthorized excavation. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the owner or engineer. Unauthorized excavation, as well as remedial work directed by the owner or engineer, shall be at the expense of the Contractor.</div>	<div>B. Dewatering - Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area. Convey water removed from excavations and rainwater to collecting or runoff areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.</div> <div>C. Materials Storage - Stockpile satisfactory excavated materials where directed, until required for fill. Place grade and shape stockpiles for proper drainage. Locate and retain soil materials away from the edge of excavations. Cover stockpile, or provide temporary vegetative cover as may be required to comply with the Soil Erosion and Sedimentation Act. Dispose of excess soil material and waste materials as directed.</div> <div>3.03 COMPACTION</div> <div>Control soil compaction during construction providing minimum percentages of density specified for each area classification. Compact soil to not less than the following percentages of maximum dry density for soils that exhibit a well-defined moisture density relationship determined in accordance with ASTM D 1557.</div> <div>3.04 BACKFILL AND FILL</div> <div>Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below:</div> <div>A. Placement and Compaction - Place fill materials in layers not more than 1.0 foot in loose depth for material compaction by heavy construction equipment and not more than 0.5 foot in loose depth for material compacted by hand operated tampers.</div> <div>B. At Existing Trees to Remain - Remove vegetation within dripline and fill with a single layer of uncomplicated topsoil. Hand grade to attain required finish grade.</div> <div>3.05 DISTRIBUTION OF TOPSOIL</div> <div>Prior to topsoil placement, the subgrade shall be prepared to uniform levels and slope between points where elevations are shown. Abrupt changes in slope are to be rounded off. Loosen subgrade to a minimum depth of 0.4 foot. Remove stones over 1.0" in any dimension and sticks roots, rubbish and other extraneous matter. Fine rake by York Rake®, Viking Roller Blade®, or approved equal or by hand to produce a smooth even surface that conforms to the grades established on the drawings. Any irregularities shall be corrected in order to prevent the formation of depressions or water pockets. Topsoil shall be uniformly distributed to a minimum depth of 0.4 foot after firming, unless otherwise indicated. Topsoil in planting bed areas, if applicable, shall be placed to a minimum depth of 1.0 foot. Topsoil shall be spread in such a manner that finish grading, seeding or sodding, and landscape planting operations can proceed with a minimum of additional soil preparation. Place approximately 50% of the total amount of the topsoil required, work into top of loosened subgrade to create a transition layer, and then place remainder of topsoil. Topsoil shall not be placed while in a frozen or muddy condition, when the subgrade is excessively wet or in a condition that may otherwise be detrimental to proper grading. Irregularities in the surface resulting from topsoil spreading or other operations shall be corrected in order to prevent the formation of depressions or water pockets. Provide additional clean topsoil - subject to approval of the owner or engineer - as may be required to complete work. Remove any excess topsoil from the site, or distribute it and grade it as directed by engineer on site if approved by Owner.</div> <div>3.06 MAINTENANCE</div> <div>A. Protection of Graded Areas - Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and reestablish grades in settled, eroded and rutted areas to specified tolerances.</div> <div>B. Reconditioning of Compacted Areas - Where completed compacted areas are disturbed by subsequent construction operation or adverse weather, scarify surface, reshape and compact to required density prior to further construction.</div> <div>3.07 DISPOSAL OF EXCESS AND WASTE MATERIALS</div> <div>Remove excess excavated material, soil, trash, debris and waste materials and legally dispose of such off the property, except as otherwise specifically noted.</div> <div>END OF SECTION</div> <div>BASES, BALLASTS AND PAVING</div> <div>DIVISION 32 10 00</div> <div>PART 1 GENERAL</div> <div>1.01 Scope:</div> <div>A. Provide sub-base, base and bituminous paving for driveways walkway, sidewalk, and concrete pads, as indicated on the drawings, as specified herein, and as needed for a complete and proper installation.</div> <div>1.02 Referenced Standards:</div> <div>A. MDOT Standard Specifications</div> <div>PART 2 PRODUCTS</div> <div>2.01 Materials</div> <div>A. MDOT 22A Agregate (Base)</div> <div>B. MDOT Class II Granular Material (Subbase)</div> <div>C. MDOT 13A HMA (Pavement)</div> <div>D. Seed, Mulch and Fertilizer (See Seeding Section 32 92 00)</div>	<div>PROJECT NUMBER: P-190043</div> <div>ENGINEER: Timothy L. Lapham, P.E., P.S. 27595</div> <div>REVISION:</div> <div>SCALE: N/A</div> <div>DRAWN BY: S.E. Bell</div> <div>DATE: March 11, 2019</div> <div>SHEET C-21</div> <div>ENGINEERING</div> <div>PLANNING</div> <div>ENVIRONMENTAL</div> <div>SURVEYING</div> <div>ASSOCIATES</div> <div>116 South 3rd Street</div> <div>West Branch, MI 48861</div> <div>P (869) 345-5030</div> <div>F (869) 345-7302</div> <div>www.laphamassoc.com</div> <div>© 2019 COPYRIGHT, LAPHAM ASSOCIATES</div> <div>UNAUTHORIZED COPYING IS PROHIBITED.</div> <div>APPROVED USE FOR:</div> <div><input type="radio"/> PRELIMINARY</div> <div><input checked="" type="radio"/> PERMIT/BID</div> <div><input type="radio"/> CONSTRUCTION</div> <div><input type="radio"/> FINAL RECORD</div> <div>C-21</div> <div>Site Specifications</div> <div>Hamburg Manor</div> <div>For</div> <div>Hampton Manor of Hamburg</div>
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<div>PART 3 EXECUTION</div> <div>3.01 General Requirements:</div> <div><div>A. Base</div><div><div>1. Subgrade Preparation for Subbase - The subgrade shall be smoothed and trimmed to the required line, graded and cross sectioned to receive the sub base course with no topsoil, organic material, sticks, roots or other deleterious materials and shall be compacted to not less than 90 percent (90%) M.U.W.</div><div>2. Subbase Preparation for Base - the subbase shall be smoothed and trimmed to the required line, grade, and cross section to receive the base course and shall be compacted to not less than 95 percent (95%) of M.U.W.</div><div>3. The subbase thus formed shall be maintained in a smooth and compacted condition until the base course has been placed.</div><div>4. No base course shall be placed on the subbase until it has been approved in writing by the Engineer or owner.<div><div>a. Placing Base - aggregate base shall not be placed when there are indications that the mixture may become frozen before the M.U.W. is attained and in no case shall the base be placed on a frozen subbase or subgrade.</div></div></div><div>5. The subbase shall be shaped to the specified crown and grade and maintained in a smooth condition. If hauling equipment should cause ruts in the subbase, such equipment will not be permitted on the subbase but shall be operated on the aggregate base.</div><div>6. The aggregate shall be placed in uniform layers to such a depth that when compacted the course will have the thickness shown on the plans. The aggregate shall be compacted to not less than 98% of M.U.W.</div><div>7. The finished surface shall be shaped to the crown and grade within a tolerance of ¾ inch, more or less. The surface shall be continuously maintained in a smooth condition.</div><div>8. Should the subbase or aggregate base become damaged due to the Contractor's operation, the subgrade, subbase or base shall be restored to the conditions required by these specifications at the Contractor's expense.</div><div>9. If the subbase or subgrade at any time prior to acceptance of the work becomes soft or unstable to the extent that it is forced up through or prevents compaction of the aggregate, such subbase or subgrade material and aggregate shall be immediately removed and disposed of and new material shall be placed and compacted as required by these documents.</div><div>10. A certification that the base material is in compliance with MDOT Specifications for Aggregate Base under Bituminous 22A shall be furnished to the Owner prior to payment or test slips shall be provided.</div></div><div><div>B. Bituminous Paving</div><div><div>1. All materials and placement shall meet the requirements specified he MDOT Specifications, current Edition.</div><div>2. A certification that the bituminous material is in compliance with MDOT Specifications shall be furnished to the Owner prior to payment for the material.</div></div></div><div><div>C. Foundation Preparation</div><div><div>1. Before placing the bituminous mixture, the surface of the foundation shall be swept clean and all foreign material removed.</div><div>2. The finished aggregate base surface shall be shaped to the crown and grade within a tolerance of plus or minus ¾ inch, and compacted to at least 98% of M.U.W. before placing bituminous material.</div><div>3. Catch basins, manhole covers, and water valve covers shall be adjusted to the proper elevation by removing the castings and setting them to the required elevation by supporting them on a concrete collar or on masonry so constructed as to hold them firmly in place and not allow settlement around them.</div></div></div><div><div>D. Rollers</div><div><div>1. Self-propelled steel tandem rollers weighing not less than eight tons each will be required unless rollers of other types are specifically permitted. Rollers shall be equipped with wheel sprinklers and scrapers.</div></div></div><div><div>E. Placing Bituminous Paving</div><div><div>1. Bituminous mixture shall be placed with an approved mechanical paver. Bituminous material thickness shall not exceed 2-½ inches per application. Placing, rolling and other requirements or restrictions shall be governed by the MDOT Specifications, current Edition.</div><div>2. No bituminous material shall be placed without written permission from the Engineer.</div></div></div></div> <div>END OF SECTION</div> <div><div>TURF & GRASSES</div><div>SECTION 32 92 00</div></div> <div>PART 1 - GENERAL</div> <div><div>1.01 SCOPE</div><div>The extent of seeding work required for this project is shown on the drawings. The work of this section includes, but is not limited to furnishing all labor, materials, tools, incidentals, equipment and service for:</div><div><div>Seeding of all turf.</div><div>Related work as required</div></div></div> <div><div>1.03 DELIVERY, STORAGE AND HANDLING</div><div>Seed and fertilizer materials shall be in original unopened containers and shall indicate weight, analysis, germination rate, name, and date code of the manufacturer. Materials shall be stored in an orderly manner, at a location acceptable to the Engineer, in a manner to prevent wetting and/or deterioration.</div></div> <div><div>1.04 PROJECT CONDITIONS</div><div><div>A. Seed Blend - Submit proposed seed blend to the owner or Engineer for approval.</div><div>B. Seeding - Perform seeding work only after other work affecting ground surface has been completed.</div><div>C. Watering - Provide adequate hose and watering equipment as required.</div><div>D. Germination - Within thirty (30) days after seeding, it is expected that 60-80% of the seed will have germinated and grown.</div></div></div> <div><div>1.05 SITE CONDITIONS</div><div>All unsatisfactory topsoil quantities or qualities or other unsatisfactory conditions detrimental to seeding shall be reported in writing to the Engineer or Owner. Seeding shall not continue prior to correction of, or written acceptance of the encountered conditions by the Owner.</div></div> <div><div>1.06 WARRANTY</div><div>The Contractor shall provide a uniform stand of grass and shall provide watering, mowing and maintenance of all seeded areas prior to final acceptance by the Owner. The Contractor shall reseed all areas, with specified materials, which fail to provide a uniform stand of grass until the Owner accepts all affected areas.</div></div> <div>PART 2 - PRODUCTS</div> <div><div>2.01 TURF SEED</div><div><div>A. Turf Supplier: All turf seed shall be as supplied from Michigan State Seed Company, 717 Clinton St., Grand Ledge, MI (Ph. 800-647-8873) or approved alternate source.</div><div>B. Permanent cover (& Dormant Cover): shall be a consistent mixture of the following varieties for the Area Designated:</div><div><div>Grade A Mixture</div><div>Seed %/Wt. Germination</div><div>Kentucky Bluegrass (Mix.) 40% 85%</div><div>Fine Fescue 40% 85%</div></div></div></div> <div>Note: On highly erodable slopes, contractor may have to add other varieties to the seed mix such as cereal grass.</div>	<div>2.02 FERTILIZER</div> <div>Fertilizer for turf areas shall have a chemical analysis of at least 12% available nitrogen, 12% readily available phosphoric acid and 12% total available potash (12-12-12).</div> <div>2.03 HYDRO-SEED MULCH</div> <div>Nu-Wool® HydroGreen Plus™ 50/50 Hydroseeding Mulch, prepared for use in a tank of a hydro-mulching machine, as mfd by Nu-Wool, Inc., Jenison, MI, (Ph. 800-748-0128), or approved equal. Mulch shall be made from recycled paper material and be green in color. Mulch may be made from 50% virgin wood fiber and 50% recycled paper where approved by the Engineer.</div> <div>2.04 STRAW MULCH</div> <div>Mulch shall be straw or other approved organic material commonly used by the industry for the purpose of the mulching of seeded areas, and approved by the Engineer. Mulch shall be held in place with an approved seal/binder agent and Nu-Wool® HydroGreen Plus™ 50/50 Hydroseeding Mulch.</div> <div>2.05 STRAW BINDER/ SEALER</div> <div>Terra-Mulch Tacking Agent III, a water emulsified acrylic resin, Seal, as manufactured by Profile Products, Buffalo Grove, IL, (Ph. 800-508-8681), or approved equal.</div> <div>2.06 WATER</div> <div>Water shall be potable water, free of substance harmful to seed growth or other foreign mater. The Contractor shall furnish hoses and other methods of water transportation and application.</div> <div>PART 3 - EXECUTION</div> <div><div>3.01 TURF AREA SURFACE PREPARATION</div><div>Topsoil shall be fine raked to produce a smooth even surface that conforms to established grades. All stones, roots, clods 1.0" and larger in diameter, and all foreign matter shall be removed from the surface of areas to be seeded. The area shall be made smooth and uniform and parallel to the finished grade. The tops and bottoms of all slopes shall be rounded to blend into the natural ground or adjacent slopes by vertical curves. Seeded areas will be allowed a tolerance of 0.1 foot. Slope for drainage over turf areas shall have a minimum grade of 0.5%.</div></div> <div><div>3.02 TURF - HYDRO-SEEDING METHOD</div><div><div>A. This method shall be used for permanent seeding unless otherwise authorized in writing by the Engineer. The mixture of the seed, fertilizer, mulch and a tackifier used shall be as follows (2 parts water to one part mulch):<div>Grade A Seed Mixture: 4-5# /1,000 sq. ft. (175-220#/acre)</div><div>Fertilizer: 3.5# /1,000 sq. ft.</div><div>Hydro-Seed Mulch:</div><div>On slopes up to 3/1: (38) 40# bags / acre</div><div>On slopes from 3:1 to 2:1: (50) 40# bags / acre</div><div>Greater than 2:1 slopes: (62.5) 40# bags / acre. Tackifier: 20# /acre (or more based on slope and mfr's recommendations)</div></div><div>B. Slopes 2:1 and greater shall also be straw mulched after being hydroseeded. Apply straw, and then apply Terra-Mulch Seal and Nu-Wool® HydroGreen Plus™ 50/50 with a hydroseeder at the rate as recommended by mfr.</div><div>C. Protect surfaces and areas from overspray which are not indicated to be hydroseeded, including shrub bed, walks, light poles, etc. Immediately remove and clean hydroseed material from all such areas, which may accidentally have been sprayed.</div><div>D. Provide barriers as required to keep traffic off the seeded areas after they are completed. Contractor shall remove all barriers he installed when turf is established, and before acceptance by Owner.</div><div>E. For dormant cover areas, mulching must also be used on the hydro-seeded areas. The rate of application shall be 3 tons per acre of prepared seed bed.</div></div></div> <div><div>3.09 TURF - MULCHING</div><div>Spread straw at the rate of one bale per 1000 square feet (43.5 bales /acre). Straw shall be mechanically crimped, and a sealer/binder shall be applied by hydro-seeder at the rate of 30# to 1,000 gallons of water along with 150# cellulose fiber per acre.</div></div> <div><div>3.12 WATERING</div><div>To the point of acceptance, the Contractor shall be responsible for providing adequate water and application to assure the establishment of a dense, permanent turf. Provide adequate water during germination and after to continually keep the seed bed moist (without puddling).</div></div> <div>END OF SECTION</div>					<div><div>PROJECT NUMBER: P-190043</div><div>DRAWN BY: S.E. Bell</div><div>SCALE: N/A</div><div>ENGINEER: Timothy L. Lapham, P.E., P.S. 27595</div><div>DATE: March 11, 2019</div><div>SHEET C-22</div><div>REVISED: 03/29/19 per Twp Engineer's comments</div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div><div>Site Specifications</div><div>Hamburg Manor</div><div>For</div><div>Hampton Manor of Hamburg</div></div> <div><div>ENGINEERING PLANNING ENVIRONMENTAL SURVEYING</div><div><div>LAPHAM ASSOCIATES</div><div>116 South 3rd Street West Branch, MI 48661</div><div>P (989) 345-5030 F (989) 345-7302</div><div>www.laphamassoc.com</div><div>© 2019 COPYRIGHT, LAPHAM ASSOCIATES UNAUTHORIZED COPYING IS PROHIBITED.</div></div></div> <div><div>APPROVED USE FOR:</div><div><div><input type="radio"/> PRELIMINARY</div><div><input checked="" type="radio"/> PERMIT/BID</div><div><input type="radio"/> CONSTRUCTION</div><div><input type="radio"/> FINAL RECORD</div></div></div> <div>C-22</div>
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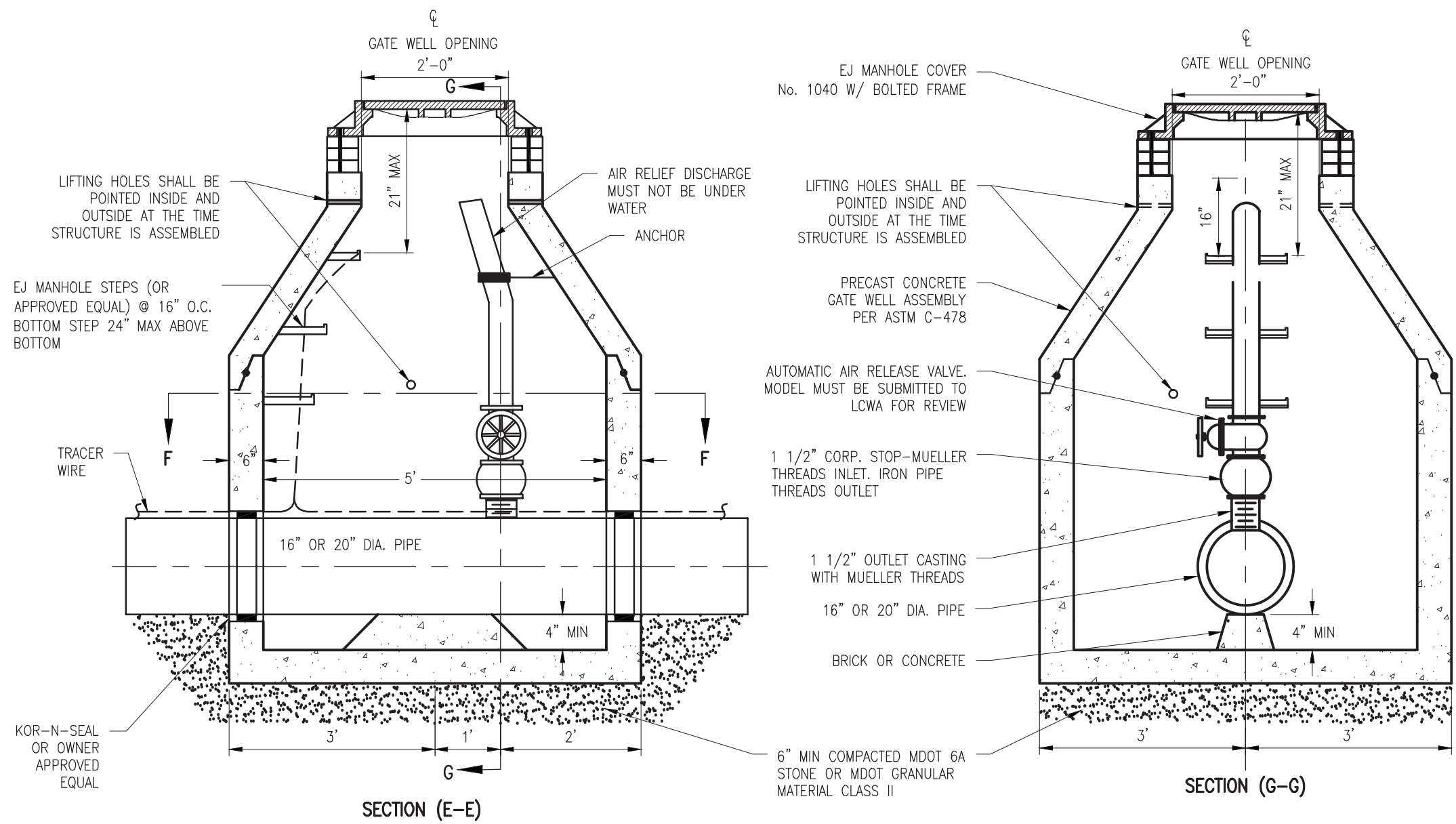


12" AND 16" GATE WELL
(A-A)

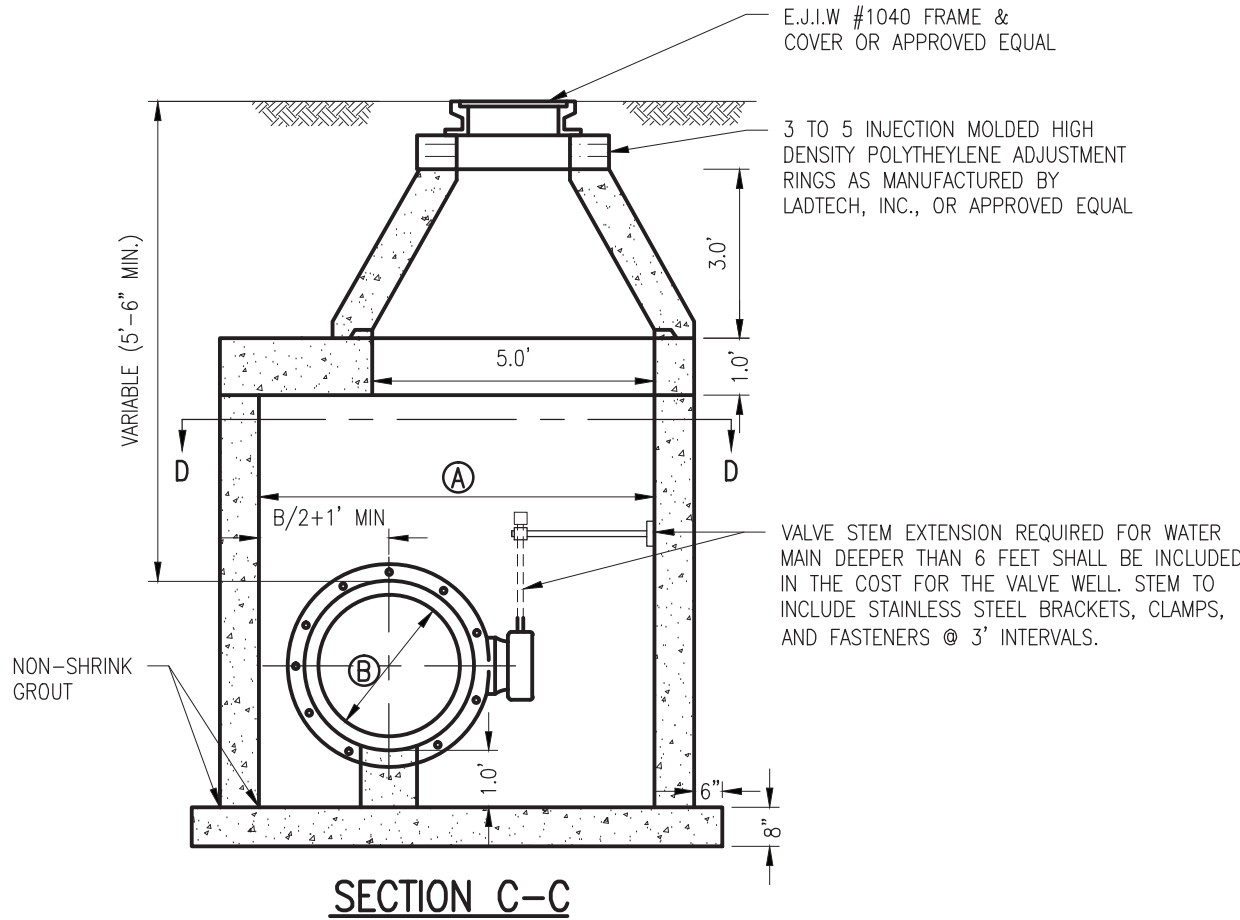


12" AND 16" GATE WELL
(PLAN VIEW, B-B)

GATE WELL SIZING CHART	
MINIMUM GATE WELL INSIDE DIAMETER	WATER MAIN DIAMETER
5"	8"-12"
6"	16"



STANDARD AIR RELEASE VALVE & WELL
FOR 16" & 20" WATER MAIN

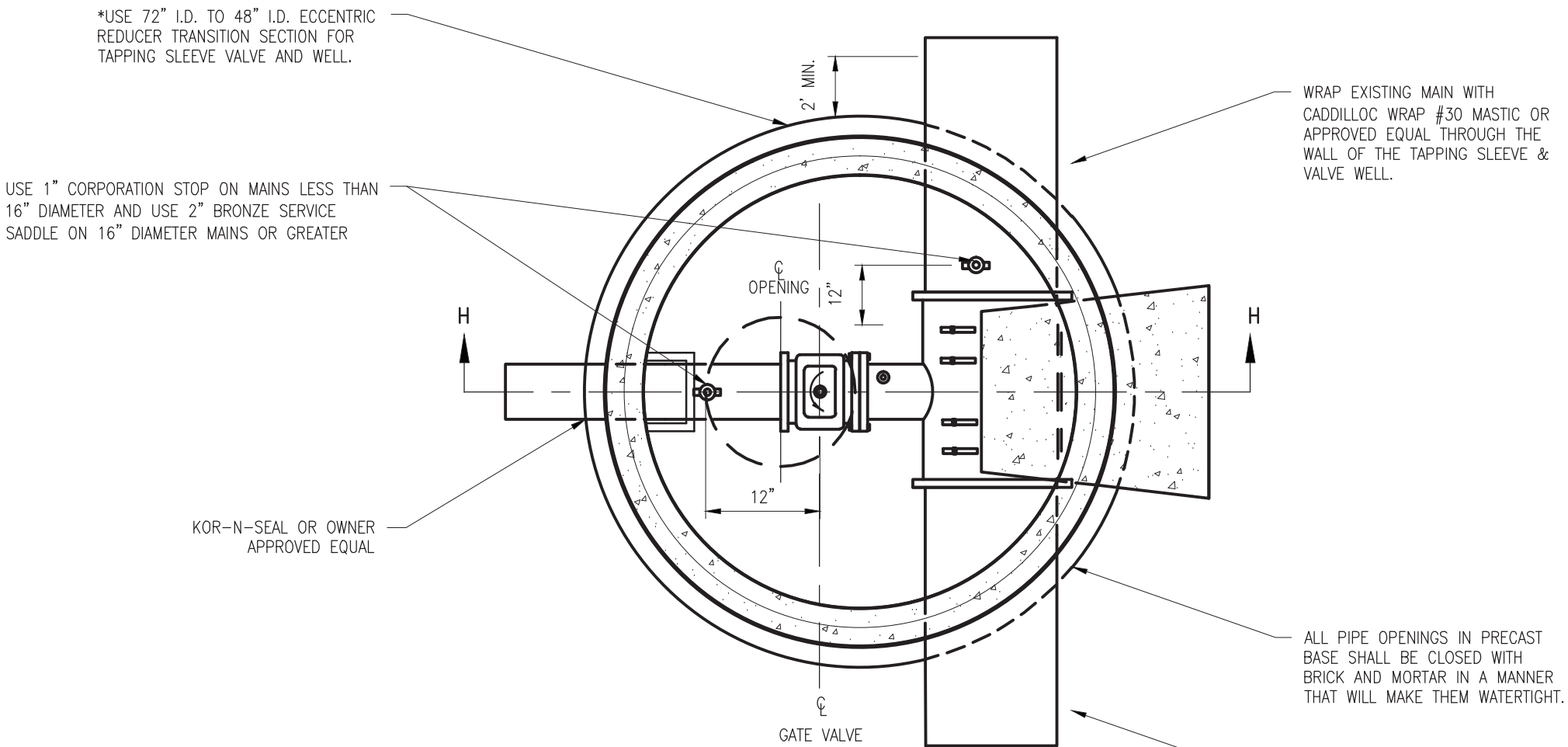
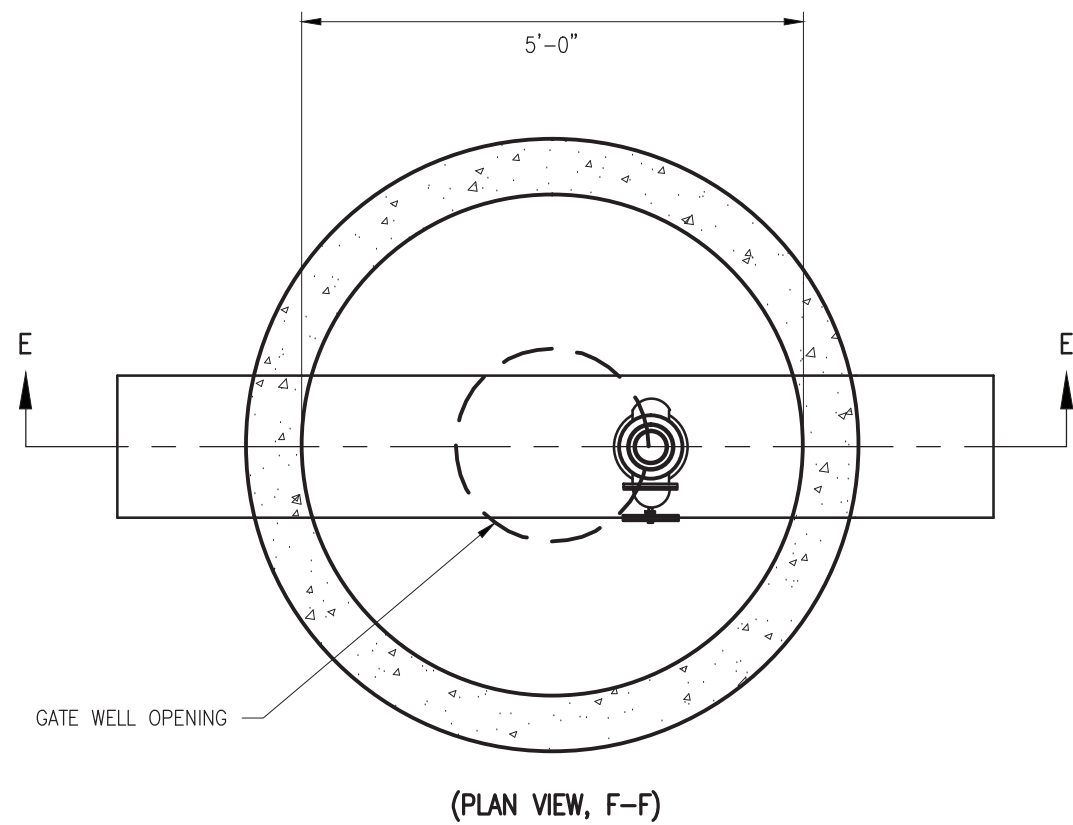


SECTION D-D

BUTTERFLY VALVE AND WELL
(CONCENTRIC)

NOTES:
ALL PRECAST SECTIONS SHALL CONFIRM TO A.S.T.M. SPEC. C-478

A	B
DIA WELL	DIA MAIN
7'-0"	20"



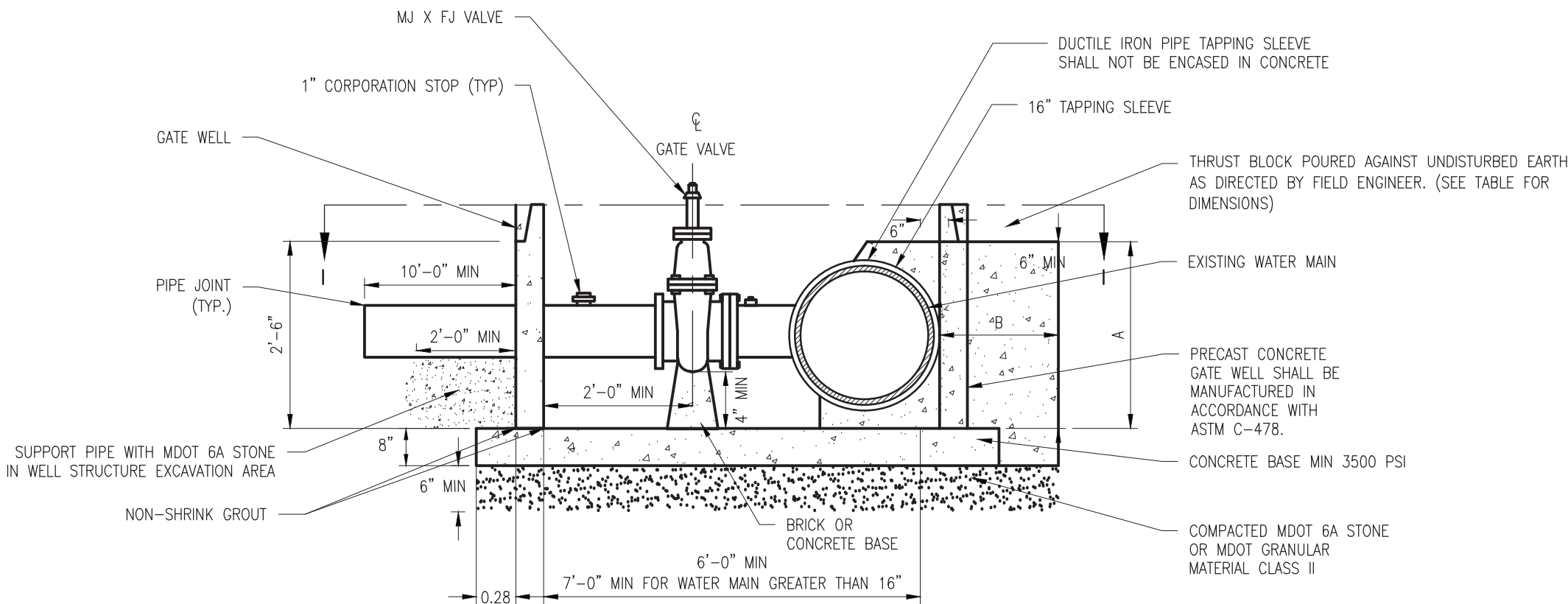
TAPPING SLEEVE VALVE & WELL TYPICAL

(PLAN VIEW, I-I)

- NOTES:
- TAPPING SLEEVES SHALL BE 304 STAINLESS STEEL; JCM INDUSTRIES 459, ROMAC INDUSTRIES SST SERIES, MUELER 304 SERIES OR APPROVED EQUAL.
 - TAPPING VALVES SHALL BE FLANGED X MECHANICAL JOINT GATE VALVES. OR PROVIDE FL X MJ ADAPTER.
 - LIKE SIZE TAPPING SLEEVES CAN ONLY BE USED WHEN THE EXISTING MAIN IS DUCTILE IRON LARGER THAN 12-INCH IN DIAMETER.
 - HDPE TAPPING SLEEVES MUST BE CERTIFIED FROM THE MANUFACTURER FOR USE ON HDPE PIPE.

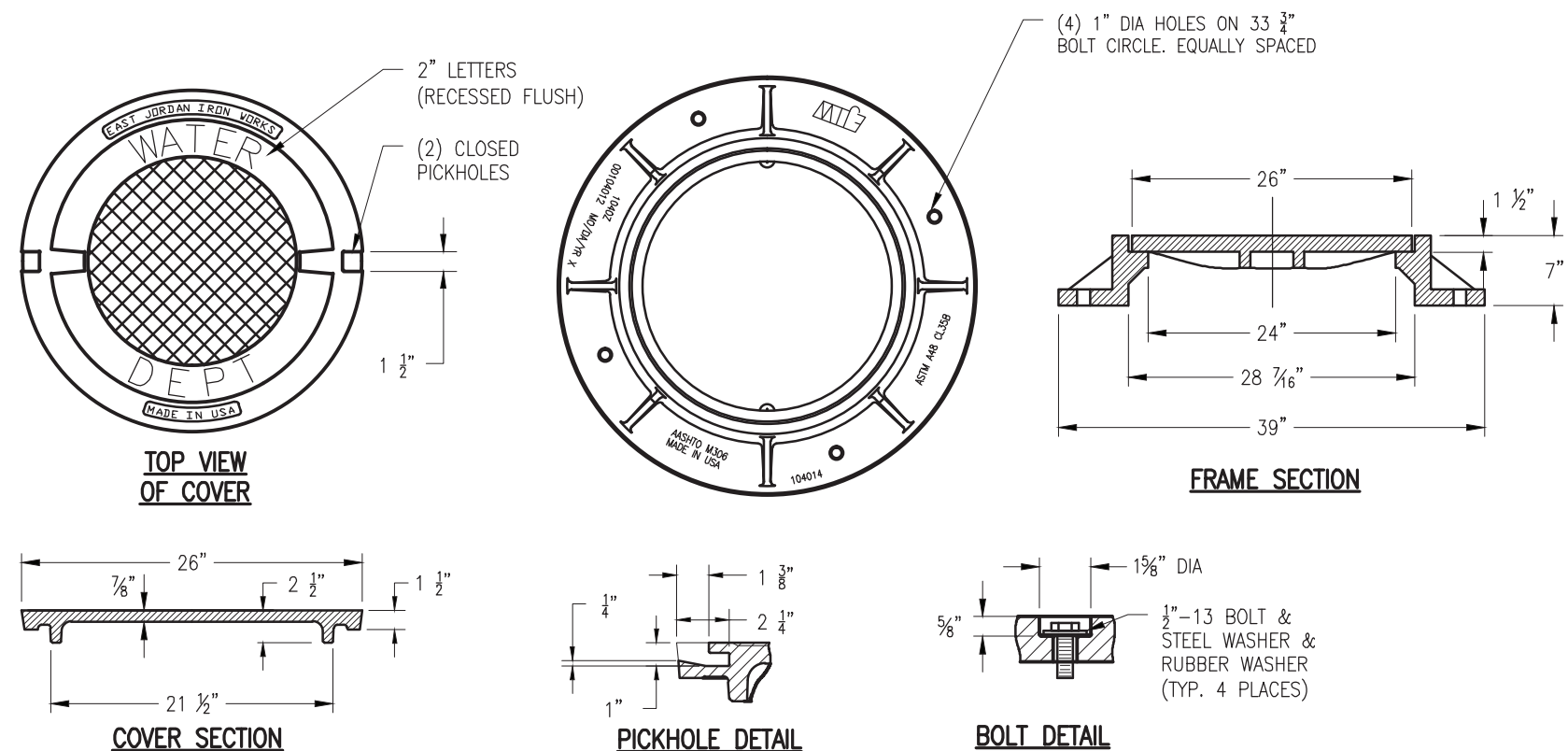
DIA		THRUST BLOCK	
D	A	B	
8"	20"	21"	
12"	20"	21"	
16"	20"	21"	
20"	410"	213"	
24"	410"	213"	

D=DIAMETER OF PIPE BEING TAPPED



DUCTILE IRON PIPE TAPPING SLEEVE, VALVE & WELL

SECTION (H-H)



GATE WELL FRAME AND COVER

NOTE:
CATALOG NO. 1040A
COVER: GRAY IRON ASTM A48 CL35B
LOAD RATING: HEAVY DUTY
COATING: DIPPED

REVISIONS

VERT DATUM

HORIZ DATUM

SCALE

CITY/VILLAGE/COMMUNITY

COUNTY

CADD

PROJ. MGR

ENG

PROJ. NUMBER

DATE

SHEET

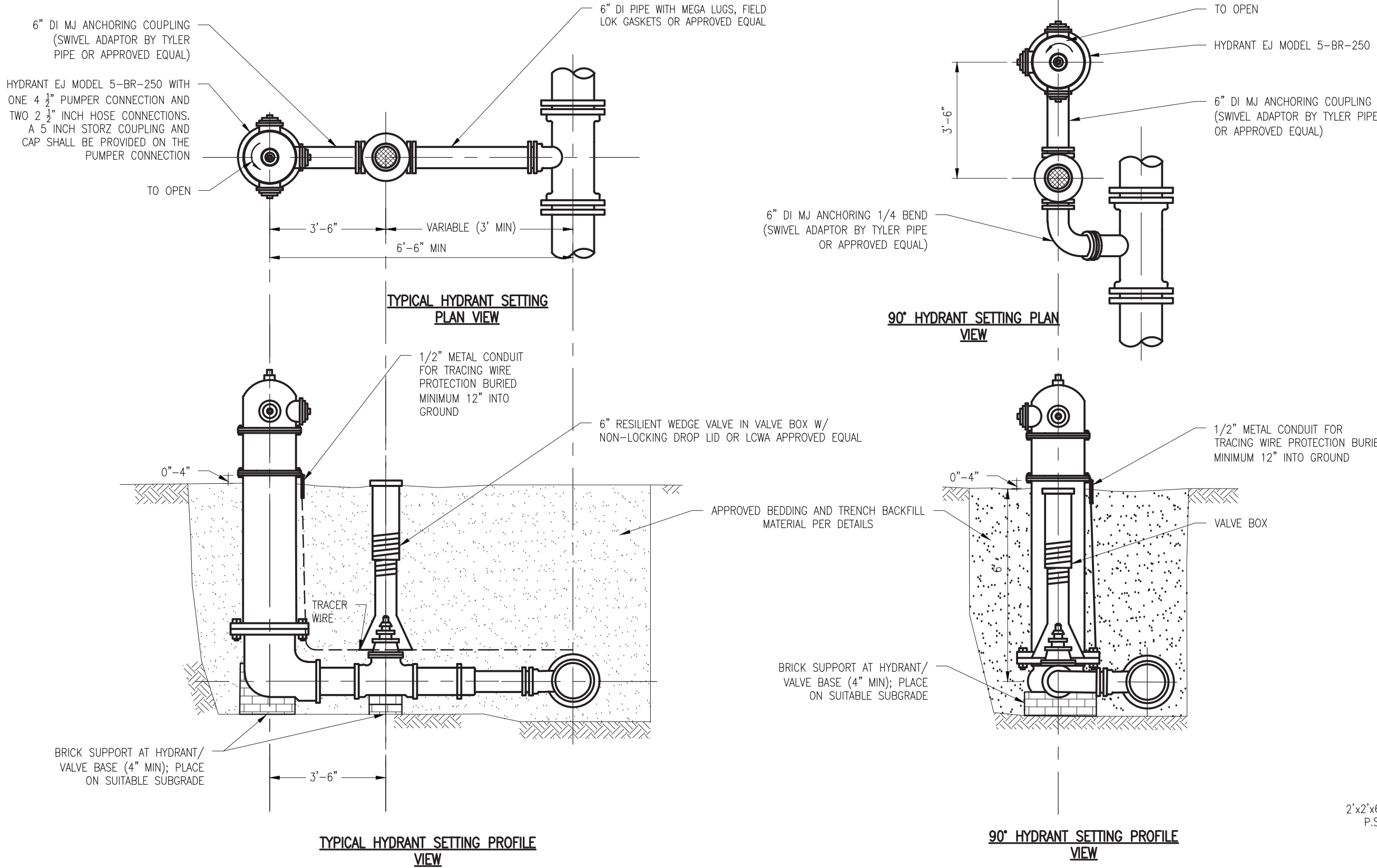
October 2018

October 2018

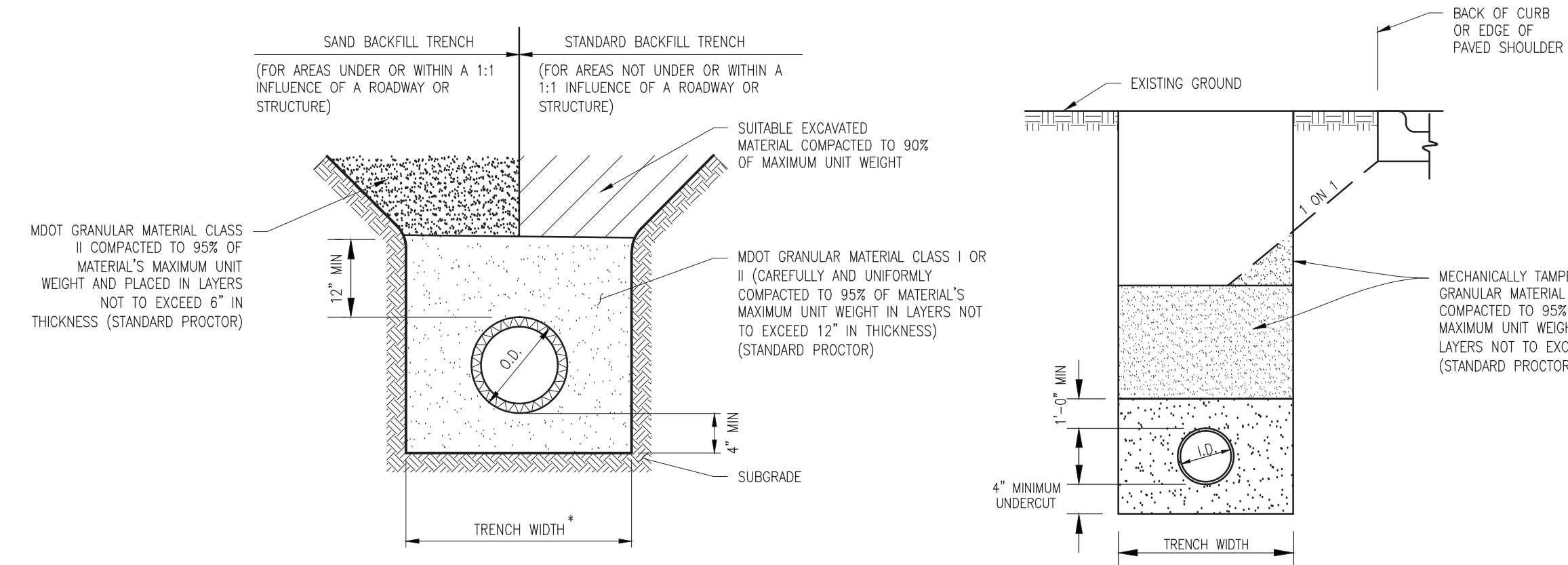
October 2018

October 2018

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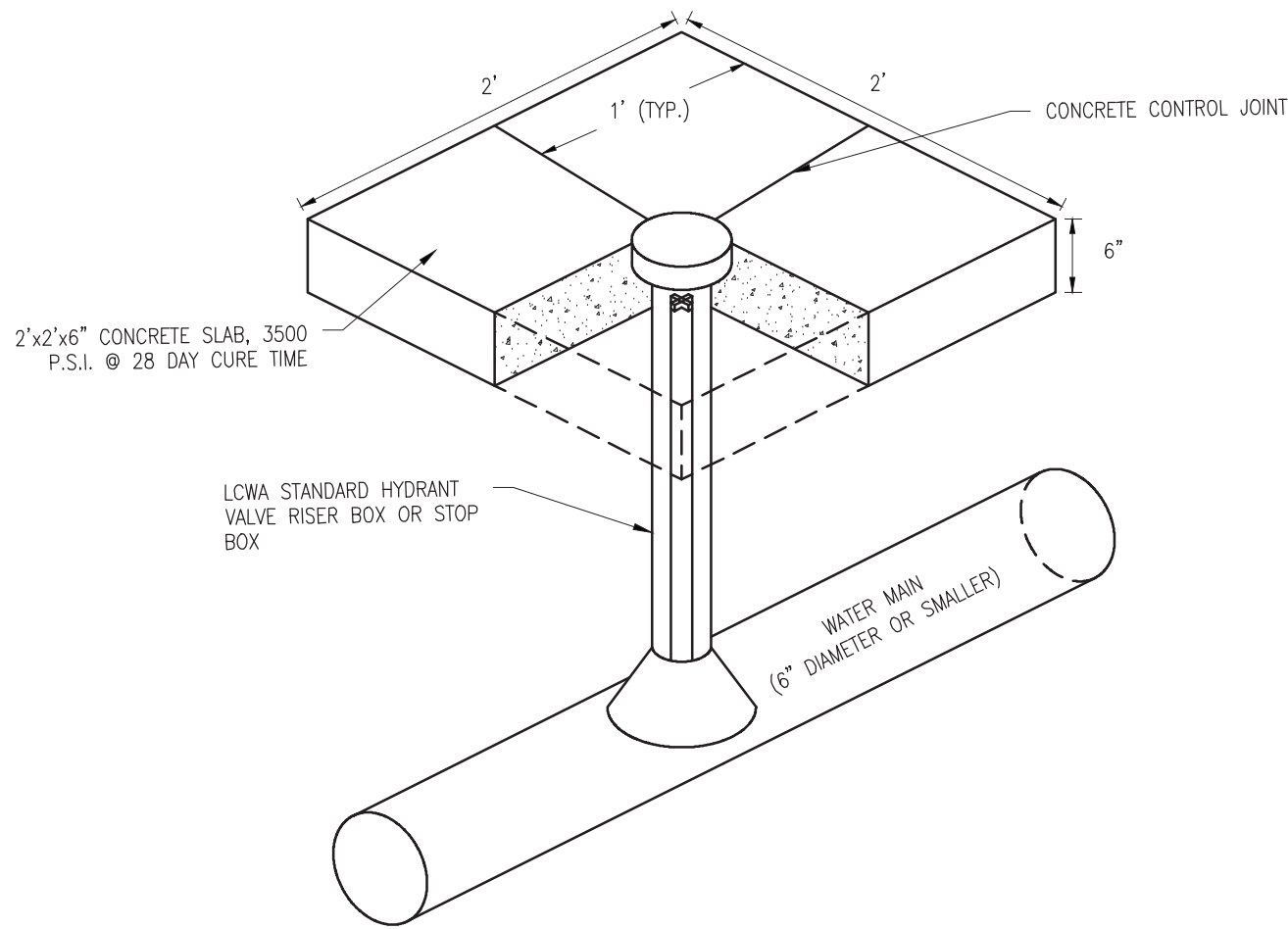
DETAIL OF HYDRANT SETTINGS



BEDDING AND TRENCH BACKFILL DETAILS

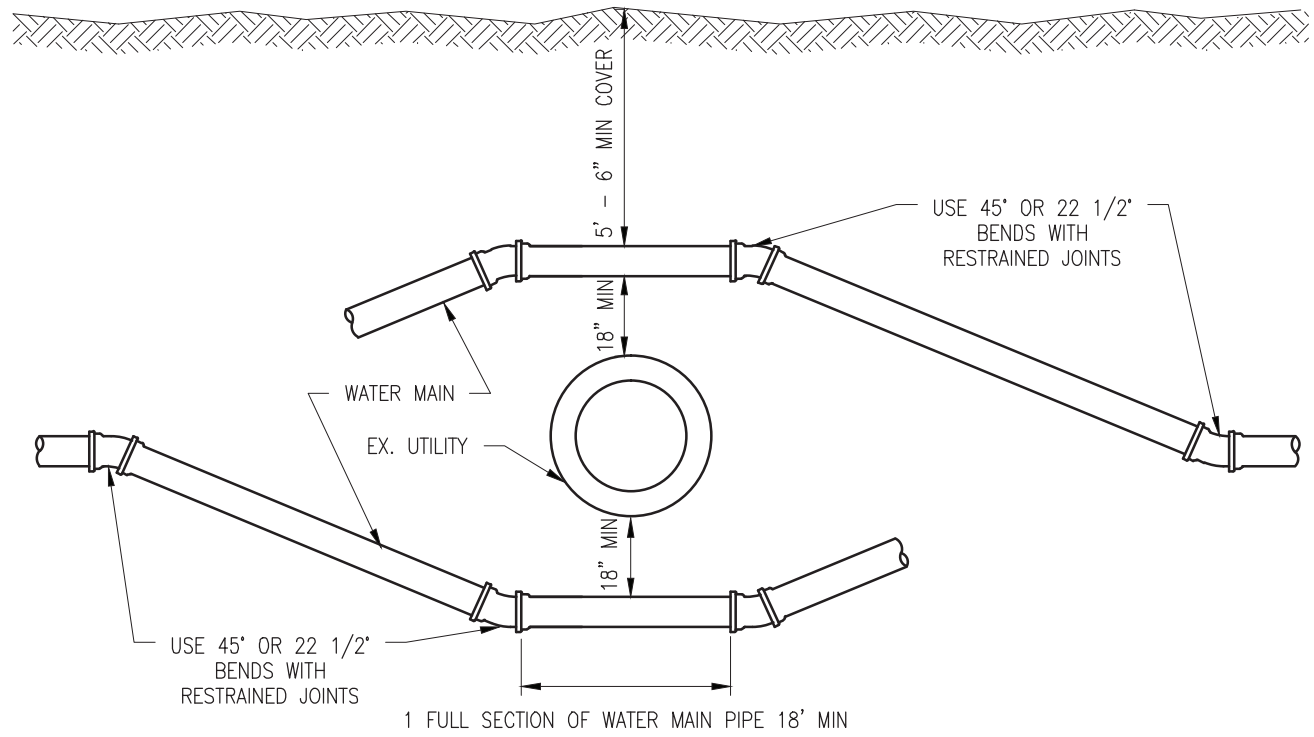
NOTES:
A. IF THE EXISTING SUBGRADE SOILS MEET THE REQUIREMENTS FOR MDOT GRANULAR MATERIAL CLASS II (MINIMUM 4" THICK), THEN THE WATER MAIN MAY BE LAID DIRECTLY ON THE COMPACTED NATIVE SUBGRADE SOILS.
B. FIELD CONDITIONS MAY REQUIRE UP TO 18" OF MDOT 6A STONE IN ORDER TO SECURE A FIRM TRENCH BOTTOM. ADDITIONAL DEPTH OF TRENCH UNDERCUT SHALL BE DIRECTED BY A GEOTECHNICAL ENGINEER AND SHALL BE REFILLED WITH 1" X 3" STONE.

MAXIMUM TRENCH WIDTHS*	
LD. PIPE SIZE	TRENCH WIDTH
UP TO 12"	30"
15" TO 36"	O.D. + 12"
42" OR LARGER	O.D. + 24"



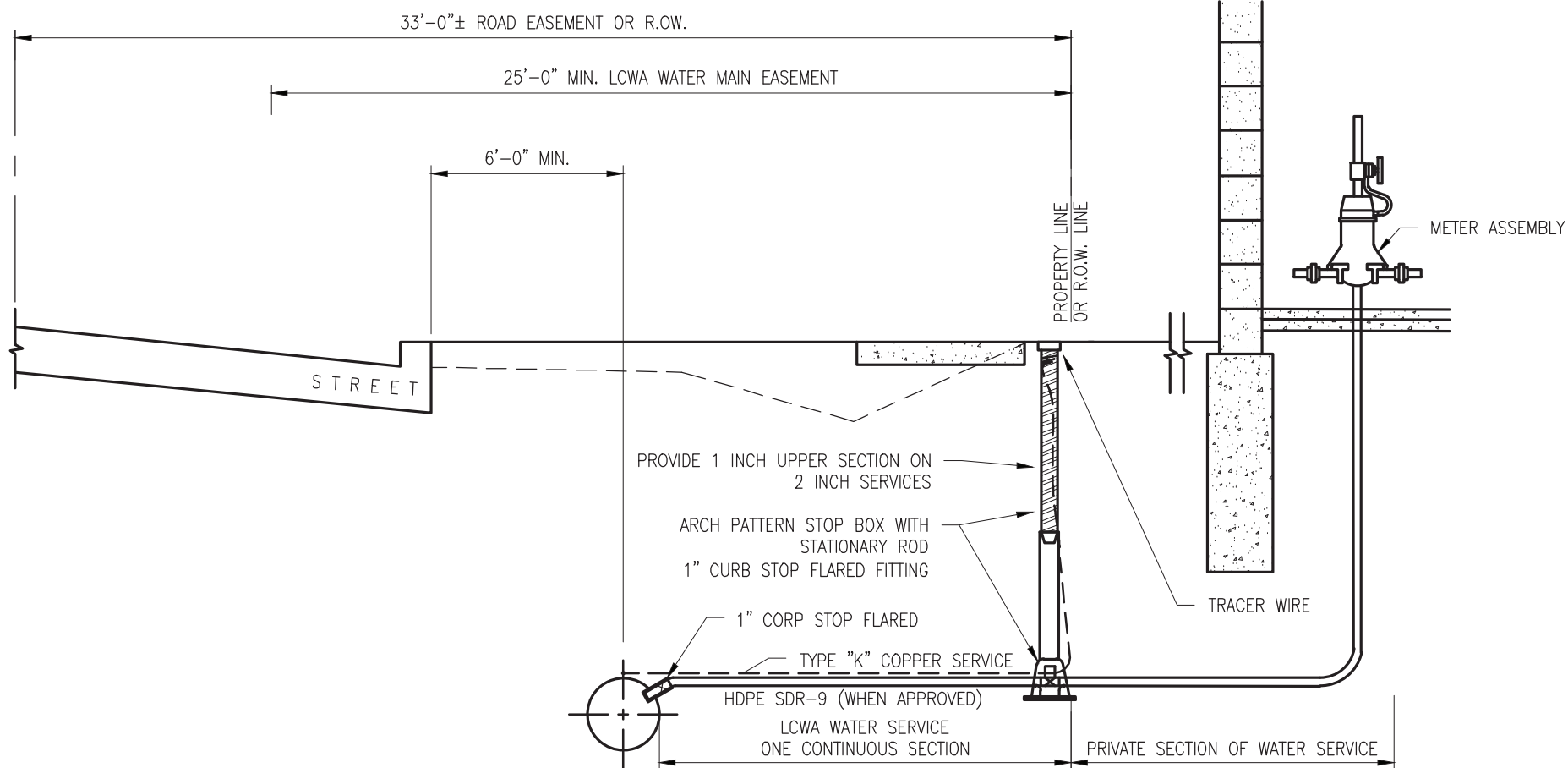
STOP BOX IN PAVEMENT DETAIL

NOTE:
WHERE WATER SERVICE CORPORATION BOX FALLS WITHIN A PAVED AREA (PARKING LOT, SERVICE DRIVE AREA, ETC.) THE STOP BOX SHALL BE PLACED IN A STANDARD HYDRANT VALVE BOX. THE VALVE BOX SHALL BE CENTERED IN A 2'x2'x6" CONCRETE SLAB. CONCRETE CONTROL JOINTS SHALL BE PLACED IN SLAB AT 1' INTERVALS.

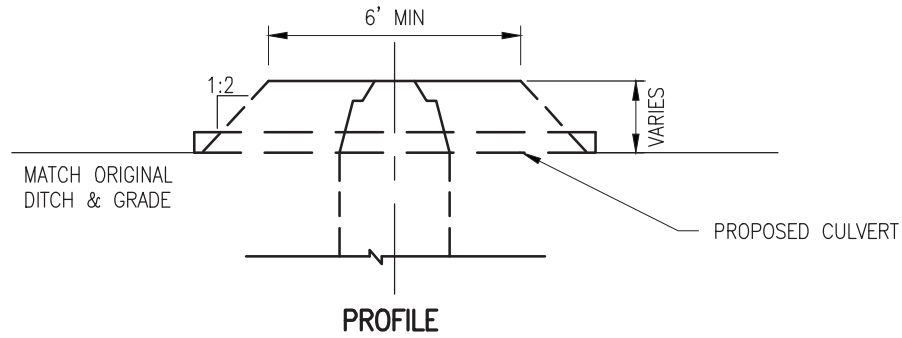
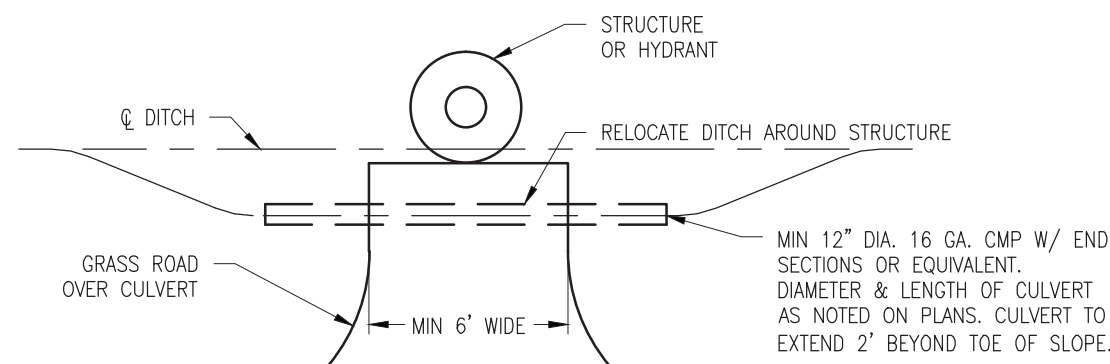


TYPICAL WATER MAIN UTILITY CROSSING

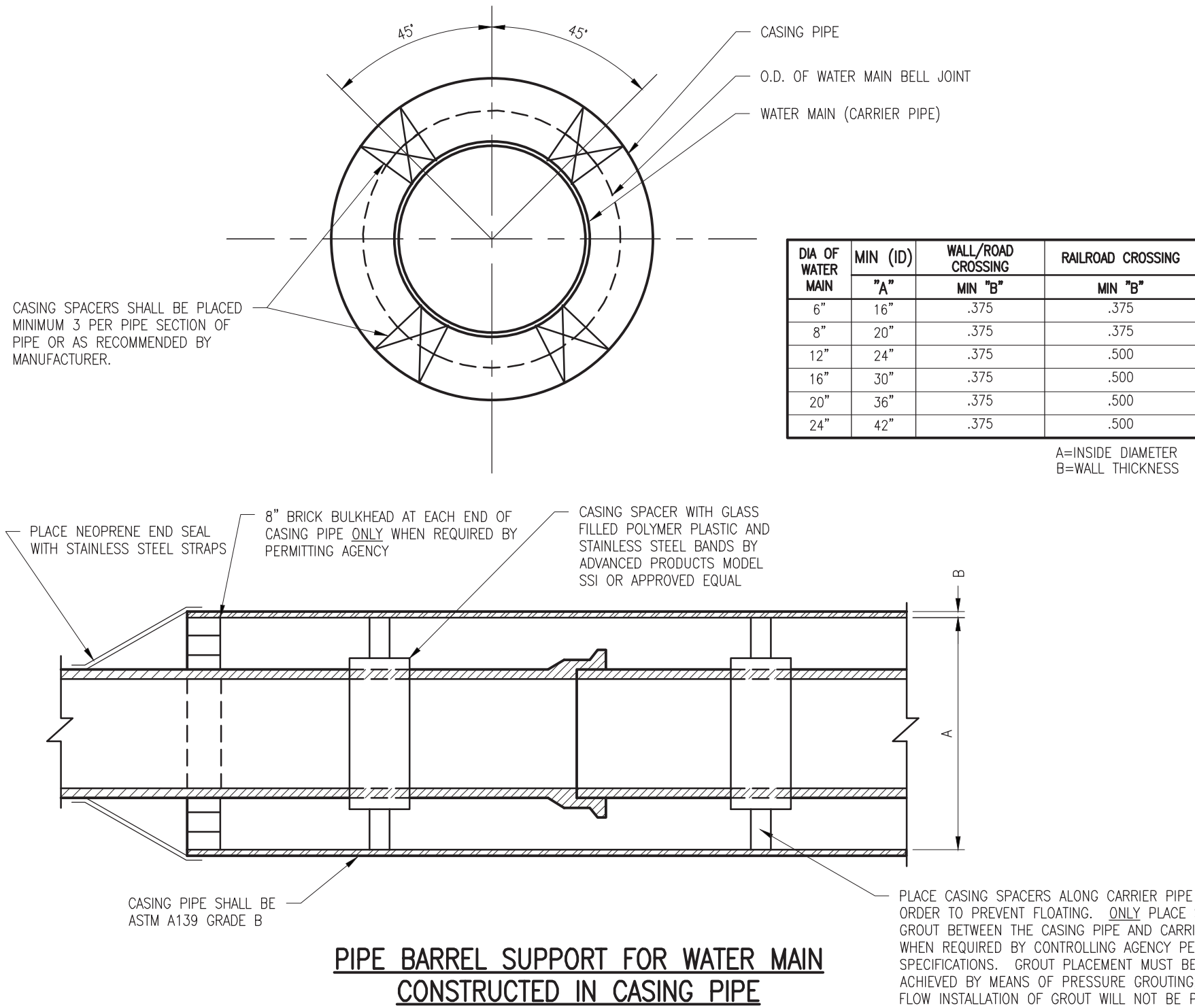
NOTE:
COMPACTED SAND BACKFILL SHALL EXTEND 9" EACH SIDE OF EXISTING PIPE, 12" ABOVE EXISTING PIPE AND SHALL SLOPE AT A ONE ON ONE SLOPE TO THE BOTTOM OF THE TRENCH OR TO FINAL TOP GRADE IF UNDER PAVEMENT.



TYPICAL 1" RESIDENTIAL SERVICE



DITCH ENCLOSURE AT GATE WELL OR HYDRANT



PIPE BARREL SUPPORT FOR WATER MAIN CONSTRUCTED IN CASING PIPE

NOTE:
THE CONTRACTOR SHALL SUBMIT IN WRITING THE DETAILS OF THE APPROPRIATE PIPE CASING INSTALLATION FOR THE REVIEW AND APPROVAL BY THE ENGINEER BEFORE INSTALLATION OF ANY CASING STARTS. ALTERNATE METHODS OF SUPPORTING AND MAINTAINING THE POSITION OF THE CARRIER PIPE WITH RESPECT TO THE CASING PIPE (SUPPORT TYPE AND SPACING) MAY BE CONSIDERED.

REVISIONS

VERT DATUM

HORIZ DATUM

SCALE

NTS

NTS

CITY/VILLAGE/COMMUNITY

LIVINGSTON

COUNTY

PR

PROJ MGR

VP

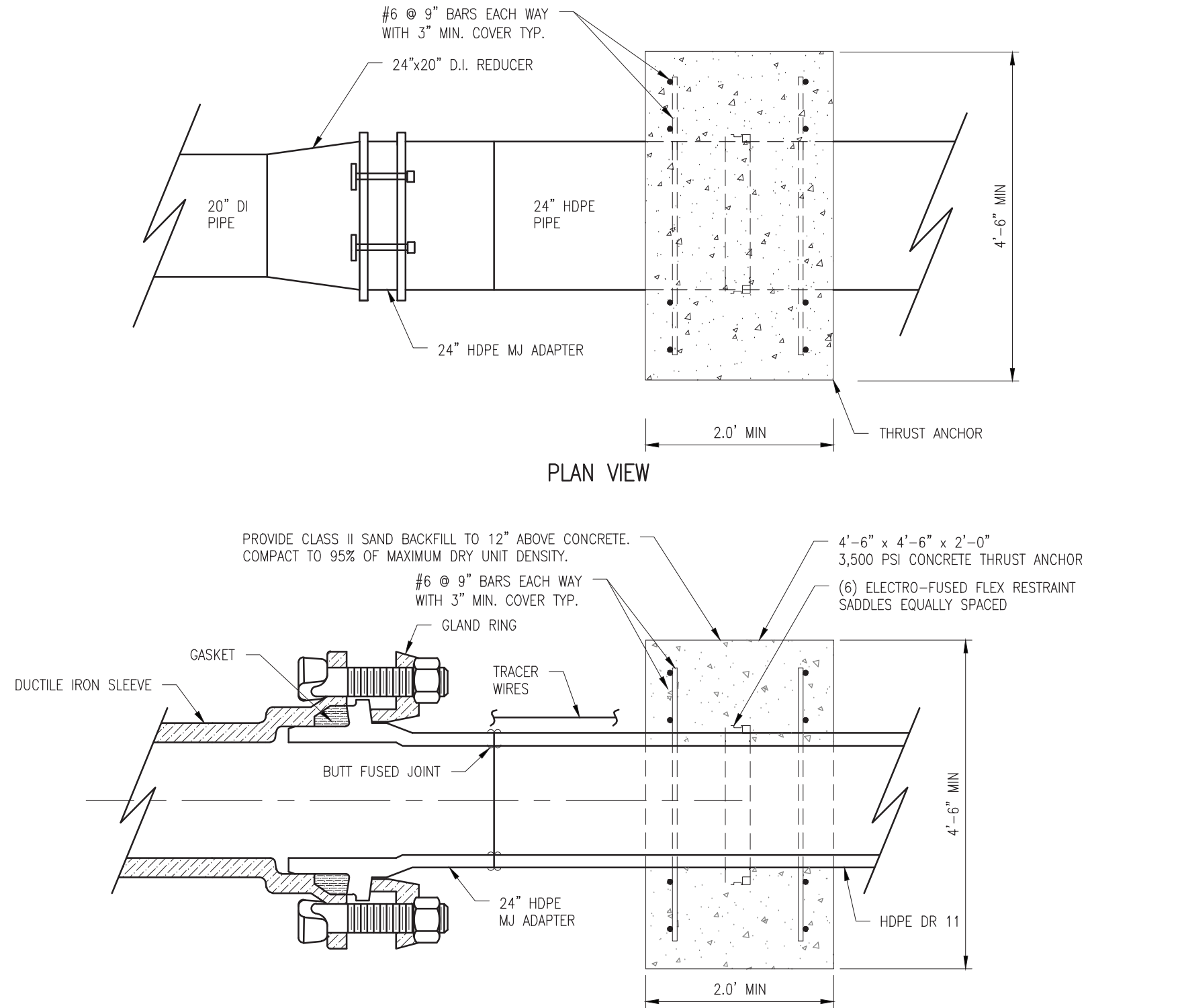
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DATE

October 2018

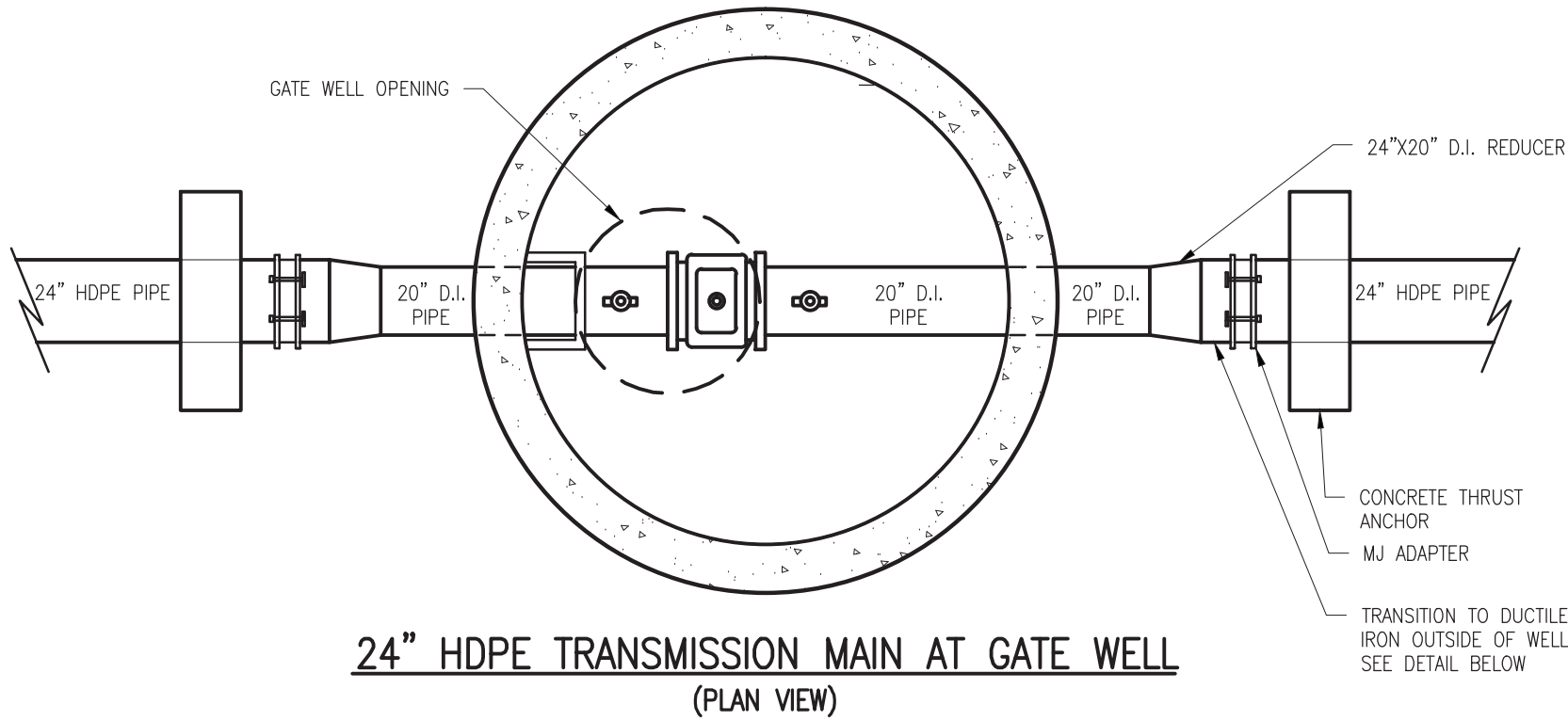
SHEET

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HDPE TO DUCTILE IRON MJ TRANSMISSION

- NOTES:
- PROVIDE 2" MINIMUM CONCRETE COVER OVER ALL REINFORCING STEEL.
 - ADEQUATE CURING TIME OR USE OF HIGH EARLY CONCRETE TO ACHIEVE THE REQUIRED 4,000 PSI STRENGTH SHALL BE PROVIDED FOR ALL THRUST ANCHORS PRIOR TO TESTING MAIN.
 - ALL CONCRETE THRUST ANCHORS MUST BE DESIGNED FOR THE SITE SPECIFIC SOIL, GROUNDWATER AND SYSTEM PRESSURE CONDITIONS. THE DESIGN ENGINEER WILL BE REQUIRED TO SUBMIT CALCULATIONS SUPPORTING THE SIZE AND REINFORCEMENT. DIMENSIONS OF THE THRUST ANCHOR SHALL BE SPECIFIED BY THE DESIGN ENGINEER AND DESIGNED BASED ON WATER MAIN PRESSURE AND SIZE AND SOIL CONDITIONS.
 - ALL HARDWARE SHALL BE STAINLESS STEEL.
 - A MINIMUM OF 48 HOURS TIME SHALL BE PROVIDED AFTER INSTALLATION IS COMPLETE PRIOR TO CONSTRUCTING AND INSTALLING THE THRUST ANCHORS TO ALLOW HDPE PIPE TO ADJUST TO GROUND TEMPERATURE.



MAIN LINE JUNCTION BOX
N.T.S.

SPLICE CONNECTOR
N.T.S.

TRACER WIRE DETAIL

GENERAL NOTES:

- All construction procedures and materials used on all water main projects shall conform to MDEQ, AWWA, and current LCWA Water System Design Standards.
- No installation of water main is to be attempted without the LCWA inspector being present. Unless otherwise specified on plans, top of all water mains shall be 5.5 ft. below existing or proposed ground.
- The design engineer shall furnish "record plan" water main plans upon job completion. Plans shall locate all water mains, hydrants and gate valves and wells.
- All required cross connection devices shall be installed as required by the local plumbing inspector and in accordance with the standards of the Michigan Department of Environmental Quality.
- Three (3) working days before you dig, dial MISS DIG at 1-800-482-7171.
- Contractor shall notify the LCWA Engineer (734-522-6711) 3 working days prior to start of construction and request an inspection of the job.
- All bolts on all flanged and mechanical joint fittings shall be domestic origin high strength, low alloy COR-BLUE steel bolts or approved equal. These bolts shall meet the current provisions of American National Standard ANSI/AWWA C111/A21.11 for rubber gasket joints for ductile iron pressure pipes and fittings. Bolt manufacturer's certifications of compliance must accompany each shipment.
- BACKFILL NOTE: Under road surfaces, pavement, sidewalk, curb, driveways and where the edge of the trench is within 3 (three) feet of the pavement or as called for on the plans, the trench depth shall be 4 (four) inches lower than the proposed water main elevation. The trench width shall be the outside diameter plus 12 (twelve) inches for pipe diameters up to 36 (thirty-six) inches (See Detail on Sheet 2). The trench shall be backfilled by placing granular material by the "controlled Density Method" or other means having approval of the engineer and compacting it to 95 (ninety-five) percent of its maximum unit weight.
- Tracing wire shall be provided for all water main, regardless of material. Connection is required at all services, hydrants, and gate well, with exposed wire above the ground surface. Conductivity shall be tested by the Contractor prior to the acceptance of the main. All splices shall be made using a gel-cap product which provides a water proof seal, such as 3M's Direct Bury Splice kit #P054007/09964; Snakebite Splice Connectors or approved equal.
- Where water main is located under pavement, the LCWA shall not be responsible for repairing pavement within the easement in the event that maintenance or repairs to the water main become necessary.
- All required cross connection devices shall be installed as required by the local plumbing code and in accordance with the standards of the Michigan Department of Environmental Quality Water Resources Division.
- The materials specified may only be substituted with an approved equal as determined by the LCWA Engineer. Written authorization must be obtained prior to ordering or installing the approved equal.

MATERIAL SUMMARY SCHEDULE

Material Schedule for Water Distribution specification section.

Item	Type	Standard	Model		
			Option A	Option B	Option C
Valves 6" to 16"	Resilient Wedge MJxMJ	AWWA C515	EJ 22000 Series	Mueller A-2361	
Valves > 16"	Butterfly	AWWA C504			
Hydrants	Traffic Model	AWWA C502	EJ 5BR-250	Approved Equal*	
Water Main 4" to 20"	Ductile Iron	AWWA C151	Ductile Iron Class 52		
Water Services	Arch Pattern Curb Boxes		Mueller Co. Model# H-10306	Ford Meter Box Co. Model # EA2 Series	
Water Services	Curb Stops (Flared Connection)	AWWA C800	Mueller Co. Model# B-252004N	Ford Meter Box Co. Copper Model # B22-444-NL, B22-666-NL, B22-777-NL, or B44-777	HDPE Ford Meter Box, # B66, or Mueller 15000 series
Water Services	Corporation Stops	AWWA C800	Mueller Model 15000N	Ford Meter Box Co. Model # F600	HDPE Ford Meter Box, # F1001, or Mueller 15000 series
Water Service Piping	Copper K	ASTM B 88			
Water Service Piping	HDPE SDR-9	ASTM D3350 NSF 14/61	ADS Polyflex		
Water Service ≥ 4"	Ductile Iron	AWWA C151	Ductile Iron Class 52		
Water Main Fittings	Mechanical	AWWA C110			
Water Main Joints	Gaskets	AWWA C111			
Water Main Tapping Sleeve	304 Stainless Steel	AWWA C228-08	Mueller H304 Series	Romac SST Series	Approved Equal*
Tracer Wire	Cooper Wire		Copperhead #1256-EHS	Approved Equal*	
Tracer Wire	Directional Drill/Pipe bursting		Copperhead SoloShotXtreme	Approved Equal*	
Tracer Wire Connections	Splicers		Copperhead Snakebite Splice Connectors	Approved Equal*	
Tracer Boxes	Junction Box		Copperhead SnakePit #CD14TP	Approved Equal*	

*Any approved equal must be submitted in writing to the LCWA engineer.

WATER MAIN NOTES:

- All water mains shall be ductile iron with a minimum of Class 52 thickness per the following specification; Ductile iron pipe shall be ANSI A21.51 (AWWA-C151) std. wall thickness, double cement lined with bituminous seal coat.
- Water main cover shall be a minimum of 5.5 feet and no more than 7.5 feet.
- MEGALUG shall be placed at all valves, bends, tees, plugs, hydrants and mechanical fittings. Surrounding joints shall be restrained using U.S. Pipe Field Lok gaskets or approved equal per the joint restraining schedule or the latest edition of DIPRA's Thrust Restraint Design for Ductile Iron Pipe.

VALVE & SLEEVE NOTES:

- Gate Valves up to 16 inch diameter shall be resilient, wedge seated gate valve with ductile iron rubber coated wedge, non-rising stem, opening Left, bronze stem and stem nut conforming with AWWA C515, Mueller, EJ, or LCWA approved equal. Valves larger than 16 inch shall be butterfly per AWWA C504.
- All gate valves with operating nuts at a distance greater than 5.0' below ground surface shall be provided with an extension stem. The length of the extension stem shall be such that it will be within 5.0' of the ground surface, when one is used. The extension stem shall be held in place by an extension stem guide securely fastened to the wall of the gate well. The extension stem shall be mechanically attached to the operating nut. Details of extension stem and method of installation shall be approved by the engineer prior to installation.
- All precast concrete gate well sections shall be manufactured to conform with ASTM C478, (latest edition), standard specification for precast reinforced concrete manhole sections, except wall thickness, shall be as shown on these details. All joints for precast concrete gate well sections shall be "Modified Grooved Tongue" with gasket manufactured to conform with ASTM C443, (latest edition), Standard specification for Joints for circular concrete sewer and culvert pipe using rubber gaskets.
- All gate well covers shall be EJ #1040A with bolted frame and have the words "WATER" in raised letters on the frame cover, or approved equal.
- Tapping sleeve shall be flanged.

HYDRANT NOTES:

- All hydrants shall be EJ 5BR 250 Traffic Model or LCWA approved equal and shall conform to AWWA Spec. C-502 as amended, and shall have a minimum 6" valve opening which closes with the water pressure. Hydrants shall be traffic style with breakable flange and coupling.
- Hydrants shall be installed with restrained joints and block/brick support. Poured concrete thrust blocks shall be placed as directed by the LCWA Engineer.
- Hydrants shall have a swivel flange to allow bonnet to be turned 360 degrees without removing the bonnet and barrel flanges shall be integrally cast with the barrel. Inlet shoe shall have a bronze valve, seat which can be removed without digging.
- Inlet connection shall be 6" mechanical joint, ASA-A21-11. Stem threads shall be sealed with double "O" rings and shall be permanently lubricated with all weather grease. Hydrants shall be equipped with removable drain plug.
- Hose Connections: Two (2) 2 1/2" hose nozzles with national standard threads, one (1) 4 1/2" pumper nozzle with a 5" Harrington Integral Hydrant Storz (HHS-EJW-50-45) or approved equal. The Hydrants shall be painted red above ground and black below, with a finish coat of Glamortex 501 enamel, color 314 vermilion, or approved equal. The 2 1/2" hydrant caps shall be painted with Glamortex 501 enamel, color bright white, or approved equal. The Storz connection shall not be painted. The center flange shall have high intensity reflective tape.

PIPE RESTRAINT SCHEDULE

Ground buried pressure pipe – Ductile Iron Pipe

PIPE DIAMETER	Dead Ends	TEES	45° BENDS	22 ½° BENDS	REDUCERS
6	60	25	25	25	30
8	75	25	25	25	35
12	110	40	35	25	40
16	140	70	40	25	60
24	200	135	50	25	60

Lengths of pipe restraint are given in feet.

If required, pipe diameter is not listed in this table; the next largest pipe shall be used. This table is based on a test pressure of 180 PSI (operating pressure plus water hammer). For other test pressures, all values to be increased or decreased proportionally. The values provided of restraint length are in each direction from the point of deflection or termination except for tees, at which only the branch in the direction of the stem. If tie rods are used, use four rods minimum and add 1/8-inch to bar diameter as corrosion allowance. Size reduction is based upon the pipe diameter shown in this table. At a minimum, the next joint past the mechanical joint fitting shall be restrained.

Based upon:

Internal Pressure:	180
Pipe Depth:	5
Bedding Class	Type 4
Soil Type:	Good Sand

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-8427
OHM-ADVISORS.COM



REVISIONS:

VERT DATUM

HORIZ DATUM

SCALE

V: NTS

H: NTS

CITY/VILLAGE/COMMUNITY

CADD

PR

PROJ/MGR

VP

ENG

PROJ NUMBER

DATE

SHEET

LIVINGSTON COMMUNITY WATER AUTHORITY

WATER MAIN STANDARD DETAILS

W3

OF 3

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Ms. Amy Steffens, Planning and Zoning Administrator
Hamburg Township, Planning and Zoning
P.O. Box 157
Hamburg, MI 48139

RE: Site Plan Review – Hampton Manor of Hamburg

Ms. Steffens,

We have received the review letter of your Engineer dated March 19, 2019 and have addressed these comments on the enclosed plans. In addition there have been several additions to the plans from your staff's comments and prior review from the Commercial PUD plan submittal. Your Engineer's comments have been addressed as follows to correspond to the letter's itemized comments on the revised attached plans:

Roadways

1. Nothing to address.
2. Nothing to address.
3. We have added a pair of curb inlets so as to not exceed the 400 feet limit. A profile of the roadway centerline was added to Sheet C-16. We have sized the relevant storm sewer to accommodate the proposed flows and the existing pipe network appears to have been sized accordingly.

Grading

4. The existing contours on the existing topographic survey sheet C-3 are labeled and there are no proposed contours shown on this plan. The proposed contours are shown on Sheets C-15 and C-16. The proposed contours have been labeled and the existing contours have been added to clarify the relationship between the two.
5. We are aware that any work offsite will require an easement. We understand that negotiations have been underway to obtain said easements but don't know that status of these negotiations.
6. Additional proposed spot elevations have been added to the two handicapped parking areas similarly to the other to help clarify the intention of the grading on Sheet C-15.

Watermain

7. The basis of design was prepared in accordance with the LCWA and the MDEQ Act 399 permit application and has been added to Sheet C-9. Also a revised MDEQ Act 399 Permit Application is being submitted.
8. Valves have been added to the plans and are shown on Sheet C-9 and C-10 as well as C-8.
9. A valve and watermain stub has been noted on the plans at the southerly end of the watermain. This can be seen on Sheet C-8 and C-10.
10. The future connection service leads for the Phase II portion have been added and shown as being extended to beyond the other side of the roadway and capped accordingly. This can be seen on Sheet C-8 and C-10.
11. The LCWA detail sheets have been added to the plans and added to the sheet index on C-1.
12. The watermain notes on Sheet C-9 and C-10 have been modified to include not only that the work shall comply with the LCWA specifications, but a note in regards to testing and disinfecting.

Sanitary Sewer

13. We believe that the commercial sanitary sewer connection permit application has been submitted. The Draft MDEQ Part 41 permit application has already been sent to your engineer and we are not aware of any comments in regards to this application.
14. The sanitary sewer manholes have been numbered. This is reflected on Sheets C-8 as well as C-11 and C-12.
15. A drop inlet is proposed at what is now Manhole #1 as shown on Sheet C-11 and detail 8 on Sheet C-13.
16. The error in the inverts indicated on the plans have been corrected on what is now shown as Manhole #3.
17. Technical specifications for the Sanitary Sewer have been added to the plans on Sheet C-12.

18. The sanitary lead for the southern independent living units (Phase II) is directly into the sanitary manhole now shown as Manhole #5.

Storm Water

19. A narrative on the storm water management plan on how the proposed system is intended to work has been added to the plans on Sheet C-17.
20. The roadway adjacent to the second basin has been raised to allow for the freeboard to not encumber the roadway. We believe that the freeboard is contained at all other locations on the plans. This is indicated on the grading plan Sheet C-15.
21. The landscaping has been relocated to be closer to the property line to keep it out of the proposed spillway channel. Channel grades have been added to Sheet C-15 and a cross section detail of the spillway and channel have been added as Details 1 and 2 on Sheet C-18.
22. The runoff coefficient calculations have been revised for the weighted coefficients used for the detention calculations on Sheet C-18. This change has a more restrictive effect than the previous calculations which were modeled off a previous Livingston County project.

Additional Permits / Authorizations

23. We are aware that there are other permits required for this project and the permits are either applied for or are underway / waiting on approvals to complete.

Sincerely yours,

LAPHAM ASSOCIATES



Scott E. Bell, AICP Project Manager

ENCL: Revised Site Plan

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Exhibit I: Color elevation

