

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION PUBLIC HEARING
NOVEMBER 13, 2017
MONDAY
6:30 P.M.
AGENDA**

CALL TO ORDER:

PLEDGE OF ALLEGIANCE:

APPROVAL OF AGENDA:

CALL TO THE PUBLIC: *(Note: The Board reserves the right to not begin new business after 10:00 p.m.)*

OLD BUSINESS:

OPEN PUBLIC HEARING #1... (Tabled 9-11-17) Review of a request to amend conditions of previously approved special land use and site plan for the Brighton Church of the Nazarene located at 7669 Brighton Road, Brighton. The request is petitioned by Brighton Church of the Nazarene.

Planning Commission Recommendation of Petition:

- A. Recommendation of amendment to special land use and site plan conditions.

OPEN PUBLIC HEARING #2... (Tabled 10-10-17) Review of a special use application, site plan application, environmental impact assessment and site plan for a proposed K-12 Livingston Christian School to be located within the Brighton Church of the Nazarene at 7669 Brighton Road, Brighton. The request is petitioned by Livingston Christian Schools.

Planning Commission Recommendation of Petition:

- A. Recommendation of Special Use Application.
- B. Recommendation of Environmental Impact Assessment.
- C. Recommendation of Site Plan.

NEW BUSINESS:

OPEN PUBLIC HEARING #3... Review of a special use application, site plan application, environmental impact assessment and site plan for proposed outdoor storage and parking lot improvements location at 5818 Sterling Drive, Howell. The request is petitioned by Dennis Cregar.

Planning Commission Recommendation of Petition:

- A. Recommendation of Special Use Application.
- B. Recommendation of Environmental Impact Assessment.
- C. Recommendation of Site Plan.

OPEN PUBLIC HEARING #4... Review of site plan application, environmental impact assessment and site plan for a proposed multi-use athletic field with storage building and concessions building with parking lot expansion at 3750 Cleary Drive. The request is within the Cleary University Planned Unit Development and is petitioned by Cleary University.

Planning Commission Recommendation of Petition:

- A. Recommendation of Environmental Impact Assessment.
- B. Recommendation of Site Plan.

OPEN PUBLIC HEARING #5... Consideration of Zoning Ordinance Text amendments to Article 7 of the Zoning Ordinance, entitled “Commercial and Service Districts”, Table 7.02 and Section 7.02.02 is proposed to be amended to revise multiple conditions and to add standards related to “Dog Daycare Centers” and “Veterinary Clinics”. The request is petitioned by Genoa Charter Township.

Planning Commission Recommendation of Petition:

- A. Recommendation of Zoning Ordinance Text Amendment.

ADMINISTRATIVE BUSINESS:

- *Staff Report*
- *Approval of October 10, 2017 Planning Commission meeting minutes*
- *Member discussion*
- *Adjournment*



GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Brighton Church of the Nazarene
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Ben D. Walls 495 Lillyview Ct, Howell

SITE ADDRESS: 7669 Brighton Rd. PARCEL #(s): _____

APPLICANT PHONE: (810) 227-6600 OWNER PHONE: (810) 599-0941

OWNER EMAIL: pastorben@thenaz.org

LOCATION AND BRIEF DESCRIPTION OF SITE: _____

Eastern boundary between Brighton Church of the Nazarene
and Worden Lake Woods Subdivision.

BRIEF STATEMENT OF PROPOSED USE: See Attachments 1-

THE FOLLOWING BUILDINGS ARE PROPOSED: _____

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: Jim Burgin

ADDRESS: 12277 Birchcrest Dr, Milford, MI 48380

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1.) Jim Burgess of Brighton Nazarene Church jim@thenaz.org
Name Business Affiliation E-mail Address

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE: Ben D. Walls DATE: 7-18-17
PRINT NAME: Ben D. walls PHONE: 810-227-6600
ADDRESS: ~~pastor@thenaz.org~~ 7669 Brighton Rd. Brighton, MI 48116

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
September 11, 2017
6:30 P.M.
MINUTES**

CALL TO ORDER: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present were Chairman Doug Brown, Eric Rauch, John McManus, Chris Grajek, James Mortensen and Jill Rickard. Absent was Barbara Figurski. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Brian Borden from LSL Planning and an audience of 10.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited. There was also a moment of silence in remembrance of the terrorist attacks of September 11, 2001.

APPROVAL OF AGENDA:

Moved by McManus, seconded by Mortensen, to approve the agenda as presented.

CALL TO THE PUBLIC: The call to the public was made at 6:33 pm with no response.

OPEN PUBLIC HEARING #1... Review of a request to amend conditions of a previously-approved Special Land Use and Site Plan for the Brighton Church of the Nazarene located at 7669 Brighton Road, Brighton. The request is petitioned by Brighton Church of the Nazarene.

Planning Commission disposition of petition:

A. Recommendation of amendment to Special Lane Use and Site Plan Conditions

Pastor Ben Wallace, Jim Burgos, and Josh Latson were present.

Pastor Wallace stated they are asking for a revised plan for the trees. They are aware that the trees put in by the contractor have died. As part of their previous approval, they were required to maintain the trees. An arborist came out and determined that they were planted too close together and are fighting for nutrients. There is also a disease in the soil affecting the blue spruces. The trees need to be thinned out and a 15-foot perimeter needs to be around each one. They would like to take out the dead trees and put in new ones, within the parameters of the 15 feet. Because of the security issues, it was suggested by the Planning Commission to put up a fence. They have done this to prevent kids from the skate park cutting through the trees and into the adjacent neighborhood.

They would like to amend the landscape design plan requirements. They will be removing 16 trees and planting 5 new trees and ask that the neighbors on the residential street adjacent to their church maintain the trees on their properties.

Additionally, since the fence has been put up, there have not been any incidences reported of kids cutting through the trees and climbing the fence. Therefore, they would also like to remove the requirement of having a security guard on site when the skate park is open.

Commissioner Mortensen noted that some of the area in question does not belong to the church or the association. It is Right-of-Way along a Livingston County road. He believes the church should only be responsible for the trees on their property and the homeowner's association should be responsible for any trees that are located in the ROW.

There was a brief discussion regarding the maintenance of all of the trees in this area. It was a condition of a previous approval that the church would maintain all of the trees in this tree line. Mr. Burgos stated they have spent \$50,000 to maintain it. At this point, they would like to remove any trees that are dead, even if they are not on their property, and restore the area to level so that the homeowners have something manageable to maintain going forward.

Mr. Borden reviewed his letter of September 6, 2017.

Because this is not a minor amendment to a previously-approved plan, it must be approved by the Township Board. The Planning Commission will only be making a recommendation this evening.

- He requested a report of the condition of the trees that are said to be dead or dying as well as what is being proposed to be planted. The applicant submitted this report to Mr. Borden and the Planning Commission this evening.
- The applicant should also provide a more detailed amended landscape plan, such as when a formal site plan is submitted. He would like the Planning Commission and residents to know exactly what to expect.
- He believes that the applicant has provided the rationale as to why they should no longer be required to maintain the trees that are not on their property as well as why a security guard is no longer needed. The decision to agree to amend these conditions of the previous approval would ultimately be decided by the Planning Commission and the Township Board.

Commissioner McManus agrees with Mr. Borden. If he was a resident on the adjacent street, he would like to have a detail of what is being taken out, what is being put in, and what he would be required to maintain.

Commissioner Rauch stated that the Livingston County Road Commission should have input as to the removing and planting of trees.

Chairman Brown suggested the church and the residents meet to come to an agreement as to what will be done along the tree line. Commissioner Mortensen agrees; and the meeting should include a landscape architect. He believes this is an issue between the church and the homeowners.

Commissioner Rickard asked staff if these trees were planted by the developer as part of the site plan approval. Ms. VanMarter has researched this and there were no requirements placed on the developer by the Township to plant these trees.

Commissioner Rickard would like to see a landscape plan as suggested by Mr. Borden.

The Call to the Public was made at 7:21 pm.

Mr. Jay Johnston of 4931 Aljoann stated that one of the homeowners' concerns is that as part of previous approvals for expansions for the church, they were required to maintain the trees and they did not do this. They did not care for the trees when they were dying. He stated that a previous arborist suggested that 46 trees be removed and a mixture of deciduous and pine trees should be planted. He and other homeowners feel that there are an additional 11 trees that will need to be removed in the next few years.

The fence has been an improvement. He does not agree that removing 16 trees and planting 5 new trees will be sufficient.

Chairman Brown asked Mr. Johnston if he would be agreeable to meeting with representatives of the church to come to an agreement on a landscape plan that can be presented to the Planning Commission and Township Board. Mr. Johnston stated he has spoken to them; however, he is willing to meet again.

Commissioner Rickard understands that these trees are not all on the church's property; however, at this time, per the condition of the previous approvals, they are required to maintain the entire tree line.

Ms. Sandy Stogdill of 4793 Aljoann stated that different landscapers have had different opinions regarding these trees so they may have a different opinion than what was put in Leppek's report and presented to the Township.

Rob Stogdill of 4793 Aljoann does not feel that a security guard is needed at this time; however, he would like to keep it open for discussion if incidents do occur.

The call to the public was closed at 7:32 pm.

Commissioner Grajek stated that not all of the conditions put on the previous approvals regarding these trees have been met. He thinks this is an opportunity to make this right.

Moved by Commissioner Mortensen, seconded by Commissioner Grajek, to table the request from the Church of the Nazarene to amend the Special Land Use and Site Plan Conditions.

The motion carried unanimously.

Administrative Business:



November 6, 2017

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Brighton Church of the Nazarene – Site Plan Amendment (Review #2)
Location:	7669 Brighton Road – northwest corner of Brighton and Aljoann Roads
Zoning:	SR Suburban Residential

Dear Commissioners:

At the Township’s request, we have reviewed Brighton Church of the Nazarene’s application to amend their approved site plan (revised request letter dated 10/25/17).

We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance.

A. Summary

1. The proposal to alter conditions attached to previous approvals can only be done by the body who attached the conditions – in this instance, the Township Board.
2. The proposed deciduous tree plantings are slightly smaller (1.5-2” caliper) than the minimum Ordinance standard (2.5” caliper).

B. Proposal

The applicant requests review and approval of an amendment to an approved site plan. The proposal includes:

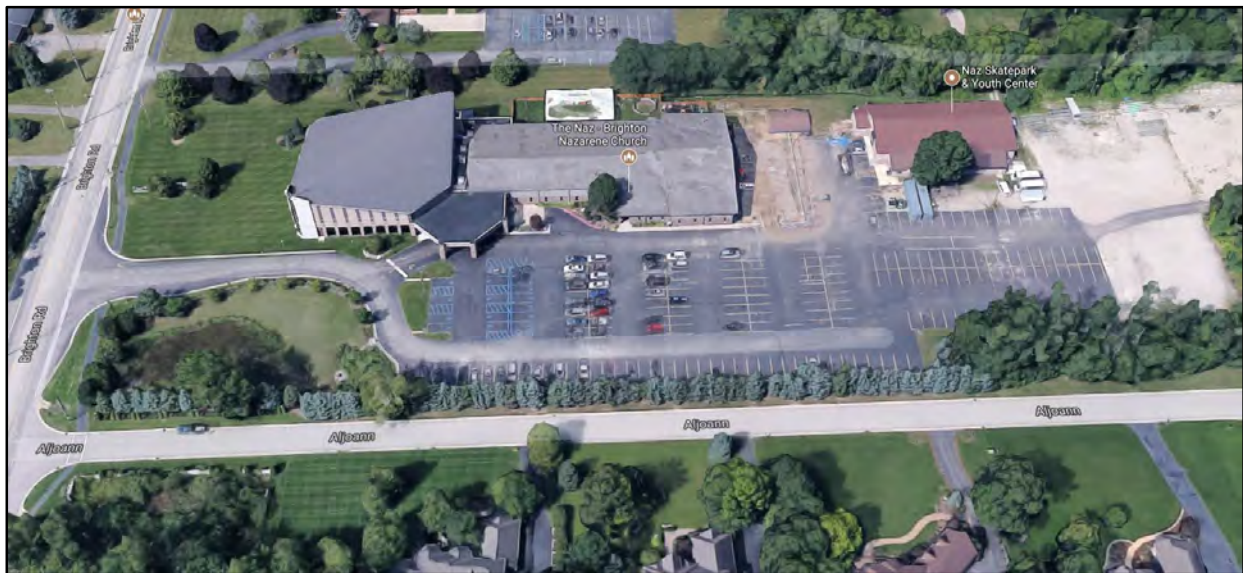
- An amendment to the approved landscape plan with a net reduction of 19 trees within the easterly buffer zone (39 to be removed; 20 new to be planted);
- A request to change the requirement regarding maintenance responsibility for the easterly tree line from the church to the neighborhood association; and
- A request to remove the requirement to have a security guard for the skate park.

Per Section 18.10 of the Zoning Ordinance, the proposed site plan amendment does not qualify as “minor” amendment; therefore, the modification is subject to Planning Commission review and approval.

However, since the Township Board originally held the approval authority for conditions of special use and site plan approval (2003 and 2013), we are of the opinion that the modification of conditions such as church maintenance of the easterly tree line and a security guard at the skate park warrants review/action by the same body. The Planning Commission should still make a recommendation on these matters, following the original procedure.

C. Review

The site plan’s primary proposed change is the landscape plan for the easterly buffer zone area. As noted above, the proposal entails a net reduction of 19 trees within this area. In the time since the last plan was approved, the applicant has also installed 6-foot tall privacy fencing in this area.



Aerial view of site and surroundings (looking west)

The initial submittal included a report from a Certified Arborist indicating that many of the trees between the church and neighborhood are diseased and in poor condition. The revised letter of request notes that 39 trees have already been removed and that all were dead, dying or diseased.

The revised submittal also includes a landscape plan (dated 10/21/17) showing 7 new deciduous trees and 13 new evergreen trees in place of those removed, as well as their proximity to existing trees that remain.

Our only comment is that the size noted for the deciduous trees (1.5-2" caliper) is smaller than the minimum Ordinance standard (2.5" caliper). The applicant needs to increase the size of the proposed deciduous trees.

With respect to the request to remove previously established conditions, the Commission should evaluate each with respect to the initial intent and any change in conditions since the requirements were established. In our opinion, both conditions were likely intended to address concerns raised over protection of the adjacent residential properties as part of the special land use review(s).

The revised submittal indicates that the applicant and representatives from the Homeowner's Association have met and agreed upon the proposed landscape plan. The applicant also states they "hope to have full HOA approval for the takeover of the maintenance of the tree line once the Township releases the church from this requirement."

Regarding the requirement for a security guard, the applicant notes the presence of the privacy fencing, installation of outdoor security cameras and use of trained staff as its rationale. Furthermore, as was discussed at the previous meeting, there appear to have been no security issues tied to the skate park.

Should you have any questions concerning this matter, please do not hesitate to contact our office. I can be reached by phone at (248) 586-0505, or via e-mail at borden@lsplanning.com.

Respectfully,
LSL PLANNING, A SAFE BUILT COMPANY

B. V. Borden
Brian V. Borden, AICP
Planning Manager

Request to Amend the Approved Site Plan

(Revised 10/25/2017)

(original application dated 7/18/2017)

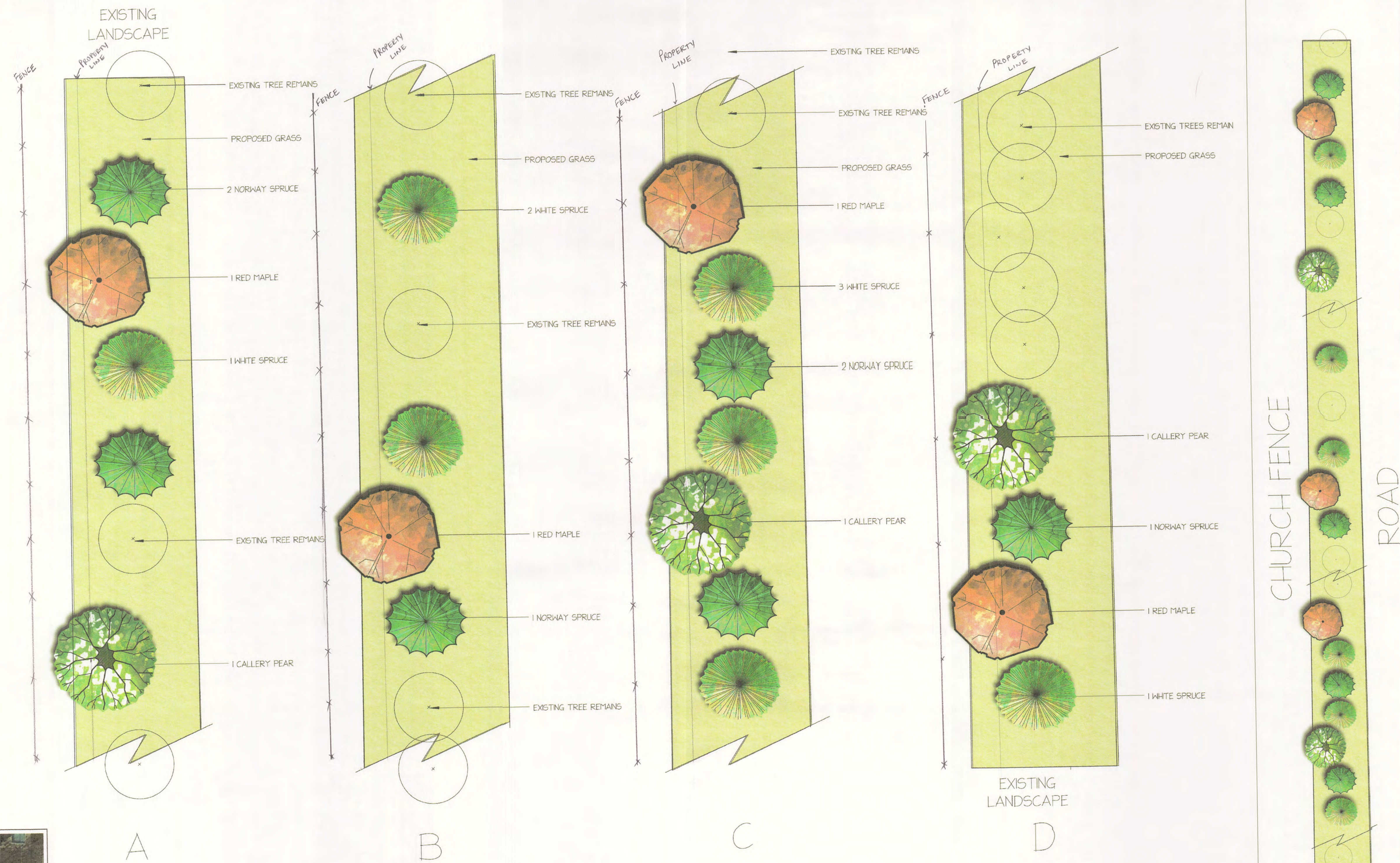
Revised in response to comments received at the Planning Commission Meeting on 9/11/2017

The purpose of this application is to:

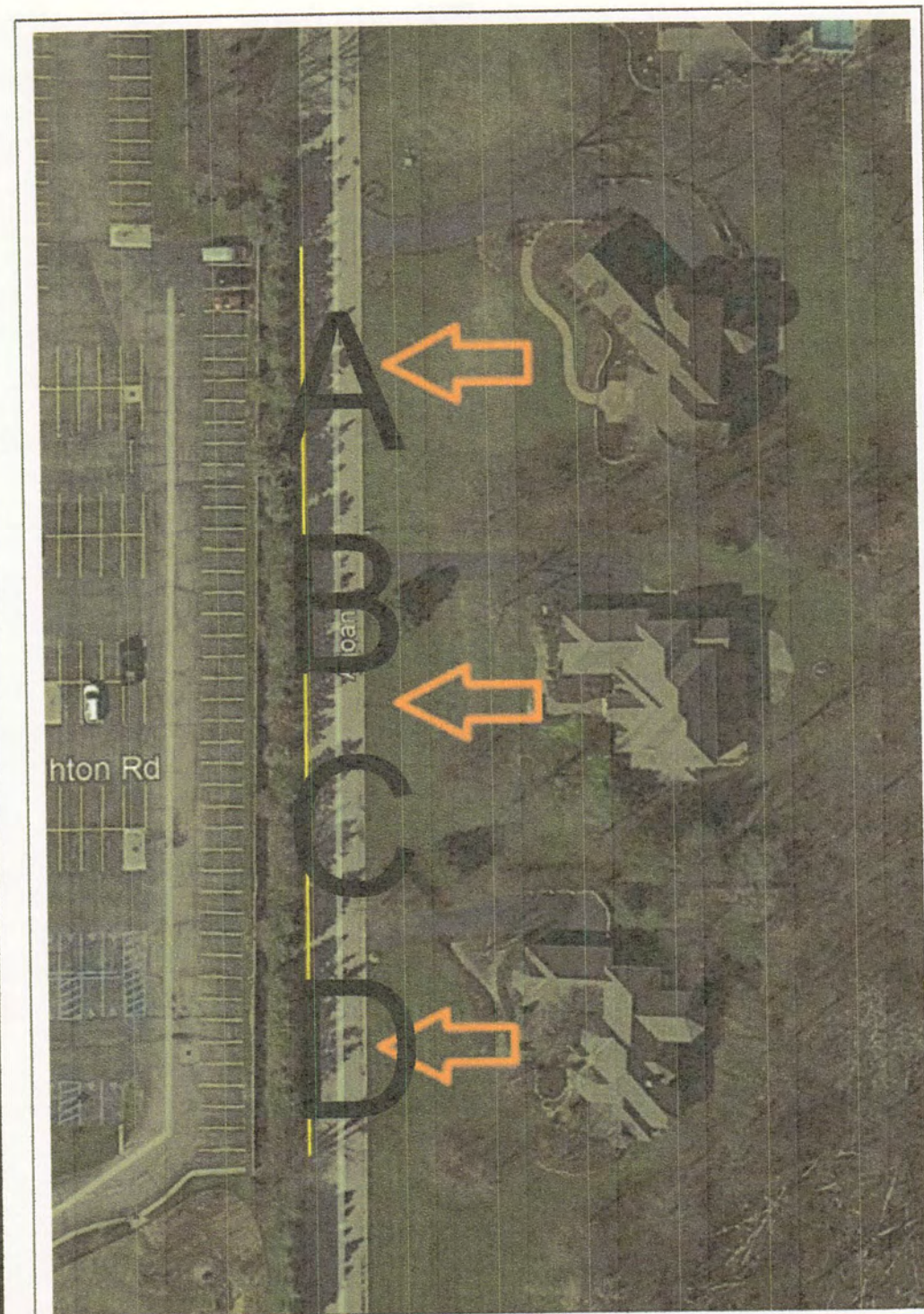
1. Provide the revised landscape design change for the boundary between Aljoann Road and the Brighton Church of the Nazarene, as requested by the Planning Commission at the 11 September 2017 Genoa Township Planning Commission meeting. Brighton Nazarene has removed the 39 dead, dying, or diseased trees in the boundary tree line and will be planting, and staking as necessary, 20 new trees as identified and drawn in the attached landscape design plan provided by Landscape Design and Associates, dated 21 October 2017. Note: the closest trees in this new plan are 1' east of the property line, and the fence is 10' west of the property line. Brighton Nazarene will also restore the terrain around the entire tree line, installing topsoil, mulch, grass seed, and straw as agreed in discussion with the Worden Lake Woods Homeowners' Association (see Attachment 1). This will restore the tree line to a beautiful and like new state.
2. Request a change of the responsibility for maintaining the landscaping, including the trees, along the property boundary adjoining the Brighton Church of the Nazarene back to the Worden Lake Woods Homeowners' Association (hereafter HOA) as stated in the HOA By-Laws (page 10)(sec III)(paragraph 1) (see Attachment 2). In addition to the above noted planned changes to the tree line, Brighton Nazarene has added a permanent 6' fence along the boundary of the property. We believe with these new improvements, we have fulfilled the original intention of the Township requirements to maintain the boundary between our properties and request the maintenance of such boundary be given back to HOA. Representatives from the HOA have agreed to the planned plantings and landscaping to be done by the Nazarene Church and we would hope to have full HOA approval for the takeover of the maintenance of the tree line once the Township releases the church from this requirement (see Attachment 3).
3. Remove the requirement to have a paid certified security guard present on the days the Brighton Nazarene Skate Park is open. With the addition of a new boundary fence, added outdoor security cameras and a trained volunteer staff, Skate Park personnel can better monitor the parking lot to ensure visitors are properly conducting themselves. Brighton Church of the Nazarene is concerned about the privacy of all our neighbors and will continue to operate so as to promote a family-friendly environment for all who live in our area. Note: the Planning Commission and the president of the Worden Lake Woods HOA agreed at the September Planning Commission meeting that the security guard is not needed at this time.

Attachments:

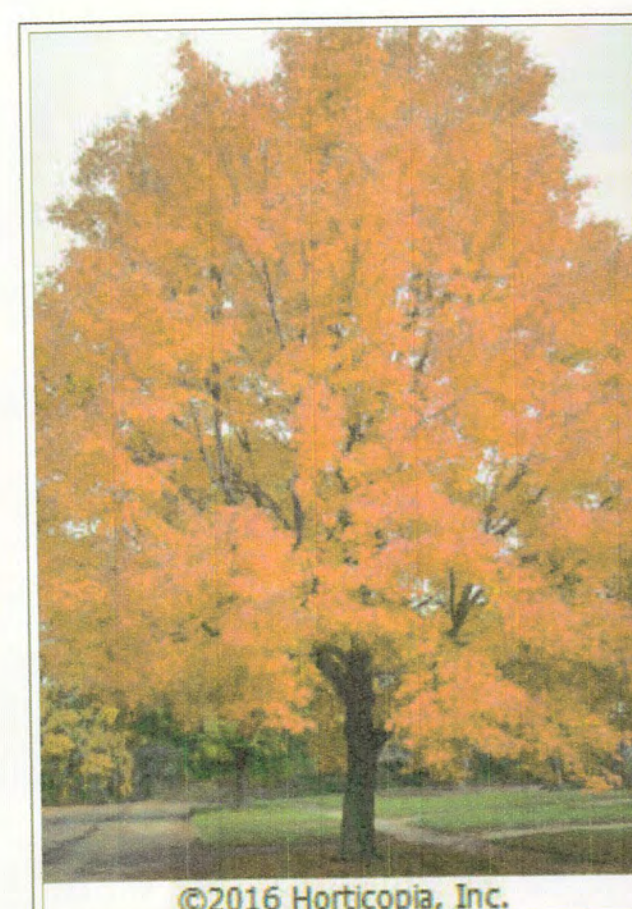
1. Landscape Design Plan, dated 10/21/2017
2. Excerpt from the Worden Lake Woods Homeowners' Association By-Laws
3. Maintenance Agreement between Brighton Church of the Nazarene and the Worden Lake Woods Homeowners' Association



INSET



PLAN VIEW



RED MAPLE



NORWAY SPRUCE



BRADFORD CALLERY PEAR



WHITE SPRUCE

PLANT LIST

Qty	Botanical Name	Common Name	Size/Condition
Trees			
4	<i>Acer rubrum</i>	RED MAPLE	15-2" cal.
6	<i>Picea abies</i>	NORWAY SPRUCE	6' ht. or greater
3	<i>Pyrus calleryana</i>	CALLERY PEAR	15-2" cal.
7	<i>Picea glauca</i>	WHITE SPRUCE	6' ht. or greater



FULL PLAN VIEW
NOT TO SCALE

CHURCH FENCE
ROAD

NOTES



No.	Date	Description
	10/20/2017	REVISED
	10/21/2017	REVISED

LD LANDSCAPE DESIGN & ASSOCIATES LLC
810-360-0365 LDandA.COM
DESIGN CONCEPT

EAST SIDE OF FENCE DESIGN

THE NAZ - BRIGHTON CHURCH OF THE NAZARENE
7669 BRIGHTON ROAD
BRIGHTON, MI 48116

SCALE	1" = 10' - 0"
DRAWN BY	T. TURNER
CHECKED BY	K. SHAFER
DATE	10/21/17
DATE OF PRINT	

PROJECT NO.	17 - 245
SHEET NO.	3

ARTICLE III

WORDEN LAKE WOODS HOMEOWNER'S ASSOCIATION BY LAWS

SECTION I
Definitions

- 1) "Developer" shall mean and include Frances Serkian or her assigns.
- 2) "Association" shall mean and refer to the Worden Lake Woods Subdivision Homeowner's Association.
- 3) "Properties" shall mean and include Lots 1-7 and Parcels F1, F2, F3 and F4, both inclusive, of Worden Lake Woods Subdivision described above.
- 4) "Owners" shall mean and refer to the record owner whether one or more persons or entity of the fee simple title to any lots and parcels above-described including land contract vendees, but not including any mortgagee, unless and until such mortgagee shall have acquired fee simple title pursuant to foreclosure or any proceeding of conveyance in lieu of foreclosure. When more than one person or entity has an interest in the fee simple title of any lot, the interest of all such persons collectively shall be that of a single owner.
- 5) "Owner/Occupant" shall mean the same as "Owner" only at such time as a certificate of occupancy shall be issued by the Livingston County Department of Building and Safety for a dwelling upon a lot or parcel and not prior thereto.
- 6) "Member" shall mean and refer to all those owners who are or qualify as members of the Association as hereinafter set forth.

SECTION II
Name

The name of the association shall be called Worden Lake Woods Homeowner's Association, a non-profit organization, and shall be composed of Lots 1 through 7 and Parcels F1, F2, F3 and F4. Parcels F1, F2, and ~~F3~~ are riparian parcels adjoining Worden Lake.

*F3

SECTION III
Object

1. To promote wholesome and attractive conditions for the property owners that form a part of the Worden Lake Woods Homeowner's Association. This includes the maintenance and upkeep of the Subdivision park, front entrance, landscaping along the ~~west~~ property boundary adjoining the Church of the Nazarene, and the entrance to the private drive leading to parcels F1, F2, F3, and F4.

west

**Maintenance Agreement between Brighton Church of the Nazarene and
the Worden Lake Woods Homeowners' Association**

To Whom It May Concern:

We, as the Homeowners Association of Worden Lake Woods subdivision, agree with the landscape design plan provided by Landscape Design and Associates, dated 21 October 2017. We also agree to provide water to the new plantings until the first freeze, per the instructions from Mayhew's Tree Farm & Nursery.

We are agreeable to take over the maintenance of the tree line, should the Township release the church from this requirement.

_____ Date: _____

President of the Homeowners Association



GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: LIVINGSTON CHRISTIAN SCHOOLS 2877 MAIN ST WHITMORE LAKE, MI 48184
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: BRIGHTON MAZEHNE CHURCH 7669 BRIGHTON RD BRIGHTON, MI 48114

SITE ADDRESS: 7669 BRIGHTON RD PARCEL #(s): 4711-25-400-059

APPLICANT PHONE: (503) 716-4306 OWNER PHONE: (810) 227-6600

OWNER EMAIL: THEHAZ.P.THEHAZ.ORG

LOCATION AND BRIEF DESCRIPTION OF SITE: WILL UTILIZE SPACE
INSIDE EXISTING BRIGHTON MAZEHNE CHURCH WHICH IS
LOCATED NORTH OF BRIGHTON RD JUST EAST OF
LAKE FOREST BOULEVARD.

BRIEF STATEMENT OF PROPOSED USE: A PRIVATE CHRISTIAN
SCHOOL

THE FOLLOWING BUILDINGS ARE PROPOSED: NO PROPOSED BUILDINGS

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: [Signature]

ADDRESS: _____

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1.) CAMERON HORVATH of ROSS ENGINEERING at CAMERON.HORVATH@ROSSENR.COM
Name Business Affiliation E-mail Address

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE: [Signature] DATE: 8/30/17
PRINT NAME: ROBERT WELBAND PHONE: 503-710-431
ADDRESS: _____



GENOA CHARTER TOWNSHIP Special Land Use Application

This application must be accompanied by a site plan review application and the associated submittal requirements. (The Zoning Official may allow a less detailed sketch plan for a change in use.)

APPLICANT NAME & ADDRESS: LIVESTON CHRISTIAN SCHOOLS 2577 HAN ST WHITMORE LAKE, MI 48189
Submit a letter of Authorization from Property Owner if application is signed by Acting Agent.

APPLICANT PHONE: (503) 710-4306 EMAIL: RWIEGAND@LIVESTONCHRISTIANSCHOOLS.ORG

OWNER NAME & ADDRESS: BRIGHTON MAZERIE CHURCH 7609 BRIGHTON RD BRIGHTON, MI 48116

SITE ADDRESS: 7609 BRIGHTON RD BRIGHTON, MI 48116 PARCEL #(s): 4711-25-400-059

OWNER PHONE: (810) 227-6600 EMAIL: THEMAZ@THEMAZ.ORG

Location and brief description of site and surroundings:

WILL UTILIZE SPACE INSIDE EXISTING BRIGHTON MAZERIE CHURCH WHICH IS LOCATED NORTH OF BRIGHTON RD JUST EAST OF LAKE FOREST BOULEVARD.

Proposed Use:

A PRIVATE CHRISTIAN SCHOOL

Describe how your request meets the Zoning Ordinance General Review Standards (section 19.03):

- a. Describe how the use will be compatible and in accordance with the goals, objectives, and policies of the Genoa Township Comprehensive Plan and subarea plans, and will promote the Statement of Purpose of the zoning district in which the use is proposed.

PRIVATE SCHOOLS ARE LISTED AS A SPECIAL USE FOR THE CURRENT ZONING AND SINCE IT IS A PRIVATE CHRISTIAN SCHOOL IT FITS WITH THE EXISTING CHURCH ON-SITE. IT OFFERS THE TOWNSHIP ANOTHER SCHEDULING OPTION FOR THOSE LOOKING FOR THAT TYPE OF EDUCATION.

- b. Describe how the use will be designed, constructed, operated, and maintained to be compatible with, and not significantly alter, the existing or intended character of the general vicinity.

NOTHING MAJOR NEEDS TO BE CONSTRUCTED. THE GOAL IS TO MOVE INTO AN EXISTING CHURCH BUILDING WITH MINIMAL CHANGES TO THE SITE.

- c. How will the use be served adequately by essential public facilities and services such as highways, streets, police and fire protection, drainage structures, water and sewage facilities, refuse disposal and schools?

ALL OF THE ESSENTIAL INFRASTRUCTURE IS ALREADY IN PLACE. THE TRAFFIC AND USE OF SURROUNDING ROADS WILL INCREASE AND THAT STUDY HAS BEEN INCLUDED IN THIS SUBMITTAL.

d. Will the use involve any uses, activities, processes, or materials potentially detrimental to the natural environment, public health, safety, or welfare by reason of excessive production of traffic, noise, vibration, smoke, fumes, odors, glare, or other such nuisance? If so, how will the impacts be mitigated?

NO.

e. Does the use have specific criteria as listed in the Zoning Ordinance (sections 3.03.02, 7.02.02, & 8.02.02)? If so, describe how the criteria are met.

PRIVATE SCHOOLS ARE LISTED AS A SPECIAL USE UNDER THE SITES CURRENT ZONING OF SR.

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION ARE TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I AGREE TO DESIGN, CONSTRUCT AND OPERATE, AND MAINTAIN THESE PREMISES AND THE BUILDINGS, STRUCTURES, AND FACILITIES WHICH ARE GOVERNED BY THIS PERMIT IN ACCORDANCE WITH THE STATED REQUIREMENTS OF THE GENOA TOWNSHIP ZONING ORDINANCE, AND SUCH ADDITIONAL LIMITS AND SAFEGUARDS AS MAY BE MADE A PART OF THIS PERMIT.

THE UNDERSIGNED _____ STATES THAT THEY ARE THE FREE OWNER OF THE PROPERTY OF PROPERTIES DESCRIBED ABOVE AND MAKES APPLICATION FOR THIS SPECIAL LAND USE PERMIT.

BY: [Signature]

ADDRESS: _____

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

CATHERINE HERWATH of PESS ENGINEERING at CATHERINE@PESS616.COM
Name Business Affiliation Email

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE: [Signature] DATE: 8/30/17

PRINT NAME: ROBERT WICKLAND PHONE: 503-710-4306

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
OCTOBER 10, 2017
6:30 P.M.
MINUTES**

CALL TO ORDER: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present were Chairman Doug Brown, Eric Rauch, John McManus, Chris Grajek, Jill Rickard and Barbara Figurski. Absent was James Mortensen. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Gary Markstrom from Tetra Tech, and an audience of 40.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

APPROVAL OF AGENDA:

Moved by McManus, seconded by Figurski, to approve the agenda as presented.

CALL TO THE PUBLIC: The call to the public was made at 6:31 pm with no response.

OPEN PUBLIC HEARING #1... Review of a special use application, site plan application, environmental impact assessment, and site plan for a proposed K-12 Livingston Christian School to be located within the Brighton Church of the Nazarene at 7669 Brighton Road, Brighton. The request is petitioned by Livingston Christian Schools.

Planning Commission disposition of petition:

- A. Recommendation of Special Use Application
- B. Recommendation of Environmental Impact Assessment
- C. Recommendation of Site Plan

Commissioner Rauch asked to be excused from the discussion and motion as his children attend Brighton Christian Schools.

Moved by Figurski, seconded Grajek, to excuse Commissioner. The motion carried unanimously.

Brett LaVanway of Boss Engineering, Steven Russo of Fleis & VandenBrink Engineering, Inc., and Roger Wiegand of Livingston Christian Schools were present.

Mr. Lavanway stated that LCS is requesting to occupy Brighton Church of the Nazarene for a K – 12 Christian School. They have included their site plan, impact assessment,

and traffic impact study. They will have a maximum of 200 students and the school is in session Monday through Friday.

They have received the review letters and are working with the church with regard to the parking. There may be some minor adjustments made to the plan. They anticipate this being reconciled in approximately one week. The concerns are that the church would like to give up the least amount of parking spaces as possible as well as the number of ADA spaces. The school will need approximately 197 spaces and the church currently has 211 spaces available.

They believe they have complied with all of the other consultants' requirements.

Chairman Brown stated there is nothing in the packet showing that the church is in agreement with the proposals being made by LCS. Additionally, he would like to have the assurance that the two organizations agree to coordinate their events so that they do not overlap. This is very important.

Mr. Borden was not present this evening. Ms. VanMarter reviewed his letter dated October 5, 2017.

The Planner has found that this request does meet the special land use criteria. She noted that the school is proposing to stagger their start and end times, which will help with the traffic impact on the neighborhood.

Also, the driving school that currently operates at the church will no longer be there.

Additionally, the school and the church have different peak times; however, the Township would like more information ensuring that the church and the school are communicating and coordinate the days and times of their special events so that they do not overlap. This should be stated in the Impact Assessment.

The impacts are increased traffic and increased use of the site in general. There will now be school activities in addition to the current church activities.

The revised plan notes a slight increase in building coverage; however, there are no modifications to the building proposed. This should be corrected.

Ms. VanMarter stated that the site plan notes 180 parking spaces; however, the evening Mr. LaVanway stated there are 197. The correct number of parking will need to be provided. The church needs to confirm that they approve with this much loss of parking as well as the physical changes that are being proposed for the site.

The plan shows an additional sign at the front of the site on Brighton Road; however there are no details. The applicant must obtain approval and a permit for any signs.

She reviewed the proposed drop-off and pick-up circulation plan for the site as well as other proposed structural changes for the parking lot. If the student count exceeds 200, then the driveway closest to the building where it narrows to two lanes would need to be widened. The driveway at Brighton Road is already three lanes. Ms. VanMarter suggested a tracking mechanism be put in place so that the Township is aware if the

population gets close to the 200 students, as there will need to be significant changes to the site.

Mr. Wiegand stated that the current student population is 147. He believes that the enrollment will reach 200 within the next five years. The second week of the school year, they report their population to the State. This can also be reported to the Township.

Commissioner Rickard noted that the playground seems small. Mr. Wiegand stated that they have not discussed the playground at this time.

Gary Markstrom reviewed his letter of October 4, 2017. His only outstanding issue is regarding the traffic study. The traffic counts are from May of 2015 and he is recommending that updated counts be obtained. He does not expect it to change dramatically and impact the study they have presented; however, it would be good information to have. He added that the study was done at the time the I-96 and US-23 interchange was under construction so the traffic pattern may have been different in this area at that time.

Mr. Russo stated he has spoken to the Road Commission and their representative believed that their numbers from 2015 would be fairly accurate for today.

Commissioner Rickert stated that the amount of traffic on Brighton Road is very high in the morning. She would like to see an updated traffic study.

Commissioner Grajek has concerns about traffic making a left-hand turn out of the site. Mr. Russo stated that they estimated the number of left turns based on data provided by Livingston Christian Schools. When they performed the calculations for the additional student enrollment, they followed a similar formula. Mr. Markstrom is comfortable with the way this has been calculated.

Weigand stated that they will not increase their enrollment to 200 until they have received approval for a revised site plan and the driveway has been widened as discussed by Ms. VanMarter.

Mr. Markstrom noted that Page 3 of the site plan has a narrative that includes how they will educate the parents and students regarding the traffic flow on the site as it relates to drop off and pick up.

Commissioner Grajek referred to Chairman Brown's earlier point. He would like to see written documentation that the church is in agreement with the changes that the school is proposing on their site. He would like to have that before this item moves any further. He suggested tabling this until that document is received.

Mr. Weigand stated that he can obtain all of that information in time for next month's Planning Commission meeting.

Chairman Brown stated that the Brighton Area Fire Department's letter dated September 28, 2017 notes that the applicant has met all of their outstanding requirements.

Chairman Brown reviewed the Livingston County Road Commission's letter dated September 28, 2017. They are requiring a driveway permit is required due to a change in use on this site.

Chairman Brown read a letter from Pastor Walls stating that the AK Services driving school has been notified that they have 3-4 months to cease their operations on their site

Commissioner McManus questioned if the issue of turning right out of the site and then turning around on the neighboring residential streets should be addressed with the parents. This could occur when parents are unable to make a left out of the site due to the heavy traffic. Commissioner Grajek agrees.

Chairman Brown noted that the lease agreement between the church and the school is three years old and should be updated.

Commissioner Figurski would like to have the Impact Assessment include that the church and the school will coordinate their events so they do not overlap. She would also like, "There will be an increase in noise and traffic in the a.m. hours" added.

The Call to the Public was made at 7:19 pm.

Chairman Brown stated a letter of support has been received from Brighton First United Methodist Church.

An e-mail Skip Blunt of 7426 Pine Vista Drive was received. He is concerned with the increased traffic due to the addition of another school in the area. He also stated that the addition of more teenage drivers will increase the propensity for accidents.

Mr. Jay Johnson of 4931 Aljoann stated his biggest concern is the traffic study. It was done on May 15, 2015. At that time, the seniors were out of school so the count may be off. He understands that staggering the start times is a way to help with the traffic; however, it then makes the length of time there is a lot of traffic longer for the residents. He also noted that the high school has special events and there could be occasions where they have events at the same time as the Livingston Christian School.

There are currently 600 parking permits for the high school. Also, they have recently changed the flow of the parking lot. Traffic is not able to enter off of Seventh Street and are now required to enter at the light on Brighton Road. He is also concerned that cars will stand on his street during the pick-up times. He suggests a new traffic study be done.

Mr. Markstrom stated that there is ample room on the site for the car stacking for drop off and pick up and he believes it will function as it is supposed to.

Scott McCormick, Steve Warden, and Larry Webb live in the three houses on the dirty road on the west side of the parking lot. Mr. McCormick stated that he is concerned his property values will go down. The view from his front yard is now the gravel parking lot. They would like the same type of fence put on their side of the parking lot that was put on the east side. He will now be seeing 200 cars parking in the parking lot.

Mr. Webb stated that in 2013 there were items required to be done by the church had were never resolved, or resolved later than was expected. He stated that everything discussed this evening is ambiguous; the traffic study is 2 years old, the lease is 3 years old, and there is no signed agreement by the church.

Chairman Brown noted that there were issues with the church regarding the landscaping; however, they have done some landscaping and a fence has been installed. Additional landscaping issues are currently being discussed. He was not aware of the views that the three residents were experiencing.

Commissioner Rickert asked if buffer zones can be addressed during this site plan approval. Ms. VanMarter stated yes if the gravel area that Mr. McCormick was referring to is going to be used by the school. There can be additional landscaping requirements put in place.

Mr. Rob Stogdill of 4793 Aljoann agrees that if events are overlapped there will be a lot of traffic and the cars will be parking on his street, which will affect his property values and increase noise.

Commissioner McManus ask how many driving students there are currently at the school. Mr. Lavanway stated that based on an enrollment of 200, they have allotted 30 spaces for students. Today there are seven students who drive.

Commissioner Grajek asked about snow plowing and where will the snow be stored. Mr. LaVanway stated that the church will be responsible for the plowing of the parking lot. They can designate on their site plan where the snow will be stored.

Ms. Virginia Wennerburg of 7230 Pine Vista Drive would like to know the number of licensed enrollment. Mr. Weigand stated the Fire Marshall stated the building capacity is 370; however, they are here this evening to discuss a maximum student enrollment of 200. She believes the traffic planning should be for the maximum number of students allowed. Chairman Brown stated the Township has put a maximum of 200 students on this plan. If their enrollment goes beyond that, they will need to come back to the Township for further approval.

Ms. Wennerberg asked if other locations have been considered and what is the goal of LCS. Mr. Weigand stated the goal is to have a Christian school and be a part of a church. She asked if other locations have been considered. Mr. Weigand stated they have had two years pursue other options and no other sites have met their needs.

Commission Grajek asked when there are 200 students, has how many faculty members will there be. There will be 20 faculty. Mr. Russo stated the traffic study was based the 20 faculty.

Ms. Norma Wilson lives in one of the three houses on the south side of Brighton Road between the high school and Pine Creek. People turning left into the church can block the left turn lane so she is unable to turn left into her driveway. Mr. Russo stated that their traffic study showed the maximum queue in the left turn lane during peak hours was three vehicles.

Ms. Jillian Mackey of 5696 Windham Lane is concerned with the cut through traffic. Pine Creek did their own traffic study and there are 1200 cars per day, including 200 from 7-8 am and 2-3 pm. This new school could increase this traffic. She would like her neighborhood to be considered in the traffic study.

Mr. McCormick noted that there is an elementary school on Bauer Road and a lot of traffic is generated from that.

Ms. Amy Hilscher of 4769 AlJoann is very concerned about the traffic. It is very difficult to exit out of their neighborhood at all times of the day. It is many times impossible to make a left out of her street. This new school will have a significant impact on traffic. She would encourage the new traffic study. Commissioner Grajek noted that they are proposing to stagger their start times. Ms. Hilscher is not sure if this will help with the traffic.

Mr. Weigand state they have done their traffic study with a student count of 200 and a conservative number for cars. They typically have three students per car. All of the kids do not leave at the same time; they filter out. Currently, they have 147 students, with 54 cars dropping off and picking up total at their Whitmore Lake location. They have many families with multiple children.

Chairman Brown stated that when this items was before the Planning Commission previously, he and Commissioner Mortensen went to the Whitmore Lake site and he agrees with what Mr. Weigand said.

Commissioner Figurski asked if they expect more people to come to the school because it will now be located in Brighton. Mr. Weigand stated, "yes".

Commissioner Grajek questioned if this is approved and school starts and then the traffic is as bad as it is being stated, can the special use be removed. Ms. VanMarter stated it can only be removed is they were openly violating a condition of approval. Then the Township would have enforcement abilities

Mr. Tammy Kay May's children attend Brighton Christian School. There were three traffic studies done over the years and they have all been consistent. The traffic impact will be negligible. She confirmed that there are seven driving students with the current enrollment. She is a mom who carpools to LCS currently, and she estimates that 50 cars are there for drop off and pick up. She can drop off and pick up in four minutes and that is a much smaller lot than the Nazarene church. With regard to the playground, they have a very small need for a playground. She would be willing to work with the parents on the education of the drop off and pick up traffic flow as she is a safety liaison for a Fortune 500 company. She hopes that the request is approved.

The call to the public was closed at 8:12 pm.

Ms. VanMarter stated that a lot of kids go to the skate park after school lets out in the afternoon. She would like to know if this traffic would coincide with the school end time of LCS. Pastor Walls stated that the skate park opens at 4 pm.

Commissioner Figurski has concerns with the noise and commotion at the school, the increased traffic on Brighton Road. Aljoann and the Pine Creek subdivision were not included in the traffic study.

Moved by Grajek, seconded by McManus, to table Agenda Item #1 until the November 13, 2017 Planning Commission meeting in order to allow the applicant to provide the following:

- An updated lease agreement to include written documentation of approval by the Naz for the improvements on the site.
- A reconfigured site plan to include the correct number of parking spaces as negotiated with the Naz.
- An updated traffic study.
- The Impact Assessment noting that the organization will coordinate their activities so they do not overlap.
- Health Department approval of the septic system for the increased student population.

The motion carried unanimously.

OPEN PUBLIC HEARING #2... Review of a site plan application, environmental impact assessment and site plan for proposed 123-bed student housing apartment building located on the south side of Grand River Avenue and the east side of Grand Oaks Drive, at 38750 Cleary Drive, Howell. The property is located in the Cleary University Planned Unit Development. The request is petitioned by Cleary University.

Planning Commission Recommendation of Petition:

- A. Recommendation of Environmental Impact Assessment.
- B. Recommendation of Site Plan.

Commissioner Grajek stated that his daughter works indirectly for Cleary University. She is an athletic trainer for a vendor contracted by the university. He does not have a fiduciary interest in Cleary University.

Brent LaVanway of Boss Engineering; Dave Howard, the Facility Director for Cleary University; and Alan Price of University Housing Solutions were present.

Mr. LaVanway stated they would like approval to put in the Student Housing Building #2. They received approval for the first housing building a few years ago and they are in need of a second one. It will include a parking lot and a loop road, which will meet the Fire Department's requirement for access. They will be extending the water main loop for fire suppression purposes. It is in compliance with the Cleary University PUD Agreement. They are in concurrence with the recommendations of the consultants.

Mr. Price presented building samples. They will be using the same materials as the existing building. The footprint is a mirror image of Building #1. It will have double-

November 6, 2017

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Livingston Christian Schools – Special Land Use and Site Plan Review #3
Location:	7669 Brighton Road – northwest corner of Brighton and Aljoann Roads
Zoning:	SR Suburban Residential

Dear Commissioners:

At the Township's request, we have reviewed the revised submittal from Livingston Christian Schools requesting special land use (application dated 8/30/17) and site plan (plans dated 10/25/17) review and approval. The project entails use of existing space within the main building owned by the Brighton Church of the Nazarene for a private school.

We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance.

A. Summary

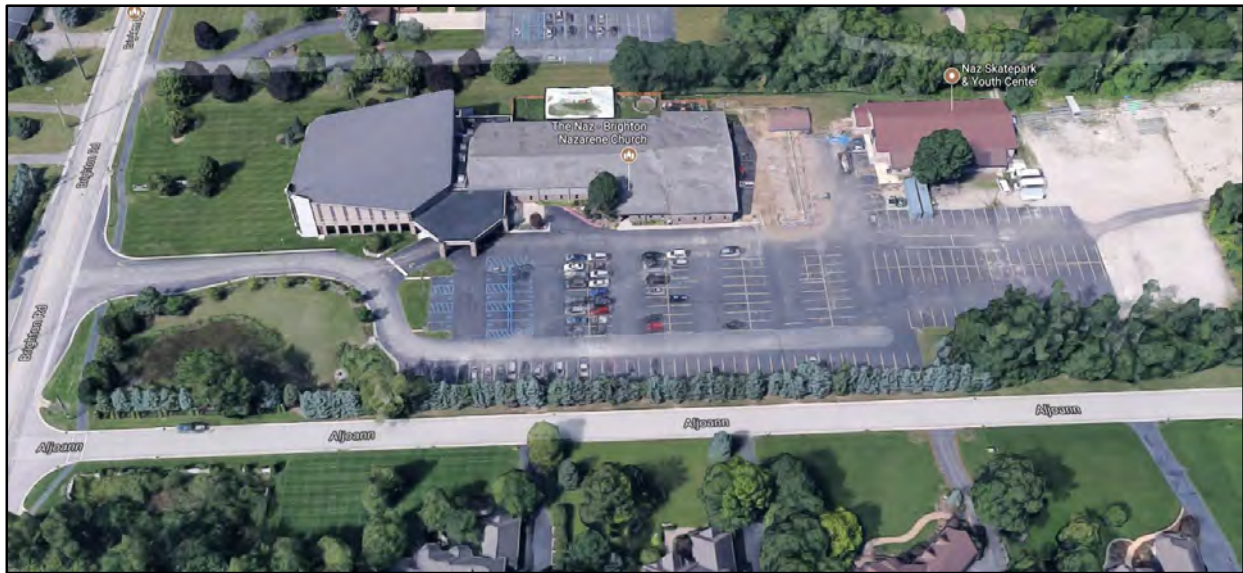
1. Pending any concerns identified by the Township Engineer or Fire Department, we are of the opinion that the general special land use standards of Section 19.03 are met.
2. The site is generally compliant with the specific use conditions of Section 3.03.02(1), with the only deficiency being an existing condition (east side parking setback).
3. The revised site plan notes a slight increase in building coverage (from 6.99% to 8.19%), although no modifications are proposed to the building. The applicant must correct this note.
4. The Township may wish to require double-striped (looped) spaces for the modified parking area.
5. When future signage is proposed, the applicant must obtain approval and a permit from the Township prior to installation.
6. We request the applicant describe where and how those students above 3rd grade will be provided access to outdoor activities during the school day.
7. We suggest the applicant and Township devise a method to regularly report enrollment numbers.

B. Proposal/Process

In accordance with Section 3.03.02(1), private schools are allowed as an accessory use to a church, while churches and similar places of worship are listed as special land uses (Table 3.03). The revised submittal identifies an enrollment of up to 200 students for the proposed private school.

Based upon Section 19.06, the request constitutes a major amendment to an existing special land use; therefore, a new application for special land use approval is required. Additionally, site plan review and approval is required for all new special land uses.

Procedurally, the Planning Commission is to review the special land use, site plan and Environmental Impact Assessment and provide a recommendation on each to the Township Board (following a public hearing). The Township Board has the final review/approval authority over the request.



Aerial view of site and surroundings (looking west)

C. Special Land Use Review

Section 19.03 of the Zoning Ordinance identifies the review criteria for Special Land Use applications as follows:

- 1. Master Plan.** The Township Master Plan identifies the subject site, as well as the adjacent properties to the east and west, as Low Density Residential. This designation is intended for single family residential uses on lots of at least 1-acre in size.

The description of the Low Density Residential category does not specifically mention institutional uses; however, one of the Plan's land use goals is to "accommodate a variety of land uses that are located in a logical pattern and complement community goals, the surrounding land uses, environment, capacity of roads and the sanitary sewer, and public water system capabilities."

Provided favorable findings are made on the remaining special land use criteria, the case can be made that the proposal is consistent with the Master Plan.

- 2. Compatibility.** The subject area contains a mixture of uses, including institutional and residential. Given the presence of other schools in the area, the proposal includes school start and end times that are spaced at least 30 minutes from the start/end times of the other schools to minimize potential traffic impacts.

The submittal includes a letter from a representative of the property owner indicating that they have informed the company operating the drivers training program that they can no longer use the church parking lot (letter dated 9/12/17). The letter notes a 3 to 4-month timeframe within which the company needs to find an alternative site.

- 3. Public Facilities and Services.** As a developed site along a main roadway, we anticipate necessary public facilities and services are in place to support the proposal; however, the Commission should consider any comments provided by the Township Engineer and Brighton Area Fire Department under this criterion.
- 4. Impacts.** From our perspective, the proposal entails two important considerations with respect to the overall impact of the use – an increase in traffic and increased use of the site in general.

With respect to the traffic impacts, the applicant included a traffic study (prepared by Fleis & Vanderbrink, most recently dated 10/24/17). The revised study is based on a maximum enrollment of 200 students and includes several recommendations to ensure proper traffic flow to, on and from the site. The revised site plan incorporates the recommended site improvements, as well as a plan to educate staff, students and parents of the parking operations plan.

As requested in our prior review letters, the revised submittal includes a communication protocol between the church and school to ensure that events and activities are well coordinated. This will help avoid overlap of uses and keep the site functioning properly.

- 5. Mitigation.** The Township may require mitigation necessary to limit or alleviate any potential adverse impacts as a result of the proposal.

D. Use Conditions

Churches and similar places of worship are subject to the following use conditions of Section 3.03.02(1):

- 1. Minimum lot area shall be three (3) acres plus an additional fifteen thousand (15,000) square feet for each one hundred (100) persons of seating capacity.**

The primary use of the property is a church, which, based on the information provided, has a worship area with 520 seats. This condition results in the need for 4.7 acres of lot area, while the subject site has a gross lot area of 16.43 acres.

- 2. Buildings of greater than the maximum height allowed in Section 3.04, Dimensional Standards, may be allowed provided front, side and rear yards are increased above the minimum required yards by one foot for each foot of building height that exceeds the maximum height allowed. The maximum height of a steeple shall be sixty (60) feet.**

The project does not entail exterior building modifications. While the submittal does not identify building heights, based on review of previous requests for this site, we believe this condition is met.

- 3. Wherever an off-street parking area is adjacent to a residential district, there shall be a minimum parking lot setback of fifty (50) feet with a continuous obscuring wall, fence and/or landscaped area at least four (4) feet in height shall be provided. The Township Board may reduce this buffer based on the provision of landscaping, the presence of existing trees or in consideration of topographic conditions.**

This condition applies to both the east and west side lot lines.

The existing parking along the east side of the subject site does not comply with this condition; however, this is an existing condition that is not being modified as a result of the proposal. Additionally, there is existing screening between these parking spaces and the adjacent residential district in the form of landscaping and a 6-foot tall privacy fence.

The parking space nearest the west side lot line provides a 50-foot setback and contains existing vegetation. Additionally, the adjacent property (also an institutional use) has dense, mature vegetation along their side lot line.

- 4. Private schools and child day care centers may be allowed as an accessory use to churches, temples and similar places of worship where the site has access to a paved public roadway.**

Vehicular access to the subject site is provided via Brighton Road, which is a paved public roadway.

E. Site Plan Review

- 1. Dimensional Requirements.** The only dimensional standard impacted is the maximum impervious surface ratio of 35%. The table on Sheet 3 notes that the plan results in a ratio of 23.95%.

Lastly, the table on Sheet 3 also shows an increase in building coverage (from 6.99% to 8.19%), although no modifications are proposed to the building. The applicant must correct this information.

- 2. Building Materials and Design.** No exterior changes are proposed to the existing building(s).

- 3. Parking.** The parking calculations on the site plan demonstrate that as separate uses, the church requires more parking (174) than the school (122). The revised parking lot layout provides 198 spaces.

Provided the two uses operate at different peak times and events are well coordinated, as has been noted, the amount of parking provided should suffice.

Lastly, given the reconfiguration of a portion of the parking lot, the Township may wish to require double-striped (looped) spaces for the modified parking area.

- 4. Pedestrian and Vehicular Circulation.** The overall circulation pattern for drop-off/pick-up will be a counter clockwise movement around the parking lot with two egress lanes (one for drop-off/pick-up and one for bypass) along the east side of the building.

Curbed islands are to be installed between the parking lot and drop-off/pick-up lanes; thus, creating a physical barrier between the two (as recommended by the traffic study). Additionally, pavement striping will be added between a portion of the two egress lanes, as well as adjacent to the sidewalk/building entrances.

A striped crosswalk is also provided between the parking lot and sidewalk adjacent to the main building entrance.

The revised plan also includes modifications to the parking lot, such that the spaces in the center of the lot will be re-oriented with drive aisles running parallel to the main building (also per the traffic study).

- 5. Landscaping.** The revised landscape plan (Sheet 6) includes new plantings in the form of 2 deciduous trees and 21 perennials within two different landscaped islands.

The trees are located on the south side of the modified parking lot, while the perennials are on the north side. Two trees will also be removed as a result of the modified parking lot.

- 6. Waste Receptacle and Enclosure.** The submittal does not propose any changes to the existing waste receptacle and enclosure, which were approved as part of the 2013 project undertaken by the church.

- 7. Exterior Lighting.** A note on the revised plan (Sheet 6) states that no changes are proposed to existing site lighting.

- 8. Signs.** The submittal states that no new signage is proposed, though the site plan identifies a “potential area for LCS signage” in front of the building. If/when new signage is desired, the applicant will need to obtain approval and a permit from the Township prior to installation.

For the applicant’s reference, the Township’s sign regulations are found in Article 16 of the Zoning Ordinance.

9. Impact Assessment. The submittal includes a revised Impact Assessment prepared by Boss Engineering (most recently dated 10/25/17). In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

10. Additional Considerations. The revised submittal indicates that the outdoor play area on the west side of the building will suffice for grades K-3; however, it does not address the remainder of the school.

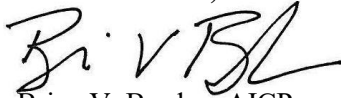
We request the applicant describe where and how those students above 3rd grade will be provided access to outdoor activities during the school day.

Lastly, since the request establishes a maximum of 200 children, we suggest the applicant and Township devise a method to regularly report actual enrollment numbers.

Should you have any questions concerning this matter, please do not hesitate to contact our office. I can be reached by phone at (248) 586-0505, or via e-mail at borden@lsplanning.com.

Respectfully,

LSL PLANNING, A SAFE BUILT COMPANY

A handwritten signature in black ink, appearing to read "B. V. Borden". The signature is stylized and cursive.

Brian V. Borden, AICP
Planning Manager



November 6, 2017

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Re: Livingston Christian Schools Site Plan Review #3

Dear Ms. Van Marter:

Tetra Tech conducted a site plan review of the revised plans, dated October 25, 2017, submitted by Boss Engineering on behalf of Livingston Christian Schools. The applicant is proposing to use the existing Brighton Nazarene Church as a private Christian school, which is a special land use of the Suburban Residential zoned property. The site is located at 7669 Brighton Road between Lake Forest Boulevard and Aljoann Street.

Tetra Tech's previous comment requesting current traffic counts was addressed in the Fleis & Vandenbrink Memo dated October 24, 2017. Current, non-holiday week counts during the proposed arrival and dismissal times were collected along Brighton Road at both Nazarene Church Drive and Brighton High School Drive. The data collection resulted in no significant changes to the originally submitted May 2015 traffic counts. During our verification of the traffic counts two areas of discrepancy in the memo were discovered:

- The last sentence of the first paragraph in the section titled "Data Collection": The dismissal time is incorrectly stated as 2:30 – 3:30 pm. The correct dismissal time is 2:45 – 3:45 pm, which is correctly stated in the paragraph discussing peaking characteristics.
- The last sentence of the first paragraph in the subsection titled "Pick-Up/Drop-Off": The minimum on-site loading space is incorrectly described as 365'. The correct distance, as stated in the following paragraph, is 265'.

Tetra Tech discussed both discrepancies with Fleis & Vandenbrink and received confirmation they are errors that will be corrected prior to site plan approval.

Although any additional traffic in this area may be viewed by some as detrimental, the applicant has provided mitigating measures such as the off-peak hours of operation and user education materials that

Tetra Tech

401 South Washington Square, Suite 100, Lansing, MI 48933
Tel 517.316.3930 Fax 517.484.8140 www.tetrattech.com


Ms. Kelly Van Marter
Re: Livingston Christian Schools Site Plan Review #3
November 6, 2017
Page 2

maintains the current levels of service on Brighton Road. With these measures the impacts on the existing roadway system are shown to be minimal in the traffic models.

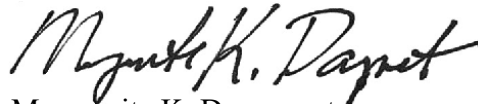
In addition to updated traffic counts, the site plan shows a revised layout for the parking lot east of the building. Review of the revised orientation and layout of the parking spaces, as well as the one-way route, resulted in no engineering related comments. The spacing widths and lengths and drive aisle dimension all meet requirements in Article 14 of the Genoa Township Zoning Ordinance.

With the correction to the typographical errors in the report being completed we have no further engineering related objections to approval of the site plan.

Sincerely,



Gary J. Markstrom, P.E.
Unit Vice President



Marguerite K. Davenport
Project Engineer

copy: Brent LaVanway, P.E., Boss Engineering, Inc.



BRIGHTON AREA FIRE AUTHORITY

615 W. Grand River Ave.
Brighton, MI 48116
o: 810-229-6640 f: 810-229-1619

November 7, 2017

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Livingston Christian Schools
7669 Brighton Rd.
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on October 26, 2017 and the drawings are dated August 30, 2017 with latest revisions dated October 25, 2017. The project is for the alteration of the access drives to accommodate the traffic flow of a proposed new school to be administered in an existing Assembly/Educational Occupancy. The plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

New proposed vehicle circulation and parking plan appear to compliant with the fire code and BAFA requirements for emergency vehicle access. No parking fire lane signage that was previously reflected is no longer shown on the site plan. Signage locations will be verified and coordinated prior to final inspection.

If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

A handwritten signature in black ink, appearing to read "R. Boisvert".

Rick Boisvert, CFPS
Fire Marshal

Livingston County Road Commission (LCRC)
Review Comments (October 26, 2017)

Livingston Christian School
Site Access and Circulation Evaluation

Below are LCRC comments with respect to the revised site access and circulation evaluation, prepared by Fleis and VandenBrink, dated October 24, 2017, for the proposed Livingston Christian School (LCS) in Genoa Township.

The LCRC accepts the findings and conclusions of the report with the following conditions:

1. Despite no anticipated work within the Brighton Road right-of-way, a new or revised driveway approach permit is required from LCRC due to a change in use of the driveway through the addition of a school.
2. The new driveway permit will be conditioned upon the approved traffic assessment, with a maximum of 200 students and start and dismissal times of 8 AM and 3 PM, respectively.
3. Any changes to school enrollment or operations that can affect site circulation are subject to review and approval by LCRC as part of the permit conditions. This may require a new traffic assessment.



love God.love all people.love in action

September 12, 2017

To Whom It May Concern:

I have told the owners of AK Services, that have run their State drivers licensing services to the area, that they need to find another location. I told them that they have 3-4 months to find an alternative spot.

If there are other questions, please feel free to call me.

Pastor Ben Walls

Brighton Nazarene Church

Brighton Nazarene Church
7669 Brighton Rd. Brighton, MI 48116
810.227.6600 www.thenaz.org





October 25, 2017

To Whom It May Concern:

The Brighton Nazarene Church (The Naz) and Livingston Christian School have come to an agreement to amend the present lease to include the new site plan being presented to Genoa Township Planning Commission and Board.

Signed,

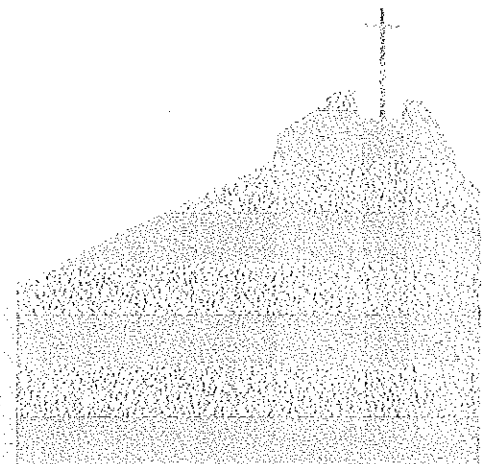
A handwritten signature in cursive script that reads "Ben D. Walls".

Ben D. Walls, Senior Pastor

A handwritten signature in cursive script that reads "Theodore Nast".

Theodore Nast, Principle, Livingston Christian School

Brighton Nazarene Church
7669 Brighton Rd. Brighton, MI 48116
810.227.6600 www.thenaz.org

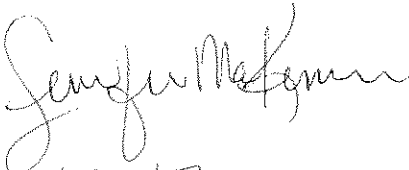


LCS @ The Naz Communication Process

A communication process between The Naz and Livingston Christian Schools was established in the preliminary meetings during the planning stages of the school moving into the church. Present at those meetings were Pastor Ben Walls, Ted Nast, Linda Caswell, Sarah Slater, and Jennifer MacKinnon. Megan Farnsworth currently serves as BNC rep to LCS.

All communication between school (LCS) representatives, including employees, students and families, and church (The Naz) representatives, including ministerial staff, lay staff, and church member/attendees regarding school events to be held at The Naz will be presented to Megan Farnsworth (meganf@thenaz.org) by Jennifer MacKinnon (office@livingstonchristianschools.org). The only exception to this is in the area of athletics where the LCS Athletics Department Secretary (currently Wendy Bury (wbury@livingstonchristianschools.org)) will contact Megan directly, keeping Jennifer MacKinnon advised of the athletic events through email and/or shared calendars.

All events held at The Naz are subject to approval by The Naz staff and confirmation (or not) is submitted by Megan Farnsworth to Jennifer MacKinnon to communicate to the rest of the school.


10/23/17



8877 Main Street • Whitmore Lake, MI 48189
• www.livingstonchristianschools.org

We have analyzed, and verified, the existing play area at the church and determined that it is sufficient for use for grades K-3.

Rob Wiegand,

A handwritten signature in blue ink, appearing to read "Rob Wiegand", with a long horizontal flourish extending to the right.

10/24/17

**IMPACT ASSESSMENT
FOR
SITE PLAN PETITION
"LIVINGSTON CHRISTIAN SCHOOLS"
GENOA TOWNSHIP, LIVINGSTON COUNTY
MICHIGAN**

Prepared for:

**LIVINGSTON CHRISTIAN SCHOOLS
8877 MAIN ST
WHITMORE LAKE, MICHIGAN 48189
(734) 449-4715**

Prepared by:

**BOSS ENGINEERING COMPANY
3121 E. GRAND RIVER
HOWELL, MI 48843
(517) 546-4836**

August 30, 2017
Revised: 9-20-17
Revised: 10-25-17

17-315EIA

INTRODUCTION

The purpose of this Impact Assessment (IA) report is to show the effect that this proposed development may have on various factors in the general vicinity of the project. The format used for presentation of this report conforms to the *Submittal Requirements For Impact Assessment* guidelines in accordance with Section 18.07 of the published Zoning Ordinance for Genoa Township, Livingston County, Michigan.

DISCUSSION ITEMS

A. Name(s) and address(es) of person(s) responsible for preparation of the impact assessment and a brief statement of their qualifications.

Prepared By :
Brent W. LaVanway, P.E.
BOSS ENGINEERING COMPANY
Civil Engineers, Land Surveyors, Landscape Architects and Planners
3121 E. Grand River
Howell, MI 48843
(517) 546-4836

Prepared For :
Livingston Christian Schools
Client
8877 Main St
Whitmore Lake, MI 48189
(734) 449-4715

B. Map(s) and 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 10 feet of the property. An aerial photograph or drawing may be used to delineate these areas.

The site is located on the north side of Brighton Road immediately west of the Worden Lake Woods development and slightly west of the entrance to Brighton High School. The subject property is currently the Brighton Nazarene Church Facility. There is the existing church building, parking lot, detention basin and parsonage. The north end of the property is heavily wooded. There are established tree row buffers on the east and west property lines. The subject property and both adjacent properties are zoned Suburban Residential (SR). The Brighton Nazarene Church also owns the contiguous parcel to the north.

C. Impact on natural features: A written description of the environmental characteristics of the site prior to development and following development, i.e., topography, soils, wildlife, woodlands, mature trees (eight inch caliper or greater), wetlands, drainage, lakes, streams, creeks or ponds. Documentation by a qualified wetland specialist shall be required wherever the Township determines that there is a potential regulated wetland. Reduced copies of the Existing Conditions Map(s) or aerial photographs may accompany written material.

The total site area is 16.43 acres. The front (south) portion of the site is the existing Church facility, associated parking lot, detention basin and parsonage. The developed site slopes south toward Brighton Road and the remainder of the site slopes north toward Worden Lake. The undeveloped portion of the site is predominantly wooded with the north end of the parcel terminating at Worden Lake. The USDA Soil Conservation Service soil classification for the site is Boyer-Oshtemo Loamy Sand.

There are no new buildings and parking improvements are proposed but minimal and will cause the removal of some parking lot trees (2 trees being removed).

D. Impact on storm water management: 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 County Soil Conservation Service.

Since this project is unique in the fact that the school is moving into an already existing structure, no storm water management is being proposed. The site as a whole currently manages storm water through existing catch basins and pipes that discharge into an existing detention basin located towards the front of the site. Although, construction on site will be minimal soil erosion control measures will still be needed to ensure soil is not leaving the site.

At the time of construction of the parking lot improvements, there may be some temporary dust, noise, vibration and smoke, but these conditions will be of relatively short duration and shall be controlled by applying appropriate procedures to minimize the effects, such as watering if necessary for dust control.

The Site Plan documents show the proposed locations of all site improvements along with detailed soil erosion control information.

E. Impact on surrounding land use: Description of the types of proposed uses and other man made facilities, including any project phasing, and an indication of how the proposed use conforms or conflicts with existing and potential development patterns. A description shall be provided of any increases of light, noise or air pollution which could negatively impact adjacent properties.

As previously stated the site is the current home of the Brighton Nazarene Church. During the school year a portion of the Church is proposed to be occupied by the Livingston Christian School (LCS).

In general the site will see an increase in use due to the school moving into the existing church. Increased use would be during AM and PM peaks for short periods of time during school drop off and pick up times which again, would be offset from school start and dismissal times of Brighton High School.

F. Impact on public facilities and services: Description of number of expected residents, employees, visitors, or patrons, and the anticipated impact on public schools, police protection and fire protection. Letters from the appropriate agencies may be provided, as appropriate.

The current use of the facility is for Sunday Church services however additional activities take place throughout the week. These activities vary from small group meetings to additional worship services. Typically these occur during off peak traffic hours thus do not significantly impact the traffic on Brighton Road. The site is serviced by public water and a septic system. The public water is provided by the City of Brighton. The septic system is under the jurisdiction of the Livingston County Health Department.

LCS is proposing to occupy a portion of the Church during the school year as a private Christian School. The hours of operation have been scheduled to minimize traffic impacts on Brighton Rd. For this submittal an enrollment of 200 students was used however, the current enrollment numbers are less than 200 students.

In regard to coordination and communication between the school and church and potential impacts to visitors, schools, and residents, agents representing both entities have been chosen. Part of these agent's duties would be to have an open line of communication in coordinating and scheduling events to avoid any potential conflicts between the two entities. All events held at the church would be subject to approval by the church staff.

There will be minimal impact on Brighton Area Schools and very minimal impact on the police and fire departments.

G. Impact on public utilities: Description of the method to be used to service the development with water and sanitary sewer facilities, the method to be used to control drainage on the site and from the site, including runoff control during periods of construction. For sites service with sanitary sewer, calculations for pre- and post development flows shall be provided in equivalents to a single family home. Where septic systems are proposed, documentation or permits from the Livingston County Health Department shall be provided.

The development is currently served by both public water and septic system. With regards to storm water management, the project will be required to meet all local, county, and state storm water and erosion control requirements. No modification of the detention basin near Brighton Rd is needed based upon minimal changes to the site. All of the existing information is included in the Site Plan documents.

H. Storage or handling of any hazardous materials: Description of any hazardous substances expected to be used, stored or disposed of on the site. The information shall describe the type of materials, location within the site and method of containment. Documentation of compliance with federal and state requirements, and a Pollution Incident Prevention Plan (PIPP) shall be submitted, as appropriate.

There will be no hazardous materials used or disposed of on this site.

I. Impact on traffic and pedestrians: A description of the traffic volumes to be generated based on national reference documents, such as the most recent edition of the Institute of Transportation Engineers Trip Generation Manual, other published studies or actual counts of similar uses in Michigan.

Please see the revised Site Access and Circulation Evaluation prepared by Fleis & Vandenbrink (Appendix A).

In addition to the Site Access and Circulation Evaluation and more in terms of on-site circulation and traffic the school will host a Family Fall Meeting prior to school starting where site circulation will be talked about with the parents and students. Informational handouts would be distributed covering the following items in terms of safe site circulation:

- Enter the parking lot and drive north, follow designated markings towards pick up/dropoff area
- While unloading passengers put the car in park and stay clear of pedestrian crosswalk. Beware of parents and children standing in pedestrian marked areas and walking to and from designated parking area.
- Drivers depart the pick up/dropoff zone by following the designated markings and exiting via the 2 parallel lanes.
- Vehicles designated for the school students and parents should remain locked at all times.
- Inform students and parents alike that you cannot make a right turn onto Brighton Rd then turnaround and head back east on Brighton Rd.

J. A detailed traffic impact study shall be submitted for any site over ten (10) acres in size which would be expected to generate 100 directional vehicle trips (i.e. 100 inbound or 100 outbound trips) during the peak hour of traffic of the generator or on the adjacent streets.

Prior analysis has been completed by the Livingston County Road Commission and Fleis & Vandenbrink have more recently provided an updated Site Access and Circulation Evaluation dated 10-24-17 (see Appendix A).

K. Special Provisions: General description of any deed restrictions, protective covenants, master deed or association bylaws.

The School requires a Special Use Permit to operate in a residentially zoned district.

L. A list of all sources shall be provided.

Genoa Township's *Submittal Requirements For Impact Assessment*

Genoa Township Zoning Ordinances

Soil Survey of Livingston County, Michigan, U.S.D.A. Soil Conservation Service

National Wetland Inventory Plan, United States Department of the Interior, Fish and Wildlife Service

APPENDIX A

Memo

VIA EMAIL

To: **Mr. Robert Wiegand**
Livingston Christian Schools

From: **Michael J. Labadie, PE**
Steven J. Russo, PE
Fleis & VandenBrink

Date: **October 24, 2017**

Re: **Livingston Christian School**
Genoa Township, Michigan
Site Access and Circulation Evaluation

Introduction

This memorandum presents the results of the site access and circulation evaluation for the proposed Livingston Christian School (LCS) in Genoa Township, Michigan. The project site is located on the north side of Brighton Road approximately 300 feet west of the signalized Brighton High School driveway and is currently occupied by the Brighton Nazarene Church. The proposed development plans include the addition of a school which will occupy a portion of the existing Church. Site access is currently provided via a single site driveway to Brighton Road and is not proposed to change as part of the development plans. The school is expected to open in 2018 and will have a maximum enrollment of 200 students. The Township has requested a site access and circulation evaluation to analyze future operations of the site driveway to Brighton Road and on-site operations.

The scope of this study was developed to address the traffic related impacts of the school addition and provide recommendations for any road improvements and/or traffic management plans that would be required to mitigate any traffic impacts. Additionally, F&V provided analysis and recommendations for on-site traffic circulation to adequately accommodate parent pick-up / drop-off activities. This study was conducted in accordance with accepted traffic engineering practice to provide information and recommendations to LCS and address concerns of Genoa Township and the Livingston County Road Commission (LCRC).

Data Collection

The proposed LCS start time is 8:00 AM and the dismissal time is 3:00 PM for all grades. These times were established to provide a minimum 30 minute separation between the start and end times of the nearby Brighton High School (7:25 AM to 2:25 PM), Maltby Middle School (8:30 AM to 3:31 PM), and Hornung Elementary School (8:47 AM to 3:50 PM) to account for the traffic arriving and departing these schools. Therefore, the analysis for this study focuses on the AM student arrival hour (7:15 AM to 8:15 AM) and the PM student dismissal hour (2:30 PM to 3:30 PM), when traffic volumes generated by the proposed school are at their peaks.

The existing weekday turning movement traffic volume data were collected by Fleis & VandenBrink (F&V) subconsultant Traffic Data Collection, Inc. (TDC) on Wednesday, October 18, 2017. Intersection turning movement counts were collected during the weekday AM (7:00 AM to 9:00 AM) and PM (2:00 PM to 4:00 PM) peak periods that coincide with the proposed arrival and dismissal times. This data was collected during a non-holiday week while schools were in session operating under normal school hours and was used as a baseline to establish existing traffic conditions without the proposed development.

27725 Stansbury Boulevard, Suite 150
Farmington Hills, MI 48334
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F: 248.536.0079

Schools typically experience strong peaking characteristics with 80% or more of school related traffic arriving and departing within a peak 30 minute period. As the proposed school start and end times provide a minimum 30 minute separation from the neighboring Brighton High School, the peak hour volumes from 7:30 AM to 8:30 AM and 2:45 PM to 3:45 PM were utilized for this study as the peak 30 minute periods for the proposed LCS and Brighton High School will not coincide. These volumes were agreed upon and approved for use by LCRC.

Additionally, due to the proximity of the site driveway to the signalized intersection of Brighton Road & Brighton High School Drive, this intersection was also included in the analysis for simulation purposes only as vehicle queues from this intersection could have adverse impacts on site driveway operations and the signal may help to facilitate gaps along Brighton Road. Turning movement count data for this intersection were also collected by TDC on Wednesday, October 18, 2017. The resulting existing traffic volumes are summarized on the attached Figure 2.

Peak Hour Factors (PHFs) at the study intersections were also calculated based on the requirements of MDOT's *Electronic Traffic Control Device Guidelines*. Typically PHFs are calculated by approach and PHFs less than 0.60 and greater than 0.95 should not be utilized; however, given the subject site is a school with strong peaking characteristics, PHFs were calculated by movement at the study intersections and a PHF of 0.4 was used for all movements in and out of the site driveway consistent with the peaking characteristics of other schools in southeast Michigan. A default PHF of 0.92 was utilized for through traffic along Brighton Road which was agreed upon and approved by LCRC.

Background Conditions

Historical traffic volumes from LCRC on Brighton Road adjacent to the site were reviewed to calculate an applicable growth rate for the existing traffic volumes to the projected maximum enrollment year of 2019. The historical traffic volumes indicate that traffic volumes along Brighton Road between 2010 and 2017 have experienced periods of growth and decline, but overall have remained stagnant in the seven year period. Therefore, background traffic conditions **without the proposed school** are assumed to be equal to existing conditions.

In addition to background traffic growth, it is important to account for traffic that will be generated by developments within the vicinity of the study area that have yet to be constructed or are currently under construction. At the time of this study, no background developments were identified within the study area.

Site Trip Generation

The number of AM and PM peak hour trips that would be generated by the proposed school was forecast based on existing trip generation and student enrollment information provided by LCS. The existing trip generation information was then extrapolated to the future maximum enrollment of 200 students. The resulting trip generation forecast is summarized in Table 1 and is broken down by driver type. The existing trip generation information is also attached to this memorandum.

Table 1: Site Trip Generation

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Livingston Christian School	200	Students	131	101	232	101	125	226
<i>Parents</i>			<i>101</i>	<i>101</i>	<i>202</i>	<i>101</i>	<i>101</i>	<i>202</i>
<i>Student Drivers</i>			<i>17</i>	<i>0</i>	<i>17</i>	<i>0</i>	<i>17</i>	<i>17</i>
<i>Staff</i>			<i>13</i>	<i>0</i>	<i>13</i>	<i>0</i>	<i>7</i>	<i>7</i>

The peak hour site generated trips shown in Table 1 were assigned to the adjacent road network based on address information for current LCS families provided by LCS. This information indicates the site trip distribution summarized in Table 2.

Table 2: Site Trip Distribution

To / From	via	AM / PM
East	Brighton Road	35%
West	Brighton Road	65%
		100%

The site generated trips are shown on Figure 3 and were added to the existing traffic volumes shown on Figure 2 to calculate the future peak hour traffic volumes shown on Figure 4.

Future Conditions

Future peak hour vehicle delays and LOS **with the proposed school** were calculated based on the existing lane use and traffic control, the proposed site access, the future traffic volumes, and the methodologies presented in the *Highway Capacity Manual, 6th Edition* (HCM6). Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. The results of the analysis of future conditions are attached and are summarized in Table 3.

Table 3: Future Intersection Operations

Intersection	Control	Approach	AM Peak		PM Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS
1. Brighton Road & Site Drive	STOP (Minor)	EB LT	8.9	A	10.1	B
		WB	Free		Free	
		SB	92.9	F	33.8	D

The future conditions results indicate that the STOP controlled egress left turn movement from the site driveway to eastbound Brighton Road will operate at a LOS F during both peak periods. However, the HCM analysis does not take into account the effects of upstream signalized intersections. Therefore, SimTraffic simulations were utilized to further evaluate network operations including the effects of the signalized Brighton High School driveway on the site driveway operations.

Review of the SimTraffic network simulations indicates acceptable traffic operations during both peak hours and significant vehicle queues are not observed. The signalized Brighton High School driveway helps to provide gaps in the Brighton Road traffic stream to facilitate egress left turns. 95th percentile queue lengths for the STOP controlled site driveway approach based on SimTraffic simulations are calculated to be 57 feet (2 vehicles) and 135 feet (5 vehicles) during the AM and PM peak hours, respectively, which is not significant and will not extend back into the pick-up / drop-off area. Therefore, future traffic operations with the proposed school will be acceptable and no improvements are recommended for the existing site driveway to Brighton Road.

On-Site Facilities

In order to accommodate school traffic volumes on-site, proper vehicle facilities must be provided for pick-up / drop-off activities. Providing the necessary on-site operations minimizes the impact to adjacent off-site traffic operations. The recommended site access for pick-up / drop-off facilities are summarized below.

Pick-Up / Drop-Off Area

Data collected by F&V staff for previous school studies indicate that 80% of AM peak hour traffic typically arrives in a peak 20 minute period and 70% of PM peak hour traffic typically arrives in a peak 30 minute period. During the AM peak period a minimum of 85 feet of on-site loading space should be provided, based on an average drop-off rate of 45 seconds per vehicle. During the PM peak period, a minimum of 365 feet of on-site loading space should be provided, based on an average pick-up rate of 5.5 minutes per vehicle.

In order to accommodate pick-up and drop-off activities, 265 feet of on-site loading space should be provided. Based on the most recent site plan, the pick-up / drop-off zone should be striped along the entire length of the east side of the building extending from the canopy to the rear of the school.

The pick-up / drop-off loading area should be designed with a one-way counterclockwise circulation with a width of 24 feet. This design will provide for student loading on the passenger side of the vehicle and allow for vehicle passing in the loading zone with minimal vehicle-pedestrian conflicts. Parents should be instructed to pull into the next available space in the pick-up / drop-off area and park along the curb while the child enters / exits the vehicle. Once loading is complete the parent can then pull away from the curb and use the drive lane to exit the site.

Additionally, the pick-up / drop zone should be physically separated from the adjacent parking lot to prevent vehicles from entering or exiting the loading zone early. To achieve this, it is recommended that the parking layout east of the building be reconfigured to have the parking aisles run parallel with the building. With this reconfiguration the row of parking directly adjacent to the student pick-up / drop-off zone should be configured with angle parking along the one way drive aisle.

It is important that parents do not wait in line to pick-up / drop-off their child at the front door. This will result in poor traffic operations and long vehicle queues which will spill out of the site onto adjacent streets.

Conclusions

1. Turning movement count data collected on October 18, 2017 during a non-holiday week while schools were in session was utilized for this study. The analysis periods were identified to be from 7:30 AM to 8:30 AM and 2:45 PM to 3:45 PM.
2. Based on historical traffic volumes along the study section of Brighton Road obtained from the LCRC traffic count database, traffic volumes have remained stagnant between 2010 and 2017. Therefore, background conditions ***without the proposed school*** were assumed equal to existing conditions.
3. The proposed school at maximum enrollment is projected to generate 232 AM peak hour trips (131 inbound and 101 outbound) and 226 PM peak hour trips (101 inbound and 125 outbound).
4. The STOP controlled egress left turn movement from the site driveway to Brighton Road will operate at a LOS F during both peak periods.
5. Review of the SimTraffic network simulations indicates acceptable traffic operations during both peak hours and significant vehicle queues are not observed. The signalized Brighton High School driveway helps to provide gaps in the Brighton Road traffic stream to facilitate egress left turns. 95th percentile queue lengths for the STOP controlled site driveway approach are calculated to be 57 feet (2 vehicles) and 135 feet (5 vehicles) during the AM and PM peak hours, respectively, which is not significant and will not extend back into the pick-up / drop-off area.
6. Create a one-way counter-clockwise vehicle circulation loop for student drop-off / pick-up activities, extending from the canopy to the rear of the school.

Recommendations

1. Provide a minimum of 265 feet of on-site loading space for the pick-up / drop-off area.
2. Physically separate the pick-up / drop-off zone to prevent vehicles from entering or exiting the loading zone early.
3. Reconfigure the parking layout east of the building to have all parking aisles run parallel with the building.

Additionally, the following should be encouraged to improve use of the student loading facilities:

4. Site circulation instructions should be distributed to the parents prior to the start of school each year and/or when changes are made in the operation.
5. Allocate staff to direct drivers in the loading zones and encourage efficient entrance/exiting procedures.
6. An informational meeting should be considered to distribute a pamphlet and discuss with parents and staff outlining the curb loading zones, circulation pattern, proposed traffic operations and parking restrictions.
7. Students should enter/exit their parent's vehicles only on the passenger side.

Any questions related to this memorandum, study, analyses, and results should be addressed to Fleis & VandenBrink.

Attached: Figure 1 – 4
Traffic Volume Data
Trip Generation Data
Synchro / SimTraffic Results

SJR:mjl

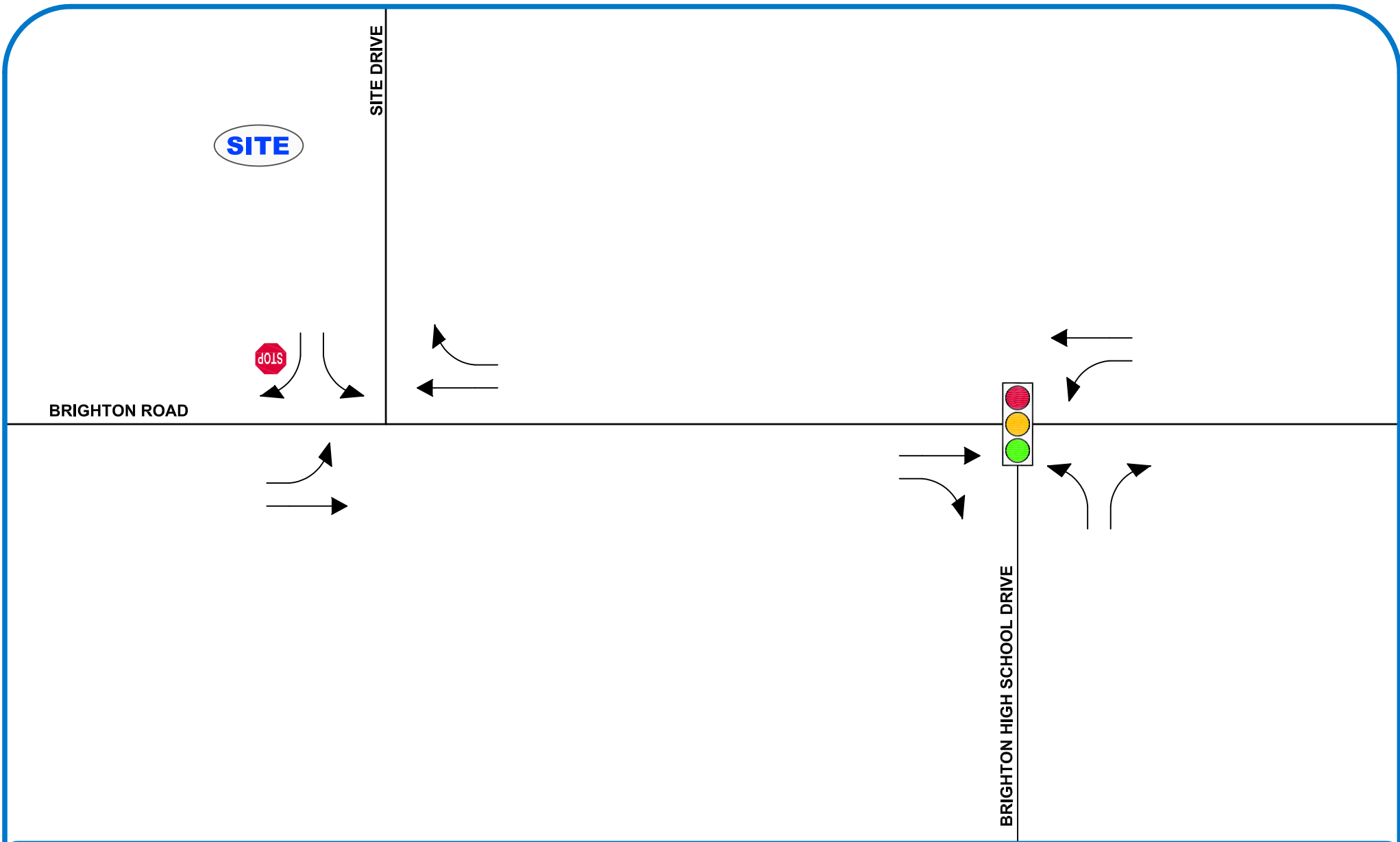






FIGURE 1
LANE USE AND TRAFFIC CONTROL
 LIVINGSTON CHRISTIAN SCHOOL - GENOA TOWNSHIP, MI



LEGEND

-  SIGNALIZED INTERSECTION
-  UNSIGNALIZED INTERSECTION
-  ROADS
-  LANE USE



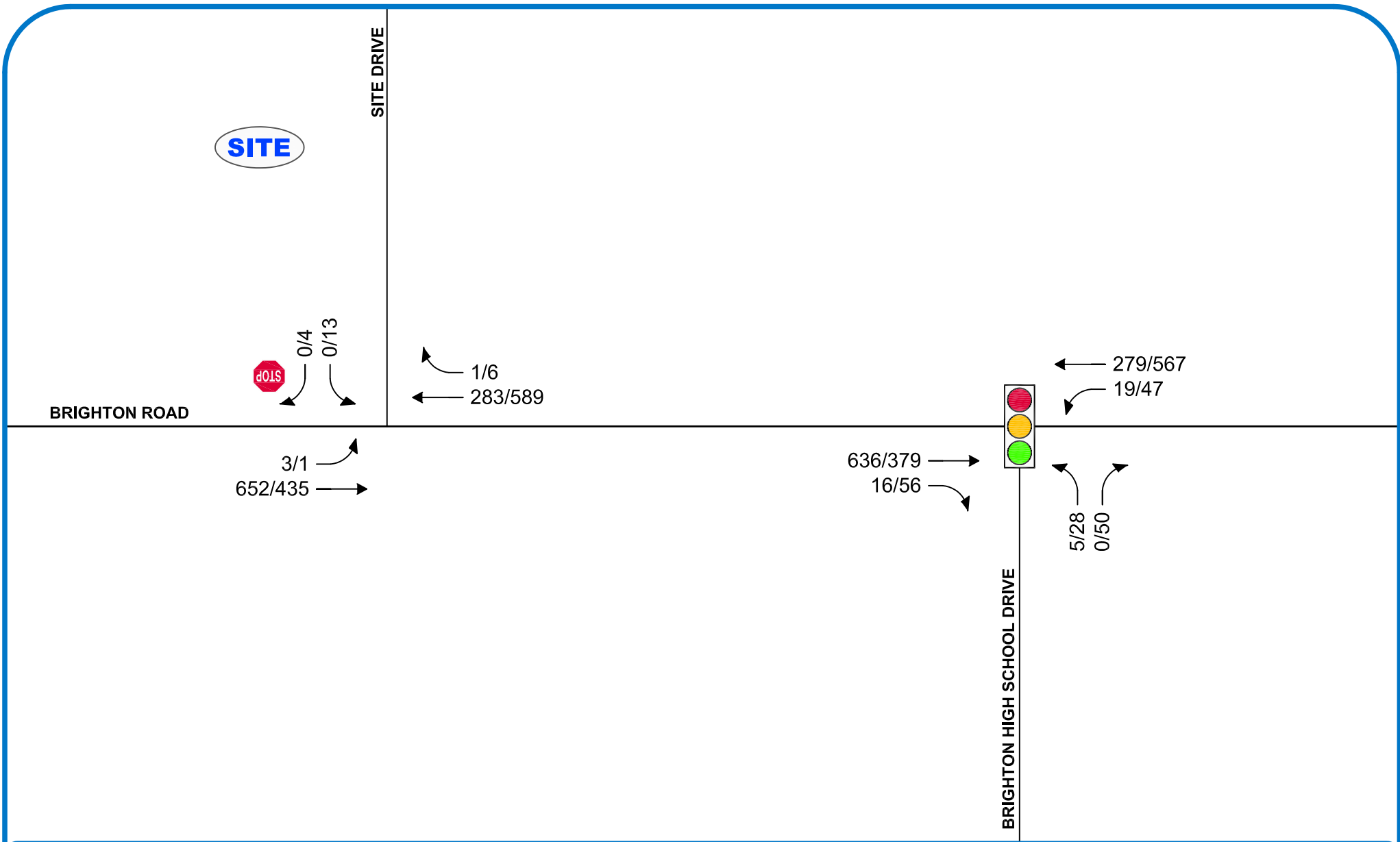






FIGURE 2
EXISTING TRAFFIC VOLUMES
 LIVINGSTON CHRISTIAN SCHOOL - GENOA TOWNSHIP, MI

LEGEND

-  SIGNALIZED INTERSECTION
-  UNSIGNALIZED INTERSECTION
-  TRAFFIC VOLUMES (AM/PM)
-  ROADS



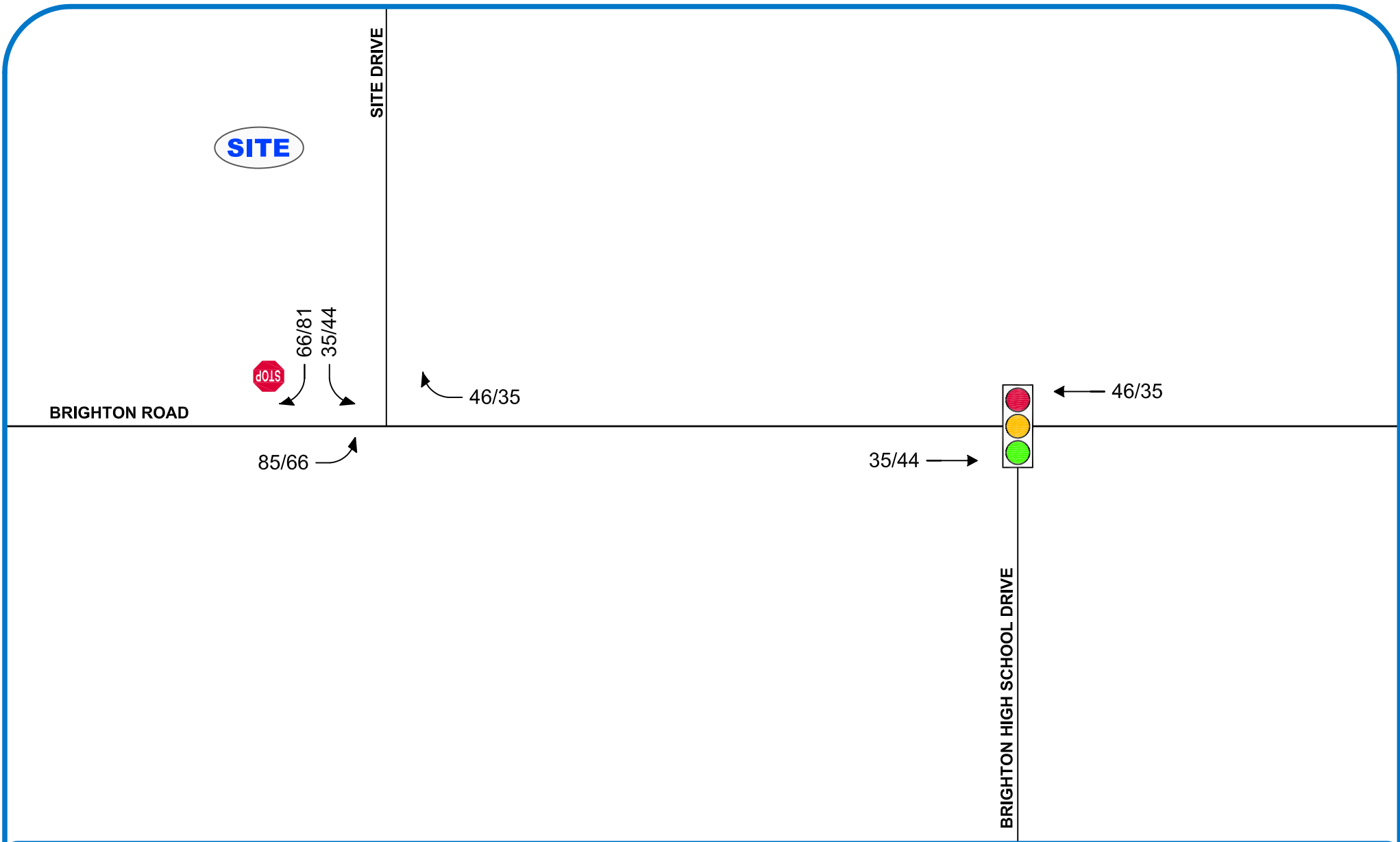






FIGURE 3 SITE-GENERATED TRAFFIC VOLUMES

LIVINGSTON CHRISTIAN SCHOOL - GENOA TOWNSHIP, MI

LEGEND

-  SIGNALIZED INTERSECTION
-  UNSIGNALIZED INTERSECTION
-  TRAFFIC VOLUMES (AM/PM)
-  ROADS



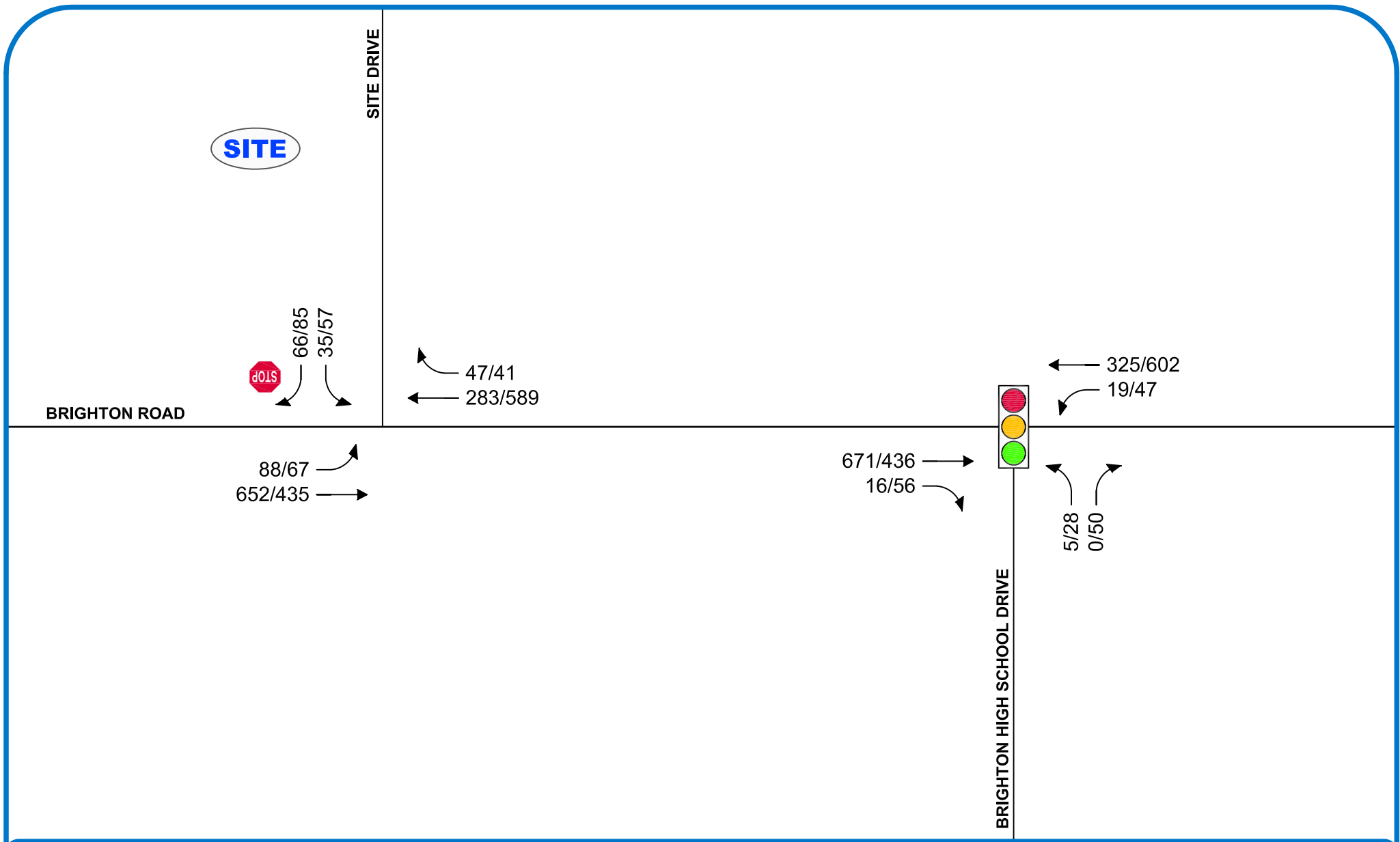






FIGURE 4
FUTURE TRAFFIC VOLUMES
 LIVINGSTON CHRISTIAN SCHOOL - GENOA TOWNSHIP, MI

LEGEND

-  SIGNALIZED INTERSECTION
-  UNSIGNALIZED INTERSECTION
-  TRAFFIC VOLUMES (AM/PM)
-  ROADS



Traffic Data Collection, LLC

tdccounts.com

Phone: (586) 786-5407

Traffic Study Performed For:

Fleis & VandenBrink



Project: Brighton Traffic Impact Study
 Type: 4 Hr. Video Turning Movement Count
 Weather: Sunny/Cldy, Dry Deg. 70's
 Count By: Miovision Video SCU 340 NE

File Name : TMC_1 Brighton & NazereneDw_10-18-17
 Site Code : TMC_1
 Start Date : 10/18/2017
 Page No : 1

Groups Printed- Pass Cars - Single Units - Heavy Trucks - Peds.

Start Time	Brighton Nazerene Church Drive Southbound					Brighton Road Westbound					NA Northbound					Brighton Road Eastbound					Int. Total
	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	
07:00 AM	2	0	1	0	3	2	55	0	0	57	0	0	0	0	0	0	300	1	0	301	361
07:15 AM	0	0	0	0	0	0	61	0	0	61	0	0	0	0	0	0	218	0	0	218	279
07:30 AM	0	0	0	1	1	0	47	0	0	47	0	0	0	0	0	0	125	0	0	125	173
07:45 AM	0	0	0	0	0	1	71	0	0	72	0	0	0	0	0	0	159	2	0	161	233
Total	2	0	1	1	4	3	234	0	0	237	0	0	0	0	0	0	802	3	0	805	1046
08:00 AM	0	0	0	0	0	0	104	0	0	104	0	0	0	0	0	0	152	1	0	153	257
08:15 AM	0	0	0	1	1	0	61	0	0	61	0	0	0	0	0	0	216	0	0	216	278
08:30 AM	0	0	0	0	0	2	80	0	0	82	0	0	0	0	0	0	156	0	0	156	238
08:45 AM	0	0	0	2	2	1	89	0	0	90	0	0	0	0	0	0	183	1	0	184	276
Total	0	0	0	3	3	3	334	0	0	337	0	0	0	0	0	0	707	2	0	709	1049
**** BREAK ****																					
02:00 PM	2	0	0	0	2	1	86	0	0	87	0	0	0	0	0	0	70	0	0	70	159
02:15 PM	1	0	0	0	1	2	103	0	0	105	0	0	0	0	0	0	110	1	0	111	217
02:30 PM	2	0	1	2	5	1	244	0	0	245	0	0	0	0	0	0	80	1	0	81	331
02:45 PM	1	0	1	1	3	0	105	0	0	105	0	0	0	0	0	0	81	0	0	81	189
Total	6	0	2	3	11	4	538	0	0	542	0	0	0	0	0	0	341	2	0	343	896
03:00 PM	1	0	3	0	4	2	148	0	0	150	0	0	0	0	0	0	110	0	0	110	264
03:15 PM	1	0	3	0	4	2	153	0	0	155	0	0	0	0	0	0	115	1	0	116	275
03:30 PM	1	0	6	1	8	2	183	0	0	185	0	0	0	0	0	0	128	0	0	128	321
03:45 PM	0	0	0	0	0	1	158	0	0	159	0	0	0	0	0	0	124	0	0	124	283
Total	3	0	12	1	16	7	642	0	0	649	0	0	0	0	0	0	477	1	0	478	1143
Grand Total	11	0	15	8	34	17	1748	0	0	1765	0	0	0	0	0	0	2327	8	0	2335	4134
Apprch %	32.4	0	44.1	23.5		1	99	0	0		0	0	0	0	0	0	99.7	0.3	0		
Total %	0.3	0	0.4	0.2	0.8	0.4	42.3	0	0	42.7	0	0	0	0	0	0	56.3	0.2	0	56.5	
Pass Cars	11	0	15	0	26	17	1685	0	0	1702	0	0	0	0	0	0	2269	8	0	2277	4005
% Pass Cars	100	0	100	0	76.5	100	96.4	0	0	96.4	0	0	0	0	0	0	97.5	100	0	97.5	96.9
Single Units	0	0	0	0	0	0	61	0	0	61	0	0	0	0	0	0	56	0	0	56	117
% Single Units	0	0	0	0	0	0	3.5	0	0	3.5	0	0	0	0	0	0	2.4	0	0	2.4	2.8
Heavy Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
% Heavy Trucks	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0.1	0	0	0.1	0.1
Peds.	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
% Peds.	0	0	0	100	23.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2

Comments: 4 hour traffic study conducted during typical weekday (Wednesday) from 7:00-9:00 AM morning & 2:00-4:00 PM afternoon peak hours while school was in session. Non-signalized "T" intersection. Video SCU camera was located within NE intersection quadrant.

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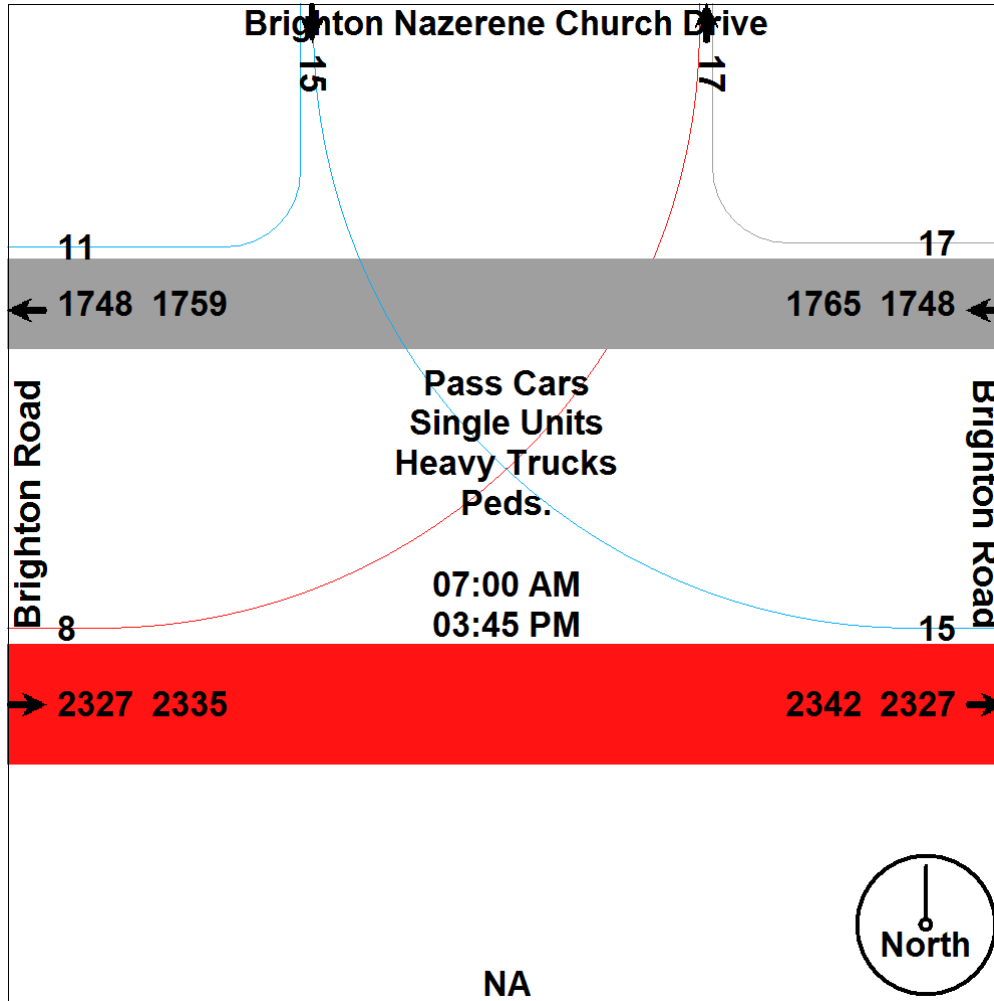
Traffic Study Performed For:

Fleis & VandenBrink



Project: Brighton Traffic Impact Study
Type: 4 Hr. Video Turning Movement Count
Weather: Sunny/Cldy, Dry Deg. 70's
Count By: Miovision Video SCU 340 NE

File Name : TMC_1 Brighton & NazereneDw_10-18-17
Site Code : TMC_1
Start Date : 10/18/2017
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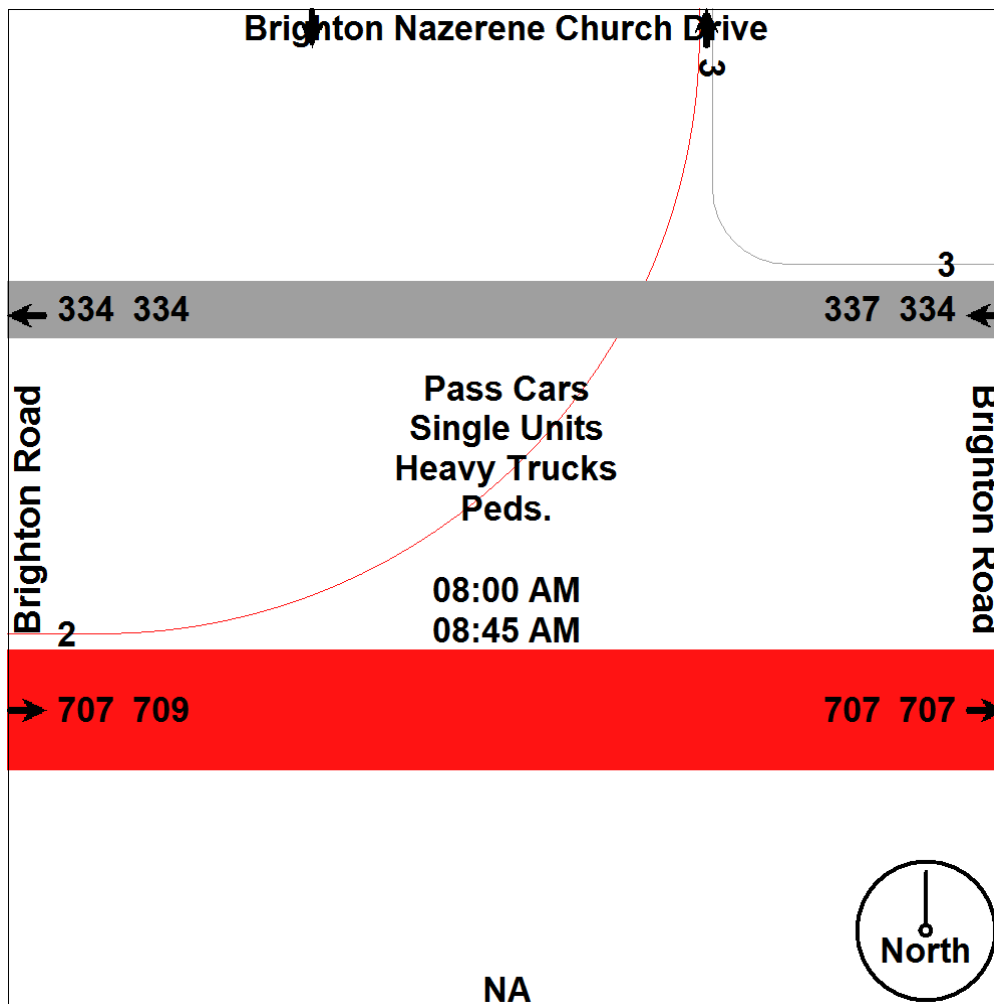
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Project: Brighton Traffic Impact Study
Type: 4 Hr. Video Turning Movement Count
Weather: Sunny/Cldy, Dry Deg. 70's
Count By: Miovision Video SCU 340 NE

File Name : TMC_1 Brighton & NazereneDw_10-18-17
Site Code : TMC_1
Start Date : 10/18/2017
Page No : 3

Start Time	Brighton Nazerene Church Drive Southbound				Brighton Road Westbound				NA Northbound				Brighton Road Eastbound				Int. Total
	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	104	0	104	0	0	0	0	0	152	1	153	257
08:15 AM	0	0	0	0	0	61	0	61	0	0	0	0	0	216	0	216	277
08:30 AM	0	0	0	0	2	80	0	82	0	0	0	0	0	156	0	156	238
08:45 AM	0	0	0	0	1	89	0	90	0	0	0	0	0	183	1	184	274
Total Volume	0	0	0	0	3	334	0	337	0	0	0	0	0	707	2	709	1046
% App. Total	0	0	0	0	0.9	99.1	0		0	0	0	0	0	99.7	0.3		
PHF	.000	.000	.000	.000	.375	.803	.000	.810	.000	.000	.000	.000	.000	.818	.500	.821	.944
Pass Cars	0	0	0	0	3	302	0	305	0	0	0	0	0	678	2	680	985
% Pass Cars	0	0	0	0	100	90.4	0	90.5	0	0	0	0	0	95.9	100	95.9	94.2
Single Units	0	0	0	0	0	31	0	31	0	0	0	0	0	27	0	27	58
% Single Units	0	0	0	0	0	9.3	0	9.2	0	0	0	0	0	3.8	0	3.8	5.5
Heavy Trucks	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
% Heavy Trucks	0	0	0	0	0	0.3	0	0.3	0	0	0	0	0	0.3	0	0.3	0.3
Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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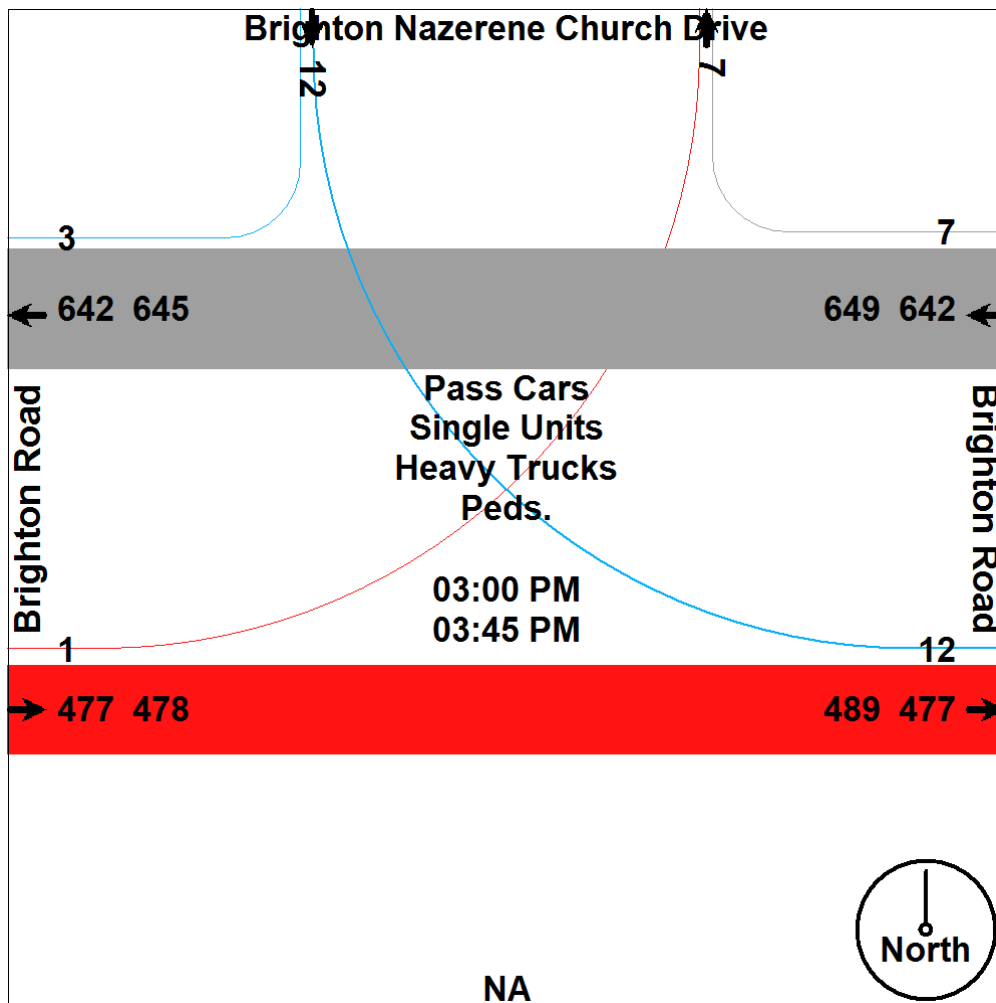
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Project: Brighton Traffic Impact Study
Type: 4 Hr. Video Turning Movement Count
Weather: Sunny/Cldy, Dry Deg. 70's
Count By: Miovision Video SCU 340 NE

File Name : TMC_1 Brighton & NazereneDw_10-18-17
Site Code : TMC_1
Start Date : 10/18/2017
Page No : 4

Start Time	Brighton Nazerene Church Drive Southbound				Brighton Road Westbound				NA Northbound				Brighton Road Eastbound				Int. Total
	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	
Peak Hour Analysis From 12:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	1	0	3	4	2	148	0	150	0	0	0	0	0	110	0	110	264
03:15 PM	1	0	3	4	2	153	0	155	0	0	0	0	0	115	1	116	275
03:30 PM	1	0	6	7	2	183	0	185	0	0	0	0	0	128	0	128	320
03:45 PM	0	0	0	0	1	158	0	159	0	0	0	0	0	124	0	124	283
Total Volume	3	0	12	15	7	642	0	649	0	0	0	0	0	477	1	478	1142
% App. Total	20	0	80		1.1	98.9	0		0	0	0	0	0	99.8	0.2		
PHF	.750	.000	.500	.536	.875	.877	.000	.877	.000	.000	.000	.000	.000	.932	.250	.934	.892
Pass Cars	3	0	12	15	7	625	0	632	0	0	0	0	0	461	1	462	1109
% Pass Cars	100	0	100	100	100	97.4	0	97.4	0	0	0	0	0	96.6	100	96.7	97.1
Single Units	0	0	0	0	0	17	0	17	0	0	0	0	0	16	0	16	33
% Single Units	0	0	0	0	0	2.6	0	2.6	0	0	0	0	0	3.4	0	3.3	2.9
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Project: Brighton Traffic Impact Study
Type: 4 Hr. Video Turning Movement Count
Weather: Sunny/Cldy, Dry Deg. 70's
Count By: Miovision Video SCU 4G2 SE

File Name : TMC_2 Brighton & HighSchoolDw_10-18-17
Site Code : TMC_2
Start Date : 10/18/2017
Page No : 1

Groups Printed- Pass Cars - Single Units - Heavy Trucks - Peds.

Start Time	NA Southbound					Brighton Road Westbound					Brighton High School Drive Northbound					Brighton Road Eastbound					Int. Total
	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	0	0	0	35	147	0	182	8	0	21	0	29	174	129	0	0	303	514
07:15 AM	0	0	0	0	0	0	51	52	0	103	8	0	7	0	15	101	137	0	0	238	356
07:30 AM	0	0	0	0	0	0	44	5	0	49	0	0	3	0	3	6	117	0	0	123	175
07:45 AM	0	0	0	0	0	0	70	4	0	74	0	0	1	0	1	2	156	0	0	158	233
Total	0	0	0	0	0	0	200	208	0	408	16	0	32	0	48	283	539	0	0	822	1278
08:00 AM	0	0	0	0	0	0	103	5	0	108	0	0	1	0	1	1	151	0	0	152	261
08:15 AM	0	0	0	0	0	0	62	5	0	67	0	0	0	0	0	7	211	0	0	218	285
08:30 AM	0	0	0	0	0	0	79	3	0	82	0	0	2	0	2	1	151	0	0	152	236
08:45 AM	0	0	0	0	0	0	89	3	0	92	2	0	2	0	4	2	177	0	0	179	275
Total	0	0	0	0	0	0	333	16	0	349	2	0	5	0	7	11	690	0	0	701	1057
**** BREAK ****																					
02:00 PM	0	0	0	0	0	0	87	4	0	91	1	0	0	0	1	4	68	0	0	72	164
02:15 PM	0	0	0	0	0	0	91	21	0	112	13	0	15	0	28	15	97	0	0	112	252
02:30 PM	0	0	0	0	0	0	145	9	0	154	137	0	93	0	230	10	68	0	1	79	463
02:45 PM	0	0	0	0	0	0	101	10	0	111	18	0	5	0	23	8	75	0	0	83	217
Total	0	0	0	0	0	0	424	44	0	468	169	0	113	0	282	37	308	0	1	346	1096
03:00 PM	0	0	0	0	0	0	137	14	0	151	7	0	10	0	17	23	92	0	0	115	283
03:15 PM	0	0	0	0	0	0	150	13	0	163	13	0	6	0	19	16	102	0	0	118	300
03:30 PM	0	0	0	0	0	0	177	10	0	187	12	0	7	0	19	9	122	0	0	131	337
03:45 PM	0	0	0	0	0	0	154	11	0	165	2	0	4	0	6	3	121	0	0	124	295
Total	0	0	0	0	0	0	618	48	0	666	34	0	27	0	61	51	437	0	0	488	1215
Grand Total	0	0	0	0	0	0	1575	316	0	1891	221	0	177	0	398	382	1974	0	1	2357	4646
Apprch %	0	0	0	0	0	0	83.3	16.7	0		55.5	0	44.5	0		16.2	83.8	0	0		
Total %	0	0	0	0	0	0	33.9	6.8	0	40.7	4.8	0	3.8	0	8.6	8.2	42.5	0	0	50.7	
Pass Cars	0	0	0	0	0	0	1523	299	0	1822	199	0	170	0	369	379	1918	0	0	2297	4488
% Pass Cars	0	0	0	0	0	0	96.7	94.6	0	96.4	90	0	96	0	92.7	99.2	97.2	0	0	97.5	96.6
Single Units	0	0	0	0	0	0	51	17	0	68	22	0	7	0	29	3	52	0	0	55	152
% Single Units	0	0	0	0	0	0	3.2	5.4	0	3.6	10	0	4	0	7.3	0.8	2.6	0	0	2.3	3.3
Heavy Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
% Heavy Trucks	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0.2	0	0	0.2	0.1
Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
% Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0

Comments: 4 hour traffic study conducted during typical weekday (Wednesday) from 7:00-9:00 AM morning & 2:00-4:00 PM afternoon peak hours while school was in session. Signalized intersection no ped. signals. Video SCU camera was located within SE intersection quadrant.

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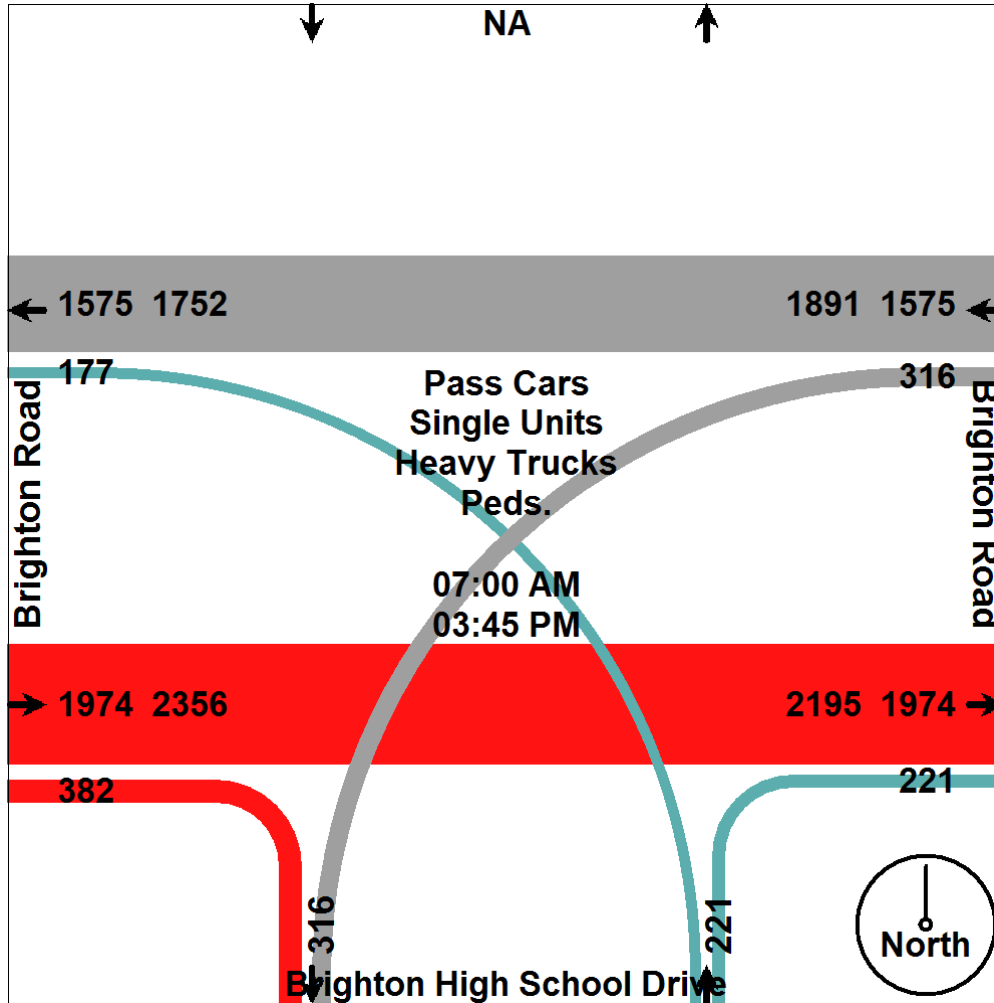
Traffic Study Performed For:

Fleis & VandenBrink



Project: Brighton Traffic Impact Study
Type: 4 Hr. Video Turning Movement Count
Weather: Sunny/Cldy, Dry Deg. 70's
Count By: Miovision Video SCU 4G2 SE

File Name : TMC_2 Brighton & HighSchoolDw_10-18-17
Site Code : TMC_2
Start Date : 10/18/2017
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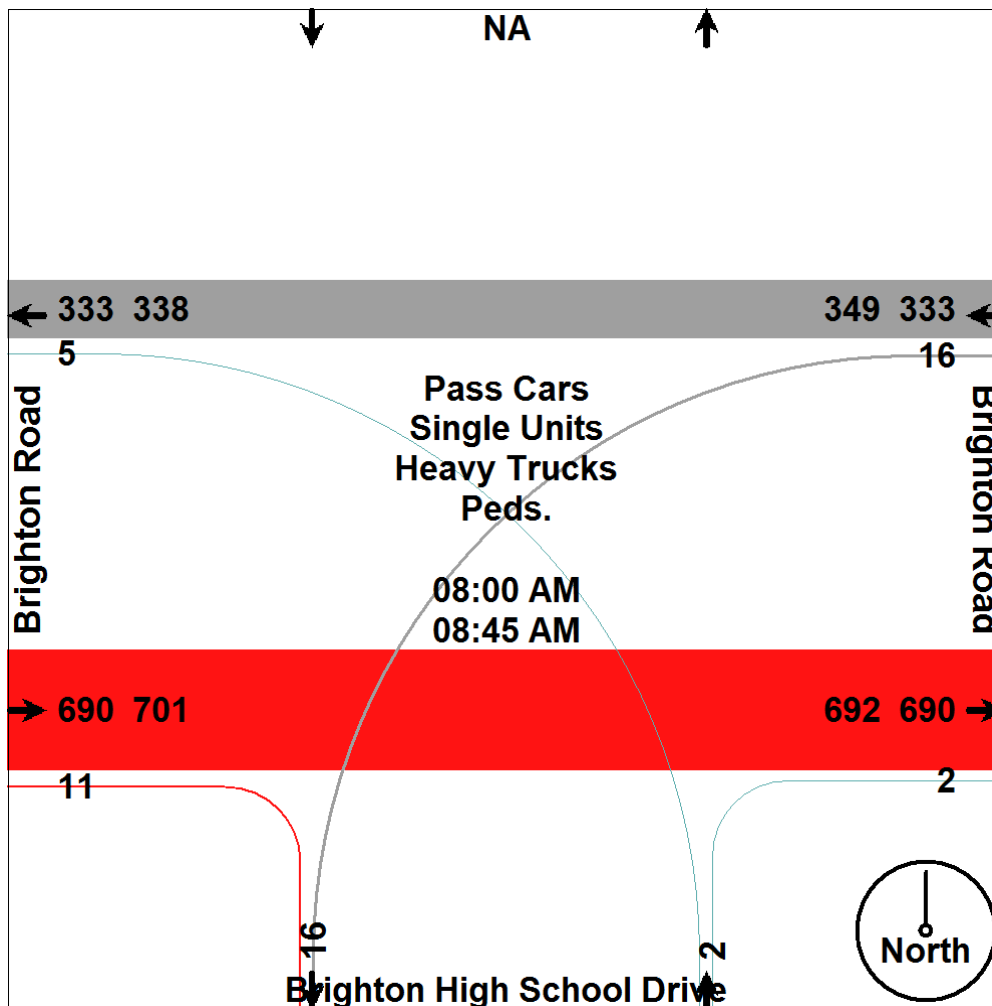
Fleis & VandenBrink



Project: Brighton Traffic Impact Study
Type: 4 Hr. Video Turning Movement Count
Weather: Sunny/Cldy, Dry Deg. 70's
Count By: Miovision Video SCU 4G2 SE

File Name : TMC_2 Brighton & HighSchoolDw_10-18-17
Site Code : TMC_2
Start Date : 10/18/2017
Page No : 3

Start Time	NA Southbound				Brighton Road Westbound				Brighton High School Drive Northbound				Brighton Road Eastbound				Int. Total
	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	
Peak Hour Analysis From 08:00 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	103	5	108	0	0	1	1	1	151	0	152	261
08:15 AM	0	0	0	0	0	62	5	67	0	0	0	0	7	211	0	218	285
08:30 AM	0	0	0	0	0	79	3	82	0	0	2	2	1	151	0	152	236
08:45 AM	0	0	0	0	0	89	3	92	2	0	2	4	2	177	0	179	275
Total Volume	0	0	0	0	0	333	16	349	2	0	5	7	11	690	0	701	1057
% App. Total	0	0	0	0	0	95.4	4.6		28.6	0	71.4		1.6	98.4	0		
PHF	.000	.000	.000	.000	.000	.808	.800	.808	.250	.000	.625	.438	.393	.818	.000	.804	.927
Pass Cars	0	0	0	0	0	307	15	322	2	0	3	5	9	663	0	672	999
% Pass Cars	0	0	0	0	0	92.2	93.8	92.3	100	0	60.0	71.4	81.8	96.1	0	95.9	94.5
Single Units	0	0	0	0	0	26	1	27	0	0	2	2	2	24	0	26	55
% Single Units	0	0	0	0	0	7.8	6.3	7.7	0	0	40.0	28.6	18.2	3.5	0	3.7	5.2
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0.4	0.3
Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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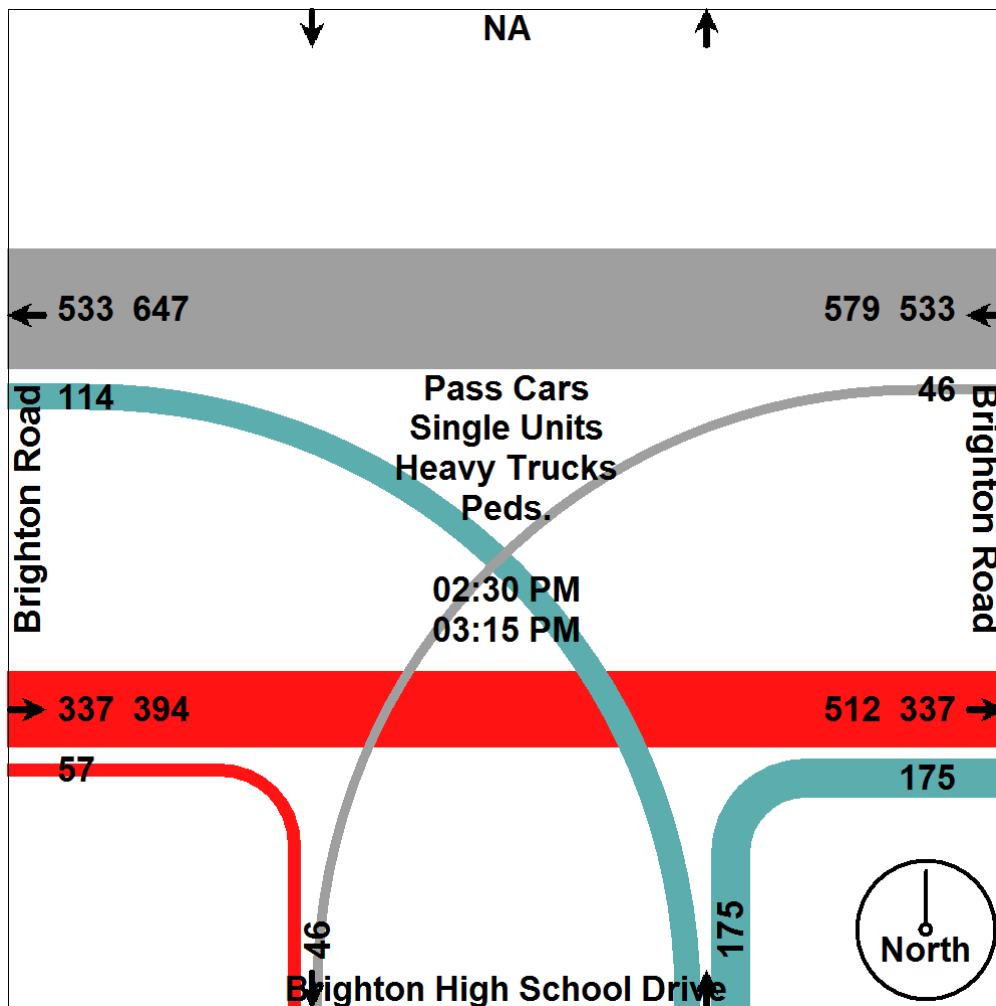
Fleis & VandenBrink



Project: Brighton Traffic Impact Study
Type: 4 Hr. Video Turning Movement Count
Weather: Sunny/Cldy, Dry Deg. 70's
Count By: Miovision Video SCU 4G2 SE

File Name : TMC_2 Brighton & HighSchoolDw_10-18-17
Site Code : TMC_2
Start Date : 10/18/2017
Page No : 4

Start Time	NA Southbound				Brighton Road Westbound				Brighton High School Drive Northbound				Brighton Road Eastbound				Int. Total
	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	
Peak Hour Analysis From 12:45 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:30 PM																	
02:30 PM	0	0	0	0	0	145	9	154	137	0	93	230	10	68	0	78	462
02:45 PM	0	0	0	0	0	101	10	111	18	0	5	23	8	75	0	83	217
03:00 PM	0	0	0	0	0	137	14	151	7	0	10	17	23	92	0	115	283
03:15 PM	0	0	0	0	0	150	13	163	13	0	6	19	16	102	0	118	300
Total Volume	0	0	0	0	0	533	46	579	175	0	114	289	57	337	0	394	1262
% App. Total	0	0	0	0	0	92.1	7.9		60.6	0	39.4		14.5	85.5	0		
PHF	.000	.000	.000	.000	.000	.888	.821	.888	.319	.000	.306	.314	.620	.826	.000	.835	.683
Pass Cars	0	0	0	0	0	523	45	568	162	0	113	275	57	331	0	388	1231
% Pass Cars	0	0	0	0	0	98.1	97.8	98.1	92.6	0	99.1	95.2	100	98.2	0	98.5	97.5
Single Units	0	0	0	0	0	10	1	11	13	0	1	14	0	5	0	5	30
% Single Units	0	0	0	0	0	1.9	2.2	1.9	7.4	0	0.9	4.8	0	1.5	0	1.3	2.4
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0.3	0.1
Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



2014-2015 (140 +/- Students)

A.M. Arrivals/Dropoff

Parent/Carpool	71
Student Drivers	12
Staff	<u>18 (50% during peak hour)</u>
	101 Total Vehicles arriving
	71 Vehicles Exiting

P.M. Pickup

Parent/Carpool	71
Student Drivers	12
Staff	<u>18 (25% during peak hour)</u>
	101 Total Vehicles exiting
	71 Vehicles arriving

Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Table 17-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. . . .

Exhibit 17-2. Level of Service Criteria for TWSC Intersections

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. To remain consistent with the AWSC intersection analysis procedure described later in this chapter, a total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The proposed level of service criteria for TWSC intersections are somewhat different from the criteria used in Chapter 16 for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. . . .

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Source: Highway Capacity Manual, 2010. Transportation Research Board, National Research Council

Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle for a 15-min analysis period. The criteria are given in Exhibit 16-2. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

LOS A describes operations with very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

LOS B describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

Exhibit 16-2. Level-of-Service Criteria for Signalized Intersections

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤ 10.0
B	> 10.0 and ≤ 20.0
C	> 20.0 and ≤ 35.0
D	> 35.0 and ≤ 55.0
E	> 55.0 and ≤ 80.0
F	> 80.0

LOS C describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

LOS F describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Capacity Manual, 2010. Transportation Research Board, National Research Council

HCM 6th TWSC
1: Brighton Road & Site Drive

Future Conditions
AM Peak Hour

Intersection						
Int Delay, s/veh	15.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	88	652	283	47	35	66
Future Vol, veh/h	88	652	283	47	35	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	25	60	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	40	92	92	40	40	40
Heavy Vehicles, %	0	4	10	0	0	0
Mvmt Flow	220	709	308	118	88	165

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	426	0	-	0	1457 308
Stage 1	-	-	-	-	308 -
Stage 2	-	-	-	-	1149 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1144	-	-	-	144 737
Stage 1	-	-	-	-	750 -
Stage 2	-	-	-	-	305 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1144	-	-	-	116 737
Mov Cap-2 Maneuver	-	-	-	-	~ 76 -
Stage 1	-	-	-	-	606 -
Stage 2	-	-	-	-	305 -

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	92.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1144	-	-	-	76	737
HCM Lane V/C Ratio	0.192	-	-	-	1.151	0.224
HCM Control Delay (s)	8.9	-	-	-	246.7	11.3
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.7	-	-	-	6.5	0.9

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
1: Brighton Road & Site Drive

Future Conditions
PM Peak Hour

Intersection						
Int Delay, s/veh	7.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	67	435	589	41	57	85
Future Vol, veh/h	67	435	589	41	57	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	25	60	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	40	92	92	40	40	40
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	168	473	640	103	143	213

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	743	0	-	0	1449 640
Stage 1	-	-	-	-	640 -
Stage 2	-	-	-	-	809 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	873	-	-	-	146 479
Stage 1	-	-	-	-	529 -
Stage 2	-	-	-	-	441 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	873	-	-	-	~ 118 479
Mov Cap-2 Maneuver	-	-	-	-	202 -
Stage 1	-	-	-	-	427 -
Stage 2	-	-	-	-	441 -

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	33.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	873	-	-	-	202	479
HCM Lane V/C Ratio	0.192	-	-	-	0.705	0.444
HCM Control Delay (s)	10.1	-	-	-	56.8	18.4
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	0.7	-	-	-	4.5	2.2

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection: 1: Brighton Road & Site Drive

Movement	EB	WB	SB	SB
Directions Served	L	R	L	R
Maximum Queue (ft)	66	20	79	84
Average Queue (ft)	20	1	22	20
95th Queue (ft)	55	10	57	56
Link Distance (ft)				540
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	25	60	
Storage Blk Time (%)		0	3	0
Queuing Penalty (veh)		0	4	0

Intersection: 8001: Brighton HS Drive & Brighton Road

Movement	EB	EB	WB	WB	NB
Directions Served	T	R	L	T	L
Maximum Queue (ft)	148	23	31	73	29
Average Queue (ft)	33	1	8	5	4
95th Queue (ft)	105	9	30	37	18
Link Distance (ft)	284			527	347
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		275	300		
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 4

Intersection: 1: Brighton Road & Site Drive

Movement	EB	WB	WB	SB	SB
Directions Served	L	T	R	L	R
Maximum Queue (ft)	83	10	22	109	208
Average Queue (ft)	21	1	1	33	44
95th Queue (ft)	60	8	10	90	135
Link Distance (ft)		284			570
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200		25	60	
Storage Blk Time (%)		0	0	13	3
Queuing Penalty (veh)		0	0	23	3

Intersection: 8001: Brighton HS Drive & Brighton Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	149	49	54	183	70	45
Average Queue (ft)	57	10	19	57	18	18
95th Queue (ft)	119	35	48	127	46	37
Link Distance (ft)	284			527	347	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275	300			100
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

Network Summary

Network wide Queuing Penalty: 27



BOSS ENGINEERING

3121 E. Grand River
Howell, Michigan 48843

engineers
surveyors
planners
landscape
architects

11/18/2015

Mr. Aaron Aumock
Livingston County Department of Public Health
2300 E Grand River Ave
Suite 102
Howell, MI 48843

Re: Brighton Nazarene Church, 7679 Brighton Road, Genoa Township

Dear Aaron,

Please accept this letter as certification that the septic system as designed by Boss Engineering has been installed in substantial conformance to the approved plans by Bowman Excavating.

The following inspections were performed during construction:

1. October 21 - Witnessed the installation of the 3,320 gallon septic tank and the 5,600 flow equalization tank.
2. October 21 – Inspected the existing 1500 gallon septic tanks for structure integrity. The tanks were then hydrostatically tested by Marshall Bowman by plugging the inlets and outlets of the tanks. The water levels were observed after a twelve hour test period. The static water levels did not change in either one of the tanks.
3. November 6 – Inspected the installation of the new pump and flow inducer tower. The system start up was also conducted at this time. The pressure in the low pressure distribution network serving the final dispersal field was tested via a Squirt Test at distal orifices in each zone. The squirt heights were observed to be consistent with the design pressure specified in the plans of 5 ft.

The 3,320 gallon septic tank and the 5,600 Flow Equalization tank were pressure tested by American Concrete for water tightness. The results are attached for your file.

Feel free to contact me should you have any questions, or if you are in need of any additional information.

Sincerely,
BOSS ENGINEERING COMPANY

Sean Nalepka
Senior Project Manager



Livingston County Department of Public Health

Environmental Health Division
2300 E. Grand River Ave.
Howell, MI 48843
517.546.9858 * 517.546.9853 FAX
co.livingston.mi.us/health

PERMIT #: SEP2015-00180
APPLIED: 06/24/2015
ISSUED: 06/26/2015
EXPIRES: 06/26/2016

Sewage Permit

SITE ADDRESS: 7679 BRIGHTON RD BRIGHTON 48116
PARCEL NO.: 11-25-400-058
TOWNSHIP: Genoa Township
SUBDIVISION:
LOT/PARCEL: /
DIRECTIONS: ACROSS FROM BRIGHTON HIGHSCOOL



OWNER

BRIGHTON CHURCH OF THE NAZAR
7679 BRIGHTON RD
BRIGHTON MI 48116
PH1 810-227-6600

BUILDER

KINGSLAND BUILDING SYSTEMS
1767 ARGENTINE
HOWELL MI 48843
PH1 517-420-8105

CONTRACTOR

BOWMAN EXCAVATING INC
920 W MARR RD
HOWELL MI 48855-8319
PH1 517-546-2117

Environmental Sanitarian: Aaron S. Aumock

Issued Date: June 26, 2015

Project Description:

CHURCH ADDITION

Information:

Type of Use: COMMERCIAL/MIXED USE
Type of Water: Municipal
Type of Work: New
of Tanks/Capacity: 4 / 11,920
Field Size: 4,800 Sq.Ft.
#Beds/Baths: 0 / 0
Type of Parcel: Metes and Bounds
Bsmt Plumbing:

Disp.Sys: STANDARD FIELD
Pretreatment: None
Type of Flow: Pressure
Effluent Filter: COMMERCIAL
Sys.Elevation: Below Grade
Max.Est.Flow: 2,400

Special Requirements:

- Locate the system in the exact area as per Boss Engineering plans job # 13-100, dated 6/5/15.
100% Cutdown to sand at +/- 2 ft., then backfill with a clean sharp sand as needed, then lay stone and tile, 24" max., 12" min. cover. Adding 1200 sq. ft (zone 4) to existing 3600 sq. ft. system (zones 1 thru 3).
Install a septic tank filter on the outlet end of the septic tank.
Tank installation required. Sanitarian must witness excavation and tank placement. Contact Sanitarian to set up inspection.
Required inspections: 1) cutdown 2) final + pressure test.
The designing Engineer must supervise all phases of the construction work and shall certify in writing upon the completion of the system.

Environmental Sanitarian:

Date Finalled:

Handwritten notes: GENOA, 215, 7679 BRIGHTON RD, SEP2015-00180

SEPTIC SYSTEM PLAN FOR BRIGHTON NAZARENE CHURCH

7669 BRIGHTON ROAD BRIGHTON, MI 48116

Project: 950 seat church @ 3 gallons per seat = 2850 gallons per service
 400 seat fellowship hall @ 7 gallons per seat = 2800 gallons at full use
 School with 200 students + 15 Staff @ 7gallons per person = 1505 GPD

Day	Flow (gallons)
Monday = school + 300 person church use	2405
Tuesday = school + 100 person church use	1805
Wednesday = school + 300 person church use	2405
Thursday = school + 100 person church use	1805
Friday = school + 100 person church use	1805
Saturday = 300 person church use + fellowship hall use	3700
Sunday = 950 person church use	2850
Weekly Total:	16775

Equalization cycle is 1 week 7 days
 Equalization of daily flow Weekly flow/cycle 2396.429/gal/day

Day	In (gallons)	Out (gallons)	Residual (gallons)
Saturday	3700	2396.428571	1303.571429
Sunday	2850	2396.428571	1757.142857
Monday	2405	2396.428571	1785.714286
Tuesday	1805	2396.428571	1174.285714
Wednesday	2405	2396.428571	1182.857143
Thursday	1805	2396.428571	591.4285714
Friday	1805	2396.428571	0
Total:	16775	16775	0

The equalization storage volume the greater of the peak daily flow (3700 gallons) or the calculated maximum residual 1,766 gallons plus a 20% factor of safety = (2,119 gallons)
 Equalization storage volume = 3700 gallons
 The equalization tank must be large enough to provide the gallon volume plus additional volume to allow for pump submergence and high water float. Therefore, a 5,600 gal tank is being utilized.

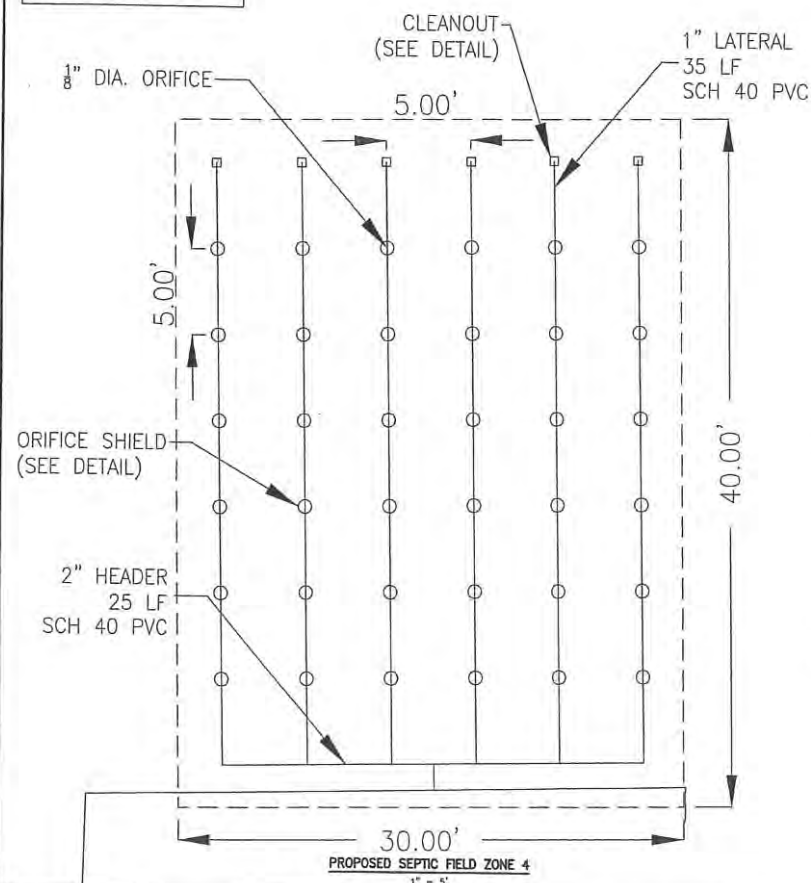
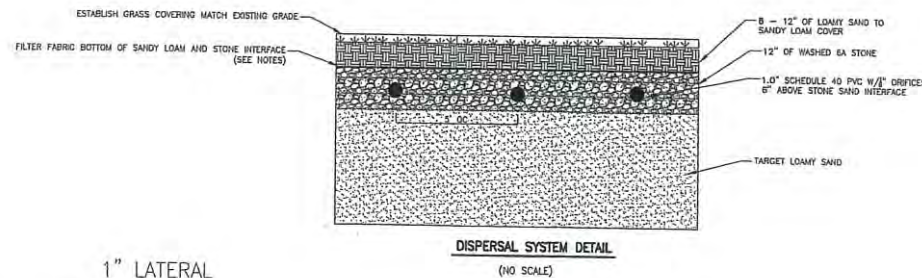
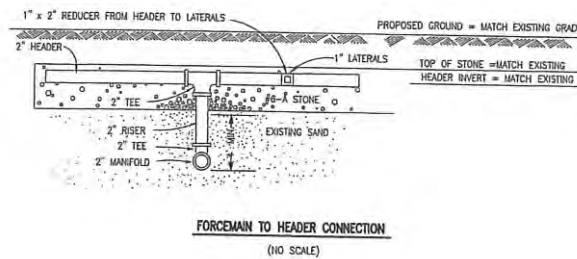
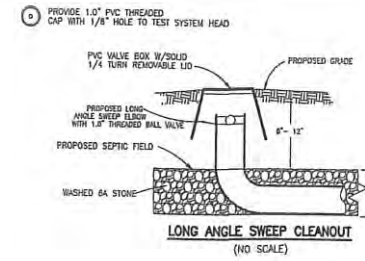
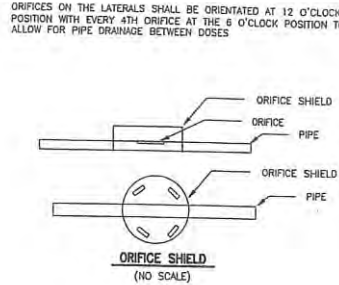
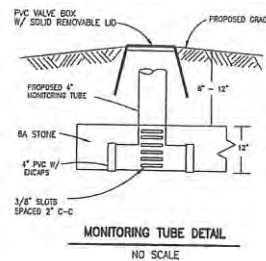
BASIS OF DESIGN

DESIGN SOILS - LOAMY SAND - SLR PER (MCFSSD) = .5 GAL PER SQFT

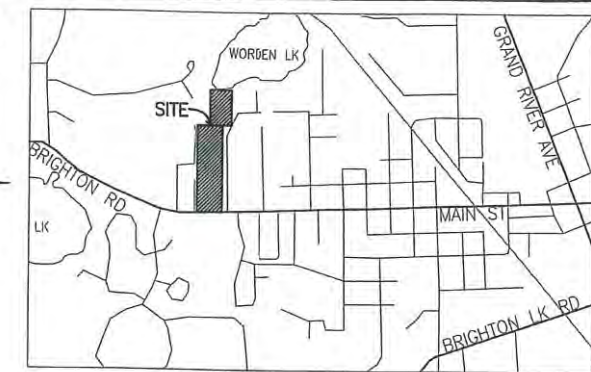
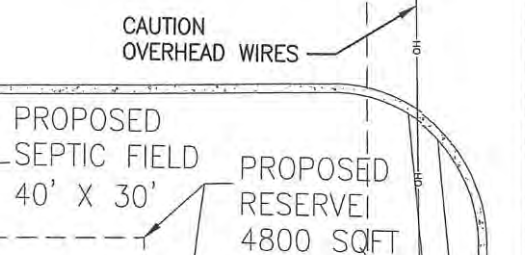
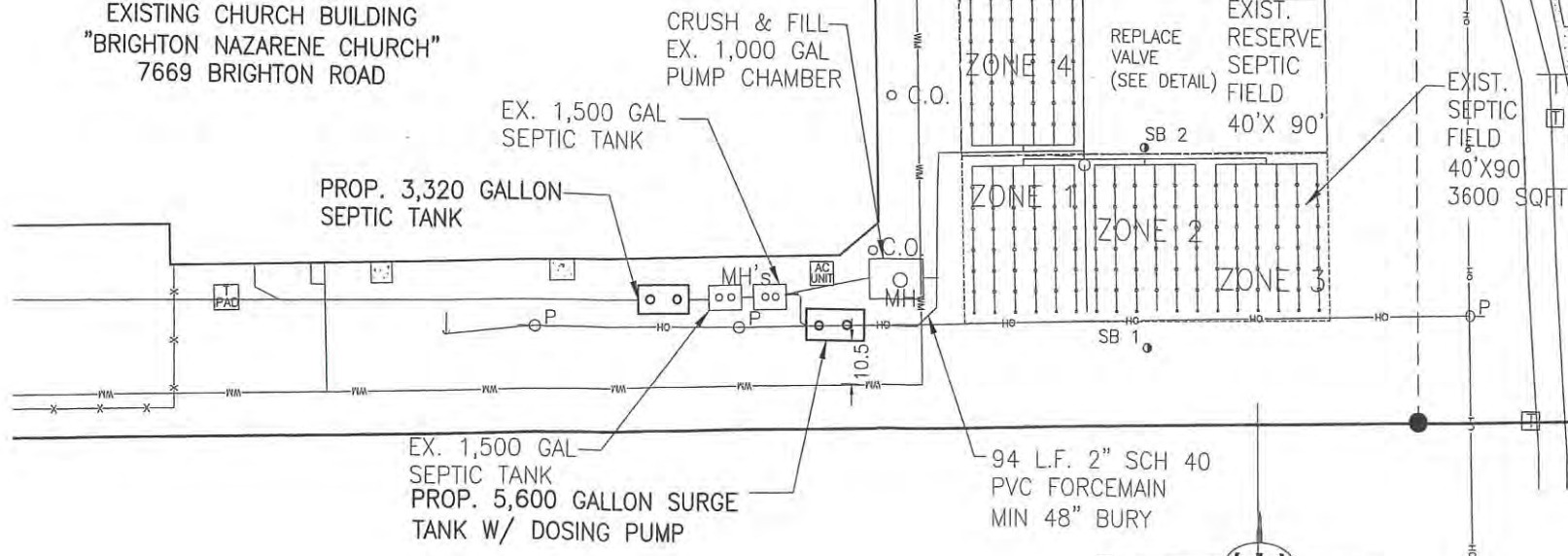
SOIL LOADING RATE = 2396 GPD / 4800 SQFT = 0.5

SOIL BORING #1:
 0-1' LOAMY SAND TOPSOIL
 1'-4' LOAMY SAND
 4'-8' COARSE SAND

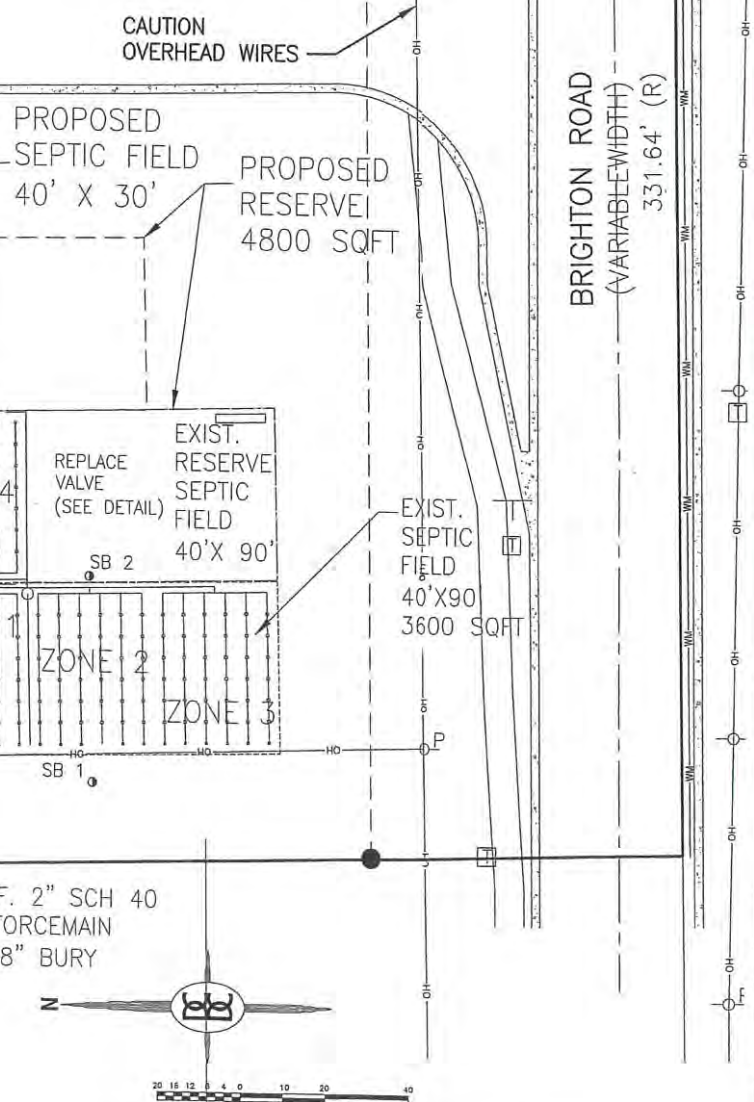
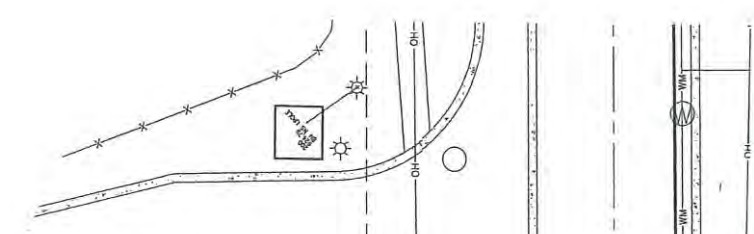
SOIL BORING #2:
 0-1' LOAMY SAND TOPSOIL
 1'-6' LOAMY SAND
 6'-9' COARSE SAND



EXISTING CHURCH BUILDING
 "BRIGHTON NAZARENE CHURCH"
 7669 BRIGHTON ROAD

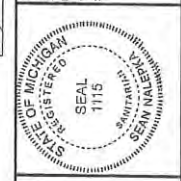


LOCATION MAP
 NO SCALE



THE LOCATION AND LAYOUT OF EXISTING UNDERGROUND UTILITIES ARE EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OF ACCURACY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND DEPTH OF ALL UTILITIES. THE CONTRACTOR SHALL NOTIFY THE UTILITY OF ANY CONFLICTS WITH THE PLAN OR IF THE LOCATION OR DEPTH DIFFERS SIGNIFICANTLY FROM THE PLAN.

3 existing wires DIG BEFORE YOU DIG
 1-800-485-7171



BOSS ENGINEERING
 ENGINEERS • SURVEYORS • PLANNERS
 LANDSCAPE ARCHITECTS
 3100 GRAND RIVER AVE
 (E-MAIL: info@bosseng.com)
 48106-1403 MI, USA FAX (517) 544-1070
 (800) 248-0735

PROJECT: B.N.C. SEPTIC PLAN
 PREPARED FOR: BRIGHTON NAZARENE CHURCH
 7669 BRIGHTON ROAD
 BRIGHTON, MI 48116
 810-227-8600

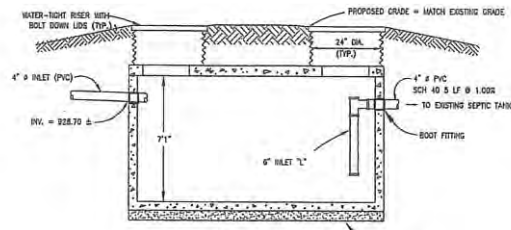
TITLE: SEPTIC SYSTEM PLAN & DETAILS

NO	BY	DATE	REVISION

DESIGNED BY: SN
 DRAWN BY: TE
 CHECKED BY:
 SCALE: 1" = 20'
 JOB NO. 13-100
 DATE: 6/5/15
 SHEET NO. 1

SEPTIC SYSTEM PLAN DETAILS

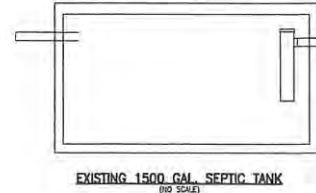
TREATMENT TRAIN



PROPOSED 320 SEPTIC TANK
(NO SCALE)

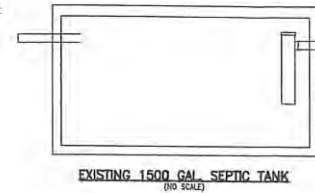
- ALL JOINTS TO BE SEALED WITH PREMIUM MASTIC SEALER
- RUBBER BOOT FITTINGS REQUIRED ON ALL TANK PENETRATIONS

NOTE: ALL TANKS SHALL BE VERIFIED TO BE WATERTIGHT VIA HYDROSTATIC TESTING. RESULTS TO BE PROVIDED TO DESIGN ENGINEER.



EXISTING 1500 GAL SEPTIC TANK
(NO SCALE)

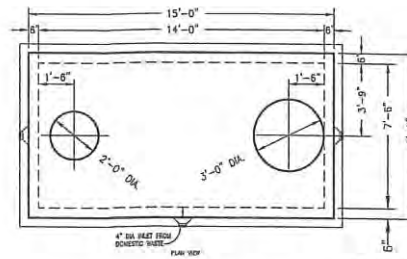
NOTE: ALL TANKS SHALL BE VERIFIED TO BE WATERTIGHT VIA HYDROSTATIC TESTING



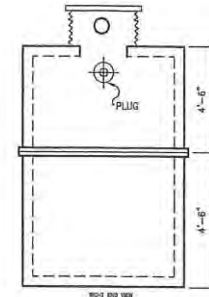
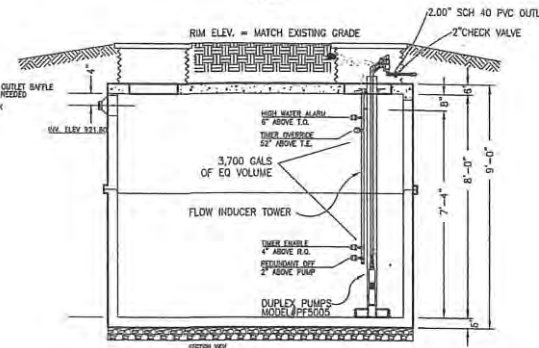
EXISTING 1500 GAL SEPTIC TANK
(NO SCALE)

NOTE: ALL TANKS SHALL BE VERIFIED TO BE WATERTIGHT VIA HYDROSTATIC TESTING

CONTACT SYSTEM DESIGNER FOR HYDROSTATIC TESTING INSTRUCTIONS



PROPOSED 5,600 GALLON TANK - 14' x 7'-6" x 8'
(ADVANCE CONCRETE PRODUCTS CO.)
SCALE: NONE



CONTROL PANEL MODEL # MVPDAX1R0PHTSA
(MUST BE MOUNTED WITHIN SEPTIC TANK RISERS)
SCALE: NONE

Pump Selection for a Pressurized System - Single Family Residence Project Brighton Naz

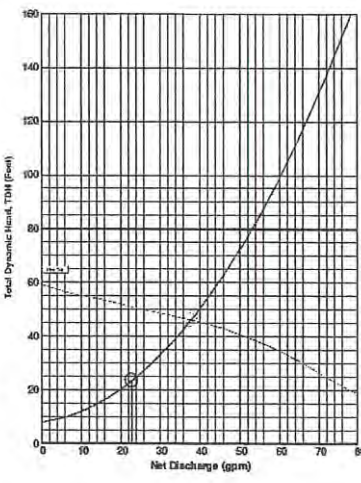
Penetrations	
Discharge Assembly/Flange	2.00 inches
Through Length Below Valve	34 feet
Through Pipe Class	40
Through Line Size	2.00 inches
Existing Valve Model	6004
Through Length Above Valve	46 feet
Through Pipe Class	3.00 inches
Through Line Size	3.00 inches
Max Elevation Lift	8 feet
Manifold Length	40 feet
Manifold Pipe Class	40
Manifold Line Size	2.00 inches
Number of Lateral per Cell	24
Lateral Length	38 feet
Lateral Pipe Class	40
Lateral Line Size	1.50 inches
Cell Size	186 inches
Cell Spacing	8 feet
Manifold Head	6 feet
Flow Meter	1860 inches
Add or Reduce Losses	2 feet

Calculateds	
Minimum Flow Rate per Cell	0.47 gpm
Number of Cells per Zone	46
Total Flow Rate per Zone	21.62 gpm
Number of Lateral per Zone	6
% Flow Differential between Cells	0.2%
Through Velocity Below Valve	2.22 ft/s
Through Velocity Above Valve	2.22 ft/s

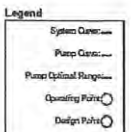
Frictional Head Losses	
Loss through Discharge	1.2 feet
Loss in Through Below Valve	0.2 feet
Loss through Valve	4.8 feet
Loss in Through above Valve	0.4 feet
Loss in Manifold	0.1 feet
Loss in Lateral	0.2 feet
Loss through Flowmeter	0.8 feet
Add or Reduce Losses	2.5 feet

Pipe Volumes	
Vol of Through Line Below Valve	16.4 gal
Vol of Through Line Above Valve	7.8 gal
Vol of Manifold	4.4 gal
Vol of Lateral per Zone	9.4 gal
Total Vol Below Valve	16.4 gal
Total Vol Above Valve	21.6 gal

Minimum Pump Requirements	
Design Flow Rate	22.2 gpm
Total Dynamic Head	22.5 feet

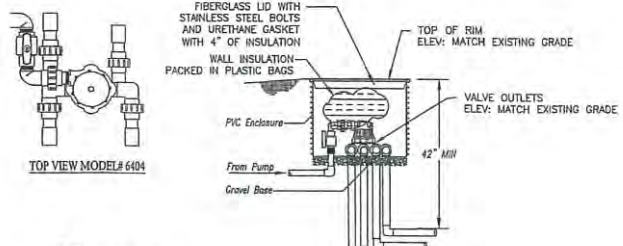


Pump Data	
Flow Rate	22.2 gpm
Head	22.5 feet
Model	10-0001 10-0001-010-010-010



TIMER SETTINGS
2388 GPD
(6 LINES x 35 LF/LINE) x 0.045 GAL/LF = 9.45 GAL PIPE VOLUME + 25LF HEADER x .1744 GAL/LF = 13.81
DOSE = 13.85 x 5 TIMES PIPE VOLUME = 69.05 GAL/DOSE
2388 GPD / 69.05 GAL/DOSE = 35 DOSES PER DAY (ALTERNATING DOSING TO 4 ZONES)
PUMP ON TIME = 89.25 GAL/50 GPD = 1.4 MIN x 60 SEC/MIN = 83 SEC ON TIME
PUMP OFF TIME = 40 MIN OFF TIME

EQUALIZATION VOLUME
71 GAL PER INCH OF TANK VOLUME
EQUALIZATION VOLUME = 52'971 GAL PER INCH => 3692 +/- 3700 GALLONS



NOTES:
METAL DIE-CAST BODY WITH HIGH STRENGTH ABS POLYMER OUTLETS
6000 SERIES
4 OUTLET MODEL
2 ZONES
FLOW RANGE: 15-150 GPM
PRESSURE RATING: 24-150 PSI
INLET: THREADED 1-1/2" NPT CONNECTIONS
OUTLETS: SLP AND GLUE CONNECTIONS TO 2" PVC PIPE

AUTOMATIC DISTRIBUTING VALVE ASSEMBLIES
(NO SCALE)

NOTES:
PRIOR TO INITIATING CONSTRUCTION THE CONTRACTOR SHALL OBTAIN A COPY OF THE PERMIT FROM THE LIVINGSTON CO. HEALTH DEPARTMENT AND CONTACT THE SYSTEM DESIGNER.

THE SYSTEM DESIGNER AND LHD SHALL INSPECT THE TILE FIELD CONSTRUCTION AS NOTED:
1) AFTER CUT DOWN TO THE LDMY SAND IS ACHIEVED
2) SYSTEM START UP
3) FINAL COVER

UPON COMPLETION OF THE CONSTRUCTION THE SYSTEM DESIGNER SHALL SUBMIT A LETTER TO THE HEALTH DEPARTMENT INDICATING THE SYSTEM WAS INSTALLED IN SUBSTANTIAL COMPLIANCE WITH THE PLANS AND SPECIFICATIONS.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND/OR OBTAIN ANY INFORMATION NECESSARY REGARDING THE PRESENCE OF UNDERGROUND UTILITIES WHICH MIGHT AFFECT THIS PROJECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE UTILITIES CAUSED BY HIS OPERATION.

DOWNSPOUTS, WEEP TILE, FOOTING DRAINS, WATER SOFTENER DISCHARGE, OR ANY CONDUIT THAT CARRIES STORM OR GROUND WATER SHALL NOT BE ALLOWED TO DISCHARGE INTO THE SANITARY SYSTEM.

INSTALLATION OF THE TILE FIELD:

1. THE GRAVEL OR ROCK IS COVERED WITH A SYNTHETIC DRAINAGE FABRIC TO PREVENT THE UNCONSOLIDATED SOIL COVER FROM ENTERING THE MEDIA. ALLOW A MINIMUM OF 3 INCHES OF OVERLAP TO COVER SEAMS AND TEARS. (MATERIAL SPECIFICATIONS NOTED BELOW)
 - AIR PERMEABILITY 500 CFM/FT
 - THICKNESS 4.4 MILS
 - WEIGHT 0.65 OZ/YD
 - DRAP TENSILE (MD) 30.2 LBS
 - TRAP TEAR (MD) 10.3 LBS
 - MULLEN BURST 29 PSI
2. THE PERFORATION HOLES IN THE LATERALS MUST BE DRILLED ON A STRAIGHT LINE AT 12 O'CLOCK AT SPECIFIED SPACING WITH EVERY 4IN HOLE AT 6 O'CLOCK. CARE MUST BE USED TO DRILL THE HOLES PERPENDICULAR TO THE PIPE AND NOT AT AN ANGLE. ALL BURRS LEFT AFTER THE HOLES IN THE PIPE SHOULD BE REMOVED. ORIFICE SHIELDS SHALL BE INSTALLED OVER EACH HOLE.
3. ALL LATERALS SHALL BE SCHEDULE 40 PVC WITH 1/8" HOLES DRILLED AS NOTED. LATERALS SHALL BE SPACED AS NOTED ON THE DETAIL.
4. THE HEADER SHALL BE SCHEDULE 40 PVC (SIZE AS NOTED)
5. LONG ANGLE SWEEP ELBOWS WITH 1-1/4" BALL VALVES SHALL BE INSTALLED ON EACH LINE FOR SYSTEM MAINTENANCE.
6. DISTURBED AREAS SHALL BE EITHER SEEDED OR SOODED ADEQUATELY TO PREVENT EROSION.

ELECTRICAL

1. ELECTRICAL INSTALLATION SHALL MEET ALL LOCAL REGULATORY REQUIREMENTS.
2. THE PUMP AND ALARM FLOAT MUST BE ON SEPARATE CIRCUITS.
3. THE CONTROL PANEL MUST BE INSTALLED IN LINE OF SIGHT OF THE TANK RISERS FOR REPAIR AND MAINTENANCE ACTIVITIES.

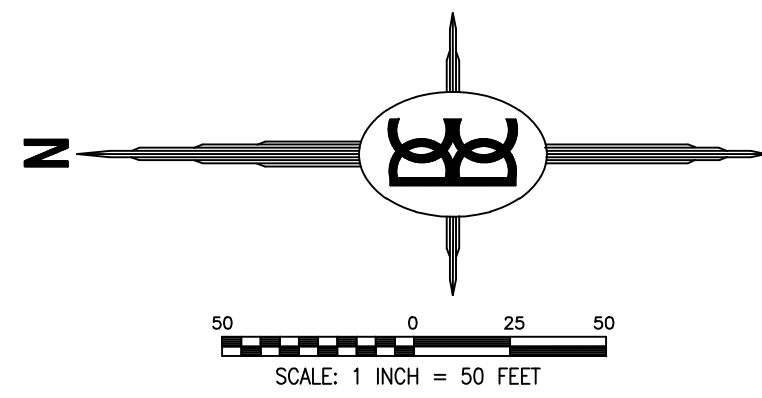
GENERAL

THIS PRESSURE DOSED SYSTEM WILL REQUIRE REGULAR MAINTENANCE TO FUNCTION PROPERLY. IT IS RECOMMENDED THAT A QUALIFIED SERVICE PROVIDER COMPLETE THIS WORK ANNUALLY.

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THESE PLANS ARE BASED ON THE COMPLETENESS OF ACCURACY AS EXPRESSED OR IMPLIED AS TO THE LOCATION AND ELEVATION OF EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF EXISTING UTILITIES AND PROPOSED UTILITIES CHANGING IN THE FIELD PRIOR TO CONSTRUCTION. APPROVED OR IF THE LOCATION OR DEPTH DIFFERS SIGNIFICANTLY FROM THE PLAN.

BOSS ENGINEERING
ENGINEERS • SURVEYORS • PLANNERS
LANDSCAPE ARCHITECTS
3121 L. GRAND BIKER AVE.
HOVELL, AL 36853
(800) 246-0732 FAX (317) 348-1870

PROJECT	DATE	REVISION PER
B.N.C. SEPTIC PLAN		
BRIGHTON NAZARENE CHURCH		
7669 BRIGHTON ROAD		
BRIGHTON, MI 48116		
810-227-6500		
DESIGNED BY: SN		
DRAWN BY: TE		
CHECKED BY: BL		
SCALE: MTS		
JOB NO. 13-100		
DATE: 6/5/15		
SHEET NO. 2		



SCHOOL REU CALCULATION

(PER CITY OF BRIGHTON REU TABLE)
 -14 CLASSROOMS ANTICIPATED x 1.0 REU PER CLASSROOM = 14 REU

UTILITY NOTE:

- PER TOWNSHIP ENGINEER HEALTH DEPARTMENT APPROVAL OF THE EXISTING SEPTIC SYSTEM IS REQUIRED BEFORE OCCUPANCY.
- OVERALL IMPERVIOUS ON THE SITE IS DECREASING WITH THE ADDITION TO THE LANDSCAPE PARKING LOT ISLAND.

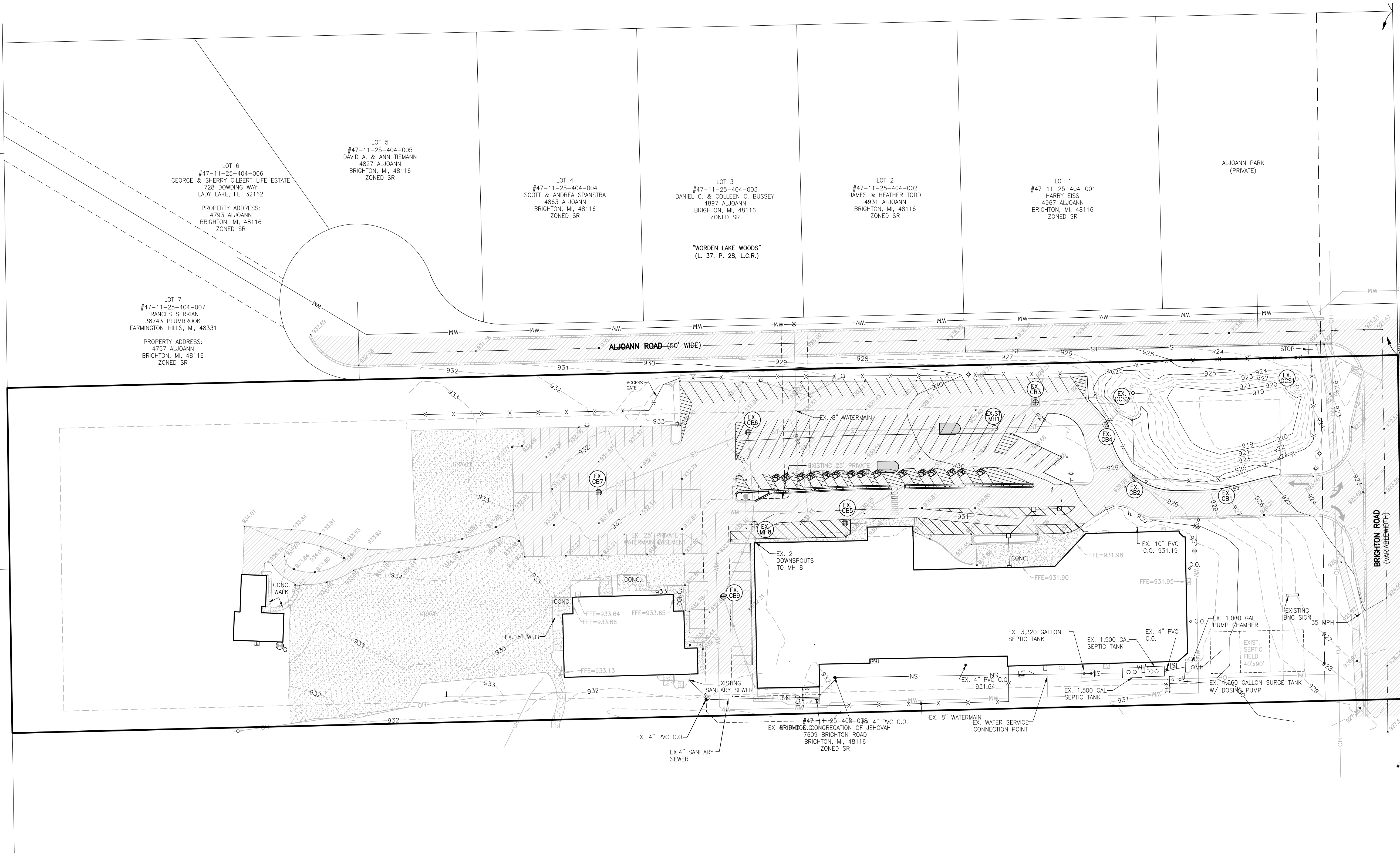
LEGEND		LEGEND	
PROPOSED (PR)	EXISTING (EX)	PROPOSED (PR)	EXISTING (EX)
—000—	—900—	—SN—	—SN—
T/C	+ 922.08	—SL—	—SL—
XXX.XX		—FM—	—FM—
FF	FF	—ST—	—ST—
FG	FG	—WM—	—WM—
T/A	T/A	—WL—	—WL—
T/W	T/W	—OH—	—OH—
F/L	F/L		
T/P	T/P		
B/P	B/P		
RIM	RIM		
INV	INV		
MH	MH		
IN	IN		
CB	CB		
RY	RY		
ES	ES		
GV	GV		
HY	HY		
UP	UP		

CONTOUR
 STORM DRAINAGE FLOW
 SPOT ELEVATION
 FINISHED FLOOR ELEVATION
 TOP OF ASPHALT
 TOP OF WALK / CONCRETE
 TOP OF WALK
 FLOW LINE
 TOP OF PIPE
 BOTTOM OF PIPE
 RIM ELEVATION
 INVERT ELEVATION
 MANHOLE STRUCTURE
 INLET STRUCTURE
 CATCHBASIN STRUCTURE
 REARYARD STRUCTURE
 END-SECTION
 GATEVALVE STRUCTURE
 HYDRANT
 UTILITY POLE

SANITARY SEWER
 SANITARY LEAD
 FORCE MAIN
 STORM SEWER
 WATER MAIN
 WATER LEAD
 OVERHEAD WIRE
 SILT FENCE
 LIMITS OF GRADING/CLEARING
 CONCRETE
 ASPHALT
 GRAVEL

- STORM SEWER INVENTORY:**
- OUTLET CONTROL STRUCTURE #1 (OCS 1)
RIM = 924.11
INV. = 919.04 (24" Conc.)
 - OUTLET CONTROL STRUCTURE #2 (OCS 2)
RIM = 925.21
INV. S = 922.98 (24" Conc.)
 - STORM CATCH BASIN #1 (CB 1) (SQUARE)
RIM = 926.56 (FLOW LINE)
INV. N = 922.71 (12" Conc.)
 - STORM CATCH BASIN #2 (CB 2) (SQUARE)
RIM = 928.82 (FLOW LINE)
INV. S = 922.22 (12" Conc.)
INV. E = 922.22 (12" Conc.)
INV. SW = 922.42 (12" PVC)
INV. W = 924.77 (8" PVC)
 - STORM CATCH BASIN #3 (CB 3) (ROUND)
RIM = 928.80
INV. S = 926.17 (10" PVC)
INV. NW = 926.19 (10" PVC) (COULD NOT LOCATE WESTERLY END)
 - STORM CATCH BASIN #4 (CB 4) (SQUARE)
RIM = 927.79 (FLOW LINE)
INV. SE = 922.59 (18" Conc.)
INV. N = 922.67 (15" Conc.)
 - STORM MANHOLE #1 (MH 1)
RIM = 929.11
INV. S = 924.54 (15" Conc.)
INV. N = 924.39 (15" Conc.)
INV. NW = 926.94 (10" PVC)
 - STORM CATCH BASIN #5 (CB 5) (ROUND)
RIM = 930.41
INV. SE = 928.81 (10" PVC)
INV. W = 926.91 (6" PVC)
 - STORM CATCH BASIN #6 (CB 6) (ROUND)
RIM = 931.66
INV. S = 926.06 (15" Conc.)
INV. NW = 926.11 (15" Conc.)
 - STORM CATCH BASIN #7 (CB 7) (ROUND)
RIM = 931.31
INV. SE = 927.31 (15" Conc.)

- SITE BENCHMARKS: (NGVD29 DATUM)**
- BENCHMARK #200
BOSS NAIL/TAG SET N/S LIGHT POLE, 20'± EAST OF BACK OF CURB, ENTRANCE TO BRIGHTON NAZARENE & 62'± NORTH OF E BRIGHTON ROAD.
ELEV. = 924.79
 - BENCHMARK #201
CHISELED "X" N/S CONC. LIGHT POLE BASE, 69'± EAST & 109'± NORTH OF SOUTHEAST CORNER OF CHURCH.
ELEV. = 931.41
 - BENCHMARK #202
BOSS NAIL/TAG SET S/S 24" OAK, 15'± WEST OF SW CORNER OF PARSONAGE.
ELEV. = 933.32



#47-11-36-200-036
 KATHLEEN &
 ELIZABETH
 HERBST
 7628
 BRIGHTON
 ROAD
 BRIGHTON, MI,
 48116
 ZONED SR

BOSS ENGINEERING
 ENGINEERS, SURVEYORS & PLANNERS
LANDSCAPE ARCHITECTS

(E-MAIL: BOSS@BOSS-ENG.COM)
 3121 E. GRAND RIVER AVE.
 HOWELL, MI. 48843
 (800) 246-6335 FAX (517) 948-1070

LIVINGSTON CHRISTIAN SCHOOL
LIVINGSTON CHRISTIAN SCHOOLS
 8877 WHITMORE LAKE RD
 WHITMORE LAKE, MI 48189
 (734) 878-9818

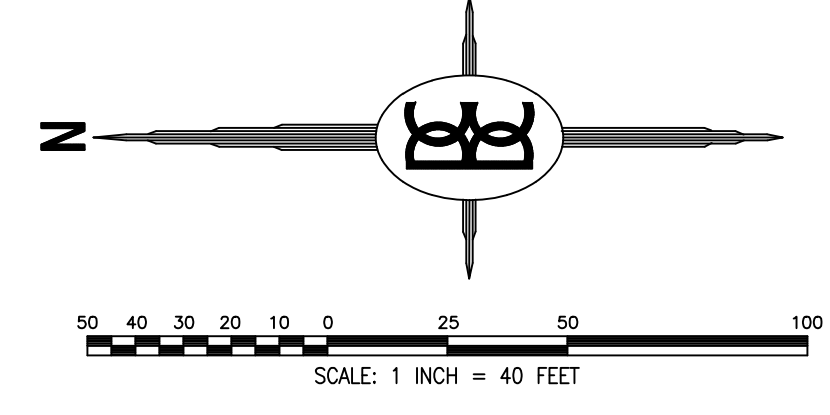
NO	BY	REVISION	PER	DATE
2	CH	PER PLANNING COMMISSION		10-25-17
1	CH	PER TOWNSHIP REVIEW		9-20-17

DESIGNED BY: ST
 DRAWN BY: AEB
 CHECKED BY:
 SCALE 1" = 50'
 JOB NO. 17-315
 DATE 8-30-17
 SHEET NO. 5

"WORDEN LAKE WOODS"
(L. 37, P. 28, L.C.R.)

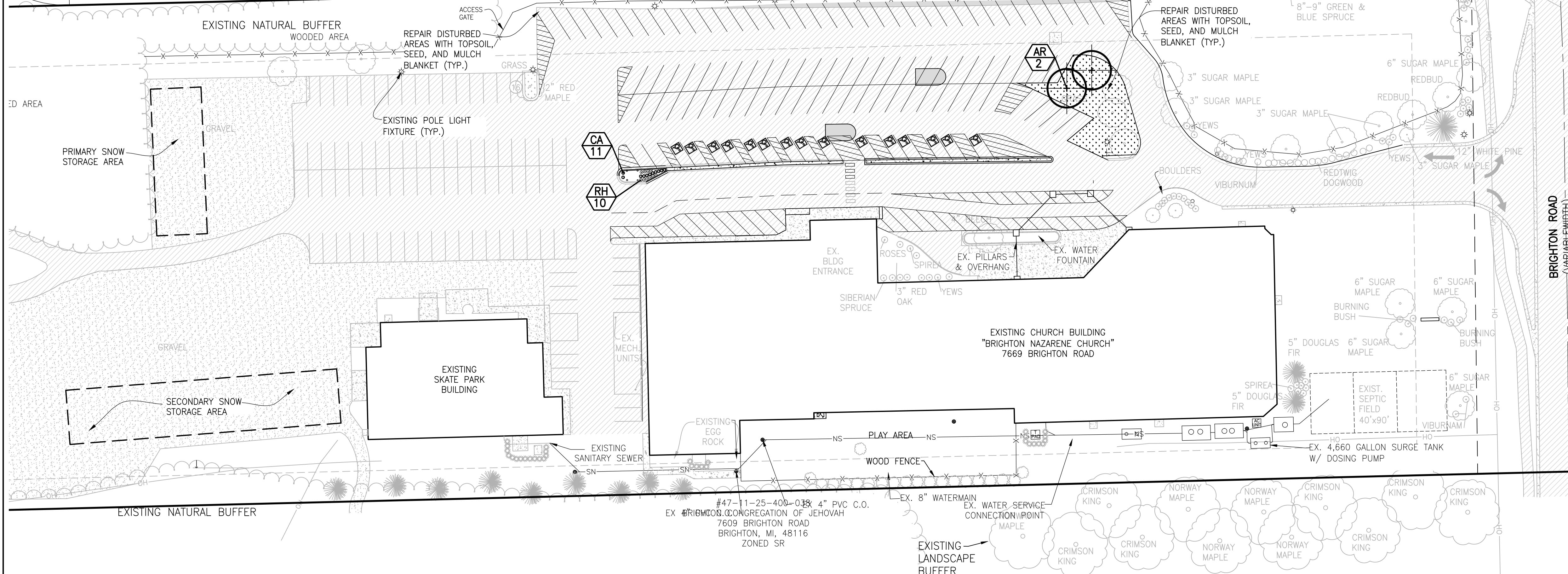
EXISTING
LANDSCAPE
BUFFER

ALJOANN ROAD (50' WIDE)



PROPOSED (PR)	EXISTING (EX)	
T/C	+922.08	CONTOUR
XXX.XX		STORM DRAINAGE FLOW
FF		SPOT ELEVATION
FG		FINISHED FLOOR ELEVATION
T/A		FINISHED GRADE ELEVATION
T/C		TOP OF ASPHALT
T/W		TOP OF CURB / CONCRETE
F/L		TOP OF WALK
T/P		FLOW LINE
B/P		TOP OF PIPE
RIM		BOTTOM OF PIPE
INV		RIM ELEVATION
MH		INVERT ELEVATION
IN		MANHOLE STRUCTURE
CB		INLET STRUCTURE
RY		CATCHBASIN STRUCTURE
ES		REARYARD STRUCTURE
GV		END-SECTION
HY		GATEVALVE STRUCTURE
UP		HYDRANT
SN		UTILITY POLE
SL		SANITARY SEWER
FM		SANITARY LEAD
PS		FORCE MAIN
ST		PRESSURE SEWER
WM		STORM SEWER
WL		WATER MAIN
FO		WATER LEAD
OH		FIBER OPTIC
C		CABLE
E		OVERHEAD WIRE
G		ELECTRIC
T		GAS
□		TELEPHONE
○		MANHOLE
□		INLET / CATCHBASIN
□		FLARED END-SECTION
□		GATE VALVE
□		HYDRANT
□		UTILITY POLE
□		FENCE
□		CONCRETE
□		ASPHALT

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(800) 246-6335 FAX (517) 548-1870



KEY	QUAN.	BOTANICAL NAME	COMMON NAME	SIZE	REMARK
TREES					
AR	2	<i>Acer rubrum</i>	Red Maple	2.5" cal.	B - B
PERENNIALS					
CA	11	<i>Calamagrostis x acutiflora</i> 'Karl Foerster	Karl Foerster Feather Reed Grass	3 gal.	Cont.
RH	10	<i>Rudbeckia hirta</i>	Black Eyed Susan	3 gal.	Cont.

LANDSCAPE CALCULATIONS

EXISTING TREES REMOVED = 2 PROPOSED TREES = 2
EXISTING PERENNIALS REMOVED = 0 PROPOSED PERENNIALS = 21

LIGHTING NOTE:

-NO NEW LIGHTING IS PROPOSED FOR THE SITE. EXISTING LIGHT FIXTURES WILL REMAIN AS IS. A PHOTOMETRIC PLAN HAS NOT BEEN INCLUDED SINCE SITE LIGHTING WILL REMAIN AS EXISTS.

PROJECT: **LIVINGSTON CHRISTIAN SCHOOL**
PREPARED FOR: **LIVINGSTON CHRISTIAN SCHOOLS**
8877 WHITMORE LAKE RD
WHITMORE LAKE, MI 48189
(734) 878-9818
TITLE: **LANDSCAPE & LIGHTING PLAN**

NO	BY	DATE
2	CH	10-25-17
1	CH	9-20-17
	PER PLANNING COMMISSION	
	PER TOWNSHIP REVIEW	
	REVISION PER	

DESIGNED BY: TD
DRAWN BY: TD
CHECKED BY:
SCALE: 1" = 40'
JOB NO. 17-315
DATE: 8-30-17
SHEET NO. **6**



GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: DENNIS CRELAR
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: 5818 STERLING DR. HOWELL MI 48843

SITE ADDRESS: 5818 STERLING DR. HOWELL MI PARCEL #(s): 4711-15-200-013

APPLICANT PHONE: (248) 207-0506 OWNER PHONE: ()

OWNER EMAIL: DCRELAR@TOWHCENTERINC.COM

LOCATION AND BRIEF DESCRIPTION OF SITE: AN EXISTING SITE AND
BUILDING LOCATED SOUTH OF STERLING DR AND WEST
OF DERR RD.

BRIEF STATEMENT OF PROPOSED USE: THE PROPOSED USE WILL REMAIN
THE SAME HOWEVER THE PARKING LOT WILL BE EXPANDED,
FENCING WILL BE INSTALLED TO OFFER SCREENING FOR OUTDOOR
STORAGE, AND A DUMPSTER ENCLOSURE WILL BE CONSTRUCTED.

THE FOLLOWING BUILDINGS ARE PROPOSED: NO BUILDINGS ARE
PROPOSED TO BE BUILT, OTHER SITE MODIFICATIONS WILL
TAKE PLACE SUCH AS CONSTRUCTING A DUMPSTER ENCLOSURE.

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: 


ADDRESS: 5818 STERLING DR. HOWELL, MI 48843

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

I. CAMERON HERVATH of BES ENGINEERING at CAMERON.H@BES-ENR.COM
Name Business Affiliation E-mail Address

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE:  DATE: 10/3/17
PRINT NAME: DENNIS CREAGAR PHONE: (248) 207-0506
ADDRESS: 5818 STERLING DR HOWELL MI 48843



GENOA CHARTER TOWNSHIP Special Land Use Application

This application must be accompanied by a site plan review application and the associated submittal requirements. (The Zoning Official may allow a less detailed sketch plan for a change in use.)

APPLICANT NAME & ADDRESS: DETHIS CREWAL

Submit a letter of Authorization from Property Owner if application is signed by Acting Agent.

APPLICANT PHONE: (248) 207-0506

EMAIL: TCREWAL@TOWNSHIPGENOA.COM

OWNER NAME & ADDRESS: DETHIS CREWAL 5818 STERLING DR HOWELL MI 48843

SITE ADDRESS: 5818 STERLING DR HOWELL MI PARCEL #(s): 4711-15-200-013

OWNER PHONE: ()

EMAIL: -

Location and brief description of site and surroundings:

SITE IS LOCATED ON SOUTH SIDE OF STERLING DR JUST WEST OF DEER RD.
SITE INCLUDES AN EXISTING BUILDING BUT IS STILL COVERED IN
WIDE PART BY EXISTING VEGETATION.

Proposed Use:

THE PROPOSED USE WILL REMAIN AS ALREADY FUNCTIONING
AN INDUSTRIAL BUSINESS.

Describe how your request meets the Zoning Ordinance General Review Standards (section 19.03):

- a. Describe how the use will be compatible and in accordance with the goals, objectives, and policies of the Genoa Township Comprehensive Plan and subarea plans, and will promote the Statement of Purpose of the zoning district in which the use is proposed.

THE USE OF THE PROPERTY REMAINS INDUSTRIAL IN NATURE, HOWEVER
SINCE THERE IS NEED FOR OUTDOOR STORAGE A SPECIAL USE APPLICATION
IS REQUIRED.

- b. Describe how the use will be designed, constructed, operated, and maintained to be compatible with, and not significantly alter, the existing or intended character of the general vicinity.

FOR GENOA TOWNSHIP A FENCE TO MATCH EXISTING WILL BE
INSTALLED TO SCREEN ANY OUTDOOR STORAGE.

- c. How will the use be served adequately by essential public facilities and services such as highways, streets, police and fire protection, drainage structures, water and sewage facilities, refuse disposal and schools?

THE USE OF THE PROPERTY WILL STILL BE SERVED IN THE SAME
MANNER WITH THE EXCEPTION OF CONNECTING TO MUNICIPAL SEWER
AND WATER.

d. Will the use involve any uses, activities, processes, or materials potentially detrimental to the natural environment, public health, safety, or welfare by reason of excessive production of traffic, noise, vibration, smoke, fumes, odors, glare, or other such nuisance? If so, how will the impacts be mitigated?

NO, THE SPECIAL LAND USE IS ONLY TO STORE STORE EQUIPMENT AND MISCELLANEOUS PARTS OUTDOORS.

e. Does the use have specific criteria as listed in the Zoning Ordinance (sections 3.03.02, 7.02.02, & 8.02.02)? If so, describe how the criteria are met.

OUTDOOR STORAGE IS LISTED AS A SPECIAL USE IN INDUSTRIAL (IND) ZONED DISTRICTS.

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION ARE TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I AGREE TO DESIGN, CONSTRUCT AND OPERATE, AND MAINTAIN THESE PREMISES AND THE BUILDINGS, STRUCTURES, AND FACILITIES WHICH ARE GOVERNED BY THIS PERMIT IN ACCORDANCE WITH THE STATED REQUIREMENTS OF THE GENOA TOWNSHIP ZONING ORDINANCE, AND SUCH ADDITIONAL LIMITS AND SAFEGUARDS AS MAY BE MADE A PART OF THIS PERMIT.

THE UNDERSIGNED _____ STATES THAT THEY ARE THE FREE OWNER OF THE PROPERTY OF PROPERTIES DESCRIBED ABOVE AND MAKES APPLICATION FOR THIS SPECIAL LAND USE PERMIT.

BY: 

ADDRESS: 5818 STELLING DR. HOWELL MI 48843

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

CATHERINE HORWATH of BOSS ENGINEERING at CATHERINE.H@BOSS-ENG.COM
Name Business Affiliation Email

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE:  DATE: 10/3/17

PRINT NAME: DETTIS CREGAR PHONE: (248) 267-0506



November 1, 2017

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Town Center, Inc. – Special Land Use and Site Plan Review #2
Location:	5818 Sterling Drive – south side of Sterling Drive, west of Dorr Road
Zoning:	IND Industrial District

Dear Commissioners:

At the Township’s request, we have reviewed the special land use application (dated 10/3/17) and revised site plan (dated 10/25/17) proposing a new outdoor storage area and expanded parking lot for an existing industrial facility.

The 5.12-acre site is currently developed with a heating and cooling business that operates Monday through Friday. We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance and Master Plan.

A. Summary

1. In our opinion, the general special land use standards of Article 19 are met.
2. Any issues raised by the Township Engineer or Brighton Area Fire Department must be addressed and/or properly mitigated.
3. The use requirements of Section 8.02.02(b) for accessory outdoor storage are met, provided the Planning Commission allows a 6-foot privacy fence in lieu of a Buffer Zone B.
4. The applicant proposes to bank 19 of the 50 required parking spaces, which may be allowed by the Planning Commission in accordance with Section 14.02.05 of the Township Zoning Ordinance.
5. We suggest the Impact Assessment include a statement acknowledging that the applicant will install the banked parking upon notice by the Township (per Section 14.02.05).

B. Proposal/Process

The applicant requests special land use and site plan review/approval for an outdoor storage yard and parking lot expansion.

Section 8.02 lists outdoor storage areas that are accessory to an industrial use as special land uses. Such uses are also subject to the requirements of Section 8.02.02(b).

Procedurally, the Planning Commission is to make a recommendation to the Township Board on the special land use, site plan and Impact Assessment, following a public hearing. The Township Board has the final review/approval authority over the proposal.



Aerial view of site and surroundings (looking south)

C. Special Land Use Review

Section 19.03 of the Zoning Ordinance identifies the following review criteria for Special Land Uses:

- 1. Master Plan.** The Township Master Plan and Future Land Use map identify the site as Industrial, which is intended for “industrial uses such as research, wholesale and warehouse activities and light industrial operations which manufacture, compounding, process, package, assemble and/or treat finished or semi-finished products from previously prepared material.”

The location, nature of the site as a developed industrial property, and proposal are consistent with this category and description.

- 2. Compatibility.** The area, which is planned and zoned for industrial uses, contains several industrial operations with outdoor storage areas.

Provided the use requirements of Section 8.02.02(b) are met, the proposal is expected to be compatible with the existing and planned conditions of the area.

- 3. Public Facilities and Services.** As a developed site, we anticipate that necessary public facilities and services are in place for the proposal; however, we defer to the Township Engineer and Brighton Area Fire Department for any specific comments under this criterion.
- 4. Impacts.** Given the existing and planned nature of the area, the proposal is not expected to create any adverse impacts on surrounding properties or roadways.
- 5. Mitigation.** The Township may require mitigation necessary to limit or alleviate any potential adverse impacts as a result of the proposal.

D. Use Requirements

Section 8.02.02(b) identifies the requirements for accessory outdoor storage as follows:

- 1. Minimum lot area shall be one (1) acre.**

The submittal identifies a lot area of 5.12 acres.

- 2. Any stockpiles of soils, fertilizer or similar loosely packaged materials shall be sufficiently covered or contained to prevent dust or blowing of materials.**

The submittal indicates that the storage area will be used for equipment and miscellaneous parts.

- 3. All outdoor storage areas shall be paved with a permanent, durable and dustless surface and shall be graded and drained to dispose stormwater without negatively impact adjacent property. The Township Board, following a recommendation of the Planning Commission and the Township Engineer, may approve a gravel surface for all or part of the display or storage area for low intensity activities, upon a finding that neighboring properties and the environment will not be negatively impacted.**

The plans show a paved surface proposed for the outdoor storage area.

- 4. No outdoor storage shall be permitted in any required yard (setback) of buildings for the district in which the outdoor display, sales or storage use is located. Any approved outdoor sales or display within a parking lot shall meet the required parking lot setback; provided the Planning Commission may require additional landscaping screening or ornamental fencing.**

The proposed outdoor storage area provides compliant side and rear yard setbacks.

- 5. The site shall include a building of at least five hundred (500) feet of gross floor area for office use in conjunction with the use.**

The revised plans note that the existing building contains approximately 1,500 square feet of office space.

- 6. All loading and truck maneuvering shall be accommodated on-site.**

The site has existing vehicular access from Sterling Drive. Sheet C6 includes vehicle turning templates for refuse removal truck and a fire truck demonstrating that maneuvering will be accommodated on-site.

- 7. All outdoor storage area property lines adjacent to a residential district shall provide a buffer zone A as described in Section 12.02. A buffer zone B shall be provided on all other sides. The Planning Commission may approve a six (6) foot high screen wall or fence, or a four (4) foot high landscaped berm as an alternative.**

The request proposes the use of a 6-foot tall vinyl privacy fence and gate around the outdoor storage area. The Planning Commission may allow this in lieu of a buffer zone.

- 8. The height of all material and equipment stored in an outdoor storage area shall not exceed the height of any landscape screening, wall or fence. Boats and recreational vehicles may exceed the height of the fence provided that they are setback from the fence a distance equal to their height. Storage of materials up to the height of the adjacent building wall may be permitted in the rear yard if it is illustrated on the site plan, the rear yard does not abut a residential district or face an expressway, and such storage is confined to within twenty (20) feet of the building.**

The revised plans note that the equipment and materials to be stored will not exceed 6 feet in height.

E. Site Plan Review

- 1. Dimensional Requirements.** As noted under Paragraph D above, the proposed outdoor storage area complies with the applicable setback requirements. Additionally, the proposed increase in impervious surface remains well within that allowed by Ordinance – 13.26% proposed/85% allowed.

2. **Parking.** Based on the information provided, Section 14.04 requires 50 parking spaces, including 2 barrier-free spaces. The plans call for 31 parking spaces with the additional 19 spaces to be banked. Banked parking is allowed under Section 14.02.05, provided the applicant demonstrates that the amount of parking proposed is sufficient to meet their needs.

The Impact Assessment notes a peak shift of 18 employees. The submittal also references training courses and meetings that will be held on-site during off peak hours. Based on the information provided, the 31 spaces should be sufficient for usage as proposed.

3. **Vehicular Circulation.** Vehicular access is provided to/from Sterling Drive with no changes proposed. The proposed parking area (including the banked parking) will provide a one-way circulation pattern connecting back to the main (existing) driveway.

Given the mix of one- and two-way traffic, the project includes signage and pavement markings to help drivers navigate the site properly.

4. **Landscaping.** The landscape plan (Sheet C7) includes plantings within the new parking lot, along Sterling Drive and along the front of the building.

The species and sizes are compliant with the requirements of Section 12.02. Quantities are reviewed in the table below:


Location	Requirements	Proposed	Comments
Greenbelt (Sterling Dr.)	20' width 9 canopy trees	70' width 4 canopy trees proposed Existing vegetation	Requirements met
Parking lot	5 canopy trees 500 SF landscaped area	5 canopy trees 3,437 SF landscaped area	Requirements met

5. **Waste Receptacle and Enclosure.** The project includes a new waste receptacle and enclosure south of the building. Details on Sheet C3 include the required concrete base pad and masonry enclosure. The circulation plan (Sheet C6) also demonstrates that refuse removal vehicles can adequately maneuver throughout the site.
6. **Impact Assessment.** The submittal includes a revised Impact Assessment (dated 10/23/17), which states that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

We suggest the applicant add a statement acknowledging that the parking will be installed upon notice by the Township (per Section 14.02.05).

Should you have any questions concerning this matter, please do not hesitate to contact our office. I can be reached by phone at (248) 586-0505, or via e-mail at borden@lslplanning.com.

Respectfully,
LSL PLANNING, A SAFE BUILT COMPANY


Brian V. Borden, AICP
Planning Manager



November 2, 2017

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Re: Town Center Site Improvements SPR #2

Dear Ms. Van Marter:

Tetra Tech conducted a site plan review of the updated Town Center, Inc. proposed improvements at their site located on Sterling Drive just west of Dorr Road. The plans, submitted by Boss Engineering and dated October 25, 2017, convey Town Center, Inc.'s plans to increase their parking and outdoor storage area and connect to both water and sanitary services.

Tetra Tech's review of the updated plans resulted in no additional engineering related comments. The plans adequately address the comments in the first site plan review letter.

Please call if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Gary Markstrom'.

Gary J. Markstrom, P.E.
Unit Vice President

A handwritten signature in blue ink, appearing to read 'Marguerite K. Davenport'.

Marguerite K. Davenport
Project Engineer

copy: Cameron Horvath, PLA, Boss Engineering

Tetra Tech

401 South Washington Square, Suite 100, Lansing, MI 48933
Tel 517.316.3930 Fax 517.484.8140 www.tetrattech.com



BRIGHTON AREA FIRE AUTHORITY

615 W. Grand River Ave.
Brighton, MI 48116
o: 810-229-6640 f: 810-229-1619

November 7, 2017

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Town Center Site Improvements
5818 Sterling Dr.
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on October 26, 2017 and the drawings are dated October 3, 2017 with latest revisions dated October 25, 2017. The project is an existing 12,720 square-foot, F-2 occupancy located in a light industrial area. The site will be improving conditions for parking and a screened outside storage area. The plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

1. **(CORRECTED)** The building address shall be a **minimum of 6"** high letters of contrasting colors and be clearly visible from the street. The location and size shall be verified at inspection. **(Address improvement noted on Sheet C3)**

IFC 505.1

2. **(CORRECTED)** The existing two-way access drive adjacent to the structure shall be a minimum of 26' wide and is currently shown at 21' for the front portion of the landscape island then widens to 24' towards the rear. With a width of 26' wide, the landscape island side of the drive shall be marked as a fire lane. Access roads to site shall be provided and maintained during construction. Access roads shall be constructed to be capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds. **(Sheet C3 reflects revision to the landscape island dimension to provide for width and proper turning radius. Fire lane signage is also noted.)**

IFC D 103.6

IFC D 103.1

IFC D 102.1

IFC D 103.3

If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

A handwritten signature in black ink, appearing to read "R. Boisvert".

Rick Boisvert, CFPS
Fire Marshal

**IMPACT ASSESSMENT
FOR
SITE PLAN PETITION
"TOWN CENTER INC."
GENOA TOWNSHIP, LIVINGSTON COUNTY
MICHIGAN**

Prepared for:

**TOWN CENTER INC.
5818 STERLING DR.
HOWELL, MICHIGAN 48843
(517) 552-5770**

Prepared by:

**BOSS ENGINEERING COMPANY
3121 E. GRAND RIVER
HOWELL, MI 48843
(517) 546-4836**

October 3, 2017
REVISED: 10/23/17

17-329EIA

INTRODUCTION

The purpose of this Impact Assessment (IA) report is to show the effect that this proposed development may have on various factors in the general vicinity of the project. The format used for presentation of this report conforms to the *Submittal Requirements For Impact Assessment* guidelines in accordance with Section 18.07 of the published Zoning Ordinance for Genoa Township, Livingston County, Michigan.

DISCUSSION ITEMS

A. Name(s) and address(es) of person(s) responsible for preparation of the impact assessment and a brief statement of their qualifications.

Prepared By :
Brent W. LaVanway, P.E.
BOSS ENGINEERING COMPANY
Civil Engineers, Land Surveyors, Landscape Architects and Planners
3121 E. Grand River
Howell, MI 48843
(517) 546-4836

Prepared For :
Town Center Inc.
Client
5818 Sterling Dr.
Howell MI 48843
(517) 552-5770

B. Map(s) and 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 10 feet of the property. An aerial photograph or drawing may be used to delineate these areas.

The site is located on the south side of Sterling Dr. just west of Dorr Rd. The subject property is currently the Town Center Inc. business. The facility is existing with approximately 1,500 square feet of interior office space and some paved and gravel parking with storm water draining into an existing wetland near the south property line. The western and southern property lines are heavily wooded. There is an existing fence that helps screen some of the storage area and mechanical equipment near the eastern property setback line . The subject property and adjacent properties are all zoned Industrial (IND).

C. Impact on natural features: A written description of the environmental characteristics of the site prior to development and following development, i.e., topography, soils, wildlife, woodlands, mature trees (eight inch caliper or greater), wetlands, drainage, lakes, streams, creeks or ponds. Documentation by a qualified wetland specialist shall be required wherever the Township

determines that there is a potential regulated wetland. Reduced copies of the Existing Conditions Map(s) or aerial photographs may accompany written material.

The total site area is 5.12 acres. The front (north) portion of the site is the existing drive entrance with some green space on the eastern side and an existing wooded area on the western side. The developed site slopes southwest towards the on-site unregulated wetland and the remainder of the site slopes north towards Sterling Dr. The undeveloped portion of the site is predominantly wooded and the developed portion consists of impervious surfaces such as paving and building footprint as well as green space areas. The USDA Soil Conservation Service soil classification for the site is a composition of the Miami Loam Series with Carlisle Muck present in the wetland area.

There are no new buildings or building additions proposed. Parking improvements and outdoor storage screening are the main proposed site alterations which will be occurring in areas previously cleared. This work may result in some minor removal of existing vegetation around the outskirts of the wooded areas. A sediment basin is also being constructed.

D. Impact on storm water management: 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 County Soil Conservation Service.

This project features an already existing structure that is not being added on to but will include parking lot improvements. Currently there is no method for stormwater management and the site manages storm water through sheet draining into an existing wetland. To mimic existing natural drainage channels and current site conditions storm water management methods will be minimal. The proposed site will continue to sheet drain stormwater to the southwest corner of the property. This will occur through a curb cut and where a small first flush sediment basin meeting LCDC standards has been provided to help trap sediment with rip rap inlets and outlets for stormwater to enter and leave the basin and then continue to drain across pervious surfaces for roughly 170 feet until it reaches the existing wetland. Although construction on site will be minimal soil erosion control measures will still be needed to ensure soil is not leaving the site.

At the time of construction of the parking lot improvements, there may be some temporary dust, noise, vibration and smoke, but these conditions will be of relatively short duration and shall be controlled by applying appropriate procedures to minimize the effects, such as watering if necessary for dust control.

The Site Plan documents show the proposed locations of all site improvements along with detailed soil erosion control information.

E. Impact on surrounding land use: Description of the types of proposed uses and other man made facilities, including any project phasing, and an indication of how the proposed use conforms or conflicts with existing and potential development patterns. A description shall be provided of any increases of light, noise or air pollution which could negatively impact adjacent properties.

As previously stated the site is the current home of Town Center Inc.

There will be no increase in light or air pollution. There may be some increased noise during construction but that would be the only change and it would be for a short period of time.

The banked parking is intended to accommodate some of the vehicles the site experiences during training seminars and meetings that take place at the facility a few times a year. It also provides the owner flexibility with potentially phasing different parts of the site improvements. The parking would be implemented at some point but since the intended use is only for overflow parking for certain events may not be implemented immediately.

F. Impact on public facilities and services: Description of number of expected residents, employees, visitors, or patrons, and the anticipated impact on public schools, police protection and fire protection. Letters from the appropriate agencies may be provided, as appropriate.

Currently as many as 18 employees could be working during a peak shift. Throughout the year certain training courses are held here as well as occasional meeting which bring more people to the site that justify the increase in parking.

There will be no impact on surrounding schools and very minimal impact on the police and fire departments.

G. Impact on public utilities: Description of the method to be used to service the development with water and sanitary sewer facilities, the method to be used to control drainage on the site and from the site, including runoff control during periods of construction. For sites service with sanitary sewer, calculations for pre- and post development flows shall be provided in equivalents to a single family home. Where septic systems are proposed, documentation or permits from the Livingston County Health Department shall be provided.

The current use of the facility is for a heating and cooling business that operates 5 days week Monday through Friday from 7am to 6pm. The proposed changes will help accommodate more vehicles for training seminars, company meetings, and a growing employee pool. The owner of the property also has intentions of connecting to municipal sewer and water and abandoning the two existing septic tanks. The existing 4" well will be used to irrigate lawn and landscape areas. Due to this new connection, municipal sewer and water will be slightly affected because of the addition of another user. Proper avenues will be followed during this transition and the owner will cooperate with M.H.O.G for issuance of an approval.

All of the existing information is included in the Site Plan documents.

H. Storage or handling of any hazardous materials: Description of any hazardous substances expected to be used, stored or disposed of on the site. The information shall describe the type of materials, location within the site and method of containment. Documentation of compliance with federal and state requirements, and a Pollution Incident Prevention Plan (PIPP) shall be submitted, as appropriate.

There will be no hazardous materials used or disposed of on this site.

I. Impact on traffic and pedestrians: A description of the traffic volumes to be generated based on national reference documents, such as the most recent edition of the Institute of Transportation Engineers Trip Generation Manual, other published studies or actual counts of similar uses in Michigan.

The anticipated impact on traffic is minimal given that Sterling Dr is not a frequently traveled route and there are only 18 employees on peak shift. The meetings and training which will occur at the

site won't correspond to peak traffic times and will only be seldom occurrences. The banked parking shown is to help accommodate those vehicles while providing flexibility to the owner in regards to potentially phasing some of the improvements to his site. Traffic arrows and one way signage will help direct traffic on-site and given the small amount of users for the site should not create any problems .

J. A detailed traffic impact study shall be submitted for any site over ten (10) acres in size which would be expected to generate 100 directional vehicle trips (i.e. 100 inbound or 100 outbound trips) during the peak hour of traffic of the generator or on the adjacent streets.

This site is not greater than 10 acres and does not expect to generate a 100 directional vehicle trips.

K. Special Provisions: General description of any deed restrictions, protective covenants, master deed or association bylaws.

This project requires a Special Use Permit for outdoor storage in an industrial zoned district.

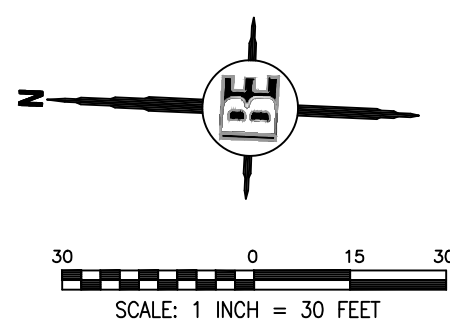
L. A list of all sources shall be provided.

Genoa Township's *Submittal Requirements For Impact Assessment*

Genoa Township Zoning Ordinances

Soil Survey of Livingston County, Michigan, U.S.D.A. Soil Conservation Service

National Wetland Inventory Plan, United States Department of the Interior, Fish and Wildlife Service



DESCRIPTION OF PARCEL #4711-15-200-013 PER LIVINGSTON COUNTY TAX ROLL:
 SEC 15 T2N R5E BEG AT A POINT DISTANCE S ALONG THE E LINE OF SEC 15, 660 FT & S 89°54'29"W 996.75 FT FROM NE COR. OF SEC. TH S 89° 54'29"W 332.25 FT, TH S 0°06'18"E 670.31 FT, TH S 89°43'29"E 331.94 FT, TH N 0°04'43"W 672.44 FT TO POB, 5.13AC M/L

ABOVE DESCRIBED PARCEL BEING LOCATED IN THE NORTHEAST 1/4 OF SECTION 15, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

SOIL NOTE:
 THE PREDOMINATE SOIL SERIES FOUND ON THE SITE IS MIAMI LOAM. OTHER NOTABLE SOILS INCLUDE CARLISLE MUCK, METAMORA SANDY LOAM, AND OAKVILLE SERIES.

GENERAL SURVEY NOTES:

1. BEARINGS ARE BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM SOUTH ZONE.
2. SUBSURFACE UTILITIES NOT LOCATED FOR THIS SURVEY MAY EXIST. IT IS THE RESPONSIBILITY OF THE OWNER OF THE RESPECTIVE UTILITY TO ACCURATELY LOCATE SUCH UTILITIES.
3. EASEMENTS OR RESTRICTIONS OF RECORD NOT DEPICTED ON THIS DRAWING MAY EXIST.
4. ELEVATIONS WERE ESTABLISHED WITH GPS USING OPUS. (NAV88 DATUM)
5. CONTOURS ARE SHOWN AT 1 FOOT INTERVALS.
6. ALL ELEVATIONS ARE SHOWN TO THE NEAREST 0.01 FOOT; HOWEVER SOFT-SURFACE ELEVATIONS CAN ONLY BE PRESUMED ACCURATE TO THE NEAREST 0.1 FOOT.
7. BENCHMARK INFORMATION IS AS FOLLOWS:
 BM #101- NW CORNER OF CONC PAD FOR A/C UNIT.....ELEV.= 989.72
 BM #102- CENTER OF SEPTIC TANK MANHOLE.....ELEV.= 988.57

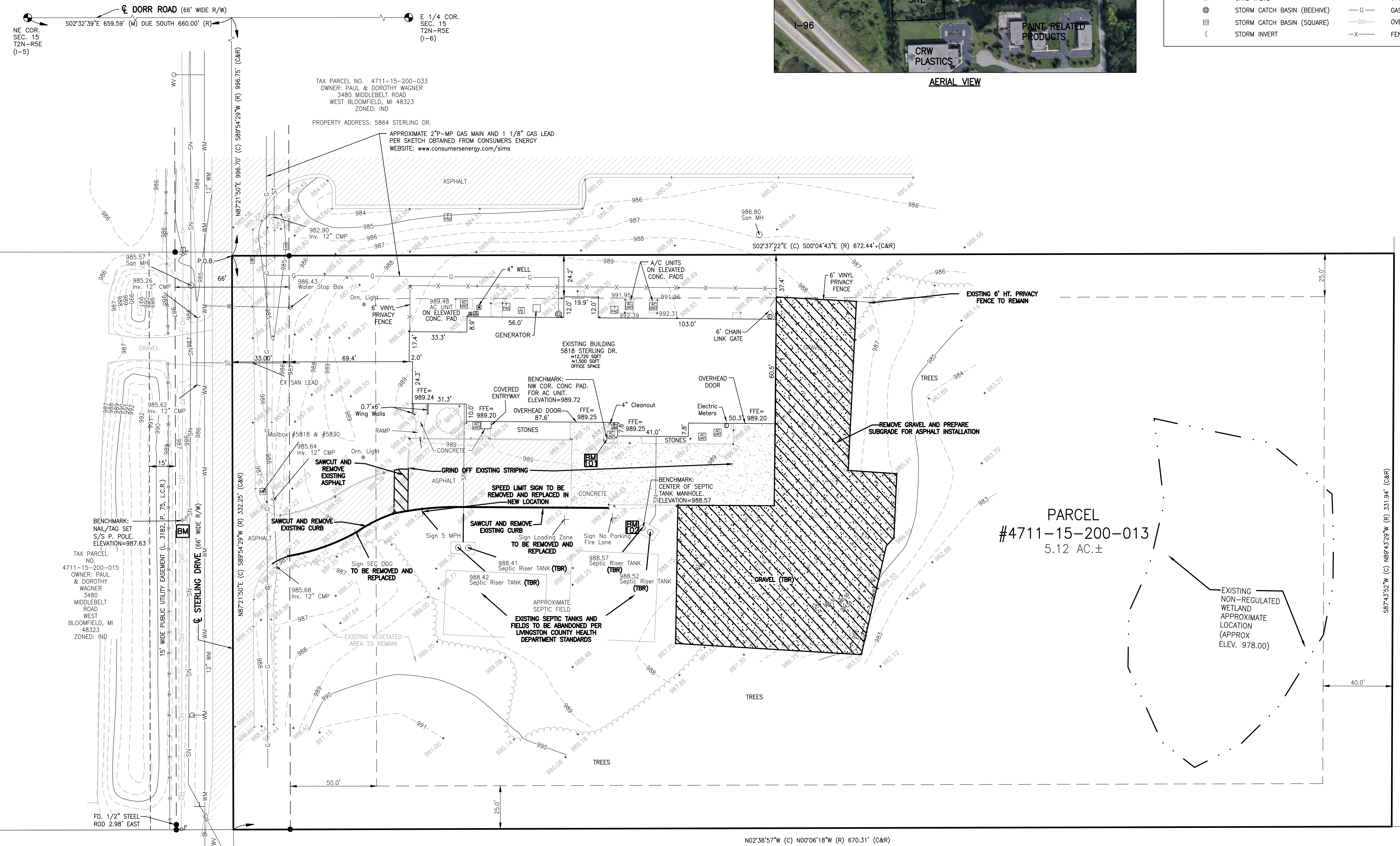


LEGEND

---900	EXISTING CONTOUR	○	MANHOLE
○P	EXISTING SPOT ELEVATION	□	TELEPHONE RISER
—P	POWER POLE	⊕	U.G. TELEPHONE MARKER
—	GUY WIRE	⊗	GAS METER
⊞	TRANSFORMER PAD	⊞	CABLE TV RISER
⊞	U.G. ELECTRIC MARKER	⊞	U.G. CABLE TV MARKER
⊞	ELECTRICAL METER	⊞	MAILBOX
⊞	AIR CONDITIONING UNIT	⊞	SIGN
⊞	LIGHT POLE	⊞	STEEL ROD/PIPE FOUND
⊞	ORNAMENTAL LIGHT	⊞	SECTION CORNER
⊞	WELL	—SN—	SANITARY SEWER
⊞	HYDRANT	—WM—	WATER MAIN
⊞	GATE VALVE	—ST—	STORM SEWER
⊞	STORM CATCH BASIN (BEEHIVE)	—G—	GAS MAIN
⊞	STORM CATCH BASIN (SQUARE)	—OH—	OVERHEAD WIRES
(STORM INVERT	—X—	FENCE

THIS DRAWING WAS PREPARED BY BEBOSS ENGINEERING INC. USING DATA PROVIDED BY THE CLIENT. BEBOSS ENGINEERING INC. DOES NOT WARRANT THE ACCURACY OF THE DATA PROVIDED OR THE COMPLETENESS OF THE DATA PROVIDED. THE CLIENT IS RESPONSIBLE FOR VERIFYING THE DATA PROVIDED AND FOR OBTAINING ANY NECESSARY PERMITS FROM THE LOCAL, STATE, AND FEDERAL GOVERNMENTS. BEBOSS ENGINEERING INC. IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS DRAWING. THE CLIENT SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES ARE FOUND BETWEEN THE DATA PROVIDED AND THE ACTUAL CONDITIONS ON THE GROUND. THE LOCATION OF DEPTH SPHERES IS SHOWN ON THESE DRAWINGS AS ONLY APPROXIMATE. NO QUANTITY IS SHOWN ON THESE DRAWINGS AS ONLY APPROXIMATE. NO QUANTITY IS SHOWN ON THESE DRAWINGS AS ONLY APPROXIMATE. NO QUANTITY IS SHOWN ON THESE DRAWINGS AS ONLY APPROXIMATE.

BEBOSS ENGINEERING INC.
 3121 E. GRAND RIVER AVE.
 HOWELL, MI 48843
 517-771-1111
 www.bebosseng.com



PARCEL #4711-15-200-013
 5.12 AC.±

PARCEL #4711-15-200-028
 OWNER: KORICH, INC
 5665 STERLING DR
 HOWELL, MI 48843
 ZONED: IND

PARCEL #4711-15-200-030
 OWNER: KORICH, INC
 5665 STERLING DR
 HOWELL, MI 48843
 ZONED: IND

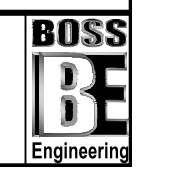
TAX PARCEL ID # 4711-15-200-025
 ZONED: INDUSTRIAL (IND)
 OWNER: 5775 BRIGHTON PINES COURT LLC

BEBOSS Engineering
 Engineers Surveyors Planners Landscape Architects
 3121 E. GRAND RIVER AVE.
 HOWELL, MI 48843
 800.246.6735 FAX 517.548.1670

PROJECT: 5818 STERLING DRIVE, HOWELL, MI
 PREPARED FOR: TOWN CENTER, INC.
 5818 STERLING DRIVE
 HOWELL, MI 48843
 248-207-0506

TITLE: EXISTING CONDITIONS/DEMOLITION PLAN

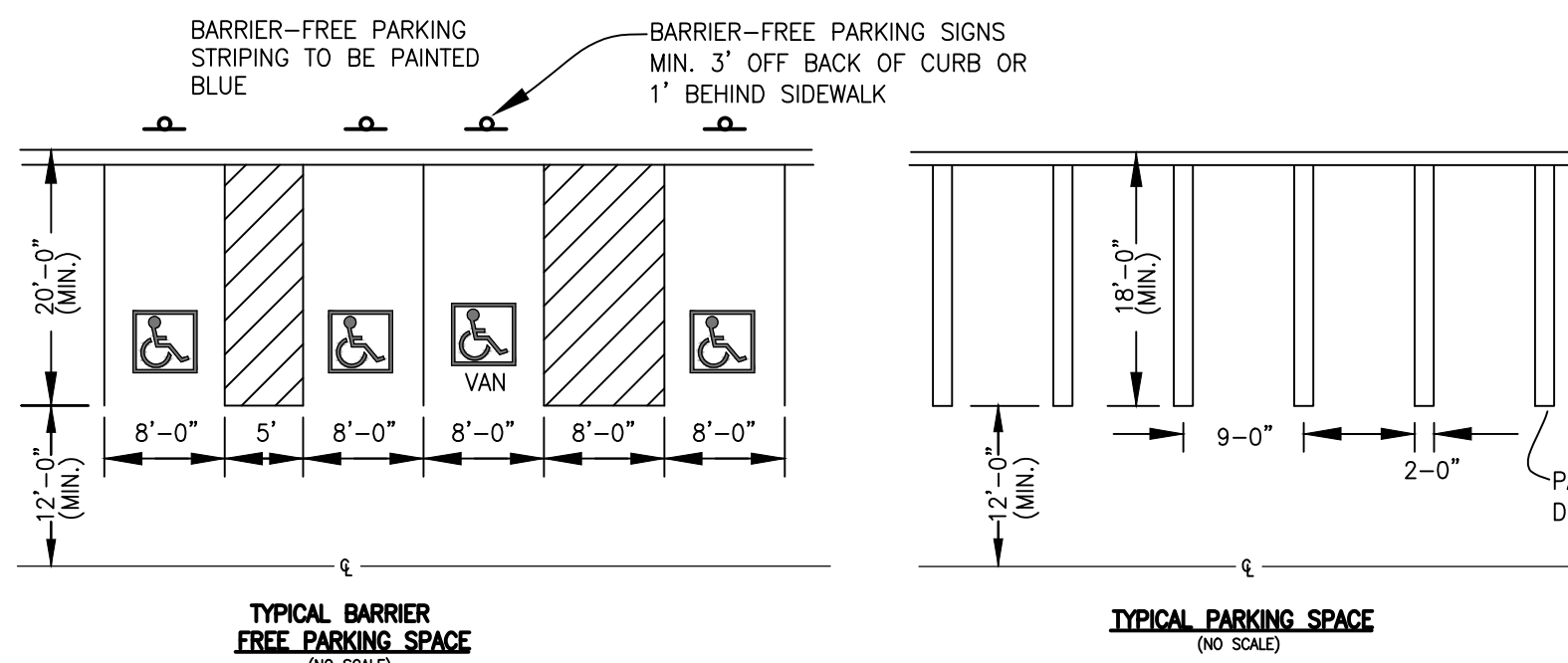
DESIGNED BY:	DATE
AEB <td>10-28-17</td>	10-28-17
CHECKED BY: <td>REVISION PER</td>	REVISION PER
SCALE 1" = 30'	NO BY
JOB NO. 17-329	
DATE 10-3-17	
SHEET NO. C2	



SITE DATA

	REQUIRED	EXISTING/PROPOSED
CURRENT ZONING: IND (INDUSTRIAL)		
MINIMUM SETBACK REQUIREMENTS:		
FRONT =	85 FEET (IF PARKING IN FRONT YARD) 50 FEET (IF NO PARKING IN FRONT YARD)	102.4'
SIDES =	25 FEET (50 FEET IF ADJACENT TO RESIDENTIAL DISTRICT)	24.2'
REAR =	40 FEET (80 FEET IF ADJACENT TO RESIDENTIAL DISTRICT)	357.6'
PARKING LOT =	20 FEET (10 FEET SIDE AND REAR) CLOSEST IS 25' FROM E. PROP LINE	
MAXIMUM LOT COVERAGE =	40% BUILDING, 85% IMPERVIOUS	5.7% BUILDING 13.26% IMPERVIOUS
MAXIMUM BUILDING HEIGHT =	30 FEET, 2 STORIES	1-STORY ≈ 23 FEET
PARKING CALCULATION: 1.5 SPACES PER 1,000 SQFT OF GROSS FLOOR AREA OR 1.2 SPACES PER EACH EMPLOYEE AT PEAK SHIFT WHICHEVER IS GREATER, PLUS 1 SPACE FOR EACH CORPORATE VEHICLE.		
-UP TO 18 EMPLOYEES AT PEAK SHIFT X 1.2 SPACES = 22 SPACES + 12 SPACES FOR TRAINING PURPOSES + 4 FOR PORTABLE REFRIGERATION UNITS + 12 SPACES FOR CORPORATE VEHICLES = 50 SPACES		
PROVIDED PARKING: 50 SPACES INCLUDING 2 BARRIER FREE SPACES (19 CONSIDERED BANKED PARKING)		

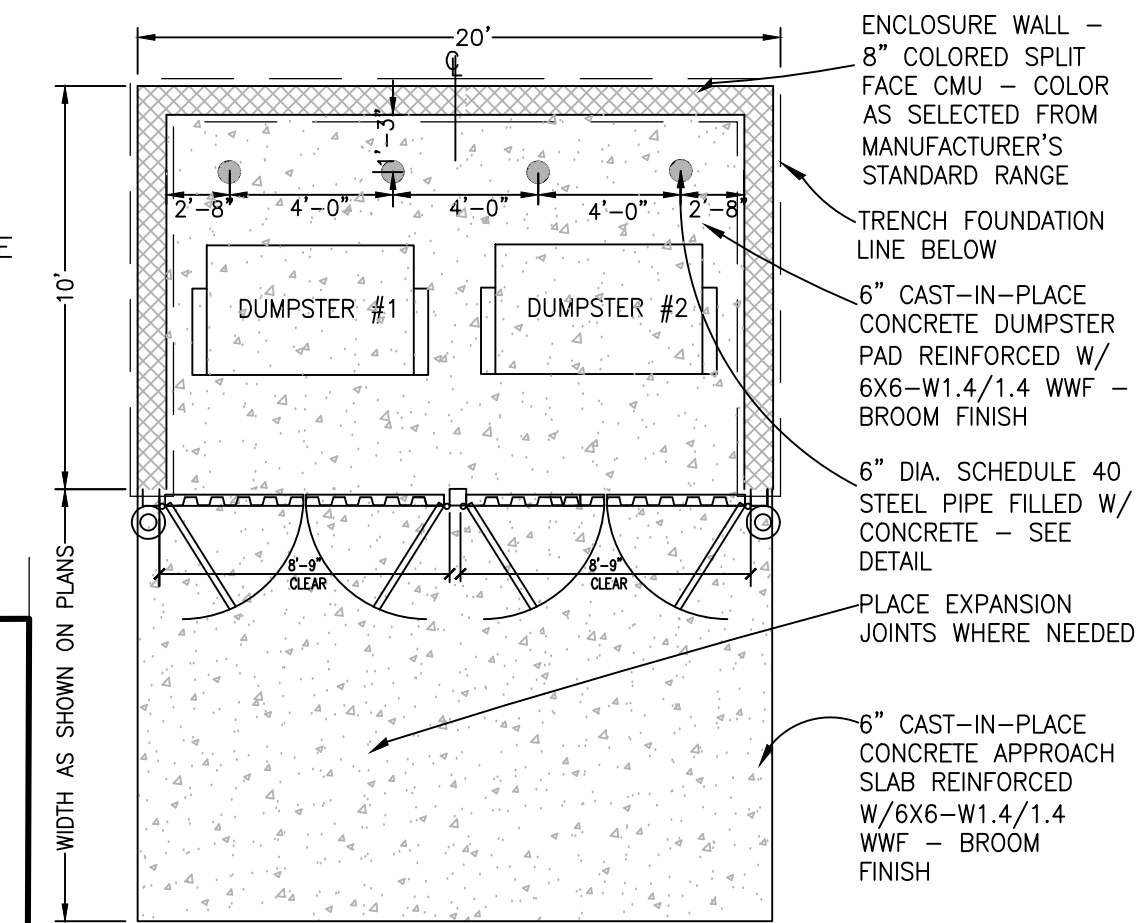
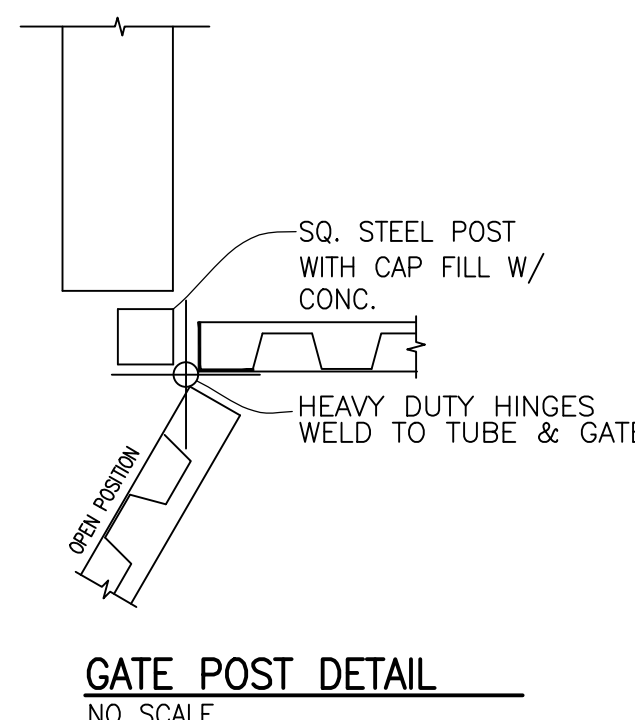
*EXISTING BUILDING HAS APPROXIMATELY 12,720 SQFT 1,500 SQFT OF WHICH IS OFFICE SPACE



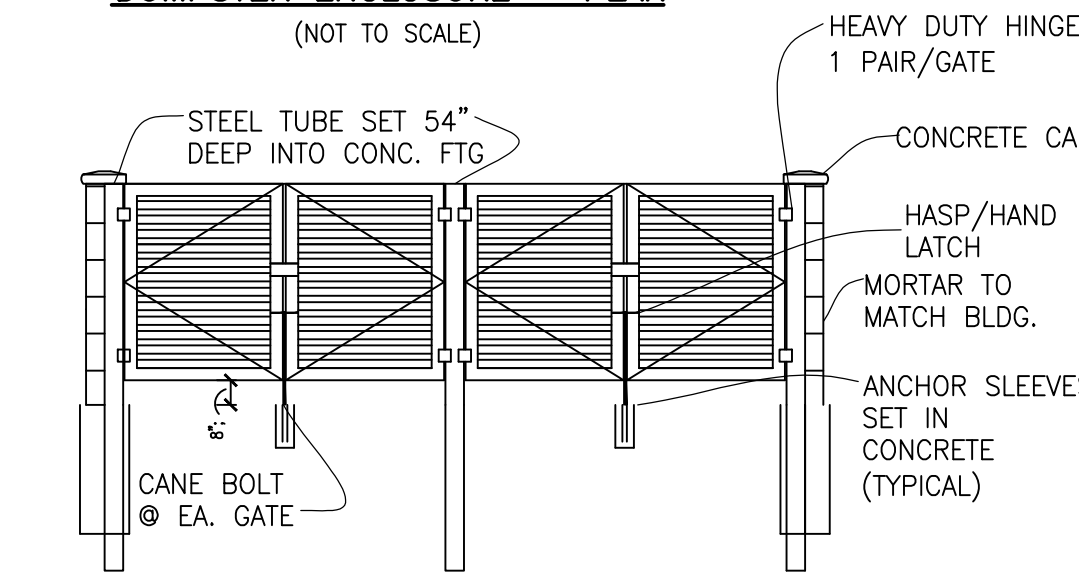
PROPOSED (PR)	EXISTING (EX)
900	900
T/C	T/A
XXX.XX	+922.08
FF	FF
FG	FG
T/A	T/A
T/C	T/C
T/W	T/W
F/L	F/L
T/P	T/P
B/P	B/P
RIM	RIM
INV	INV
MH	MH
IN	IN
CB	CB
RY	RY
ES	ES
GV	GV
HY	HY
UP	UP

LEGEND

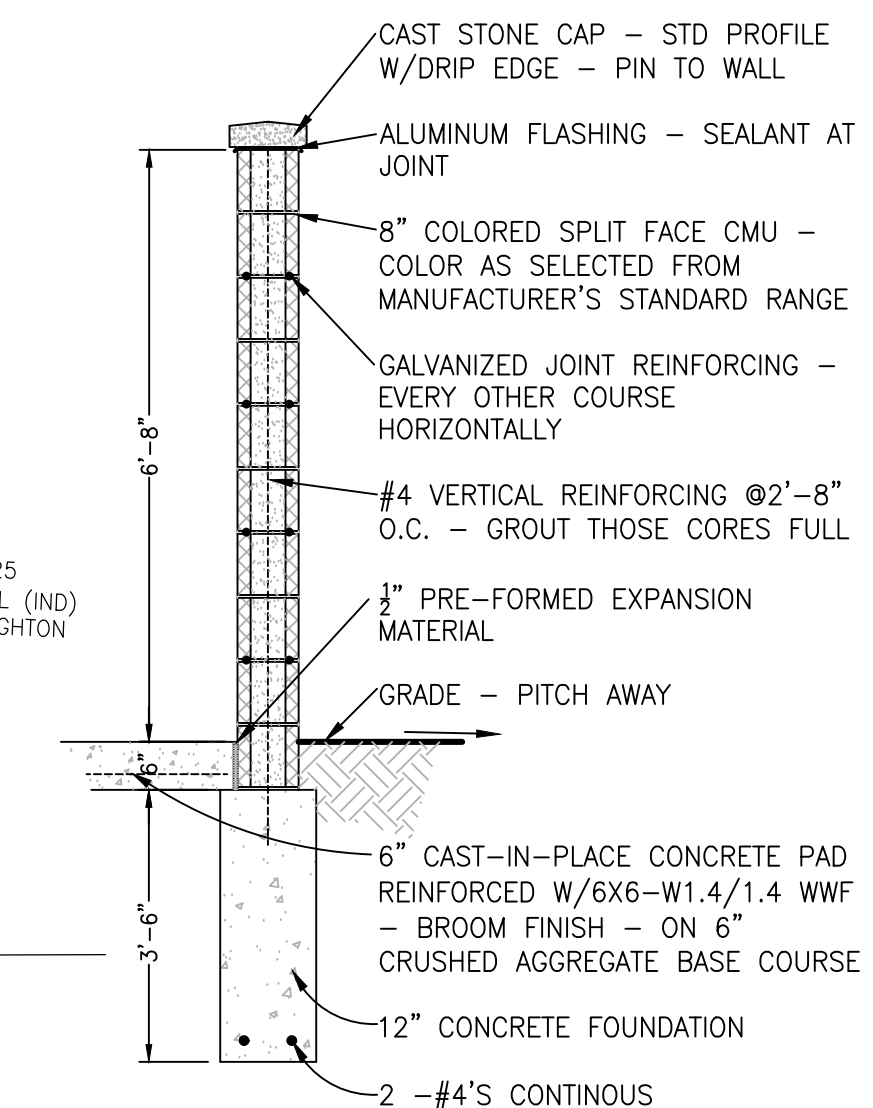
PROPOSED (PR)	EXISTING (EX)	
SN	SN	SANITARY SEWER
SL	SL	SANITARY LEAD
FM	FM	FORCE MAIN
PS	PS	PRESSURE SEWER
ST	ST	STORM SEWER
WM	WM	WATER MAIN
WL	WL	WATER LEAD
FO	FO	FIBER OPTIC
OH	OH	OVERHEAD WIRE
C	C	CABLE
E	E	ELECTRIC
G	G	GAS
T	T	TELEPHONE
MH	MH	MANHOLE
IN	IN	INLET / CATCHBASIN
FL	FL	FLARED END-SECTION
GV	GV	GATE VALVE
HY	HY	HYDRANT
UP	UP	UTILITY POLE
F	F	FENCE
CSB	CSB	COMPACTED SAND BACKFILL
SR	SR	SANITARY SEWER LABEL
ST	ST	STORM SEWER LABEL
WM	WM	WATER MAIN LABEL
SE	SE	SOIL EROSION CONTROL MEASURE (P=PERMANENT, T=TEMPORARY)



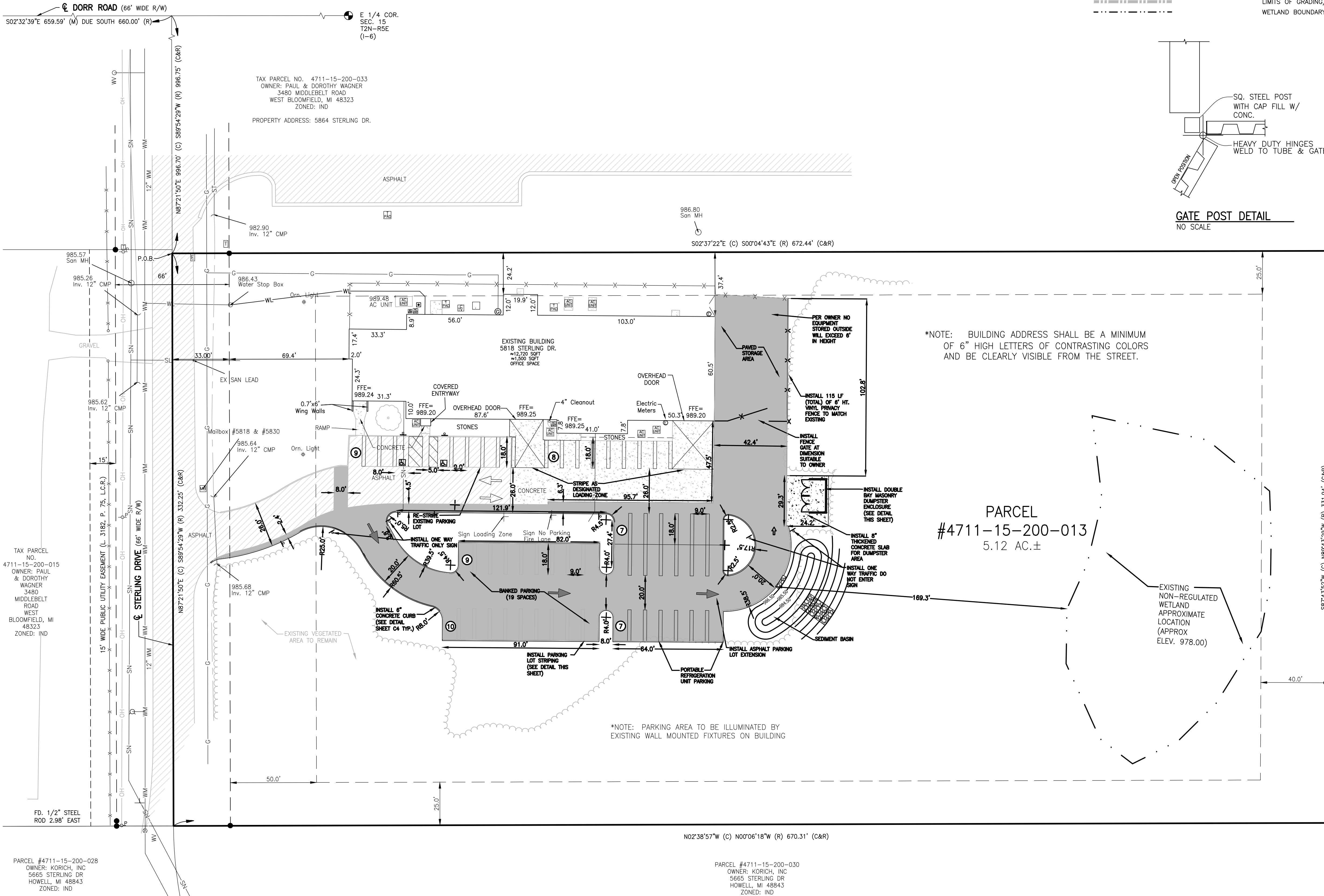
DUMPSTER ENCLOSURE - PLAN
(NOT TO SCALE)



DUMPSTER ENCLOSURE FRONT ELEVATION
(NOT TO SCALE)



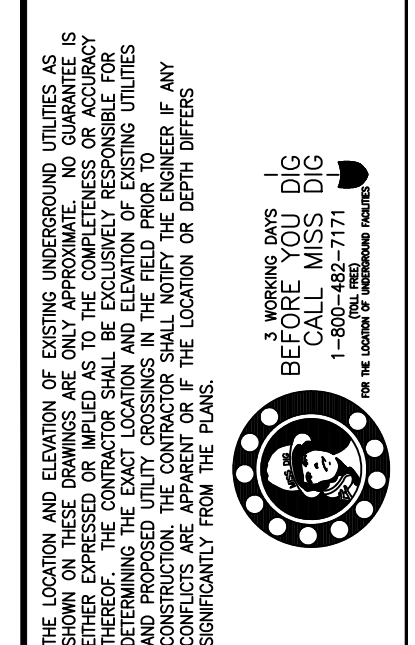
DUMPSTER ENCLOSURE - SECTION
(NOT TO SCALE)



*NOTE: BUILDING ADDRESS SHALL BE A MINIMUM OF 6" HIGH LETTERS OF CONTRASTING COLORS AND BE CLEARLY VISIBLE FROM THE STREET.

PARCEL #4711-15-200-013 / 5.12 AC.±

*NOTE: PARKING AREA TO BE ILLUMINATED BY EXISTING WALL MOUNTED FIXTURES ON BUILDING



BEBOSS Engineering
Engineers Surveyors Planners Landscape Architects
3121 E. GRAND RIVER AVE.
HOWELL, MI 48843
800.246.6735 FAX 517.548.1670

PROJECT: **5818 STERLING DRIVE, HOWELL, MI**
PREPARED FOR: **TOWN CENTER, INC.**
5818 STERLING DRIVE
HOWELL, MI 48843
248-207-0506

NO	BY	REVISION	DATE
1	CH	REVISED PER TOWNSHIP	10-25-17

DESIGNED BY: _____
DRAWN BY: AEB
CHECKED BY: _____
SCALE: 1" = 30'
JOB NO. 17-329
DATE 10-3-17
SHEET NO. **C3**



**LIVINGSTON COUNTY SOIL EROSION PERMIT TEMPLATE
TEMPORARY CONTROLS AND SEQUENCE**

- NOTIFY LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE 24 HOURS PRIOR TO START OF GRADE WORK.
- IN ACCORDANCE WITH PUBLIC ACT NO. 53, OF 1974 THE PERMIT HOLDER SHALL CALL MISS DIG FOR STAKING AND LOCATING OF UTILITIES, AT LEAST 72 HOURS IN ADVANCE OF THE START OF ANY WORK.
- (IMPORTANT NOTICE) RETENTION/DETENTION PONDS SHALL BE EXCAVATED, TOPSOILED, SEEDDED, MULCHED AND TACKED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION. INGRESS/EGRESS MUST HAVE LARGE CRUSHED ROCK TO REDUCE THE TRACKING OF SOIL ONTO THE PUBLIC TRAFFIC AREAS. SEE DETAIL ITEMS BELOW.
- 36" M.D.O.T SPECIFICATION TYPE SILT FABRIC FENCE AS SHOWN ON PLANS SHALL BE PLACED AND MAINTAINED ALONG PERIMETER ON ALL LOW LYING AREAS OF THE CONSTRUCTION SITE TO FILTER RUNOFF BEFORE LEAVING PROJECT SITE.
- ALL TEMPORARY EROSION CONTROL DEVICES AS NOTED ON PLANS SHALL BE INSTALLED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION.
- PLAN DOES DENOTE A DETAILED EROSION CONTROL DEVICE TO RESTRICT TRACKING OF MATERIAL, ONTO THE HIGHWAY. STONE DIAPHRAGMS SHALL BE INSTALLED AT ALL INGRESS/EGRESS AREAS OF THE SITE PRIOR TO THE START OF MASSIVE EARTH DISRUPTION. DIAPHRAGMS SHALL BE OF CRUSHED STONE AND SHALL HAVE A MINIMUM LENGTH OF 100' LINEAL FEET.
- RETENTION PONDS
 - RETENTION/DETENTION/SEDIMENTATION PONDS SHALL BE EXCAVATED, TOPSOILED, SEEDDED, MULCHED AND TACKED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION.

- DETENTION POND OUTLETS SHALL BE OF THE STANDPIPE AND STONE FILTER SYSTEM, WITH TRASH SCREEN. OUTLET FLOW SHALL NOT EXCEED 0.20 CUBIC FEET OF WATER PER SECOND/PER ACRE. POND DIKES SHALL HAVE A MINIMUM OF ONE (1) FOOT OF FREEBOARD. AN EMERGENCY SPILLWAY SHALL BE CONSTRUCTED WITHIN THE FREEBOARD LEVEL.
- THE EMERGENCY SPILLWAY FROM THE DETENTION POND SHALL BE SLOPED AND PAVED, OR RIP RAPPED, 15 FEET PAST THE TOE OF THE SLOPE OF THE BERM.
- DIKES AND BERMS SHALL BE FREE OF ALL ORGANIC MATTER.
- RETENTION/DETENTION PONDS SHALL BE FENCED WITH A 4' CHAIN LINK FENCE, INCLUDING A 12' ACCESS GATE FOR MAINTENANCE UNLESS MINIMUM 5 FT. HORIZONTAL TO 1 FT. VERTICAL SIDE SLOPES ARE PROVIDED. FOR MAINTENANCE WORK TO BE DONE INSIDE THE FENCE.
- ALL UNIMPROVED DISTURBED AREAS SHALL BE STRIPPED OF TOPSOIL WHICH WILL BE STORED ONSITE DURING THE EXCAVATING STAGE. TOPSOIL PILES SHALL BE SEEDDED AND MULCHED, OR MATTED WITH STRAW IN THE NON-GROWING SEASON, IMMEDIATELY AFTER THE STRIPPING PROCESS IS COMPLETED, TO PREVENT WIND AND WATER EROSION.
- SOIL EROSION CONTROLS SHALL BE MONITORED DAILY BY THE ON-SITE ENGINEER, OR CONTRACTOR, WHICHEVER CASE APPLIES. THE FENCE SHALL BE INSTALLED AT THE OUTER PORTION OF THE BERM, TO ALLOW SLOPES AND DITCHES.
- ON SITE DITCHES SHALL BE OF THE FLAT BOTTOM TYPE MINIMUM WIDTH OF 2' WITH A MINIMUM OF 3 HORIZONTAL TO 1 VERTICAL SIDE SLOPES, 3:1.
- DITCHES WITH STEEP SLOPES WILL NEED FLOW CHECKS TO PREVENT SCOURING OF THE DITCH BOTTOM. THESE SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR INSPECTOR.
- SLOPES IN EXCESS OF 3 HORIZONTAL TO 1 VERTICAL SHALL NOT BE USED EXCEPT WITH A MECHANICAL DEVICE SUCH AS A RETAINING WALL, TERRACING, OR OTHER PRIOR APPROVED DEVICE.

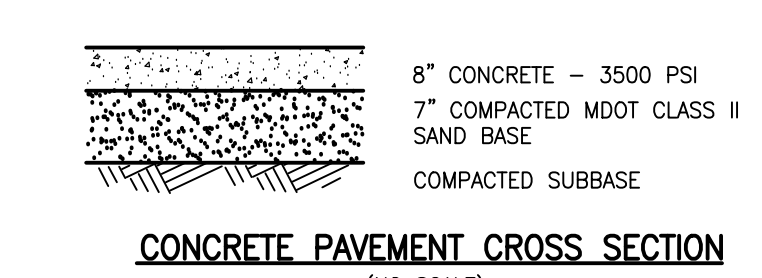
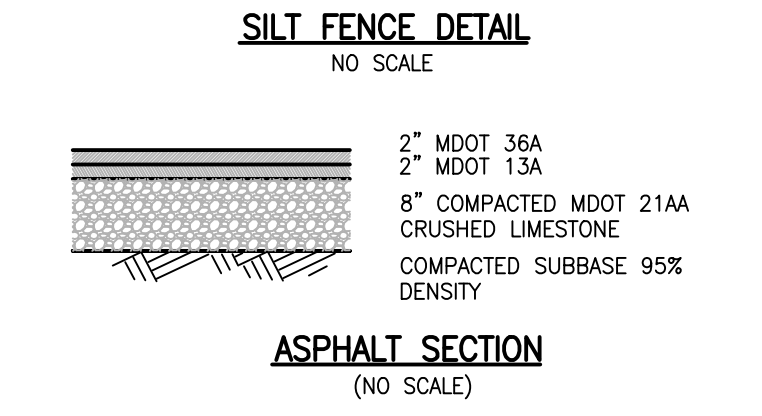
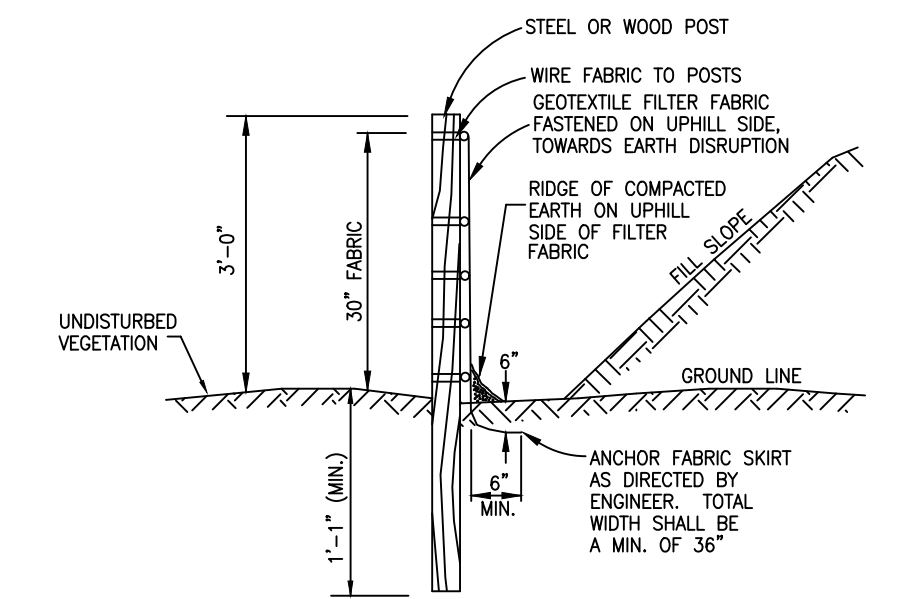
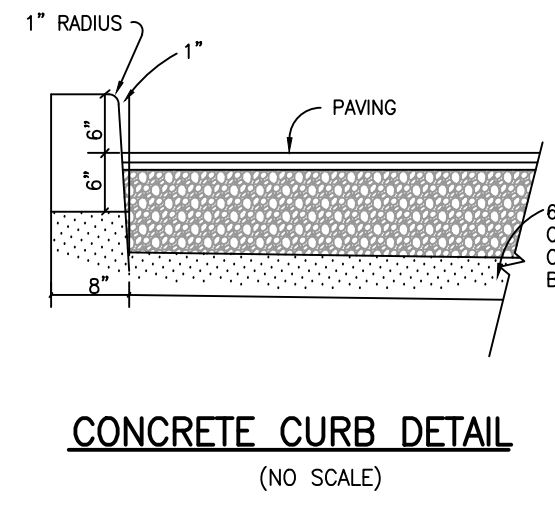
- STABILIZATION**
- ALL UNIMPROVED DISTURBED AREAS SHALL BE RE-TOP SOILED, WITH A MINIMUM OF 3" OF MATERIAL, SEEDED, MULCHED AND TACKED WITHIN 15 DAYS OF THE COMPLETION OF THE MASSIVE EARTH DISRUPTION. IN THE NON-GROWING SEASON STRAW MATTING WILL SUFFICE. HYDROSEEDING WILL BE AN ACCEPTABLE ALTERNATE FOR MULCHING. EXTREME CARE SHOULD BE EXERCISED IN SPRING AND FALL PERIODS AS A FROST WILL BREAK THE BOND OF THE HYDROSEEDING, WHICH WILL AFFECT THE EFFECTIVENESS OF THIS PROCEDURE.
 - IN THE NON-GROWING SEASON, TEMPORARY STABILIZATION OF MASSIVELY EXPOSED AREAS FOR WINTER STABILIZATION SHALL BE DONE WITH STRAW MATTING.
 - PERIODIC INSPECTIONS WILL BE MADE THROUGHOUT THE COURSE OF THE PROJECT. IT WILL BE THE RESPONSIBILITY OF THE MANAGERS OF THE PROJECT TO CONTACT THIS OFFICE FOR THE FINAL INSPECTION AT THE END OF THE PROJECT.
 - THIS COMMERCIAL PERMIT IS VALID FOR THE MASS EARTH MOVEMENT, THE INSTALLATION OF ROADS, DRAINS, AND UTILITIES AND IS NOT FOR ANY SINGLE FAMILY RESIDENCE. ALL RESIDENTIAL BUILDERS WILL NEED TO SECURE WAIVERS AND OR PERMITS AS NECESSARY FOR EACH LOT IN THIS DEVELOPMENT AT THE TIME APPLICATION FOR SINGLE FAMILY RESIDENCE IS MADE.
 - THE ISSUING BUILDING DEPARTMENT SHALL NOT ISSUE THE CERTIFICATE OF OCCUPANCY UNTIL THE FINAL INSPECTOR LETTER FROM THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE HAS BEEN OBTAINED.
 - FOR THE LIVINGSTON COUNTY DRAIN COMMISSIONER THE SEEDING, FERTILIZER AND MULCH MINIMUM QUANTITIES SHALL BE AS FOLLOWS:
 TOP SOIL 3" IN DEPTH
 GRASS SEED 218 LBS. PER ACRE
 FERTILIZER 150 LBS. PER ACRE
 STRAW MULCH 3" IN DEPTH 1.5 TO 2 TONS PER ACRE (ALL MULCHING MUST HAVE A TIE DOWN, SUCH AS TACKIFIER, NET BINDING, ETC.)
 HYDRO-SEEDING IS NOT ACCEPTABLE FOR SLOPES EXCEEDING 1% IN SUCH CASES STABILIZATION SHALL BE DONE WITH SEED AND STRAW MULCH WITH A TACKIFIER.

- MAINTENANCE SCHEDULE FOR SOIL EROSION CONTROLS**
- SILT FENCE SHALL BE INSPECTED WEEKLY AND AFTER EACH MAJOR STORM EVENT. MAINTENANCE SHALL INCLUDE REMOVAL OF ACCUMULATED SILT AND REPLACEMENT OF TORN SECTIONS. SILT FENCE SHALL BE REMOVED WHEN ALL CONTRIBUTING AREAS HAVE BEEN STABILIZED.
 - TRACKING PAD SHALL BE INSPECTED MONTHLY FOR ACCUMULATED DIRT. TRACKING PAD SHALL BE REPLACED WHEN THE STONES ARE CHOKED WITH DIRT. TRACKING PAD SHALL BE REMOVED IMMEDIATELY PRIOR TO THE FIRST COURSE OF ASPHALT BEING LAID.
 - DETENTION/RETENTION POND SHALL BE INSPECTED QUARTERLY ON A PERMANENT BASIS. MAINTENANCE SHALL INCLUDE SEDIMENT REMOVAL, EMBANKMENT STABILIZATION AND MAINTAINING THE OUTLET STRUCTURE IN GOOD CONDITION. NO TREES SHALL BE ALLOWED TO GROW ON THE EMBANKMENT.
 - CATCH BASINS SHALL BE INSPECTED ANNUALLY FOR ACCUMULATION OF SEDIMENT. ALL SEDIMENT MUST BE REMOVED AND DISPOSED OF PROPERLY WHEN THE SUMP IS FULL.
 - COMMON AREAS SHALL BE STABILIZED NO LATER THAN 15 DAYS AFTER GRADE WORK, PURSUANT TO RULE 1709 (5).

- GENERAL SURVEY NOTES:**
- BEARINGS ARE BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM SOUTH ZONE.
 - SUBSURFACE UTILITIES NOT LOCATED FOR THIS SURVEY MAY EXIST. IT IS THE RESPONSIBILITY OF THE OWNER OF THE RESPECTIVE UTILITY TO ACCURATELY LOCATE SUCH UTILITIES.
 - EASEMENTS OR RESTRICTIONS OF RECORD NOT DEPICTED ON THIS DRAWING MAY EXIST.
 - ELEVATIONS WERE ESTABLISHED WITH OPUS USING OPUS. (NAD83 DATUM)
 - CONTOURS ARE SHOWN AT 1 FOOT INTERVALS.
 - ALL ELEVATIONS ARE SHOWN TO THE NEAREST 0.01 FOOT; HOWEVER SOFT-SURFACE ELEVATIONS CAN ONLY BE PRESUMED ACCURATE TO THE NEAREST 0.1 FOOT.
 - BENCHMARK INFORMATION IS AS FOLLOWS:
 BM #101- NW CORNER OF CONC PAD FOR A/C UNIT.....ELEV.= 989.72
 BM #102- CENTER OF SEPTIC TANK MANHOLE.....ELEV.= 988.57

LEGEND

PROPOSED (PR)	EXISTING (EX)	PROPOSED (PR)	EXISTING (EX)
SN	SN	SN	SANITARY SEWER
SL	SL	SL	SANITARY LEAD
FM	FM	FM	FORCE MAIN
PS	PS	PS	PRESSURE SEWER
ST	ST	ST	STORM SEWER
WM	WM	WM	WATER MAIN
WL	WL	WL	WATER LEAD
FO	FO	FO	FIBER OPTIC
OH	OH	OH	OVERHEAD WIRE
C	C	C	CABLE
E	E	E	ELECTRIC
G	G	G	GAS
T	T	T	TELEPHONE
MH	MH	MH	MANHOLE
IN	IN	IN	INLET STRUCTURE
CB	CB	CB	CATCHBASIN STRUCTURE
RY	RY	RY	REARWARD STRUCTURE
ES	ES	ES	END-SECTION
GV	GV	GV	GATEVALVE STRUCTURE
HY	HY	HY	HYDRANT
UP	UP	UP	UTILITY POLE
			FENCE
			NOT FIELD VERIFIED
			TO BE REMOVED
			COMPACTED SAND BACKFILL
			SANITARY SEWER LABEL
			STORM SEWER LABEL
			WATER MAIN LABEL
			SOIL EROSION CONTROL MEASURE (P=PERMANENT, T=TEMPORARY)



CONTROLS & MEASURES NARRATIVE

ACTIVITY	DESCRIPTION
MAINTAIN LANDSCAPING, REPLACE MULCH	COLLECT GRASS, TREE, AND SHRUB CLIPPINGS. DISPOSE IN APPROVED CONTAINER. REPLACE DEAD SOD, TREES AND SHRUBS.
CLEAN INLETS	REMOVE LITTER, SEDIMENT, AND DEBRIS. DISPOSE OF IN APPROVED LANDFILL.
COLLECT LITTER	DISPOSE OF WITH INLET DEBRIS.
SWEEP PARKING LOT	REMOVE MUD, DIRT, GREASE AND OIL WITH PERIODIC SWEEPING.
DUST CONTROL	SPRINKLE WATER AS NEEDED.

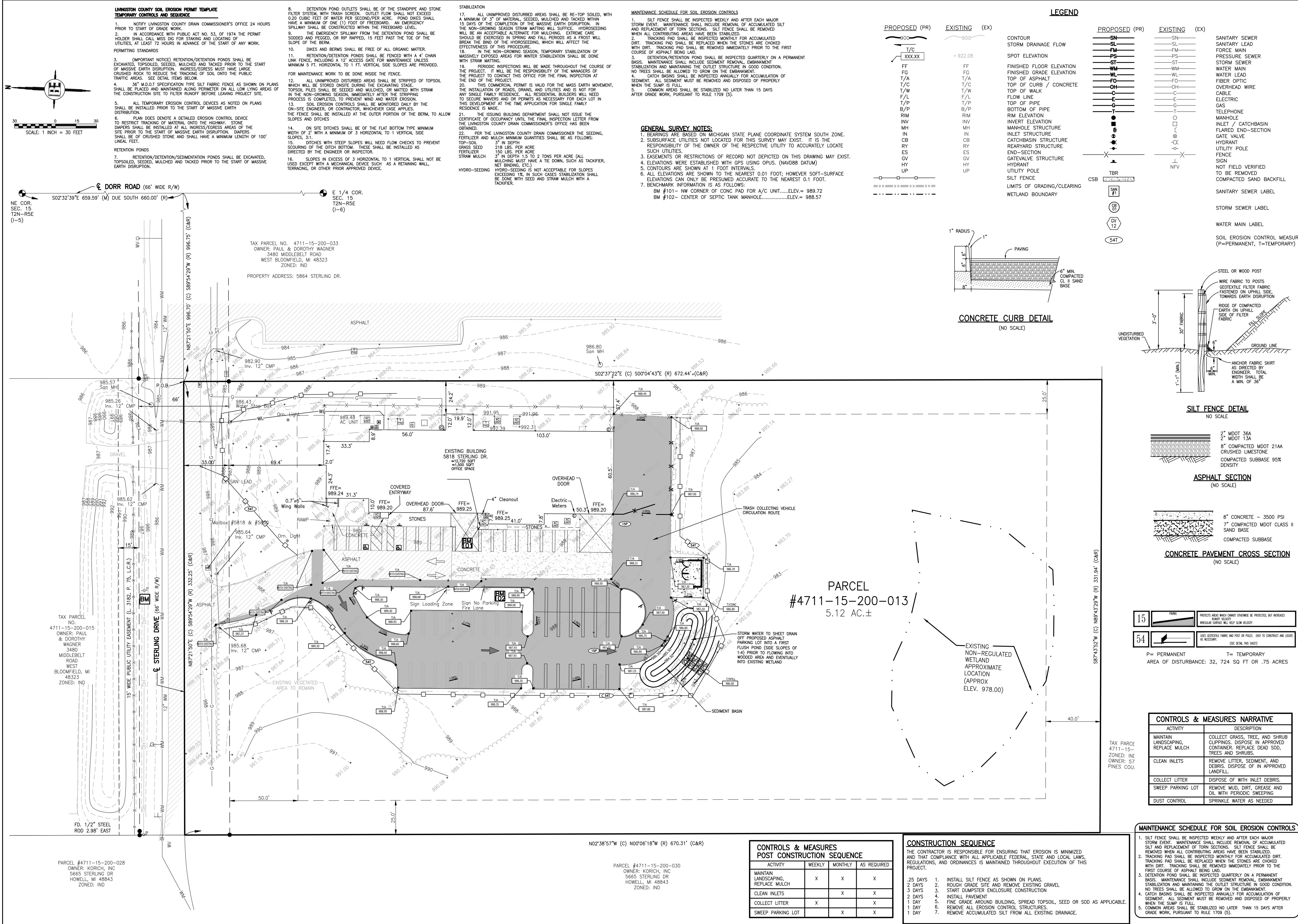
CONTROLS & MEASURES POST CONSTRUCTION SEQUENCE

ACTIVITY	WEEKLY	MONTHLY	AS REQUIRED
MAINTAIN LANDSCAPING, REPLACE MULCH	X	X	X
CLEAN INLETS		X	X
COLLECT LITTER	X		X
SWEEP PARKING LOT		X	X

CONSTRUCTION SEQUENCE

NO.	DESCRIPTION
1	INSTALL SILT FENCE AS SHOWN ON PLANS.
2	ROUGH GRADE SITE AND REMOVE EXISTING GRAVEL.
3	START DUMPSTER ENCLOSURE CONSTRUCTION.
4	INSTALL PAVEMENT.
5	FINE GRADE AROUND BUILDING, SPREAD TOPSOIL, SEED OR SOD AS APPLICABLE.
6	REMOVE ALL EROSION CONTROL STRUCTURES.
7	REMOVE ACCUMULATED SILT FROM ALL EXISTING DRAINAGE.

- MAINTENANCE SCHEDULE FOR SOIL EROSION CONTROLS**
- SILT FENCE SHALL BE INSPECTED WEEKLY AND AFTER EACH MAJOR STORM EVENT. MAINTENANCE SHALL INCLUDE REMOVAL OF ACCUMULATED SILT AND REPLACEMENT OF TORN SECTIONS. SILT FENCE SHALL BE REMOVED WHEN ALL CONTRIBUTING AREAS HAVE BEEN STABILIZED.
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THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ORDINANCES FROM THE LOCAL, STATE AND FEDERAL AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ORDINANCES FROM THE LOCAL, STATE AND FEDERAL AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ORDINANCES FROM THE LOCAL, STATE AND FEDERAL AGENCIES.

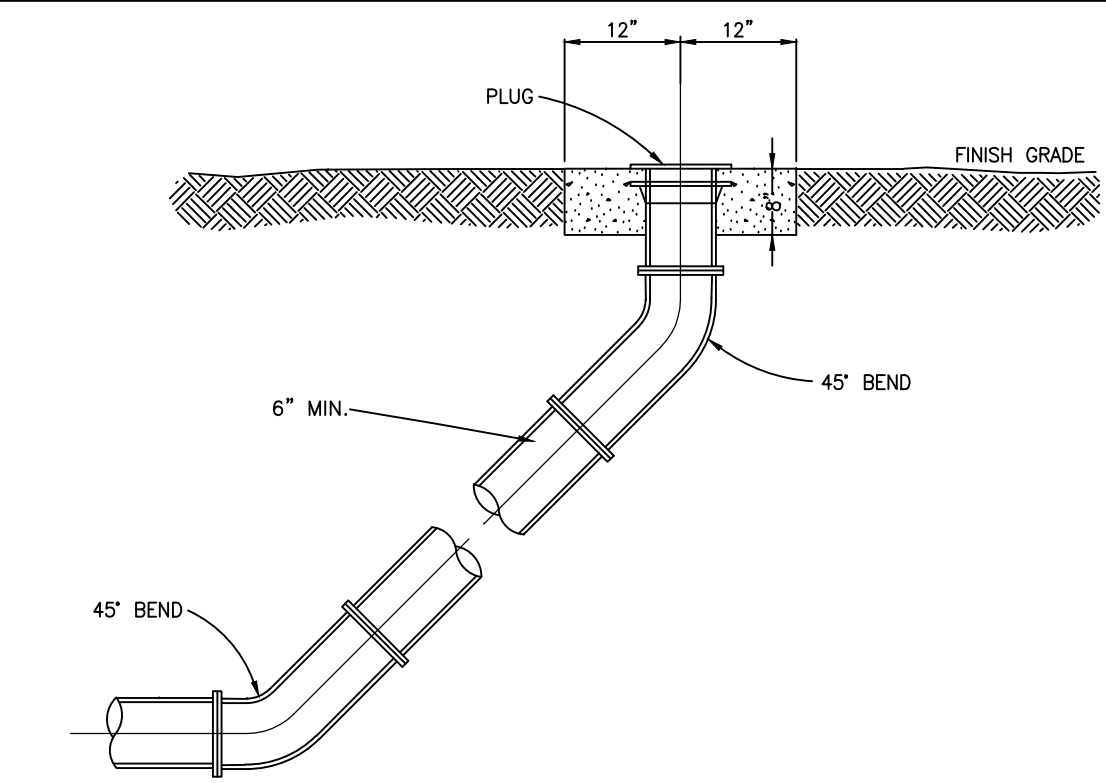
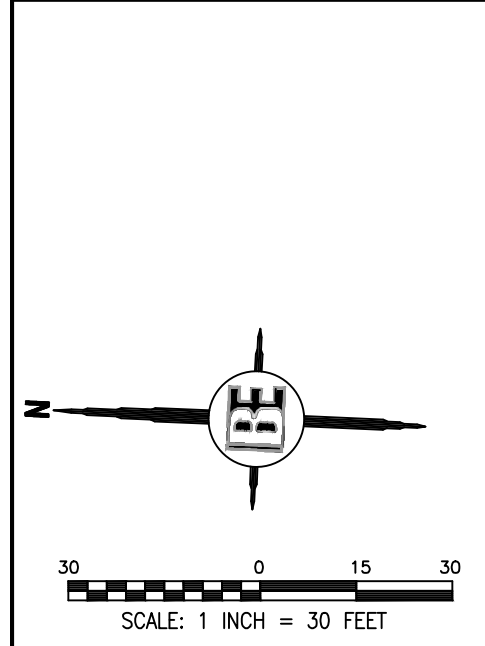
BEBOSS Engineering
 Engineers Surveyors Planners Landscape Architects
 3121 E. GRAND RIVER AVE.
 HOWELL, MI 48843
 800.246.6735 FAX 517.548.1670

PROJECT: 5818 STERLING DRIVE, HOWELL, MI
PREPARED FOR: TOWN CENTER, INC.
 5818 STERLING DRIVE
 HOWELL, MI 48843
 248-207-0506
TITLE: GRADING, DRAINAGE, & SESC PLAN

NO.	DATE	REVISION PER
1	10-25-17	NO BY

DESIGNED BY: AEB
 CHECKED BY: AEB
 SCALE: 1" = 30'
 JOB NO. 17-329
 DATE 10-3-17
 SHEET NO. C4

BEBOSS Engineering



LIVINGSTON COUNTY DETENTION BASIN CALCULATIONS

IMPERVIOUS FACTOR		ACRE IMPERVIOUS	
AREA (ACRES)	FACTOR	IMPERVIOUS	
0.97	0.9	0.88	
0.45	0.2	0.09	

COMPOUND C:		0.9858	
TOTAL DRAINAGE AREA:		1.42 ACRES	
$K1 = A \times C$ (Design Constant)		0.9858	
$C_d = \text{MAX ALLOW OUTFLOW}$ (0.10 CFS / ACRE)		0.142	CFS

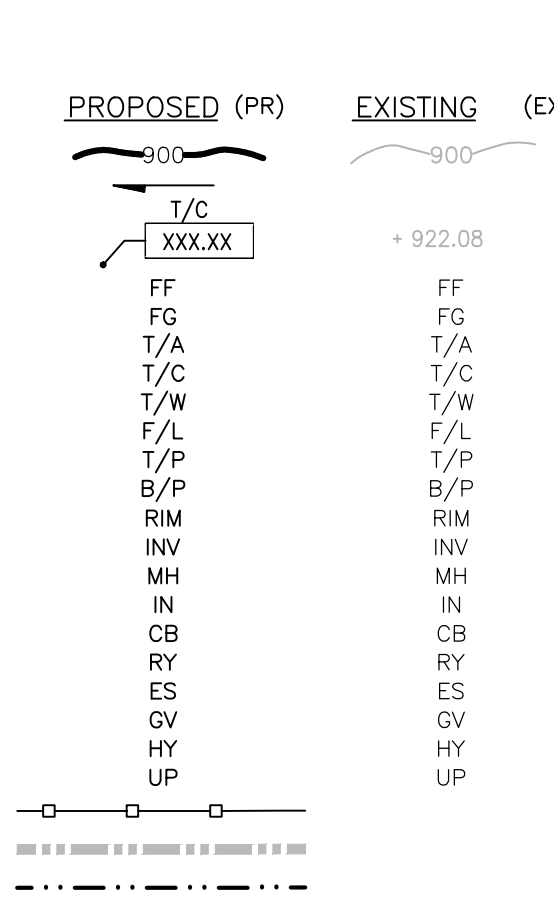
DURATION (MINUTES)	DURATION (SECONDS)	INTENSITY (IN/HR)	INCHES	INFLOW VOLUME (CFS)	OUTFLOW (CFS)	STORAGE VOLUME (GALLONS)
5	300	9.17	2750	43	2813	
10	600	7.86	4714	452	85	4467
15	900	6.88	6188	5975	128	5847
20	1200	6.11	7333	7081	170	6911
30	1800	5.03	9000	8990	296	8435
60	3600	3.24	11647	11246	511	10735
90	5400	2.39	12913	12469	767	11702
120	7200	1.90	13655	13165	1022	12163
180	10800	1.34	14488	13989	1534	12456

REQUIRED 100 YEAR DETENTION VOLUME = 12456 CF

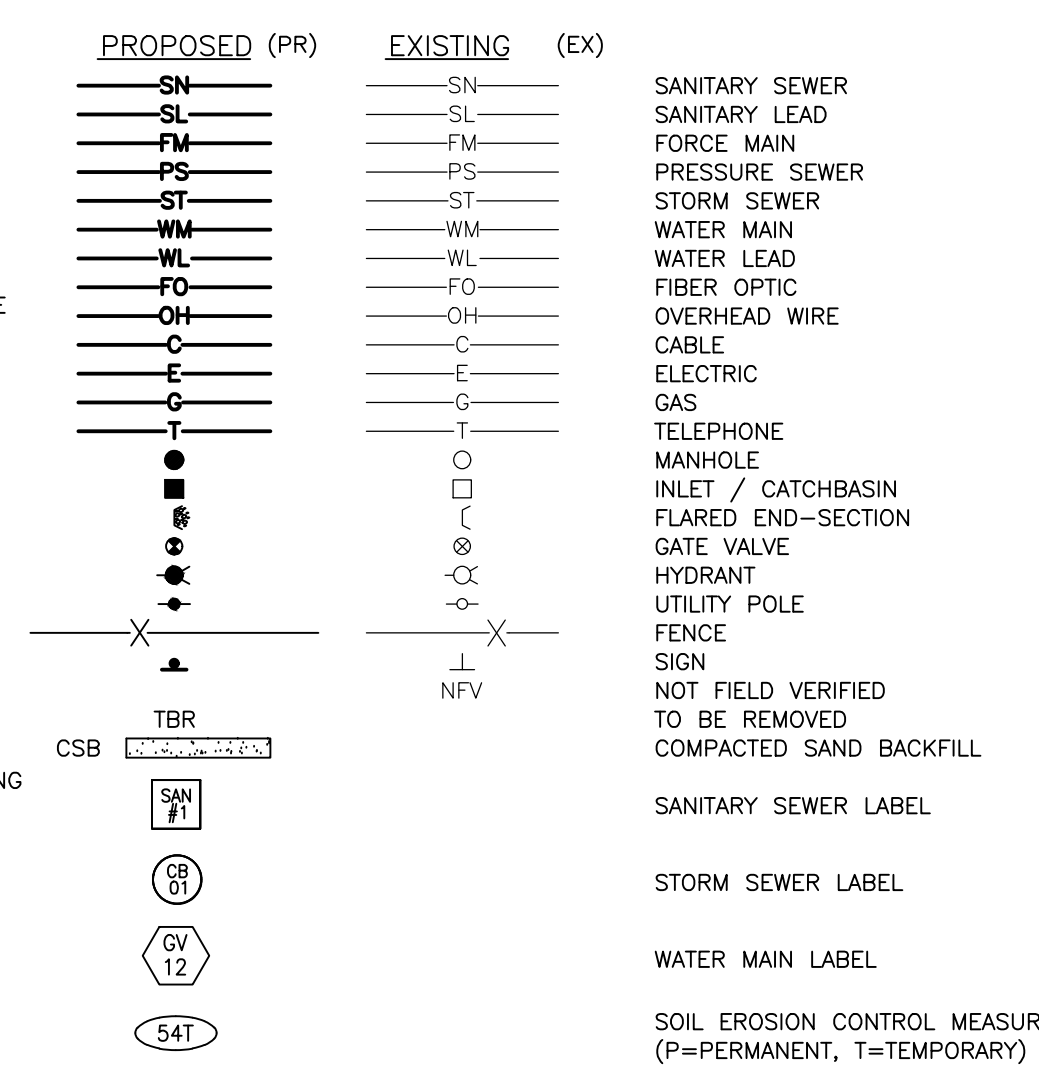
FOREBAY VOLUME
 V(F) = 5% OF THE 100-YEAR STORM VOLUME BASED ON THE AREA TRIBUTARY TO THE INLET
 V(F) = 623 CF
FOREBAY STORAGE VOLUME REQUIRED: 623 CF

FOREBAY STORAGE VOLUME PROVIDED:

ELEV	AREA	VOLUME	CUMULATIVE VOLUME
986.5	1275.14	982	982
985.5	889.89	447	
984.5	294.78		



LEGEND



THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF ALL DATA SHOWN ON THESE DRAWINGS AND FOR OBTAINING ALL NECESSARY PERMITS. BEBOSS ENGINEERING, INC. SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS. BEBOSS ENGINEERING, INC. SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS.

BEBOSS ENGINEERING
 Engineers Surveyors Planners Landscape Architects
 3121 E. GRAND RIVER AVE.
 HOWELL, MI 48843
 800.246.6735 FAX 517.548.1670

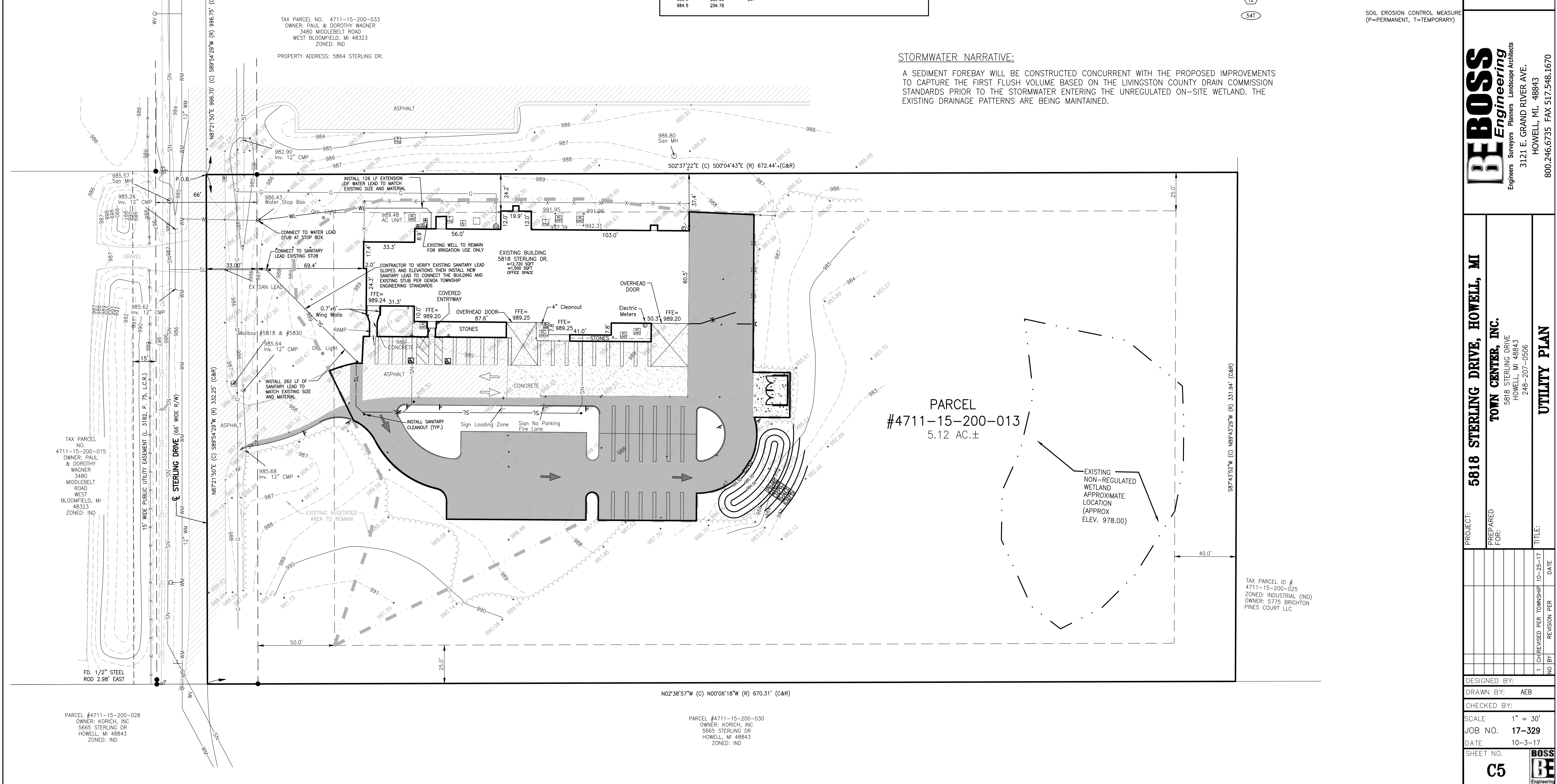
NE COR. SEC. 15 T2N-R5E (1-5)
 S02°32'39"E 659.59' (M) DUE SOUTH 660.00' (R)
 DORR ROAD (66' WIDE R/W)

E 1/4 COR. SEC. 15 T2N-R5E (1-6)

TAX PARCEL NO. 4711-15-200-033
 OWNER: PAUL & DOROTHY WAGNER
 3480 MIDDLEBELT ROAD
 WEST BLOOMFIELD, MI 48323
 ZONED: IND
 PROPERTY ADDRESS: 5864 STERLING DR.

STORMWATER NARRATIVE:

A SEDIMENT FOREBAY WILL BE CONSTRUCTED CONCURRENT WITH THE PROPOSED IMPROVEMENTS TO CAPTURE THE FIRST FLUSH VOLUME BASED ON THE LIVINGSTON COUNTY DRAIN COMMISSION STANDARDS PRIOR TO THE STORMWATER ENTERING THE UNREGULATED ON-SITE WETLAND. THE EXISTING DRAINAGE PATTERNS ARE BEING MAINTAINED.



PARCEL #4711-15-200-013
 5.12 AC.±

EXISTING NON-REGULATED WETLAND APPROXIMATE LOCATION (APPROX. ELEV. 978.00)

TAX PARCEL ID # 4711-15-200-025
 ZONED: INDUSTRIAL (IND)
 OWNER: 5775 BRIGHTON PINES COURT LLC

PROJECT: 5818 STERLING DRIVE, HOWELL, MI
 PREPARED FOR: TOWN CENTER, INC.
 5818 STERLING DRIVE
 HOWELL, MI 48843
 248-207-0506
 TITLE: UTILITY PLAN

DESIGNED BY:	DATE
AEB <td>10-25-17</td>	10-25-17
CHECKED BY: <td>DATE</td>	DATE
SCALE	1" = 30'
JOB NO.	17-329
DATE	10-3-17
SHEET NO.	C5

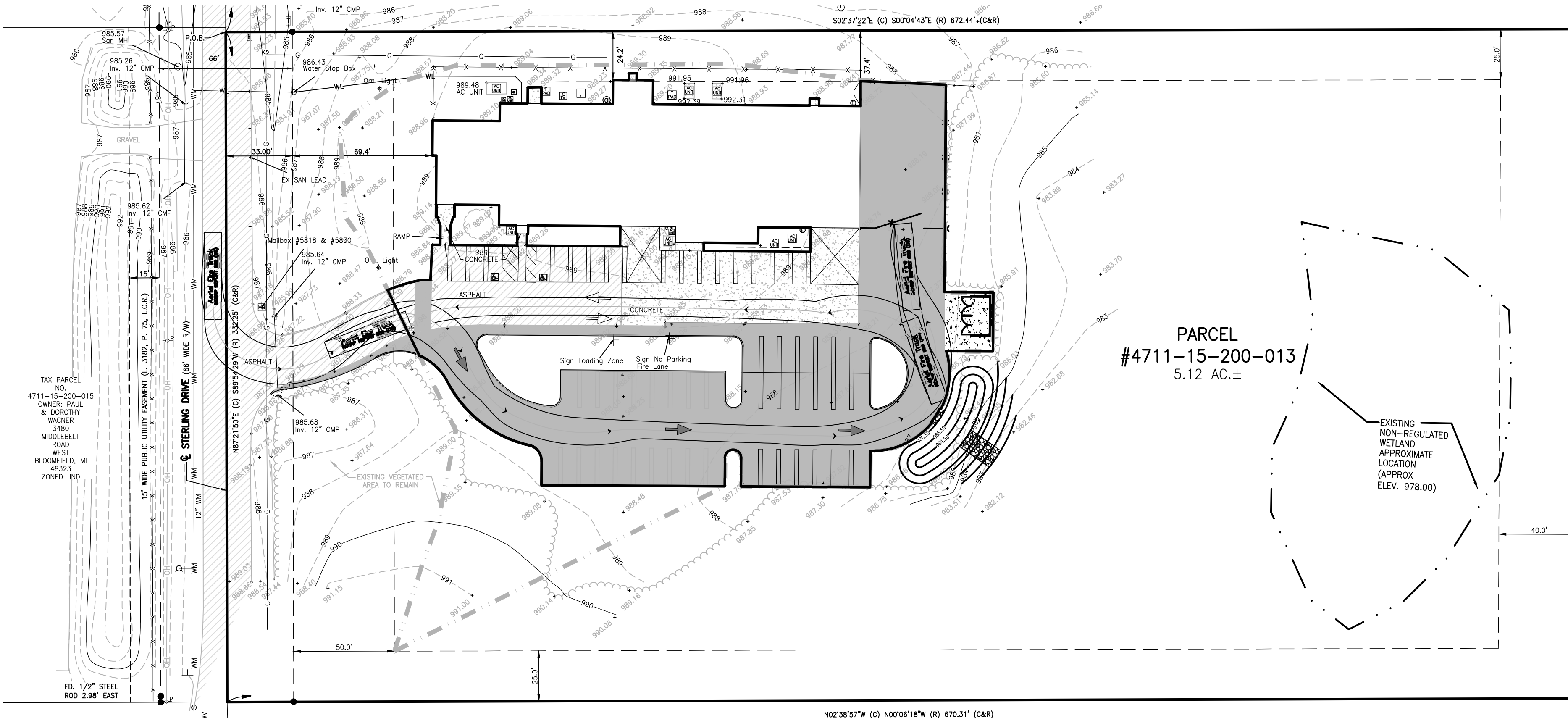


SITE DATA

CURRENT ZONING:	REQUIRED	EXISTING/PROPOSED
IND (INDUSTRIAL)		
MINIMUM SETBACK REQUIREMENTS:		
FRONT =	85 FEET (IF PARKING IN FRONT YARD) 50 FEET (IF NO PARKING IN FRONT YARD)	102.4' 24.2'
SIDES =	25 FEET (50 FEET IF ADJACENT TO RESIDENTIAL DISTRICT)	357.6'
REAR =	40 FEET (80 FEET IF ADJACENT TO RESIDENTIAL DISTRICT)	
PARKING LOT =	20 FEET (10 FEET SIDE AND REAR)	CLOSEST IS 25' FROM E.PROP LINE
MAXIMUM LOT COVERAGE =	40% BUILDING, 85% IMPERVIOUS	5.7% BUILDING 13.26% IMPERVIOUS
MAXIMUM BUILDING HEIGHT =	30 FEET, 2 STORIES	1-STORY ≈23 FEET

PARKING CALCULATION: 1.5 SPACES PER 1,000 SQFT OF GROSS FLOOR AREA OR 1.2 SPACES PER EACH EMPLOYEE AT PEAK SHIFT WHICHEVER IS GREATER, PLUS 1 SPACE FOR EACH CORPORATE VEHICLE.
 -UP TO 18 EMPLOYEES AT PEAK SHIFT X 1.2 SPACES = 22 SPACES + 12 SPACES FOR TRAINING PURPOSES
 + 11 SPACES FOR CORPORATE VEHICLES = 45 SPACES
 30 REQUIRED PARKING SPACES
 PROVIDED PARKING: 45 SPACES (INCLUDING 2 BARRIER FREE SPACES)

FIRE VEHICLE CIRCULATION

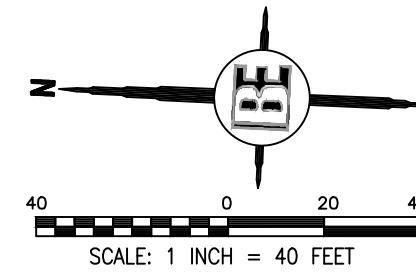


PARCEL #4711-15-200-013 / 5.12 AC.±

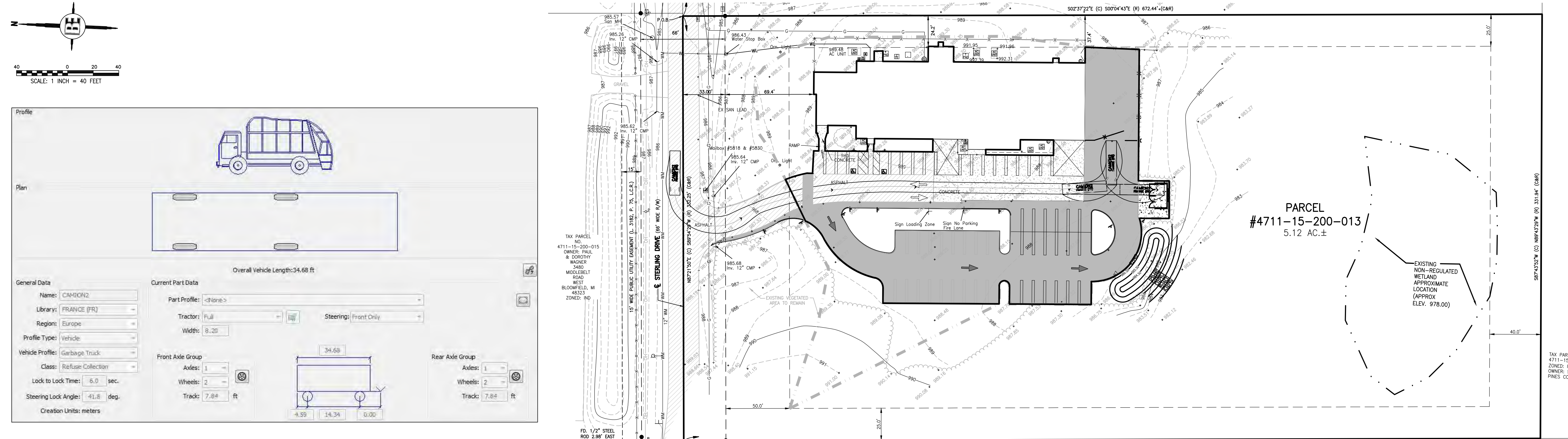
PROPOSED (PR)	EXISTING (EX)
900	900
T/C	xxx.xx
FF	FF
FG	FG
T/A	T/A
T/C	T/C
T/W	T/W
F/L	F/L
T/P	T/P
B/P	B/P
RIM	RIM
INV	INV
MH	MH
IN	IN
CB	CB
RY	RY
ES	ES
GV	GV
HY	HY
UP	UP

LEGEND

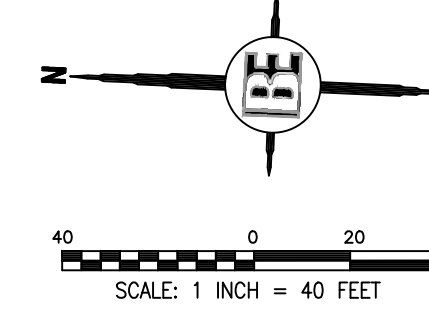
PROPOSED (PR)	EXISTING (EX)	
SN	SN	SANITARY SEWER
SL	SL	SANITARY LEAD
FM	FM	FORCE MAIN
PS	PS	PRESSURE SEWER
ST	ST	STORM SEWER
WM	WM	WATER MAIN
WL	WL	WATER LEAD
FO	FO	FIBER OPTIC
OH	OH	OVERHEAD WIRE
C	C	CABLE
E	E	ELECTRIC
G	G	GAS
T	T	TELEPHONE
MH	MH	MANHOLE
IN	IN	INLET / CATCHBASIN
FL	FL	FLARED END-SECTION
GV	GV	GATE VALVE
RY	RY	REAR YARD STRUCTURE
ES	ES	END-SECTION
GV	GV	GATEVALVE STRUCTURE
HY	HY	HYDRANT
UP	UP	UTILITY POLE
CSB	CSB	LIMITS OF GRADING/CLEARING
WLB	WLB	WETLAND BOUNDARY
SAN	SAN	SANITARY SEWER LABEL
ST	ST	STORM SEWER LABEL
WM	WM	WATER MAIN LABEL
S41	S41	SOIL EROSION CONTROL MEASURE (P=PERMANENT, T=TEMPORARY)



GARBAGE VEHICLE CIRCULATION



PARCEL #4711-15-200-013 / 5.12 AC.±



BEBOSS
 Engineering
 Engineers Surveyors Planners Landscape Architects
 3121 E. GRAND RIVER AVE.
 HOWELL, MI 48843
 800.246.6735 FAX 517.548.1670

PROJECT: **5818 STERLING DRIVE, HOWELL, MI**
 PREPARED FOR: **TOWN CENTER, INC.**
 5818 STERLING DRIVE
 HOWELL, MI 48843
 248-207-0506

TITLE: **CIRCULATION PLAN**

NO	BY	REVISION PER	TOWNSHIP	DATE
1	CH	REVISED PER	10-25-17	

DESIGNED BY: AEB
 DRAWN BY: AEB
 CHECKED BY:
 SCALE: 1" = 30'
 JOB NO. 17-329
 DATE 10-3-17
 SHEET NO. **C6**

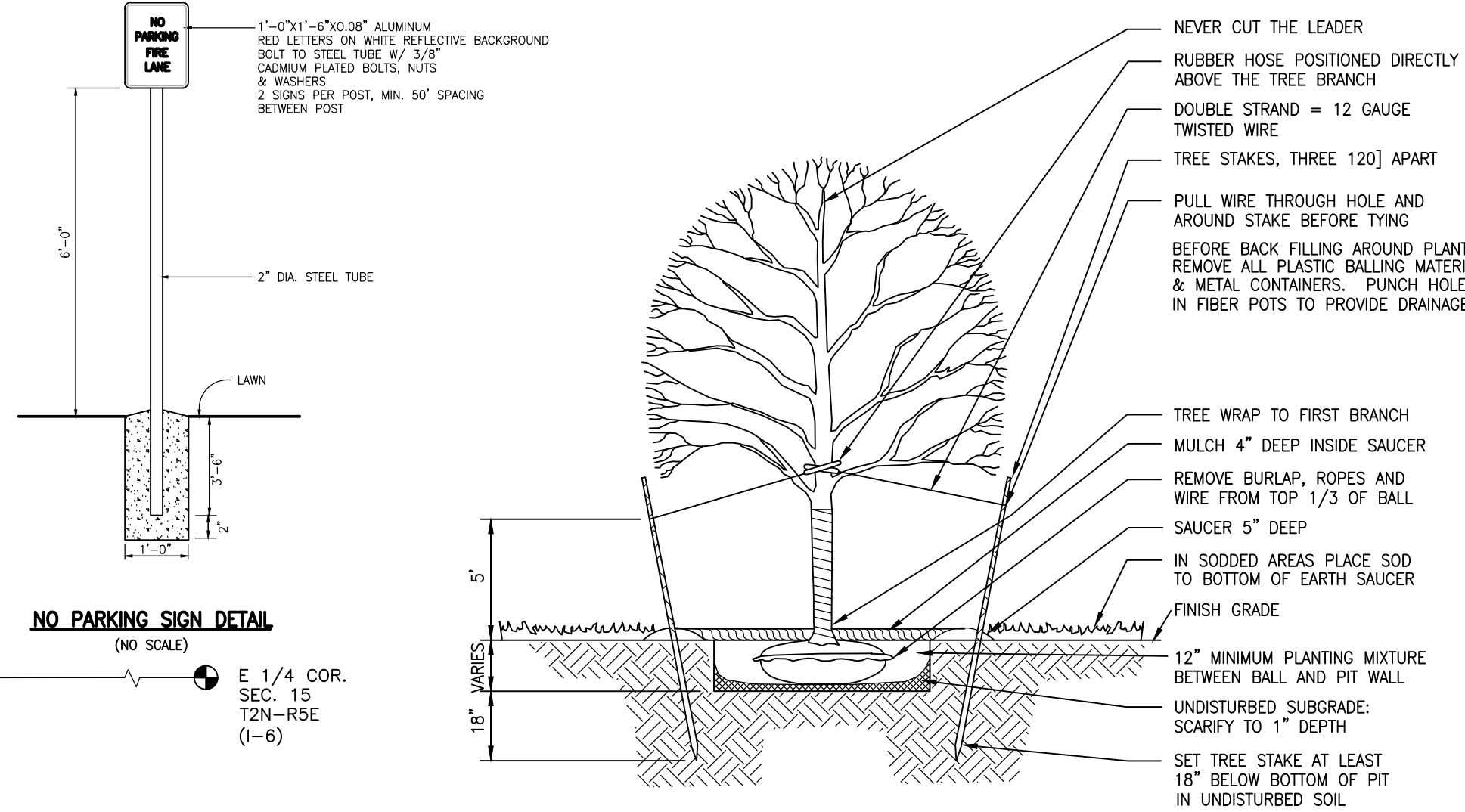
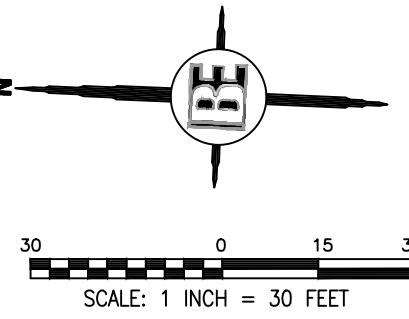
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LANDSCAPE CALCULATIONS:

- WITHIN INDUSTRIAL DISTRICTS A TWENTY (20) FOOT WIDE GREENBELT SHALL BE PLANTED ALONG EACH PUBLIC STREET RIGHT-OF-WAY INCLUDING THE EQUIVALENT OF ONE (1) CANOPY TREE ROUNDED UPWARD FOR EVERY FORTY (40) LINEAR FEET OF FRONTAGE.

- TREES REQUIRED: $323 / 40 = 9$ TREES HOWEVER, THE ENTIRE WESTERN FRONTAGE IS EXISTING VEGETATION WHICH DECREASED THE AMOUNT OF SPACE TO MEET THE REQUIREMENT IN AND ALREADY HAS EXISTING VEGETATION IN THE GREENBELT AREA. FOR THAT REASON 4 TREES ARE PROPOSED IN THE GREENBELT SPACE THAT IS AVAILABLE ($160 \text{ FEET OF FRONTAGE} / 40 = 4$) - TREES PROVIDED: 4 TREES

- ONE (1) CANOPY TREE AND 100 SQFT OF LANDSCAPED AREA PER 10 SPACES - REQUIRED: $50 \text{ SPACES} / 10 = 5$ TREES AND 450 SQFT OF LANDSCAPED AREA - PROVIDED: 5 TREES AND 4,205 SQFT OF LANDSCAPED AREA



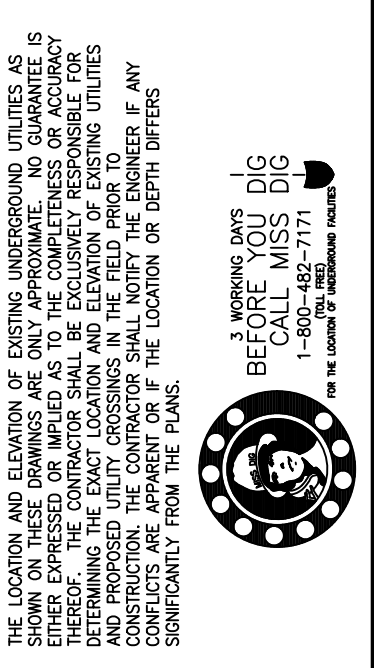
LIGHTING NOTE:

- PARKING LOT AND DRIVES WILL BE ILLUMINATED BY EXISTING WALL MOUNTED LIGHTING ON BUILDING. OFFICE HOURS ARE FROM 7AM - 6PM

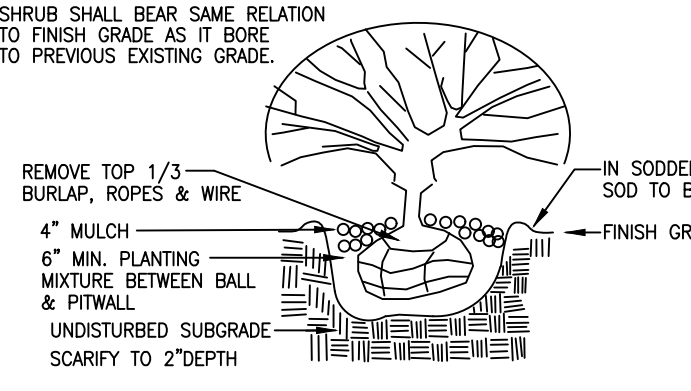
PROPOSED (PR)	EXISTING (EX)
900	900
T/C	T/A
XXX.XX	+ 922.08
FF	FF
FG	FG
T/A	T/A
T/C	T/C
T/W	T/W
F/L	F/L
T/P	T/P
B/P	B/P
RIM	RIM
INV	INV
MH	MH
IN	IN
CB	CB
RY	RY
ES	ES
GV	GV
HY	HY
UP	UP

LEGEND

PROPOSED (PR)	EXISTING (EX)	
SN	SN	SANITARY SEWER
SL	SL	SANITARY LEAD
FM	FM	FORCE MAIN
PS	PS	PRESSURE SEWER
ST	ST	STORM SEWER
WM	WM	WATER MAIN
WL	WL	WATER LEAD
FO	FO	FIBER OPTIC
CH	CH	CABLE
EL	EL	ELECTRIC
GA	GA	GAS
MANHOLE	MANHOLE	MANHOLE
INLET / CATCHBASIN	INLET / CATCHBASIN	INLET / CATCHBASIN
FLARED END-SECTION	FLARED END-SECTION	FLARED END-SECTION
GATE VALVE	GATE VALVE	GATE VALVE
HYDRANT	HYDRANT	HYDRANT
UTILITY POLE	UTILITY POLE	UTILITY POLE
FENCE	FENCE	FENCE
SIGN	SIGN	SIGN
NOT FIELD VERIFIED	NOT FIELD VERIFIED	NOT FIELD VERIFIED
TO BE REMOVED	TO BE REMOVED	TO BE REMOVED
COMPACTED SAND BACKFILL	COMPACTED SAND BACKFILL	COMPACTED SAND BACKFILL
SANITARY SEWER LABEL	SANITARY SEWER LABEL	SANITARY SEWER LABEL
STORM SEWER LABEL	STORM SEWER LABEL	STORM SEWER LABEL
WATER MAIN LABEL	WATER MAIN LABEL	WATER MAIN LABEL
SOIL EROSION CONTROL MEASURE (P=PERMANENT, T=TEMPORARY)	SOIL EROSION CONTROL MEASURE (P=PERMANENT, T=TEMPORARY)	SOIL EROSION CONTROL MEASURE (P=PERMANENT, T=TEMPORARY)

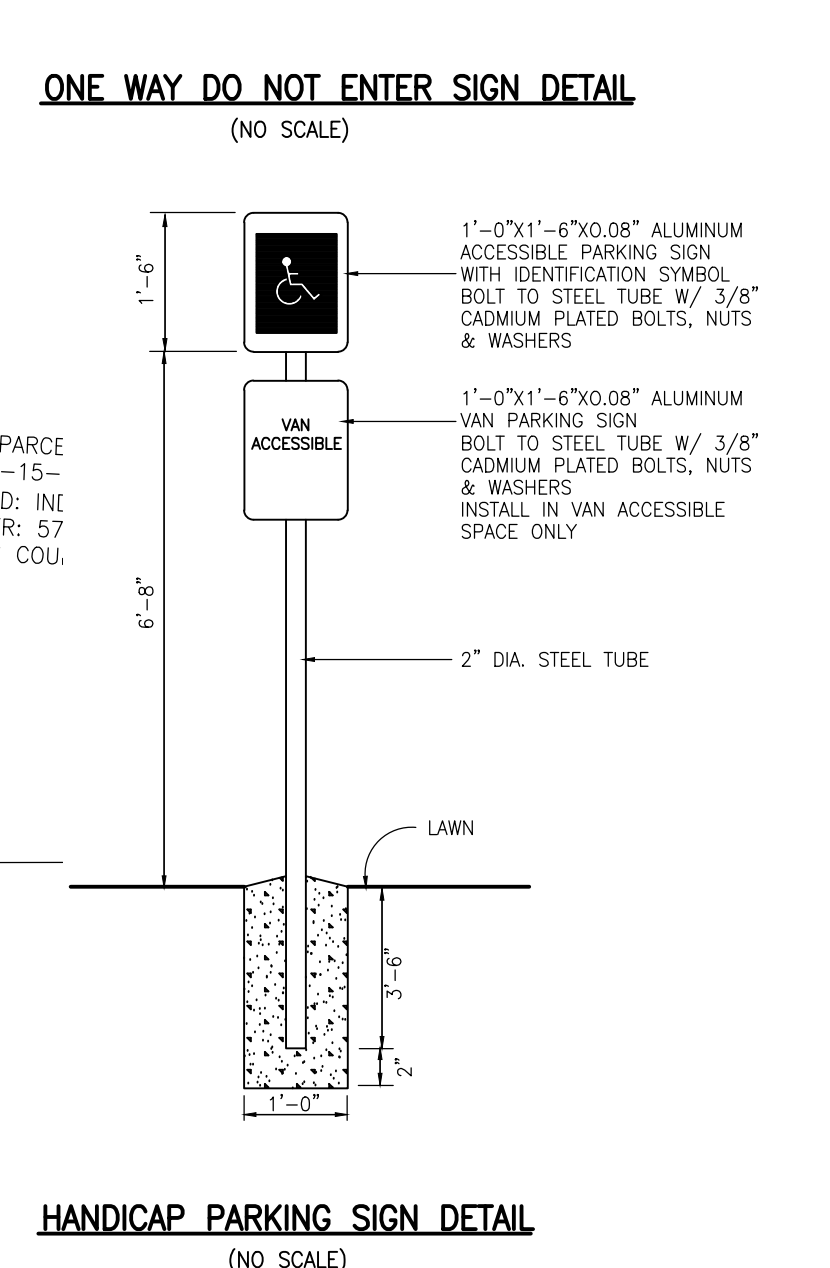
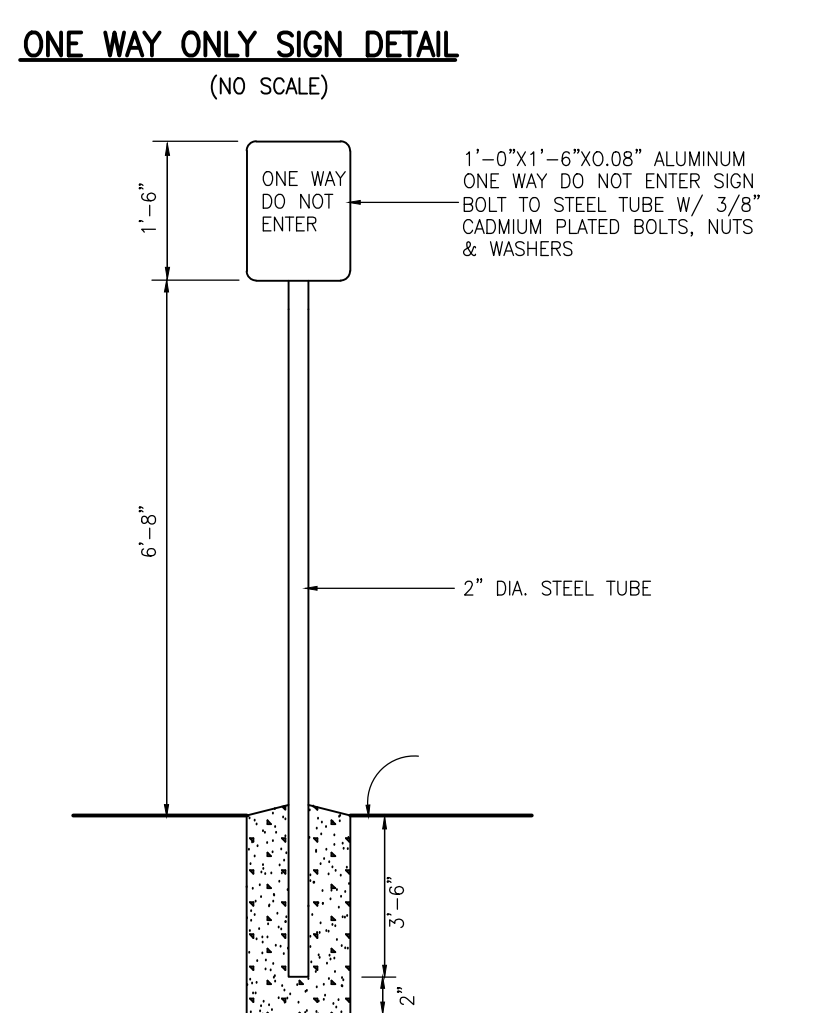
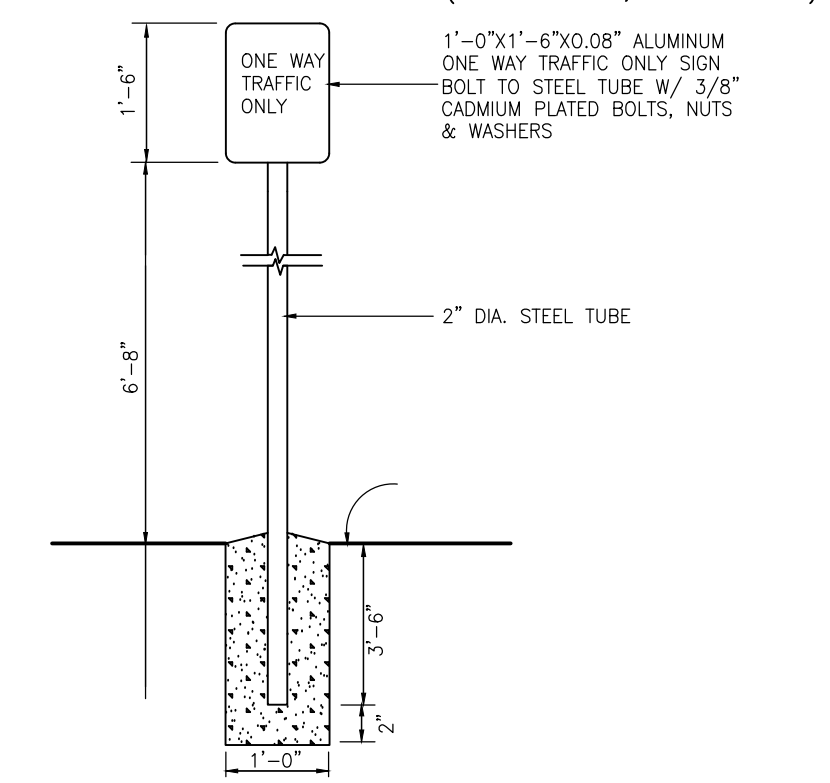
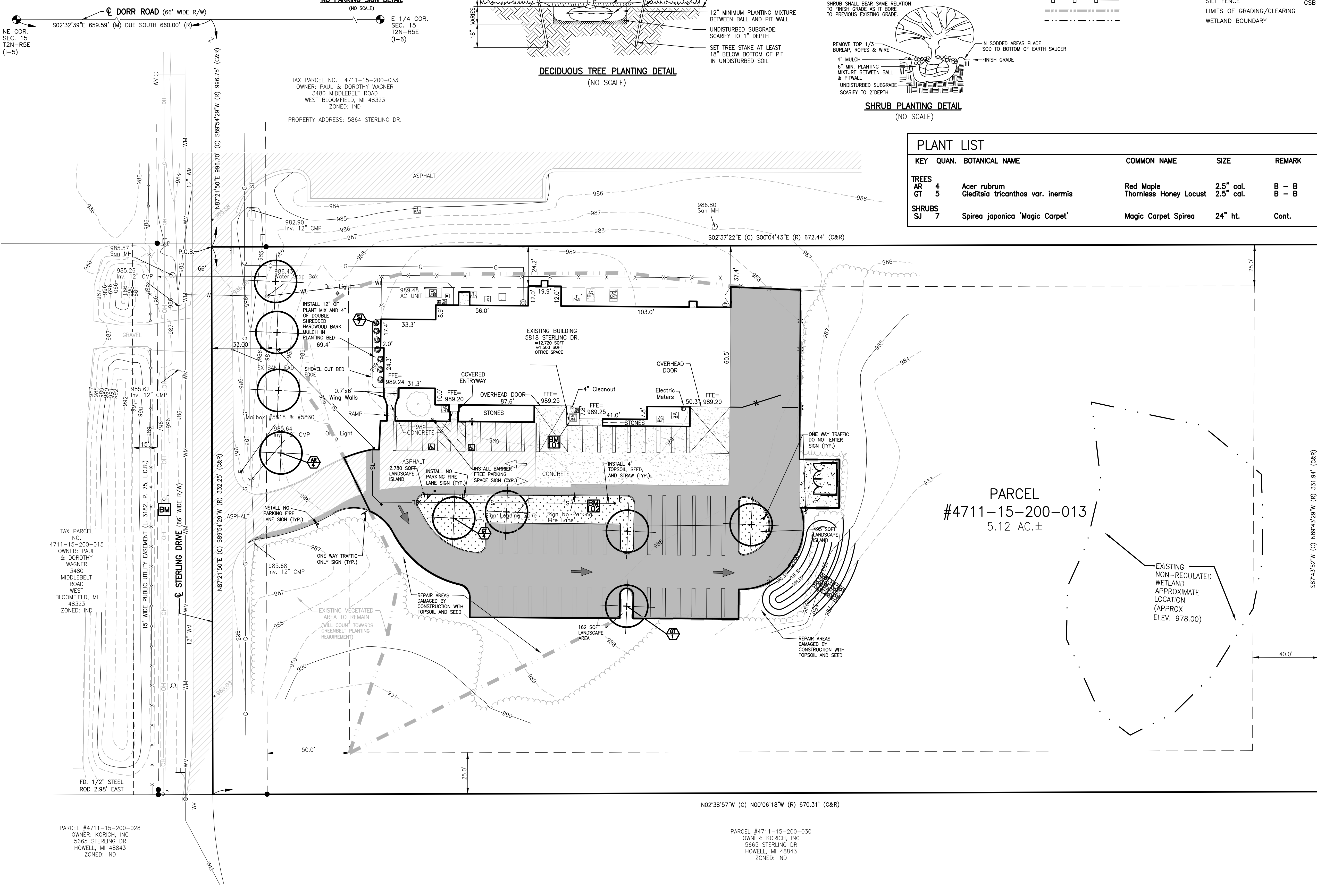


DECIDUOUS TREE PLANTING DETAIL (NO SCALE)



PLANT LIST

KEY	QUAN.	BOTANICAL NAME	COMMON NAME	SIZE	REMARK
AR	4	Acer rubrum	Red Maple	2.5" cal.	B - B
GT	5	Gleditsia tricanthos var. inermis	Thornless Honey Locust	2.5" cal.	B - B
SJ	7	Spirea japonica 'Magic Carpet'	Magic Carpet Spirea	24" ht.	Cont.



BEBOSS Engineering
 Engineers Surveyors Planners Landscape Architects
 3121 E. GRAND RIVER AVE.
 HOWELL, MI 48843
 800.246.6735 FAX 517.548.1670

PROJECT: 5818 STERLING DRIVE, HOWELL, MI
PREPARED FOR: TOWN CENTER, INC.
 5818 STERLING DRIVE
 HOWELL, MI 48843
 248-207-0506

TITLE: LANDSCAPE PLAN

NO.	BY	DATE	REVISION PER
1	CH	10-25-17	

DESIGNED BY: AEB
 DRAWN BY: AEB
 CHECKED BY:
 SCALE: 1" = 30'
 JOB NO. 17-329
 DATE 10-3-17
 SHEET NO. C7





GENOA CHARTER TOWNSHIP
Application for Site Plan Review

GENOA TOWNSHIP

OCT - 4 2017

RECEIVED

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Mr. Alan Price, University Housing Solutions, 90 Hidden Ravines Dr, Powell, OH 43065
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Cleary University, 3750 Cleary Drive, Howell, MI 48843

SITE ADDRESS: 3750 Cleary Drive, Howell, MI 48843 PARCEL #(s): 11-05-400-062, 11-05-302-005 & 011

APPLICANT PHONE: (866) 711-7786 OWNER PHONE: (800) 686-1883

OWNER EMAIL: mbennett@cleary.edu

LOCATION AND BRIEF DESCRIPTION OF SITE: Cleary University - Livingston Campus.
located on the south side of Grand River in Howell just east of Grand Oaks Drive.

The site is currently used for University classes and student housing.

BRIEF STATEMENT OF PROPOSED USE: Proposed multi-use athletic field for baseball, soccer, & lacrosse. Multiple accessory buildings are proposed along with the athletic fields.

THE FOLLOWING BUILDINGS ARE PROPOSED: There is a proposed storage building for the safekeeping of athletic field accessories. Also proposed is a press box/concessions/bathroom building.

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: 

ADDRESS: 561 Leeds Ave Watworth, OH 44281

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1.) Mr. Scott Tousignant, P.E.	of Boss Engineering	at scottt@bosseng.com
Name	Business Affiliation	E-mail Address

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE: Michael Brown DATE: 10/2/17
PRINT NAME: Michael Brown PHONE: (330) 334-6200
ADDRESS: 501 Leeds Ave. Walsworth, OH 44281



November 8, 2017

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Cleary University athletic fields – PUD Site Plan Review #2
Location:	3750 Cleary Drive – south side of Grand River, between Grand Oaks and Latson Road
Zoning:	MUPUD Mixed Use Planned Unit Development

Dear Commissioners:

At the Township’s request, we have reviewed the revised PUD site plan (dated 10/25/17) proposing a new multi-use athletic field, along with associated structures and a parking lot expansion for Cleary University.

The 29.6-acre site is currently developed with Cleary’s Livingston Campus, which was approved as a MUPUD in 2015. We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance, as well as the PUD Agreement for this property.

A. Summary

1. Building elevations, including colors and materials, are subject to review and approval by the Planning Commission.
2. The photometric plan has one reading (10.3) above the 10-footcandle maximum.
3. We suggest the applicant establish a protocol whereby the light towers will be turned off within a specified time after an event concludes.
4. The applicant must obtain authorization from MHOG for an easement over a portion of the water tower property.

B. Proposal/Process

The applicant requests PUD site plan review/approval for a new multi-use athletic field, which will accommodate baseball, soccer and lacrosse. The project includes expansion of an existing parking lot, as well as a storage building, scoreboard and press box/concessions building.

Exhibit C of the PUD Agreement lists “private non-commercial institutional or community recreation facilities” as a permitted use. The PUD concept plan included athletic fields in the proposed development area, although individual fields are shown on that plan (as opposed to one multi-purpose field).

Procedurally, the Planning Commission is to make a recommendation to the Township Board on both the PUD site plan and Impact Assessment. The Township Board has the final review/approval authority over the proposal.



Aerial view of site and surroundings (looking north)

C. Site Plan Review

- 1. Dimensional Requirements.** The dimensions provided on the proposed site plan are consistent with both the approved PUD concept plan and PUD Agreement, including building height and coverage ratios.
- 2. Building Materials and Design.** The site plan includes two buildings – an athletic complex storage building and a press box/concessions/restroom building. The revised submittal includes elevation drawings for both buildings, noting the use of brick and siding with asphalt shingles, although the applicant must identify the specific type of siding proposed.

The proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission. The applicant should be prepared to present a color rendering and material samples to the Commission for their consideration.

- 3. Parking.** Section 14.04 requires 1 parking space for each 6' of bleachers. Based on the information provided on Sheet 3, 131 parking spaces are required. The proposal includes a combination of existing and proposed parking spaces that add up to 131 spaces, including the 5 required barrier-free spaces.

Additionally, parking spaces and drive aisles meet or exceed the dimensional requirements of the Zoning Ordinance, and the parking lot provides looped (double-striped) spaces, as required.

4. **Pedestrian Circulation.** The site plan includes 5-foot wide concrete sidewalks along the south and west sides of the athletic complex. The proposed sidewalk connects the existing sidewalks within the campus, as well as the parking lot intended to serve the field.
5. **Vehicular Circulation.** The project area is served by Cleary Drive and no changes are proposed to the established circulation pattern.
6. **Landscaping.** The landscape plan (Sheet 7) includes plantings around the detention pond, along Cleary Drive, behind the press box and within two new parking lot islands.

In total, the plan contains 34 deciduous trees, 6 coniferous shrubs, 133 deciduous shrubs and a mix of perennials. The species and sizes are compliant with the requirements of Section 12.02. Quantities are reviewed in the table below:

Location	Requirements	Proposed	Comments
Greenbelt (Cleary Drive)	20' width 13 canopy trees	20' width 13 canopy trees	Requirements met
Parking lot	5 canopy trees 500 SF landscaped area	5 canopy trees 1,491 SF landscaped area	Requirements met
Detention pond	16 trees 81 shrubs	164 trees 89 shrubs	Requirements met

7. **Waste Receptacle and Enclosure.** The site plan shows the location of an existing waste receptacle and enclosure just west of the proposed field. As part of the revised submittal, the applicant has confirmed that the existing receptacle will accommodate the trash generated by events at the field.
8. **Exterior Lighting.** The lighting plan (Sheet 8) proposes 10 new light poles along Cleary Drive and the driveway to the parking lot, as well as 1 light pole within the parking lot. The storage building and press box each provide 3 wall-mounted fixtures.

The light poles have a maximum height of 22 feet, and the proposed fixtures are downward directed and cut-off, both of which comply with Ordinance standards. The maximum on-site intensity is 10.3 foot-candles (adjacent to fixture LB-5), which very slightly exceeds the Ordinance maximum of 10.

Additionally, the revised submittal includes supplemental details of the light towers used to illuminate the field. These details include 6 towers – 2 each along the outfield, 1st base line and 3rd base line. The outfield towers are 70' tall, while the base lines include one 80' tower and one 90' tower.

The PUD Agreement anticipated athletic field lighting that was beyond conventional height and intensity limitations of the Ordinance, noting that “athletic field lighting will be designed and installed to light appropriate venues and limit spread of lighting beyond the athletic field venues.” In our opinion, the proposed athletic field lighting plan is in accordance with this provision of the PUD Agreement.

9. **Signage.** The submittal includes a detail of a brick knee wall with Cleary University on it in the southwest corner of the field. The height and area of the proposed sign is well within that allowed by the Ordinance.
10. **Impact Assessment.** The submittal includes an Impact Assessment (dated 10/4/17). In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

As previously noted, athletic fields were included in the PUD concept plan, although that plan depicted separated fields, as opposed to one multi-purpose field. For the purposes of discussing project impacts, the current proposal is likely to have less impact than would separate fields.

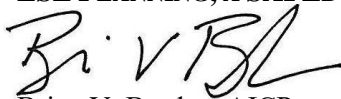
11. Additional Considerations. A portion of centerfield encroaches into the water tower property. The site plan identifies a proposed easement for “grading, drainage and athletic field” in this area.

The property is owned by MHOG and the applicant indicates they have been in discussion with the owner to accommodate the proposed easement/encroachment, though it has yet to be formally approved.

If the Commission considers a favorable recommendation on the PUD site plan, this item should be included as a condition.

Should you have any questions concerning this matter, please do not hesitate to contact our office. I can be reached by phone at (248) 586-0505, or via e-mail at borden@lslplanning.com.

Respectfully,
LSL PLANNING, A SAFE BUILT COMPANY



Brian V. Borden, AICP
Planning Manager



November 2, 2017

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Re: Cleary Athletic Fields Site Plan Review #2

Dear Ms. Van Marter:

Tetra Tech conducted a site plan review of the revised Cleary Athletic Field plans submitted by Boss Engineering. The plans are dated October 25, 2017, and the applicant is proposing construction of athletic fields and complex on approximately 27 acres across three parcels, all owned by Cleary University.

A review of the updated plans resulted in one additional engineering related comment which pertains only to the Cleary Student Housing Phase 2 plans. The student housing and athletic fields projects are closely related; however, the petitioner has indicated the Cleary Student Housing Phase 2 plans will incorporate all water main work on the two sites. In addition, all improvements to the regional detention basin will be shown on the Student Housing Phase 2 site plans. Therefore, the comment resulting from this second review of Cleary Athletic Fields pertains to the Cleary Student Housing Phase 2 site plans.

Summary

1. Drainage area corrections to regional detention basin calculations
2. Basin outlet control structure access

Site Plan

1. The petitioner has indicated the regional detention basin plans, as shown in the Cleary Student Housing Phase 2 plans, is the first step towards the basin design. The petitioner assures the basin will be re-evaluated for storage volume and location when further development occurs. A review of the regional detention basin plans, with the updated drainage information from the Athletic Field plans, shows the drainage area for the basin does not include the drainage area as claimed on the Athletic Field plans. The petitioner plans to provide storage for approximately 4 acres of the athletic field area with the regional detention basin. The drainage calculation in the Student Housing Phase 2 drainage plans is 16.70 acres which does not account for the 4± acres of drainage from the athletic fields. The drainage calculations for the regional detention basin on the Cleary Student Housing Phase 2 plans should be updated so an accurate record of the amount of required storage is clear for future expansion of the basin. The athletic field drainage, while seemingly small, is significant, as the athletic field is proposed to be artificial turf with an underdrain system. Therefore, the runoff coefficient for the field is greater than the coefficient for a natural turf field.

Tetra Tech

401 South Washington Square, Suite 100, Lansing, MI 48933
Tel 517.316.3930 Fax 517.484.8140 www.tetrattech.com

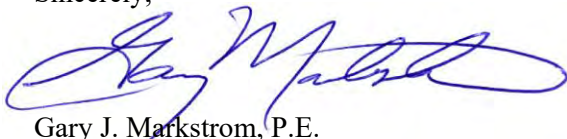
Ms. Kelly Van Marter
Cleary Athletic Fields Site Plan Review #2
November 2, 2017
Page 2

2. More defined construction of the regional detention basin is not required for approval of the Cleary Athletic Field Site plans. However, since no construction, except for that proposed in the Cleary Student Housing Phase 2 plans, is proposed for the basin a maintenance access drive to the outlet structure is missing. Section II.2.e.4.c of the LCDC standards requires the riser to be accessible for maintenance.

The petitioner should review the above comments and revise the site plan drawings on Cleary Student Housing #2 before submitting them for the Construction Plan Review. As noted in the response letter for Boss all details for the water main relocation will be included in addition to the basin comments above. With the corrections to the above comments occurring prior to the site plan review, we have no additional engineering related comments on the Cleary Athletic Field plans.

Please call if you have any questions.

Sincerely,



Gary J. Markstrom, P.E.
Unit Vice President



Marguerite K. Davenport
Project Engineer

copy: Scott Tousignant, P.E., Boss Engineering, Inc.



BRIGHTON AREA FIRE AUTHORITY

615 W. Grand River Ave.
Brighton, MI 48116
o: 810-229-6640 f: 810-229-1619

November 7, 2017

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Cleary Athletic Field
3750 Cleary Drive
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on October 26, 2017 and the drawings are dated October 4, 2017 with latest revisions dated Oct. 25, 2017. The project is for construction of a new athletic field along with multiple accessory structures to be utilized for athletic storage and operations. The accessory structure will include a 1,500 square-foot storage and a 960 square-foot two-story press box. The plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

1. **(CORRECTED)** The water main location is indicated on the submittal however there are no fire hydrants shown on the utility plan. Provide locations of all hydrants near the site on Grand Oaks and Cleary Drive. **(Existing and new fire hydrant locations are now shown on the Utility Plan)**
2. **(CORRECTED)** Watermain with an additional hydrant must be extended to the landscape island next to the newly proposed handicap parking areas in the new parking area to the north. **(New hydrant location at the north end of the parking lot adjacent to the field is acceptable. It must be noted that orientation of the 5" connection shall be facing south following installation.)**
3. **(TBD)** If a physical address is issued for the field; future project submittals shall include the address and street name of the project in the title block. **(Currently there is no plan for the field to be provided with an address independent of the school. It is recommended that an address be provided for emergency response to the campus.)**
IFC 105.4.2
4. **(TBD)** The building shall include the building address on the building. The address shall be a **minimum of 6"** high letters of contrasting colors and be clearly visible from the street. The location and size shall be verified prior to installation. **(Address numbers shall be provided if an address is issued for the stadium)**
IFC 505.1
5. **(CORRECTED)** The location of a key box (Knox Box) shall be indicated on future submittals. The Knox box will be located adjacent to the front door of the structure. **(Note on Sheet 3 reflects the intent to install a knox box on the structure.)**
IFC 506.1



*November 7, 2017
Page 2
Cleary Athletic Field
3750 Cleary Drive
Site Plan Review*

If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

A handwritten signature in black ink, appearing to read "R. Boisvert".

Rick Boisvert, CFPS
Fire Marshal

**IMPACT ASSESSMENT
FOR
“CLEARY UNIVERSITY ATHLETIC COMPLEX”
GENOA TOWNSHIP
LIVINGSTON COUNTY, MI**

Prepared for:

**UNIVERSITY HOUSING SOLUTIONS, LLC
c/o Mr. Alan Price
90 Hidden Ravines Drive
Powell, OH 43065**

Prepared by:

**BOSS ENGINEERING COMPANY
3121 E. GRAND RIVER
HOWELL, MICHIGAN 48843
517-546-4836
BE Project No. 17-393**

October 4, 2017

INTRODUCTION

The purpose of this Impact Assessment (IA) report is to show the effect that this proposed development has on various factors in the general vicinity of the project. The format used for presentation of this report conforms to the *Submittal Requirements For Impact Assessment/Impact Statement* guidelines in accordance with Section 13.05 of the published Zoning Ordinance for Genoa Township, Livingston County, Michigan.

DISCUSSION ITEMS

A. Name(s) and address(es) of person(s) responsible for preparation of the impact assessment and a brief statement of their qualifications.

Prepared By:
BOSS ENGINEERING COMPANY
3121 E. Grand River
Howell, Michigan 48843
Phone: 517-546-4836

Prepared For:
Mr. Alan Price
University Housing Solutions, LLC
90 Hidden Ravines Drive
Powell, OH 43065

B. Description of the site, including existing structures, man made facilities, and natural features, all-inclusive to within 10' of the property boundary.

The subject site is located on the south side of Grand River Avenue, north of Cleary Drive and east of Grand Oaks Drive. The site improvements are located on parts of 3 parcels all owned by Cleary University. The parcels include 4711-05-400-070, 4711-05-302-011, and 4711-05-302-004. Their associated acreages of each property affected are 23.11, 2.54 acres, and 1.51 acres. The properties are located in the Northwest ¼ of Section 5, T2N-R5E, Genoa Township, Livingston County, Michigan. The 3 parcels in question include a MUPUD (Mixed Use Planned Unit Development) zoning and IND (Industrial District).

A paved parking lot exists at the Wellness Center building at the southwest corner of the subject site on parcel 4711-05-302-011. The site is gently rolling and generally slopes from the Northeast to the West. Elevations vary between 1004.0± and 986.0±, respectively. Stormwater management for the site includes sheet flow drainage to multiple existing stormwater detention areas. There are two existing basins to the east of the proposed athletic fields as well as a basin just north of the Cleary University Wellness Center approach off of Grand Oaks Drive. The stormwater detention area to the east is equipped with an outlet control structure and an emergency spillway. The stormwater detention area at the site approach off of Grand Oaks Drive has an overflow to the ditch in the Right-Of-Way of Grand Oaks Drive which continues south toward a County Drain.

Existing on-site utilities include overhead wires that run north-south along the property line. Also included are accesses to underground gas, telephone, sanitary and water services. A 16" watermain is located on the north side of Cleary Drive, and is to be relocated as a part of the Cleary University Student Housing #2 project.

Adjacent properties include:
South – Office Building
North – Office Building & the old Swat Sports Building
East – Cleary University
West – Grand Oaks Ice Arena

C. Impact on natural features: A written description of the environmental characteristics of the site prior to development, i.e., topography, soils, vegetative cover, drainage, streams, creeks or ponds.

As previously mentioned, subject site is gently rolling and generally slopes from the Northeast to the West. Site elevations vary between 1004.0± and 986.0±. The USDA Soil Conservation Service "Soil Survey of Livingston County, Michigan", indicates native site soils consist of:

1. MIAMI LOAM (MoB), 2% to 6% slopes. Surface runoff is slow, permeability is moderate, and erosion hazard is slight.
2. MIAMI LOAM (MoC), 6% to 12% slopes. Surface runoff is medium, permeability is moderate, and erosion hazard is moderate.
3. MIAMI LOAM (MoD), 12% to 18% slopes. Surface runoff is rapid, permeability is moderate, and erosion hazard is severe.
4. MIAMI LOAM (MoE), 18% to 25% slopes. Surface runoff is rapid, permeability is moderate, and erosion hazard is severe.

Vegetative cover for the site includes lawn and low brush cover. There are areas currently occupied by tree growth and there is a small amount of existing landscaping on the site around the existing detention basin by Cleary Drive.

The National Wetland Inventory Plan prepared by the United States Department of the Interior, Fish and Wildlife Service indicates that there are no wetlands located on the site.

Site drainage from the proposed site will utilize swales. All site drainage will be directed into multiple existing catch basins on site and to the existing detention basins. The outlet of the existing detention basin alongside the northern part of Cleary Drive will maintain its outlet into the woodlands south of Cleary Drive. The existing detention basin north of the site approach on Grand Oaks Drive will overflow into the ditch in the Right-Of-Way of Grand Oaks Drive and travel south under Cleary Drive.

D. Impact on storm water management: description of soil erosion control measures during construction.

Surface runoff during periods of construction will be controlled by proper methods set forth by the Livingston County Drain Commissioner. These methods shall include silt fence, inlet sediment filters, and seeding with mulch and/or matting.

At the time of construction, there may be some temporary dust, noise, vibration and smoke, but these conditions will be of relatively short duration and shall be controlled by applying appropriate procedures to minimize the effects, such as watering if necessary for dust control.

E. Impact on surrounding land use: Description of proposed usage and other man-made facilities; how it conforms to existing and potential development patterns. Effects of added lighting, noise or air pollution which could negatively impact adjacent properties.

The applicant is proposing to construct a new athletic complex consisting of regulation size baseball field as well as a dual use soccer/lacrosse field. The property that the proposed baseball field is located is zoned MUPUD (Mixed Use Planned Unit Development) and the property that the proposed parking lot expansion is on is zoned IND (Industrial District); therefore, the proposed complex conforms to the existing and potential land development patterns in the area.

Proposed improvements will enhance current site conditions. There are minimal trees on site other than an existing tree line adjacent to the overhead powerlines that run north-south. There are no

significant natural site features. Site improvements planned with the athletic complex include establishment of lawn and landscaped areas. The landscaping meets the Genoa Township standards.

The layout was prepared taking into account the topography in order to balance the amount of earthwork required for the playing fields. Site drainage will be controlled via swales and storm sewers and will be restricted to predevelopment runoff rates. The existing detention basin along Grand Oaks Drive is to be expanded to accommodate any additional storm water being sent to it due to the additional parking lot. The detention basin immediately south of the water tower is to be filled in. The detention basin on the north side of Cleary Drive will be partially filled and converted into a forebay for the regional detention basin being constructed as a part of the Cleary University Student Housing #2 project.

Cleary Drive presently experiences a medium volume of traffic along with the associated noise level generated from commercial vehicles. It is anticipated the proposed athletic complex will cause no significant increase in traffic volume.

Hours of operation for the proposed athletic complex will be from 8:00am to 10:00 pm, Monday through Sunday. Practices are anticipated to be in the day and afternoon from approximately 300pm – 700pm while games will primarily be in the afternoons around 100 pm.

F. Impact on public facilities and services: Description of number of residents, employees, patrons, and impact on general services, i.e., schools, police, fire.

The proposed athletic complex will consist of a regulation size baseball field as well as a soccer/lacrosse field. There is no anticipated major change in the number of people using the Cleary University facilities. Practices that take place during the day are for Cleary University athletes only that will already be on campus, and games are typically during the day which will draw many people onto campus aside from the visiting team and family members. Normal police and fire protection services are anticipated.

G. Impact on public utilities: Description of public utilities serving the project, i.e., water, sanitary sewer, and storm drainage system. Expected flows projected in residential units.

There will be a concessions & bathroom facility as a part of this project that will require a water and sanitary service. The building is proposed in close proximity to both watermain and sanitary sewer main. Watermain is being relocated as a part of the Cleary University Student Housing #2 project.

Some existing storm water facilities (basins and storm sewers) are being removed and the storm water being redirected to a larger regional detention basin that is being constructed as a part of the Cleary University Student Housing #2 project. Storm water runoff will be restricted to predevelopment rates as required by the Livingston County Drain Commission.

H. Storage or handling of any hazardous materials: Description of any hazardous materials used, stored, or disposed of on-site.

Cleary University will not be storing or handling any hazardous materials.

I. Impact on traffic and pedestrians: Description of traffic volumes to be generated and their effect on the area.

Traffic will not be negatively affected. Practice times for the athletic facility are anticipated between 300pm to 700pm. The practices won't generate any additional traffic as the student athletes will be diverted from another portion of campus to the on-site athletic complex. Cleary University typically has 2 games per week which usually occur around 100pm. With the games being in the middle of the day, they will not draw many attendants from the community. Games will generate a minimal amount

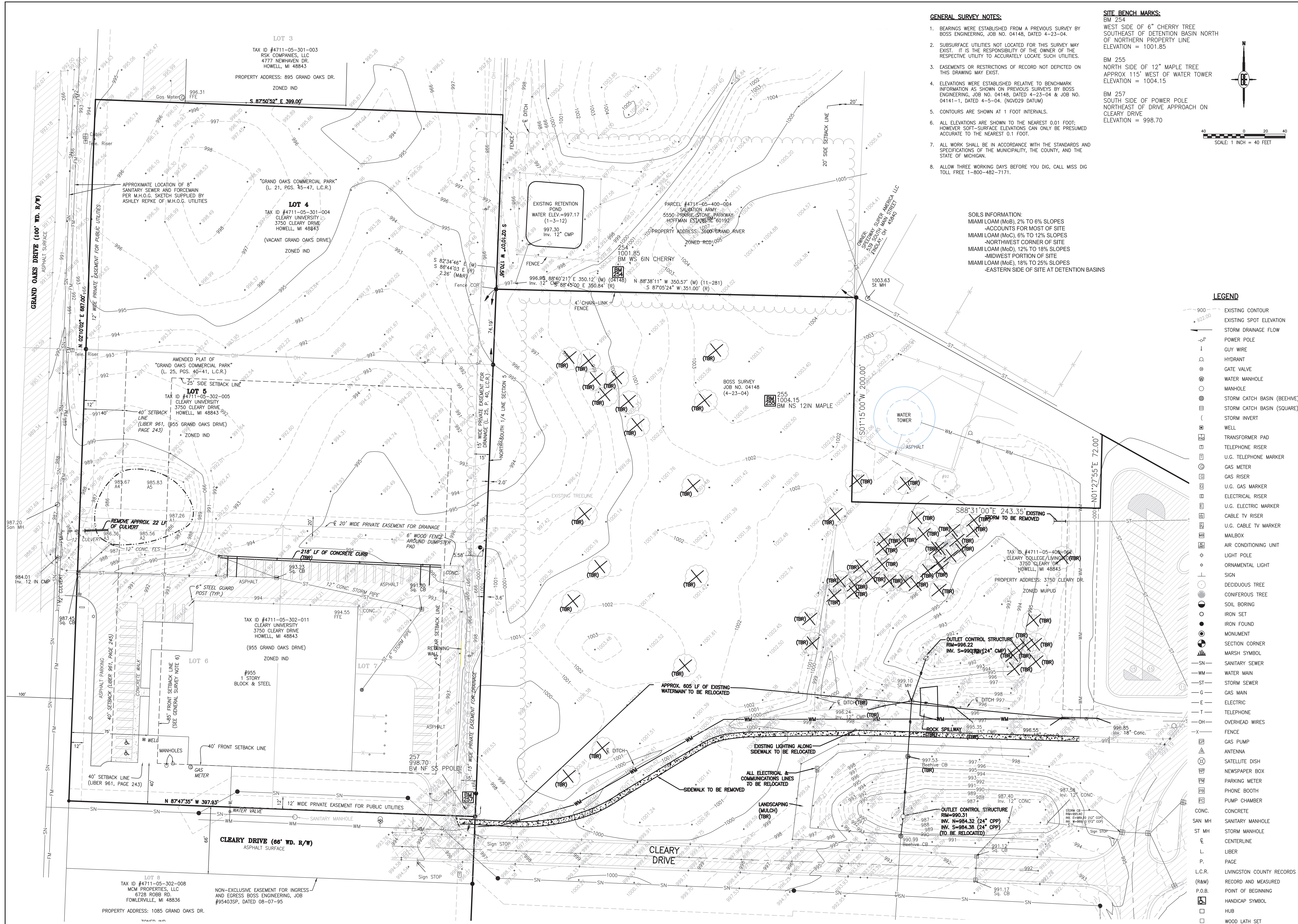
of traffic due to the “Away” teams driving to the Cleary University campus. The minimal additional trips generated by “Away” teams visiting occur at off-peak times and will not have a negative impact on the traffic.

J. Special provisions: Deed restrictions, protective covenants, etc.

There are no special provisions for this development.

K. Description of all sources:

- Genoa Township Zoning Ordinance
- “Soil Survey of Livingston County, Michigan” Soil Conservation Services, U.S.D.A.
- National Wetlands Inventory, U.S. Department of Interior, Fish and Wildlife Service
- Cleary University Topographic Surveys (BE #04148 - April 2004) (BE #14-175 – July 2014)



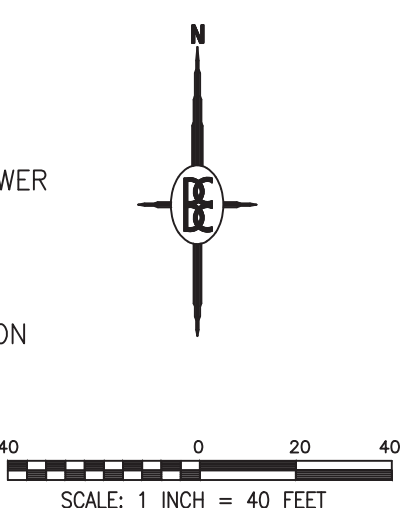
- GENERAL SURVEY NOTES:**
- BEARINGS WERE ESTABLISHED FROM A PREVIOUS SURVEY BY BOSS ENGINEERING, JOB NO. 04148, DATED 4-23-04.
 - SUBSURFACE UTILITIES NOT LOCATED FOR THIS SURVEY MAY EXIST. IT IS THE RESPONSIBILITY OF THE OWNER OF THE RESPECTIVE UTILITY TO ACCURATELY LOCATE SUCH UTILITIES.
 - EASEMENTS OR RESTRICTIONS OF RECORD NOT DEPICTED ON THIS DRAWING MAY EXIST.
 - ELEVATIONS WERE ESTABLISHED PREVIOUS TO BENCHMARK INFORMATION AS SHOWN ON PREVIOUS SURVEYS BY BOSS ENGINEERING, JOB NO. 04148, DATED 4-23-04 & JOB NO. 04141-1, DATED 4-5-04. (NGVD29 DATUM)
 - CONTOURS ARE SHOWN AT 1 FOOT INTERVALS.
 - ALL ELEVATIONS ARE SHOWN TO THE NEAREST 0.01 FOOT; HOWEVER SOFT-SURFACE ELEVATIONS CAN ONLY BE PRESUMED ACCURATE TO THE NEAREST 0.1 FOOT.
 - ALL WORK SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY, THE COUNTY, AND THE STATE OF MICHIGAN.
 - ALLOW THREE WORKING DAYS BEFORE YOU DIG, CALL MISS DIG TOLL FREE 1-800-482-7171.

SITE BENCH MARKS:

BM 254
WEST SIDE OF 6" CHERRY TREE
SOUTHEAST OF DETENTION BASIN NORTH
OF NORTHERN PROPERTY LINE
ELEVATION = 1001.85

BM 255
NORTH SIDE OF 12" MAPLE TREE
APPROX 115' WEST OF WATER TOWER
ELEVATION = 1004.15

BM 257
SOUTH SIDE OF POWER POLE
NORTHEAST OF DRIVE APPROACH ON
CLEARY DRIVE
ELEVATION = 998.70



SOILS INFORMATION:

MIAMI LOAM (MoB), 2% TO 6% SLOPES
-ACCOUNTS FOR MOST OF SITE
MIAMI LOAM (MoC), 6% TO 12% SLOPES
-NORTHWEST CORNER OF SITE
MIAMI LOAM (MoD), 12% TO 18% SLOPES
-MIDWEST PORTION OF SITE
MIAMI LOAM (MoE), 18% TO 25% SLOPES
-EASTERN SIDE OF SITE AT DETENTION BASINS

- LEGEND**
- 900 EXISTING CONTOUR
 - 922.00 EXISTING SPOT ELEVATION
 - STORM DRAINAGE FLOW
 - POWER POLE
 - GUY WIRE
 - HYDRANT
 - GATE VALVE
 - WATER MANHOLE
 - MANHOLE
 - STORM CATCH BASIN (BEEHIVE)
 - STORM CATCH BASIN (SQUARE)
 - STORM INVERT
 - WELL
 - TRANSFORMER PAD
 - TELEPHONE RISER
 - U.G. TELEPHONE MARKER
 - GAS METER
 - GAS RISER
 - U.G. GAS MARKER
 - ELECTRICAL RISER
 - U.G. ELECTRIC MARKER
 - CABLE TV RISER
 - U.G. CABLE TV MARKER
 - MAILBOX
 - AIR CONDITIONING UNIT
 - LIGHT POLE
 - ORNAMENTAL LIGHT
 - SIGN
 - DECIDUOUS TREE
 - CONIFEROUS TREE
 - SOIL BORING
 - IRON SET
 - IRON FOUND
 - MONUMENT
 - SECTION CORNER
 - MARSH SYMBOL
 - SANITARY SEWER
 - WATER MAIN
 - STORM SEWER
 - GAS MAIN
 - ELECTRIC
 - TELEPHONE
 - OVERHEAD WIRES
 - FENCE
 - GAS PUMP
 - ANTENNA
 - SATELLITE DISH
 - NEWSPAPER BOX
 - PARKING METER
 - PHONE BOOTH
 - PUMP CHAMBER
 - CONC. CONCRETE
 - SAN MH SANITARY MANHOLE
 - ST MH STORM MANHOLE
 - CENTERLINE
 - L. LIBER
 - P. PAGE
 - L.C.R. LIVINGSTON COUNTY RECORDS
 - (R&M) RECORD AND MEASURED
 - P.O.B. POINT OF BEGINNING
 - HANDICAP SYMBOL
 - HUB
 - WOOD LATH SET

BEBOSS Engineering
Surveyors and Landmark Technicians
31111 WOODLAND DRIVE
HOWELL, MI 48843
800.246.6775 FAX 517.518.1670

PROJECT: CLEARY UNIVERSITY ATHLETIC COMPLEX
PREPARED FOR: CLEARY UNIVERSITY
3750 CLEARY DRIVE
HOWELL, MI 48843
517-338-3014

TITLE: EXISTING CONDITIONS & DEMOLITION PLAN

NO	BY	DATE	REVISION PER
1	ST	10-25-17	

DESIGNED BY: ST
DRAWN BY: ST
CHECKED BY:
SCALE: 1" = 40'
JOB NO. 17-393
DATE 10-4-17
SHEET NO. 2



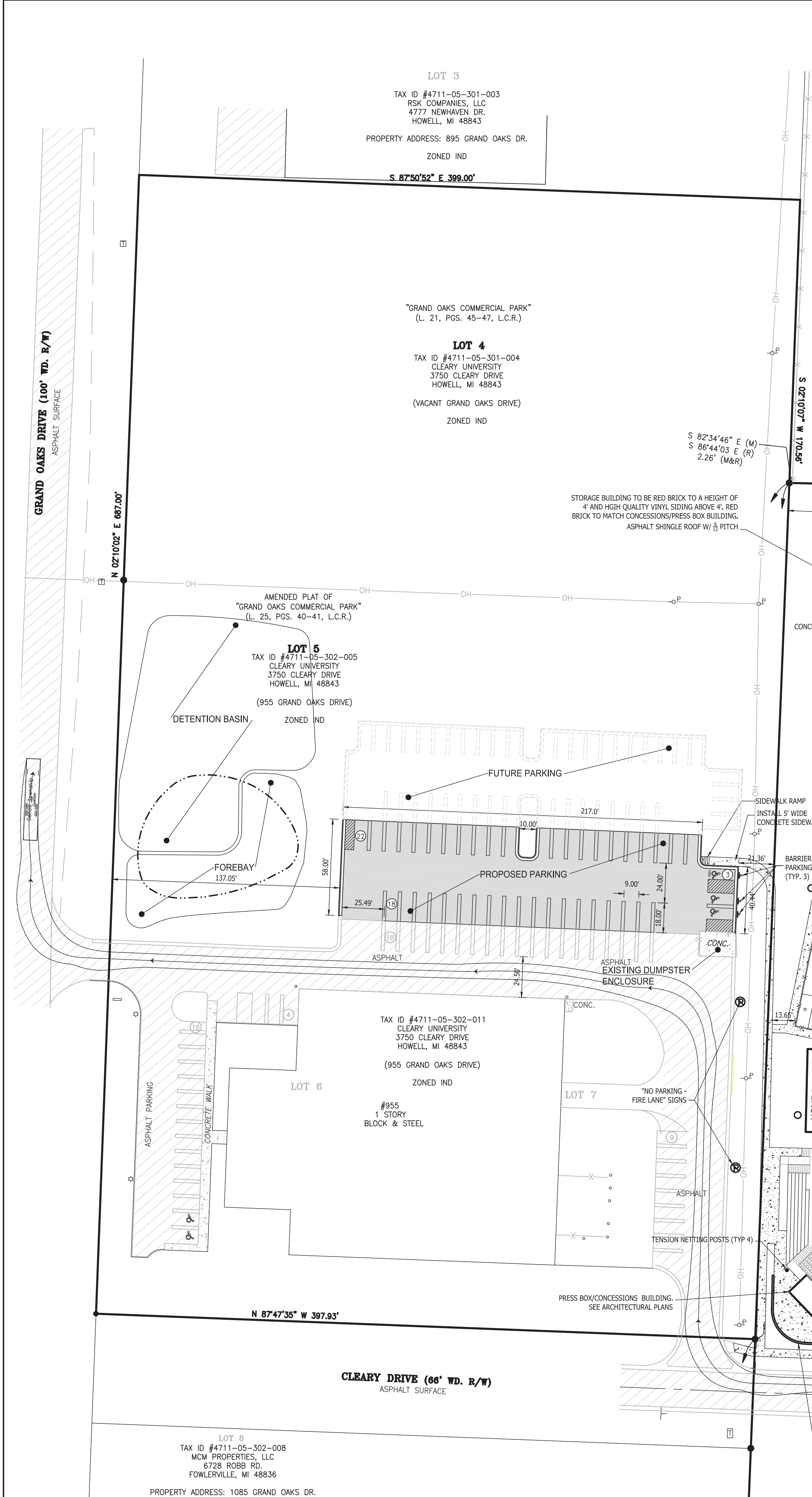
SITE/BUILDING DATA	
PARCEL SIZE:	29.60 AC.
EXISTING ZONING:	MUPUD
EXISTING USE:	UNIVERSITY BUILDINGS
PROPOSED USE:	UNIVERSITY ATHLETIC FIELDS & ACCESSORY BUILDINGS
REQUIRED FRONT SETBACK:	70 FT.
PROPOSED FRONT SETBACK:	N/A FT.
REQUIRED SIDE SETBACK:	20 FT.
PROPOSED SIDE SETBACK:	20 FT.
REQUIRED REAR SETBACK:	40 FT.
PROPOSED REAR SETBACK:	584.7 FT.
PARKING LOT SETBACK:	10.00 FT. (SIDE/REAR)
PROPOSED PARKING SETBACK:	21.36 FT. (SIDE)
MAX. BUILDING HEIGHT:	2.5 STORIES/35 FT ** **60 FT MAX, PROVIDED THE FRONT, SIDE, AND REAR YARDS ARE MORE THAN THE BUILDING HEIGHT (ORDINANCE 11.01.05 (a))
PROPOSED BUILDING HEIGHT	PRESS BOX/STORAGE BUILDING 20 FT.
PARKING DATA	
PARKING REQUIRED (ATHLETIC FIELDS): 1 SPACE PER 3 SEATS (6 FEET OF BENCHING)	
TOTAL PARKING REQUIRED: 556 LF OF BENCH / 6 FEET PER SPACE = 93 SPACES 144 SEATS / 3 SEATS PER SPACE = 48 SPACES 131 SPACES REQUIRED (INCLUDING 5 BARRIER FREE SPACES)	
PARKING PROPOSED: 43 SPACES PROPOSED (INCLUDING 3 BARRIER FREE SPACES) EXISTING PARKING: 88 SPACES EXISTING (INCLUDING 2 BARRIER FREE SPACES) TOTAL PARKING PROVIDED: 131 SPACES (INCLUDING 5 BARRIER FREE SPACES)	

MAX. LOT COVERAGE	35% BUILDING 60% IMPERVIOUS
PROPOSED BUILDING FOOTPRINT	
STORAGE BLDG/PRESS BOX/DUGOUTS:	2,950 S.F.
EXISTING BUILDINGS:	83,892 S.F.
TOTAL:	86,842 S.F. (8.73%)
IMPERVIOUS COVERAGE	
EXISTING IMPERVIOUS:	322,814 S.F.
PROPOSED IMPERVIOUS:	22,747 S.F.
TOTAL:	345,561 S.F. (26.7%)



THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE DATA SHOWN ON THESE DRAWINGS. NO GUARANTEE IS MADE FOR THE ACCURACY OF THE DATA SHOWN ON THESE DRAWINGS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE DATA SHOWN ON THESE DRAWINGS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE DATA SHOWN ON THESE DRAWINGS.

BEBOSS Engineering
Engineers
3111 Clearwater Ave.
Howell, MI 48843
800.246.6275 FAX 517.518.1670

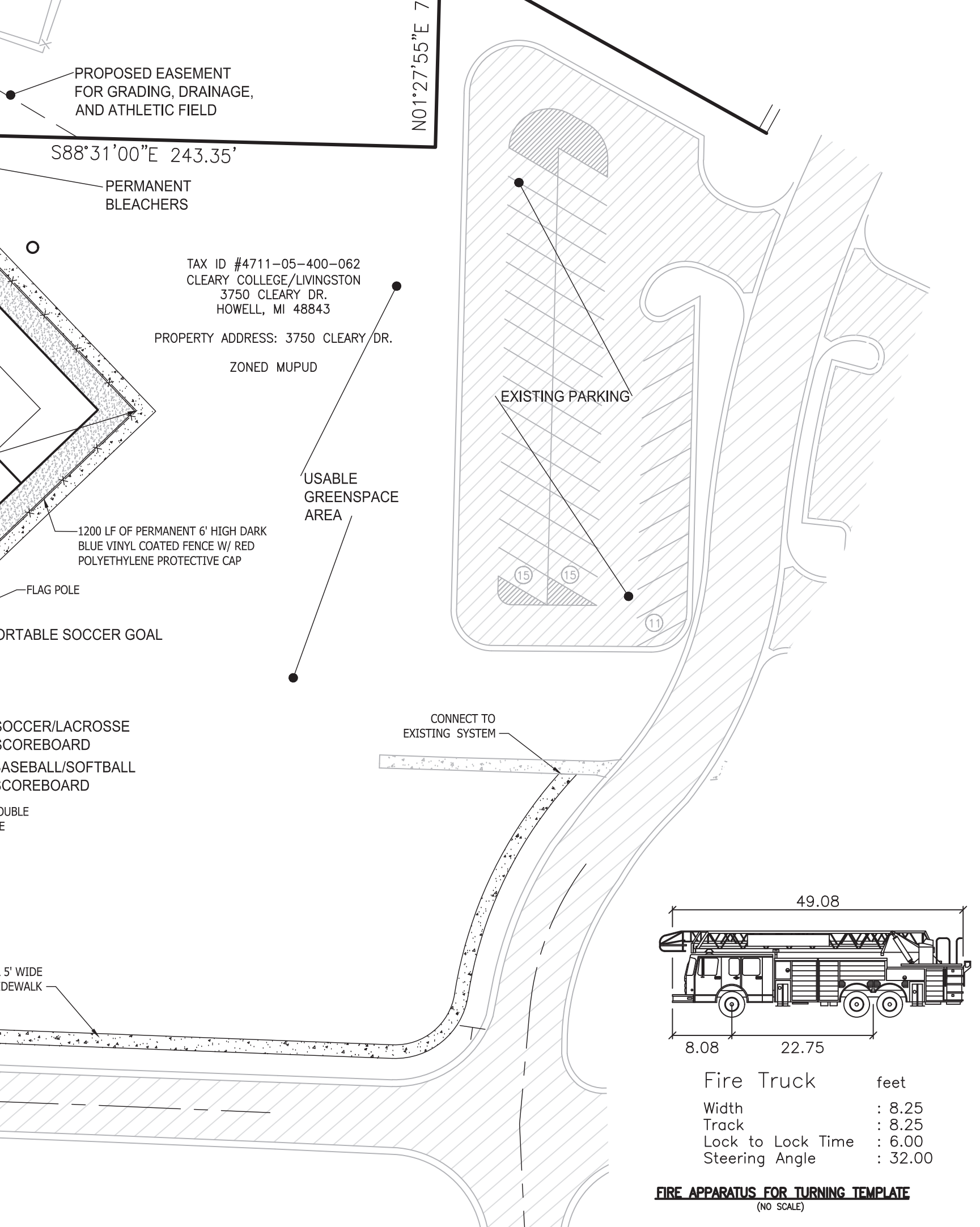


GENERAL NOTES

- ALL OUTDOOR LIGHTS SHALL BE SHIELDED TO REDUCE GLARE AND SHALL BE ARRANGED TO NOT INTERFERE WITH THE VISION OF PERSONS ON ADJACENT ROADWAYS OR ADJACENT PROPERTY.
- ALL SIGNS SHALL MEET LOCAL MUNICIPALITY ORDINANCE REQUIREMENTS.
- CLEARY UNIVERSITY TO COORDINATE WITH FIRE DEPARTMENT AND GENOA TOWNSHIP ON ADDRESSES FOR PROPOSED BUILDINGS SHOULD THEY BE NEEDED.
- IF BUILDING ADDRESSES ARE REQUIRED FOR THE CONCESSIONS/PRESS BOX BUILDING, THE LETTERS SHALL BE A MINIMUM OF 6" HIGH LETTER OF CONTRASTING COLORS AND BE CLEARLY VISIBLE FROM THE STREET. THE LOCATION AND SIZE SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
- THE EXISTING DUMPSTER AT THE WELLNESS CENTER WILL BE SUFFICIENT FOR USE BY THE PRESS BOX/CONCESSIONS AS THE WASTE GENERATED BY THE CONCESSIONS WILL BE MINIMAL AND ONLY OCCUR A FEW TIMES PER WEEK.

LEGEND

PROPOSED (PR)	EXISTING (EX)	
FF	FF	FINISHED FLOOR ELEVATION
FG	FG	FINISHED GRADE ELEVATION
UP	UP	UTILITY POLE
L	L	UTILITY POLE
OH	OH	FENCE
OH	OH	OVERHEAD WIRE
CONC.	CONC.	CONCRETE
ASPH.	ASPH.	ASPHALT



PROJECT: CLEARY UNIVERSITY ATHLETIC COMPLEX

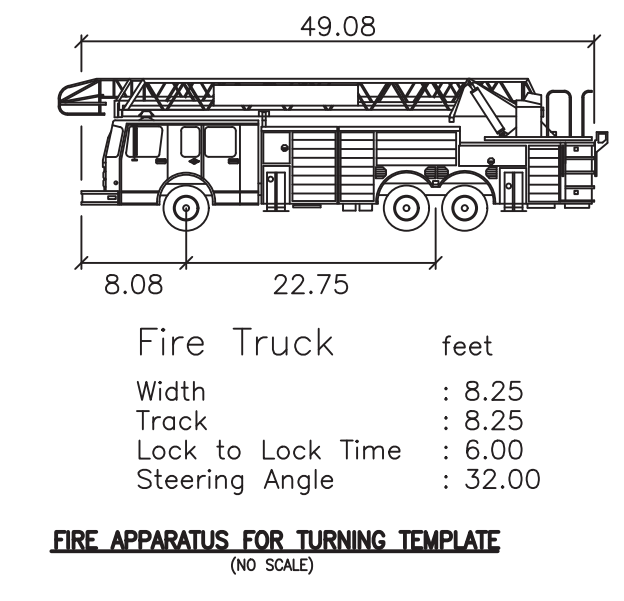
PREPARED FOR: CLEARY UNIVERSITY
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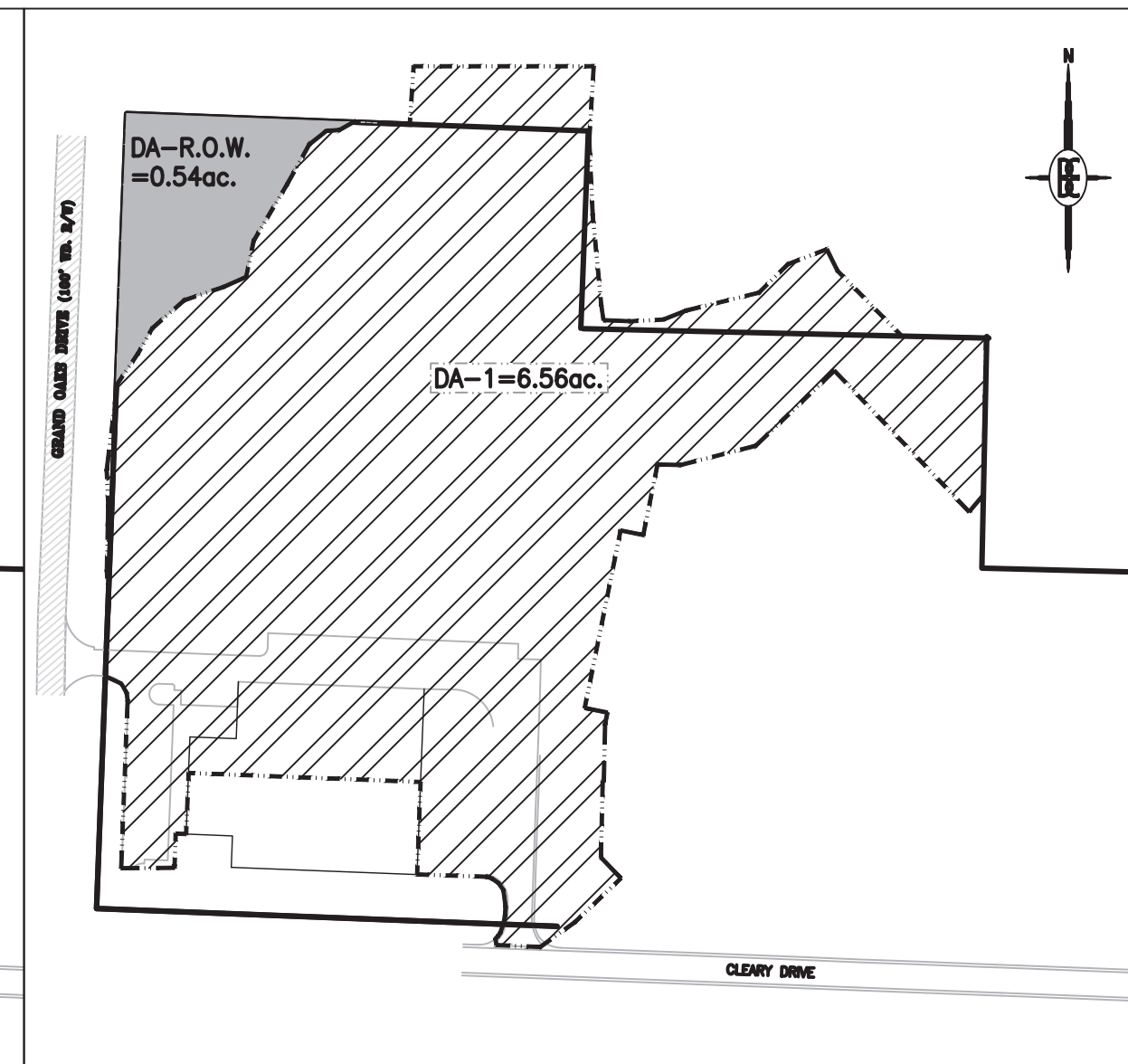
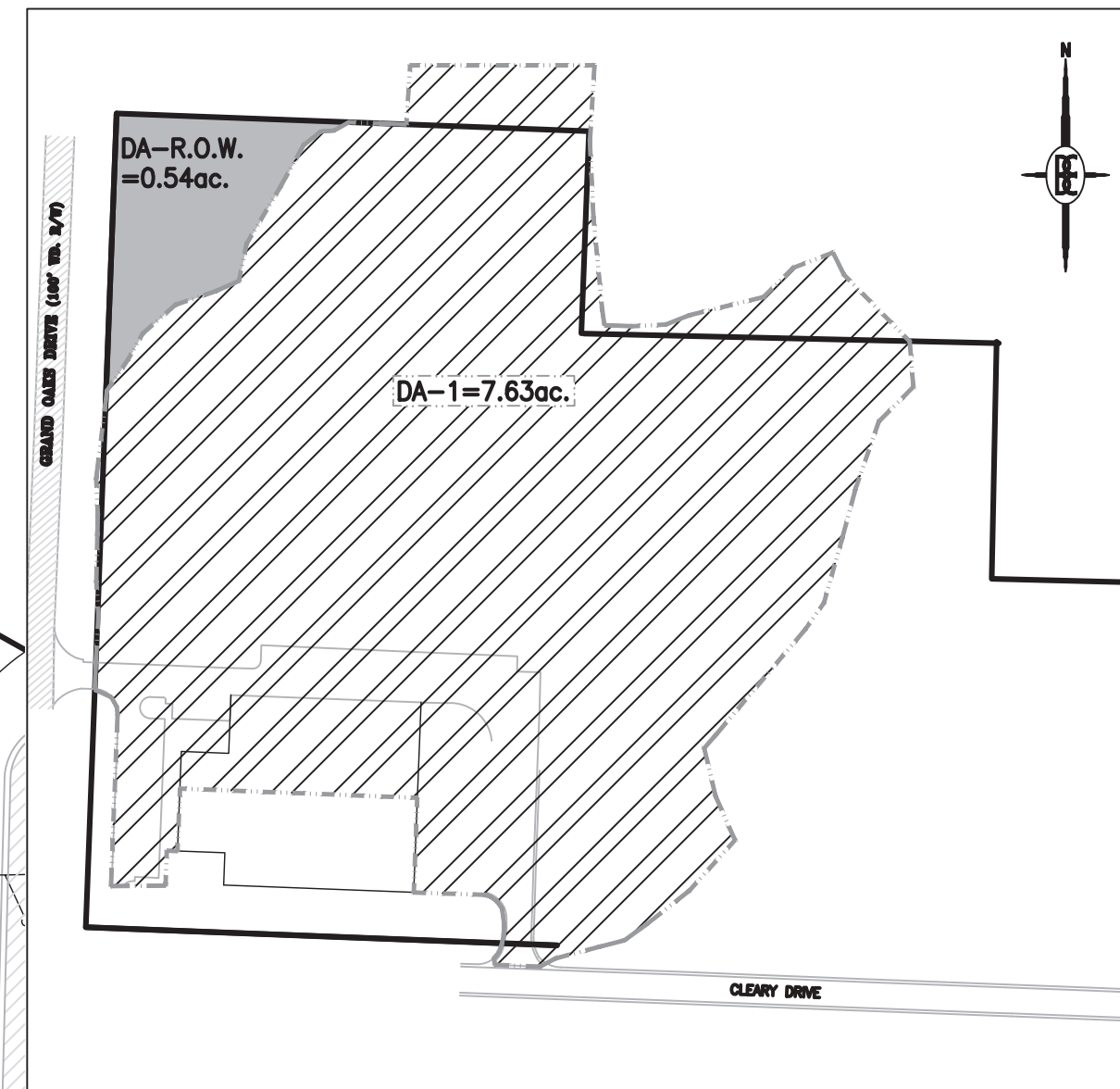
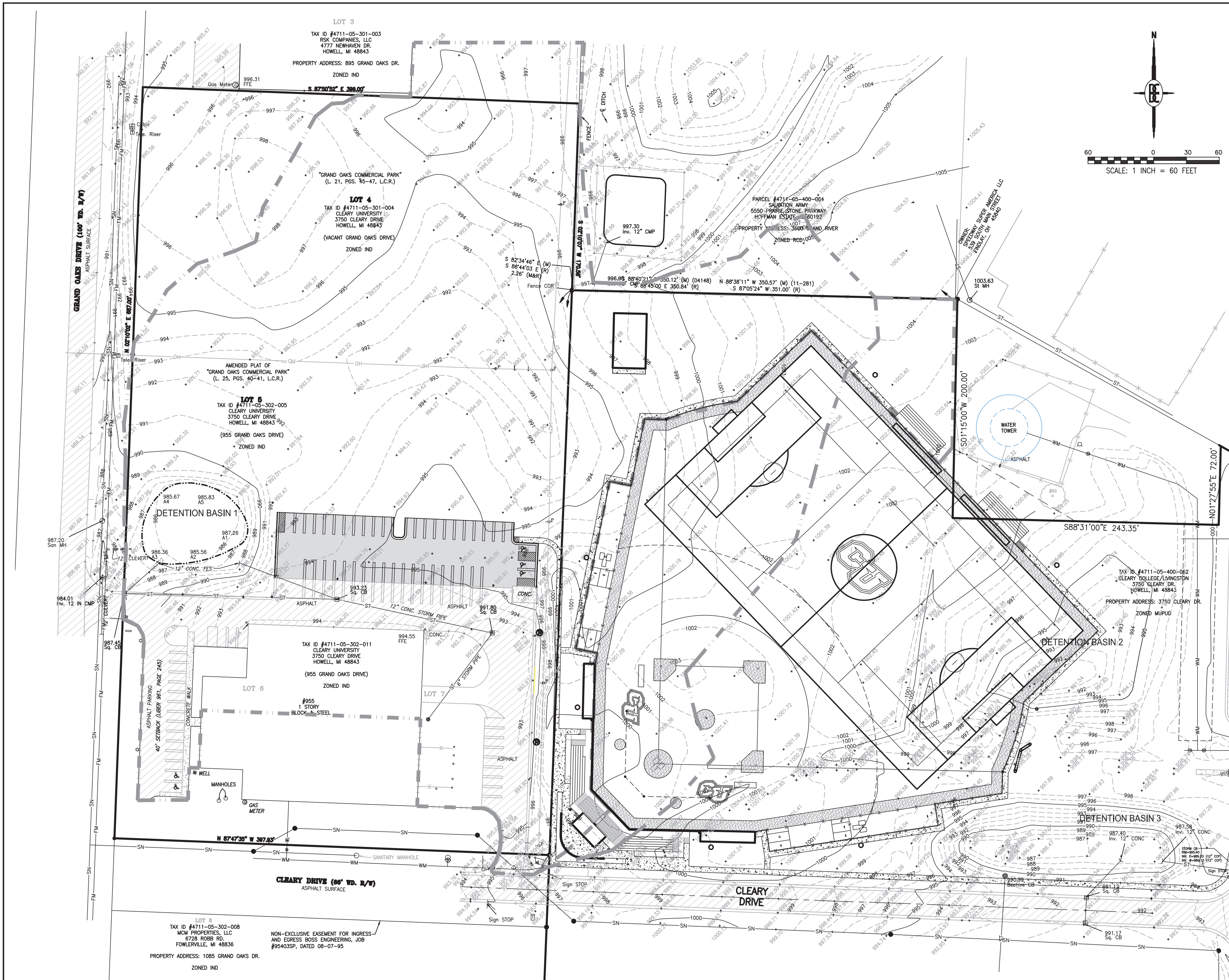
TITLE: SITE PLAN

NO.	BY	REVISION	DATE
1	ST	PER NWP REVIEW	10-25-17
2	ST	PER NWP REVIEW	
3	ST	PER NWP REVIEW	

DESIGNED BY: ST
DRAWN BY: ST
CHECKED BY: ST

SCALE: 1" = 40'
JOB NO.: 17-393
DATE: 10-4-17
SHEET NO.: 3





EXISTING DRAINAGE PATTERN - BASIN 1
SCALE: 1" = 150'
(BASED ON TOPOGRAPHY)

PROPOSED DRAINAGE PATTERN - BASIN 1
SCALE: 1" = 150'
(BASED ON PROPOSED GRADING)

PRE-DEVELOPMENT									
LIVINGSTON COUNTY DETENTION BASIN CALCULATIONS									
AREA (ACRES)	IMPERVIOUS FACTOR	ACRE IMPERVIOUS	ACRE PERVIOUS	INFLOW VOLUME (IN RUNOFF x A x C)	OUTFLOW (DURATION x Q _a)	STORAGE VOLUME (INFLOW - OUTFLOW)			
1.05	0.9	0.95	0.05	6295	458	5837			
0.00	0.7	0.00	0.00	10791	916	9875			
6.58	0.2	1.32	5.26	14163	1373	12790			
COMPOUND C: 0.30									
TOTAL DRAINAGE AREA: 7.63 ACRES									
K1 = A x C (Design Constant): 2.288									
Q _a = MAX ALLOW OUTFLOW (0.20 CFS / ACRE): 1.526 CFS									
DURATION (MINUTES)	DURATION (SECONDS)	INTENSITY (IN/HR)	INCHES	INFLOW VOLUME	OUTFLOW	STORAGE VOLUME			
5	300	9.17	2750	6295	458	5837			
10	600	7.86	4714	10791	916	9875			
15	900	6.88	6186	14163	1373	12790			
20	1200	6.11	7333	16786	1831	14955			
30	1800	5.00	9000	20901	2747	17654			
60	3600	3.24	11647	29660	5494	24167			
90	5400	2.39	12913	29558	8240	21318			
120	7200	1.90	13655	31257	10987	20269			
180	10800	1.34	14488	33163	16481	16682			
REQUIRED 100 YEAR DETENTION VOLUME = 21318 CF									
EXISTING BASIN STORAGE PROVIDED									
ELEV.	AREA (FT ²)	DEPTH (FT)	VOLUME (FT ³)	TOTAL VOLUME (FT ³)					
967.5	8003	0.5	3,782	9,542	DESIGN HIGHWATER ELEVATION				
967	7044	1	5,781	5,781					
986	4517								

POST-DEVELOPMENT									
LIVINGSTON COUNTY DETENTION BASIN CALCULATIONS									
AREA (ACRES)	IMPERVIOUS FACTOR	ACRE IMPERVIOUS	ACRE PERVIOUS	EXISTING IMPERVIOUS AREAS	PROPOSED IMPERVIOUS AREAS (INCLUDING "FUTURE PARKING")				
1.05	0.9	0.95	0.77						
0.85	0.9	0.77	0.08						
4.66	0.2	0.93	3.73						
COMPOUND C: 0.40									
TOTAL DRAINAGE AREA: 6.56 ACRES									
K1 = A x C (Design Constant): 2.624									
Q _a = MAX ALLOW OUTFLOW (0.20 CFS / ACRE): 1.312 CFS									
DURATION (MINUTES)	DURATION (SECONDS)	INTENSITY (IN/HR)	INCHES	INFLOW VOLUME	OUTFLOW	STORAGE VOLUME			
5	300	9.17	2750	7216	394	6822			
10	600	7.86	4714	12370	787	11583			
15	900	6.88	6186	16236	1181	15055			
20	1200	6.11	7333	19243	1574	17669			
30	1800	5.00	9000	23616	2362	21254			
60	3600	3.24	11647	30562	4723	25839			
90	5400	2.39	12913	33884	7085	26799			
120	7200	1.90	13655	35831	9446	26385			
180	10800	1.34	14488	38016	14170	23846			
REQUIRED 100 YEAR DETENTION VOLUME = 26799 CF									
BASIN EXPANSION VOLUME = POST-DEVELOPED REQUIRED - PRE-DEVELOPED REQUIRED									
BASIN EXPANSION VOLUME = 26,799 CFT - 21,318 CFT = 5,481 CFT									
TOTAL BASIN VOLUME = EXISTING BASIN VOLUME + BASIN EXPANSION VOLUME									
TOTAL BASIN VOLUME = 9,542 CFT + 5,481 CFT = 15,023 CFT									
TOTAL BASIN VOLUME = 15,023 CFT									
FOREBAY VOLUME									
V(F) = 5% OF THE 100-YEAR STORM VOLUME BASED ON THE AREA TRIBUTARY TO THE INLET									
V(F) = (0.05)(V/100)									
V(F) = 751 CF									
FOREBAY STORAGE VOLUME REQUIRED: 751 CF									
FOREBAY STORAGE VOLUME PROVIDED:									
ELEV.	AREA	VOLUME	TOTAL VOLUME						
988.25	5178	1253	6323						
988	4841	3252	7071						
987.25	3831	918	3819						
987	3510	2901	2901						
986	2292	0	0						
985	1200								
BANKFULL FLOOD VOLUME									
V _{BF} = 5180 x A x C = 13540 CF									
FIRST FLUSH VOLUME									
V _{FF} = 1815 x A x C = 4763 CF									
BASIN STORAGE PROVIDED									
ELEV.	AREA (FT ²)	DEPTH (FT)	VOLUME (FT ³)	TOTAL VOLUME (FT ³)					
988.25	12569	0.25	3,085	24,998	FREEBOARD ELEVATION				
988	12114	0.75	8,588	21,912					
987.25	10788	0.25	2,643	13,324	DESIGN HIGHWATER ELEVATION				
987	10358	1	9,531	10,681					
986	8763	0.25	1,150	1,150					
985.75	500		0	0					
BASIN VOLUME PROVIDED = 13,324 CFT + (FOREBAY PROVIDED - FOREBAY REQUIRED)									
BASIN VOLUME PROVIDED = 13,324 CFT + (3819 CFT - 751 CFT) = 16,392 CFT > 15,023 CFT									

STORM WATER NARRATIVE:
THERE ARE CURRENTLY 3 DETENTION BASINS WITHIN THE AREA OF SITE IMPROVEMENTS. THE BASINS ARE LABELED AS DETENTION BASINS 1, 2 AND 3 ON THE PLANS. DETENTION BASIN 1 WILL REMAIN BUT WILL BE INCREASED IN SIZE TO ACCOMMODATE ANY ADDITIONAL TRIBUTARY AREA AS WELL AS IMPERVIOUS SURFACE DRAINING TO IT. A SEDIMENT FOREBAY WILL BE ADDED TO DETENTION BASIN 1 AS A MEANS OF PRE-TREATMENT. ADDITIONALLY, AN OVERFLOW CONTROL STRUCTURE WILL BE ADDED TO DETENTION BASIN 1 FOR CONTROLLING THE OUTLET PER LDCO STANDARDS. DETENTION BASIN 2 WILL BE ELIMINATED ALTOGETHER. THIS BASIN IS TO BE FILLED IN AND SWALES SHALL BE CONSTRUCTED TO DIRECT STORM WATER SOUTHERLY. DETENTION BASIN 3 IS TO BE MODIFIED AND PARTIALLY FILLED. THIS BASIN WILL SERVE AS THE FOREBAY FOR THE NEW REGIONAL DETENTION BASIN THAT IS BEING CREATED AS A PART OF THE CLEARY UNIVERSITY STUDENT HOUSING #2 PROJECT. THE DESIGN OF THE STORM WATER DETENTION BASIN SHALL BE COORDINATED WITH THE STUDENT HOUSING PROJECT TO ENSURE THE BASIN IS SIZED APPROPRIATELY GIVEN THE FILLING OF BASIN 2 AND CONVERSION OF BASIN 3 INTO A FOREBAY FOR THE REGIONAL DETENTION BASIN.

DETENTION BASIN 1 NARRATIVE:
DETENTION BASIN 1 DESIGN IS BASED SOLELY ON THE EXISTING CONDITIONS VOLUME AND THE PROPOSED INCREASE IN STORM WATER VOLUME DUE TO INCREASED IMPERVIOUS SURFACES. THE BASIN WILL BE SIZED BY ADDING THE EXISTING BASIN VOLUME TO THE ADDITIONAL VOLUME NEEDED FOR THE PROPOSED SITE IMPROVEMENTS. A FOREBAY AND OUTLET CONTROL STRUCTURE WILL ALSO BE ADDED TO THE EXISTING BASIN FOR STORM WATER TREATMENT AND CONTROL PER THE LDCO STANDARDS.

A PORTION OF THE SITE THAT IS TRIBUTARY TO THE DETENTION BASIN 1 THAT IS SUBJECT TO DEVELOPMENT IS 7.63 ACRES. AFTER DEVELOPMENT OF THE ATHLETIC FIELDS, THE PORTION OF THE TRIBUTARY AREA IN QUESTION REDUCES TO 6.56 ACRES, HOWEVER, THERE IS INCREASED IMPERVIOUS SURFACES IN THE POST-DEVELOPED CONDITION. THE POST DEVELOPED CONDITION CONTAINS 0.85 ACRES OF INCREASED IMPERVIOUS SURFACES. THESE SURFACES INCLUDE THE SIDEWALK, STORAGE BUILDING, DUGOUT, BLEACHERS, PROPOSED PARKING AREA AND THE AREA DESIGNATED AS FUTURE PARKING.

THE DETENTION BASIN 1 IS DESIGNED TO BE INCREASED TO COMPENSATE FOR THE INCREASED VOLUME DUE TO IMPERVIOUS SURFACES. THUS, THE VOLUME THE BASIN NEEDS TO EXPANDED IS AS FOLLOWS:

VOLUME REQUIRED
ADDITIONAL VOLUME = PROPOSED VOLUME - EXISTING VOLUME
26,799 CFT - 21,318 CFT = 5,481 CFT ADDITIONAL

TOTAL VOLUME OF BASIN = ORIGINAL VOLUME + ADDITIONAL VOLUME
TOTAL VOLUME OF BASIN = 9,542 CFT + 5,481 CFT = 15,023 CFT

VOLUME PROVIDED
VOLUME PROVIDED = BASIN VOLUME + EXCESS FOREBAY VOLUME
VOLUME PROVIDED = 13,324 CFT + (3,819 CFT - 751 CFT) = 16,392 CFT > 15,023 CFT

SEE CLEARY UNIVERSITY STUDENT HOUSING #2 PROJECT FOR REGIONAL DETENTION BASIN DESIGN

FOREBAY VOLUME				
FOREBAY STORAGE PROVIDED				
ELEV.	AREA (FT ²)	DEPTH (FT)	VOLUME (FT ³)	TOTAL VOLUME (FT ³)
992	8013	1	5,434	16,375
991	4854	1	4,320	10,942
990	3785	1	3,301	6,622
989	2816	1	2,351	3,322
988	1885	1	971	971
987	57		0	0

LEGEND

		CONTOUR
		STORM DRAINAGE FLOW
		SPOT ELEVATION
		STORM SEWER
		WATER MAIN
		FORCE MAIN
		OVERHEAD WIRE
		MANHOLE
		INLET / CATCHBASIN
		FLARED SECTION
		UTILITY POLE
		FENCE
		SIGN
		LIMITS OF GRADING/CLEARING

THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE DATA SHOWN ON THESE DRAWINGS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTING CONDITIONS AND THE LOCATION AND ELEVATION OF EXISTING UTILITIES. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF EXISTING UTILITIES. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF EXISTING UTILITIES. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF EXISTING UTILITIES.

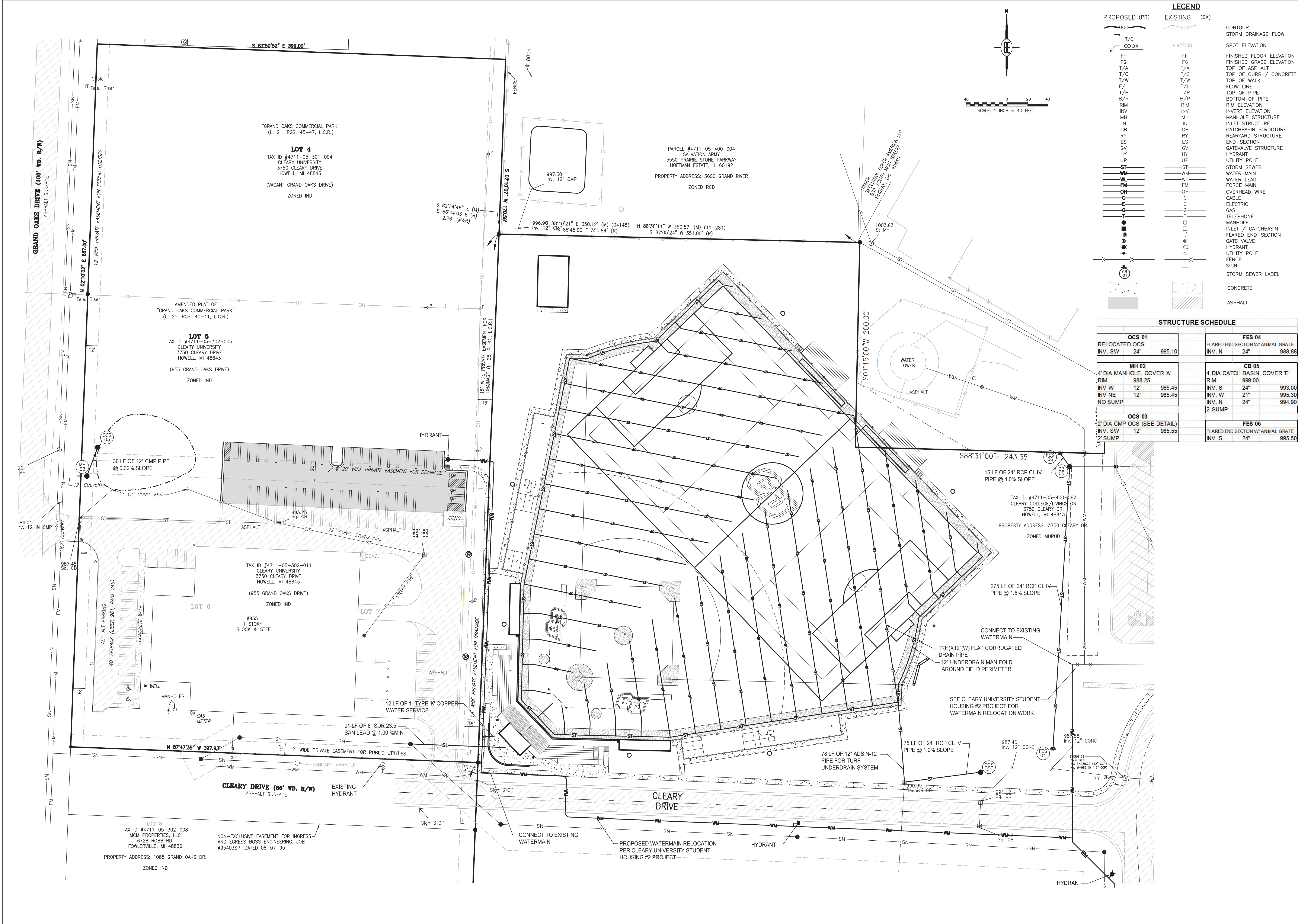
BEBOSS Engineering
3117 CLEARVIEW AVE.
HOWELL, MI 48843
800.246.6775 FAX 517.518.1670

CLEARY UNIVERSITY ATHLETIC COMPLEX
CLEARY UNIVERSITY
3750 CLEARY DRIVE
HOWELL, MI 48843
517-338-3014

PROJECT: CLEARY UNIVERSITY ATHLETIC COMPLEX
PREPARED FOR: CLEARY UNIVERSITY
TITLE: DRAINAGE PLAN

NO.	BY	DATE	REVISION
1	ST	10-25-17	

DESIGNED BY: ST
DRAWN BY: ST
CHECKED BY: ST
SCALE: 1" = 60'
JOB NO. 17-393
DATE 10-4-17
SHEET NO. 5



LEGEND

PROPOSED (PR)	EXISTING (EX)	DESCRIPTION
900	900	CONTOUR
T/C	XXX.XX	STORM DRAINAGE FLOW
FF	+922.08	SPOT ELEVATION
FG		FINISHED FLOOR ELEVATION
T/A		TOP OF ASPHALT
T/C		TOP OF CURB / CONCRETE
T/W		TOP OF WALK
F/L		FLOW LINE
T/P		TOP OF PIPE
B/P		BOTTOM OF PIPE
RIM		RIM ELEVATION
INV		INVERT ELEVATION
MH		MANHOLE STRUCTURE
IN		INLET STRUCTURE
CB		CATCHBASIN STRUCTURE
RY		REARYARD STRUCTURE
ES		END-SECTION
CV		GATEVALVE STRUCTURE
HY		HYDRANT
UP		UTILITY POLE
ST		STORM SEWER
WM		WATER MAIN
WL		WATER LEAD
FM		FORCE MAIN
OH		OVERHEAD WIRE
C		ELECTRIC
G		GAS
T		TELEPHONE
○		MANHOLE
□		INLET / CATCHBASIN
⊗		FLARED END-SECTION
⊙		GATE VALVE
⊕		HYDRANT
⊖		UTILITY POLE
+		FENCE
⊞		SIGN
⊟		STORM SEWER LABEL
▨		CONCRETE
▩		ASPHALT

STRUCTURE SCHEDULE

STRUCTURE	DESCRIPTION	ELEVATION
OCS 01	RELOCATED OCS	985.10
MH 02	4' DIA MANHOLE, COVER 'A'	988.25
RM	RIM	999.00
INV W	12" INV. W	985.45
INV NE	12" INV. NE	985.45
NO SUMP		
OCS 03	2' DIA CMP OCS (SEE DETAIL)	985.55
INV. SW	12" INV. SW	985.55
2' SUMP		
FES 04	FLARED END SECTION W/ ANNUAL GRATE	988.88
INV. N	24" INV. N	988.88
CB 05	4' DIA CATCH BASIN, COVER 'E'	999.00
INV. S	24" INV. S	993.00
INV. W	21" INV. W	995.30
INV. N	24" INV. N	994.90
2' SUMP		
FES 06	FLARED END SECTION W/ ANNUAL GRATE	995.50
INV. S	24" INV. S	995.50

BEFORE YOU DIG
CALL MISS DIG
800.485.4848

BEBOSS Engineering
3111 HOWELL MI 48843
800.246.6775 FAX 517.518.1670

Engineers
Surveyors
Landscape Architects

PROJECT: CLEARY UNIVERSITY ATHLETIC COMPLEX
PREPARED FOR: CLEARY UNIVERSITY
3750 CLEARY DRIVE
HOWELL, MI 48843
517-338-3014
TITLE: UTILITY PLAN

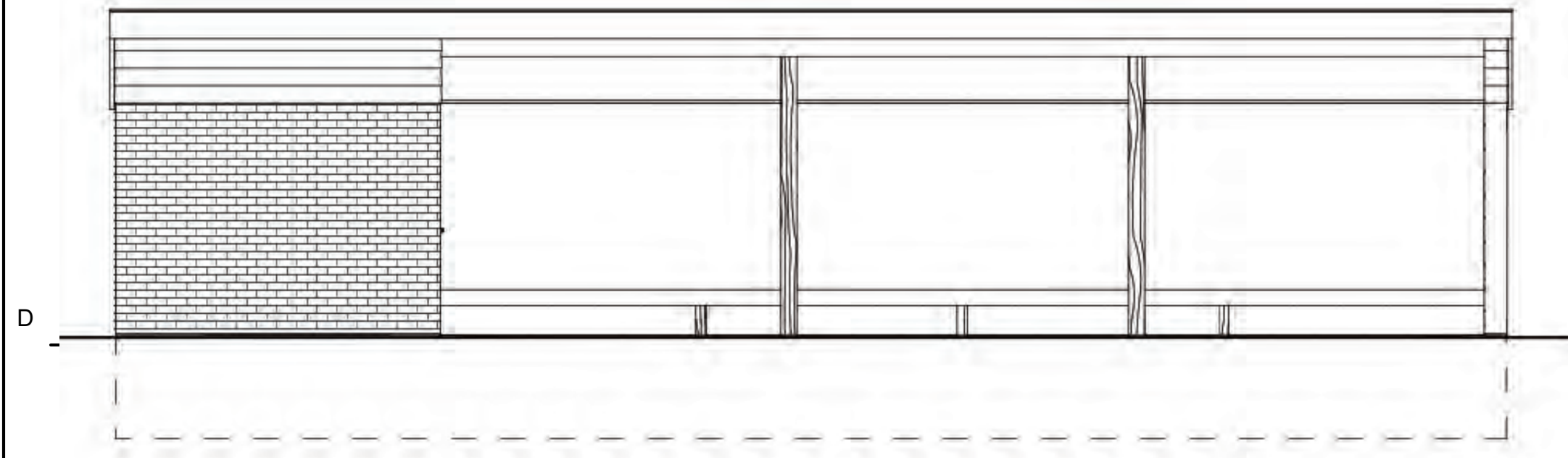
NO	BY	REVISION PER	DATE
1	ST	PER NWP REVIEW	10-25-17

DESIGNED BY: ST
DRAWN BY: ST
CHECKED BY: ST

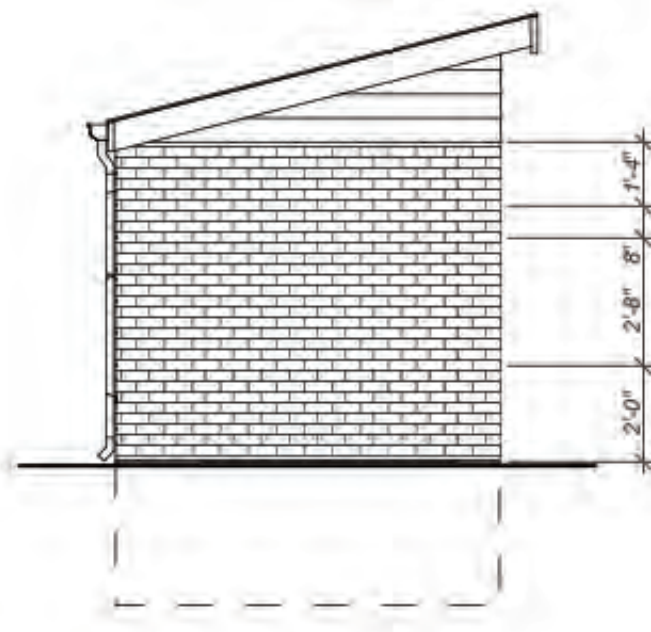
SCALE: 1" = 40'
JOB NO. 17-393
DATE 10-4-17
SHEET NO. 6

BEBOSS Engineering

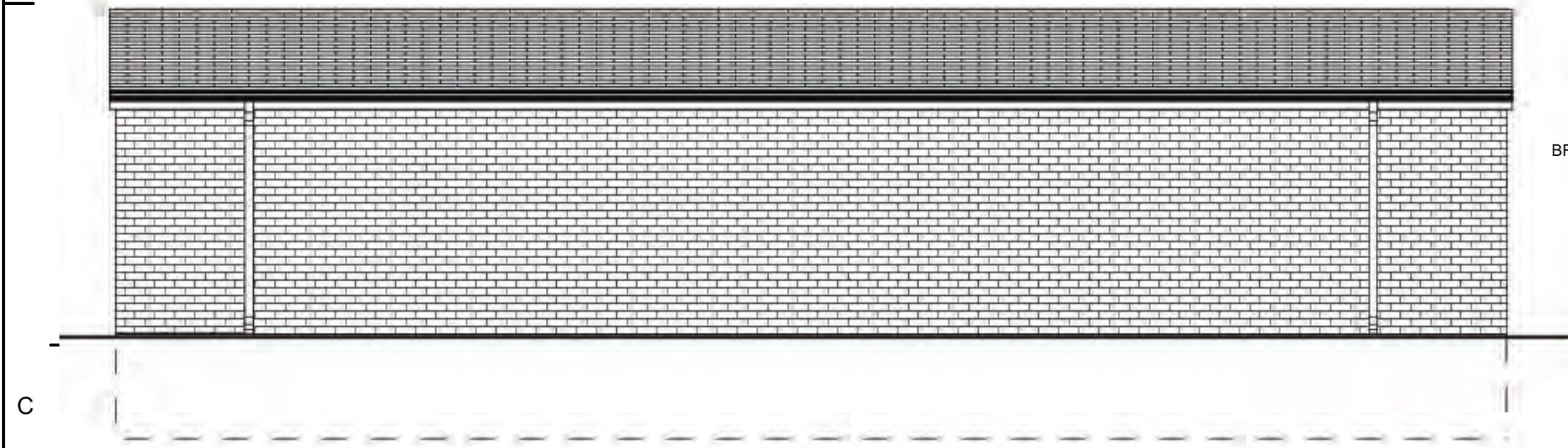
CONSULTANTS



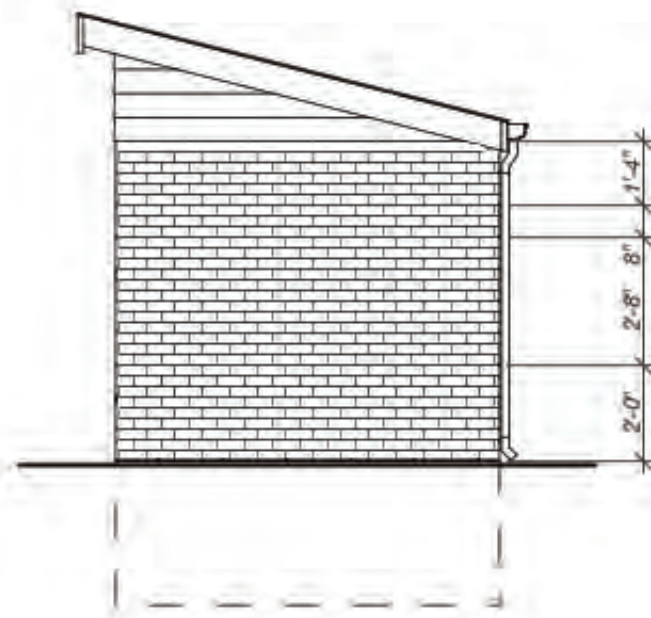
D1 ELEVATION
A-101 SCALE: 1/4" = 1'-0"



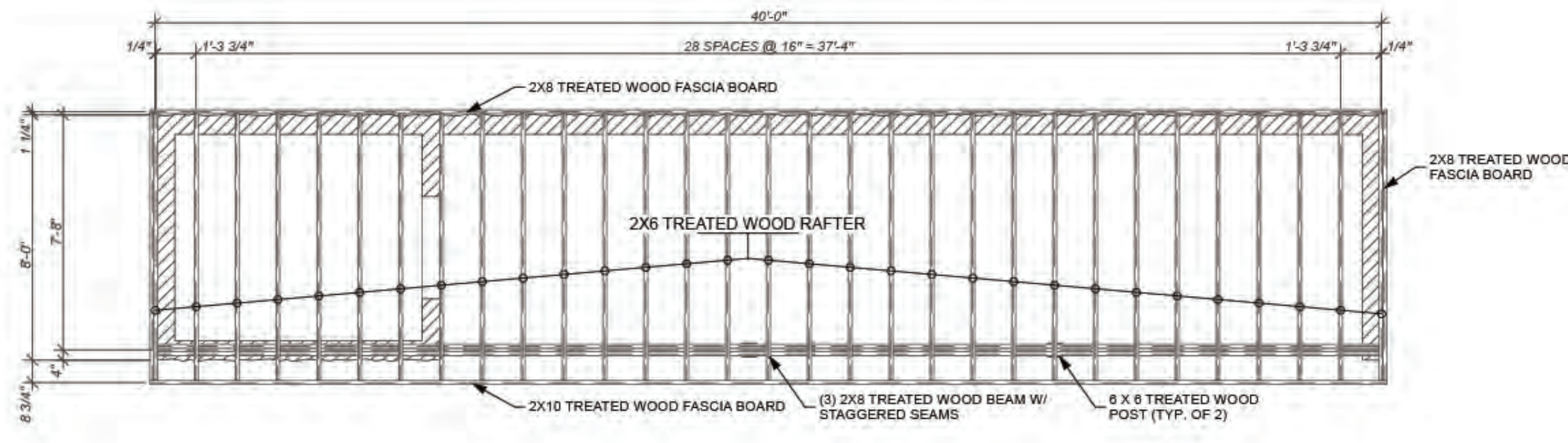
D2 ELEVATION
A-101 SCALE: 1/4" = 1'-0"



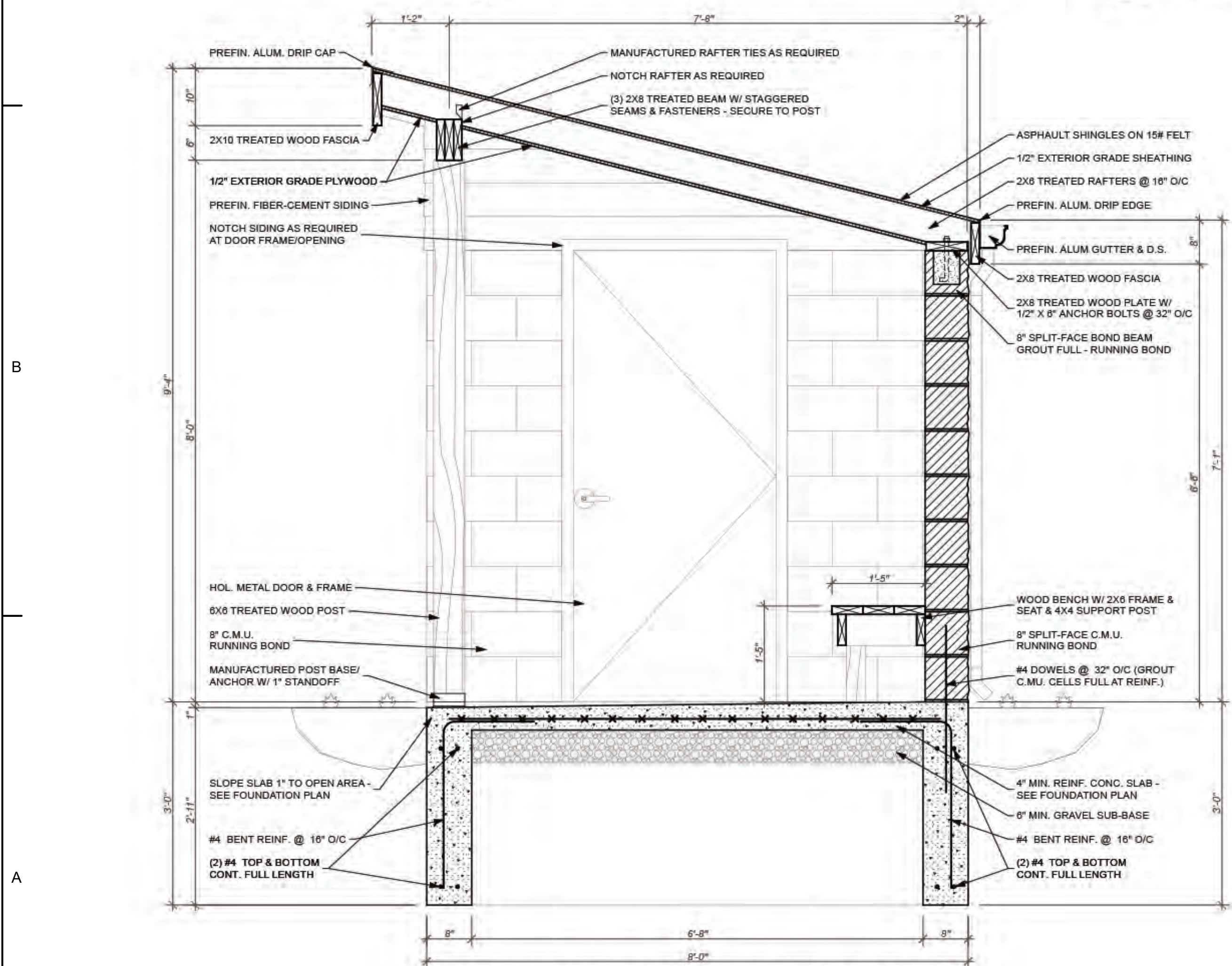
C1 ELEVATION
A-101 SCALE: 1/4" = 1'-0"



C2 ELEVATION
A-101 SCALE: 1/4" = 1'-0"

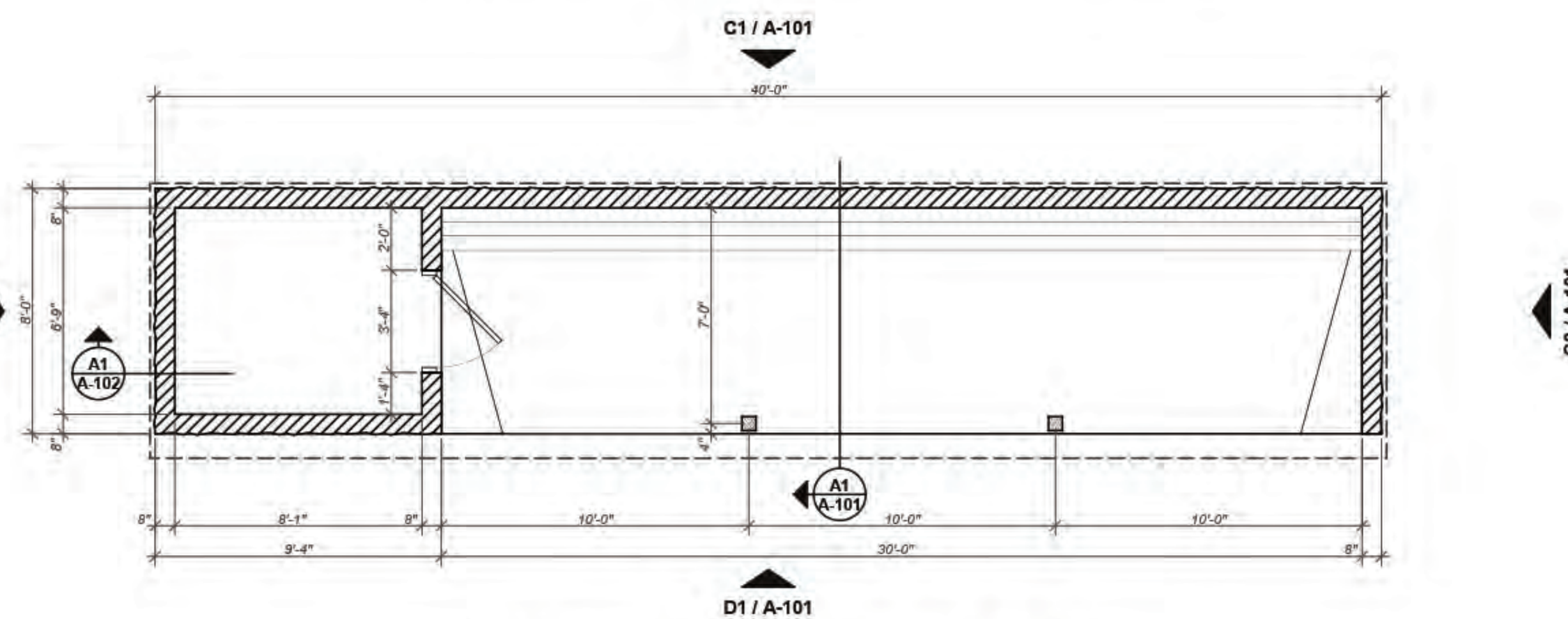


HOME DUGOUT ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

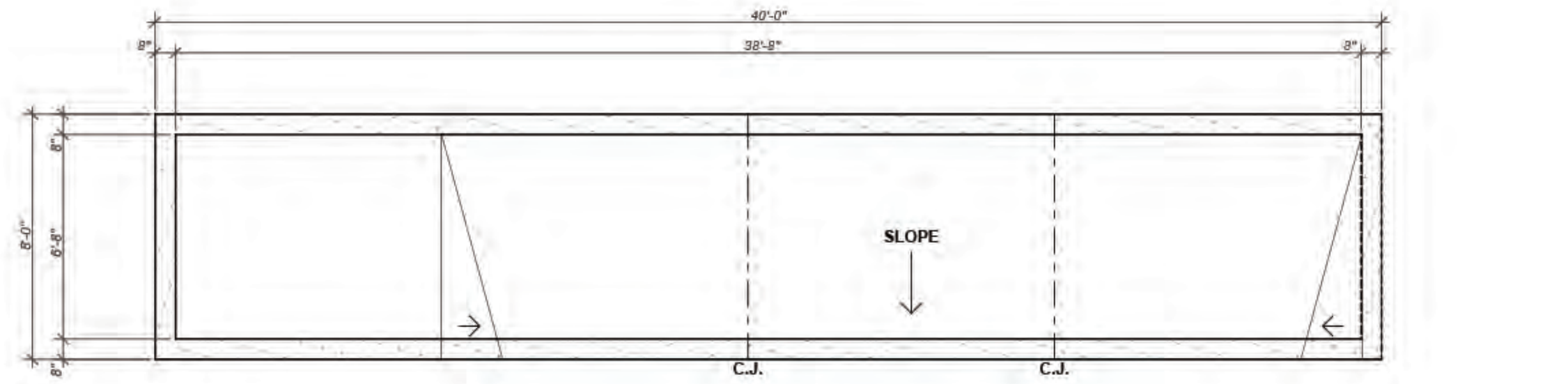


A1 SECTION
A-101 SCALE: 3/4" = 1'-0"

ALL DIMENSIONAL LUMBER SHALL BE PRESSURE TREATED AND ALL NAILS, BOLTS, CONNECTORS / TIES, ETC. SHALL BE GALVANIZED OR ZINC COATED



HOME DUGOUT FLOOR PLAN
SCALE: 1/4" = 1'-0"



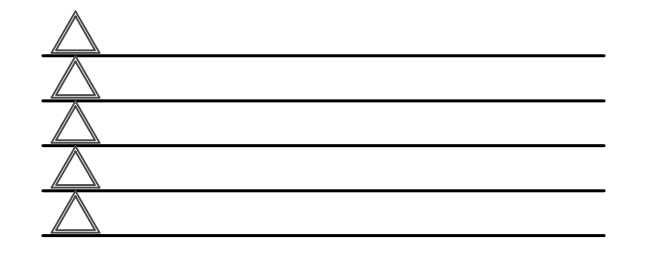
HOME DUGOUT FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

4" MIN. POURED IN PLACE CONC. SLAB W/ 6X6 W/ 4XW1.4 W.W.M. REINF. (USE CHAIRS TO HOLD W.W.M. 2" CLEAR BELOW FIN. FLOOR) WITH 6" WIDE CONC. TURN DOWN TO 3"-0" BELOW FIN. GRADE MIN. W/ TOP AND BOTTOM (2) #4 CONT. FIL AND DOWELLED TO WALLS AT ENDS ON 6" GRAVEL SUB-BASE ON WELL COMPACTED SOIL OR VIRGIN SOIL W/ FIRM BRG. PROVIDE CONTROL JOINTS AS SHOWN

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CLEARY UNIVERSITY

SUBMITTED: 10/25/2017



A-101

HOME DUGOUT PLANS, ELEVATIONS, AND DETAILS

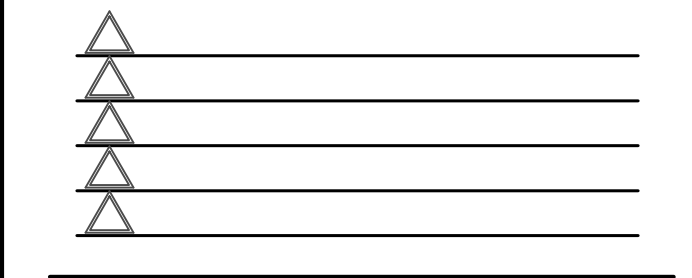
MKC JOB #: 13-ED1-032

PROJECT STATUS: CONSTRUCTION DRAWINGS

CONSULTANTS

NEW DUGOUT
CLEARY UNIVERSITY

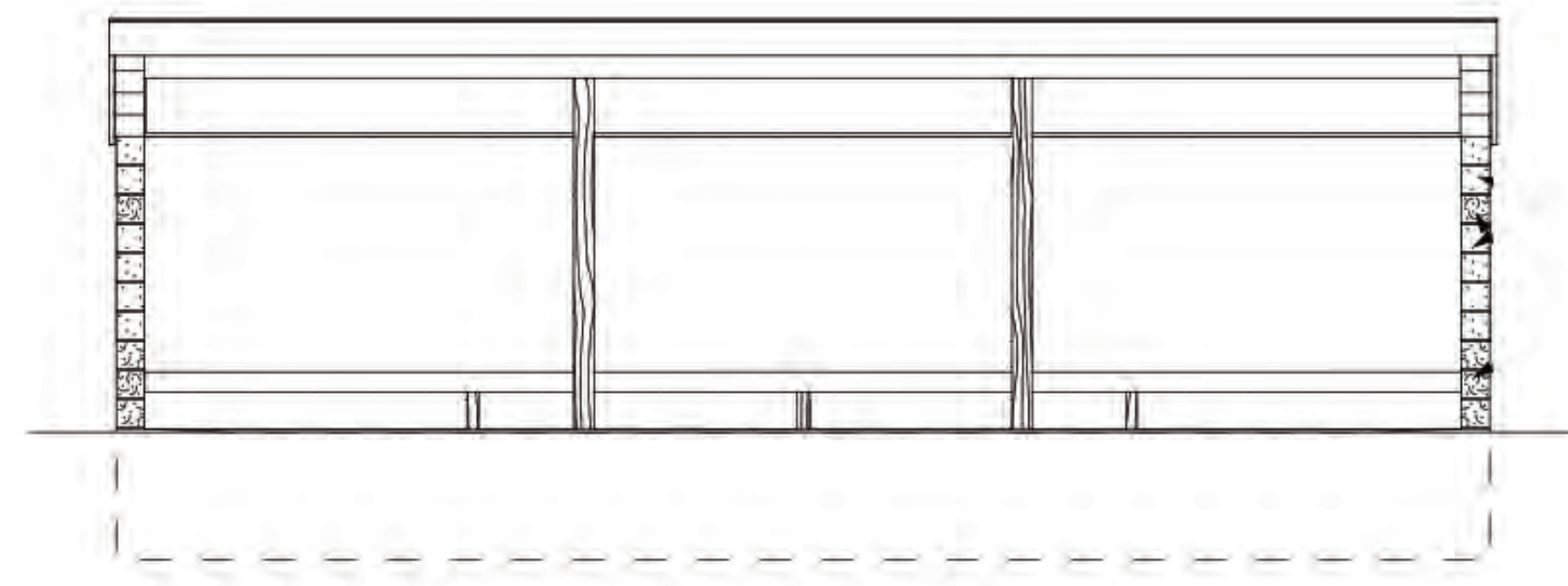
SUBMITTED: 10/25/2017



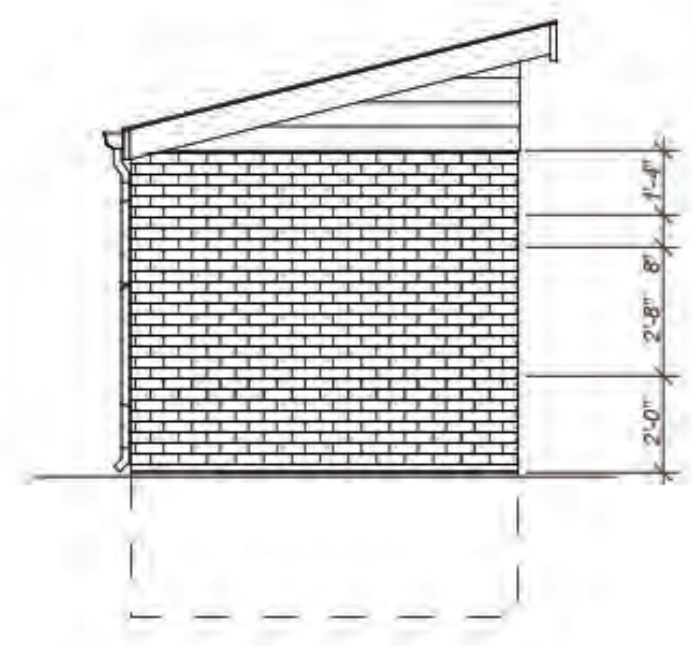
A-102

VISITOR DUGOUT PLANS,
ELEVATIONS, AND DETAILS

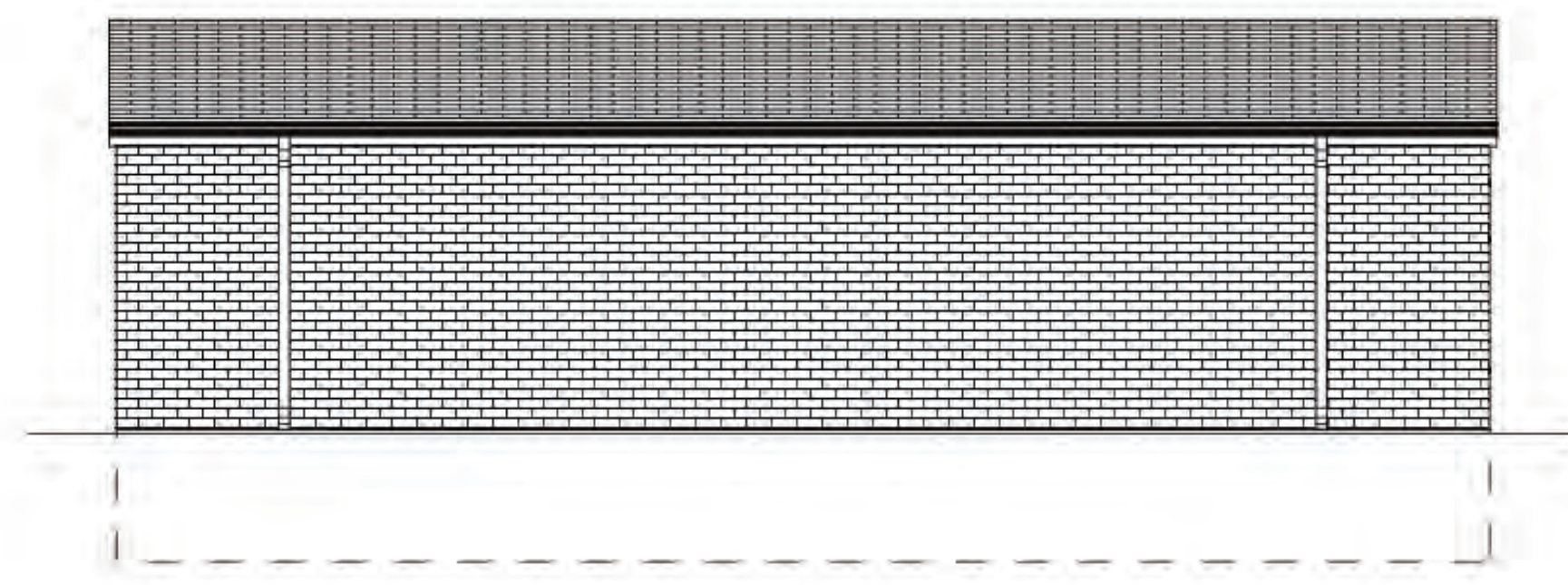
MKC JOB #: 13-ED1-032



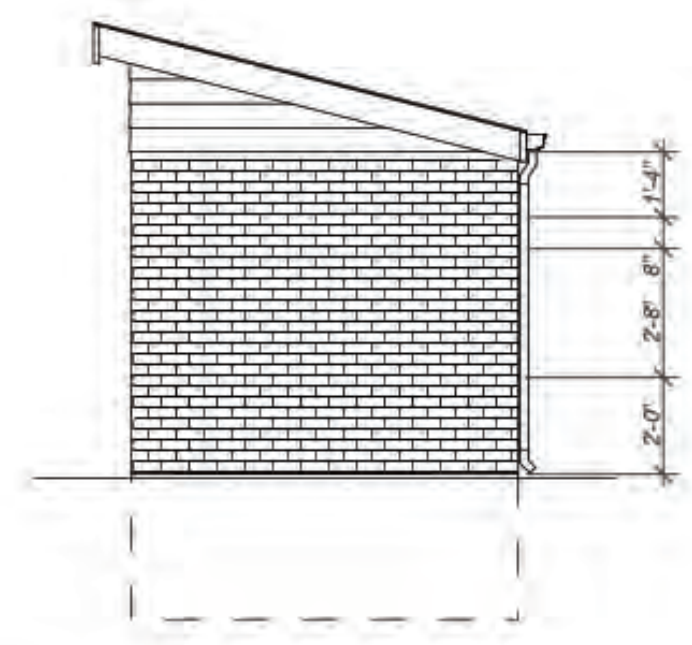
D1 ELEVATION
A-102 SCALE: 1/4" = 1'-0"



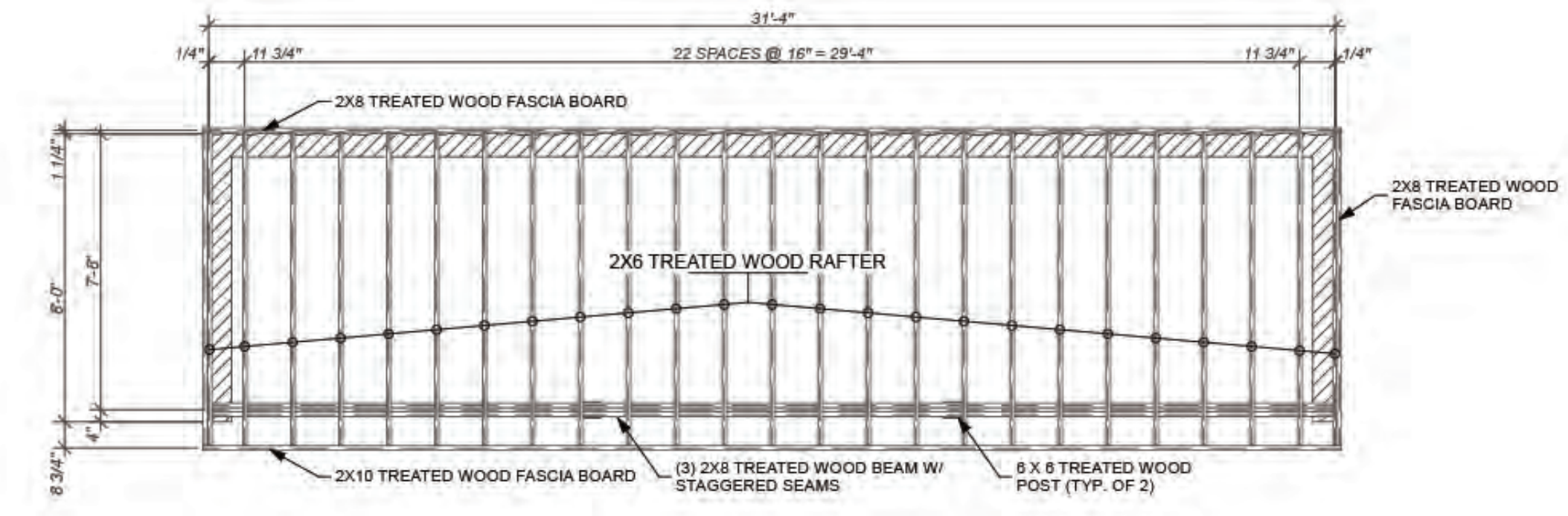
D2 ELEVATION
A-102 SCALE: 1/4" = 1'-0"



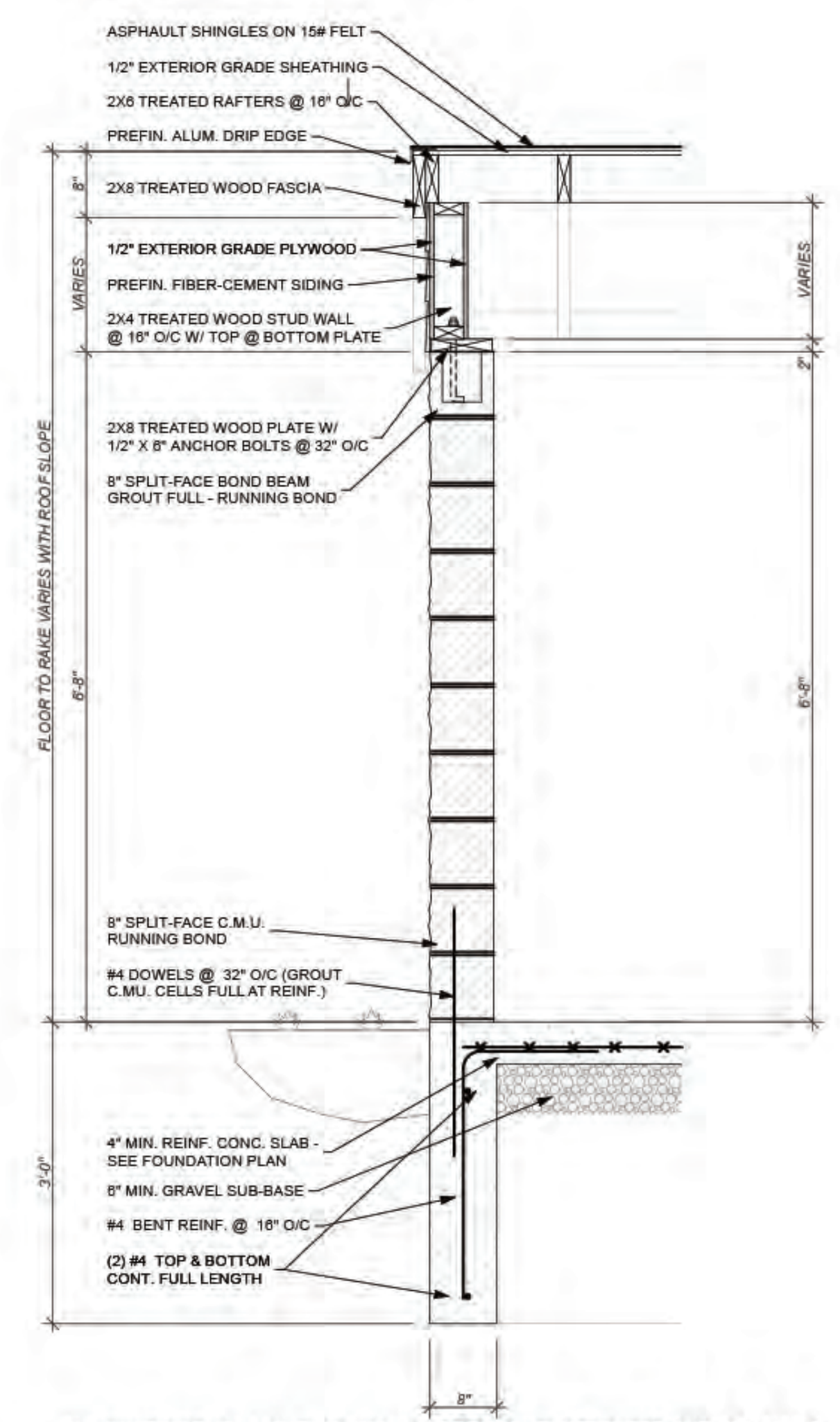
C1 ELEVATION
A-102 SCALE: 1/4" = 1'-0"



C2 ELEVATION
A-102 SCALE: 1/4" = 1'-0"

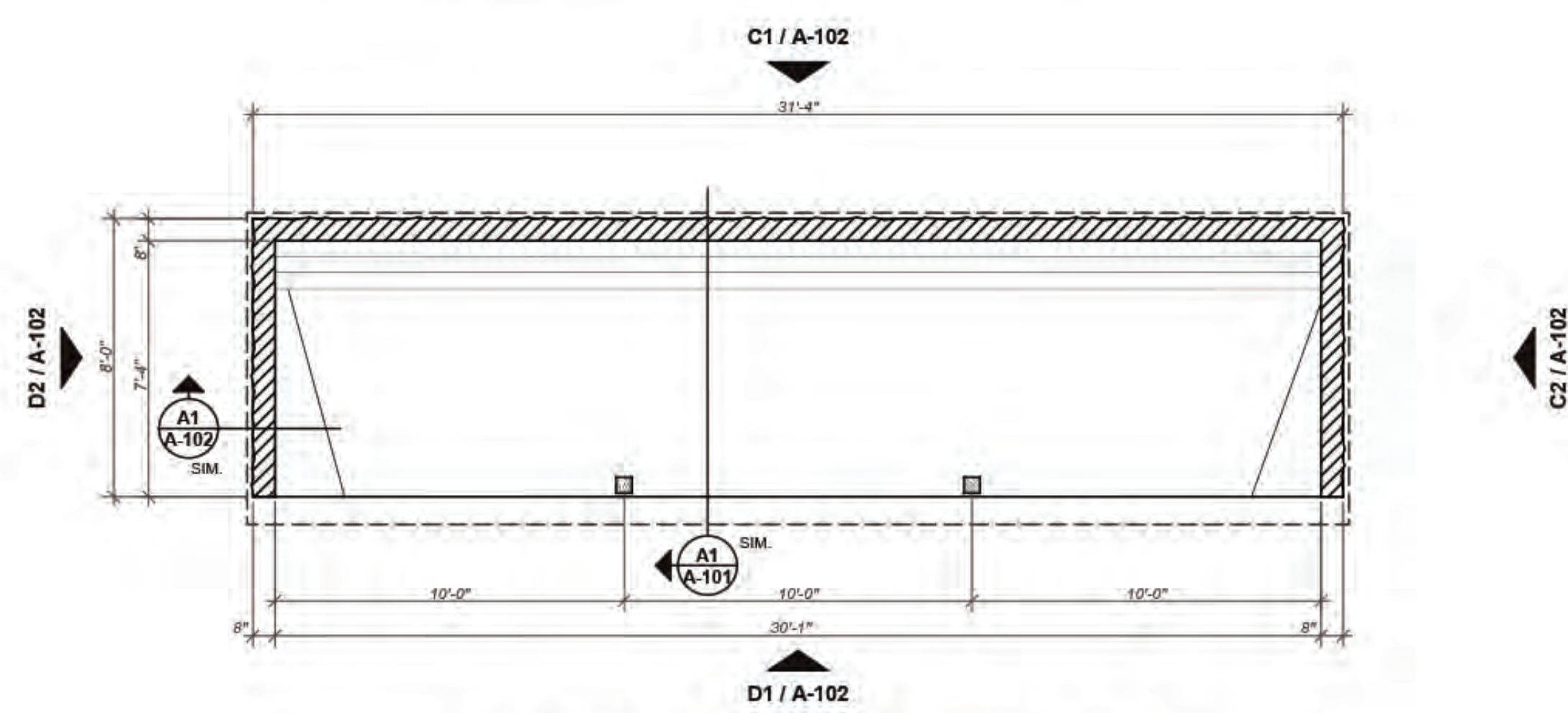


VISITOR DUGOUT ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

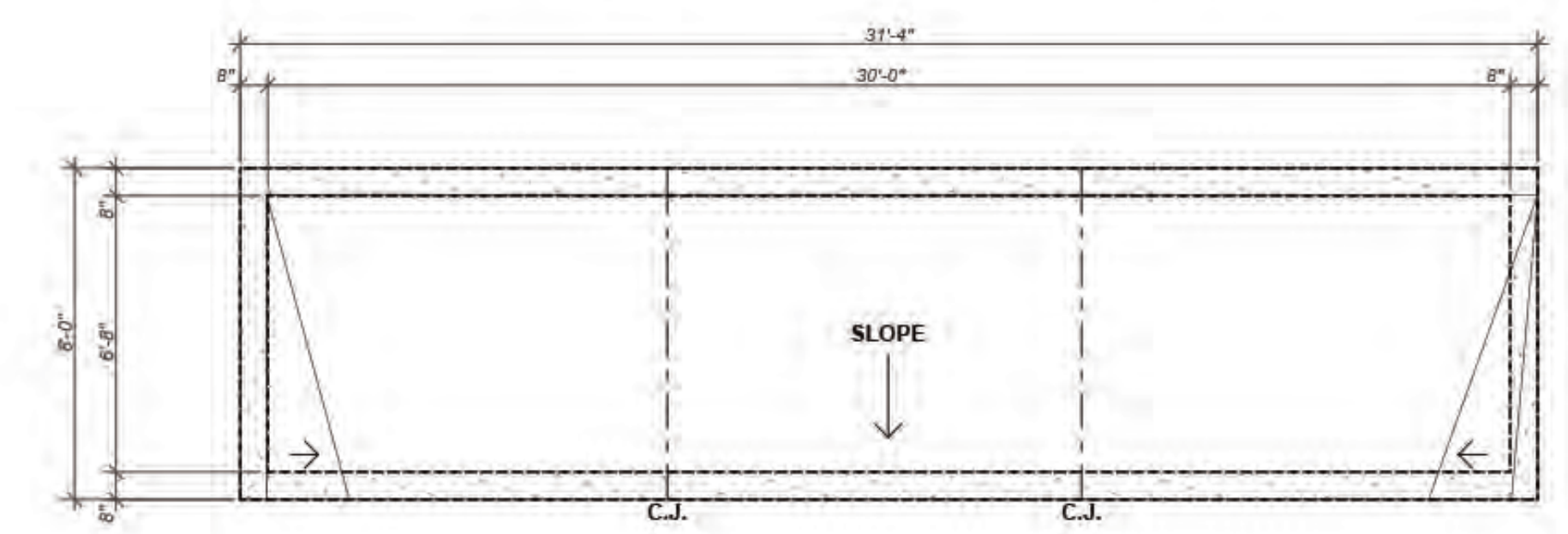


A1 SECTION
A-102 SCALE: 3/4" = 1'-0"

ALL DIMENSIONAL LUMBER SHALL BE PRESSURE TREATED AND ALL NAILS, BOLTS, CONNECTORS / TIES, ETC. SHALL BE GALVANIZED OR ZINC COATED



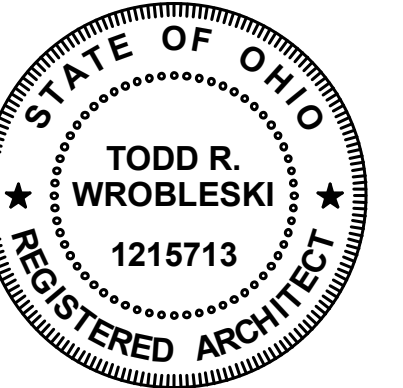
VISITOR DUGOUT FLOOR PLAN
SCALE: 1/4" = 1'-0"



VISITOR DUGOUT FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

4" MIN. POURED IN PLACE CONC. SLAB W/ 6X6 W1.4XW1.4 W.W.M. REINF. (USE CHAIRS TO HOLD W.W.M. 2" CLEAR BELOW FIN. FLOOR) WITH 8" WIDE CONC. TURN DOWN TO 3'-0" BELOW FIN. GRADE MIN. W/ TOP AND BOTTOM (2) #4 CONT. FL. AND DOWELED TO WALLS AT ENDS ON 6" GRAVEL SUB-BASE ON WELL COMPACTED SOIL OR VIRGIN SOIL W/ FIRM BRG. PROVIDE CONTROL JOINTS AS SHOWN

ARCHITECT OF RECORD
TODD R. WROBLESKI
NO. 1215713



EXPIRATION: 12/31/2013

mkc
ASSOCIATES, INC.

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ENGINEERING
PLANNING

40 W. 4th STREET
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CONSULTANTS



1300 E 9th St., Suite 1500
Cleveland, OH 44114
PH: 216-881-2020

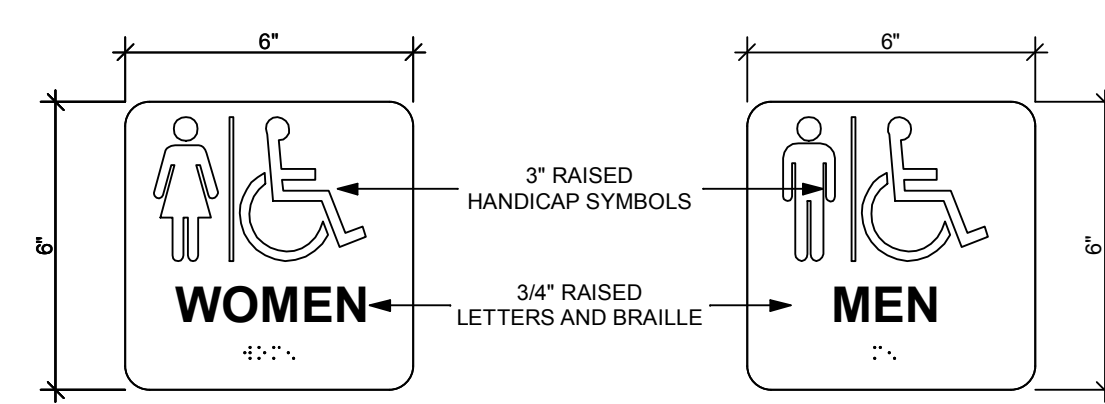
OSBORN
ENGINEERING

NEW PRESSBOX / CONCESSION BUILDING

FOR

CLEARY UNIVERSITY

ROOM FINISH SCHEDULE						REMARKS
NO.	ROOM	WALLS		CEILING		
		MAT	FINISH	MAT.	FINISH	
01	CONCESSION	CMU	EPOXY	WOOD	PAINT	
02	EQUIPMENT	CMU	EPOXY	EXP. STRUCT.	PAINT	
03	JAN.	CMU	EPOXY	EXP. STRUCT.	PAINT	
04	ELEC.	CMU	EPOXY	EXP. STRUCT.	PAINT	
05	STAIRS	CMU / WOOD	EPOXY	WOOD	PAINT	
06	WOMEN	CMU	EPOXY	WOOD	PAINT	
07	MEN	CMU	EPOXY	WOOD	PAINT	
08	PRESSBOX	WOOD	PAINT	WOOD	PAINT	
09	PRESSBOX	WOOD	PAINT	WOOD	PAINT	

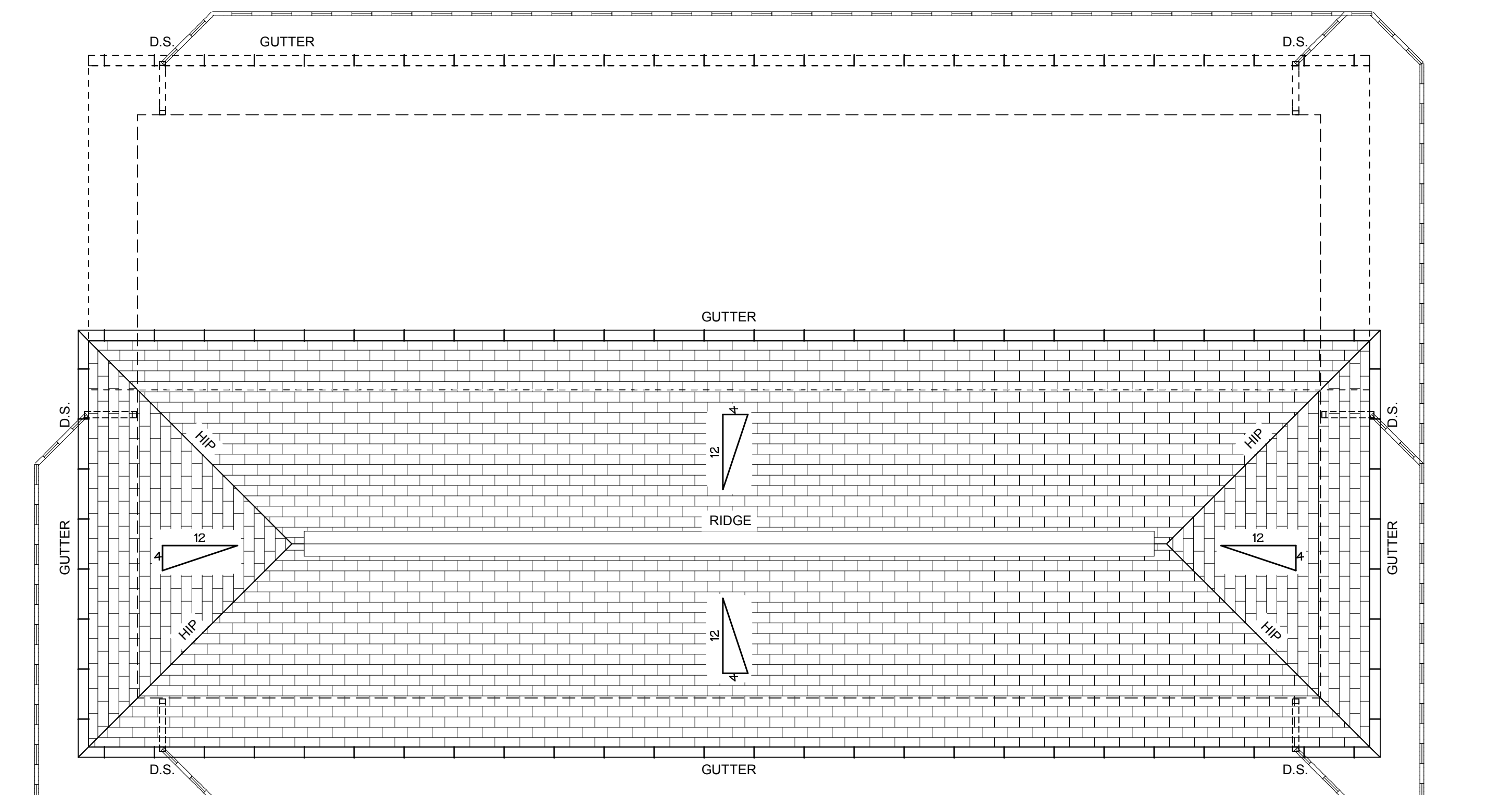


RESTROOM SIGNAGE

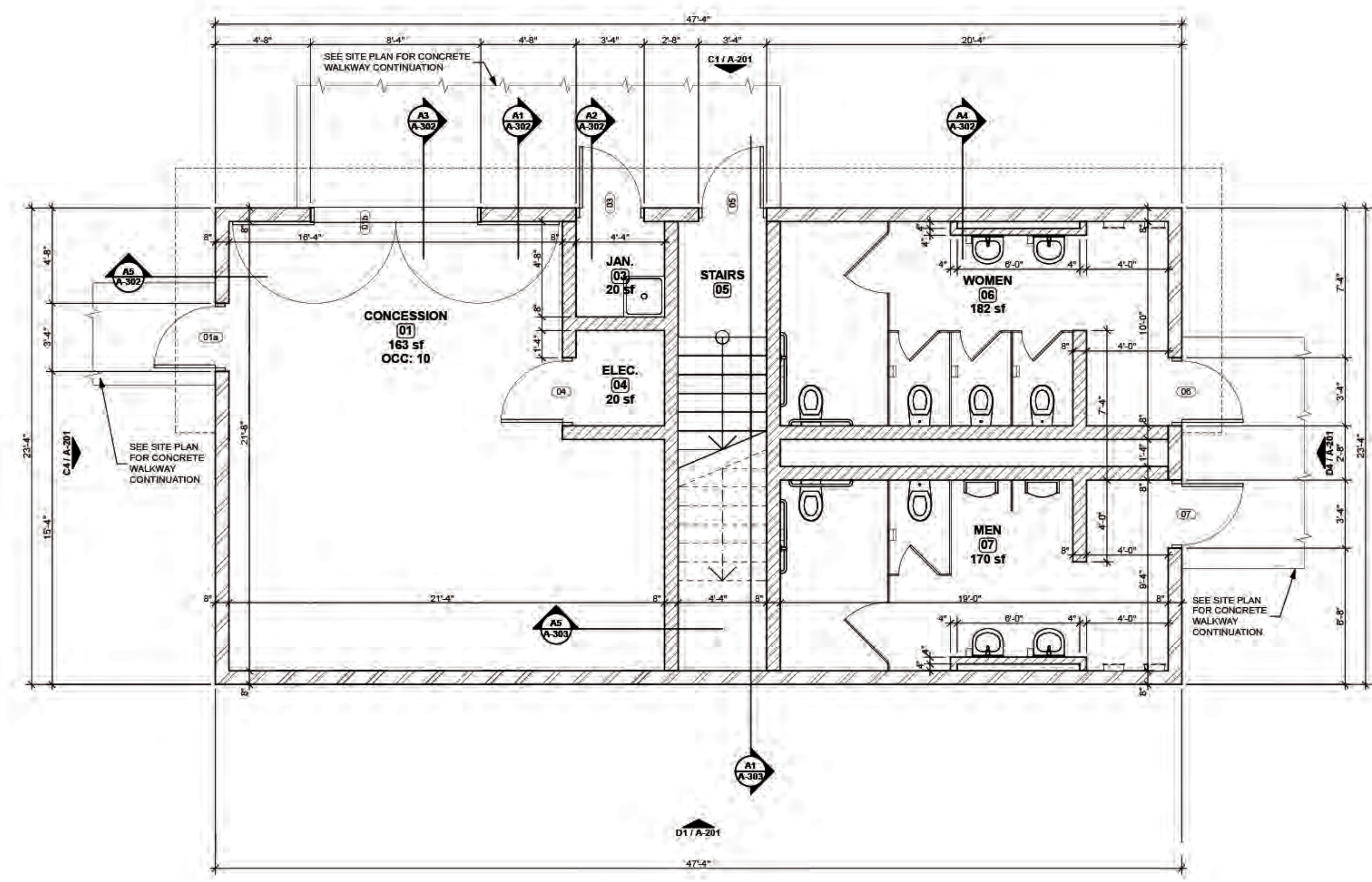
FLOOR PLAN LEGEND

- SPLIT FACE CONCRETE BLOCK WALL
- CONCRETE BLOCK WALL
- STUD WALL

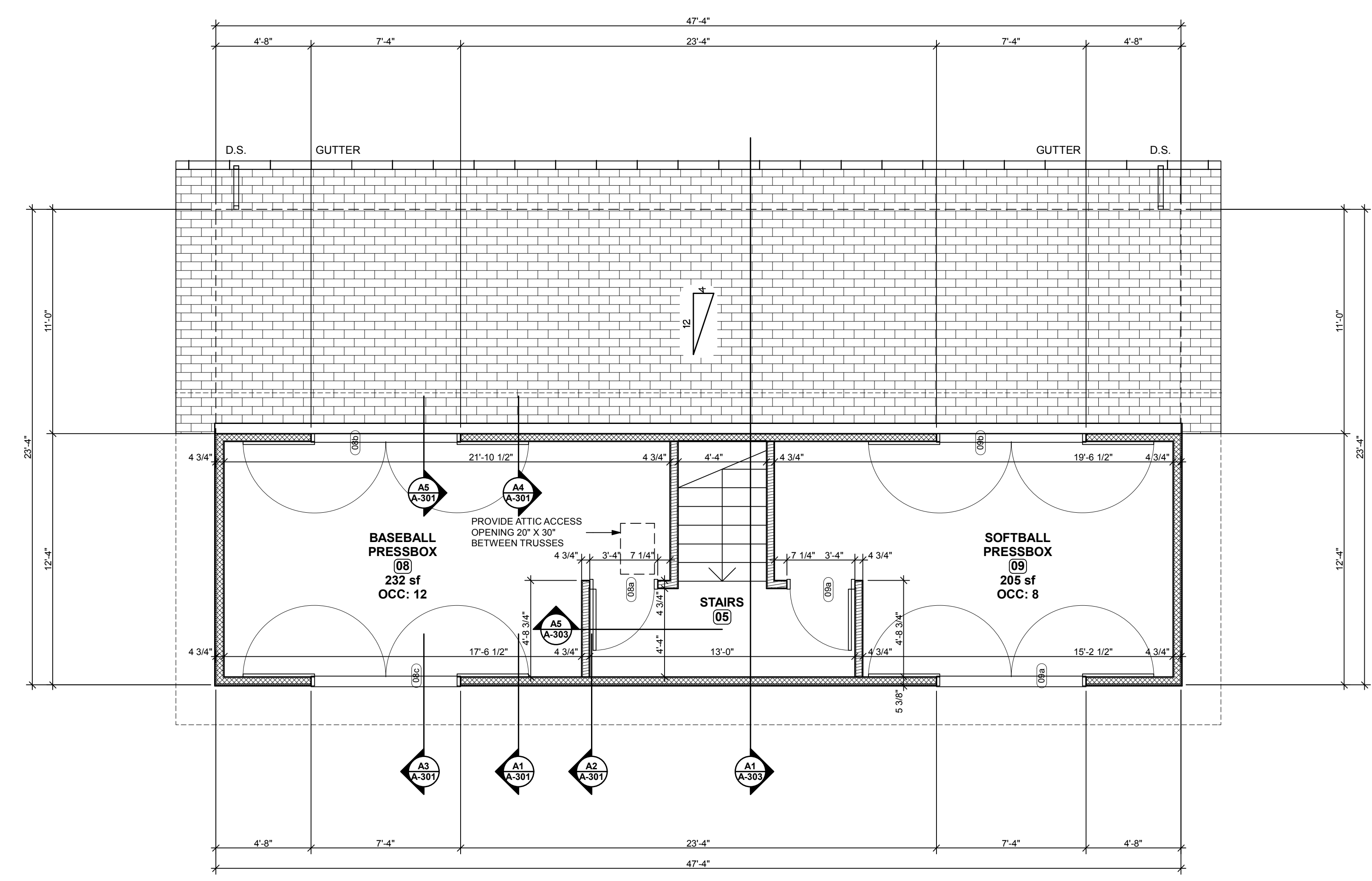
BULLNOSE ALL INTERIOR BLOCK OUTSIDE CORNERS



UPPER ROOF PLAN
SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"



SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"

SUBMITTED: 12/12/2012

REVISIONS		
MARK	DATE	DESCRIPTION
△		
△		
△		
△		

DRAWN BY: PROJ. MGR:

SHEET CONTENT

ARCHITECTURAL FLOOR PLANS
ROOF PLANS
ROOF FINISH SCHEDULE

JOB NO. 11-ED1-029A SHEET A-101

PRELIMINARY: NOT FOR CONSTRUCTION



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PH: 216-861-2020

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FOR

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SUBMITTED: 10/25/2017

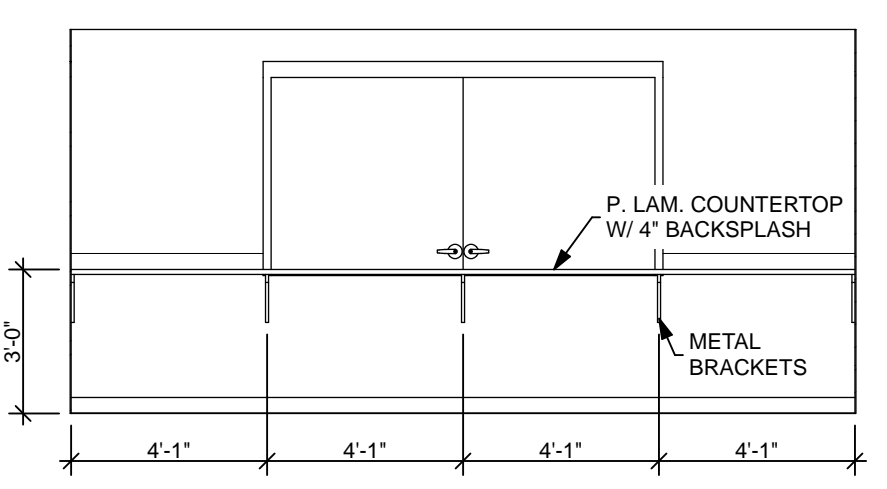
REVISIONS		
MARK	DATE	DESCRIPTION
△		
△		
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DRAWN BY: PROJ. MGR:

SHEET CONTENT

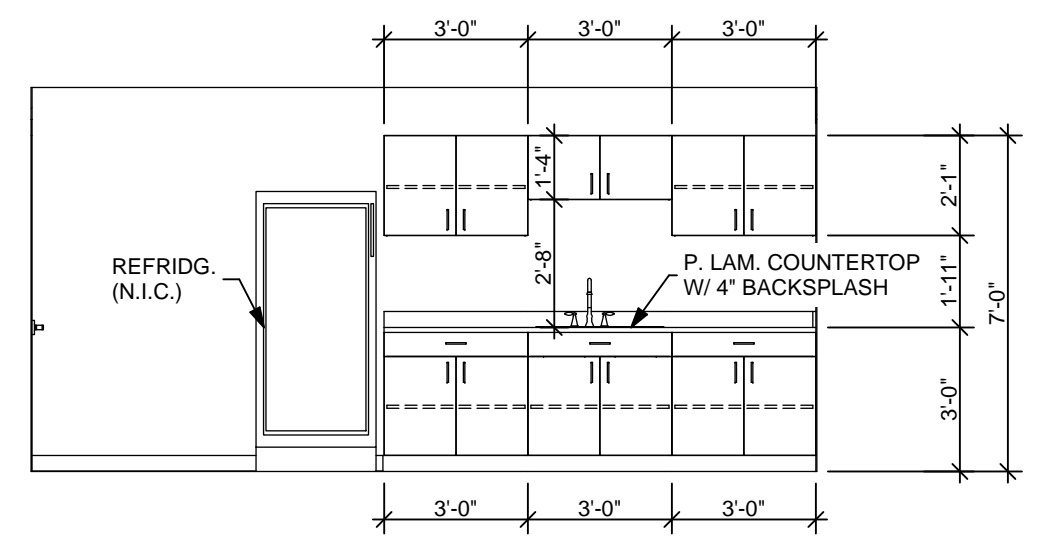
EQUIPMENT FLOOR PLANS
INTERIOR ELEVATIONS

JOB NO. 11-ED1-029A SHEET A-102



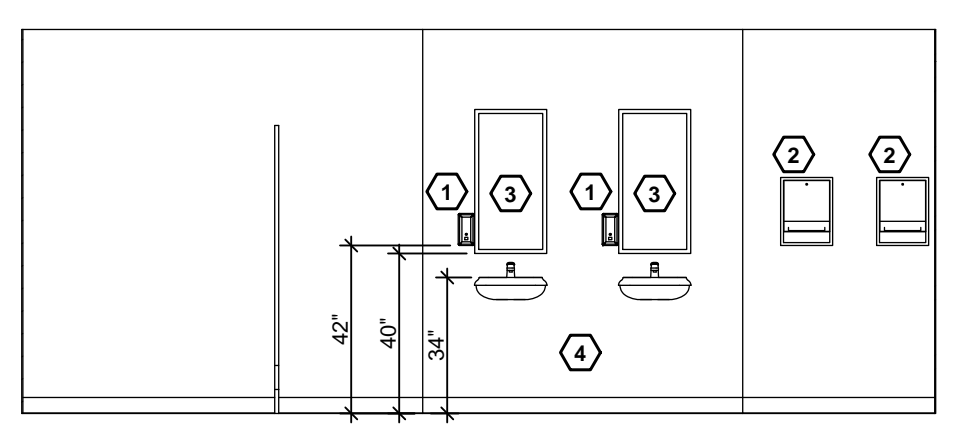
CONCESSION 01
(COUNTERTOP & BRACKETS BY OWNER)

E1
A-102 SCALE: 1/4" = 1'-0"



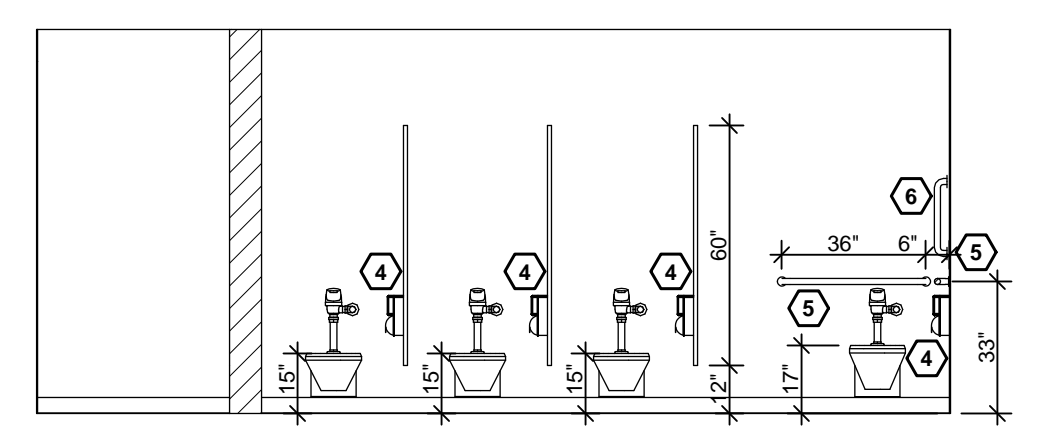
CONCESSION 01
CASEWORK, COUNTERTOP, & SINK BY OWNER

E2
A-102 SCALE: 1/4" = 1'-0"



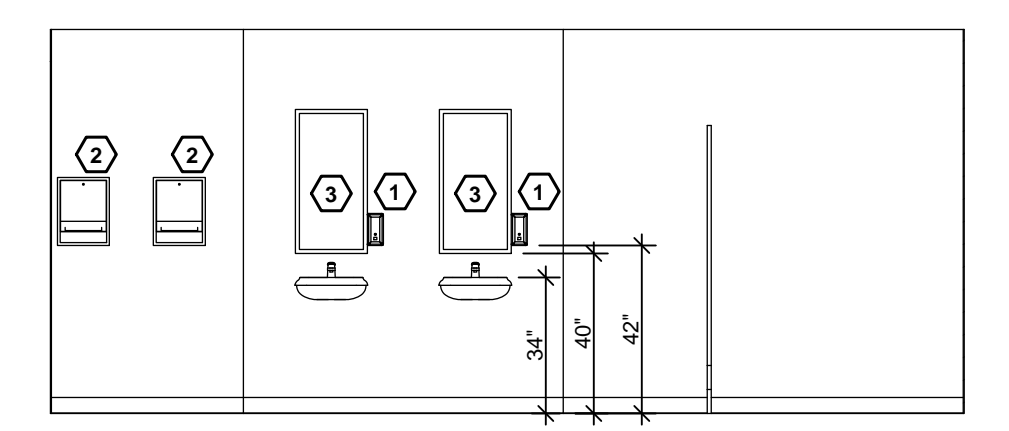
WOMEN 06

E3
A-102 SCALE: 1/4" = 1'-0"



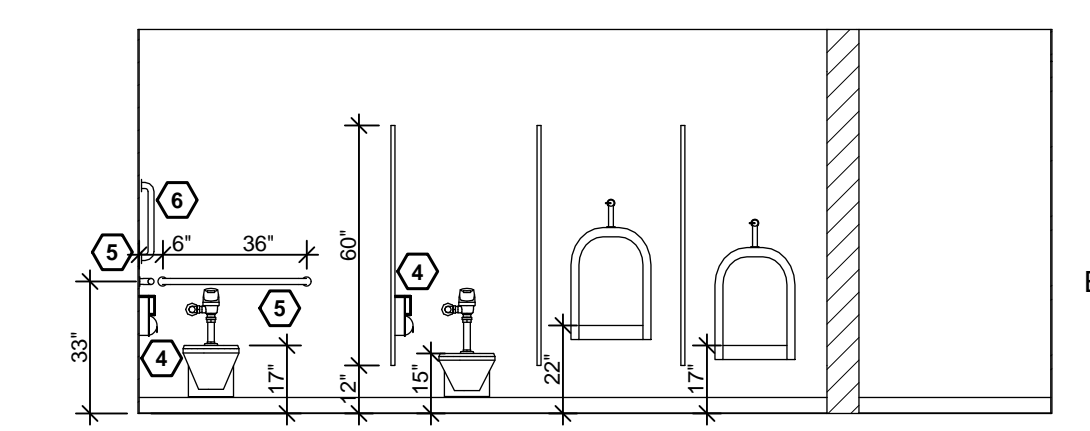
WOMEN 06

E4
A-102 SCALE: 1/4" = 1'-0"



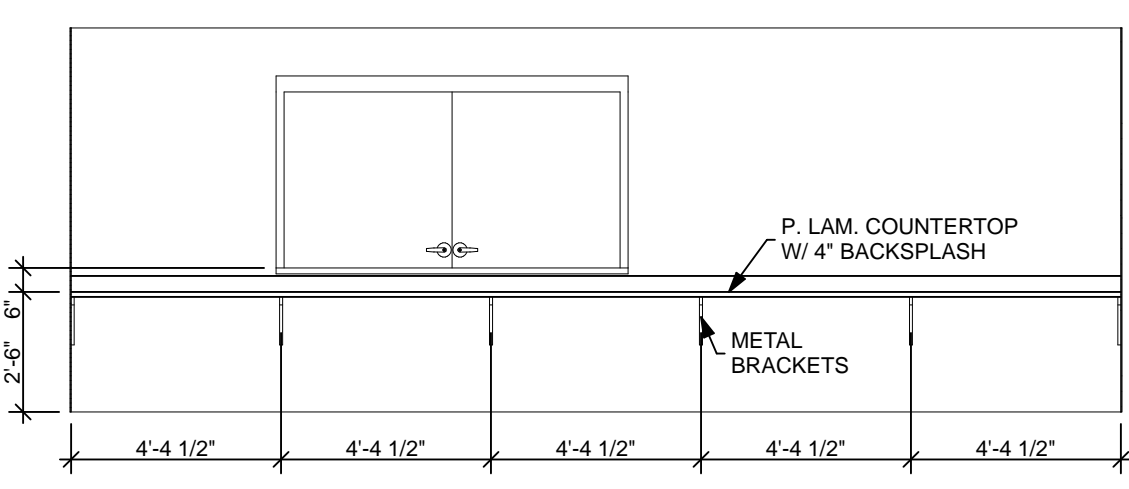
MEN 07

E5
A-102 SCALE: 1/4" = 1'-0"



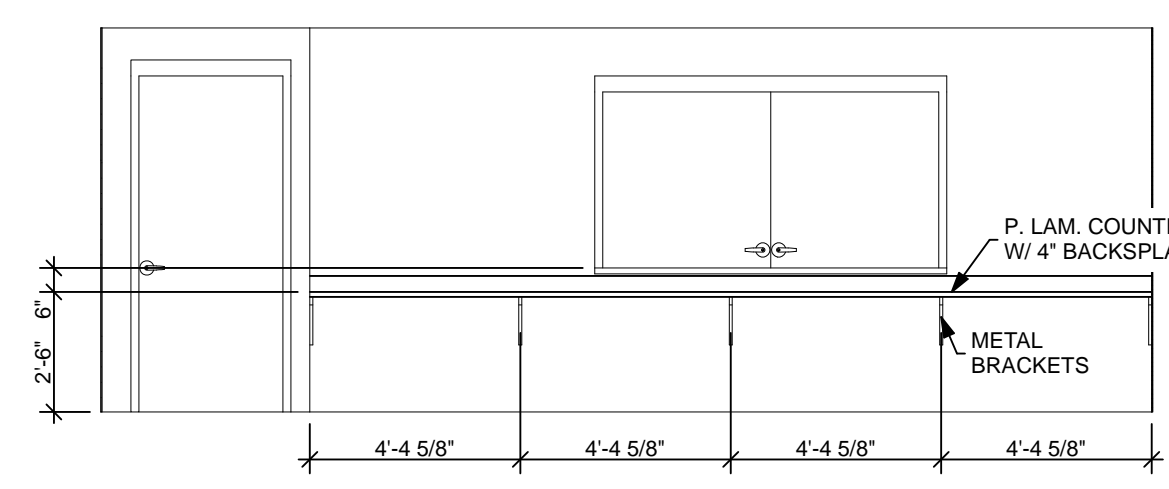
MEN 07

E6
A-102 SCALE: 1/4" = 1'-0"



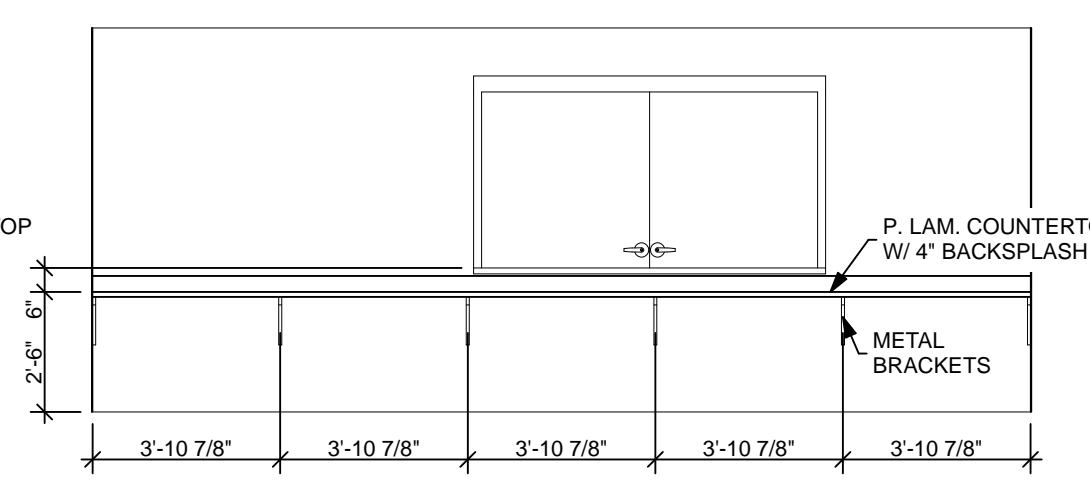
PRESSBOX 08

D1
A-102 SCALE: 1/4" = 1'-0"



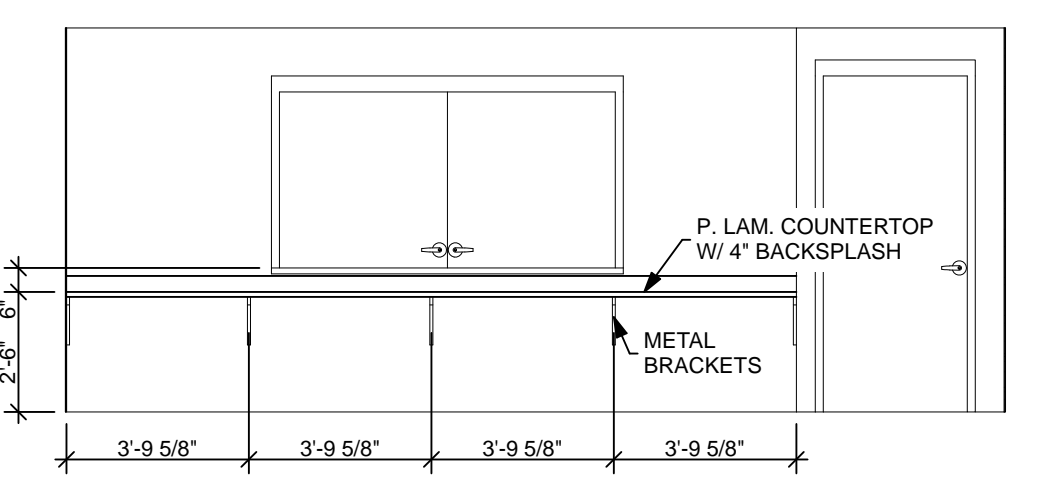
PRESSBOX 08

D2
A-102 SCALE: 1/4" = 1'-0"



PRESSBOX 09

D3
A-102 SCALE: 1/4" = 1'-0"



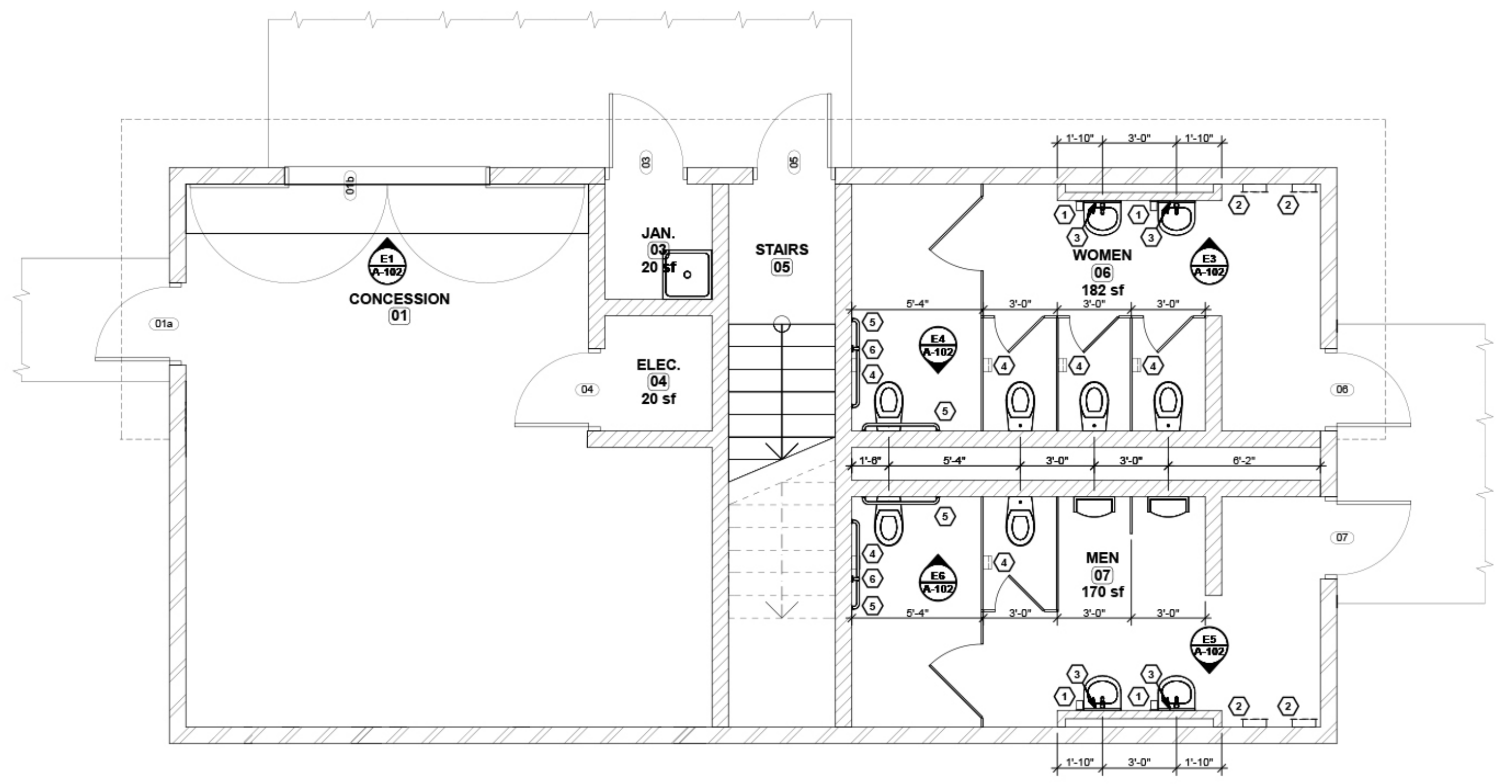
PRESSBOX 09

D4
A-102 SCALE: 1/4" = 1'-0"

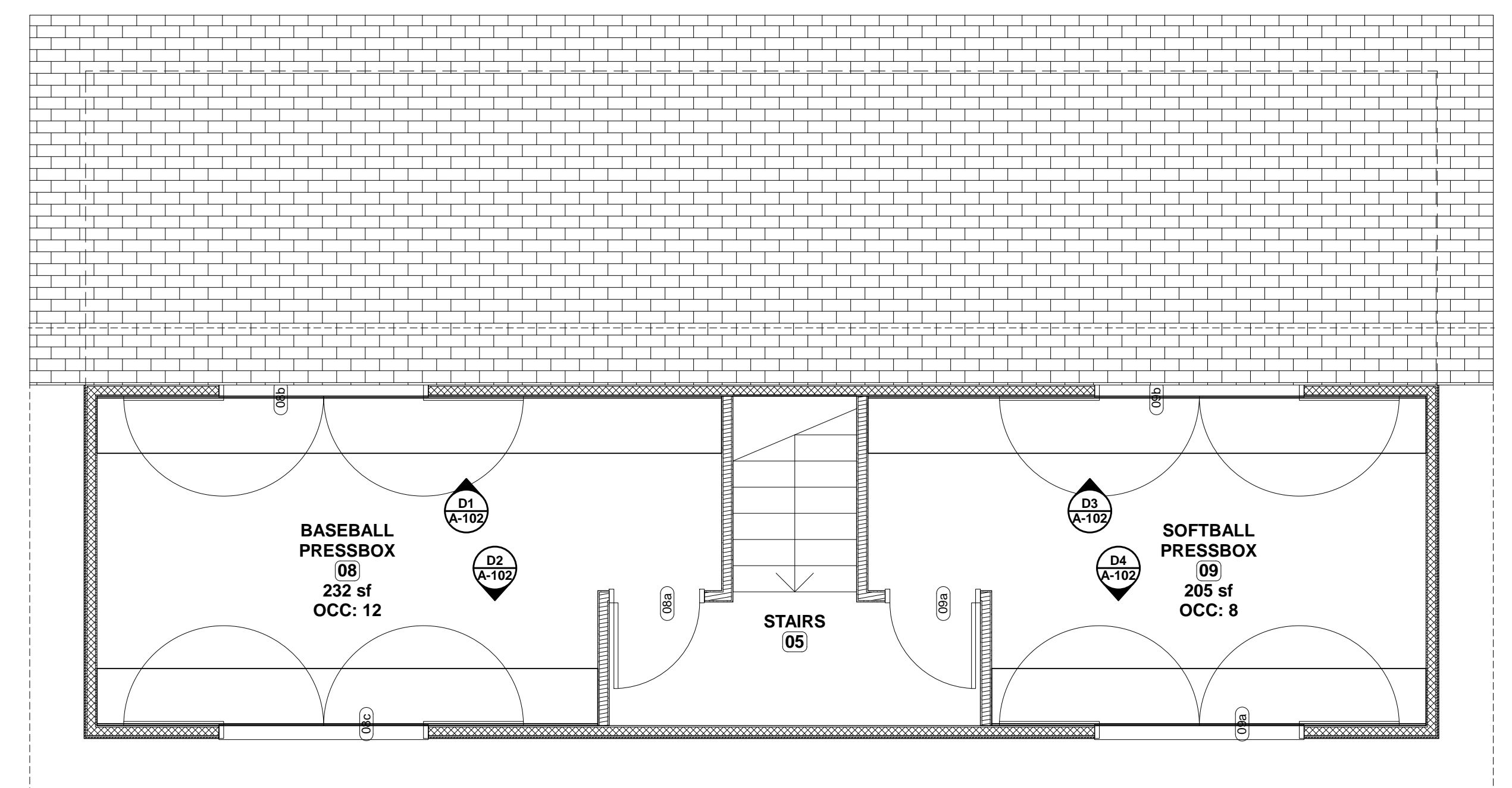
TOILET ACCESSORIES LEGEND

1. SOAP DISPENSER (BY OWNER)
2. PAPER TOWEL DISPENSER (BY OWNER)
3. MIRROR 18" X 36" (B-265)
MTG. HT. AS INDICATED
4. TOILET TISSUE DISPENSER (BY OWNER)
5. GRAB BARS (B-5806)
MTG. HT. 33" TO CENTER
6. GRAB BARS (B-5806-18")
MTG. HT. 40" TO CENTER OF LOW END
MOUNT 40" FROM BACK WALL OF STALL

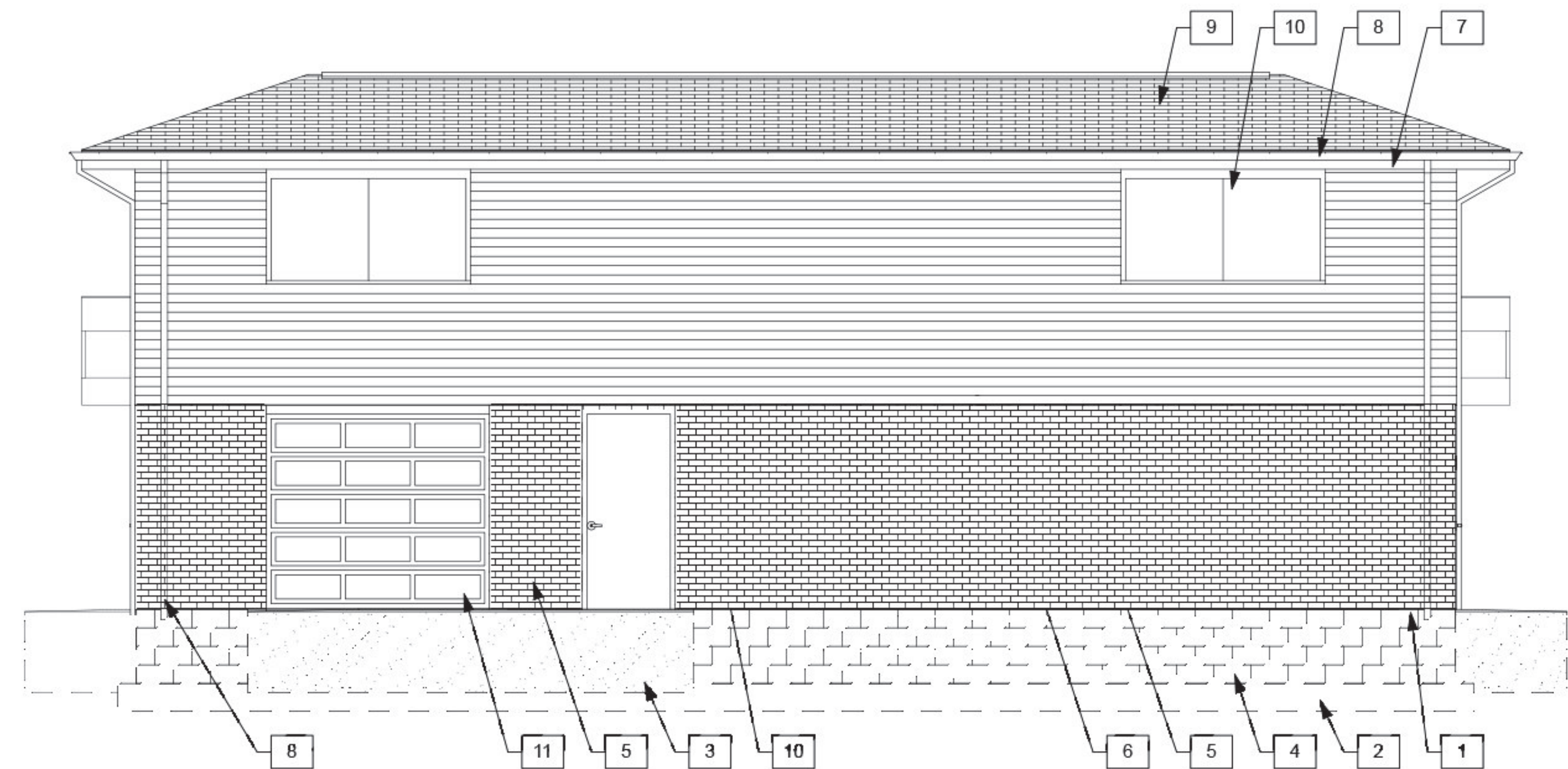
NOTE: ALL MODEL NUMBERS LISTED REFER TO BOBRICK WASHROOM EQUIPMENT BRAND NUMBERS UNLESS OTHERWISE NOTED



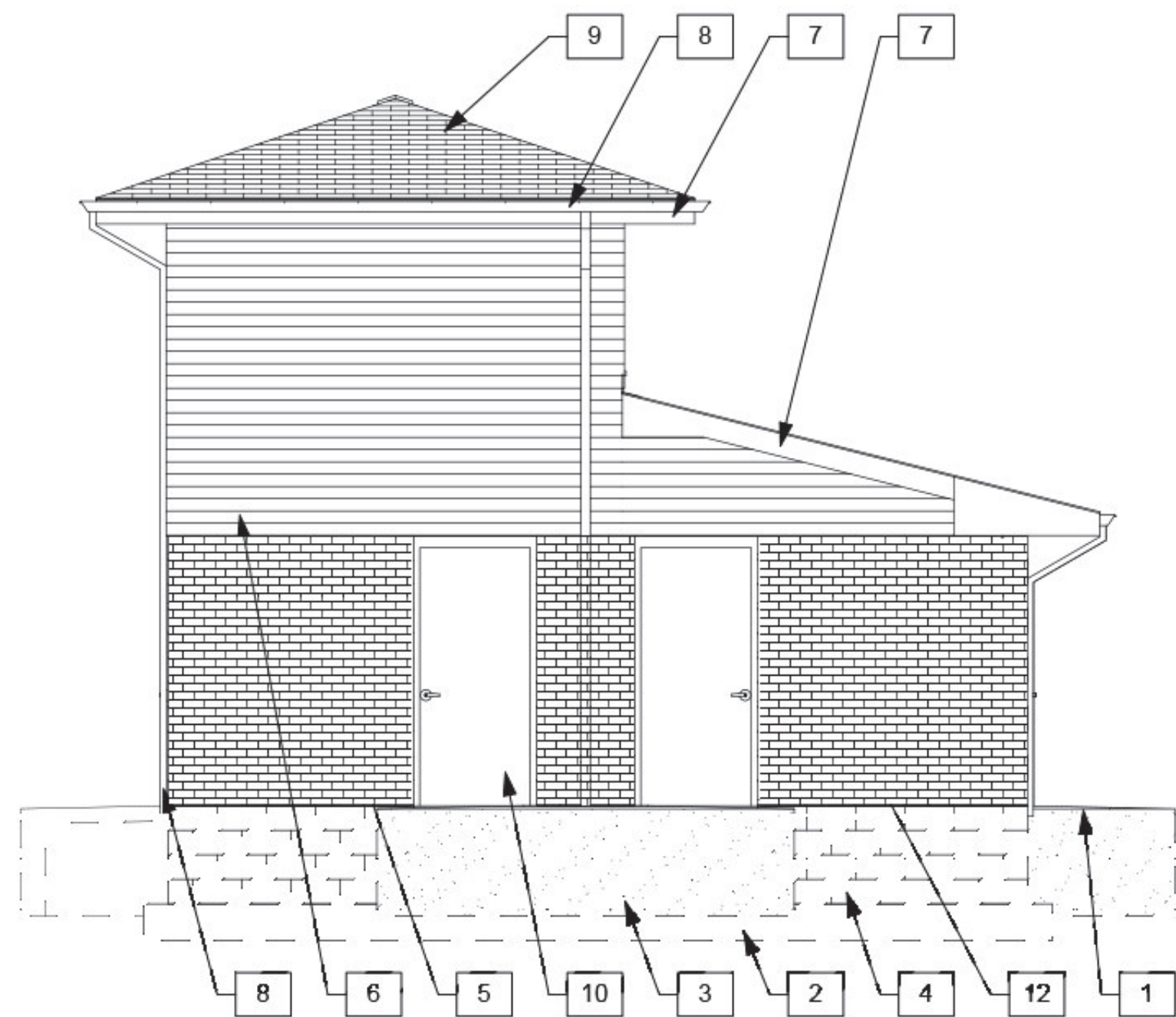
FIRST FLOOR EQUIPMENT PLAN
SCALE: 1/4" = 1'-0"



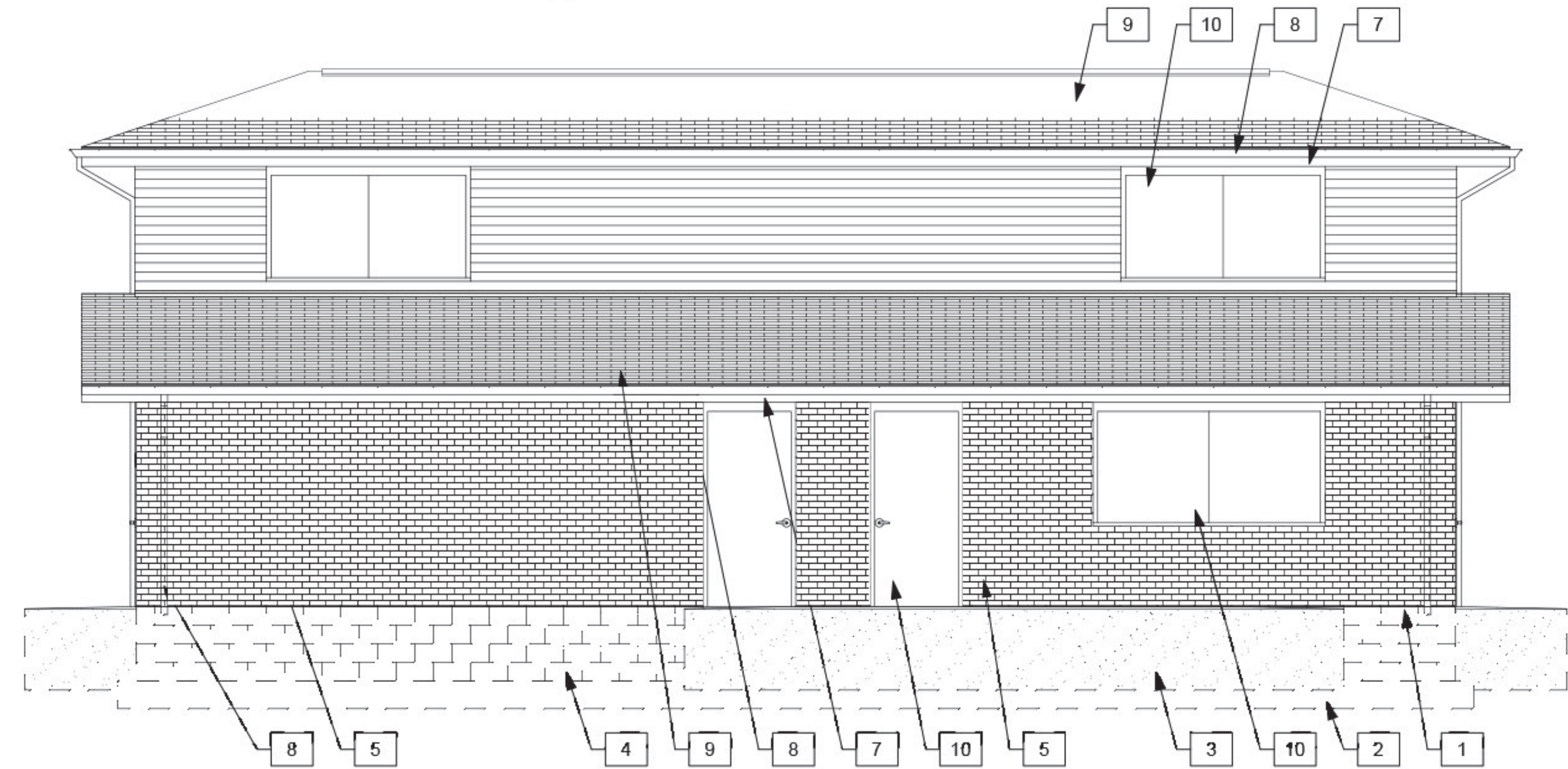
SECOND FLOOR EQUIPMENT PLAN
SCALE: 1/4" = 1'-0"



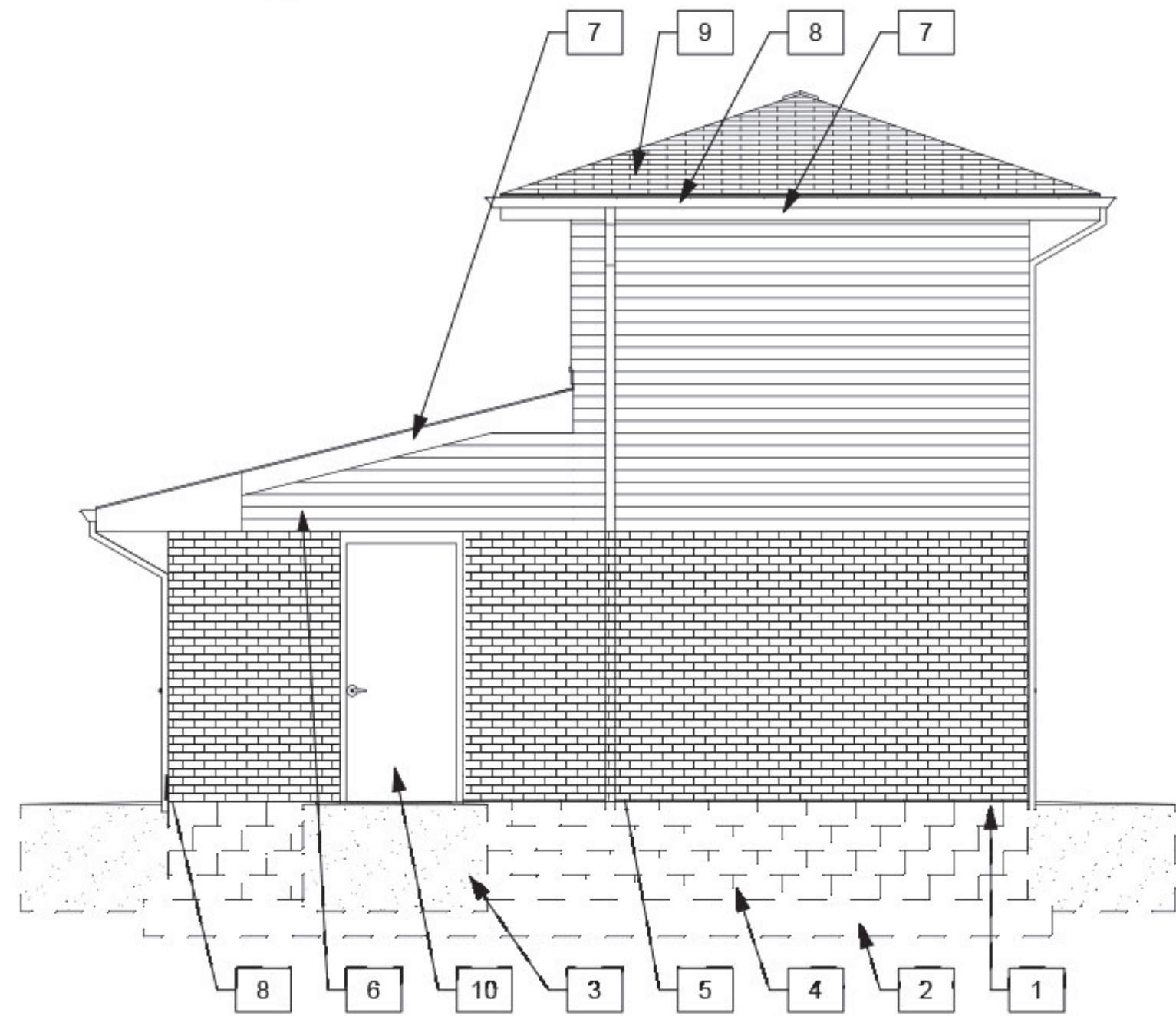
D1 EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



D4 EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



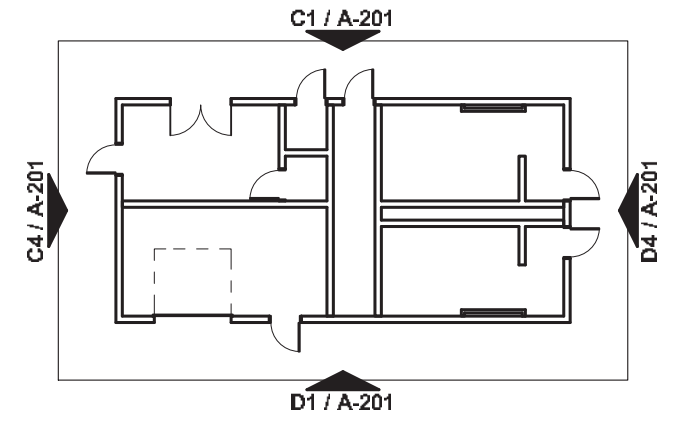
C1 EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



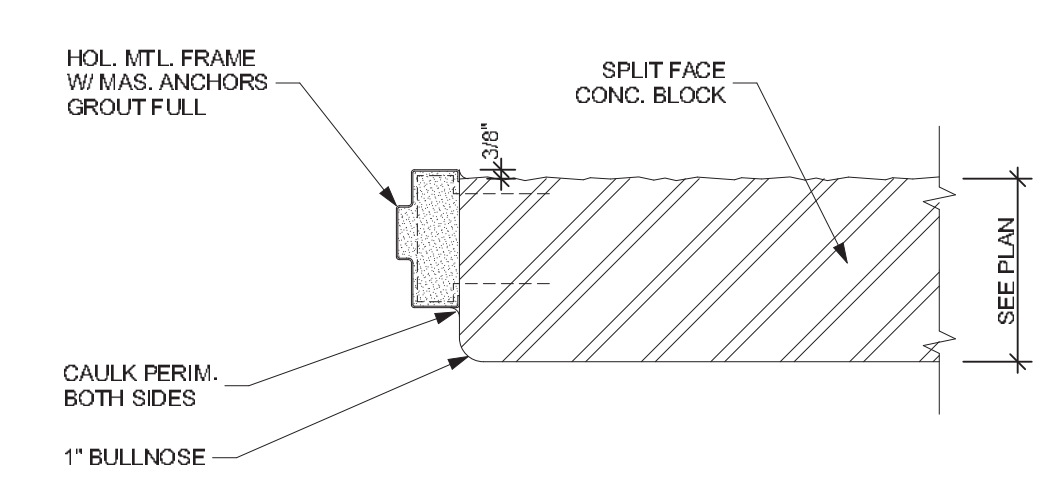
C4 EXTERIOR ELEVATION
SCALE: 1/4" = 1'-0"

EXTERIOR ELEVATIONS LEGEND

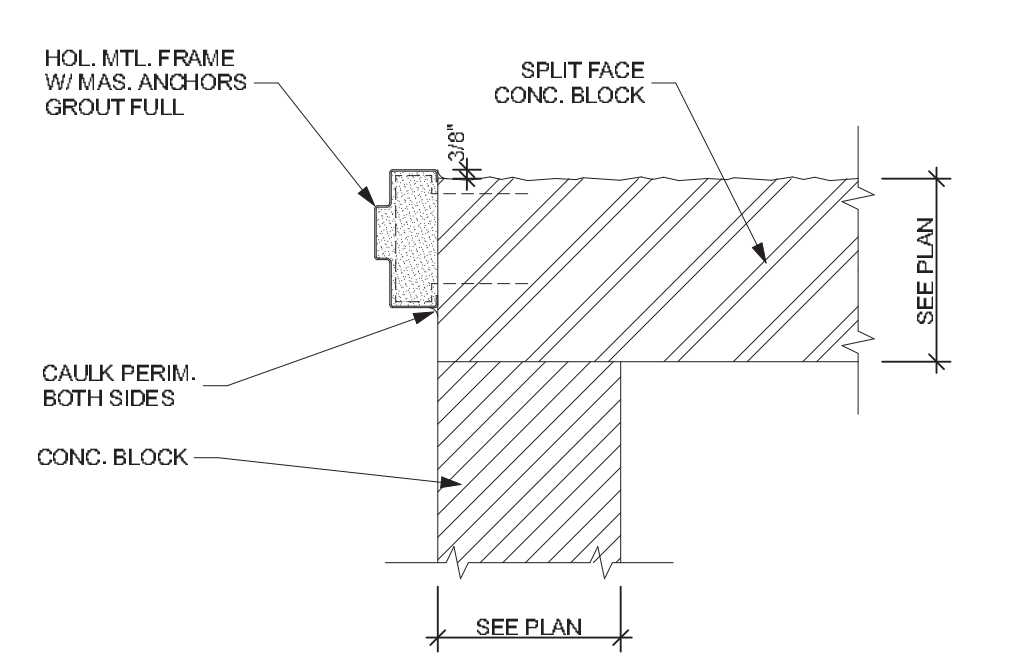
1. FINISH GRADE
2. REINFORCED CONCRETE FOOTING
3. REINFORCED CONCRETE FROST WALL
4. CONCRETE BLOCK (C.M.U.)
5. BRICK VENEER
6. EXTERIOR SIDING MATERIAL W/ TRIM AND ACCESSORIES
7. PREFIN. METAL FASCIA / SOFFIT CLOSURE
8. PREFIN. METAL GUTTER & DOWNSPOUT
9. ASPHALT SHINGLES W/ VENTED RIDGE
10. METAL DOOR AND FRAME
11. METAL SECTIONAL OVERHEAD DOOR PER MRF.
12. BUILDING SIGNAGE



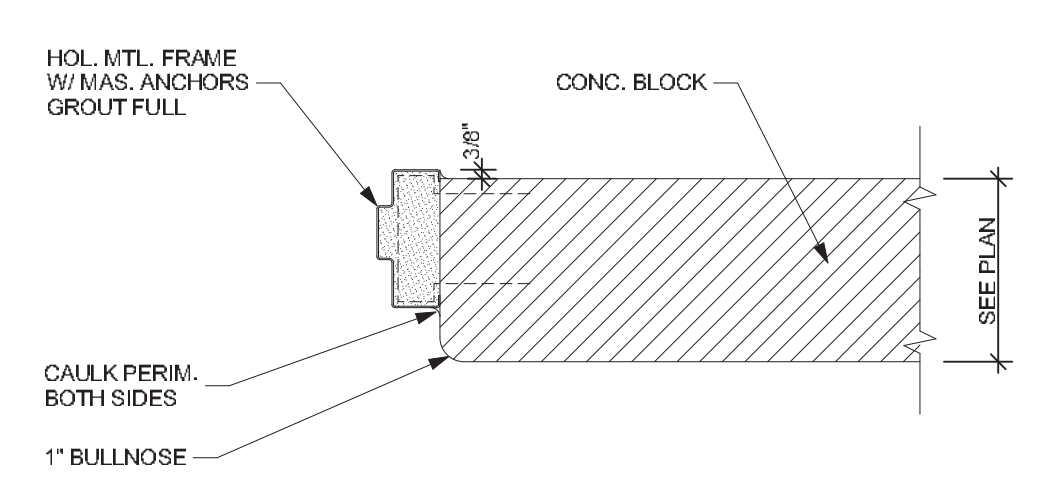
ELEVATION KEY PLAN
SCALE: 1" = 20'



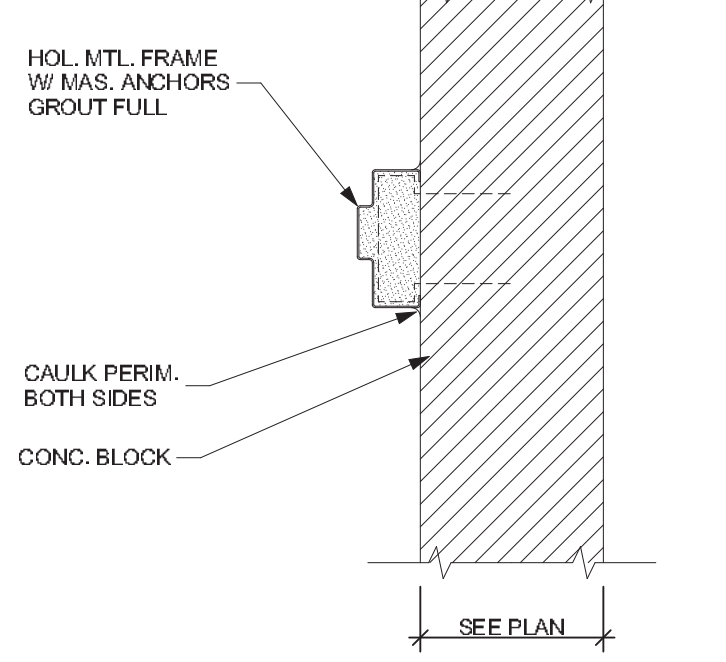
A JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



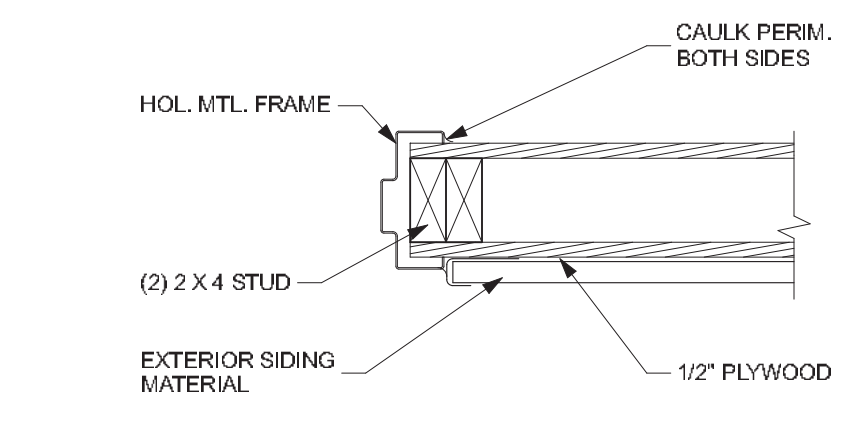
B JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



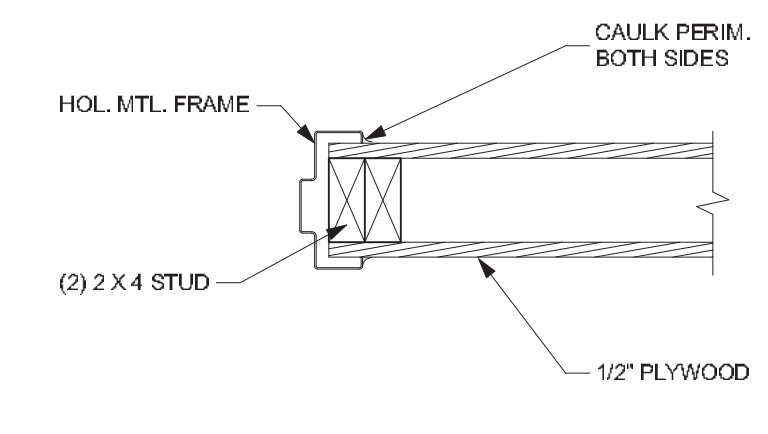
C JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



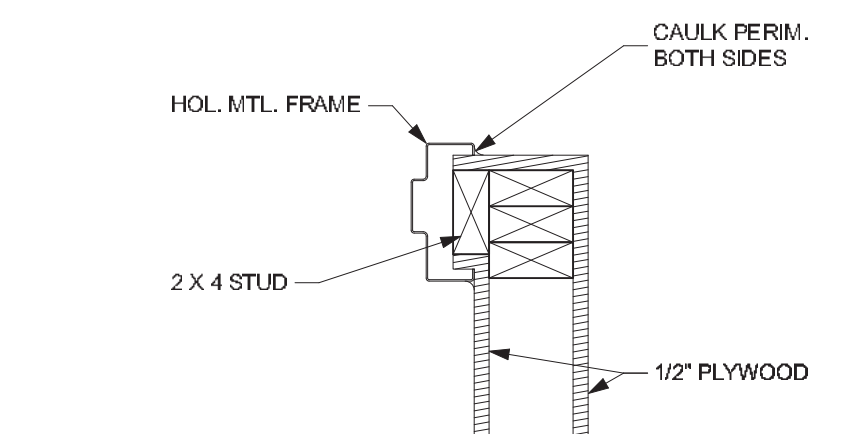
D JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



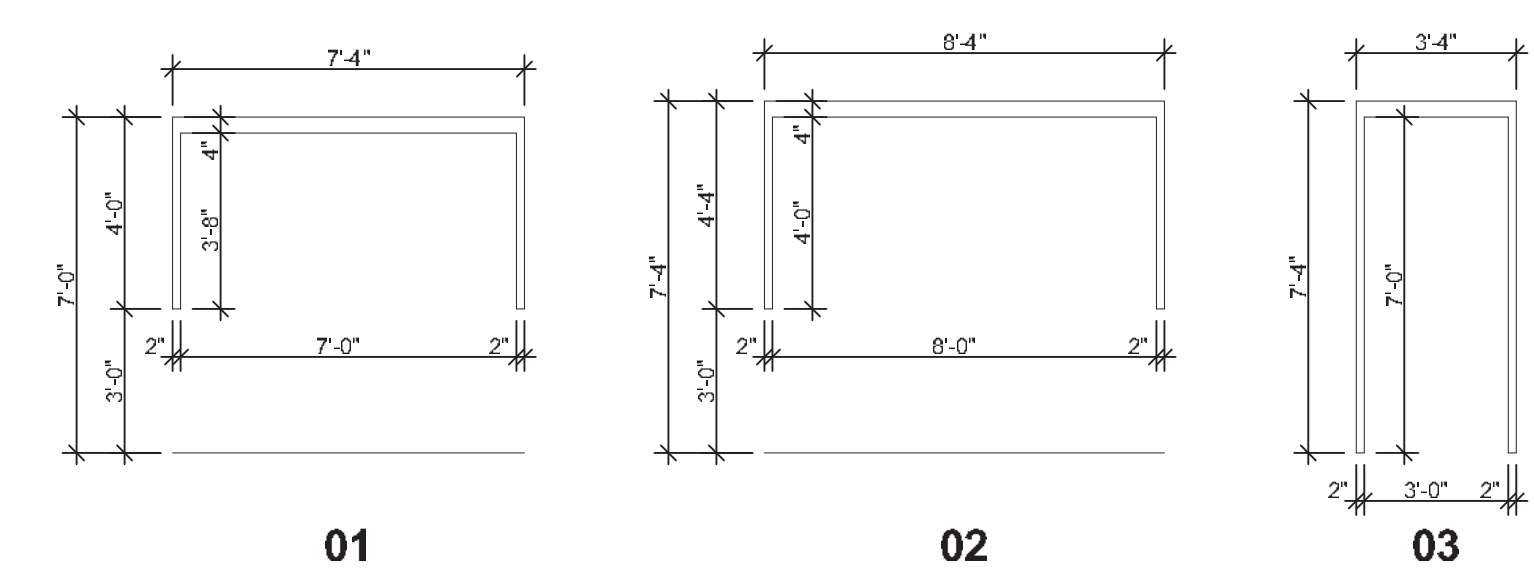
E JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



F JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



G JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



FRAME ELEVATIONS
SCALE: 1/4" = 1'-0"

DOOR AND FRAME SCHEDULE				
MARK	DOOR SIZE	FRAME	JAMB	NOTES / REMARKS
01a	3'-0" W X 7'-2" H X 1 3/4" T	03	A, A	
01b	4'-0" W X 4'-0" H X 1 3/4" T (PAIR)	02	A, A	
02a	3'-0" W X 7'-2" H X 1 3/4" T	03	A, A	
02b	8'-0" W X 7'-4" H X 1" T	-	-	SECTIONAL DOOR
03	3'-0" W X 7'-2" H X 1 3/4" T	03	A, B	
04	3'-0" W X 7'-2" H X 1 3/4" T	03	C, D	
05	3'-0" W X 7'-2" H X 1 3/4" T	03	A, B	
06	3'-0" W X 7'-2" H X 1 3/4" T	03	A, B	
07	3'-0" W X 7'-2" H X 1 3/4" T	03	A, B	
08a	3'-0" W X 7'-2" H X 1 3/4" T	03	F, G	
08b	3'-6" W X 3/8" H X 1 3/4" T (PAIR)	01	E, E	
08c	3'-6" W X 3/8" H X 1 3/4" T (PAIR)	01	E, E	
09a	3'-0" W X 7'-2" H X 1 3/4" T	03	F, G	
09a	3'-6" W X 3/8" H X 1 3/4" T (PAIR)	01	E, E	
09b	3'-6" W X 3/8" H X 1 3/4" T (PAIR)	01	E, E	



**ARCHITECTURE
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1300 E 9th St., Suite 1500
Cleveland, OH 44114
PH: 216-861-2020

**NEW PRESSBOX /
CONCESSION BUILDING**

FOR

**CLEARY
UNIVERSITY**

SUBMITTED: 10/25/2017

REVISIONS		
MARK	DATE	DESCRIPTION
△		
△		
△		
△		
△		

DRAWN BY: PROJ. MGR:

SHEET CONTENT

EXTERIOR ELEVATIONS
OPENING SCHEDULE & INFORMATION

JOB NO. 11-ED1-029A SHEET A-201

**IMPACT ASSESSMENT
FOR
“CLEARY UNIVERSITY ATHLETIC COMPLEX”
GENOA TOWNSHIP
LIVINGSTON COUNTY, MI**

Prepared for:

**UNIVERSITY HOUSING SOLUTIONS, LLC
c/o Mr. Alan Price
90 Hidden Ravines Drive
Powell, OH 43065**

Prepared by:

**BOSS ENGINEERING COMPANY
3121 E. GRAND RIVER
HOWELL, MICHIGAN 48843
517-546-4836
BE Project No. 17-393**

October 4, 2017

INTRODUCTION

The purpose of this Impact Assessment (IA) report is to show the effect that this proposed development has on various factors in the general vicinity of the project. The format used for presentation of this report conforms to the *Submittal Requirements For Impact Assessment/Impact Statement* guidelines in accordance with Section 13.05 of the published Zoning Ordinance for Genoa Township, Livingston County, Michigan.

DISCUSSION ITEMS

A. Name(s) and address(es) of person(s) responsible for preparation of the impact assessment and a brief statement of their qualifications.

Prepared By:
BOSS ENGINEERING COMPANY
3121 E. Grand River
Howell, Michigan 48843
Phone: 517-546-4836

Prepared For:
Mr. Alan Price
University Housing Solutions, LLC
90 Hidden Ravines Drive
Powell, OH 43065

B. Description of the site, including existing structures, man made facilities, and natural features, all-inclusive to within 10' of the property boundary.

The subject site is located on the south side of Grand River Avenue, north of Cleary Drive and east of Grand Oaks Drive. The site improvements are located on parts of 3 parcels all owned by Cleary University. The parcels include 4711-05-400-070, 4711-05-302-011, and 4711-05-302-004. Their associated acreages of each property affected are 23.11, 2.54 acres, and 1.51 acres. The properties are located in the Northwest ¼ of Section 5, T2N-R5E, Genoa Township, Livingston County, Michigan. The 3 parcels in question include a MUPUD (Mixed Use Planned Unit Development) zoning and IND (Industrial District).

A paved parking lot exists at the Wellness Center building at the southwest corner of the subject site on parcel 4711-05-302-011. The site is gently rolling and generally slopes from the Northeast to the West. Elevations vary between 1004.0± and 986.0±, respectively. Stormwater management for the site includes sheet flow drainage to multiple existing stormwater detention areas. There are two existing basins to the east of the proposed athletic fields as well as a basin just north of the Cleary University Wellness Center approach off of Grand Oaks Drive. The stormwater detention area to the east is equipped with an outlet control structure and an emergency spillway. The stormwater detention area at the site approach off of Grand Oaks Drive has an overflow to the ditch in the Right-Of-Way of Grand Oaks Drive which continues south toward a County Drain.

Existing on-site utilities include overhead wires that run north-south along the property line. Also included are accesses to underground gas, telephone, sanitary and water services. A 16" watermain is located on the north side of Cleary Drive, and is to be relocated as a part of the Cleary University Student Housing #2 project.

Adjacent properties include:
South – Office Building
North – Office Building & the old Swat Sports Building
East – Cleary University
West – Grand Oaks Ice Arena

C. Impact on natural features: A written description of the environmental characteristics of the site prior to development, i.e., topography, soils, vegetative cover, drainage, streams, creeks or ponds.

As previously mentioned, subject site is gently rolling and generally slopes from the Northeast to the West. Site elevations vary between 1004.0± and 986.0±. The USDA Soil Conservation Service "Soil Survey of Livingston County, Michigan", indicates native site soils consist of:

1. MIAMI LOAM (MoB), 2% to 6% slopes. Surface runoff is slow, permeability is moderate, and erosion hazard is slight.
2. MIAMI LOAM (MoC), 6% to 12% slopes. Surface runoff is medium, permeability is moderate, and erosion hazard is moderate.
3. MIAMI LOAM (MoD), 12% to 18% slopes. Surface runoff is rapid, permeability is moderate, and erosion hazard is severe.
4. MIAMI LOAM (MoE), 18% to 25% slopes. Surface runoff is rapid, permeability is moderate, and erosion hazard is severe.

Vegetative cover for the site includes lawn and low brush cover. There are areas currently occupied by tree growth and there is a small amount of existing landscaping on the site around the existing detention basin by Cleary Drive.

The National Wetland Inventory Plan prepared by the United States Department of the Interior, Fish and Wildlife Service indicates that there are no wetlands located on the site.

Site drainage from the proposed site will utilize swales. All site drainage will be directed into multiple existing catch basins on site and to the existing detention basins. The outlet of the existing detention basin alongside the northern part of Cleary Drive will maintain its outlet into the woodlands south of Cleary Drive. The existing detention basin north of the site approach on Grand Oaks Drive will overflow into the ditch in the Right-Of-Way of Grand Oaks Drive and travel south under Cleary Drive.

D. Impact on storm water management: description of soil erosion control measures during construction.

Surface runoff during periods of construction will be controlled by proper methods set forth by the Livingston County Drain Commissioner. These methods shall include silt fence, inlet sediment filters, and seeding with mulch and/or matting.

At the time of construction, there may be some temporary dust, noise, vibration and smoke, but these conditions will be of relatively short duration and shall be controlled by applying appropriate procedures to minimize the effects, such as watering if necessary for dust control.

E. Impact on surrounding land use: Description of proposed usage and other man-made facilities; how it conforms to existing and potential development patterns. Effects of added lighting, noise or air pollution which could negatively impact adjacent properties.

The applicant is proposing to construct a new athletic complex consisting of regulation size baseball field as well as a dual use soccer/lacrosse field. The property that the proposed baseball field is located is zoned MUPUD (Mixed Use Planned Unit Development) and the property that the proposed parking lot expansion is on is zoned IND (Industrial District); therefore, the proposed complex conforms to the existing and potential land development patterns in the area.

Proposed improvements will enhance current site conditions. There are minimal trees on site other than an existing tree line adjacent to the overhead powerlines that run north-south. There are no

significant natural site features. Site improvements planned with the athletic complex include establishment of lawn and landscaped areas. The landscaping meets the Genoa Township standards.

The layout was prepared taking into account the topography in order to balance the amount of earthwork required for the playing fields. Site drainage will be controlled via swales and storm sewers and will be restricted to predevelopment runoff rates. The existing detention basin along Grand Oaks Drive is to be expanded to accommodate any additional storm water being sent to it due to the additional parking lot. The detention basin immediately south of the water tower is to be filled in. The detention basin on the north side of Cleary Drive will be partially filled and converted into a forebay for the regional detention basin being constructed as a part of the Cleary University Student Housing #2 project.

Cleary Drive presently experiences a medium volume of traffic along with the associated noise level generated from commercial vehicles. It is anticipated the proposed athletic complex will cause no significant increase in traffic volume.

Hours of operation for the proposed athletic complex will be from 8:00am to 10:00 pm, Monday through Sunday. Practices are anticipated to be in the day and afternoon from approximately 300pm – 700pm while games will primarily be in the afternoons around 100 pm.

F. Impact on public facilities and services: Description of number of residents, employees, patrons, and impact on general services, i.e., schools, police, fire.

The proposed athletic complex will consist of a regulation size baseball field as well as a soccer/lacrosse field. There is no anticipated major change in the number of people using the Cleary University facilities. Practices that take place during the day are for Cleary University athletes only that will already be on campus, and games are typically during the day which will draw many people onto campus aside from the visiting team and family members. Normal police and fire protection services are anticipated.

G. Impact on public utilities: Description of public utilities serving the project, i.e., water, sanitary sewer, and storm drainage system. Expected flows projected in residential units.

There will be a concessions & bathroom facility as a part of this project that will require a water and sanitary service. The building is proposed in close proximity to both watermain and sanitary sewer main. Watermain is being relocated as a part of the Cleary University Student Housing #2 project.

Some existing storm water facilities (basins and storm sewers) are being removed and the storm water being redirected to a larger regional detention basin that is being constructed as a part of the Cleary University Student Housing #2 project. Storm water runoff will be restricted to predevelopment rates as required by the Livingston County Drain Commission.

H. Storage or handling of any hazardous materials: Description of any hazardous materials used, stored, or disposed of on-site.

Cleary University will not be storing or handling any hazardous materials.

I. Impact on traffic and pedestrians: Description of traffic volumes to be generated and their effect on the area.

Traffic will not be negatively affected. Practice times for the athletic facility are anticipated between 300pm to 700pm. The practices won't generate any additional traffic as the student athletes will be diverted from another portion of campus to the on-site athletic complex. Cleary University typically has 2 games per week which usually occur around 100pm. With the games being in the middle of the day, they will not draw many attendants from the community. Games will generate a minimal amount

of traffic due to the “Away” teams driving to the Cleary University campus. The minimal additional trips generated by “Away” teams visiting occur at off-peak times and will not have a negative impact on the traffic.

J. Special provisions: Deed restrictions, protective covenants, etc.

There are no special provisions for this development.

K. Description of all sources:

- Genoa Township Zoning Ordinance
- “Soil Survey of Livingston County, Michigan” Soil Conservation Services, U.S.D.A.
- National Wetlands Inventory, U.S. Department of Interior, Fish and Wildlife Service
- Cleary University Topographic Surveys (BE #04148 - April 2004) (BE #14-175 – July 2014)



November 8, 2017

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Article 7 Commercial and Service Districts – Draft Ordinance Amendment

Dear Commissioners:

At the Township’s request, we have prepared this letter summarizing changes currently proposed to Article 7 of the Township Zoning Ordinance.

Procedurally, the Commission is to review the draft amendments and, following a public hearing, provide a recommendation to the Township Board for final action.

The proposed changes started with an inquiry to Township staff regarding veterinary clinics and pet day care. Ultimately, staff and our office determined that an amendment was warranted to help clean up the regulations tied to not only veterinary clinics, but also other animal-related services/businesses. During preparation of the initial draft, we identified other minor changes (non-pet related) that were also incorporated.

As such, the following changes are proposed in the attached draft Ordinance amendment:

Table 7.02

- Added “kennel, commercial” as a special land use in RCD
- Added “pet day care center” as an allowable use (special land use in both GCD and RCD)
- Separated “veterinary hospital” (special land use in OSD, GCD and RCD) from “veterinary clinics without boarding or overnight care” (permitted use in OSD, NSD, GCD and RCD)
- Added “gaming establishments” to the description of “recreation (indoor)”
- Added “animal shelters” as a special land use in RCD

Section 7.02.02

- Paragraph (h): added use conditions for “commercial kennels”
- Paragraph (k): added hazardous materials use condition to “automobile service stations”
- Paragraph (o): added “overnight stays and/or boarding” to veterinary hospitals, along with expanded conditions
- Paragraph (t): expanded use conditions for “animal shelters”
- Paragraph (w): added use conditions applicable to “pet daycare centers”
- Paragraph (x): added use conditions applicable to “veterinary clinics”

Should you have any questions concerning this matter, please do not hesitate to contact our office. I can be reached by phone at (248) 586-0505, or via e-mail at borden@lslplanning.com.

Respectfully,
LSL PLANNING, A SAFEBUILT COMPANY

Brian V. Borden, AICP
Planning Manager

**ARTICLE 7
COMMERCIAL AND SERVICE DISTRICTS
(OSD, NSD, GCD, RCD)**

Sec. 7.01 STATEMENT OF PURPOSE

- 7.01.01 **Office Service District:** The Professional Office Service District (OSD) is established to accommodate office and services needed uses to serve nearby residential neighborhoods and the community overall. This district is also intended to serve as a transitional use to protect residential districts and to avoid undesirable commercial strip development. It is intended further that all activities in the Professional Office Service District shall be conducted entirely within wholly enclosed permanent buildings, except parking of employee and customer vehicles and the loading or unloading of commercial vehicles.
- 7.01.02 **Neighborhood Services District:** The Neighborhood Services District (NSD) is established to accommodate retail business and services to serve the needs of nearby residential neighborhoods. It is intended further that all activities in the Neighborhood Services District shall be conducted entirely within wholly enclosed permanent buildings, except parking of employees' and customers' vehicles and the loading or unloading of commercial vehicles and that all goods produced on the premises shall be sold in the premises where produced.
- 7.01.03 **General Commercial District:** The General Commercial District (GCD) is established to accommodate those retail businesses and services which are intended to serve the requirements of the overall community. The larger size and variety of permitted commercial uses typically generates greater volumes of traffic than neighborhood service establishments. General Commercial Uses require a moderate to large area devoted to off street parking and loading, and generally tend to create problems of congestion, noise and impairment of aesthetic values. These districts are thus intended to be clustered rather than creating an undesirable strip commercial pattern of development. Provisions are included in order to buffer this district from nearby residential areas.
- 7.01.04 **Regional Commercial District:** The Regional Commercial District (RCD) is established to accommodate those retail businesses and services which are intended to serve a retail market area that includes Genoa Township, the surrounding communities and bypass traffic. The large size and variety of permitted commercial uses typically generates significant volumes of vehicular and pedestrian traffic. Regional Commercial Uses require a large area devoted to off street parking and loading, and generally tend to create problems of congestion, noise and impairment of aesthetic values. These uses need to be located in areas that have the transportation, utility and public service infrastructure to serve these intensive uses. By the nature of these uses serving the region beyond Genoa Township, convenient access to regional transportation is necessary. This district is specifically designated for the regional commercial center designated in the Master Plan along Grand River Avenue west of Latson Road, which will be served by the new full service interchange with I-96 at Latson Road.
- 7.01.05 It is intended further that all activities in the OSD, NSD, GCD and RCD shall be conducted entirely within wholly enclosed permanent buildings, except parking of employees and customers vehicles and the loading or unloading of commercial vehicles, unless outdoor activities are approved as a Special Land Use under the provisions of Article 19.

Sec. 7.02 PERMITTED AND SPECIAL LAND USES

7.02.01 **List of Uses:** In the commercial districts, land, buildings and structures shall be used only for one or more of the following uses. Land and/or buildings in the districts indicated at the top of Table 7.02 may be used for the purposes denoted by a “P” in the column below by right. Land and/or buildings in the districts indicated at the top of Table 7.02 may be used for the purposes denoted by “S” after special land use approval in accordance with the general and specific standards of Article 19 Special Land Uses. A notation of “- -” indicates that the use is not permitted within the district. The “Req.” column indicates additional requirements or conditions applicable to the use.

Table 7.02 Schedule of Commercial Uses						
		OSD	NSD	GCD	RCD	Req.
Retail Uses						
Retail establishments and shopping centers which provide goods such as bakery goods, including bakery items produced on the premises, groceries, produce, meats, provided no slaughtering shall take place on the premises, seafood; dairy products, beverages appliances, electronics, furniture, and home furnishings, apparel, jewelry, art, pharmaceuticals, home improvement supplies, hardware, and garden supplies, sporting goods, bicycles, toys, hobby crafts, videos (rental, and sales), music, musical instruments, books, computer hardware and software, antiques, flower shops, greeting card shops, auto parts and similar establishments not specifically addressed elsewhere	Uses up to 15,000 square feet gross floor area	--	P	P	P	
	Uses 15,001 - 30,000 square feet of gross floor area	--	S	P	P	7.02.02(a)
	Uses 30,000 - 60,000 square feet of gross floor area	--	--	S	P	7.02.02(a)
	Uses over 60,000 square feet of gross floor area	--	--	--	S	7.02.02(a)
	Pharmacies with drive-up window	--	S	S	S	7.02.02(b)
Automobile, motorcycle, boat and recreational vehicle sales, new and used		--	--	S	S	7.02.02(c)
Outdoor commercial display, sales or storage		--	S	S	S	7.02.02(d)
Service Uses						
Banquet halls, assembly halls, dance halls, private clubs, fraternal order halls, lodge halls or other similar places of assembly		--	--	P	P	
Business services such as mailing, copying, data processing and retail office supplies		P	P	P	P	
Child care centers, preschool and commercial day care		P	P	P	--	7.02.02(e)
Conference Centers		S	--	S	P	7.02.02(f)
Funeral home or mortuary		S	--	P	--	7.02.02(g)
Bed and breakfast inns, hotels and motels with no more than 25 rooms not including accessory convention/meeting facilities or restaurants These uses may include the residence for the owner/manger's family		--	P	P	P	
Hotels and motels with more than 25 rooms including accessory convention/meeting facilities and restaurants		--	--	P	P	

Table 7.02 Schedule of Commercial Uses						
		OSD	NSD	GCD	RCD	Req.
Kennels, commercial		—	—	S	—	7.02.02(h)
Laundromats		--	S	P	--	
Personal and business service establishments, performing services on the premises, including: dry cleaning drop-off stations (without on site processing), photographic studios, copy centers, mailing centers, data processing centers, dressmakers and tailors, shoe repair shops, tanning salons, beauty parlors, barber shops, and similar establishments		P	P	P	P	
Dry cleaning drop-off stations with drive-through service		S	S	S	S	7.02.02(b)
Restaurants, taverns, bars, delicatessen, food carryout, coffee shops, and similar establishments serving food or beverages	Standard restaurants and coffee shops, except as provided below	S	P	P	P	
	Restaurants and bars serving alcoholic beverages	S	S	P	P	
	Bars providing dancing and live music	--	--	P	P	
	Restaurants with open front windows	--	S	S	S	7.02.02(i)
	Restaurants with outdoor seating	--	P	P	P	7.02.02(i)
	Drive-through restaurants	--	--	--	S	7.02.02(j)
	Drive- in restaurants	--	--	S	S	7.02.02(j)
	Carry-out restaurants	--	P	P	P	
	Coffee Shop with drive-through	--	--	S	S	7.02.02(j)
Studios of photographers and artists		P	P	P	P	
Tattoo parlors		--	--	P	P	
Tool and equipment rental, excluding vehicles		--	--	P	P	
Kennel, commercial				S	S	7.02.02(h)
Pet day care center				S	S	7.02.02(w)
Auto Service Uses						
Minor auto repair establishment		--	--	S	S	7.02.02(k)
Auto/gasoline service station		--	--	--	S	7.02.02(k)
Automobile wash, automatic or self serve		--	--	S	S	7.02.02(l)
Leasing and rental of automobiles, trucks and trailers		--	--	S	--	
Office Service and Medical Uses						
Adult day care facilities		S	--	S	--	
Banks, credit unions, savings and loan establishments and similar financial institutions	With up to 3 drive-through teller windows	P	S	P	P	7.02.02(m)
	With more than 3 drive-through teller windows	S	--	S	S	7.02.02(m)
	Stand alone automatic drive-up teller machines	--	S	S	S	
Hospitals		S	--	--	--	7.02.02(n)

Table 7.02 Schedule of Commercial Uses						
		OSD	NSD	GCD	RCD	Req.
Offices of non-profit professional, civic, social, political and religious organizations		P	P	P	--	
Medical urgent care facilities, medical centers and clinics		S	--	P	--	
Medical offices of doctors, dentists, optometrists, chiropractors, psychiatrists, psychologists and similar or allied professions, excluding clinics, and urgent care centers	Buildings up to 15,000 square feet of gross floor area	P	P	P	P	
	Buildings over 15,000 square feet of gross floor area	S	S	P	P	
Offices of lawyers, engineers, architects, insurance, and real estate agents, financial consultants, and brokers, advertising offices, accounting, and bookkeeping services, clerical, and stenographic services, sales offices, other types of executive, or administrative offices and similar or allied professions	Buildings up to 15,000 square feet of gross floor area	P	P	P	P	
	Buildings between 15,000 and 55,000 square feet of gross floor area	P	S	P	P	
	Buildings over 55,000 square feet of gross floor area	S	--	P	P	
Veterinary clinics, veterinary hospitals and related offices		S	--	S	S	7.02.02(o)
<u>Veterinary clinics without boarding or overnight care</u>		<u>P</u>	<u>P</u>	<u>P</u>	<u>P</u>	<u>7.02.02(x)</u>
Recreation						
Carnivals, fairs, commercial cider mills and amusement parks		--	--	S	--	7.02.02(p)
Leasing and rental of recreational equipment, including but not limited to boats, canoes, motor homes and jet skis, when accessory to a permitted use		--	S	--	--	
Marinas without boat storage or repair		--	S	--	--	
Motion picture theaters		--	--	P	P	
Public parks and open space		P	P	P	P	
Recreation (outdoor) commercial or private, recreation centers, including children's amusement parks, batting cages, and go-cart tracks		--	--	S	S	7.02.02(q)
Miniature golf courses and driving ranges		--	--	S	S	7.02.02(r)
Recreation (indoor) such as bowling alleys, skating rinks, arcades, <u>gaming establishments</u> , indoor golf or softball, indoor shooting/archery ranges		--	--	S	S	7.02.02(s)
Health clubs, fitness centers, gyms and aerobic clubs		S	S	P	P	
Education						
Commercial schools and studios for teaching photography, art, music, theater, dance, martial arts, ballet, etc		S	S	P	P	
Elementary schools, junior and senior high schools and colleges		P	--	--	--	
Dormitories or student apartments accessory to a college		S	--	--	--	
Vocational and technical training facilities		P	--	P	P	
Public/Institutional						

Table 7.02 Schedule of Commercial Uses					
	OSD	NSD	GCD	RCD	Req.
Animal Shelters	--	--	S	<u>S</u>	7.02.02(t)
Bus passenger stations	--	--	S	S	
Churches, temples and similar places of worship and related facilities	S	P	P		
Shelters and rehabilitation centers for philanthropic or non-profit institutions			S	S	7.02.02(u)
Essential public services and structures, not including buildings and storage yards	P	P	P	P	
Essential public buildings	--	--	P	--	
Public/government buildings such as; township/state/county offices, public museums, libraries and community centers	P	P	P	--	
Accessory Uses					
Temporary outdoor sales and Temporary outdoor events	--	P	P	P	7.02.02(v)
Accessory drive-through service not listed above	--	--	S	S	7.02.02(b)
Accessory uses, buildings and structures customarily incidental to any of the above	P	P	P	P	
Accessory fuel storage and use or storage of hazardous materials	--	--	S	S	13.07

(as amended 12/31/06, 3/5/10, ~~and~~ 6/2/14, and ?/?/?)

7.02.02 Use Conditions: Uses noted above shall only be allowed where the following requirements are complied with:

- (a) Shopping centers and home improvement centers over 15,000 square feet shall comply with the following requirements:
 - (1) The center shall have access to at least one County Primary Road or roadway with a right-of-way of at least eight six (86) feet.
 - (2) The design of the center shall ensure that vehicular circulation patterns will minimize conflicts between vehicles and pedestrians on-site,
 - (3) The impacts of traffic generated by the center on adjacent streets will be mitigated to ensure a level of service D, or maintenance of the current level of service if lower than D, along the site's frontage and nearest signalized intersections.
 - (4) Internal circulation shall be designed such that no intersection includes more than four aisles or drives.
 - (5) Site entrances shall be restricted to three-way movements, with unrestricted inbound movements.
 - (6) Internal drives defined by the ends of aisles shall have raised curbed islands at appropriate locations to define circulation paths and control movements through the parking lot.

- (7) Loading facilities which serve the commercial establishment in the principal building shall be screened from public view.
 - (8) Any building side facing a public street or residential district shall be constructed with brick, split face block or similar decorative material, unless a landscaped berm is approved by the Township.
 - (9) Any outlots shall have access, circulation and parking designed to complement the entire site.
- (b) Accessory drive-through service for uses other than restaurants and banks shall comply with the following requirements:
- (1) The drive-through facility must be attached to the structure.
 - (2) The drive-through service, including any lighting associated therewith shall be screened from adjacent residential land uses such that it will not impact the use and enjoyment of said residential land use.
 - (3) Clear identification and delineation between the drive-through facility and the parking lot shall be provided.
 - (4) Each drive-through facility shall provide an escape lane to allow other vehicles to pass those waiting to be served. The Planning Commission may waive the requirement for an escape lane where it can be demonstrated that such a waiver will not result in an adverse effect on public safety or the convenience of patrons of the facility.
 - (5) There shall be a minimum of three (3) stacking spaces.
 - (6) The drive-through facility shall be located on the side or rear elevation of the building to minimize visibility from the public or private roadway.
 - (7) The number of on-site directional signage shall be limited to two (2) signs meeting the area and location requirements of Article 16.
 - (8) The principal structure shall be setback a minimum of fifty (50) feet from all lot lines and the public right-of-way, unless a greater setback applies.
 - (9) When located in the NSD district, accessory drive-through service windows for pharmacies/drug stores shall be used only for prescription drug pick-up and drop-off. Only one drive-through service lane is permitted for each pharmacy or drug store structure in the NSD district. (as amended 12/31/06)
- (c) Automobile, motorcycle, boat and recreational vehicle sales, new and used shall comply with the following requirements:
- (1) Sale space for used mobile homes, recreational vehicles and boats may only be carried on in conjunction with a regularly authorized new mobile home, recreational vehicle or boat sales dealership on the same parcel of land.
 - (2) All outdoor storage areas shall be paved with a permanent, durable and dustless surface and shall be graded and drained to dispose storm water without negatively

impact adjacent property. The Township Board, following a recommendation of the Planning Commission and the Township Engineer, may approve a gravel surface for all or part of the display or storage area for low intensity activities, upon a finding that neighboring properties and the environment will not be negatively impacted.

- (3) No storage or display of vehicles shall be permitted in any landscape greenbelt area, provided the Township may permit a display pod for an automobile within the greenbelt area where it is integrated into the landscape design.
 - (4) The site shall include a building of at least five hundred (500) feet of gross floor area for office use in conjunction with the use.
 - (5) All loading and truck maneuvering shall be accommodated on-site.
 - (6) All outdoor storage area property lines adjacent to a residential district shall provide a buffer zone A as described in Section 12.02. A buffer zone B shall be provided on all other sides. The Planning Commission may approve a six (6) foot high screen wall or fence, or a four (4) foot high landscaped berm as an alternative.
- (d) Commercial Outdoor Display Sales or Storage including, but not limited to, sales or storage of: building/lumber supply, contractor's yards, garden/landscape supplies, nurseries, greenhouses, stone, farm implements, automobiles, trucks, recreational vehicles, mobile homes, boats, jet skis, mowing equipment, construction equipment and similar materials or equipment shall comply with the following requirements:
- (1) Minimum lot area shall be one (1) acre.
 - (2) Any stockpiles of soils, fertilizer or similar loosely packaged materials shall be sufficiently covered or contained to prevent dust or blowing of materials.
 - (3) All outdoor storage areas shall be paved with a permanent, durable and dustless surface and shall be graded and drained to dispose stormwater without negatively impact adjacent property. The Township Board, following a recommendation of the Planning Commission and the Township Engineer, may approve a gravel surface for all or part of the display or storage area for low intensity activities, upon a finding that neighboring properties and the environment will not be negatively impacted.
 - (4) No outdoor storage shall be permitted in any required yard (setback) of buildings for the district in which the commercial outdoor display, sales or storage use is located. Any approved outdoor sales or display within a parking lot shall meet the required parking lot setback; provided the Planning Commission may require additional landscaping screening or ornamental fencing.
 - (5) The site shall include a building of at least five hundred (500) feet of gross floor area for office use in conjunction with the use.
 - (6) All loading and truck maneuvering shall be accommodated on-site.
 - (7) All outdoor storage area property lines adjacent to a residential district shall provide a buffer zone A as described in Section 12.02. A buffer zone B shall be provided on all other sides. The Planning Commission may approve a six (6) foot high screen wall or fence, or a four (4) foot high landscaped berm as an alternative.

- (8) The height of all material and equipment stored in an outdoor storage area shall not exceed the height of any landscape screening, wall or fence. Boats and recreational vehicles may exceed the height of the fence provided that they are setback from the fence a distance equal to their height. Storage of materials up to the height of the adjacent building wall may be permitted in the rear yard if it is illustrated on the site plan, the rear yard does not abut a residential district, will not be visible from an expressway and such storage is confined to within twenty (20) feet of the building.
- (e) Child day care shall provide a minimum of fifty (50) square feet of indoor play area for each child cared for. There shall be one hundred (100) square feet of outdoor play area for each child that would be using the play area at any one given time, provided the minimum outdoor play area shall be no less than one thousand (1,000) square feet. The required play area shall be fenced.
- (f) Conference Centers shall comply with the following requirements:
 - (1) The site shall have direct access, via lot frontage or an improved road, to at least one paved arterial roadway (County Primary Road).
 - (2) The location, geometric design and throat depth of site access points, and overall internal site circulation, shall prevent unreasonable traffic congestion on public roadways. The level of service shall not be below "D" for any turning movements for any event. A traffic management program shall be submitted as part of the application.
 - (3) Building height shall not exceed thirty-five (35) feet but may be three (3) stories (i.e. a permitted exception from the maximum number of stories allowed for other buildings in the various zoning districts).
 - (4) Minimum floor area shall be ten thousand (10,000) square feet of usable conference rooms, meeting rooms, banquet rooms and pre-function space.
 - (5) Minimum building and outdoor use areas shall be setback at least one-hundred (100) feet from any property line of residentially zoned and/or seventy-five (75) feet from any other property line. Buffer zones shall be provided as required for "community commercial" uses in Section 12.02. The Planning Commission may reduce the required setbacks by up to fifty percent (50%) where more extensive landscaping or existing features provide an extensive screen.
 - (6) Parking setbacks shall be forty (40) feet in the front yard, twenty-five (25) feet for side and rear yards adjacent to residential uses, and ten (10) feet elsewhere.
 - (7) The proposed building(s) may provide atriums, lobbies, or other public gathering places.
 - (8) The accessory uses, specialty shops, and activity centers shall be customarily incidental to the primary components of the conference center.
 - (9) All uses, except for off-street parking or loading spaces and approved outdoor gathering places (such as courtyards, plazas, etc.) shall be conducted within a

completely enclosed building. Sales, display, and outdoor storage of any commodities or storage containers, vehicles or other uses shall be expressly prohibited.

- (10) In addition to other requirements, the Impact Assessment shall describe intended and anticipated number, type and frequency of events that may be expected at the proposed site including hours of operation. Include information about outdoor receptions and the location where they may be held.

(g) Funeral homes shall comply with the following requirements:

- (1) Minimum lot area shall be one (1) acre and minimum lot width shall be one hundred and fifty (150) feet.
- (2) An off-street vehicle assembly area shall be provided to be used in support of funeral processions and activities. This area shall be in addition to the required off-street parking and its related maneuvering area.

(h) Commercial kennels shall comply with the following requirements:

- (1) For kennels housing dogs, the minimum lot size shall be two (2) acres for the first four (4) dogs and an additional one-third (1/3) acre for each one (1) additional dog.
- (2) Buildings wherein dogs are kept, dog runs, and/or exercise areas shall not be located nearer than five hundred (500) feet to a residential use or property line, two hundred (200) feet from any adjacent principle building or unit, and shall be setback one hundred and fifty (150) feet to any lot line and/or road right-of-way.
- (3) Adequate odor control measures shall be implemented so that odor from inside or outside the center will not be discernible outside the building.
- (4) All kennels shall be operated in conformance with all applicable county and state regulations and operated by a licensed operator.
- (5) Any dog and food waste shall be properly and lawfully disposed of to not create a litter, insect, rodent, vermin or offensive odor nuisance. Approval from the Utility Authority and Health Department shall be provided as part of the special use application.
- (6) The applicant may be required to post a financial guarantee, the amount of which to be determined by the Township board, before a permit is granted or renewed.
- (7) The application shall include a floor plan for the facility that indicates noise insulation measures.
- (8) All enclosures for breeding, rearing, shelter, or other uses in connection with harboring of animals, shall be hard surfaces and provided with proper drains for washing with water pressure.
- (9) Such facilities shall be subject to other conditions and requirements necessary to ensure against the occurrence of any possible nuisance (i.e., fencing, sound-proofing, sanitary requirements).

(10) Applicants shall submit, at the time of special land use application, a proposed site plan and floor plan and written operating procedures including waste and noise management methods, such as those recommended by the American Boarding and Kennel Association (ABKA) or American Kennel Club (AKC). These procedures shall be followed for the duration of the business and shall be designed to prevent or control animal behavior that may adversely impact surrounding uses, including loud or excessive barking.

~~Building wherein dogs are kept, dog runs, and/or exercise areas shall not be located nearer than one hundred and fifty (150) feet to any lot line and two hundred (200) feet from the road right-of-way.~~

~~(3) Such facilities shall be subject to other conditions and requirements necessary to ensure against the occurrence of any possible nuisance (i.e., fencing, sound proofing, sanitary requirements).~~

~~(4) All enclosures for breeding, rearing, shelter, or other uses in connection with harboring of animals, shall be hard surfaces and provided with proper drains for washing with water pressure.~~

~~(116) All animals shall be kept indoors between the hours of 10:00 PM and 68:00 AM. (as amended (??/?))~~

(i) Open front restaurant (window service) and restaurants with outdoor seating shall comply with the following requirements:

(1) All trash containers shall be provided outside. Both recycle bins and trash receptacles shall be provided.

(2) For open front restaurants with window service, all signs for an open front window placed on the building shall be flat; and interior signs visible to patrons through glass or an opening shall not exceed twenty-five percent (25%) of that area.

(3) Additional parking shall be provided for outdoor seating and standing areas.

(4) Outdoor noise shall not be greater than that commonly associated with a restaurant. The Township Board may place restriction on outdoor speakers or hours of operation to control the noise.

(5) The Zoning Administrator shall approve a land use permit for any outdoor seating including a sketch plan illustrating seating areas, enclosures/railings, sufficient off-street parking and lighting. (as amended 12/31/06)

(j) Restaurants or coffee shops with drive-in or drive-through facilities shall comply with the following requirements:

(1) Principal and accessory buildings shall be setback fifty (50) feet from any adjacent public right of way line or property line.

(2) The establishment of a new drive-through restaurant shall require the lot be separated a minimum of five hundred (500) feet from any other lot containing a drive-through restaurant.

- (3) Only one (1) access shall be provided onto any street.
 - (4) Such restaurants constructed adjacent to other commercial developments shall have a direct vehicular access connection where possible. (as amended 3/5/10)
- (k) Automobile service stations and maintenance establishments (including those accessory to another use) shall comply with the following requirements:
- (1) There shall be a minimum lot area of one (1) acre and minimum lot frontage of two hundred fifty (250) feet.
 - (2) Pump islands shall be a minimum of twenty (20) feet from any public right of way or lot line, and at least forty (40) feet from any residential lot line.
 - (3) Access driveways shall meet the standards of Article 15; turning movements may be restricted in consideration of traffic conditions. Only one driveway shall be permitted from each street unless the Planning Commission determines additional driveways will be consistent with the purpose of Article 15.
 - (4) Where adjoining residentially zoned or used property, a solid fence or wall six (6) feet in height shall be erected along any common lot line. Such fence or wall shall be continuously maintained in good condition. The Planning Commission may approve a landscaped berm as an alternative.
 - (5) All repair work shall be conducted completely within an enclosed building. Garage doors shall not face any public roadway except as approved by the Planning Commission under the following circumstances:
 - a. For through garages where doors are provided on the front and rear of the building;
 - b. Garages located on corner or through lots; and,
 - c. Were the Planning Commission determines that a rear garage would have a negative impact on an abutting residential district.

Under these circumstances the Planning Commission may require additional landscape screening above and beyond what is required for street frontage landscaping.
 - (6) There shall be no outdoor storage or display of vehicle components and parts, supplies, or equipment or other merchandise, except within an area defined on the site plan approved by the Planning Commission and which extends no more than ten (10) feet beyond the building.
 - (7) Storage of wrecked, partially dismantled, or other derelict vehicles is prohibited, unless such storage is required under police or court order. Vehicles shall not be stored outdoors for more than seven (7) days in any thirty (30) day period.
 - (8) Storage of gasoline shall be at least four hundred (400) feet from churches, schools or similar public/quasi public places of assembly.

- (9) Below ground fuel storage tanks shall be at least two thousand (2000) feet from any drinking water well serving two or more residential units.
 - (10) The design and materials of the canopy shall be compatible with the main building. The proposed clearance of any canopy shall be noted on the site plan. Any signs, logo or identifying paint scheme on the canopy shall be reviewed by the Planning Commission and considered part of the maximum wall sign permitted. Details on the canopy lighting shall be provided to ensure there is no glare on the public streets or adjacent property, and that lighting levels are in accordance with Section 12.03. Canopy lighting shall be recessed such that the light source cannot be seen from off site.
 - (11) The applicant shall submit a Pollution Incidence Protection Plan (PIPP) as part of the Impact Assessment. The PIPP shall describe measures to prevent groundwater contamination caused by accidental gasoline spills or leakage, such as: special check valves, drain back catch basins and automatic shut off valves.
 - (12) In the event that an automobile service station use has been abandoned or terminated for a period of more than one (1) year, all underground gasoline storage tanks shall be removed from the premises.
 - (13) The establishment of a new automobile service station shall require the lot to be separated a minimum of five hundred (500) feet from any other lot containing an existing automobile service station.
 - (14) Automobile service stations and maintenance establishments shall comply to the requirements of Section 13.07, Hazardous Materials and Fuel Storage. (as amended (?!/?))
- (1) Automobile washes, automatic or self-service, shall comply with the following requirements:
- (1) Only one (1) ingress/egress driveway shall be permitted on any single street.
 - (2) Where adjoining a residential district, a solid fence or wall six (6) feet in height shall be erected along any common lot line. Such fence or wall shall be continuously maintained in good condition. The Planning Commission may require landscaping, including a berm, as an alternative.
 - (3) All washing facilities shall be within a completely enclosed building.
 - (4) Vacuuming and drying may be located outside the building, but shall not be in the required front yard and shall be set back at least fifty (50) feet from any residential district.
 - (5) All cars required to wait for access to the facilities shall be provided stacking spaces fully off the street right-of-way which does not conflict with vehicle maneuvering areas to access gasoline pumps or vacuums, and as required Article 14, Parking and Loading-Unloading Standards.

- (m) Banks, credit unions, savings and loan institutions with drive-through facilities shall only be permitted one (1) ingress/egress driveway, or one (1) pair of one-way driveways along any street.
- (n) Hospitals shall comply with the following requirements:
 - (1) Building shall not exceed a height of four (4) stories.
 - (2) Minimum site size shall be twenty (20) acres.
 - (3) The proposed site shall have at least one property line abutting a primary road as classified by the Livingston County Road Commission, or along a roadway with a right-of-way of at least eight six (86) feet.
 - (4) Front, side and rear yard minimum setback shall be fifty (50) feet.
 - (5) Parking setback shall be forty (40) feet in the front yard, twenty (20) feet for side and rear yards.
 - (6) Emergency room, ambulance and delivery areas shall be screened from public view with an obscuring wall and/or landscaping a minimum of six (6) feet in height.
 - (7) Auxiliary uses, such as a pharmacy, gift shop, cafeteria, medical office buildings with required parking and similar customary hospital related uses shall be allowed.
- (o) Veterinary hospitals which include overnight stays and/or boarding of animals shall comply with the following requirements:
 - (1) The principal accessory building or structure shall be setback seventy five (75) feet from the front property line and fifty (50) feet from all other property lines.
 - (2) All principal use activities shall be conducted within a totally enclosed principal building.
 - (3) Applicants shall submit, at the time of special land use application, a proposed site plan and floor plan and written operating procedures including waste and noise management methods, such as those recommended by the American Boarding and Kennel Association (ABKA) or American Kennel Club (AKC). These procedures shall be followed for the duration of the business and shall be designed to prevent or control animal behavior that may adversely impact surrounding uses, including loud or excessive barking.
(as amended (?!/?))
- (p) Carnivals, fairs, commercial cider mills and amusement parks shall comply with the following requirements:
 - (1) Minimum lot size shall be ten (10) acres.
 - (2) A site plan shall be provided clearly defining activity areas using fences, buildings, walkways or other suitable barriers.

- (3) All buildings, structures and parking shall be at least three hundred (300) feet from any dwelling unit excluding any dwelling unit on the site.
 - (4) The Township Board may require placement of a six (6) foot high fence around all or part of the site.
 - (5) Access shall be provided onto a primary road, as designated by the Livingston County Road Commission. Access shall be controlled, with capability to accommodate at least three (3) lanes of ingress traffic. At least three hundred (300) feet on stacking (queuing) area shall be provided on site before parking fee collection.
 - (6) The amount of on-site parking shall be deemed sufficient.
 - (7) Maximum coverage by buildings and structures shall be twenty percent (20%).
 - (8) The Township Board may require posting of a performance bond or other form of financial guarantee. The bond shall be in an amount determined by the Board as necessary to cover any potential damage or clean-up on the site or adjacent properties.
 - (9) The Township Board may establish limits on hours of operation, time limits on validity of special use permit, or any other measures deemed necessary to minimize negative impacts on nearby uses and traffic operations along public streets.
 - (10) Prior to issuance of a Special Land Use Permit, the applicant shall provide evidence of public liability insurance and property damage insurance to cover potential liability for death or injury to persons, or damage to property, which may result from the conduct of the activity.
- (q) Commercial Outdoor Recreation Establishments (excluding golf related uses) shall comply with the following requirements:
- (1) Such uses shall include, but need not be limited to, the following: recreational fields, rinks or courts, including football, softball, soccer, tennis, basketball, ice skating, and similar activities, swimming pools open to the general public or operated by a private non-profit organization, archery and shooting ranges, animal racing, go-cart, automobile or motorcycle tracks, music concert pavilions and band shells, amusement parks and uses accessory to the above uses, such as refreshment stands, retail shops selling items related to the above uses, maintenance buildings, office for management functions, spectator seating and service areas, including locker rooms and rest rooms.
 - (2) The site shall be adequate to accommodate the intended use(s), parking and adequate buffer areas without significant impact on nearby properties in terms of noise, traffic, lighting glare, views, odors, trespassing, dust or blowing debris, as determined by the Planning Commission. The applicant shall provide documentation the site size is adequate using national facility standards.
 - (3) The site shall be located on a paved street which is classified as a Primary Route by the Livingston County Road Commission.
 - (4) No building or spectator seating facility shall be located within one hundred (100) feet of a property line.

- (5) The site shall be periodically cleared of debris.
- (r) Golf Driving Ranges, Miniature Golf Courses shall comply with the following requirements:
 - (1) All traffic ingress and egress shall be from a Primary Road, as classified by the Livingston County Road Commission.
 - (2) Any lot line abutting a residential district shall provide a fifty (50) foot wide, landscaped buffer zone A, as defined in Section 12.02.
 - (3) A minimum twenty (20) foot wide greenbelt, as described in Section 12.02, shall be provided along any public street or highway.
 - (4) Site size shall be adequate to retain all golf balls within the site by means of a fence no more than six (6) feet high.
 - (5) The Planning Commission may restrict the hours of operation in consideration of the adjacent land uses and zoning.
- (s) Indoor commercial recreation: (bowling alleys, ice arenas, skating rinks, etc.) shall comply with the following requirements:
 - (1) The principal and accessory buildings and structures shall be not be located within one-hundred (100) feet of any residential district or permitted [residential](#) use.
 - (2) All uses shall be conducted completely within a fully enclosed building.
- (t) Animal shelters shall comply with the following requirements:
 - (1) Buildings wherein dogs are kept, dog runs, and/or exercise areas shall not be located nearer than five hundred (500) feet to a residential use or property line, two hundred (200) feet from any adjacent principle building or unit, and shall be setback one hundred and fifty (150) feet to any lot line and/or road right-of-way. Building wherein animals are kept, dog runs, cat cages, and/or exercise areas shall not be located nearer than one hundred (150) feet from any lot line and two hundred (200) feet from the road right of way and any residential zoning district.
 - ~~(2) An operations/management plan must be submitted for review.~~
 - ~~(2)~~
 - ~~(3) Adequate odor control measures shall be implemented so that odor from inside or outside the center will not be discernible outside the building.~~
 - ~~(3)~~ All shelters shall be operated in conformance with all applicable county and state regulations and operated by a licensed operator.
 - ~~(4)~~ Any dog and food waste shall be properly and lawfully disposed of to not create a litter, insect, rodent, vermin or offensive odor nuisance. Approval from the Utility Authority and Health Department shall be provided as part of the special use application.

- (54) The applicant may be required to post a financial guarantee, the amount of which to be determined by the Township board, before a permit is granted or renewed.
- (65) The application shall include a floor plan for the facility that indicates noise insulation measures.
- (76) All enclosures for breeding, rearing, shelter, or other uses in connection with harboring of animals, shall be hard surfaces and provided with proper drains for washing with water pressure.
- (87) Such facilities shall be subject to other conditions and requirements necessary to ensure against the occurrence of any possible nuisance (i.e., fencing, sound-proofing, sanitary requirements).
- (9) Applicants shall submit, at the time of special land use application, a proposed site plan and floor plan and written operating procedures including waste and noise management methods, such as those recommended by the American Boarding and Kennel Association (ABKA) or American Kennel Club (AKC). These procedures shall be designed to prevent or control animal behavior that may adversely impact surrounding uses, including loud or excessive barking. (as amended (?!/?))
- (u) Shelters and rehabilitation centers for philanthropic or non-profit institutions shall comply with the following requirements:
 - (1) The center shall have access to at least one County Primary Road, State Trunkline or roadway with a right-of-way of at least eight six (86) feet.
 - (2) The site shall not be located within five hundred (500) feet of a residential zoning district. (as amended 12/31/06)
- (v) Temporary outdoor sales and Temporary outdoor events may be permitted on the same lot with a developed permitted use and shall comply with the following conditions:
 - (1) The total of all such uses on any given lot shall be allowed for a combined total of a maximum of twenty-eight (28) days during a calendar year.
 - (2) There shall be no outside vendors. Merchandise sold or service provided shall be that of the regular use in the principal building of the site. Proof of tenant occupancy in the principal building shall be provided to the satisfaction of the Zoning Administrator.
 - (3) All such uses shall be contained on-site and shall not have an adverse impact on adjacent properties or the surrounding neighborhood. Parking shall be provided on-site and shall not exceed parking and/or occupancy loads.
 - (4) Such uses shall not occupy or utilize the street right-of-way nor block traffic movement on the street, and shall not interfere with pedestrian's use of the sidewalks. Available sanitation facilities must be adequate to meet the requirements of the expected attendance and any temporary facilities shall be approved for use by the Livingston County Health Department. Traffic and dust control measures shall be

utilized as deemed necessary by the Zoning Administrator throughout the duration of the sale or event.

- (5) In addition to being subject to Genoa Township Ordinances, such uses shall be subject to all other applicable law, rules, and regulations including but not limited to the Livingston County Sanitary Code, the regulations of the Livingston County Health Department, Building Department, Road Commission, Drain Commission, Sheriff's Department and the Brighton Area Fire Authority, as applicable. The applicant shall allow for inspections by Township officials, the Brighton Area Fire Authority and all other public agencies having jurisdiction.
- (6) The applicant shall submit and obtain the Zoning Administrator's approval of a Land Use Permit for each Temporary outdoor sale and/or Temporary outdoor event prior to each such use. The application for Land Use Permit shall include a site plan illustrating location of structures and sale/event areas (with setbacks), sufficient off-street parking, means of ingress/egress, location of utilities, fire lanes, proposed and existing lighting and signs prior to initiation of such activity.
- (7) The use of any sound system shall be controlled so as not to become a nuisance to adjacent properties and shall comply with the Township Noise Ordinance.
- (8) Failure to comply with any of the standards within this section shall constitute grounds for immediate termination of the Land Use Permit for the temporary sale and/or event.
- (9) The restrictions set forth herein shall be enforceable except to the extent pre-empted by state law.

~~(as amended 6/2/14)~~

(w) Pet Daycare Centers (as differentiated from Kennels, which commonly have outdoor runs and are primarily operated for purposes of sheltering, boarding, impounding, keeping or breeding of animals with minimal social interaction among animals), including retail sale of dog care products, grooming, overnight boarding, and outdoor play area, provided the following conditions are met:

- (1) Hours of operation open to the public are limited to twelve (12) hours per day and shall not extend later than 7 p.m.
- (2) There shall not be individual, outdoor dog runs.
- (3) Walls, partitions and floor/ceilings assemblies separating dog daycare facilities from adjacent uses shall adequately soundproofed with a sound transmission class over sixty (60) and shall be constructed so that there will be no emission of noise detrimental to surrounding properties.
- (4) The number of dogs cared for at any one time shall not exceed one (1) dog per one hundred (100) square feet of usable floor area, which is subject to discretionary review by the Planning Commission.

- (5) Revenues for overnight boarding of dogs may not comprise more than sixty percent (60%) of the total revenue of the dog daycare center. The length of stay for boarded animals shall be limited to seven (7) consecutive days, and no outdoor boarding shall be permitted.
- (6) Adequate odor control measures shall be implemented so that odor from inside or outside the center will not be discernible outside the building or unit.
- (7) Any outdoor play area shall be attached to the center and shall be setback a minimum of three hundred (300) feet from the nearest residential use.
- (8) The outdoor play area for the dogs shall be surrounded with a masonry wall or other material that is aesthetically compatible in terms of material, color and finish with the principal and surrounding buildings. Said wall shall be at least seven (7) feet in height and maintained in good condition at all times. Failure to maintain the wall in its original condition shall be considered a violation of the site plan approval.
- (9) Any outdoor play area is for periodic use only, and dogs shall not be allowed to access the outdoor play area on their own. Not more than ten (10) dogs shall be permitted in the outdoor play area at any one time. While in the outdoor play area, dogs shall be escorted and supervised by a dog handler who will be responsible for preventing or quickly suppressing any dog behavior that may adversely impact surrounding uses, including loud or excessive barking.
- (10) The outdoor play area must have special canine grass designed for the purpose of covering outdoor areas for dogs, with an appropriate drainage system to control surface run-off. The outdoor play area must be maintained in a clean, sanitary manner, and adequate odor control measures shall be implemented so that odor will not be discernible beyond the area. Solid dog waste in the outdoor play area must be promptly picked up.
- (11) Any dog and food waste shall be properly and lawfully disposed of to not create a litter, insect, rodent, vermin or offensive odor nuisance. Approval from the Utility Authority and Health Department shall be provided as part of the special use application.
- (12) The applicant shall demonstrate the proposed drop-off/pick-up pattern and shall provide one (1) parking space for each staff member and one (1) space for each 5 animals permitted at the daycare.
- (13) Applicants shall submit, at the time of special land use application, a proposed site plan and floor plan and written operating procedures including waste and noise management methods, such as those recommended by the American Boarding and Kennel Association (ABKA) or American Kennel Club (AKC). These procedures shall be followed for the duration of the business and shall be designed to prevent or control animal behavior that may adversely impact surrounding uses, including loud or excessive barking.

- (x) Veterinary Clinic (as differentiated from Veterinary Hospital, which commonly has animal boarding or overnight in-patient animal care) provided the following conditions are met:

- (1) A site plan shall be provided as part of the Land Use Permit application showing a dedicated outdoor animal walk area.
- (2) Applicants shall submit, at the time of land use application, a proposed site plan and floor plan and written operating procedures including waste and noise management methods. These procedures shall be followed for the duration of the business and shall be designed to prevent or control animal behavior that may adversely impact surrounding uses, including loud or excessive barking. (as amended (??/??))

(as amended (??/??))

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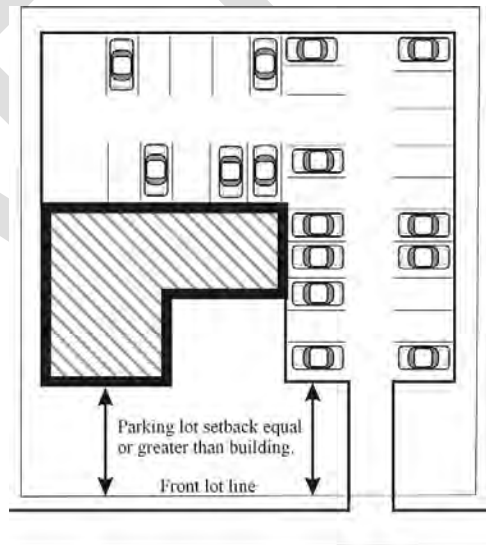
Sec. 7.03 DIMENSIONAL STANDARDS

7.03.01 **Commercial Schedule of Area and Bulk Requirements.** All lots, buildings, structures and parking areas shall comply with the area height and bulk requirements in Table 7.03.01:

Table 7.03.01 DIMENSIONAL STANDARDS – COMMERCIAL DISTRICTS									
District	Min. Lot Area ^(a)	Min. Lot Width ^{(a)(b)(c)}	Minimum Yard Setbacks – ^{(d)(e)(f)}				Parking Lot	Max. Lot Coverage ^(o)	Max. Height ^(k)
			Front Yard ^{(g)(h)(i)(j)}	Side Yard ^(l)	Rear Yard ^(m)				
Neighborhood Service District (NSD)	1 Acre	100 ft.	70 ft. 35 ft. if no parking in the front yard	10 ft. each side	40 ft.	10 ft.	Governed by setbacks	20 ft. one story	
Office Service District (OSD)	1 Acre	100 ft.	70 ft. 35 ft. if no parking in the front yard	20 ft. each side	40 ft.	20 ft. 10 ft. side and rear	35% bldg. 60% impervious surface	35 ft. 2.5 stories	
General Commercial District (GCD)	1 Acre	150 ft.	70 ft. 35 ft. if no parking in the front yard	15 ft. each side	50 ft.	20 ft. 10 ft. side and rear	35% bldg 75% impervious surface	35 ft. 2 stories	
Regional Commercial District (RCD)	2 Acres	200 ft. ⁽ⁿ⁾	70 ft. 35 ft. if no parking in the front yard	20 ft. each side	50 ft.	20 ft. 10 ft. side and rear	35% bldg 75% impervious surface	45 ft. 3 stories	
Planned Unit Development (PUD)	See Article 10, Planned Unit Development Districts. Setbacks from perimeter of property shall be consistent with the standards of the underlying zoning district. Internal setbacks shall be determined during the PUD review process.								

7.03.02 Footnotes to Table 7.03.01:

- (a) **Lot Area with Shared Access:** The lot area and width may be reduced to 20,000 square feet and 80 foot lot width for sites that have shared driveways and service drive connections with adjacent lots/uses and all access management requirements of Section 15.06 are complied with.
- (b) **Lot Width:** Minimum lot width is measured at the required front yard setback distance from right-of-way. Measurement for flag shaped lots shall be at the point where the narrow access strip joins the larger section of the lot, as determined by the Zoning Administrator.
- (c) **Depth to Width Ratio:** Lot depth shall be no greater than four (4) times the width.
- (d) **Landscape Buffers:** See landscape buffer zone and screening requirement in section 12.02 based on adjacent zoning.
- (e) **Natural Features Setback:** All structures shall be setback a minimum of twenty five (25) feet from an MDEQ regulated wetland and seventy (70) feet from the shoreline of a lake.
- (f) **Projections into Yards:** Projections into required yards are permitted for certain architectural features as described in section 11.01.04.
- (g) **Front Yard Setback Reduction:** The reduced front yard setback is allowed for sites that do not have parking in the front yard. The parking lot, including parking spaces and drive aisles must be located in the rear yard or the side yard where the parking lot is located no closer to the front lot line than the front wall of the building, with the exception of driveways providing access from the road and service drives or frontage roads providing cross-access to adjacent lots. (as amended 12/31/06)
- (h) **Use of Front Yard:** Except for necessary drives, walks and approved signs, or as authorized by Special Land Use, the required front yard shall not be used for loading, storage or accessory structures. (as amended 3/5/10)
- (i) **Landscape Greenbelt:** The front yard shall include a landscaped greenbelt as required by section 12.02.
- (j) **Detention Ponds:** Detention ponds shall be prohibited in the front yard, unless the Township Engineer determines there is no reasonable alternative due to existing topography and natural drainage problems.
- (k) **Exceptions to Height Limitations:** See exceptions to maximum height required for mechanical equipment; cornices; spires; cupolas; for institutional uses etc. in section 11.01.05.
- (l) **Side Yard Setback:** Where the building is connected to a building on an adjoining lot by an approved fire wall, the required side yard on the common side may be reduced to zero (0) feet.
- (m) **Rear Yard Setback:** The setback may be reduced to not less than twenty-five (25) feet by the Planning Commission if a wall or landscaped berm is provided to screen loading



areas, and the rear of the building has the same architectural character and materials as the front and side.

- (n) **Access Spacing:** Access points shall be at least 600 feet from a signalized intersection or expressway interchange ramps provided the spacing may be modified by the Township, with input from road agency staff, to minimize conflicts with traffic operations at intersections or existing access points.
- (o) **Impervious surface:** Impervious surface shall be determined as the total ground square footage of the building footprint plus the total of all paved surfaces.

Sec. 7.04 ADDITIONAL SITE DEVELOPMENT STANDARDS

7.04.01 All Permitted and Special Land Uses shall comply with all applicable provisions of this Zoning Ordinance including those listed below.

- (a) Article 11, General Provisions, shall be adhered to for general dimensional standards, calculation of (buildable) lot area, access to dedicated streets, projections into yards, supplementary height regulations, principal building, structure or use, determination of "similar uses", changes in tenancy/ownership, voting place, temporary buildings and structures, open storage, parking and repair of vehicles, essential public services, wireless communication facilities, fences, walls and screens, reception antennas and towers and wind energy conversion systems. (as amended 3/5/10)
- (b) Article 12, Site Development Regulations, shall be adhered to for commercial, office and industrial architecture, greenbelts, landscape materials and screening, exterior lighting, waste receptacles and non-motorized pathways and sidewalks.
- (c) Article 13, Environmental Protection Regulations, shall be adhered to for, clearing of woodlands and earth changes prior to development, wetland protection standards, floor drains, stormwater management and performance standards. (as amended 12/31/06)
- (d) Article 14, Parking and Loading-Unloading Standards, shall be adhered to for all non-single family residential parking.
- (e) Article 15, Access Management and Private Road Standards, shall be adhered to for all commercial driveways, shared driveways and private roads.
- (f) Article 16, Sign Standards, shall be adhered to for all signage.
- (g) Article 18, Site Plan Review and Impact Statement, shall be adhered to for the submission, review and approval of site plans for non-single family residential uses.
- (h) Article 19, Special Land Uses, shall be adhered to for the submission, review and approval of all special land uses.
- (i) Article 20, Land Divisions, shall be adhered to for all applications to divide land. Where a subdivision plat is required, the requirements of the Township Subdivision Control Ordinance shall be followed.

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
OCTOBER 10, 2017
6:30 P.M.
MINUTES**

CALL TO ORDER: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present were Chairman Doug Brown, Eric Rauch, John McManus, Chris Grajek, Jill Rickard and Barbara Figurski. Absent was James Mortensen. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Gary Markstrom from Tetra Tech, and an audience of 40.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

APPROVAL OF AGENDA:

Moved by McManus, seconded by Figurski, to approve the agenda as presented.

CALL TO THE PUBLIC: The call to the public was made at 6:31 pm with no response.

OPEN PUBLIC HEARING #1... Review of a special use application, site plan application, environmental impact assessment, and site plan for a proposed K-12 Livingston Christian School to be located within the Brighton Church of the Nazarene at 7669 Brighton Road, Brighton. The request is petitioned by Livingston Christian Schools.

Planning Commission disposition of petition:

- A. Recommendation of Special Use Application
- B. Recommendation of Environmental Impact Assessment
- C. Recommendation of Site Plan

Commissioner Rauch asked to be excused from the discussion and motion as his children attend Brighton Christian Schools.

Moved by Figurski, seconded Grajek, to excuse Commissioner. **The motion carried unanimously.**

Brett LaVanway of Boss Engineering, Steven Russo of Fleis & VandenBrink Engineering, Inc., and Roger Wiegand of Livingston Christian Schools were present.

Mr. Lavanway stated that LCS is requesting to occupy Brighton Church of the Nazarene for a K – 12 Christian School. They have included their site plan, impact assessment,

and traffic impact study. They will have a maximum of 200 students and the school is in session Monday through Friday.

They have received the review letters and are working with the church with regard to the parking. There may be some minor adjustments made to the plan. They anticipate this being reconciled in approximately one week. The concerns are that the church would like to give up the least amount of parking spaces as possible as well as the number of ADA spaces. The school will need approximately 197 spaces and the church currently has 211 spaces available.

They believe they have complied with all of the other consultants' requirements.

Chairman Brown stated there is nothing in the packet showing that the church is in agreement with the proposals being made by LCS. Additionally, he would like to have the assurance that the two organizations agree to coordinate their events so that they do not overlap. This is very important.

Mr. Borden was not present this evening. Ms. VanMarter reviewed his letter dated October 5, 2017.

The Planner has found that this request does meet the special land use criteria. She noted that the school is proposing to stagger their start and end times, which will help with the traffic impact on the neighborhood.

Also, the driving school that currently operates at the church will no longer be there.

Additionally, the school and the church have different peak times; however, the Township would like more information ensuring that the church and the school are communicating and coordinate the days and times of their special events so that they do not overlap. This should be stated in the Impact Assessment.

The impacts are increased traffic and increased use of the site in general. There will now be school activities in addition to the current church activities.

The revised plan notes a slight increase in building coverage; however, there are no modifications to the building proposed. This should be corrected.

Ms. VanMarter stated that the site plan notes 180 parking spaces; however, the evening Mr. LaVanway stated there are 197. The correct number of parking will need to be provided. The church needs to confirm that they approve with this much loss of parking as well as the physical changes that are being proposed for the site.

The plan shows an additional sign at the front of the site on Brighton Road; however there are no details. The applicant must obtain approval and a permit for any signs.

She reviewed the proposed drop-off and pick-up circulation plan for the site as well as other proposed structural changes for the parking lot. If the student count exceeds 200, then the driveway closest to the building where it narrows to two lanes would need to be widened. The driveway at Brighton Road is already three lanes. Ms. VanMarter suggested a tracking mechanism be put in place so that the Township is aware if the

population gets close to the 200 students, as there will need to be significant changes to the site.

Mr. Wiegand stated that the current student population is 147. He believes that the enrollment will reach 200 within the next five years. The second week of the school year, they report their population to the State. This can also be reported to the Township.

Commissioner Rickard noted that the playground seems small. Mr. Wiegand stated that they have not discussed the playground at this time.

Gary Markstrom reviewed his letter of October 4, 2017. His only outstanding issue is regarding the traffic study. The traffic counts are from May of 2015 and he is recommending that updated counts be obtained. He does not expect it to change dramatically and impact the study they have presented; however, it would be good information to have. He added that the study was done at the time the I-96 and US-23 interchange was under construction so the traffic pattern may have been different in this area at that time.

Mr. Russo stated he has spoken to the Road Commission and their representative believed that their numbers from 2015 would be fairly accurate for today.

Commissioner Rickert stated that the amount of traffic on Brighton Road is very high in the morning. She would like to see an updated traffic study.

Commissioner Grajek has concerns about traffic making a left-hand turn out of the site. Mr. Russo stated that they estimated the number of left turns based on data provided by Livingston Christian Schools. When they performed the calculations for the additional student enrollment, they followed a similar formula. Mr. Markstrom is comfortable with the way this has been calculated.

Weigand stated that they will not increase their enrollment to 200 until they have received approval for a revised site plan and the driveway has been widened as discussed by Ms. VanMarter.

Mr. Markstrom noted that Page 3 of the site plan has a narrative that includes how they will educate the parents and students regarding the traffic flow on the site as it relates to drop off and pick up.

Commissioner Grajek referred to Chairman Brown's earlier point. He would like to see written documentation that the church is in agreement with the changes that the school is proposing on their site. He would like to have that before this item moves any further. He suggested tabling this until that document is received.

Mr. Weigand stated that he can obtain all of that information in time for next month's Planning Commission meeting.

Chairman Brown stated that the Brighton Area Fire Department's letter dated September 28, 2017 notes that the applicant has met all of their outstanding requirements.

Chairman Brown reviewed the Livingston County Road Commission's letter dated September 28, 2017. They are requiring a driveway permit is required due to a change in use on this site.

Chairman Brown read a letter from Pastor Walls stating that the AK Services driving school has been notified that they have 3-4 months to cease their operations on their site

Commissioner McManus questioned if the issue of turning right out of the site and then turning around on the neighboring residential streets should be addressed with the parents. This could occur when parents are unable to make a left out of the site due to the heavy traffic. Commissioner Grajek agrees.

Chairman Brown noted that the lease agreement between the church and the school is three years old and should be updated.

Commissioner Figurski would like to have the Impact Assessment include that the church and the school will coordinate their events so they do not overlap. She would also like, "There will be an increase in noise and traffic in the a.m. hours" added.

The Call to the Public was made at 7:19 pm.

Chairman Brown stated a letter of support has been received from Brighton First United Methodist Church.

An e-mail Skip Blunt of 7426 Pine Vista Drive was received. He is concerned with the increased traffic due to the addition of another school in the area. He also stated that the addition of more teenage drivers will increase the propensity for accidents.

Mr. Jay Johnson of 4931 Aljoann stated his biggest concern is the traffic study. It was done on May 15, 2015. At that time, the seniors were out of school so the count may be off. He understands that staggering the start times is a way to help with the traffic; however, it then makes the length of time there is a lot of traffic longer for the residents. He also noted that the high school has special events and there could be occasions where they have events at the same time as the Livingston Christian School.

There are currently 600 parking permits for the high school. Also, they have recently changed the flow of the parking lot. Traffic is not able to enter off of Seventh Street and are now required to enter at the light on Brighton Road. He is also concerned that cars will stand on his street during the pick-up times. He suggests a new traffic study be done.

Mr. Markstrom stated that there is ample room on the site for the car stacking for drop off and pick up and he believes it will function as it is supposed to.

Scott McCormick, Steve Warden, and Larry Webb live in the three houses on the dirty road on the west side of the parking lot. Mr. McCormick stated that he is concerned his property values will go down. The view from his front yard is now the gravel parking lot. They would like the same type of fence put on their side of the parking lot that was put on the east side. He will now be seeing 200 cars parking in the parking lot.

Mr. Webb stated that in 2013 there were items required to be done by the church had were never resolved, or resolved later than was expected. He stated that everything discussed this evening is ambiguous; the traffic study is 2 years old, the lease is 3 years old, and there is no signed agreement by the church.

Chairman Brown noted that there were issues with the church regarding the landscaping; however, they have done some landscaping and a fence has been installed. Additional landscaping issues are currently being discussed. He was not aware of the views that the three residents were experiencing.

Commissioner Rickert asked if buffer zones can be addressed during this site plan approval. Ms. VanMarter stated yes if the gravel area that Mr. McCormick was referring to is going to be used by the school. There can be additional landscaping requirements put in place.

Mr. Rob Stogdill of 4793 Aljoann agrees that if events are overlapped there will be a lot of traffic and the cars will be parking on his street, which will affect his property values and increase noise.

Commissioner McManus ask how many driving students there are currently at the school. Mr. Lavanway stated that based on an enrollment of 200, they have allotted 30 spaces for students. Today there are seven students who drive.

Commissioner Grajek asked about snow plowing and where will the snow be stored. Mr. LaVanway stated that the church will be responsible for the plowing of the parking lot. They can designate on their site plan where the snow will be stored.

Ms. Virginia Wennerburg of 7230 Pine Vista Drive would like to know the number of licensed enrollment. Mr. Weigand stated the Fire Marshall stated the building capacity is 370; however, they are here this evening to discuss a maximum student enrollment of 200. She believes the traffic planning should be for the maximum number of students allowed. Chairman Brown stated the Township has put a maximum of 200 students on this plan. If their enrollment goes beyond that, they will need to come back to the Township for further approval.

Ms. Wennerberg asked if other locations have been considered and what is the goal of LCS. Mr. Weigand stated the goal is to have a Christian school and be a part of a church. She asked if other locations have been considered. Mr. Weigand stated they have had two years pursue other options and no other sites have met their needs.

Commission Grajek asked when there are 200 students, has how many faculty members will there be. There will be 20 faculty. Mr. Russo stated the traffic study was based the 20 faculty.

Ms. Norma Wilson lives in one of the three houses on the south side of Brighton Road between the high school and Pine Creek. People turning left into the church can block the left turn lane so she is unable to turn left into her driveway. Mr. Russo stated that their traffic study showed the maximum queue in the left turn lane during peak hours was three vehicles.

Ms. Jillian Mackey of 5696 Windham Lane is concerned with the cut through traffic. Pine Creek did their own traffic study and there are 1200 cars per day, including 200 from 7-8 am and 2-3 pm. This new school could increase this traffic. She would like her neighborhood to be considered in the traffic study.

Mr. McCormick noted that there is an elementary school on Bauer Road and a lot of traffic is generated from that.

Ms. Amy Hilscher of 4769 AlJoann is very concerned about the traffic. It is very difficult to exit out of their neighborhood at all times of the day. It is many times impossible to make a left out of her street. This new school will have a significant impact on traffic. She would encourage the new traffic study. Commissioner Grajek noted that they are proposing to stagger their start times. Ms. Hilscher is not sure if this will help with the traffic.

Mr. Weigand state they have done their traffic study with a student count of 200 and a conservative number for cars. They typically have three students per car. All of the kids do not leave at the same time; they filter out. Currently, they have 147 students, with 54 cars dropping off and picking up total at their Whitmore Lake location. They have many families with multiple children.

Chairman Brown stated that when this items was before the Planning Commission previously, he and Commissioner Mortensen went to the Whitmore Lake site and he agrees with what Mr. Weigand said.

Commissioner Figurski asked if they expect more people to come to the school because it will now be located in Brighton. Mr. Weigand stated, "yes".

Commissioner Grajek questioned if this is approved and school starts and then the traffic is as bad as it is being stated, can the special use be removed. Ms. VanMarter stated it can only be removed is they were openly violating a condition of approval. Then the Township would have enforcement abilities

Mr. Tammy Kay May's children attend Brighton Christian School. There were three traffic studies done over the years and they have all been consistent. The traffic impact will be negligible. She confirmed that there are seven driving students with the current enrollment. She is a mom who carpools to LCS currently, and she estimates that 50 cars are there for drop off and pick up. She can drop off and pick up in four minutes and that is a much smaller lot than the Nazarene church. With regard to the playground, they have a very small need for a playground. She would be willing to work with the parents on the education of the drop off and pick up traffic flow as she is a safety liaison for a Fortune 500 company. She hopes that the request is approved.

The call to the public was closed at 8:12 pm.

Ms. VanMarter stated that a lot of kids go to the skate park after school lets out in the afternoon. She would like to know if this traffic would coincide with the school end time of LCS. Pastor Walls stated that the skate park opens at 4 pm.

Commissioner Figurski has concerns with the noise and commotion at the school, the increased traffic on Brighton Road. Aljoann and the Pine Creek subdivision were not included in the traffic study.

Moved by Grajek, seconded by McManus, to table Agenda Item #1 until the November 13, 2017 Planning Commission meeting in order to allow the applicant to provide the following:

- An updated lease agreement to include written documentation of approval by the Naz for the improvements on the site.
- A reconfigured site plan to include the correct number of parking spaces as negotiated with the Naz.
- An updated traffic study.
- The Impact Assessment noting that the organization will coordinate their activities so they do not overlap.
- Health Department approval of the septic system for the increased student population.

The motion carried unanimously.

OPEN PUBLIC HEARING #2... Review of a site plan application, environmental impact assessment and site plan for proposed 123-bed student housing apartment building located on the south side of Grand River Avenue and the east side of Grand Oaks Drive, at 38750 Cleary Drive, Howell. The property is located in the Cleary University Planned Unit Development. The request is petitioned by Cleary University.

Planning Commission Recommendation of Petition:

- A. Recommendation of Environmental Impact Assessment.
- B. Recommendation of Site Plan.

Commissioner Grajek stated that his daughter works indirectly for Cleary University. She is an athletic trainer for a vendor contracted by the university. He does not have a fiduciary interest in Cleary University.

Brent LaVanway of Boss Engineering; Dave Howard, the Facility Director for Cleary University; and Alan Price of University Housing Solutions were present.

Mr. LaVanway stated they would like approval to put in the Student Housing Building #2. They received approval for the first housing building a few years ago and they are in need of a second one. It will include a parking lot and a loop road, which will meet the Fire Department's requirement for access. They will be extending the water main loop for fire suppression purposes. It is in compliance with the Cleary University PUD Agreement. They are in concurrence with the recommendations of the consultants.

Mr. Price presented building samples. They will be using the same materials as the existing building. The footprint is a mirror image of Building #1. It will have double-

occupancy units sharing one common area, a bathroom, and a kitchen. Building #1 has 86 beds and this building will have 123 beds.

Ms. VanMarter reviewed Mr. Borden's letter dated October 5, 2017.

This building, similar to the last building, exceeds the maximum allowed for block and EFIS. They are recommending upgrades to the building materials or improvements to the landscape buffer.

There are minor inconsistencies between the landscape plan and the plant list and these must be corrected.

Mr. Markstrom reviewed his letter of September 28, 2017. The applicant has addressed all of his previous concerns. He noted he is currently reviewing plans for an athletic field for Cleary University. Because of this, he would like to see a stormwater drainage master plan. The athletic field will have no effect on the plan being discussed this evening, but he would like to see it as part of the submittal for the athletic field.

Chairman Brown noted that that letter from the Brighton Area Fire Authority dated September 28, 2017 states the applicant has met all of the requirements from their last review letter.

Commissioner Figurski noted that throughout the Impact Assessment the number of beds is shown as 129 so it should be changed to 123. She would like the following added to Item #C: "The Project is not anticipated to adversely impact the natural features".

Commissioner Rauch is concerned that the trees in the heavily wooded area that is being used for runoff are being negatively affected. Mr. LeVanway stated that the Drain Commissioner has noted that the water flowing into this area is gone within 48 hours after a typical storm. This is the natural flow of the water on this site. They are not anticipating adverse effects on the existing vegetation.

Commissioner Rickard asked if a wetland study was done on this site. Mr. LeVanway stated they have evaluated it and it is not regulated, and it is not contiguous to other wetlands.

Commissioner Rickard noted that there is no curbing shown on the parking lot. Mr. LeVanway stated they did not want to install the curb in the case they will be extending the parking and then it would have to be taken out. She would like to see it curbed. Commission Rauch agrees.

Call to the public was made at 8:52 pm with no response.

Moved by Figurski, seconded by Grajek, to recommend to the Township Board approval of the Environmental Impact Assessment for a 123-bed student housing apartment building petitioned by Cleary University with the following conditions:

- Page 3, Item C shall include "The Project is not anticipated to adversely impact the natural features".
- The total number of beds should state 123 and not 129.

- There shall be a maintenance scheduled and plan for the storm water pretreatment unit #CDS100.

The motion carried unanimously.

Moved by McManus, seconded by Rauch, to recommend to the Township Board approval of the Site Plan dated September 18, 2017 for a 123-bed student housing apartment building petitioned by Cleary University with the following conditions:

- The landscape requirements outlined in the LSL letter dated October 5, 2017 shall be met.
- The building materials are acceptable to the Planning Commission and are identical to that of Building #1, which was previously approved.
- Approval of the Impact Assessment by the Township Board.
- The applicant shall comply with the Brighton Area Fire Authority's letter dated September 28, 2017.
- The sample building materials shall become the property of the Township.
- Curbing shall be installed to the drive aisle of the parking lot.

The motion carried unanimously.

Administrative Business:

- **Staff Report**

Ms. VanMarter stated there will be a November Planning Commission meeting.

- Approval of the September 11, 2017 Planning Commission meeting minutes

Moved by Commissioner Figurski, seconded by Commissioner McManus, to approve the minutes of the September 11, 2017 Planning Commission Meeting with the minor changes noted. **The motion carried unanimously.**

- Member Discussion

Commissioner Grajek attended the Michigan Association of Planners Conference in September and shared with the Planning Commission some of the interesting projects that were discussed. Ms. VanMarter stated that the Township Board encourages all Board Members to attend conferences, etc.

- Adjournment

Moved by Commissioner Grajek, seconded by Commissioner Rickard, to adjourn the meeting at 9:25 pm. **The motion carried unanimously.**